



# **JUNEAU INTERNATIONAL AIRPORT (JNU) CARGO HARDSTAND**

**Contract No. BE17-035/PFC 04-07-C-04-JNU**

File No. 1926

**For Bid**

**July 2016**

Technical Specifications developed from (Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports, as modified, and approved by the Federal Aviation Administration for Airport Improvement Program contracts in Alaska)

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**NOTICE INVITING BIDS - 00 0300**

**OBTAINING CONTRACT DOCUMENTS.** The Contract Documents are entitled:

**Juneau International Airport Cargo Hardstand  
Contract BE 17-035/PFC 04-07-C-04-JNU**

The Contract Documents may be obtained at the City & Borough of Juneau (CBJ) Engineering Department, 3rd Floor Marine View Center, upon payment of **\$25** (non-refundable) for each set of Contract Documents (including Technical Specifications and Drawings) or may be downloaded for free at the CBJ Engineering Department webpage at: [www.juneau.org/Engineering](http://www.juneau.org/Engineering)

**PRE-BID CONFERENCE.** Prospective Bidders are encouraged to attend a Pre-Bid conference of the proposed WORK, which will be conducted by the OWNER and ENGINEER'S, at **10:00 a.m. on July 21, 2016, in the Alaska Room at the Airport Terminal, 1873 Shell Simmons Dr., Juneau, Alaska.** The object of the conference is to acquaint Bidders with the bid documents and site conditions. Conference call capability will be available for the Pre-Bid meeting. Proposers intending to participate via conference call shall notify Tina Brown, Contract Specialist in the CBJ Engineering Contracts Division, at (907) 586-0878, or [Contracts@juneau.org](mailto:Contracts@juneau.org) by 4:30 p.m., July 20, 2016.

**DESCRIPTION OF WORK.** This Work will include the following major elements: remove approximately 1080 square yards of existing asphalt pavement; place, shape, and compact approximately 740 tons of crushed aggregate base course; construct approximately 220 cubic yards of 10" and 14" thick reinforced cement concrete slabs with transitions; construct asphalt pavement surrounding the concrete slabs; remove existing striping; install and remove temporary striping; install final striping. All work will take place within an active portion of the airfield. Special construction sequencing and safety procedures are required as more fully detailed in the project drawings and specifications.

**COMPLETION OF WORK.**

<u>Work Description</u>	<u>Completion Date</u>
Paving Completion	October 1, 2016
Final Completion	30 Days following Paving Completion

**DEADLINE FOR BIDS:** Sealed bids must be received by the Purchasing Division ***prior to 2:00 p.m., Alaska Time on August 4, 2016,*** 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

**NOTICE INVITING BIDS - 00 0300**

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

<b>IMPORTANT NOTICE TO BIDDER</b>		
<b>To submit your Bid:</b>		
1. Print your company name and address on the upper left corner of your envelope.		
2. <b>Complete this label and place it on the lower left corner of your envelope.</b>		
<b>S E A L E D</b>	<b>BID NUMBER:</b>	<b>B I D</b>
	<b>BE17-035/PFC 04-07-C-04-JNU</b>	
	<b>SUBJECT:</b>	
	<b>Juneau International Airport Cargo Hardstand</b>	
	<b>DEADLINE DATE:</b>	
	<hr/>	
	<b>PRIOR TO 2:00PM ALASKA TIME</b>	

**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 Juneau International Airport, 1873 Shell Simmons Drive, Juneau, Alaska.

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

Greg Smith, Contract Administrator  
CBJ Engineering Department, 3<sup>rd</sup> Floor, Marine View Center  
greg.smith@juneau.org  
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 may be awarded anytime during the 90 Days.

**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.

**NOTICE INVITING BIDS - 00 0300**

**OWNER: City and Borough of Juneau**

By:   
Greg Smith, Contract Administrator

7-14-2016  
Date

**END OF SECTION**

## INSTRUCTIONS TO BIDDERS – 00 2113

**1.0 DEFINITIONS.** Terms used in these Instructions to Bidders and the Notice Inviting Bids have the meanings assigned to them in the General Conditions, 007000. 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 plan holders. Hard copies are available upon request. The Owner will make all reasonable attempts to ensure that all plan holders 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 RESPONSIBILITY OF BIDDERS.** Only responsive bids from responsible Bidders will be considered. A bid submitted by a Bidder determined to be not responsible may be rejected. The Owner may find a bidder to be not responsible for any one of the following reasons, but is not limited in its responsibility analysis to the following factors:

A. Failure to submit "evidence of competency" and "evidence of financial responsibility" to the Owner at the time of bid opening, as described in 004310.

B. Evidence of bid rigging or collusion;

C. Fraud or dishonesty in the performance of previous contracts;

D. Record of integrity;

E. More than one bid for the same work from an individual, firm, or corporation under the same or different name;

F. Unsatisfactory performance on previous or current contracts;



## INSTRUCTIONS TO BIDDERS – 00 2113

- G. Failure to pay, or satisfactorily settle, all bills due for labor and material on previous contracts;
- H. Uncompleted work that, in the judgment of the Owner, might hinder or prevent the bidder's prompt completion of additional work, if awarded;
- I. Failure to reimburse the Owner for monies owed on any previous contracts;
- J. Default under previous contracts;
- K. Failure to comply with any qualification requirements of the Owner; 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;
- L. Engaging in any activity that constitutes a cause for debarment or suspension under the CBJ Procurement Code 53.50 or submitting a bid during a period of debarment;
- M. Lack of skill, ability, financial resources, or equipment required to perform the contract;
- N. Lack of legal capacity to contract.
- O. Bidders must be registered as required by law and in good standing for all amounts owed to the Owner per Paragraph 19.0 of this Section.
- P. Failure to submit a complete SubContractor Report as required in section 005100 – SubContractor Report.

Nothing contained in this section deprives the Owner of its discretion in determining the lowest responsible Bidder. 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 that 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.

## INSTRUCTIONS TO BIDDERS – 00 2113

- 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 Unit Price 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 Paragraph 13.0 of this section.
- J. If all Bidding Forms are not submitted at time of Bid.

**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. This includes, but is not limited to :
  - 1. Visiting the site to become familiar with and to satisfy the Bidder as to the local and specific conditions that may affect cost, progress, or performance of the Work,
  - 2. Considering federal, state and local laws and regulations that may affect cost, progress, or performance of the Work,
  - 3. Studying and carefully correlating the Bidder's observations with the Contract Documents, and other related data; and
  - 4. Notifying the Owner of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.
- B. To make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data that pertain to the physical conditions (surface, subsurface, and underground utilities) at or contiguous to the site or otherwise that may affect cost, progress, or performance of the Work and that 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.
- C. To request access to the project site for purposes of obtaining additional information as described above at least ten days in advance of the advertised deadline for bids. The Owner will provide access and security escort to the Bidder, who shall pay for all costs associated with such escort. The Bidder's investigations shall be limited to actions that do not require permits or authorizations from the Federal Aviation Administration or similar agencies.

## INSTRUCTIONS TO BIDDERS – 00 2113

The submission of a bid shall be prima facie evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the Work and as to the requirements of the contract documents. The submission of a bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of this section, "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.

### 7.0 BIDDING FORMS

- A. The Bid (004113), Bid Schedule (004114), Bid Security (004313), and other documents required at the time of bid submission shall be made on forms provided in the yellow bidding packet, or on legible and complete copies thereof. The specific forms and documents required for bidding this project are described in the bidding checklist (004100), and included in Bid Form (004113).
- B. All blanks on the Bid (004113), Bid Schedule (004114), Bid Security (004313), and other documents required at the time of bid submission must be signed in ink with all names legibly printed or typed below the signature.
- 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 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.
- F. The address to which communications regarding the bid are to be directed must be shown.

**8.0 SUBSTITUTE OR "OR-EQUAL" ITEMS.** Requests for substitution or consideration of "or equal" items is not allowed during the bid period. The procedure for the submittal of substitute or "or-equal" products during execution of the Work is specified in the technical specifications.

**9.0 SUBMISSION OF BIDS.** The bid shall be delivered by the time and to the place stipulated in Section 000300 - 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 000300 – Notice Inviting Bids. The bid security shall be enclosed in the same envelope with the bid.

## INSTRUCTIONS TO BIDDERS – 00 2113

**10.0 BID SECURITY, BONDS, AND INSURANCE.** Each bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond (004313) 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 bid items, if any, that total 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.

**11.0 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.

**12.0 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 pay 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.

### **13.0 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 (00 4115)** 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.

## INSTRUCTIONS TO BIDDERS – 00 2113

**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.

**14.0 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.

### 15.0 AWARD OF CONTRACT.

- A. Award of a contract, if it is awarded, 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 Additive Alternates (when used) in order of priority as listed on the Bid and within the limits of available funding.

### 16.0 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 supplied in these contract documents, collect insurance, and shall furnish all certificates and bonds required by the Contract Documents within 10 calendar days from the date of the Notice of Intent to Award letter.

## INSTRUCTIONS TO BIDDERS – 00 2113

- 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.

**17.0 LIQUIDATED DAMAGES.** Provisions for liquidated damages, if any, are set forth in the Agreement.

### **18.0 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.

**19.0 CONTRACTOR'S GOOD STANDING WITH CBJ FINANCE DEPARTMENT:** Contractors must be in good standing with the CBJ prior to award, and prior to any contract renewals, and in any event no later than **seven business days** following notification by the CBJ of intent to award. **Good standing** means: all amounts owed to the CBJ are current and the Contractor is not delinquent with respect to any taxes, fees, assessment, or other monies due and owed the CBJ, or a Confession of Judgment has been executed and the Contractor is in compliance with the terms of any stipulation associated with the Confession of Judgment, including being current as to any installment payments due; and Contractor is current in all CBJ reporting obligations (such as sales tax registration and reporting and business personal property declarations). **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 CBJ Finance Department's Sales Tax Division at (907) 586-5265 for sales tax issues, Assessor's Office at (907)586-0930 for business personal property issues, or Collections Division at (907) 586-5268 for all other accounts.

**END OF SECTION**

**BID - 00 4113**

**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 in 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

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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 of time 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.**

**BID - 00 4113**

8. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE DEADLINE FOR BIDS. CHECK OR INITIAL THE BOX FOR EACH DOCUMENT INCLUDED IN BID. MISSING DOCUMENTS MAY DEEM THIS BID NON-RESPONSIVE:

- Bid – 00 4113 (includes addenda receipt statement)
- Completed Bid Schedule – 00 4114
- Bid Security (Bid Bond – 00 4115, or by a certified or cashier's check as stipulated in the Notice Inviting Bids – 00 0300)

9. The Bidder has read this Bid and agrees to the conditions as stated herein by signing his/her signature in the space provided below.

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

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 – 00 5100;

The apparent low Bidder who fails to submit a completed SubContractor Report - 00 5100 within the time specified in SubContractor Report - 00 5100, 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.

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 – 00 5200
- Performance Bond – 00 5300
- Payment Bond - 00 5400
- Certificates of Insurance, (CONTRACTOR) 00 7000 and 00 8000

**END OF SECTION**



**BID SCHEDULE - 00 4114**

**BASE BID**

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
G-100a	Mobilization and Demobilization	Lump Sum	All Req'd	Lump	Sum		
G-135a	Construction Surveying by the Contractor	Lump Sum	All Req'd	Lump	Sum		
G-200a	Contractor Quality Control Program	Lump Sum	All Req'd	Lump	Sum		
G-700a	Airport Flagger	Contingent Sum	All Req'd	Contingent	Sum	\$ 10,000	00
P-152a	Unclassified Excavation	Cubic Yard	660				
P-157a	Erosion, Sediment and Pollution Control Administration	Lump Sum	All Req'd	Lump	Sum		
P-157c	Temporary Erosion, Sediment and Pollution Control	Lump Sum	All Req'd	Lump	Sum		
P-157f	Withholding	Contingent Sum	All Req'd	Contingent	Sum	\$ 0	00
P-160a	Excavation of Pavement (AC)	Square Yard	1,080				
P-209b	Crushed Aggregate Base Course	Ton	740				
P-401h	Hot Mix Asphalt Typell, Class E	Ton	180				
P-501a	Portland Cement Concrete Pavement	Cubic Yard	220				
P-620c	Runway and Taxiway Painting	Lump Sum	All Req'd	Lump	Sum		
P-620e	Painted Marking Removal	Square Foot	2,000				
P-620g	Temporary Runway and Taxiway Painting	Lump Sum	All Req'd	Lump	Sum		
P-670b	Flasher Unit for Plastic Barrier	Each	80				
P-670c	Flag	Each	80				

**TOTAL BID** \_\_\_\_\_

**COMPANY NAME:** \_\_\_\_\_

**BID MODIFICATION – 00 4115**

**BID MODIFICATION FORM**

SUBMIT TO: CITY AND BOROUGH OF JUNEAU  
PURCHASING DIVISION  
FAX 907-586-4561

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.

<b>PAY ITEM NO.</b>	<b>PAY ITEM DESCRIPTION</b>	<b>MODIFICATIONS TO UNIT PRICE OR LUMP SUM (<i>indicate +/-</i>)</b>

**Base Bid Total Increase or Decrease: \$ \_\_\_\_\_**

\_\_\_\_\_  
**Name of Bidder**

\_\_\_\_\_  
**Responsible Party Signature**

\_\_\_\_\_  
**Printed Name (must be an authorized signatory for Bidder)**

**BID BOND - 00 4313**

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

**Juneau International Airport Cargo Hardstand  
Contract BE 17-035/PFC 04-07-C-04-JNU**

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**

**SUBCONTRACTOR REPORT - 00 5100**

**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***

<u>SUBCONTRACTOR</u>	<sup>1</sup> AK Contractor <u>License No.</u>	<sup>1</sup> <u>Contact Name</u>	<u>Type of</u>	<u>Contract</u>	<input type="checkbox"/> if
<u>ADDRESS</u>	<sup>2</sup> AK Business <u>License No.</u>	<sup>2</sup> <u>Phone No.</u>	<u>Work</u>	<u>Amount</u>	<u>DBE</u>
1. _____ _____ _____	1 _____ 2 _____	_____	_____	\$ _____	<input type="checkbox"/>
2. _____ _____ _____	1 _____ 2 _____	_____	_____	\$ _____	<input type="checkbox"/>
3. _____ _____ _____	1 _____ 2 _____	_____	_____	\$ _____	<input type="checkbox"/>
4. _____ _____ _____	1 _____ 2 _____	_____	_____	\$ _____	<input type="checkbox"/>

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

## **SUBCONTRACTOR REPORT – 00 5100**

- 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.
  10. is not in "Good Standing" with the Owner as required in Article 21.0 in Section 00100 – Instructions to Bidders.
- 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 may 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**

**AGREEMENT - 00 5200**

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 Contract Documents Contract BE17-035/PFC 04-07-C-04-JNU, Juneau International Airport Cargo Hardstand

This Work will include the following major elements: remove approximately 1080 square yards of existing asphalt pavement; place, shape, and compact approximately 740 tons of crushed aggregate base course; construct approximately 220 cubic yards of 10" and 14" thick reinforced cement concrete slabs with transitions; construct asphalt pavement surrounding the concrete slabs; remove existing striping; install and remove temporary striping; install final striping. All work will take place within an active portion of the airfield. Special construction sequencing and safety procedures are required as more fully detailed in the project drawings and specifications.

The Work to be paid under this contract shall include the following: Total Bid as shown in Section 00310 - Bid Schedule.

**ARTICLE 2. CONTRACT COMPLETION TIME.**

**Work Description**

**Completion Date**

Paving Completion	October 1, 2016
Final Completion	30 Days following Paving Completion

**ARTICLE 3. DATE OF AGREEMENT**

The date of this agreement will be the date of the last signature on page four 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 8 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. Accordingly, instead of requiring any such proof, the Owner and the Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall pay the Owner **\$1,500** for each Day that expires after the completion time(s) specified in Article 2 herein. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

## AGREEMENT - 00 5200

### ARTICLE 5. CONTRACT PRICE.

Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents in current funds 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: **CBJ Contract BE17-035/PFC 04-07-C-4-JNU, Juneau International Airport Cargo Hardstand**, 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 Contract 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 Architect as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 9 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 00 0005-1 to 00 0005-3, inclusive).
- Notice Inviting Bids (pages 00 0300-1 to 00 0300-3, inclusive).
- Instructions to Bidders (pages 00 2113-1 to 00 2113-7, inclusive).
- Bid (pages 00 4113-1 to 00 4113-2, inclusive).
- Bid Schedule (pages 00 4114-1, inclusive).
- Bid Modification (pages 00 4115-1, inclusive).
- Bid Bond (page 00 4313-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00 5100-1 to 00 5100-2, inclusive).
- Insurance Certificate(s).
- Performance Bond (pages 00 5300-1 to 00 5300-2, inclusive).
- Payment Bond (pages 00 5400-1 to 00 5400-2, inclusive).
- Alaska Labor Standards, Report, and Prevailing Wage Rate Determination (page 00 5830-1, inclusive).
- Employment Security Tax Form (page 00 6100-1, inclusive).
- Completion Certificate and Release Form (pages 00 6200-1, inclusive).
- General Conditions (pages 00 7000-1 to 00 7000-49, inclusive).
- Supplementary General Conditions (pages 00 8000-1 to 00 8000-2, inclusive).
- Technical Specifications as listed in the Table of Contents.
- Drawings consisting of 13 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.

**AGREEMENT - 00 5200**

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.



**AGREEMENT - 00 5200**

IN WITNESS WHEREOF, Owner and Contractor have caused this Agreement to be executed on the date listed below signed by Owner.

**OWNER:**

\_\_\_\_\_  
City and Borough of Juneau

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

By: Duncan Rorie Watt, City & Borough Manager  
(Printed Name)

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

Owner's address for giving notices:

\_\_\_\_\_  
155 South Seward Street

\_\_\_\_\_  
Juneau, Alaska 99801

\_\_\_\_\_  
907-586-0873      907-586-4530  
(Telephone)      (Fax)

**CONTRACTOR:**

\_\_\_\_\_  
(Company Name)

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

By: \_\_\_\_\_  
(Printed Name, Authority or Title)

Date: \_\_\_\_\_  
(Contractor Signature Date)

Contractor's address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Telephone)      (Fax)

\_\_\_\_\_  
(E-mail address)

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

AGREEMENT - 00 5200

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)

**AGREEMENT - 00 5200**

**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**

**PERFORMANCE BOND - 00 5300**

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", for the penal sum  
(Owner) (City and State)

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:

**Juneau International Airport Cargo Hardstand  
Contract BE17-035/PFC 04-07-C-04-JNU**

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.

**PERFORMANCE BOND - 00 5300**

**Juneau International Airport Cargo Hardstand  
Contract BE17-035/PFC 04-07-C-04-JNU**

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)

\_\_\_\_\_  
(Mailing Address)

\_\_\_\_\_  
(City, State, Zip Code)

**SURETY:**

By: \_\_\_\_\_  
(Signature of Attorney-in-Fact)

Date Issued: \_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Mailing Address)

\_\_\_\_\_  
(City, State, Zip Code)

**(Affix SURETY'S SEAL)**

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

**PAYMENT BOND - 00 5400**

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," for the  
(Owner) (City and State)

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:

**Juneau International Airport Cargo Hardstand  
Contract BE17-035/PFC 04-07-C-04-JNU**

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.

**PAYMENT BOND - 00 5400**

**Juneau International Airport Cargo Hardstand  
Contract BE17-035/PFC 04-07-C-04-JNU**

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)

\_\_\_\_\_  
(Mailing Address)

\_\_\_\_\_  
(City, State, Zip Code)

**SURETY:**

By: \_\_\_\_\_  
(Signature of Attorney-in-Fact)

Date Issued: \_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Mailing Address)

\_\_\_\_\_  
(City, State, Zip Code)

**(Affix SURETY'S SEAL)**

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



**ALASKA LABOR STANDARDS, REPORTING, AND  
PREVAILING WAGE RATE DETERMINATION – 00 5830**

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 City & Borough of Juneau, Contract Administrator 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 and  
Wage and Hour Administration  
P.O. Box 11149  
Juneau, AK 99811-1149  
907-465-4842  
<http://labor.state.ak.us/lss/home.htm>

**Greg Smith, Contract Administrator**  
City and Borough of Juneau  
155 S. Seward Street  
Juneau, AK 99801  
(907) 586-0873  
[greg.smith@juneau.org](mailto:greg.smith@juneau.org)

**END OF SECTION**

EMPLOYMENT SECURITY TAX CLEARANCE FORM – 00 6100

Employment Security Tax Clearance

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

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

From: \_\_\_\_\_

**Subject: Juneau International Airport Cargo Hardstand  
Contract BE 17-035/PFC 04-07-C-04-JNU**

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:

Greg Smith, 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**

**COMPLIANCE CERTIFICATE AND RELEASE FORM – 00 6200**

**COMPLIANCE CERTIFICATE AND RELEASE**

**PROJECT: Juneau International Airport Cargo Hardstand  
Contract BE 17-035/PFC 04-07-C-04-JNU**

The Contractor must complete and submit this to the Engineering Contract 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 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 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.*

\_\_\_\_\_  
Firm Name

Capacity: CONTRACTOR

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
Date

Return completed form to: Greg Smith, Engineering Contract 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**

# GENERAL CONDITIONS OF THE CONTRACT - 00 7000

**For the following Project:** Juneau International Airport Cargo Hardstand  
Contract BE17-035/PFC 04-07-C-04-JNU

1873 Shell Simmons Drive, Suite 200  
Juneau, Alaska 99801

**The Owner:** Juneau International Airport  
City and Borough of Juneau

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# GENERAL CONDITIONS OF THE CONTRACT - 00 7000

## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 BASIC DEFINITIONS

#### § 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Agreement between Owner and Contractor (hereinafter the Agreement), Conditions of the Contract (General and Supplementary), drawings, specifications, addenda issued prior to execution of the Contract, other documents listed in the Agreement and modifications issued after execution of the Contract. Unless specifically enumerated in the Agreement, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of addenda relating to bidding requirements).

#### § 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect/Engineer and Contractor, (2) between the Owner and a subcontractor (of any tier), (3) between the Owner and Architect/Engineer or (4) between any persons or entities other than the Owner and Contractor.

#### § 1.1.3 THE WORK

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

#### § 1.1.4 THE PROJECT

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

#### § 1.1.5 THE DRAWINGS

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

#### § 1.1.6 THE SPECIFICATIONS

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

#### § 1.1.7 THE PROJECT MANUAL

The project manual is a volume assembled for the Work that may include the bidding requirements, sample forms, Conditions of the Contract and specifications.

#### § 1.1.8 OTHER DEFINITIONS

Advisory Circulars (ACs) - Informational documents produced by the Federal Aviation Administration to guide institutions, operations, and individuals within the aviation industry, as well as the general public. Advisory Circulars are intended to be informative in nature; however, they may describe actions or advice that the FAA expects to be implemented or followed.

Agreement—The written form, executed by the Contractor and Owner, legally binding the parties and covering the Work to be performed; other documents are attached to the form and made a part thereof as provided therein.

Airport Improvement Program (AIP) - A grant-in-aid program administered by the FAA.

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

Air operations area (AOA) - For the purpose of these specifications, the term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

Airport - An area of land or water that is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas.

Architect - See Article 4.

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 bidder's offer or proposal submitted on the prescribed form setting forth the price or prices for the Work.

Change Order - See Article 7.

Construction Safety and Phasing Plan (CSPP) - The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.

Contract and Contract Documents - Written documents covering the Work to be performed. The awarded contract shall include, but is not limited to the documents identified in the Agreement between Owner and Contractor.

Contractor - See Article 3.

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 Owner's Representative's recommendation of final payment.

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 parties to sign and deliver.

Engineer - See Article 4.

FAA - The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or its duly authorized representative.

Federal Specifications - The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

Inspector - A representative of the Owner or Architect/Engineer assigned to make necessary inspections, observations, and/or tests of the Work performed or being performed, or of the materials furnished or being furnished by the Contractor, but without authorization to make changes or interpretations of the Work.

Milestone - A key or critical point in time for reference or measurement.



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Modification - (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (2) a Construction Change Directive or (3) a written order for a minor change in the Work issued by the Owner.

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.

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, and establishing the date of commencement of the Contract time.

Notice of Substantial Completion - A form signed by the Owner and the Contractor identifying that the Work is substantially complete and fixing the date of Substantial Completion.

Notice To Proceed - The written notice issued by the Owner to the Contractor authorizing the Contractor to proceed with the Work.

Orders – Guidance documents published by the FAA that outline procedures and regulatory requirements.

Owner and Owner's Representative – See Article 2.

Runway - The area on the airport prepared for the landing and takeoff of aircraft.

Sponsor - A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the Architect/Engineer, or with any of its consultants to furnish services with respect to the project.

Subcontractor - See Article 5.

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

Taxiway - For the purpose of this document, the term taxiway means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.

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.

Using Agency - The entity that will occupy or use the completed project.

Working day - A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When Work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.

# GENERAL CONDITIONS OF THE CONTRACT - 00 7000

## § 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

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

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

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

§ 1.2.4 If any portion of the Contract Documents is in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the following order of precedence:

- Permits from other agencies as may be required by law, excepting the definition of "permittee" in these permits.
- Modifications
- The Owner-Contractor Agreement;
- Addenda;
- Section 008000 – Supplementary General Conditions;
- Section 007000 – General Conditions of the Contract for Construction;
- Specifications – Embodying all other sections of the project manual;
- Drawings: as between schedules and information given on drawings, the schedules shall govern; as between written dimensions given on drawings and scaled measurements, the written dimensions shall govern; as between large-scale drawings and small-scale drawings, the larger scale shall govern;
- Performance Bond, Labor and Material Payment Bond.

All such conflicts shall be reported, in writing to the Owner's Representative. Schedules, lists, indexes, tables, inventories, written instruction, written descriptions, summaries, statements, classifications, specifications, written selections or written designations, although appearing on the drawings, are deemed to be and are specifications as defined by this section. The principles as set forth herein shall not alter the provisions of Section 1.2.1.

In the event there is a conflict between or among any provisions within one of the component parts of the Contract Documents, the higher standard or more stringent requirement shall govern.

§ 1.2.5 Any material or operation specified by reference to published specifications of a manufacturer, published Advisory Circulars, a society, an association, a code or other published standard shall comply with requirements of the listed document and project specifications; as between referenced documents, the more stringent code or performance requirements shall govern. The Contractor, if requested, shall furnish an affidavit from the manufacturer certifying that the materials or products delivered to the Project meet the requirement specified.

## § 1.3 CAPITALIZATION

§ 1.3.1 Terms written with title capitalization in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents.

## § 1.4 INTERPRETATION

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

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

### § 1.5 EXECUTION OF CONTRACT DOCUMENTS

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

### § 1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS

§ 1.6.1 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.

### § 1.7 FEDERAL CONTRACT PROVISIONS

§ 1.7.1 The Contractor shall comply with and shall incorporate into all subcontracts all applicable federal contract provisions identified in the Supplementary General Conditions throughout the bidding, award, and performance of this Contract.

## ARTICLE 2 OWNER

### § 2.1 GENERAL

§ 2.1.1 The Owner is the City and Borough of Juneau, acting through its legally constituted officials, officers, or employees and is referred to throughout the Contract Documents as if singular in number. For purposes of this project, the Owner shall be the Juneau International Airport who, through its Manager, shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. This person shall be titled the Owner's Representative and referred to in the Contract Documents as Owner or Owner's Representative.

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

§ 2.2.1 Except for permits and fees, including those required under Section 3.7 that are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.2 Owner shall apply for, and obtain, a building permit for this project and shall pay for any inspection or review fees imposed by jurisdictional authorities under the building permit. In addition, the Owner shall utilize and pay for the services of an inspector for Work requiring "special inspections" as designated by the building permit.

§ 2.2.3 Information or services required of the Owner by the Contract Documents shall be furnished by the Owner with reasonable promptness. Any other information or services relevant to the Contractor's performance of the Work under the Owner's control shall be furnished by the Owner after receipt from the Contractor of a written request for such information or services.

§ 2.2.4 Unless otherwise provided in the Contract Documents, the Owner shall furnish the Contractor, free of charge, six 11"x17" sets of conformed drawings, and six copies of the conformed project manual.

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

§ 2.3.1 If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

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

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

### § 2.5 OWNER'S RIGHT TO INSPECT RECORDS

§ 2.5.1 The Owner, or any of its duly authorized representatives, shall have the right to examine all project records and documents, including without limitation, all books, correspondence, reports, analyses, instructions, drawings, receipts, vouchers, memoranda, and all financial and accounting books, records, and data, including those related to cost or pricing for this Contract, all related Change Orders and Contract modifications, and all other documents of the Contractor and any tier Subcontractors that are directly pertinent to this specific Contract for the purpose of making an audit, examination, reproduction, excerpts, or transcriptions. All required records, as further described in Section 13.8, shall be retained by the Contractor and its Subcontractors after the Owner makes final payments and all other pending matters are closed.

## ARTICLE 3 CONTRACTOR

### § 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative as identified in writing by the Contractor.

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

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

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

§ 3.2.1 Before starting each portion of the Work, the Contractor shall carefully study and compare the various drawings and other Contract Documents relative to that portion of the Work, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, any errors, inconsistencies or omissions discovered by the Contractor shall be reported promptly to Owner as a request for information in such form as the Owner.

§ 3.2.2 Any design errors or omissions noted by the Contractor during this review shall be reported promptly to the Owner, but it is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents. The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, but any nonconformity discovered by or made known to the Contractor shall be reported promptly to the Owner. This does not release the Contractor from the obligation to perform Work in conformance with all provisions of federal, state, and local laws and regulations.

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

**§ 3.2.3** If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Owner in response to the Contractor's notices or requests for information pursuant to Sections 3.2.1 and 3.2.2, the Contractor shall make Claims as provided in Sections 4.3. If the Contractor fails to perform the obligations of Sections 3.2.1 and 3.2.2, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. The Contractor shall not be liable to the Owner or Architect/Engineer for damages resulting from errors, inconsistencies or omissions in the Contract Documents or for differences between field measurements or conditions and the Contract Documents unless the Contractor recognized such error, inconsistency, omission or difference and knowingly failed to report it to the Owner.

### **§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

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

**§ 3.3.2** The Contractor shall control its operations and the operations of its subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

- .1 When the Work requires the Contractor to conduct its operations within an AOA of the airport, the Work shall be coordinated with designated airport operations personnel (through the Owner) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Owner and until the necessary temporary marking and associated lighting is in place.
- .2 When the Work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until the satisfactory conditions are provided.

**§ 3.3.3** The Contractor shall conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction

- .1 All of the Contractor's operations shall be conducted in accordance with the project Construction Safety and Phasing Plan (CSPP) and the provisions set forth within the current version of AC 150/5370-2. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a Safety Plan Compliance Document that details how it proposes to comply with the requirements presented within the CSPP.
- .2 The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.
- .3 The Contractor is responsible for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and that they implement and maintain all necessary measures.

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

- .4 No deviation or modifications may be made to the approved CSPP unless approved in writing by the Owner.

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

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

§ 3.3.6 The Contractor shall maintain the Work during construction and until the Work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the Work is maintained in satisfactory condition at all times. In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations. All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items or within the lump sum, and the Contractor will not be paid an additional amount for such work.

### § 3.4 LABOR AND MATERIALS

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

§ 3.4.2 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Owner and in accordance with a Change Order.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Any person employed by the Contractor or by any subcontractor who, in the opinion of the Owner, does not perform the Work in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the Owner 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 Owner. 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 Owner may suspend the Work by written notice until such orders are complied with.

### § 3.5 WARRANTY

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

### § 3.6 TAXES

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

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### § 3.7 PERMITS, FEES AND NOTICES

§ 3.7.1 Except as provided under Article 2.2, and unless otherwise provided in the Contract Documents, the Contractor shall cooperate with the Owner who will apply for, obtain, and pay for necessary building permits. The Contractor shall schedule and coordinate all necessary inspections and obtain all required certificates required by the building permit, even when such building permit is obtained by the Owner.

§ 3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work. Prior to commencement of construction activities the Contractor shall post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

§ 3.7.3 It is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations. However, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Owner in writing, and necessary changes shall be accomplished by appropriate modification.

§ 3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.5 Certified Payrolls. Any Contractor or Subcontractor who performs Work on a public construction Contract for the Owner shall file a certified payroll with the Alaska Department of Labor before the second Friday of every two weeks that covers the preceding two weeks. (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).

- .1 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.
- .2 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).

§ 3.7.6 Prevailing Wage Rates. 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 Section 3.7.5.2, 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.

- .1 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's or Subcontractor's 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).
- .2 Listing Contractors 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

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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).

### § 3.8 ALLOWANCES

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

§ 3.8.2 Unless otherwise provided in the Contract Documents:

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

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner in sufficient time to avoid delay in the Work.

### § 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Superintendent must have negotiating authority for contract modifications.

### § 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

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

§ 3.10.2 The Contractor shall prepare and keep current, for the Owner's approval, a schedule of submittals that is coordinated with the Contractor's construction schedule and allows the Architect/Engineer and Owner reasonable time to review submittals.

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

### § 3.11 DOCUMENTS AND SAMPLES AT THE SITE

§ 3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the drawings, specifications, addenda, Change Orders and other modifications, in good order and marked currently to record field changes and selections made during construction, and one record copy of approved shop drawings, product data, samples and similar required submittals. These shall be made available to the Owner at any time and shall be updated and submitted to the Owner as required by the Contract Documents.

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

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



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

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

§ 3.12.4 Shop drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way that the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect/Engineer is subject to the limitations of Section 4.2.11. Informational submittals upon which the Architect/Engineer and Owner are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the A/E or Owner without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Owner shop drawings, product data, samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals that are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect/Engineer or Owner without action.

§ 3.12.6 By approving and submitting shop drawings, product data, samples and similar submittals, the Contractor represents that it has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of shop drawings, product data, samples or similar submittals until the respective submittal has been approved by the Owner.

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

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data, samples or similar submittals, to revisions other than those requested by the Owner on previous submittals. In the absence of such written notice the Owner's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall provide professional services that constitute the practice of architecture, engineering, or land surveying where such services are specifically required by the Contract Documents for a portion of the Work or where the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect/Engineer will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications,

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certifications, shop drawings and other submittals prepared by such professional. Shop drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Owner. The Owner and the A/E shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and A/E have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this section, the A/E will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

### § 3.13 USE OF SITE

**§ 3.13.1** The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. Activities not related to the execution of the Work, unless specifically permitted by the Owner, are prohibited.

**§ 3.13.2** It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration.

- .1 The Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to its own operations and the operations of all subcontractors as specified in Article 3 Section 3.3. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in applicable sections of the contract documents.
- .2 The Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport.
- .3 When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall be responsible for the repair of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices at [mutcd.fhwa.dot.gov](http://mutcd.fhwa.dot.gov), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

**§ 3.13.3** The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work until their removal is directed by the Owner. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area (AOAs) shall be a maximum of 18 inches high. Unless otherwise specified, barricades shall be spaced not more than 4 feet apart.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices.

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When the Work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of advisory circular (AC) 150/5340-1, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and the Contractor's parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2, Operational Safety on Airports During Construction.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2.

### **§ 3.14 CUTTING AND PATCHING**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

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

### **§ 3.15 CLEANING UP**

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

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

### **§ 3.16 ACCESS TO WORK**

**§ 3.16.1** The Contractor shall provide the Owner and Architect/Engineer access to the Work in preparation and progress wherever located. The Contractor shall provide safe facilities for such access so the Owner and A/E may perform their functions under the Contract Documents.

### **§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS**

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

### **§ 3.18 INDEMNIFICATION**

To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify, defend, and hold harmless the Owner, its Architect/Engineer (A/E), consultants, subconsultants and the officers, directors, employees, and agents of each and either 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 or any performance of the Work by subcontractors, their agents, and their employees, but not from the sole negligence or willful misconduct of the Owner and/or its A/E . Such indemnification by the Contractor and its subcontractors, their agents, and their employees shall include but not be limited to the following:

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- .1 Liability or claims resulting directly or indirectly from the negligence or carelessness 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;
- .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/or the A/E;
- .3 Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree;
- .4 Liability or claims arising directly or indirectly from the use or manufacture 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, its A/E, its consultants, subconsultants and the officers, directors, employees, and agents, or any other parties;
- .6 Liabilities or claims arising directly or indirectly from willful or criminal misconduct; and,
- .7 Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the Contractor.

**§ 3.18.2** The Contractor shall reimburse the Owner for all costs and expenses, (including but not limited to fees and charges of Architect/Engineer, attorneys, and other professionals and court costs including all costs of appeals) incurred by the Owner in enforcing the provisions of this section.

**§ 3.18.3** The indemnification obligation under this section 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.

### ARTICLE 4 ADMINISTRATION OF THE CONTRACT

#### § 4.1 OWNER'S REPRESENTATIVE, AND ARCHITECT/ENGINEER

**§ 4.1.1** The Owner's Representative will be the Owner's agent to the Contractor with respect to the project during construction and until the issuance of the final Certificate for Payment. The Owner's communications with the Contractor will be through the Owner's Representative, who will have full authority to act on behalf of the Owner with regard to all aspects of the construction of the project.

**§ 4.1.2** Nothing contained within the Contract Documents shall create any contractual relationship between the Owner's Representative and the Contractor.

#### § 4.1.3 Architect or Engineer

- .1 For purposes of this contract, the Architect or Engineer (A/E) is the person performing services on behalf of the Owner, and lawfully licensed to practice architecture or engineering, or an entity lawfully practicing architecture or engineering identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.
- .2 For purposes of the Contract Documents, references to the Architect may include sub consultants of multiple tiers who are lawfully licensed to practice disciplines included in the Work including, but not limited to civil, structural, mechanical, and electrical engineering. Similarly, references to the Engineer may include sub consultants of multiple tiers who are lawfully licensed to practice disciplines included in the Work including, but not limited to architecture, civil, structural, mechanical, and electrical engineering.
- .3 Nothing contained within the Contract Documents shall create any contractual relationship between the A/E and the Contractor.

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### § 4.2 OWNER'S REPRESENTATIVE'S ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Owner's Representative will provide administration of the Contract as described in the Contract Documents, and will be the Owner's agent (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Section 12.2. The Owner's Representative will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 4.2.2 The office of the Owner's Representative will be located at or near the project site for the duration of construction. The Owner's Representative and associated staff will observe the Work (1) to monitor the progress and quality of the Work, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents, and (4) to keep the Owner informed about the progress and quality of the Work. However, the Owner's Representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner's Representative will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.

§ 4.2.3 The Owner's Representative will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Owner's Representative will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors of any tier, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner, Architect/Engineer, and Contractor shall communicate with each other through the Owner's Representative about matters arising out of, or relating to the Contract. Communications by and with the A/E's consultants shall be through the A/E. Communications by and with subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

§ 4.2.5 Upon presentation of the Contractor's Applications for Payment, the Owner's Representative will review and certify the amounts due the Contractor and will approve the Applications for Payment in such amounts.

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

§ 4.2.7 The Owner's Representative will prepare Change Orders and Construction Change Directives and may authorize minor changes in the Work as provided in Section 7.4.

§ 4.2.8 The Owner's Representative will conduct inspections to determine the date or dates of Substantial Completion and the date of Final Completion, will receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and will approve the final Application for Payment upon compliance with the requirements of the Contract Documents.

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**§ 4.2.9** The Owner's Representative will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of the Owner or Contractor. The Owner's Representative's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations required of the Owner's Representative shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Owner's Representative to furnish such interpretations until 15 days after written request is made for them.

**§ 4.2.10** Interpretations and decisions of the Owner's Representative will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and initial decisions, the Owner's Representative will endeavor to secure faithful performance by both Owner and Contractor.

### **§ 4.2.11 SERVICES OF THE ARCHITECT OR ENGINEER (A/E)**

- .1 The Architect or Engineer (A/E) will provide certain contract administration services as hereinafter described.
- .2 Should errors, omissions, or conflicts in the drawings, specifications, or other contract documents provided by the A/E be discovered, the A/E will prepare such amendments or supplementary documents and provide consultation as may be required.
- .3 The A/E and its sub-consultants will visit the site at intervals appropriate to the stage of construction to familiarize themselves generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. Unless otherwise provided in the Owner-A/E Agreement, the A/E and its sub-consultants will not be required to make exhaustive or continuous on-site inspection or observations to check the quality or quantity of the Work, but they shall make as many on-site inspections and observations as may reasonably be required to fulfill their obligations to the Owner. On the basis of such on-site observation, the A/E and its sub-consultants shall endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor.
- .4 The A/E will render written field reports to the Owner in the form required by the Owner relating to the periodic visits and inspections of the Project required by Section 4.2.11.
- .5 The A/E will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and the A/E will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The A/E will not be responsible for or have control or charge over the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.
- .6 The A/E shall at all times have access to the Work wherever it is in preparation or progress. The Contractor shall provide safe facilities for such access so the A/E may perform its functions under the Contract Documents.
- .7 As required, the A/E will render to the Owner interpretations necessary for the proper execution or progress of the Work, with reasonable promptness and in accordance with any time limit agreed upon.
- .8 All communications, correspondence, submittals, and documents exchanged between the A/E and the Contractor in connection with the Project shall be through or in the manner prescribed by the Owner.
- .9 All interpretations and decisions of the A/E will be consistent with the intent of and reasonably inferable from the Contract Documents.
- .10 The A/E's decision in matters relating to aesthetic effect will be final if consistent with the intent of the Contract Documents and approved by the Owner.
- .11 If the A/E observes any Work that does not conform to the Contract Documents, the A/E shall promptly report in writing this observation to the Owner. The A/E will prepare and submit to the Owner lists of the Contractor's Work that is not in conformance with the Contract Documents.

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- .12 The A/E will review and make a recommendation to the Owner of appropriate action upon the Contractor's submittals such as shop drawings, product data and samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The A/E's review will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor, or separate contractors, while allowing sufficient time in the A/E's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The A/E's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The A/E's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the A/E, of any construction means, methods, techniques, sequences or procedures. The A/E's recommendation for approval of a specific item shall not indicate recommendation of approval of an assembly of which the item is a component.
- .13 The Owner will establish procedures to be followed by the A/E for review and processing of all shop drawings, catalog submittals, project reports, test reports, maintenance manuals, and other necessary documentation.
- .14 The A/E may assist the Owner in conducting inspections to determine the dates of Substantial Completion and Final Completion, and the Owner will issue a Certificate of Substantial Completion and a Certificate of Final Completion.
- .15 In case of the termination of the A/E, the Owner may appoint an alternate person who is appropriately licensed to assume all of the services of the A/E thereafter.
- .16 If the Owner and A/E agree, the A/E may provide one or more project representatives to assist in carrying out the A/E's responsibilities at the site. Such responsibilities may include, but are not limited to inspection, testing, and specialized construction observation. The assistant project representative, inspector, or other such assigned personnel shall have no authority to interpret or direct the Work unless authorized in writing by the Owner.

### § 4.3 CLAIMS AND DISPUTES

§ 4.3.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes all other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. All Claims must be initiated by written notice within the time limits provided in Section 4.3.2. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 4.3.2 Time Limits on Claims. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes, or should reasonably have recognized, the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Owner and the other party.

§ 4.3.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7. and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 4.3.4 Claims for Concealed or Unknown Conditions. If conditions are encountered at the site that are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the

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character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than the time limits provided in 4.3.2. The Owner will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the contract sum or contract time, or both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Owner shall so notify the Contractor in writing, stating the reasons, and the Claim shall be denied.

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

**§ 4.3.6** If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Owner, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Owner, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with this Section .

**§ 4.3.7** Claims for Additional Time

- .1 If the Contractor wishes to make Claim for an increase in the contract time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.
- .2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction. The Contractor shall, within 10 days of the beginning of any such delay, notify the Owner in writing of the cause of delay and request an extension of contract time. The Owner will ascertain the facts and the extent of the delay and extend the time for completing the Work when, in the Owner'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.

**§ 4.3.8** Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 14 days after discovery or when discovery reasonably should have been made. The notice shall provide sufficient detail to enable the other party to investigate the matter.

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

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

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



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attorney's fees and costs, and for loss of profit except anticipated profit arising directly from the Work.

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

### § 4.4 RESOLUTION OF CLAIMS AND DISPUTES

§ 4.4.1 Decision of Owner. All Claims of this Contract shall be promptly brought to the Owner's Representative for analysis and consideration. The Contractor shall strictly follow the process outlined by the Owner for resolving claims and disputes, and shall not initiate or respond to alternative resolution processes, unless agreed to by both the Owner and the Contractor and incorporated into a Change Order. Once the Contractor has delivered a Claim, the Owner shall promptly analyze the Claim, fairly considering all aspects of the Claim in terms of the Contract Documents. The Owner shall then render an opinion in writing. The Owner will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 4.4.2 The Owner's Representative will review Claims and within fifteen days of the receipt of the Claim and take one or more of the following actions: (1) request additional supporting data from the Contractor or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, or (4) suggest a compromise.

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

§ 4.4.4 If the Owner requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within fifteen days after receipt of such request, and shall either provide a response on the requested supporting data, advise the Owner when the response or supporting data will be furnished or advise the Owner that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Owner will either reject or approve the Claim in whole or in part.

§ 4.4.5 The Owner will approve or reject Claims by written decision that shall state the reasons therefor and which shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Owner shall be final and binding on the parties.

§ 4.4.6 Upon receipt of a Claim against the Contractor or at any time thereafter, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

### § 4.5 DISPUTE RESOLUTION BOARD

§ 4.5.1 If, and as provided in Supplementary General Conditions, this contract shall be subject to Dispute Resolution Board procedures.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 DEFINITIONS

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

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

§ 5.2.1 As stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner to reply promptly shall constitute notice of no reasonable objection. Periodic submittals of the list of Subcontractors to the Owner are required. A final list of subcontractors and subcontract amounts will be required prior to Final Payment.

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

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

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

### § 5.3 SUBCONTRACTUAL RELATIONS

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

### § 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

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

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

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

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## ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the project with the Owner's own forces, and to award separate contracts in connection with other portions of the project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation.

§ 6.1.2 The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA facility, or a utility service of another government agency at any time during the progress of the Work.

Should the Owner of public or private utility service, FAA, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the Work, the Contractor shall cooperate with such Owners by arranging and performing the Work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such Work by others is listed above. When ordered as extra Work by the Owner, the Contractor shall make all necessary repairs to the Work that are due to such authorized Work by others, unless otherwise provided for in the contract. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized Work by others or for any delay to the Work resulting from such authorized Work.

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

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

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

### § 6.2 MUTUAL RESPONSIBILITY

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

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

§ 6.2.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner that are payable to a separate contractor because of delays, improperly timed activities or defective construction

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of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

**§ 6.2.4** The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.

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

### **§ 6.3 OWNER'S RIGHT TO CLEAN UP**

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

## **ARTICLE 7 CHANGES IN THE WORK**

### **§ 7.1 GENERAL**

**§ 7.1.1** Without invalidating the Contract 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 Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

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

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

### **§ 7.2 CHANGE ORDERS**

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

- .1 change in the Work;
- .2 the amount of the adjustment in the contract sum including unit price quantities; and
- .3 the extent of the adjustment, if any, in the contract time.

**§ 7.2.2** Methods used in determining adjustments to the contract sum may include those listed in Section 7.3.

### **§ 7.3 CONSTRUCTION CHANGE DIRECTIVES**

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

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

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

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- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 application of adjusted unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 as provided in Section 7.3.6.

**§ 7.3.4** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the contract sum or contract time.

**§ 7.3.5** A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in contract sum and contract time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**§ 7.3.6** If prior to the commencement of the Work the Contractor has not provided a lump sum price, or the Contractor and the Owner have not agreed on a lump sum price as described in Section 7.3.3, the price shall be established in one of the following ways, as determined by the Owner.

- .1 on a lump sum basis following completion of the Work. The lump sum price shall be properly itemized in accordance with Sections 7.3.7 and 7.3.8 and supported by sufficient data to permit evaluation;
- .2 on a time and material basis, with or without a maximum not-to-exceed price, at the discretion of the Owner. Costs will be accumulated on a time and material basis as described in Sections 7.3.7 and 7.3.9 and presented daily (the day after the Work is performed) for approval by the Owner on the forms provided by the Owner. The daily report will be signed by the Contractor and the Owner.

**§ 7.3.7** Cost substantiation for Work proceeding on a lump sum or time and material basis. In accordance with Section 7.3.6, the Contractor shall provide a detailed breakdown of the costs as described in this section and submit the costs and substantiating data in a proposal to the Owner:

- .1 Excluded Costs. The following shall not be considered by the Owner for compensation to the Contractor:
  - A. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, architects, 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 this section, 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 this section).
  - 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.

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- F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in this section.
- .2 Direct costs. These shall be limited to 1) cost of materials, as described below under "Materials," 2) cost of labor as described below under "Labor Rates," 3) rental rate including fuel and maintenance for any power tools valued at over \$3,000 and equipment as described below under "Equipment Rates," and 4) bond premiums and additional cost of Builder's Risk Insurance, at rates equal to the amount billed for the base contract or the actual rate as supported by an invoice.
- .3 Equipment Rates. The Contractor will be paid for the use of equipment at the rental rates listed for such equipment in the "Rental Rate Blue Book". 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 "Rental Rate Blue Book", an equitable rental rate for the equipment will be established by the Owner. The Contractor may furnish cost data which might assist the Owner in the establishment of the rental rate.
  - A. All equipment shall, in the opinion of the Owner, be in good working condition and suitable for the purpose for which the equipment is to be used.
  - B. 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 Owner a description of the equipment and its identifying number.
  - C. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment that has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
  - D. 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.
  - E. Rental time will not be allowed while equipment is inoperative due to breakdowns.
  - F. Unless otherwise agreed to 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 "Rental Rate Blue Book" available at [www3.equipmentwatch.com](http://www3.equipmentwatch.com) or contact Equipment Watch at (800) 669-3282. Rental rates for equipment not covered under this reference shall be comparable to the lowest, commercially available rental rate for similar equipment in the area of the Project
- .4 Equipment on the Project 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.
  - A. 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.
  - B. 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.

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- C. 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, set forth as follows:
  - i. Payment for the equipment will be made in accordance with the provisions in Section 7.3.
  - ii. 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 Section 7.3.7.5, 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.
  - iii. 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 Sections 7.3.8 and 7.3.9.
- .5 Labor Rates. 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, workers' 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 Sections 7.3.8 and 7.3.9.
- .6 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:
  - A. 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.
  - B. 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 Owner. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
  - C. 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.
  - D. If in the opinion of the Owner 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.
- .7 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:
  - A. 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

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and determination of market values by the Owner, 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.

- B.** 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.
- C.** 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 Sections 7.3.8 and 7.3.9, herein, an allowance of 5 percent will be added to invoices for specialty Work.
- .8** 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.

**§ 7.3.8** Contractor's Fee for Work proceeding on a lump sum basis. The Contractor shall apply a combined percentage rate to the direct costs to compensate the Contractor for additional overhead and profit associated with a Change in the Work. The combined rate to the Owner of any change shall not exceed the rates set forth in the following schedule:

- .1** For the Contractor, for Work performed by the Contractor's own forces, up to fifteen percent (15%) of direct costs.
- .2** For each subcontractor, for Work performed by the subcontractor's forces, up to fifteen percent (15%) of direct costs.
- .3** For the Contractor, for work performed by subcontractors, up to ten percent (10%) of the Subcontractors direct costs.
- .4** For the subcontractor, for Work performed by subcontractors of all tiers, up to ten percent (10%) of the sub-subcontractor's direct costs.
- .5** The total Contractor and all subcontractors' overhead and profit allowance shall not exceed twenty-five percent (25%) of direct costs.
- .6** To the sum of the costs and Contractor fees provided for in this section, one percent (1%) shall be added as compensation for bonds.

**§ 7.3.9** Contractor's Fee for Work proceeding on a time and materials basis. The Contractor shall apply a combined percentage rate to the direct costs to compensate the Contractor for additional overhead and profit associated with a Change in the Work. The combined rate to the Owner of any change shall not exceed the rates set forth in the following schedule:

- .1** For the Contractor, for Work performed by the Contractor's own forces, up to ten percent (10%) of direct costs.
- .2** For each subcontractor, for Work performed by the subcontractor's forces, up to ten percent (10%) of direct costs.
- .3** For the Contractor, for work performed by subcontractors, up to five percent (5%) of the subcontractors direct costs.
- .4** For the subcontractor, for Work performed by subcontractors of all tiers, up to five percent (5%) of the sub-subcontractor's direct costs.
- .5** The total Contractor and all subcontractors' overhead and profit allowance shall not exceed twenty percent (20%) of direct costs.
- .6** To the sum of the costs and Contractor fees provided for in this section, one percent (1%) shall be added as compensation for bonds.

**§ 7.3.10** Adjustment of Quantities. The Owner is authorized to make such adjustments in the Work as may increase or decrease the originally awarded contract quantities of unit price components, provided that the aggregate of such adjustments does not change the total contract cost or the total cost of any major contract item by more than 25% (total cost being based on the unit prices and estimated quantities



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in the awarded contract). Alterations that do not exceed the 25% limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations in accordance with the unit price offered in the bid.

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

**§ 7.3.12** Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in applications for payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Owner will make an interim determination for purposes of monthly approval of payment for those costs. That determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a claim in accordance with Article 4.

**§ 7.3.13** When the Owner and Contractor agree with the adjustments in the contract sum and contract time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

### **§ 7.4 MINOR CHANGES IN THE WORK**

**§ 7.4.1** The Owner may order minor changes in the Work not involving adjustment in the contract sum or extension of the contract time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

## **ARTICLE 8 TIME**

### **§ 8.1 DEFINITIONS**

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

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

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

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

**§ 8.1.5** The term non-working day as may be used in the Contract Documents shall mean Sunday, a recognized holiday, a day on which the Contractor is specifically required to suspend construction operations or a day on which a suspension order is in effect. The legal holidays of the City & Borough of Juneau 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

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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.

### § 8.2 PROGRESS AND COMPLETION

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by the Contract Documents or a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

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

### § 8.3 DELAYS AND EXTENSIONS OF TIME

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

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Section 4.3.

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

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 CONTRACT SUM

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

### § 9.2 BASIS OF PAYMENT

§ 9.2.1 Prior to the Preconstruction Conference, as required by the Contract Documents, the Contractor shall submit to the Owner a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Owner may require, and in accordance with other provisions of the Contract Documents. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

- .1 Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows: (a) with first pay request, 25%; (b) when 25% or more of the original contract is earned, an additional 25%; (c) when 50% or more of the original contract is earned, an additional 40%; (d) after Final Inspection, staging area clean-up and delivery of all Project Closeout materials, the final 10%.

§ 9.2.2 For Unit Price contracts, all work completed under the contract will be measured by the Owner using United States Customary Units of Measurement or the International System of Units. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

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- .1 Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Owner.
- .2 Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
- .3 Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.
- .4 In computing volumes of excavation the average end area method or other acceptable methods will be used.
- .5 The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
- .6 The term "ton" will mean the short ton consisting of 2,000 lb avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Owner. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Owner directs.
- .7 Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
- .8 When requested by the Contractor and approved by the Owner in writing, material specified to be measured by the cubic yard may be weighed, and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Owner and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.
- .9 Bituminous materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F or will be corrected to the volume at 60°F using ASTM D1250 for asphalts or ASTM D633 for tars.
- .10 When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.
- .11 Cement will be measured by the ton or hundredweight.
- .12 Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
- .13 The term "lump sum" when used as an item of payment will mean complete payment for the Work described in the contract. When a complete structure or structural unit (in effect, "lump sum" Work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.
- .14 Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the Work.
- .15 When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
- .16 Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Scales shall be accurate within 1/2% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning Work and at such other times as requested by

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the Owner. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1% of the nominal rated capacity of the scale, but not less than 1 pound. The use of spring balances will not be permitted. Scales must be tested for accuracy and serviced before use at a new site. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

**§ 9.2.3** When the estimated quantities for a specific portion of the Work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the Work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Owner. If revised dimensions result in an increase or decrease in the quantities of such Work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

### **§ 9.3 APPLICATIONS FOR PAYMENT**

**§ 9.3.1** On a monthly basis, the Contractor shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the schedule of values. Such application shall be supported by such data substantiating the Contractor's right to payment as the Owner may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for in the Contract Documents.

- .1 As provided in Section 7.3.12, such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives, or by interim determinations of the Owner, but not yet included in Change Orders.
- .2 Such applications may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.
- .3 The Contractor may be required, through other provisions of the Contract Documents, to submit additional reports or documents with the application.

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

**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

### **§ 9.4 APPROVAL OF APPLICATIONS FOR PAYMENT**

**§ 9.4.1** The Owner will, within seven days after receipt of an acceptable Application for Payment from the Contractor, either issue approval of such amount as properly due, or notify the Contractor in writing of the reasons for withholding approval in whole or in part as provided in Section 9.5.

**§ 9.4.2** The approval of an Application for Payment will constitute a representation by the Owner, based on the Owner's evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Owner's knowledge, information

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

**§ 9.4.3** The Owner may refuse to make payment of the full amount because claims have been made against the Owner or the Using Agency 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 or the Using Agency, acting through the Owner's Representative, must give the Contractor written notice within 7 days stating the reasons for such action.

### **§ 9.5 DECISIONS TO WITHHOLD APPROVAL OF APPLICATIONS FOR PAYMENT**

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

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

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

### **§ 9.6 PROGRESS PAYMENTS**

**§ 9.6.1** After the Owner has approved an application for payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

**§ 9.6.2** The Contractor shall promptly pay each subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such subcontractor's portion of the Work, the amount to which said subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each subcontractor, require each subcontractor to make payments to subcontractors at all tiers in a similar manner.

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

**§ 9.6.4** The Owner shall not have an obligation to pay or to see to the payment of money to a subcontractor except as may otherwise be required by law.

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

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

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

### **§ 9.7 FAILURE OF PAYMENT**

**§ 9.7.1** If the Owner does not approve an application for payment or notify the Contractor that such approval will be withheld, through no fault of the Contractor, within seven days after receipt of the Contractor's application for payment, or if the Owner does not pay the Contractor within thirty days after the date established in the Contract Documents the amount approved, then the Contractor may, upon seven additional days' written notice to the Owner, stop the Work until payment of the amount owing has been received. The contract time shall be extended appropriately and the contract sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

### **§ 9.8 SUBSTANTIAL COMPLETION**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use and an official Certificate of Occupancy has been issued by the authority having jurisdiction.

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

**§ 9.8.3** Upon receipt of the Contractor's list, the Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall allow a minimum of two working days for this inspection. If the Owner's inspection discloses any item, whether or not included on the Contractor's list that is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner. In such case, the Contractor shall then submit a request for another inspection by the Owner to determine Substantial Completion. In the event that a third or subsequent inspection is required, the Owner reserves the right to charge the Contractor for the cost of such inspections.

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

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

### **§ 9.9 PARTIAL OCCUPANCY OR USE**

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

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. No portion of the Work may be opened by the Contractor for public use until ordered by the Owner in writing. Should it become necessary to open a portion of the Work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Owner, such portion of the Work is in an acceptable condition to support the intended traffic or activity. Temporary or intermittent openings for airfield traffic (aircraft and vehicles) are considered to be inherent in the work and shall not constitute either acceptance of the portion of the Work so opened or a waiver of any provision of the contract. Any damage to the portion of the Work so opened that is not attributable to traffic or activity that is permitted by the Owner shall be repaired by the Contractor at its own expense.

The Contractor shall make its own estimate of the inherent difficulties involved in completing the Work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract Work.

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

### **§ 9.10 FINAL COMPLETION AND FINAL PAYMENT**

**§ 9.10.1** Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner, the Architect/Engineer, and the Using Agency will promptly make such inspection and, when the Owner finds the Work acceptable under the Contract Documents and the Contract fully performed, the Owner will promptly approve the final Application for Payment stating that to the best of the Owner's knowledge, information and belief, and on the basis of the aforementioned on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents. After acceptance of the Work by the Owner, the Owner will make final payment to the Contractor of the amount remaining after deducting all prior payments and all

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amounts to be kept or retained under the provisions of the Contract Documents, including the following items:

- .1 Liquidated damages, as applicable, and described within the Agreement.
- .2 If items of Work are determined by the Owner to have been left uncompleted or uncorrected between the date of Substantial Completion and the date of Final Completion, and the Owner decides to issue a Certificate of Final Completion leaving those Work items incomplete or uncorrected, the following deduction may be made from the final payment: Two times the value of outstanding items of correction Work or Substantial Completion list items yet uncompleted or uncorrected, as applicable. 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.

The Owner's approval of the final Application for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

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

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

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

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



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**§ 9.10.6 Release Of Retainage And Other Deductions.** 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 Contract, less any deductions to cover pending claims against the Owner or Using Agency pursuant to Section 9.4.3.

- .1 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 Final Completion. Upon expiration of the 45 days, referred to in Section 9.10.6, the amounts withheld pursuant to the provisions of Section 9.10.1 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 two times the value of such remaining uncompleted or uncorrected items.

### ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

#### § 10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

#### § 10.2 SAFETY OF PERSONS AND PROPERTY

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

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

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

- .1 Unless otherwise specified in this subsection, the Contractor is advised that the site of the Work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior. Should the Contractor encounter, during its operations, any part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the Owner. The Owner will immediately investigate the Contractor's finding and direct the Contractor to either resume operations or to suspend operations as directed. Should the Owner 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 shall be covered by an appropriate contract change order.

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

- .1 All Contractors' operations shall be conducted in accordance with the project Construction Safety and Phasing Plan (CSPP) and the provisions set forth within the current version of AC 150/5370-2. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The

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Contractor shall prepare and submit a Safety Plan Compliance Document that details how it proposes to comply with the requirements presented within the CSPP.

- .2 The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures. No deviation or modifications may be made to the approved CSPP unless approved in writing by the Owner.

**§ 10.2.4** When use or storage of hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. A Material Safety Data Sheet shall be requested by the Contractor from the manufacturer of any hazardous product used, and 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. 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.

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

**§ 10.2.6** The Contractor shall designate a qualified and responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be approved by the Owner.

**§ 10.2.7** The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

### **§ 10.3 HAZARDOUS MATERIALS**

**§ 10.3.1** If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner in writing.

**§ 10.3.2** The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor will promptly reply to the Owner in writing stating whether or not the Contractor has reasonable objection to the persons or entities proposed by the Owner. If the Contractor has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor has no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. The Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up, which adjustments shall be accomplished as provided in Article 7.

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§ 10.3.3 The Owner shall not be responsible under Section 10.3 for materials and substances brought to the site by the Contractor unless such materials or substances were required by the Contract Documents.

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

### § 10.4 ENVIRONMENTAL PROTECTION

§ 10.4.1 The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

§ 10.4.2 The Contractor shall control storm water in accordance with current Alaska Department of Environmental Conservation Construction General Permit requirements for storm water control, and as described elsewhere in the contract documents.

### § 10.5 EMERGENCIES

§ 10.5.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Section 4.3 and Article 7.

## ARTICLE 11 INSURANCE AND BONDS

### § 11.1 INSURANCE

§ 11.1.1 The Contractor shall purchase and maintain the insurance required under this section. 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 Section 12.2, but the Contractor's liabilities under this Contract shall not be deemed limited in any way to the insurance coverage required. Policies shall also specify insurance provided by Contractor will be considered primary and not contributory to any other insurance available to the Owner. **Failure by the Contractor to keep such insurance in effect for the time period specified shall be deemed defective Work and resolved in accordance with the Contract Documents.**

§ 11.1.2 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.

§ 11.1.3 The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. At least 30 days prior to the cancellation, non-renewal or reduction in the amount of coverage, Contractor shall provide written notice to the Owner. **All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the Owner, Using Agency, their 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

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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. **Contractor agrees to waive all rights of subrogation against the Owner for work performed under Contract.**

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.

- .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 Contract.
- .4 Subcontractor's Insurance. The Contractor shall require and verify that each of its subcontractors maintain insurance meeting all of the requirements stated herein, unless specifically exempted from a required coverage. Subcontractor insurance coverage shall be of the type and in the amounts specified in the Supplementary General Conditions or Contractor shall insure the activities of its Subcontractors under the Contractor's own policy, in like amount.
- .5 Builder's Risk. This insurance shall be of the "all risks" type and shall be written in completed value form, and shall protect the Contractor, the Owner, and the Using Agency 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, the Owner, and the Using Agency, 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 Using Agency. The Builder's Risk policy shall insure against risks of direct physical loss or damage to property from any external cause. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

### § 11.2 PERFORMANCE BOND AND PAYMENT BOND

§ 11.2.1 The Contractor shall furnish performance and payment bonds, each in the amount set forth in the Supplementary General Conditions as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. These bonds shall remain in effect at least until one year after the date of Substantial Completion except as otherwise provided by Law or Regulation or by the Contract Documents. 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

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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.

**§ 11.2.2** 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.

**§ 11.2.3** 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.

### ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

#### § 12.1 UNCOVERING OF WORK

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

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

#### § 12.2 CORRECTION OF WORK

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

**§ 12.2.2** After Substantial Completion. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, work quality, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier. If, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, the Owner may correct it in accordance with Section 2.4.

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

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

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

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

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

### § 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 GOVERNING LAW

§ 13.1.1 The Contract shall be governed by the law of the State of Alaska. 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 Owner. The Contractor shall indemnify, defend, and hold harmless the Owner, the Using Agency, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, 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.

### § 13.2 SUCCESSORS AND ASSIGNS

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

### § 13.3 WRITTEN NOTICE

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

### § 13.4 RIGHTS AND REMEDIES

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

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

### **§ 13.5 TESTS AND INSPECTIONS**

**§ 13.5.1** Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Owner timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded.

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

**§ 13.5.3** If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Owner's and Architect's/Engineer's services and expenses shall be at the Contractor's expense.

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

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

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

**§ 13.5.7** For Airport Improvement Program (AIP) contracts, the United States Government has agreed to reimburse the Owner for some portion of the Contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's) agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of Title 49 of the USC and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract Work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator, and is further subject to those provisions of the rules and regulations that are cited in the Contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, or this Contract shall be construed as making the Federal Government a party to the Contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

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### § 13.6 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

#### § 13.6.1 As between the Owner and Contractor:

- .1 Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;
- .2 Between Substantial Completion and Final Completion. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to the date of Final Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of Final Completion; and
- .3 After Final Completion. As to acts or failures to act occurring after the relevant date of Final Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any Warranty provided under Section 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

### § 13.7 RETENTION AND INSPECTION OF RECORDS

§ 13.7.1 Record Retention and Maintenance. The Contractor shall keep and maintain in safe condition full and accurate records of all costs incurred and items billed and all other project records and documents relating to performance, communications, and correspondence in connection with the performance of the Work under this Contract, which records and documents shall be open to review, examination, reproduction or audit by the Owner or its authorized representatives during performance of the Work and until three years after final payment and all other pending matters are closed.

§ 13.7.2 Subcontractor Records. The Contractor shall make it a condition of all subcontracts of all tiers relating to the Work under this Contract that any and all subcontractors of all tiers will keep accurate records of costs incurred and items billed in connection with their Work and that such records shall be open to review, examination, reproduction or audit by the Owner or its authorized representatives during performance of the Work and until three years after final payment under the subcontract and all other pending matters are closed.

§ 13.7.3 Availability. The Contractor shall make available at its business office upon request at all reasonable times the materials described in Sections 2.5 including materials of both the Contractor and its subcontractors, for review, examination, reproduction, or audit for a period of three years after final payment under this Contract and all other pending matters are closed.

§ 13.7.4 Termination. If this Contract is completely or partially terminated, the records relating to the Work terminated shall be made available for three years after any resulting final termination settlement.

§ 13.7.5 Claims and Appeals. Records pertaining to any Claims or appeals submitted pursuant to Sections 4.3, 4.4 and 4.5 or otherwise arising from or relating to the performance of Work under this Contract shall be made available until such appeals are finally concluded. Such documents or records shall be made available to the Owner or its duly authorized representatives within thirty days of the Owner's request.

§ 13.7.6 Subcontracts. The Contractor shall include the provisions of Section 13.8 in all subcontracts so as to be binding on all subcontractors.

§ 13.7.7 Cost or Pricing Data. If the Contractor has submitted cost or pricing data in connection with the pricing of any Change Order or modification to this Contract, unless pricing was based on (1) adequate price competition, (2) established catalog or market price of commercial items sold in substantial quantities to the general public, or (3) prices set by law or regulation, the Owner shall have the right to audit all books, records, documents and other data of the Contractor, including computations and



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projections, related to negotiating, pricing or performing the Change Order or modification, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data.

### § 13.8 GRATUITY AND CONFLICT OF INTEREST

§ 13.8.1 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 City and Borough of Juneau or the Using Agency, nor will the Contractor rent or purchase any equipment or materials from any employee or elected official of the City and Borough of Juneau or the Using Agency, or to the best of the Contractor's knowledge, from any agent of any employee or elected official of the City and Borough of Juneau or the Using Agency. 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.

### § 13.9 COST REDUCTION INCENTIVE

§ 13.9.1 At any time within 30 days after the date of the Notice of Award, the Contractor may submit to the Owner in writing, proposals for modifying the drawings, 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.

§ 13.9.2 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 affected 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.

§ 13.9.3 The provisions of this section shall not be construed to require the Owner to consider any cost reduction proposal that 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.

§ 13.9.4 If a cost reduction proposal is similar to a change in the drawings 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.

§ 13.9.5 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.

§ 13.9.6 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.

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§ 13.9.7 If the Contractor 's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a Contract Change Order that specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the drawings and specifications that 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.

§ 13.9.8 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 may be reduced by an amount equal to the time savings realized.

§ 13.9.9 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.

§ 13.9.10 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.

§ 13.9.11 The Contractor shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction Work.

### § 13.10 USE OF THE CBJ GRAVEL PIT

§ 13.10.1 The City and Borough of Juneau (CBJ) may make unclassified material available to Contractor, from the CBJ gravel pit, at a rate less than that charged to other customers. Contractor is not required to use material from the CBJ gravel pit and the CBJ makes no guarantee as to the quantity or quality of the available material.

§ 13.10.2 If Contractor proposes to use material form the CBJ gravel pit, Contractor must meet all requirements for use of the CBJ gravel pit as determined by the CBJ Engineering Department, Gravel Pit Management. Additional information is available at (907) 586-0884.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a subcontractor, sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 an act of government, such as a declaration of national emergency that requires all Work to be stopped; or
- .3 because the Owner has not approved an application for payment and has not notified the Contractor of the reason for withholding approval as provided in Section 9.4, or
- .4 because the Owner has not made payment on an approved application for payment within the time stated in the Contract Documents.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a subcontractor of any tier, or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or

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interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

**§ 14.1.4** If the Work is stopped for a period of 90 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

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

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

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

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

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

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

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

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

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

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

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

## GENERAL CONDITIONS OF THE CONTRACT - 00 7000

.2 that an equitable adjustment is made or denied under another provision of the Contract.

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

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

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

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

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

**END OF SECTION**

**SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT – 00 8000**

**SGC 1: § 1.7 FEDERAL CONTRACT PROVISIONS** do not apply to this Contract and have been removed.

**SGC 2: INSURANCE AMOUNTS. Add the following to § 11.1 INSURANCE**

The limits of liability for the insurance required by Paragraph 11.1 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations.

Insurance requirements apply as follows:

The limits of liability for the insurance required by Section 11.1 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- A. Workers' Compensation: As in accordance with AS 23.30.045:
  - 1. State: Statutory
  - 2. Employer's 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
  
- B. Commercial General Liability (Primary Limits):
  - 1. a. General Policy \$1,000,000.00 Each Occurrence  
\$2,000,000.00 Annual Aggregate
  - b. Products/Completed Operations \$1,000,000.00 Each Occurrence  
\$2,000,000.00 Annual Aggregate
  - c. Personal Injury \$1,000,000.00 Each Occurrence
  - 2. Excess Commercial Liability \$5,000,000.00 in excess of  
Primary Limits
  
- C. Comprehensive Automobile Liability: including Owned, Hired, and Non-Owned Vehicles:
  - 1. Combined Single Limit, Bodily Injury and Property Damage \$1,000,000.00
  
- D. Builder's Risk insurance not required.

**SGC 3: PERFORMANCE BOND AND PAYMENT BOND AMOUNTS. Add the following to § 11.2 PERFORMANCE BOND AND PAYMENT BOND**

**§11.2.4 PERFORMANCE AND PAYMENT BOND AMOUNTS.**

.1 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.

## **SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT – 00 8000**

.2 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.

.3 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.

**END OF SECTION**

## SUMMARY OF WORK – 01 1000

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Project information.
  - 2. Work covered by Contract Documents.
  - 3. Access to site.
  - 4. Coordination with occupants.
  - 5. Work restrictions.
  - 6. Specification and drawing conventions.
  - 7. Miscellaneous provisions.
- B. Related Requirements:
  - 1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

#### 1.3 PROJECT INFORMATION

- A. Project Identification: Juneau International Airport Cargo Hardstand.
  - 1. Project Location: Juneau International Airport, 1873 Shell Simmons Drive, Juneau, AK 99801
  - 2. Owner's Representative: to be designated by Patricia K. Wahto, Airport Manager
- B. Design Engineer: Stantec, Inc., 725 E. Fireweed Lane, Suite 200, Anchorage, Alaska 99503 (907) 276-4245
- C. Design Engineer's sub-consultants: In addition to the Design Engineer the following design professionals have prepared designated portions of the Contract Documents:
  - 1. None

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of project is defined by the Contract Documents and generally consists of the following:
  - 1. Construction of a concrete aircraft parking area commonly called a hardstand.
- B. Type of Contract:
  - 1. Project will be constructed under a single prime contract.

#### 1.5 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on drawings by the contract limits and as indicated by requirements of this section.
- B. Use of Site: Limit use of Project site to areas indicated. Do not disturb portions of project site beyond areas in which the Work is indicated.
  - 1. Limits of the Site: Limit use of the site for staging, storage, handling of debris and construction materials, deliveries, etc. to the areas indicated on the drawings.
  - 2. Parking: Employee private vehicles are to be parked in specified areas only.
  - 3. Driveways, Gates, and Building Entrances: Keep driveways, gates and entrances serving premises clear and available to Owner's employees, Airport users, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

## SUMMARY OF WORK – 01 1000

- C. Security: Maintain airport security requirements (Section 01 5200) throughout the Work.
- 1.6 COORDINATION WITH OCCUPANTS
- A. Full Owner Occupancy: Owner will occupy or utilize areas of the airport around the project site throughout the construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations.
    - 1. Maintain access to existing roadways, walkways and other adjacent occupied or used facilities. Do not close or obstruct walkways or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
    - 2. Notify Owner not less than 48 hours in advance of activities that will affect Owner's operations.
- 1.7 WORK RESTRICTIONS
- A. Work Restrictions, General: Comply with restrictions on construction operations.
    - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
    - 2. Work on site shall not commence until Owner has provided written approval of the Contractor's Construction Security Plan.
    - 3. Work on site shall not commence until Owner has provided written approval of the Safety Plan Compliance Document in accordance with FAA AC 150/5370-2F.
  - B. On-Site Work Hours:
    - 1. There are no limits to work hours within applicable noise ordinances of the City and Borough of Juneau.
  - C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
    - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
    - 2. Obtain Owner's written permission before proceeding with utility interruptions.
  - D. No Smoking and Controlled Substances: Use of tobacco products and other controlled substances within the project area is not permitted.
  - E. Employee Identification: Provide identification tags for Contractor personnel working in secure areas of Project site. Require such personnel to use identification tags at all times. See Section 01 5200, Security for additional requirements.
  - F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working in secure areas of project site.
- 1.8 SPECIFICATION AND DRAWING CONVENTIONS
- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
    - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
    - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
  - B. Division 01 Requirements: Requirements of Sections in Division 01 apply to the Work of all sections in the specifications.



## **SUMMARY OF WORK – 01 1000**

- C. Drawing Coordination: Requirements for materials and products identified on drawings are described in detail in the specifications. One or more of the following are used on drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on drawings.
  3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 1000**

## **SUBSTITUTION PROCEDURES – 01 2500**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 01 6000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other project requirements but may offer advantage to Contractor or Owner.

#### **1.4 ACTION SUBMITTALS**

- A. Substitution Requests: Submit three hard copies of each request for consideration. If electronic requests are allowed, one electronic submission directed to parties identified by the Owner shall be provided. Identify product, fabrication, or installation method to be replaced. Include Specification Section number and title and drawing numbers and titles.
  - 1. Substitution Request Form: Use form provided by the Owner.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
    - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - e. Samples, where applicable or requested.
    - f. Certificates and qualification data, where applicable or requested.
    - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.

## **SUBSTITUTION PROCEDURES – 01 2500**

- h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for project.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall contract time. If specified product or method of construction cannot be provided within the contract time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the contract sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Owner's Action: If necessary, Owner will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Owner will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Construction Change Directive and Change Order in accordance with the General Conditions.
  - b. Use product specified if Owner does not issue a decision on use of a proposed substitution within time allocated.

### **1.5 QUALITY ASSURANCE**

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

### **1.6 PROCEDURES**

- A. Coordination: Revise or adjust affected Work as necessary to integrate work of the approved substitutions.

## **PART 2 - PRODUCTS**

### **2.1 SUBSTITUTIONS**

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
  - 1. Conditions: Owner will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Owner will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.

## **SUBSTITUTION PROCEDURES – 01 2500**

- c. Requested substitution will not adversely affect Contractor's construction schedule.
  - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
  - e. Requested substitution is compatible with other portions of the Work.
  - f. Requested substitution has been coordinated with other portions of the Work.
  - g. Requested substitution provides specified warranty.
  - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Submit requests for substitution not later than 15 days following the Notice to Proceed.

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 2500**

## PROJECT MANAGEMENT AND COORDINATION – 01 3100

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  1. General coordination procedures.
  2. Coordination drawings.
  3. RFIs.
  4. Project meetings.

#### 1.3 DEFINITIONS

- A. RFI: Request for Information. Request from Owner or Contractor seeking information required by, or clarifications of the Contract Documents.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Key Personnel Names: Prior to the Pre-Construction conference, or within ten days of receipt of contract award (whichever occurs first), submit a list of key personnel assignments, including superintendent and other personnel in attendance at project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to project.
  1. Post copies of list in project meeting room, in temporary field office and in prominent location in built facility. Keep list current at all times.

#### 1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different sections of the specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different sections that depend on each other for proper installation, connection, and operation.
  1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to:
  1. Preparation of Contractor's construction schedule.

## PROJECT MANAGEMENT AND COORDINATION – 01 3100

2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

### 1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual sections, and additionally where installation is not completely indicated on shop drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
  1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    - d. Show location and size of access doors for concealed dampers, valves, and other controls.
    - e. Indicate required installation sequences.
    - f. Indicate dimensions shown on drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Owner indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
  1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
  2. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
  3. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
  4. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
  5. Mechanical and Plumbing Work: Show the following:
    - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.

## PROJECT MANAGEMENT AND COORDINATION – 01 3100

- b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
  - c. Fire-rated enclosures around ductwork.
  6. Electrical Work: Show the following:
    - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
    - b. Light fixture, exit and emergency lights, smoke detector, and other fire-alarm locations.
    - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
    - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
  7. Fire-Protection System: Show the following:
    - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
  8. Review: Owner will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.
  9. Owner will furnish Contractor one set of digital data files of drawings for use in preparing coordination digital data files.
    - a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data files as they relate to drawings.
- 1.7 REQUEST FOR INFORMATION (RFI)
- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified by the Owner.
    1. Owner will return without response those RFIs submitted to Architect/Engineer by other entities controlled by Contractor.
    2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's Work or work of subcontractors.
  - B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation including the specification section, drawing number and detail references, and field dimensions and conditions, as appropriate. Provide Contractor's suggested resolution.
  - C. Owner's Action: Owner and Architect/Engineer (as needed) will review each RFI, determine action required, and respond. Allow seven working days for Owner's response for each RFI.
    1. Owner's action may include a request for additional information, in which case the time for response will date from time of receipt by Owner of additional information.
    2. Action on RFIs that may result in a change to the contract time or the contract sum may be eligible for Contractor to submit a cost/time proposal.
  - D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number and submit to Owner periodically or as requested by Owner.
  - E. On receipt of Owner's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner within seven days if Contractor disagrees with response.

## PROJECT MANAGEMENT AND COORDINATION – 01 3100

### 1.8 PROJECT MEETINGS

- A. General: Attend and participate in project meetings and conferences at project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
  2. Agenda: Owner will prepare and distribute the meeting agenda. Contractor may request agenda items to the Owner.
  3. Minutes: Owner record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned within three days of receipt the meeting minutes.
- B. Preconstruction Conference: Owner will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Contractor, but no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Architect and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Security.
    - b. Responsibilities and personnel assignments.
    - c. Tentative construction schedule.
    - d. Critical work sequencing and long lead items.
    - e. Designation of key personnel and their duties.
    - f. Lines of communications.
    - g. Procedures for processing field decisions and Change Orders.
    - h. Procedures for RFIs.
    - i. Procedures for testing and inspecting.
    - j. Procedures for processing Applications for Payment.
    - k. Distribution of the Contract Documents.
    - l. Submittal procedures.
    - m. Preparation of Record Documents.
    - n. Use of the premises.
    - o. Work restrictions and working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for moisture and mold control.
    - s. Procedures for disruptions and shutdowns.
    - t. Construction waste management and recycling.
    - u. Parking availability.
    - v. Office, work, and storage areas.
    - w. Equipment deliveries and priorities.
    - x. First aid.
    - y. Progress cleaning.
  3. Minutes: Owner will record and distribute meeting minutes.



## PROJECT MANAGEMENT AND COORDINATION – 01 3100

- C. Preinstallation Conferences: Conduct a preinstallation conference at project site before each construction activity when required by other sections and when required for coordination with other construction.
1. Attendees: Owner, Architect/Engineer, Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Related RFIs.
    - c. Related Change Orders.
    - d. Deliveries.
    - e. Submittals.
    - f. Review of mockups.
    - g. Possible conflicts.
    - h. Compatibility requirements.
    - i. Time schedules.
    - j. Weather limitations.
    - k. Manufacturer's written instructions.
    - l. Warranty requirements.
    - m. Compatibility of materials.
    - n. Acceptability of substrates.
    - o. Temporary facilities and controls.
    - p. Space and access limitations.
    - q. Regulations of authorities having jurisdiction.
    - r. Testing and inspecting requirements.
    - s. Installation procedures.
    - t. Coordination with other work.
    - u. Required performance results.
    - v. Protection of adjacent work.
    - w. Protection of construction and personnel.
  3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than seven days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner, Architect/Engineer and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with project and authorized to conclude matters relating to the Work.

## PROJECT MANAGEMENT AND COORDINATION – 01 3100

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of Record Documents.
    - b. Procedures required prior to inspections leading up to Substantial Completion and final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.
    - h. Procedures for processing Applications for final payment.
    - i. Responsibility for removing temporary facilities and controls.
  4. Minutes: Owner will record and distribute meeting minutes.
- E. Progress Meetings: Owner will conduct progress meetings at regular intervals.
1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the contract time.
      - 1) Review schedule for activities expected to be accomplished during the coming two week period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Coordination and interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access and site use.
      - 7) Progress cleaning.
      - 8) Quality and work standards.
      - 9) Status of correction of deficient items.
      - 10) Field observations.
      - 11) Status of RFIs.
      - 12) Status of Proposal Requests.
      - 13) Status of Change Orders.
      - 14) Pending claims and disputes.
  3. Minutes: Owner will record and distribute the meeting minutes to each party present and to parties requiring information.

**PROJECT MANAGEMENT AND COORDINATION – 01 3100**

- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 3100**

## CONSTRUCTION PROGRESS DOCUMENTATION – 01 3200

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Start-up construction schedule.
  - 2. Contractor's construction schedule.
  - 3. Construction reports.
- B. Related Sections:
  - 1. General Conditions and Supplementary General Conditions of the Contract.
  - 2. Division 1 and technical specification sections, as applicable.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.
- F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit schedules in electronic format using Microsoft Project or other software approved by the Owner.
- B. Start-up construction schedule.
  - 1. Approval of cost-loaded start-up construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Start-up Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

## CONSTRUCTION PROGRESS DOCUMENTATION – 01 3200

- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - E. Construction Reports: Submit at monthly intervals using Microsoft Word for narrative and Microsoft Project for schedules, or other format approved by the Owner.
  - F. Special Reports: Submit at time of unusual event in format approved by the Owner.
- 1.5 COORDINATION
- A. Coordinate Contractor's construction schedule with the schedule of values, subcontracts, submittal schedule, progress reports, payment requests, and other schedules and reports.
    - 1. Secure time commitments for performing critical elements of the Work from entities involved; monitor and maintain commitments throughout the Work.
    - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from Notice to Proceed to the date of final completion.
- B. Activities: Treat each phase or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Owner.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 30 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to shop drawing development, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times.
  - 4. Startup and Testing Time: Include not less than 5 days for startup and testing.
  - 5. Substantial Completion: Indicate completion in at least 5 days in advance of date established for Substantial Completion, and allow time for Owner's administrative procedures necessary for certification of Substantial Completion.
  - 6. Punch List and Final Completion: Include not more than 30 days for punch list and final completion (combined).
- C. Milestones: Include milestones indicated in the contract documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completions, and Final Completion.
- D. Upcoming Work Summary: Prepare a weekly summary report, indicating activities scheduled to occur for at least 2 weeks ahead of Work. Summarize the following issues:
  - 1. Unresolved issues.
  - 2. Unanswered RFIs.
  - 3. Rejected or unreturned submittals.
  - 4. Notations on returned submittals.
- E. Recovery Schedule: When periodic update indicates the Work is 5 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and indicate date by which recovery will be accomplished.

#### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a preliminary Gantt-Chart Schedule at the Preconstruction conference, and a subsequent comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's construction

## CONSTRUCTION PROGRESS DOCUMENTATION – 01 3200

schedule within 7 days of the Notice to Proceed that includes materials or components that require more than 30 days from order to be received on site.

### 2.3 REPORTS

- A. Monthly Construction Reports: Prepare a monthly construction report recording the following information concerning events at project site:
1. List of subcontractors at project site.
  2. Approximate count of personnel at project site, recorded daily.
  3. Equipment at project site.
  4. Material deliveries.
  5. Accidents and emergency procedures initiated.
  6. Meetings and significant decisions.
  7. Unusual events such as stoppages, delays, shortages, and losses.
  8. Orders and requests of authorities having jurisdiction.
  9. Request for Proposals accepted and implemented.
  10. Construction Change Directives received and implemented.
  11. Services connected and disconnected.
  12. Equipment or system tests and startups.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals in conjunction with Request for Payment, or at other times as requested by the Owner, update schedule to reflect actual construction progress and activities.
1. Revise schedule immediately after each progress meeting or other activity where revisions have been recognized or made.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect/Engineer, Owner, sub-contractors, and other parties identified by Contractor with schedule responsibility.
1. Post copies in Project meeting room.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

**END OF SECTION 01 3200**

## **SCHEDULE OF VALUES – 01 3250**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

#### **1.2 PREPARATION OF SCHEDULE OF VALUES**

- A. The Schedule of Values shall be developed in close association with the Construction Schedule activities and logic.
  - 1. The Contractor shall submit a preliminary Schedule of Values for the major components of the Work prior to the Preconstruction Conference. The listing shall include, at a minimum, the proposed value for the major Work components within each phase of the Work.
  - 2. The Contractor and Owner shall meet and jointly review the preliminary Schedule of Values and make any adjustments in value allocations necessary, if in the opinion of the Owner, allocation adjustments are necessary to establish fair and reasonable allocation of values for the major Work components. Front end loading will not be permitted. The Owner may require inclusion of other major Work components not included in the above listing, if, in the opinion of the Owner, such additional components are appropriate. This review and any necessary revisions shall be completed prior to the Pre-Construction Conference.
  - 3. Once agreed upon, the Schedule of Values shall become the basis for Progress Payments throughout the project. The Progress Payments shall be submitted on a form acceptable to the Owner.

#### **1.3 CHANGES TO THE SCHEDULE OF VALUES**

- 1. The Contractor and Owner may agree to make adjustments to the original Schedule of Values because of inequities discovered in the original detailed Schedule of Values or because of additional Work added to the contract via Change Order.
- 2. The Schedule of Values shall be updated with each request for Payment.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 3250**

## **SUBMITTAL PROCEDURES – 01 3300**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections, apply to this Section.
- B. Submittal requirements may be included in technical specification sections.

#### **1.2 SUMMARY**

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

#### **1.3 DEFINITIONS**

- A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's responsive action. Action submittals are those submittals indicated in individual specification sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual specification sections as "informational submittals."
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### **1.4 ACTION SUBMITTALS**

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
  - 4. Submit revised submittal schedule to reflect submittal status and timing.

#### **1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS**

- A. Digital Data Files: Owner will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing shop drawings.
  - 1. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Submit all submittal items required for each specification section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  - 3. Submit action submittals and informational submittals required by the same specification section as separate packages under separate transmittals.



## **SUBMITTAL PROCEDURES – 01 3300**

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
  
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  
- D. Electronic Submittals: Identify and incorporate the following information in each electronic submittal file:
  1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect/Engineer.
  4. Transmittal Form for Electronic Submittals: Use form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date of submission.
    - c. Name of Contractor.
    - d. Names of subcontractor, manufacturer, and supplier.
    - e. Submittal purpose and description.
    - f. Specification section number and title.
    - g. Drawing number and detail references, as appropriate.
    - h. Location(s) where product is to be installed, as appropriate.
    - i. Related physical samples submitted directly.
    - j. Indication of full or partial submittal.
    - k. Transmittal number.
    - l. Other necessary identification.
  
- E. Options: Identify options requiring selection by Owner.
  
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect/Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
  
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect/Engineer's action stamp.
  
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

## SUBMITTAL PROCEDURES – 01 3300

- I. Use for Construction: Retain complete copies of submittals on project site. Use only final action submittals that are marked with approval notation from Architect/Engineer's action stamp.

### **PART 2 - PRODUCTS**

#### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual specification sections. Types of submittals are indicated in individual specification sections.
  1. Submit electronic submittals via email as PDF electronic files.
    - a. Owner will return annotated file. Annotate and retain one copy of file as an electronic project record document file.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as shop drawings, not as product data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's product specifications.
    - b. Color charts.
    - c. Statement of compliance with specified referenced standards.
    - d. Testing by recognized testing agency, with labels and seals noted.
    - e. Notation of coordination requirements.
    - f. Availability and delivery time information.
  4. Submit Product Data before or concurrent with samples.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect/Engineer's digital data drawing files is otherwise permitted.
  1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8.5x11.
  3. Submit shop drawings in PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
  1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of samples that includes the following:
    - a. Generic description of sample.
    - b. Product name and name of manufacturer.
    - c. Number and title of applicable specification section.
    - d. Specification paragraph number and generic name of each item.
- E. Application for Payment and Schedule of Values: Comply with requirements specified in the General Conditions and other Division 1 sections.

## **SUBMITTAL PROCEDURES – 01 3300**

- F. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 7700 "Closeout Procedures."

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR'S REVIEW**

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01770 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include project name and location, submittal number, specification section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.2 OWNER'S ACTION**

- A. Action Submittals: Owner will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner may forward submittal to Architect/Engineer who will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- C. Submittals not required by the Contract Documents may be returned by the Owner without action.

**END OF SECTION 01 3300**

## QUALITY REQUIREMENTS – 01 4000

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 specification sections, apply to this section.
- B. Technical specifications for specific test and inspection requirements.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the contract document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the sections that specify those activities. Requirements in those sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the contract document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Owner or authorities having jurisdiction are not limited by provisions of this section.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by the Owner.
- C. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee or subcontractor to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this project; being

## QUALITY REQUIREMENTS – 01 4000

familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. Refer uncertainties to Owner for a decision before proceeding.

### 1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Contractor's Quality-Control Manager Qualifications: For supervisory personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the applicable systems or components.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications acceptable to the Owner.

### 1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: The Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.
- B. Submit quality-control plan in a form acceptable to the Owner within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule. The Contractor shall discuss and present, at the preconstruction conference, its understanding of the quality control requirements.
- C. In accordance with FAA General Provisions, paving projects over \$500,000 in value shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, testing laboratories, and Owner's representative at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Owner and the Engineer on time and location of the QC/QA workshop.
- D. Quality-Control Program Administrator: The Contractor shall appoint a Quality Control Program Administrator who shall have a minimum of five (5) years of experience in airport construction and shall have had prior quality control experience on a project of comparable size and scope as the contract. The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract documents and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm.

## QUALITY REQUIREMENTS – 01 4000

- E. Quality-Control Technicians: A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be registered engineers, registered architects, engineering/construction management technicians, or experienced craftsman with qualifications in the appropriate trade and field or work, and shall have a minimum of two years of experience in their area of expertise as quality control technicians. The quality control technicians shall report directly to the Program Administrator.
- F. Testing and Inspection: Include in quality-control plan a comprehensive schedule of Work requiring testing or inspection, including the following:
  - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  - 2. Special inspections required by authorities having jurisdiction and as indicated by the Owner.
  - 3. Owner-performed tests and inspections indicated in the contract documents.
- G. Continuous Inspection of Work quality: Describe process for continuous inspection during construction to identify and correct deficiencies in work quality in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of quality established by contract requirements.
- H. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Owner has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

### 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections in a format acceptable to the Owner. Include the following:
  - 1. Date of issue.
  - 2. Name, email address, and telephone number of testing agency and/or persons making tests and inspections.
  - 3. Dates and locations of samples and tests or inspections.
  - 4. Description of the Work and test and inspection method.
  - 5. Identification of product and specification section.
  - 6. Complete test or inspection data, results, and interpretation thereof.
  - 7. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  - 8. Name and signature of laboratory inspector.
  - 9. Recommendations on retesting and re-inspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other sections in a format acceptable to the Owner. Include the following:
  - 1. Name, address, email, and telephone number of technical representative making report.
  - 2. Statement on condition of substrates and their acceptability for installation of product.
  - 3. Statement that products at project site comply with requirements.
  - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  - 6. Statement whether conditions, products, and installation will affect warranty.
  - 7. Other required items indicated in individual specification sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections in a format acceptable to the Owner. Include the following:
  - 1. Name, address, email, and telephone number of factory-authorized service representative making report.

## QUALITY REQUIREMENTS – 01 4000

2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual specification sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- 1.8 QUALITY ASSURANCE
- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual specification sections specify additional requirements.
  - B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project for at least five years and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
  - C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project for at least five years and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
  - D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project for at least five years and whose work has resulted in construction with a record of successful in-service performance.
  - E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where project is located and who possesses at least five years' experience in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this project in material, design, and extent.
  - F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated for a period of at least five years prior to the project.
  - G. Manufacturer's Technical Representative and Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products and has at least five years' experience in projects similar in material, design, and extent to those indicated for this project.
- 1.9 QUALITY CONTROL
- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency or inspector to perform these services.
    1. Owner will furnish Contractor with names, addresses, email, and telephone numbers of testing agencies or inspectors engaged and a description of types of testing and inspecting they are engaged to perform.
    2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the contract documents, or that the Contractor requested to proceed on a partial basis to accommodate construction sequencing will be charged to Contractor, and the contract sum will be adjusted by Change Order.

## QUALITY REQUIREMENTS – 01 4000

- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
  - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction.
  - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
  - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  - 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report of each quality-control service.
  - 5. Testing and inspecting requested by Contractor and not required by the contract documents are Contractor's responsibility.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections, and submittal written reports.
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

### 1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as described in the contract documents, and as follows:
  - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
  - 2. Notifying Owner and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  - 3. Submitting a written report of each test, inspection, and similar quality-control service to Owner with copy to Contractor and to authorities having jurisdiction, when applicable.
  - 4. Submitting a final report of special tests and inspections at Substantial Completion that includes a list of unresolved deficiencies.
  - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the contract documents.
  - 6. Retesting and reinspecting corrected work.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 FREQUENCY

- A. Contractor shall implement the Quality Control Program throughout the Work. Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work.
- B. During field operations, quality control test results and periodic inspections shall be used to ensure the quality of all materials and work quality. All equipment used in placing, finishing, assembling, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such



## QUALITY REQUIREMENTS – 01 4000

operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified.

### 3.2 TEST AND INSPECTION LOG

- A. Prepare a record of tests and daily inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date test or inspection results were transmitted to Owner.
  - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Owner's reference during normal working hours.

### 3.3 DOCUMENTATION

- A. Daily Inspection Reports. Each of the Contractor's quality control technicians shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:
  - 1. Technical specification item number and description
  - 2. Compliance with approved submittals
  - 3. Proper storage of materials and equipment
  - 4. Proper operation of all equipment
  - 5. Adherence to plans and technical specifications
  - 6. Review of quality control tests
  - 7. Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Owner shall be provided at least one copy of each daily inspection report on the work day following the day of record.

### 3.4 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes in accordance with the contract document requirements for cutting and patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION 01 4000**

## TEMPORARY FACILITIES AND CONTROLS – 01 5000

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 01 5200 “Security”

#### 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the contract sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Owner's construction forces, Architect/Engineer, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for Contractor's connection of temporary service. Provide connections and extensions of services as required for construction operations and in compliance with the authorities having jurisdiction. The Contractor's water connection shall include a water meter.

Electric Power: Contractor shall provide temporary electrical service for use on the project. Provide connections of service as required for construction operations and in compliance with the authorities having jurisdiction.

- C. Toilets: Contractor shall provide clean and functional temporary toilet facilities that shall be regularly maintained for use of Contractor's personnel throughout the project.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion and Sedimentation-Control Plan: Show compliance with requirements of JNU Airport's multi-sector permit for storm water discharge for Work that affects existing surface drainage.
- C. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
  - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
  - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

#### 1.5 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits, except that Owner will obtain and pay for the necessary building permit.
- B. Accessible Temporary Egress: Comply with applicable codes and airport regulations to maintain access to building and vehicular routes around the building.

## TEMPORARY FACILITIES AND CONTROLS – 01 5000

### 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

## PART 2 - PRODUCTS

### 2.1 TEMPORARY FACILITIES

- A. Field Office: Contractor shall establish a mobile field office in the designated project staging and storage area on airport property, or in another location agreed to by the Owner.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

### 2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters or open-flame heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Obtain written approval of temporary facility locations by the Owner and locate where they will serve project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Promptly remove facilities when they are no longer needed.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary services or connect to existing services.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. At Substantial Completion, remove or restore all temporary facilities to condition existing before initial use.
- B. Electric Power Service: Connect temporary services in accordance with applicable code and utility company regulations.
- C. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  - 2. Maintain conservation practices to shut off lighting when work is not underway

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Temporary Use of Permanent Roads and Paved Areas: Contractor may utilize existing roads and paved areas, within construction limits indicated, as necessary for construction operations and in accordance with Airport safety and security regulations.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.

## TEMPORARY FACILITIES AND CONTROLS – 01 5000

3. Maintain established vehicular and aircraft traffic routes in and around the Work area.
  - C. Parking: Use designated parking areas for construction personnel.
  - D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain project site, excavations, and construction free of water.
    1. Dispose of rainwater in a lawful manner that will not result in flooding project or adjoining properties or endanger permanent Work or temporary facilities.
    2. Juneau International Airport holds a multi-sector permit issued by the Alaska Department of Environmental Conservation for storm water discharge. Contractor shall comply with all applicable permit conditions through completion of the Work.
  - E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Airport safety requirements regarding Flying Object Debris (FOD).
- 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
  - B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - C. Security Enclosure: Install temporary enclosure (barricades) around partially completed areas of construction.
  - D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
  - E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
    1. Prohibit smoking in construction areas.
    2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
    3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures.
- 3.5 MOISTURE AND MOLD CONTROL
- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished Work. Document visible signs of mold that may appear during construction.
  - B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
    1. Protect porous materials from water damage.
    2. Protect stored and installed material from flowing or standing water.
    3. Remove standing water from roof deck.
    4. Keep roof deck openings covered or dammed.

## TEMPORARY FACILITIES AND CONTROLS – 01 5000

- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
    - 1. Discard or replace water-damaged material.
    - 2. Do not install material that is wet.
    - 3. Discard, replace, or clean stored or installed material that begins to grow mold.
- 3.6 OPERATION, TERMINATION, AND REMOVAL
- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
  - B. Maintenance: Maintain facilities in good operating condition until removal.
    - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  - C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
    - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
    - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period.

**END OF SECTION 01 5000**

## SECURITY AND SAFETY – 01 5200

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

#### 1.2 SECURITY PROGRAM AT JUNEAU INTERNATIONAL AIRPORT

- A. The Contractor shall:
  1. Protect Work area and existing premises and Owner's operations from theft, vandalism, and unauthorized entry.
  2. Prepare a Safety Plan Compliance Document in compliance with FAA Advisory Circular 150/5370-2.
  3. Initiate security program, approved by Owner, prior to start of Work, including coordination of all temporary fencing, gates, and controls to meet Transportation Security Administration (TSA) and JNU Airport Security requirements.
  4. Maintain program throughout construction period until Owner's occupancy.
  5. All security changes necessary for construction activities to the perimeter gates, doors, and/or fence must be requested 60 days in advance. Temporary changes may be requested within 72 hours.
  6. Vehicles, equipment, and stockpiled material may not be parked or staged within 6 feet of the perimeter fence, gate, and/or door.

#### 1.3 ACCESS CONTROL

- A. The Contractor shall:
  1. Provide a secure Work area in accordance with the drawings and other provisions relating to Airport Security.
  2. Restrict entry of persons and vehicles into the project site and the airport restricted area (airport property inside the fence).
  3. Allow entry only to authorized persons with proper identification.
  4. Construct all temporary fencing, gates and controls in accordance with applicable security requirements.
  5. Utilize Gate E in accordance with JNU Airport security to access the Work site.
- B. Owner shall control entrance of persons and vehicles related to Owner's operations.
- C. The Contractor shall be liable for any fines levied against the Airport by the TSA resulting from actions of the Contractor, or those for whom the Contractor is responsible, that cause a breach of security in the area of construction, to include any points of entry into the Air Operations Area (AOA), also known as the restricted area of the Airport, utilized for the construction project. Failure to maintain security will also include failure to abide by the Airport badge identification program or other requirements pertaining to the security of the Airport.

#### 1.4 AIR OPERATIONS AREA (AOA) BADGE REQUIREMENTS

- A. Only Juneau International Airport Identification Badge, Law Enforcement Credentials, Federal Inspector Credentials and Airline Crew Credentials are recognized as authority to enter or be present in the restricted area of the airport without escort. Only persons identified by this system are permitted access.
- B. Any person found in a location that is not the work area or access route to and from the work area will be removed from the area and action will be taken against violators as appropriate.
- C. Security Identification Display Area (SIDA) badges are required for the Work. Contractor shall apply for clearance with Juneau International Airport Badging Office. Requirements for each employee include completing an Identification Badge/Media Application, photo proof of identity, either proof of US citizenship or work authorization paperwork, and completion of a Federal Security Threat Assessment. - Contractor shall assume a minimum of two weeks for the clearance process, however, the clearance process is conducted by TSA and delays may exceed two weeks.

## SECURITY AND SAFETY – 01 5200

- D. Contractor's personnel are subject to random checks for compliance with badging and permit regulations. Such checks may be conducted by Airport Police, Airport Employees, and/or TSA.
  - E. Any falsifications can result in revocation of the badges for the individual in question, and any fines incurred from the violations will be passed to the responsible party.
  - F. The Airport Badge Application is an agreement between the Airport and the badge holder. The badge application provides all rules and procedures the badge holder must comply with while in the restricted area of the airport.
  - G. In order to maintain accountability for all Airport Identification Badges issued, the Contractor is responsible for physically collecting and returning to the Airport all outstanding badges no longer used for the construction project including those badges carried by persons no longer working on the project. Proof of return is the Airport Receipt issued by the Airport.
  - H. When someone terminates employment, the Contractor shall immediately notify the Airport so that the badge can be deactivated. If termination is outside of the normal working hours, the Contractor shall immediately notify Airport Police at 586-0899 or 321-3802 of the termination.
  - I. A non-refundable fine of \$300.00 will be levied against the Contractor for each badge not returned within five (5) days of badge expiration, employee termination or completion of the project, whichever is sooner.
  - J. Should an employee lose his or her Airport Identification Badge, he or she shall immediately notify the Contractor, who shall then immediately notify the Airport to deactivate the badge access. If lost after normal business hours, the lost badge shall be reported to Airport Police. If the lost badge is found the Contractor must notify the Airport to reactivate the badge. Further, the Airport will confirm the employee's employment status prior to reactivation of a badge reported lost, then found by its owner. If requested, a replacement badge will not be issued until a replacement request letter is received and the \$200.00 lost badge fee is paid. This is a separate fee from the non-refundable fine of \$300.00 applied to non-returned badges. If a replacement badge is issued for a lost badge, *and* the \$200.00 fee paid, the Contractor will not be charged the non-refundable fine of \$300.00.
  - K. Final payment to the Contractor will not be authorized until all badges are returned to the Airport.
  - L. The Contractor's and subcontractor's personnel shall be badged for this project as needed to complete the Work. Upon request of the Contractor, Escort Authority may be authorized by the Owner to specific employees or subcontractors of the Contractor when the Work is limited in duration. In such cases, the Contractor is fully responsible for all such personnel.
- 1.5 VEHICLE ACCESS IN THE AOA
- A. The TSA requires the Airport Operator to control access into and prevent unauthorized vehicles from entering the AOA. In compliance with this requirement, the Airport Operator has established procedures to authorize or deny access to the AOA and to identify and control vehicles while within the AOA.
  - B. When any vehicle, other than one that has prior approval from the airport operator, must travel over any portion of an area used by aircraft moving under its own power, as well as the 135-AOA ramp, it will be properly identified and an amber colored rotating beacon is required.
  - C. All Contractor vehicles requiring access to the AOA shall display a company name/logo. Company name/logo must be affixed to both sides of the vehicle (vehicle magnets are not prohibited in the AOA).
  - D. Contractor vehicles are only authorized in the areas where their contract work is being performed and on the access routes to and from that area; during contract working hours (unless otherwise required for emergencies).

## SECURITY AND SAFETY – 01 5200

- E. A Contractor vehicle is authorized in the AOA only when within its area of authorization, the safety flag are properly displayed, and all occupants have the required Airport Identification Badge.

### 1.6 PROJECT SITE SECURITY

- A. All access points into the project area must be kept secure. Temporary barriers shall be required and described in the Contractor's approved Safety Plan Compliance Document. The Contractor shall notify the Owner at least 72 hours before the following conditions:
  1. When construction is to begin.
  2. When Work is complete.

### 1.7 SAFETY PLAN

- A. Contractor shall submit a written Safety Plan Compliance Document developed in accordance with FAA Advisory Circular 150/5370-2 for work in the AOA. The plan shall address the following:
  1. Maintaining safe airport operations in the vicinity of the Work, including separating pedestrian, vehicles, equipment, and aircraft.
  2. Maintaining clean and safe construction operations including controlling Foreign Object Debris (FOD).
  3. Controlling access to the Work area through the use of temporary fencing and barricades and restricting access by unauthorized persons.
  4. Understanding the safety problems and hazards described in AC 150/5370-2, *Operational Safety on Airports During Construction*.
  5. Conducting activities so as not to violate any safety standards contained in AC 150/5370-2 or any of the references therein.
  6. Promptly taking all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.
  7. Identifying locations for stockpiled materials, equipment operations, access to haul routes, and construction site parking.
  8. Marking the area of Work as a hazardous area on the aircraft ramp area with barricades, traffic cones, flags, or flashers. These markings restrict access and make hazards obvious to aircraft, personnel, and vehicles. During periods of low visibility and at night, identify hazardous areas with red flashing or steady-burning light.
  9. The Contractor must ensure that all trash, debris, and bird attractants are stored in proper areas. Further, all vehicles/equipment are clean of bird attractants.
- B. Contractor's overall project safety plan shall be reviewed and updated at Progress Meetings and at other times as required by the Owner's Representative.

### 1.8 RESTRICTIONS

- A. The Contractor shall not allow cameras on site or photographs to be taken by persons under the control of the Contractor except by written approval of the Owner.
- B. Contractor shall, at all times, give way to all aircraft and follow directions from aircraft ground crews.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

END OF SECTION 01 5200



## PRODUCT REQUIREMENTS – 01 6000

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Section 01 2500 "Substitution Procedures" for requests for substitutions.

#### 1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced.
  - 1. Include data to indicate compliance with the contract documents requirements.
  - 2. Owner's Action: If necessary, Owner will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Owner will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Use form of Approval: As specified in Section 01 330 "Submittal Procedures."
    - b. Use product specified if Owner does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 330 "Submittal Procedures." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on project, select product compatible with products previously selected, even if previously selected products were also options.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

## PRODUCT REQUIREMENTS – 01 6000

- B. Delivery and Handling:
  - 1. Schedule delivery to minimize storage at project site and to prevent overcrowding of construction spaces.
  - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration or theft.
  - 3. Deliver products to project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
  
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units.
  - 2. Store materials in a manner that will not endanger project structure.
  - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 6. Protect stored products from damage and liquids from freezing.
  - 7. Provide a secure location and enclosure at project site for storage of materials and equipment. Coordinate location with Owner.

### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other sections shall be in addition to, and run concurrent with, other warranties required by the contract documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations of the contract documents.
  - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
  
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
  - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
  - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
  
- C. Submittal Time: Comply with requirements in Section 01 7700 "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete roofing system installation and indicated use and effect.
  - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

## **PRODUCT REQUIREMENTS – 01 6000**

4. Where products are accompanied by the term "as selected," Owner will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

### **B. Product Selection Procedures:**

1. Products:
  - a. Restricted List: Where specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
2. Manufacturers:
  - a. Restricted List: Where specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

### **2.2 COMPARABLE PRODUCTS**

#### **A. Conditions for Consideration: Owner will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Owner may return requests without action, except to record noncompliance with these requirements:**

1. Evidence that the proposed product does not require revisions to the contract documents, is consistent with the contract documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 6000**

## EXECUTION – 01 7300

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections apply to this section.

#### 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Installation of the Work.
- B. Related Requirements:
  - 1. Section 01 1000 "Summary" for limits on use of Project site.
  - 2. Section 01 3300 "Submittal Procedures" for submitting surveys.
  - 3. Section 01 7700 "Closeout Procedures" for submitting final documents, recording of Owner-accepted deviations during construction, and final cleaning.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Owner of locations and details of cutting and await directions from Owner before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or in increased maintenance or decreased operational life or safety.
  - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety
  - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching Conference: Before proceeding, meet at project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Owner for the visual and functional performance of in-place materials.

## EXECUTION – 01 7300

### PART 3 - EXECUTION

#### 3.1 EXAMINATION AND LAYOUT

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with installer or applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

#### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to the Owner according to requirements in Section 01 3100 "Project Management and Coordination."
- D. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

#### 3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

## EXECUTION – 01 7300

- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
    - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
    - 2. Allow for building movement, including thermal expansion and contraction.
    - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
  - I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
  - J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- 3.4 CUTTING AND PATCHING
- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
    - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
  - B. Temporary Support: Provide temporary support of work to be cut.
  - C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of project that might be exposed during cutting and patching operations.
  - D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
    - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
    - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
    - 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
    - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
    - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
    - 6. Proceed with patching after construction operations requiring cutting are complete.
  - E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
    - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
    - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

## **EXECUTION – 01 7300**

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- F. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.
- 3.5 PROTECTION OF INSTALLED CONSTRUCTION
- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

**END OF SECTION 01 7300**

## CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL – 01 7419

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections apply to this section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Disposing of nonhazardous demolition and construction waste.

#### 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Foreign Object Debris (FOD): A substance, debris or article alien to aircraft that would potentially cause damage to aircraft or flight control mechanisms. FOD includes, but is not limited to, loose hardware, tools, pavement fragments, trash, building materials, rocks, pens, coins, hats, soda cans, paper clips, rags, and wildlife.
- E. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- F. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- G. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 PLAN IMPLEMENTATION

- A. General: Provide handling, containers, storage, signage, transportation, and other items as required to handle waste during the entire duration of the contract.
  - 1. Comply with operation, termination, and removal requirements in Section 01 5000 "Temporary Facilities and Controls."
- B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on project site necessary for waste management.
  - 2. Comply with Section 01 5000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
- C. Comply with Airport safety requirements regarding Foreign Object Debris (FOD). Release of uncontrolled debris or materials of any kind is prohibited any place on or over airport property.
- D. Demolition debris is to be collected and containerized.
- E. Contractor to inspect the entire work area, including the grounds immediately around the building on a daily basis and ensure that FOD is not being released. If FOD is found, notify Owner and collect FOD



## **CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL – 01 7419**

immediately, identify the origin of the material found and describe modifications to work process or procedures necessary to prevent additional FOD release.

### **3.2 DISPOSAL OF WASTE**

- A. General: Remove waste materials from project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.
- D. Containers: All debris is to be collected, stored and transported in an enclosed container.

**END OF SECTION 01 7419**

## **CLOSEOUT PROCEDURES – 01 7700**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 specification sections apply to this section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 01 7300 "Execution" for progress cleaning of Project site.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Certificates of Release from authorities having jurisdiction.
- B. Certificate of Insurance for continuing coverage.

#### **1.4 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 5 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 2. Submit closeout submittals specified in other Division 00 and 01 sections, including project record documents, operation and maintenance manuals, final completion construction photos, damage or settlement surveys, and similar final record information.
  - 3. Submit closeout submittals specified in individual Sections, including specific warranties, bonds, maintenance service agreements, final certifications, and similar documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 5 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Complete final cleaning requirements, including touchup painting.
  - 3. Repair and restore marred exposed finishes to eliminate visual defects.
  - 4. Complete Owner training.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 5 days prior to date the work will be completed and ready inspection. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner's Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect/Engineer that must be completed or corrected before certificate will be issued.
  - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## **CLOSEOUT PROCEDURES – 01 7700**

2. Results of completed inspection will form the basis of requirements for final completion.

### **1.5 FINAL COMPLETION PROCEDURES**

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
  1. Submit a final Application for Payment according the General Conditions.
  2. Certified List of Incomplete Items: Submit certified copy of Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect/Engineer. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Other forms and certificates required by the Contract Documents.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
  1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

### **1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Organization of List: Include name and identification of each area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

### **1.7 SUBMITTAL OF PROJECT WARRANTIES**

- A. Time of Submittal: Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Utilize professional cleaning service with personnel qualified and experienced in cleaning building components and systems used in the project. Clean each surface or unit to condition expected for new commercial building standard.
  1. Remove labels that are not permanent
  2. Wipe surfaces of mechanical and electrical equipment.
  3. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  4. Clean light fixtures, lamps, and reflectors to function with full efficiency.
- C. Clean project site, yard, and grounds, in all areas disturbed by construction activities.
- D. Sweep paved and concrete slab areas broom clean. Remove spills, stains, and other foreign deposits.

## **CLOSEOUT PROCEDURES – 01 7700**

### **3.2 REPAIR OF THE WORK**

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
  
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
  
  - 2. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

**END OF SECTION 01 7700**

## OPERATION AND MAINTENANCE DATA – 01 7823

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  1. Operation manuals for systems and equipment.
  2. Product maintenance manuals.
  3. Systems and equipment maintenance manuals.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  1. Where applicable, clarify and update reviewed manual content to correspond to modifications, field conditions, and record drawings and specifications.
- B. Format: Submit operations and maintenance manuals in the following formats:
  1. PDF electronic file. Assemble into a single composite manual with electronically-indexed file. Submit on digital media acceptable to the Owner.
    - a. Name each indexed document file in composite electronic index with applicable item name.
    - b. Enable inserted reviewer comments on draft submittals.
  2. Two paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Owner will return one copy.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 7 days before commencing demonstration and training. Prior to demonstration and testing, Owner will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 7 days before commencing demonstration and training. Owner will return copy with comments.
  1. Correct or modify each manual to comply with Owner's comments and submit corrected manuals prior to commencing demonstration and training.

### PART 2 - PRODUCTS

#### 2.1 REQUIREMENTS FOR OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual by discipline (architectural, structural, mechanical, and electrical) and into a separate section for each system or piece of equipment not part of a system. Each manual shall contain the following materials:
  1. Title page.
  2. Table of contents.
  3. Manual contents.
- B. Title Page: Include the following information:
  1. Subject matter included in manual.
  2. Name and address of Project.
  3. Date of submittal.
  4. Name and contact information for applicable Contractor and subcontractors.
  5. Names and contact information for Architect and consultants to the Architect that designed the systems contained in the manuals.
  6. Cross-reference to related systems in other operation and maintenance manuals.

## OPERATION AND MAINTENANCE DATA – 01 7823

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to specification section number.
  - D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system and equipment.
  - E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
    - 1. Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
    - 2. Enable bookmarking of individual documents based upon file names and configure electronic manual to display bookmark panel upon opening file.
  - F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
    - 1. Binders: Heavy-duty, 3-ring, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
      - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
    - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
    - 3. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
    - 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
      - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
      - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
- 2.2 OPERATION MANUALS
- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
    - 1. System and equipment descriptions.
    - 2. Performance and design criteria if Contractor is delegated design responsibility.
    - 3. Operating standards and procedures.
    - 4. Operating logs.
    - 5. Wiring and control diagrams.
    - 6. Piped system diagrams.
    - 7. Precautions against improper use.
    - 8. License requirements including inspection and renewal dates.
  - B. Descriptions: Include the following:
    - 1. Product name and model number as indicated on Contract Documents.
    - 2. Manufacturer's name.
    - 3. Equipment identification with serial number of each component.
    - 4. Equipment function and operating characteristics.
    - 5. Performance curves and limiting conditions.
    - 6. Engineering data and tests.
    - 7. Complete nomenclature and number of replacement parts.
  - C. Operating Procedures: Include the following, as applicable:
    - 1. Startup procedures.

## OPERATION AND MAINTENANCE DATA – 01 7823

2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping including normal shutdown instructions.
6. Seasonal operating instructions.
7. Required sequences for electric or electronic systems.
8. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

### 2.3 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name, model number, color, and similar identifying information.
2. Manufacturer's name.
3. Material and chemical composition.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and sources of materials.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds. Include procedures to follow and required notifications for warranty claims.

### 2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.

## OPERATION AND MAINTENANCE DATA – 01 7823

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  3. Identification and nomenclature of parts and components.
  4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and sources of maintenance materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the contract documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared record Drawings in Division 1 Section "Project Record Documents."
- E. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

**END OF SECTION 01 7823**



## PROJECT RECORD DOCUMENTS – 01 7839

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
- B. Related Sections:
  - 1. Division 01 Sections as applicable.
  - 2. Technical Specifications for specific requirements for project record documents of the Work in those Sections

#### 1.3 SUBMITTALS

- A. Record Documents: Maintain one paper copy set of marked-up record prints and specifications for interim and final submittals.

### PART 2 - PRODUCTS

#### 2.1 RECORD DRAWINGS

- A. Maintain one set of marked-up paper copies of the contract drawings including shop drawings at a location on-site approved by the Owner.
  - 1. Neatly mark record prints in red font to show the actual installation where installation varies from that shown originally.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in neat, straight lines acceptable to the Owner.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
    - e. Cross-reference record prints to corresponding photographic documentation.
  - 2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to drawings.
    - b. Revisions to details shown on drawings.
    - c. Depths of foundations.
    - d. Revisions to routing of piping and conduits.
    - e. Revisions to electrical circuitry.
    - f. Actual equipment locations.
    - g. Duct size and routing.
    - h. Locations of concealed internal utilities.
    - i. Changes made through Request for Proposal or Construction Change Directive.
    - j. Changes made following Request for Information or Owner's written directive.
    - k. Details not on the original contract drawings.
  - 3. Mark the contract drawings and shop drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up prints.
  - 4. Mark record sets with red-colored ink or pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  - 5. Mark important additional information that was either shown schematically or omitted from original drawings.
  - 6. Note Construction Change Directive numbers, Request for Proposal numbers, and similar identification, where applicable.

## **PROJECT RECORD DOCUMENTS – 01 7839**

### **2.2 RECORD SPECIFICATIONS**

- A. Mark specifications to indicate the actual product installation where installation varies from that indicated in Specifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether record product data has been submitted in operation and maintenance manuals.
  - 5. Note related Change Orders and record drawings where applicable.

### **PART 3 - EXECUTION**

#### **3.1 RECORDING AND MAINTENANCE**

- A. Store record documents at a location approved by the Owner and apart from the contract documents used for construction. Do not use record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition. Provide access to project record documents for Owner's reference during normal working hours. Owner may require updated record documents as a condition of authorizing progress payments.

**END OF SECTION 01 7839**

## CONTRACTOR QUALITY CONTROL PROGRAM - 100

**100-1 GENERAL.** The Contractor shall assure that all materials and completed construction conform to contract Plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. When required, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be used. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

- a. Adequately provide for the production of acceptable quality materials.
- b. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.
- c. Allow the Contractor as much latitude as possible to develop their own standard of control.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, their understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

### 100-2 DESCRIPTION OF PROGRAM.

- a. **General Description.** The Contractor shall establish a Quality Control Program to perform inspection and testing of each item of work for which it is required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and Plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.
- b. **Quality Control Program.** The Contractor shall describe the Quality Control Program in a written document which shall be reviewed by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review at least 5 calendar days before the preconstruction conference.

The Quality Control Program shall be organized to address, as a minimum, the following items:

- a. Quality control organization;
- b. Project progress schedule;
- c. Submittals schedule;
- d. Inspection requirements;
- e. Quality control testing plan;
- f. Documentation of quality control activities; and
- g. Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

## CONTRACTOR QUALITY CONTROL PROGRAM - 100

**100-3 QUALITY CONTROL ORGANIZATION.** The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of Subsection 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

- a. **Program Administrator.** The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract.

Additional qualifications for the Program Administrator shall include at least one of the following requirements:

- (1) Professional engineer with 1 year of airport paving experience acceptable to the Engineer.
- (2) Engineer-in-training with 2 years of airport paving experience acceptable to the Engineer.
- (3) An individual with 3 years of highway and/or airport paving experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
- (4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).
- (5) Highway materials technician certified at Level III by NICET.
- (6) Highway construction technician certified at Level III by NICET.
- (7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract Plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

- b. **Quality Control Technicians.** A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of 2 years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

- (1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 100-05.

## CONTRACTOR QUALITY CONTROL PROGRAM - 100

- (2) Performance of all quality control tests as required by the technical specifications and Section 100-06.

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

- c. **Staffing Levels.** The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

**100-4 SUBMITTALS SCHEDULE.** The Contractor shall submit a detailed listing of all submittals (e.g., mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

- a. Specification item number;
- b. Item description;
- c. Description of submittal;
- d. Specification Subsection requiring submittal; and
- e. Scheduled date of submittal.

**100-5 INSPECTION REQUIREMENTS.** Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Section 100-07.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:

During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.

**100-6 QUALITY CONTROL TESTING PLAN.** As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by the technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- a. Specification item number (e.g., P-401);
- b. Item description (e.g., Plant Mix Bituminous Pavements);
- c. Test type (e.g., gradation, grade, asphalt content);

## CONTRACTOR QUALITY CONTROL PROGRAM - 100

- d. Test standard (e.g., ASTM or AASHTO test number, as applicable);
- e. Test frequency (e.g., as required by technical specifications or minimum frequency listed in appendix C when requirements are not stated);
- f. Responsibility (e.g., plant technician); and
- g. Control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples according to ASTM D 3665. The Engineer shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by Section 100-07.

**100-7 DOCUMENTATION.** The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

- a. **Daily Inspection Reports.** Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:
  - (1) Technical specification item number and description;
  - (2) Compliance with approved submittals;
  - (3) Proper storage of materials and equipment;
  - (4) Proper operation of all equipment;
  - (5) Adherence to Plans and technical specifications;
  - (6) Review of quality control tests; and
  - (7) Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record.

- b. **Daily Test Reports.** The Contractor shall be responsible for establishing a system which will record all quality control test results. Daily test reports shall document the following information:
  - (1) Technical specification item number and description;
  - (2) Test designation;
  - (3) Location;
  - (4) Date of test;

## CONTRACTOR QUALITY CONTROL PROGRAM - 100

- (5) Control requirements;
- (6) Test results;
- (7) Causes for rejection;
- (8) Recommended remedial actions; and
- (9) Retests.

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

**100-8 CORRECTIVE ACTION REQUIREMENTS.** The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

**100-9 INSPECTION BY THE ENGINEER.** All items of material and equipment shall be subject to inspection by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and Plans. In addition, all items of materials, equipment and work in place shall be subject to inspection by the Engineer at the site for the same purpose.

Inspection by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

### **100-10 NONCOMPLIANCE.**

- a. The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or their authorized representative to the Contractor or their authorized representative at the site of the work, shall be considered sufficient notice.
- b. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:
  - (1) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.
  - (2) Order the Contractor to stop operations until appropriate corrective action is taken.

## METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL) - 110

**110-1 GENERAL.** When the Specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined according to this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average ( $\bar{X}$ ) and sample standard deviation ( $S_n$ ) of the specified number ( $n$ ) of sublots for the lot and the specification tolerance limits,  $L$  for lower and  $U$  for upper, for the particular acceptance parameter. From these values, the respective Quality index(s),  $QL$  for Lower Quality Index and/or  $QU$  for Upper Quality Index, is computed and the PWL for the lot for the specified  $n$  is determined from Table 1. Analysis of test results will be based on an Acceptable Quality Level (AQL) of 95.0% and a contractor's risk of 5.0% unless otherwise specified. AQL may be viewed as the lowest percent within the specification limits of a material that is acceptable as a process average and receive 100% pay. The Contractor's risk is the probability that when the Contractor is producing material at exactly the AQL, the materials will receive less than 1.00 pay factor.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

IT IS THE INTENT OF THIS SECTION TO INFORM THE CONTRACTOR THAT, IN ORDER TO CONSISTENTLY OFFSET THE CONTRACTOR'S RISK FOR MATERIAL EVALUATED, PRODUCTION QUALITY (USING POPULATION AVERAGE AND POPULATION STANDARD DEVIATION) MUST BE MAINTAINED AT THE ACCEPTABLE QUALITY SPECIFIED OR HIGHER. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRODUCE AT QUALITY LEVELS THAT WILL MEET THE SPECIFIED ACCEPTANCE CRITERIA WHEN SAMPLED AND TESTED AT THE FREQUENCIES SPECIFIED.

**110-2 METHOD FOR COMPUTING PWL.** The computational sequence for computing PWL is as follows:

- a. Divide the lot into sublots according to the acceptance requirements of the specification.
- b. Locate the random sampling position within the subplot according to the requirements of the specification. Make a measurement at each location, or take a test portion and make the measurement on the test portion according to the testing requirements of the specification.
- c. Discard outliers as determined by ATM SP-7.
- d. Find the sample average ( $\bar{X}$ ) for all remaining subplot values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

n Where:

$\bar{X}$  = Sample average of all subplot values

within a lot  $x_1, x_2$  = Individual subplot values

n = Number of sublots



**METHOD OF ESTIMATING PERCENTAGE OF  
MATERIAL WITHIN SPECIFICATION LIMITS (PWL) - 110**

- e. Find the sample standard deviation ( $S_n$ ) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2)/(n-1)]^{1/2}$$

Where:

$S_n$  = Sample standard deviation of the number of subplot values in the set

$d_1, d_2, \dots$  = Deviations of the individual subplot values  $x_1, x_2, \dots$  from the average value  $X$  that

is:  $d_1 = (x_1 - X), d_2 = (x_2 - X) \dots d_n = (x_n - X)$

$n$  = Number of sublots

If the computed sample standard deviation ( $S_n$ ) is  $<0.001$ , then use  $S_n = 0.20$  for density and all sieves except the No. 200 sieve. Use  $S_n = 0.020$  for asphalt cement content and the No. 200 sieve.

- f. For single sided specification limits (i.e., L only), compute the Lower Quality Index  $Q_L$  by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where:

L = specification lower tolerance

limit  $Q_L$  = Lower Quality Index

Estimate the percentage of material within limits (PWL) by entering Table 1 with  $Q_L$ , using the column appropriate to the total number ( $n$ ) of measurements.  $Q_L$  is rounded to the nearest hundredth.

- g. For double sided specification limits (i.e. L and U), compute the Quality Indexes  $Q_L$  and  $Q_U$  by use of the following formulas:

$$Q_L = (X - L) / S_n \quad \text{and} \quad Q_U = (U - X) / S_n$$

Where:

L and U = specification lower and upper tolerance limits. Limits for the largest sieve specified will be plus 0% and minus 1%.

$Q_L$  = Lower Quality Index

$Q_U$  = Upper Quality Index

$Q_L$  and  $Q_U$  are rounded to the nearest hundredth.

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with  $Q_L$  and  $Q_U$ , using the column appropriate to the total number ( $n$ ) of measurements, and determining the percent of material above  $P_L$  and percent of material below  $P_U$  for each tolerance limit. Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where:

$P_L$  = percent within lower specification limit

$P_U$  = percent within upper specification limit

## METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL) - 110

### EXAMPLE OF PWL CALCULATION

(This is an example PWL determination of five random samples from Lot 1. Cores for mat density are used for this example. Follow the same basic procedure for all acceptance criteria requiring a PWL calculation.)

Project: Example Project  
Test Item: Item 401a, Lot 1

1. Densities of five random core samples from Lot 1 (n = 5).

$$x_1 (D-1) = 93$$

$$x_2 (D-2) = 94$$

$$x_3 (D-3) = 92$$

$$x_4 (D-4) = 95$$

$$x_5 (D-5) = 95$$

2. Calculate average density (X) for Lot 1.

$$X = (x_1 + x_2 + x_3 + x_4 + x_5)/n$$

$$X = (93 + 94 + 92 + 95 + 95)/5$$

$$X = 93.8 \text{ percent density}$$

3. Calculate the standard deviation ( $S_n$ ) for Lot 1.

$$S_n = [(\{x_1-X\}^2 + \{x_2-X\}^2 + \{x_3-X\}^2 + \{x_4-X\}^2 + \{x_5-X\}^2)/n-1]^{1/2}$$

$$S_5 = [(\{93-93.8\}^2 + \{94-93.8\}^2 + \{92-93.8\}^2 + \{95-93.8\}^2 + \{95-93.8\}^2)/5-1]^{1/2}$$

$$S_5 = [(0.64+0.04+3.24+1.44+1.44)/4]^{1/2}$$

$$S_5 = [1.70]^{1/2}$$

$$S_5 = 1.30$$

4. Calculate the lower Quality Index ( $Q_L$ ) for Lot 1. (L = Lower specification limit.)

$$Q_L = (X - L)/S_n$$

$$Q_L = (93.8-92)/1.30$$

$$Q_L = 1.38$$

5. Calculate the upper Quality Index ( $Q_U$ ) for Lot 1. (U = Upper specification limit.)

$$Q_U = (U - X)/S_n$$

$$Q_U = (98-93.8)/1.30$$

$$Q_U = 3.23$$

6. Determine the percent within lower specification limits ( $P_L$ ) from Table 1.

$$\text{For } n = 5 \text{ and } Q_L = 1.38, P_L = 94$$

7. Determine the percent within upper specification limits ( $P_U$ ) from Table 1.

$$\text{For } n = 5 \text{ and } Q_U = 3.23, P_U = 100$$

8. Calculate mat density PWL for LOT 1.

$$PWL = (P_L + P_U) - 100$$

$$PWL = (94 + 100) - 100$$

$$PWL = 94$$

**METHOD OF ESTIMATING PERCENTAGE OF  
MATERIAL WITHIN SPECIFICATION LIMITS (PWL) - 110**

**TABLE 1. Table for Estimating Percent of Lot Within Limits (PWL)**

For negative values of  $Q_U$  or  $Q_L$ , use absolute values of  $Q_U$  or  $Q_L$  and determine  $P_U$  or  $P_L$  from the table. The  $P_U$  or  $P_L$  associated with the negative  $Q_U$  or  $Q_L$  value is equal to 100 minus the table value of  $P_U$  or  $P_L$ .

$P_U$ or $P_L$	$n = 3$	$n = 4$	$n = 5$	$n = 6$	$n = 7$
	Upper or Lower Quality Index ( $Q_U$ or $Q_L$ )				
100	1.16-50.0	1.48-50.0	1.68-50.0	1.81-50.0	1.90-50.0
99	-	1.45-1.47	1.61-1.67	1.71-1.80	1.77-1.89
98	1.15	1.42-1.44	1.55-1.60	1.63-1.70	1.68-1.76
97	-	1.39-1.41	1.50-1.54	1.56-1.62	1.60-1.67
96	1.14	1.36-1.38	1.45-1.49	1.50-1.55	1.53-1.59
95	-	1.33-1.35	1.40-1.44	1.44-1.49	1.47-1.52
94	1.13	1.30-1.32	1.36-1.39	1.39-1.43	1.41-1.46
93	-	1.27-1.29	1.32-1.35	1.34-1.38	1.36-1.40
92	1.12	1.24-1.26	1.28-1.31	1.30-1.33	1.31-1.35
91	1.11	1.21-1.23	1.24-1.27	1.25-1.29	1.26-1.30
90	1.10	1.18-1.20	1.20-1.23	1.21-1.24	1.21-1.25
89	1.08-1.09	1.15-1.17	1.16-1.19	1.17-1.20	1.17-1.20
88	1.07	1.12-1.14	1.13-1.15	1.13-1.16	1.13-1.16
87	1.05-1.06	1.09-1.11	1.09-1.12	1.09-1.12	1.09-1.12
86	1.04	1.06-1.08	1.06-1.08	1.05-1.08	1.05-1.08
85	1.02-1.03	1.03-1.05	1.02-1.05	1.02-1.04	1.01-1.04
84	1.01	1.00-1.02	0.99-1.01	0.98-1.01	0.98-1.00
83	0.98-1.00	0.97-0.99	0.96-0.98	0.95-0.97	0.94-0.97
82	0.97	0.94-0.96	0.92-0.95	0.91-0.94	0.91-0.93
81	0.94-0.96	0.91-0.93	0.89-0.91	0.88-0.90	0.87-0.90
80	0.92-0.93	0.88-0.90	0.86-0.88	0.85-0.87	0.84-0.86
79	0.90-0.91	0.85-0.87	0.83-0.85	0.81-0.84	0.81-0.83
78	0.88-0.89	0.82-0.84	0.79-0.82	0.78-0.80	0.77-0.80
77	0.85-0.87	0.79-0.81	0.76-0.78	0.75-0.77	0.74-0.76
76	0.83-0.84	0.76-0.78	0.73-0.75	0.72-0.74	0.71-0.73
75	0.80-0.82	0.73-0.75	0.70-0.72	0.69-0.71	0.68-0.70
74	0.77-0.79	0.70-0.72	0.67-0.69	0.66-0.68	0.65-0.67
73	0.75-0.76	0.67-0.69	0.64-0.66	0.63-0.65	0.62-0.64
72	0.72-0.74	0.64-0.66	0.61-0.63	0.60-0.62	0.59-0.61
71	0.69-0.71	0.61-0.63	0.58-0.60	0.57-0.59	0.56-0.58
70	0.66-0.68	0.58-0.60	0.55-0.57	0.54-0.56	0.53-0.55
69	0.63-0.65	0.55-0.57	0.52-0.54	0.51-0.53	0.50-0.52
68	0.60-0.62	0.52-0.54	0.48-0.51	0.48-0.50	0.47-0.49
67	0.57-0.59	0.49-0.51	0.46-0.47	0.45-0.47	0.45-0.46
66	0.53-0.56	0.46-0.48	0.44-0.45	0.42-0.44	0.42-0.44
65	0.50-0.52	0.43-0.45	0.41-0.43	0.40-0.41	0.39-0.41
64	0.47-0.49	0.40-0.42	0.38-0.40	0.37-0.39	0.36-0.38
63	0.44-0.46	0.37-0.39	0.35-0.37	0.34-0.36	0.33-0.35
62	0.40-0.43	0.34-0.36	0.32-0.34	0.31-0.33	0.31-0.32
61	0.37-0.39	0.31-0.33	0.29-0.31	0.28-0.30	0.28-0.30
60	0.33-0.36	0.28-0.30	0.26-0.28	0.26-0.27	0.25-0.27
59	0.30-0.32	0.25-0.27	0.24-0.25	0.23-0.25	0.22-0.24
58	0.26-0.29	0.22-0.24	0.21-0.23	0.20-0.22	0.20-0.21
57	0.23-0.25	0.19-0.21	0.18-0.20	0.17-0.19	0.17-0.19
56	0.19-0.22	0.16-0.18	0.15-0.17	0.15-0.16	0.14-0.16
55	0.15-0.18	0.13-0.15	0.12-0.14	0.12-0.14	0.12-0.13
54	0.12-0.14	0.10-0.12	0.09-0.11	0.09-0.11	0.09-0.11
53	0.08-0.11	0.07-0.09	0.07-0.08	0.06-0.08	0.06-0.08
52	0.05-0.07	0.04-0.06	0.04-0.06	0.04-0.05	0.04-0.05
51	0.01-0.04	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03
50	0.00	0.00	0.00	0.00	0.00

$P_U$ or $P_L$	$n = 8$	$n = 9$	$n = 10$ to 11	$n = 12$ to 14	$n = 15$ to 18
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**METHOD OF ESTIMATING PERCENTAGE OF  
MATERIAL WITHIN SPECIFICATION LIMITS (PWL) - 110**

	<b>Upper or Lower Quality Index (Q<sub>U</sub> or Q<sub>L</sub>)</b>				
100	1.96-50.0	2.01-50.0	2.05-50.0	2.10-50.0	2.15-50.0
99	1.82-1.95	1.85-2.00	1.87-2.04	1.92-2.09	1.94-2.14
98	1.71-1.81	1.73-1.84	1.75-1.86	1.78-1.91	1.80-1.93
97	1.62-1.70	1.64-1.72	1.66-1.74	1.68-1.77	1.69-1.79
96	1.55-1.61	1.56-1.63	1.57-1.65	1.59-1.67	1.60-1.68
95	1.48-1.54	1.49-1.55	1.50-1.56	1.51-1.58	1.52-1.59
94	1.42-1.47	1.43-1.48	1.44-1.49	1.45-1.50	1.45-1.51
93	1.37-1.41	1.37-1.42	1.38-1.43	1.38-1.44	1.39-1.44
92	1.31-1.36	1.32-1.36	1.32-1.37	1.33-1.37	1.33-1.38
91	1.26-1.30	1.27-1.31	1.27-1.31	1.27-1.32	1.28-1.32
90	1.22-1.25	1.22-1.26	1.22-1.26	1.22-1.26	1.23-1.27
89	1.17-1.21	1.17-1.21	1.18-1.21	1.18-1.21	1.18-1.22
88	1.13-1.16	1.13-1.16	1.13-1.17	1.13-1.17	1.13-1.17
87	1.09-1.12	1.09-1.12	1.09-1.12	1.09-1.12	1.09-1.12
86	1.05-1.08	1.05-1.08	1.05-1.08	1.05-1.08	1.05-1.08
85	1.01-1.04	1.01-1.04	1.01-1.04	1.01-1.04	1.01-1.04
84	0.97-1.00	0.97-1.00	0.97-1.00	0.97-1.00	0.97-1.00
83	0.94-0.96	0.94-0.96	0.93-0.96	0.93-0.96	0.93-0.96
82	0.90-0.93	0.90-0.93	0.90-0.92	0.90-0.92	0.89-0.92
81	0.87-0.89	0.87-0.89	0.86-0.89	0.86-0.89	0.86-0.88
80	0.83-0.86	0.83-0.86	0.83-0.85	0.83-0.85	0.82-0.85
79	0.80-0.82	0.80-0.82	0.80-0.82	0.79-0.82	0.79-0.81
78	0.77-0.79	0.77-0.79	0.76-0.79	0.76-0.78	0.76-0.78
77	0.74-0.76	0.73-0.76	0.73-0.75	0.73-0.75	0.72-0.75
76	0.71-0.73	0.70-0.72	0.70-0.72	0.70-0.72	0.69-0.71
75	0.67-0.70	0.67-0.69	0.67-0.69	0.67-0.69	0.66-0.68
74	0.64-0.66	0.64-0.66	0.64-0.66	0.63-0.66	0.63-0.65
73	0.61-0.63	0.61-0.63	0.61-0.63	0.60-0.62	0.60-0.62
72	0.58-0.60	0.58-0.60	0.58-0.60	0.58-0.59	0.57-0.59
71	0.56-0.57	0.55-0.57	0.55-0.57	0.55-0.57	0.54-0.56
70	0.53-0.55	0.52-0.54	0.52-0.54	0.52-0.54	0.51-0.53
69	0.50-0.52	0.49-0.51	0.49-0.51	0.49-0.51	0.49-0.50
68	0.47-0.49	0.47-0.48	0.46-0.48	0.46-0.48	0.46-0.48
67	0.44-0.46	0.44-0.46	0.44-0.45	0.43-0.45	0.43-0.45
66	0.41-0.43	0.41-0.43	0.41-0.43	0.41-0.42	0.40-0.42
65	0.39-0.40	0.38-0.40	0.38-0.40	0.38-0.40	0.38-0.39
64	0.36-0.38	0.36-0.37	0.35-0.37	0.35-0.37	0.35-0.37
63	0.33-0.35	0.33-0.35	0.33-0.34	0.32-0.34	0.32-0.34
62	0.30-0.32	0.30-0.32	0.30-0.32	0.30-0.31	0.30-0.31
61	0.28-0.29	0.27-0.29	0.27-0.29	0.27-0.29	0.27-0.29
60	0.25-0.27	0.25-0.26	0.25-0.26	0.24-0.26	0.24-0.26
59	0.22-0.24	0.22-0.24	0.22-0.24	0.22-0.23	0.22-0.23
58	0.20-0.21	0.19-0.21	0.19-0.21	0.19-0.21	0.19-0.21
57	0.17-0.19	0.17-0.18	0.17-0.18	0.17-0.18	0.16-0.18
56	0.14-0.16	0.14-0.16	0.14-0.16	0.14-0.16	0.14-0.15
55	0.12-0.13	0.11-0.13	0.11-0.13	0.11-0.13	0.11-0.13
54	0.09-0.11	0.09-0.10	0.09-0.10	0.09-0.10	0.09-0.10
53	0.06-0.08	0.06-0.08	0.06-0.08	0.06-0.08	0.06-0.08
52	0.04-0.05	0.04-0.05	0.04-0.05	0.04-0.05	0.04-0.05
51	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03
50	0.00	0.00	0.00	0.00	0.00

## **MOBILIZATION AND DEMOBILIZATION - G-100**

### **DESCRIPTION**

**100-1.1** This item consists of preparatory work and operations, including but not limited to operations necessary to move personnel, equipment, supplies and incidentals to the project site; to establish offices, buildings and other facilities, except as provided under Section G-130; to perform all other work and operations, including costs incurred, before beginning work on the project; and to complete similar demobilization activities, including submittals such as as-builts, certificates, payrolls, civil rights reports, equipment warranties, etc.

### **METHOD OF MEASUREMENT**

**100-2.1** Payment for mobilization and demobilization will be made in partial payments as follows:

- a. Up to sixty percent of the amount bid for mobilization and demobilization may be paid when equipment and supplies are landed in serviceable condition at the project site and other necessary preparations have been completed so that work can commence on other pay items.
- b. The remaining balance will be paid as contractor facilities are dismantled and equipment is removed from the airport property, with the final increment paid upon completion of demobilization or as approved by the Engineer.

The Department reserves the right to require submittal of invoices, receipted bills, payrolls, and other appropriate documents to justify any or all payments under this item.

### **BASIS OF PAYMENT**

**100-3.1** Payment will be made at the contract lump sum price for mobilization and demobilization. This price and payment shall be full compensation for all costs associated with this item.

Payment will be made under:

Item G-100a Mobilization and Demobilization - per lump sum

## CONSTRUCTION SURVEYING AND MONUMENTS - G-135

### DESCRIPTION

**135-1.1 GENERAL.** Perform surveying and staking essential for the completion of the project and perform the necessary calculations required to accomplish the work in conformance with the Plans and Specifications and standard survey and engineering practices.

Furnish and install survey monuments and monument cases in conformance with the Plans or as directed.

Determine vertical locations and elevations using a method approved by the Engineer. GPS methods are not sufficient for determining elevations, or grades on this project.

Perform an initial survey of original ground within the limits of new pavement (both HMA and PCC) to determine agreement with design grades. Submit the original ground survey to the Engineer for approval prior to removal of any pavement. Allow 3 working days for Engineer's review. Recalculate and adjust design grades as directed.

### 135-1.2 DEFINITIONS.

- a. **Monument:** A fixed physical object marking a point on the surface of the earth; used to commence or control a survey; mark the boundaries of a parcel of land; or the centerline of a right-of-way corridor. Monuments will be Primary or Secondary, as shown on the Plans.
- b. **Point:** An identified spot located on the surface of the earth. For purposes of this definition, a point can be a PK nail, wooden hub, rebar, large nail or other structure capable of being utilized as a marker.
- c. **Witness Corner:** A material mark or point usually placed on a property or survey line, at a known distance from a property corner or other survey point. A witness corner is employed to witness the location of a corner/point that cannot be monumented at its true location.
- d. **Reference Monument:** A material mark or point placed at a known distance and direction from a property corner or other survey point, usually not on a property or survey line. A reference monument is employed to perpetuate a corner/point that cannot be monumented at its true location or where the corner monument is subject to destruction.
- e. **Surveyor:** The Contractor's Professional Land Surveyor, currently registered in the State of Alaska.

### MATERIALS

**135-2.1 MONUMENT CASES.** Castings shall conform to AASHTO M 105, Class 30A. Castings shall be coated with a bituminous damp-proof coating. Bolting tops shall be used.

**135-2.2 PRIMARY MONUMENT.** A minimum 2-inch diameter nonferrous pipe at least 30 inches long, with a minimum 4-inch flange at the bottom and having magnets attached at the top and bottom. A minimum 2-1/4-inch diameter nonferrous metal cap must be permanently attached to the top. Mark the cap around the outside edge with the words "Juneau International Airport". Permanently stamp every monument with the Surveyor's registration number, the year set, and the point/corner identification. Orient cap so that the data may be read facing up-station.

**135-2.3 SECONDARY MONUMENT.** A minimum 5/8-inch x 30-inch rebar with a 2-inch aluminum cap attached to the top. Permanently stamp every secondary monument with the Surveyor's registration number and the year set.

### CONSTRUCTION REQUIREMENTS

**135-3.1 GENERAL.** Use competent, qualified personnel and suitable equipment for the layout work required and furnish traffic control, stakes, templates, straight-edges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

## CONSTRUCTION SURVEYING AND MONUMENTS - G-135

Furnish computer services to accomplish the work. Check data received from the computer for completeness and accuracy. As soon as practical after completion of the work, and in no case later than acceptance of the project, deliver field books, computer forms and computer output data to the Engineer. This data becomes the property of the City.

Supervise construction surveying personnel. Correct errors resulting from the operations of said personnel at Contractor expense. The Contractor is responsible for the accuracy of the work.

Work classified as Land Surveying under AS 08.48, and work involving the location, control, and monumentation of construction centerline and right-of-way, shall be performed by or under the responsible charge of a Professional Land Surveyor.

Follow the State of Alaska Department of Transportation and Public Facilities (Department) Construction Surveying Requirements.

Ensure that the contract surveyor contacts the City's survey manager prior to performing survey work under this item.

The City will provide sufficient centerline or reference thereto, and at least one benchmark to enable the establishment of planned elevations and centerline.

Keep field notes in standard hardbound notebooks in a clear, orderly, and neat manner consistent with Departmental procedures, including titles, numbering, and indexing. Make field books available for inspection by the Engineer's project personnel at any time. Legible copies of the reduced field notes shall be made daily. Store the field books in the Engineer's Project Office during periods of non-use. Copies of the field books shall be kept in a separate secure location.

Perform the following:

- a. Staking necessary to delineate clearing and/or grubbing limits.
- b. Cross sections necessary for determination of excavation and embankment quantities, including intermediate and/or remeasure cross sections as needed. Take cross sections after clearing and grubbing has been completed.
- c. Slope staking.
- d. Staking of signs, culverts, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.
- e. Bridge staking.
- f. Setting finishing stakes.
- g. Measurement of pay quantities that require measurement.
- h. Staking of right-of-way and material source limits .
- i. Staking, referencing and other actions required to preserve or restore land monuments and property corners.
- j. As-built surveying as required under Section 50-08 Survey Control. Tie as-built measurements and locations to project horizontal and vertical survey control.
- k. Asphalt pavement surveying necessary to comply with subsection P-401-5.2 acceptance criteria for smoothness and grade of finished asphalt pavement surfaces.
- l. Staking and hubbing of bottom of excavation and the top of each layer in the pavement structure.
- m. Provide interim calculations for measured items to the Engineer prior to progress payments for each specific item. Ensure that the calculations are completed, checked, and signed by the person in responsible charge of the work.
- n. Other surveying and staking necessary to complete the project.

## CONSTRUCTION SURVEYING AND MONUMENTS - G-135

Notify the Engineer immediately if an established reference point is discovered to be in error or a reset point is not in relationship to the adjacent centerline points.

Furnish a notekeeper to record field survey notes, including documentation for quantity computations for payment. Ensure that the notekeeper is thoroughly familiar with generally accepted standards of good survey notekeeping practice and the Department's Construction Surveying Requirements.

The Engineer may randomly spot check the Contractor's surveys, staking, and computations. After the survey or staking has been completed, provide the Engineer with a minimum of 72 hours notice before performing work, and furnish the appropriate data, to allow for random spot checking. The City assumes no responsibility for the accuracy of the work.

Measure, compute, and plot all field-measured pay item quantities, including but not limited to excavation and disposal of asphalt cement concrete (AC), portland cement concrete (PCC) pavement, and classified/unclassified excavation volumes. Stake for measurement and calculation of excavation quantities after AC and PCC pavement removal. Submit a proposed method of measuring and computing volumes to the Engineer in writing for approval before performing any field work under this item.

Provide item quantities, including computations and plots to the Engineer prior to payment for each specific item. The City will review and accept or modify the quantities provided.

Digital terrain modeling (DTM) may be used in determining earthwork quantities as an alternative to before and after cross sections by average end area if the Engineer has agreed in writing to the DTM method prior to commencement of any field work. If DTM is approved and used, provide plotted cross-sections on 50-foot stations with elevations, offsets and computed end areas in square feet for each section prior to earthwork payments for each item. Provide these cross-sections and associated data for the entire area of earthwork computations along with the terrain model.

Accomplish staking in accordance with the following:

- a. Perform the topographic survey by grid or cross section method of surveying 25 feet beyond the project match lines. Take elevation shots at 25-foot intervals, at all terrain breaks, and at topographic features.
- b. Record and locate all baselines and connect them to the project's centerline, both horizontally and vertically.
- c. Upon completion of the before and after survey, provide the Engineer a grid layout sheet showing the baseline, stations and all spot elevations.
- d. Provide the Engineer a contour map of the original ground and an identical size map showing the final elevations with 0.5 foot contour intervals. Provide the Engineer with plotted cross-sections for each station grid with elevations and offsets shown.
- e. At the end of each day's work, hand-deliver a copy of the downloaded raw data from the data collector, in hard copy form, to the Engineer. This hard copy will be signed by the Contractor or Surveyor. If editing is deemed necessary, show all changes in an amended hard copy.

Provide the above products to the Engineer before payment will be made for that work. Provide as-builts and electronic data to the Engineer prior to final inspection.

**135-3.2 CROSS-SECTION SURVEYS.** When required, obtain right-angle cross sections to the construction centerline at the interval detailed in the Department's Construction Surveying Requirements.

The following will be supplied by the Department:

- a. Construction Plans and Specifications.
- b. Design Cross Sections, if any.
- c. State of Alaska Land Survey Monument Record forms.



## CONSTRUCTION SURVEYING AND MONUMENTS - G-135

- d. Department's Construction Surveying Requirements. One copy.
- e. Design centerline grades.

The following shall be required of the Contractor:

- a. Field Books (Level, Cross-Section, Slope Stake, etc. ). Use "Rite-in-the-Rain" or similar weather resistant hardbound field books. Field books become the property of the Department upon completion of the work.
- b. Label the books and number the pages. Make a heading in the appropriate book (date, weather, names and duties of crew members) at the beginning of each day's work.
- c. Update the index of the appropriate book at the end of each day's work.
- d. Reduce, check, and adjust level notes.
- e. The notekeeper shall compute the cross-section level notes and slope stake catches and a different crew member shall check the computation on a continual basis in the field.
- f. Enter the grade data, shoulder width and/or ditch distance, stationing, slope, etc., in the slope stake books.
- g. Maintain the position and identifying marks of slope stakes and reference points until used for their intended purpose.
- h. Correct errors by drawing a line through them and writing the correct entry directly above. Erasures will not be allowed.
- i. Return field books and copies of the field books to the Project office at the end of each work day or as directed.
- j. Provide copies of grade sheets and temporary bench mark elevations to the Engineer 48 hours before beginning work on unclassified excavation or embankment.
- k. The Contractor's survey crews shall comply with approved traffic control plans. Coordinate crew activities with the Worksite Traffic Supervisor.
- l. Keep a survey Party Chief diary, and give a copy of the diary to the Engineer each day. The diary shall contain the following information:
  - (1) Date.
  - (2) Weather.
  - (3) Crew members' names and duties.
  - (4) Type and location of work performed.
  - (5) Hours worked.
  - (6) Type of equipment used (brand) and date equipment was double centered or "peg" test was performed.
  - (7) Signature of person in responsible charge.
- m. Submit the survey field notes, for the specific area, relating to monument referencing, before beginning clearing, grubbing or excavation.
- n. Draw cross-sections and complete quantity calculations for all earthwork quantities.

**135-3.3 MONUMENTS.** Install primary and secondary monuments, as called for in the Plans, at the positions established by the City. Prior to the start of construction, reference monuments, to include property markers/corners and accessories, that may be disturbed or buried during construction. In addition, reference monuments designated for referencing on the Plans. Prepare and record Monument Record Forms in the appropriate Recorder's Office before disturbing monuments. Monument Record Forms may be obtained from the Engineer. Re-establish monuments in their original position before completion of the project. Prepare and file a Monument Record Form for each reestablished monument.

Keep records and report to the Engineer evidence that a monument has been disturbed and is no longer reliable or cannot be located and is presumed to be missing. Establish a minimum of two in-line reference points, or three swing-tie reference points in situations where in-line referencing is not desirable. Set reference points outside of the construction limits. Measure distances from the monument to the nearest 0.01 foot. Record referencing of monuments in a separate field book stamped by the Surveyor.

## CONSTRUCTION SURVEYING AND MONUMENTS - G-135

Replace existing monuments disturbed by construction with Primary or Secondary Monuments meeting the requirements of Subsections 135-2.1 through 3. When it is impractical to establish a monument in its original position, install a witness corner (WC). Place the WC to a property corner on the property line when the other property corner that defines said line is existing or there has been sufficient retracement to define said line. In other cases, place a reference monument (RM) perpendicular to the centerline at the station of the original position and at a distance from the original position measured in whole feet.

Those monuments found that are not shown on the Plans will be recognized by the Engineer when the following is provided by the Surveyor: Field notes identifying type and location of the monument, and a description of the point the monument marks, with the reason to preserve its location. Monuments not shown on the Plans will be considered additional work and paid by Item G-135b, Extra Three Person Survey Party.

The Surveyor shall complete a State of Alaska Land Survey Monument Record form for each primary and secondary monument referenced, removed, installed, relocated or replaced. Provide the required survey information on the form according to statutory requirements, including section, township and range. Meet requirements for recording at the District Recorder's Office in which the project is located for each monument record. Deliver conforming copies of the recorded forms to the Engineer before monument removal or disturbance, and after setting any final monuments requiring monument records.

Set each monument and monument case accurately to lines established at the required location and in a manner as to ensure being held firmly in place. Set existing monuments and monument cases to be adjusted to new elevations in the manner and at the elevations directed.

Primary Airport Control (PAC) and Secondary Airport Control (SAC) monuments are present in the project area. This control is important and if disturbed, must be reestablished by the Contracting Agency. For this reason, the Contractor is required to employ all reasonable measures to preserve the existing control monuments in an undisturbed condition. If any PAC or SAC is disturbed by the Contractor's actions, the Contractor shall reimburse the City for the cost of replacing monuments, performing geodetic surveys and related data processing, and filing the completed survey with the National Geodetic Surveys office. The estimated cost for reestablishing a disturbed monument is approximately \$50,000, but costs will vary depending on location, season, availability of staff, and other factors.

**135-3.4 OFFICE ENGINEERING.** Calculate finish grades for the embankments as specified according to Plans and/or Specifications. Use information available in the field, on as-builts, or as provided by the Engineer. This work shall be performed by or under the responsible charge of a Professional Land Surveyor or a Professional Engineer currently Registered in the State of Alaska.

**135-3.5 FINAL TRAVERSE.** Within 30 days after the Engineer receives a letter stating that construction activities that may disturb the monuments have ceased, the Surveyor shall run a final closed traverse to verify the positional accuracy of installed survey monuments. Tie into the traverse the primary and secondary monuments placed or replaced and undisturbed Department-provided control points. Meet the requirements of a secondary monument for traverse points established during this work. The Surveyor shall sign and stamp a letter that lists each monument and its coordinates. The letter shall certify that the monuments are each located within 0.1 foot of their proposed position based on the project survey control points provided by the Department. Deliver the certification letter and field notes for this work to the Engineer.

**135-3.6 EXTRA THREE PERSON SURVEY PARTY.** This pay item is for extra, additional, or unanticipated work made necessary by changes in the project. Work performed under pay item G-135b may include field work, office engineering, or any work described under the construction requirements of item G-135.

**135-3.7 FINISH GRADE CHECKING.** Perform all survey work required to verify that the finished surface of all asphalt concrete pavement meets the requirements for grade as specified in subsection P-401-5.2, f(4), Grade Acceptance Criteria. Multiple surveys may be necessary in areas that require reworking.

# CONSTRUCTION SURVEYING AND MONUMENTS - G-135

## METHOD OF MEASUREMENT

**135-4.1** The work will be measured according to Section GCP-90, as directed by the Engineer, and as follows:

- a. Lump Sum. No measurement of quantities will be made.
- b. Hour. By the number of hours, as directed by the Engineer and as recorded by certified payrolls.
- c. Contingent Sum. As specified by the Engineer in the Directive authorizing the work.

## BASIS OF PAYMENT

**135-5.1** Pay Items include all necessary personnel, equipment, transportation, and supplies to accomplish the work described in the Contract, or as directed by the Engineer.

Pay Item G-135a Construction Surveying by the Contractor, includes all Contractor surveying work described in the Contract.

Pay Item G-135b Extra Three Person Survey Party, includes payment by the hour for extra, additional or unanticipated work made necessary by changes in the project. Adjustment according to GCP-90-04 is not allowed for this pay item. Work accomplished by a three person survey party will be paid at 100% of the contract unit price, by a two person survey party at 75% of the contract unit price, or by a one person survey party at 32% of the contract unit price, for Pay Item G-135b.

Pay Item G-135c Monuments by the Contractor, includes all monument work described in the Contract.

Pay Item G-135d Extra Surveying by the Contractor, includes payment according to a Directive from the Engineer authorizing the work. This pay item is for extra, additional, or unanticipated work made necessary by changes in the project.

Payment will be made under:

Item G-135a	Construction Surveying by the Contractor - per lump sum
Item G-135b	Extra Three Person Survey Party - per hour
Item G-135c	Monuments by the Contractor - per lump sum
Item G-135d	Extra Surveying by the Contractor – per contingent sum

# CONTRACTOR QUALITY CONTROL PROGRAM - G-200

## DESCRIPTION

**200-1.1** Perform work as described in Section 100 Contractor Quality Control Program.

## REQUIREMENTS

**200-2.1** The requirements for this work are described in Section 100 Contractor Quality Control Program.

## METHOD OF MEASUREMENT

**200-3.1** This item will not be measured for payment. The Engineers acceptance of the work constitutes measurement of this item.

## BASIS OF PAYMENT

**200-4.1** Propose a schedule percentage of payment of the lump sum based upon your implementation of the quality control program. In this schedule of payment provide a detailed list of items to be completed prior to payment of each scheduled payment. The Engineer may modify in part or reject in its entirety the proposed schedule of payment by the Contractor. In any case, the Engineer will be the final authority in determining the schedule of payment and the acceptance of the work.

Payment will be made under:

Item G-200a Contractor Quality Control Program - per lump sum

## TRAFFIC CONTROL FOR AIRPORTS - G-700

### DESCRIPTION

**700-1.1** Provide suitably equipped airport flagger(s) with no other assigned duties to monitor and control the Contractor's personnel and equipment crossing or occupying any portion of the Air Operations Area of the airport, as required under Section 80-04 Limitation of Operations.

### REQUIREMENTS

**700-2.1** Furnish airport flaggers and all necessary equipment. Equip each airport flagger assigned to an aircraft operations area with a two-way radio that broadcasts and receives on the same frequency as the Airport Safety Officer's radio. Each flagger must be badged for access to the SIDA, if required, and attend training for Ramp Driver endorsement. Each flagger must be equipped with a radio capable of monitoring the JNU ATCT Ground frequency of 121.900 MHz. Provide each airport flagger with a two-way radio to contact construction equipment and other airport flaggers on the project. Equip each airport flagger for vehicular traffic control with a flagging paddle that conforms to the requirements of the Alaska Traffic Manual.

Locate each airport flagger at a position as shown on the Plans or as described in the Safety Plan, or at an alternate location as directed by the Engineer. Ensure that each airport flagger maintains their assigned post at all times. Airport flagger positions will be adjusted as conditions warrant.

### METHOD OF MEASUREMENT

**700-3.1** Airport flagger will be measured by the hour for the actual number of hours that each airport flagger performed as directed by the Engineer.

### BASIS OF PAYMENT

**700-4.1** Payment will be made at the contract unit price for each Airport Flagger per hour. The hourly rate for Airport Flagger is set at \$50.00 per hour for this contract. The Engineer does not require a change order/directive for this pay item.

Payment will be made under:

Item G-700a    Airport Flagger - per contingent sum

## EXCAVATION AND EMBANKMENT - P-152

### DESCRIPTION

**152-1.1** This item consists of excavation, hauling, embankment (or waste disposal), placement, grading and compaction of all materials required to construct runway safety areas, taxiway safety areas, runways, taxiways, aprons, drainage, buildings, roadways, parking, and other work. Construct according to the specifications, and conform to the dimensions and typical sections shown on the Plans.

### MATERIALS

**152-2.1 MATERIAL DEFINITIONS.** The Contract will designate material to be removed from within the project lines and grades as classified excavation (common, rock or muck) or as unclassified excavation. Material obtained from outside the project lines and grades is borrow.

All material shall be described as defined below, but no quantity of material shall be defined or paid in more than one category:

- a. **Unclassified Excavation.** All material, regardless of its nature, which is not paid for under another contract item. May include common, rock or muck.
- b. **Common Excavation.** Suitable material such as silt, sand, gravel, and granular material that does not require blasting or ripping. Not rock or muck.
- c. **Rock Excavation.** Rock that cannot be excavated without blasting or ripping, and boulders containing a volume of more than 0.5 cubic yard.
- d. **Muck Excavation.** Soil, organic matter, and other material not suitable for embankment or foundation material, including material that will decay or produce subsidence in the embankment such as stumps, roots, logs, humus, or peat.
- e. **Drainage Excavation.** Excavation made for the primary purpose of controlling drainage including: intercepting, inlet or outlet ditches; temporary levee construction; or any other type as shown on the Plans.
- f. **Borrow.** Suitable material that is required for the construction of embankment or for other portions of the work. Borrow material shall be obtained from sources within the limits of the airport property but outside the project lines and grades, or from sources outside the airport property.
- g. **Foundation Soil.** In-situ soil or undisturbed ground.

**152-2.2 UNSUITABLE MATERIAL.** Material that doesn't meet the testing criteria for suitable material. Material containing vegetable or organic matter, such as muck, peat, organic silt, or sod is considered unsuitable for use in embankment construction. Material that is contaminated by hazardous substances, including fuel or oil, in greater quantity than state and federal standards allow is considered unsuitable for use.

Unsuitable material encountered at the bottom or limits of specified excavation will be excavated as directed and the quantity of unclassified excavation will be altered according to section 90-04.

**152-2.3 SUITABLE MATERIAL.** Suitable material may be obtained from classified excavation, unclassified excavation, or borrow. The Engineer will approve material as "suitable" for use in embankment when the material meets the following criteria:

- a. Sand, rock, gravel, silt, concrete, asphalt pavement, and other inorganic material;
- b. Gradation of 100% by weight passing 6 inch screen; and
- c. Meets definition of Non-Frost Susceptible in Subsection GCP 10-03, except delete "6%" and replace with "10%" (passing No. 200 screen).

The Engineer may, in their discretion, approve oversize material as "suitable" for use in embankment when the material meets the following criteria:

## EXCAVATION AND EMBANKMENT - P-152

- a. Sand, rock, gravel, silt, concrete, asphalt pavement, and other inorganic material;
- b. Gradation of 100% by weight passing 24 inch screen;
- c. Meets definition of Non-Frost Susceptible in Subsection GCP 10-03, except delete "6%" and replace with "10%" (passing No. 200 screen); and
- d. Rock is well graded with an even distribution of rock sizes, and can be compacted with a minimal amount of voids.

### CONSTRUCTION METHODS

**152-3.1 GENERAL.** Perform all necessary clearing and grubbing and construction surveying including staking of lines and grades, prior to beginning excavation, grading, and embankment operations in any area.

The suitability of material to be placed in embankments shall be subject to approval by the Engineer. Material with organics, when approved by the Engineer as suitable to support vegetation, may be used on top of the embankment slope.

Unsuitable and excess material shall be disposed of in Contractor supplied waste areas located off airport property.. Material contaminated by hazardous substances shall require special handling and disposal, performed according to Subsection GCP 70-11.d. and using methods acceptable to the Engineer.

- a. **Waste Areas.** All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the Plans or approved by the Engineer. Unsuitable material shall not be left in windrows or piles, and shall not extend into the Obstacle-Free Zone (as defined in AC 150/5300-13, Subsection 306).

All waste areas shall be protected from erosion according to the SWPPP. Areas where seeding is called for, in which the top layer of soil material has become compacted, by hauling or other activities of the Contractor shall be scarified and disked to a depth of 4 inches, in order to loosen and pulverize the soil.

The Contractor shall obtain all permits required for placing waste in areas they choose, and which are not covered by Department obtained permits. When the Contractor is required to locate a disposal area outside the airport property limits at his/her own expense, he shall obtain and file with the Engineer, permission in writing from the property owner for the use of private property for this purpose.

- b. **Utility Work.** Utility work shall be performed, and compensation claims for utility work made, according to Subsection GCP 50-06. If it is necessary to work thorough or around existing utilities or associated structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve the utilities or provide temporary services. When utilities not shown on the Plans are encountered, the Contractor shall immediately notify the Engineer, and the Engineer will determine the disposition of the utility. The Contractor shall, at no additional cost to the Department, satisfactorily repair or pay the cost of all damage to utilities or associated structures which may result from any of the Contractor's operations.

**152-3.2 EXCAVATION.** No excavation shall be started until the Contractor has construction surveyed the work, including staking the lines and grades, and the Engineer has reviewed stakes, elevations and measurements of the ground surface. As required in GCP 40-04, all Useable Excavation of suitable material shall be used in the formation of embankment or for other purposes shown on the Plans. All unsuitable material shall be disposed of in waste areas as shown on the Plans or as directed by the Engineer.

## EXCAVATION AND EMBANKMENT - P-152

When the volume of the Useable Excavation exceeds that required to construct the embankments to the grades indicated, the excess material shall be used to grade the areas of ultimate development or disposed of as directed. When the volume of Useable Excavation is not sufficient for constructing the fill to the grades indicated, borrow shall be used to make up the deficiency.

The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water that may affect the work. All temporary drains and drainage ditches shall be constructed and maintained according to the SWPPP.

In cuts, all loose or protruding rocks on the back slopes shall be scaled or otherwise removed to line of finished grade of slope. All cut-and-fill slopes shall be uniformly dressed to the slope, cross section, and alignment shown on the Plans or as directed by the Engineer.

- a. **Selective Grading.** When selective grading is required, the more suitable material as designated by the Engineer shall be used in constructing the upper layers of the embankment or pavement structure. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas.
- b. **Undercutting.** Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for runways, taxiways, safety areas, subgrades, roads, shoulders, or any areas intended for turbing shall be excavated to a minimum depth of 12 inches, or to the depth directed by the Engineer, below the top of subgrade. Muck, peat, matted roots, or other yielding material that is unsatisfactory for foundation soil compaction, shall be removed to the depth specified. Unsuitable materials shall be disposed of at locations shown on the Plans. The excavated area shall be refilled with suitable material, obtained from the grading operations or borrow areas and thoroughly compacted as specified. Where rock cuts are made and refilled with suitable material, any pockets created in the rock surface shall be drained according to the details shown on the Plans. The material removed will be paid as Unclassified Excavation.
- c. **Overbreak.** Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work, as planned or authorized by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and their decision shall be final. All overbreak shall be graded or removed by the Contractor and disposed of as directed; however, payment will not be made for the removal and disposal of overbreak which the Engineer determines as avoidable. Unavoidable overbreak that must be removed will be paid as Unclassified Excavation.
- d. **Removal of Structures and Utilities.** The Contractor shall accomplish the removal of existing structures and utilities that are specified to be removed or demolished, except when another entity is identified in the Contract to accomplish the work. All existing structural foundations shall be excavated and removed to a depth at least 2 feet below the top of subgrade or as indicated on the Plans, and the material disposed of as directed. Holes left after removing foundations shall be backfilled with suitable material and compacted as specified. The material will be paid as Unclassified Excavation.
- e. **Foundation Soil Compaction Requirements.** In areas of excavation, the top 6 inches of foundation soil under areas serving aircraft or vehicle traffic loadings shall be compacted to a density of not less than 95% of the maximum density as determined by WAQTC FOP for AASHTO T 99/T 180 or ATM 212. The in-place field density and moisture content shall be determined according to WAQTC FOP for AASHTO T 310.

Compaction of the foundation soil is a subsidiary cost to excavation.

The Engineer may direct the Contractor to over excavate foundation soil that is soft or compresses excessively, and to backfill excavation with compacted suitable material. The material will be paid as Unclassified Excavation.



## EXCAVATION AND EMBANKMENT - P-152

- f. **Blasting.** Blasting will be permitted only when proper precautions are taken for the safety of all persons, the work, and the property. The Contractor is responsible for blasting operations including the requirements of Subsection GCP 70-10. All damage done to the work or property shall be repaired at the Contractor's expense. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall conform to all federal, state, local regulations, explosive manufacturers' instructions, and approved permits.

The Contractor shall submit a Safety Plan that includes descriptions of road and runway closures, warning signals; and plans for notification of affected local, state, and federal agencies, the airport manager, and other interested parties. Discuss in the Safety Plan methods for protection of life and health, public and private property, new work or existing work on the project, nearby structures, wetlands, waters and wildlife. When working within airport property include an emergency response contingency to clear runways of debris, to repair damaged navigational or visual aids; and get a NOTAMs before blasting. Hold a safety meeting prior to commencement of blasting operations to address safety issues.

In each distinct blasting area the Contractor shall submit a blasting plan, prepared by a qualified blaster, to the Engineer. This plan must consist of hole size, depth, spacing, burden, type of explosives, type of delay sequence, maximum amount of explosive on any one delay period, depth of rock, and depth of overburden if any. The maximum explosive charge weights per delay included in the plan shall not be increased without submitting a revised blasting plan to the Engineer.

When blasting, the Safety Plan and the Blasting Plan shall conform to Executive Order 7400.2G *Procedures for Handling Airspace Matters*, Chapter 27, and AC 150/5370-2 *Operational Safety on Airports During Construction*.

The Contractor shall keep a record of each blast fired, its date, time, and location; the amount of explosives used, maximum explosive charge weight per delay period, and, where necessary, seismograph records identified by instrument number and location. These records shall be made available daily to the Engineer.

The Engineer will keep the submitted plans and records, and has authority to review and reject plans.

**152-3.3 BORROW SOURCES.** Borrow sources within the airport property are identified on the Plans. Excavation of borrow on airport property shall be made only at these identified locations and within the lines and grades staked.

Borrow sources outside of airport property may be identified in the Contract according to GCP 60-02. The Contractor shall furnish additional borrow sources if necessary.

Removal of overburden and waste material, permit costs, mineral royalties, and other costs of material source development are subsidiary and shall be included in the unit price for borrow.

**152-3.4 DRAINAGE EXCAVATION.** Drainage excavation for intercepting, inlet or outlet drains; for temporary levee construction; or for any other type as designed or as shown on the Plans. The work shall be performed in the proper sequence with the other construction and according to the SWPPP. All suitable material shall be placed in fills; unsuitable material shall be placed in waste areas or as directed. Intercepting ditches shall be constructed prior to starting adjacent excavation operations. All necessary work shall be performed to secure a finish true to line, elevation, and cross section.

The Contractor shall maintain ditches constructed on the project to the required cross section and shall keep them free of debris or obstructions until the project is accepted.

## EXCAVATION AND EMBANKMENT - P-152

**152-3.5 PREPARATION OF EMBANKMENT AREA.** Where an embankment is to be constructed to a height of 4 feet or less, or where the embankment supports asphalt or concrete paving, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing or scarifying to a minimum depth of 6 inches. Compact this area as indicated in Subsection 152-3.2.e.

When new embankment is placed against existing embankments or on slopes steeper than 4:1, the existing ground shall be continuously benched over the areas as the work is brought up in layers. Benching shall be of sufficient width to permit placing of material and compacting operations. Each horizontal cut shall begin at the intersection of the original ground and the vertical side of the previous bench. Material thus cut out and deemed suitable shall be blended and incorporated into the new embankment.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

**152-3.6 FORMATION OF EMBANKMENTS.** Embankments shall be formed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

The grading and compaction operations shall be conducted, and the various soil strata shall be placed, to produce an embankment as shown on the typical cross section or as directed by the Engineer. Materials such as brush, hedge, roots, stumps, grass and other unsuitable material, shall not be incorporated or buried in the embankment.

- a. **Suspension of Operations.** Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, moisture content or other unsatisfactory conditions of the field. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.
- b. **Soft Foundations.** When embankments are to be constructed across wet or swampy ground, which will not support the weight of heavy hauling and spreading equipment, the Contractor shall use methods of embankment construction, and use hauling and spreading equipment, that will least disturb the soft foundation (defined as having a California Bearing Ratio less than 3). When soft foundations are encountered, and when approved by the Engineer, the lower part of the fill may be constructed by dumping and spreading successive vehicle loads in a uniformly distributed layer of a thickness not greater than that necessary to support the vehicle while placing subsequent layers, after which the remainder of the embankment shall be constructed in layers and compacted as specified. The Contractor shall not be required to compact the soft foundation, and at the Engineer's option, may not be required to clear and grub.
- c. **Moisture.** The material in the layer being placed shall be within  $\pm 2\%$  of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve a uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be performed when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Watering of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times.
- d. **Compaction.** Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density as determined by WAQTC FOP for AASHTO T 99/T 180 or ATM 212. Under all areas serving aircraft or vehicle traffic loadings, the embankment shall be compacted to a density of not less than 100% of the maximum density as determined by WAQTC FOP for AASHTO T 99/T 180 or ATM 212. The in-place field density and moisture content shall be determined according to WAQTC FOP for AASHTO T 310.

## EXCAVATION AND EMBANKMENT - P-152

Keep dumping and rolling areas separate. Do not cover any layer by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route their equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, layer placement shall begin in the deepest portion of the fill and progress in layers approximately parallel to the finished pavement grade line. Stones or fragmentary rock larger than 3 inches in their greatest dimensions will not be allowed in the top 6 inches of the embankment.

- e. **Oversize Material.** At the Engineer's discretion and direction, the Contractor may use oversize material or rockfill, as defined in Subsection 152-2.3, in the embankment. Place material in layers up to 2 feet thick. Fill voids with finer material. Level and smooth each layer with suitable leveling equipment. Use compaction equipment and construction methods that can form a dense, well-compacted embankment. Do not use oversize material within 2 feet of the top of finished subgrade.

Rock or boulders larger than 2 feet in thickness shall either be disposed of outside the excavation or embankment areas, in places and in the manner designated by the Engineer; or they may be crushed to less than 2 feet thickness and used in the embankment.

- f. **Subsidiary Costs.** Excavation and embankment is a single pay item; there will be no separate measurement or payment. The costs for material source development, blasting, excavation, hauling, placing in layers, compacting, diking, watering, mixing, sloping, grading, and other necessary operations for construction of embankments, are subsidiary and shall be included in the contract unit prices for excavation, borrow, or other pay items.
- g. **Frozen Material.** Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material, unless this construction method is identified in the special provisions, or is part of a Contractor's Progress Schedule that the Engineer has approved.

**152-3.7 FINISHING AND PROTECTION OF SUBGRADE.** After the subgrade has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material that will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to finish subgrade elevation with suitable material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade, whose top is shaped to the lines and grades shown on the Plans.

Grading of the top of subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. The Contractor shall limit hauling over the finished subgrade to that which is essential for construction purposes.

All ruts, ponds or rough places that develop in a completed subgrade shall be repaired, smoothed and recompacted before another layer is placed on top of the subgrade.

No subbase, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer. Erosion and sediment control shall be done according to the SWPPP. Work described in this subsection is subsidiary and shall be included in the contract unit prices.

### 152-3.8 RESERVED

## EXCAVATION AND EMBANKMENT - P-152

**152-3.9 TOLERANCES.** In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 12-foot straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch, or shall not be more than 0.05 foot from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting by watering and rolling.

On Runway Safety Areas, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 foot from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

### METHOD OF MEASUREMENT

**152-4.1** The quantity of unclassified excavation, common excavation, rock excavation, and muck excavation, will be measured in cubic yards of excavated material, measured in its original position. Pay quantities will be computed to the neat lines staked, by the method of average end areas of materials acceptably excavated. Measurement will not include the quantity of materials excavated without authorization beyond project lines and grades, or the quantity of material used for purposes other than those directed or approved by the Engineer.

With the Engineer's written approval, excavation may be measured by any method described in Subsection 152-4.2.

**152-4.2** The quantity of Borrow material to be paid will be by calculated by one of the following methods of measurement, as described in the Bid Schedule.

If Borrow is paid by source volume, the quantity will be measured in cubic yards of material, measured in its original position at the borrow source, after stripping of overburden and waste. Pay quantities will be computed by the method of average end areas from cross sections taken before and after borrow excavation. No shrink or swell factor will be used.

If Borrow is paid by design volume, the quantity will be measured in cubic yards of material, measured in its final compacted position. Pay quantities will be computed by the method of average end areas, as determined from original ground cross sections before placement (after clearing and grubbing) and to the neat lines staked and verified by the Engineer after placement. No allowance will be made for subsidence of the subgrade or for material placed outside the staked neat line limits. The quantity to be paid for will be the cubic yards of material placed and accepted in the completed embankment. No shrink or swell factor will be used.

If Borrow is paid by weight, the quantity will be measured in tons, by weighing system or by barge displacement method.

### BASIS OF PAYMENT

Excavation and embankment (or waste disposal) is a single pay item. The costs for material source development, blasting, excavation, hauling, placing in layers, compacting, disking, watering, mixing, sloping, grading, and other necessary operations for construction of embankments, or waste disposal, are subsidiary and shall be included in the contract unit prices.

**152-5.1** For "Unclassified Excavation" payment will be made at the contract unit price per cubic yard.

**152-5.2** For "Common Excavation" payment will be made at the contract unit price per cubic yard.

**152-5.3** For "Rock Excavation" payment will be made at the contract unit price per cubic yard.

## EXCAVATION AND EMBANKMENT - P-152

**152-5.4** For "Muck Excavation" payment will be made at the contract unit price per cubic yard.

**152-5.5** For "Drainage Excavation" payment will be made at the contract unit price per cubic yard.

**152-5.6** For "Borrow" payment will be made at the contract unit price per cubic yard. If by weight, payment will be made at the contract unit price per ton.

Payment will be made under:

Item P-152a	Unclassified Excavation - per cubic yard
Item P-152a(1)	Common Excavation - per cubic yard
Item P-152b	Rock Excavation - per cubic yard
Item P-152c	Muck Excavation - per cubic yard
Item P-152d	Drainage Excavation - per cubic yard
Item P-152e	Reserved
Item P-152f	Reserved
Item P-152g	Reserved
Item P-152h(1)	Borrow measured at Source- per cubic yard
Item P-152h(2)	Borrow measured in Final Position- per cubic yard
Item P-152i	Borrow - per ton

### TESTING REQUIREMENTS

ATM 212	Standard Density of Coarse Granular Materials using the Vibratory Compactor
WAQTC FOP for AASHTO T 99/T 180	Moisture-Density Relations of Soils
WAQTC FOP for AASHTO T 255/T 265	Moisture Content of Aggregate and Soils
WAQTC FOP for AASHTO T 310	In-place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods

## EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157

**157-1.1 DESCRIPTION.** Provide project administration and Work relating to control of erosion, sedimentation, and discharge of pollutants, according to this section and applicable local, state, and federal requirements, including the Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit. Section 301(a) of the Clean Water Act (CWA) and 18 AAC 83.015 provide that the discharge of pollutants to water of the U.S. is unlawful except in accordance with the permit.

### **157-1.2 DEFINITIONS.**

These definitions apply only to Item P-157.

**ACTIVE TREATMENT SYSTEM OPERATOR (ATS).** The Contractor's qualified representative who is responsible for maintaining and operating an active treatment system (as defined in the CGP) for storm water runoff.

**ALASKA CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (AK-CESCL).** A person who has completed training, testing, and other requirements of, and is currently certified as, an AK-CESCL from an AK-CESCL Training Program (a program developed under a Memorandum of Understanding between the Department and others). The Department recognizes AK-CESCLs as "qualified personnel" required by the CGP. An AK-CESCL must be recertified every three years.

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC).** The state agency authorized by EPA to administer the Clean Water Act's National Pollutant Discharge Elimination System.

**ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM (APDES).** A system administered by DEC that issues and tracks permits for storm water discharges.

**BEST MANAGEMENT PRACTICES (BMPs).** Temporary or permanent structural and non-structural devices, schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or minimize the discharge of pollutants to waters of the United States. BMPs also include, but are not limited to, treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

**CLEAN WATER ACT (CWA).** Federal Water Pollution Control Amendments of 1972, as amended (33 U.S.C. 1251 et seq.).

**CONSTRUCTION ACTIVITY.** Physical activity by the Contractor, Subcontractor or utility company; that may result in erosion, sedimentation, or a discharge of pollutants into storm water. Construction Activity includes soil disturbing activities (e.g. clearing, grubbing, grading, excavating); and establishment of construction materials or equipment storage or maintenance areas (e.g. material piles, borrow area, concrete truck chute washdown, fueling); and industrial activities that may discharge storm water and are directly related to the construction process (e.g. concrete or asphalt batch plants).

**CONSTRUCTION GENERAL PERMIT (CGP).** The permit authorizing storm water discharges from Construction Activities, issued and enforced by DEC. It authorizes stormwater discharges provided permit conditions and water quality standards are met. The CGP document can be found online at:

[http://dec.alaska.gov/water/wnpspc/stormwater/docs/2016\\_cgp\\_akr10\\_final\\_20151229.pdf](http://dec.alaska.gov/water/wnpspc/stormwater/docs/2016_cgp_akr10_final_20151229.pdf)

**CORPS OF ENGINEERS PERMIT (USACE PERMIT).** A U.S. Army Corps of Engineers Permit for construction in waters of the US. Such permit may be issued under Section 10 of the Rivers and Harbors Act of 1899, or Section 404 of the Clean Water Act.

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**ELECTRONIC NOTICE OF INTENT (ENOI).** *The electronic Notice of Intent submitted to DEC, to obtain coverage under the CGP.*

**ELECTRONIC NOTICE OF TERMINATION (ENOT).** *The electronic Notice of Termination submitted to DEC, to end coverage under the CGP.*

**ENVIRONMENTAL PROTECTION AGENCY (EPA).** *A federal agency charged to protect human health and the environment.*

**ERODIBLE STOCKPILE.** *Any material storage area or stockpile consisting of mineral aggregate, organic material, or a combination thereof, with greater than 5% passing the #200 sieve, and any material storage where wind or water transports sediments or other pollutants from the stockpile. Erodible Stockpile also includes any material storage area or stockpile where the Engineer determines there is potential for wind or water transport of sediments or other pollutants away from the stockpile.*

**EROSION AND SEDIMENT CONTROL PLAN (ESCP).** *The Department's project specific document that illustrates measures to control erosion and sediment on the project. The ESCP provides bidders with the basis for cost estimating and guidance for developing an acceptable Storm Water Pollutant Prevention Plan (SWPPP).*

**FINAL STABILIZATION.** *Is defined in Item P-157 as it is defined in the CGP.*

**HAZARDOUS MATERIAL CONTROL PLAN (HMCP).** *The Contractor's detailed project specific plan for prevention of pollution from storage, use, transfer, containment, cleanup, and disposal of hazardous material (including, but are not limited to, petroleum products related to construction activities and equipment). The HMCP is included as an appendix to the SWPPP.*

**IMMEDIATELY.** *Means no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased.*

**INSPECTION.** *An inspection required by the CGP or the SWPPP, usually performed together by the Contractor's SWPPP Manager and Department's Stormwater Inspector.*

**MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT.** *A DEC storm water discharge permit issued to certain local governments and other public bodies, for operation of storm water conveyances and drainage systems. See CGP for further definition.*

**MULTI-SECTOR GENERAL PERMIT (MSGP).** *The Alaska Pollutant Discharge Elimination System General Permit for storm water discharges associated with industrial activity.*

**NON-ERODIBLE STOCKPILE.** *Any material stockpile identified in the CGP definition for Final Stabilization, Section 1.b, and includes: riprap, gabion backfill, porous backfill, railroad ballast and sub-ballast, ditch lining, or fill material with low erodibility. The stockpile shall not have a gradation of more than 5% passing the #200 sieve unless approved by an Engineer. There shall be no possibility of sediment transport due to water or wind erosion. Crushed aggregate base material as defined in Item P-209 is only considered stable on relatively flat slopes when compacted in accordance with P-209-3.5*

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**OPERATOR(S).** *The party or co-parties associated with a regulated activity that has responsibility to obtain permit coverage under the CGP. "Operator" for the purpose of the CGP and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:*

- a. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or*
- b. The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).*

**POLLUTANT.** *Any substance or item meeting the definition of pollutant contained in 40 CFR § 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sediment, sewage, garbage, sewage sludge, chemical wastes, biological materials, wrecked or discarded equipment, rock, sand, cellar dirt and industrial or municipal waste.*

**PROJECT ZONE.** *The physical area provided by the Department for Construction. The Project Zone includes the area of highway or facility under construction, project staging and equipment areas, and material and disposal sites; when those areas, routes and sites, are provided by the Contract.*

*Material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas; that are furnished by the Contractor or a commercial operator, are not included in the Project Zone.*

**RECORDS.** *Any record, report, information, document or photograph required to be created or maintained pursuant to the requirements of, the CGP, the CGP storm water requirements of the Clean Water Act; and applicable local, state, and federal laws and regulations regarding document preservation.*

**SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN).** *The Contractor's detailed plan for petroleum spill prevention and control measures, that meet the requirements of 40 CFR 112.*

**SPILL RESPONSE FIELD REPRESENTATIVE.** *The Contractor's representative with authority and responsibility for managing, implementing, and executing the HMCP and SPCC Plan.*

**STORM EVENT.** *A rainfall event that produces 0.5 inch or more of precipitation in 24 hours and that is separated from the previous storm event by at least 3 days of less than 0.1 inch of rain per day.*

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP).** *The Contractor's detailed project specific plan to minimize erosion and contain sediment within the Project Zone, and to prevent discharge of pollutants that exceed applicable water quality standards. The SWPPP includes, but is not limited to, amendments, records of activities, inspection schedules and reports, qualifications of key personnel, and all other documentation, required by the CGP and this specification, and other applicable local, state, and federal laws and regulations.*

**STORM WATER POLLUTION PREVENTION PLAN TWO (SWPPP2).** *The Contractor's detailed project specific plan to comply with CGP or MSGP requirements, for Contractor construction-related activities outside the Project Zone.*

**SUBCONTRACTOR SPILL RESPONSE COORDINATOR.** *The subcontractor's representative with authority and responsibility for coordinating the subcontractor's activities in compliance with the HMCP and SPCC Plan.*



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**SUBCONTRACTOR SWPPP COORDINATOR.** *The subcontractor's representative with authority to direct the subcontractor's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the subcontractor's compliance with the SWPPP.*

**SUPERINTENDENT.** *The Contractor's duly authorized representative in responsible charge of the work. The Superintendent has responsibility and authority for the overall operation of the Project and for Contractor furnished sites and facilities directly related to the Project.*

**SWPPP AMENDMENT.** *A revision or document that adds to, deletes from, or modifies the SWPPP.*

**SWPPP MANAGER.** *The Contractor's qualified representative who conducts Inspections, updates SWPPP records, and has authority to suspend work and to implement corrective actions required for CGP compliance.*

**SWPPP PREPARER.** *The Contractor's qualified representative who is responsible for developing the initial SWPPP.*

**TEMPORARY STABILIZATION.** *Protecting soils from erosion and sediment loss by rainfall, snow melt, runoff, or wind with a temporary vegetative and/or non-vegetative protection cover. Temporary stabilization may include a combination of seeding, geotextiles, mulches, surface tackifiers, rolled erosion control products, gravel or paving, or the mentioned BMP's combined together with track walking.*

**UTILITY SPILL RESPONSE COORDINATOR.** *The Utility's representative with authority and responsibility for coordinating the Utility's activities in compliance with the HMCP and SPCC Plan.*

**UTILITY SWPPP COORDINATOR.** *The Utility's representative with authority to direct the Utility's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the Utility's compliance with the SWPPP.*

### **157-1.3 PLAN AND PERMIT SUBMITTALS.**

*For plans listed in Subsection GCP-80-03.f (SWPPP and HMCP), use the Contractor submission and Department review deadlines identified in Subsection 157-1.3.*

*Partial and incomplete submittals will not be accepted for review. Any submittal that is re-submitted or revised after submission, but before the review is completed, will restart the submittal review timeline. No additional Contract time or additional compensation will be allowed due to delays caused by partial or incomplete submittals, or required re-submittals.*

- a. Storm Water Pollution Prevention Plan.** *Submit an electronic copy and three hard copies of the SWPPP to the Engineer for approval. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. Organize and bind the SWPPP and related documents for submittal according to the requirements of Subsection 157-2.1.b.*

*The Department will review the SWPPP submittals within 14 days after they are received. Submittals will be returned to the Contractor, and marked as either "rejected" with reasons listed or as "approved" by the Department. When the submittal is rejected, the Contractor must revise and resubmit the SWPPP. The 14 day review period will restart when the contractor submits an electronic copy and three hard copies of the revised SWPPP to the Engineer for approval.*

*After the SWPPP is approved by the Department, the Contractor must sign and certify the approved SWPPP Form 25D-111. See Item 4-d for further SWPPP submittal requirements.*

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- b. **Hazardous Material Control Plan.** *The HMCP Template can be found at the following webpage: [http://www.dot.state.ak.us/stwddes/dcsconst/pop\\_constforms.shtml](http://www.dot.state.ak.us/stwddes/dcsconst/pop_constforms.shtml). Submit an electronic copy and three hard copies of the HMCP, as an appendix to the SWPPP, to the Engineer for approval. The HMCP submittal and review timeline, and signature requirements are the same as the SWPPP.*
- c. **Spill Prevention, Control and Countermeasure Plan.** *When a SPCC Plan is required under Subsection 157-2.3, submit an electronic copy and three signed hard copies of the SPCC Plan to the Engineer. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. The Department reserves the right to review the SPCC Plan and require modifications.*
- d. **CGP Coverage.** *The Contractor is responsible for permitting of Contractor and subcontractor Construction Activities related to the Project. Do not use the SWPPP for Construction Activities outside the Project Zone where the Department is not an operator. Use a SWPPP2 for Construction Activities outside the Project Zone.*

*After Department approval of the SWPPP and prior to beginning Construction Activity, submit an eNOI with the required fee to DEC for coverage under the Construction General Permit (CGP). Submit a copy of the signed eNOI and DEC's written acknowledgement (by letter or other document), to the Engineer as soon as practicable and no later than three days after filing eNOI or receiving a written response.*

*Do not begin Construction Activity until the conditions listed in Subsection 157-3.1.a are completed.*

*The Department will submit an eNOI to DEC for Construction Activities inside the Project Zone. The Engineer will provide the Contractor with a copy of the Department's eNOI and DEC's written acknowledgment (by letter or other document), for inclusion in the SWPPP.*

*Before Construction Activities occur, transmit to the Engineer an electronic copy of the approved and certified SWPPP, with signed Delegations of Signature Authorities Forms 25D-107 and 25D-108, SWPPP Certifications Forms 25D-111 and 25D-109, both permittee's signed eNOIs and DEC's written acknowledgement.*

- e. **Ending CGP Coverage.** *Submit an eNOT to DEC within 30 days after the Engineer has determined the conditions listed in Subsection 157-3.1.f have been met. Submit a copy of the signed eNOT and DEC's acknowledgement letter to the Department within three days of filing the eNOT or receiving a written response.*
- f. **DEC SWPPP Review.** *When CGP Part 2.1.3, requires DEC SWPPP review:*
  - (1) *Transmit a copy of the Department-approved SWPPP to DEC using delivery receipt confirmation;*
  - (2) *Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) days of receiving the confirmation; and*
  - (3) *Retain a copy of delivery receipt confirmation in the SWPPP.*
- g. **Local Government SWPPP Review.** *When local government or the CGP Part 2.1.4, requires local government review:*
  - (1) *Transmit a copy of the Department-approved SWPPP and other information as required to local government, with the required fee. Use delivery receipt confirmation;*

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- (2) *Transmit a copy of the delivery receipt confirmation to the Engineer within seven days of receiving the confirmation;*
- (3) *Transmit a copy of any comments by the local government to the Engineer within seven days of receipt;*
- (4) *Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Engineer within seven days of receipt of the comments;*
- (5) *Include a copy of local government SWPPP review letter in the SWPPP; and*
- (6) *File a notification with local government that the project is ending.*

- h. *Modifying Contractor's eNOI.*** *When required by the CGP Part 2.7, modify your eNOI to update or correct information within 30 calendar days of the change. Reasons for modification include a change in start or end dates, change in Owner/Operator address and contact information, change in site information, any changes in number of acres to be disturbed, change in decision to use or not use treatment chemicals, or change in location of SWPPP records.*

*The Contractor must submit an eNOT and then submit a new eNOI instead of an eNOI modification when:*

- (1) *the operator has changed;*
- (2) *the project will disturb more than five (5) acres when the original eNOI indicated the project would disturb less than five (5) acres; or*
- (3) *A project with a disturbed area greater than five (5) acres grows by more than 50%.*

**157-1.4 PERSONNEL QUALIFICATIONS.** *Provide documentation in the SWPPP that the individuals serving in these positions meet the personnel qualifications.*

- a.** *The SWPPP Preparer must meet at least one of the following qualifications:*

- (1) *Current certification as a Certified Professional in Erosion and Sediment Control (CPESC);*
- (2) *Current certification as AK-CESCL, and at least two years' experience in erosion and sediment control, as a SWPPP Manager or SWPPP writer, or equivalent. Provide documentation including project names, project timelines, and work responsibilities demonstrating the experience requirement;*
- (3) *Professional Engineer registered in the State of Alaska with current certification as AK-CESCL; or*
- (4) *For Projects disturbing more than 20 acres, the SWPPP Preparer must also have completed a SWPPP Preparation course.*

- b.** *The Superintendent must meet the following qualifications:*

- (1) *Current certification as AK-CESCL; and*
- (2) *Duly authorized representative, as defined in the CGP, Appendix A, Part 1.12.3.*

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- c. *The SWPPP Manager must have current certification as AK-CESCL and must meet the CGP experience, training, and authority requirements identified for the Storm Water Lead and Storm Water Inspector positions as defined in the CGP, Appendix C, Qualified Person.*
- d. *The ATS operator, as defined in CGP Appendix C Definitions, Qualified Person, must have current certification as AK-CESCL, and be knowledgeable in the principals and practices of treatment systems in general, and the operation of the project-specific ATS. The ATS operator must have at least three months field experience with ATS, or completion of an ATS manufacturer's training course, or completion of system operators certification course.*
- e. *The Department accepts people having any of the following certificates as equivalent to AK-CESCL, if the certificates are current according to the sponsoring organization's policies:*
  - (1) *CPESC, Certified Professional in Erosion and Sediment Control; or*
  - (2) *CISEC, Certified Inspector in Sediment and Erosion Control.*

### **157-1.5 SIGNATURE/CERTIFICATION REQUIREMENTS AND DELEGATIONS.**

- a. **eNOI and eNOT.** *The eNOI and eNOT must be signed and certified by a responsible corporate officer according to CGP Appendix A, Part 1.12. Signature and certification authority for the eNOI and eNOT cannot be delegated.*
- b. **Delegation of Signature Authority for Other SWPPP Documents and Reports.** *Use Form 25D-108 to delegate signature authority and certification authority to the Superintendent position, according to CGP Appendix A, Part 1.12.3, for the SWPPP, Inspection Reports and other reports required by the CGP. The Superintendent position is responsible for signing and certifying the SWPPP, Inspection Reports, and other reports required by the CGP, except the eNOI and eNOT.*

*The Engineer will provide the Department's delegation Form 25D-107, which the Contractor must include in the SWPPP.*
- c. **Subcontractor Certification.** *Subcontractors must certify that they have read and will abide by the CGP and the conditions of the project SWPPP Form 25D-105.*
- d. **Signatures and Initials.** *Handwrite signatures or initials on CGP documents and SWPPP forms, wherever a signature or initial is required.*

### **157-1.6 RESPONSIBILITY FOR STORM WATER PERMIT COVERAGE.**

- a. *The Department and the Contractor are jointly responsible for permitting and permit compliance within the Project Zone.*
- b. *The Contractor is responsible for permitting and permit compliance outside the Project Zone. The Contractor has sole responsibility for compliance with DEC, USACE, and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits. Subsection GCP-70-02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.*
- c. *An entity that owns or operates, a commercial plant (as defined in Subsection GCP- 80-01.d) or material source or disposal site outside the Project Zone, is responsible for permitting and permit compliance. The Contractor has sole responsibility to verify that the entity has appropriate permit*

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coverage. Subsection GCP-70-02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.

- d. The Department is not responsible for permitting or permit compliance, and is not liable for fines resulting from noncompliance with permit conditions:
- (1) For areas outside the Project Zone;
  - (2) For Construction Activity and Support Activities outside the Project Zone; and
  - (3) For commercial plants, commercial material sources, and commercial disposal sites.

### 157-1.7 UTILITY. (Reserved for Regions)

### 157-2.1 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.

a. **SWPPP Preparer and Pre-Construction Site Visit.**

Use a SWPPP Preparer to develop the SWPPP and associated documents, according to the requirements of the CGP and USACE permit. The SWPPP Preparer must put their name, qualifications (including the expiration date of any certifications), title and company name in the SWPPP.

The SWPPP Preparer must conduct a pre-construction inspection at the Project site before construction activity begins. If the SWPPP Preparer is not a Contractor employee, the SWPPP Preparer must visit the site accompanied by the Contractor. Give the Department at least seven days notice of the site visit, so that the Department may participate.

During the pre-construction inspection, the SWPPP Preparer must identify, or if a draft of the SWPPP has already been prepared verify that the SWPPP fully addresses and describes:

- (1) Opportunities to phase construction activities;
- (2) Appropriate BMPs and their sequencing; and
- (3) Sediment controls that must be installed prior to beginning Construction Activities.

Document the SWPPP Preparer's pre-construction inspection in the SWPPP on Form 25D-106, SWPPP Pre-Construction Site Visit, including the names of attendees and the date.

b. **Developing the SWPPP.**

Use the Department's ESCP, Environmental commitments, and other Contract documents as a starting point for developing the SWPPP. The approved SWPPP replaces the ESCP. BMPs identified in the ESCP must be addressed in the SWPPP.

Develop the SWPPP with sections and appendices, according to the current DOT&PF SWPPP template. Include information required by the Contract and described in the CGP Part 5.0.

- (1) Obtain the following forms after they have been completed by the Department and include them in the SWPPP:

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- (a) *SWPPP Delegation of Signature Authority – DOT&PF (25D-107)*
- (b) *SWPPP Certification for DOT&PF (25D-109)*
- (c) *SWPPP Delayed Action Item Report (25D-113), if needed completed by the Engineer*
- (d) *Use the following Department forms for recording information in the SWPPP:*
- (e) *SWPPP Amendment Log (25D-114)*
- (f) *SWPPP Certification for Contractor (25D-111)*
- (g) *SWPPP Construction Site Inspection Report (25D-100)*
- (h) *SWPPP Corrective Action Log (25D-112)*
- (i) *SWPPP Daily Record of Rainfall (25D-115)*
- (j) *SWPPP Delegation of Signature Authority – Contractor (25D-108)*
- (k) *SWPPP Grading and Stabilization Activities Log (25D-110)*
- (l) *SWPPP Pre-Construction Site Visit (25D-106)*
- (m) *SWPPP Project Staff Tracking (25D-127)*
- (n) *SWPPP Subcontractor Certification (25D-105)*
- (o) *SWPPP Training Log (25D-125)*
- (p) *SWPPP Noncompliance (25D-143)*

*SWPPP Template, forms, and instructions are available online at:*

*[http://www.dot.state.ak.us/stwddes/dcsconst/pop\\_constforms.shtml](http://www.dot.state.ak.us/stwddes/dcsconst/pop_constforms.shtml)*

*Compile the SWPPP in three ring binders with tabbed and labeled dividers for each section and appendix.*

### **c. SWPPP Considerations and Contents.**

- (1) *The SWPPP must provide erosion and sediment control measures for all Construction Activity within the Project Zone. Construction activity outside the Project Zone must have permit coverage, using a separate SWPPP2, and separate Contractor Inspections.*
- (2) *The SWPPP must consider the activities of the Contractor and all subcontractors and utility companies performing work in the Project Zone. The SWPPP must describe the roles and responsibilities of the Contractor, subcontractors, utility companies, and the Department with regard to implementation of the SWPPP. The SWPPP must identify all operators for the Project, including utility companies performing Construction Activity, and identify the areas:*
  - (a) *Over which each operator has operational control; and*

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- (b) *Where the Department and Contractor are co-operators.*
- (3) *For work outside the Project Zone the SWPPP must identify the entity that has stormwater permit coverage, the operator, and the areas that are:*
- (a) *Dedicated to the Project and where the Department is not an operator; and*
- (b) *Not dedicated to the project, but used for the project.*
- Dedicated to the Project areas are concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas, provided they are directly related to the Project, are not a commercial operation serving multiple unrelated construction projects by different permittees, do not operate beyond the completion of the construction activity of the Project, and appropriate control measures are identified in the SWPPP covering the discharges from the area.*
- (4) *Develop the SWPPP according to the requirements of the CGP Part 5.0 and this specification. Account for the Contractor's construction methods and phasing. Identify the amount of mean annual precipitation.*
- (5) *Comply with the CGP Part 1.4.3 Authorized Non-Storm Water Discharges. List locations where authorized non-storm water will be used, including the types of water that will be used on-site.*
- (6) *Include the Department's Anti-degradation Analysis in the SWPPP if storm water from the Project Zone discharges into receiving water that is considered a high quality water and that constitutes an outstanding national resource, according to CGP Part 2.1.6.*
- (7) *There are special requirements in the CGP Part 3.2, for storm water discharges into an impaired water body, and they may include monitoring of storm water discharges. For Projects meeting the permit criteria, the Contractor will implement a monitoring plan approved by the Department for the storm water within the Project Zone, and will provide the required information and reports for inclusion in the SWPPP. The Contractor is responsible for monitoring and reporting outside the Project Zone.*
- (8) *Preserve natural topsoil unless infeasible. Delineate the site according to CGP Part 4.2.1. Use stakes, flags, or silt fence, etc. to identifying areas where land disturbing activities will occur and areas that will be left undisturbed. Minimize the amount of soil exposed during Construction activity according to CGP Part 4.2.2.*
- (9) *Comply with CGP Part 4.4 and the DEC General Permit for Excavation Dewatering (AKG0020000), requirements for dewatering for trenches and excavations.*
- (10) *The SWPPP must identify specific areas where potential erosion, sedimentation, or pollution may occur. The potential for wind erosion must be addressed. The potential for erosion at drainage structures must be addressed.*
- (11) *Describe methods and time limits, to initiate temporary or permanent soil stabilization. For areas with mean annual precipitation of:*
- (a) *Less than 40 inches, initiate stabilization immediately and within 14 days; or*
- (b) *40 inches or greater, initiate stabilization immediately and within seven (7) days.*

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- (12) *Within seven days of initiating final stabilization, either complete final stabilization or continue maintenance of work until final stabilization is complete. Temporary stabilization must be completed as soon as practicable, but no later than fourteen days after initiating stabilization per CGP Part 4.5.1.2.*
- (13) *Include in the "Stabilize Soils" section of the SWPPP, a description of how you will minimize the amount of disturbed and unstabilized ground in the fall season to prepare for spring thaw. Identify anticipated dates of fall freeze-up and spring thaw. Describe how you will stabilize areas when it is close to or past the seasonal time of snow cover or frozen conditions, and before the first seasonal thaw. Include a plan for final stabilization.*
- (14) *Plans for Active Treatment Systems must be submitted to DEC and the ATS Operator identified in the SWPPP for review at least 14 days prior to their use. Any use of treatment chemicals must be identified on the NOI, documented in the SWPPP, and meet the requirements of CGP Part 4.6.*
- (15) *The SWPPP must provide designated areas for equipment and wheel washing, equipment fueling and maintenance, chemical storage, staging or material storage, waste or disposal sites, concrete washouts, paint and stucco washouts, and sanitary toilets. These activities must be done in designated areas that are located, to the extent practicable, away from drain inlets, conveyance channels, and waters of the US. No discharges are allowed from concrete washout, paint and stucco washout; or from release oils, curing compounds, fuels, oils, soaps, and solvents. Equipment and wheel washing water that doesn't contain detergent may be discharged on-site if it is treated before discharge.*
- (16) *Design temporary BMPs for a 2 year 24 hour precipitation amount. Describe BMPs in the SWPPP and in SWPPP Amendments, including source controls, sediment controls, discharge points, and temporary and permanent stabilization measures. Describe the design, placement, installation, and maintenance of each BMP, using words and drawings as appropriate. Describe the design capacity of sediment basins (including sediment ponds and traps). Provide a citation to the BMP Manual or publication used as a source for the BMP, including the manufacturer's or BMP manual specifications for installation CGP Part 5.3.6.2. If no published source was used to select or design a BMP, then the SWPPP or SWPPP amendment must state that "No BMP manual or publication was used for this design."*
- (17) *Describe the sequence and timing of activities that disturb soils and of BMP implementation and removal. Phase earth disturbing activities to minimize unstabilized areas, and to achieve temporary or final stabilization quickly. Whenever practicable incorporate final stabilization work into excavation, embankment and grading activities. Include drawings showing each phase of the project with the BMPs implemented in the phase.*
- (18) *Provide a legible site map or set of maps in the SWPPP, showing the entire site and identifying boundaries of the property where construction and earth-disturbing activities will occur or have occurred, as described in the CGP Part 5.3.5. All BMPs must be noted on the site map.*
- (19) *Identify the inspection frequency in the SWPPP and conduct inspections once every seven (7) days regardless of the precipitation amount.*
- (20) *Linear Project Inspections, described in CGP Part 6.5, are not applicable to this contract.*
- (21) *The SWPPP must cite and incorporate applicable requirements of the Project permits, environmental commitments, USACE permit, and commitments related to historic preservation.*



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*Make additional consultations or obtain permits as necessary for Contractor specific activities which were not included in the Department's permitting and consultation.*

- (22) *The SWPPP is a dynamic document. Keep the SWPPP current by noting installation, modification, and removal of BMPs, and by using amendments, SWPPP amendment logs, Inspection Reports, corrective action logs, records of land disturbance and stabilization, and any other records necessary to document storm water pollution prevention activities and to satisfy the requirements of the CGP and this specification. See Subsection 157-3.3 for more information.*

### **d. Recording Personnel and Contact Information in the SWPPP.**

*Identify the SWPPP Manager as the Storm Water Lead and Storm Water Inspector positions in the SWPPP. Document the SWPPP Manager's responsibilities in Section 2.0 Storm Water Contacts, of the SWPPP template and:*

- (1) *Identify that the SWPPP Manager does not have authority to sign inspection reports (unless the SWPPP Manager is also the designated project Superintendent).*
- (2) *Identify that the SWPPP Manager cannot prepare the SWPPP unless the SWPPP Manager meets the Contract requirements for the SWPPP Preparer.*

*Include in the SWPPP, proof of AK-CESCL, or equivalent certifications for the Superintendent and SWPPP Manager, and for any acting Superintendent and acting SWPPP Managers. If the Superintendent or SWPPP Manager is replaced permanently or temporarily, by an acting Superintendent or acting SWPPP Manager; record in the SWPPP (Form 25D-127) the names of the replacement personnel, the date of the replacement. For temporary personnel record their beginning and ending dates.*

*Provide 24 hour contact information for the Superintendent and SWPPP Manager. The Superintendent and SWPPP Manager must have 24 hour contact information for all Subcontractor SWPPP Coordinators and Utility SWPPP Coordinators. The NOI must contain project office or project mobile phone contact information for the Project Engineer and the Project Superintendent with signatory authority.*

*Include in the SWPPP, proof of AK-CESCL, or equivalent certifications of ATS operators. Record names of ATS operators and their beginning and ending dates, on Form 25D-127.*

*The Department will provide proof of AK-CESCL, or equivalent certifications for the Project Engineer, Stormwater Inspectors, and Monitoring Person (if applicable), and names and dates they are acting in that position. Include the Department's Records in the SWPPP Appendix E. Include the department's Storm Water Inspector and Storm Water Monitoring Person (if applicable) in Section 2.0 of the SWPPP.*

### **157-2.2 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS.**

*Prepare the HMCP using the DOT&PF template located at the following DOT&PF link; ([http://www.dot.state.ak.us/stwdes/dcsconst/pop\\_constforms.shtml](http://www.dot.state.ak.us/stwdes/dcsconst/pop_constforms.shtml)) for prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the SWPPP. Compile Material Safety Data Sheets in one location and reference that location in the HMCP.*

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*Designate a Contractor's Spill Response Field Representative with 24 hour contact information. Designate a Subcontractor Spill Response Coordinator for each subcontractor. The Superintendent and Contractor's Spill Response Field Representative must have 24 hour contact information for each Subcontractor Spill Response Coordinator and the Utility Spill Response Coordinator.*

*List and give the location and estimated quantities of hazardous materials (Including materials or substances listed in 40 CFR 117 and 302, and petroleum products) to be used or stored on the Project. Hazardous materials must be stored in covered storage areas. Include secondary containment for all hazardous material storage areas.*

*Identify the locations where fueling and maintenance activities will take place, describe the activities, and list controls to prevent the accidental spillage of petroleum products and other hazardous materials. Controls include placing absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.*

*List the types and approximate quantities of response equipment and cleanup materials available on the Project. Include a list and location map of cleanup materials, at each different work site and readily available off site (materials sources, material processing sites, disposal sites, staging areas, etc). Spill response materials must be stored in sufficient quantity at each work location, appropriate to the hazards associated with that site.*

*Describe procedures for containment and cleanup of hazardous materials. Describe a plan for the prevention, containment, cleanup, and disposal of soil and water contaminated by spills. Describe a plan for dealing with contaminated soil and water encountered during construction. Clean up spills or contaminated surfaces immediately.*

*Describe methods of disposing of waste petroleum products and other hazardous materials generated by the Project, including routine maintenance. Identify haul methods and final disposal areas. Assure final disposal areas are permitted for hazardous material disposal.*

*Describe methods of complying with the requirements of AS 46.04.010-900, Oil and Hazardous Substances Pollution Control, and 18 AAC 75. Include contact information for reporting hazardous materials and petroleum product spills to the Project Engineer and reporting to federal, state and local agencies.*

### **157-2.3 SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC Plan) REQUIREMENTS.**

*Prepare and implement an SPCC Plan when required by 40 CFR 112; when both of the following conditions are present on the Project:*

- a. Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and*
- b. Total above ground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons)*

*Reference the SPCC Plan in the HMCP and SWPPP.*

### **157-2.4 RESPONSIBILITY AND AUTHORITY OF THE SUPERINTENDENT AND SWPPP MANAGER.**

*The Superintendent is responsible for the overall operation of the Project and all Contractor furnished sites and facilities directly related to the Project. The Superintendent shall sign and certify the SWPPP, Inspection*

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*Reports, and other reports required by the CGP, except the NOI and NOT. The Superintendent may not delegate the task or responsibility of signing and certifying the SWPPP submitted under Subsection 157-1.3.a, Inspection Reports, and other reports required by the CGP.*

*The Superintendent may assign certain duties to the SWPPP Manager. Those duties may include:*

- a. Ensuring Contractor's and subcontractor's compliance with the SWPPP and CGP;*
- b. Ensuring the control of erosion, sedimentation, or discharge of pollutants;*
- c. Directing and overseeing installation, maintenance, and removal of BMPs;*
- d. Performing Inspections; and*
- e. Updating the SWPPP including adding amendments and forms.*

*When Bid Item P-157g is part of the Contract, the SWPPP Manager must be available at all times to administer SWPPP requirements, and be physically present within the Project Zone or the project office, for at least eight hours per day when construction activities are occurring.*

*The Superintendent and SWPPP Manager shall be knowledgeable in the requirements of this Item P-157, the SWPPP, CGP, BMPs, HMCP, SPCC Plan, environmental permits, environmental commitments, and historic preservation commitments.*

*The Superintendent and SWPPP Manager shall have the Contractor's complete authority and be responsible for suspending construction activities that do not conform to the SWPPP or CGP.*

### **157-2.5 MATERIALS.**

*Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments according to the requirements of the CGP and the Specifications.*

*Use the temporary seed mixture specified by special provision, or use annual rye grass if no temporary seed mix is specified.*

*Use soil stabilization material as specified in Item P-.682 or the BMP details attached to the SWPPP, and T-908*

*Use silt fences as specified in P-680.*

*Use straw that is certified as free of noxious weed by the United States Department of Agriculture, Natural Resources Conservation Service, Local Soil and Water Conservative District. Alaska Weed Free Forage Certification Program must be used when available. Hay may not be substituted for straw.*

*Use Oregon Scientific RGR126 wireless rain gauge with temperature, or Taylor 2751 Digital Wireless Rain Gauge with Thermometer, or approved equivalent*

### **157-2.6 CONTRACTOR REQUIREMENTS.**

*The Contractor must be familiar with the conditions and requirements of the CGP because Contractor's employees will be conducting duties that relate to compliance with the CGP.*

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### 157-3.1 CONSTRUCTION REQUIREMENTS.

Comply with the SWPPP and the requirements of the CGP Part 5.0.

#### a. Before Construction Activity may Begin.

Complete all of the following before Construction Activities begins, except winter construction activity (CGP Part 4.2.4.2) may begin after completing (1) through (3).

- (1) SWPPP Preparer visit the Project site, document the visit in the SWPPP Form 25D-106), and develop the SWPPP (or amended) with findings from the visit;
- (2) Get approval of the SWPPP from the Engineer Form 25D-109;
- (3) Get authorization from the Engineer to begin;
- (4) The Project eNOIs for the Department and for the Contractor, as well as any other eNOIs if there are additional operators, are listed as Active Status on the DEC website;
- (5) Submit (when required) the Department approved SWPPP to DEC and Local Government;
- (6) Transmit to the Engineer an electronic copy of the approved SWPPP.
- (7) Delegation of Authority Form (25D-108 and 25D-107) for both the Contractor and DOT&PF Engineer are signed.
- (8) Post notices. Include the following information:
  - (a) Copy of all eNOIs related to this project;
  - (b) Location of the SWPPP.

Post notices on the outside wall of the Contractor's project office, and near the main entrances of the construction project. Protect postings from the weather. Locate postings so the public can safely read them without obstructing construction activities or the traveling public (for example, at an existing pullout). Do not use retroreflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices. Update the notices if the listed information changes.

- (9) Install an outdoor rain gauge per manufacturer's guidance in a readily accessible location on the Project. Projects may utilize the nearest National Weather Service (NWS) precipitation gauge station, if within 20 miles of the project, to determine rainfall amounts during storm events.
- (10) Delineate the site for both land disturbing activities and areas that will be left undisturbed.
- (11) Install perimeter controls, sediment controls, and other BMPs that must be placed prior to the initiation of Construction Activity.

#### b. During Construction.

Before subcontractors or utility companies begin soil disturbing activities, provide to them copies of applicable portions of the SWPPP, and require them to sign a SWPPP Subcontractor Certification, Form 25D-105. Include SWPPP Subcontractor Certifications as an appendix to the SWPPP. Ensure

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*subcontractors and utility companies understand and comply with the SWPPP and the CGP. Inform subcontractors and utility companies of SWPPP amendments that affect them in a timely manner. Coordinate with subcontractors and utility companies doing work in the Project Zone so BMPs, including temporary and permanent stabilization are installed, maintained, and protected from damage.*

*Provide on-going training to employees and subcontractors, on control measures at the site and applicable storm water pollution prevention procedures. Training must be specific to the installation, maintenance, protection, and removal of control measures CGP 4.14. Training must be given at a frequency that will be adequate to ensure proper implementation and protection of control measures, and no less frequently than once a month during construction activity. Document on the SWPPP Training Log. Form 25D-125, the dates and attendees to these trainings. Include the SWPPP Training Log as an appendix to the SWPPP.*

*Notify the Engineer immediately if the actions of any utility company or subcontractor do not comply with the SWPPP and the CGP.*

*Comply with Subsection GCP-70-11 Protection and Restoration of Property and Landscape. Concrete washout must be fully contained.*

*Comply with CGP Part 4.8.2 for fueling and maintenance activities. Place absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.*

*Comply with requirements of the HMCP and SPCC Plan, and all local, state and federal regulations that pertain to the handling, storage, containment, cleanup, and disposal of petroleum products or other hazardous materials.*

*Keep the SWPPP and HMCP current (refer to Subsection 157-2.1.c, SWPPP Considerations and Contents)*

### **c. Pollutant and Hazardous Materials Reporting Requirements.**

*If there has been an incident of non-compliance with the CGP that may endanger health or the environment, immediately report the incident to the Engineer and the Regional Stormwater Specialist, who will determine if reporting to the DEC is required according to the CGP, Appendix A, Part 3.0. Notify the Engineer immediately and, to the extent possible, coordinate reports to DEC with the Engineer. The report will be made by the Regional Stormwater Specialist and must include:*

- (1) A description of the noncompliance and its causes;*
- (2) The exact dates and times of noncompliance ;*
- (3) If not yet corrected the anticipated time the project will be brought back into compliance; and*
- (4) The corrective action taken or planned to reduce, eliminate and prevent reoccurrence.*

*Notify the Engineer immediately if there is an incident of non-compliance with USACE Permits.*

*Report spills of petroleum products or other hazardous materials to the Engineer and other agencies as required by law. Use the HMCP and SPCC Plan (if available) for contact information to report spills to regulatory agencies.*

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### d. **Corrective Action and Maintenance of BMPs.**

*Implement maintenance as required by the CGP, SWPPP, and manufacturer's specifications, whichever is more restrictive.*

(1) *Implement corrective action:*

- (a) *If an incident of non-compliance with the SWPPP, or CGP is identified;*
- (b) *If an Inspection or the Engineer identifies the SWPPP or any part of the SWPPP is ineffective in preventing erosion, sedimentation or the discharge of pollutants;*
- (c) *If a required BMP was not installed according to the SWPPP schedule or phasing, or was installed incorrectly, or was not installed according to the CGP Part 4.0;*
- (d) *If a BMP is not operating as intended, has not been maintained in an effective operation condition, or is unable to effectively perform the intended function;*
- (e) *If a prohibited discharge of pollutants, as specified in CGP Part 4.7, is occurring or will occur; or*
- (f) *If there is accumulation of sediment or other pollutants, that is in or near any storm water conveyance channels, or that may enter a discharge point or storm sewer system. If there is accumulation of sediment or other pollutants that is being tracked outside the project zone.*

(2) *Implement corrective actions so that they comply with the following time requirement:*

- (a) *For conditions that are easily remedied (i.e. removal of tracked sediment, maintenance of control measure, or spill clean-up), initiate corrective action within 24 hours and complete as soon as possible;*
- (b) *If installation of a new control measure is needed or an existing control measure requires redesign and reconstruction or replacement to make it operational, the corrective action must be completed within seven calendar days from the time discovered.*
- (c) *For all other conditions initiate corrective actions so both of the following requirements are met:*
  - 1. *Corrective action is completed in time to protect water quality; and*
  - 2. *Corrective action is completed no later than the Complete-by-Date that was entered in an Inspection Report (see Subsection 157-3.3.b for more information).*

*If a corrective action is not implemented within the time requirements of this section, document the situation in the SWPPP, notify the Engineer and implement corrective action as soon as possible.*

*If a corrective action could affect a subcontractor, notify the subcontractor within three days of taking the corrective action. Require in your written subcontract, that subcontractors must notify the Contractor within 24 hours of becoming aware of a condition that requires a corrective action.*

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### e. **Stabilization.**

*Stabilization may be accomplished using temporary or permanent measures. Initiate stabilization of disturbed soils, erodible stockpiles, disposal sites, and of erodible aggregate layers so that all of the following conditions are satisfied:*

- (1) Immediately;*
- (2) As soon as necessary to avoid erosion, sedimentation, or the discharge of pollutants; and*
- (3) As identified in the SWPPP.*

*Land may be disturbed and stabilized multiple times during a project. Coordinate work to minimize the amount of disturbed soil at any one time. Do not disturb more soil than you can stabilize with the resources available.*

*Temporarily stabilize from wind and water erosion portions of disturbed soils, portions of stockpiles, and portions of disposal sites, that are not in active construction. Temporary stabilization measures may require a combination of measures including but not limited to vegetative cover, mulch, stabilizing emulsions, blankets, mats, soil binders, non-erodible cover, dust palliatives, or other approved methods.*

*When temporary or permanent seeding is required, provide a working hydro seeding equipment located within 100 miles of the project by road; with 1,000 gallon or more tank capacity, paddle agitation of tank, and the capability to reach the seed areas with an uniform mixture of water, seed, mulch and tackifier. If the project is located in an isolated community the hydro-seeder must be located at the project.*

*Before applying temporary or permanent seeding, prepare the surface to be seeded to reduce erosion potential and to facilitate germination and growth of vegetative cover. Apply seed and maintain seeded areas. Reseed areas where growth of temporary vegetative cover is inadequate to stabilize disturbed ground.*

*Apply permanent seed according to Item T-901 within the time periods allowed by the contract, at locations where seeding is indicated on the plans and after land-disturbing activity is permanently ceased.*

*When installing a culvert or other drainage structure where stream bypass is not used, install temporary or permanent stabilization concurrently or immediately after placing the culvert or drainage structure in a manner that complies with the SWPPP, applicable project permits and prevents discharge of pollutants. Install temporary and permanent stabilization:*

- (1) At the culvert or drainage structure inlet and outlet; and*
- (2) In the areas upstream and downstream that may be disturbed by the process of installing the culvert, culvert end walls, culvert end sections, or drainage structure.*

*Before deactivating a stream bypass or stream diversion used for construction of a bridge, culvert, or drainage structure, install permanent stabilization:*

- (1) At the inlet and outlet of the culvert, drainage structure, or bridge;*

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- (2) *In the area upstream and downstream of the culvert, drainage structure, or bridge, that is disturbed during installation or construction of the culvert, drainage structure, or bridge; and*
- (3) *Under the bridge.*

*Within seven (7) days of initiating final stabilization, either complete final stabilization or continue maintenance of work until final stabilization is complete.*

### **f. Ending CGP Coverage and BMP Maintenance.**

*The Engineer will determine the date that all the following conditions for ending CGP coverage have been met within the Project Zone:*

- (1) *Land disturbing activities have ceased;*
- (2) *Final Stabilization has been achieved on all portions of the Project Zone, in accordance with CGP Part 4.5.2 (including at Department furnished material sources, disposal sites, staging areas, equipment areas, etc.); and*
- (3) *Temporary BMPs have been removed.*

*After the Engineer has determined the conditions for ending CGP coverage have been met, the Department will:*

- (1) *Send written notice to the Contractor with the date that the conditions were met;*
- (2) *Submit an NOT to DEC; and*
- (3) *Provide a copy of the NOT and DEC's acknowledgement letter to the Contractor.*

*The Contractor is responsible for ending permit coverage within the Project Zone, by submitting an NOT to DEC within 30 days of meeting the conditions for ending CGP coverage. The Contractor is responsible for BMP maintenance and SWPPP updates until permit coverage is ended.*

*If the Contractor's CGP eNOI acreage includes Support Activities and any other areas where the Department is not an Operator, the Contractor may not be able to file an NOT at the same time as the Department. In this case, the Contractor must amend the SWPPP and separate SWPPP2(s), to indicate the Department's CGP coverage has ended, and the Department is no longer an Operator within the Project Zone.*

*The Contractor must indicate in the SWPPP the areas that have reached Final Stabilization, and the dates land disturbing activities ended and Final Stabilization was achieved. The Contractor must submit an NOT to DEC, and insert copies of the Department's and the Contractor's NOTs with DEC's acknowledgement letters in the appendix of the SWPPP.*

*The Contractor must submit a copy of each signed NOT and DEC's acknowledgement letter to the Department within three days of filing the NOT or receiving a written response.*

*The Contractor is responsible for coordinating local government inspections of work and ending permit coverage with local government. See Subsection 157-1.3.e for more information.*



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### **g. Transmit final SWPPP.**

*Transmit one copy of the final SWPPP, including all amendments, appendices and maps, to the Engineer; when the project NOTs are filed, or within 30 days of the Department's NOT being filed, whichever is sooner. Transmittal must be by both electronic and hard copy.*

### **157-3.2 SWPPP DOCUMENTS, LOCATION ON-SITE, AVAILABILITY, AND RECORD RETENTION.**

*The SWPPP and related documents maintained by the Contractor are the Record for demonstrating compliance with the CGP. Copies of SWPPP documents transmitted to the Engineer under the requirements of this specification are informational and do not relieve the Contractor's responsibility to maintain complete records as required by the CGP and this specification.*

*Keep the SWPPP, HMCP and SPCC Plan at the on-site project office. If there is not an on-site project office, keep the documents at a locally available location that meets CGP requirements and is approved by the Engineer. Records may be moved to another office for record retention after the NOTs are filed. Records may be moved to another office during winter shutdown. Update on-site postings if records are relocated during winter shutdown. Provide the Department with copies of all Records.*

*Retain Records and a copy of the SWPPP, for at least three years after the date of NOT. If EPA or DEC inspects the project, issues a Notice of Violation (NOV), or begins investigation for a potential NOV before the retention period expires, retain the SWPPP and all Records related to the SWPPP and CGP until at least three years after EPA and/or DEC has determined all issues related to the investigation are settled.*

*The SWPPP and related documents must be made available for review and copy, to the Department and other regulatory agencies that request them. See CGP Parts 5.10, 6.6 and 9.5.*

### **157-3.3 SWPPP INSPECTIONS, AMENDMENTS, REPORTS, AND LOGS.**

*Perform Inspections, prepare Inspection Reports, and prepare SWPPP Amendments in compliance with the SWPPP and the CGP. Update SWPPP Corrective Action Log Form 25D-112, SWPPP Amendment Log Form 25D-114, SWPPP Grading and Stabilization Activities Log Form 25D-110, Staff Tracking Log Form 25D-127, and SWPPP Daily Record of Rainfall Form 25D-115.*

#### **a. Inspection during Construction.**

*Conduct Inspections according to the schedule and requirements of the SWPPP and CGP.*

*Inspections required by the CGP and SWPPP must be performed by the Contractor's SWPPP Manager and the Department's Stormwater Inspector jointly, unless impracticable. For this paragraph, "impracticable" means when both inspectors must fly to a remote area in the winter or when one inspector is sick or unable to travel to the site due to weather. When this is the case, the Operator who conducts the Inspection must provide a copy of the Inspection Report to the other Operator within three days of the Inspection date and document the date of the report transmittal.*

#### **b. Inspection Reports.**

*Use only the DOT&PF SWPPP Construction Site Inspection Report, Form 25D-100 to record Inspections. Changes or revisions to Form 25D-100 are not permitted; except for adding or deleting data fields that list: Location of Discharge Points and Site Specific BMPs. Complete all fields included on the Inspection Report form; do not leave any field blank.*

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*Insert a Complete-by-Date for each corrective action listed that complies with:*

- (1) *Section 157-3.1 (d); and*
- (2) *The CGP*

*Provide a copy of the completed, unsigned Inspection Report to the Engineer by the end of the next business day following the inspection.*

*The Superintendent must review, correct errors, and sign and certify the Inspection Report, within three days of the date of Inspection. The Engineer may coordinate with the Superintendent to review and correct any errors or omissions before the Superintendent signs the report. Corrections are limited to adding missing information or correcting entries to match field notes and conditions present at the time the Inspection was performed. Deliver the signed and certified Inspection Report to the Engineer on the same day the Superintendent signs it.*

*The Engineer will sign and certify the Inspection Report and will return the original to the Contractor within three working days.*

*The Engineer may make corrections after the Superintendent has signed and certified the Inspection Report. The Engineer will initial and date each correction. If the Engineer makes corrections, the Superintendent must recertify the Inspection Report by entering a new signature and date in the white space below the original signature and date lines. Send a copy of the recertified Inspection Report to the Engineer on the day it is recertified.*

*If subsequent corrections to the certified Inspection Report are needed, document the corrections in an amendment that addresses only the omitted or erroneous portions of the original Inspection Report. The Superintendent and the Engineer must both sign and certify the amendment.*

### **c. Seasonal Suspension of Work.**

*Construction Activities within the Project Zone must be stabilized with appropriate BMPs prior to fall freeze-up*

*Conduct an Inspection before seasonal suspension of work to confirm BMPs are installed and functioning according to the requirements of the SWPPP and the CGP. Also ensure that stabilization is in place for the anticipated spring thaw.*

*When work is suspended due to fall freeze-up (CGP Part 4.12, Winter Considerations), the Engineer may suspend inspection requirements fourteen days after anticipated fall freeze-up if:*

- (1) *Soil disturbing activities are suspended; and*
- (2) *Soil stabilizing activities are suspended.*

*Inspections must resume according to the normal inspection schedule identified in the SWPPP, at least 21 days before anticipated spring thaw per CGP Part 6.2.3.*

*The Engineer may waive requirements for updating the Grading and Stabilization Activities Log and Daily Record of Rainfall during seasonal suspension of work. If so, resume collecting and recording weather data on the Daily Record of Rainfall from one month before thawing conditions are expected to result in runoff. Resume recording land disturbance and stabilization activities on the Grading and Stabilization Activities Log when Construction Activity resumes.*

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### **d. *Reduced Inspection Frequencies.***

*Conduct inspections according to the inspection schedule indicated in the approved SWPPP. Any change in inspection frequency must be approved by the Engineer, and beginning and ending dates documented as an amendment to the SWPPP.*

*Inspection frequency may be reduced to at least one inspection every month, if approved by the Engineer and the entire site is temporarily stabilized.*

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### **e. Inspection before Project Completion.**

Conduct Inspection to ensure Final Stabilization is complete throughout the Project, and temporary BMPs that are required to be removed are removed. Temporary BMPs that are biodegradable and are specifically designed and installed with the intent of remaining in place until they degrade, may remain in place after project completion with the Engineer's approval.

### **f. Items and Areas to Inspect.**

Conduct Inspections of the areas required by the CGP and SWPPP.

### **g. SWPPP Amendments and SWPPP Amendment Log.**

The Superintendent and the SWPPP Manager are the only persons authorized to amend the SWPPP and update the SWPPP Amendment Log, Form 25D-114. The Superintendent or the SWPPP Manager must sign and date amendments to the SWPPP and updates to the SWPPP Amendment Log.

SWPPP Amendments must be approved by the Engineer.

Amendments must occur:

- (1) Whenever there is a change in design, construction operation, or maintenance at the construction site that has or could cause erosion, sedimentation or the discharge of pollutants that has not been previously addressed in the SWPPP;
- (2) If an Inspection identifies that any portion of the SWPPP is ineffective in preventing erosion, sedimentation, or the discharge of pollutants;
- (3) Whenever an Inspection identifies a problem that requires additional or modified BMPs
- (4) Whenever a BMP is modified during construction, or a BMP not shown in the original SWPPP is added;
- (5) If the Inspection frequency is modified (note beginning and ending dates); or
- (6) When there is a change in personnel who are named in the SWPPP, according to Subsection 157-2.1.d.

Amend the SWPPP narrative as soon as practicable after any change or modification, but in no case, later than seven days following identification of the need for an amendment. Every SWPPP Amendment must be signed and dated. Cross-reference the amendment number with the Corrective Action Log or SWPPP page number, as applicable. When a BMP is modified or added, describe the BMP according to Subsection 157-2.1.c.

Keep the SWPPP Amendment Log current. Prior to performing each scheduled Inspection, submit to the Engineer a copy of the pages of the Amendment Log that contain new entries since the last submittal. Include copies of any documents amending the SWPPP.

Keep the SWPPP Amendment Log as an appendix to the SWPPP.

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### **h. Site Maps.**

*Document installation, routine maintenance, and removal of BMPs by making notes on the SWPPP Site Maps. Include the date and the recording person's initials by these notes. Identify any Public Water Systems (PWS) and drinking water protection areas (DWPA) per CGP Part 4.10. Identify areas where Construction Activities which cause soil disturbance begin, areas where Construction Activities which cause soil disturbance temporarily or permanently cease, and areas that are temporarily or permanently stabilized.*

### **i. Corrective Action Log.**

*The Superintendent and SWPPP Manager are the only persons authorized to make entries on the SWPPP Corrective Action Log, Form 25D-112. Document the need for corrective action within 24 hours of either:*

- (1) Identification during an inspection; or*
- (2) Discovery by the Department's or Contractor's staff, a subcontractor, or a regulatory agency inspector.*

*Modification or replacement of a BMP, installation of a new BMP not shown in the original SWPPP, routine maintenance, or overdue maintenance is a corrective action and must be documented on the Corrective Action Log. Maintenance is considered overdue under any of the following conditions:*

- (1) Accumulated sediment in sediment basins, including sediment traps and ponds, exceeds 50% of design capacity.*
- (2) Sediment accumulates to more than a third of the above ground height of silt fence protecting water bodies.*
- (3) Sediment accumulates to more than half of the above ground height of storm water inlets, check dams, berms, or silt fence not protecting water bodies.*

*Within 24 hours of discovery, update the Corrective Action Log, Form 25D-112, with the date of discovery and proposed corrective action. If discovered during an inspection, update log with inspection date and proposed corrective actions noted on the Inspection Report. If discovered outside of an inspection, update the log with the date of discovery, the proposed corrective action, and the date the corrective action was completed..*

*After the corrective action has been accomplished, note in the Corrective Action Log the action taken and if a SWPPP amendment was needed. Date and initial the entry.*

*Keep the Corrective Action Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection.*

*Keep the Corrective Action Log as an appendix to the SWPPP.*

### **j. Grading and Stabilization Activities Log.**

*The Superintendent and SWPPP Manager are the only persons authorized to date and initial entries on the SWPPP Grading and Stabilization Activities Log, Form 25D-110. Use the SWPPP Grading and Stabilization Activities Log, to record land disturbance and stabilization activities.*

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*Keep the Grading and Stabilization Activities Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection. Keep the Grading and Stabilization Activities Log organized and completed to demonstrate compliance with the CGP Part 4.5.*

*Keep the Grading and Stabilization Activities Log as an appendix to the SWPPP.*

### **k. Daily Record of Rainfall.**

*Use SWPPP Daily Record of Rainfall, Form 25D-115, to record weather conditions at the Project. Update the form daily and include the initials of the person recording each day's entry. Submit a copy to the Engineer prior to performing each scheduled Inspection. Keep the Daily Record of Rainfall as an appendix to the SWPPP.*

### **l. Staff Tracking Log.**

*Use the SWPPP Staff Tracking Log, Form 25D-127, to keep staff records current. Include records of the AK-CESCL or equivalent qualifications for the Superintendent, SWPPP Manager, ATS operator, any acting Superintendent and acting SWPPP Managers, and beginning and end dates for temporary personnel assignments related to administration of the CGP or Section P-157. Update the SWPPP Staff Tracking Log within 24 hours of any changes in personnel, qualifications, or other staffing items related to administration of the CGP or Section P-157.*

### **157-3.4 FAILURE TO PERFORM WORK.**

*The Engineer has authority to suspend work and withhold monies, for an incident of non-compliance with the CGP or SWPPP, that may endanger health or the environment or for failure to perform work related to Section P-157.*

#### **a. Non-compliance.**

(1) **Incidents of Non-compliance.** Failure to:

- (a) *Obtain appropriate permits before Construction Activities occur;*
- (b) *Perform SWPPP Administration;*
- (c) *Perform timely Inspections;*
- (d) *Update the SWPPP;*
- (e) *Transmit updated SWPPP, Inspection Reports, and other updated SWPPP forms to the Engineer;*
- (f) *Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements;*
- (g) *Perform duties according to the requirements of Section P-157;*
- (h) *Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control; and*

(2) **Notice of non-compliance**, either oral or written will include:

## EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157

- (a) *Reason/defects*
  - (b) *Corrective actions required*
  - (c) *Time allowed for completing the corrective action*
- (3) **Levels of Non-compliance and Response** correspond with harm to the workers, the public or the environment and whether the harm is:
- (a) **Not-imminent**, the Engineer will either orally or in writing, or both, provide notice to the Contractor indicating the incident of non-compliance. Contractor's that take corrective action and complete the action to the satisfaction of the Engineer, within the time specified, may return to the status of compliance, and avoid elevating the response to imminent.
  - (b) **Imminent**, the Engineer will orally provide notice to the Contractor of non-compliance and promptly provide written notice to suspend work until corrective action is completed. No additional Contract time or additional compensation will be allowed due to delays caused by the Engineer's suspension of work.
  - (c) Additional actions, taken against the Contract whether the level of non-compliance is Not-imminent or Imminent, may include:
    - *Withholding monies until corrective action is completed*
    - *Assessing damages or equitable adjustments*
    - *Employing others to perform the corrective action and deduct the cost*

### 157-3.5 ACCESS TO WORK.

The Project, including any related off-site areas or support activities, must be made available for inspection, or sampling and monitoring, by the Department and other regulatory agencies. See CGP Part 6.6.

**157-4.1 METHOD OF MEASUREMENT.** Section 90, P-157-5.1, and as follows:

Items P-157a, P-157c and P-157g, are lump sum.

Items P-157b, P-157d and P-157e, will be measured on a contingent sum basis as specified by the Directive authorizing the work.

Item P-157f will be measured on a contingent sum basis with withholding determined by the Department.

### TABLE 157-1 BMP VALUES - RESERVED

Liquidated Damages assessed according to Table 157-2 are not an adjustment to the Contract amount. These damages charges are related to Contract performance but are billed by the Department, independent of the Contract amount. An amount equal to the Liquidated Damages may be withheld for unsatisfactory performance, from payment due under the Contract, until the Contractor remits payment for billed Liquidated Damages.

**EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157**

**TABLE 157-2- Version B  
EROSION, SEDIMENT AND POLLUTION CONTROL – LIQUIDATED DAMAGES**

<b>Code</b>	<b>Specification Section Number and Description</b>	<b>Deductible Amount in Dollars</b>	<b>Cumulative Deductible Amounts in Dollars</b>
<b>a</b>	157-1.4 Failure to have a qualified (AK-CESCL or equivalent) SWPPP Manager	Calculated in Code B or F	
<b>b</b>	Failure to meet SWPPP requirements of:  (1) 157-2.1.a Name of SWPPP Preparer  (2) Not Applicable  (3) 157-3.3.h Sign and Date SWPPP amendments with qualified person  (4) 157-2.1.d SWPPP Include approving person's name and AK-CESCL expiration date  (5) 157-3.2 Records maintained at project and made available for review	\$750 per omission	
<b>c</b>	Not Applicable		
<b>d</b>	157-3.3.e Failure to stabilize a Project prior to fall freeze up.	\$5,000 per Project per year	
<b>e</b>	157-2.1.a Failure to conduct pre-construction inspections before Construction Activities on all projects greater than 1 acre.	\$2,000 per Project	
<b>f*</b>	157-3.3. Failure to conduct and record CGP Inspections  157-3.3.a Personnel conducting Inspections and Frequency  157-3.3.b Inspection Reports, use Form 25D-100, completed with all required information	\$750 per Inspection	Additional \$750 for every additional 7 day period without completing the required inspection.
<b>g</b>	157-3.1.d Failure to timely accomplish BMP maintenance and/or repairs. In effect until BMP maintenance and/or repairs is completed.	\$500 per Project per day	
<b>h</b>	157-3.1.c Failure to provide to the Engineer and DEC a timely oral noncompliance report of violations or for a deficient oral noncompliance report	\$750 for the first day the report is late or deficient	Additional \$750 for every 14 day period with- out the required information



## EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157

Code	Specification Section Number and Description	Deductible Amount in Dollars	Cumulative Deductible Amounts in Dollars
<i>i</i>	157-3.1.c Failure to provide to the Engineer and DEC a timely written noncompliance report, use Form 25D-143, of violations or for a deficient written endangerment report	\$750 for the first day the report is late or deficient	Additional \$750 for every 14 day period without the required information
<i>j</i>	157.3.4 Failure to comply with the requirements of the CGP, approved SWPPP, or Item P-157, except as listed above	\$750 per occurrence for the first day	Additional \$750 for every day the deficiency remains uncorrected

**Code f\*** Liquidated Damages will not be billed for typographic errors and minor data entry errors except the liquidated damages will be billed for these errors when:

- the contractor has previously been notified and subsequent inspection reports repeat the same or similar error;
- multiple inspection reports are submitted after the submission due date and the same or similar errors are repeated on multiple overdue reports; or
- an error in recording the inspector's AK-CESCL certification date results in an inspector performing the inspection during a period when their certification was lapse or was otherwise invalid.

**157-5.1 BASIS OF PAYMENT.** See Subsection 157-3.4 Failure to Perform Work, for additional work and payment requirements.

**Item P-157a Erosion, Sediment and Pollution Control Administration.** At the Contract lump sum price for administration of all work under this Section. Includes, but is not limited to, SWPPP and HMCP and SPCC Plan preparation, agency fees for SWPPP reviews, SWPPP amendments, pre-construction Inspections, Inspections, monitoring, reporting, and Record keeping or copying Records related to the SWPPP and required by the CGP, and Record retention.

**Item P-157b Temporary Erosion, Sediment and Pollution Control.** At the contingent sum prices specified for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of approved temporary erosion, sedimentation, and pollution control BMPs required to implement the SWPPP and SPCC Plan.

**Item P-157c Temporary Erosion, Sediment and Pollution Control.** At the Contract lump sum price for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs identified in the SWPPP and SPCC Plan.

**Item P-157d Temporary Erosion Sediment and Pollution Control Additives.** At the contingent sum prices specified in the Directive to authorize the work, for all labor, supervision, materials, equipment, and incidentals for extra, additional, or unanticipated work, to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs not covered by Item P-157c. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.

## EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157

**Item P-157e Temporary Erosion Sediment and Pollution Control by Directive.** At the contingent sum prices specified in the Directive using time and materials to authorize the work, for all labor, supervision, materials, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs. Prices for this item will be by time and materials according to Subsection GCP-90-05, or by mutual agreement between the Engineer and Contractor. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.

**Item P-157f Withholding.** The Engineer may withhold an amount equal to Liquidated Damages, assessed according to Item P-157, from payment due the Contractor. Liquidated Damages for violations of the Contract, CWA, CGP, are determined by the Engineer according to Table 157-2. The Engineer may withhold payment due the Contractors until the Contractor pays the Liquidated Damages to the Department.

The Department will not release performance bonds until Liquidated Damages assessed according to Item P-157 are paid to the Department, and all requirements according to Subsection GCP-30-05 are satisfied.

**Item P-157g SWPPP Manager.** At the Contract lump sum price for a SWPPP Manager that conforms to this specification. When Item P-157g appears in the Bid Schedule, the SWPPP Manager must be a different person than the superintendent, and must be physically present during construction activity with duties and authority as described in Subsection 157-2.4. When Item P-157g does not appear in the Bid Schedule, the SWPPP Manager is subsidiary to Item P-157a.

**Subsidiary Items.** Temporary erosion, sediment and pollution control measures that are required outside the Project Zone are subsidiary. Work required by the HMCP and SPCC Plan including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to Item P-157a Erosion, Sediment and Pollution Control Administration.

**Work under other pay items.** Work that is paid for directly or indirectly under other pay items will not be measured and paid for under Section 157. This work includes but is not limited to:

- a. Dewatering;
- b. Shoring;
- c. Bailing;
- d. Permanent seeding;
- e. Installation and removal of temporary work pads;
- f. Temporary accesses;
- g. Temporary drainage pipes and structures;
- h. Diversion channels;
- i. Settling impoundment; and
- j. Filtration.

Permanent erosion, sediment and pollution control measures will be measured and paid for under other Contract items, when shown on the bid schedule.

**Work at the Contractor's Expense.** Temporary erosion, sediment and pollution control measures that are required due to carelessness, negligence, or failure to install temporary or permanent controls as scheduled or ordered by the Engineer, or for the Contractor's convenience, are at the Contractor's expense.

## EROSION, SEDIMENT, AND POLLUTION CONTROL - P-157

Payment will be made under:

<b>PAY ITEM</b>		<b>PAY UNIT</b>
P-157A	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	LUMP SUM
P-157B	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	CONTINGENT SUM
P-157c	Temporary Erosion, Sediment and Pollution Control	Lump Sum
P-157d	Temporary Erosion, Sediment and Pollution Control Additives	Contingent Sum
P-157e	Temporary Erosion, Sediment and Pollution Control by Directives	Contingent Sum
P-157f	Withholding	Contingent Sum
P-157g	SWPPP Manager	Lump Sum

## EXCAVATION OF PAVEMENT - P-160

### DESCRIPTION

**160-1.1** Excavate, haul, and dispose of existing asphalt cement concrete (AC) pavement and portland cement concrete (PCC) pavement.

### CONSTRUCTION REQUIREMENTS

**160-2.1** Perform the work for this item according to the following instructions.

- a. Excavation.** Excavate to the minimum depth necessary for removal of existing pavement where shown on the Plans. Saw cut where shown on the Plans.
- b. Disposal.** Excavated pavement material becomes the property of the Contractor. Remove excavated material to an approved disposal site off of airport property in accordance with applicable Federal and State regulations.
- c. Drainage.** Maintain drainage at all times. Install temporary drains and drainage ditches to intercept or divert surface water that may affect the prosecution or condition of the work.

### METHOD OF MEASUREMENT

**160-3.1** Section 90. Where portland cement concrete pavement is overlain by asphalt concrete pavement, the asphalt concrete pavement will not be measured separately and will be considered portland cement concrete pavement for payment purposes.

### BASIS OF PAYMENT

**160-4.1** At the contract unit price for excavation and disposal of pavement materials for either AC or PCC pavement.

Payment will be made under:

- |             |  |
|-------------|--|
| Item P-160a | Excavation of Pavement (AC) – per square yard  |
| Item P-160b | Excavation of Pavement (PCC) – per square yard |

## CRUSHED AGGREGATE BASE COURSE - P-209

### DESCRIPTION

**209-1.1** This item consists of a base course composed of crushed aggregates constructed on a prepared course according to these Specifications and to the dimensions and typical cross section shown on the Plans.

### MATERIALS

**209-2.1 AGGREGATE.** Aggregates shall consist of clean, sound, durable particles of crushed stone or crushed gravel and shall be free from vegetable matter, excess coatings of clay, silt, and other objectionable materials and shall contain no clay balls.

Fine aggregate passing the No. 4 sieve shall consist of fines from the operation of crushing the coarse aggregate. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone and gravel that meet the requirements for wear and soundness specified for coarse aggregate.

The crushed aggregate portion which is retained on the No. 4 sieve shall have at least 75% by weight with 2 fractured faces as determined by WAQTC FOP for AASHTO T 335.

The percentage of wear shall not be greater than 45% when tested according to AASHTO T 96. The sodium sulfate soundness loss shall not exceed 12%, after 5 cycles, when tested according to AASHTO T 104. Aggregates shall have a minimum degradation value of 45 when tested according to ATM 313.

The fraction passing the No. 40 sieve shall have a liquid limit no greater than 25 and a plasticity index of not more than 4 when tested according to WAQTC FOP for AASHTO T 89 and T 90. The fine aggregate shall have a minimum sand equivalent value of 35 when tested according to WAQTC FOP for AASHTO T 176.

- a. **Sampling and Testing.** The Engineer will sample aggregates for quality testing before the start of production. The Engineer, at no expense to the Contractor, will make all tests necessary to determine whether aggregate quality is in compliance with the specifications.

The Engineer will sample aggregates for acceptance according to WAQTC FOP for AASHTO T 2, and test aggregates for acceptance according to WAQTC FOP for AASHTO T 27/T 11.

- b. **Gradation Requirements.** The gradation of the final mixture shall fall within the range indicated in Table 1, when tested according to WAQTC FOP for AASHTO T 27/T 11. The final gradation shall be continuously well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on an adjacent sieve or vice versa.

## CRUSHED AGGREGATE BASE COURSE - P-209

TABLE 1. REQUIREMENTS FOR GRADATION OF AGGREGATE

Sieve Designation (Square Openings)	Percentage by weight passing sieves	
	C-1	D-1
1-1/2 in	100	--
1.00 in	70-100	100
3/4 in	60-90	70-100
3/8 in	45-75	50-80
No.4	30-60	35-65
No. 8	22-52	20-50
No. 50	8-30	8-30
No. 200	0-6	0-6

Note: Unless otherwise specified, Gradation D-1 shall be used.

### CONSTRUCTION METHODS

**209-3.1 PREPARING UNDERLYING COURSE.** Placing and spreading operations shall not commence until the underlying course has been accepted, in writing, by the Engineer. Any ruts or soft areas shall be corrected and compacted to the required density before placing the base course. Crushed aggregate base course shall not be placed on frozen material.

**209-3.2 MIXING.** The aggregate shall be uniformly blended during crushing operations or mixed in a plant. The plant shall blend and mix the materials to meet the Specifications.

**209-3.3 PLACING.** The crushed aggregate base material shall be placed on the approved subgrade in uniform, equal-depth layers, each not exceeding 6 inches of compacted depth.

The previously constructed layer shall be cleaned of loose and foreign material prior to placing the next layer. The surface of the compacted material shall be kept moist until covered with the next layer.

**209-3.4 COMPACTION.** Immediately upon completion of the spreading operations, the aggregate shall be thoroughly compacted to the required density. The moisture content of the material shall be approximately that required to obtain maximum density.

**209-3.5 ACCEPTANCE SAMPLING AND TESTING FOR DENSITY.** Base course will be accepted for density when the field density is not less than 100% of the maximum density, as determined according to WAQTC FOP for AASHTO T 99/T 180 or ATM 212. The in-place field density and moisture content will be determined according to WAQTC FOP for AASHTO T 310. If the specified density is not attained, the material shall be reworked and/or recompacted until the specified density is reached.

**209-3.6 FINISHING.** The surface of the aggregate base course shall be finished by blading or with automated equipment specifically designed for this purpose.

In no case shall thin layers of material be added to the top of base course to meet grade. If the compacted elevation of the top layer is 0.05 foot or more below grade, it shall be scarified to a depth of at least 3 inches, new material added, and the layer shall be blended and compacted to bring it to grade. If the finished surface is above plan grade, it shall be cut back to grade and recompacted.

**209-3.7 SURFACE TEST.** After the course has been completely compacted, the surface will be tested by the Engineer for smoothness and accuracy of grade and crown. The finished surface shall not vary more than 3/8 inch from a 10-foot straightedge when applied to the surface parallel with, and at right angles to, the centerline. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be corrected to within the specified tolerances.

## CRUSHED AGGREGATE BASE COURSE - P-209

**209-3.8 THICKNESS CONTROL.** The thickness of the finished base course will be determined by the Engineer by taking before and after elevation measurements, or by depth tests, at random locations. The completed thickness of the base course shall be within 1/2 inch of the design thickness. Where the thickness is deficient by more than 1/2 inch, it shall be corrected to within the specified tolerances.

**209-3.9 MAINTENANCE.** The base course shall be maintained in a condition that will meet all specification requirements until the work is accepted. Equipment used in the construction of an adjoining section may be routed over completed portions of the base course, provided no damage results and provided that the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.

### METHOD OF MEASUREMENT

**209-4.1** Crushed Aggregate Base Course will be weighed by the ton or measured by the cubic yard in final position according to Subsection GCP-90-02.

### BASIS OF PAYMENT

**209-5.1** Crushed Aggregate Base Course will be paid for at the contract price, per unit of measurement, accepted in place.

Payment will be made under:

Item P-209a	Crushed Aggregate Base Course - per cubic yard
Item P-209b	Crushed Aggregate Base Course - per ton

### TESTING REQUIREMENTS

ATM 212	Determining the Standard Density of Coarse Granular Materials Using the Vibratory Compactor
ATM 313	Degradation Value of Aggregates
AASHTO T 96	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
AASHTO T 104	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
WAQTC FOP for AASHTO T 2	Sampling Aggregates
WAQTC FOP for AASHTO T 27/T 11	Sieve Analysis of Aggregates & Soils
WAQTC FOP for AASHTO T 89	Liquid Limit of Soils
WAQTC FOP for AASHTO T 90	Plastic Limit and Plasticity Index of Soils
WAQTC FOP for AASHTO T 99/T 180	Moisture-Density Relations of Soils
WAQTC FOP for AASHTO T 176	Sand Equivalent
WAQTC FOP for AASHTO T 310	In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods
WAQTC FOP for AASHTO T 335	Percentage of Fracture in Coarse Aggregate

# PLANT HOT MIX ASPHALT PAVEMENT - P-401

## DESCRIPTION

**401-1.1** This item shall consist of a surface course composed of mineral aggregate and asphalt cement mixed in a central mixing plant and placed on a prepared course according to these Specifications and shall conform to the lines, grades, thicknesses, and typical cross sections shown on the Plans. Each course shall be constructed to the depth, typical section, or elevation required by the Plans and shall be rolled, finished, and approved before the placement of the next course.

## MATERIALS

**401-2.1 AGGREGATE.** Aggregates shall consist of crushed stone or crushed gravel with or without sand or other inert finely divided mineral aggregate. The portion of materials retained on the No. 4 sieve is coarse aggregate. The portion passing the No. 4 sieve and retained on the No. 200 sieve is fine aggregate, and the portion passing the No. 200 sieve is mineral filler.

- a. **Coarse Aggregate.** Coarse aggregate shall consist of sound, tough, durable particles, free from adherent films of matter that would prevent thorough coating and bonding with the bituminous material and be free from organic matter and other deleterious substances. The percentage of wear shall not be greater than 40% when tested according to AASHTO T 96. The sodium sulfate soundness loss shall not exceed 10%, or the magnesium sulfate soundness loss shall not exceed 13%, after 5 cycles, when tested according to AASHTO T 104. The aggregate shall have a minimum degradation value of 30 when tested according to ATM 313.

The crushed aggregate portion which is retained on the No. 4 sieve shall have at least 90% by weight 2 fractured faces as determined by FOP for AASHTO TP 61.

The aggregate shall not contain more than 8%, by weight, of flat or elongated pieces, when tested according to ATM 306. The ratio of the calipers shall be set to 1:5.

- b. **Fine Aggregate.** Fine aggregate shall consist of clean, sound, durable, angular shaped particles produced by crushing stone, slag, or gravel that meets the requirements for wear and soundness specified for coarse aggregate. The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter and shall contain no clay balls. The fine aggregate, including any blended material for the fine aggregate, shall have a plasticity index of not more than 6 and a liquid limit of not more than 25 when tested according to WAQTC FOPs for AASHTO T 89 and AASHTO T 90.

Natural (nonmanufactured) sand may be used to obtain the gradation of the aggregate blend or to improve the workability of the mix. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of this specification. The fine aggregate shall not contain more than 20% natural sand by weight of total aggregates.

The aggregate shall have sand equivalent values of 35 or greater when tested according to WAQTC FOP for AASHTO T 176.

- c. **Sampling.** WAQTC FOP for AASHTO T 2 shall be used in sampling coarse and fine aggregate, and AASHTO T 127 shall be used in sampling mineral filler.

**401-2.2 MINERAL FILLER.** If filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of AASHTO M 17.

**401-2.3 ASPHALT CEMENT.** Asphalt cement shall conform to the following property requirements:



## PLANT HOT MIX ASPHALT PAVEMENT - P-401

<b>Performance Grade AASHTO M 320</b>	<b>Softening Point AASHTO T 53</b>	<b>Toughness ASTM D 5801</b>	<b>Tenacity ASTM D 5801</b>
PG 52-28	N/A	N/A	N/A
PG 58-28	120° F, min.	110 in lbs, min.	75 in lbs, min.
PG 64-28	125° F, min.	110 in lbs, min.	75 in lbs, min.

The Contractor shall furnish vendor's certified test reports for each lot of asphalt cement shipped to the project. The vendor's certified test report for the asphalt cement can be used for acceptance or tested independently by the Engineer.

All excess asphalt cement shall remain the property of the Contractor. Removal of excess asphalt cement from the project area shall be incidental to the contract and no separate payment will be made.

**401-2.4 PRELIMINARY MATERIAL ACCEPTANCE.** Prior to delivery of materials to the job site, the Contractor shall submit certified test reports to the Engineer for the following materials:

**a. Coarse Aggregate.**

- (1) Percent of wear.
- (2) Soundness.

**b. Fine Aggregate.**

- (1) Liquid limit.
- (2) Plastic index.
- (3) Sand equivalent.

**c. Mineral Filler.**

- d. Asphalt Cement.** The certification(s) shall show the appropriate test(s) for each material, the test results, and a statement that the material meets the specification requirement.

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

### COMPOSITION

**401-3.1 COMPOSITION OF MIXTURE.** The plant mix shall be composed of a mixture of well-graded aggregate, filler if required, and asphalt cement. The several aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

**401-3.2 JOB MIX FORMULA.** No hot mix asphalt for payment shall be produced until a JMF has been approved by the Engineer. The hot mix asphalt shall be designed using procedures contained in ATM 417, "Chapter 5, Marshall Method of Mix Design, of the Asphalt Institute's Manual Series No. 2 (MS-2), Mix Design Methods for Asphalt Concrete", and shall meet the requirements of Tables 1 and 2.

If material variability exceeds the standard deviations indicated, the JMF and subsequent production targets should be based on a stability greater than shown in Table 1, and the flow and air voids should be targeted close to the mid-range of the criteria in order meet the acceptance requirements.

## PLANT HOT MIX ASPHALT PAVEMENT - P-401

If the Tensile Strength Ratio (TSR) of the composite mixture, as determined by ATM 414, is less than 75, the aggregates shall be rejected or the asphalt treated with an approved anti-stripping agent. The amount of anti-

stripping agent added to the asphalt shall be sufficient to produce a TSR of not less than 75. If an antistrip agent is required, it will be provided by the Contractor at no additional cost.

The JMF shall be submitted in writing by the Contractor to the Engineer at least 15 calendar days prior to the start of paving operations and shall include as a minimum:

- a. Percent passing each sieve size.
- b. Percent of asphalt cement.
- c. Asphalt viscosity or penetration grade.
- d. Number of blows of hammer compaction per side of molded specimen.
- e. Mixing temperature.
- f. Compaction temperature.
- g. Temperature of mix when discharged from the mixer.
- h. Temperature-viscosity relationship of the asphalt cement.
- i. Plot of the combined gradation on the Federal Highway Administration (FHWA) 45 power gradation curve.
- j. Graphical plots of stability, flow, air voids, voids in the mineral aggregate, and unit weight verses asphalt content.
- k. Percent natural sand.
- l. Percent fractured faces.
- m. Percent elongated particles.
- n. Tensile Strength Ratio (TSR).
- o. Antistrip agent (if required).

The Engineer has authority to review submitted JMDs and to reject JMDs that do not meet specifications. The Contractor shall submit samples to the Engineer, upon request, for JMD verification testing.

The JMF may be designed by the Department. The Contractor shall submit material samples to the Engineer, upon request, for JMF design. The Department will furnish one JMD, that meets specifications, for each Type and Class of HMA specified. If additional JMDs are required, the Engineer will assess a fee of \$2,500.00 under Contract Item P-401b, Hot Mix Asphalt Price Adjustment, for each additional JMD furnished.

The JMF for each mixture shall be in effect until modified in writing by the Engineer. Should a change in sources of materials be made, a new JMF must be approved by the Engineer before the new material is used.

**TABLE 1. MIX DESIGN REQUIREMENTS**

Test Property	Pavements Designed for Aircraft Gross Weights of 60,000 Lbs. or More or Tire Pressures of 100 Psi or More	Pavements Designed for Aircraft Gross Weight Less Than 60,000 Lbs. or Tire Pressure Less Than 100 Psi
Number of blows	75	50
Stability, pounds	2150	1350
Flow, 0.01 inch	10-14	10-18
Air voids %	2.8-4.2	2.8-4.2
Voids in mineral aggregate, %, min.	See Table 2	See Table 2

**PLANT HOT MIX ASPHALT PAVEMENT - P-401**

**TABLE 2. MINIMUM PERCENT VOIDS IN MINERAL AGGREGATE**

Maximum Particle Size inch	Voids in Mineral Aggregate, %, Minimum
1/2	14.0
3/4	13.0
1	12.0
1-1/4	11.0

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory screens, will conform to the gradation or gradations specified in Table 3 when tested according to WAQTC FOP for AASHTO T 27 and T 11

The gradations in Table 3 represent the limits which shall determine the suitability of aggregate for use from the sources of supply. The aggregate, as selected (and used in the JMF), shall have a gradation within the limits designated in Table 3 and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, but shall be well graded from coarse to fine when tested according to WAQTC FOP for AASHTO T 27 and T 11.

For acceptance testing, deviations from the final approved mix design for bitumen content and gradation of aggregates shall be within the tolerance limits for individual measurements as specified in Table 5. The limits still will apply if they fall outside the master grading band in Table 3. Limits do not apply to the largest sieve specified.

The maximum size aggregate used shall not be more than one-half of the thickness of the course being constructed.

**TABLE 3. AGGREGATE – HOT MIX ASPHALT PAVEMENTS**

Sieve Size	Percentage by Weight Passing Sieves			
	1-1/4 in. max	1.00 in. max	3/4 in. max	1/2 in. max
1-1/4 in.	100	--	--	--
1 in.	86-98	100	--	--
3/4 in.	68-93	76-98	100	--
1/2 in.	57-81	66-86	75-90	100
3/8 in.	49-69	57-77	60-84	80-90
No. 4	34-54	40-60	33-70	4-81
No.8	22-42	26-46	19-56	26-70
No.16	13-33	17-37	10-44	16-59
No.30	8-24	11-27	7-34	9-49
No.50	6-18	7-19	5-24	6-36
No.100	4-12	6-16	4-16	4-22
No.200	3-6	3-6	3-7	3-7
Asphalt %	4.5-7.0	4.5-7.0	5.0-7.5	5.5-8.0

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute Manual Series No. 2 (MS-2), Appendix A.

**401-3.3 RECYCLED ASPHALT CONCRETE.** Recycled asphalt concrete shall consist of reclaimed asphalt pavement (RAP), coarse aggregate, fine aggregate, mineral filler, asphalt cement, and recycling agent, if necessary. Reclaimed asphalt pavement may be used for all courses.

The RAP shall be of a consistent gradation and asphalt content. The Contractor may obtain the RAP from the job site or an existing source.

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All new aggregates used in the recycled mix shall meet the requirements of Subsection 401-2.1. New bituminous material shall meet the requirements of Subsection 401-2.3. Recycling agents shall meet the requirements of AASHTO R 14.

The recycled asphalt concrete mix shall be designed using procedures contained in the Asphalt Institute's Manual Series Number 20 (MS-20), Asphalt Hot-Mix Recycling, in conjunction with MS-2 and ATM 417. The job mix shall meet the requirements of Subsection 401-3.2. In addition to the requirements of Subsection 401-3.2, the JMF shall indicate the percent of RAP, the percent and viscosity grade of new asphalt, the percent and grade of hot-mix recycling agent (if used), and the properties (including viscosity and penetration) of the asphalt blend.

The Contractor shall submit documentation to the Engineer, indicating that the mixing equipment proposed for use is adequate to mix the percent of RAP shown in the JMF and meet all local and national environmental regulations.

**401-3.5 TESTING LABORATORY.** The laboratory used to develop the JMF shall meet the requirements of ASTM D 3666. A certification signed by the manager of the laboratory stating that it meets these requirements shall be submitted to the Engineer prior to the start of construction. The certification shall contain as a minimum:

- a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.
- b. A listing of equipment to be used in developing the job mix.
- c. A copy of the laboratory's quality control system.
- d. Evidence of participation in the AASHTO Materials Reference Laboratory (AMRL) program

### CONSTRUCTION METHODS

**401-4.1 WEATHER LIMITATIONS.** The bituminous mixture shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the Engineer, if requested; however, all other requirements including compaction shall be met.

**TABLE 4. BASE TEMPERATURE LIMITATIONS**

<b>Mat Thickness</b>	<b>Base Temperature (Minimum)</b>
3 inches or greater	40 °F
Greater than 1 inch but less than 3 inches	42 °F
1 inch or less	50 °F

**401-4.2 ASPHALT MIXING PLANT.** Plants may not be placed on Airport property. Plants used for the preparation of hot mix asphalt shall conform to the requirements of AASHTO M 156 with the following changes:

**a. Requirements for All Plants.**

- (1) **Truck Scales.** The hot mix asphalt shall be weighed on approved scales furnished by the Contractor, or on certified public scales at the Contractor's expense. Scales shall be inspected and sealed as often as the Engineer deems necessary to assure their accuracy. Scales shall conform to the requirements of Item G-130-2.5.
- (2) **Testing Facilities.** The Contractor shall provide laboratory facilities at the plant or job site for the Contractor's quality control testing, according to Subsection 401-6.2.
- (3) **Inspection of Plant.** The Engineer, or Engineer's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment;

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inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

- (4) **Storage Bins and Surge Bins.** Paragraph 4.9 of ASTM D 995 is deleted. Instead, the following applies. Use of surge bins or storage bins for temporary storage of hot mix asphalt will be permitted as follows:

- (a) The hot mix asphalt may be stored in surge bins for not longer than 3 hours.
- (b) The hot mix asphalt may be stored in insulated storage bins for not longer than 24 hours.

The bins shall be such that mix drawn from them meets the same requirements as mix loaded directly into trucks.

If the Engineer determines that there is an excessive amount of heat loss, segregation or oxidation of the mixture due to temporary storage, no overnight storage will be allowed.

**401-4.3 HAULING EQUIPMENT.** Trucks used for hauling hot mix asphalt shall have tight, clean, and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

**401-4.4 HOT MIX ASPHALT PAVERS.** Hot mix asphalt pavers shall be self-propelled, with an activated screed, heated as necessary, and shall be capable spreading and finishing courses of bituminous plant mix material which will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface.

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed without segregation. The screed shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

If an automatic grade control device is used, the paver shall be equipped with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated from either a reference line and/or through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1%.

The controls shall be capable of working in conjunction with any of the following attachments:

- a. Ski-type device of not less than 30 feet in length.
- b. Taut stringline (wire) set to grade.
- c. Short ski or shoe.
- d. Laser control.

**401-4.5 ROLLERS.** Rollers of the vibratory, steel wheel, and pneumatic-tired type shall be used. They shall be in good condition, capable of operating at slow speeds to avoid displacement of the hot mix asphalt. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition.

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The use of equipment which causes excessive crushing of the aggregate will not be permitted.

**401-4.6 PREPARATION OF ASPHALT CEMENT.** The asphalt cement shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt cement to the mixer at a uniform temperature. The temperature of the asphalt cement delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325 °F.

**401-4.7 PREPARATION OF MINERAL AGGREGATE.** The aggregate for the mixture shall be heated and dried prior to introduction into the mixer. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350

°F when the asphalt is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

**401-4.8 PREPARATION OF HOT MIX ASPHALT.** The aggregates and the asphalt cement shall be weighed or metered and introduced into the mixer in the amount specified by the JMF.

The combined materials shall be mixed until the aggregate obtains a uniform coating of bitumen and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in AASHTO T 195, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all bituminous mix upon discharge shall not exceed 0.5% of the total weight of mix, as determined by WAQTC FOP for AASHTO T 329.

**401-4.9 PREPARATION OF THE UNDERLYING SURFACE.** Immediately before placing the hot mix asphalt, the underlying course shall be cleaned of all dust and debris. A prime coat or tack coat shall be applied according to Item P-602 or P-603, if required by the contract Specifications.

**401-4.10 TRANSPORTING, PLACING, AND FINISHING.** The hot mix asphalt shall be transported from the mixing plant to the site in vehicles conforming to the requirements of Subsection 401-4.3. Deliveries shall be scheduled so that placing and compacting of mixture is uniform with minimum stopping and starting of the paver. Adequate artificial lighting shall be provided for night placements. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.

The Contractor may elect to use a material transfer vehicle to deliver mix to the

paver. The mix shall be placed and compacted at a temperature not less than 235

°F.

Upon arrival, the mixture shall be placed to the full width by a bituminous paver. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the bituminous mat. Unless otherwise permitted, placement of the mixture shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. The mixture shall be placed in consecutive adjacent strips having a minimum width of 20 feet except where edge lanes require less width to complete the area. The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least 12 inches; however, the joint in the surface top course shall be at the centerline of the

## PLANT HOT MIX ASPHALT PAVEMENT - P-401

pavement. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course.

Transverse joints in adjacent lanes shall be offset a minimum of 10 feet.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread and compacted by hand tools.

**401-4.11 COMPACTION OF MIXTURE.** After placing, the mixture shall be thoroughly and uniformly compacted by rolling. The surface shall be compacted as soon as possible when the mixture has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross section, and the required field density is obtained.

To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened (and scrapers used), but excessive water will not be permitted.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with hand tampers.

Any mixture that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

**401-4.12 JOINTS.** The formation of all joints shall be made in such a manner as to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid mixture except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be given a tack coat of joint adhesive before placing any fresh mixture against the joint.

All longitudinal joints that have become cold (less than 150 °F) or damaged shall be cut back with a cutter mounted on the outside of a power roller as approved by the engineer. After being cut back, the joint will be brushed with a power broom as directed by the engineer to remove all loose asphalt concrete. To ensure a continuous bond between the longitudinal pavement joints in the top lift, a tack coat of Crafcov Pavement Joint Adhesive No. 34524, or approved equal, shall be applied to the joint prior to the laydown of the asphalt concrete.

All costs associated with joint preparation, applying joint sealant, and applying joint adhesive are subsidiary to the hot mix asphalt pay item.

### MATERIAL ACCEPTANCE

**401-5.1 ACCEPTANCE SAMPLING AND TESTING.** All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the Engineer at no cost to the Contractor. Testing organizations performing these tests will meet the requirements of ASTM D 3666.

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Asphalt Lots. The quantity of each type of asphalt concrete mixture produced and placed will be divided into lots and the lots evaluated individually for acceptance. The Department has the exclusive right and responsibility for determining the acceptability of all materials incorporated into the project. The results of the acceptance testing performed by the Engineer will be made available to the Contractor.

5,000 ton lot size. A lot will normally be 5,000 tons. The lot will be divided into 10 equal sublots of 500 tons, each randomly sampled and tested for asphalt cement content, density and gradation according to this subsection. If the project has more than 1 lot and if less than 8 sublots have been sampled at the time a lot is terminated, the material in the shortened lot will be included as part of the prior lot and the price adjustment computed for the prior lot will include the samples from the shortened lot.

1,500 to 4,999 ton lot size. If the total project quantity is between 1,500 tons and 4,999 tons, the total project quantity will be considered one lot. The lot will be divided into sublots of 500 tons and randomly sampled for asphalt cement content, density and gradation according to this subsection except a determination for outliers will not be performed. The lot will be evaluated for price adjustment according to Subsection 401-5.2 except as noted.

Under 1,500 ton lot size. If the total project quantity is less than 1,500 tons, asphalt concrete pavement will be accepted for payment based on the Engineer's approval of a Job Mix Formula and the placement and compaction of the asphalt concrete pavement to the specified depth and finished surface requirements and tolerances, and material testing. The Engineer reserves the right to perform any testing required in order to determine acceptance.

Any area of finished surfacing that is segregated, fails to meet surface tolerance requirements, cools to below 170 °F prior to completing compaction, or is any other way defective shall be removed and replaced with new asphalt concrete pavement. Removal and replacement of defective pavement shall be at no additional cost to the Department.

Joint lot size. The lot size for longitudinal joint density in the final lift of asphalt concrete pavement will be the total length of longitudinal joints constructed by a lot of material for the mat completing the joint.

### a. Sampling.

(1) **Cement Content.** Samples taken for the determination of asphalt cement content will be taken from behind the screed prior to initial compaction, at the auger, or from the windrow, according to WAQTC FOP for AASHTO T 168. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable.

(2) **Gradation.** Samples taken for the determination of aggregate gradation will be either of the following as directed by the Engineer, randomly according to the procedures contained in WAQTC FOP for AASHTO T 168. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. The samples will be taken from one of the following locations:

(a) The same as specified for the determination of asphalt cement content.

(b) From the combined aggregate cold feed conveyor via a diversion chute or from the stopped conveyor belt.

On drum mix plants a diverter device for obtaining aggregate samples shall be located on the conveyor system delivering combined aggregates into the drum. The diverter device shall divert aggregate from the full width of the conveyor system and shall be maintained to provide a representative sample of aggregate incorporated in the mix. The plant shall be equipped with a safe and suitable



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location for obtaining aggregate samples from the diverter device.

(c) Dry batched aggregates.

- (3) **Density.** The Contractor shall cut full depth core samples with a diameter of 6 inches from each subplot, within 24 hours of final rolling for density acceptance testing. The samples shall be neatly cut by a core drill at the randomly selected location designated by the Engineer according to the procedures contained in ASTM D 3665. All voids left by sampling shall be backfilled with new asphalt concrete material and compacted within 24 hours of sampling.

Cores for mat density shall not be taken closer than 1 foot from a transverse or longitudinal joint.

Cores for joint density shall be taken directly on the joint, at locations adjacent to cores taken from the mat completing the joint.

### b. Testing.

- (1) **Cement Content.** Asphalt cement content will be determined by ATM 405 or WAQTC FOP for AASHTO T 308, by total weight of mix.

- (2) **Gradation.** Cold feed or dry batched aggregate gradations will be tested according to WAQTC FOP for AASHTO T 27/T 11 and evaluated for acceptance according to Subsection 401-5.2. Asphalt concrete mix and core sample gradations will be determined according to WAQTC FOP for AASHTO T 30 from extracted aggregate, or aggregate remaining after the ignition oven (WAQTC FOP for AASHTO T 308) has burned off the asphalt cement.

- (3) **Density.** The Target Value for mat density shall be 94% of the theoretical MSG as determined by WAQTC FOP for AASHTO T 209. For the first lot of asphalt concrete pavement, the MSG will be determined by the Job Mix Formula. For additional lots, the MSG will be determined from the randomly selected sample from the first subplot. For joint density lots, the MSG will be MSG of the adjacent mat lot completing the joint. The Target Value for longitudinal joint density in the final lift shall be 92% of the theoretical MSG as determined by WAQTC FOP for AASHTO T 209.

Core samples will be tested according to WAQTC FOP for AASHTO T 166/T 275, and evaluated for acceptance according to Subsection 401-5.2.

### 401-5.2 ACCEPTANCE CRITERIA.

- a. **General.** Acceptance will be based on the following characteristics of the hot mix asphalt and completed pavement as well as the implementation of the Contractor's Quality Control plan and test results:

- (1) Aggregate gradation
- (2) Asphalt content
- (3) Mat density
- (4) Joint density
- (5) Thickness
- (6) Smoothness
- (7) Grade

Aggregate gradation, asphalt content, mat density, and joint density will be evaluated for acceptance on a lot basis using the method of estimating percentage of material within

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specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L) or below the upper specification tolerance limit (U).

Thickness will be evaluated by the Engineer for compliance according to Subsection 401-5.2.f(4). Acceptance for smoothness will be based on the criteria contained in Subsection 401-5.2f(5). Acceptance for grade will be based on the criteria contained in Subsection 401-5.2f(6).

The Engineer may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of hot mix asphalt which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or improper mix temperature. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and, if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

- b. Aggregate Gradation, Asphalt Content.** Evaluation for acceptance of each lot of plant-produced material for aggregate gradation and asphalt content will be based on PWL.
- c. Mat Density.** Evaluation for acceptance of each lot of in-place pavement for mat density will be based on PWL.
- d. Joint Density.** Evaluation for acceptance of each lot of in-place pavement for joint density will be based on PWL.
- e. Percentage of Material Within Specification Limits (PWL).** The PWL will be determined according to procedures specified in Section 110 of the General Provisions. The sample average (X) is

rounded to the nearest tenth for density and all sieves except the No. 200, and to the nearest hundredth for asphalt cement content and the No. 200 sieve. The sample standard deviation ( $S_n$ ) is rounded to the nearest hundredth for density and all sieve sizes except the No. 200 sieve. The sample standard deviation ( $S_n$ ) is rounded to the nearest .001 for asphalt content and the No. 200 sieve. The specification tolerance limits (L) and (U) are contained in Table 5.

**f. Acceptance Criteria.**

- (1) Mat Density, Aggregate Gradation, and Asphalt Content.** Acceptance and payment for the lot will be determined according to Subsection 401-8.1.
- (2)** (Intentionally left blank)
- (3) Longitudinal Joint Density.** For the final lift of asphalt concrete pavement, if the PWL of the lot equals or exceeds 90%, the lot will be acceptable. If the PWL is less than 90%, the Contractor shall seal the longitudinal joint with Asphalt Systems GSB-78, or approved equal, and shall evaluate the method of compacting joints. If the PWL is below 80%, the Contractor shall stop production until the reason for poor compaction can be determined.
- (4) Thickness.** Thickness will be evaluated for compliance by the Engineer to the requirements shown on the Plans. Measurements of thickness will be made by the Engineer using the cores extracted from the mat for each subplot for density measurement.
- (5) Smoothness.** The finished surfaces of the pavement shall not vary more than 1/4 inch for the surface course. Each lot will be evaluated with a 12-foot straightedge. The lot size will be

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2000 yd<sup>2</sup>. Measurements will be made perpendicular and parallel to the centerline at distances not to exceed 50 feet. When more than 15% of all measurements within a lot exceed the specified tolerance, the Contractor shall remove the deficient area and replace with new material. Sufficient material shall be removed to allow at least 1 inch of asphalt concrete to be placed. Skin patching will not be permitted. High points may be ground off.

**(6) Grade.** The finished surface of the pavement shall not vary from the gradeline elevations and cross sections shown on the Plans by more than 0.05 foot. The finished grade of each lot will be determined by running levels at intervals of 50 feet or less longitudinally and transversely to determine the elevation of the completed pavement. The lot size will be 2000 yd<sup>2</sup>. When more than 15% of all the measurements within a lot are outside the specified tolerance, the Contractor shall remove the deficient area and replace with new material. Sufficient material shall be removed to allow at least 1 inch of asphalt concrete to be placed. Skin patching for correcting low areas will not be permitted. High points may be ground off.

- g. Outliers.** All individual tests for asphalt content, aggregate gradation, and mat and joint density will be checked for outliers (test criterion) according to ATM SP-7, except as noted in Subsection 401-5.1. Outliers will be discarded, and the PWL will be determined using the remaining test values.

If any sieve size on a gradation test or the asphalt cement content is an outlier, then the gradation test results and the asphalt cement content results for that sample will not be included in the price adjustment. The density test result for that sample will be included in the price adjustment provided it is not an outlier also.

If the density test result is an outlier, the density test result will not be included in the price adjustment, however, the gradation and asphalt cement content results for that sample will be included provided neither is an outlier.

**TABLE 5. LOWER SPECIFICATION TOLERANCE LIMIT (L) AND UPPER SPECIFICATION TOLERANCE LIMIT (U)**

<b>Measured Characteristics</b>	<b>L</b>	<b>U</b>
3/4 in.	TV -6.0	TV +6.0
1/2 in.	TV -6.0	TV +6.0
3/8 in.	TV -6.0	TV +6.0
No. 4	TV -6.0	TV +6.0
No. 8	TV -6.0	TV +6.0
No. 16	TV -5.0	TV +5.0
No. 30	TV -4.0	TV +4.0
No. 50	TV -4.0	TV +4.0
No. 100	TV -3.0	TV +3.0
No. 200	TV -2.0	TV +2.0
Asphalt %	TV -0.4	TV +0.4
Mat Density	92%	98%
Joint Density	90%	98%

TV (Target Value) = Job Mix Formula value for gradation and asphalt cement content

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## 401-5.3 RETESTS.

a. **General.** Retesting of a sample of pavement, which is outside the limits specified in Table 5, will be allowed if requested by the Contractor, in writing, within 7 days after receiving the written test results from the Engineer. Only one retest per lot will be permitted. The Engineer will select the sample location for the retest. The original test result will be discarded and the retest result will be used in the price adjustment calculation regardless of whether the retest result gives a higher or lower pay factor.

(1) A redefined PWL will be calculated for the lot.

(2) The cost for resampling shall be borne by the Contractor.

b. **Payment for Resampled Lots.** The redefined PWL for a lot will be used to calculate the payment for that lot according to Table 6.

**401-5.4 LEVELING COURSE.** Any course used for truing and leveling shall meet the requirements of Subsection 401-3.2 and 5.2b, but will not be subject to the density requirements of Subsection 401-5.2c and

d. The leveling course shall be compacted with the same effort used to achieve density of the test section. The truing and leveling course shall not exceed a nominal thickness of 1-1/2 inches.

## CONTRACTOR QUALITY CONTROL

**401-6.1 GENERAL.** The Contractor shall develop a Quality Control Program according to Section 100 of the General Provisions. The program shall address all elements which affect the quality of the pavement including, but not limited to:

a. Mix Design	f. Mixing and Transportation
b. Aggregate Grading	g. Placing and Finishing
c. Quality of Materials	h. Joints
d. Stockpile Management	i. Compaction
e. Proportioning	j. Surface smoothness

**401-6.2 TESTING LABORATORY.** The Contractor shall provide a fully equipped asphalt laboratory located at the plant or job site.

The effective working area of the laboratory shall be a minimum of 150 ft<sup>2</sup> with a ceiling height of not less than 7.5 feet. Lighting shall be adequate to illuminate all working areas. It shall be equipped with heating units to maintain a temperature of 70 °F ± 5 °F.

Laboratory facilities shall be kept clean and all equipment shall be maintained in proper working condition. The Engineer shall be permitted unrestricted access to inspect the Contractor's laboratory facility and witness quality control activities. The Engineer will advise the Contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting test results, the incorporation of the materials into the work will be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

**401-6.3 QUALITY CONTROL TESTING.** The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to these Specifications and

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as set forth in the Quality Control Program. The testing program shall include, but not necessarily limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

- a. **Asphalt Content.** A minimum of 2 asphalt cement content tests shall be performed per lot according to Subsection 401-5.1b(1).
- b. **Gradation.** Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of aggregate according to WAQTC FOP for AASHTO T 30 and WAQTC FOP for AASHTO T 27/T 11. When asphalt content is determined by the nuclear method, aggregate gradation shall be determined from hot bin samples on batch plants, or from the cold feed on drum mix or continuous mix plants, and tested according to WAQTC FOP for AASHTO T 27/T 11 using actual batch weights to determine the combined aggregate gradation of the mixture.
- c. **Moisture Content of Aggregate.** The moisture content of aggregate used for production shall be determined a minimum of once per lot according to WAQTC FOP for AASHTO T 255/T 265.
- d. **Moisture Content of Mixture.** The moisture content of the mixture shall be determined once per lot according to WAQTC FOP for AASHTO T 329.
- e. **Temperatures.** Temperatures shall be checked, at least 4 times per lot, at necessary locations to determine the temperatures of the dryer, the bitumen in the storage tank, the mixture at the plant, and the mixture at the job site.
- f. **In-Place Density Monitoring.** The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density according to WAQTC TM 8.
- g. **Additional Testing.** Any additional testing that the Contractor deems necessary to control the process may be performed at the Contractor's option.
- h. **Monitoring.** The Engineer reserves the right to monitor any or all of the above testing.

**401-6.4 SAMPLING.** When directed by the Engineer, the Contractor shall sample and test any material which appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be according to standard procedures specified.

**401-6.5 CONTROL CHARTS.** The Contractor shall maintain linear control charts both for individual measurements and range (i.e., difference between highest and lowest measurements) for aggregate gradation and asphalt content.

Control charts shall be posted in a location satisfactory to the Engineer and shall be kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the Engineer may suspend production or acceptance of the material.

- a. **Individual Measurements.** Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation and asphalt content. The

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control charts shall use the JMF Target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

### CONTROL CHART LIMITS FOR INDIVIDUAL MEASUREMENTS

Sieve	Action Limit	Suspension Limit
3/4 in.	0%	0%
1/2 in.	+/-6%	+/-9%
3/8 in.	+/-6%	+/-9%
No. 4	+/-6%	+/-9%
No. 16	+/-5%	+/-7.5%
No. 50	+/-3%	+/-4.5%
No. 200	+/-2%	+/-3%
Asphalt Content	+/-0.45%	+/-0.70%

- b. **Range.** Control charts for range shall be established to control process variability for the test parameters and Suspension Limits listed below. The range shall be computed for each lot as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of  $n = 2$ . Should the Contractor elect to perform more than 2 tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for  $n = 3$  and by 1.27 for  $n = 4$ .

### CONTROL CHART LIMITS BASED ON RANGE (Based on $n = 4$ )

Sieve	Suspension Limit
1/2 in.	14%
3/8 in.	14%
No. 4	14%
No. 16	11%
No. 50	8%
No. 200	4.5%
Asphalt Content	1%

- c. **Corrective Action.** The Quality Control Plan shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain sets of rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

- (1) One point falls outside the Suspension Limit line for individual measurements or range; or
- (2) Two points in a row fall outside the Action Limit line for individual measurements.

### METHOD OF MEASUREMENT

**401-7.1 MEASUREMENT.** Hot mix asphalt will be measured by the number of tons used in the accepted work, based on recorded truck scale weights. No deduction will be made for the weight of asphalt cement in the mixture.

Asphalt cement will be measured by the number of tons of asphalt cement used in the accepted pavement determined as follows:

## PLANT HOT MIX ASPHALT PAVEMENT - P-401

The method of measurement to be used will be based on one of the following procedures. The Engineer will select in writing the procedure to be used.

- a. Supplier's invoices minus waste, diversion and excess left over. This method may be used on projects where deliveries are made in sealed tankers and the plant is producing material for one project only. Method b. will be used to compute left over. Waste and diversion will be computed in a manner to be determined by the Engineer.
- b. Volume measure (tank stickings) of actual daily uses. It is the Contractor's responsibility to notify the Engineer whenever material is to be added to the calibrated volume measure or whenever material from the volume measure is to be used for work other than that specified in this contract.
- c. Percent of asphalt cement for each subplot as determined by ATM 405 or WAQTC FOP for AASHTO T 308 multiplied by the weight represented by that subplot.

Method c. will be used for determining asphalt cement quantity unless otherwise directed in writing by the engineer. Whichever method is used must be used for the duration of the project. Another method may be used and computed as a check, but only one method will be used for payment computation.

### BASIS OF PAYMENT

**401-8.1 PAYMENT.** Payment for an accepted lot of hot mix asphalt will be made at the contract unit price per ton for hot mix asphalt and asphalt cement adjusted according to Subsection 401-8.1a.

The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

When Item P-401h appears in the bid schedule, payment shall also include the cost of Asphalt Cement and no separate measurement or payment will be made. The grade of asphalt cement shall be PG 64-28.

- a. **Basis of Adjusted Payment.** The Asphalt Price Adjustment will be the sum of the price adjustments for each lot. The lot Pay Factors for density, gradation and asphalt cement content are determined from Table 6 using Percent Within Limits (PWL) calculated from Section 110 of the General Provisions. The maximum pay factor for the largest sieve size for gradation will be 1.00. The price adjustment will be based on the Composite Pay Factor (CPF) for asphalt content and aggregate

gradation or the Density Pay Factor (DPF) whichever is the lowest value. CPF and DPF is rounded to the nearest hundredth. Table 7 is used to determine the weight factor (f) for each sieve size and asphalt content.

The hot mix asphalt Composite Pay Factor (CPF) is computed for asphalt cement content and all sieves using the following formula:

$$CPF = \frac{[f_{3/4in}(PF_{3/4in}) + f_{1/2in}(PF_{1/2in}) + \dots + f_{ac}(PF_{ac})]}{\Sigma f}$$

## PLANT HOT MIX ASPHALT PAVEMENT - P-401

**TABLE 6. PRICE ADJUSTMENT SCHEDULE**

Percentage of Material Within the Specification Limit (PWL)	Pay Factor (PF)
96-100	1.05
90-95	0.01 PWL + 0.10
75-89	0.005 PWL + 0.55
55-74	0.014 PWL - 0.12
Below 55	0*

\* If the Composite Pay Factor or the Density Pay Factor falls below 0.65, the lot shall be removed and replaced. However, the Engineer may decide to allow the deficient lot to remain in place. In that case, if the Engineer and Contractor agree in writing that the lot shall not be removed, the Pay Factor for the lot shall be 0.50.

**TABLE 7. WEIGHT FACTORS**

Sieve Size	Factor " f "
3/4 in.	4
1/2 in.	5
3/8 in.	5
No. 4	4
No. 8	4
No. 16	4
No. 30	5
No. 50	5
No. 100	4
No. 200	20
Asphalt %	40

The price adjustment for each individual lot will be calculated as follows:

$$\text{Price Adjustment} = [(\text{CPF or DPF}) - 1] \times (\text{tons in lot}) \times (\text{PAB})$$

PAB = Price Adjustment Base per ton (for mix including asphalt cement)

PAB for Hot Mix Asphalt with PG 52-28 =  
 \$45.00 PAB for Hot Mix Asphalt with PG 58-  
 28 = \$55.00 PAB for Hot Mix Asphalt with PG  
 64-28 = \$60.00

\* Composite Pay Factor (CPF) or Density Pay Factor (DPF) whichever is lower value.

**b. Payment.** Payment will be made under:

- Item P-401a Hot mix asphalt Type\_\_\_\_, Class\_\_\_\_ - per ton
- Item P-401b Hot Mix Asphalt Price Adjustment - contingent sum
- Item P-401c Asphalt cement [ Performance Grade ] - per ton
- Item P-401d Asphalt Cement Treated Base - per ton
- Item P-401h Hot mix asphalt Type\_\_\_\_, Class\_\_\_\_ - per ton

### TESTING REQUIREMENTS

WAQTC FOP for AASHTO T 2                      Sampling Aggregates

WAQTC FOP for AASHTO T 27/T 11      Sieve Analysis of Aggregate and Soils



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WAQTC FOP for AASHTO T 30	Mechanical Analysis of Extracted
Aggregate WAQTC FOP for AASHTO T 40	Sampling Bituminous Materials
WAQTC FOP for AASHTO TP 61	Percentage of Fracture in Coarse
Aggregate WAQTC FOP for AASHTO T 89	Liquid Limit of Soils
WAQTC FOP for AASHTO T 90	Plastic Limit and Plasticity Index of Soils
WAQTC FOP for AASHTO T 166/T 275	Bulk Specific Gravity and Percent Compaction of Bituminous
Mixes WAQTC FOP for AASHTO T 168	Sampling Bituminous Mixes
WAQTC FOP for AASHTO T 176	Sand Equivalent
WAQTC FOP for AASHTO T 209	Maximum Specific Gravity of Bituminous
Mixes WAQTC FOP for AASHTO T 255/T 265	Moisture Content of Aggregate
and Soils	
WAQTC FOP for AASHTO T 308	Asphalt Binder Content of Bituminous Mixes by Ignition Method
WAQTC FOP for AASHTO T 329	Moisture Content of Hot-Mix Asphalt (HMA) by Oven
Method WAQTC TM 8	In-Place Density of Bituminous Mixes using the Nuclear
Moisture-	Density Gauge.
ATM 306	Flat and Elongated
ATM 313	Degradation Value of Aggregate
ATM 405	Asphalt Cement Content of Asphalt Concrete Mixtures by the Nuclear Method
ATM 414	Anti-Strip Requirements of Hot Mix Asphalt
ATM 417	Hot Mix Asphalt Design by the Marshall Method
ATM SP-7	Determination of Outlier Test Results
AASHTO T 53	Softening Point of Bitumen (Ring-and-Ball Apparatus)
AASHTO T 96	Resistance to Degradation of Small-size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
AASHTO T 104	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
AASHTO T 127	Sampling and Amount of Testing of Hydraulic Cement
AASHTO M 156	Requirements for Mixing Plants for Hot-Mixed, Hot-Laid

## PLANT HOT MIX ASPHALT PAVEMENT - P-401

### Bituminous Paving Mixtures

AASHTO T 195	Determining Degree of Particle Coating of Bituminous-Aggregate Mixtures
AASHTO M 320	Performance-Graded Asphalt Binder
ASTM D 5801	Test Method for Toughness and Tenacity of Bituminous
Materials The Asphalt Institute	Mix Design Methods for Asphalt Concrete Manual No. 2
(MS-2) The Asphalt Institute	Hot-Mix Recycling Manual No. 20 (MS-20)

### MATERIAL REQUIREMENTS

AASHTO R 14	Classifying Hot-Mix Recycling Agents
AASHTO M 17	Mineral Filler for Bituminous Paving Mixtures

# PORTLAND CEMENT CONCRETE PAVEMENT - P-501

## DESCRIPTION

**501-1.1** This work shall consist of pavement composed of portland cement concrete (PCC), with reinforcement, constructed on a prepared underlying surface according to these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the Plans.

## MATERIALS

### 501-2.1 AGGREGATES.

- a. **Fine Aggregate.** Fine aggregate shall conform to the requirements of AASHTO M 6, Class A, except part a in Table 2 is deleted. Gradation shall meet the requirements of Table 1 when tested according to WAQTC FOP for AASHTO T 27/T 11, except as may otherwise be qualified under Section 5.
- b. **Coarse Aggregate.** Coarse aggregate shall conform to the requirements of AASHTO M 80, Class B. Gradations shall meet the requirements of AASHTO M 43, Number 57 or 67, when tested according to WAQTC FOP for AASHTO T 27/T 11.

Aggregates delivered to the mixer shall consist of crushed stone, crushed or uncrushed gravel, crushed recycled concrete pavement, or a combination thereof. The aggregate shall be composed of clean, hard, uncoated particles and shall meet the requirements for deleterious substances contained in AASHTO M 80, Class A. Dust and other coating shall be removed from the aggregates by washing, if necessary. The aggregate in any size group shall not contain more than 8% by weight of flat and elongated pieces when tested according to ATM 306. The percentage of wear shall be no more than 40 when tested according to AASHTO T 96.

**501-2.2 CEMENT.** Cement shall conform to the requirements of AASHTO M 85 including the low-alkali requirement.

If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

**501-2.3 CEMENTITIOUS MATERIALS.** Fly ash shall meet the requirements of AASHTO M 295, Class C or Class F, except that the moisture content shall be 1% maximum and the amount retained on the No. 325 sieve when wet-sieved is 30% maximum. The supplementary optional chemical and physical properties shall apply.

**501-2.4 PREMOLDED JOINT FILLER.** Premolded joint filler for expansion joints shall conform to the requirements of AASHTO M 213 and shall be punched to admit the dowels where called for on the Plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

**501-2.5 JOINT SEALER.** The joint sealer for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type(s) specified in the Plans.

**501-2.6 STEEL REINFORCEMENT.** Reinforcing shall consist of Welded Steel Wire Fabric conforming to the requirements of AASHTO M 55 or Deformed Bars conforming to the requirements of AASHTO M 31, Grade 60. Welded wire fabric shall be furnished in flat sheets only.

**501-2.7 DOWEL AND TIE BARS.** Tie bars shall be deformed steel bars and conform to the requirements of AASHTO M 31 or AASHTO M 322.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

Dowel bars shall be plain steel bars conforming to AASHTO M 31 or AASHTO M322, and shall be free from burring or other deformation restricting slippage in the concrete. High strength dowel bars shall conform to AASHTO M 31, Bare Finish. Before delivery to the construction site each dowel bar shall be painted on all surfaces with one coat of paint meeting SSPC-Paint 25. If plastic or epoxy-coated steel dowels are used no paint coating is required, except when specified for a particular situation on the contract Plans. Coated dowels shall conform to the requirements of AASHTO M 254.

The sleeves for dowel bars used in expansion joints shall be metal or other type of an approved design to cover 2 to 3 inches of the dowel, with a closed end and with a suitable stop to hold the end of the bar at least 1 inch from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

**501-2.8 WATER.** Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product. Water will be tested according to the requirements of AASHTO T 26. Water known to be of potable quality may be used without testing.

**501-2.9 COVER MATERIAL FOR CURING.** Curing materials shall conform to one of the following specifications:

- a. Liquid membrane-forming compound conforming to AASHTO M 148, Type 2, Class B.
- b. White polyethylene film conforming to AASHTO M 171.
- c. White burlap-polyethylene sheeting conforming to AASHTO M 171.
- d. Waterproof paper conforming to AASHTO M 171

**501-2.10 ADMIXTURES.** The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer from the supply of material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

- a. **Air-Entraining Admixtures.** Air-entraining admixtures shall meet the requirements of AASHTO M 154 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any chemical admixtures shall be compatible.
- b. **Chemical Admixtures.** Water-reducing, set retarding, and set-accelerating admixtures shall meet the requirements of AASHTO M 194, including the compressive strength test.

**501-2.11 EPOXY-RESIN.** Epoxy-resin used to anchor dowels and tie bars in pavements shall conform to the requirements of AASHTO M 235, Type I, Grade 3, Class C. Class A or B shall be used when the surface temperature of the hardened concrete is below 60 °F.

**501-2.12 SURFACE SEALER.** Provide a liquid applied, water soluble hydrophobic pore lining impregnate that is specifically formulated to protect concrete from the detrimental effects of moisture intrusion, freeze-thaw cycles, chloride ion penetration, and deicing chemicals. Provide Pavix CCC100 manufactured by Chem-Crete, Hydrozo Enviroseal 40 by Chemrex, or an Engineer approved product containing 40 percent silane meeting AASHTO T 259, ASTM C 642, and ASTM C 672.

**501-2.13 MATERIAL ACCEPTANCE.** Prior to use of materials, the Contractor shall submit certified test reports to the Engineer for those materials proposed for use during construction. The certification shall show the appropriate AASHTO test(s) for each material, the test results, and a statement that the material passed or failed.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

The Engineer may request samples for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

### MIX DESIGN

**501-3.1 PROPORTIONS.** Concrete shall be designed to achieve a 28-day flexural strength of 4,800 psi. The mix shall be designed using the procedures contained in the Portland Cement Association's manual, *Design and Control of Concrete Mixtures* with a maximum w/c of 0.45. Acceptance of the concrete will be based on a 28-day compressive strength of 4,800 psi.

The Contractor shall note that to ensure that the concrete actually produced will meet or exceed the acceptance criteria for the specified strength, the mix design average strength must be higher than the specified strength. The amount of overdesign necessary to meet specification requirements depends on the producer's standard deviation of compressive test results and the accuracy which that value can be estimated from historic data for the same or similar materials.

The minimum cementitious material (cement plus fly ash) shall be 565 lbs/yd<sup>3</sup>. The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall not be more than 0.45 by weight.

Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit a mix design showing the proportions and compressive strength obtained from the concrete at 7 and 28 days. The mix design shall include copies of test reports, including test dates, and a complete list of materials including type, brand, source, and amount of cement, fly ash, coarse aggregate, fine aggregate, water, and admixtures. The fineness modulus of the fine aggregate and the air content shall also be shown. The mix design shall be submitted to the Engineer at least 40 days prior to the start of operations. Production shall not begin until the mix design is approved in writing by the Engineer.

Should a change in sources be made, or admixtures added or deleted from the mix, a new mix design must be submitted to the Engineer for approval.

Compressive strength test specimens shall be prepared according to WAQTC FOP for AASHTO T 23 and tested according to AASHTO T 22.

**501-3.2 CEMENTITIOUS MATERIALS.** Fly ash may be used in the mix design. When fly ash is used as a partial replacement for cement, the minimum cement content may be met by considering portland cement plus fly ash as the total cementitious material. The fly ash replacement rate shall be 1.0-1.25 for Class C and 1.25 for Class F. Fly ash substitution shall not exceed 20% by weight of the portland cement.

### 501-3.3 ADMIXTURES.

- a. **Air-Entraining.** Air-entraining admixture shall be added in such a manner that will insure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be 5-8. Air content shall be determined by testing according to WAQTC FOP for AASHTO T 152.
- b. **Chemical.** Water-reducing, set-controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted on trial mixes, with the materials to be used in the work, according to AASHTO M 194.

**501-3.4 TESTING LABORATORY.** The laboratory used to develop the mix design shall meet the requirements of ASTM C 1077. A certification that it meets these requirements shall be submitted to the Engineer prior to the start of mix design and shall contain as a minimum:

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

- a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.
- b. A statement that the equipment used in developing the mix design is in calibration.
- c. A statement that each test specified in developing the mix design is offered in the scope of the laboratory's services.
- d. A copy of the laboratory's quality control system.

### CONSTRUCTION METHODS

**501-4.1 EQUIPMENT.** The Contractor shall furnish all equipment and tools necessary for handling materials and performing all parts of the work.

- a. **Batch Plant and Equipment.** The batch plant and equipment shall conform to the requirements of AASHTO M 157.
- b. **Mixers and Transportation Equipment.**
  - (1) **General.** Concrete may be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.
  - (2) **Central Plant Mixer.** Central plant mixers shall conform to the requirements of AASHTO M 157. The mixer shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.
  - (3) **Truck Mixers and Truck Agitators.** Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central-mixed concrete shall conform to the requirements of AASHTO M 157.
  - (4) **Nonagitator Trucks.** Nonagitating hauling equipment shall conform to the requirements of AASHTO M 157.
- c. **Finishing Equipment.** The finishing equipment shall be of sufficient weight and power for proper finishing of the concrete. The finishing machine shall be designed and operated to strike off, screed and consolidate the concrete such that laitance on the surface is less than 1/8 inch thick.
- d. **Vibrators.** Vibrator shall be either internal type with immersed tube or multiple spuds, or surface type vibrating pan or screed. For pavements 8 inches or more thick, internal vibrators shall be used. They may be attached to the spreader or the finishing machine, or they may be mounted on a separate carriage. Operating frequency for internal vibrators shall be between 8,000 and 12,000 vibrations per minute. Average amplitude for internal vibrators shall be 0.025-0.05 inches. For pavements less than 8 inches thick, vibrating surface pans or screeds shall be allowed. Operating frequencies for surface vibrators shall be between 3,000 and 6,000 vibrations per minute.

The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

Hand held vibrators may be used in irregular areas.

- e. **Concrete Saws.** The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.
- f. **Side Forms.** Straight side forms shall be made of steel and shall be furnished in sections not less than 10 feet in length. Forms shall have a depth equal to the pavement thickness at the edge. Flexible or curved forms of proper radius shall be used for curves of 100 foot radius or less. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 inch in 10 feet, and the upstanding leg shall not vary more than 1/4 inch. The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the Engineer.
- g. **Pavers.** The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the Plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices.

**501-4.2 FORM SETTING.** Forms shall be set sufficiently in advance of the concrete placement to insure continuous paving operation. After the forms have been set to correct grade, the underlying surface shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place sufficiently to maintain the form in position for the method of placement.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/8 inch at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete.

**501-4.3 CONDITIONING OF UNDERLYING SURFACE, SLIP-FORM CONSTRUCTION.** The compacted underlying surface on which the pavement will be placed shall be widened approximately 3 feet to extend beyond the paving machine track to support the paver without any noticeable displacement. After the underlying surface has been placed and compacted to the required density, the areas which will support the paving machine and the area to be paved shall be trimmed or graded to the plan grade elevation and profile by means of a properly designed machine. The grade of the underlying surface shall be controlled by a positive grade control system using lasers, stringlines, or guide wires. If the density of the underlying surface is disturbed by the trimming operations, it shall be corrected by additional compaction and retested at the option of the Engineer before the concrete is placed except when stabilized subbases are being constructed. If damage occurs on a stabilized subbase, it shall be corrected full depth by the Contractor. If traffic is allowed to use the prepared grade, the grade shall be checked and corrected immediately before the placement of concrete. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. The underlying surface shall be protected so that it will be entirely free of frost when concrete is placed.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

**501-4.4 CONDITIONING OF UNDERLYING SURFACE, SIDE-FORM AND FILL-IN LANE CONSTRUCTION.** The prepared underlying surface shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Damage caused by hauling or usage of other equipment shall be corrected and retested at the option of the Engineers. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor. A template shall be provided and operated on the forms immediately in advance of the placing of all concrete. The template shall be propelled only by hand and not attached to a tractor or other power unit. Templates shall be adjustable so that they may be set and maintained at the correct contour of the underlying surface. The adjustment and operation of the templates shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed and wasted. Low areas shall be filled and compacted to a condition similar to that of the surrounding grade. The underlying surface shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying surface shall not be permitted.

The template shall be maintained in accurate adjustment, at all times by the Contractor, and shall be checked daily.

**501-4.5 HANDLING, MEASURING, AND BATCHING MATERIAL.** The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials.

Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage.

Batching plants shall be equipped to proportion aggregates and bulk cement, by weight, automatically using interlocked proportioning devices of an approved type. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper to transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance that the cement content specified is present in each batch.

**501-4.6 MIXING CONCRETE.** The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. All concrete shall be mixed and delivered to the site according to the requirements of AASHTO M 157. Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or nonagitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in nonagitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted, except when concrete is delivered in transit mixers. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified in the mix design is not exceeded.

**501-4.7 LIMITATIONS ON MIXING AND PLACING.** No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 °F and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 °F.



## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50 °F at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150 °F. The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

**501-4.8 PLACING CONCRETE.** The Contractor has the option of side (fixed) form or slip-form paving. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet.

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed lots of pavement when the concrete strength reaches a compressive strength of 3700 psi, based on the average of three specimens, with no individual specimen below 3400 psi when tested according to AASHTO T 22. Subgrade and subbase planers, concrete pavers, and concrete finishing equipment may be permitted to ride upon the edges of previously constructed pavement when the concrete has attained a minimum compressive strength of 2000 psi.

**a. Side-form Method.** For the side-form method, the concrete shall be deposited on the moistened grade to require as little rehandling as possible. Unless truck mixers, truck agitators, or nonagitating hauling equipment are equipped with means for discharge of concrete without segregation of the materials, the concrete shall be placed and spread using an approved mechanical spreading device that prevents segregation of the materials. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels--not rakes. Workers shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

Concrete shall be deposited as near to expansion and contraction joints as possible without disturbing them but shall not be dumped from the discharge bucket or hopper onto a joint assembly unless the hopper is centered above the joint assembly.

Concrete shall be thoroughly consolidated against and along the faces of all forms and previously placed concrete and along the full length and on both sides of all joint assemblies by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than 20 seconds in any one location, nor shall the vibrators be used to move the concrete.

**b. Slip-form Method.** For the slip-form method, the concrete shall be placed with an approved crawler-mounted, slip-form paver designed to spread, consolidate and shape the freshly placed concrete in one complete pass of the machine so that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavement in conformance with requirements of the Plans and specifications. The concrete shall be placed directly on top of the joint assemblies to prevent them from moving when the paver moves over them. Side forms and finishing screeds shall be adjustable to the extent required to produce the specified pavement edge and surface tolerance. The side forms shall be of dimensions, shape, and strength to support the concrete laterally for a sufficient length of time so that no edge slumping exceeds the requirements of Subsection 501-5.2e(5). Final finishing shall be accomplished while the concrete is still in the plastic state.

In the event that slumping or sloughing occurs behind the paver or if there are any other structural or surface defects which, in the opinion of the Engineer, cannot be corrected within permissible tolerances, paving operations shall be immediately stopped until proper adjustment of the equipment or procedures have been made. In the event that satisfactory procedures and pavement are not achieved after not more than 2,000 linear feet of single lane paving, the Contractor shall complete the balance of the work

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with the use of standard metal forms and the formed method of placing and curing. Any concrete not corrected to permissible tolerances shall be removed and replaced at the Contractor's expense.

**501-4.9 STRIKE-OFF OF CONCRETE AND PLACEMENT OF REINFORCEMENT.** Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the Plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the Plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screeded. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable AASHTO/ASTM specification requirements.

**501-4.10 JOINTS.** Joints shall be constructed as shown on the Plans and according to these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the Plans. Joints shall not vary more than 1/2 inch from their designated position and shall be true to line with not more than 1/4 inch variation in 10 feet. The surface across the joints shall be tested with a Contractor furnished 10-foot straightedge as the joints are finished and any irregularities in excess of 1/4 inch shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the Plans.

- a. **Construction.** Longitudinal construction joints shall be slip-formed or formed against side forms with or without keyways, as shown in the Plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

- b. **Contraction.** Contraction joints shall be installed at the locations and spacing as shown on the Plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch wide and to the depth shown on the Plans.
- c. **Expansion.** Expansion joints shall be installed as shown on the Plans. The premolded filler of the thickness as shown on the Plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded

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filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. Any concrete bridging the joint space shall be removed for the full width and depth of the joint.

- d. **Keyways.** Keyways shall be formed in the plastic concrete by means of side forms or the use of keyway liners which are inserted during the slip-form operations. The keyway shall be formed to a tolerance of 1/4 inch in any dimension and shall be of sufficient stiffness to support the upper keyway flange without distortion or slumping of the top of the flange. The dimensions of the keyway forms shall not vary more than plus or minus 1/4 inch from the mid-depth of the pavement. Liners that remain in place permanently and become part of the keyed joint shall be made of galvanized, copper clad, or of similar rust-resistant material compatible with plastic and hardened concrete and shall not interfere with joint reservoir sawing and sealing.
- e. **Tie Bars.** Tie bars shall consist of deformed bars installed in joints as shown on the Plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the Plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth. When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. These bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed in the female side of the keyed joint provided the installation is made without distorting the keyed dimensions or causing edge slump. If a bent tie bar installation is used, the tie bars shall be inserted through the keyway liner only on the female side of the joint. In no case shall a bent tie bar installation for male keyways be permitted.
- f. **Dowel Bars.** Dowel bars or other load-transfer units of an approved type shall be placed across joints in the manner as shown on the Plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the Plans. The caps or sleeves shall fit the dowel bar tightly and the closed end shall be watertight. The portion of each dowel painted with rust preventative paint, as required under Subsection 501-2.7 and shown on the Plans to receive a debonding lubricant, shall be thoroughly coated with asphalt MC-70, or an approved lubricant, to prevent the concrete from bonding to that portion of the dowel. If free-sliding plastic-coated or epoxy-coated steel dowels are used, a lubrication bond breaker shall be used except when approved pullout tests indicate it is not necessary. Where butt-type joints with dowels are designated, the exposed end of the dowel shall be oiled.

Dowel bars at contraction joints may be placed in the full thickness of pavement by a mechanical device approved by the Engineer. The device shall be capable of installing dowel bars within the maximum permissible alignment tolerances. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

- g. **Installation of Joint Devices.** All joint devices shall be approved by the Engineer.

The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means to the maximum permissible tolerances during the placing and finishing of the concrete. Where premolded joint material is used, it shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units.

Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerances on dowel bar alignment shall be according to Subsection 501-5.2. During the concrete

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placement operation, it is advisable to place plastic concrete directly on dowel assemblies immediately prior to passage of the paver to help maintain dowel position and alignment within maximum permissible tolerances.

When concrete is placed using slip-form pavers, dowels and tie bars shall be placed in longitudinal construction joints by bonding the dowels or tie bars into holes drilled into the hardened concrete. Holes approximately 1/8 to 1/4 inch greater in diameter than the dowel or tie bar shall be drilled with rotary-type core drills that must be held securely in place to drill perpendicularly into the vertical face of the pavement slab. Rotary-type percussion drills may be used provided that spalling of concrete does not occur. Any damage of the concrete shall be repaired by the Contractor in a method approved by the Engineer. Dowels or tie bars shall be bonded in the drilled holes using an epoxy resin material. Installation procedures shall be adequate to insure that the area around dowels is completely filled with epoxy grout. Epoxy shall be injected into the back of the hole and displaced by the insertion of the dowel bar. Bars shall be completely inserted into the hole and shall not be withdrawn and reinserted creating air pockets in the epoxy around the bar. The Contractor shall furnish a template for checking the position and alignment of the dowels. Dowel bars shall not be less than 10 inches from a transverse joint and shall not interfere with dowels in the transverse direction.

- h. Sawing of Joints.** Joints shall be cut as shown on the Plans. Equipment shall be as described in Subsection 501-4.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8 inch wide and to the depth shown on the Plans. The top portion of the slot shall be widened by sawing to provide adequate space for joint sealers as shown on the Plans. Sawing shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing, consecutively in sequence of the concrete placement. Clean all saw cuttings, dust, and debris off of the PCC slab and dispose of off airport property. Complete cleanup before the end of shift each day.

### 501-4.11 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING.

- a. Sequence.** The sequence of operations shall be the strike-off, floating and removal of laitance, straightedging, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted.
- b. Finishing at Joints.** The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated as required in Subsection 501-4.8a. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 inches from the joint. Segregated concrete shall be removed from the front of and off the joint; and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may be run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.
- c. Machine Finishing.** The concrete shall be spread as soon as it is placed, and it shall be struck off and screeded by a finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give to proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. When side forms are used, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to

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affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed for its entire length. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.

- d. **Hand Finishing.** Hand finishing methods will not be permitted, except under the following conditions: in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used. A second screed shall be provided for striking off the bottom layer of concrete when reinforcement is used.

The screed for the surface shall be at least 24 inches longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Consolidation shall be attained by the use of suitable vibrators.

- e. **Floating.** After the concrete has been struck off and consolidated, it shall be further smoothed and trued by means of a longitudinal float using one of the following methods:

(1) **Hand Method.** Long-handled floats shall not be less than 12 feet in length and 6 inches in width, stiffened to prevent flexibility and warping. The float shall be operated from foot bridges spanning but not touching the concrete or from the edge of the pavement. Floating shall pass gradually from one side of the pavement to the other. Forward movement along the centerline of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or laitance in excess of 1/8 inch thick shall be removed and wasted.

(2) **Mechanical Method.** The Contractor may use a machine composed of a cutting and smoothing float(s), suspended from and guided by a rigid frame and constantly in contact with, the side forms or underlying surface. If necessary, long-handled floats having blades not less than 5 feet in length and 6 inches in width may be used to smooth and fill in open-textured areas in the pavement. When the crown of the pavement will not permit the use of the mechanical float, the surface shall be floated transversely by means of a long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance in excess of 1/8 inch thick shall be removed and wasted. Successive drags shall be lapped one-half the length of the blade.

- f. **Straight-edge Testing and Surface Correction.** After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a Contractor furnished 16-foot straightedge swung from handles 3 feet longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements of Subsection 501-5.2. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

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**501-4.12 SURFACE TEXTURE.** The surface of the pavement shall be finished with either a broom, burlap drag, or artificial turf finish for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. Any imperfections resulting from the texturing operation shall be corrected. The corrugations shall be uniform in appearance and approximately 1/16 inch in depth.

- a. **Brush or Broom Finish.** If the pavement surface texture is to be a type of brush or broom finish, it shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface.
- b. **Burlap Drag Finish.** If a burlap drag is used to texture the pavement surface, it shall be at least 15 oz/yd<sup>2</sup>. To obtain a textured surface, the transverse threads of the burlap shall be removed approximately 1 foot from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface.
- c. **Artificial Turf Finish.** If artificial turf is used to texture the surface, it shall be applied by dragging the surface of the pavement in the direction of concrete placement with an approved full-width drag made with artificial turf. The leading transverse edge of the artificial turf drag will be securely fastened to a lightweight pole on a traveling bridge. At least 24 inches of the artificial turf shall be in contact with the concrete surface during dragging operations. A variety of different types of artificial turf are available and approval of any one type will be done only after it has been demonstrated by the Contractor to provide a satisfactory texture. One type that has provided satisfactory texture consists of 7,200 approximately 0.85-inches-long polyethylene turf blades per square foot.

**501-4.13 CURING.** Immediately after finishing the concrete pavement surface, the newly laid pavement shall be kept damp by applying a water-fog or mist with approved spraying equipment until the pavement is covered by the curing medium. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. Such measures shall consist of wind screens, more effective fog sprays, and similar measures commencing immediately behind the paver. If these measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped. Immediately after finishing operations are completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured for a 7-day cure period in accordance with the water method. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period. The concrete shall be maintained at a temperature of at least 50 °F for a period of 72 hours after placing and at a temperature above freezing for the remainder of the curing time. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost action shall be removed and replaced at the Contractor's expense.

- a. **White Burlap-Polyethylene Sheets.** The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for 7 days after the concrete has been placed.
- b. **Water Method.** The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for 7 days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

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**501-4.14 REMOVING FORMS.** Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing but in no case, less than 24 hours. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in Subsection 501-4.14. Major honeycombed areas shall be considered as defective work and shall be removed and replaced according to Subsection 501-5.2.

**501-4.15 SEALING JOINTS.** The joints in the pavement shall be sealed according to Section P-605.

**501-4.16 PROTECTION OF PAVEMENT.** The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents. This shall include workers to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense. The Contractor shall have available at all times, materials for the protection of the edges and surface of the unhardened concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

**501-4.17 SURFACE SEALER.** Apply over the entire surface of the concrete after completing the sealer manufacturer's recommended curing period. Comply with the sealer manufacturer's recommendations for concrete surface preparation, sealer application temperature, rate, and method.

**501- 4.18 OPENING TO TRAFFIC.** The pavement shall not be opened to traffic until test specimens molded and cured according to WAQTC FOP for AASHTO T 23 have attained a compressive strength of 3700 psi when tested according to AASHTO T 22. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening to traffic, the pavement shall be cleaned.

### **501-4.19 REPAIR, REMOVAL, REPLACEMENT OF SLABS.**

- a. **General.** New pavement slabs that are broken or contain cracks shall be removed and replaced or repaired, as specified hereinafter at no cost to the owner. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original joint. The engineer will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4-inch diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

**(1) Cracks That Do Not Exceed 4 inches in depth (including plastic shrinkage cracks).** Cracks that do not exceed 4 inches deep shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Cracks that are greater than 4 inches deep shall be treated in accordance with paragraphs 4.19b and 4.19c.

- b. **Slabs With Cracks through Interior Areas.** Interior area is defined as that area more than 6 inches from any designed joint location. Slabs with any cracks greater than 4 –inches deep, that extend into the interior area, regardless of direction, shall be removed and replaced as specified in paragraph 501-4.19 d.

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- c. **Cracks Close To and Parallel To Joints.** All cracks essentially parallel to original joints, extending deeper than 4 inches, and lying wholly within 6 inches either side of the joint shall be treated as specified in the following subparagraphs. Any crack extending more than 6 inches from the joint shall be treated as specified above in subparagraph "Slabs With Cracks Through Interior Area." Any cracks that do not extend 4 inches deep shall be treated as specified above in subparagraph 4.19 a. (1)
- (1) **Cracks Greater Than 4-inches in Depth Present, Original Joint Not Opened.** When the original uncracked joint has not opened, the crack shall be routed and sealed, and the original joint filled with epoxy resin as specified below. The crack shall be routed with an easily guided, wheel mounted, vertical shaft, powered rotary router designed so the routing spindle will caster as it moves along the crack. The reservoir for joint sealant in the crack shall be formed by routing to a depth of 3/4 inch, plus or minus 1/16 inch, and to a width of 5/8 inch, plus or minus 1/8 inch. Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent such raveling or spalling. The joint sealant shall be a liquid sealant as specified. Installation of joint seal shall be as specified for sealing joints or as directed. If the joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures. If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. If filler type material has been used to form a weakened plane in the joint, it shall be completely sawed out and the saw cut pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures. Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remainder of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.
- (2) **Cracks Greater Than 4-inches in Depth Present, Original Joint Also Cracked.** At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.
- d. **Removal and Replacement of Full Slabs.** Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 inches from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 inch of the depth of the dowel or key. The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 LB (14 kg) or less, or other approved similar equipment. Care shall be taken to prevent damage to the dowels, tie bars, or keys or to concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 inch and no gradual offset greater than 1 inch when tested in a horizontal direction with a 12 foot straightedge. No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 inches deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary. If underbreak over 4 inches deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars



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shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All four edges of the new slab shall contain dowels. Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be recompacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker.

- e. **Repairing Spalls Along Joints.** Where directed, spalls along joints of new slabs, and along parallel cracks used as replacement joints, shall be repaired by first making a vertical saw cut at least 1 inch outside the spalled area and to a depth of at least 2 inches. Saw cuts shall be straight lines forming rectangular areas. The concrete between the saw cut and the joint, or crack, shall be chipped out to remove all unsound concrete and at least 1/2 inch of visually sound concrete. The cavity thus formed shall be thoroughly cleaned with high pressure water jets supplemented with compressed air to remove all loose material. Immediately before filling the cavity, a prime coat of epoxy resin, Type III, Grade I, shall be applied to the dry cleaned surface of all sides and bottom of the cavity, except any joint face. The prime coat shall be applied in a thin coating and scrubbed into the surface with a stiff-bristle brush. Pooling of epoxy resin shall be avoided. The cavity shall be filled with low slump Portland cement concrete or mortar or with epoxy resin concrete or mortar. Concrete shall be used for larger spalls, generally those more than 1/2 cu. ft. (0.014 m<sup>3</sup>) in size, and mortar SHALL BE USED FOR THE SMALLER ONES. ANY SPALL LESS THAN 0.1 CU. FT. (0.003 m<sup>3</sup>) shall be repaired only with epoxy resin mortar or a Grade III epoxy resin. Portland cement concrete and mortar mixtures shall be proportioned as directed and shall be mixed, placed, consolidated, and cured as directed. Epoxy resin mortars shall be made with Type III, Grade 1, epoxy resin, using proportions and mixing and placing procedures as recommended by the manufacturer and approved by the Engineer. The epoxy resin materials shall be placed in the cavity in layers not over 2 inches thick. The time interval between placement of additional layers shall be such that the temperature of the epoxy resin material does not exceed 140oF (60oC) at any time during hardening. Mechanical vibrators and hand tampers shall be used to consolidate the concrete or mortar. Any repair material on the surrounding surfaces of the existing concrete shall be removed before it hardens. Where the spalled area abuts a joint, an insert or other bond-breaking medium shall be used to prevent bond at the joint face. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints. If any spall penetrates half the depth of the slab or more, the entire slab shall be removed and replaced as previously specified.

### MATERIAL ACCEPTANCE

**501-5.1 ACCEPTANCE SAMPLING AND TESTING.** All acceptance sampling and testing, with the exception of coring for thickness determination, necessary to determine conformance with the requirements specified in this subsection will be performed by the Engineer. Concrete will be accepted for strength and thickness on a lot basis. After initial curing, the Contractor shall deliver the cylinders to the Southcoast Region Materials Laboratory (6860 Glacier Highway, Juneau, Alaska); as directed by the Engineer, for final curing and/or acceptance testing.

Lot Size. A lot will consist of 1000 cubic yards, or the project quantity, whichever is smaller.

a. **Compressive Strength.**

- (1) **Sampling.** Each lot will be divided into five equal sublots. One sample shall be taken for each subplot from the plastic concrete delivered to the job site. Sampling locations will be determined by the Engineer according to random sampling procedures contained in ASTM D 3665. The concrete shall be sampled according to WAQTC TM 2. The Contractor shall make and initially cure the number of compressive cylinder specimens specified according to WAQTC FOP for AASHTO T 23...

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- (2) **Testing.** Two specimens shall be made from each sample. The compressive strength of each specimen shall be determined according to AASHTO T 22. Test results will be checked for outliers as described in Subsection 501-5.1.d. and outliers will be discarded. The compressive strength for each subplot will be computed by averaging the results of the remaining test specimens representing that subplot.
- (3) **Curing.** The Contractor shall provide adequate facilities for the initial curing of cylinders according to WAQTC FOP for AASHTO T 23.
- (4) **Acceptance.** Acceptance of pavement for compressive strength will be determined by the Engineer according to Subsection 501-5.2.
- b. **Pavement Thickness.** Pavement placed using fixed forms shall not be cored. Sampling and testing will be accomplished by inspection and measurement of the forms prior to and after placing of concrete. Sampling and testing for pavement placed with slipform paving methods will be as follows:
- (1) **Sampling.** Each lot will be divided into four equal sublots and one core shall be taken by the Contractor for each subplot. Sampling locations will be determined by the Engineer according to random sampling procedures contained in ASTM D 3665. Areas, such as thickened edges, with planned variable thickness, will be excluded from sample locations.
- Cores shall be neatly cut with a core drill. The Contractor shall furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes shall be filled by the Contractor with a non-shrink grout approved by the Engineer within one day after sampling.
- (2) **Testing.** The thickness of the cores will be determined by the Engineer by the average caliper measurement according to AASHTO T 148.
- (3) **Acceptance.** Acceptance of pavement for thickness will be determined by the Engineer according to Subsection 501-5.2.
- c. **Partial Lots.** When sampling for compressive strength, if 150 cubic yards or less remain to complete the project quantity, it will be considered as part of the previous subplot. If more than 150 cubic yards remain, it will be considered as a complete subplot and sampled and tested as such.
- If a project has more than 1 lot and less than 4 additional sublots have been sampled at the time a lot is terminated, the additional sublots will be included in the previous lot. If 4 or more additional sublots have been sampled, they will be considered as a separate lot and the acceptance criteria calculation will be based on the actual number of samples in the shortened lot.
- d. **Outliers.** All individual compressive strength tests within a lot will be checked for an outlier (test criterion) according to ATM, SP-7. Outliers will be discarded, and the PWL will be determined using the remaining test values.
- e. **Yield, Cement Content, and Air Content.** Acceptance of pavement for yield, cement content, and air content will be determined by the Engineer according to Subsection 501-5.2 at the testing rate of 1 test series per 200 cubic yards.

### 501-5.2 ACCEPTANCE CRITERIA.

- a. General. Acceptance will be based on the following characteristics of the completed pavement:
- (1) Compressive strength
  - (2) Thickness

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- (3) Smoothness
- (4) Grade
- (5) Edge slump
- (6) Reinforcement type, size, and placement
- (7) Air content

Compressive strength and thickness will be evaluated for acceptance on a lot basis using the method of estimating percentage of material within specification limits (PWL). Acceptance using PWL considers the variability (standard deviation) of the material and the testing procedures, as well as the average (mean) value of the test results to calculate the percentage of material that is above the lower specification tolerance limit (L).

Acceptance for compressive strength will be based on the criteria contained according to Subsection 501-5.2e(1). Acceptance for thickness will be based on the criteria contained in Subsection 501-5.2e(2). Acceptance for grade will be based on the criteria contained in Subsection 501-5.2e(4).

The Engineer may at any time reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the Engineer, and if it can be demonstrated in the laboratory, in the presence of the Engineer, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

- b. **Compressive Strength.** Acceptance of each lot of in-place pavement for compressive strength will be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.
- c. **Pavement Thickness.** Acceptance of each lot of in-place pavement will be based on PWL. The Contractor shall target production quality to achieve 90 PWL or higher.
- d. **Percentage of Material Within Limits (PWL).** The PWL will be determined according to procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for compressive strength and thickness will be:

Lower Specification Tolerance Limit (L)	
Compressive Strength	0.93 x strength specified in Subsection 501-3.1
Thickness	Plan Thickness - 0.5 inch

e. **Acceptance Criteria.**

- (1) **Compressive Strength.** If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined according to Subsection 501-8.1.
- (2) **Thickness.** If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined according to Subsection 501-8.1.
- (3) **Smoothness.** As soon as the concrete has hardened sufficiently, the pavement surface will be tested with a 12-foot straightedge or other specified device. Surface smoothness deviations shall not exceed 1/4 inch from the straightedge placed in any direction, including placement along and spanning any pavement joint edge.

Areas in a slab showing high spots of more than 1/4 inch but not exceeding 1/2 inch in 12 feet shall be marked and immediately ground down with an approved grinding machine to an elevation that will fall within the tolerance of 1/4 inch or less. Where the departure from correct

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cross section exceeds 1/2 inch, the pavement shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

- (4) **Grade.** An evaluation of the surface grade will be made by the Engineer for compliance to the tolerances contained below.
- (a) **Lateral Deviation.** Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 foot in any lane.
- (b) **Vertical Deviation.** Vertical deviation from established grade shall not exceed plus or minus 0.05 foot at any point.
- (5) **Edge Slump.** When slip-form paving is used, not more than 15% of the total free edge of each 500-foot segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch, and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch. (The total free edge of 500 feet of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; i.e., 500 feet of paving lane originally constructed as a separate lane will have 1,000 feet of free edge, 500 feet of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches from the edge. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.
- (6) **Reinforcement Type, Size and Placement.** Reinforcement will be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2% (or 1/4 inch per foot) of a dowel bar.
- (7) **Air Content.** Air content will be determined according to WAQTC FOP for AASHTO T 121 and T 152.
- f. **Removal and Replacement of Concrete.** Any area or section of concrete that is removed and replaced shall be removed and replaced back to planned joints. The Contractor shall replace damaged dowels and the requirements for doweled longitudinal construction joints in Subsection 501-4.10 shall apply to all contraction joints exposed by concrete removal.

### CONTRACTOR QUALITY CONTROL

**501-6.1 QUALITY CONTROL PROGRAM.** The Contractor shall develop a Quality Control Program according to Section 100 of the General Provisions. The program shall address all elements which affect the quality of the pavement including but not limited to:

- |                            |                              |                                 |
|----------------------------|------------------------------|---------------------------------|
| a. Mix Design<br>Placement | e. Proportioning             | i. Reinforcement Type, Size and |
| b. Aggregate Gradation     | f. Mixing and Transportation | j. Compressive Strength         |
| c. Quality of Materials    | g. Placing and Consolidation | k. Finishing and Curing         |
| d. Stockpile Management    | h. Joints                    | l. Surface Smoothness           |

**501-6.2 QUALITY CONTROL TESTING.** The Contractor shall perform all quality control tests necessary to control the production and construction processes applicable to this specification and as set forth in the Quality Control Program. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content.

A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

### a. Fine Aggregate.

- (1) **Gradation.** A sieve analysis shall be made at a minimum of every 100 cubic yards according to WAQTC FOP for AASHTO T 27/T 11 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.
- (2) **Moisture Content.** If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made according to WAQTC FOP for AASHTO T 255/T 265.

### b. Coarse Aggregate.

- (1) **Gradation.** A sieve analysis shall be made at a minimum of every 100 cubic yards for each size of aggregate. Tests shall be made according to WAQTC FOP for AASHTO T 27/T 11 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.
- (2) **Moisture Content.** If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made according to WAQTC FOP for AASHTO T 255/T 265.

- c. **Slump.** Slump tests shall be performed for every 100 cubic yards of material produced. Slump tests shall be performed according to WAQTC FOP for AASHTO T 119 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken according to WAQTC TM 2.
- d. **Air Content.** Air content tests, shall be performed for every 100 cubic yards of material produced. Air content tests shall be performed according to WAQTC FOP for AASHTO T 152, from material randomly sampled from trucks at the plant site. Material samples shall be taken according to WAQTC TM 2.

**501-6.3 CONTROL CHARTS.** The Contractor shall maintain linear control charts for fine and coarse aggregate, gradation, slump, and air content.

Control charts shall be posted in a location satisfactory to the Engineer and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the Engineer may halt production or acceptance of the material.

- a. **Fine and Coarse Aggregate Gradation.** The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Specification limits contained in Tables 1 and 2 shall be superimposed on the Control Chart for job control.
- b. **Slump and Air Content.** The Contractor shall maintain linear control charts both for individual measurements and range (i.e., difference between highest and lowest measurements) for slump and air content according to the following Action and Suspension Limits.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

### CONTROL CHART LIMITS

Based on Sample Size n=4

Control Parameter	Individual Measurements		Range Suspension Limit
	Action Limit	Suspension Limit	
Slump	+/- 1 in.	+/- 1.5 inch	+/- 2.4 inch
Air Content	+/- 1.2%	+/- 1.8%	+/- 2.8%

The individual measurement control charts shall use the mix design Target Values as indicators of central tendency.

**501-6.4 CORRECTIVE ACTION.** The Quality Control Plan shall indicate that appropriate action shall be taken when the process is believed to be out of control. The Quality Control Plan shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

- a. **Fine and Coarse Aggregate Gradation.** When two consecutive averages of five tests are outside of the Tables 1 or 2 specification limits, immediate steps, including a halt to production, shall be taken to correct the grading.
- b. **Fine and Coarse Aggregate Moisture Content.** Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher(s) and water batcher shall be adjusted.
- c. **Slump.** The Contractor shall halt production and make appropriate adjustments whenever:
  - (1) one point falls outside the Suspension Limit line for individual measurements or range; or
  - (2) two points in a row fall outside the Action Limit line for individual measurements.
- d. **Air Content.** The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:
  - (1) one point falls outside the Suspension Limit line for individual measurements or range; or
  - (2) two points in a row fall outside the Action Limit line for individual measurements.

Whenever a point falls outside the Action Limits line, the air-entraining admixture dispenser shall be calibrated to ensure that it is operating correctly and with good reproducibility.

### METHOD OF MEASUREMENT

**501-7.1** Portland cement concrete pavement will be measured by the number of cubic yards of pavement as specified in place, completed and accepted.

### BASIS OF PAYMENT

**501-8.1 PAYMENT.** Payment for accepted concrete pavement will be made at the contract unit price per cubic yard, adjusted according to Subsection 501-8.1a. All costs associated with Steel Reinforcement, Dowels, and Concrete Surface Sealer are subsidiary to the Portland Cement Concrete Pavement Item.

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings.

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

- a. **Basis of Adjusted Payment.** The pay factor for each individual lot will be calculated according to Table 1. A pay factor will be calculated for both compressive strength and thickness. The lot pay factor will be the lower of the two pay factors.

**TABLE 1. PRICE ADJUSTMENT SCHEDULE**

Percentage of Material Within Specification Limits (PWL)	Pay Factor
96 – 100	1.00
90 – 95	0.01 PWL + 0.05
75 - 89	0.005 PWL + 0.55
55 – 74	0.014 PWL – 0.12
Below 55	0*

\*If the PWL falls below 55, the lot shall be removed and replaced. However, the Engineer may decide to allow the rejected lot to remain. In that case, if the Engineer and Contractor agree in writing that the lot shall not be removed, the pay factor for the lot shall be 0.50.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price.

- b. **Payment.** Payment will be made under:

Item P-501a    Portland Cement Concrete Pavement - per cubic yard

### TESTING REQUIREMENTS

AASHTO T22	Compressive Strength of Cylindrical Concrete Specimens
AASHTO T 26	Quality of Water to be Used in Concrete
AASHTO T 96	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
AASHTO T 97	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
AASHTO T 259	Resistance of Concrete to Chloride Ion Penetration
ASTM C 642	Density, Absorption, and Voids in Hardened Concrete
ASTM C 672	Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
ASTM C 1077	Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D 3665	Random Sampling of Construction Materials
ATM 306	Percentage of Flat and Elongated Particles in Coarse Aggregate

## PORTLAND CEMENT CONCRETE PAVEMENT - P-501

ATM SP-7	Determination of Outlier Test Results
WAQTC FOP for AASHTO T 23	Making & Curing Concrete Test Specimens in the Field
WAQTC FOP for AASHTO T 27/T 11	Sieve Analysis of Aggregates & Soils
WAQTC FOP for AASHTO T 119	Slump of Freshly Mixed Concrete
WAQTC FOP for AASHTO T 121	Unit Weight, Cement Factor & Water/Cement Ratio of Freshly Mixed Concrete
WAQTC FOP for AASHTO T 152	Air Content of Freshly Mixed Concrete by the Pressure Method
WAQTC FOP for AASHTO T 255/T 265	Moisture Content of Aggregate and Soils
WAQTC TM 2	Sampling Freshly Mixed Concrete

### MATERIAL REQUIREMENTS

AASHTO M 6	Fine Aggregate for Portland Cement Concrete
AASHTO M 31	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
AASHTO M 43	Sizes of Aggregate for Road and Bridge Construction
AASHTO M 55	Steel Welded Wire Reinforcement, Plain, for Concrete
AASHTO M 80	Coarse Aggregate for Portland Cement Concrete
AASHTO M 85	Portland Cement
AASHTO M 148	Liquid Membrane-Forming Compounds for Curing Concrete
AASHTO M 154	Air-Entraining Admixtures for Concrete
AASHTO M 157	Ready-Mixed Concrete
AASHTO M 171	Sheet Materials for Curing Concrete
AASHTO M 194	Chemical Admixtures for Concrete
AASHTO M 213	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
AASHTO M 235	Epoxy Resin Adhesives
AASHTO M 254	Corrosion-Resistant Coated Dowel Bars
AASHTO M 295	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
AASHTO M 322	Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement



**PORTLAND CEMENT CONCRETE PAVEMENT - P-501**

ACI 306R

Cold Weather Concreting

Federal Specification TT-P-664

## TACK COAT - P-603

### DESCRIPTION

**603-1.1** This item shall consist of preparing and treating an asphalt or concrete surface with liquid asphalt material according to these Specifications and in reasonably close conformity to the lines shown on the Plans.

### MATERIALS

**603-2.1 MATERIALS.** Tack coat material shall be either cutback asphalt, emulsified asphalt, or tar and shall conform to the requirements of Table 1. The type, grade, controlling specification, and application temperature of tack coat to be used shall be specified by the Engineer.

**TABLE 1. MATERIAL**

Type and Grade	Specification	Application Temperature °F	Application Rate gal/yd <sup>2</sup>
<b>Emulsified Asphalt</b>			
SS-1, SS-1h	AASHTO M 140	75-130	0.05 to 0.16
CSS-1, CSS-1h	AASHTO M 208	75-130	0.05 to 0.16
STE-1	\1\	68-140	0.08 to 0.10
<b>Cutback Asphalt</b>			
RC-70	ASTM D 2028	120-160	0.05 to 0.16
<b>Tar</b>			
RTCB 5, RTCB 6	AASHTO M 52	60-120	0.05 to 0.16

\1\ STE-1 shall meet the following specifications: Viscosity, Sabolt Furol at 77 °F of 30 max., when tested under AASHTO T 59. Particle charge test of Positive when tested under AASHTO T 59 (If particle charge test is inconclusive, material having a max. pH value of 6.7 will be acceptable). Storage Stability, 1 day 1% max when tested under AASHTO T 59. Demulsibility, 35 mil 0.8% Dioctyl Sodium Sulfosuccinate Solution 25 minimum when tested under AASHTO T 59. Sieve test maximum of 0.10% when tested under AASHTO T 59. Oil distillate, by volume of emulsion, of 5% maximum when tested under AASHTO T 59. Residue of 45% minimum when tested under AASHTO T 59. Penetration at 77 °F, 100 gm, 5 sec. of 100 minimum, 200 maximum when tested under ASTM D 5. Ductility at 77 °F of 40 cm minimum when tested under ASTM D 113. Solubility in trichloroethylene of 97.5% minimum

### CONSTRUCTION METHODS

**603-3.1 WEATHER LIMITATIONS.** The tack coat shall be applied only when the existing surface is dry and the surface temperature is above 40 °F. The temperature requirements may be waived, but only when so directed by the Engineer.

## TACK COAT - P-603

**603-3.2 EQUIPMENT.** The Contractor shall provide equipment for heating and applying the tack coat.

The distributor shall be designed, equipped, maintained, and operated so that tack coat at even heat may be applied uniformly on variable widths of surface at the specified rate. The allowable variation from the specified rate shall not exceed 10%. Distributor equipment shall include a tachometer, pressure gages, volume-measuring devices or a calibrated tank, and a thermometer for measuring temperatures of tank contents. The distributor shall be self-powered and shall be equipped with a power unit for the pump and full circulation spray bars adjustable laterally and vertically.

A power broom and/or blower shall be provided for any required cleaning of the surface to be treated.

**603-3.3 APPLICATION OF TACK COAT.** Immediately before applying the tack coat, the full width of surface to be treated shall be swept with a power broom and/or airblast to remove all loose dirt and other objectionable material.

Emulsified asphalt shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before any of the overlying mixture is placed on the tacked surface.

The tack coat material including vehicle or solvent shall be uniformly applied with an asphalt distributor at the rate specified in Table 1, depending on the condition of the existing surface. The type of material and application rate shall be approved by the Engineer prior to application.

Following the application, the surface shall be allowed to cure without being disturbed for such period of time as may be necessary to permit drying out and setting of the tack coat. This period shall be determined by the Engineer. The surface shall then be maintained by the Contractor until the next course has been placed. Suitable precautions shall be taken by the Contractor to protect the surface against damage during this interval.

**603-3.4 CONTRACTOR'S RESPONSIBILITY.** Samples of the tack coat material that the Contractor proposes to use, together with a statement as to its source and character, must be submitted and approved before use of such material begins. The Contractor shall require the manufacturer or producer of the tack coat to furnish material subject to this and all other pertinent requirements of the contract. Only satisfactory materials so demonstrated by certified tests, shall be acceptable.

The Contractor shall furnish the vendor's certified test reports for each carload, or equivalent, of tack coat shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of material received for use on the project.

**603-3.5 FREIGHT AND WEIGH BILLS.** Before the final estimate is allowed, the Contractor shall file with the Engineer receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the tack coat actually used in the construction covered by the contract. The Contractor shall not remove tack coat from the tank car or storage tank until the initial outage and temperature measurements have been taken by the Engineer, nor shall the car or tank be released until the final outage has been taken by the Engineer. Copies of freight bills and weigh bills shall be furnished to the Engineer during the progress of the work.

### METHOD OF MEASUREMENT

**603-4.1** Tack coat will not be measured for payment.

## **TACK COAT - P-603**

### **BASIS OF PAYMENT**

**603.5-1** Payment will be incidental to P-401 Hot Mix Asphalt.

### **TESTING REQUIREMENTS**

AASHTO T 59	Testing Emulsified Asphalts
ASTM D 5	Penetration of Bituminous Materials
ASTM D 113	Ductility of Bituminous Materials

### **MATERIAL REQUIREMENTS**

AASHTO M 52	Tar for Use in Road Construction
AASHTO M 140	Emulsified Asphalt
AASHTO M 208	Cationic Emulsified Asphalt
ASTM D 633	Volume Correction Table for Road Tar
ASTM D 2028	Liquid Asphalt (Rapid-Curing Type)

# JOINT SEALING FILLER - P-605

## DESCRIPTION

**605-1.1** This item shall consist of providing and installing a resilient and adhesive joint sealing filler capable of effectively sealing joints and cracks in pavements.

## MATERIALS

**605-2.1 JOINT SEALERS.** Joint sealing material shall meet the requirements of ASTM D 3581.

Each lot or batch of sealing compound shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, and the safe heating temperature and shall be accompanied by the manufacturer's certification stating that the compound meets the requirements of this specification.

## CONSTRUCTION METHODS

**605-3.1 TIME OF APPLICATION.** Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be above 50 °F at the time of installation of the poured joint sealing material.

**605-3.2 PREPARATION OF JOINTS.** Immediately before sealing, the joints shall be thoroughly cleaned of all laitance, curing compound, and other foreign material. Cleaning shall be accomplished by wire brushing. Upon completion of cleaning, the joints shall be blown out with compressed air. The joint faces shall be surface dry when the seal is applied.

Prior to resealing joints, the existing joint material shall be removed to the depth as shown on the Plans. If joint sealer other than that originally used is specified, all existing joint sealer shall be removed.

**605-3.3 INSTALLATION OF SEALANT.** Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer before sealing is allowed.

The joint sealant shall be applied uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids. A backing material shall be placed as shown on the Plans and shall be nonadhesive to the concrete or the sealant material. The heating kettle shall be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation shall be provided. The sealant shall not be heated to within 20 degrees (F) below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer's shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint shall be provided. Any sealant spilled on the surface of the pavement shall be removed immediately.

## METHOD OF MEASUREMENT

**605-4.1** Joint sealing material will be measured by the linear foot of sealant in place, complete, and accepted.

## **JOINT SEALING FILLER - P-605**

### **BASIS OF PAYMENT**

**605-5.1** Payment for joint sealing material will be made at the contract unit price per linear foot.

When no pay item appears in the bid schedule, work under this item will be subsidiary to other work within the contract.

Payment will be made under:

Item P-605a     Joint Sealing Filler - per linear foot

### **TESTING REQUIREMENTS**

ASTM D 412             Rubber Properties in Tension

ASTM D 1644          Nonvolatile Content of Varnishes

### **MATERIAL REQUIREMENTS**

ASTM D 3581          Joint Sealant, Hot-Poured, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements

# RUNWAY AND TAXIWAY PAINTING - P-620

## DESCRIPTION

**620-1.1** This item shall consist of the painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, according to these Specifications and at the locations shown on the Plans, or as directed by the Engineer. This item includes removal of existing painted markings from pavement surfaces as shown on the plans or as designated by the Engineer. Complete this work within the limitations of the project safety and phasing plans.

## MATERIALS

**620-2.1 MATERIALS ACCEPTANCE.** The Contractor shall furnish manufacturer's certified test reports for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site. Provide manufacturer certification that each product does not contain mercury, lead, hexavalent chromium, halogenated solvents, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

**620-2.2 PAINT.** Paint shall be waterborne or solvent base according to the requirements of Subsection 620-2.2, a. or b. Paint shall be furnished in white (37925), red (31086, 31105, 31120, or 31140) and yellow (33538 or 33655) according to Federal Standard No 595. Paint shall be furnished in Type II (fast drying time for no-pick-up) when tested according to ASTM D 711.

- a. **Waterborne.** Paint shall meet the requirements of Federal Specification TT-P-1952E, Type II.
- b. **Solvent Base.** Paint shall meet the requirements of Federal Specification A-A-2886B, Type II, or the State of Alaska DOT&PF maintenance specification for "Traffic Paint - No-Heat Instant Dry Pavement Marking Material".

**620-2.3 REFLECTIVE MEDIA.** Glass beads shall meet the requirements of Fed. Spec. TT-B-1325, Type III. Glass beads shall be treated with adhesion promoting and/or flotation coatings as specified by the manufacturer of the paint.

## CONSTRUCTION METHODS

**620-3.1 WEATHER LIMITATIONS.** The painting shall be performed only when the surface is dry and when the surface temperature is at least 40 °F and rising and the pavement surface temperature is at least 5 °F above the dew point. Permanent paint shall not be applied when conditions do not meet manufacturers recommended conditions for temperature, surface dryness and humidity. Temporary paint may be applied with standard paint with the approval of the Engineer when weather limitations are not met.

**620-3.2 EQUIPMENT.** Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall apply markings of uniform cross sections and clear-cut edges without running or spattering and without over spray.

**620-3.3 PREPARATION OF SURFACE.** Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other foreign material which would reduce the bond between the paint and the pavement. The area to be painted shall be cleaned by sweeping and blowing or by other methods as required to remove all dirt, laitance, and loose materials. Areas which cannot be satisfactorily

## RUNWAY AND TAXIWAY PAINTING - P-620

cleaned by brooming and blowing shall be scrubbed as directed with a 10% solution of tri-sodium phosphate or an equally suitable solution. After scrubbing, the solution shall be rinsed off and the surface dried prior to painting.

**620-3.4 LAYOUT OF MARKINGS.** The proposed markings shall be laid out in advance of the paint application. All permanent markings shall receive glass beads. Space control points at such intervals to ensure accurate location of all markings. Provide an experienced technician to supervise the location, alignment, layout dimensions, and application of the paint.

**620-3.5 APPLICATION.** Paint shall be applied at the locations and to the dimensions and spacing shown on the Plans. Paint shall not be applied until the layout and condition of the surface have been approved by the Engineer. Permanent markings shall be applied in two coats at the full required application rate.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and the marking dimensions and spacings shall be within the following tolerances:

Dimension and Spacing	Tolerance
Less than 36 inches	1/2 inch
36 inches to 6 feet	1 inch
6 feet to 60 feet	2 inches
Over 60 feet	3 inches

The paint shall be mixed and applied according to the manufacturer's instructions. The addition of thinner will not be permitted. The paint shall be applied to the pavement with a marking machine at the rate shown in Table 1

**TABLE 1. APPLICATION RATES FOR PAINT AND GLASS BEADS**

Paint Type	Paint, ft <sup>2</sup> /gal maximum	Glass Beads lb/gal of paint (±2 oz.)
Waterborne	80	10
Solvent Base	80	10

Pavement shall cure for 7 days or as directed by the Engineer before painting. If pavement is opened to traffic before the pavement curing period is complete, apply paint in two coats. Apply the first coat at least 12 hours after paving is completed at 25 percent of the total application rate. Apply the remaining 75 percent following pavement curing time and after pavement grooving operations in affected areas. The direction of the second application shall be 180 degrees from the first to ensure complete coverage. Apply glass beads, if required, in the second coat only.

Pressure apply the glass beads using a mechanical dispenser mounted not more than 12 inches behind the paint dispenser. Beads shall be applied at the rate shown in Table 1 and shall adhere to the cured paint or all marking operations shall cease until corrections are made. Apply glass beads to top coat of permanent markings only.

All emptied containers shall be returned to the paint storage area for checking by the Engineer. The containers shall not be removed from the airport or destroyed until authorized by the Engineer.

**620-3.6 PROTECTION.** After application of the paint, all markings shall be protected from damage until the paint is dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings of paint.



## RUNWAY AND TAXIWAY PAINTING - P-620

**620-3.7 PAINTED MARKING REMOVAL.** Where indicated, use high pressure water to remove all visible indications of existing painted markings from pavement surfaces. Do not paint over existing markings. Remove pavement markings to the fullest extent possible without materially damaging the pavement surface, color, or texture. Collect and dispose of all loose or waste material as needed to prevent interference with drainage or to prevent dusty conditions under traffic, wind, or propellers. The pressure of the water shall be at least 10,000 PSI.

Pressure shall be adjusted to accomplish removal with minimal surface etching. Ultra high pressure water (40,000 PSI) will not be permitted. Hydroblast equipment shall be single-vehicle, self-contained, and must have the ability to adjust cutting width as required for varying line or marking width. Use of chemicals, grinding, sandblasting or shotblasting for removing pavement markings will not be permitted.

Repair any damaged pavement or surfacing caused by the marking removal operation, as directed by the Engineer. Collect and dispose of all loose or waste material as needed to prevent interference with drainage or to prevent dusty conditions under traffic, wind, or propellers/turbine wash.

### METHOD OF MEASUREMENT

**620-4.1 RUNWAY AND TAXIWAY PAINTING BY UNIT AREA.** If runway and taxiway painting by unit area appears in the bid schedule, then new painted markings will be so measured.

**620-4.2 REFLECTIVE MEDIA.** If reflective media by unit weight appears in the bid schedule, then this material will be so measured.

**620-4.3 RUNWAY AND TAXIWAY PAINTING BY LUMP SUM.** If a lump-sum item appears in the bid schedule, new painted markings will not be measured for payment. In this case, reflective media (glass beads) are subsidiary to the item. When no Temporary Runway and Taxiway Painting item appears in the bid schedule, application and removal of temporary markings is subsidiary to the lump sum item.

**620-4.4 PAINTED MARKING REMOVAL.** Painted marking removal will be measured by area acceptably completed with the following exception. If painted marking removal is absent from the bid schedule, no measurement will be made and this item will be subsidiary to painting.

### BASIS OF PAYMENT

**620-5.1** Payment will be made at the respective contract unit or lump sum price for the pay items listed below that appear in the bid schedule.

Payment will be made under:

Item P-620a	Runway and Taxiway Painting - per square foot
Item P-620b	Reflective Media - per pound
Item P-620c	Runway and Taxiway Painting - per lump sum
Item P-620e	Painted Marking Removal - per square foot
Item P-620g	Temporary Runway and Taxiway Painting – per lump sum

### TESTING REQUIREMENTS

ASTM C 371	Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM D 92	Flash and Fire Points by Cleveland Open Cup
ASTM D 711	No-Pick-Up Time of Traffic Paint

## RUNWAY AND TAXIWAY PAINTING - P-620

ASTM D 968	Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1652	Epoxy Content of Epoxy Resins
ASTM D 2074	Total Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D 2240	Rubber Products-Durometer Hardness
ASTM G 53	Operating Light and Water-Exposure Apparatus (Florescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
Federal Test Method Standard No. 141	Paint, Varnish, Lacquer and Related Materials; Methods of Inspection, Sampling and Testing

### MATERIAL REQUIREMENTS

Alaska DOT/PF Yellow	Traffic Paint - No-Heat Instant Dry Pavement Marking Material; White and Yellow
ASTM D 476	Titanium Dioxide Pigments
Code of Federal Regulations	40 CFR Part 60, Appendix A, 29 CFR Part 1910.1200
Code of Federal Regulations	29 CFR Part 1910.1200 – Hazard Communications
Commercial Item Description (CID) A-A-2886B	Paint, Traffic, Solvent Based
Fed. Spec. TT-B-1325	Beads (Glass Spheres) Retroreflective
Fed. Spec. TT-P-1952E	Paint, traffic and Airfield Marking, Waterborne
Federal Standard 595	Colors used in Government Procurement

## HAZARDOUS AREA BARRIERS - P-670

### DESCRIPTION

**670-1.1** Provide barriers for use on the project under subsection 70-09, Barricades, Warning Signs and Hazard Markings. Provide each barrier complete with flasher unit and flag in accordance with the dimensions, design, and details shown on the Plans. Haul and place barriers as shown on the Plans or as directed by the Engineer. Relocate barriers as conditions warrant.

Provide additional flasher units and flags, when specified, for use on Department-supplied barriers.

### MATERIALS

**670-2.1** Use materials that conform to the following:

- a. **Hazard Marker Barrier, Timber.** Provide construction-grade Douglas Fir-Larch with nominal dimensions of 12 inches x 12 inches and a length of 8 feet. Use pressure treated wood with a preservative salt retention of not less than 0.6 lbs/ft<sup>3</sup>, kiln dried after impregnation, and conforming to the American Wood Preservers Bureau (AWPB) FDN Standard. Provide timbers that bear the AWPB Quality Mark of an approved inspection agency as described in the AWPB Standard. Use either oil base or latex exterior paint in colors international orange and white.
- b. **Hazard Marker Barrier, Plastic.** Provide 10 inch x 10 inch by 8 foot nominal dimension portable water-ballast barriers made from high impact, safety orange and white, UV-resistant, high density polyethylene (HDPE) plastic. Provide barriers with pre-molded flag staff and flasher bracket attachment holes. Provide barriers that are designed as a modular system to allow assembly/disassembly and nesting for compact storage, and to permit the option of physically bolting multiple barriers together to provide a continuous barrier wall. Provide 6-inch x 72-inch reflective striping panel for attachment to one side of each barrier.

**670-2.2 Flag.** Provide heavy vinyl coated nylon, 18 inch x 18 inch flag with an integral diagonal metal stay to make the flag self supporting. Provide flag in color fluorescent orange and mounted on a ¾ inch x 30-inch staff.

**670-2.3 Flasher Unit.** Provide battery-operated omnidirectional flashing red light. Provide flasher unit with mounting bracket designed for the appropriate barrier type.

- a. **Flasher Unit for Timber Barrier.** Meet Manual on Uniform Traffic Control Devices (MUTCD) requirements for Type A Warning Lights. Supply one set of non-standard tools, such as the on/off switch or battery access tool, for each 5 flasher units furnished.

- b. **Flasher Unit for Plastic Barrier.**

Composition	High impact, polycarbonate plastic lens and base
Flashing Rate	60 flashes per minute
Brightness	6000 mcd
LED	Total of 3 red
Photo Cell	Allows for solar light to automatically shut off in higher level light conditions and turn on in lower light conditions

## HAZARDOUS AREA BARRIERS - P-670

### CONSTRUCTION REQUIREMENTS

**670-3.1 GENERAL.** On the top side and at opposite ends of each barrier, mount one flag and one flasher unit per manufacturer's instructions. Tether flag to the barrier.

**a. Hazard Marker Barrier, Timber.**

- (1) Preparation.** Prior to painting, notch the underside of each timber to allow for the use of a forklift. Cut two 4 inch high by 12 inch wide notches spaced 36 inches center to center, centered on the long axis of the timber.
- (2) Painting.** Apply one coat of primer and one coat of finish white color paint on all sides and the ends followed by two coats of orange finish paint to form the stripes on the sides. Paint orange stripes 24 inches wide and offset by 6 inches from one side to the next giving a "barber pole" effect.
- (3) Flag and Flasher Unit.** Mount the flag 24 inches from one end of the timber by drilling a hole 1/8 inch larger than the diameter of the staff by 8 inches deep. Mount the flasher unit 24 inches from the opposite end of the timber.

**b. Hazard Marker Barrier, Plastic.** Fill barriers with water for ballast in accordance with manufacturer's recommendations. When shown on the plans or directed by the Engineer, interlock barrier units using manufacturer recommended connectors to form a continuous wall separating the hazardous work area from aircraft movement areas. Adhere reflective striping panels to one side of each barrier.

**670-3.2 DELIVERY.** Deliver hazard marker barriers, flasher units, and flags to the project site prior to commencing work within the Air Operations Area.

Barriers furnished by the Airport must be picked up from the fuel farm storage yard, located on airport property, and transported to the project site. Install the Contractor supplied flag and flasher units (with batteries) prior to use. Maintain barriers, flags, and flasher units during the project. Replace batteries as required for satisfactory operation during the project. Replace any barriers damaged during the project, at the Contractor's expense.

Upon project completion, return the barriers, flags, and flasher units to the fuel farm storage yard, with the batteries removed.

**670-3.3 STORAGE.** Following completion of the project, remove flasher units and flags from the barriers. Barriers, flasher units, and flags are the property of the State. Drain plastic barriers. Deliver to a location on the Airport designated by the Engineer.

**670-3.4 MAINTENANCE.** Inspect hazard marker barriers daily for operational lights and flag condition. Replace or repair portions of any barrier not fully operational before start of work day.

### METHOD OF MEASUREMENT

**670-4.1** Hazard marker barriers, complete with flag and flasher unit will be measured by the number of units furnished and accepted.

Flasher units and flags to be used on Department-supplied barriers will be measured by the number of units furnished and accepted.

### BASIS OF PAYMENT

**670-5.1** Payment covers all costs associated with furnishing and storing hazard marker barriers, flasher units, and flags, including tools, batteries, and incidentals.

## HAZARDOUS AREA BARRIERS - P-670

Work required for placing, erecting, moving, and maintaining barriers is subsidiary.

Payment will be made under:

Item P-670a	Hazard Marker Barrier, [Type] - per each
Item P-670b	Flasher Unit for [Type] Barrier - per each
Item P-670c	Flag - per each

# **APPENDIX B**

## **Construction Surveying Requirements**



**Alaska  
Department of  
Transportation  
and  
Public Facilities**

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**Alaska  
Construction  
Surveying  
Requirements (US  
Customary Units)**





# Alaska Construction Surveying Requirements (US Customary Units)

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# 1. Survey accuracy requirements

## Third order survey

- ✓ Use a 1/5000 horizontal closure.
- ✓ Use an angle closure of  $30\sqrt{N}$  seconds, where N equals the number of angles in the traverse.
- ✓ An Alaska-registered professional land surveyor must perform or supervise replacement of survey monuments (property, USGS, USC&GS, BLM, etc.) or establishment of monuments (including centerline).
- ✓ All monument work must comply with AS 34.65.040 and meet standards in the latest version of the Alaska Society of Professional Land Surveyors' *Standards of Practice Manual*.
- ✓ The allowable vertical error for misclosure is  $e = 0.05\sqrt{M}$  e = maximum misclosure in feet, M = length of the level circuit in miles.

**Table 1—Survey accuracy requirements (in feet)**

	Stationing	HI	Closure	Horizontal Angle	Distance To center line	Grade
Additional cross sections	1.0	0.01	0.04	**	0.1	0.1
Benches		0.01	0.02			
Blue tops***	1.0	0.01	0.04		0.1	0.02
Bridges	*	0.01	0.02			0.01
Centerline	*			*		
Clearing & Grubbing	1.0				1.0	
Culverts	1.0	0.01	0.04	**	0.1	0.1
Curb & gutter	1.0	0.01	0.02		0.1	0.02
Grade stakes	1.0				0.1	0.1
Guardrail	1.0				0.1	
Manholes, catch basins & inlets	1.0	0.01	0.02		0.1	0.02
Monuments	*			*		
Red tops***	1.0	0.01	0.02		0.1	0.05
Riprap	1.0	0.1	0.04		1.0	0.1
Signs	1.0				0.1	
Slope stakes & RP's	1.0	0.01	0.04	**	0.1	0.1
Under drains & sewer	1.0	0.01	0.02		0.1	0.02

\* Third order survey

\*\*Right angle prism or transit angles from center line

\*\*\* Use blue tops for top of base course and red tops for the bottom of base course.

# 1. Survey frequency requirements

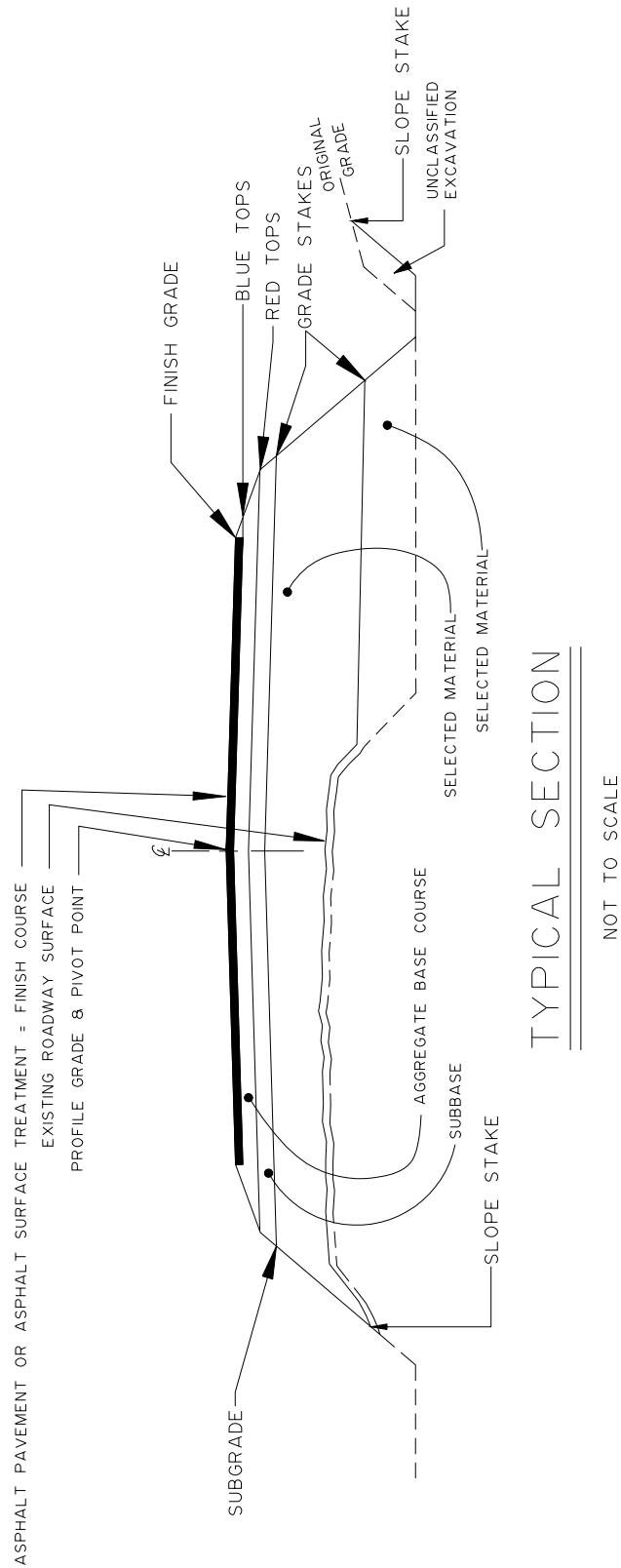
**Table 2—Survey frequency requirements (in feet)**

	Tangents	Curves	Interchange ramps	Stake each per plan	See special instructions on sample notes
Additional cross sections	*	*	*		
Bench marks					X
Blue tops	100	100**	25		X
Blue tops within 100 feet both sides of railroad track crossings and bridge approaches	25	25	25		X
Bridges				X	X
Center line	100	100**	25		
Clearing	100	100**	25		X
Culverts				X	X
Curb and gutter	25	25	25		
Grade stakes	100	100**	50		
Guardrail	25	25	25		
Manholes, catch basins & inlets				X	
Monuments				X	
Red tops	100	100**	25		X
Riprap	50	50	50		
Signs				X	
Slope stake / cross sections	100	100**	25		X
Under drains and sewers	50	25	25		

\* Establish additional cross sections and slope stakes at all breaks in topography and where structures begin and end.

\*\*Curves shall be staked on 50-foot stations if the curve is greater than six degrees.

## 2. Typical Section Drawing



### 3. Survey point materials requirements

- ✓ These are minimum requirements; larger sizes may be necessary.
- ✓ Use only stakes with planed sides.

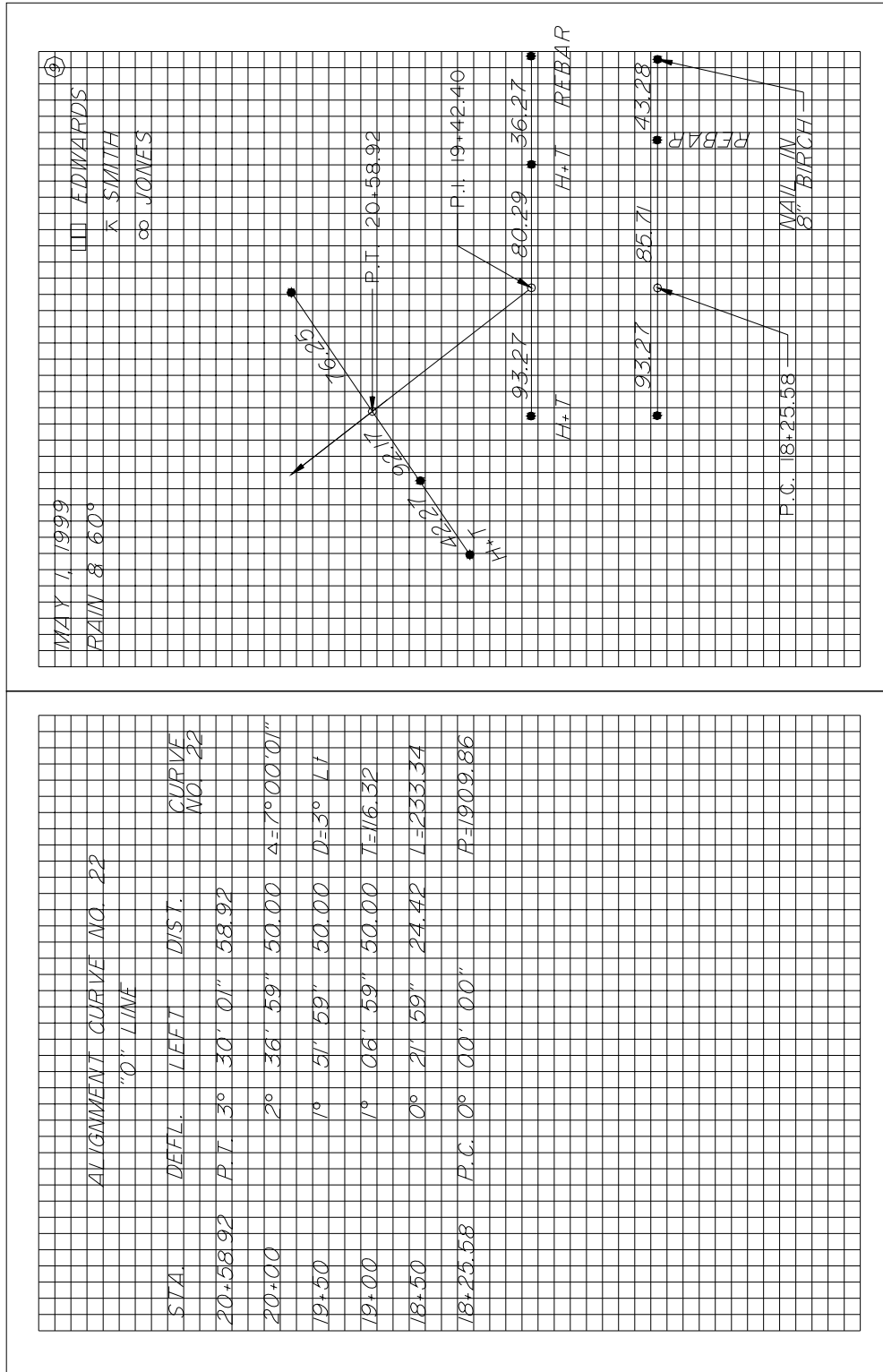
**Table 3—Survey point materials requirements**

	24" lath or whiskers	2" x 2" x 8" hub	2" x 2" x 12" hub	1" x 2" x 18" stake	1" x 2" x 24" stake	48" lath	Hub and tack	40d nail	60d nail	1/2" x 24" rebar
Benchmarks									X	
Blue tops	X	X								
Centerline P.C., P.T., P.O.T.			X	X			X *			X *
Centerline reference points			X	X			X *			X *
Centerline station				X				X		
Clearing						X				
Culvert stake			X		X	X				
Culvert stake references			X		X	X				
Curb and gutter			X		X		X			
Guardrail								X		
Major structures			X	X *	X *	X	X *			X *
Red tops	X	X								
Signs						X				
Slope stake					X	X				
Slope stake references			X		X	X				

\* Optional depending on conditions, and to be determined by the Project Engineer.

## 4. Typical alignment notes

- ✓ The Chief of Parties must prepare the alignment book before actual staking.
- ✓ Don't use swing ties for reference points.
- ✓ Use three point right angle ties, two to the right and one left, or vice versa.
- ✓ Reference P.C., P.I., P.T., and P.O.T.







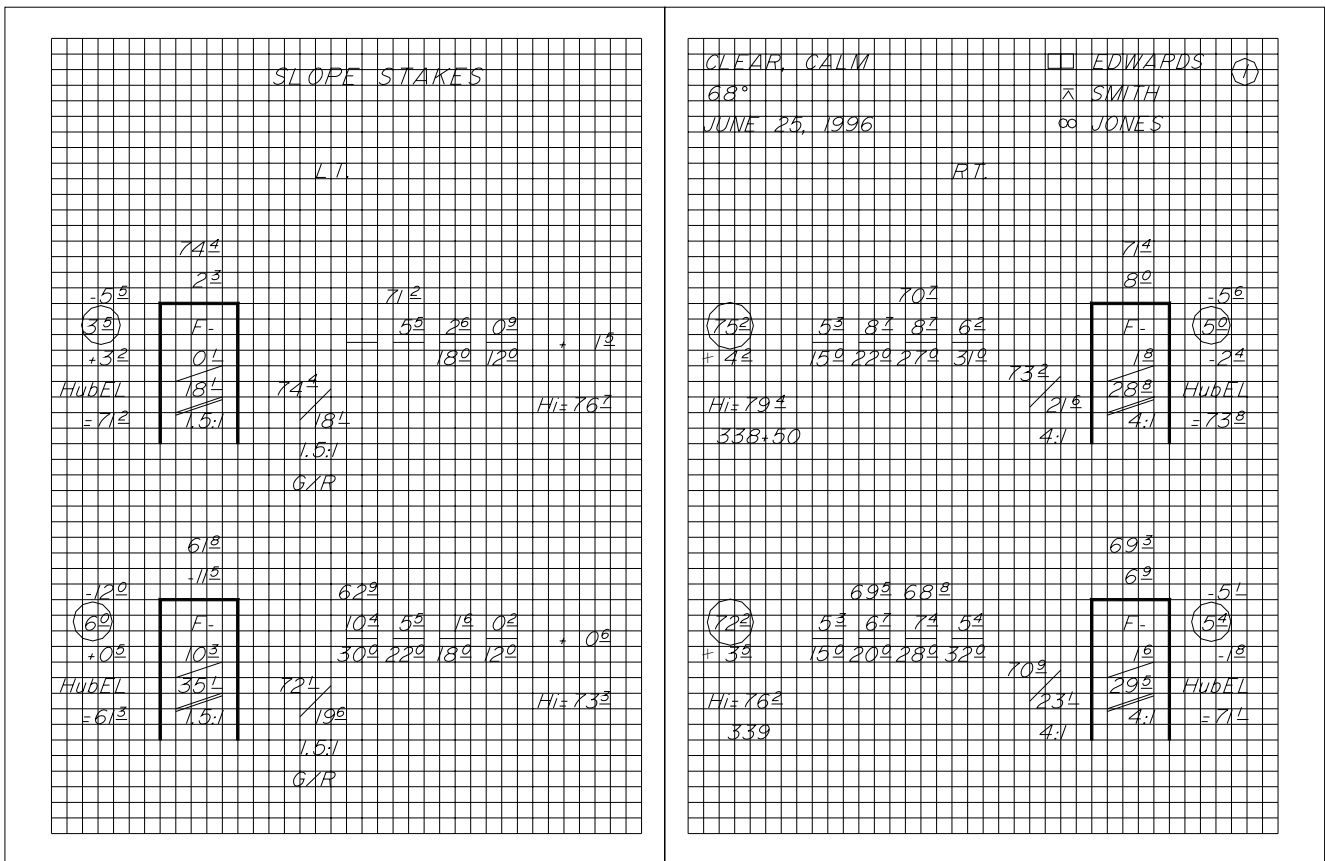
## 6. Typical level notes

- ✓ Balance back sights and foresights.
- ✓ Establish all benchmarks and take the centerline profile before doing any staking involving elevations.
- ✓ Don't set benchmarks in utility poles.
- ✓ Don't use side shots on benchmarks.
- ✓ Use the turn through method when establishing benchmarks.
- ✓ Re-check benchmarks after each major freeze/thaw cycle and/or any environmental event that may change the benchmark elevation.
- ✓ Do not use double rodding.
- ✓ Run separate level loops between all benchmarks.
- ✓ Set benchmarks in trees of at least six-inch diameter, unless approved by the Project Engineer.
- ✓ Correct errors in benchmark elevations so they will not affect the elevations of succeeding benchmarks.
- ✓ Consult with the Project Engineer before placing benchmarks in areas of permafrost or other unstable ground.
- ✓ Establish benchmarks at intervals and locations consistent with good engineering practice, and generally not more than 1000 feet.
- ✓ Completely describe benchmarks when establishing or re-establishing their elevation. Give centerline stationing, offset, benchmark projection, and observable benchmark characteristics. When checking into or out of benchmarks, note the book and page number that contains the most recent elevation establishment for that benchmark.
- ✓ Write the station on the top twelve inches facing centerline, with numerals a minimum of one inch in height.

STA.	BS+	HI	FS-	ELEV.	45'± CLEAR WARM CALM			⌘ □ EDWARDS
					WILD 413579	3-23-90		⊕ SMITH
TBM #101 6+72				161.309	Nail in base of 12" Spruce			
	3.877	165.186			85' 10" LT.			6+72
6+00			1.95	163.24				
6+25			2.32	162.87				
6+50			2.96	162.23				
T.P.			3.246	161.940				
	1.103	163.043						
6+75			2.31	160.73				
7+00			2.56	160.48				
T.P.			2.823	160.220				
	2.332	162.552						
					Nail in base of 18" stump			
TBM #102			1.143	161.409	60' 4" RT	7+21	Elev.	161.413

## 7. Typical slope stake notes

- ✓ Enter the station, elevations, shoulder distance or ditch distances, and slope in the slope stake book before staking begins.
- ✓ In areas where slides or overbreak are anticipated, extend the sections beyond the construction limits.
- ✓ Slope-stake each section that is cross-sectioned.
- ✓ Final re-cross sections are required where there are overbreaks, undercuts, etc. Re-cross section book and page numbers shall be noted on the original cross-section and slope staking page for the relevant stations.
- ✓ Include at least the following information on the stake: (1) where to begin the cut or fill (2) the slope ratio (3) the depth of cut or height of fill and (4) the station.
- ✓ Use a hand level only for one turn up or down from the instrument.
- ✓ Clearly note hand level turns.
- ✓ Use a reference point that is 10-20 feet beyond the slope stake.
- ✓ The reference point must show the cut or fill to the slope stake and must include the slope stake information.
- ✓ Slope stake all abrupt changes in typical sections.
- ✓ Position all laths to face centerline.

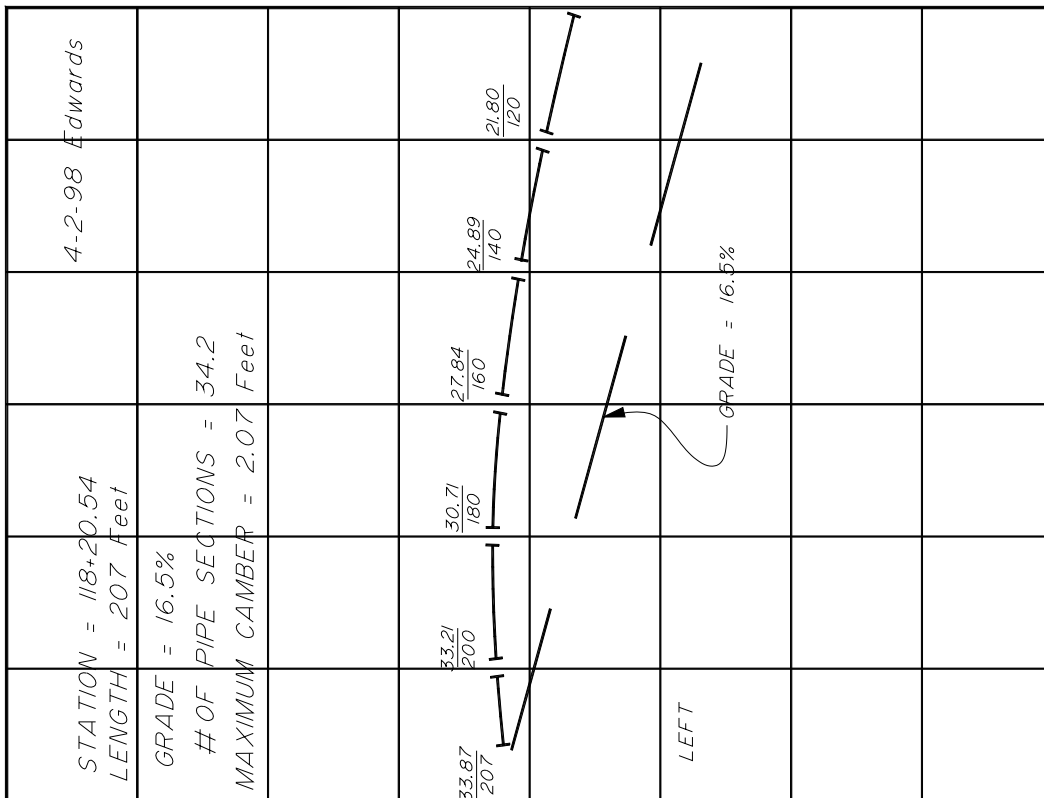
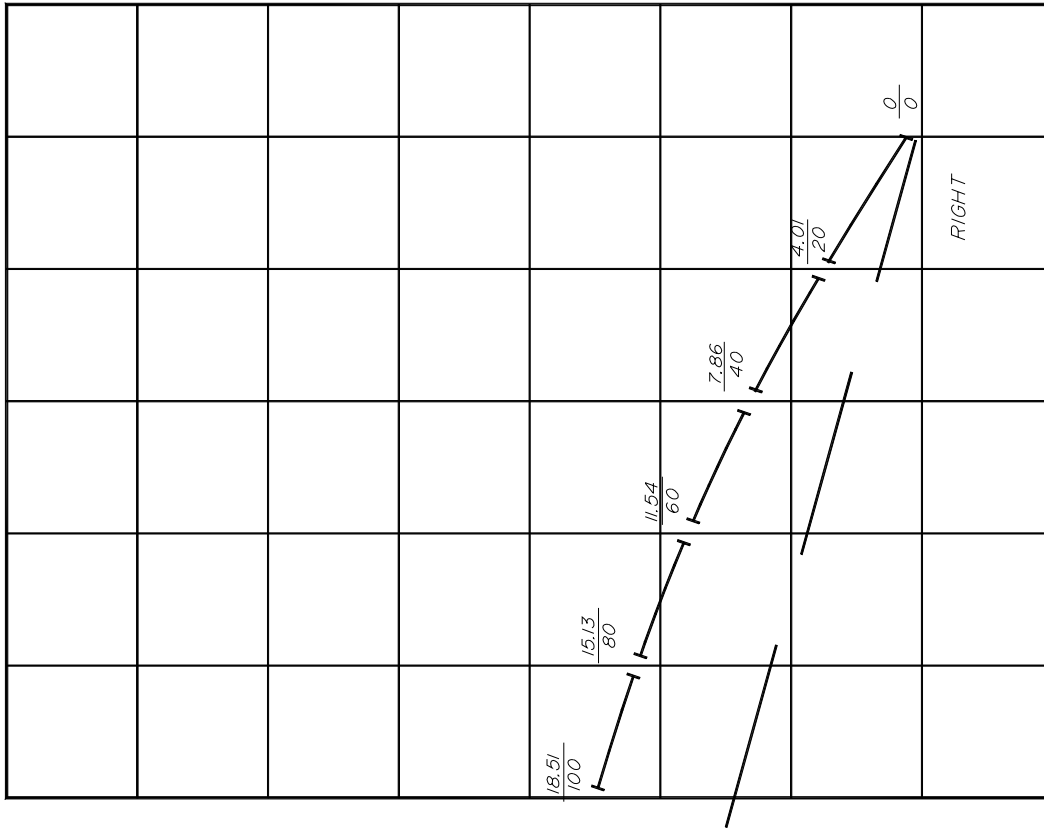


## 8. Typical culvert notes

- ✓ Show at least the following information on culvert stakes
  - station
  - size
  - length
  - type of pipe (e.g., 24" x 80' CMP)
  - cut or fill from top of hub to inlet & outlet
  - skew angle
  - horizontal distance from hub to end of pipe
  - gradient of pipe
  - drop of pipe
- ✓ Ensure that all culverts have a minimum camber equal to 1% of the length of the pipe, unless the Project Engineer directs otherwise.
- ✓ Develop a culvert camber diagram showing each section of pipe and its elevation and offset.

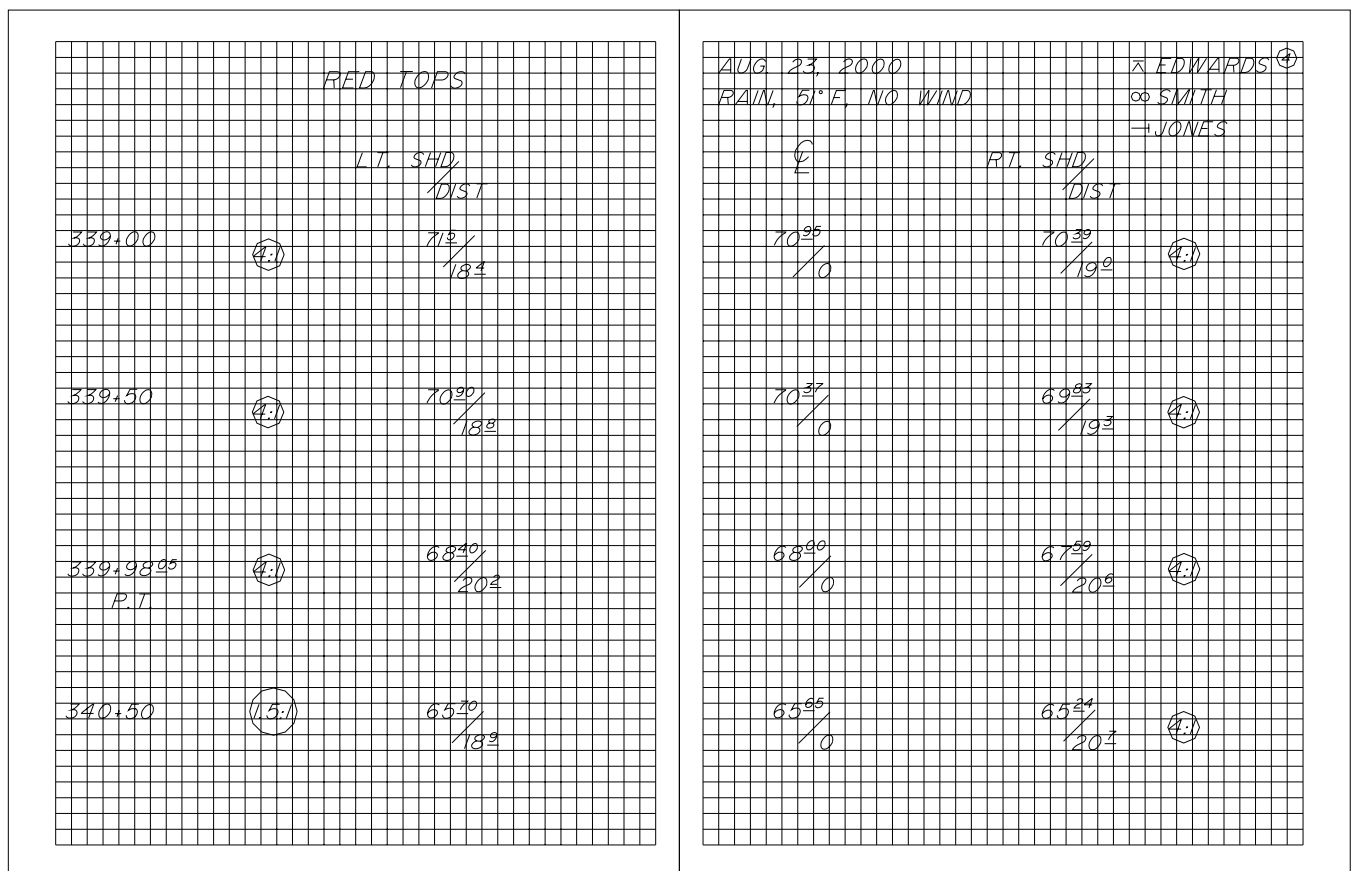
STA.	+	-	CMP STAKING	ELEV.	52"± OVERCAST L.T. BREEZE	Diagram	Notes
T.B.M. No. 101	871	Hi 6232	IRS	5361	5-25-90		EDWARDS SMITH
① Hub LATH		Z	164 1079	607 C-91 515 F-01		⑦2 Hub OUTLET INVERT=489	
② Hub LATH			1392 1270	484 F-09 496 C-07	343	344+27 24"X60" 5-4.5%	
CMP TRAY (EXISTING)			1345	489 C-09		①79 Hub INLET INVERT=516	
						L=24 L=5-12 0	

# 9. Typical culvert camber diagram



## 10. Typical blue or red tops and grade stake notes

- ✓ Place blue and red tops at each break in typical section and on centerline.
- ✓ Use blue tops for top of base course.
- ✓ Use red tops for the bottom of the base course.
- ✓ Evenly space red/blue tops at and between crown section break points with a maximum spacing of 25 feet between red/blue tops.
- ✓ Establish horizontal control from centerline references and vertical control from benchmarks.
- ✓ Place blue tops at the same interval as slope stakes.
- ✓ Stake all curve transitions.



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# **APPENDIX C**

## **Materials Sampling & Testing Frequency**

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency					Page 1 of 8	
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks	
Excavation	Acceptance	(5)	Gradation, P.I., Moisture (or visual description if organic)	1 per 5,000 C.Y. waste or undesignated waste cut	For unsuitable excavation number consecutively EX-W-1. No need to test if waste is designated on plans	
Embankment	Acceptance	(5)	Standard Density	As required by changes in material	Number consecutively BM-SD-1 or EX-SD-1	
			Field Density	1 per 1,500 C.Y. or 1 per 3,000 Tons (6)	Number consecutively BM-D-1 or EX-D-1.	
			Gradation, P.I. (4) and Deleterious (visual)	1 per 5,000 C.Y. or 1 per 10,000 Tons (6)	Number consecutively BM-G-1 or EX-G-1.	
	Independent Assurance	(5)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample.	
			Field Density (1)	1 per 15,000 C.Y. or 1 per 30,000 Tons		
		Gradation and Deleterious (visual)	1 per 50,000 C.Y. or 1 per 100,000 Tons			
Bedding & Backfill for Structures (Drainage Items, Ducts, Conduits, etc.)	Acceptance	(5)	Standard Density	As required by changes in material		Use numbers that correspond to acceptance samples. Include field test results with sample.
			Field Density	(1) (3)		
			Gradation, P.I., and Deleterious (visual)	1 per source or as required by change in material		
<p><b>General:</b> Independent Assurance (<b>IA</b>) Testing may be waived when Acceptance Testing is performed in DOT&amp;PF Regional Laboratories accredited in the specified test method. When DOT&amp;PF Regional Laboratories perform Acceptance Testing, they may also perform the IA Testing if using different personnel and equipment than was used for the Acceptance Testing.</p> <ol style="list-style-type: none"> <li>1) If material is Too Coarse to Test (<b>TCTT</b>) for field density, document quantity and/or area by reporting percent oversize and compactive effort used on a proper density acceptance form. IA Testing is not required when material (as shown by gradation testing) is TCTT. Any material can be rejected based on failure to meet any one of the criteria.</li> <li>2) Required when Standard Density test is run in the project laboratory.</li> <li>3) One density per structure (pipe, conduit, manhole, catch basin, inlet, utility vault, etc.), with a minimum of one density per 100 lineal feet of structure installed same day and same manner. Perform densities within 18 inches of the structure or outside diameter of the pipe. Frequency may be reduced to 1 per 200 lineal feet for electrical conduits when approved by Regional Quality Assurance Engineer (<b>RQE</b>) or Regional Materials Engineer (<b>RME</b>).</li> <li>4) Perform Plasticity Index (<b>P.I.</b>) tests on the first five samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.</li> <li>5) See the specified test method for minimum sample size.</li> <li>6) For large unclassified embankments, a field density and gradation testing frequency of 1/10,000 C.Y. or 1/20,000 Tons is acceptable subject to the approval of the RQE, RME or Statewide Materials Engineer (<b>SME</b>).</li> </ol>						



AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency					Page 2 of 8
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Subbase Course	Source Quality	150 lbs.	L.A. Wear, Degradation	1 per source prior to use or as required based on change in material	Allow minimum of 14 days for testing and transport. Number consecutively Q-SB-1 or Q-SC-1
	Acceptance	(6)	Standard Density	1 per source and as required based on change in material	Number consecutively SB-SD-1
			Field Density (1)	1 per 1,000 CY or 1 per 2,000 Tons	Number consecutively SB-D-1
			Gradation, L.L. P.I., Deleterious	1 per 2,500 CY or 1 per 5,000 Ton (3)	Number consecutively SB-G-1
	Independent Assurance	(6)	Standard Density (2)	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample.
			Field Density (1)	1 per 10,000 CY or 1 per 20,000 Tons	
Gradation, Deleterious, L.L., P.I.			1 per 25,000 CY or 1 per 50,000 Tons		
Aggregate Surface Course and Crushed Aggregate Base Course	Source Quality	150 lbs.	L.A. Wear, Degradation, Soundness	1 per source prior to use or as required based on change in material	Allow minimum 14 days for testing and transport. Number consecutively Q-SC-1 or Q-BC-1
	Acceptance	(6)	Standard Density	1 per source and as required based on change in material	Number consecutively SC-SD-1 or BC-SD-1
			Field Density	1 per 500 C.Y. or 1 per 1,000 Tons	Number consecutively BC-D-1 or SC-D-1
			Gradation, Fracture, Deleterious, L.L., P.I., SE	1 per 1,000 C.Y. or 1 per 2,000 Tons (3) (4) (5)	Number consecutively BC-G-1 or SC-G-1
	Independent Assurance	(6)	Standard Density	1 per source	Use numbers that correspond to acceptance samples. Include field test results with sample
			Field Density (2)	1 per 5,000 C.Y. or 1 per 10,000 Tons	
Gradation, Fracture, L.L., P.I., SE, Deleterious			1 per 10,000 CY or 1 per 20,000 Tons		
<p>(1) If material is impractical to test for field density, document quantity and/or area by reporting percent oversize and compactive effort used on a proper density acceptance form. IA density testing is not required when material (as shown by gradation testing) is TCTT.</p> <p>(2) Required when Standard Density is run in project laboratory.</p> <p>(3) Perform Liquid Limit (<b>L.L.</b>) and P.I. tests on the first five samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.</p> <p>(4) Fracture: If the first ten tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.</p> <p>(5) If the first five tests indicate the material meets specification for Sand Equivalent (<b>SE</b>), additional acceptance tests need only be performed when IA samples are taken. The SE test is not required for Aggregate Surface Course.</p> <p>(6) See the specified test method for minimum sample size.</p>					

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency					
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Plant Hot Mix Asphalt and Asphalt Treated Base Course	Source Quality	150 lbs. Aggregate	L.A. Wear, Degradation, Sodium Sulfate Loss	1 per source prior to use or as required based on changes in material	Allow 25 days for testing and transport
	Mix Design	500 lbs. (7) Aggregate	Mix Design (1) (2) Sand Equivalent (SE), Flat & Elongated (F&E), Fracture, L.L., P.I.	1 per source and as required based on changes in material	Allow 15 days or contract specified time for mix design and testing after receiving contractor's proposed gradation.
		5 one gallon. cans of AC,			
		1 pint of Anti-strip			
	Acceptance	(1) (8)	MSG (Maximum Specific Gravity)	1 per Lot (1) (9)	From Mix Design for the first lot and then from the first subplot of each additional lot
			Mat Density, Gradation, Oil Content, L.L., P.I., Fracture, F&E, SE, Deleterious, Thickness	1 per subplot (3) (4) (5) (6) (9)	Ross Count (AASHTO T 195, Coating Test) as required by RQE or RME.
			Joint Density	(1) (9)	Top Lift (1)
	Independent Assurance	(8)	MSG	1 per project minimum (1)	Required when MSG is run in the field.
			Mat Density, Gradation, Oil Content, L.L., P.I., Fracture, F&E, SE	1 per 10 sublots	Use numbers that correspond to acceptance samples. Include field test results with sample
	Information	30 lb	3-Marshall Biscuits or 2-gyratory samples	1 per Mix Design Minimum	Compare results to Mix Design.

- (1) Refer to project specifications.
- (2) Recommendations regarding anti-strip requirements must be determined for each mix design.
- (3) Perform L.L. and P.I. tests on the first five samples at the start of production from any source. If these tests indicate the material to be non-plastic, additional acceptance tests need only be performed when IA samples are taken. The RQE or RME may reduce the number of tests required if the source is known to have no value for liquid limit and be non-plastic.
- (4) Fracture: If the first ten tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples are taken.
- (5) SE: If the first five tests indicate the material meets specification for SE, additional acceptance tests need only be performed when IA samples are taken.
- (6) Perform Flat and Elongated (**F&E**) tests on the first five samples from any source. For known sources, the RQE or RME may waive this requirement.
- (7) For multiple stockpiles, proportion each stockpile sample to the proposed Job Mix Design blend ratio.
- (8) See the specified test method for minimum sample size.
- (9) May not be applicable to Asphalt Treated Base Course. Refer to project specifications.

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency					Page 4 of 8
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Asphalt Cement	Source Quality	See Remarks	(1)	1 per each grade and source prior to use	Manufacturer's certification required
	Acceptance (1)	Three 1-quart cans		1 per 50,000 gals. or 1 per 200 Tons	Sampled on project. Test for anti-strip if required by RQE or RME.
Liquid Asphalt for: a. Prime Coat b. Tack Coat c. Seal Coats d. Asphalt Surface Treatment	Source Quality	See Remarks	Type and Grading	1 per each grade and source prior to use	Manufacturer's certification required
	Acceptance	1 gallon in plastic jug (for emulsified asphalt)	(1)	1 per 50,000 gallons or 1 per 200 Tons	Sample must be tested by Lab that did not test material for Quality. Material sampled prior to dilution
Aggregate for Seal Coats and Asphalt Surface Treatments	Source Quality	150 lbs. Aggregate	Fracture, F&E, L.A. Wear, Soundness, Degradation	1 per source prior to use or as required by changes in material prior to use	Allow 25 days for testing and transport
	Acceptance	(4)	Gradation, Fracture, F&E, Deleterious (visual)	1 per 500 Tons (2) (3)	May be taken from stockpile or production
	Independent Assurance		Gradation, Fracture, F&E, Deleterious (visual)	1 per 5,000 Tons	May be taken from stockpile or production
<p>(1) Refer to project specifications.                      (2) Fracture: If the first ten tests indicate the fracture to be 5% or more above specification, additional acceptance tests need only be performed when IA samples taken/tested.                      (3) Perform F&amp;E tests on the first five samples from any source. For known sources, the RQE or RME may waive this requirement.                      (4) See the specified test method for minimum sample size.</p>					

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency					
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks
Portland Cement Concrete	Source Quality				
a. Cement and Cementitious	Quality	a. Two 1-gal cans, each	See Remarks	1 per shipment (2) (4)	Allow 40 days for testing and transport. Manufacturer's certification required
b. Water		b. ½ gal in glass jar	See Remarks	1 per source	Allow 20 days for testing or potable water accepted by Project Engineer.
c. Coarse Aggregate		c. 100 lbs	Deleterious Substances, L.A. wear, Soundness	1 per source	Allow 25 days for testing and transport.
d. Fine Aggregate		d. 25 lbs	Deleterious Substances, Soundness	1 per source	Allow 25 days for testing and transport.
Portland Cement Concrete	Mix Design Submittal (1) (3)				
a. Cement and Cementitious	Mix Design	a. 94 lbs., each	Mix Design Verification as required by RQE or RME	1 per source prior to use	For verification of Contractor-furnished mix design, allow 40 days for testing and transport
b. Water		b. None			
c. Coarse Aggregate		c. 330 lbs			
d. Fine Aggregate		d. 220 lbs			
e. Admixtures		e. 1 qt each			
<p>(1) Refer to project specifications.                      (2) Cement stored in silos or bins over six months, or in bags over three months, may require re-testing. See project specifications.                      (3) Manufacturer's certifications and aggregate test reports required.                      (4) Manufacturer's Certification for cement used on project may be accepted in lieu of sampling as approved by the RQE or RME</p>					

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency						Page 6 of 8
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks	
Concrete Continued:						
Coarse Aggregate	Acceptance	(5)	Gradation and; Deleterious (visual)	1 per 200 C.Y.	Number consecutively CA-G-1	
Fine Aggregate			Gradation, Deleterious (visual), Fineness Modulus	1 per 200 C.Y.	Number consecutively FA-G-1	
Mix		As required by test method	Temperature, Slump, % Air, Water/Cement Ratio, Unit Weight, Yield, Proportions per C.Y.	1 per ½ days pour (2) or 1 per 200 C.Y.	(3)	
		Cylinders or beams	Compressive strength or Flexural strength (1)	1 per ½ days pour (2) or 1 per 200 C.Y.	Mold two (6x12) or three (4x8) cylinders or 2 (6x6x20) beams. Test at 28 days. (1) (4)	
	Information	Cylinders or beams	Compressive strength or Flexural strength	As required (e.g. for 7 day break)	Mold two (6x12) or three (4x8) cylinders or 2 (6x6x20) beams "As Required" for Strength Data.	
Coarse Aggregate	Independent Assurance	(5)	Gradation and; Deleterious (visual)	1 per 2,000 C.Y. with minimum of 1 per project if over 100 C.Y. is placed	Use numbers that correspond to acceptance samples. Include field test results with sample.	
Fine Aggregate			Gradation, Deleterious (visual), Fineness Modulus			
Mix		As required by test method	Temperature, Slump, % Air, Water/Cement Ratio, Unit Weight, Yield, Proportions per C.Y.	1 per 2,000 C.Y.	Mold two (6x12) or three (4x8) cylinders or 2 (6x6x20) beams	
		Cylinders or beams	Compressive strength or Flexural strength	1 per 2,000 C.Y.		
(1) Refer to project specifications. (2) Half day's pour considered to be 6 hours or less. (3) Commercial sources which are periodically inspected do not have to be tested if day's total quantity of concrete placement is less than 5 C.Y. as determined by the Project Engineer. Placement reports summarizing all minor pours will be completed. (4) For non-structural or minor concrete construction, as determined by the RQE or RME, 1 set minimum per project is recommended. (5) See the specified test method for minimum sample size.						

AIRPORT CONSTRUCTION Materials Sampling & Testing Frequency						Page 7 of 8
Material	Type of Sample	Sample Size	Type of Tests	Frequency	Remarks	
Misc. Hardware	Source Quality	(1)		1 per pay item or assembly, min.	Approved by designated authority; reference MCL	
Concrete Reinforcing Steel	Source Quality	(2)		1 for each type, grade and size in a shipment	Approved by designated authority; reference MCL	
Joint Sealer, Joint Filler, and Curing Materials for Concrete	Source Quality	1 Quart for each liquid (see remarks)	(1) See remarks	1 per type	Project Engineer documentation if on QPL. If not on QPL, manufacturer's certification or sample for testing.	
Porous Backfill	Acceptance	(3)	Gradation, Deleterious (visual)	1 per source or as required by change in material	Number consecutively PB-G-1	
Topsoil	Source Quality	15 lbs.	Organic content, Gradation, pH	1 per source prior to use or as required by changes in material	Allow 15 days for testing and transport	
	Acceptance	(3)	Gradation	1 per 15,000 Square Yards or 1 per 2,500 cubic yards	Number consecutively TS-G-1	
Signals and Lighting	Quality and Acceptance	Within 30 days following award of the contract, the contractor shall submit to the Project Engineer for approval a complete list of material and equipment that is proposed to be used for this item. The data shall include catalog cuts, diagrams, test reports, manufacturers' certifications, etc. The above data shall be submitted in eight sets. Any proposed deviation from the plans shall also be submitted.				
<p>(1) Certificates of Compliance per Specifications GCP- 60.                      (2) Mill Test Reports to include heat numbers, fabrication date, physical and chemical properties.                      (3) See the specified test method for minimum sample size.</p>						

**Acceptance of Minor Quantities and Installations**

- A. Portland Cement Concrete.** Concrete for the following items **may** be accepted on the basis of an approved mix design and placement reports documenting batch information and pour location, time, and quantity. Under this system arrangements should be made for the producer to state on the delivery ticket accompanying each load of concrete, the class of concrete being furnished, the weights of cement, aggregates and water used in the batch, and the time of batching. Use only State-tested aggregates and cement, or supplier certified cement, approved by the RQE, RME, or Statewide Materials Engineer (SME). Each pour must be documented on a Concrete Placement Report.
1. Sidewalks - not to exceed 150 square yards per day.
  2. Curb and gutter, not to exceed approximately 250 lineal feet per day
  3. Slope paving and headers.
  4. Paved Ditches and flumes.
  5. Manhole bases, Catch Basins, Inlets and Inspection Holes.
  6. Small culvert headwalls and Miscellaneous Drainage Structures.
  7. Fence Post Footings.
  8. Sign Post footings.
  9. Cable Markers
- B. Small Quantities of Miscellaneous Materials.** The primary documentation of delivery and placement may be the Project Materials Report.
1. Aggregates—not to exceed 500 Tons per item per project.
  2. Asphalt/Aggregate Mixtures—not to exceed 1,500 Tons per approved mix design per project.
  3. Asphalt Cement—not to exceed 85 Tons or 15 Tons for other liquid asphalt per project.
  4. Paint—not to exceed 20 Gallons per project. Acceptance to be based on weights and analysis on the container label.
  5. Masonry Items—Subject to checking of nominal size and visual inspection. Not to exceed 100 pieces.
  6. Plain concrete or clay pipe— not to exceed 100 lineal feet.
  7. Topsoil—not to exceed 600 square yards.

# **APPENDIX D**

## **Construction Safety and Phasing Plan**



**CONSTRUCTION SAFETY AND PHASING PLAN**

**JUNEAU INTERNATIONAL AIRPORT**

**CARGO HARDSTAND**

**CBJ PROJECT NO. BE17-035**

**PFC NO. PFC 04-07-C-04-JNU**

**Juneau, Alaska**

FINAL

July 5, 2016

*Prepared on Behalf of the Sponsor:*

City and Borough of Juneau  
Juneau International Airport  
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Juneau, Alaska 99801

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## INTRODUCTION

On September 29, 2011 the Federal Aviation Administration issued the advisory circular addressing airport construction safety. This current document is AC 150/5370-2F *Operational Safety on Airports During Construction*.

It can be downloaded from:

[http://www.faa.gov/airports/resources/advisory\\_circulars/](http://www.faa.gov/airports/resources/advisory_circulars/)

The revised advisory circular (Safety AC) mandates the format and content of both the Construction Safety and Phasing Plan (this document) and the Safety Plan Compliance Document that must be prepared by the Contractor. This project uses Alaska Department of Transportation & Public Facility (DOT&PF) Standard Specifications for Airport Construction adapted for CBJ. As of the date of advertisement of this project, the Alaska Department of Transportation & Public Facilities has not revised the Alaska Standard Specifications for Airport Construction to address this major revision to the Safety AC. The Construction Safety and Phasing Plan and Safety Plan Compliance Document, now supersede all references in the Alaska Standard Specifications for Airport Construction to construction safety plans, security plans, and construction phasing or staging plans.

The Contractor's work schedule, including the critical path method schedule, is included in the Safety Plan Compliance Document, under section 2, Phasing. See the Safety AC.

The Federal Aviation Administration intends the Construction Safety and Phasing Plan and the Safety Plan Compliance Document to be "stand-alone" documents that can be circulated to the relevant sections of the Federal Aviation Administration for review and approval within the Safety Management System which is also undergoing current development.

Safety Plan sheets and Construction Phasing Plans within the project plans are referred to in the Construction Safety and Phasing Plan and Safety Plan Compliance Document as Construction Safety Drawings, as dictated by the Safety AC. The Federal Aviation Administration requires that the Construction Safety and Phasing Plan, as submitted for their review, include those plans as an appendix.

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**APPENDICES**

Appendix A – Construction Safety Drawings

## ACRONYMS

<u>Acronym</u>	<u>Definition</u>
AAC	Alaska Administrative Code
AC	advisory circular
ADEC	Alaska Department of Environmental Conservation
AOA	Airport Operation Areas
ARFF	Airport Rescue and Fire Fighting
ASC	Airport Security Coordinator
ASO	Airport Safety Officer
ATC	Air Traffic Control
ATO	Air Traffic Organization
CAP	Civil Air Patrol
CBJ	City and Borough of Juneau
CFR	Code of Federal Regulations
CHRC	Criminal History Records Check
CSPP	Construction Safety and Phasing Plan
DOT&PF	Alaska Department of Transportation & Public Facilities
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FFWFO	Fairbanks Fish & Wildlife Field Office
FOD	foreign object debris
FSS	Flight Service Station
GA	General Aviation
HAZMAT	hazardous materials
HMCP	Hazardous Materials Control Plan
IFR	instrument flight rules
ILS	Instrument landing system
JAWS	Juneau Airport Wind System
JNU	Juneau International Airport
LDIN	lead-in lights
LED	light-emitting diode
MALSR	medium intensity approach lighting system with runway alignment indicator lights
MSDS	Material Safety Data Sheets
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	navigational aid
NOTAM	Notice to Airman
NW	northwest
OFA	object free area
OFZ	obstacle free zone
PAPI	precision approach path indicator
REIL	runway end identifier lights
ROFA	runway object free areas
RSA	runway safety area
RVR	runway visual range
RW	Runway
SAE	Society of Automotive Engineers
SIDA	Security Identification Display Area

<b><u>Acronym</u></b>	<b><u>Definition</u></b>
SPCC	Spill Prevention, Control and Countermeasure
SPCD	Safety Plan Compliance Document
SSCA	Standard Specifications for Airport Construction
STA	Security Threat Assessment
SWPPP	Storm Water Pollution Prevention Plan
TOFA	Taxiway Object Free Area
TSA	Transportation Security Administration
TSA	Taxiway Safety Area
TW	Taxiway
VASI	visual approach slope indicator
VFR	visual flight rules



## (1) COORDINATION

Construction on an active airport can require intense coordination effort early in the project to ensure construction proceeds smoothly and in an orderly fashion. This effort will provide a safe work environment for construction, and minimize disruption to the airport's daily operations. The coordination effort continues throughout the project to help guarantee that changes during construction can be dealt with by all parties concerned, and that these changes minimize or eliminate any negative impacts to airport operation, safety and security.

The Airport holds the primary responsibility for virtually all aspects of the airport's operation, safety, and security. Your point of contact with the Airport is through the Owner's Representative. The Airport will provide training instruction and material to you, and your subcontractors to provide for proper access, airport security, radio communication, vehicle operation, and any safety procedures or precautions. Plan your first meeting with the Airport, through the Owner's Representative, prior to preparing your Safety Plan Compliance Document (SPCD) and construction phasing plan, which you must submit prior to the preconstruction conference. More information on the SPCD can be found in section 2b below. The training mentioned above will usually occur after the preconstruction conference, but always before any work begins on airport property.

The rest of this document provides information on some of the coordination, limitations, and restrictions that will be required to accomplish this project. Some details have been left for you to provide, so that you may accomplish the work according to your own means and methods, as much as practical. Your plans to complete the work are of course, subject to approval by the Owner's Representative, and will require coordination and review by the Airport, Federal Aviation Administration (FAA), and possibly numerous other organizations or individuals. Early coordination, sticking to the plan, and trying not to surprise anyone, will be key to smooth operations, for both you and the Airport.

**Coordination Through the Owner's Representative:** Whenever the project documents call for coordination, notification, contact, or other interaction with FAA, airport management; maintenance and operations; Airport Rescue and Fire Fighting (ARFF) personnel; airport tenants; airport users; any local, state, or federal agency, group, or association; or the general public, such activity shall be done through, in the presence of, or with the written approval of the Owner's Representative. Allow sufficient time for coordination and approvals within proposed work schedules.

Required lead times for coordination with certain groups:

<b>Entity / Group / Agency / Organization</b>	<b>Lead Time for coordination</b>
FAA – navigational aid (NAVAID) outages*	45 days
Airport**	7 days
ARFF**	7 days
Airport Tenants / Users	7 days
Air Carriers	7 days

\* Other notifications to FAA requiring different lead times are shown in section 9e below.

\*\* Any issue involving airport safety or security, and all emergencies or accidents require immediate notification.

### **(a) Contractor Progress Meetings**

Administer and hold weekly progress meetings with the Owner's Representative at the time and place agreed to at the preconstruction conference. At a minimum, representatives from the following will be invited to attend the weekly meetings:

- Local FAA maintenance and operations
- Juneau International Airport (JNU) Flight Service Station (FSS)
- JNU Air Traffic Control (ATC)
- Airport Management
- Airport Maintenance
- JNU ARFF Department
- Airport Safety Officer (ASO)
- Parties expressing interest from the airport stakeholders list

Keep airport safety and security as a standing agenda item for the meetings. Keep all parties informed of status and changes of airport surfaces in relation to aircraft and ground traffic. A project base map will be provided by the Owner's Representative for preparing drawings. At each meeting provide a detailed two week schedule and updated drawings indicating routes for aircraft and ground traffic movement and areas closed for construction on a weekly basis.

The Airport will provide a room and a telephone for holding progress meetings so people can attend in person or by telephone. Distribute approved schedule and drawings by email or fax when required.

### **(b) Coordination with Other Projects**

This project may be constructed simultaneously with other projects on the airport. You may be required to coordinate work schedules, haul routes, and safety plans with other Contractors on a weekly basis. Coordination shall take place with the Airport and the Owner's Representative present.

### **(c) Scope or Schedule Changes**

Scope and schedule changes must be approved in writing by the Owner's Representative. Changes to either scope or schedule may require additional coordination with FAA; Airport Management; ARFF personnel; airport stakeholders; other local, state, or federal agencies; or the public. Do not begin work that will result in a change in scope or schedule without coordinating with the Owner's Representative, and obtaining written approval.

#### **(d) FAA ATO Coordination**

All coordination with FAA Air Traffic Organization (ATO) will be conducted by Airport Management in coordination with the Owner's Representative. The Contractor may be present if necessary. If necessary, coordination with FAA ATO will be required 45 days prior to removing any NAVAIDs from service.

**No NAVAIDs are expected to be removed from service from this project.** During the course of work, if it becomes necessary to impact a NAVAID, provide all required support, including meeting attendance, scheduling, and project documentation required to conduct this coordination. Putting NAVAIDs back in service will also require coordination with FAA. Any NAVAID impacted by construction (both FAA and Airport owned) may require a FAA flight check certification before being put back in service. Conduct all required coordination efforts with FAA through the Owner's Representative to prepare for, and schedule, any required flight checks.

#### **(2) PHASING**

##### **(a) Phase Elements**

The Juneau International Airport (JNU) Cargo Hardstand project will be constructed in a single phase. However, specific sequencing of activities may be required to continue safe operation of the airport.

The project will establish a temporary aircraft parking position, including delineation of a temporary SIDA. The project will remove existing pavement from the cargo apron southeast of Alaska Airlines Cargo facility, construct a new concrete hardstand, and repaint lead-in lines, tug road, SIDA, and aircraft parking position markings.

Low profile barriers shall be used to delineate limits of work and portions of the closed apron. Contractor must provide information to the Owner's Representative so that tenants that use the main apron can be notified 7 days in advance of work.

##### **(b) Construction Safety Drawings**

Construction safety drawings are included as an appendix to this document (Appendix A) and are included in the construction plans. The drawings are available in Autodesk format (\*.dwg) files, and as Adobe (\*.pdf) format, through the Owner's Representative. If needed, the Contractor may request to modify these drawings to fit the proposed means and methods to complete the project. Submit the construction safety drawings, and any revisions, along with a work schedule and SPCD for approval 10 days prior to the preconstruction conference.

Requirements and details for the SPCD can be found in advisory circular (AC) 150/5370-2 *Operational Safety on Airports During Construction*. The latest edition of this AC and most others can be obtained free of charge from the FAA on the internet.

[http://www.faa.gov/airports/resources/advisory\\_circulars/](http://www.faa.gov/airports/resources/advisory_circulars/)

The Construction Safety and Phasing Plan (CSPP) (this document) is also available through the Owner's Representative in either Microsoft Word (\*.doc) or Adobe (\*.pdf) formats.

### **(3) AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY**

#### **(a) Identification of Affected Areas**

Known affected areas are shown on the construction safety drawings included in this document (Appendix A) and in the construction plans. If other affected areas become known during the construction process they must be added to the drawings and submitted to the Owner's Representative for approval. Work in other affected areas is prohibited until the written approval of the revised SPCD and construction safety drawings is received from the Owner's Representative.

#### **(i) Closing, or Partial Closing of Runways, Taxiways, and Aprons**

The cargo apron in front of Alaska Airlines Cargo where the cargo jet currently parks on the west side of the main apron will be closed. The existing tug road through the work area will be also be closed prior to closing the cargo apron.

#### **(ii) Closing of ARFF Access Routes**

No closing of ARFF routes is anticipated. Coordinate with ARFF regarding area closures, and provide safe access routes through or around construction areas as required.

#### **(iii) Closing of Access Routes Used by Airport and Airline Support Vehicles**

The existing tug road west of the existing parking location will be closed until the access route can be permanently relocated east of the work area. All tug road traffic will be required to use the tug road east of the main ramp taxilane as an alternative during the work.

#### **(iv) Interruption of Utilities, Including Water Supplies for Firefighting**

There are no known water supply lines within the work area. This does not relieve you from any responsibility specified in the general contract provisions. You must still request utility locates as required by the general contract provisions.

#### **(v) Approach/Departure Surfaces Affected By Heights of Objects**

Concrete pumping equipment may penetrate the Part 77 Transitional Surface.

#### **(vi) Staging Areas, and Haul Routes in the Airport Operation Area (AOA)**

Hauling across active movement areas (runway and taxiways) is prohibited. All staging areas and haul routes in the AOA (inside the fence, also known as the restricted area) will be kept away from active movement area and ramps to the extent practicable. Hauling will be required on the active main apron taxilane via the established tug road from Gate F to the project area. **Aircraft have right-of-way at all times.** Haul routes that approach the active movement areas and/or ramps must be marked and manned by airport flaggers to prevent disruption of aircraft operations.

**(b) Mitigation of Effects**

**(i) Temporary Changes to Runway and or Taxi Operations**

All construction related activities on airport property will be coordinated with the Airport, and airport users, prior to beginning work.

**(4) PROTECTION OF NAVIGATION AIDS (NAVAIDS)**

**(a) NAVAIDs Required To Be Taken Out Of Service**

No NAVAIDs are expected to be impacted by the work.

**(i) Coordination with FAA**

Conduct coordination with FAA as detailed under Section 1c above.

**(ii) Issuance of Notices to Airmen (NOTAMs)**

NOTAMs will be issued as detailed in section 9b below.

**(iii) Protection of Underground Utilities Serving NAVAIDs**

Protect underground power supply as detailed in Section 11 below.

**(5) CONTRACTOR ACCESS**

**(a) Location of Stockpiled Construction Materials**

See the construction safety drawings included in this document (Appendix A) for possible stockpile location. Stockpiles will be limited to the Contractor staging area or other off-airport locations as approved.

**(b) Vehicle and Pedestrian Operations**

**(i) Authorized Vehicles**

All vehicles must meet the following conditions as specified in AC 150/5210-5:

**(ii) Vehicle Color**

The Airport allows vehicles to be any color or combination of colors including solid black or white

**(iii) Vehicle Lighting**

All vehicles when entering the AOA must be identified by a yellow amber flashing light. Lights must flash at  $75 \pm 15$  flashes per minute. Lights must have peak intensity within the range of 40 to 400

candelas (effective) from 0° (horizontal) up to 10° above the horizontal and for 360° horizontally. The upper limit of 400 candelas (effective) is necessary to avoid damage to night vision. From 10° to 15° above the horizontal plane, the light output must be 1/10th of peak intensity or between 4 and 40 candelas (effective). (IAW AC 150/5210-5, paragraph 5b and c.)

- Yellow amber flashing light per the following chromaticity requirements: The Society of Automotive Engineers (SAE) Standard J578 Revised December 2006, *Color Specification*, defines the acceptable color boundary limits and measurement of emitted red, white, signal blue, and yellow light for vehicle lights. This standard applies to the overall emitted color of light from the device in lieu of emitted light from any small area of the lens. The color of emitted light must fall within the color boundaries per SAE J578 Revised December 2006 (color boundary equations are in the standard) using color measurement methods detailed in the standard. See FAA Engineering Brief #67, *Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures*, for additional information and Alternative Lighting Devices.

#### (iv) Vehicle Markings

All vehicles will have a flag on a staff attached to the vehicle so that the flag will be readily visible when entering the AOA. The flag must be at least a 3-foot by 3-foot square having a checkered pattern of international orange and white squares at least 1-foot on each side (IAW AC 150/5210-5, paragraph 4d.). In addition, vehicles will be marked with company or vendor information on both sides. The company or vendor information needs to be large enough to read from afar and affixed to the vehicle, magnetic placards are allowed.

Vehicles are not allowed to operate on active movement areas unless authorized by the Airport Safety Officer (ASO). All vehicles operating in the AOA shall be in good operating condition and free of fluid leaks. The Airport may refuse to permit access or direct the removal of any vehicles not meeting these requirements.

#### (v) Authorization to Operate Contractor Vehicles

All Contractor vehicle operators must present a valid driver's license to the Airport to receive authorization to operate a vehicle on airport property. In addition, all operators will be SIDA badged before operating in the AOA; see Section (3)(d) Airport Security. No exceptions will be made to allow non-badged personnel to operate a vehicle or work within the AOA.

All Contractor employees who operate vehicles must complete driver training required by the Airport. The training must be repeated annually. Training records will be maintained by the Airport for each authorized driver.

Contractor vehicle operators on airports face conditions that are not normally encountered during highway driving. Therefore, those persons who have vehicular access to the AOA must have an appropriate level of knowledge of airport rules and regulations. **The Contractor will not operate in the active movement area without control and permission from the ASO. At no time will the Contractor speak to or coordinate with ATC.**

The ASO has full authority to coordinate and direct movement around the Airport. This is to ensure that no vehicle interferes with the safe operation of aircraft on the airport. To ensure proper control, contractor vehicles and flaggers will need company radios to receive instruction from the ASO.

#### **(vi) Area of Authorization**

Contractor personnel and vehicles are only authorized in the areas where contract work is being performed and on the designated access routes to and from that area.

#### **(vii) Access Control Proximity Cards**

The Airport will issue access control proximity cards during the badging process to enable the Contractor to access restricted areas. All access is controlled by the Airport. The Contractor shall not duplicate any access control proximity card or allow any person other than those authorized by the Airport to receive and use them. The Contractor shall immediately notify the Airport of lost, stolen, or unrecovered access control proximity cards so their access can be deactivated. The Contractor will be responsible for lost, stolen, or unrecovered access control proximity cards, and must pay a fine for the replacement of badges and access control devices.

#### **(viii) Construction Employee Parking Areas**

In addition to information included elsewhere in the CSPP, the following provisions apply:

- Coordinate vehicle parking areas for Contractor employees with the Owner's Representative and designate parking areas in advance to prevent damage to Airport or private property and prevent unsafe conditions.
- Do not park, or operate motorized vehicles on vegetated unimproved surfaces.
- Do not park vehicles within 15 feet of any roadway open to traffic unless otherwise approved by the ASO.
- All parked vehicles must be at least 6 feet from the perimeter fence (inside and outside).

#### **(ix) Construction Vehicle and Equipment Parking**

Contractor staging areas for work on the JNU Cargo Hardstand project are available within the work area, subject to the conditions cited in this section. Before occupying a temporary use/staging area, mark the staging area limits with lath and flagging or other measure and then arrange a joint inspection with the Owner's Representative to record (either by photograph or video) the area's original condition. Do not stage motorized equipment on dirt surfaces in the staging area without a drip pan. Equipment not actively employed in the work is to be removed from the work area and returned to the staging area. When the area is no longer needed, arrange a joint inspection with the Owner's Representative to ensure you have returned the staging area to an acceptable improved condition.

### **(c) Two-Way Radio Communications**

Two-way radio communications with JNU ATC will be performed by the ASO assigned to the Contractor. All other construction-related radio communications shall be limited to Federal Communications Commission (FCC) approved frequencies or radio bands. The ASO shall be equipped by the Contractor with a construction radio and information on bands normally used.

Contractor will be under the control and supervision of an ASO at all times while the Contractor is working within the movement areas. Further, the ASO has authority to control contractor traffic while operating in the non-movement areas of the AOA (ramps, roadways, gates, etc.).

### **(d) Airport Security**

Federal Regulations require the Airport to control access and prevent unauthorized persons from entering the AOA. In compliance with this requirement, the Airport has established procedures to authorize or deny access to these restricted areas and to identify and control persons and vehicles while in these areas. All Contractor employees are required to obtain a Security Identification Display Area (SIDA) badge before being allowed into the AOA.

Transportation Security Administration (TSA) regulations require that everyone who requires a SIDA badge undergo a Security Threat Assessment (STA). The Airport requires SIDA badges for all Contractors and their employees. To obtain a SIDA badge the applicant will also have to go through a Criminal History Records Check (CHRC), which requires fingerprinting, and display approved identification media. A STA can take up to two (2) weeks, or longer, before approval is granted. Further delays could result from improperly completed badge applications or shortfalls in the presentation of proper identification documentation (see U.S. Government I-9 Form).

The Contractor must provide a completed airport badge applications for each worker that will require access to AOA, and will coordinate these badge applications with the Airport. No individual will be provided AOA access until application and badging processes are complete. The security badging process shall be completed in person in Juneau, Alaska.

Security violations may result in a \$10,000 fine, or any other amount as assessed by the TSA. Persons found in restricted areas (AOA) not in compliance with these requirements will be removed from the area and action will be taken against violators as appropriate under the JNU Airport Security Plan.

The Airport has full authority for control of access to restricted areas (AOA). Proper individual access application, airport issued photo identification badges, vehicle operator authorization, and issuance of access proximity cards must be obtained through the Airport before entering restricted areas.

For complete information on JNU badging requirements visit:

<http://www.juneau.org/airport/badging.php>

### **(i) Authorized Personnel**

All Contractor personnel seeking access to restricted areas shall complete a badge application, complete required security clearance checks, and receive familiarization training before authorization from the Airport will be granted to enter restricted areas.



The Contractor shall assign a responsible person the duty of Authorized Signatory. This responsible person should be an owner or high level staff member within the Contractor's organization. The Authorized Signatory must complete all requirements for the SIDA badge (i.e. the Authorized Signatory needs to be badged for the types of badges they will sign):

- SIDA=STA, notify/selectee lists, and CHRC

Prior to sending any applications to the Airport, the Authorized Signatory shall be responsible for reviewing each badge application for completeness, verifying that each applicant has the correct documents that provide identity and work authorization, ensuring that the applicant has completed the SIDA and Ramp test, and that the applicant has the correct badge application fees. The Authorized Signatory will then sign the badge application. The Authorized Signatory shall be responsible for maintaining control of all badges and control access media issued to the Contractor. The Authorized Signatory must meet all security clearance requirements for the types of badges signed.

The Contractor shall notify the Airport within 24 hours whenever an authorized person is terminated, for any reason, or if any badge is lost or stolen so the Airport can disable access for those badges.

All identification badges shall be issued by the Airport. The Contractor, through the use of the Authorized Signatory, shall ensure that badges are returned to the Airport at the completion of the project or upon termination of any employee badge holder. Regular badge fees:

- Processing Fee, Badge, & Access Media \$35
- Deposit \$50
- Fingerprinting Fees \$50
- Lost or Unaccounted Badges \$200

## **(6) WILDLIFE MANAGEMENT**

The primary wildlife safety concern at JNU is birds. Birds are attracted by possible sources of food (including food in a vehicle or outside of a vehicle), or areas that may provide shelter. Of secondary concern, are mammals such as bears, deer, and foxes or other animals that would constitute a danger to operating aircraft, or possibly cause damage to airfield fences or other equipment. Report the presence of birds or animals within the airport property to the Airport in accordance with the Airport's Wildlife Hazard Management Plan. Do not attempt to disperse birds or animals.

### **(a) Trash**

Control and contain trash within all work areas, and especially within the airport property. It is the responsibility of all personnel who work at JNU to pick up trash and debris on the airfield. In some cases, this may simply be a blowing candy wrapper or bag. Do not leave trash from food inside a vehicle or in the bed of a vehicle. When the source of the attractant is the result of a failure to properly secure garbage or food in an enclosed facility or container, the Airport will contact the responsible party in an

effort to remedy the situation. If removal or securing of the attractant does not cause the birds to leave the area, a member of the Wildlife Patrol will be contacted to disperse the birds.

Fish or animal carcasses that attract birds or wildlife can be a safety hazard. Report the presence of fish or animal carcasses to the Airport, so they can be removed.

#### **(b) Standing Water**

Areas of standing and flowing water on and surrounding the airfield contribute to the presence of numerous species of hazardous wildlife. In some cases, these water sources provide a food attractant in the form of fish and aquatic invertebrates. Standing water at construction areas will not be allowed. Provide adequate drainage, and erosion and sediment control measures to prevent attracting birds and other wildlife.

#### **(c) Poorly Maintained Fencing and Gates**

Maintain airfield security by manning gates that must be kept open for hauling. Fences or gates that are damaged by construction activities or contractor negligence must be repaired immediately at no cost to the Airport. All repairs are subject to inspection and approval of the Owner's Representative. Follow all airport gate procedures. Report all damage to fences or gates to the Airport through the Owner's Representative, whether caused by the Contractor's activities, or otherwise observed.

#### **(d) Disruption of Existing Wildlife Habitat**

The project has been properly permitted with the regulatory agencies having jurisdiction. Disruption of existing wildlife habitat beyond the project footprint is prohibited.

### **(7) FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT**

Control of foreign object debris (FOD) is a primary concern to safe airport operation. FOD is any object, live or not, located in an inappropriate location in the airport environment that has the capacity to injure airport or air carrier personnel and damage aircraft. If an object can be picked up by a human hand, no matter how small, it is FOD. Due to the proximity of the project area to main ramp jet operations and the adjacent helicopter operations, FOD will not be tolerated at the work area or on adjacent surfaces as a result of the work. All debris must be removed from operational surfaces upon discovery, or notification. Provide a pick-up broom truck (street sweeper) or other approved machinery and equipment to accomplish this task. Approved FOD removal equipment must be present on-site before beginning any activity that may result in FOD generation.

Reinforce the importance of FOD management at weekly contractor progress meetings. Discuss any occurrences or issues in the previous week, or potential improvements to ongoing practices. This can include trash management as discussed under section 6a.

### **(a) Inspections**

Participate in daily safety and final inspections as required in section 10 below. Take immediate action as required to cleanup and prevent FOD on operational surfaces.

If the Airport, Owner's Representative, or the ASO determine that a surface is not adequately cleaned, they will verbally notify the Contractor, and log the communication in the inspection log. The Contractor will have 15 minutes to begin cleanup of the area. If the area is not adequately cleaned, the Airport will provide clean-up services and charge the Contractor for the service, with a minimum two (2) hour call out for personnel and equipment. The airport pick-up broom truck will be charged at a rate of \$120/hour including operator. The airport runway broom vehicle will be charged at a rate of \$200/hour.

### **(b) Hauling**

Do not haul on or across paved surfaces (even when closed) unless approved by the Owner's Representative in writing on the SPCD. Ensure all vehicles that must cross active areas to perform inspections, temporary marking maintenance, or other required activities are swept clean and checked for loose materials, equipment, tools, or other objects that may become FOD.

## **(8) HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT**

Develop a Hazardous Materials Control Plan (HMCP), and Spill Prevention, Control and Countermeasure (SPCC) plan as required by the standard specification P-157 as quoted below:

*Prepare the HMCP for prevention of pollution from storage, use, containment, cleanup, and disposal of all HAZMAT, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the Storm Water Pollution Prevention Plan (SWPPP.) Compile Material Safety Data Sheets (MSDS) in one location and reference that location in the HMCP.*

Designate a Contractor's Spill Response Field Representative and provide 24-hour contact information. Designate a Subcontractor Spill Response Coordinator for each subcontractor. The Superintendent and Contractor's Spill Response Field Representative must have 24-hour contact information for each Subcontractor Spill Response Coordinator and the Utility Spill Response Coordinator.

List and give the location and estimated quantities of HAZMAT (Including materials or substances listed in 40 Code of Federal Regulations (CFR\_ 117 and 302, and petroleum products) to be used or stored on the Project. HAZMAT must be stored in covered storage areas. Include secondary containment for all HAZMAT storage areas.

Identify the locations where fueling and maintenance activities will take place, describe the activities, and list controls to prevent the accidental spillage of petroleum products and other HAZMAT. Controls include placing absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.

List the types and approximate quantities of response equipment and cleanup materials available on the Project. Include a list and location map of cleanup materials, at each different work site and readily available off-site (materials sources, material processing sites, disposal sites, staging areas, etc.) Spill response materials must be stored in sufficient quantity, appropriate to the hazards associated with that site, at each work site.

Describe procedures for containment and cleanup of HAZMAT. Describe a plan for the prevention, containment, cleanup, and disposal of soil and water contaminated by spills. Describe a plan for dealing with contaminated soil and water encountered during construction. Clean up spills or contaminated surfaces immediately.

Describe methods of disposing of waste petroleum products and other HAZMAT generated by the Project, including routine maintenance. Identify haul methods and final disposal areas. Assure final disposal areas are permitted for HAZMAT disposal.

Describe methods of complying with the requirements of AS 46.04.010-900, *Oil and Hazardous Substances Pollution Control*, and 18 AAC 75. Include contact information for reporting HAZMAT and petroleum product spills to the Owner's Representative and to federal, state, and local agencies.

Prepare and implement an SPCC Plan when required by 40 CFR 112; when both of the following conditions are present on the Project:

- Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and
- Total aboveground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons)

Reference the SPCC Plan in the HMCP and SWPPP.

## **(9) NOTIFICATION OF CONSTRUCTION ACTIVITIES**

### **(a) Maintenance of a List of Responsible Representatives/ Points of Contact**

Jointly develop a list of contacts consisting of both Contractor personnel and City and Borough of Juneau (CBJ) employees. Although the primary contacts for all matters involving safety and security remain the Airport, Owner's Representative, and Contractor's Superintendent, certain issues may warrant the delegation of response to individuals capable of immediately taking action. These contacts may be required to be available 24 hours a day, as specified to address the following issues:

- ARFF coordination, including accidental utility interruption, or airport emergency response. (See section 9c below – for non-airport related emergencies dial 911)
- HAZMAT Spill Response.

- Maintenance of temporary airport markings and lighting.
- Repair of erosion sediment control measures.
- FOD cleanup.
- Repair of damaged fence, gates, or locks.
- Other airport security issues, including loss of proximity cards, identification badges, dismissed contractor employees.
- Other points of contact, as specified, or as directed by the Owner's Representative.

**(b) Notices to Airmen (NOTAM)**

Before beginning any construction activity, coordinate with the Owner's Representative, and in his/her absence, coordinate with the ASO to provide information for NOTAMs, as required. NOTAMs are notices to airmen, and in this case, will define the airport condition and/or restrictions to pilots. The Owner's Representative will coordinate necessary NOTAMs with the ASO assigned to the project. Work that requires issuance of a NOTAM cannot begin until confirmation and approval of the Airport is received by the Owner's Representative. Include schedule and drawings, in a format acceptable to the Owner's Representative, that show areas open or closed to aircraft operations. Shows designated taxi routes and include other information on the drawings as directed. Modify the schedule and drawings as directed. Coordinate further, as required, to determine the cancellation of notices issued as NOTAMs.

The following guidance will apply regarding NOTAMs:

- The Airport will provide information on closed or hazardous conditions on airport movement areas to the FSS for NOTAM issuance.
- The Airport will coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility.
- Only the Airport may issue or cancel NOTAMs on airport conditions. (The Airport is the only entity that has authority to close or open a runway or taxiway.)
- Coordinate future NOTAMs with the Airport at construction meetings **two weeks prior** to needing them in place to allow time for notification of tenants and coordination with JNU ATC operations. Except in case of emergency, NOTAMs cannot be issued on a last minute basis. Failure to plan and properly coordinate your work schedule will not constitute a delay of work and you will not be entitled to additional compensation or project time.

**(c) Emergency Notification Procedures**

**For all non-airport related emergencies dial 911.** This includes required medical, fire, or police response on or off airport property. Under emergency conditions involving immediate loss of human life, or threat to wellbeing, contractor personnel may allow access to airport property by uniformed

emergency services. Maintain airfield security in all other respects. Notify the Owner's Representative, and the ASO immediately following any 911 emergency call.

In matters involving airport safety and security, notify the Airport Police at (907)586-0899. Immediate notification upon discovery of airport related safety or security issues is required. Notify the Airport Security Coordinator (ASC), ASO, and the Owner's Representative after the Airport Police have been contacted.

#### **(d) Coordination with ARFF Personnel**

Coordination with ARFF personnel will be conducted through the Owner's Representative and ASO. Keep ARFF personnel informed of all area closures, restrictions to access routes and service roads on or near the Airport, related to construction activities. For any planned utility outages that may affect ARFF response, including water supply, or in the event of accidental utility outages, coordination through the Owner's Representative and ASO is required.

#### **(e) Notification to the FAA**

Provide all notifications to FAA, through the Owner's Representative as required under CFR 14, Part 77 and part 157, and for NAVAIDs as follows, verbatim from the regulatory requirements. A FAA Form 7460-1 Notice of Proposed Construction or Alteration will be filed by the Airport for the concrete pumping operation.

### **Subpart B—Notice Requirements**

#### **§ 77.5 Applicability.**

- (a) If you propose any construction or alteration described in § 77.9, you must provide adequate notice to the FAA of that construction or alteration.
- (b) If requested by the FAA, you must also file supplemental notice before the start date and upon completion of certain construction or alterations that are described in § 77.9.
- (c) Notice received by the FAA under this subpart is used to:
  - (1) Evaluate the effect of the proposed construction or alteration on safety in air commerce and the efficient use and preservation of the navigable airspace and of airport traffic capacity at public use airports;
  - (2) Determine whether the effect of proposed construction or alteration is a hazard to air navigation;
  - (3) Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460-1, Obstruction Marking and Lighting;
  - (4) Determine other appropriate measures to be applied for continued safety of air navigation;
  - (5) and
  - (6) Notify the aviation community of the construction or alteration of objects that affect the navigable airspace, including the revision of charts, when necessary.

#### **§ 77.7 Form and time of notice.**

- (a) If you are required to file notice under § 77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

- (b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.
- (c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.
- (d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.
- (e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

**§ 77.9 Construction or alteration requiring notice.**

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

- (a) Any construction or alteration that is more than 200 ft. AGL at its site.
- (b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:
  - (1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.
  - (2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.
  - (3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.
- (c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.
- (d) Any construction or alteration on any of the following airports and heliports:
  - (1) A public use airport listed in the Airport/ Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;
  - (2) A military airport under construction, or an airport under construction that will be available for public use;
  - (3) An airport operated by a Federal agency or the Department of Defense (DOD).
  - (4) An airport or heliport with at least one FAA-approved instrument approach procedure.
- (e) You do not need to file notice for construction or alteration of:

- (1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;
- (2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;
- (3) Any construction or alteration for which notice is required by any other FAA regulation.
- (4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

**§ 77.11 Supplemental notice requirements.**

- (a) You must file supplemental notice with the FAA when:
  - (1) The construction or alteration is more than 200 feet in height AGL at its site; or
  - (2) Requested by the FAA.
- (b) You must file supplemental notice on a prescribed FAA form to be received within the time limits specified in the FAA determination. If no time limit has been specified, you must submit supplemental notice of construction to the FAA within 5 days after the structure reaches its greatest height.
- (c) If you abandon a construction or alteration proposal that requires supplemental notice, you must submit notice to the FAA within 5 days after the project is abandoned.
- (d) If the construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

**PART 157—NOTICE OF CONSTRUCTION, ALTERATION, ACTIVATION, AND DEACTIVATION OF AIRPORTS**

**§ 157.1 Applicability.**

This part applies to persons proposing to construct, alter, activate, or deactivate a civil or joint-use (civil/ military) airport or to alter the status or use of such an airport. Requirements for persons to notify the Administrator concerning certain airport activities are prescribed in this part. This part does not apply to projects involving:

- (a) An airport subject to conditions of a Federal agreement that requires an approved current airport layout plan to be on file with the Federal Aviation Administration; or
- (b) An airport at which flight operations will be conducted under visual flight rules (VFR) and which is used or intended to be used for a period of less than 30 consecutive days with no more than 10 operations per day.
- (c) The intermittent use of a site that is not an established airport, which is used or intended to be used for less than one year and at which flight operations will be conducted only under VFR. For the purposes of this part, intermittent use of a site means:
  - (1) The site is used or is intended to be used for no more than 3 days in any one week; and
  - (2) No more than 10 operations will be conducted in any one day at that site.



### **§ 157.2 Definition of terms.**

For the purpose of this part:

*Airport* means any airport, heliport, helistop, vertiport, gliderport, seaplane base, ultralight flightpark, manned balloon launching facility, or other aircraft landing or takeoff area.

*Heliport* means any landing or takeoff area intended for use by helicopters or other rotary wing type aircraft capable of vertical takeoff and landing profiles.

*Private use* means available for use by the owner only or by the owner and other persons authorized by the owner.

*Private use of public lands* means that the landing and takeoff area of the proposed airport is publicly owned and the proponent is a non-government entity, regardless of whether that landing and takeoff area is on land or on water and whether the controlling entity be local, State, or Federal Government.

*Public use* means available for use by the general public without a requirement for prior approval of the owner or operator.

*Traffic pattern* means the traffic flow that is prescribed for aircraft landing or taking off from an airport, including departure and arrival procedures utilized within a 5-mile radius of the airport for ingress, egress, and noise abatement.

### **§ 157.3 Projects requiring notice.**

- (a) Each person who intends to do any of the following shall notify the Administrator in the manner prescribed in § 157.5:
- (b) Construct or otherwise establish a new airport or activate an airport.
- (c) Construct, realign, alter, or activate any runway or other aircraft landing or takeoff area of an airport.
- (d) Deactivate, discontinue using, or abandon an airport or any landing or takeoff area of an airport for a period of one year or more.
- (e) Construct, realign, alter, activate, deactivate, abandon, or discontinue using a taxiway associated with a landing or takeoff area on a public-use airport.
- (f) Change the status of an airport from private use to public use or from public use to another status.
- (g) Change any traffic pattern or traffic pattern altitude or direction.
- (h) Change status from instrument flight rules (IFR) to VFR or VFR to IFR.

### **§ 157.5 Notice of intent.**

- (a) Notice shall be submitted on FAA Form 7480–1, copies of which may be obtained from an FAA Airport District/ Field Office or Regional Office, to one of those offices and shall be submitted at least—
  - (1) In the cases prescribed in paragraphs (a) through (d) of § 157.3, 90 days in advance of the day that work is to begin; or
  - (2) In the cases prescribed in paragraphs (e) through (g) of § 157.3, 90 days in advance of the planned implementation date.
- (b) Notwithstanding paragraph (a) of this section—
  - (1) In an emergency involving essential public service, public health, or public safety or when the delay arising from the 90-day advance notice requirement would result in an unreasonable hardship, a proponent may provide notice to the appropriate FAA Airport District/Field Office or Regional Office by telephone or other expeditious means as soon as practicable in lieu of submitting FAA Form 7480–1. However the proponent shall provide

full notice, through the submission of FAA Form 7480-1, when otherwise requested or required by the FAA.

- (2) notice concerning the deactivation, discontinued use, or abandonment of an airport, an airport landing or takeoff area, or associated taxiway may be submitted by letter. Prior notice is not required; except that a 30- day prior notice is required when an established instrument approach procedure is involved or when the affected property is subject to any agreement with the United States requiring that it be maintained and operated as a public- use airport.

#### **§ 157.7 FAA determinations.**

- (a) The FAA will conduct an aeronautical study of an airport proposal and, after consultations with interested persons, as appropriate, issue a determination to the proponent and advise those concerned of the FAA determination. The FAA will consider matters such as the effects the proposed action would have on existing or contemplated traffic patterns of neighboring airports; the effects the proposed action would have on the existing airspace structure and projected programs of the FAA; and the effects that existing or proposed manmade objects (on file with the FAA) and natural objects within the affected area would have on the airport proposal. While determinations consider the effects of the proposed action on the safe and efficient use of airspace by aircraft and the safety of persons and property on the ground, the determinations are only advisory. Except for an objectionable determination, each determination will contain a determination-void date to facilitate efficient planning of the use of the navigable airspace. A determination does not relieve the proponent of responsibility for compliance with any local law, ordinance or regulation, or state or other Federal regulation. Aeronautical studies and determinations will not consider environmental or land use compatibility impacts.
- (b) An airport determination issued under this part will be one of the following:
  - (1) No objection.
  - (2) Conditional. A conditional determination will identify the objectionable aspects of a project or action and specify the conditions which must be met and sustained to preclude an objectionable determination.
  - (3) Objectionable. An objectionable determination will specify the FAA's reasons for issuing such a determination.
- (c) Determination void date. All work or action for which notice is required by this sub-part must be completed by the determination void date. Unless otherwise extended, revised, or terminated, an FAA determination becomes invalid on the day specified as the determination void date. Interested persons may, at least 15 days in advance of the determination void date, petition the FAA official who issued the determination to:
  - (1) Revise the determination based on new facts that change the basis on which it was made; or
  - (2) Extend the determination void date. Determinations will be furnished to the proponent, aviation officials of the state concerned, and, when appropriate, local political bodies and other interested persons.

#### **§ 157.9 Notice of completion.**

Within 15 days after completion of any airport project covered by this part, the proponent of such project shall notify the FAA Airport District Office or Regional Office by submission of FAA Form 5010-5 or by letter. A copy of FAA Form 5010-5 will be provided with the FAA determination.

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

- (a) Airport owned/FAA maintained. If construction operations require a shutdown of more than 24 hours, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.
- (b) FAA owned.
  - (i) General. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the airport operator.)
  - (ii) Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. In addition, provide seven days notice to schedule the actual shutdown.

## **(10) INSPECTION REQUIREMENTS**

### **(a) Daily (or more frequent) Inspections**

Conduct safety and security inspections at least daily during the project. Schedule inspections to not conflict with the active TSA, TOFA, RSA, ROFA, and OFZ detailed in section 17 below. No work is allowed inside the active movement areas.

Safety and security inspections may be attended by the Owner's Representative, ASO, and/or Airport representatives. Repair or remedy all safety and security issues immediately. Do not wait until an inspection to address issues. Inspections are to be used to verify that all required maintenance is being performed in a timely manner.

Notify Airport Police, ASC, Owner's Representative, and/or ASO regarding any safety or security issues found during the inspections, regardless of whether they are caused by negligence, oversight, or project scope change. Include at least the following items in the inspections; other items may be added at the direction of the Owner's Representative, or as approved:

- Inspect each required crossing of any active surface for the presence of FOD.
- Inspect haul routes for proper markings and barricades. Barricades should be upright and in good condition at all times in use. Ensure that vehicles are using only designated haul routes.
- Inspect fences and gates adjacent to, or used for access on haul routes. Ensure that vehicles are using only the designated access points. Access gates only with a valid proximity card using appropriate gate procedures. Do not leave gates open.

### **(b) Final Inspections**

Perform a joint final safety inspection with the Owner's Representative and ASO. Verify that all airport markings are correct. Remove all FOD as directed, and any other construction related materials not allowed to remain on airport property. The final safety inspection may become part of the project

completion final inspection detailed under the specifications, at the discretion of the Owner's Representative.

## **(11) UNDERGROUND UTILITIES**

The project may require work around and adjacent to FAA-owned NAVAIDs and Airport-owned underground electrical utilities. Excavation near these facilities will require electronic location and hand digging to physically locate the buried utilities present. See the general contract provisions for coordination regarding location of utilities.

## **(12) PENALTIES**

All Contractor and Subcontractor personnel must abide by the CSPP, and other contract requirements. Penalties can include payment of any fines levied by any federal, state, or local agency having authority, suspension of the contract, and individual workers are subject to removal from the project as stated in section 80-05, third paragraph:

*The Contractor shall comply with any written order by the Owner's Representative to remove workers, who, in the opinion of the Owner's Representative, violate operational regulations, violate construction safety plan requirements, violate security plan requirements, perform the work in an unskilled manner, who are intemperate or disorderly, or who jeopardize the safety of the public, other workers or Owner's Representative's personnel. The Contractor shall allow removed workers to return to the project only with the Owner's Representative's written permission. The Owner's Representative may suspend the work if the Contractor fails to furnish suitable and sufficient personnel necessary to perform the work, or fails to remove any worker at the Owner's Representative's order.*

## **(13) SPECIAL CONDITIONS**

### **(a) Special Equipment**

Use of tall equipment, such as cranes, drilling rigs, or concrete pumping trucks, must be submitted on form 7460-1 and approved by FAA. See coordination with, and notification of FAA under sections 1c and 9e above. The Owner's Representative will be notified prior to crane and concrete pumping operation. All crane work will require direct supervision by the ASO.

### **(b) Water for Dust Control**

Provide water for dust control as required, and as directed. Dust, smoke, steam, or other airborne particulates caused by Contractor activities may be considered a safety violation as determined by the Owner's Representative. Water that is acquired from airport grounds (fire hydrant, buildings, etc.) must be metered. The meter readings must be provided to the Owner's Representative on monthly bases. Obtain meter and pay for metered water through CBJ Water Utility Department.

**(i) NOTAMs**

Coordinate with Owner's Representative and ASO to provide information required for issuance of NOTAMs.

**(14) RUNWAY AND TAXIWAY VISUAL AIDS. MARKING, LIGHTING, SIGNS, AND VISUAL NAVAIDS**

**(a) General**

See the construction safety drawings included in this document (Appendix A) for locations and descriptions of temporary markings.

**(b) Markings**

The existing lead-in, SIDA, and aircraft box markings within the work area will be removed and replaced in the new hardstand location. New tug road markings will be placed on the east side of the hardstand to include tug road edge and centerline markings, and stop bars. Temporary markings will be provided for a temporary parking position south of the work area. Temporary parking markings include SIDA, aircraft box and lead-in markings which will be removed once the permanent markings are completed.

**(c) Lighting and Visual NAVAIDS**

No lighting or visual NAVAIDS will be affected by the project.

**(d) Signs**

No taxiway or runway signs will be affected by the project.

**(15) MARKING AND SIGNS FOR ACCESS ROUTES**

Address markings and signs for access routes on the SPCD. Pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration *Manual on Uniform Traffic Control Devices* (MUTCD) and/or state highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections*, which may require modification to size and height guidance in the MUTCD.

**(16) HAZARD MARKING AND LIGHTING**

**(a) Purpose**

The purpose of hazard markings and lighting is to delineate the construction area from the active portions of the AOA. It also serves as a visual warning to pilots, and airport ground traffic, that to proceed past the markers could jeopardize safety of persons or equipment, including damage to aircraft

or loss of life. Hazard marking and lighting must not itself become a hazard to the safe operation of aircraft. Hazard markings and lighting must be separated from active surfaces by a suitable distance usually defined by the TSA, TOFA, OFZ, RSA, or OFA, but depending on work location, type of aircraft expected to be operating, and other factors.

Hazard marking and lighting must also identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Consider less obvious construction-related hazards and include markings to identify FAA, airport, and national weather service facilities cables and power lines; airport surfaces, such as OFZ, RSA, and OFA; and other sensitive areas for Contractor personnel to avoid these areas.

### **(b) Equipment**

Proposed locations of hazard markings and lighting are shown on the construction safety drawings included in this document (Appendix A). Other locations or equipment may be proposed, or required, depending on the schedule, and means and methods employed. Submit proposed equipment, including signs, markings, and lighting on the SPCD.

#### **(i) Spacing of Barricades**

Unless advised by the Owner's Representative, barricades must be continuously linked from edge line to edge line in the movement area (active or inactive). When barricades are allowed to be spaced, spacing of barricades must be such that a breach is physically prevented, barring a deliberate act.

Provision must be made for ARFF access if necessary. Barricade must be continuously linked together by no fewer than three units (unless advised by the Owner's Representative). Continuous linking may be accomplished only with hazard marker barriers design to be physically linked.

#### **(ii) Maintenance**

Maintain hazard marker barriers throughout construction. Repair damaged or non-functioning markings, barriers, flags, and flashers immediately upon discovery or notification.

## **(17) PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS, OBJECT FREE AREAS, OBSTACLE FREE ZONES, AND APPROACH/DEPARTURE SURFACES**

Before beginning construction, coordinate with the Owner's Representative to identify the TSA, TOFA, RSA, OFZ, and the OFA for the active runways related to the cargo hardstand project. The Owner's Representative may require surveyed location of the TSA, TOFA, RSA, OFZ, or OFA by the Contractor, as part of the construction surveying requirement. This will define a boundary for use of construction equipment during aircraft operations. The following is a listing of surfaces that will change as part of the cargo hardstand project. Work is expected to take place outside of all of these areas but you will need to be aware that they will change as the cargo hardstand project progresses.

**(a) Obstacle Free Zone (OFZ)**

The OFZ width for runways is 400 feet, centered on the respective runway centerline. No stockpiles, equipment, or personnel will be allowed within the OFZ, of an active runway, during aircraft operations.

**(b) Runway Safety Area (RSA)**

The RSA width for RW 8/26 is 500 feet, centered on the runway centerline. No equipment, vehicles, or personnel will be allowed within the RSA of the runway during aircraft operations. No material stockpiles will be allowed in the RSA at any time. Additionally, confirm height and distance requirements of adjacent Part 77 slopes from the runway for stockpiles and vehicle parking.

**(c) Runway Object Free Area (ROFA)**

The ROFA for RW 8/26 is 730 feet wide, centered on the runway. No stockpiles or parked equipment will be allowed within the ROFA. During aircraft operations, equipment, vehicles, and personnel may temporarily occupy the ROFA. No equipment or vehicles are to be parked, or left unattended, in the ROFA at any time.

**(d) Taxiway Safety Area (TSA)**

No work will be allowed within any active TSA. Taxiways closed for construction will not be subject to TSA standards, except that no stockpiling of materials or parking of equipment or vehicles will be allowed within a closed TSA.

**(e) Taxiway Object Free Area (TOFA)**

No work will be allowed within any active TOFA. During aircraft operations, equipment, vehicles, and personnel may temporarily occupy the TOFA. When temporary occupation of the TOFA is required, the Contractor shall notify the ASO to notify the ATC Tower. No equipment or vehicles are to be parked or left unattended in the active TOFA at any time.

**(f) Runway Approach/Departure Surfaces**

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in Section 303, *Runway End Siting Requirements* of AC 150/5300-13A. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District office.

**(18) OTHER LIMITATIONS ON CONSTRUCTION**

**(a) Prohibitions**

**(i) Airport Marking System**

Use of light colored sand bags, or other materials that interfere with the airport marking system will not be allowed.

**(ii) Flare Pots**

The use of flare pots on airport property is prohibited at any time.

**(iii) Electrical Blasting Caps**

Use of electrical blasting caps on, or within 1,000 feet of the airport property is not allowed.

**(b) Restrictions**

**(i) Use of Tools with Open Flames**

Open-flame welding or torch cutting operations are permitted only with the approval of the Airport and only when adequate fire safety precautions are in place.

**(ii) Open Trenches, Excavations, and Stockpiles**

Prominently mark open trenches, excavations, and stockpiled materials at the construction site and light these obstacles during hours of restricted visibility and darkness. Constrain stockpiled material to prevent its movement as a result of the forecast wind conditions.

**(iii) Discovery of Contaminated Soils**

If contaminated soils are encountered within the excavation area, stop work at the discovery location until the contamination is identified and the Owner's Representative coordinates with the Alaska Department of Environmental Conservation (ADEC).

**(iv) Use of Explosives**

Refer to Section 70-10 of the Alaska Standard Specifications for Airport Construction:

*The Contractor shall obey all laws, regulations and permits applicable to using, handling, loading, transporting, or storing explosives. When using explosives, the Contractor shall take utmost care not to endanger life, property, new construction, or existing portions of the project and facilities that are to remain in place after the project is complete.*

*The Contractor shall provide notice to property owners, the traveling public, and utility companies in the vicinity before using explosives. The Contractor shall provide a minimum of three weeks' notice to the Federal Aviation Administration and the Airport Manager. The Contractor shall notify police and fire authorities in the vicinity before transporting or using explosives. The Contractor shall provide notice sufficiently in advance to enable all potentially affected parties to take whatever steps they may deem necessary to protect themselves and their property from injury or damage. The Contractor shall not use explosives on or near airport property until a Notices to Airmen (NOTAMs) has been issued. Each new use of explosives may require separate NOTAMs to be issued. The Contractor shall not use electric blasting caps within 1,000 feet of the airport property.*



*The Contractor is liable for all property damage, injury, or death resulting from the use of explosives on the project. The Contractor and Surety shall indemnify, hold harmless, and defend the State of Alaska from all claims related to the use of explosives on the project, including claims from government agencies alleging that explosives were handled, loaded, transported, used, or stored improperly.*

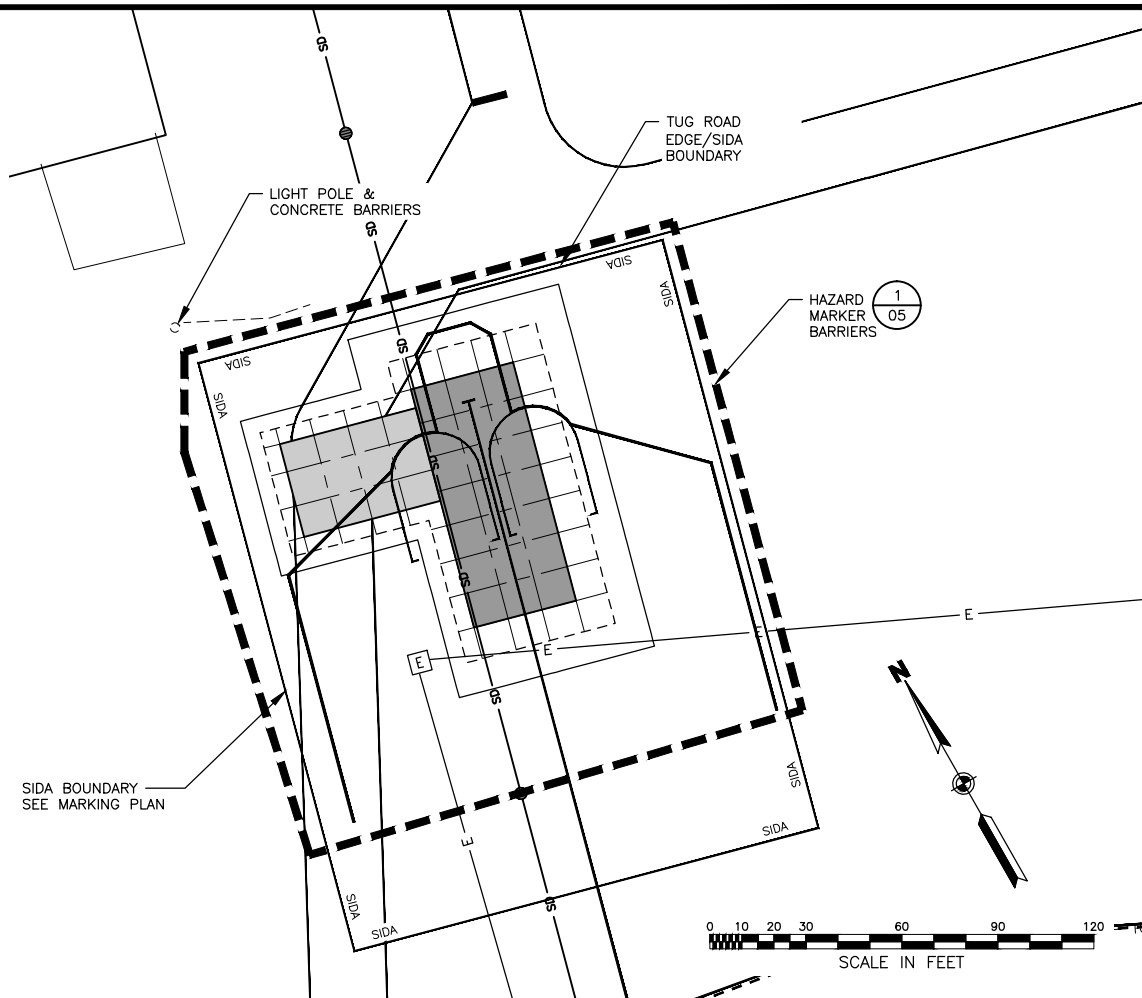
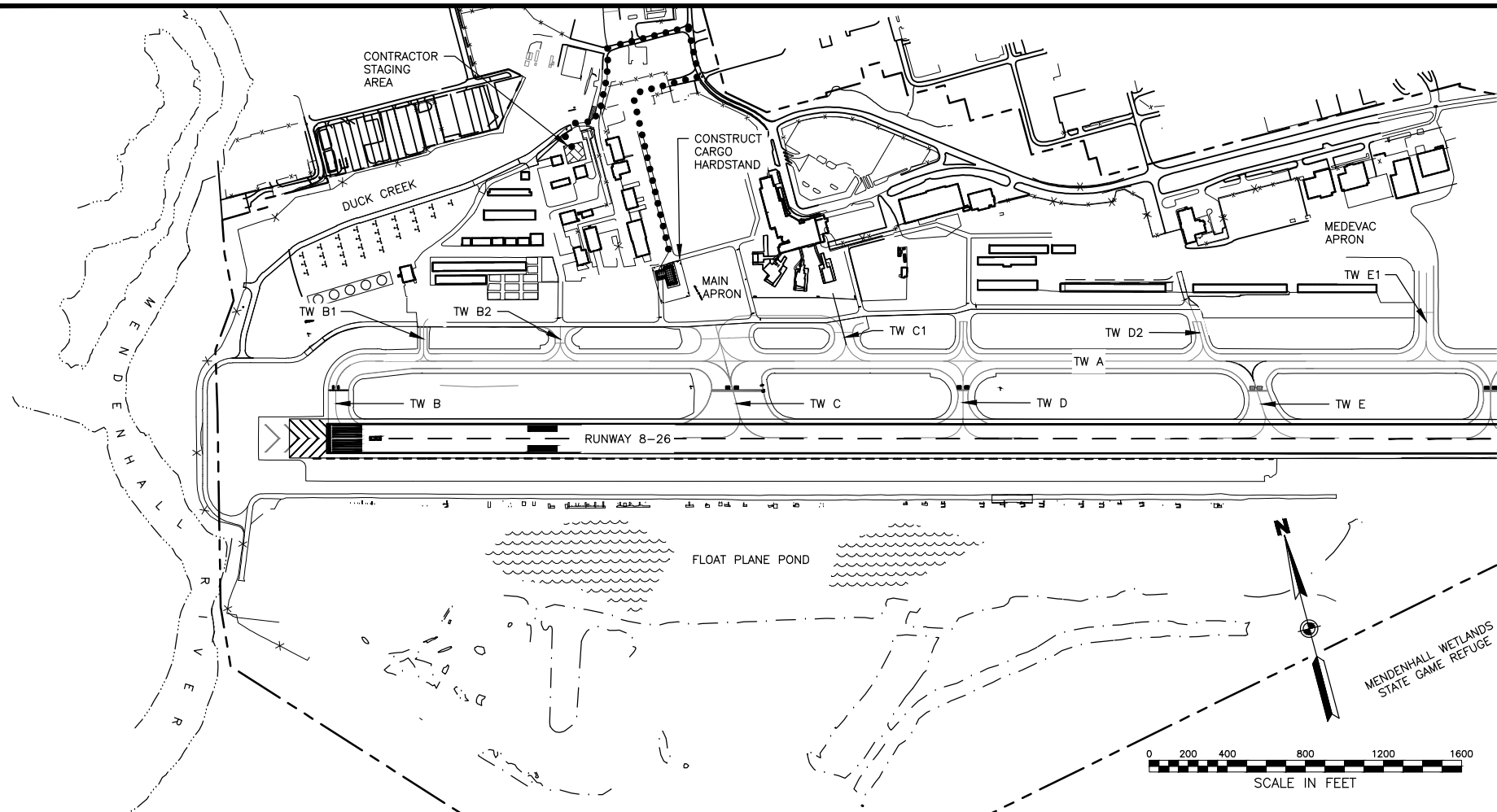
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**Construction Safety and Phasing Plan**  
**Appendix A -**  
**Construction Safety Drawings**

See Construction plans for Safety Plans, Construction Phasing, and Safety Plan Details.

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**SAFETY PLAN NOTES**

- SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) PER FAA ADVISORY CIRCULAR (AC) 150/5370-2F, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION (SAFETY AC), TO THE ENGINEER FOR REVIEW. DO NOT BEGIN CONSTRUCTION ACTIVITIES UNTIL THE ENGINEER APPROVES THE SPCD IN WRITING. ALLOW 10 DAYS FOR INITIAL REVIEW. INCLUDE CONSTRUCTION SEQUENCING. IF PLAN DIFFERS FROM WHAT IS SHOWN, OR IF SUBSEQUENT CHANGES ARE MADE, SUBMIT A REVISION TO THE ENGINEER FOR REVIEW AND APPROVAL. ALLOW 5 DAYS FOR REVIEW OF REVISED SPCD. SEE APPENDIX D OF THE SPECIFICATIONS FOR THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) DOCUMENT, AND MORE INFORMATION ON THE REQUIREMENTS OF THE SAFETY AC AND SPCD. SEE SECTION 104c ON PAGE 4 OF THE SAFETY AC FOR A SUMMARIZED GENERAL LIST OF CONTRACTOR RESPONSIBILITIES REGARDING SAFETY DURING CONSTRUCTION.
- COORDINATE WORK EFFORTS WITH ANY OTHER WORK THAT MAY BE OCCURRING ON THE AIRPORT.
- NO CONSTRUCTION ACTIVITY IS ALLOWED WITHIN THE TAXIWAY OBJECT FREE AREA (TOFA) WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. SEE SECTION 221 OF THE SAFETY AC FOR REQUIREMENTS REGARDING THE NARROWING OF THE TOFA FOR CONSTRUCTION. COORDINATE ANY RESTRICTIONS TO AIRCRAFT OPERATIONS WITH AIRPORT USERS, AND AIRPORT. TOFA WIDTH FOR THE MAIN APRON TAXILANE IS 162'.
- WHenever the plans or specifications call for coordination, notification, contact, or other interaction with FAA, airport, maintenance and operations, ARFF personnel, airport tenants, airport users, any local, state, or federal agency, group, or association, or the general public, such activity shall be done through, in the presence of, or with the written approval of the engineer and airport management. Allow sufficient time for coordination and approvals within proposed work schedules.
- ARFF MUST HAVE ACCESS TO ENTIRE AIRPORT AT ALL TIMES TO RESPOND TO EMERGENCIES. MAINTAIN SUITABLE CORRIDORS AND COORDINATE ACCESS WITH ARFF PERSONNEL THROUGH THE ENGINEER AS REQUIRED.
- THE AIRPORT MAY PROVIDE A SAFETY OFFICER TO MONITOR TOWER AND GROUND CONTROL FREQUENCIES AND ADVISE CONSTRUCTION EQUIPMENT OPERATORS DURING CONSTRUCTION AS THE ENGINEER REQUIRES.
- ALL PERSONS AND EQUIPMENT WORKING WITHIN THE AIRPORT PROPERTY SHALL REMAIN IN CONSTANT RADIO CONTACT WITH THE SAFETY OFFICER (WHEN PRESENT) USING A RADIO FREQUENCY APPROVED FOR USE BY THE FEDERAL COMMUNICATIONS COMMISSION.
- STORAGE OF EQUIPMENT OR MATERIALS ON APRONS, TAXIWAYS AND SAFETY AREAS OR RUNWAY SAFETY AREA WILL NOT BE ALLOWED. NO STOCKPILING OF MATERIALS, PARKING OR STAGING OF EQUIPMENT IS ALLOWED WITHIN 400 FEET OF THE ACTIVE RUNWAY CENTERLINE, NOR WITHIN 1000 FEET BEYOND EACH OF THE THRESHOLDS ALONG THE EXTENDED CENTERLINE.
- MAINTAIN TEMPORARY MARKINGS AND LIGHTING SYSTEMS THROUGHOUT THE PHASES OF CONSTRUCTION. REPAIR DAMAGED OR NON-FUNCTIONING MARKINGS AND LIGHTING IMMEDIATELY UPON DISCOVERY OR NOTIFICATION. USE OF LIGHT COLORED SAND BAGS, OR OTHER MATERIALS THAT INTERFERE WITH THE AIRPORT MARKING SYSTEM WILL NOT BE ALLOWED.
- PROVIDE CONTINUOUS COORDINATION THROUGH THE ENGINEER USING WEEKLY BRIEFINGS WITH AIRPORT, AIRPORT MAINTENANCE, ARFF PERSONNEL, ATC, AND AIRPORT USERS TO KEEP EVERYONE AWARE OF THE STATUS AND CHANGES OF AIRPORT SURFACES IN RELATION TO AIRCRAFT AND GROUND TRAFFIC. PROVIDE DETAILED DRAWINGS INDICATING TRAFFIC ROUTES FOR AIRCRAFT, AND GROUND TRAFFIC. INDICATE AREAS CLOSED TO AIRCRAFT MOVEMENT AND PARKING. PROVIDE UPDATED DRAWINGS AT WEEKLY CONSTRUCTION MEETINGS AS CONSTRUCTION PROCEEDS.
- THE CONTRACTOR MUST REPORT ANY SAFETY ISSUES TO THE ENGINEER AND AIRPORT UPON DISCOVERY. THE CONTRACTOR MUST TAKE IMMEDIATE ACTION TO RESOLVE SAFETY ISSUES AS DIRECTED.
- PROVIDE WATER FOR DUST CONTROL AS REQUIRED, AND AS DIRECTED. DUST, SMOKE, STEAM, OR OTHER AIRBORNE PARTICULATES CAUSED BY CONTRACTOR ACTIVITIES MAYBE CONSIDERED A SAFETY VIOLATION AS DETERMINED BY THE ENGINEER.
- REMOVE ALL FOREIGN OBJECTS AND DEBRIS (FOD) FROM ACTIVE SURFACES IMMEDIATELY UPON DISCOVERY OR NOTIFICATION. FAILURE TO REMOVE FOD MAY BE CONSIDERED A SAFETY VIOLATION AS DETERMINED BY THE ENGINEER. PROVIDE A VACUUM SWEEPER TRUCK, (STREET SWEEPER). INCLUDE MAKE AND MODEL IN THE SPCD FOR APPROVAL.
- CONDUCT A JOINT INSPECTION OF AIRPORT SURFACES WITH AIRPORT MANAGEMENT, AND THE ENGINEER PRIOR TO OPENING THEM FOR AIRCRAFT MOVEMENT OR OPERATIONS. REMOVE ALL FOREIGN OBJECTS, CLEAN AND SWEEP SURFACES AS REQUIRED OR AS DIRECTED.
- PREPARE ALL SURFACES SO NO AIRCRAFT WILL BE REQUIRED TO OPERATE ON UNPAVED SURFACES.
- FIELD VERIFY SUITABILITY OF HAUL ROUTES AND STAGING AREAS SHOWN. DEVELOP AND MAINTAIN HAUL ROUTES AS REQUIRED. PROVIDE TRAFFIC CONTROL PLANS FOR EACH PHASE OF WORK.
- REFER TO FAA AC 150/5370-2F FOR ADDITIONAL GUIDANCE ON PREPARING SAFETY PLANS. REFER TO AC 150/5300-13A CHAPTER 3 FOR CLEARANCE STANDARDS RELATED TO THE TAXIWAY OFA. NOTICE THAT THE MOST RESTRICTIVE CRITERIA GOVERNS. JNU IS AN APPROACH CATEGORY C, AND DESIGN GROUP III AIRPORT. SEE THE CSPP ATTACHED TO THE SPECIFICATIONS AS AN APPENDIX FOR ADDITIONAL INFORMATION.
- ALL WASTE IS TO BE DISPOSED OF OFF-SITE AT THE CONTRACTORS EXPENSE.
- NORTHSTAR AND TRANSIENT HELICOPTER OPERATIONS ARE PERFORMED DIRECTLY WEST OF PROJECT AREA. ROTOR WASH WILL DISTURB ANY FOD ON PROJECT SITE DAMAGING PROPERTY AND PERSONNEL. CONTINUALLY INSPECT SITE FOR FOD AND DISPOSE OF WASTE PROPERLY AND IMMEDIATELY.

**LEGEND**

-  CONTRACTOR STAGING AREA
-  CONTRACTOR ACCESS / HAUL ROUTE
-  HAZARD MARKER BARRIERS

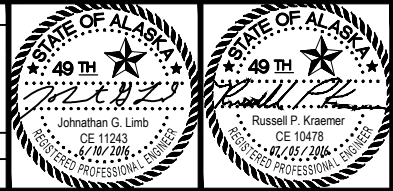
**SUGGESTED WORK SEQUENCE:**

- THE FOLLOWING GENERAL WORK TASKS ARE A SUGGESTED SEQUENCE ONLY, AND MAY BE ADJUSTED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE WORK DESCRIBED MAY NEED TO BE COMPLETED CONCURRENTLY, AND IS NOT INTENDED TO BE A COMPREHENSIVE LIST OF ALL WORK. SOME WORK MAY NEED TO BE COMPLETED DURING NIGHT TIME HOURS, OR DURING PERIODS WITH NO SCHEDULED FLIGHTS. SUBMIT A COMPLETE WORK SCHEDULE FOR APPROVAL AS SPECIFIED.
- INSTALL EROSION SEDIMENT CONTROL MEASURES.
  - PAINT TEMPORARY MARKINGS, CLOSE CONSTRUCTION AREA BY PLACING HAZARDOUS AREA BARRIERS.
  - SAWCUT & REMOVE PAVEMENT. CONSTRUCT NEW HARDSTAND.
  - PAINT NEW PERMANENT PARKING POSITION MARKINGS, INCLUDING SIDA. OPEN NEW HARDSTAND FOR AIRCRAFT PARKING.
  - REMOVE EXISTING TUG ROAD & TEMPORARY MARKINGS.
  - PAINT NEW TUG ROAD MARKINGS.

FOR BID

BY	DATE	REVISIONS

SCALE	
HORZ.	
VERT.	
W.O. NO.	204700309
FOR BIDS	



**Stantec**

STANTEC CONSULTING SERVICES, INC.  
 725 EAST FIREWEED LANE, SUITE 200  
 ANCHORAGE, AK 99503-2245  
 907-276-4245  
 CERTIFICATE OF AUTHORIZATION # 126386



**JUNEAU INTERNATIONAL AIRPORT**  
 JUNEAU, ALASKA  
 CARGO HARDSTAND  
 CBJ CONTRACT No. BE17-035  
 PFC 04-07-C-04-JNU  
**PROJECT LAYOUT AND  
 GENERAL SAFETY PLAN**

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OF	13

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# **APPENDIX E**

## **Aviation Materials Certification List**

# MATERIALS CERTIFICATION LIST

**Project Name** JNU Cargo Hardstand

**Project Number** BE17-035 / PFC 04-07-C-04-JNU

**Project Engineer Signature** \_\_\_\_\_

Unshaded boxes indicate who approves the manufacturer's certificate of compliance or materials submittals.

If two boxes not shaded, either approving authority may be used.

Materials Item	Specification	Construction			Design		Statewide Materials		Remarks	Materials Certificate Location e.g. Binder #
		Project Engineer	Regional Materials or QA Engineer	Airport Ltg. Equipment Certification Program	Civil Design Engineer of Record	Electrical Design Engineer of Record	*Qualified Products List (QPL)	State Materials or QA Engineer		
<b>P-157 EROSION, SEDIMENT AND POLLUTION CONTROL</b>										
BMP Installations	P-157-2.5								Stabilization Materials identified and documented in	
<b>P-401 PLANT HOT MIX ASPHALT PAVEMENT</b>										
Mix Design	P-401-3.2									
Joint Adhesive	P-401-4.12									
Longitudinal Joint Sealant	P-401-5.2 f.(3)									
<b>P-501 PORTLAND CEMENT CONCRETE PAVEMENT</b>										
Concrete Mix Design	P-501									
Premolded Joint Filler	P-501-2.4									
Joint Sealer	P-605/Plans									
Steel Reinforcement	P-501-2.6									
Dowel and Tie Bars	P-501-2.7									
Cover Material For Curing	P-501-2.9									
Liquid membrane-forming compound	P-501-2.9 a.									
White polyethylene film	P-501-2.9 b.									

\*Unshaded boxes under the QPL do not indicate that the materials are on that list. They indicate materials with potential for being on the QPL once qualified. See GCP 60-05 for submittal requirements.



Unshaded boxes indicate who approves the manufacturer's certificate of compliance or materials submittals.

If two boxes not shaded, either approving authority may be used.

Materials Item	Specification	Construction			Design		Statewide Materials		Remarks	Materials Certificate Location e.g. Binder #
		Project Engineer	Regional Materials or QA Engineer	Airport Ltg. Equipment Certification Program	Civil Design Engineer of Record	Electrical Design Engineer of Record	*Qualified Products List (QPL)	State Materials or QA Engineer		
White burlap-polyethylene film	P-501-2.9 c.									
Waterproof paper	P-501-2.9 d.									
Epoxy - Resin for Dowels	P-501-2.11									

**P-605 JOINT SEALING FILLER**

Joint Sealers	P-605-2.1/Plans									
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**P-620 RUNWAY AND TAXIWAY PAINTING**

<u>Paint, Waterborne</u>										
White	P-620-2.2									
Yellow	P-620-2.2									
Red	P-620-2.2									
<u>Paint, Solvent Base</u>										
White	P-620-2.2									
Yellow	P-620-2.2									
Red	P-620-2.2									
Reflective Media, Combined Cert. with Paint	P-620-2.3									

**ADDITIONAL MATERIALS**


\*Unshaded boxes under the QPL do not indicate that the materials are on that list. They indicate materials with potential for being on the QPL once qualified. See GCP 60-05 for submittal requirements.