CITY OF OROVILLE, CALIFORNIA

SPECIFICATIONS FOR

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-

MARCH 2016

PREPARED BY:

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CONSULTING AIRPORT ENGINEER
LOOMIS, CALIFORNIA

SPECIFICATIONS AND CONTRACT DOCUMENTS FOR

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

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ORGANIZATION OF SPECIFICATIONS

ORGANIZATION OF SPECIFICATIONS

These specifications include the required F.A.A. General Provisions in Division III, which are taken from Advisory Circular 150/5370-10G, “Standards for Specifying Construction of Airports.” Also included are Bidding and Contract Documents (Division II), State and Local General Provisions (Division IV), and Special Conditions (Division V). There may be some duplication or conflict between certain sections. In case of conflict between the F.A.A. specifications and the Local and/or State specifications, the more restrictive specifications shall govern.

The Technical Provisions of this specification are based on Advisory Circular 150/5370-10G, "Standards for Specifying Construction of Airports." This standard specification has been modified to contain sections specifically applicable to this Project and to include requirements specifically related to the Project site.

An Airport Construction Safety and Phasing Plan (CSPP) has been prepared to outline all safety issues related to the proposed construction. This CSPP is included in these specifications as Appendix A. The Contractor will be required to submit all reports designated in the CSPP and implement all safety measures set forth in this plan.

The Contractor is responsible for all Quality Control (QC) during the construction of this project, including testing and inspection. A Construction Management Plan has been prepared and is included in Appendix B of these specifications. This plan outlines how this project will be managed during construction and includes construction management personnel and resumes, inspection procedures and frequencies, submittal process, quality control testing, quality assurance testing, and test result documentation.

BIDDING REQUIREMENTS

INVITATION FOR BIDS

CITY OF OROVILLE
1735 MONTGOMERY STREET
OROVILLE, CALIFORNIA 95965-4897

Sealed proposals for the work described in the specifications and contract documents entitled:

OROVILLE MUNICIPAL AIRPORT
OROVILLE, BUTTE COUNTY, CALIFORNIA
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING
AIP NO. 3-06-0178-021

will be received at the City of Oroville, office of the City Clerk, 1735 Montgomery Street, Oroville, California 95965 until:

WEDNESDAY, APRIL 27, 2016 AT 2:00 PM

at which time they will be publicly opened and read aloud in Conference Room 1 at said address.

PRE-BID MEETING AT PROJECT SITE
OROVILLE MUNICIPAL AIRPORT ADMINISTRATION BUILDING
225 CHUCK YEAGER WAY, OROVILLE, CA
WEDNESDAY, APRIL 13, 2016 AT 10:00 AM

Proposal forms for this work are included in the document entitled:

SPECIFICATIONS FOR
OROVILLE MUNICIPAL AIRPORT
OROVILLE, BUTTE COUNTY, CALIFORNIA
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING
AIP NO. 3-06-0178-021

The proposed work for this project consists of the following generalized activities:

- Construction of an additional drainage culvert under Runway 2-20
- Grade Safety Area and Object Free Area near Runway 2-20 (1,220 Sq. Yd.)

Engineer's Estimate = $ 148,000

Contractor's License Classification. The Contractor shall possess a Class A General Engineering Contractor license issued by the California Contractors State License Board at the time this contract is awarded. Subcontractors retained by the Contractor shall possess the appropriate state licenses for the work being performed. The awarded Contractor and subcontractors will also be required to obtain a City Business License.

DIR Registration: In accordance with Senate Bill 854 (SB 854), all contractors submitting a bid for this project must be registered with the Department of Industrial Relations (DIR).

Obtaining and Inspecting Contract Documents. The plans, specifications and contract documents (Contract Documents) are available for download on the City of Oroville website at:

http://www.cityoforoville.org/index.aspx?page=257

The City will also be transmitting scanned copies of the Contract Documents to all building exchanges throughout the Northern Central Valley and the Bay Area. The City will not be proving Contractors paper copies of the Contract Documents. Further information regarding wage requirements, contract time, bonding requirements, federal requirements and other contract provisions are included in the Instructions for Bidders as part of the Contract Documents. Any questions or clarifications regarding the Contract Documents requested by Contractors shall be emailed to the City of Oroville, Airport Manager, Rick Walls, P.E., at wallsr@cityororoville.org after the pre-bid meeting on April 13, 2016.

Questions or clarifications to the Contract Documents will be responded to through the issuance of addendum(s) by the City. As required, Contractors that submit written questions or clarifications to the City by email (wallsr@cityoforoville.org) will be automatically placed on the bidders list. Addendums will be email to all Contractors who have submitted questions and have been placed on the bidders list. Addendums will also be place on the City's website (website address above).

Federal Provisions. The work to be done is being financed in whole or in part by means of a grant made by the United States acting through the Federal Aviation Administration of the Department of Transportation. This project is subject to the Federal provisions, statutes and regulations as set forth in the project specifications.

This project is under and subject to the Equal Opportunity Clause and Wage Rate Decision contained in the contract documents.

The City of Oroville hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. Oroville Municipal Airport has established a contract goal of 10% for the utilization of firms owned and controlled by socially and economically disadvantaged persons for this project.

CITY OF OROVILLE

Rick Walls, P.E.
Interim City Engineer/Airport Manager

Advertising Date: March 23, 2016

Publication Dates: March 23, 2016
March 30, 2016

INFORMATION FOR BIDDERS

Bids will be received by the City of Oroville at the office of the City Clerk, City Hall, 1735 Montgomery Street, Oroville, California 95965-4897, until:

WEDNESDAY, APRIL 27, 2016 AT 2:00 PM

at which time they will be publicly opened and read aloud in Conference Room 1 at said address.

Each bid must be submitted in a sealed envelope, addressed to the City of Oroville, 1735 Montgomery Street, Oroville, California 95965-4897. Each sealed envelope containing a bid must be plainly marked on the outside as bid for:

OROVILLE MUNICIPAL AIRPORT
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

and the envelope should bear on the outside the name of the bidder, his/her address, his/her license number and classification, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to the City of Oroville.

1. SCOPE OF PROJECT

The work to be done under this contract consists of furnishing all materials, plant and equipment, and performing all necessary labor in accordance with the prepared plans, specifications, and special provisions as directed by the City or its authorized representative, as follows:

- Grade Safety Area and Object Free Area Near the North End of Runway 2-20 - 1,220 sq. yd.
- Construct Drainage Improvements for Runway 2-20
- Perform all work and furnish all materials incidental to the above and in accordance with the prepared plans, specifications and special provisions and/or as directed by the City of Oroville or its authorized representative.

2. FORM OF PROPOSAL

All bids must be made on the required bid form, and other forms furnished with the contract documents. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one copy of the bid form is required. Each bid shall be accompanied by a certified check, cashier's check, or surety bond for not less that ten (10) percent of the amount of the bid, made payable to the order of the City Clerk, City of Oroville. Such check or bond shall be given as a guarantee that the bidder will enter into the contract if awarded to him/her, and will be declared forfeited if the bidder refuses to enter into said contract and give the required contract bonds within fifteen (15) days after being notified to

do so by the City. The check or bond accompanying the accepted bid will be retained until the contract documents have been signed by the successful bidder and approved by the City of Oroville and the Federal Aviation Administration.

The following forms shall be completed and signed (where required), and submitted together to constitute a fully responsive bid:

- Bid Form and Completed Bid Schedule (Pages BD-1 through BD-7)
- List of Subcontractors (Page BD-8)
- Bidder's Bond (Page BD-9)
- Certification of Non-segregated Facilities (Page BD-10)
- Bidder's Statement on Previous Contracts Subject to EEO Clause (Page BD-11)
- Public Contract Code Section 10162 Questionnaire (Page BD-12)
- Public Contract Code Section 10285.1 Statement (Page BD-13)
- Public Contract Section 10232 Statement (Page BD-14)
- Certification Regarding Debarment and Suspension (Page BD-15)
- Trade Restriction Clause (Page BD-16)
- Disclosure of Lobbying Activities (Page BD-17)
- Buy American Certificate (Page BD-18)
- Disadvantaged Business Enterprise Utilization (Page BD-20)
- Letter of Intent (Page BD-21)
- Bidder's List – Part II (Page BD-22)

The contractor must at the time of award of the contract have a valid California Contractor's License of the classification required for work proposed under this contract by the California Contractor State License Board, and the value of the Contract may not exceed the limit on the license. The contractor or subcontractor performing the work elements shall possess the appropriate state licenses for the work being performed. The awarded Contractor and subcontractors will also be required to obtain a City Business License.

The City may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within ninety (90) days after the actual date of the opening thereof. The City intends to award the contract at a regularly scheduled City Council Meeting as soon as possible thereafter. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the City and the bidder.

The proposals may be rejected if they show any alteration of forms, additions not called for, conditional or alternative bids, incomplete bids, erasures or irregularities of any kind.

The City of Oroville reserves the right to retain the checks or bonds of the three lowest bidders until an approved contract has been signed. All other bidders' checks will be returned by the City of Oroville.

3. LOCAL CONDITIONS

Bidders must satisfy themselves of the accuracy of the estimated quantities in the bid schedule by examination of the site and a review of the drawings and specifications including addenda. After bids have been submitted, the bidder shall not assert that there was a misunderstanding concerning the quantities of work, the nature of the work to be done or other requirements that are being called for in these specifications.

The City shall provide to bidders, prior to bidding, all information that is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be required. The contract documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the City or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him/her from fulfilling any of the conditions of the contract.

If any bidder is in doubt as to the true meaning of any part of the drawings, specifications, or other Contract Documents, or finds discrepancies in, or omissions from, the drawings or specifications, he/she may submit to the Design Engineer a written request for a clarification or correction thereof not later than five (5) days before the date bids will be opened. The person submitting the request will be responsible for its prompt delivery. Any clarification or correction will be made by written addendum, which shall be mailed or delivered to each person receiving a set of such documents. The City will not be responsible for any other explanation or interpretation of the Contract Documents.

Any addenda issued before the time in which to submit bids expires shall form a part of the Contract Documents and shall be covered in the bid. Each bidder shall confirm receipt of any and all addenda in the space provided in the bid form.

No person, firm, or corporation shall be allowed to make or file or be interested in more than one bid for the same work, unless alternate bids are called for.

4. BASIS OF AWARD

Award will be made to the lowest responsive and responsible bidder. A conditional or qualified bid will not be accepted. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout. Each bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation in respect to his/her bid. The low bidder shall supply the names and addresses of major material suppliers and subcontractors with the bid proposal on the form provided.

In making the award of the contract the City will consider the balanced character of the bids, the experience and ability of the bidders, as well as the extension of the estimate of quantities at the unit prices bid. The Contract will be awarded to the lowest cost for the work subject to the conditions for the basis of award of a contract. The Owner reserves the right to reject any or all bids, to waive

irregularities not affecting substantial rights, and to delay the award pending approval of the Federal Aviation Administration.

In case of conflict in the proposal between unit price bid and the extended total, the unit price bid shall govern.

In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The basis of the award is subject to all conditions as contained in these specifications. It is understood and agreed that all equipment and material items shall be in stockpile under immediate control of the Contractor prior to the time they will be needed to complete the work at the Airport.

The contract will be awarded to the lowest bid by a responsive and responsible contractor.

The party to whom the contract is awarded will be required to execute the agreement and obtain the performance bond and payment bond within fifteen (15) calendar days from the date when notice of award is delivered to the bidder. The notice of award shall be accompanied by the necessary agreement and bond forms. In case of failure of the bidder to execute the agreement, the City may, at its option, consider the bidder in default, in which case the bid bond accompanying the proposal shall become the property of the City.

The City within fifteen (15) days of receipt of acceptable performance bond, payment bond, and agreement signed by the party to whom the agreement was awarded shall sign the agreement and return to such party an executed duplicate of the agreement. Should the City not execute the agreement within such period, the bidder may, by written notice, withdraw his/her signed agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the City.

5. CONTRACT BONDS

Upon receipt of written notice of award of the contract and not more than fifteen (15) calendar days thereafter, the Contractor shall furnish the following bonds with power of attorney issued by a surety licensed to do business in the State of California and approved by the City. Attorneys-in-fact who sign bid bonds or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney. The form of the bonds shall be acceptable to the Owner:

a. Faithful Performance Bond in a sum equal to one hundred percent (100%) of the amount of the contract awarded. This bond shall be made payable to the City of Oroville to guarantee the faithful performance of the contract.

b. Labor and Material Bond in a sum equal to one hundred percent (100%) of the amount of the contract awarded. This bond shall be made payable to the City of Oroville to guarantee the payment of all labor, materials, rentals, etc. This bond shall have specific provisions to assure payment of all unemployment contributions which become due and payable.

6. PRECONSTRUCTION CONFERENCE

Prior to the issuance of the Notice to Proceed, a pre-construction conference will be held at a location determined by the City Engineer for the purpose of discussing with the Contractor the Scope of Work, F.A.A. requirements, contract drawings, specifications, existing conditions, materials to be ordered, equipment to be used, and all essential matters pertaining to the prosecution and the satisfactory completion of the project as required. The Contractor's representative at this conference shall include all major superintendents for the work and may include major sub-contractors.

7. NOTICE TO PROCEED

The Notice to Proceed shall be issued within fifteen (15) days after the agreement has been executed and the City has received the bonds and insurance documentation required per contract. Should there be reasons why the notice to proceed cannot be issued within such period, the time may be extended by mutual agreement between the City and the Contractor.

8. BIDDER'S QUALIFICATIONS

The City may make such investigations as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the City all such information and data of this purpose as the City may request. The City reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the City that such bidder is properly qualified to carry out the obligations of the agreement and to complete the work contemplated therein.

9. WAGE RATES

All labor on the project shall be paid no less than the minimum wage rates as established by the U.S. Secretary of Labor. Further, pursuant to California Labor Code Section 1770, the California Director of Industrial Relations has specified the general prevailing wage rates for all public projects in California. The wages to be paid to all workers on such projects shall not be less than those specified in such wage rate determination on the day of the bid opening.

The wage rates specified by the U.S. Secretary of Labor are included in Attachment 2 to the Contract included in these specifications and the prevailing wage rates as determined by the California Director of Industrial Relations are available from the City Clerk.

The higher of the two rates shall be paid.

10. EXISTING FACILITIES

The Contractor's attention is directed to the fact that the existing airport facilities must be kept in operation with an absolute minimum of interference, except as specified in the Special Conditions section of these specifications, in order that no delays or hazards affect the using of this airport facility.

The Contractor shall be required to plan and coordinate his/her work with the Engineer in such a manner as to ensure safety and a minimum of hindrance to the public using the facilities. All construction and access to the construction must be confined to the limits designated by the Engineer.

11. ESTIMATE OF QUANTITIES

The estimate of quantities of work to be done under the specifications is approximate and is given only as a basis of calculation upon which the award of the contract will be made. The Contractor will be paid for the actual work done including materials and equipment actually installed at the contract unit price. The Owner reserves the right to increase or decrease the amount of any class of work or material deemed necessary without restrictions. Bidders must submit balanced bids in order that they may not be affected adversely by an increase or decrease of quantities.

12. SUBLETTING OF CONTRACT

The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of the contract or contracts or any portion thereof, or of his/her right, title, or interest therein, without written consent of the Owner. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his/her own organization not less than 30 percent of the total contract cost, except that any items designated by the Contractor and approved by the Owner as "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work to be performed by the Contractor with his/her own organization. No subcontracts or transfer of contract shall release the Contractor of his/her liability under contracts and bonds.

13. WORKER'S COMPENSATION INSURANCE

The Contractor shall provide worker's compensation insurance, as required under the laws of the State of California, protecting the employees on the work, and shall pay all premiums due thereunder.

14. PUBLIC LIABILITY INSURANCE

The Contractor shall not commence any work or permit any subcontractor to commence any work until he/she obtains at his/her expense all required insurance. Such insurance must have the approval of the Owner as to limit, form and amount.

Any insurance bearing on adequacy of performance shall be maintained after completion of the project for the full guarantee period.

For insurance requirements see Article 70-22 of the General Provisions of these specifications.

15. CONTRACT TIME

The Contractor shall begin work within ten (10) calendar days after the date set in the written Notice to Proceed by the Owner and shall diligently prosecute same to completion for all of the proposed construction.

The Contract time for the completion of the total project shall be twenty-five (25) working days beginning on date of written Notice to Proceed. All work that is performed in the Runway Safety Area (RSA) to Runway 2-20 shall be completed in fifteen (15) working days. All work that is performed outside the RSA shall be completed in ten (10) working days.

16. LIQUIDATED DAMAGES

If the Contractor refuses or fails to complete the work within the time specified, including authorized extensions, there shall be deducted from monies due the Contractor, not as a penalty, but as liquidated damages the sum of Five Hundred Dollars ($500) for each calendar day subsequent to the time specified for each project and the time the work is actually completed and accepted. Delays caused by adverse weather conditions or conditions for which the Owner is clearly responsible will be added to the contract time.

17. FEDERAL REQUIREMENTS

The work done under this contract is being financed in part by a grant from the U.S. Government under the Airport Improvement Program. The following Federal Requirements must be adhered to by the Contractor:

a. This contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, the Federal Labor provisions and the Equal Employment Opportunity (EEO) provisions as contained in the contract, specifications, and bid documents.

b. All mechanics and laborers on the project shall be paid no less than the minimum wage rate established by the U.S. Secretary of Labor. A copy of the Department of Labor Wage Rate Determination applicable to this contract is included in Appendix B of these specifications.

c. Each bidder must complete, sign and furnish, with his bid, the "Bidder's Statement on Previous Contracts Subject to EEO Clause", a "Certification of Nonsegregated Facilities," and the pertinent Disadvantaged Business Enterprise (DBE) bid forms, as applicable.

d. Required Notice for All Contracts:

(1) The bidder must supply all the information required by the proposal forms and specifications.

(2) The appropriate sponsor, in accordance with Title VI of the Civil Rights Act of 1964, hereby notifies all bidders that they (bidders) must affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for award.

e. Required Notices for Contracts Over $10,000. (See the Affirmative Action Plan Requirements in Attachment 2 to the Contract.) The regulations and orders of the Secretary of Labor, Federal Contract Compliance Programs (OFCCP) require that the sponsor and/or his/her contractor(s) include in Invitation for Bids (IFB) or negotiations for contracts over $10,000 the following notices:

(1) Each bidder will be required to comply with the affirmative action plan for equal employment opportunity prescribed by the OFCCP, United States Department of Labor, Regulations of the Secretary of Labor (41 CFR 60), or by other designated trades used in the performance of the contract and other nonfederally involved contracts in the area geographically defined in the plan.

(2) The proposed contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, and to the EEO clause; and

(3) The successful bidder will be required to submit a Certification of Non-Segregated Facilities prior to award of the contract, and to notify prospective subcontractors of the requirement for such a certification where the subcontract exceeds $10,000. Samples of the certification and the notice to subcontractors appear in the specifications.

(4) A bidder must indicate whether he/she has previously had a contract subject to the EEO clause, whether he/she has filed all report forms required in such contract, and if not, a compliance report (Standard Form SF 100) must be submitted prior to award of the contract.

(5) EEO and labor provisions, when applicable, are included in the bidding documents of specifications and are available for inspection at the office of the City Engineer, City of Oroville, California.

(6) Contractors and subcontractors may satisfy requirements of the EEO contract clause by stating in all solicitations or advertisements for employees that:

> "All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin."

or by using a single advertisement in which appears in clearly distinguished type, the phrase:

> "an equal opportunity employer".

f. This project is subject to the Federal provisions, statutes and regulations as set forth below and in the project specifications:

- *Buy America Preference* - This contract is subject to the "Buy American" preferences of the Aviation Safety and Capacity Act of 1990. Per Title 49 U.S.C. Section 50101, all steel and manufactured products installed under an AIP assisted project must be produced in the United States unless the Federal Aviation Administration has granted a formal waiver. As a condition of bid responsiveness, bidders ust indicate whether it intends to meet Buy American preferences by only installing steel and manufactured products produced within the United States of America; or if it intends to seek a permissible waiver to the Buy American preferences – See certification included in the Bid Form. See certification included in the Bid Form.

- *Foreign Trade Restriction* – 49 CFR Part 30 – A completed and signed Certification Regarding Trade Restriction Clause must be submitted with the bid for this contract. This certification is included in the Bid Form.

- *Davis-Bacon Act, as amended* – 29 CFR Parts 3 and 5

- *Affirmative Action* – Executive Order 11246 and 41 CFR Part 60-4

- *Debarment and Suspension* – Title 2 CFR Part 180 - A completed and signed Certification Regarding Debarment and Suspension must be submitted with the bid for this contract. This certification is included in the Bid Form.

- *Requirements for Drug-free Workplace* – Title 49 Part 29 Section 47105(d)

- *Disadvantaged Business Enterprise* – 49 CFR Part 26 – The City of Oroville, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. Oroville Municipal Airport has established a contract goal of 10% for the utilization of firms owned and controlled by socially and economically disadvantaged persons for this project.

18. U.S. DEPARTMENT OF LABOR POSTERS

U.S. Department of Labor Posters, Form SOL-155 (10-54), together with the applicable minimum wage rates, as determined by the Secretary of Labor for this project, shall be posted in a prominent place at the site of the work. The name of the FAA District Airport Engineer whom workers may contact in the event they have reason for complaint shall be placed in the box in the middle of the poster. Copies of this poster can be obtained from local Labor Department offices.

19. PAYMENTS

Progress payments shall be made at least once each month as the work progresses. These progress payments shall be based on work accomplished during the previous working month, based on the various contract bid items and the unit bid prices included in the Bid Schedule submitted by the Contractor with his/her bid. In applying for payments, the Contractor shall submit a statement based on this schedule. Payment will be made only for material and work actually incorporated in the work, except as allowed in Article 90-07, Payment for Materials on Hand, of the F.A.A. General Provisions. A suggested form for this progress payment follows:

MONTHLY STATEMENT FORM

NAME OF JOB_____

CONTRACTOR _____

Statement as of_____

Item No.	Description*	Unit	Unit Price	Bid Quantity	Bid Amount	Quantity Complete	Amount Due	Percent Complete
TOTAL CONTRACT PRICE					$		$	
Change Order No. _____								
REVISED CONTRACT PRICE							$	
Total earned to date							$	
Less 5% Retention								
Total amount due							$	
Less previous payments								
AMOUNT DUE THIS PAYMENT							$	

Submitted by:_____Approved by:_____

*List contract items, which comprise the total of the bid as shown in the proposal.

20. WITHHOLDING

Owner shall withhold from each payment due the Contractor five percent (5%) of the amount claimed. This 5% of the payment shall be withheld until final acceptance of the total project is given by the Owner, by the Engineer, and by the FAA. After final acceptance of the project is given and the Contractor has submitted acceptable release of all liens and furnished the Engineer acceptable red-lined drawings showing the "as-built" condition of the completed project, then the Owner shall release for payment the 5% retention. Owner will make such final payment of retention within thirty-five (35) days of final acceptance of the project and submittal of release of liens and red-lined as-built drawings.

Pursuant to Government Code Section 4590, at the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the City or with a state or federally chartered bank as the escrow agent, who shall pay such monies to the Contractor upon satisfactory completion of the contract.

Securities eligible for investment under this section shall include those listed in Government Code Section 16430 or bank or savings and loan certificates of deposit.

The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.

21. DEFINITIONS

Whenever in the specifications or on the drawings the word directed, required, permitted, designated, ordered, or words of like import are used, it shall be understood that the direction, requirement, permission, designation or order of the City of Oroville is intended; and, similarly, the words approved, satisfactory, suitable, acceptable, or words of like import, shall mean approved by the representative of the City of Oroville authorized to express such approval.

22. LEGAL REQUIREMENTS

The Bidder's special attention is directed to the requirements set forth in Attachment 1 to the Contract – Procurement and Contracting Under AIP – Federal Contract Provisions. The contract shall include all of the requirements set forth in this section.

23. TAXES

Bidders shall have included in their bids any and all Federal, State and local taxes of whatever nature in connection with material to be furnished to the City. Absolutely no extras shall be allowed for such by the City.

24. CONTRACT DOCUMENTS

The form of agreement which the successful bidder, as Contractor, will be required to execute and the form of bonds which he/she will be required to furnish are included in the Contract Documents

and should be carefully examined by each bidder. The agreement and bonds will be executed in two (2) original counterparts. The complete contract consists of the Contract Documents as defined in the agreement, and are intended to cooperate and be complementary so that any work called for in one and not mentioned in the other, or vice versa, is to be executed the same as if mentioned in all said documents. The intention of the documents is to include all labor, materials, equipment, transportation and services necessary for the proper execution of the work.

25. DECLARATION FOR FINAL PAYMENT

After the completion of the work of this contract, the Contractor shall file with the City his/her declaration under penalty of perjury stating that all workers and persons employed, all firms supplying the materials and all subcontractors upon the project, have been paid in full and that there are no bills outstanding against the project for either labor or materials except certain items, if any, to be set forth in detail in the declaration. The filing of such declaration by the Contractor and the submittals referred to in the General Provisions shall be a condition precedent to Contractor's receipt of the final payment on this contract.

26. ADMONITION

All bidders hereby are advised that the City of Oroville has adopted General Provisions for this work which differ substantially from the general provisions provided for private projects or projects undertaken by other governmental agencies. Contractors are admonished to carefully read the General Provisions, as well as the special conditions and technical provisions, and are advised that the General Provisions shall be enforced strictly.

**** END OF SECTION ****

BIDDING DOCUMENTS

OROVILLE MUNICIPAL AIRPORT
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

BID FORM

Bid Opening Date: April 27 , 2016
Hour of Bid Opening: 2:00 p.m.
Place of Bid Opening:
City of Oroville
City Clerk's Office
1735 Montgomery Street, Conference Room 1
Oroville, California 95965

TO: The City of Oroville, State of California:

Bid of, _____,
organized and existing under the laws of the State of California, and doing business as:

( ) a Corporation
( ) a Partnership
( ) an Individual

to the City of Oroville, 1735 Montgomery Street, Oroville, California 95965.

The bidder, in compliance with the Invitations for Bids for:

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING
AIP NO. 3-06-0178-__

having examined the plans and specifications with related documents of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

The bidder is required to examine carefully the work site, the proposal form, plans, Specifications, Supplemental Specifications, special provisions and contract forms for the work contemplated. It will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered for performing the work as scheduled, and as to the character, quality and quantities of work to be performed and materials to be furnished, and as to the requirements of the plans,

Specifications, Supplemental Specifications, special provisions and contract. The submission of a proposal shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to all the conditions and contingencies.

Bidder hereby agrees to commence work under this contract within 10 calendar days after issuance of the "Notice to Proceed" by the City and, will fully complete the project within twenty-five (25) **working days**, unless the period of completion is extended thereafter as stipulated in the specifications. All work that is performed in the Runway Safety Area (RSA) to Runway 2-20 shall be completed in fifteen (15) working days. All work that is performed outside the RSA shall be completed in ten (10) working days.

Bidder further agrees that should he/she fail to complete any segment of work in the time specified, he/she will pay liquidated damages to the City as prescribed in these specifications.

It is understood that the City reserves the right to increase or decrease the quantities of items bid in the contract with no change in the unit prices bid, provided the change in a major item (20 percent of total bid) does not exceed 25 percent.

All items contained in the project bid schedule, including any alternative bid items, must be submitted for the entire work. Award of contract(s) will be based on either the lowest responsible bidder for base bid schedule alone, or the base bid schedule combined with any alternatives, at the City's discretion. The amount of the bid for comparison purposes will be the total bid of all items for each respective Bid Schedule. The unit prices shall include all labor, materials, tools, equipment, overhead, profit, fees and all other items of expense necessary for and incidental to the finished work. The Contractor's attention is directed to Section 40-02 of the General Provisions of these specifications entitled, "Alteration of Work and Quantities."

The bidder understands that the City reserves the right to award or reject any or all bids for each respective Bid Schedule. The bidder agrees that their bids shall be good and may not be withdrawn for a period of ninety (90) calendar days after the actual date of opening thereof.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within fifteen (15) calendar days and deliver surety bonds as required by the general conditions. The bid security, attached, is to become the property of the City in the event the contract and bonds are not executed within the time set forth as liquidated damages for the delay and additional expense to the City caused thereby.

Accompanying this bid is _____

(Note: Insert the words "cash," "cashiers check," "certified check," or "bidders bond" as the case may be in the amount equal to at least ten (10) percent of the total bid.)

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer and manager thereof; if a co-partnership, state true name of firm, also names of all individual copartners composing firm; if bidder or other interested person is an individual, state first and last names in full.

_____

_____

_____

_____

Licensed in accordance with an act providing for the registration of Contractors,

License No. & Exp. Date:_____ Classification(s)_____

DIR NO_____

ADDENDA: This proposal is submitted with respect to the changes to the contract included in addendum number(s)._____.

(Fill in addendum numbers if addenda have been received and insert, in this Proposal, any Engineer's Estimate sheets that were received as part of the addenda.)

Addendum or addenda issued by the department must be noted above.

By my signature on this proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232 and 10285.1 are true and correct and that the bidder has complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). By my signature on this proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code are true and correct.

Signature of Bidder_____ Date:_____

Name and Title of Bidder:_____

Name of Business:_____

Business Address:_____

Telephone Number:_____

Attest: _____

Dated: _____

License No. & Exp. Date:_____

Classification:_____

SEAL: (If bid by corporation)

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

BID SCHEDULE

Item No.	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Amount (In Figures)
1	1 LS	Marking and Lighting of Closed Airport Facilities (P-149) _____Dollars and_____Cents Lump Sum	$_____	$_____
2	1 LS	Mobilization (P-150) _____Dollars and_____Cents Lump Sum	$_____	$_____
3	1,220 Sq. Yd.	Grade Runway 20 Safety Area and Object Free Area (P-152) _____Dollars and_____Cents per Square Yard	$_____	$_____
4	30 CY	Crushed Aggregate Base Course (P-209) _____Dollars and_____Cents per Cubic Yard	$_____	$_____
5	30 Ton	Bituminous Surface Course (P-401) _____Dollars and_____Cents per Ton	$_____	$_____

Item No.	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Amount (In Figures)
6	120 CY	Portland Cement Concrete Backfill of 42-inch RCP (P-610) _____Dollars and_____Cents per Cubic Yard	$_____	$_____
7	180 SF	Runway and Taxiway Marking – 2 Coats with Beads (P-620) _____Dollars and_____Cents per Square Foot	$_____	$_____
8	400 LF	Full Depth Saw Cut Existing AC Pavement (D-701) _____Dollars and_____Cents per Linear Foot		
9	520 LF	42-inch RCP, Class IV (D-701) _____Dollars and_____Cents per Linear Foot	$_____	$_____
10	2 Each	Furnish and Install 42” RCP Headwall (D-752) _____Dollars and_____Cents per Each	$_____	$_____
11	75 Ton	Rip Rap (D-753) _____Dollars and_____Cents per Ton	$_____	$_____
	TOTAL BID		***$_____***	

<u>NOTE</u>:

In the event the product of a unit price and an estimated quantity do not equal the extended amount stated, the unit price will govern and the correct product of the unit price and the estimated quantity shall be deemed to be the amount bid. In case of conflict between words and numerals the words, unless obviously incorrect, shall govern.

LIST OF SUBCONTRACTORS

Bidder shall list below the name, business address and portion of work of each subcontractor to whom it is proposed to award a subcontract under this contract in excess of one-half of one percent of the total amount shown on the bid proposal. Subcontractors must be licensed under the applicable laws of the State of California for the work they are to perform.

TRADE DESCRIPTION AND PERCENT BID	SUBCONTRACTOR'S NAME, ADDRESS AND LICENSE NUMBER*

*An inadvertent error in California contractor license number shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive as long as the corrected Contractor's license number is submitted to the City by the prime contractor within 24 hours of the bid opening.

BIDDER'S BOND
CITY OF OROVILLE

We, _____

_____ as Principal, and

_____

_____

as Surety are bound unto the City of Oroville, hereafter referred to as "Obligee," in the penal sum of ten percent (10%) of the total amount of the bid of the Principal submitted to the obligee for the work described below, for the payment of which sum we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal is submitting a bid to the Obligee, for the **OROVILLE MUNICIPAL AIRPORT, RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND RUNWAY 20 SAFETY AREA GRADING, AIP NO. 3-06-0178-__,** as shown on the Project Plans and Technical Specification, for which bids are to be opened at 1735 Montgomery Street, Oroville, California 95965 on**_____, _____, 2016, at 2:00 P.M.**

NOW, THEREFORE, if the Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him/her for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Obligee, one to guarantee faithful performance of the contract and the other to guarantee payment for labor and materials as provided by law, then this obligation shall be null and void; otherwise, it shall remain in full force.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

Dated:_____, 20___

_____

_____

THIS DOCUMENT
MUST BE NOTARIZED

_____
Principal

_____
Surety

By:_____

Note: Correspondence or claims relating to this bond should be sent to the surety at the following address:

_____

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that Contractor does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments and that he/she does not permit his/her employees to perform their services at any location, under Contractor control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that he/she will not maintain or provide, for his/her employees, segregated facilities at any of his/her establishments and that he/she will not permit his/her employees to perform their services at any location under his/her control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are , in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or any other reason.

The federally-assisted construction contractor agrees that (except where he/she has obtained identical certifications from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that he/she will retain such certifications in his/her files.

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

_____

Name and Title of Signer (Please type)

_____ _____

Signature Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

BIDDER'S STATEMENT ON PREVIOUS
CONTRACTS SUBJECT TO EEO CLAUSE

The Bidder shall complete the following statement by checking the appropriate lines:

*The Bidder has ☐ has not ☐ participated in a previous contract subject to the Equal Opportunity Clause prescribed by Executive Order 11246, as amended, of September 24, 1965.

*The Bidder has ☐ has not ☐ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder has participated in a previous contract subject to the Equal Opportunity Clause and has not submitted compliance reports due under applicable filing requirements, the Bidder shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-I," prior to the award of contract:

*NOTE: Failure to complete these boxes may be grounds for rejecting bid.

_____	_____
Signature	(Name of Bidder)
_____	_____
Date	(Name & Title of Signing Official)

Business Address_____

_____

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In accordance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or safety regulation?

YES____ NO____

If the answer is yes, explain the circumstances in the following space.

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In accordance with Public contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ___, has not ___, been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, members, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided.

The above Statement is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT SECTION 10232 STATEMENT

In accordance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

NONCOLLUSION AFFIDAVIT
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106

In accordance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Statement, Questionnaire, and Non-Collusion Affidavit are a part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Statement, Questionnaire, and Non-collusion Affidavit.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, (BIDDER OR OFFEROR)

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION REGARDING DEBARMENT AND SUSPENSION (SUCCESSFUL BIDDER REGARDING LOWER TIER PARTICIPANTS)

The successful bidder by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov

2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

DATE _____ SIGNED BY _____

TRADE RESTRICTION CLAUSE - 49 CFR PART 30

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

(a) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

(b) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

(c) has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct, through the Sponsor, cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the Sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

DATE _____ SIGNED BY _____

DISCLOSURE OF LOBBYING ACTIVITIES

The bidder or offeror certifies by signing and submitting this proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each failure.

DATE _____ SIGNED BY _____

BUY AMERICAN CERTIFICATE

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

Certificate of Buy American Compliance for Manufactured Products
(Non-building construction projects, equipment acquisition projects)

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101 by:

a) Only installing steel and manufactured products produced in the United States, or;
b) Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing, or;
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing US domestic product
3. To furnish US domestic product for any waiver request that the FAA rejects
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ The bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

1. To the submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination may result in rejection of the proposal.
3. To faithfully comply with providing US domestic products at or above the approved US domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver - The cost of the item components and subcomponents produced in the United States is more that 60% of the cost of all components and subcomponents of the "item". The required documentation for a type 3 waiver is:

a) Listing of all product components and subcomponents that are not comprised of 100% US domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety)
b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver – Total cost of project using US domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a type 4 of waiver is:

a) Detailed cost information for total project using US domestic product
b) Detailed cost information for total project using non-domestic product

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner (please check the appropriate space):

_____ The bid/offeror is committed to a minimum of _____% DBE utilization on this contract.

_____ The bidder/offeror (if unable to meet the DBE goal of _____ %) is committed to a minimum of _____% DBE utilization on this contract and should submit documentation demonstrating good faith efforts.

Name of bidder/offeror's firm: _____

State Registration No._____

Address_____

Phone No. _____ Zip Code_____

LETTER OF INTENT

Name of Bidder's Firm: _____

Bidder's Address: _____

City: _____ State_____ Zip_____

Name of DBE Firm: _____

Address:_____

City: _____ State_____ Zip_____

Telephone: _____ Area Code _____

State DBE Certification Number: _____

Description of work to be performed by DBE firm:

Bidder intends to utilize the above-named DBE firm for the work described above. The estimated amount of work is valued at $_____.

If the above-named bidder is not determined to be the successful bidder, the Letter of Intent shall be null and void.

(Copy this page for each DBE subcontractor.)

BIDDER'S LIST

All firms bidding or quoting on subcontracts for this DOT-assisted project are listed below:

Firm Name	**Address**	**Certified DBE** (Y or N)	**Age of Firm**	**GRS***

*GRS – Annual Gross Receipts
Enter 1 for less than $1 million
Enter 2 for more than $1 million, less than $5 million
Enter 3 for more than $5 million, less than $10 million
Enter 4 for more than $10 million, less than $15 million
Enter 5 for more than $15 million

CONTRACT FORMS

CONTRACT

THIS AGREEMENT, made this _____ day of_____, 2016, by and between the City of Oroville, 1735 Montgomery Street, Oroville, California, hereinafter called "City" and _____

doing business as:

( ) a Corporation
( ) a Partnership
( ) an Individual

hereinafter called "Contractor":

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The Contractor will commence and complete:

OROVILLE MUNICIPAL AIRPORT
OROVILLE, BUTTE COUNTY, CALIFORNIA
RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING
AIP NO. 3-06-0178-__

2. The Contractor will furnish all of the materials, supplies, tools, equipment, labor and other services necessary for the construction and completion of the work described in the Contract Documents.

3. The Contractor shall commence the work required by the contract documents by ten (10) calendar days after receipt of the "Notice to Proceed" and will fully complete the project within **twenty-five (25) working days** unless the period of completion is extended otherwise by the contract documents. All work that is to be performed in the Runway Safety Area (RSA) to Runway 2-20 shall be completed in fifteen (15) working days. All work that is performed outside the RSA shall be completed in ten (10) working days.

If the Contractor refuses or fails to complete the work within the time specified, including authorized extensions, there shall be deducted from monies due the Contractor, not as a penalty, but as liquidated damages the sum of Five Hundred Dollars ($500.00) for each calendar day subsequent to the time specified for each project and the time the work is actually completed and accepted. Delays caused by adverse weather conditions or conditions for which the Owner is clearly responsible will be added to the contract time.

4. City shall pay Contractor for the full and complete performance of this contract the total quantities constructed at the unit prices bid, subject to adjustments as provided in the Contract Documents.

5. The complete contract between the parties hereto shall consist of the following documents herein referred to as the "Contract Documents":

a: Invitation for Bids
b: Information for Bidders
c: Bid Schedule
d: Proposal Form
e: Bidder's Bond
f: Contract
g: General Conditions
h: Special Conditions
i: Technical Provisions
j: Payment Bond
k: Performance Bond
l: Notice of Award
m: Notice to Proceed
n: Change Orders
o: Supplemental Drawings Issued
p Drawings
q: General Provisions
r: Special Conditions
s: Technical Specifications
t: Construction Safety and Phasing Plan
u: Construction Management Plan
v: All addenda or bulletins issued during the time of bidding or forming a part of the documents loaned to the bidder for preparation of the bid.

Such documents, collectively referred to herein as the Contract Documents, hereby are incorporated herein by this reference and made a part hereof.

6. The City will pay to the Contractor in the manner and at such times as set forth in the general conditions such amounts as required by the contract documents.

7. This agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

8. Not withstanding any other provisions in the contract documents, disputes of $375,000 or less between that parties shall be subject to the provisions set forth in California Public Contract Code sections 20104 et seq. A copy of Public Contract Code sections 20104 et seq. are attached to this contract as Exhibit "A".

9. If the parties become engaged in litigation relating to this contract, the prevailing party shall be entitled to recover all reasonable attorney's fees and court costs from the losing party.

10. Federal Contract Provisions - The work to be done under this agreement is being financed in whole or in part by means of a grant made by the United States acting through the Federal Aviation Administration of the Department of Transportation. The Contractor must adhere to the

Procurement and Contracting Under AIP- Federal Contract Provisions, included as Attachment 1 to this Contract.

All mechanics and laborers on the project shall be paid no less than the minimum wage rate established by the U.S. Secretary of Labor. A copy of the Department of Labor Wage Rate Determination applicable to this contract is included as Attachment 2 to this Contract.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this agreement in three (3) counterparts, each of which shall be deemed an original on the date first written above.

CITY OF OROVILLE

BY:_____

NAME:_____

TITLE: MAYOR DATE:_____

ADDRESS: 1735 Montgomery Street
Oroville, CA 95965-4897

CITY SEAL

ATTEST:_____

NAME:_____

TITLE: DEPUTY CITY CLERK

APPROVED AS TO FORM

BY:_____

NAME:_____

TITLE: CITY ATTORNEY

CONTRACTOR

BY:_____

NAME_____TITLE:_____

COMPANY NAME:_____

LICENSE NO._____

CLASSIFICATION:_____

ADDRESS_____

EXHIBIT “A”

CALIFORNIA CODES
PUBLIC **CONTRACT CODE**
SECTION **20104**-**20104**.6

20104. (a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a **contract** between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) "Public work" has the same meaning as in Sections 3100 and 3106 of the Civil **Code**, except that "public work" does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the **contract** for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

20104.2. For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by **contract** for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation or within a period of time no greater than that taken by the claimant in producing the additional information, whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claims within 60 days of receipt of the claim, or may request, in writing, within 30 days of receipt of the claim, any additional

documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government **Code**. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government **Code**.

20104.4. The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the **Code** of Civil Procedure, notwithstanding Section 1141.11 of that **code**. The Civil Discovery Act (Title 4 (commencing with Section 2016.010) of Part 4 of the **Code** of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.

(3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the **Code** of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.

(c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

20104.6. (a) No local agency shall fail to pay money as to any portion of a claim which is undisputed except as otherwise provided in the **contract**.

(b) In any suit filed under Section **20104**.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS that_____

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called
(corporation, partnership, or individual)

Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the City of Oroville, 1735 Montgomery Street, Oroville, California, hereinafter called "City" in the penal sum of _____ _____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the City, dated the _____ day of _____, 20___, a copy of which is hereto attached and made a part thereof for **OROVILLE MUNICIPAL AIRPORT, RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND RUNWAY 20 SAFETY AREA GRADING, AIP NO. 3-06-0178-__.**

NOW THEREFORE, if the Principal shall well, 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 City, with or without notice to the Surety, and if he/she shall satisfy all claims and demands incurred under such contract and shall fully indemnify and save harmless the City from all costs and damages which it may suffer by reason of failure to so, and shall reimburse and repay the City all outlay and expense which the City 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 way 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 City and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS, WHEREOF, this instrument is executed in three (3) counterparts each of which shall be deemed an original, this_____ day of _____, 20___.

ATTEST:

_____ _____

Principal/Secretary Principal

By:_____

(Seal) Address:_____

_____

_____

Witness to Principal

_____

Address

_____

ATTEST:

_____ _____

Surety - Secretary Surety

By:_____

(Attorney-in-Fact)

(Seal) Address:_____

_____

_____

Witness as to Surety

_____

Address

_____

NOTE: Date of bond must not be prior to date of contract. If Contractor is a partnership, all partners should execute bond.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS that_____

_____
(Name of Contractor)

_____
(Address of Contractor)

a_____, hereinafter called
(corporation, partnership, or individual)

Principal, and _____
(Name of Surety)

_____
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the City of Oroville, 1735 Montgomery Street, Oroville, California, hereinafter called "City" in the penal sum of _____ _____dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the City, dated the _____ day of _____, 20___, a copy of which is hereto attached and made a part thereof for: **OROVILLE MUNICIPAL AIRPORT, RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND RUNWAY 20 SAFETY AREA GRADING, AIP NO. 3-06-0178-__.**

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, 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 way 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 City and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS, WHEREOF, this instrument is executed in three (3) counterparts each of which shall be deemed an original, this_____ day of _____, 20___.

ATTEST:

_____ _____

Principal/Secretary Principal

By:_____

(Seal) Address:_____

_____

_____

Witness to Principal

_____

Address

_____

ATTEST:

_____ _____

Surety - Secretary Surety

By:_____

(Attorney-in-Fact)

((Seal) Address:_____

_____

_____

Witness as to Surety

_____

Address

_____

NOTE: Date of bond must not be prior to date of contract. If Contractor is a partnership, all partners should execute bond.

ATTACHMENT NO. 1
PROCUREMENT AND CONTRACTING UNDER AIP
FEDERAL CONTRACT PROVISIONS

PROCUREMENT AND CONTRACTING UNDER AIP
FEDERAL CONTRACT PROVISIONS

1. ACCESS TO RECORDS AND REPORTS.
(Reference: 2 CFR § 200.326, 2 CFR § 200.333)

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

2. NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION.
(Reference: 41 CFR part 60-4, Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

A. Timetables
B. Goals for minority participation for each trade 14.3%
C. Goals for female participation in each trade (6.9%)

These goals are applicable to all of the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor is also subject to the goals for both federally funded and non-federally funded construction regardless of the percentage of federal participation in funding.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training shall be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor's goals,

shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director, Office of Federal Contract Compliance Programs (OFCCP), within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is Oroville, Butte County, California.

3. BREACH OF CONTRACT TERMS.

(Reference 2 CFR § 200 Appendix II(A))

Any violation or breach of terms of this contract on the part of the contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement. The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

4. BUY AMERICAN PREFERENCE.

(Reference: 49 USC § 50101)

BUY AMERICAN CERTIFICATION

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

Type of Certification is based on Type of Project: The certification is included in the Bid Form.

5. CIVIL RIGHTS - GENERAL.

(Reference: 49 USC § 47123)

GENERAL CIVIL RIGHTS PROVISIONS

The contractor agrees that it will comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

This provision also obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport through the Airport Improvement Program, except where Federal assistance is to provide, or is in the form of personal property; real property or interest therein; structures or improvements thereon.

In these cases the provision obligates the party or any transferee for the longer of the following periods:

(a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits; or

(b) the period during which the airport sponsor or any transferee retains ownership or possession of the property.

6. CIVIL RIGHTS – TITLE VI ASSURANCES.

6.1.1. Title VI List of Pertinent Nondiscrimination Authorities

(Source: Appendix A of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

Compliance with Nondiscrimination Requirements

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the **Title VI List of Pertinent Nondiscrimination Statutes and Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention

of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

   a. Withholding payments to the contractor under the contract until the contractor complies; and/or

   b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

6.1.2. Title VI List of Pertinent Nondiscrimination Authorities

(Source: Appendix E of Appendix 4 of FAA Order 1400.11, Nondiscrimination in Federally-Assisted Programs at the Federal Aviation Administration)

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq*.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq*.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by

discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

7. CLEAN AIR AND WATER POLLUTION CONTROL.

(Reference: 49 CFR § 18.36(i)(12)) Note, when the DOT adopts 2 CFR 200, this reference will change to 2 CFR § 200 Appendix II(G))

Contractors and subcontractors agree:

1. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

2. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

3. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

4. To include or cause to be included in any construction contract or subcontract which exceeds $100,000 the aforementioned criteria and requirements.

8. CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS. (Reference: 2 CFR § 200 Appendix II (E))

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less

than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) above, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 above.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 above.

4. Subcontractors.

The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section.

9. COPELAND "ANTI-KICKBACK" ACT

(Reference: 2 CFR § 200 Appendix II(D), 29 CFR parts 3 & 5)

The United States Department of Labor Wage and Hours Division oversees the Copeland "Anti-Kickback" Act requirements. All contracts and subcontracts must meet comply with the Occupational Safety and Health Act of 1970.

United States Department of Labor Wage and Hours Division can provide information regarding any specific clauses or assurances pertaining to the Copeland "Anti-Kickback" Act requirements required to be inserted in solicitations, contracts or subcontracts.

10. DAVIS-BACON REQUIREMENTS.

1. Minimum Wages

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards

Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2 Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above,

shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance With Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance With Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

11. DEBARMENT AND SUSPENSION (NON-PROCUREMENT).

(Reference: 2 CFR part 180 (Subpart C), 2 CFR part 1200, DOT Order 4200.5 DOT Suspension & Debarment Procedures & Ineligibility)

CERTIFICATE REGARDING DEBARMENT AND SUSPENSION (BIDDER OR OFFEROR)

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION REGARDING DEBARMENT AND SUSPENSION (SUCCESSFUL BIDDER REGARDING LOWER TIER PARTICIPANTS)

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

12. DISADVANTAGED BUSINESS ENTERPRISE.

(Reference: 49 CFR part 26)

Contract Assurance (§ 26.13) - The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. With the project closeout documents Contractor shall submit the Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors (Exhibit A).

Prompt Payment (§26.29)- The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 10 days from the receipt of each payment the prime contractor receives from the City. The prime contractor agrees further to return retainage payments to each subcontractor within 10 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur

only for good cause following written approval of the City. This clause applies to both DBE and non-DBE subcontractors.

13. ENERGY CONSERVATION REQUIREMENTS.

(Reference 2 CFR § 200 Appendix II(H))

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

14. EQUAL OPPORTUNITY CLAUSE AND SPECIFICATIONS.

(Reference 41 CFR § 60-1.4, Executive Order 11246)

41 CFR § 60-1.4 provides the mandatory contract language, but allows such necessary changes in language to be made to identify properly the parties and their undertakings. 41 CFR § 60-4.3 provides the mandatory specifications.

EQUAL OPPORTUNITY CLAUSE

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

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto,

and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 18.7a through 18.7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such a superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (18.7a through 18.7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 18.7a through 18.7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 18.7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated

trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

15. FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

(Reference: 29 USC § 201, et seq.)

All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	Federal Agency with Enforcement Responsibilities
Federal Fair Labor Standards Act (29 USC 201)	U.S. Department of Labor – Wage and Hour Division

16. LOBBYING AND INFLUENCING FEDERAL EMPLOYEES.

(Reference: 49 CFR part 20, Appendix A)

The bidder or offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the bidder or offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

17. NONSEGREGATED FACILITIES REQUIREMENT.

(Reference: 41 CFR § 60-1.8)

NOTICE OF NONSEGREGATED FACILITIES REQUIREMENT

Notice to Prospective Federally Assisted Construction Contractors

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving federally-assisted construction contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

18. OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

(Reference 20 CFR part 1910)

All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	Federal Agency with Enforcement Responsibilities
Occupational Safety and Health Act of 1970 (20 CFR Part 1910)	U.S. Department of Labor – Occupational Safety and Health Administration

19. RIGHT TO INVENTIONS.

(Reference 2 CFR § 200 Appendix II(F))

The regulation does not prescribe mandatory language, however the following clause represents sample language that meets the intent of 2 CFR § 200 Appendix II(F).

RIGHTS TO INVENTIONS

All rights to inventions and materials generated under this contract are subject to requirements and regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

20. TERMINATION OF CONTRACT.

(Reference 2 CFR § 200 Appendix II(B))

a. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services must be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.

b. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price will be made, but no amount will be allowed for anticipated profit on unperformed services.

c. If the termination is due to failure to fulfill the contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the contractor is liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

d. If, after notice of termination for failure to fulfill contract obligations, it is determined that the contractor had not so failed, the termination will be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price will be made as provided in paragraph 2 of this clause.

e. The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

21. TRADE RESTRICTION

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

22. TEXTING WHEN DRIVING

(References: Executive Order 13513, and DOT Order 3902.10)

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 “Text Messaging While Driving” (12/30/2009), FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

The Contractor must promote policies and initiatives for employees and other work personnel that decrease crashes by distracted drivers, including policies to ban text messaging while driving. The Contractor must include these policies in each third party subcontract involved on this project.

23. VETERAN'S PREFERENCE

(Reference: 49 USC § 47112(c))

In the employment of labor (except in executive, administrative, and supervisory positions), preference must be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Title 49 United States Code, Section 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

ATTACHMENT NO. 2

FEDERAL WAGE RATES

General Decision Number: CA160009 03/04/2016 CA9

Superseded General Decision Number: CA20150009

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Marin, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba Counties in California.

BUILDING CONSTRUCTION PROJECTS (excluding Amador County only); DREDGING CONSTRUCTION PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); AND HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	01/15/2016
2	01/29/2016
3	02/19/2016
4	02/26/2016
5	03/04/2016

ASBE0016-001 01/01/2014

AREA 1: MARIN, NAPA, SAN BENITO, SAN FRANCISCO, SOLANO, &

SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHEMA, TRINITY, YOLO, & YUBA COUNTIES

	Rates	Fringes
Asbestos Workers/Insulator (Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems)		
Area 1	$ 57.15	18.72
Area 2	$ 44.05	18.62

ASBE0016-007 01/01/2015

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

AREA 2: MARIN & NAPA COUNTIES

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)		
AREA 1	$ 28.30	7.75
AREA 2	$ 32.38	7.75

BOIL0549-002 01/01/2013

	Rates	Fringes

BOILERMAKER
(1) Marin & Solano Counties.$ 42.06 33.43
(2) Remaining Counties.....$ 38.37 31.32

BRCA0003-001 08/01/2013

	Rates	Fringes
MARBLE FINISHER	$ 28.05	14.01

BRCA0003-004 05/01/2015

AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
BRICKLAYER		
AREA 1	$ 37.31	19.73
AREA 2	$ 39.99	24.75

SPECIALTY PAY:
(A) Underground work such as tunnel work, sewer work, manholes, catch basins, sewer pipes and telephone conduit shall be paid $1.25 per hour above the regular rate. Work in direct contact with raw sewage shall receive $1.25 per hour in addition to the above.
(B) Operating a saw or grinder shall receive $1.25 per hour above the regular rate.
(C) Gunite nozzle person shall receive $1.25 per hour above the regular rate.

BRCA0003-008 07/01/2013

	Rates	Fringes
TERRAZZO FINISHER	$ 33.15	13.93
TERRAZZO WORKER/SETTER	$ 39.95	24.39

BRCA0003-010 04/01/2015

	Rates	Fringes
TILE FINISHER		
Area 1	$ 23.32	10.43
Area 2	$ 23.31	12.90
Area 3	$ 23.49	12.77
Area 4	$ 22.99	12.25
Tile Layer		
Area 1	$ 39.42	12.42
Area 2	$ 37.31	14.19
Area 3	$ 41.87	14.24
Area 4	$ 38.74	14.19

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehema, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 08/01/2013

	Rates	Fringes
MARBLE MASON	$ 39.30	22.48

CARP0034-001 07/01/2014

	Rates	Fringes
Diver		
Assistant Tender, ROV Tender/Technician	$ 39.60	30.73
Diver standby	$ 44.56	30.73
Diver Tender	$ 43.56	30.73
Diver wet	$ 89.12	30.73
Manifold Operator (mixed gas)	$ 48.56	30.73
Manifold Operator (Standby)	$ 43.56	30.73

DEPTH PAY (Surface Diving):
050 to 100 ft $2.00 per foot
101 to 150 ft $3.00 per foot

151 to 220 ft $4.00 per foot

SATURATION DIVING:
The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:
Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: $1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be $1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:
Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

CARP0034-003 07/01/2014

	Rates	Fringes
Piledriver.....	$ 40.60	30.73

CARP0035-001 08/01/2015

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO, WESTERN EL DORADO (Territory west of an including highway 49 and the territory inside the city limits of Placerville), WESTERN PLACER (Territory west of and including highway 49), & YOLO

AREA 4: ALPINE, BUTTE, COLUSA, EASTERN EL DORADO, GLENN, LASSEN, MODOC, NEVADA, EASTERN PLACER, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, & YUBA

Rates Fringes

Drywall Installers/Lathers:
Area 1.....$ 42.40 26.42
Area 3.....$ 37.02 26.42
Area 4.....$ 35.67 26.42
Drywall Stocker/Scrapper
Area 1.....$ 21.20 14.60
Area 3.....$ 18.51 14.60
Area 4.....$ 17.84 14.60

CARP0035-009 07/01/2015

Marin County

Rates Fringes

CARPENTER
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 42.55 25.98
Journeyman Carpenter.....$ 42.40 25.98
Millwright.....$ 42.50 27.38

CARP0035-010 07/01/2014

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Monterey, San Benito and Santa Cruz

AREA 3: Alpine, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo & Yuba counties

Rates Fringes

Modular Furniture Installer
Area 1
Installer I.....$ 23.36 18.31
Installer II.....$ 19.93 18.31
Lead Installer.....$ 26.81 18.81
Master Installer.....$ 31.03 18.81

Area 2
Installer I.....$ 20.71 18.31
Installer II.....$ 17.76 18.31
Lead Installer.....$ 23.68 18.81
Master Installer.....$ 27.31 18.81
Area 3
Installer I.....$ 19.76 18.31
Installer II.....$ 16.99 18.31
Lead Installer.....$ 22.56 18.81
Master Installer.....$ 29.58 18.81

CARP0046-001 07/01/2015

El Dorado (West), Placer (West), Sacramento and Yolo Counties

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 36.67 25.98
Journeyman Carpenter.....$ 36.52 25.98
Millwright.....$ 39.02 27.38

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

CARP0046-002 07/01/2015

Alpine, Colusa, El Dorado (East), Nevada, Placer (East), Sierra, Sutter and Yuba Counties

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,

Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 35.32 25.98
Journeyman Carpenter.....$ 35.17 25.98
Millwright.....$ 37.67 27.38

CARP0152-003 07/01/2014

Amador County

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 40.35 27.53
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 33.27 27.53
Journeyman Carpenter.....$ 33.12 27.53
Millwright.....$ 35.62 29.12

CARP0180-001 07/01/2015

Solano County

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 42.55 25.98
Journeyman Carpenter.....$ 42.40 25.98
Millwright.....$ 42.50 27.38

CARP0751-001 07/01/2015

Napa and Sonoma Counties

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 42.55 25.98
Journeyman Carpenter.....$ 42.40 25.98
Millwright.....$ 42.50 27.38

CARP1599-001 07/01/2015

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama
and Trinity Counties

Rates Fringes

Carpenters
Bridge Builder/Highway
Carpenter.....$ 42.40 25.98
Hardwood Floorlayer,
Shingler, Power Saw
Operator, Steel Scaffold &
Steel Shoring Erector, Saw
Filer.....$ 35.32 25.98
Journeyman Carpenter.....$ 35.17 25.98
Millwright.....$ 37.67 27.38

ELEC0180-001 06/01/2015

NAPA AND SOLANO COUNTIES

Rates Fringes

CABLE SPLICER.....$ 50.97 3%+20.13
ELECTRICIAN.....$ 45.31 21.98

ELEC0180-003 12/01/2015

NAPA AND SOLANO COUNTIES

Rates Fringes

Sound & Communications
Installer.....$ 33.32 16.29
Technician.....$ 34.32 17.33

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0340-002 12/01/2015

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

Rates Fringes

Communications System
Sound & Communications
Installer.....$ 27.85 14.80
Sound & Communications
Technician.....$ 32.03 14.92

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following TV monitoring and surveillance,

background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS
Background foreground music Intercom and telephone interconnect systems, Telephone systems, Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide.

B. FIRE ALARM SYSTEMS
Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems, Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.

2. The conductors for the fire alarm system are installed in conduit.

ELEC0340-003 02/01/2016

ALPINE (West of Sierra Mt. Watershed), AMADOR, BUTTE, COLUSA, EL DORADO (West of Sierra Mt. Watershed), GLENN, LASSEN, NEVADA (West of Sierra Mt. Watershed), PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA (West of Sierra Mt. Watershed), SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Remaining area	$ 39.06	24.51
Sierra Army Depot, Herlong	$ 48.83	18.54
Tunnel work	$ 41.01	18.54

CABLE SPLICER: Receives 110% of the Electrician basic hourly rate.

ELEC0401-005 11/01/2014

ALPINE (east of the main watershed divide), EL DORADO (east of the main watershed divide), NEVADA (east of the main watershed), PLACER (east of the main watershed divide) and SIERRA (east of the main watershed divide) COUNTIES:

	Rates	Fringes
ELECTRICIAN	$ 37.50	15.14

ELEC0551-004 12/01/2015

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 47.40	17.78

ELEC0551-005 12/01/2015

MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer	$ 34.32	17.33
Technician	$ 39.08	17.21

SCOPE OF WORK INCLUDES-
SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-
Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

ELEC0659-006 01/01/2016

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 30.44	16.40

ELEC0659-008 02/01/2013

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer	$ 51.09	4%+13.30
(2) Lineman, Pole Sprayer, Heavy Line Equipment Man	$ 45.62	4%+13.30

(3) Tree Trimmer.....$ 32.07 4%+9.80
(4) Line Equipment Man.....$ 45.62 4%+9.80
(5) Powdermen,
Jackhammermen.....$ 34.22 4%+9.80
(6) Groundman.....$ 31.31 4%+9.80

ELEC1245-004 06/01/2015

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	$ 52.85	15.53
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	$ 42.21	14.32
(3) Groundman.....	$ 32.28	14.03
(4) Powderman.....	$ 47.19	14.06

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day and day after Thanksgiving, Christmas Day

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ELEV0008-001 01/01/2015

	Rates	Fringes
ELEVATOR MECHANIC.....	$ 60.39	28.38

FOOTNOTE:
PAID VACATION: Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0003-008 07/01/2013

Rates Fringes

Dredging: (DREDGING:
CLAMSHELL & DIPPER DREDGING;
HYDRAULIC SUCTION DREDGING:)
AREA 1:
(1) Leverman.....$ 40.53 27.81
(2) Dredge Dozer; Heavy
duty repairman.....$ 35.57 27.81
(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender; Winch
Operator.....$ 34.45 27.81
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 31.15 27.81
AREA 2:
(1) Leverman.....$ 42.53 27.81
(2) Dredge Dozer; Heavy
duty repairman.....$ 37.57 27.81
(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender; Winch
Operator.....$ 36.45 27.81
(4) Bargeman; Deckhand;
Fireman; Leveehand; Oiler..$ 33.15 27.81

AREA DESCRIPTIONS

AREA 1: ALAMEDA,BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:
Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:
Area 1: All but the Western border with Mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeastern border with Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

ENGI0003-018 06/30/2014

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL $2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes

OPERATOR: Power Equipment
(AREA 1:)

GROUP 1.....$ 39.85 27.44
GROUP 2.....$ 38.32 27.44
GROUP 3.....$ 36.84 27.44
GROUP 4.....$ 35.46 27.44
GROUP 5.....$ 34.19 27.44
GROUP 6.....$ 32.87 27.44
GROUP 7.....$ 31.73 27.44
GROUP 8.....$ 30.59 27.44
GROUP 8-A.....$ 28.38 27.44

OPERATOR: Power Equipment
(Cranes and Attachments -
AREA 1:)

GROUP 1
Cranes.....$ 40.73 27.44
Oiler.....$ 33.76 27.44
Truck crane oiler.....$ 37.33 27.44

GROUP 2
Cranes.....$ 38.97 27.44
Oiler.....$ 33.50 27.44
Truck crane oiler.....$ 37.04 27.44

GROUP 3
Cranes.....$ 37.23 27.44
Hydraulic.....$ 32.87 27.44
Oiler.....$ 33.26 27.44
Truck Crane Oiler.....$ 36.77 27.44

GROUP 4
Cranes.....$ 34.19 27.44

OPERATOR: Power Equipment
(Piledriving - AREA 1:)

GROUP 1
Lifting devices.....$ 41.07 27.44
Oiler.....$ 31.81 27.44
Truck crane oiler.....$ 34.09 27.44

GROUP 2
Lifting devices.....$ 39.25 27.44
Oiler.....$ 31.54 27.44
Truck Crane Oiler.....$ 33.84 27.44

GROUP 3
Lifting devices.....$ 37.57 27.44
Oiler.....$ 31.32 27.44
Truck Crane Oiler.....$ 33.55 27.44

GROUP 4
Lifting devices.....$ 35.80 27.44

GROUP 5

Lifting devices.....$ 34.50 27.44
GROUP 6
Lifting devices.....$ 33.16 27.44
OPERATOR: Power Equipment
(Steel Erection - AREA 1:)
GROUP 1
Cranes.....$ 41.70 27.44
Oiler.....$ 32.15 27.44
Truck Crane Oiler.....$ 34.38 27.44
GROUP 2
Cranes.....$ 39.93 27.44
Oiler.....$ 31.88 27.44
Truck Crane Oiler.....$ 34.16 27.44
GROUP 3
Cranes.....$ 38.45 27.44
Hydraulic.....$ 32.67 27.44
Oiler.....$ 31.66 27.44
Truck Crane Oiler.....$ 33.89 27.44
GROUP 4
Cranes.....$ 36.43 27.44
GROUP 5
Cranes.....$ 35.13 27.44
OPERATOR: Power Equipment
(Tunnel and Underground Work
- AREA 1:)
SHAFTS, STOPES, RAISES:
GROUP 1.....$ 35.95 27.44
GROUP 1-A.....$ 38.32 27.44
GROUP 2.....$ 34.59 27.44
GROUP 3.....$ 33.36 27.44
GROUP 4.....$ 32.22 27.44
GROUP 5.....$ 31.08 27.44
UNDERGROUND:
GROUP 1.....$ 35.85 27.44
GROUP 1-A.....$ 38.32 27.44
GROUP 2.....$ 34.59 27.44
GROUP 3.....$ 33.26 27.44
GROUP 4.....$ 32.12 27.44
GROUP 5.....$ 30.98 27.44

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and

supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under;

GROUP 4: Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder

GROUP 5: Boom cat

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TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson; Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator
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AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND
UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY

Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
Area 1: All but the Western border with mendocino & Trinity

Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

ENGI0003-019 07/01/2013

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1	$ 29.64	25.71
AREA 2	$ 31.64	25.71
GROUP 2		
AREA 1	$ 26.04	25.71
AREA 2	$ 28.04	25.71
GROUP 3		
AREA 1	$ 21.43	25.71
AREA 2	$ 23.43	25.71

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and

Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:
Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:
Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:
Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:
Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:
Area 1: Eastern part

Area 2: Remainder

HUMBOLDT COUNTY:
Area 1: Except Eastern and Southwestern parts
Area 2: Remainder

LAKE COUNTY:
Area 1: Southern part
Area 2: Remainder

LASSEN COUNTY:
Area 1: Western part along the Southern portion of border with Shasta County
Area 2: Remainder

MADERA COUNTY
Area 1: Remainder
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Remainder
Area 2: Eastern part

MENDOCINO COUNTY:
Area 1: Central and Southeastern parts
Area 2: Remainder

MONTEREY COUNTY
Area 1: Remainder
Area 2: Southwestern part

NEVADA COUNTY:
Area 1: All but the Northern portion along the border of Sierra County
Area 2: Remainder

PLACER COUNTY:
Area 1: All but the Central portion
Area 2: Remainder

PLUMAS COUNTY:
Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:
Area 1: All but the Northeastern corner

Area 2: Remainder

SIERRA COUNTY:
Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:
Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:
Area 1: All but the Northwestern corner
Area 2: Reaminder

TEHAMA COUNTY:
Area 1: All but the Western border with mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:
Area 1: East Central part and the Northeaster border with Shasta County
Area 2: Remainder

TULARE COUNTY;
Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:
Area 1: Remainder
Area 2: Eastern Part

IRON0377-002 01/01/2016

	Rates	Fringes
Ironworkers:		
Fence Erector	$ 27.58	20.64
Ornamental, Reinforcing and Structural	$ 34.00	29.20

PREMIUM PAY:

$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland,
Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0067-002 12/01/2015

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Asbestos Removal Laborer		
Areas A & B	$ 20.66	10.02
LABORER (Lead Removal)		
Area A	$ 29.02	20.82
Area B	$ 28.02	20.82

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of

asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LABO0067-006 06/30/2014

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, EL DORADO, FRESNO, GLENN, KINGS, LASSEN, MADERA, MARIPOSA, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN
BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist Group	$ 29.09	18.66
GROUP 1	$ 28.39	18.66
GROUP 1-a	$ 28.61	18.66
GROUP 1-c	$ 28.44	18.66
GROUP 1-e	$ 28.94	18.66
GROUP 1-f	$ 28.97	18.66
GROUP 1-g (Contra Costa County)	$ 28.59	18.66
GROUP 2	$ 28.24	18.66
GROUP 3	$ 28.14	18.66
GROUP 4	$ 21.83	18.66

See groups 1-b and 1-d under laborer classifications.

Laborers: (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist Group	$ 28.09	18.66
GROUP 1	$ 27.39	18.66
GROUP 1-a	$ 27.61	18.66
GROUP 1-c	$ 27.44	18.66
GROUP 1-e	$ 27.94	18.66
GROUP 1-f	$ 27.97	18.66
GROUP 2	$ 27.24	18.66

GROUP 3.....$ 27.14 18.66
GROUP 4.....$ 20.83 18.66
See groups 1-b and 1-d under laborer classifications.
Laborers: (GUNITE - AREA A:)
GROUP 1.....$ 29.35 18.66
GROUP 2.....$ 28.85 18.66
GROUP 3.....$ 28.26 18.66
GROUP 4.....$ 28.14 18.66
Laborers: (GUNITE - AREA B:)
GROUP 1.....$ 28.35 18.66
GROUP 2.....$ 27.85 18.66
GROUP 3.....$ 27.26 18.66
GROUP 4.....$ 27.14 18.66
Laborers: (WRECKING - AREA A:)
GROUP 1.....$ 28.39 18.66
GROUP 2.....$ 28.24 18.66
Laborers: (WRECKING - AREA B:)
GROUP 1.....$ 27.39 18.66
GROUP 2.....$ 27.24 18.66
Landscape Laborer (GARDENERS,
HORTICULTURAL & LANDSCAPE
LABORERS - AREA A:)
(1) New Construction.....$ 28.14 18.66
(2) Establishment Warranty
Period.....$ 21.83 18.66
Landscape Laborer (GARDENERS,
HORTICULURAL & LANDSCAPE
LABORERS - AREA B:)
(1) New Construction.....$ 27.14 18.66
(2) Establishment Warranty
Period.....$ 20.83 18.66

FOOTNOTES:
Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work;

Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and

explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and

grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS

GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)

GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0185-002 06/30/2014

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 31.11	17.34

LABO0185-005 06/30/2014

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 34.60	19.49
GROUP 2	$ 34.37	19.49
GROUP 3	$ 34.12	19.49
GROUP 4	$ 33.67	19.49
GROUP 5	$ 33.13	19.49
Shotcrete Specialist	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-002 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	$ 28.14	19.03
Traffic Control Person I....	$ 28.44	19.03
Traffic Control Person II...	$ 25.94	19.03

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0261-004 06/30/2014

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 34.60	19.49
GROUP 2	$ 34.37	19.49
GROUP 3	$ 34.12	19.49
GROUP 4	$ 33.67	19.49
GROUP 5	$ 33.13	19.49
Shotcrete Specialist	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0261-007 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick	$ 32.36	17.34

LABO0324-004 06/30/2014

NAPA, SOLANO, AND SONOMA, COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	$ 27.14	19.03
Traffic Control Person I....	$ 27.44	19.03
Traffic Control Person II...	$ 24.94	19.03

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0324-008 06/30/2014

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	$ 34.60	19.49
GROUP 2.....	$ 34.37	19.49
GROUP 3.....	$ 34.12	19.49
GROUP 4.....	$ 33.67	19.49
GROUP 5.....	$ 33.13	19.49
Shotcrete Specialist.....	$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)

GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunite & shotcrete gunman & potman; Headermen; High

pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0324-010 06/30/2014

NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
LABORER (Brick)		
Mason Tender-Brick.....	$ 31.36	17.34

LABO1414-005 08/05/2015

	Rates	Fringes
Plasterer tender.....	$ 32.71	17.11

Work on a swing stage scaffold: $1.00 per hour additional.

PAIN0016-004 01/01/2015

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:.....	$ 36.45	21.48

PREMIUMS:
EXOTIC MATERIALS - $0.75 additional per hour.
SPRAY WORK: - $0.50 additional per hour.
INDUSTRIAL PAINTING - $0.25 additional per hour
[Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction

(bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:
over 50 feet - $2.00 per hour additional
100 to 180 feet - $4.00 per hour additional
Over 180 feet - $6.00 per houir additional

PAIN0016-005 09/01/2015

ALPINE, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Hwy. 395, excluding Honey Lake); MARIN, MODOC, NAPA, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	$ 38.24	19.93

PAIN0016-007 01/01/2015

ALPINE, AMADOR, BUTTE, COLUSA. EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Highway 395, excluding Honey Lake), MODOC, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
Painters:.....	$ 30.85	16.85

SPRAY/SANDBLAST: $0.50 additional per hour.
EXOTIC MATERIALS: $1.00 additional per hour.
HIGH TIME: Over 50 ft above ground or water level $2.00 additional per hour. 100 to 180 ft above ground or water level $4.00 additional per hour. Over 180 ft above ground or water level $6.00 additional per hour.

PAIN0016-008 01/01/2015

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	$ 46.20	18.73

PAIN0169-004 01/01/2015

MARIN , NAPA & SONOMA COUNTIES; SOLANO COUNTY (west of a line defined as follows: Hwy. 80 corridor beginning at the City of Fairfield, including Travis Air Force Base and Suisun City; going north of Manakas Corner Rd., continue north on Suisun Valley Rd. to the Napa County line; Hwy. 80 corridor south on Grizzly Island Rd. to the Grizzly Island Management area)

	Rates	Fringes
GLAZIER.....	$ 43.48	24.19

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* PAIN0567-001 07/01/2014

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Painters:		
Brush and Roller.....	$ 23.16	10.38
Spray Painter & Paperhanger.	$ 24.01	10.38

PREMIUMS:
Special Coatings (Brush), and Sandblasting = $0.50/hr
Special Coatings (Spray), and Steeplejack = $1.00/hr
Special Coating Spray Steel = $1.25/hr
Swing Stage = $2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-007 07/01/2015

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains) AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
SOFT FLOOR LAYER	$ 26.26	11.78

PAIN0567-010 07/01/2015

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Drywall		
(1) Taper	$ 28.08	12.13
(2) Steeplejack - Taper, over 40 ft with open space below	$ 29.58	12.13

PAIN0767-004 01/01/2015

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

	Rates	Fringes
GLAZIER	$ 33.79	22.49

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day,

Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee rquired to wear a body harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2014

HIGHWAY IMPR0VEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1	$ 34.26	11.65
GROUP 2	$ 29.12	11.65
GROUP 3	$ 29.46	11.65

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

PAIN1237-001 01/01/2015

ALPINE; COLUSA; EL DORADO (west of the Sierra Nevada Mountains); GLENN; LASSEN (west of Highway 395, beginning at Stacey and including Honey Lake); MODOC; NEVADA (west of the Sierra Nevada Mountains); PLACER (west of the Sierra Nevada Mountains); PLUMAS; SACRAMENTO; SHASTA; SIERRA (west of the Sierra Nevada Mountains); SISKIYOU; SUTTER; TEHAMA; TRINITY; YOLO AND YUBA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER	$ 31.79	14.93

PLAS0300-003 07/01/2014

Rates Fringes

PLASTERER
AREA 295: Alpine, Amador,
Butte, Colusa, El Dorado,
Glenn, Lassen, Modoc,
Nevada, Placer, Plumas,
Sacramento, Shasta,
Sierra, Siskiyou, Solano,
Sutter, Tehema, Trinity,
Yolo & Yuba Counties.....$ 31.41 22.26
AREA 355: Marin.....$ 34.75 22.26
AREA 355: Napa & Sonoma
Counties.....$ 31.41 22.26

PLAS0300-005 06/30/2014

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...$ 30.00 22.07

PLUM0038-002 07/01/2015

MARIN AND SONOMA COUNTIES

Rates Fringes

PLUMBER (Plumber,
Steamfitter, Refrigeration
Fitter)
(1) Work on wooden frame
structures 5 stories or
less excluding hgih-rise
buildings and commercial
work such as hospitals,
prisons, hotels, schools,
casinos, wastewater
treatment plants, and
resarch facilities as well
as refrigeration
pipefitting, service and
repair work - MARKET
RECOVERY RATE.....$ 55.10 40.91
(2) All other work - NEW
CONSTRUCTION RATE.....$ 65.00 43.49

PLUM0038-006 07/01/2015

MARIN & SONOMA COUNTIES

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....	$ 55.10	40.91

PLUM0228-001 01/01/2016

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER.....	$ 38.25	27.64

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* PLUM0343-001 01/01/2016

NAPA AND SOLANO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial.....	$ 30.85	20.40
All Other Work.....	$ 49.15	31.30

DEFINITION OF LIGHT COMMERICIAL:
Work shall include strip shopping centers, office buildings, schools and other commercial structures which the total plumbing bid does not exceed Two Hundred and Fifty Thousand ($250,000) and the total heating and cooling does not exceed Two Hundred Fifty Thousand ($250,000); or Any projects bid in phases shall not qualify unless the total project is less than Two Hundred Fifty Thousand ($250,000) for the plumbing bid; and Two Hundred Fifty Thousand ($250,000) for the heating and cooling bid. Excluded are hospitals, jails, institutions and industrial projects, regardless size of the project

FOOTNOTES: While fitting galvanized material: $.75 per hour additional. Work from trusses, temporary staging, unguarded structures 35' from the ground or water: $.75 per hour additional. Work from swinging scaffolds, boatswains

chairs or similar devices: $.75 per hour additional.

PLUM0350-001 02/01/2015

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 30.88	11.51

PLUM0355-001 07/01/2015

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter	$ 28.60	10.05

PLUM0442-003 07/01/2015

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER	$ 38.75	26.64

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* PLUM0447-001 07/01/2015

AMADOR (north of San Joaquin River), EL DORADO (excluding Lake Tahoe area), NEVADA (excluding Lake Tahoe area); PLACER (excluding Lake Tahoe area), SACRAMENTO AND YOLO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Journeyman	$ 45.52	22.60
Light Commercial Work	$ 35.23	17.47

ROOF0081-006 08/01/2015

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer	$ 36.08	14.90

ROOF0081-007 08/01/2015

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN,LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Roofer	$ 34.00	14.80

SFCA0483-003 01/01/2015

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 56.02	27.77

SFCA0669-003 07/01/2013

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER	$ 34.19	19.37

SHEE0104-006 07/01/2015

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes

Sheet Metal Worker
Mechanical Contracts
$200,000 or less.....$ 46.30 40.28
All other work.....$ 52.20 41.56

SHEE0104-009 07/01/2015

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER,
YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER.....	$ 40.07	33.17

SHEE0104-010 07/01/2015

AlPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	$ 36.85	30.90

SHEE0104-011 07/01/2015

BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

	Rates	Fringes
Sheet Metal Worker (Metal decking and siding only).....	$ 34.15	32.98

SHEE0104-014 07/01/2015

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only).....	$ 34.15	32.98

SHEE0104-019 07/01/2015

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER		
Mechanical Jobs $200,000 & under	$ 30.24	30.64
Mechanical Jobs over $200,000	$ 40.07	33.22

TEAM0094-001 07/01/2015

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 28.57	25.22
GROUP 2	$ 28.87	25.22
GROUP 3	$ 29.17	25.22
GROUP 4	$ 29.52	25.22
GROUP 5	$ 29.87	25.22

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.

Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and

unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification
and wage rates that have been found to be prevailing for the
cited type(s) of construction in the area covered by the wage
determination. The classifications are listed in alphabetical
order of "identifiers" that indicate whether the particular
rate is a union rate (current union negotiated rate for local),
a survey rate (weighted average rate) or a union average rate
(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed
in dotted lines beginning with characters other than "SU" or
"UAVG" denotes that the union classification and rate were
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of
the union which prevailed in the survey for this
classification, which in this example would be Plumbers. 0198
indicates the local union number or district council number
where applicable, i.e., Plumbers Local 0198. The next number,
005 in the example, is an internal number used in processing
the wage determination. 07/01/2014 is the effective date of the
most current negotiated rate, which in this example is July 1,
2014.

Union prevailing wage rates are updated to reflect all rate
changes in the collective bargaining agreement (CBA) governing
this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that
no one rate prevailed for this classification in the survey and

the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter

* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

FAA GENERAL PROVISIONS

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SECTION 10

DEFINITION OF TERMS

Whenever the following terms are used in these specifications, in the contract, in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10-01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

10-02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

10-03 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10-04 AIRPORT IMPROVEMENT PROGRAM (AIP). A grant-in-aid program, administered by the Federal Aviation Administration (FAA).

10-05 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.

10-06 AIRPORT. Airport shall mean Oroville Municipal Airport, Oroville, California.

10-07 ASTM INTERNATIONAL (ASTM). Formerly known as the American Society for Testing and Materials (ASTM).

10-08 AWARD. The acceptance, by the Owner, of the successful bidder's proposal.

10-09 BIDDER. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-10 BUILDING AREA. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

10-11 CALENDAR DAY. Every day shown on the calendar.

10-12 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time

adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

10-13 CONTRACT The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: Advertisement, Contract Form, Proposal, Performance Bond, Payment Bond, any required insurance certificates, Specifications, Plans, and any addenda issued to bidders.

10-14 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.

10-15 CONTRACT TIME. The number of working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.

10-16 CONTRACTOR. The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

10-17 CONTRACTOR'S LABORATORY. The Contractor's quality control organization in accordance with the Contractor Quality Control Program.

10-18 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.

10-19 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-20 ENGINEER. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering inspection of the contract work and acting directly or through an authorized representative.

10-21 EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-22 EXTRA WORK. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within intended scope of the contract as previously modified.

10-23 FAA. The Federal Aviation Administration of the U. S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his or her duly authorized representative.

10-24 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.

10-25 FORCE ACCOUNT. Force account work is planning, engineering, or construction work done by the Sponsor's employees.

10-26 INSPECTOR. An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-27 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of the like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-28 LABORATORY. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer. Also referred to as "Engineer's Laboratory" or "quality assurance laboratory."

10-29 LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

10-30 MAJOR AND MINOR CONTRACT ITEMS. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20 percent of the total amount of the awarded contract. All other items shall be considered minor contract items.

10-31 MATERIALS. Any substance specified for use in the construction of the contract work.

10-32 NOTICE TO PROCEED (NTP). A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-33 OWNER. The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only.

10-34 PASSENGER FACILITY CHARGE (PFC). Per 14 CFR Part 158 and 49 USC § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls."

10-35 PAVEMENT. The combined surface course, base course, and subbase course if any considered as a single unit.

10-36 PAYMENT BOND (LABOR AND MATERIAL BOND). The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-37 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his or her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-38 PLANS. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

10-39 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-40 PROPOSAL (BID FORM). The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

10-41 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his/her proposal is accepted by the Owner.

10-42 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-43 SPECIFICATIONS. A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

10-44 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.

10-45 STRUCTURES. Airport facilities such as bridges; culverts; catch basins; inlets; retaining walls; cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids;

buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

10-46 SUBGRADE. The soil which forms the pavement foundation.

10-47 SUPERINTENDENT. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-48 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the Owner covering (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25%, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-49 SURETY. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds which are furnished to the Owner by the Contractor.

10-50 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.

10-51 WORK. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

10-52 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 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.

SECTION 20

PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT. (Invitation For Bids). Invitation for Bids is bound in these specifications under “Bidding Requirements".

20-02 QUALIFICATION OF BIDDERS. Each bidder shall furnish the Owner satisfactory evidence of his or her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder’s past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the Owner satisfactory evidence of his or her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder’s financial resources and liabilities as of the last calendar year or the bidder’s last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether his or her financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder’s financial responsibility has changed, the bidder shall qualify the public accountant’s statement or report to reflect the bidder’s true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that he or she is prequalified with the State Highway Division and is on the current “bidder’s list” of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

Each bidder shall submit “evidence of competency” and “evidence of financial responsibility” to the Owner at the time of bid opening.

20-03 CONTENTS OF PROPOSAL FORMS. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-04 ISSUANCE OF PROPOSAL FORMS. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

(a) Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

(b) Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

(c) Documented record of Contractor default under previous contracts with the Owner.

(d) Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in Subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 without in any way invalidating the unit bid prices.

20-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal 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 proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from his/her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 PREPARATION OF PROPOSAL. The bidder shall submit his/her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which bidder proposes to do for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign the proposal correctly and in ink. If the proposal is made by an individual, his/her name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer.

Anyone signing a proposal as an agent shall file evidence of his/her authority to do so and that the signature is binding upon the firm or corporation.

20-08 RESPONSIVE AND RESPONSIBLE BIDDER. A responsive bid conforms to all significant terms and conditions contained in the Sponsor's invitation for bid. It is the Sponsor's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 49 CFR § 18.36(b)(8). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 IRREGULAR PROPOSALS. Proposals shall be considered irregular for the following reasons:

(a) If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

(b) If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind which make the proposal incomplete, indefinite, or otherwise ambiguous.

(c) If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

(d) If the proposal contains unit prices that are obviously unbalanced.

(e) If the proposal is not accompanied by the proposal guaranty specified by the Owner.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 BID GUARANTY. Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner.

20-11 DELIVERY OF PROPOSAL. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 WITHDRAWAL OR REVISION OF PROPOSALS. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by fax or email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 PUBLIC OPENING OF PROPOSALS. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or email request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

(a) Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

(b) Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

(c) If the bidder is considered to be in "default" for any reason specified in Subsection 20-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

(d) Lack of competency as revealed by inability to produce a valid license as required by law.

**** END OF SECTION 20****

SECTION 30

AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

(a) If the proposal is irregular as specified in the subsection 20-09 titled IRREGULAR PROPOSALS of Section 20.

(b) If the bidder is disqualified for any of the reasons specified in the subsection 20-14 titled DISQUALIFICATION OF BIDDERS of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 AWARD OF CONTRACT. The award of a contract, if it is to be awarded, shall be made within 90 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner.

30-03 CANCELLATION OF AWARD. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section.

30-04 RETURN OF PROPOSAL GUARANTY. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in subsection 30-01 titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section.

30-05 REQUIREMENTS OF CONTRACT BONDS. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 EXECUTION OF CONTRACT. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return such signed contract to the Owner, along with the fully executed surety bond or bonds specified in Subsection 30-05 titled REQUIREMENTS OF CONTRACT BONDS of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 APPROVAL OF CONTRACT. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 FAILURE TO EXECUTE CONTRACT. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the fifteen (15) calendar day period specified in Subsection 30-06 titled EXECUTION OF CONTRACT of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

SECTION 40

SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 ALTERATION OF WORK AND QUANTITIES. The Owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations 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 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 as if the altered work had been a part of the original contract. These alterations that are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the Owner and the Contractor are unable to agree on a unit price adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

Supplemental agreements shall be approved by the FAA and shall include all applicable Federal contract provisions for procurement and contracting required under AIP. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds.

40-03 OMITTED ITEMS. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Subsection 90-04 titled PAYMENT FOR OMITTED ITEMS of Section 90.

40-04 EXTRA WORK. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, the same shall be called Extra Work. Extra work that is within the general scope of the contract shall be covered by written change order. Change orders for such extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such extra work.

When determined by the Engineer to be in the Owner's best interest, the Engineer may order the Contractor to proceed with Extra Work as provided in the subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. Extra Work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as defined in the subsection 10-48 titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 MAINTENANCE OF TRAFFIC. 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.

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to his or her own operations and the operations of all subcontractors as specified in the subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80. 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 the subsection 70-15 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

b. With respect to his or her own operations and the operations of all subcontractors, 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.

c. 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 (MUTCD) (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.

40-06 REMOVAL OF EXISTING STRUCTURES. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in Subsection 40-07 titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, the Contractor may at his/her option either:

(a) Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,

(b) Remove such material from the site, upon written approval of the Engineer; or,

(c) Use such material for the Contractor’s own temporary construction on site; or,

(d) Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option (a), (b), or (c), the Contractor shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option (a), (b), or (c), the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option (a), the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option (a), (b), or (c).

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 FINAL CLEANUP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

SECTION 50

CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the work, the fulfillment of the contract on the part of the Contractor, and the rights of different contractors on the project. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the contract.

The Engineer does not have to authority to accept pavements that do not conform to FAA specification requirements.

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, he will advise the Owner of his/her determination that the affected work be accepted and remain in place. In this event, the Engineer will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. The Engineer's determination and recommended contract price adjustments will be based on sound engineering judgment and such tests or retests of the affected work as are, in the Engineer’s opinion, needed. Changes in the contract price shall be covered by contract change order or supplemental agreement as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority after consultation with the F.A.A. to use sound engineering judgment

in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the contract, plans, and specifications.

The Engineer will not be responsible for the contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited FAA advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited FAA ACs; plans shall govern over cited standards for materials or testing and cited FAA ACs. If any paragraphs in the Special Provisions conflict with the General Provisions or Technical Provisions, the Special Provisions shall govern.

From time to time, discrepancies within cited standards for testing occur due to the timing of change, edit, and/or replacement of standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the Engineer for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he/she shall immediately call upon the Engineer for his/her interpretation and decision, and such decision shall be final.

50-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied with five copies each of the plans and specifications, one set to be marked for Record Drawings as specified in the Special Conditions. The Contractor shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and his/her inspectors and with other contractors in every way possible. The Engineer shall allocate the work and designate the sequence of construction in case of controversy between contractors. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his/her agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer or his/her authorized representative.

50-05 COOPERATION BETWEEN CONTRACTORS. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each contractor shall conduct the work so as not to interfere with or hinder the progress of completion of the work being performed by other contractors. Contractors working on the same project shall cooperate with each other as directed.

Each contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other contractors within the limits of the same project. He shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-06 CONSTRUCTION LAYOUT AND STAKES. The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either their own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or their employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.

The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper prosecution and control of the work contracted for under these specifications.

The Contractor must give copies of survey notes to the Engineer for each area of construction and for each placement of material as specified to allow the Engineer to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. All surveys must be provided to the Engineer prior to commencing work items that will cover or disturb the survey staking as set by the Contractor's surveyor. Survey(s) and notes shall be provided in the following format(s): Point File compatible with AutoCAD**.** In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in the contract documents, for this labor, materials, or other expenses therewith. The cost thereof shall be included in the price of the bid for the various items of the Contract.

Construction Staking and Layout includes but is not limited to:

a. Clearing and Grubbing perimeter staking

b. Rough Grade slope stakes at 100-foot (30-m) stations

c. Drainage Swales slope stakes and flow line blue tops at 50-foot (15-m) stations

d. *Subgrade blue tops* at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

1. Runway – minimum five (5) per station

2. Taxiways – minimum three (3) per station

3. Holding apron areas – minimum three (3) per station

4. Roadways – minimum three (3) per station

e. *Base Course blue tops* at 25-foot (7.5-m) stations and 25-foot (7.5-m) offset distance (maximum) for the following section locations:

1. Runway – minimum five (5) per station

2. Taxiways – minimum three (3) per station

3. Holding apron areas – minimum three (3) per station

f. *Pavement areas:*

1. Edge of Pavement hubs and tacks (for stringline by Contractor) at 100-foot (30-m) stations.

2. Between Lifts at 25-foot (7.5-m) stations for the following section locations:
(a) Runways – each paving lane width
(b) Taxiways – each paving lane width
(c) Holding areas – each paving lane width

3. After finish paving operations at 50-foot (15-m) stations:
All paved areas – Edge of each paving lane prior to next paving lane

g. Shoulder and safety area blue tops at 50-foot (15-m) stations and at all break points with maximum of 50-foot (15-m) offsets.

Fence lines at 100-foot (30-m) stations minimum.

h. Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, Visual Approach Slope Indicators (VASIs), Precision Approach Path Indicators (PAPIs), Runway End Identifier Lighting (REIL), Wind Cones, Distance Markers (signs), pull boxes and manholes.

i. Drain lines, cut stakes and alignment on 25-foot (7.5-m) stations, inlet and manholes.

j. Painting and Striping layout (pinned with 1.5 inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

k. Laser, or other automatic control devices, shall be checked with temporary control point or grade hob at a minimum of once per 400 feet (120 m) per pass (that is, paving lane).

The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor.

Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

50-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period of 48 hours following the breakdown or malfunction, provided the method of operations will produce results which conform to all other requirements of the contract.

50-08 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Owner shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner are authorized to notify the Contractor or his/her representative of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for a decision.

50-09 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a completed and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portion of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work which does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in Subsection 50-02 titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Subsection 70-14 titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 70.

No removal work made under provision of this subsection shall be done without lines and grades having been given by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as established by the Engineer, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs incurred by the Owner from any monies due or to become due the Contractor.

50-11 LOAD RESTRICTIONS. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his/her hauling equipment and shall correct such damage at his/her own expense.

50-12 MAINTENANCE DURING CONSTRUCTION. 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, and the Contractor will not be paid an additional amount for such work.

50-13 FAILURE TO MAINTAIN THE WORK. Should the Contractor at any time fail to maintain the work as provided in Subsection 50-12 titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the Engineer's notification, the Engineer may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be deducted from monies due or to become due the Contractor.

50-14 PARTIAL ACCEPTANCE. If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the Engineer may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 FINAL ACCEPTANCE. Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 CLAIMS FOR ADJUSTMENT AND DISPUTES. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the Engineer in writing of his/her intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the Engineer who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

50-17 COST REDUCTION INCENTIVE. The provisions of this subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original contract amounts in excess of $100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the 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, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

(a) A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;

(b) An itemization of the contract requirements that must be changed if the proposal is adopted;

(c) A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes;

(d) A statement of the time by which a change order adopting the proposal must be issued;

(e) A statement of the effect adoption of the proposal will have on the time for completion of the contract; and

(f) The contract items of work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted.

The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the cost reduction proposal has been issued. If a change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a

decision should be made, or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.

The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Engineer may disregard the contract bid prices if, in the Engineer's judgment such prices do not represent a fair measure of the value of the work to be performed or deleted.

The Owner may require the Contractor to share in the Owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a cost reduction proposal from accounts payable to the Contractor under the contract.

If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order which shall specifically state that it is executed pursuant to this subsection. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Engineer's approval is based. The change order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.

The Contractor's 50 percent share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work.

Acceptance of the cost-reduction proposal and performance of the cost reduction work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.

SECTION 60

CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the sources of supply before delivery is started. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

(a) Listed in the FAA Advisory Circular AC 150/5345-53, Airport Lighting Equipment Certification Program, and Addendum that is that is in effect on the date of advertisement; and,

(b) Produced by the manufacturer as listed in the Addendum cited above for the certified equipment part number.

The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection:

Equipment Name	Cited FAA Spec	Effective FAA AC or Approval Letter for Equipment & Manufacturer
None		

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. All materials used in the work shall be inspected, tested and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids, will be made by and at the expense of the Engineer.

The testing organizations performing on site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel, including the Contractor’s representative at his/her request. Samples for quality assurance will be taken by a qualified representative of the Engineer. All materials being used are subject to inspection, test or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor’s representative at their request after review and approval of the Engineer.

The Contractor shall employ a testing organization to perform all Contractor required tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of all test data shall be given to the Engineer daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the Engineer showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

(a) Conformance to the specified performance, testing, quality or dimensional requirements; and,

(b) Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly he shall furnish the manufacturer's certificate of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 PLANT INSPECTION. The Engineer or his authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

(a) The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

(b) The Engineer shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

(c) If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 ENGINEER'S FIELD OFFICE AND LABORATORY. An Engineer’s Field Office and Laboratory is not required.

60-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown

on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his/her entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

60-07 UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the Engineer has approved its use in the work.

60-08 OWNER-FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing owner-furnished materials shall be included in the unit price bid for the contract item in which such owner-furnished material is used.

After any owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss or other deficiencies that may occur during the Contractor's handling, storage, or use of such owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of owner-furnished materials.

SECTION 70

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

70-01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all its officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by Contractor or Contractor's employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notice necessary and incidental to the due and lawful execution of the work.

70-03 PATENTED DEVICES, MATERIALS AND PROCESSES. If the Contractor is required or desires to use any design, device, material or process covered by letters of patent or copyright, Contractor shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) is indicated as follows:

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the owner of public or private utility service, FAA, or NOAA facility, 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. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. 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.

70-05 FEDERAL AID PARTICIPATION. 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 United Stated Code (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.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous, or dangerous to his/her health or safety.

70-07 PUBLIC CONVENIENCE AND SAFETY. The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with Subsection 40-05 titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in Subsection 80-04 titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. 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 (AOA) shall be a maximum of 18 inches high. Unless otherwise specified, barricades shall be spaced not more than 4 feet apart. Barricades, warning signs, and markings shall be paid for under Item P-149.

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.

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) 150/5340-1L, Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stockpiles, and 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 150/5370-2F, Operational Safety on Airports During Construction.

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

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work which requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their removal is directed by the Engineer.

Open-flame type lights shall not be permitted.

70-09 USE OF EXPLOSIVES. The use or storage of explosives is not permitted on this Airport.

70-10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, the Contractor shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing or otherwise restoring as may be directed, or he/she shall make good such damage or injury in an acceptable manner.

70-11 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify and save harmless the Engineer and the Owner and their officers, and employees from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any

person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of his/her contract as may be considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, his/her surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his/her own estimate of the difficulties involved in arranging his/her work to permit such beneficial occupancy by the Owner as described below:

SHOWN ON THE PLANS

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with Subsection 50-14 of Section 50 of these General Provisions titled PARTIAL ACCEPTANCE.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer 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 Engineer, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings 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 provisions of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his/her expense.

The Contractor shall make his/her 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.

Contractor shall be required to conform to safety standards contained in AC 150/5370-2F, Operational Safety on Airports During Construction (See Special Conditions.)

Contractor shall refer to the approved Construction Safety and Phasing Plan (CSPP) to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

70-14 CONTRACTOR'S RESPONSIBILITY FOR WORK. Until the Engineer's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Subsection 50-14 titled PARTIAL ACCEPTANCE of Section 50, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of a public enemy or of governmental authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetable growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in Subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the owners are indicated as follows:

Utility Service or Facility	Person to Contact (Name, Title)	Owner's Address	Owner's Emergency Contact (Phone)
Pacific Gas and Electric (PG&E)		460 Rio Linda Avenue Chico, CA 95927	(530) 894-4733
AT&T			
Thermalito Irrigation District		410 Grand Avenue Oroville, CA 95965	(530) 533-0740

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and Subsection 70-04 titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section if applicable. A copy of each notification shall be given to the Engineer.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two day's notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within 3 feet of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his or her surety.

70-15.1 FAA FACILITIES AND CABLE RUNS. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall notify the above named FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport Owner seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facilities outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the above named FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. If execution of the project work results in damages to existing FAA equipment or cables, the Contractor shall repair the damaged item in conformance with FAA standards to the satisfaction of the above named FAA Point-of-Contact. Any damage to FAA cables, access roads, or FAA facilities during construction will require the Contractor to replace the damaged cables, access road, or FAA facilities to FAA requirements. The contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA

e. If the project work requires the cutting or splicing of FAA owned cables, the above named FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 FURNISHING RIGHTS-OF-WAY. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 PERSONAL LIABILITY OF PUBLIC OFFICIALS. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, his or her authorized representatives, or any official of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 NO WAIVER OF LEGAL RIGHTS. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his/her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his/her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. 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, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. 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 his/her operations, any building, 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 Engineer. The Engineer will immediately investigate the Contractor's finding and the Owner will 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 or supplemental agreement as provided in Subsection 40-04 titled EXTRA WORK of Section 40 and Subsection 90-05 titled PAYMENT FOR EXTRA WORK of Section 90. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

SECTION 80

PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Engineer.

The Contractor shall provide copies of all subcontracts to the Engineer. The Contractor shall perform, with his organization, an amount of work equal to at least 30 percent of the total contract cost.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

80-02 NOTICE TO PROCEED. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin. The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-03 EXECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer's approval within 10 days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-04 LIMITATION OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS (AOA) of the airport.

When the work requires the Contractor to conduct his/her operations within an AOA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in Subsection 70-08 titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract 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. The following AOA cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

AOA	Time Periods AOA Can be Closed	Type of Communications Required When Working in AOA	Control Authority
RWs & TWs	See Special Conditions (SC)	Radio tuned to 122.8 MHz	Airport Mgmt.

Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction (See Special Provisions).

80-04.1 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION. 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 Advisory Circular 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 (SPCD) that details how it proposes to comply with the requirements presented within the CSPP.

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 CSPP measures.

The Contractor is responsible to the Owner 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.

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

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as the Owner may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the execution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of working days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor’s control, it shall be adjusted as follows:

(a) CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his/her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his weekly statement of contract time charged on the following considerations:

(1) No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least 6 hours with the normal work force employed on such principal item. Should the normal work force be on a double-shift, 12 hours shall be used. Should the normal work force be on a triple-shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(2) The Engineer will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The Engineer will begin charges against the contract time on the first working day after the effective date of the notice to proceed.

(4) The Engineer will not make charges against the contract time after the date of final acceptance as defined in Subsection 50-15 titled FINAL ACCEPTANCE of Section 50.

(5) The Contractor will be allowed one week in which to file a written protest setting forth his/her objections to the Engineers' weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in Subsection 20-05 titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

(b) CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and nonwork days. All calendar days elapsing between the effective dates of the Owner’s orders to suspend and resume all work, due to causes not the fault of the contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

(c) When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time

for completion by a change order that adjusts the contract time. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

80-08 FAILURE TO COMPLETE ON TIME. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in Subsection 80-07 titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in his/her contract.

The maximum construction time allowed for Schedules [ ] will be the sum of the time allowed for individual schedules but not more then [ ] days. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

(a) Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or

(b) Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or

(c) Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

(d) Discontinues the prosecution of the work, or

(e) Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

(f) Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

(g) Allows any final judgement to stand against him unsatisfied for a period of 10 days, or

(h) Makes an assignment for the benefit of creditors, or

(i) For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the contract for any reason above, the Engineer shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS. The Contractor shall obtain approval from the Engineer prior to beginning any work in all areas of the airport. No operating runway, taxiway, or Air Operations Area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate his/her work in such a

manner as to ensure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum of 400 feet from the centerline of an active runway or 93 from the centerline of an active taxiway in the areas shown on the plans. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within 250 feet of the centerline of an active runway or 60 feet of the centerline of an active taxiway at any time.

**** END OF SECTION 80 ****

SECTION 90

MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Engineer, or his/her authorized representatives, 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 materials furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

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 (0.8 square meter) 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 Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

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 said items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized steel 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.

The term "ton" will mean the short ton consisting of 2,000 pounds (907 kilograms) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

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.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon (liter) or ton (kilogram). When measured by volume, such volumes will be measured at 60 degrees F (16 degrees C) or will be corrected to the volume at 60 degrees F (16 degrees C) using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

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.

Cement will be measured by the ton (kilogram) or hundredweight (kilogram).

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

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.

Rental of equipment will be measured by the time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in Subsection 90-05 titled PAYMENT FOR EXTRA WORK of this section.

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.

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 one-half percent 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. 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 one percent of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound (2.3 kilogram) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighing-accuracy test will be reduced by the percentage of error in excess of one-half of one percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

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.

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 Engineer. 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.

90-02 SCOPE OF PAYMENT. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Subsection 70-18 titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Subsection 40-02 titled ALTERATION OF WORK AND QUANTITIES of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in Subsection 40-03 titled OMITTED ITEMS of Section 40, the Engineer shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature and amount of such costs.

90-05 PAYMENT FOR EXTRA WORK. Extra work, performed in accordance with Subsection 40-04 titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 PARTIAL PAYMENTS. Partial payments will be made to the Contractor at least once each month as the work progresses.

Said payments will be based upon estimates, prepared by the Engineer, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection 90-07 titled PAYMENT FOR MATERIALS ON HAND of this section.

No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in Subsection 90-09 titled ACCEPTANCE AND FINAL PAYMENT of this section.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 PAYMENT FOR MATERIALS ON HAND. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

(a) The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

(b) The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

(c) The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.

(d) The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

(e) The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

90-08 PAYMENT OF WITHHELD FUNDS. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in subsection 90-06 PARTIAL PAYMENTS, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 ACCEPTANCE AND FINAL PAYMENT. When the contract work has been accepted in accordance with the requirements of Subsection 50-15 titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Subsection 50-16 titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, and after the Engineer's receipt of the project closeout documentation required in subsection 90-11 Project Closeout, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payment shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Subsection 50-16 titled CLAIMS FOR ADJUSTMENT AND DISPUTES or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 CONSTRUCTION WARRANTY.

(a) 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, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of:

1. The Contractor's failure to conform to contract requirements; or
2. Any defect of equipment, material, workmanship, or design furnished by the Contractor.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

(e) The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

(h) This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 PROJECT CLOSEOUT. Approval of final payment to the Contractor is contingent upon completion and submittal of the following items. The final payment will not be approved until the Engineer approves the Contractor's final submittal. The Contractor shall:

(a) Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

(b) Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

(c) Complete final cleanup in accordance with subsection 40-08, FINAL CLEANUP.

(d) Complete all punch list items identified during the Final Inspection.

(e) Provide complete release of all claims for labor and material arising out of the Contract.

(f) Provide 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.

(g) When applicable per state requirements, return copies of sales tax completion forms.

(h) Manufacturer's certifications for all items incorporated in the work.

(i) All required record drawings, as built drawings or as constructed drawings.

(j) Project Operation and Maintenance (O&M) Manual.

(k) Security for Construction Warranty

(l) Equipment commissioning documentation submitted if required.

**** END OF SECTION 90 ****

SECTION 100

CONTRACTOR QUALITY CONTROL PROGRAM

100-01 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 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 his or her 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.

Paving projects over $250,000 shall have a Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Contractor, subcontractors, testing laboratories, and Owner's representative and the FAA prior to or at start of construction. The workshop shall address QC and QA requirements of the project specifications. The Contractor shall coordinate with the Airport and the Engineer on time and location of the QC/QA workshop.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. The Contractor shall establish a Quality Control Program to perform Quality Control inspection and testing of all items of work 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 that 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 and approval at the Preconstruction Conference. The Contractor's Quality Control Plan and Quality Control testing laboratory must be approved in writing by the Engineer prior to the Notice to Proceed (NTP).

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 is deemed necessary to adequately control all production and/or construction processes required by this contract.

100-03 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 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 paragraph 100-03a and 100-3b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall, as a minimum, consist of the following 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 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 1 of the following requirements:

(1) Professional engineer with 1 year of airport paving experience.

(2) Engineer-in-training with 2 years of airport paving experience.

(3) An individual with 3 years of highway and/or airport paving experience, 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.

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 craftsmen 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 Subsection 100-06.

(2) Performance of all quality control tests as required by the technical specifications and Section 100-07.

(3) Performance of density tests for the Engineer when required by the technical specifications.

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.

100-04 PROJECT PROGRESS SCHEDULE. The Contractor shall submit a coordinated construction schedule for all work activities. The schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified in the contract. As a minimum, it shall provide information on the sequence of work activities, milestone dates, and activity duration.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

100-05 SUBMITTALS SCHEDULE. The Contractor shall submit a detailed listing of all submittals (for example, 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 paragraph requiring submittal; and

f. Scheduled date of submittal.

100-06 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 Subsection 100-07.

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

a. During plant operation for material production, quality control test results and periodic inspections shall be used 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 used 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.

b. During field operations, quality control test results and periodic inspections shall be used 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 used.

100-07 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 each 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 (for example, P-401);

b. Item description (for example, Plant Mix Bituminous Pavements);

c. Test type (for example, gradation, grade, asphalt content);

d. Test standard (for example, ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable);

e. Test frequency (for example, as required by technical specifications or minimum frequency when requirements are not stated);

f. Responsibility (for example, plant technician); and

g. Control requirements (for example, target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with 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 Subsection 100-08.

100-08 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. 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;

(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.

100-09 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 use statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-10 SURVEILLANCE BY THE ENGINEER. All items of material and equipment shall be subject to surveillance 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 surveillance by the Engineer at the site for the same purpose.

Surveillance 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.

100-11 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 his/her authorized representative to the Contractor or his/her 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 actions are taken.

**** END OF SECTION 100 ****

SECTION 105

MOBILIZATION

105-1 DESCRIPTION. This item shall consist of work and operations, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-1.1 POSTED NOTICES. Prior to commencement of construction activities the Contractor must 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.

105-2 BASIS OF MEASUREMENT AND PAYMENT. 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 as required by 90-11, the final 10%.

**** END OF SECTION 105 ****

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

110-01 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 in accordance with 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 (X) and sample standard deviation (Sn) 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, 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. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

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.

110-02 METHOD FOR COMPUTING PWL. The computational sequence for computing the PWL is as follows:

a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

d. Find the sample average (X) for all sublot values within the lot by using the following formula:

$$X = (x_1 + x_2 + x_3 + \ldots x_n) / n$$

Where:

X = Sample Average of all sublot values within a lot
x_1, x_2 = Individual sublot values
n = Number of sublots

e. Find the standard deviation S_n by use of the following formula:

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

Where:

S_n = standard deviation of the number of sub-lot values in the set

d_1, d_2 = deviations of the individual sub-lot values X_1, X_2 . . . from the average

value X that is $d_1 = (x_1 - X)$, $d_2 = (x_2 - X)$ . . $d_n = (x_n - X)$

n = number of sub-lots

f. For **single sided specification limits (that is, 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

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. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For **double sided specification limits (that is, L and U),** compute the Quality Indexes Q_L and Q_U by use of the following formulas:

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

Where:

L and U = specification lower and upper tolerance limits

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) measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U. 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

EXAMPLE OF PWL CALCULATION

Project: Example Project
Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density

1. Density of four random cores taken from Lot A.

A-1	96.60
A-2	97.55
A-3	99.30
A-4	98.35

n = 4

2. Calculate average density for the lot.

$$X = (x_1 + x_2 + x_3 + . . x_n) / n$$

$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$

X = 97.95 percent density

3. Calculate the standard deviation for the lot.

$S_n = [\ (96.60-97.95)^2+(97.55-97.95)^2+(99.30-97.95)^2+(98.35-97.95)^2\ )/4-1]^{1/2}$

$S_n = [\ (1.82 + 0.16 + 1.82 + 0.16\ ) / 3\ ]^{1/2}$

$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95-96.30) / 1.15$

$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and n = 4.

PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1	5.00
A-2	3.74
A-3	2.30
A-4	3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3. . n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

X = 3.57 percent

3. Calculate the standard deviation S_n for the lot.

$S_n = [\ (3.57-5.00)^2 + (3.57-3.74)^2 + (3.57-2.30)^2 + (3.57-3.25)^2 / 4-1)]^{1/2}$

$S_n = [\ (2.04 + 0.03 + 1.62 + 0.10) / 3\ ]^{1/2}$

$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L=2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57-2.00) / 1.12$

$Q_L = 1.3992$

5. Determine P_L by entering Table 1 with Q_L=1.40 and n=4.

$P_L = 97$

6. Calculate the Upper Quality Index Q_U for the lot. (U=5.0)

$Q_U = (U - X) / S_n$

$Q_U = (5.00 - 3.57) / 1.12$

$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with Q_U = 1.27 and n = 4.

$P_U = 93$

8. Calculate Air Voids PWL

$PWL = (P_L + P_U) - 100$
$PWL = (97 + 93) - 100 = 90$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project
Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.
A-3 = 99.30
A-4 = 98.35
A-2 = 97.55
A-1 = 96.60

2. Use n=4 and upper 5% significance level of to find the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

a. For measurements greater than the average:
If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier
For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.
Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:
If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.
Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%
OR
less than (97.95 - 1.463 × 1.15) = 96.27%.

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

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4716	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1191	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9672	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9325	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5583	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4354	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4031	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358

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

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1613	0.1592	0.1575	0.1566
55	0.1806	0.1500	0.1408	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0792	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0792	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1408	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1592	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4031	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4354	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5583	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9325	-0.9281	-0.9258	-0.9241

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

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9672	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1191	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4716	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

**** END OF SECTION 110 ****

STATE AND LOCAL PROVISIONS

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STATE AND LOCAL PROVISIONS

1. General. This contract work is subject to Federal, State, and Local Provisions. In case of conflict between Federal, State, or Local Provisions the most restrictive provision as determined by the Sponsor shall govern.

2. Award of Contract. No award will be made until the FAA has concurred in the Sponsor's recommendation to make such award and has approved the Sponsor's Proposed Contract to the extent that such concurrence and approval are required by Part 152 of the Federal Aviation Regulations.

3. Extra Work. Should the Owner at any time during the progress of said work request any alterations, deviations, additions, or omissions from said specifications or working details or other contract documents, it shall be at liberty to do so; and the same shall in no way affect or make void the contract, but will be added to or deducted from the amount of said contract price, as the case may be, by a fair and reasonable valuation, agreed to in writing between the parties hereto. No extra work shall be performed or change be made unless in pursuance to a written order from the Owner, duly authorized by resolution of its governing body and by all agencies whose approval is required by law, stating that the extra work or change and the increased amount to be paid therefor is authorized. No claim for an addition to the contract sum shall be valid unless so ordered.

4. Maintenance of Traffic. Any vehicle operator who willfully violates the Traffic Control procedures contained in Item 40-05, Maintenance of Traffic, of these specifications will be requested, through the Contractor, to leave the job site as per Section 80-05 of these specifications. Also, if in the opinion of the Engineer, the negligence of any person or persons on or around an active runway is of sufficient magnitude as to cause danger to life and property, the Engineer shall have the right to stop all work on this contract for a period of forty-eight (48) hours as a contractual penalty.

   The Contractor, subcontractors, and all employees of the Contractor and/or subcontractors shall, by award of this contract, be governed by all rules and regulations of the City of Oroville and by orders and/or instructions from the Airport Manager or Owner relative to the use or occupation of any part of the Airport property.

   During periods of active performance of work on the Airport by the Contractor, the operation of equipment will be governed by the safety provisions herein and as directed by the Engineer. At all other times, all equipment will be removed to locations approved by the Engineer at a distance no less than 125 feet from the centerline of any active runway and 50 feet from the centerline of any active taxiway plus any additional distance necessary to insure compliance with safety provisions.

   Whenever the Contractor utilizes any public roads, aprons, taxiways, runways or any other paved areas on the Airport, he shall keep the pavement in a broom-clean condition at all times.

It will be necessary to maintain air traffic upon the various runways, taxiways, and aprons during the period of construction. The order and time at which the various runways, taxiways, and aprons may be closed shall be subject to the approval of the Owner and as shown in Appendix A, *Construction Safety and Phasing Plan.*

The order and schedule of construction will depend upon the type and amount of equipment that the Contractor proposes to use on the work. After conference with Airport Management, FAA, and the Engineer and before beginning the work, the Contractor shall prepare and submit in writing and in chart form a schedule showing the anticipated time required and date of completion for each phase of the work.

The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

The Contractor's personnel, subcontractors, and equipment shall be confined to the haul routes as shown on the Construction Layout and Safety Plan. At the locations where trucks or equipment are to cross an active road, the Contractor shall station suitable flagmen.

The Contractor shall maintain these crossings in a broom-clean condition at all times. No separate payment will be made for any cost in connection with the traffic control system.

5. Material Quality Requirements. All material in which the quality of the product such as gradations, Atterberg Limits, Sand Equivalent, CBR, etc., is specified, shall meet those specifications when in the final as-compacted conditions and not the conditions at the stockpile or source of supply. Any deviation from these requirements shall be corrected by removal and replacement with materials that conform to the specifications. When the materials removed are screened and/or blended and reincorporated in the work, the materials as placed shall meet all the specification requirements. It shall be the Contractor's responsibility to coordinate his/her materials production and construction procedures so that the final in-place product is acceptable.

6. Laws to be Observed. In addition to the general requirements included in Item 70-01 of the Federal General Provisions, Contractor's attention is directed to, and Contractor shall be responsible for conducting the project in compliance with all laws of the State of California governing the construction of public works, including, without limitation, the following:

    a. The California Health and Safety Code and all applicable administrative code regulations adopted pursuant thereto.

    b. All laws governing the employment of labor, qualifications for employment of aliens, payment of employees, convict-made materials, domestic and foreign materials, and accident prevention.

c. Title XIX of the California Code of Regulations entitled, "Public Safety," Chapter 1, State Fire Marshal, subchapter 1, "General Fire and Panic Safety".

d. General Industrial Safety Orders. Contractor, and all subcontractors, shall observe and conform to the provisions of Title VIII of the California Code of Regulations relating to safe and proper use, construction, disposal, etc., of materials, machinery, and building appurtenances as therein set forth.

e. Rules and regulations of local utilities.

f. Local City and/or County ordinances.

g. Code rules and safety orders. All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshal; the National Board of Fire Underwriters; the National Electrical Code; State Industrial Accident Commission's Safety Orders; the safety orders of the Division of Industrial Safety; and Department of Industrial Relations.

h. The Contractor shall conform to the requirements of Section 4216 of the Government Code, as latest amended, relating to subsurface installations.

All of the above laws and regulations are expressly incorporated in this contract, and are as much a part of the Contract Documents as if they were incorporated in their entirety in these general provisions.

Nothing in the specifications is to be construed to permit work not conforming to the above, and expense in compliance with the above work shall be borne by the Contractor. Whenever the specifications and working details require higher standards or larger sizes than those required by the ordinances, codes and statutes, the specifications and working details shall take priority over the ordinances, codes and statutes.

The Contractor shall not interpret the enumeration set forth above as being a complete listing of all applicable laws. It is the Contractor's responsibility to keep informed regarding the requirements of all applicable laws and to obey them, and Contractor agrees by execution of the Contract Documents to do so at his/her sole cost, expense, and risk.

All work, materials, work safety procedures and equipment shall be in full accordance with the latest Cal/OSHA rules and regulations.

Contractor warrants that Contractor and each of his/her subcontractors shall, in performance of this contract, comply with each and every compliance order issued pursuant to Cal/OSHA. The Contractor assumes full and total responsibility for compliance with Cal/OSHA standards by his/her subcontractors as well as by the Contractor. The cost of complying with any compliance order and/or payment of any penalty assessed pursuant to Cal/OSHA shall be borne by the Contractor. Contractor shall save, keep and hold harmless the Owner, and all officers, employees,

and agents thereof, from all liabilities, costs, or expenses, in law or in equity, that may at any time arise or be set up because of Contractor's or a subcontractor's non-compliance or alleged non-compliance with Cal/OSHA requirements. Nothing contained herein shall be deemed to prevent the Contractor and his/her subcontractors from otherwise allocating between themselves responsibility for compliance with Cal/OSHA requirements; provided, however, that the Contractor shall not thereby be, in any manner whatsoever, relieved of his/her responsibility to the Owner as hereinabove set forth.

7. Laws Affecting Public Works. Attention to bidders is called to necessity of being familiar with the various Federal, state and local laws affecting public work, especially (but not limited to) those laws relating to hours of employment, minimum wages, payment of wages, sanitary and safety conditions for workers, worker's compensation insurance, type and kind of materials that can be used, non-discrimination in employment and affirmative action programs. Federal monies are to be utilized by Owner for this Project, and Contractor shall comply with applicable regulations and hold harmless the Owner for its failure to comply. Certain of those provisions are set forth herein. The existence of these provisions does not excuse the Contractor from complying with other statutory requirements or provisions which are not set forth in these contract documents.

8. Sanitary, Health, and Safety Provisions. It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the Contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health or safety, as determined under Construction Safety and Health Standards Title 29, CFR, Part 1518, 36FR7340, promulgated by the U.S. Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act, 82 Stat. 96.

   The responsibility for maintaining a safe working site shall be the Contractor's, and the Owner or its representatives undertakes no obligation to suspend the work or notify the Contractor of any hazardous conditions or non-compliance with safety laws.

   In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without previous instructions or authorizations from the Owner, is authorized and shall act at the Contractor's discretion and risk to prevent such threatened loss or injury, and Contractor shall bear all costs of such action. Contractor immediately shall notify the Engineer of such actions, and thereafter shall comply with any instructions issued by the Engineer.

9. Responsibility for Damage Claims. Contractor shall defend, indemnify and save harmless the City of Oroville and all its officers, agents, and employees from any and all claims, demands, damages, costs, expenses, or liability occasioned by the performance or attempted performance of the provisions hereof or in any way arising out of this contract, including but not limited to, inverse condemnation, equitable relief, or any wrongful act, or any negligent act or omission to act on the part of the Contractor or any of his/her agents, employees, independent contractors, or subcontractors; provided, further, that the foregoing shall apply to any wrongful acts, or any actively or passively negligent acts or omissions to act, committed jointly or concurrently by the

Contractor, the Contractor's agents, employees or independent contractors or subcontractors, and the Owner, its agents, employees, or independent contractors.

Contractor shall further defend, indemnify and save harmless the Owner from any damages on account of any cause, including settlement and/or loss of lateral subjacent support of adjoining property, damage to utilities' or governmental agencies' equipment or installations, and from all loss or expense and from all damages for which the Owner may be liable as a consequence of such injury or damage to adjoining or adjacent property and/or structures, or equipment or installations, including those owned by the Owner.

Any damage arising from or in consequence of the performance of this contract to tracks, pavement, curbs, sidewalks, walls, stairs, sewage and/or drainage structures, mains, pipes, valves, conduits, poles, wires, transformers, trees, shrubs, adjoining work, or to any other improvement or property above or below the surface of the ground, whether private or public, shall be repaired at once by Contractor without expense to the Owner, if the owner thereof consents.

If, in the opinion of the Project Engineer, the best interest of the Owner requires such repair to be made prior to the execution of any further work, the Project Engineer will so notify the Contractor who shall delay or discontinue that part of the work until the necessary repair has been made. Such delay shall not be considered unavoidable and no extension for time of completion of this contract will be granted therefor.

Upon the failure of the Contractor to comply with any such order, or upon Contractor's failure to make immediate emergency repairs which are necessary to protect the work, the Owner shall do such work itself as is necessary to protect life and property, in its sole discretion, and deduct the total cost of such work from the next progress payment.

Such indemnity obligation expressly extends to and includes any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of damages to adjacent property caused by the conduct of the work.

Such indemnity obligation expressly extends to and includes any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of the violation by Contractor, the Contractor's agents, employees, or independent contractors or subcontractors, of any provisions of Federal or State law.

Such indemnity obligation also expressly extends to and includes any claims, demands, damages, costs, expenses, or liability occasioned by injury to or death of any person, or any property damage to property owned by any person while on or about the premises of the work or as a result of the work, whether such persons are on or about the premises by right or not, whenever the work is alleged to have been a contributing cause in any degree whatsoever.

Nothing contained in the foregoing indemnity provisions shall be construed to require the Contractor to indemnify the Owner in contravention of Section 2782 of the Civil Code.

In the event the Contractor enters any agreement with the owners of any adjacent property to enter upon or adjacent to such property for the purpose of performing this contract, the Contractor shall fully indemnify, defend and save harmless such person, firm, or corporation, state or other governmental agency which owns or has any interest in such adjacent property. The form and content of such indemnification agreement shall be approved by the Owner prior to commencement of the work on or about such property. Contractor shall also indemnify the Owner as provided herein.

10. Contractor's Responsibility for Work. The Contractor shall be solely responsible for any and all work done by his/her subcontractors or other employees, and all orders or instructions from the Owner shall be through Contractor to them.

    Contractor is responsible for any loss or damage that may happen to the work or any part thereof during its progress; and also will make good any defects or flaws that may occur either in materials or construction during the progress of work or within one year after its completion and acceptance by the Owner.

11. Contractor's Responsibility for Utility Service and Facilities of Others. Not less than two full working days prior to performing any excavation, the Contractor shall notify Underground Service Alert (USA) by calling 811. The location of the subsurface installations shall be in accordance with Section 4216 of the Government Code, as latest amended. No excavation shall be performed until the subsurface installations have been located, hand-excavated and identified. The Contractor shall update the location of the subsurface installations in the proposed work area every 14 calendar days, as required.

    If the plans or USA investigation identifies a utility and the Contractor damages it, the Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to these operations, whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his/her surety. If the USA investigation does not identify a utility, but the Contractor finds and damages it, then the utility company or Owner shall bear all costs of damage and restoration of service.

12. Construction Controls to Prevent Air and Water Pollution

    Open Burning of Combustible Wastes. All State and local stipulations to minimize air pollution or danger from open burning shall govern. In addition, the following conditions shall be made a part of this construction contract under the Airport Improvement Program.

    a) No tires, oils, asphalt, paint, or coated metals are permitted in combustible waste piles.
    b) Burning will not be permitted within 1,000 feet of a residential or built-up area nor within 100 feet of any standing timber or flammable growth.
    c) Burning shall not be permitted unless the prevailing wind is away from a nearby town or built-up area.
    d) Burning shall not be permitted during a local air inversion or other climatic condition as would result in a pall of smoke over a nearby town or built-up area.

e) Burning shall not be permitted when the danger of brush or forest fires is made known by State, local, or Federal officials.

f) The size and number of fires shall be restricted to avoid the danger of brush or forest fires. Burning shall be done under surveillance of a watchman, who shall have fire-fighting equipment and tools readily available.

Alternatives to Open Burning:

a) Sound trees, stumps, and brush may be cut off within six inches above the ground and allowed to remain in areas outside of areas to be paved providing the depth of embankment will exceed three and one-half feet. Tap roots and other projections over one and one-half inches in diameter shall be grubbed-out to a depth of at least 18 inches below the finished subgrade or slope elevation. Spoil materials removed by clearing and grubbing may be buried outside of airport construction graded areas, paved or to be paved areas, existing or future runway sites, and taxiway safety or apron areas.

b) Wood may be salvaged for firewood or commercial use, or it may be chipped and disposed of for use as mulch.

c) Logs, brush, etc., may be removed to an authorized disposal area or disposed of off-site.

Air Pollution Controls:

a) Common construction operations which may cause excessive dust include:

1. Quarry drilling and rock crushing.
2. Clearing, grubbing, and stripping.
3. Excavation and placement of embankment.
4. Cement and aggregate handling.
5. Cement or lime stabilization.
6. Blasting.
7. Use of haul roads.
8. Sandblasting or grinding.

b) Other construction items which may cause air pollution are:

1. Volatiles escaping from asphalt and cutback materials.
2. Use of herbicides or fertilizers.
3. Smoke from asphalt plants or from heater/planers.

c) Control of dust and other air pollutants shall be made the responsibility of the Contractor and may include:

1. Drilling apparatus equipped with water or chemical dust controlling systems.
2. Exposing the minimum area of land.
3. Applying temporary mulch with or without seeding.
4. Use of water sprinkler trucks.
5. Use of covered haul trucks.
6. Use of stabilizing agents in solution.
7. Use of dust palliatives and penetration asphalt on temporary roads.
8. Use of wood chips in traffic and work areas.
9. Use of vacuum-equipped sandblasting systems.
10. Use of plastic sheet covering.
11. Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application equipment and empty containers shall not be rinsed and discharged so as to pollute a stream, etc., or the ground water.
12. Bituminous mixing plants shall be equipped with a dust collector, to waste or return uniformly to the hot elevator all or any part of the material collected as stated in specification P-401 in Advisory Circular 150/5370-10, as latest revised.
13. Delay of operations until climate or wind conditions dissipate or inhibit the potential pollutants (see Paragraphs a and b above) in a manner satisfactory to the Engineer.

Permanent and Temporary Water Pollution Control (Soil Erosion).

Construction shall include temporary pollution control measures to insure that soil erosion which might cause water pollution is kept to a minimum. Such measures, as determined by the Engineer, may consist of construction of berms, dikes, dams, drains, and sediment basins, or use of fiber mats, woven plastic filter cloths or other erosion devices or methods.

a) Prior to the start of construction, the Contractor shall submit, for approval, his/her Storm Water Pollution Prevention Plan (SWPPP) as specified in Item P-148 of these specifications.

b) The Contractor shall complete all permanent erosion control features at the earliest practicable time.

c) In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls in a timely manner, the work shall be performed by the Contractor at his/her own expense.

d) In case of repeated failures on the part of the Contractor to control erosion/pollution, the right is reserved by the Engineer to employ outside assistance to provide the necessary corrective measures. Such incurred costs, plus related engineering costs, shall be charged to the Contractor and appropriate deductions made from the Contractor's progress payments.

Other Water Pollution Controls:

a) The Contractor shall not be permitted frequent fording of live streams with construction equipment; therefore, temporary bridges or other structures shall be used wherever such crossings adversely affect sediment levels and an appreciable number of stream crossings are necessary.

b) All waterways shall promptly be cleared by the Contractor of falsework, piling, debris, or other obstructions placed during construction work and not a part of the finished work.

c) Water from aggregate washing or other operations containing sediment shall be treated by filtration, a settling basin, or other means sufficient to reduce the sediment content to not more than that of the stream, etc., into which it is discharged.

d) Pollutants such as fuels, lubricants, bitumens, raw sewage, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing or curing operations shall not be allowed to enter live streams, etc.

Conflict With Other Controls:

In the event of conflict between these requirements and pollution control laws, rules or regulations of other Federal, State, or local agencies, the more restrictive laws, rules or regulations shall apply.

13. Insurance At no additional cost to City, Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his/her agents, representatives, employees or subcontractors.

A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001).

2. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).

3. Worker's Compensation as required by the State of California and Employer's Liability Insurance

B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. General Liability: $1,000,000 per occurrence for bodily injury, personal injury and

property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability: $1,000,000 per accident for bodily injury and property damage.

3. Worker's Compensation and Employers' Liability: $1,000,000 per accident for bodily injury or disease.

C. DEDUCTIBLES AND SELF-INSURED RETENTIONS:

Any deductibles or self-insured retentions shall be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers; or the contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. OTHER INSURANCE PROVISIONS:

The policies are to contain, or be endorsed to contain, the following provisions:

(1) General Liability and Automobile Liability Coverages.

(a) The City, its officers, officials, employees and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor; and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance, or as a separate owner's policy.

(b) For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the city, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, or volunteers shall be excess of the contractor's insurance and shall not contribute with it.

(c) Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City.

(d) Coverage shall not extend to any indemnity coverage for the active negligence of the additional insured in any case where an agreement to indemnify the additional insured

E. ACCEPTABILITY OF INSURERS:

Insurance is to be placed with insurers with a current A.M. Bests' rating of no less than A;VII.

F. VERIFICATION OF COVERAGE:

Contractor shall furnish the City with original certificates and amendatory endorsements effecting coverage required by this clause. The endorsements should be on forms provided by the City or on other than the City's forms, provided those endorsements or policies conform to the requirements. All certificates and endorsements are to be received and approved by the City before work commences. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications at any time.

G. SUBCONTRACTORS:

Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

Return completed certificate to:
City of Oroville
1735 Montgomery St.
Oroville, CA 96965
Attn:
PUBLIC WORKS

CERTIFICATE OF INSURANCE
TO
CITY OF OROVILLE, CALIFORNIA ("the City")

This certifies to the City that the following policies have been issued to the insured named below and are in force at this time.

Insured _____
Address _____

Description of operation/locations/products insured (show contract name and/or number, if any)

POLICIES AND INSURERS	LIMITS Bodily injury	Property Damage	POLICY NUMBER	EXPIRATION DATE	BEST'S RATING
Workers Compensation _____ (Insurer)	Employer's Liability $_____				
Comprehensive General Liability _____ (Insurer)	Each Occurrence / Aggregate	Each Occurrence / Aggregate / Combine Single Limit			
Business Auto Policy Liability Coverage Symbol_____ _____ (Insurer)	Each Person / Each Accident / _____	Each Accident / Combine Single Limit			
Umbrella Liability _____ (Insurer)	Occurrence/ Aggregate $ / Self-Insured Retention $_____				

The following coverage or conditions are in effect:	YES	NO
The City, its officials, and employees are named on all liability policies described above as insured as respects (a) activities performed for the City by or on behalf of the named insured, (b) products and completed operations of the Named Insured, (c) premises owned, leased or used by the Named Insured. Products and Completed Operation		
The undersigned will mail to the City 30 days written notice of cancellation or reduction of coverage or limits.		
Cross Liability Clause (or equivalent wording)		
Personal Injury, perils A, B, C		
Broad Form Property Damage		
X, C, U Hazards Included		
Contractual Liability Coverage applying to this Contract		
Liquor Liability		
Coverage afforded the City, its officials, employees and volunteer as an insured applies as primary and not excess of contributing to any insurance issued in the name of the City.		
Waiver of subrogation from Workers' Compensation Insurer.		

This certificate is Issued as a matter of information. This certificate is not a Insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term or condition of any contact or other document with respect to which this certificate of insurance may be issued or may pertain, the insurance afforded by the policies described herein is subject to all terms, exclusions and conditions of such policies.

Agency or Brokerage	Insurance Company
Address	Home office
Name of Person to be Contacted	Authorized Signature Date
Telephone Number	

Notes: Authorized signature may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of official of insurer.

14. Subletting of Contract. Bidders are notified that Government Code Section 4102 provides as follows:

4102. Identification of subcontractors by bidders. Any officer, department, board, or commission taking bids for the construction of any public work or improvement shall provide in the Specifications prepared for the work or improvements or in the general conditions under which bids will be received for the doing of the work incident to the public work or improvement, that any person making a bid or offer to perform the work shall, in his/her bid or offer, set forth:

a. The name and the location of the place of business of each subcontractor who will perform work or labor or render service to the general contractor in or about the construction of the work or improvement in an amount in excess of one-half (1/2) of one percent (1%) of the general contractor's total bid.

b. The portion of the work which will be done by each subcontractor under the Act.

Pursuant to the provisions of Section 4100 to 4113, inclusive, of the Government Code of the State of California, the Contractor shall not without consent of the Owner, either:

a. Substitute any persons as subcontractors in place of the subcontractors designated in his/her original bid. (The Owner's consent can only be given in cases permitted by Government Code Section 4107.)

b. Permit any subcontractor to be assigned or transferred to allow any work to be performed by anyone other than the original subcontractor listed in his/her bid.

c. Other than in the performance of change orders, sublet or subcontract, any portion of the work in excess of one-half of one percent of his bid to which his/her original bid did not designate a subcontractor.

Should the Contractor violate any of the provisions of said Sections 4100 to 4113, inclusive, of the Government Code, his/her so doing shall be deemed a violation of this contract, and the Owner may cancel the contract, or may assess the Contractor a penalty in the amount not more than ten (10) percent of the amount of the subcontract involved, or may both cancel the contract and assess the penalty.

15. Execution and Progress. The work schedule shall include the hours of the day and the day of the week the Contractor is going to work.

Once the work schedule has been approved by the Engineer and after the start of the work, 48-hours prior notice is required to modify the work schedule.

An updated work schedule and the job progress status shall be submitted in writing at the weekly Coordination Meeting, except when the Contractor falls significantly behind, he/she shall submit an updated job schedule showing how he/she plans to make up the time to meet the schedule.

16. Partial Payments. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 7 days after the Contractor has received a partial payment. The Owner must ensure prompt and full payment of retainage from the prime contractor to the subcontractor within 10 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

    From the total of the amount determined to be payable on a partial payment, 5 percent of such total amount will be deducted and retained by the owner until the final payment is made, except as may be provided (at the Contractor's option) in Subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section. The balance (95 percent) of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his/her option, as provided in Subsection 90-08 titled PAYMENT OF WITHHELD FUNDS of this section, no such 5 percent retainage shall be deducted.

    When at least 95 percent of the work has been completed, the Engineer shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.

    The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

17. Project Closeout. The retention payment shall not be due and payable until the expiration of thirty-five (35) days from the filing and recording of the Notice of Completion of the work. The amount deducted from the final estimate and retained by the Owner will be paid to the Contractor, except such amounts as are required to be withheld by properly executed and filed notices to stop payment, or as may be authorized by the Contract.

**** END OF SECTION ****

SPECIAL CONDITIONS

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SECTION SC

SPECIAL CONDITIONS

(1) LOCATION

The site of the work is at Oroville Municipal Airport in Oroville, Butte County, California. Prior to the submission of his/her bid, each bidder shall visit the site and acquaint himself/herself with local conditions, including but not limited to roads available, source of materials, water, electric power, the relation of the finished grade to the existing grade, and conditions of existing pavements, including haul routes.

(2) WORK TO BE DONE

The work to be done under this contract at Oroville Municipal Airport, Oroville, California consists of furnishing all materials, plant and equipment, and performing all necessary labor in accordance with the prepared plans, specifications, and special provisions as directed by the City or its authorized representative, as follows:

- Grade Safety Area and Object Free Area Near the North End of Runway 2-20 - 1,220 sq. yd.
- Construct Drainage Improvements for Runway 2-20
- Perform all work and furnish all materials incidental to the above and in accordance with the prepared plans, specifications and special provisions and/or as directed by the City of Oroville or its authorized representative.

(3) PLANS AND SPECIFICATIONS

The work shall conform to the plans and specifications marked, "*Oroville Municipal Airport, Oroville, California, Runway 2-20 Drainage Improvements and Runway 20 Safety Area Grading, AIP No. 3-06-0178-__.*"

In case of conflict between the plans, specifications and other contract documents, these documents shall govern in the following order:

1st - Change Order or Supplemental Agreement
2nd - Addendum to the Plans and Specifications
3rd - Technical Provisions
4th - Special Conditions
5th - Construction Plans
6th - FAA General Provisions
7th - Local and State General Provisions
8th - FAA Specifications and Advisory Circulars

(4) LIMITS OF CONSTRUCTION

The Contractor's personnel and equipment shall be limited to the construction areas as shown on the plans. Contractor agrees to implement such security measures as are necessary to assure compliance with Federal Aviation Administration, State, and local airport regulations. Access to runways, taxiways and aircraft parking aprons for any reasons other than construction will not be permitted.

(5) PROGRESS OF WORK AND TIME OF COMPLETION

Contract Time: All work covered by this contract including inspection and approval shall be completed within twenty-five (25) working days. The number of working days shall begin after the date of the written Notice to Proceed issued by the City of Oroville to the Contractor. All work that is performed in the Runway Safety Area (RSA) to Runway 2-20 shall be completed in fifteen (15) working days. All work that is performed outside the RSA shall be completed in ten (10) working days.

The grading of the Runway Safety Area shall be completed in three working days.

In order to maintain safe aircraft operations during construction, the work covered by this contract shall be staged as shown on the Construction Layout and Safety Plan (Sheet No. 2 of the plans). Before beginning any work on this project, the Contractor shall prepare and submit for approval a detailed scheduling plan and staging plan showing time and type of work to be performed.

If said Contractor shall be delayed in said work by the acts or neglect of said Owner, or its employees, or those under it by contract or otherwise, or by changes ordered in the work, or by strike, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Owner, or by any cause which the Owner shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Owner agrees to in writing.

This article does not exclude the recovery of damages for delay by either party under other provisions in the Contract Documents.

(6) LIQUIDATED DAMAGES.

Liquidated damages will be charged against the Contractor in the amount of $500 per day for each consecutive calendar day after the specified construction time or incremental stage that the Contractor uses to complete the project and/or any specified segment of the work. In determining the number of days the contract, or portions thereof, remain incomplete, the completion date shall be the date of recommendation of acceptance of work and materials by the Engineer. Contractor and Owner hereby agree to the assessment of liquidated damages in lieu of actual damages that are not reasonably ascertainable at the time of entering into this agreement. These liquidated damages are not a penalty.

(7) CONSTRUCTION SCHEDULE

The sequence of construction shall be as shown on the Construction Layout and Safety Plan, Sheet No. 2 of the plans, or as directed by the Engineer. The Contractor shall develop a schedule of operations in graphic form. This schedule shall show the proposed construction schedule for various items and phases of work and shall also provide space to show the current status of the work. This schedule shall show both calendar and working days on the construction time line.

Prior to or at the Preconstruction Conference the Contractor shall submit eight (8) copies of the schedule for approval. No work shall be started until the construction schedule has been approved.

The Contractor shall maintain a copy of this schedule on the project site. This schedule shall be updated and submitted to the Engineer for approval weekly.

(8) CLOSURES OF RUNWAYS, TAXIWAYS AND APRONS

When the Contractor is working within the Runway Safety Area (RSA) to Runway 2-20 (15 working days), it will be necessary to close Runway 2-20 and Taxiways A, B, C, D, and E. Lighted barricades shall be erected at the locations as shown on the Construction Layout and Safety Plan, Sheet No. 2, and as directed by the Engineer. When the runway is closed, Contractor shall furnish and place closed runway crosses on the numbers of the runway. The barricades and crosses shall be placed at the start of construction and removed when construction of the project is complete.

Runway 13-31, Taxiways J, K, L, M, and N, and the aircraft parking aprons shall remain open at all times. Contractor's personnel and equipment shall remain 50 feet from the active taxiway centerline and 75 feet from active runway centerline at all times.

The Owner will provide flaggers and radio contact (122.8 MHz) with the aircraft during all construction activities of this project. Contractor shall at all times maintain automobile access to the airport and aircraft operations on Runway 13-31. The Contractor shall provide radios and maintain radio contact with the Airport-furnished flagger on 122.8 MHz as directed.

The contractor shall provide suitable lighted barricades to assure closure of portions of the Airport as shown on the plans or as directed by the Engineer. These barricades shall be 10" high low-profile water filled barricades. Each barricade shall have two solar-powered lights with red lenses each controlled by photo cells such that they are on at night and off during the day. Contractor shall furnish and install runway closure crosses on the numerals at the ends of the runway at all times that the runway is closed. Payment for the furnishing, maintaining, operating, and placing of lighted barricades, runway closure crosses or temporary markings will be made under Item P-149 of these specifications.

It shall be the Contractor's responsibility to require all personnel to observe the safety requirements of the Airport to restrict all personnel and equipment to the work and storage areas assigned to the Contractor.

Contractor shall submit a plan and schedule at the Preconstruction Conference. The submitted Staging Plan shall detail location of closed area, barricade locations, and traffic routes. The area to be closed shall be barricaded off and no traffic shall enter area until determined by the Engineer. For details of the proposed staging of this work, see Sheet 2, Construction Layout and Safety Plan, of the construction drawings.

(9) HAULING ROUTES ON AIRPORT PROPERTY

In order to avoid confusion with aircraft during the construction and to avoid damage to the existing pavement and to the adjacent lands, the Contractor's equipment shall be restricted to certain hauling routes as shown on the Construction Layout and Safety Plan. The road will be open to the Contractor at all times throughout construction. If the Contractor should find that it is desirable to improve this road, he may do so but will receive no payment for any improvements that he may make. It shall be the responsibility of the Contractor to provide adequate safeguards, including flagmen, so that the operation of the Airport will not be hindered. In addition, it shall be the responsibility of the Contractor to repair any damage caused by his equipment to these paved areas. Vehicle loads shall not exceed legal highway load limits.

Contractor's haul route to the grading area west of Runway 20 is by way of Taxiway A to Taxiway E. The haul route to the pipe crossing work area is by way of Taxiway D to Taxiway A and midfield of Runway 2-20. Contractor shall maintain haul routes on these paved surfaces clear of debris at all times. These haul routes shall be broom clean at all times.

(10) CONTRACTOR'S STORAGE AND OFFICE AREA

The proposed location has been shown on the Construction Layout and Safety Plan for the Contractor's storage and office area. All Contractor equipment and material stockpiles shall be stored a minimum of 400 feet from the centerline of an active runway or 93 from the centerline of an active taxiway in the areas shown on the plans. It shall be the responsibility of the Contractor to determine the availability of water, power, gas, and electricity for this area. He shall make all necessary arrangements to provide these services to meet his requirements.

The Contractor shall provide toilet facilities for his personnel in this area. Such facilities shall conform to the requirements of the Butte County Health Department.

At completion of the contract, the Contractor shall remove all plant, equipment, stockpiles, etc., from the work area. Contractor shall restore all storage and office areas and service roads to the original condition prior to any work in the area. Contractor shall not receive any separate payment for any of this restoration or clean up.

(11) MARKING OF CONSTRUCTION EQUIPMENT

All construction equipment shall display orange and white checkered flags, 3'x3'. These flags shall be so located on the equipment as to be plainly visible to all aircraft. No equipment shall be parked on or over the paved area of the airfield or within the runway protection zone. Parking areas for equipment will be designated by the Project Engineer.

(12) AIRCRAFT RIGHT OF WAY AND ACCESS

Aircraft shall at all times have the right of way. Aircraft shall have access to all airport facilities at all times except the portion of the airport that is closed to aircraft operations. All aircraft shall at all times be protected from all equipment, materials, and dust. Contractor will be required to initiate effective dust control measures as needed at no additional cost to Owner. When crossing a taxiway or runway used by aircraft, the Contractor shall monitor that crossing and control the movement of Contractor's equipment such as to assure safe operation of all aircraft.

(13) PROTECTION OF CABLES, CONTROLS, NAVAIDS AND WEATHER BUREAU FACILITIES

Due to the critical nature of certain utilities to the operation of the Airport, the following Special Provisions for Protection of Cables, Controls, and Navaids shall apply:

The Contractor is hereby informed that there are installed on the Airport certain structural facilities served by underground cable and other electric power cables serving other facilities. Such facilities and electric cables must be fully protected during the entire construction time. Work under this contract can be accomplished in the vicinity of these facilities and cables only at approved periods of time. Approval is subject to withdrawal at any time because of changes in weather, emergency conditions on the existing airfield areas, anticipation of emergency conditions, and for any other reason determined by the Engineer acting under the orders and instructions of the airport management. Any instructions to the Contractor to clear any given area, at any time, by the Engineer or Airport Management (by radio or other means) shall be immediately executed. Construction work shall be commenced in the cleared area only when additional instructions are issued by the proper authorities.

Power and control cables leading to and from any facilities shall be located and marked in the field by the Contractor before any work in their general vicinity is started. Thereafter, through the entire time of this construction, they shall be protected from any possible damage, including crossing with unauthorized equipment, etc.

Not less than two full working days prior to performing any excavation, the Contractor shall notify Underground Service Alert (USA) by calling the toll-free number 811 or (800) 227-2600. The location of the subsurface installations shall be in accordance with Section 4216 of the Government Code, as latest amended. No excavation shall be performed until the subsurface installations have been located, hand-excavated and identified. These special conditions intend to make perfectly clear the need for protection of cables and other electrical facilities by this Contractor at all times.

These special provisions intend to make perfectly clear the need for protection of cables and other electrical facilities by this Contractor at all times.

The Contractor shall immediately repair, with identical material by skilled workmen, any underground cables serving airport facilities that are damaged by his/her workers, equipment, or work. Prior approval of the Engineer or of the representative designated by Airport Management must be obtained for the materials, workers, time of day or night, and for the method of repairs for any

temporary or permanent repairs the Contractor proposes to make to any airport facilities and cables damaged by this Contractor.

It is recognized that the Owner will incur costs for employees' salaries, engineering fees and otherwise in connection with the damage, inspection and repair of any such damage caused by the Contractor; and consequently that the Owner may incur loss of income by reason of the diversion of aircraft traffic from the airport resulting from interruption of the use of airport facilities; and that such expenses and loss of income are not measurable now and may not be reasonably ascertainable at the time of any incident caused by the Contractor. The Owner and the Contractor hereby agree to the assessment of liquidated damages in lieu of such expenses or other damages incurred by the Owner. In addition to the obligation of the Contractor to immediately repair any cables or facilities damaged by the Contractor as set forth above, the sum of $300 for each day or portion of a day that the equipment is inoperable shall be deducted from any money due the Contractor; or if no money is due the Contractor, the Owner shall have the right to recover said sum or sums from the Contractor, from the surety, or from both. The amount of these deductions is not considered a penalty.

(14) AIRPORT SECURITY

During the course of the contract, the Contractor shall be responsible for maintaining security against unauthorized access to the Airport. The Contractor will be held responsible for any fines, damages, or civil penalties filed against the Owner for the Contractor's failure to maintain the regulations set forth herein.

In accordance with the requirements of the Federal Aviation Administration as set forth in FAR 107.11(F), the Contractor shall take all steps necessary to assure Owner that the backgrounds of all employees have been checked to the extent necessary to assure that permitting them unescorted access to any area on the airport controlled for security reasons is appropriate. This background check, to the extent allowable by law, shall include at a minimum references and prior employment histories to the extent necessary to verify representations made by the employee relating to employment in the preceding 5 years.

All equipment, vehicle and personnel travel shall be restricted to designated work sites.

Only vehicles used for construction purposes shall enter the work boundaries. Contractor personnel may, however, be allowed to park their personal vehicles within a designated staging area as shown on the plans. All vehicles shall have identifying markings on them that show that they are authorized on the Airport. All personnel working on the airport shall wear identification such as badges or hard hats with contractor's logo to show that they are authorized on the airport.

All security measures must be coordinated with Airport Management and the Engineer and must be approved prior to implementation.

Only Contractor and subcontractor employees are permitted in the work sites. They must enter and exit the airport areas restricted to public access and airport operations area only through the designated Contractor gates. The gates used by the Contractor shall remain closed at all times except when

authorized equipment is actually entering the airport or gates are continuously guarded to keep unauthorized personnel and wildlife from entering the airport.

In the event of an emergency, men and equipment shall be moved immediately at the direction of Airport Management or the Engineer.

(15) AVIATION SAFETY REQUIREMENTS DURING CONSTRUCTION (AC 150/5370-2F) - An Airport Construction Safety and Phasing Plan (CSPP) has been prepared to outline all safety issues related to the proposed construction. This CSPP is included in these specifications as Appendix A. The Contractor will be required to submit all reports designated in the CSPP and implement all safety measures set forth in this plan.

A. SAFETY PLAN COMPLIANCE DOCUMENT – Prior to issuance of Notice to Proceed by the Owner, the Contractor shall complete a Safety Plan Compliance Document (SPCD) detailing how he/she will comply with the Construction Safety and Phasing Plan (CSPP). The SPCD should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I , Name of Contractor , have read the Title of Project CSPP, approved on Date , and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP.

This SPCD shall be submitted to the Owner for approval prior to start of construction and shall include the following:

(1) Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.

(2) Phasing. Discuss proposed construction schedule elements, including:

(a) Duration of each phase.

(b) Daily start and finish of construction, including "night only" construction.

(c) Duration of construction activities during:

(i) Normal runway operations.

(ii) Closed runway operations

(iii) Modified runway "Aircraft Reference Code" usage.

(3) **Areas and operations affected by the construction activity.** These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.

(4) **Protection of NAVAIDs.** Discuss specific methods proposed to protect operating NAVAIDs.

(5) **Contractor access.** Provide the following:

(a) Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).

(b) Listing of individuals requiring driver training (for certificated airports and as requested).

(c) Radio communications.

(i) Types of radios and backup capabilities.

(ii) Who will be monitoring radios.

(iii) Whom to contact if the ATCT cannot reach the contractor's designated person by radio.

(d) Details on how the contractor will escort material delivery vehicles.

(6) **Wildlife management.** Discuss the following:

(a) Methods and procedures to prevent wildlife attraction.

(b) Wildlife reporting procedures.

(7) **Foreign Object Debris (FOD) management.** Discuss equipment and methods for control of FOD, including construction debris and dust.

(8) **Hazardous material (HAZMAT) management.** Discuss equipment and methods for responding to hazardous spills.

(9) **Notification of construction activities.** Provide the following:

(a) Contractor points of contact.

(b) Contractor emergency contact.

(c) Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.

(d) Batch plant details, including 7460-1 submittal.

(10) **Inspection requirements.** Discuss daily (or more frequent) inspections and special inspection procedures.

(11) **Underground utilities.** Discuss proposed methods of identifying and protecting underground utilities.

(12) **Penalties.** Penalties should be identified in the CSPP and should not require an entry in the SPCD.

(13) **Special conditions.** Discuss proposed actions for each special condition identified in the CSPP.

(14) **Runway and taxiway visual aids.** Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:

(a) Equipment and methods for covering signage and airfield lights.

(b) Equipment and methods for temporary closure markings (paint, fabric, other).

(c) Types of temporary Visual Guidance Slope Indicators (VGSI).

(15) **Marking and signs for access routes**. Discuss proposed methods of demarcating access routes for vehicle drivers.

(16) **Hazard marking and lighting**. Discuss proposed equipment and methods for identifying excavation areas.

(17) **Protection of runway and taxiway safety areas. including object free areas, obstacle free zones, and approach/departure surfaces**. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

(a) Equipment and methods for maintaining Taxiway Safety Area standards.

(b) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

(18) Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

B. GENERAL SAFETY REQUIREMENTS

Throughout the construction project, the following safety and operational practices should be observed:

- Operational safety should be a standing agenda item during progress meetings throughout the construction project.
- The contractor and airport operator shall perform onsite inspections throughout the project, with immediate remedy of any deficiencies, whether caused by negligence, oversight, or project scope change.
- Airport runways and taxiways remain in use by aircraft to the maximum extent possible

- Aircraft use of areas near the contractor's work will be controlled to minimize disturbance to the contractor's operation.
- Contractor, sub-contractor, and supplier employees or any other unauthorized persons must be restricted from entering or remaining in airport area that would be hazardous.
- Construction that is within the safety area of an active runway, taxiway, or apron that is performed under normal operational conditions must be performed when the runway, taxiway, or apron is closed or restricted and initiated only with prior permission from the airport operator.
- The contracting officer, airport operator, or other designated airport representative may order the contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

C. CONSTRUCTION MAINTENANCE AND FACILITIES MAINTAINANCE

Before beginning any construction activity, the contractor must, through the airport operator, give notice (using the Notice to Airmen (NOTAM) System) of proposed location, time, and date of commencement of construction. Upon completion of work and return of all such areas to standard conditions, the contractor must, through the airport operator, verify the cancellation of all notices issued via the NOTAM System. Throughout the duration of the construction project, the contractor must:

- Be aware of and understand the safety problems and hazards described in AC 150/5370-2, *Operational Safety on Airports During Construction*.
- Conduct activities so as not to violate any safety standards contained in AC 150/5370-2 or any of the references therein.
- Inspect all construction and storage areas as often as necessary to be aware of conditions.
- Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.

D. APPROACH CLEARANCE TO RUNWAYS

Runway thresholds must provide an unobstructed approach surface ratio over equipment and materials.

E. RUNWAY AND TAXIWAY SAFETY AREA (RSA and TSA)

A runway or taxiway must be closed if construction activity will occur within the RSA or TSA. NOTAMs will be issued stating that, "personnel and equipment are working adjacent to Runway 2-20, and Runway 2-20 is closed to all aircraft operations."

(1) Procedures for protecting runway edges

- Limit construction to no closer than 75 feet from the runway centerline, unless the runway is closed or restricted to aircraft operations requiring lesser standard RSA that is equal to the RSA available during the construction.
- Prevent personnel, material, and/or equipment from penetrating OFZ.
- Coordinate construction activity with the Airport Management, FAA Regional Airports Office, or Airports District Office and through the airport operator issue an appropriate NOTAM.

Runway	Aircraft Approach Category	Airplane Design Group	RSA Width in Feet Divided by 2
2-20	C	III	250
13-31	B	II	75

(2) Procedure for Protecting Runway ends

- Maintain the RSA from the runway threshold to a point at least the distance from the runway threshold as existed before construction activity, unless the runway is closed or restricted to aircraft operations requiring a RSA that is equal to the RSA length available during construction. This may involve the use of declared distances and partial runway closures.
- Ensure all personnel, materials, and/or equipment are clear of the applicable threshold siting criteria surface as defined in Article 303, "Runway End Siting Requirements," of AC 150/5300-13A.
- Prevent personnel, material and/or equipment, from penetrating the Object Free Zone (OFZ).
- Ensure adequate distance for blast protection is provided, as needed.
- Coordinate construction activity with the Airport Management, FAA Regional Division Office, and, through the airport operator, issue an appropriate NOTAM.

Runway End Number	Airplane Design Group	Aircraft Approach Category	Minimum Safety Area Behind Threshold	Minimum Unobstructed Approach Slope
2 20	III III	C C	1,000 ft. 1,000 ft.	34:1 34:1
13 31	II II	B B	300 ft. 300 ft.	20:1 20:1

F. CLOSED RUNWAY MARKINGS AND LIGHTING

Closed runway marking is required on Runway 2-20 when this runway is closed. Contractor shall furnish, install, maintain, and remove runway closure crosses as required.

G. HAZARDOUS AREA MARKING AND LIGHTING

Hazardous areas will be marked with barricades as shown on the plans. The markings restrict access and make hazards obvious to aircraft, personnel, and vehicles. During periods of low visibility and at night, identify hazardous areas with suitable lighted barricades with flashing red lights having at least five (5) candelas effective intensity for night marking. The hazardous area marking and lighting shall be supplied by the contractor, and are depicted on the plans. There will be no separate payment for hazardous area marking and lighting.

H. VEHICLE OPERATION MARKING AND CONTROL

(1) When any vehicle, other than one that has prior approval from the airport operator, must travel over any portion of an aircraft movement area, it shall be escorted and properly identified. To operate in those areas during daylight hours, the vehicle must have a flag or beacon attached to it. Any vehicle operating on the movement areas during hours of darkness or reduced visibility should be equipped with a flashing dome type light, the color of which is in accordance with local or state codes.

(2) It may be desirable to clearly identify the vehicles for control purposes by either assigned initials or numbers that are prominently displayed on each side of the vehicle. The identification symbols should be a minimum 8-inch, block-type characters of a contrasting color, and easy to read. They may be applied either by using tape or a water-soluble paint to facilitate removal. Magnetic signs are also acceptable. In addition, all vehicles must display identification media as specified in the approved security plan.

(3) Employee parking shall be as shown on the Construction Layout and Safety Plan and designated by the engineer.

(4) Access to the job site shall be as shown on the Construction Layout and Safety Plan and as designated by the engineer.

I. NAVIGATIONAL AIDS

The Contractor must not conduct any construction activity within navigational aids' restricted areas without prior approval from the Owner. Navigational aids include the non-directional beacons and PAPIs on Runway 13-31 and PAPIs and REILs on Runway 20. Such restricted areas are depicted on construction plans. When Runway 2-20 is

closed for construction operations, the PAPIs and REILs on Runway 20 shall be turned off and covered.

J. LIMITATIONS ON CONSTRUCTION

Additional limitations on construction shall include:

(1) Prohibit open-flame welding or torch cutting operations unless adequate fire safety precautions are provided and these operations have been authorized by the engineer.

(2) Prominently mark open trenches, excavations, and stockpiled materials at the construction site with alternating orange and white flags and light these obstacles during hours of restricted visibility and darkness.

(3) Marking and lighting of closed, deceptive, and hazardous areas on airports, as appropriate.

(4) Constrain stockpiled material to prevent its movement as a result of the maximum anticipated aircraft blast and forecast wind conditions.

K. RADIO COMMUNICATIONS

Vehicular traffic located in or crossing an active movement area must have a working two-way radio in contact with the local Unicom frequency (122.8 MH) and be escorted by a flag person (in radio contact with Unicom). The driver, through personal observation, should confirm that no aircraft is approaching the vehicle position. Construction personnel may operate in a movement area without two-way radio communication provided a NOTAM is issued closing the area and that the area is properly marked to prevent incursions. Contractor shall monitor Unicom radio on frequency 122.8. Continuous monitoring is required.

L. DEBRIS

Waste and loose material must not be placed in active movement areas. Materials tracked onto these areas must be removed continuously during the work project.

(16) SUBMITTALS AND/OR SHOP DRAWINGS.

a) The specifications indicate the desired equipment and materials as to type and quality. Wherever proprietary names are listed in these specifications, it shall be interpreted that the words “or approved equal” follow, unless otherwise specified. The words “or approved equal” shall be interpreted as meaning equal in every respect as determined by the Engineer.

b) Prior to or at the Preconstruction Conference, the Contractor shall submit to the Engineer for approval a complete list of all equipment and materials intended to be used on the job. The list shall include the following information for each item.

Name of Item
FAA Specifications Number (If Any)
Manufacturer's Name
Manufacturer's Catalog Number
Size, Type and Rating

The Contractor shall submit a sufficient number of copies of the equipment and materials list for the Contractor's use and to allow the Owner to retain five (5) copies.

Prior to or at the Preconstruction Conference the Contractor shall submit to the Engineer for approval the following:

Construction Schedule
Safety Plan Compliance Document

Construction on this project cannot begin until these submittals have been reviewed and approved.

c) Within five (5) calendar days after Engineer's approval of the equipment and materials list, the Contractor shall submit to the Engineer for written approval copies of all shop drawings and all equipment and materials submittals. The shop drawings and equipment/materials submittals shall be complete showing all details.

d) The Contractor shall review and sign all shop drawings prior to submitting same for Engineer's approval. All shop drawings received without the Contractor's signature will be subject to return without review or comment.

It shall be the responsibility of the Contractor to specifically point out any variation or discrepancy between the shop drawings or manufacturers' instructions he submits and the Contract Documents. Failure by the Contractor to identify in his/her letter of transmittal any variation, discrepancy, or conflict with the contract drawings may result in the shop drawing or submittal being returned to the Contractor for resubmittal.

e) The shop drawings shall show completely the work to be done, but approval by the Engineer shall not be construed as waiving any of the requirements of the contract and particularly shall not be construed as relieving the Contractor of full responsibility for fitting his/her equipment in the spaces provided; or from responsibility to fulfill the contract at no extra cost to the Owner, within the completion time.

f) The Contractor shall submit a sufficient number of copies of all shop drawings and equipment and materials submittals for the Contractor's use and to allow the Owner to retain five (5) copies. Fax submittals will only be acceptable as preliminary submittals and are to be followed up with hard copies. Email submittals will be satisfactory provided they are legible.

(17) SUBMITTAL AND SHOP DRAWING APPROVALS

The Engineer will review all submittals and shop drawings and return them to the Contractor. If the Contractor's submittal or shop drawings are incomplete or the product submitted does not meet specification requirements, the Engineer will reject the submittal or shop drawing and the Contractor will be required to resubmit. Resubmittals shall address all comments from the Engineer. Partial resubmittals may be returned without action. The review of the first submittal and one resubmittal on any item will be made by the Engineer at no cost to the Contractor. The Contractor will be charged for and shall reimburse the Owner for the Engineer's costs of reviewing the second and each subsequent resubmittal. The Engineer's costs will be charged to the Owner and deducted from the Contractor's progress payments.

(18) CONSTRUCTION MANAGEMENT PLAN

The Contractor is responsible for all Quality Control (QC) during the construction of this project, including testing and inspection. The Owner is responsible for Quality Assurance (QA) to confirm that all work has been performed in accordance with the plans and specifications. A Construction Management Plan has been prepared and is included in Appendix B of these specifications. This plan outlines how this project will be managed during construction and includes construction management personnel and resumes, inspection procedures and frequencies, submittal process, quality control testing, quality assurance testing, and test result documentation. This plan shall be used as a guide to the Contractor in preparing Contractor's Quality Control Program for this project.

The Contractor shall present his/her Quality Control Program to the Engineer for review and approval. 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 approved by the Engineer.

For each item of work, the Contractor shall maintain a summary report of all testing and inspection results. This summary report shall tabulate the daily test results for each item of work. The summary reports shall be updated daily and formally submitted to the Engineer as requested, but not less than once per week.

Simultaneously with the contractor's request for final payment, the Contractor shall submit three (3) sets of Quality Control Reports consisting of all testing and inspections conducted during the construction of the project. All test results shall be included in a typed summary table to be approved by the Engineer.

(19) CONTRACTOR'S RECORD DRAWINGS

The Owner shall provide the Contractor with one extra set of working plans and specifications, which Contractor shall keep at the site of the work at all times. The following information shall be inserted and dimensioned on said drawings and specifications, in RED by the Contractor: The exact location of all installations in their finished condition, including all electrical installations; all changes in construction, materials and installed equipment; adequate dimensional data, both horizontal and vertical, to allow location of covered installations; the identification of changes authorized by change

order, and the number of that change order. Upon completion of the work, said drawings and specifications shall be returned to the Design Engineer prior to the final payment.

Drawings shall be subject to the inspection of the Engineer at all times and shall be kept current weekly with all work instructions, change orders, and construction adjustments shown thereon and initialed by the Inspector.

Progress payments or portions thereof may be withheld if drawings are not maintained as stated above. At the final inspection the Contractor shall submit record drawings to the Inspector for review and comment by the Engineer. The work will not be formally accepted until the record drawings are accepted by the Engineer.

(20) OPERATION AND MAINTENANCE MANUALS

No Operation and Maintenance Manuals will be required for this project.

(21) ANTI-TRUST ASSIGNMENT

By execution of the Contract Documents, or any subcontract awarded by the Contractor, the Contractor or any subcontractor offers and agrees to assign and hereby does assign to the City all rights, title, and interest in and to all causes of action such Contractor or subcontractor may have under Section 4 of the Clayton Act (15 USC Section 15) or under the Cartright Act (Chapter 2 of Part 2 of Division 7 of the Business and Professions Code, commencing with Section 16700), arising from purchases of goods, services, or materials pursuant to this public works contract or subcontract. This assignment shall be made and shall become effective upon execution of the contract.

(22) CONTRACTOR NOT AGENT, NOR EMPLOYEE

Neither the Contractor nor any subcontractor, or any officer, agent, or employee of either, is, nor shall they represent themselves to be, an officer, agent, or employee of the City for any purpose whatsoever.

No person employed by the Contractor, or by any subcontractors, are, nor shall they be construed to be, in any manner or for any purpose whatsoever, employees of the City.

(23) CONTRACTOR'S GUARANTEE

The Owner shall not, in any way or manner, be answerable or suffer loss, damage, expense or liability for any loss or damage that may happen to any building, work or equipment or any part thereof, or in, on, or about the same during its construction and before acceptance. Contractor unqualifiedly guarantees the first-class quality of all workmanship and of all materials, apparatus and equipment used or installed by him or by any subcontractor or supplier in the project which is the subject of this Contract, unless a lesser quality is expressly authorized in the Plans and Specifications, in which event Contractor shall conform with the Plans and Specifications or any written authorized deviation there from. In case of any defect in work, materials, apparatus or equipment, whether latent or patent, revealed to Owner within one (1) year of the date of acceptance of completion of this Contract by the Owner, the Contractor shall forthwith remedy such defect or defects without cost to the Owner.

(24) COORDINATION MEETING

In order to coordinate the work, a weekly meeting will be held during the construction phase of the work in the FBO Pilots' Lounge, Oroville Municipal Airport.

The time of this meeting will be determined at a time convenient to the Owner, Engineer and Contractor. The Contractor's superintendent must attend these meetings.

At this weekly meeting the Contractor shall submit in writing an updated progress report for the total work and a schedule defining the work for the following week. Except for emergencies or unforeseen circumstances, this schedule shall be followed.

(25) TESTING AND ACCEPTANCE OF MATERIALS

All materials in which quality of the product such as gradation, Atterberg Limits, sand equivalent, CBR, etc., is specified, shall meet those specifications when in the final as-compacted condition and not the condition at the stockpile or source of supply. Any deviation from these requirements shall be corrected by removal and replacement with materials that conform to the specifications. When the materials removed are screened and/or blended and reincorporated in the work, the materials as placed shall meet all specification requirements. It shall be the Contractor's responsibility to coordinate his materials, production and construction procedures so that the final compacted product is acceptable.

(26) DETERMINATION OF IN-PLACE DENSITY

Where the determination of in-place dry density for soil or aggregate materials is required, the Owner may determine the in-place density by the use of Nuclear Testing equipment.

This testing for density and for determination of moisture content shall conform to ASTM Designation D 6938, "In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods" or ASTM Designation D 1556, "Test for Density of Soil In Place by the Sand Cone Method".

In case of dispute in determination of the in-place dry density, the dry density as determined in accordance with ASTM Designation D 1556, "Test for Density of Soil In Place by the Sand Cone Method," shall govern.

**** END OF SECTION ****

TECHNICAL PROVISIONS

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ITEM P-147 WATERING

Description

147-1.1 This item shall consist of furnishing and applying water required for dust control, compaction, and other purposes in accordance with requirements of these specifications or as directed by the Engineer.

Construction Methods

147-2.1 Water, when required, shall be applied at locations, in amounts, and during hours, including nights, as directed by the Engineer. An adequate water supply shall be provided by the Contractor. The equipment used for watering shall be of ample capacity and of such design as to assure uniform application of water in the amounts directed by the Engineer.

The Contractor shall develop his own water supply for this project.

Method of Measurement and Basis of Payment

147-3.1 No separate payment shall be made for watering, but it shall be considered as a subsidiary obligation of the Contractor covered under the respective items of work.

Testing and Material Requirements

Test and Short Title	Material and Short Title
None	None

**** END OF SECTION ****

ITEM P-149 MARKING AND LIGHTING OF CLOSED AIRPORT FACILITIES

Description

149-1.0 GENERAL. The construction of this project requires certain areas of the airfield to be closed to aircraft and operational traffic. Closure of these areas shall be in accordance with construction plans. Marking of closed airfield facilities and temporary facilities shall be in accordance with these specifications and F.A.A. Advisory Circular No. 150/5340-1L, "Standards for Airport Markings."

All existing taxiway lights and all power, control, and communication cables shall be maintained in operation at all times for those facilities which are not closed under this contract.

149-2.0 CLOSED AIRPORT FACILITY MARKING. Any area that is closed for air or vehicular traffic shall be marked and/or lighted barricades placed across the pavement. These markings or barricades must be maintained in good condition at all times during the closure or they shall be repaired or replaced as directed by the Engineer.

Contractor shall furnish low-profile water filled barricades for airports conforming to Crowd Stopper Water Cade WC01-10 (10'high), or approved equal. Contractor shall place and maintain these barricades as shown on the Construction Layout Safety Plan.

All closed markings or structures shall be securely fastened or weighted to prevent displacement by high winds or jet blast. Maximum height of structures used on the airfield pavements, except for flags, shall be 18 inches.

When the Contractor is working in a closed area, he may move the markings during his operations, but they must be replaced at the end of the working day and when work is not being performed in the area.

Closure marking on structures shall be placed as directed by the Engineer.

The Contractor shall furnish, place, and maintain closed runway crosses on both thresholds of Runway 2-20 during periods when these facilities are closed for construction and as shown on the plans. Contractor shall acquire, furnish, place, and remove the crosses as required. The crosses shall consist of heavy-duty canvas 10 feet wide by 60 feet long. The canvas shall be colored yellow. At the end of the construction the materials used for the crosses shall be given to the Owner and delivered to the specified on-airport storage area. Prior to removal of the crosses all materials and equipment shall be moved from the runway and the runway surface cleaned of all deleterious material. Contractor shall furnish and install all fasteners or weights required to hold the crosses in place.

In areas of closure, some sign panels must be covered to prevent misdirecting pilots. These sign panels shall be covered in such a way that the panel is not visible during day or night. Covers shall be secured to the sign to resist prop blast and weather conditions. All sign panel covers proposed for

use shall be approved in the field by the Resident Engineer. The signs to be covered are shown on the plans.

All barricades, runway closure crosses, and sign panel covers shall be placed prior to the start of construction and removed when construction of the project is complete.

149-3.0 HAZARD LIGHTING OF CONSTRUCTION AREAS. In accordance with the construction schedule, the Contractor shall outline probable access to construction areas and block access to work areas by use of suitable lighted barricades. On all airfield pavement, except for flags, no part of the barricade or light shall extend ten (10) inches above the paved surface. Maximum spacing between barricades shall be four (4) feet. Each barricade has two solar-powered lights with red lenses each controlled by photocells such that they are on at night and off during the day. Barricades are painted alternate orange and white diagonal striping. These lighted barricades shall remain in place until such time as the new construction is open to traffic.

Barricades shall be securely fastened or weighted so that they will not be disturbed by high winds or jet blast.

Barricades shall be located as shown on the plans and directed by the Resident Engineer. All barricades shall be removed at the completion of construction.

149-4.0 METHOD OF MEASUREMENT AND BASIS OF PAYMENT. Method of measurement and basis of payment for Marking and Lighting of Closed Airport Facilities shall be Lump Sum. This lump sum price shall be full compensation for furnishing all labor, materials, tools, and incidentals necessary to perform this item of work and for delivering the runway closure crosses to the Airport at the conclusion of the project.

Payments will be made for marking and lighting of closed airport facilities on a monthly basis with the monthly progress payments. The percentage of marking and lighting of closed airport facilities payment made will be equal to the percentage of total project, completed, as determined by the Engineer.

Payment will be made under:

Marking and Lighting of Closed Airport Facilities (P-149)	-	Lump Sum

**** END OF SECTION ****

ITEM P-150 MOBILIZATION

150-1.0 Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the projects; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project.

Method of Measurement

150-2.0 The method of measurement for Mobilization shall be lump sum. This contract lump sum price paid for mobilization shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in mobilization as specified. No separate payment will be made for demobilization.

Basis of Payment

150-3.0 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 as required by Subsection 90-11 of the Federal General Provisions, the final 10%.

Payment will be made under:

Mobilization (P-150)	-	Lump Sum

**** END OF SECTION ****

ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

Description

152-1.1 This item covers the grading of high spots within the limits of the work in the safety area and object free area to Runway 2-20 and excavation, disposal, placement, and compaction of all materials for drainage or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans. This item does not include any excavation or backfill of storm drain pipe.

The Contractor is referred to Section 100 of these specifications for Contractor Quality Control Program requirements.

152-1.2 CLASSIFICATION All material excavated shall be classified as defined below:

(a) Unclassified Excavation. Unclassified excavation shall consist of the excavation, hauling, and stockpiling of all material, regardless of its nature, including strippings, which is not otherwise classified and paid for under the following items.

(b) Drainage Excavation. Drainage excavation shall consist of all excavation made for the primary purpose of drainage and includes drainage ditches, such as intercepting, inlet or outlet; temporary levee construction; or any other type except pipe drain excavation as shown on the plans. Payment for drainage excavation shall be made under the unit price bid for the drainage structure or pipe.

(c) Stockpiles. Excess excavation materials shall be removed from the site and disposed of. Contractor will be allowed to construct temporary stockpiles in the Contractor's Storage Area as shown on the plans, but must remove all of the stockpiled materials at the end of the project and dispose of them off site.

152-1.3 UNSUITABLE EXCAVATION. Any material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material, when approved by the Engineer as suitable to support vegetation, may be used on the embankment slope.

Construction Methods

152-2.1 GENERAL. The suitability of material to be placed in embankments shall be subject to approval by the Engineer. All unsuitable material shall be disposed of offsite. At the discretion of the Contractor temporary stockpiles can be placed in the Contractor's Storage Area but must be removed off site by the end of the project.

When the Contractor's excavating operations encounter artifacts of historical or archeological significance, the operations shall be temporarily discontinued and the Engineer notified per subsection 70-20 of these specifications. At the direction of the Engineer, the Contractor shall

excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Those areas outside of the pavement areas in which the top layer of soil material has become compacted, by hauling or other Contractor activities, shall be scarified and disked to a depth of four inches, in order to loosen and pulverize the soil.

If it is necessary to interrupt existing surface drainage, sewers, or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

152-2.2 EXCAVATION. No excavation shall be started until the work has been staked out by the Contractor and the Engineer has obtained from the Contractor the survey notes of the elevations and measurements of the ground surface. All suitable excavated material shall be used in the formation of embankment, subgrade, or stockpiled as shown on the plans. All unsuitable material shall be disposed of offsite.

When the volume of the excavation exceeds that required to construct the embankments to the grades indicated, the excess shall be used to grade the areas of ultimate development or placed in the designated disposal stockpile as directed by the Engineer. When the volume of excavation is not sufficient for constructing the fill to the grades indicated, the deficiency shall be obtained from borrow areas.

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.

(a) Grading of the Safety Area and Object Free Area - Runway 2-20. FAA regulations require that all objects within the Runway Safety Area and Object Free Area be lower than the adjacent elevation of the centerline of the runway. In the southerly end of the airport to the east of Runway 2-20 as shown on the plans surveys have indicated that in certain areas the soil is one foot or less above the elevation of the adjacent runway centerline and needs to be corrected. In this project the Contractor shall locate by surveys the areas where the soil is higher than the adjacent runway centerline, identify these areas, and then remove all the soil that is above the runway centerline elevation and place it in adjacent low areas and compact it by wheel rolling. Contractor shall exercise care not to interrupt any existing drainage facilities with this operation.

(b) Selective Grading. When selective grading is indicated on the plans, the more suitable material as designated by the Engineer shall be used in constructing the embankment or in capping the pavement subgrade. 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 but will not be paid for rehandling.

(c) Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for runway safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade, or to the depth specified by the Engineer. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed of offsite. This excavated material shall be included in the price paid for the 42-inch RCP. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and thoroughly compacted to specified densities. The necessary backfill will constitute a part of the embankment and will not be paid for separately. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans.

(d) Overbreak. Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer. All overbreak shall be graded or removed by the Contractor and disposed of as directed by the Engineer. The Engineer shall determine if the displacement of such material was unavoidable and his/her decision shall be final. Payment will not be made for the removal and disposal of overbreak that the Engineer determines as avoidable.

(e) Compaction Requirements. Subgrade under areas to be paved shall be compacted to a depth of 6 inches and to a dry density of not less than 95 percent of the maximum dry density as determined by ASTM D 1557. The material to be compacted shall be within +/- 2 percent of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils).

The materials excavated from the high spots in the Runway Safety Area and Object Free Area shall be excavated to an elevation equal to or slightly below the elevation of the adjoining runway centerline. The excavated materials shall be placed in adjacent low areas and compacted by wheel rolling to form a uniform surface that will drain.

All loose or protruding rocks on the back slopes of cuts shall be pried loose or otherwise removed to finished grade 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.

Blasting shall not be allowed.

152-2.3 BORROW EXCAVATION. Not applicable.

152-2.4 DRAINAGE EXCAVATION. 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.

Excavations for structures and pipes shall be paid under the unit price bid for the structures or pipes.

152-2.5 PREPARATION OF EMBANKMENT AREA. Not applicable.

152-2.6 FORMATION OF EMBANKMENTS. Embankments shall be formed in successive horizontal layers of not more than eight inches in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross section or as directed by the Engineer. Materials such as brush, hedge, roots, stumps, grass and other organic matter shall not be incorporated or buried in embankments or placed in future pavement areas.

The earthwork operations shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope embankments to provide proper surface drainage at all times.

The material in each embankment and subgrade layer shall be within two percent (±2%) of optimum moisture content before rolling to obtain prescribed compaction. In order to achieve a uniform moisture content throughout the layer, the material shall be moistened or aerated as necessary. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 1,000 square yards per layer. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials, or moisture content in order to achieve the specified embankment density.

Compaction areas shall be kept separate, and no layer shall be covered by another until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each layer is placed. 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. Layer placement shall begin in the deepest portion of the embankment fill. As placement progresses, the layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches in their greatest dimensions will not be allowed in the top 6 inches of the subgrade. Rockfill shall be brought up in layers as specified or as directed by the Engineer and the finer material shall be used to fill the voids with forming a dense, compact mass. Rock or boulders shall not be disposed of outside the excavation or embankment areas, except at places and in the manner designated on the plans or by the Engineer.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in layers not exceeding 2 feet in thickness. Each layer shall be leveled and smoothed with suitable

equipment by distribution of spalls and finer fragments of rock. The layer shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement or payment for compacted embankment, and all costs incidental to placing in layers, compacting, disking, watering, mixing, sloping, and other necessary operations for construction of embankments will be included in the contract price for excavation or other items.

152-2.7 FINISHING AND PROTECTION OF SUBGRADE. After subgrade is substantially complete, the Contractor shall remove any soft or other unstable material over the full width of the subgrade that will not compact properly. All low areas, holes or depressions in the subgrade shall be brought to grade with suitable material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans.

Grading of subgrade shall be performed so that it will drain readily. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes. All ruts or rough places that develop in the completed subgrade shall be graded and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

152-2.8 HAUL. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

152-2.9 TOLERANCES. In those areas of excavation or embankment upon which a subbase or base course material is to be placed, the top of subgrade shall be of such smoothness that, when tested with a 12-foot straightedge, applied parallel to 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 sprinkling and rolling.

On safety areas, intermediate and other designated areas surfaces shall 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. All areas shall be graded to drain even if the above tolerances are met.

152-2.10 TOPSOIL. Not applicable.

Method of Measurement

152-3.1 The quantity of excavation required to regrade the Runway 20 safety area and object free area to be paid for will be the number of square yards graded as shown on the plans.

Basis of Payment

152-4.1 For "Grade Runway 20 Safety Area and Object Free Area," payment will be made at the contract unit price per square yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

No separate payment will be made for "Stockpiled Material."

152-4.2 Payment will be made under:

Grade Runway 20 Safety Area and Object Free Area (P-152)	-	per Square Yard

Testing Requirements

ASTM D 698	Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3)
ASTM D 1556	Test Method for Density and Unit Weight of Soil In Place by the Sand-Cone Method
ASTM D 1557	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D 2167	Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 6938	In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods

**** END OF SECTION ****

ITEM P-156 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

Description

156-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Engineer during the life of a contract to control water pollution, soil erosion, and siltation through use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

The temporary erosion control measures contained herein shall be coordinated with permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

The temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

Materials

156-2.1 GRASS. Grass that will not compete with the grasses sown later for permanent cover shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

156-2.2 MULCHES. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials. Mulches shall not create a wildlife attractant.

156-2.3 FERTILIZER. Fertilizer shall be a standard commercial grade and shall conform to all Federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

156-2.4 SLOPE DRAINS. Slope drains may be constructed of pipe, fiber mats, rubble, Portland cement concrete, bituminous concrete, or other materials that will adequately control erosion.

156-2.5 SILT FENCE. The silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

156-2.6 OTHER. All other materials shall meet commercial grade standards and shall be approved by the Engineer before being incorporated into the project.

156-2.7 WATER. Dust shall be carefully controlled in all construction areas, all soil and select fill borrow areas, and all haul roads and storage areas to assure that no dust will be allowed to pass through or be deposited on any aircraft operational areas. Sprinkling with water or other approved methods shall be employed to control dust.

Construction Requirements

156-3.1 GENERAL. In the event of a conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The Engineer shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

156-3.2 SCHEDULE. Prior to start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until erosion control schedules and methods of operations for the applicable construction have been accepted by the Engineer.

156-3.3 CONSTRUCTION DETAILS. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately if the project conditions permit; otherwise, temporary erosion control measures may be required.

The Engineer shall limit areas of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping finish grading, mulching, seeding, and other such permanent control measures current with accepted schedules. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the Engineer.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the Engineer. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the Engineer, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The Engineer may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

Whenever construction equipment must cross watercourses at frequent intervals, temporary structures should be provided.

Pollutants such as fuel, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near any waterways, impoundments or into natural or manmade channels.

156-3.4 INSTALLATION, MAINTENANCE, AND REMOVAL OF SILT FENCES. Silt fences shall extend a minimum of 16 inches and a maximum of 34 inches above the ground surface. Posts shall be set no more than 10 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 4 inches deep by 4 inches wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the Engineer.

Basis of Payment

156-4.1 There will be no separate payment for any work performed under this section. Work performed under this section shall be considered incidental to other items of this Contract.

MATERIAL REQUIREMENTS

ASTM D6461	Standard Specification for Silt Fence Materials
AC 150/5200-33	Hazardous Wildlife Attractants

**** END OF SECTION P-156 ****

ITEM P-209 CRUSHED AGGREGATE BASE COURSE

Description

209-1.1 This item shall consist of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross sections shown on the plans.

Materials

209-2.1 CRUSHED AGGREGATE BASE. Crushed aggregate shall consist of clean, sound durable particles of crushed stone or crushed gravel and shall be free from coatings of clay, silt, organic material, or other objectionable materials. Aggregates shall contain no clay lumps or balls. Fine aggregate passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone or gravel that meet the coarse aggregate requirements for wear and soundness.

The coarse aggregate portion, defined as the material retained on the No. 4 (4.75 mm) sieve, shall not have a loss of greater than 40% when tested per ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall contain no more than 15%, by weight, of flat, elongated, or flat and elongated particles per ASTM D4791. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than three (3). The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

Material shall have a California Bearing Ratio as determined by ASTM D 1883, compacted and soaked, of not less than 100 at 0.1, 0.2, 0.3, 0.4, and 0.5 inch penetrations inclusive, at 100 percent of the maximum dry density as determined by ASTM D 1557, Method D. The CBR test shall be conducted at a surcharge weight of 10 lb. The material shall have a minimum sand equivalent of 40 (ASTM D 2419).

a. Sampling and testing for initial aggregate base requirements. Samples shall be taken by the Contractor in the presence of the Engineer. Material shall meet the requirements in paragraph 209-2.1 and 209-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

209-2.2 GRADATION REQUIREMENTS. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine as defined by ASTM D2487 and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

The fraction of material passing the No. 200 sieve shall not exceed one-half the fraction passing the No. 40 sieve.

REQUIREMENTS FOR GRADATION OF AGGREGATE BASE			
Sieve Size	Design Range - Percentage by Weight	Contractor's Final Gradation	Job Control Grading Band Tolerances for Contractor's Final Gradation (Percent)
2 inch (50 mm)	100		0
1-1/2 inch (38 mm)	95-100		±5
1 inch (25 mm)	70-95		±8
3/4 inch (19 mm)	55-85		±8
No. 4 (4.75 mm)	30-60		±8
No. 40 (0.45 mm)	10-30		±5
No. 200 (0.075 mm)	0-8		±3

The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

a. Sampling and testing for gradation. Gradation tests shall be performed by the Contractor per ASTM C136 and sieve analysis on material passing the No. 200 sieve per ASTM C112. The Contractor shall take at least two aggregate base samples per lot to check the final gradation. Sampling shall be per ASTM D75. The lot will be consistent with the lot size used for density. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer.

Construction Methods

209-3.1 PREPARING UNDERLYING SUBGRADE AND/OR SUBBASE. The underlying subgrade and/or subbase shall be checked and accepted by the Engineer before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with P-152, at the Contractor's expense, may be required by the Engineer if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.2 PRODUCTION. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.4, the approved material may be transported directly to the spreading equipment.

209-3.3 PLACING. Aggregate base material shall be placed on prepared underlying subgrade and/or subbase and compacted in layers to the thickness shown on the plans. Work shall progress without interruption. The material shall be deposited and spread in lanes in a uniform layer without segregation to such loose depth that, when compacted, the layer shall have the specified thickness. The aggregate base course shall be constructed in layers of uniform thickness of not less than 3 inches nor more than 6 inches of compacted thickness. The aggregate as spread shall be of uniform grading with no pockets of fine or coarse materials. The aggregate, unless otherwise permitted by the Engineer, shall not be spread more than 2,000 square yards in advance of the rolling. Any necessary sprinkling shall be kept within these limits. Care shall be taken to prevent cutting into the underlying layer during spreading. No material shall be placed in snow or on a soft, muddy, or frozen course. The aggregate base material shall be spread by spreader boxes or other approved devices. This equipment shall have positive thickness controls that spread the aggregate in the required amount to avoid or minimize the need for hand manipulation. Dumping from vehicles that require rehandling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

209-3.4 COMPACTION. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D6938 using Procedure A, the direct transmission method and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated per ASTM D6938.

209-3.5 ACCEPTANCE SAMPLING AND TESTING FOR DENSITY. Aggregate base course shall be accepted for density on a lot basis. A lot will consist of one day's production if it does not exceed 2,400 square yards (2000 sq m). A lot will consist of one-half day's production if a day's production consists of between 2,400 and 4,800 square yards (2000 and 4000 sq m). Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion daily to the Engineer for acceptance.

Each lot shall be divided into two equal sublots. One test shall be made for each sublot and shall consist of the average of two random locations for density determination. Sampling locations will be determined by the Engineer on a random basis per ASTM D3665.

Each lot will be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens. The specimens shall be compacted and tested per ASTM D 1557. The in-place field density shall be determined per ASTM D1556 (test in accordance with ASTM D4718 if greater than 30% is retained on the 3/4 inch sieve) or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the entire lot shall be reworked and/or recompacted and two additional random tests made at the Contractor's expense. This procedure shall be followed until the specified density is reached.

209-3.6 SURFACE TOLERANCES. After the course has been completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted, until the required smoothness and accuracy are obtained and approved by the Engineer. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

(a) **Smoothness.** The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with, and at right angles to, the centerline. The straightedge shall be moved continuously at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

(b) **Accuracy.** The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

209-3.7 THICKNESS CONTROL. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the Engineer. Tests shall be taken at intervals representing no more than 300 square yards of material placed per test. Sampling locations will be determined by the Engineer per ASTM D3665.

Where the thickness is deficient by more than 1/2 inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material of proper gradation, and the material shall be blended and recompacted to grade. Additional test holes may be required to identify the limits of deficient areas. The Contractor shall replace, at his expense, base material where depth tests have been taken.

209-3.8 PROTECTION. Perform construction when the atmospheric temperature is above 35°F. When the temperature falls below 35°F, protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements. When aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped.

Hauling equipment may be routed over completed portions of the base course, provided no damage results. The Engineer will stop all hauling over completed or partially completed base course when, in the Engineer's opinion, such hauling is causing damage. Any damage to the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.9 MAINTENANCE. The Contractor shall maintain the base course in a satisfactory condition until the full pavement section is completed and accepted by the Engineer. The surface shall be kept clean and free from foreign material and properly drained at all times. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.

Equipment used in the construction of an adjoining section may be routed over completed base course, if no damage results and the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.

The Contractor shall remove all survey and grade hubs from the base courses prior to placing any bituminous surface course.

Method of Measurement

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of cubic yards of material actually constructed and accepted by the Engineer as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

Basis of Payment

209-5.1 Payment shall be made at the contract unit price per cubic yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Crushed Aggregate Base Course (P-209) - per Cubic Yard

Testing Requirements

ASTM C 29	Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 117	Material Finer than 75µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM D 75	Standard Practice for Sampling Aggregates
ASTM D 422	Particle-Size Analysis of Soils
ASTM D 698	Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
ASTM D 1556	Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D 1883	CBR (California Bearing Ratio) of Laboratory-Compacted Soils
ASTM D 2419	Sand Equivalent Value of Soils and Fine Aggregate
ASTM D 3665	Standard Practice for Random Sampling of Construction Materials
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 4718	Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
ASTM D 4791	Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D 5821	Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D 6938	In-Place Density and Water Content of Soil and Soil-Aggregate in Place By Nuclear Methods (Shallow Depth)

**** END OF SECTION P-209 ****

ITEM P-401 HOT MIX ASPHALT (HMA) PAVEMENTS

Description

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and an approved asphalt cement binder (asphalt binder) mixed in a central mixing plant and placed on a prepared course in accordance with 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, and elevation required by the plans and shall be rolled, finished and approved before placement of the next course.

Materials

401-2.1 AGGREGATE. Aggregates shall consist of crushed stone or crushed gravel crushed slag, screenings, natural sand and mineral filler as required. The aggregates should be free of ferrous sulfides, such as pyrite, that would cause "rust" staining that can bleed through pavement markings. The portion 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 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 percent when tested in accordance with ASTM C 131. Sodium sulfate soundness loss shall not exceed 12 percent, or the magnesium sulfate soundness loss shall not exceed 18 percent, after five cycles, when tested in accordance with ASTM C 88. Clay lumps and friable particles shall not exceed 1.0% when tested in accordance with ASTM C142.

Aggregate shall contain at least 75 percent by weight of individual pieces having two or more fractured faces and 85 percent having at least one fractured face. The area of each face shall be equal to at least 75 percent of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between planes of fractures shall be at least 30 degrees to count as two fractured faces. Fractured faces shall be obtained by crushing.

The aggregate shall not contain more than a total of 8 percent, by weight, of flat particles, elongated particles, and flat and elongated particles, when tested in accordance with ASTM D 4791 with a value of 5:1.

(b) **Fine Aggregate.** Fine aggregate shall consist of clean, sound, durable, angular shaped particles produced by crushing stone, slag, or gravel that meets requirements for wear and soundness specified for coarse aggregate. The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter

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 in accordance with ASTM D 4318.

The soundness loss shall not exceed 10% when sodium sulfate is used or 15% when magnesium sulfate is used, after five cycles, when tested per ASTM C88.

Clay lumps and friable particles shall not exceed 1.0%, by weight, when tested in accordance with ASTM C142.

Natural (non-manufactured) sand may be used to obtain gradation of 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 15 percent natural sand by weight of total aggregates. If used, the natural sand shall meet the requirements of ASTM D 1073 and shall have a plasticity index of not more than 6 and a liquid limit not more than 25 when tested in accordance with ASTM D 4318.

The aggregate shall have sand equivalent values of 45 or greater when tested in accordance with ASTM D 2419.

(c) **Sampling.** ASTM D75 shall be used in sampling coarse and fine aggregate, and ASTM C183 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 requirements of ASTM D 242.

401-2.3ASPHALT CEMENT BINDER. Asphalt cement binder shall conform to ASTM D6373 Performance Grade PG 70-10. A certificate of compliance from the manufacturer shall be included with the mix design submittal.

The supplier's certified test report with test data indicating grade certification for the asphalt binder shall be provided to the Engineer for each load at the time of delivery to the mix plant. A certified test report with test data indicating grade certification for the asphalt binder shall also be provided to the Engineer for any modification of the asphalt binder after delivery to the mix plant and before use in the HMA.

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.
(3) Clay lumps and friable particles.
(4) Percent Fractured Faces
(5) Flat and Elongated Particles

(b) **Fine Aggregate.**

(1) Liquid limit and Plasticity index.
(2) Soundness
(3) Clay lumps and friable particles.
(4) Percent natural sand
(5) Sand equivalent.

(c) **Mineral Filler.**

(d) **Asphalt Binder** – Test results for asphalt binder shall include temperature/viscosity charts for mixing and compaction temperatures.

The certifications shall show the appropriate ASTM tests 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.

401-2.5 ANTI-STRIPPING AGENT. Any anti-stripping agent or additive, if required, shall be heat stable, shall not change the asphalt cement viscosity beyond specifications, shall contain no harmful ingredients, shall be added in recommended proportion by approved method, and shall be a material approved by the Department of Transportation of the State of California.

Composition

401-3.1 COMPOSITION OF MIXTURE. The HMA mix shall be composed of a mixture of well-graded aggregate, filler and anti-strip agent if required, and asphalt binder. The several aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets grading requirements of the job mix formula (JMF).

401-3.2 JOB MIX FORMULA. (JMF) No hot-mixed asphalt (HMA) for payment shall be produced until a job mix formula (JMF) has been approved in writing by the Engineer. The asphalt mix-design and JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.4. The HMA shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. ASTM D6926 shall be used for preparation of specimens using the

manually held and operated hammer for the mix design procedure. ASTM D6927 shall be used for testing for Marshall stability and flow.

If material variability exceeds the standard deviations indicated, the JMF and subsequent production targets shall be based on a stability greater than shown in Table 1 and the flow shall be targeted close to the mid-range of the criteria in order to meet the acceptance requirements.

Tensile strength ratio (TSR) of the composite mixture, as determined by ASTM D4867, shall not be less than 75 when tested at a saturation of 70-80% or an anti-stripping agent shall be added to the HMA, as necessary, to produce a TSR of not less than 75 when tested at a saturation of 70-80%. If an anti-strip agent is required, it shall be provided by the Contractor at no additional cost to the Owner.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates currently being produced.

The submitted JMF shall be stamped or sealed by the responsible professional Engineer and shall include the following items as a minimum:

a. Percent passing each sieve size for total combined gradation, individual gradation of all aggregate stockpiles and percent by weight of each stockpile used in the job mix formula.

b. Percent of asphalt cement.

c. Asphalt performance grade and type of modifier if used.

d. Number of blows per side of molded specimen.

e. Laboratory mixing temperature.

f. Laboratory compaction temperature.

g. Temperature-viscosity relationship of the PG asphalt cement binder showing acceptable range of mixing and compaction temperatures; and for modified binders include supplier recommended mixing and compaction temperatures.

h. Plot of the combined gradation on a 0.45 power gradation curve.

i. Graphical plots of stability, flow, air voids, voids in the mineral aggregate, and unit weight versus asphalt content.

j. Specific Gravity and absorption of each aggregate.

k. Percent natural sand.

l. Percent fractured faces.

m. Percent by weight of flat particles**,** elongated particles, and flat and elongated particles (and criteria).

n. Tensile Strength Ratio (TSR).

o. Anti-strip agent (if required).

p. Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.

The Contractor shall submit to the Engineer the results of verification testing of three (3) asphalt samples prepared at the optimum asphalt content. The average of the results of this testing shall indicate conformance with the JMF requirements specified in Tables 1 and 3.

When the project requires asphalt mixtures of differing aggregate gradations, a separate JMF and the results of JMF verification testing shall be prepared for each mix.

The JMF for each mixture shall be in effect until a modification is approved in writing by the Engineer. Should a change in sources of materials be made, a new JMF must be prepared within 15 days and approved by the Engineer in writing before the new material is used. After the initial production JMF has been approved by the Engineer and a new or modified JMF is required for whatever reason, the subsequent cost of the Engineer's approval of the new or modified JMF will be borne by the Contractor. There will be no time extension given or considerations for extra costs associated with the stoppage of production paving or restart of production paving due to the time needed for the Engineer to approve the initial, new or modified JMF.

TABLE 1. MARSHALL DESIGN CRITERIA

Test Property	Design Criteria
Number of Blows	75
Stability, Minimum Pounds	2,150
Flow[1], 0.01 in.	10-16
Target Air Voids (percent)	3.5
Percent Voids in Mineral Aggregate, Minimum	See Table 2

[1]The flow requirement is not applicable for Polymer Modified Asphalts.

TABLE 2. MINIMUM PERCENT VOIDS IN MINERAL AGGREGATE (VMA)	
Aggregate (See Table 3)	**Minimum VMA**
Gradation 1	14%

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 3 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 3 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

TABLE 3. AGGREGATE – HMA PAVEMENTS	
Size	Gradation 1
1 inch	100
3/4 inch	76-98
1/2 inch	66-86
3/8 inch	57-77
No. 4	40-60
No. 8	26-46
No. 16	17-37
No. 30	11-27
No. 50	7-19
No. 100	6-16
No. 200	3-6
Stone or Gravel	4.5-7.0
Slag	5.0-7.5

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 MS-2 Mix Design Manual, 7th Edition.

401-3.3 RECLAIMED ASPHALT PAVEMENT (RAP). RAP shall not be used.

401-3.4 JOB MIX FORMULA (JMF) LABORATORY. The laboratory used to develop the JMF shall be accredited in accordance with ASTM D3666. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the JMF must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

401-3.5 TEST SECTION. The quantity of hot mix asphalt pavement required is too small to require a separate test section. At the Contractor's option a test section can be placed off site and tested by the Contractor's Quality Control; otherwise, the Contractor will be allowed to place the hot mix asphalt as required. If the HMA does not meet specification requirements the existing hot mix asphalt will be removed and replaced with hot mix asphalt that meets all specification requirements. If the Contractor chooses to provide a test section, the following requirements will apply.

Prior to full production, the Contractor shall prepare and place a quantity of HMA according to the job mix formula. The amount of HMA shall be sufficient to construct a test section 300 feet long and 20 feet wide placed in two lanes, with a longitudinal cold joint, and shall be of the same depth specified for the construction of the course which it represents. A cold joint for this test section is an exposed construction joint at least 4 hours old or whose mat has cooled to less than 160º F. The cold joint must be cut back using the same procedure that will be used during production in accordance with 401-4.13. The underlying grade or pavement structure upon which the test section is to be constructed shall be the same as the remainder of the course represented by the test section. The equipment used in the construction of the test section shall be the same type and weight to be used on the remainder of the course represented by the test section.

The test section shall be evaluated for acceptance as a single lot in accordance with the acceptance criteria in paragraph 401-5.1 and 401-5.2. The test section shall be divided into equal sublots. As a minimum the test section shall consist of three (3) sublots.

The test section shall be considered acceptable if: 1) stability, flow, mat density, air voids, and joint density are 90% ore more within limits, 2) gradation and asphalt content are within the action limits specified in paragraphs 401-6.5a and 5b, and 3) the voids in the mineral aggregate are within the limits of Table 2.

If the initial test section should prove to be unacceptable, the necessary adjustments to the job mix formula, plant operation, placing procedures, and/or rolling procedures shall be made. A second test section shall then be placed. If the second test section also does not meet specification requirements, both sections shall be removed at the Contractor's expense. Additional test sections, as required, shall be constructed and evaluated for conformance to the specifications. Any additional sections that are not acceptable shall be removed at the Contractor's expense. Full production shall not begin until an acceptable test section has been constructed and accepted in writing by the Engineer. Once an acceptable test section has been placed, payment for the initial test section and the section that meets specification requirement shall be made in accordance with paragraph 401-8.1.

Job mix control testing shall be performed by the Contractor at the start of plant production and in conjunction with the calibration of the plant for the JMF. If aggregates produced by the plant do not satisfy the gradation requirements or produce a mix that meets the JMF, it will be necessary to reevaluate and redesign the mix using plant-produced aggregates. Specimens shall be prepared and the optimum asphalt content determined in the same manner as for the original JMF tests.

Contractor will not be allowed to place the test section until the Contractor Quality Control Program, showing conformance with the requirements of Paragraph 401-6.1, has been approved, in writing, by the Engineer.

Construction Methods

401-4.1 WEATHER LIMITATIONS. The HMA shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. Temperature requirements may be waived by the Engineer, if requested; however, all other requirements including compaction shall be met.

TABLE 4. SURFACE TEMPERATURE LIMITATIONS OF UNDERLYING COURSE

Mat Thickness	Base Temperature (Minimum)	
	Deg. F	Deg. C
3 inches or greater	40	4
Greater than 2 inches but less than 3 inches.	45	7

401-4.2 HMA PLANT. Plants used for preparation of HMA shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M 156 with the following changes:

Requirements for all plants include:

(a) **Truck Scales.** The HMA shall be weighed on approved scales furnished by the Contractor, or on certified public scales at Contractor's expense. Scales shall be inspected and sealed as often as the Engineer deems necessary to assure their accuracy. Scales shall conform to requirements of the F.A.A. General Provisions, Section 90-01.

In lieu of scales, and as approved by the Engineer, HMA weight may be determined by the use of an electronic weighing system equipped with an automatic printer that weighs the total HMA production and as often thereafter as requested by the Engineer.

(b) **Testing Facilities.** The Contractor shall ensure laboratory facilities are provided at the plant for the use of the Engineer. The lab shall have sufficient space and equipment so that both testing representatives (Engineer's and Contractor's) can operate efficiently. The lab shall meet the requirements of ASTM D 3666, including all necessary equipment, materials, calibrations, current reference standards to comply with the specifications and masonry saw with diamond blade for trimming pavement cores and samples.

The plant testing laboratory shall have a floor space area of not less than 200 sq ft, with a ceiling height of not less than 7-½ feet. The laboratory shall be weather tight, sufficiently heated in cold weather, air-conditioned in hot weather to maintain temperatures for testing purposes of 70 °F +/- 5 °F. The plant testing laboratory shall be located on the plant site to provide an unobstructed view, from one of its windows, of the trucks being loaded with the plant mix materials. In addition, the facility shall include the minimum:

(1) Adequate artificial lighting

(2) Electrical outlets sufficient in number and capacity for operating the required testing equipment and drying samples.

(3) A minimum of two (2) Underwriter's Laboratories approved fire extinguishers of the appropriate types and class.

(4) Work benches for testing.

(5) Desk with chairs and file cabinet.

(6) Sanitary facilities convenient to testing laboratory

(7) Exhaust fan to outside air.

(8) Sink with running water, attached drain board and drain capable of handling separate material

Failure to provide the specified facilities shall be sufficient cause for disapproving HMA plant operations.

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 the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

(c) **Inspection of Plant.** The Engineer, or Engineer's authorized representative, shall have access, at all times, to all parts of the plant for checking adequacy of equipment; inspecting operation of the plant; verifying weights, proportions, and material properties; and checking temperatures maintained in preparation of mixtures.

(d) **Storage Bins and Surge Bins.** The HMA stored in storage and surge bins shall meet the same requirements as HMA loaded directly into trucks and may be permitted under the following conditions:

(1) Stored in surge bins for period of time not to exceed three (3) hours,

(2) Stored in insulated storage bins for a period of time not to exceed 8 hours.

If the Engineer determines that there is an excessive amount of heat loss, segregation or oxidation of the HMA due to temporary storage, no temporary storage will be allowed.

401-4.3 HAULING EQUIPMENT. Trucks used for hauling HMA shall have tight, clean, and smooth metal beds. To prevent the HMA from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the Engineer. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.3.1 MATERIAL TRANSFER VEHICLE (MTV). Material transfer vehicles are not required.

401-4.4 HMA PAVERS. HMA pavers shall be self-propelled units with an activated heated screed capable of spreading and finishing courses of HMA material that will meet 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 HMA uniformly in front of the screed without segregation. The screed or strike-off assembly shall effectively produce a finished surface of required evenness and texture without tearing, shoving, or gouging the mixture.

If, during construction, it is found that the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued and satisfactory equipment shall be provided by the Contractor.

401-4.4.1 AUTOMATIC GRADE CONTROLS. The HMA 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 that 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 ±0.1 percent.

The controls shall be capable of working in conjunction with any of the following attachments:

- Ski-type device of not less than 30 feet in length.
- Taut steel wire line set to grade.
- Short ski or shoe.
- 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 HMA. The number, type, and weight of rollers shall be sufficient to compact the HMA to the required density while it is still in a workable condition.

All rollers shall be specifically designed and suitable for compacting HMA concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used. Depressions in pavement surfaces caused by rollers shall be repaired by the Contractor at their own expense.

The use of equipment which causes crushing of the aggregate will not be permitted.

401-4.6 DENSITY DEVICE. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall also supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new HMA. These densities shall be supplied to the Engineer upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.7 PREPARATION OF ASPHALT BINDER. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325º F. when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350º F. when added to the aggregate.

401-4.8 PREPARATION OF MINERAL AGGREGATE. The aggregate for the HMA shall be dried and heated. 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 350º F. when the asphalt binder 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.

401-4.9 PREPARATION OF HMA. The aggregates and the asphalt binder shall be weighed or metered and introduced into mixer in amounts specified by the JMF.

The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder 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 percentage of coated particles described in ASTM D 2489 for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95 percent of coated particles. For continuous mix plants, minimum mixing time shall be determined by dividing weight of its contents at operating level by the weight of mixture delivered per second by the mixer. The moisture content of all HMA upon discharge shall not exceed 0.5 percent.

401-4.10 PREPARATION OF THE UNDERLYING SURFACE. Immediately before placing the HMA, the underlying course shall be cleaned of all dust and debris. A prime coat or tack coat shall be applied in accordance with Item P-602 or P-603, if shown on the plans.

401-4.11 LAYDOWN PLAN, TRANSPORTING, PLACING, AND FINISHING. Prior to the placement of the HMA, the Contractor shall prepare a laydown plan for approval by the Engineer. This is to minimize the number of cold joints in the pavement. The laydown plan shall include the sequence of paving laydown by stations, width of lanes, temporary ramp locations, and laydown temperature. The laydown plan shall also include estimated time of completion for each portion of the work (that is, milling, paving, rolling, cooling, etc.). Modifications to the laydown plan shall be approved by the Engineer.

The HMA shall be transported from mixing plant to the site in vehicles conforming to requirements of Section 401-4.3. Deliveries shall be scheduled so that placing and compacting of HMA is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until material has been compacted, as specified, and allowed to cool to atmospheric temperature.

The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose for the first lift of all runway and taxiway pavements. Successive lifts of HMA surface course may be placed using a ski, or laser control per paragraph 401-4.4.1, provided grades of the first lift of HMA surface course meet the tolerances of paragraphs 401-5.2b(6) as verified by a survey. Contractor shall survey each lift of HMA surface course and certify to Engineer that every lot of each lift meets the grade tolerances of paragraph 401-5.2b(6) before the next lift can be placed.

The initial placement and compaction of the HMA shall occur at a temperature suitable for obtaining density, surface smoothness and other specified requirements, but not less than 250° F.

Edges of existing HMA pavement abutting the new work shall be saw cut and carefully removed as shown on the drawings and coated with asphalt tack coat before new material is placed against it.

Upon arrival, the HMA shall be spread to full width by an approved HMA paver. It shall be struck off in a uniform layer of such depth that, when work is completed, it shall have the required thickness

and shall conform to grade and contour indicated on the plans. The speed of the paver shall be regulated to eliminate pulling and tearing of HMA mat.

Unless otherwise permitted, placement of the HMA shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. Each lane of paving shall be complete from one end to the other before the next lane is started. The HMA shall be placed in consecutive adjacent strips having a minimum width of 10 feet, except where edge lanes require less width to complete the area. Additional screed sections shall not be attached to widen paver to meet the minimum lane width requirements specified above unless additional auger sections are added to match. Longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one (1) foot; however, the joint in the top surface course shall be at the centerline of crowned pavements. Paving operations shall be scheduled so no transverse joints are made except for unscheduled breakdowns. Transverse joints in one course shall be offset by at least ten (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 use of mechanical spreading and finishing equipment impractical, the HMA may be spread and luted by hand tools.

Areas of segregation in the surface course, as determined by the Engineer, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of 2 inches deep. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

401-4.12 COMPACTION OF HMA. After placing, the HMA shall be thoroughly and uniformly compacted by power rollers. The surface shall be compacted as soon as possible when the HMA has attained sufficient stability so that rolling does not cause undue displacement, cracking or shoving. Sequence of rolling operations and type of rollers used shall be at 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 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 HMA to the roller, the wheels shall be equipped with a scraper and kept properly moistened, but excessive water will not be permitted.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power driven tampers. Tampers shall weigh not less than 275 pounds, have a tamping plate width not less than 15 inches, be rated at not less than 4,200 vibrations per minute, and be suitably equipped with a standard tamping plate wetting device.

Any HMA 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.

401-4.13 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 HMA 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 coated with an asphalt tack coat before placing any fresh HMA against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F (80°C**)**; or are irregular, damaged, uncompacted or otherwise defective shall be cut back 3 inches (75 mm) to 6 inches (150 mm) to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material shall be removed from the project. Asphalt tack coat or other product approved by the Engineer shall be applied to the clean, dry joint, prior to placing any additional fresh HMA against the joint. Any laitance produced from cutting joints shall be removed by vacuuming and washing. The cost of this work shall be considered incidental to the cost of the HMA.

401-4.14 SAW-CUT GROOVING. Not applicable.

401-4.15 DIAMOND GRINDING. When required, diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive. The saw blades shall be assembled in a cutting head mounted on a machine designed specifically for diamond grinding that will produce the required texture and smoothness level without damage to the pavement. The saw blades shall be 1/8-inch (3-mm) wide and there shall be a minimum of 55 to 60 blades per 12 inches (300 mm) of cutting head width; the actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Each machine shall be capable of cutting a path at least 3 feet (0.9 m) wide. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. The depth of grinding shall not exceed 1/2 inch (13mm) and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. Areas that have been ground will be sealed with a P-608 surface treatment as directed by the Engineer. It may be necessary to seal a larger area to avoid surface treatment creating any conflict with runway or taxiway markings.

401-4.16 NIGHTTIME PAVING REQUIREMENTS. There will be no nighttime paving during this project.

Material Acceptance

401-5.1 ACCEPTANCE SAMPLING AND TESTING. Unless otherwise specified, 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 except that coring and profilograph testing as required in this section shall be completed and paid for by the Contractor.

Testing organizations performing these tests except profilograph shall be accredited in accordance with ASTM D3666. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for quality control sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction. All equipment in Contractor furnished laboratories shall be calibrated by an independent testing organization prior to the start of operations at the Contractor's expense.

(a) **Hot Mixed Asphalt**. Plant-produced HMA shall be tested for stability, flow, and air voids on a lot basis. Sampling shall be from material deposited into trucks at the plant or from trucks at the job site. Samples shall be taken in accordance with ASTM D 979.

A standard lot shall be equal to one day's production or 2,000 tons whichever is smaller. If the day's production is expected to exceed 2,000 tons, but less than 4,000 tons, the lot size shall be 1/2 day's production. If the day's production exceeds 4,000 tons, the lot size shall be an equal sized fraction of the day's production, but shall not exceed 2,000 tons.

Where more than one plant is simultaneously producing HMA for the job, the lot sizes shall apply separately for each plant.

(1) Sampling. Each lot will consist of four equal sub-lots. Sufficient HMA for preparation of test specimens for all testing will be sampled by the Engineer on a random basis, in accordance with the procedures contained in ASTM D 3665. Samples will be taken in accordance with ASTM D 979.

The sample of HMA shall be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to stabilize to compaction temperature. The compaction temperature of the specimens shall be as specified in the JMF.

(2) Testing. Sample specimens shall be tested for stability and flow in accordance with ASTM D 6927. Air voids will be determined by the Engineer in accordance with ASTM D 3203. One set of laboratory compacted specimens will be prepared for each sub-lot in accordance with ASTM D 6926 at the number of blows required by paragraph 401-3.2, Table 1. Each set of laboratory compacted specimens will consist of three test specimens prepared from the same sample. The manual hammer specified in ASTM D 6926 shall be used.

Prior to testing, the bulk specific gravity of each test specimen shall be measured by the Engineer in accordance with ASTM D 2726 or ASTM D 6752, whichever is applicable, using the procedure for laboratory-prepared thoroughly dry specimens for use in computing air voids and pavement density.

For air voids determination, the theoretical maximum specific gravity of the mixture shall be measured one time for each sublot in accordance with ASTM D 2041. The value used in the voids computation for each sub-lot shall be based on the theoretical maximum specific gravity measurement for the sublot.

The stability and flow for each sub-lot shall be computed by averaging the results of all test specimens representing that sub-lot.

(3) Acceptance. Acceptance of plant produced HMA for stability, flow and air voids shall be determined by the Engineer in accordance with the requirements of paragraph 401-5.2b.

(b) **In Place HMA.** HMA placed in the field shall be tested for mat and joint density on a lot basis. A standard lot shall be equal to one day's production or 2,000 tons (1814 metric tons) whichever is smaller. If the day's production is expected to exceed 2,000 tons (1814 metric tons), but less than 4,000 tons (3628 metric tons), the lot size shall be 1/2 day's production. If the day's production exceeds 4,000 tons (3628 metric tons), the lot size shall be an equal sized fraction of the day's production, but shall not exceed 2,000 tons (1814 metric tons).

(1) Mat Density. The lot size shall be the same as that indicated in paragraph 401-5.1.a and shall be divided into four equal sub-lots. One core of finished, compacted HMA shall be taken by the Contractor from each sub-lot. Core locations will be determined by the Engineer on a random basis in accordance with procedures contained in ASTM D 3665. Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint.

(2) Joint Density. The lot size shall be the total length of longitudinal joints constructed by a lot of HMA as defined in paragraph 401-5.1(a). The lot shall be divided into four equal sub-lots. One core of finished, compacted HMA shall be taken by the Contractor from each sub-lot. Core locations will be determined by the Engineer on a random basis in accordance with procedures contained in ASTM D 3665. All cores for joint density shall be centered on the joint. The minimum core diameter for joint density determination shall be 5 inches.

(3) Sampling. Samples shall be neatly cut with a diamond core drill bit. Samples will be taken in accordance with ASTM D 979. The minimum diameter of the sample shall be five (5) inches except for joint tests, which shall be five (5) inches. Samples that are clearly defective, as a result of sampling, shall be discarded and another sample taken. The Contractor shall furnish all tools, labor, and materials for cutting samples, cleaning, and filling the cored pavement. Cored pavement shall be cleaned and core holes shall be filled in a manner acceptable to the Engineer and within one day after sampling. Laitance produced by the coring operation shall be removed immediately.

The top most lift of HMA shall be completely bonded to the underlying layer. If any of the cores reveal that the surface is not bonded to the layer immediately below the surface, then additional cores shall be taken as directed by the Engineer in accordance with paragraph 401-5.1(b) to determine the extent of any delamination. All delaminated areas shall be completely removed by milling to the limits and depth specified by the Engineer, and replaced as directed by the Engineer at no additional cost.

(4) Testing. The bulk specific gravity of each cored sample will be measured by the Engineer in accordance with ASTM D 2726 or D 6752, whichever is applicable. Samples will be taken in accordance with ASTM D 979. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sub-lot sample by the average bulk specific gravity of all laboratory prepared specimens for the lot, as determined in paragraph 401-5.1a(2). The bulk specific gravity used to determine the joint density at joints formed between different lots shall be the lowest of the bulk specific gravity values from the two different lots.

(5) Acceptance. Acceptance of field placed HMA for mat density will be determined by the Engineer in accordance with the requirements of paragraph 401-5.2(b)(1). Acceptance for joint density will be determined in accordance with the requirements of paragraph 401-5.2(b)(3).

(c) **Partial Lots.** When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot or when the Contractor and Engineer agree in writing to allow overages or other minor tonnage placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

The last batch produced where production is halted will be sampled and its properties shall be considered as representative of the particular sub-lot from which it was taken. In addition, an agreed to minor placement will be sampled, and its properties shall be considered as representative of the particular sublot from which it was taken. Where three sub-lots are produced, they shall constitute a lot. Where one or two sub-lots are produced, they shall be incorporated into the next lot and the total number of sub-lots shall be used in the acceptance plan calculation, that is, n = 5 or n = 6, for example. Partial lots at the end of asphalt production on the project shall be included with the previous lot. The lot size for field placed material shall correspond to that of the plant material, except that in no cases less than (3) cored samples shall be obtained, that is, n = 3.

401-5.2 ACCEPTANCE CRITERIA.

(a) **General.** Acceptance will be based on the following characteristics of the HMA and completed pavement as well as the implementation of the Contractor's Quality Control Program and test results:

(1) Air voids

(2) Mat density

(3) Joint density

(4) Thickness

(5) Smoothness

(6) Grade

(7) Stability

(8) Flow

Mat density and air voids will be evaluated for acceptance in accordance with paragraph 401-5.2(b)(1). Stability and flow will be evaluated for acceptance in accordance with paragraph 401-5.2(b)(2). Joint density will be evaluated for acceptance in accordance with paragraph 401-5.2(b)(3).

Thickness will be evaluated by the Engineer for compliance in accordance with paragraph 401-5.2(b)(4). Acceptance for smoothness will be based on the criteria contained in paragraph 401-5.2(b)(5). Acceptance for grade will be based on the criteria contained in paragraph 401-5.2(b)(6).

The Engineer may at any time reject and require the Contractor to dispose of any batch of HMA 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) **Acceptance Criteria**.

(1) Mat Density and Air Voids. Acceptance of each lot of plant produced material for mat density and air voids shall be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. Acceptance and payment for the lot shall be determined in accordance with paragraph 401-8.1.

(2) Stability and Flow. Acceptance of each lot of plant produced HMA for stability and flow shall be based on the PWL. If the PWL of the lot equals or exceeds 90 percent, the lot shall be acceptable. If the PWL is less than 90 percent, the Contractor shall determine the reason and take corrective action. If the PWL is below 80 percent, the Contractor must stop production until the reason for poor stability and/or flow has been determined and adjustments to the HMA are made.

(3) Joint Density. Acceptance of each lot of plant produced HMA for joint density shall be based on the PWL. If the PWL of the lot equals or exceeds 90 percent, the lot shall be considered acceptable. If the PWL is less than 90 percent, the Contractor shall evaluate reason and act accordingly. If the PWL is below 80 percent, the Contractor shall stop production until the reason for poor compaction can be determined. If the PWL is less than 71 percent, the pay factor for the lot used to complete the joint shall be reduced by 5 percentage points. This lot pay factor reduction shall be incorporated and evaluated in accordance with paragraph 401-8.1.

(4) Thickness. Thickness of each lift of surface course shall be evaluated by the Engineer for compliance to the requirements shown on the plans. Measurements of thickness shall be made by the Engineer using the cores extracted for each sub-lot for density measurement. The maximum allowable deficiency at any point shall not be more than ¼ inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, shall not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his/her expense by removing the deficient area and replacing with new pavement. The Contractor, at his/her expense, may take additional cores as approved by the Engineer to circumscribe the deficient area.

(5) Smoothness. The final surface shall be free from roller marks. After the final rolling, but not later than 24 hours after placement, the surface of each lot shall be tested in both longitudinal and transverse directions for smoothness to reveal all surface irregularities

exceeding the tolerances specified. The Contractor shall furnish paving equipment and employ methods that produce a surface for each pavement lot having an average profile index meeting the requirements of paragraph 401-8.1d when evaluated with a profilograph; and the finished surface course of the pavement shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. When the surface course smoothness exceeds specification tolerances which cannot be corrected by diamond grinding of the surface course, full depth removal and replacement of surface course corrections shall be to the limit of the longitudinal placement. Corrections involving diamond grinding will be subject to the final pavement thickness tolerances specified. The Contractor shall apply a surface treatment per Item P-608 or P-609 to all areas that have been subject to grinding as directed by the Engineer.

(a) *Transverse measurements*. Transverse measurements will be taken for each lot placed. Transverse measurements will be taken perpendicular to the pavement centerline each 50 feet (15m) or more often as determined by the Engineer.

(i) Testing shall be continuous across all joints, starting with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. High spots on final surface course > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) The joint between lots shall be tested separately to facilitate smoothness between lots. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface, with half the straightedge on one side of the joint and the other half of the straightedge on the other side of the joint. Measure the maximum gap between the straightedge and the pavement surface in the area between these two high points. One measurement shall be taken at the joint every 50 feet (15m) or more often if directed by the Engineer. Deviations on final surface course > 1/4 inch (6mm) in transverse direction shall be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Each measurement shall be recorded and a copy of the data shall be furnished to the Engineer at the end of each days testing.

(b) *Longitudinal measurements*. Longitudinal measurements will be taken for each lot placed. Longitudinal tests will be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6m); and at the third points of paving lanes when widths of paving lanes are 20 ft (6m) or greater.

(i) Longitudinal Short Sections. Longitudinal Short Sections are when the longitudinal lot length is less than 200 feet (60m) and areas not requiring a profilograph. When approved by the Engineer, the first and last 15 feet (4.5m) of the lot can also be considered as short sections for smoothness. The finished surface shall not vary more than 1/4 inch (6mm) when evaluated with a 12-foot (3.7m) straightedge. Smoothness readings will not be made across grade changes or cross slope transitions; at these transition areas, the straightedge position shall be adjusted to measure surface smoothness and not design grade or cross slope transitions. Testing shall be continuous across all joints, starting with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. The amount of surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points. Deviations on final surface course > 1/4 inch (6mm) in longitudinal direction will be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The area corrected by grinding should not exceed 10% of the total area and these areas shall be retested after grinding.

(ii) Profilograph Testing. Not Applicable.

(6) Grade. Grade shall be evaluated on the first day of placement and then, as a minimum, every half day to allow adjustments to paving operations if measurements do not meet specification requirements. The Contractor must submit the survey data to the Engineer by the following day after measurements have been taken.

The finished surface of the pavement shall not vary from the gradeline elevations and cross sections shown on the plans by more than 3/4 inch. Finished grade of each lot will be determined by running levels at intervals of 50 feet or less longitudinally and breaks in grade transversely (not to exceed 50 feet) to determine the elevation of the completed pavement. The Contractor shall pay the cost of surveying of the level runs that shall be performed by a licensed surveyor. The documentation, stamped and signed by a licensed surveyor, shall be provided by the Contractor to the Engineer. The lot size shall be 2,000 square yards.

When more than 15% of all the measurements within a lot are outside the specified tolerance, or if any one shot within the lot deviates 3/4 inch or more from planned grade, the Contractor shall remove the deficient area to the depth of the final course plus 1/2 inch of pavement and replace with new material. Skin patching shall not be permitted. Isolated high points may be ground off provided the course thickness complies with the thickness specified on the plans. The surface of the ground pavement shall have a texture consisting of grooves between 0.090 and 0.130 inches wide. The peaks and ridges shall be approximately 1/32 inch higher than the bottom of the grooves. The pavement shall be left in a clean condition. The removal of all of the slurry resulting from the grinding operation shall be continuous. The grinding operation should be controlled so the residue from the operation does not flow across other lanes of pavement. High point grinding will be limited to 15 square yards. Areas in excess of 15 square yards will require removal and replacement of the pavement in accordance with the limitations noted above. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

c. Percentage of Material Within Specification Limits (PWL). The PWL shall be determined in accordance with procedures specified in Section 110 of the F.A.A. General Provisions. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

TABLE 5. MARSHALL ACCEPTANCE LIMITS FOR STABILITY, FLOW, AIR VOIDS, DENSITY

Test Property	Pavements Designed for Aircraft Gross Weight Greater Than 60,000 Lbs. or Tire Pressure Less of 100 psi or more	
Number of Blows	75	
	Specification Tolerance	
	L	U
Stability, minimum pounds	1,800	--
Flow, 0.01-inch	8	18*
Air voids total mix (percent)	2.0	5.0
Surface Course Mat Density, percent	96.3	--
Base Course Mat Density, percent	95.5	--
Joint Density, percent	93.3	--

* Upper flow limit requirements do not apply for any mix with a polymer-modified binder (where the difference between the upper and lower temperature number is 90°F (32°C) or greater).

d. Outliers. All individual tests for mat density and air voids shall be checked for outliers (test criterion) in accordance with ASTM E 178, at a significance level of 5 percent. Outliers shall be discarded, and the PWL shall be determined using the remaining test values.

The criteria in Table 5 are based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 2.1.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 98 percent with 1.30% or less variability; (2) 90 PWL is achieved when consistently producing a base course with an average mat density of at least 97.5 percent with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 96 percent with 2.1% or less variability.

401-5.3 RESAMPLING PAVEMENT FOR MAT DENSITY

(a) **General.** Resampling of a lot of pavement will only be allowed for mat density and then only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the Engineer. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-5.1b and 401-5.2(b)(1). Only one resampling per lot will be permitted.

(1) A redefined PWL shall be calculated for the resampled lot. The number of tests used to calculate the redefined PWL shall include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

(b) **Payment for Resampled Lots.** The redefined PWL for a resampled lot shall be used to calculate the payment for that lot in accordance with Table 6.

(c) **Outliers.** Check for an outlier in accordance with ASTM E 178, at a significance level of 5 percent.

401-5.4 LEVELING COURSE. Not applicable.

Contractor Quality Control

401-6.1 GENERAL. The Contractor shall develop a Quality Control Program in accordance with Section 100 of the F.A.A. General Provisions. The program shall address all elements that affect the quality of the pavement including, but not limited to:

(a) Mix Design

(b) Aggregate Grading

(c) Quality of Materials

(d) Stockpile Management

(e) Proportioning

(f) Mixing and Transportation

(g) Placing and Finishing

(h) Joints

(i) Compaction

(j) Surface smoothness

(k) Personnel

(l) Laydown plan

The Contractor shall perform quality control sampling, testing, and inspection during all phases of the work and shall perform them at a rate sufficient to ensure that the work conforms to the contract requirements, and at minimum test frequencies required by paragraph 401-6.3 and Section 100 of the F.A.A. General Provisions. As a part of the process for approving the Contractor's plan, the Engineer may require the Contractor's technician to perform testing of samples to demonstrate an acceptable level of performance.

No partial payment will be made for materials that are subject to specific quality control requirements without an approved plan.

401-6.2 CONTRACTOR TESTING LABORATORY. The testing laboratory shall meet the requirements of ASTM D 3666 including all necessary equipment, materials, and current reference standards to comply with the specifications.

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 as set forth in the approved Quality Control Program. The testing program shall include, but not necessarily be 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 two asphalt content tests shall be performed per lot in accordance with ASTM D 2172 if the correction factor in ASTM D 6307 is greater than 1.0. The asphalt content for the lot will be determined by averaging the test results.

(b) **Gradation.** Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of extracted aggregate in accordance with ASTM D 5444, ASTM C 136 (Dry Sieve), and ASTM C 117.

(c) **Moisture Content of Aggregate.** The moisture content of aggregate used for production shall be determined a minimum of once per lot in accordance with ASTM C 566.

(d) **Moisture Content of HMA.** The moisture content of the HMA shall be determined once per lot in accordance with ASTM D 1461.

(e) **Temperatures.** Temperatures shall be checked, at least four times per lot, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the HMA at the plant, and the HMA 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 in accordance with ASTM D 2950.

(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 that 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 in accordance with standard procedures specified.

401-6.5 CONTROL CHARTS. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for aggregate gradation, asphalt content, and voids in mineral aggregate (VMA). The VMA for each sublot will be calculated and monitored by the Quality Control laboratory.

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, asphalt content, and VMA. The control charts shall use the job mix formula 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 inch	±6%	±9%
1/2 inch	±6%	±9%
3/8 inch	±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%
VMA	-1.0%	-1.5%

(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 two 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 = 2)	
Sieve	***Suspension Limits***
1/2 inch	11 percent
3/8 inch	11 percent
No. 4	11 percent
No. 16	9 percent
No. 50	6 percent
No. 200	3.5 percent
Asphalt Content	0.8 percent

(c) **Corrective Action.** The Quality Control Program shall indicate the appropriate action that shall be taken when the process is believed to be out of tolerance. The QC Program 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.

401-6.6 QUALITY CONTROL REPORTS. The Contractor shall maintain records and shall submit reports of quality control activities daily, in accordance with the Contractor Quality Control Program described in F.A.A. General Provisions, Section 100.

Method of Measurement

401-7.1 MEASUREMENT. HMA shall be measured by the number of tons of HMA used in the accepted work. Recorded batch weights or truck scale weights will be used to determine basis for the tonnage.

Basis of Payment

401-8.1 PAYMENT. Payment for a lot of HMA meeting all acceptance criteria as specified in Paragraph 401-5.2 shall be made based on results of tests for smoothness, mat density and air voids.

Payment for acceptable lots shall be adjusted according to paragraph 401-8.1c for mat density and air voids and 401-8.1c for smoothness, subject to the limitation that:

a. The total project payment for plant mix bituminous concrete pavement shall not exceed 106 percent of the product of the contract unit price and the total number of tons of HMA used in the accepted work (See Note 1 under Table 6).

b. 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.

c. **Basis of Adjusted Payment.** The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for mat density and air voids are 100 percent or higher. The lot pay factor shall be the average of the two values when only one of the calculations for mat density or air voids is 100 percent or higher. The lot pay factor shall be the lower of the two values when one or more of the calculations for mat density and air voids are less than 100 percent. If PWL for joint density is less than 71 percent then the lot pay factor shall be reduced by 5% but be no higher than 95%.

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. Payment shall be subject to the total project payment limitation specified in paragraph 401-8.1. Payment in excess of 100% for accepted lots of HMA shall be used to offset payment for accepted lots of bituminous concrete pavement that achieve a lot pay factor less than 100%.

TABLE 7. PRICE ADJUSTMENT SCHEDULE[1]	
Percentage of Material Within the Specification Limit (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96-100	106
90-95	PWL + 10
75-89	0.5 PWL + 55
55-74	1.4 PWL – 12
Below 55	Reject[2]

[1]Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment above 100 percent shall be subject to the total project payment limitation specified in paragraph 401-8.1.

[2]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 lot shall not be removed, and it will be paid for at 50 percent of the contract price AND THE TOTAL PROJECT PAYMENT SHALL BE REDUCED BY THE AMOUNT WITHHELD FOR THE REJECTED LOT.

(b) **Payment**. Payment will be made under:

Bituminous Surface Course (P-401) - per Ton

Testing Requirements

ASTM C 29	Unit Weight and Voids in Aggregate
ASTM C 88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 117	Material Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C 131	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	Sieve Analysis of Fine and Coarse Aggregates
ASTM C 183	Sampling and the Amount of Testing of Hydraulic Cement
ASTM C 566	Total Moisture Content of Aggregate by Drying
ASTM D 75	Practice for Sampling Aggregates
ASTM D 979	Standard Practice for Sampling Bituminous Paving Mixtures
ASTM D 1073	Fine Aggregate for Bituminous Paving Mixtures
ASTM D 2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 1461	Moisture or Volatile Distillates in Bituminous Paving Mixtures
ASTM D 2041	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D 2419	Sand Equivalent Value of Soils and Fine Aggregate
ASTM D 2489	Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D 2726	Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens

Testing Requirements (Continued)

ASTM D 2950	Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D 3203	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D 3665	Random Sampling of Construction Materials
ASTM D 3666	Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials
ASTM D 4125	Asphalt Content of Bituminous Mixtures by the Nuclear Method
ASTM D 4791	Flat Articles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D 4867	Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D 5444	Mechanical Size Analysis of Extracted Aggregate
ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D 6307	Asphalt Content of Hot-Mix Asphalt by Ignition Method
ASTM D 6752	Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D 6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D 6927	Marshall Stability and Flow of Bituminous Mixtures
ASTM E11	Woven Wire Test Sieve Cloth and Test Sieves
ASTM E 178	Practice for Dealing with Outlying Observations
ASTM E1274	Measuring Pavement Roughness Using a Profilograph
AASHTO T 30	Mechanical Analysis of Extracted Aggregate
AASHTO T110	Moisture or Volatile Distillates in Hot Mix Asphalt (HMA)

Testing Requirements (Continued)

AASHTO T275	Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Paraffin-Coated Specimens
AASHTO M156	Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
AASHTO T329	Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
Asphalt Institute Handbook MS-26	Asphalt Binder
The Asphalt Institute's Manual No. 2 (MS-2)	Mix Design Methods for Asphalt Concrete

Material Requirements

ASTM D 242	Mineral Filler for Bituminous Paving Mixtures
ASTM D 946	Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 3381	Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 4552	Classifying Hot-Mix Recycling Agents
ASTM D6373	Performance Graded Asphalt Binder

**** END OF SECTION P-401 ****

ITEM P-602 BITUMINOUS PRIME COAT

Description

602-1.1 This item shall consist of an application of bituminous material on the prepared base course at rates specified by the Engineer in accordance with this specification and in reasonably close conformity to the lines shown on the plans.

Materials

602-2.1 BITUMINOUS MATERIAL. The bituminous material shall be an emulsified asphalt indicated in ASTM D3628 as a bituminous application for prime coat appropriate to local conditions or as designated by the Engineer.

Construction Methods

602-3.1 WEATHER LIMITATIONS. The prime coat shall be applied only when the existing surface is dry, when atmospheric temperature is above 50°F or above, and the temperature has not been below 35°F (2°C) for the 12 hours prior to application, and when the weather is not foggy or rainy. These temperature requirements may be waived, but only when so directed by the Engineer.

602-3.2 EQUIPMENT. The equipment used by the Contractor shall include a self-powered pressure bituminous material distributor and equipment for heating bituminous material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 2.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than ±5%, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the bituminous material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner.

A power broom and/or blower shall be provided for any required cleaning of the surface to be treated.

602-3.3 APPLICATION OF BITUMINOUS MATERIAL. Immediately before applying prime coat, the full width of surfaces to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

The bituminous material shall be uniformly applied with a bituminous distributor at the rate of 0.10 to 0.30 gallons per square yard depending on the base course surface texture. The type of bituminous material and application rate shall be approved by the Engineer prior to application.

Following application of the bituminous material and prior to application of the succeeding layer of pavement, allow the bituminous coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course. Furnish and spread enough sand to effectively blot up and cure excess bituminous material. Keep traffic off surfaces freshly treated with bituminous material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

602-3.4 TRIAL APPLICATIONS. Before providing the complete bituminous coat, the Contractor shall apply three lengths of at least 100 feet for the full width of the distributor bar to evaluate the amount of bituminous material that can be satisfactorily applied with the equipment. Apply three different trial application rates of bituminous materials within the application range specified in paragraph 602-3.3. Other trial applications will be made using various amounts of material as deemed necessary by the Engineer.

602-3.5 BITUMINOUS MATERIAL CONTRACTOR'S RESPONSIBILITY. The Contractor shall provide a statement of source and character of the proposed bituminous material which must be submitted to and approved by the Engineer before any shipment of bituminous materials to the project. The Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The test reports shall be provided to and approved by the Engineer before the bituminous material is applied. If the bituminous material does not meet the specifications, it shall be replaced at the Contractor's expense. Furnishing the vendor's certified test report for the bituminous material shall not be interpreted as basis for final acceptance.

602-3.6 FREIGHT AND WEIGH BILLS. The Contractor shall submit waybills and delivery tickets during the progress of the work. Before the final estimate is allowed, file with the Engineer certified waybills and certified delivery tickets for all bituminous materials used in the construction of the pavement covered by the contract. Do not remove bituminous material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

Copies of freight bills and weigh bills shall be furnished to the Engineer during the progress of the work.

Method of Measurement and Basis of Payment

602-4.1 There will be no separate measurement or payment for bituminous prime coat. Furnishing and placing of prime coat will be considered incidental to Item P-401, Hot Mix Asphalt (HMA) Pavements.

Testing Requirements

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables

Material Requirements

ASTM D977	Standard Specification for Emulsified Asphalt
ASTM D2028	Standard Specification for Cutback Asphalt (Rapid-Curing Type)
ASTM D2397	Standard Specification for Cationic Emulsified Asphalt
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

**** END OF SECTION ****

ITEM P-603 BITUMINOUS TACK COAT

Description

603-1.1 This item shall consist of preparing and treating a bituminous surface or concrete with bituminous material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans or as directed by the Engineer.

Materials

603-2.1 BITUMINOUS MATERIALS. The bituminous material shall be an emulsified asphalt indicated in ASTM D3628 as a bituminous application for tack coat appropriate to local conditions or as designated by the Engineer.

Construction Methods

603-3.1 WEATHER LIMITATIONS. Tack coat shall be applied only when the existing surface is dry and atmospheric temperature is above 50°F or above; the temperature has not been below 35°F for the 12 hours prior to application, and when the weather is not foggy or rainy. Temperature requirements may be waived, but only when so directed by the Engineer.

603-3.2 EQUIPMENT. Contractor shall provide equipment for heating and applying bituminous materials.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 0.20 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than ±5%, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the bituminous material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the tack operations shall be started and stopped on building paper. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner.

A power broom and/or power blower suitable for cleaning the surfaces to which the bituminous tack coat is to be applied shall be provided.

603-3.3 APPLICATION OF BITUMINOUS MATERIAL. Immediately before applying tack coat, the full width of surface to be treated shall be swept with a power broom and/or airblasted to remove all loose dirt and other objectionable material.

Emulsified asphalt shall be diluted by the addition of an equal amount of water prior to loading into the bituminous distributor when directed by the Engineer. Emulsified asphalt shall be applied to prepared surfaces far enough in advance of the paving operations to ensure that all water has evaporated before any bituminous mixture is placed on tacked surfaces.

The bituminous material including vehicle shall be uniformly applied with a bituminous distributor at the rate of 0.05 to 0.10 gallon per square yard depending on condition of existing surface. The type of bituminous material and application rate shall be approved by the Engineer prior to application.

Following application of the tack coat, surfaces 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 will be determined by the Engineer. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed.

603-3.4 BITUMINOUS MATERIAL - CONTRACTOR'S RESPONSIBILITY. The Contractor shall provide a statement of source and character of the proposed bituminous material which must be submitted and approved by the Engineer before any shipment of bituminous materials to the project.

Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The test reports shall be provided to and approved by the Engineer before the bituminous material is applied. If the bituminous material does not meet the specifications, it shall be replaced at the Contractor’s expense. Furnishing of vendor's certified test report for bituminous 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 WEIGHT BILLS. The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the Engineer certified waybills and certified delivery tickets for all bituminous materials used in the construction of the pavement covered by the contract. Do not remove bituminous material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

Method of Measurement and Basis of Payment

603-4.1 There will be no separate measurement or payment for bituminous tack coat. Furnishing and placing of tack coat will be considered incidental to Item P-401, Hot Mix Asphalt (HMA) Pavements.

Material Requirements

ASTM D633	Standard Volume Correction Table for Road Tar
ASTM D977	Standard Specification for Emulsified Asphalt
ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2028	Standard Specification for Cutback Asphalt (Rapid-Curing Type)
ASTM D2397	Standard Specification for Cationic Emulsified Asphalt
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

**** END OF SECTION ****

ITEM P-610 STRUCTURAL PORTLAND CEMENT CONCRETE

Description

610-1.1 This item shall consist of either plain or reinforced structural Portland cement concrete (PCC), prepared and constructed in accordance with these specifications, at locations and of the form and dimensions shown on the plans.

This specification shall be used for all structural and miscellaneous concrete and the pipe backfill under the runway section.

Materials

610-2.1 GENERAL. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Engineer before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

In no case shall the use of pit-run or naturally mixed aggregates be permitted. Naturally mixed aggregate shall be screened and washed, and all fine and coarse aggregates shall be stored separately and kept clean. The mixing of different kinds of aggregates from different sources in one storage pile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

(1) Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

(2) Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) CRD C662. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water.

(3) If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates

will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

610-2.2 COARSE AGGREGATE. The coarse aggregate for concrete shall meet requirements of ASTM C 33. Crushed stone aggregate shall have a durability factor, as determined by ASTM C666, greater than or equal to 95. Percentage of wear shall be not more than 30 at 500 revolutions as determined by ASTM C 535. The Engineer may consider and reserve final approval of other State classification procedures addressing aggregate durability.

Coarse aggregate shall be well graded from coarse to fine and shall meet the gradations shown in the table below, when tested per ASTM C 136.

GRADATION FOR COARSE AGGREGATE							
Sieve Designation (Square Openings)	Percentage by Weight Passing Sieves						
	2"	1½"	1"	3/4"	1/2"	3/8"	No. 4
No. 4 to 3/4-inch	--	--	100	90-100	--	20-55	0-10
No. 4 to 1 inch	--	100	90-100	--	25-60	--	0-10
No. 4 to 1½ inch	100	95-100	--	35-70	--	10-30	0-5

610-2.2.1 AGGREGATE SUSCEPTIBILITY TO DURABILITY (D) CRACKING. Aggregates that have a history of D-cracking shall not be used.

610-2.3 FINE AGGREGATE. Fine aggregate for concrete shall meet requirements of ASTM C 33.

Fine aggregate shall be well graded from fine to coarse and shall meet the requirements of the table below, when tested in accordance with ASTM C 136:

GRADATION FOR FINE AGGREGATE	
Sieve Designation (Square Openings)	Percentage by Weight Passing Sieves
3/8-inch	100
No. 4	95-100
No. 16	45-80
No. 30	25-55
No. 50	10-30
No. 100	2-10

Blending will be permitted, if necessary, in order to meet gradation requirements for fine aggregate.

Fine aggregates deficient in percentage of material passing the No. 50 mesh sieve may be accepted, if the deficiency does not exceed 5 percent and is remedied by addition of pozzolanic or cementitious materials other than Portland cement, as specified in 610-2.6, Admixtures, in sufficient quantity to produce required workability as approved by the Engineer.

610-2.4 CEMENT. Cement shall conform to the requirements of ASTM C 150, Type II Portland cement. The content of total alkalies shall not exceed 0.6 percent by weight calculated as NA_20 plus K_20.

If aggregates are deemed innocuous when tested in accordance with paragraph 610-2.1.a.1 and accepted in accordance with paragraph 610-2.1.a.3, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If 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.

Portland Cement shall meet the requirements of the above specifications for both tensile and compressive strengths and for time of setting by both the Gillmore and Vicat Methods.

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.

Fly ash shall be used for 20 percent cement replacement by weight in all concrete. Fly ash shall meet the following specification requirements:

Fly ash shall meet all specification requirements of ASTM C 618, Class F, except that:

- Loss on Ignition shall be less than 2.0 percent.
- Water requirement of concrete mix made with fly ash replacement shall be no more than 98 percent of the water requirement of control concrete made with cement only. Total cement content in control mix shall be same as cement and fly ash in the test mix.

- Shrinkage of concrete mix made with fly ash replacement shall be no more than 100 percent of shrinkage of control concrete made with cement only. Total cement content in control mix shall be same as cement and fly ash in the test mix.

- 90 day compressive strength of the mix made with fly ash replacement shall be equal to or greater than the compressive strength of the control mix made with cement only.

- Fly ash shall have less than 10 percent by weight of CaO.

The Contractor shall furnish vendors' certified test reports for each carload, or equivalent, of cement shipped to the project. The report shall be delivered to the Engineer before use of the cement is granted. All test reports shall be subject to verification by testing sample materials received for use on the project.

610-2.5 WATER. The water used in concrete shall be fresh, clean, and potable; free from sewage, free from injurious amounts of oil, acid, strong alkalies, vegetable matter, clay and loam, salts, organic materials or other substances deleterious to concrete.

610-2.6 ADMIXTURES. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Contractor shall be required to submit results of complete physical and chemical analyses made by an approved testing laboratory. In addition to these analyses, the Contractor shall submit copies of manufacturer's descriptive literature describing use, properties and recommended quantity of material to be used. Subsequent tests shall be made of samples taken by the Engineer from 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 ASTM C 260, shall be of the MB-VR vinsol-resin type, and shall consistently entrain the air content in the specified ranges under field conditions. Air-entraining admixtures shall be added at the mixer in amounts necessary to produce specified air contents. All Portland cement concrete shall contain sufficient air-entraining agent to entrain five percent $\pm$ one percent air. The air-entrainment agent and any water reducer admixture shall be compatible.

(b) Water-Reducing Admixtures. Water-reducing admixtures shall meet requirements of ASTM C 494, Type A, water-reducing, or Type D, water-reducing and retarding. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used. Water-reducing admixtures shall be added at the mixer separately from air-entraining admixtures in accordance with manufacturer's printed instructions.

610-2.7 PREMOLDED JOINT MATERIAL. The premolded joint material for expansion joints shall meet requirements of one of the following: ASTM D 994, D 1751, or D 1752.

610-2.8 JOINT FILLER. The filler for joints shall meet requirements of ASTM D 6690 unless otherwise specified.

610-2.9 STEEL REINFORCEMENT. The concrete reinforcing shall consist of reinforcing steel conforming to ASTM A 615; deformed bars of rail steel meeting ASTM A 996; or welded steel wire fabric meeting ASTM A 1064. All steel reinforcement shall be Grade 60.

610-2.10 MATERIALS FOR CURING CONCRETE. The curing materials shall conform to one of the following specifications:

(a) Waterproof Paper	ASTM C 171
(b) Clear or White Polyethylene Sheeting	ASTM C 171
(c) Burlap Cloth Made from Jute or Kenaf	ASTM C 171
(d) White Pigmented Liquid Membrane-Forming Compounds for Curing Concrete, Type 2, Class B	ASTM C 309

610-2.11 CALCIUM CHLORIDE. Calcium chloride will not be permitted for use as an accelerator.

Construction Methods

610-3.1 GENERAL. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet requirements for the work, and shall be such as to produce satisfactory work. Contractor shall employ, at all times, a sufficient force of workmen of such experience and ability that the work can be prosecuted in a satisfactory and workmanlike manner. All work shall be subject to the inspection and approval of the Engineer.

610-3.2 CONCRETE COMPOSITION. The concrete shall consist of a mixture of coarse aggregate, fine aggregate, Portland cement, and water. All aggregates and bulk cement shall be measured by weight. In proportioning aggregates and mixing water.

CONCRETE PROPORTIONS		
Concrete Class	A	B
Concrete Use	Structural Concrete	Pipe Encasement
Minimum 28-day Compressive Strength - psi	3,000	2,000
Maximum Size Aggregate - inch	1	3/8
Maximum Water:Cement Ratio - Gallon/Sack	6.0	7.0
Minimum Cement Content - Sacks/Cu. Yd.	6.0	5.0
Air Content	5% ± 1	5% ± 1
Slump Range - inch	2-5	2-5

The proportions in the above table are based on use of well-graded aggregates.

In addition to the above requirement, the combined gradation of the aggregates shall conform to the following:

COMBINED GRADATION PERCENT PASSING BY WEIGHT		
Sieve Size	Class A	Class B
1½ inch	100	100
1 inch	90-100	90-100
3/4 inch	70-90	70-90
3/8 inch	45-65	45-65
No. 4	31-47	31-47
No. 8	23-40	23-40
No. 16	17-35	17-35
No. 30	10-23	10-23
No. 50	2-10	2-10
No. 100	0-3	0-3
No. 200	0-2	0-2
Combined Gradation for Class B Concrete shall be submitted by Contractor and approved by Engineer.		

Quantities shown for cement and water shall control, and weights of aggregates shall be varied to secure proper yield based on absolute volumes. When a special mix requiring a reduction in water is desired, quantities of aggregate shall be increased to maintain specified yield.

Yield test, made in accordance with specification ASTM C 138, will be made to determine cement content per cubic yard of concrete. If at any time such cement content is found to be less than specified, batch weights shall be reduced until the amount of cement per cubic yard of concrete conforms to requirements.

Net mixing water shall be adjusted for moisture contained in the aggregates, and for moisture which they will absorb, in order to determine proper amounts of water to be added at the mixer. Absorption of the fine and coarse aggregates shall be determined by ASTM C 128 and C 127, respectively.

When an air-entraining agent or air-entraining Portland cement is used, there will be a bulking of mortar due to the amount of entrained air. To keep cement factor at the specified amount, weight of fine aggregate shall be reduced, as directed by the Engineer. Reduction in the fine aggregate shall be determined by yield tests. Under average conditions, reduction of sand should be about 3 percent of the total weight of fine and coarse aggregate. Air content shall be between 4 and 6 percent, by volume.

Air content by volume shall be based on measurements made on concrete immediately after discharge from the mixer in accordance with ASTM C 173 or C 231.

Slump of Portland cement concrete shall be determined in accordance with ASTM C 143.

Concrete test cylinders shall be made in accordance with ASTM C 31. Concrete will be tested at an age of 28 days in accordance with ASTM C 39 and shall develop specified minimum compressive strengths.

Mix designs shall be submitted by the Contractor to the Engineer for review at least 10 working days prior to production of concrete. No concrete will be placed until the Contractor has received written approval from the Engineer for the mix designs. If required, the Contractor shall furnish results of laboratory and field tests previously made for the mix designs.

610-3.3 ACCEPTANCE SAMPLING AND TESTING. Concrete for each structure will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The concrete shall be sampled in accordance with ASTM C172. Concrete cylindrical compressive strength specimens shall be made in accordance with ASTM C31 and tested in accordance with ASTM C39. The Contractor shall cure and store the test specimens under such conditions as directed by the Engineer. The Engineer will make the actual tests on the specimens at no expense to the Contractor.

610-3.4 QUALIFICATIONS FOR CONCRETE TESTING SERVICE. Perform concrete testing by an approved laboratory and inspection service experienced in sampling and testing concrete. Testing agency must meet the requirements of ASTM C1077 or ASTM E329.

610-3.5 PROPORTIONING AND MEASURING DEVICES. When package cement is used, the quantity for each batch shall be equal to one or more whole sacks of cement. Aggregates shall be measured separately by weight. If aggregates are delivered to mixer in batch trucks, exact amounts

for each mixer charge shall be contained in each batch compartment. The weighing boxes or hoppers shall be approved by the Engineer and shall provide means of regulating flow of aggregates into the batch box so the required, exact weight of aggregates is obtained.

610-3.6 CONSISTENCY. The consistency of the concrete shall be determined by the slump test specified in ASTM C143.

610-3.7 MIXING. The concrete may be mixed at the construction site, at a central point, or wholly or partially in truck mixers. Whichever mixing process is used, concrete of specified proportions and consistency shall be produced. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C 94.

610-3.8 MIXING CONDITIONS. The concrete shall be mixed only in quantities required for immediate use. The concrete shall not be mixed while the air temperature is below 40 degrees F. without permission of the Engineer. If permission is granted for mixing under such conditions, aggregates or water, or both shall be heated and the concrete shall be placed at a temperature not less than 50 degrees nor more than 100 degrees F. The Contractor shall be held responsible for any defective work resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material shall not be permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.9 FORMS. The concrete shall not be placed until all forms and reinforcements have been inspected and approved by the Engineer. The forms shall be suitable material and shall be of type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. Surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal ties shall be arranged so that no metal will show in concrete surfaces or discolor the surface when exposed to weathering when forms are removed. All forms shall be wetted with water or with a nonstaining mineral oil, which shall be applied immediately before concrete is placed. The forms shall be constructed so they can be removed without injuring concrete or concrete surface. The forms shall not be removed until at least 30 hours after concrete placement for vertical faces, walls, slender columns, and similar structures. Forms supported by falsework under slabs, beams, girders, arches, and similar construction shall not be removed until tests indicate that the concrete has developed at least 60 percent of the design strength.

610-3.10 PLACING REINFORCEMENT. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. The bars shall be fastened together at intersections. Reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.11 EMBEDDED ITEMS. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust,

scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.12 PLACING CONCRETE. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until depth and character of foundation, adequacy of forms and falsework, and placing of the steel reinforcing have been approved by the Engineer. The concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing concrete shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than five (5) feet. Depositing a large quantity of concrete at one point will not be permitted. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures that cause segregation. The concrete shall be placed upon clean, damp surfaces, free from running water, or upon properly consolidated soil foundation.

610-3.13 VIBRATION. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309, Guide for Consolidation of Concrete. Where bars meeting ASTM A775 or A934 are used, the vibrators shall be equipped with rubber or non-metallic vibrator heads. Furnish a spare, working, vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 4 inches (100 mm) in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4 inches (100 mm) or less in depth by wood tampers, spading, and settling with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 cycles per minute when submerged. Do not use vibrators to transport the concrete in the forms. Penetrate the previously placed lift with the vibrator when more than one lift is required. Use external vibrators on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete. Vibrators shall be manipulated to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms. The vibration at any point shall be of sufficient duration to accomplish compaction but shall not be prolonged to where segregation occurs. Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie or other approved method and shall not be disturbed after placement.

610-3.14 CONSTRUCTION JOINTS. If the placement of concrete is suspended, necessary provisions shall be made for joining future work before placed concrete takes its initial set. For proper bonding of old and new concrete, provisions shall be made for grooves, steps, reinforcing bars or other devices as specified. The work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete that has hardened, the surface of hardened concrete shall be cleaned by heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

610-3.15 EXPANSION JOINTS. Expansion joints shall be constructed at such points and of such dimensions as indicated on the drawings. Premolded filler shall be cut to the same shape as surfaces being joined. Filler shall be fixed firmly against the surface of the concrete already in place so that it will not be displaced when concrete is deposited against it.

610-3.16 DEFECTIVE WORK. Any defective work disclosed after forms have been removed, which in the opinion of the Engineer cannot be repaired satisfactorily, shall be immediately removed and replaced at the expense of the Contractor. Defective work shall include deficient dimensions, or bulged, uneven, or honeycomb on the surface of the concrete.

610-3.17 SURFACE FINISH. All exposed concrete surfaces shall be true, smooth, free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with finished top surface, struck-off with a straightedge, and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

The surface finish of exposed concrete shall be a rubbed finish. If forms can be removed while the concrete is still green, the surface shall be wetted and then rubbed with a wooden float until all irregularities are removed. If concrete has hardened before being rubbed, a carborundum stone shall be used to finish surfaces. When approved, finishing can be done with a finishing machine. Pipe backfill finish of surface shall be screed finish.

610-3.18 CURING AND PROTECTION. All concrete shall be properly cured and protected by the Contractor. The concrete shall be protected from the weather, flowing water, and from defacement of any nature during the project. The concrete shall be cured by covering with an approved material as soon as it has sufficiently hardened. Water-absorptive coverings shall be thoroughly saturated when placed and kept saturated for at least three (3) days following concrete placement. All curing mats or blankets shall be sufficiently weighed or tied down to keep the concrete surface covered and to prevent the surface from being exposed to air currents. Where wooden forms are used, they shall be kept wet at all times until removed to prevent opening of joints and drying out of concrete. Traffic shall not be allowed on concrete surfaces for seven (7) days after concrete has been placed.

610-3.19 DRAINS OR DUCTS. Drainage pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. Pipes shall be held rigidly so that it will not be displaced or moved during placing of the concrete.

610-3.20 COLD WEATHER PLACING. If concrete is placed at temperatures below 40 degrees F., the Contractor shall provide satisfactory methods and means to protect the mix from injury by freezing. The aggregates, or water, or both, shall be heated to place the concrete at temperatures between 50 degrees and 100 degrees F.

After the concrete has been placed, the Contractor shall provide sufficient protection such as cover, canvas, framework, heating apparatus, etc., to enclose and protect the structure and maintain the temperature of the mix at not less than 50ºF until at least 60% of the designed strength has been attained.

610-3.21 HOT WEATHER PLACING. Concrete shall be properly placed and finished with procedures previously submitted. The concrete-placing temperature shall not exceed 90°F when measured in accordance with ASTM C1064. Cooling of the mixing water and aggregates, or both, may be required to obtain an adequate placing temperature. A retarder meeting the requirements of paragraph 610-2.6 may be used to facilitate placing and finishing. Steel forms and reinforcement shall be cooled prior to concrete placement when steel temperatures are greater than 120°F. Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing

temperature. Submit the proposed materials and methods for review and approval by the Engineer, if concrete is to be placed under hot weather conditions.

610-3.22 FILLING JOINTS. All joints that require filling shall be thoroughly cleaned, and any excess mortar or concrete shall be cut out with proper tools. Joint filling shall not start until after final curing and shall be done only when the concrete is completely dry. Cleaning and filling shall be carefully done with proper equipment and in a manner to obtain a neat looking joint free from excess filler.

Method of Measurement

610-4.1 Portland cement concrete backfill of the 42-inch RCP shall be measured by the number of cubic yards of concrete complete in place and accepted. In computing the yardage of concrete for payment, the dimensions used shall be those shown on the plans or ordered by the Engineer. No measurements or other allowances shall be made for forms, falsework, cofferdams, pumping, bracing, expansion joints, or finishing of the concrete. No deductions in yardage shall be made for the volumes of reinforcing steel or embedded items.

Basis of Payment

610-5.1 Payment shall be made at the contract unit price per cubic yard for structural Portland cement concrete backfill for the 42-inch RCP. This price shall be full compensation for furnishing all materials and for all preparation, delivery and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

610-4.1 There will be no separate measurement or payment for structural Portland cement concrete other than for the PCC backfill. Payment for all other structural concrete will be included in the prices for the specific items of work.

Payment will be made under:

Portland Cement Concrete Backfill of 42-inch RCP (P-610)	-	per Cubic Yard

Testing Requirements

ASTM C 31	Making and Curing Concrete Test Specimens in the Field
ASTM C 39	Compressive Strength of Cylindrical Concrete Specimens
ASTM C 127	Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 128	Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C 138	Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C 143	Slump of Hydraulic-Cement Concrete
ASTM C 173	Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 535	Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C 1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C 1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C 1077	Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Agency Evaluation
ASTM C 1260	Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C 1567	Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregates (Accelerated Mortar-Bar Method)
ASTM E329	Agencies Engaged in Construction Inspection, Testing, or Special Inspection

Testing Requirements (Continued)

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD) C662 Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

Material Requirements

ASTM A 184	Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A 185	Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A 615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 704	Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A 706	Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 775	Epoxy-Coated Steel Reinforcing Bars
ASTM A 934	Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A 996	Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM A1064	Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C 33	Concrete Aggregates
ASTM C 94	Ready-Mixed Concrete
ASTM C 150	Portland Cement
ASTM C 171	Sheet Materials for Curing Concrete
ASTM C 172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 260	Air-Entraining Admixtures for Concrete
ASTM C 309	Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494	Chemical Admixtures for Concrete
ASTM C 595	Blended Hydraulic Cements

Material Requirements (Continued)

ASTM C 618	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM D 994	Preformed Expansion Joint Filler for Concrete (Bituminous Type)
ASTM D 1751	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-Extruding and Resilient Bituminous Types)
ASTM D 1752	Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 6690	Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements
ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

**** END OF SECTION P-610 ****

ITEM P-620 RUNWAY AND TAXIWAY MARKING

Description

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of the runway and taxiways in accordance with these specifications and at locations shown on the plans or as directed by the Engineer. The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification.

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. All material shall arrive in sealed containers 55 gallons or smaller for inspection by the Engineer. Material shall not be loaded into the equipment until inspected by the Engineer.

620-2.2 MARKING MATERIALS. Paint shall be Waterborne. Paint shall be furnished in the following colors in accordance with Federal Standard No. 595:

- White – 37925
- Yellow - 33538 or 33655
- Black - 37038

Paint shall meet the requirements of Federal Specification TT-P-1952E and be furnished in Type I - Standard drying time for no-pick-up - when tested in accordance with ASTM D 711. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

620-2.3 REFLECTIVE MEDIA. Glass beads shall meet requirements of Federal Specification TT-B-1325D, Type III, High Index of Refraction. Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Construction Methods

620-3.1 WEATHER LIMITATIONS. The painting shall be performed only when surfaces are dry, atmospheric temperature is above 45 degrees F and rising and the pavement surface temperature is at least 5 degrees F above the dew point or meets the manufacturer’s recommendations, and the weather is not foggy or windy. Markings shall not be applied when the pavement temperature is

greater than 120°F. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns.

620-3.2 EQUIPMENT. Equipment shall include all apparatus necessary to properly clean existing surfaces, 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 or airless type marking machine suitable for application of traffic paint. Air compressor shall have a minimum capacity of 50 cubic feet per minute. Machine shall be equipped with a positive "on/off" control device. It shall produce an even and uniform film thickness at required coverage and shall apply markings of uniform cross sections and clear-cut edges without running or spattering and without overspray.

620-3.3 PREPARATION OF SURFACE. Immediately before application of paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other foreign materials that would reduce bond between paint and pavement. The areas to be painted shall be cleaned by waterblasting, shotblasting, grinding, or sandblasting or by other methods as required to remove all contaminants without damage to the pavement surface. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the Engineer. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process. The equipment used for sweeping shall incorporate a vacuum device capable of picking up loose aggregate.

Paint shall not be applied to Portland cement concrete pavement until the areas to be painted are clean of curing material. Sandblasting or high-pressure water shall be used to remove curing materials.

At least 24 hours prior to remarking existing markings, the existing markings must be removed such that 90% of the existing markings are removed with low (3,500-10,000 psi) waterblaster. After waterblasting, the surface shall be cleaned of all residue or debris either with sweeping or blowing with compressed air or both.

Prior to the initial application of markings, the Contractor shall certify in writing that the surface has been prepared in accordance with the paint manufacturer’s requirements, that the application equipment is appropriate for the type of marking paint and that environmental conditions are appropriate for the material being applied. This certification along with a copy of the paint manufacturer’s surface preparation and application requirements must be submitted and approved by the Engineer prior to the initial application of markings.

620-3.4 LAYOUT OF MARKINGS. The proposed markings shall be laid out in advance of paint application. The locations of markings to receive glass beads shall be as shown on the plans.

Any existing markings that extend outside specified dimensions plus allowable tolerances shall be obliterated with black paint prior to placing the new markings.

620-3.5 APPLICATION. The paint shall be applied at locations and to dimensions and spacing shown on the plans. The paint shall not be applied until layout and condition of the surface have been approved by the Engineer.

The edges of the markings shall not vary from a straight line more than ½ inch in 50 feet and marking dimensions and spacings shall be within the following tolerances:

Dimension and Spacing	Tolerance
36 inches or less	± ½ inch
greater than 36 inches to 6 feet	± 1 inch
greater than 6 feet to 60 feet	± 2 inches
greater than 60 feet	± 3 inches

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate(s) shown in Table 1. The addition of thinner will not be permitted. A period of 10 days shall elapse between placement of a bituminous surface course or seal coat and application of the paint.

TABLE 1.
APPLICATION RATES FOR PAINT AND GLASS BEADS

Paint Type	Paint Square feet per gallon, ft^2/gal (Square meters per liter, m^2/l)	Glass Beads, Type III, Pounds per gallon of paint--lb./gal. (Kilograms per liter of paint--kg/l)
Waterborne, Type I	115 ft^2/gal. max. (2.8 m^2/l)	10 lb./gal. min. (1.2 kg/l)

All the paint shall be applied in two coats at separate times. The first coat of paint, the “fog” coat, shall be applied at 50 percent of the specified coverage. The final coat may be placed after the fog coat has been placed and cured. No beads shall be applied to the "fog" coat. Prior to restriping, any loose paint on existing marking shall be removed. The glass beads shall be distributed to marked areas immediately after application of the final coat of paint.

Prior to the initial application of markings, the Contractor shall certify in writing that the surface has been prepared in accordance with the paint manufacturer’s requirements, that the application equipment is appropriate for the marking paint and that environmental conditions are appropriate for the material being applied. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the Engineer prior to the initial application of markings.

The glass beads shall be distributed to marked areas at the locations shown on the plans to receive glass beads immediately after application of the final coat of paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass

beads. Glass beads shall be applied at the rate(s) shown in Table No. 1. Glass beads shall not be applied to black paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Glass beads shall be applied uniformly on all painted surfaces.

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.

All lines shall be clean and sharp. Ragged edges of segments, fogginess along sides, or objectionable drizzling along unpainted portions will not be permitted. Any smears or other defects shall be painted out with black paint. The finished marking shall have an opaque, well-painted appearance, with no black or other discoloration showing through.

The Contractor shall furnish certified test reports for materials shipped to the project. The reports shall not be interpreted as a basis for final acceptance. The Contractor shall notify the Engineer upon arrival of paint to the job site.

620-3.6 TEST STRIP. Prior to the full application of airfield markings, the Contractor shall produce a test strip in the presence of the Engineer. The test strip shall include the application of a minimum of 5 gallons of paint and application of 35 lbs of Type I/50 lbs of Type III glass beads. The test strip shall be used to establish thickness/darkness standard for all markings. The test strip shall cover no more than the maximum area prescribed in Table 1 (e.g., for 5 gallons of waterborne paint shall cover no more than 575 square feet).

620-3.7 APPLICATION – PREFORMED THERMOPLASTIC AIRPORT PAVEMENT MARKINGS – Not applicable.

620-3.8 PROTECTION AND CLEAN UP. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose or unadhered reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

Method of Measurement

620-4.1 The quantity of runway and taxiway markings to be paid for shall be the number of square feet of new marking performed in accordance with the specifications and accepted by the Engineer.

Basis of Payment

620-5.1 Payment will be made at the contract unit price per square foot for runway and taxiway marking. This price shall be full compensation for furnishing all materials including paint and glass beads and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Runway and Taxiway Marking - 2 Coats With Beads (P-620)	-	per Square Foot

Testing Requirements

ASTM C371	Standard Test Method for Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM D92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
ASTM D 711	No-Pick-Up Time of Traffic Paint
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Material Requirements

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
40 CFR Part 60 Appendix A-7, Method 24	Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29CFR Part 1910.1200	Hazard Communication
Federal Specification TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
AASHTO M247	Glass Beads Used in Pavement Markings
Federal Specification TT-P-1952E	Paint, Traffic and Airfield Marking, Waterborne
Commercial Item Description A-A-2886B	Paint, Traffic, Solvent Based
Federal Standard 595	Colors Used in Government Procurement
AC 150/5340-1	Standards for Airport Markings
Federal Standard 595	Colors Used in Government Procurement

**** END OF SECTION ****

ITEM D-701 PIPE FOR STORM DRAINS AND CULVERTS

Description

701-1.1 This item shall consist of the construction of pipe culverts and storm drains of sizes and classes as shown on the plans, in accordance with these specifications, and in reasonably close conformity with lines and grades as shown on the plans or as directed by the Engineer. This item shall include all AC pavement saw cutting, excavation, trench dewatering, bedding, and soil backfilling required for installation of drainage lines.

Materials

701-2.1 Materials shall meet the requirements shown on the plans and specified below.

701-2.2 PIPE. The pipe shall be of the type called for on the plans and shall be in accordance with the following appropriate requirements:

Reinforced Concrete Pipe. Reinforced concrete pipe shall conform to requirements of ASTM C 76 and shall be Class IV. Pipe shall be either bell and spigot or tongue and groove. The basis of acceptance shall be by plant load-bearing tests, material tests, and inspection of the complete product, paragraph 5.1.1 of ASTM C 76.

701-2.3 CONCRETE. Lean mix concrete, Class B, as called for in Item P-610, Structural Portland Cement Concrete, shall be used for pipe backfill above the bedding material for that portion of the pipe under the paved runway section and for a distance of 12 feet beyond the pavement on each side of the runway. The lean mix concrete shall meet the requirements of Item P-610 of these specifications.

701-2.4 RUBBER GASKETS. Rubber gaskets for rigid pipe shall conform to requirements of ASTM C 443.

701-2.5 JOINT MORTAR. Pipe joint mortar shall consist of one part Portland cement and two parts sand. Portland cement shall conform to requirements of ASTM C 150, Type I. Sand shall conform to requirements of ASTM C 144.

701-2.6 JOINT FILLERS. Poured filler for joints shall conform to the requirements of ASTM D 6690.

701-2.7 PLASTIC GASKETS. Plastic gaskets shall conform to the requirements of ASTM C 990.

701-2.8 CONTROLLED LOW-STRENGTH MATERIAL (CLSM). CLSM is not allowed.

701-2.9 REINFORCING STEEL. Reinforcing steel shall conform to Item P-610 of these specifications.

701-2.10 SAW CUT EXISTING AC. The existing AC pavements shall be saw cut full depth and along straight lines at locations and as shown on the plans or a minimum of 6 inches behind the existing edge of pavement. The pavement beyond the saw cut shall be carefully removed and disposed of off site.

Construction Methods

701-3.0 SAW CUT EXISTING AC. The new 42-inch reinforced concrete pipe will be placed parallel to the existing two 30-inch concrete pipes under Runway 2-20. The installation of the pipe shall be performed by cutting the asphalt and base section of the runway, trenching to the elevation specified, installing the pipe and specified backfill and aggregate base course, and then placing bituminous surface course. In order to provide a straight continuous joint between the new hot mix asphalt pavement and the existing asphalt pavement section, it will be required that the Contractor provide a straight line saw cut full depth on each side of the pipe trench for the full width of the runway. This pavement shall be saw cut before any asphalt is removed and the width of the saw cut shall equal or slightly exceed the width of the trench.

The edge of the asphalt will, no doubt, be damaged during construction. After the pipe is installed, backfilled, and the new base course placed, a new saw cut shall be made along a straight line parallel to the centerline of the pipe for the full width of the runway and full depth of the existing hot mix asphalt and located at least 3 inches behind any damaged section of existing asphalt. The second saw cuts shall be placed such that the minimum total width of opening for new pavement will be 10 feet so that pavers can be used to place the hot mix asphalt (HMA).

All asphalt removed shall be disposed of offsite by the Contractor.

701-3.1 EXCAVATION. The width of pipe trench shall be sufficient to permit satisfactory jointing of pipe and thorough tamping of bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus twelve inches on each side. Trench walls shall be approximately vertical.

The Contractor shall comply with all current Federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail. The trench bottom shall be shaped to fully and uniformly support the bottom quadrant of the pipe.

The Contractor shall install sufficient shoring and bracing to insure safety of workmen, protect the work and protect adjacent improvements. The shoring and bracing shall comply with rules, orders, and regulations of the California Division of Industrial Safety. The Contractor shall submit a plan for protection of workmen.

Insofar as possible, sheeting shall not extend below the bottom of pipe barrels. All sheeting, timbering, lagging, and bracing shall, unless otherwise required by the Engineer, be removed during backfilling, and in such a manner as to prevent any movement of ground or damage to piping or to other structures. When the Engineer requires that sheet piling, lagging, and bracing be left in place, such materials shall be cut off where designated and upper parts withdrawn. If steel piling is utilized, it may be withdrawn with compacting of backfill to proceed as it is removed.

Failure to comply with any rules, orders, or regulations mentioned herein shall be sufficient cause for; but shall not place any responsibility upon, the Engineer to immediately suspend the work. The Contractor shall be responsible for adequacy of all shoring and bracing and compliance with laws and regulations. Failure of the Engineer to suspend work or notify the Contractor of any inadequacy of shoring and bracing or non-compliance with laws and regulations shall not relieve the Contractor of this responsibility. Losses incurred by the Contractor for any such suspension will not be reimbursed by the Owner.

No separate payment will be made for shoring and bracing or for supplies required for placing and removal of shoring and bracing, which shall be considered incidental to the work.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inches or one-half inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The width of the excavation shall be at least two feet greater than the horizontal outside diameter of the pipe. The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established; due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The Engineer shall determine depth of removal necessary. The granular material shall be compacted to provide adequate support for pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

701-3.2 BEDDING. Bedding for pipe required shall be imported from off site, furnished by the Contractor, hauled to the site, and placed in the embankments as shown on the plans. The imported Bedding shall consist of sands and gravels, sands, or silty sands shall conform to the following requirements:

Maximum Particle Size	1 inch
Liquid Limit	25 max.
Plasticity Index	8 max
California Bearing Ratio (ASTM D 1883)	18 min.[1]

The gradation of the material shall fall within the following limits:

Sieve Size	Percent Passing
1 inch	100
½ inch	60-100
No. 4	45-95
No. 16	25-65
No. 30	15-45
No. 100	5-18
WASH 200	2-10

The requirements for the placement of aggregate base course and hot mix asphalt are covered and paid for in the respective specification sections, namely, P-209, Crushed Aggregate Base Course, P-401, Hot Mix Asphalt (HMA) Pavements.

Where soft soils are encountered with pipe excavation which might allow loss of sand and pea gravel bedding, bedding shall consist of crushed rock or gravel graduated so that 100 percent will pass the 3/4-inch screen and not more than 15 percent will pass the No. 8 screen.

701-3.3 LAYING PIPE. The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segments of pipe shall be in contact with bedding throughout its full length. Bell or groove ends of rigid pipes shall be placed facing upgrade.

701-3.4 JOINING PIPE. Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

The concrete pipe shall be either bell and spigot or tongue and groove. The method of joining pipe sections shall be such that ends are fully entered and the inner surfaces are reasonably flush and even. Joints shall be made with rubber gaskets, as recommended by the manufacturer. Rubber ring gaskets shall be installed to form a flexible watertight seal. The joints in concrete pipe shall be thoroughly wetted before mortar or grout is applied. If the type of fitting does not match the existing drain pipe, a 12 inch thick, 2 foot wide concrete collar shall be installed at the joint of the old and new pipes.

701-3.5 BACKFILLING. The pipes shall be inspected before any backfill is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense.

The bedding material shall be imported 1-inch maximum size, well-graded granular material. These materials shall be compacted to 95 percent of the maximum dry density determined by ASTM D 1557.

Material for backfill shall not contain frozen lumps, stones that would be retained on a 2-inch, chunks of highly plastic clay, or other objectionable material.

Material for backfill shall be fine, readily compactible soil or granular material selected from the excavation or a source of the Contractor's choosing and shall meet the requirements of Item P-152. It shall not contain frozen lumps, stones that would be retained on a 2-inch (50 mm) sieve, chunks of highly plastic clay, or other objectionable material. Granular backfill material shall have 95% or more passing the a ½ inch (12mm) sieve, with 95% or more being retained on the No. 4 (4.75 mm) sieve.

When the top of the pipe is even with or below the top of the trench, the backfill shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall be brought up 1 foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the backfill material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the backfill shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on each side of the pipe to 1 foot above the top of the pipe. The width of backfill on each side of the pipe for the portion above the top of the trench shall be equal to twice the pipe's diameter or 12 feet, whichever is less.

All backfill shall be compacted to the density of 95 percent relative compaction as determined by ASTM D 1557.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

Method of Measurement

701-4.1 Measurement of AC pavement section sawed and removed shall be the linear foot of full depth saw cut measured on grade.

701-4.2 The length of each size and class of concrete pipe shall be measured in linear feet of pipe in place, completed, and approved. It shall be measured along the centerline of the pipe from end or inside face of structure to the end of inside face of structure, whichever is applicable. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

The work and materials to be included in this item will include all excavation required for the entire length of pipe, regrading existing ditch bank for new drainage pipe flowline, the bedding for the entire length of pipe, the cost of furnishing and installing the pipe, and the backfilling of the pipe trench with soil to a point 12 feet beyond the edge of runway pavement on each side of the runway. The concrete backfill of that section of pipe placed under the runway and for 12 feet beyond the runway will be paid under Item P-610. The saw cutting of the existing asphalt will be paid for separately. The placement of the aggregate base course and bituminous surface course for the patching of the pipe trench will be paid for under Items P-209 and P-401, respectively.

Basis of Payment

701-5.1 Payment for sawing the existing AC pavement shall be made at the contract unit price per linear foot of pavement sawed. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

701-5.2 Payment will be made at the contract unit price per linear foot for each kind of pipe of the size, class, and type designated. This price shall be full compensation for excavating trench for the new pipe, furnishing and installing the new pipe, furnishing and placing all bedding materials for the pipe, regrading the existing ditch bank, and backfilling and compacting the trench for that portion 12 feet beyond the edge of runway pavement.

Payment will be made under:

Full Depth Saw Cut Existing AC Pavement (D-701)	-	per Linear Foot
42-inch RCP, Class IV (D-701)	-	per Linear Foot

Testing Requirements

ASTM D 1557	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort

Material Requirements

ASTM A 36	Structural Steel
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM C 76	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C 144	Aggregate for Masonry Mortar
ASTM C 150	Portland Cement
ASTM C 443	Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
ASTM D 6690	Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements

ITEM D-752 CONCRETE CULVERTS, HEADWALLS, AND MISCELLANEOUS DRAINAGE STRUCTURES

Description

752-1.1 This item shall consist of reinforced concrete culverts, headwalls, and miscellaneous drainage structures constructed in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the Engineer.

Materials

752-2.1 CONCRETE Reinforced concrete shall meet the requirements of Item P-610.

Construction Methods

752-3.1 UNCLASSIFIED EXCAVATION.

a. Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the Engineer may approve, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the Engineer. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing steel is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to perform and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for excavation.

d. All bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the structure. Removal shall be not disturb or damage the finished concrete. The cost of removal shall be included in the unit price bid for excavation.

e. After each excavation is completed, the Contractor shall notify the Engineer. No concrete or reinforcing steel shall be placed until the Engineer has approved the depth of the excavation and the character of the foundation material.

752-3.2 BACKFILLING.

a. After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill in horizontal layers not to exceed 8 inches (200 mm) in loose depth, and compacted. The field density of the compacted material shall be at least 90% of the maximum density for cohesive soils and 95% of the maximum density for noncohesive soils. The maximum density shall be determined in accordance with ASTM D698. The field density shall be determined in accordance with ASTM D1556.

b. No backfilling shall be placed against any structure until approved by the Engineer. For concrete, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill or the placement methods.

c. Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

d. Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the contract unit price for "unclassified excavation for structures."

752-3.3 WEEP HOLES. Weep holes shall be constructed as shown on the plans.

752-3.4 CLEANING AND RESTORATION OF SITE. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankment, shoulders, or as approved by the Engineer. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

Method of Measurement

752-4.1 The furnishing and installation of concrete headwalls shall be measured by the unit.

Basis of Payment

752-5.1 The concrete headwalls and miscellaneous drainage structures, accepted by the Engineer, will be paid for at the contract price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, placing of the materials and backfilling; and for all labor, equipment, tools, and incidentals necessary to complete the structures.

Payment will be made under:

Furnish and Install 42-inch RCP Headwall (D-752) - per Each

Testing Requirements

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft3 (600 kN-m/m3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

ITEM D-753 RIP RAP

Description

753-1.0 This work shall consist of the furnishing and placing of erosion resistant and protective materials at locations shown on the plans or designated by the Engineer.

Materials

753-2.0 The cobbles used for rip rap shall be hard, durable, and resistant to weathering, and shall meet gradation requirements. Neither breadth nor thickness of a single stone should be less than one-third its length.

Acceptability of the cobbles will be determined by previous use records or by tests as the Engineer determines to be appropriate. If testing is required, suitable samples of the cobbles shall be furnished by the Contractor and taken at least three weeks before placing of the material.

In the absence of satisfactory previous use records, cobbles shall conform to the following requirements:

Apparent Specific Gravity (ASTM C 127)	2.5 Min.
Percent Absorption (ASTM C 127)	6 Max.
Durability Index (Calif. 229)	52 Min.
Soundness (ASTM C 88)	
Average Loss for 2 1/2" to 1 1/2"	16% Max.

753-2.1 GRADATION. Rip rap shall conform to the following gradation:

Sieve Size	Percent Passing
8"	100
4"	40% Max.
1 1/2"	0

Each load of rip rap shall be reasonably well graded from the smallest to the maximum size specified.

Construction

753-3.0 Slopes to be protected by rip rap shall be free of brush, trees, stumps and other organic material and be dressed to a smooth surface. All soft or spongy material shall be removed to the depth shown on the plans or as directed by the Engineer and replaced with approved material. A toe trench shall be dug when and as shown on the plans and maintained until the rip rap is placed.

Protection for structure foundations shall be provided as early as the foundation construction permits. The area to be protected shall be cleaned of waste materials and surfaces to be protected prepared as shown on the plans.

The rip rap shall be placed on prepared areas in a manner which will produce a reasonably well-graded, uniform mass of cobbles. The rip rap protection shall be placed to its full course thickness in one operation and in such a manner as to avoid displacing underlying material. Placing of rip rap protection by methods likely to cause segregation will not be permitted.

The larger stones shall be well distributed, and the entire mass of stone shall conform approximately to the gradation specified. All rip rap shall be so placed and distributed that there will be no large accumulations of either the larger or smaller sizes of stone.

It is the intent of these specifications to produce a fairly compact rip rap protection in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure results specified.

Unless otherwise authorized by the Engineer, rip rap protection shall be placed in conjunction with construction of embankment with only sufficient lag in construction of the rip rap protection as may be necessary to allow for proper construction of the portion of the embankment protected and to prevent mixture of embankment and rip rap material. The Contractor shall maintain the rip rap protection until accepted, and any material displaced by any cause shall be replaced at no additional cost to the Owner.

Method of Measurement and Basis of Payment

753-4.0 The payment for furnishing and placing of rip rap shall be at the contract price per ton for hauling and placing rip rap as specified and accepted by the Engineer. This contract price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete this item of work in accordance with these plans and specifications.

Payment will be made under:

Rip Rap (D-753)	-	per Ton

Testing Requirements

ASTM C 88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 127	Specific Gravity and Absorption of Coarse Aggregate

APPENDIX A
CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

APPENDIX A

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

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March 1, 2016

F.1. Checklist for FAA CSPP Review

Airport Name: Oroville Municipal Airport LOCID: OVE

Associate City: Oroville, California

Project No. AIP 3-06-0178-__ - Runway 2-20 Drainage Improvements and Runway 20 Safety Area Grading

F.1.1. AC 150/5370-2F

This checklist identifies the main elements and sub-elements established under Section 2, Chapter 2 of Advisory Circular 150/5370-2F. Project Managers (PM) are encouraged to use this checklist as an aid when reviewing a Sponsor's CSPP for conformance to the safety standards. Because the PM's approval/disapproval letter represents the official FAA action, a completed checklist is not a required record the PM must sign or archive in the grant file.

CSPP Element	Element Addressed?			Remarks
	Yes	No	N/A	
Coordination (Section 205)				
- Contractor Progress Meetings	X			
- Addresses necessary actions when changes are proposed to CSPP	X			
- Provisions for FAA ATO Coordination			X	
Phasing (Section 206)				
- Phase Elements	X			
- Construction Safety Drawings	X			
Area and Operations Affected by Construction Activity (Section 207)				
- Identification of affected Areas	X			
- Mitigation Affects	X			
Navigation Aid Protection (Section 208)				
- Operational NAVAID Critical areas	X			
Contractor Access (Section 209)				
- Location of Stockpiles Construction Material	X			
- Vehicle and Pedestrian Operations	X			
Wildlife Management (Section 210)				
- Trash	X			
- Standing Water	X			
- Tall Grass			X	
- Fencing and Gates	X			
- Disruption of Wildlife Habitat	X			

CSPP Element	Element Addressed?			Remarks
	Yes	No	N/A	
Foreign Object Debris (Section 211)				
- FOD Control Measures	X			
Hazardous Material Management (Section 212)				
- Hazardous Material Controls	X			
Notification of Construction Activities (Section 213)				
- List of Responsible Representatives	X			
- NOTAMs	X			
- Emergency Notification Procedures	X			
- Coordination with ARFF	X			
- Notification to the FAA (Part 77, NAVAIDs….)	X			
Inspection Requirements (Section 214)				
- Daily Inspections	X			
- Final Inspections	X			
Underground Utilities (Section 215)				
- Procedures for protecting existing underground utilities	X			
Penalties (Section 216)				
- Penalty provisions for noncompliance with safety plan provisions	X			
Special Conditions (Section 217)				
- Unique conditions that may affect the operation of the airport	X			
Runway and Taxiway Visual Aids (Section 218)				
- General – Convey Clear Meaning; Secured from movement; Frangible	X			
- Markings	X			
- Lighting and Visual NAVAIDs	X			
- Signage	X			
Access Routes - Marking and Signage (Section 219)				
- Haul Road Demarcation	X			
Hazard Marking, Lighting, and Signage (Section 220)				
- Areas Impacted by Construction Operations	X			
- Equipment	X			
Protection Runway and Taxiway Areas, Zones and Surfaces (Section 221)				
- Runway Safety Area (RSA)	X			
- Runway Object Free Area (ROFA)	X			
- Taxiway Safety Area (TSA)	X			
- Taxiway Object Free Area (TOFA)	X			
- Obstacle Free Zone (OFZ)	X			
- Approach and Departure Surfaces	X			

CSPP Element	Element Addressed?			Remarks
	Yes	No	N/A	
Other Limitations on Construction (Section 222)				
- Prohibitions	X			
- Restrictions	X			

OROVILLE MUNICIPAL AIRPORT
OROVILLE, BUTTE COUNTY, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

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EXHIBIT A CONSTRUCTION SAFETY AND PHASING PLAN

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OROVILLE MUNICIPAL AIRPORT
OROVILLE, BUTTE COUNTY, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

INTRODUCTION

The City of Oroville, with Federal assistance from the Federal Aviation Administration under the Airport Improvement Program (AIP), proposes the construction of drainage improvements for Runway 2-20 and the grading of the safety area for Runway 20 at Oroville Municipal Airport, Oroville, California. The Sponsor will comply and will require all parties involved with this project to comply with the Federal Aviation Administration (F.A.A.) requirements regarding safety and phasing of construction projects on airports.

The purpose of this Construction Safety and Phasing Plan (CSPP) is to provide the contractor and project manager guidance for compliance with Federal Aviation Administration (FAA) rules and regulations, and associated requirements of the City of Oroville, with regards to access onto air operations areas of Oroville Municipal Airport, Oroville, California, during the construction of the subject project.

Prior to issuance of Notice to Proceed, the Contractor will prepare a Safety Plan Compliance Document (SPCD) specifically for this project, furnish the SPCD to the Engineer, and obtain Engineer's approval of the document.

This Construction Safety and Phasing Plan is based on the guidance of FAA Advisory Circular 150/5370-2F, "Operational Safety on Airports During Construction."

The Checklist for FAA CSPP Review is included in this CSPP. The Contractor will address all items checked on this list in his/her Safety Plan Compliance Document (SPCD) submitted prior to beginning work on this project.

1. COORDINATION

(a) <u>Progress Meetings</u>

The Sponsor will conduct predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction, as follows:

- Predesign Conference: This meeting will be held as soon as sufficient preliminary design work has been completed and prior to preparation of the final plans and specifications. This meeting will be attended by the Design

Engineer, Airport Management, Air Transport Association regional representatives, Airline Pilots Association representatives, fixed base operators, airline representatives, FAA airport certification inspector, and the Program Manager of the FAA Airports District Office, as appropriate for the Airport.

- Prebid Conference: This meeting will be held a minimum of 10 days prior to the bid opening date. The participants in this meeting will include prospective bidders, subcontractors, material suppliers, the Design Engineer, and Airport Management.
- Preconstruction Conference: This conference will be conducted as soon as practicable after the contract has been awarded and before issuance of notice to proceed. The participants will include the Design Engineer, Resident Engineer, Airport Management, testing laboratory representative, Contractor and subcontractors, Contractor's project superintendent, airport users, utility companies affected by the proposed construction, Federal, State or local agencies affected by the proposed construction, and the Program Manager of the FAA Airports District Office, as applicable.
- Weekly Meetings: Weekly progress meetings will be held at the airport. Operational safety will be a standing agenda item for discussion during weekly progress meetings throughout the construction of this project. The Contractor will present an updated progress report for the total work and a two-week look-ahead schedule. The participants will include the Resident Engineer, Airport Management, testing laboratory representative, Contractor's project superintendent, subcontractors, airport users, and the Program Manager of the FAA Airports District Office, as applicable.

(b) Scope or Schedule Changes – Changes in the scope or duration of the project may necessitate revisions to the CSPP. These revisions will be submitted for review and approval by the airport operator and the FAA.

(c) FAA ATO Coordination – There is no Air Traffic Control Tower at the Oroville Municipal Airport.

2. PHASING

There are twenty-five (25) working days allowed for completion of this project. All work that is performed in the Runway Safety Area (RSA) to Runway 2-20 shall be completed in fifteen (15) working days. All work that is performed outside the RSA shall be completed in ten (10) working days. The scope of work included in this project is as follows:

- Construction of an additional drainage culvert under Runway 2-20
- Grade Safety Area and Object Free Area near Runway 2-20 (1,220 Sq. Yd.)

(a) *Phasing Elements*

The scope and phasing of the project is shown on the Construction Phasing and Safety Plan Drawing, Exhibit A. The work elements include:

- Runway 2-20 Drainage Improvements
- Runway 20 Obstruction Removal

Contractor will be allow three working days to complete the grading of the runway safety area for Runway 20.

Both stages of work can be constructed at the same time. The Contractor will provide an approved scheduling plan prior to start of work.

(b) *Construction Safety Drawing*

The Construction Safety and Phasing Plan (CSPP) drawing is included as part of this plan as Exhibit A.

3. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY

(a) Identification of Affected Areas. All areas affected by the construction activity in this project are shown on the Construction Safety and Phasing Plan Drawing, Exhibit A. Identified on this drawing are barricading of work areas; Aircraft Rescue and Fire Fighting (ARFF) access routes; and access routes to be used by aircraft and the contractor. The underground utilities affected by this contract are shown on this Drawing. Also shown are approach/departure surfaces affected by heights of construction equipment and other temporary objects. Construction areas, storage areas, and Contractor haul/access routes are also depicted on this drawing.

(b) Mitigation of Effects. It is necessary to maintain the safety and efficiency of airport operations during construction operations. The establishment of the following procedures will be required:

(1) Temporary Changes to Runway and/or Taxiway Operations:

Runway 2-20 will be closed to all airport operations during all construction operations performed in the Runway Safety Area (RSA). During the time Runway 2-20 is closed, Taxiways A, B, C, D, and E will also be closed.

Runway 13-31, Taxiways J, K, L, M, and N, and the aircraft parking aprons will remain open at all times during the construction of this project.

Contractor's travel route from the Storage and Staging Area to the construction site will be by way of Taxiway D to Taxiway A. These taxiways will be closed to all aircraft operations as noted above.

(2) Detours for ARFF and Other Airport Vehicles:

All ARFF and other airport vehicles will have full access to all runways, taxiways, aprons, and hangars. The ARFF access route is shown in blue on the Construction Safety and Phasing Plan.

(3) Maintenance of Essential Utilities and Underground Infrastructure:

Utilities and underground infrastructure that will be affected by this project will be drainage facilities, duct and cable lines, and telephone line. It will be necessary during construction of this project to protect these utilities.

There will be no temporary utilities installed. If one of the existing utility lines is damaged, specifications require the Contractor to immediately repair it at his/her cost and to reimburse the Airport for damages due to shutdown. If these damaged utilities cannot be immediately repaired, the Airport will immediately issue required NOTAMs.

Contractor will be required to test the circuits each night before leaving the site to ensure all circuits are operational. Contractor will have an approved technician available on call to come back to the airport if called at night, holidays, and weekends to make any repairs necessary to maintain all circuits operational at all times.

(4) Temporary Changes to Air Traffic Control Procedures.

Oroville Municipal Airport does not have an Air Traffic Control Tower. Prior to any construction a NOTAM will be issued identifying areas of closure and time of closure. There will be no changes in air traffic procedures.

4. NAVAIDs

There are navigational aids (NAVAIDs) existing on this airport that will be affected by the construction of this project. These NAVAIDs and corresponding critical areas are shown on the Construction Safety and Phasing Plan Drawing, Exhibit A. Such facilities must be fully protected during the entire construction time period or shut down as noted below.

(a) <u>NAVAIDs Affected by Construction</u>

There is a PAPI and a REIL serving Runway 20 at the Oroville Municipal Airport. These facilities will be turned off and covered during all construction operations.

(b) NAVAIDs Placed out of Service

The PAPI unit and REIL for Runway 20 will be out of service for the entire construction period. Appropriate NOTAMs will be issued. The shutdown and restart of this facility will be coordinated with the Airport.

(c) Protection of NAVAIDs Remaining in Service

The Contractor will be limited to specified work areas near the NAVAID facility as shown on the CSPP drawing. Work under this contract can be accomplished in the vicinity of these facilities only at approved periods of time. Approval will be subject to withdrawal at any time because of changes in weather, emergency conditions on the existing airfield areas, anticipation of emergency conditions, and for any other reason determined by the Resident Engineer acting under the orders and instructions of the airport management. Any instructions to the Contractor to clear any given area, at any time, by the Engineer or Airport Management (by radio or other means) shall be immediately executed. Construction work shall be commenced in the cleared area only when additional instructions are issued by the proper authorities.

(d) NOTAMs

When the NAVAIDs are shut down during construction, experience an unexpected power outage, or are otherwise affected by construction activities, the Airport will issue a Notice to Airmen (NOTAM) as outlined in Article 9 of this CSPP.

(e) Protection of Underground Cable

There are underground ducts and cable in the construction area to serve the lights and NAVAIDs. The location of these facilities will be identified by USA before any work in their general vicinity is started as described in Article 11 of this CSPP. Throughout the entire time of this construction these facilities will be protected by the Contractor from any possible damage, including crossing with unauthorized equipment except for those facilities that will be replaced in this contract.

(f) Temporary NAVAIDs

No temporary NAVAIDs are proposed to replace or supplement existing facilities during the construction of this project.

5. CONTRACTOR ACCESS

(a) Stockpiled Construction Materials/Contractor's Storage Area

The Contractor will be allowed to temporarily stockpile materials and equipment and supplies in the Contractor's Temporary Storage and Staging Area as shown on the CSPP Drawing. All stockpiled materials will be removed prior to completion of the project and any damage to the pavements caused by the Contractor will be repaired at the Contractor's expense. The Contractor will be responsible for maintaining the security, safety, and cleanliness of his/her storage and work areas at all times.

Stockpiled materials and equipment will not be permitted within the Runway Safety Area (RSA) and Object Free Zone (OFZ) of the runways (Runway 2-20 and Runway 13-31). If it becomes necessary to stockpile materials in the Runway Object Free Area (ROFA), the Sponsor will submit a 7460-1 form to the FAA Airports District Office in Brisbane, California.

The Contractor will determine and verify that any stockpiled materials are stabilized and stored at the approved location shown on the CSPP Drawing so as not to be a hazard to aircraft operations and to prevent attraction of wildlife (see Article 6) and foreign object damage (see Article 7).

(b) Vehicle and Pedestrian Operations

It is critical that all pedestrians and vehicles are prevented from unauthorized entry to the Air Operations Area (AOA). The Construction Safety and Phasing Plan, Exhibit A, clearly delineates the designated access and haul routes, employee parking areas, and construction equipment parking areas. Contractor's personnel and equipment will be limited to the construction areas, parking areas, and haul routes shown on the CSPP Drawing.

Vehicle parking areas will not impact NAVAID signals or penetrate FAR Part 77 imaginary surfaces.

Employee parking and construction vehicle parking will be restricted to the Contractor's Storage and Staging Area as shown on the CSPP Drawing. Vehicle and construction traffic will be held off from all active paved areas and in no case allowed to cross the active runway.

Vehicle access to the construction areas and Contractor's Storage and Staging Area will be off Larkin Road to Airport Park as shown on the CSPP Drawing. Contractor hauling and operations will occur in the areas shown on the CSPP Drawing.

The general haul road, which is to be used for most operations, is shown in red on the attached CSPP Drawing.

Contractor's vehicles and equipment will include a flag on a staff attached to the vehicle so that the flag will be readily visible. The flag will 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. During periods of low visibility Contractor vehicles and equipment will be equipped with a yellow flashing light mounted on the uppermost part of the vehicle structure.

All vehicle/equipment operators driving on the airport must have an appropriate level of knowledge of airport rules and regulations. The Contractor will be required to submit a list of authorized vehicle operators to the Airport. The vehicle operators will be required to maintain a current drivers' license. Driver training will be limited to designating areas to be avoided and areas where free access will be available. No vehicle will be allowed to cross an active pavement without an escort.

All vehicle operators will be trained on airport procedures, safety, work area limits, security, and communications. All personnel with movement area driving privileges will be trained on pedestrian and ground vehicle procedures, including consequences of noncompliance, prior to moving on foot, or operating a ground vehicle, in movement areas or safety areas.

(c) Radio Communications

Vehicular traffic located in or crossing an active movement area will be escorted by the Airport-furnished flagger who will have a working two-way radio tuned to Unicom frequency 122.800. The driver, through personal observation, will confirm that no aircraft is approaching the vehicle position. Construction personnel may operate in a movement area without two-way radio communication provided a NOTAM is issued closing the area and that the area is properly marked to prevent incursions and the Airport's flagger is present to control operations. The Airport's flagger will either be an airport specialist or the project engineer's specialist. These flaggers will be trained on all movement area procedures.

(d) Airport Security

There is a security fence and gates around most of the property of this airport. Only Contractor and subcontractor employees will be permitted in the work sites. They will be required to enter and exit the airport areas restricted to public access and airport operations area only through the designated Contractor gates. The gates used by the Contractor will remain closed at all times except when authorized equipment is actually entering the airport or gates are continuously guarded to keep unauthorized personnel and wildlife from entering the airport. The security fence, designated Contractor gates, and secure areas on the airport are shown on the CSPP Drawing.

Contractor will use Gate G2 for all construction, personnel, and delivery vehicles. The existing gate will remain locked or monitored by qualified security personnel.

In accordance with the requirements of the Federal Aviation Administration as set forth in FAR 107.11(F), the Contractor will take all steps necessary to assure Owner that the backgrounds of all employees have been checked to the extent necessary to assure that permitting them unescorted access to any area on the airport controlled for security reasons is appropriate. This background check, to the extent allowable by law, will include at a minimum references and prior employment histories to the extent necessary to verify representations made by the employee relating to employment in the preceding 5 years.

6. WILDLIFE MANAGEMENT

The airport is fenced with a perimeter fence and security gates. The gates used by the Contractor will remain closed at all times except when in use or guarded as stated in Article 5 of this CSPP.

Care will be taken to prevent inadvertent incidents of wildlife hazards by ensuring access gates are properly secured to prevent wildlife entry.

The Contractor will carefully control and continuously remove waste or loose materials that might attract wildlife and be aware of and avoid construction activities that might attract wildlife such as:

- Trash – Food scraps will be collected from construction personnel activity.
- Standing water
- Disruption of existing wildlife habitat.
- Open Trenches, Excavation, and Materials and Equipment Stockpiles

Should the Contractor encounter wildlife on the airport, he/she will immediately notify Airport Management.

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

The Contractor will not be allowed to leave or place foreign object debris (FOD) on or near active aircraft movement areas and will be required to control and monitor FOD. Materials tracked onto these areas will be continuously removed during the construction project by broom sweeping. Ground vehicle tires will be inspected daily to ensure they are not tracking FOD onto the airfield pavements. Daily inspections of these aircraft movement areas will be made by the Resident Engineer as discussed in Article 10 of this CSPP.

The Contractor will maintain the haul road on paved surfaces clear of debris at all times.

8. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

The Contractor will be required to manage and contain any hazardous materials (HAZMAT) on the airport. Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean up spills resulting from fuel or hydraulic fluid leaks. The Contractor will refrain from topping off vehicle fuel tanks and have sorbent materials available in the fueling area for when small spills occur.

It is not anticipated that there will be any hazardous materials used or encountered during the construction of this project. The Contractor will be required to keep Material Safety Data Sheets (MSDS) available for inspection for all materials delivered to the airport.

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES

(a) List of Responsible Representatives. It will be necessary to keep the following people totally informed of the operations that the contractor proposes to perform at Oroville Municipal Airport.

Sponsor:
Richard H. Walls, Airport Manager.....(530) 538-2507

F.A.A.
Abel Tapia, Program Manager.....(650) 827-7621

Resident Engineer
Reinard W. Brandley, Airport Engineer ..... (916) 652-4725 Office
.....(916) 316-1135 Cell
Tom Steinkamp, Resident Engineer ..... (916) 652-4725 Office
.....(916) 622-5478 Cell

At the start of construction the Contractor will be required to provide the Resident Engineer with the names, telephone numbers, cell phone numbers, and e-mail addresses of all Contractor personnel that are responsible for on-call 24/7 services if necessary.

(b) NOTAMs

The Airport Management will issue Notices to Airmen (NOTAMs) as required accurately describing current airport conditions and contractor operations. This will be coordinated with tenants of the airport. Richard Walls, Airport Manager/Senior Civil Engineer, Public Works Department, will be responsible for issuing, maintaining, and canceling NOTAMs. The Airport Management has provided a list of airport employees who are authorized to issue NOTAMs to the FSS air traffic manager.

NOTAMs will be issued clearly identifying where the construction work is being performed and during which periods.

(c) Emergency Notifications:

In case of emergency during the construction of this project, Contractor will notify one or more of the following:

Fire/Police/Ambulance .....Call 911
Airport Radio Communication (Article 5 of CSPP) ..... 122.8 Mhz
Aircraft Rescue and Fire Fighting (ARFF) - Emergency .....Call 911
Butte County Sheriff's Department .....(530) 538-7321
Local Hospital.....(530) 533-8500
Poison Control .....(800) 222-1222

(d) Coordination with ARFF Personnel:

The Contractor will be required to notify Airport and/or ARFF personnel (Oroville Fire Department) if any water lines or fire hydrants are damaged or deactivated. The Contractor will also notify Airport and/or ARFF personnel if there are any blocked or rerouted emergency access routes or if hazardous materials will be used on the airfield. The non-emergency telephone number for the Oroville Fire Department is (530) 538-2420 and the contact person is Dispatcher on Duty. Contractor will confirm in writing the date and time ARFF was notified and the contact person.

(e) Notification to the FAA:

Part 77. The Contractor will coordinate with the Resident Engineer who will file a 7460-1 form with the F.A.A. Airports District Office in Brisbane if any construction equipment (i.e. cranes, graders, other equipment) affects navigable airspace as defined in FAR Part 77.

NAVAIDS. For emergency notification about impacts to both airport owned and FAA owned NAVAIDs Airport Management will contact the Operations Control Center at (866) 432-2622.

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, FAA ATO/Technical Operations will be provided a 45-day minimum notice prior to facility shutdown.

If construction operations will cause impacts to NAVAIDs, the Airport Management will contact FAA ATO Service Area Planning and Requirements Groups a minimum of 45 days prior to implementing these operations and coordinate the shutdown with the local FAA ATO/Technical Operations office,

including necessary reimbursable agreements and flight checks. A 7-day notice will be given to FAA ATO to schedule the actual NAVAID shutdown.

10. INSPECTION REQUIREMENTS

The Airport will provide an inspector to ensure that all Contractor operations comply with all requirements of the plans, specifications, and this Safety Plan. It will be his/her duty to inspect materials and workmanship of the work under instructions of the Airport or Engineer and to report any and all deviations from the Drawing, Specifications, and other Contract provisions that may come to his/her notice. The inspector will have the right to order the work entrusted to his/her supervision immediately stopped, if in his/her opinion such action becomes necessary, until the Airport or Engineer is notified and has determined and ordered that the work may proceed in due fulfillment of all Contract requirements.

(a) Daily Inspections. Daily inspections will be conducted to ensure conformance with the CSPP. Exhibit B of this CSPP includes a Construction Project Daily Safety Inspection Checklist for this purpose.

(b) Final Inspections. Whenever an area on the airport is reopened for aircraft operations, an inspection will be conducted to assure compliance with the plans, specifications, and CSPP. At the end of the project a final inspection will be held by the Resident Engineer, the Airport Management, and the Federal Aviation Administration to assure all components of the project comply with the plans, specifications, and CSPP.

11. UNDERGROUND UTILITIES

Not less than two full working days prior to performing any excavation, the Contractor will be required to notify Underground Service Alert (USA) by calling the toll-free number (800) 642-2444. The location of the subsurface installations will be in accordance with Sections 4216 and 4217 of the Government Code, as latest amended. No excavation will be performed until the subsurface installations have been located, hand-excavated and identified. The Contractor will update the location of the subsurface installations in the proposed work area every 14 calendar days, as required.

In case of accidental utility disruption, utilities owners' contacts and telephone numbers are included below:

Electrical & Gas - PG&E.....(530) 894-4733
Water – California Water Service Company .....(530) 533-4034
Sewer – Thermalito Irrigation District.....(530) 533-0740

Refer to Article 9 of this CSPP for procedures for contacting ARFF and FAA in case of interruption of water service and NAVAIDs, respectively.

12. PENALTIES

If in the opinion of Airport Management or the Resident Engineer, the Contractor's employees or subcontractors are in violation of the airport's rules and regulations, including this CSPP, is of sufficient magnitude as to cause danger to life and property, the Resident Engineer shall have the right to stop all work on this contract for a period of forty-eight (48) hours as a contractual penalty.

Any vehicle operator who willfully violates the CSPP will be requested, through the Contractor, to leave the job site.

13. SPECIAL CONDITIONS

Some special conditions may trigger specific safety mitigation actions outlined in this CSPP. These may include low visibility operations, aircraft in distress, aircraft accident, security breach, Vehicle/Pedestrian Deviations (VPD), and other activities requiring construction suspension/resumption. In order to be advised of these special conditions and actions to be taken, the Contractor shall at all times maintain radio contact as specified in Article 5 of this CSPP.

Should an aircraft emergency occur anyplace on the airport, the Contractor will be required to move all personnel and equipment beyond the safety area of the runway and taxiways and to refrain from moving out of these areas to resume work until specifically authorized by Airport personnel. The area around the downed aircraft shall be evacuated and not reentered by the Contractor until given permission, except for lifesaving activities.

14. RUNWAY AND TAXIWAY VISUAL AIDS

There exist on the airport runway and taxiway marking, runway and taxiway lights and signs, and visual NAVAIDs. These facilities are shown on the attached Construction Safety and Phasing Plan Drawing, Exhibit A. Areas where aircraft will be operating will be clearly and visibly separated from construction areas. Throughout the duration of the construction project, these areas will remain clearly marked and visible at all times and all marking, lighting, signs, and visual NAVAIDs will remain in place and operational.

Contractor will work with Airport Management to remove from electrical service all Runway 2-20 edge lights and Taxiway A edge lights when Runway 2-20 is closed. Contractor will verify that Runway 2-20 and Taxiway A edge lights are locked off at the end of each working day.

It is not anticipated that it will be necessary to install temporary marking, lights, signs, or visual NAVAIDS during the construction of this project.

Temporary Marking – Temporary marking, if required, shall conform to Advisory Circular 150/5340-1K, *Standards for Airport Markings.*

Signs – Airfield guidance signs that are not serving their normal function during the times when Runway 2-20 is closed will be covered to prevent misdirecting pilots. The signs will be covered each morning before work begins and uncovered each night when work is complete for the day. For details of the closed facilities signage see the table included on Exhibit A.

Lights, markings, signs, and visual NAVAIDs adjacent to areas used by aircraft will comply with the frangibility requirements of Advisory Circular 150/5220-23, *Frangible Connections*.

Closed runway crosses will be placed on the runway identification numbers at each end of Runway 2-20 at all times the runway is closed as shown on the Construction Safety and Phasing Plan, Exhibit A. Details of the runway closure crosses are also shown on the CSPP Drawing. Runway closure crosses will be installed prior to the start of construction and removed when construction of the project is complete. Contractor will maintain and keep closure crosses free of all debris.

15. MARKING AND SIGNS FOR ACCESS ROUTES

The marking and signing for access routes to the construction site is shown on the Construction Safety and Phasing Plan, Exhibit A. Signs will conform to Advisory Circular 150/5340-18F, Standards for Airport Sign Systems. To the extent possible, signs will be in conformance with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications and will not be hand lettered.

16. HAZARD MARKING AND LIGHTING

Runway 2-20 and Taxiways A B, C, D, and E will be closed for the duration of this project. Contractor will erect and maintain hazard marking and lighting in the form of suitable lighted barricades, properly marked and lighted, at the boundary of the work area to keep aircraft from entering the Contractor's work area and to keep Contractor's personnel and equipment from occupying any of the areas open for aircraft operation. Hazard marking and lighting will also be placed to identify open trenches, small areas under repair, materials & equipment stockpiles, waste areas, and areas subject to jet blast. All required barricades will be placed prior to the start of construction and removed when construction of the project is complete. The locations and details of barricades to be placed in this project are shown on the Construction Safety and Phasing Plan, Exhibit A.

Except for flags, no part of the barricade or light will extend ten (10) inches above the ground surface. Maximum spacing between barricades will be four (4) feet. Spacing will be such that a breach is physically prevented barring a deliberate act. Each barricade will have two solar-powered lights with red lenses each controlled by photocells such that they are on at night and off during the day. Barricades will be painted alternate orange and white diagonal striping. Barricade details are shown on the CSPP drawing.

The Contractor will supply the names and telephone numbers of persons responsible for the emergency maintenance of the hazard marking and lighting during construction of this project who will be available 24 hours a day.

17. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS

No construction may occur within a runway safety area (RSA) or taxiway safety area (TSA) while the associated runway or taxiway is open for aircraft operations. These safety areas, along with the runway object free zone (OFZ) and object free area (OFA), taxiway OFA, and runway approach surfaces, are shown on the Construction Safety and Phasing Plan, Exhibit A.

No blasting operations will be required or allowed during the construction of this project.

Open trenches or excavations will not be permitted to remain open overnight within the RSA while the runway is open for aircraft operations. The Contractor will furnish, erect, and maintain red or orange flags, as approved by the airport operator, and red lights during hours of restricted visibility or darkness, around open trenches, excavations, temporary stockpiles, and his/her parked construction equipment that may be hazardous to the operation of aircraft, emergency fire-rescue, or maintenance vehicles on the airport. See Article 16 of this CSAA for details of Hazard Marking and Lighting.

No drop-off greater than 3 inches will be allowed to exist within the RSA (200 feet of the edge of Runway 2-20) or TSA (35 feet of the edge of taxiways) for runways and taxiways that are open for aircraft operations at night, weekends, or during periods when the Contractor is not working in these areas. If excavation occurs within the RSA or TSA that leaves a depression greater than 3 inches, the Contractor will fill the excavated area such as to maintain a maximum 3 inch drop off at the edge of pavement and extend at a maximum slope of 5 percent from the edge of pavement. This embankment will be rolled a sufficient amount such that it will withstand truck traffic without rutting. The backfill will be removed from this area or spread out and used as the specified segment of the pavement section when work resumes in the area.

The RSA and TSA on active runways and taxiways will be:

a. Cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations.

b. Drained by grading or storm sewers to prevent water accumulation.

c. Capable under dry conditions of supporting construction and maintenance equipment, aircraft rescue, fire-fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

d. Free of objects, except for objects that need to be located in the RSA because of their functions. These objects will be constructed on low impact resistant

supports (frangible mounted structures) to the lowest practical height with the frangible point no higher than 3 inches above finished grade.

No construction may occur within a taxiway OFA while the taxiway is open for aircraft operations except as provided in Advisory Circular 150/5370-2F, Article 222d.

No construction equipment or personnel may penetrate the OFZ while aircraft are operating on the runway.

All personnel, materials, and/or equipment must remain clear of the applicable runway approach/departure areas and clearways as shown on the Construction Safety and Phasing Plan.

During construction an experienced flagger furnished by the Airport will have a two-way radio tuned to Unicom frequency 122.8 MHz. He/she will also by visual observation identify any aircraft operation at the airport as detailed in Article 5 of this CSPP. NOTAMs will be issued to alert pilots of this condition. During all times when Contractor's equipment and personnel are not working on the project, equipment shall be moved back to a point 200 feet from the centerline of Runway 2-20 and Runway 13-31 or 150 feet from the centerline of taxiways. At night and weekends all Contractor's equipment will be moved to the Contractor's Storage and Staging Area as shown on the Construction Safety and Phasing Plan.

If it is necessary to use construction equipment (cranes, concrete pumps, etc.) that is higher than 25 feet, a 7460-1 determination will be issued for such equipment as outlined in Article 18 of this CSPP.

18. OTHER LIMITATIONS ON CONSTRUCTION

Additional limitations on construction including but are not limited to:

a. No use of equipment taller than 25 feet (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for each piece of equipment.

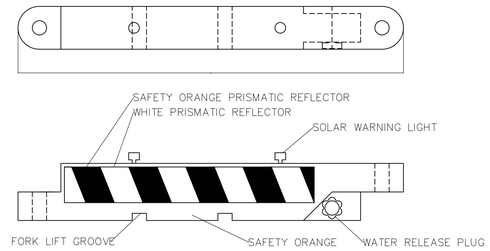
b. No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

c. No use of electrical blasting caps on or within 1,000 feet of the airport property.

d. No use of flare pots within the air operations area.

NOTES:

1. BARRICADES SHALL BE PLASTIC WATER–FILLED LIGHTED BARRICADES. CROWDSTOPPER WATERCADE WC01–10 10" HIGH OR APPROVED EQUAL.
2. EACH BARRICADE SHALL HAVE 2 SOLAR–POWERED LIGHTS WITH RED LENSES EACH CONTROLLED BY PHOTOCELLS SUCH THAT THEY ARE ON AT NIGHT AND OFF BY DAY.
3. BARRICADES SHALL BE SECURED IF NECESSARY TO RESIST MOVEMENT FROM JET BLAST OR PROP BLAST.
4. AT THE COMPLETION OF CONSTRUCTION, ALL BARRICADES SHALL BE DRAINED OF WATER, DELIVERED TO THE AIRPORT MAINTENANCE BUILDING, AND OWNERSHIP OF THE BARRICADES AND LIGHTS TRANSFERRED TO THE TAHOE–TRUCKEE AIRPORT DISTRICT.



10" WATER–FILLED BARRICADE

NO SCALE

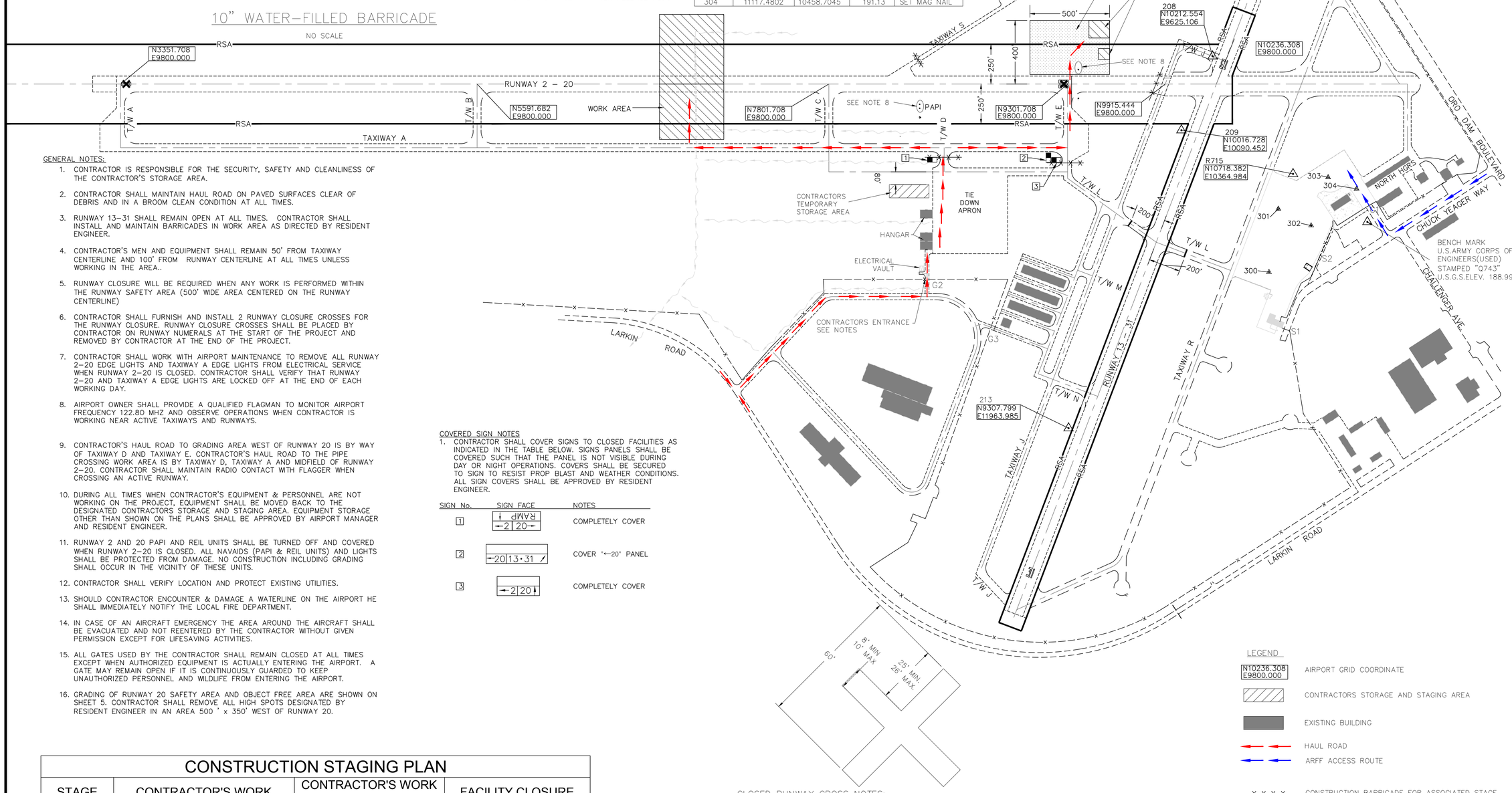
OROVILLE AIRPORT CONTROL POINTS

CONTROL POINT	NORTHING	EASTING	ELEVATION (FT.)	DESCRIPTION
208	10212.554	9625.106	190.38	PK W/TIN
209	10016.728	10090.452	190.66	HUB & TACK
213	9307.799	11963.985	175.15	HUB & TACK
Q743	11185.213	10667.039	189.00	BENCHMARK
R715	10718.382	10364.984	190.002	BENCHMARK

NGVD 29 DATUM

NORTH APRON CONTROL POINTS

CONTROL POINT	NORTHING	EASTING	ELEVATION (FT.)	DESCRIPTION
300	10567.1948	10982.4959	184.19	SET MAG NAIL
301	10625.7369	10584.6593	188.35	SET MAG NAIL
302	10831.9096	10689.6593	188.67	SET MAG NAIL
303	10938.7162	10386.5727	191.09	SET MAG NAIL
304	11117.4802	10458.7045	191.13	SET MAG NAIL



VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR THE SECURITY, SAFETY AND CLEANLINESS OF THE CONTRACTOR'S STORAGE AREA.
2. CONTRACTOR SHALL MAINTAIN HAUL ROAD ON PAVED SURFACES CLEAR OF DEBRIS AND IN A BROOM CLEAN CONDITION AT ALL TIMES.
3. RUNWAY 13–31 SHALL REMAIN OPEN AT ALL TIMES. CONTRACTOR SHALL INSTALL AND MAINTAIN BARRICADES IN WORK AREA AS DIRECTED BY RESIDENT ENGINEER.
4. CONTRACTOR'S MEN AND EQUIPMENT SHALL REMAIN 50' FROM TAXIWAY CENTERLINE AND 100' FROM RUNWAY CENTERLINE AT ALL TIMES UNLESS WORKING IN THE AREA..
5. RUNWAY CLOSURE WILL BE REQUIRED WHEN ANY WORK IS PERFORMED WITHIN THE RUNWAY SAFETY AREA (500' WIDE AREA CENTERED ON THE RUNWAY CENTERLINE)
6. CONTRACTOR SHALL FURNISH AND INSTALL 2 RUNWAY CLOSURE CROSSES FOR THE RUNWAY CLOSURE. RUNWAY CLOSURE CROSSES SHALL BE PLACED BY CONTRACTOR ON RUNWAY NUMERALS AT THE START OF THE PROJECT AND REMOVED BY CONTRACTOR AT THE END OF THE PROJECT.
7. CONTRACTOR SHALL WORK WITH AIRPORT MAINTENANCE TO REMOVE ALL RUNWAY 2–20 EDGE LIGHTS AND TAXIWAY A EDGE LIGHTS FROM ELECTRICAL SERVICE WHEN RUNWAY 2–20 IS CLOSED. CONTRACTOR SHALL VERIFY THAT RUNWAY 2–20 AND TAXIWAY A EDGE LIGHTS ARE LOCKED OFF AT THE END OF EACH WORKING DAY.
8. AIRPORT OWNER SHALL PROVIDE A QUALIFIED FLAGMAN TO MONITOR AIRPORT FREQUENCY 122.80 MHZ AND OBSERVE OPERATIONS WHEN CONTRACTOR IS WORKING NEAR ACTIVE TAXIWAYS AND RUNWAYS.
9. CONTRACTOR'S HAUL ROAD TO GRADING AREA WEST OF RUNWAY 20 IS BY WAY OF TAXIWAY D AND TAXIWAY E. CONTRACTOR'S HAUL ROAD TO THE PIPE CROSSING WORK AREA IS BY TAXIWAY D, TAXIWAY A AND MIDFIELD OF RUNWAY 2–20. CONTRACTOR SHALL MAINTAIN RADIO CONTACT WITH FLAGGER WHEN CROSSING AN ACTIVE RUNWAY.
10. DURING ALL TIMES WHEN CONTRACTOR'S EQUIPMENT & PERSONNEL ARE NOT WORKING ON THE PROJECT, EQUIPMENT SHALL BE MOVED BACK TO THE DESIGNATED CONTRACTORS STORAGE AND STAGING AREA. EQUIPMENT STORAGE OTHER THAN SHOWN ON THE PLANS SHALL BE APPROVED BY AIRPORT MANAGER AND RESIDENT ENGINEER.
11. RUNWAY 2 AND 20 PAPI AND REIL UNITS SHALL BE TURNED OFF AND COVERED WHEN RUNWAY 2–20 IS CLOSED. ALL NAVAIDS (PAPI & REIL UNITS) AND LIGHTS SHALL BE PROTECTED FROM DAMAGE. NO CONSTRUCTION INCLUDING GRADING SHALL OCCUR IN THE VICINITY OF THESE UNITS.
12. CONTRACTOR SHALL VERIFY LOCATION AND PROTECT EXISTING UTILITIES.
13. SHOULD CONTRACTOR ENCOUNTER & DAMAGE A WATERLINE ON THE AIRPORT HE SHALL IMMEDIATELY NOTIFY THE LOCAL FIRE DEPARTMENT.
14. IN CASE OF AN AIRCRAFT EMERGENCY THE AREA AROUND THE AIRCRAFT SHALL BE EVACUATED AND NOT REENTERED BY THE CONTRACTOR WITHOUT GIVEN PERMISSION EXCEPT FOR LIFESAVING ACTIVITIES.
15. ALL GATES USED BY THE CONTRACTOR SHALL REMAIN CLOSED AT ALL TIMES EXCEPT WHEN AUTHORIZED EQUIPMENT IS ACTUALLY ENTERING THE AIRPORT. A GATE MAY REMAIN OPEN IF IT IS CONTINUOUSLY GUARDED TO KEEP UNAUTHORIZED PERSONNEL AND WILDLIFE FROM ENTERING THE AIRPORT.
16. GRADING OF RUNWAY 20 SAFETY AREA AND OBJECT FREE AREA ARE SHOWN ON SHEET 5. CONTRACTOR SHALL REMOVE ALL HIGH SPOTS DESIGNATED BY RESIDENT ENGINEER IN AN AREA 500 ' x 350' WEST OF RUNWAY 20.

COVERED SIGN NOTES

1. CONTRACTOR SHALL COVER SIGNS TO CLOSED FACILITIES AS INDICATED IN THE TABLE BELOW. SIGNS PANELS SHALL BE COVERED SUCH THAT THE PANEL IS NOT VISIBLE DURING DAY OR NIGHT OPERATIONS. COVERS SHALL BE SECURED TO SIGN TO RESIST PROP BLAST AND WEATHER CONDITIONS. ALL SIGN COVERS SHALL BE APPROVED BY RESIDENT ENGINEER.

SIGN No.	SIGN FACE	NOTES
1	RAMP ← 2 20 →	COMPLETELY COVER
2	← 20 13·31 /	COVER "←20" PANEL
3	← 2 20 ↑	COMPLETELY COVER

CLOSED RUNWAY CROSS NOTES:

1. CROSS SHALL BE AVIATION YELLOW IN COLOR.
2. CROSSES TO BE CONSTRUCTED OF ANY MATERIAL SUCH AS FABRIC, PLYWOOD, OR OTHER SUITABLE MATERIAL. THEY WILL BE HELD IN PLACE IN A MANNER APPROVED BY THE RESIDENT ENGINEER.
3. CONTRACTOR SHALL PLACE AIRPORT FURNISHED CROSSES ON ON EACH END OF THE CLOSED RUNWAY. CROSSES SHALL REMAIN ON RUNWAY AT ALL TIMES THAT WORK IS PERFORMED ON THE RUNWAY. NO WORK SHALL BEGIN ON RUNWAY UNTIL CROSSES HAVE BEEN INSTALLED AND ANCHORED.

CLOSED RUNWAY CROSS DETAIL

LEGEND

N10236.308 E9800.000	AIRPORT GRID COORDINATE
	CONTRACTORS STORAGE AND STAGING AREA
	EXISTING BUILDING
	HAUL ROAD
	ARFF ACCESS ROUTE
	CONSTRUCTION BARRICADE FOR ASSOCIATED STAGE
	EXISTING DRAINAGE DITCH
	EXISTING FENCE
G1 S2	EXISTING GATE IDENTIFICATION NUMBER
	EXISTING CONTROL POINTS
RSA	EXISTING RUNWAY SAFETY AREA

CONSTRUCTION STAGING PLAN

STAGE	CONTRACTOR'S WORK	CONTRACTOR'S WORK AREA	FACILITY CLOSURE
1-1	RUNWAY 2-20 DRAINAGE IMPROVEMENTS	BORE AND JACK UNDER RUNWAY 2-20	RUNWAY 2-20, TAXIWAY A, B, C, D AND E
1-2	RUNWAY 20 OBSTRUCTION REMOVAL	WEST SIDE OF RUNWAY 20 THRESHOLD	RUNWAY 2-20, TAXIWAY A, B, C, D AND E

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER
6125 King Road, Suite 201 · Loomis, California 95650 · (916) 652–4725

ENGINEER OF RECORD

No.	REVISIONS	BY	APR	DATE

OROVILLE MUNICIPAL AIRPORT
OROVILLE CALIFORNIA

RUNWAY 2-20 GRADING AND DRAINAGE IMPROVEMENTS

CONSTRUCTION STAGING AND SAFETY PLAN

DATE	8/31/2015
DRAWN	KDC
CHECKED	RWB
PROJECT No.	13.12
FILE	1312.02.CSP TRENCH
SCALE	1"=300'
SHEET No.	EXHIBIT A

G:\1312 GRADE & DRAIN\1312.02.CSP TRENCH.DWG PLOTTED BY Tom Steinkamp 2/24/2016 10:57 AM

Exhibit B. Construction Project Daily Safety Inspection Checklist
Oroville Municipal Airport
Runway 2-20 Drainage Improvements and
Runway 20 Safety Area Grading

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project.

Potentially Hazardous Conditions

Item	Action Required	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free Area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ		☐
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) – cranes, drills, and similar objects – located in critical areas, such as OFZ and approach zones.		☐
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		☐
Obstacles, loose pavement, trash, and other debris on or near AOA.		☐

Item	Action Required	None
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA.		☐
Wildlife attractants – such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water – on or near airports.		☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		☐
Failure to issue, cancel, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		☐
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway/taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		☐
Restrictions on ARFF access from fire stations to the runway/taxiway system or airport buildings.		☐
Lack of radio communications with construction vehicles in airport movement areas.		☐
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that can be distracting, confusing, or alarming to pilots during aircraft operations.		☐
Water, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways		☐
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		☐

Item	Action Required	None
Failure to control dust.		☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		☐
Construction work taking place outside of designated work areas and out of phase.		☐

APPENDIX B
CONSTRUCTION MANAGEMENT PLAN

APPENDIX B

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

CONSTRUCTION MANAGEMENT PLAN

Prepared by:

Reinard W. Brandley
Consulting Airport Engineer
6125 King Road, Suite 201
Loomis, CA 95650
Telephone (916) 652-4725
Fax (916) 652-9029

March 1, 2016

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS
AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0178-__

CONSTRUCTION MANAGEMENT PLAN

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I. INTRODUCTION

INTRODUCTION

The City of Oroville, with Federal assistance from the Federal Aviation Administration under the Airport Improvement Program (AIP), proposes the construction of the following at Oroville Municipal Airport, Oroville, Butte County, California:

- Grade Safety Area and Object Free Area Near the North End of Runway 2-20 - 1,220 sq. yd.
- Construct Drainage Improvements for Runway 2-20

The soil grades within the Runway Safety Area and Runway Object Free Area for Runway 2-20 are higher than the runway centerline in one small area near Runway 2-20 and violate Runway Safety Area and Runway Object Free Area requirements. It is proposed to grade this area such that the entire Runway Safety Area and Runway Object Free Area meet all F.A.A. requirements. This project will require the regrading of approximately 1,220 square yards of soil, which will be accomplished in this project.

This project will also include the construction of an additional drainage culvert under Runway 2-20 based on the Drainage Study completed for the Oroville Municipal Airport. The existing drain lines are undersized and flooding of the runway occurs during heavy storms.

Under Grant Assurance #17 all sponsors are required to provide and maintain competent technical supervision at the construction site throughout the project to assure conformance with the approved plans and specifications. A grant condition is incorporated requiring the preparation and submittal of a Construction Management Plan to detail the measures and procedures that are required to assure compliance with the Quality Control (QC) provisions of the construction contract. The Contractor is responsible for all Quality Control (QC) testing and inspection. The Sponsor is responsible for Quality Assurance (QA) to confirm that all work has been performed in accordance with the plans and specifications. This report details the Construction Management Plan for this project.

Prior to issuance of a Notice to Proceed by the City, the Contractor must prepare, submit and obtain approval from the Engineer of his/her Quality Control Plan (QC). The minimum requirements of the Quality Control Plan are indicated in this Construction Management Plan.

This report details the Construction Management Plan for this project.

II. CONSTRUCTION MANAGEMENT PERSONNEL

CONSTRUCTION MANAGEMENT PERSONNEL

Quality Assurance (QA) Program – Sponsor Responsible

Sponsor: City of Oroville, Department of Public Works, 1735 Montgomery Street, Oroville, CA 95965, Telephone (530) 538-2507, Fax (530) 538-2426, rwalls@cityoforoville.org

Sponsor Representative.....Rick Walls, P.E., Senior Civil Engineer/Airport Manager
Responsibility and authority for contract administration

Consulting Engineer: Reinard W. Brandley, Consulting Airport Engineer, 6125 King Road, Suite 201, Loomis, CA 95650, Telephone (916) 652-4725, Fax (916) 652-9029, brandley@rwbrandley.com

Project Manager, Chief Engineer ..... Reinard W. Brandley, P.E.

- Advise and consult with Sponsor. All Sponsor's instructions shall be issued through the Project Manager. The Project Manager shall interpret the requirements of the contract documents and judge the performance thereunder by both the Sponsor and the Contractor.
- Decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work.
- Determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the contract.
- Make periodic visits to the job site to familiarize himself generally with the progress and quality of the work and to determine in general whether such work is proceeding in accordance with the contract documents.
- Approve applications for progress payments made by Contractor.
- Review and approve all Contractor submittals.
- Review all materials, equipment and performance tests for compliance with plans and specifications.

Resident Engineer/Quality Assurance (QA) Manager
..... Tom Steinkamp, E.I.T., Brandley Engineering

- Provide complete construction management services, including providing all resident engineering, quality assurance testing, and inspection services and all required reports to the Sponsor and F.A.A.
- Notify the Contractor or his/her representative of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Project Manager for his decision.
- Attend weekly construction meetings.
- Evaluate materials and methods of construction.
- Perform field and/or construction surveys if required.

- Prepare and assist in negotiating any required change orders.
- Perform and/or supervise all inspection services required for Quality Assurance. Depending on circumstances in the field, inspections will be performed by Resident Engineer, Brandley Engineering inspector, or qualified outside testing laboratory.
- Review all Contractor Quality Control inspection and submittals.
- Prepare or review weekly and final summary test reports.

Inspector*.....*David Baltazar

- Assist the Resident Engineer in all aspects of construction management including but not limited to testing and inspection services, evaluation of materials and methods of construction, and performing field and/or construction surveys if required.

Quality Control (QC) Program – Contractor Responsible

Contractor: _____***To Be Determined***

Project Superintendent* ..... *To Be Determined

- Monitor quality control plan.
- Prepare asphalt mix design based on test results from an ASTM – certified laboratory.
- Analyze test results.
- Prepare daily and weekly summary and final summary test reports.
- Transmit test results to home office with copies to Resident Engineer.
- Make and implement corrective decisions.
- Supervise all employees and subcontractors.
- Prepare and transmit to Resident Engineer all required submittals.

Quality Control Manager* ..... *To Be Determined

- Administer quality control plan.
- Prepare and submit Quality Control Program.
- Perform quality control tests on aggregate subbase course, aggregate base course, bituminous surface course, and structural Portland cement concrete.
- Assemble and review test data, make statistical and trend analysis, provide corrective recommendations to Project Superintendent.
- Provide daily inspection reports and daily testing reports to Resident Engineer.
- Provide weekly summaries of all test results to Resident Engineer.
- Provide linear control charts on asphalt and concrete gradations each week.
- At the end of the project provide final summary tables showing all test results in chronological order conducted for each product.

Plant Foreman ..... ***To Be Determined***

- Control gradation, cement content, and temperature of the mix.
- Report all test data plus mix and cement quantities at least twice daily to Project Superintendent and/or Quality Control Manager.

Paving Foreman..... ***To Be Determined***

- Control grade, thickness, joints, density, and surface tolerance.
- Monitor yield.

Testing Laboratory*:* _____

Testing Technician..... ***To Be Determined***

- Perform quality control tests on all materials submitted by Contractor.
- Provide test results to Quality Control Manager.
- Analyze results and provide analysis and corrective recommendations to Quality Control Manager.

Manufactured Materials – Contractor shall obtain and submit to Resident Engineer vendors' certificates of compliance with specification requirements. Vendors' certificates will be required for the following items:

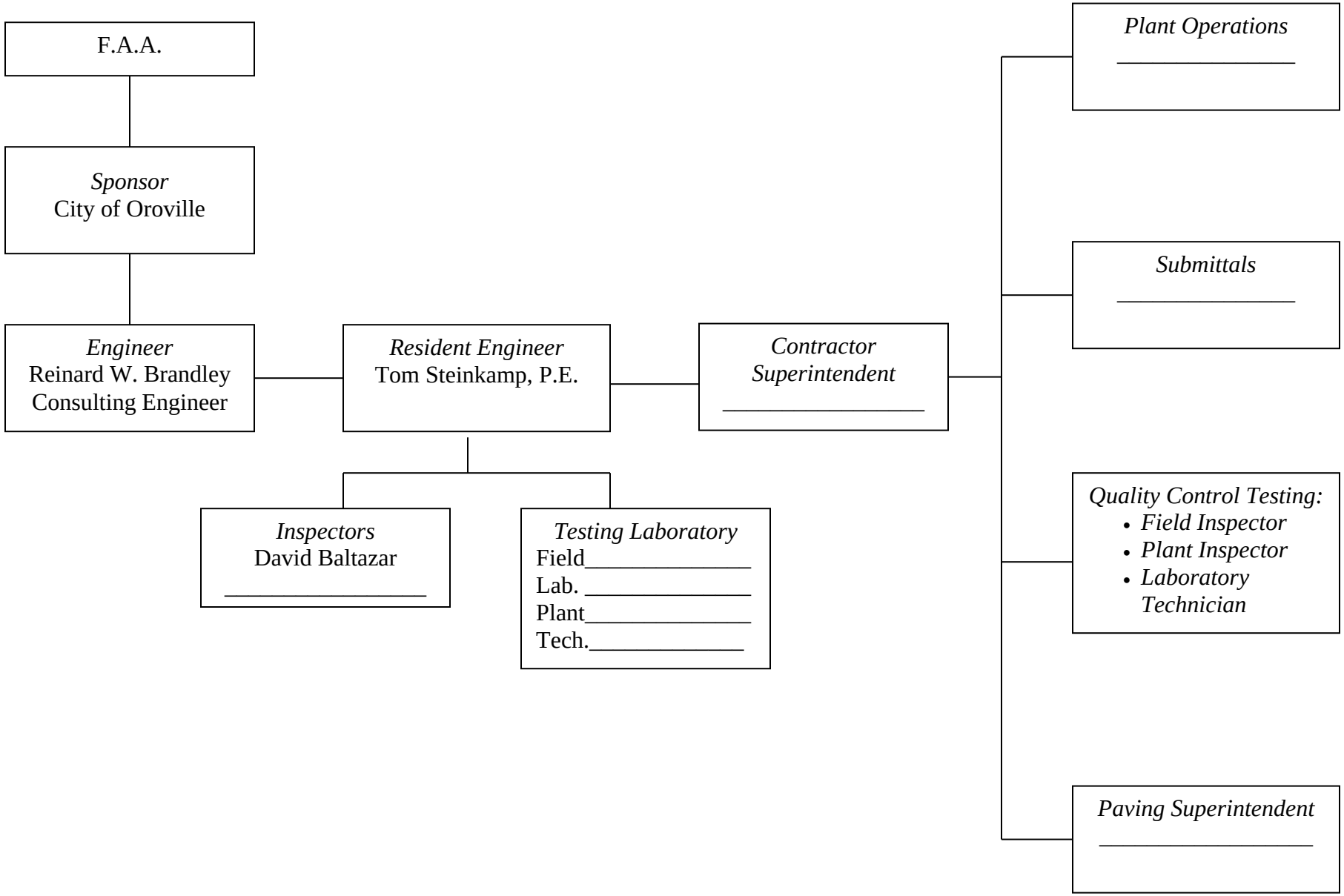
- Paving Asphalt
- Bituminous Prime coat
- Bituminous Tack Coat
- Portland cement
- Structural steel
- Concrete admixtures
- Fly Ash
- Paint and Reflective Beads
- Drainage Features

Resident Engineer's Field Office and Laboratory – All inspection and Quality Assurance testing will be performed by the Sponsor's Consulting Engineer's staff (Reinard W. Brandley) with assistance from local qualified testing laboratory if required. Testing Laboratory is to be determined.

An office and laboratory space will be furnished on site by the Sponsor for the use of the Resident Engineer. Required laboratory test equipment will be brought to the site to allow testing of most materials. Some specialized tests will be conducted in the home office laboratory of Reinard W. Brandley or in the testing laboratory.

Most tests will be performed in the field laboratory so that the Contractor can have immediate access to all Quality Assurance test results

CONSTRUCTION MANAGEMENT PLAN – ORGANIZATION CHART



III. RESUMES OF BRANDLEY ENGINEERING PERSONNEL
(QUALITY ASSURANCE CONSULTANT)

REINARD W. BRANDLEY, P.E. – PROJECT MANAGER, OWNER AND CHIEF ENGINEER

Mr. Brandley has been the owner and chief engineer of this firm since 1953. He is involved directly with every project. He coordinates the design of all projects and has responsibility for construction management. He has extensive design experience on airfield pavements, including asphaltic concrete pavements and Portland cement concrete pavements. Mr. Brandley's post-graduate education is in Soil Mechanics and Foundation Engineering. Doctoral research was concerned with airfield pavement design and evaluation. He has developed a fatigue analysis methodology for airfield pavement evaluation. He has also developed techniques and equipment for plastic grooving of concrete. He has been actively involved in airfield pavement design and construction control for 63 years. During this period, he has been principal responsible for design of many projects at over 100 airports throughout the United States and one airport in Iran. He has developed pavement evaluation research programs.

Education

B. Sc. in Civil Engineering, University of Alberta, Canada - 1945
M. Sc. in Civil Engineering, University of Alberta, Canada - 1946 - Thesis - Airfield Pavement Evaluation Studies
S.M. - Graduate School of Engineering, Harvard University
Completed resident requirements for degree of Doctor of Science at Harvard University, Graduate School of Engineering - 1948 - Thesis - The Evaluation of Full-Scale Load Tests for the Bearing Capacity of Airfield Pavements

Professional Registration

State of California - Civil Engineer - No. 8044 - Since 1951
State of California - Geotechnical Engineer - No. 160
Also Registered Professional Engineer in the States of:

Nevada	Oregon	Kentucky
Utah	Tennessee	Colorado
Florida	Washington	

Membership in Professional Societies

American Society of Civil Engineers - Life Member
American Association of Airport Executives - Associate Member
California Association of Airport Executives - Associate Member
Airport Consultants Council - Member

Technical Activities and Committee Memberships

Member, Airfield Pavement Committee, American Society of Civil Engineers
Member, Task Force on Nondestructive Evaluation of Airfield Pavements, Transportation Research Board
Member, Peer Review Board for New Concrete Manual prepared for U.S. Air Force
Member, Blue Ribbon Panel charged with evaluation of consultants' studies concerning the proposed expansion of San Francisco International Airport (SFO)

THOMAS A. STEINKAMP, E.I.T.
AIRPORT DESIGNER/RESIDENT ENGINEER

Education: B. Sc. in Mechanical Engineering Technology, Oregon State University, 1979

PROFESSIONAL EXPERIENCE:
Mr. Steinkamp has been actively involved in airport and airfield pavement design and construction control on airports in the Western United States for the past 31 years. He was a Soils Technician and engineering technician for a geotechnical materials testing firm for 10 years. He has over 31 years of progressive field and office experience in design and management of airfield projects in our office. He is experienced in the design of runways, taxiways, aprons, and roads, including paving, grading, drainage, lighting, utilities, etc. He prepares specifications, construction cost estimates, and operates the CAD system. Mr. Steinkamp has been responsible for construction management, testing, and inspection on several airports over the past several years.

REPRESENTATIVE PROJECTS:

Testing and Inspection:

Colusa County Airport - Overlay and Light Runway 13-31 and Taxiways, Reconstruct General Aviation Apron – August 2000

Stockton Metropolitan Airport – Runway 29R Extension – August 2002

Cedarville Municipal Airport – Rehabilitate Tie Down Apron – June 2006

Resident Engineer:

Mammoth Yosemite Airport – Rehabilitate Taxiways and Aircraft Parking Apron – September-October 2004

Mammoth Yosemite Airport – Construct Tee Hangar Taxiways – September-October 2004

Madera Municipal Airport – Construct Hangar Apron and Taxiway, Reconstruct General Aviation Apron, Construct Road 24 & 24½ - June-November 2005

Madera Municipal Airport – Crack Seal Airfield Pavements – September 2007

Mammoth Yosemite Airport – Reconstruct Runway 9-27 & Taxiways – May-October 2008

Madera Municipal Airport – General Aviation Apron Expansion Phase 2 – October-December 2008

Madera Municipal Airport – Extend Taxiway P, Construct Holding Apron, Relocate Taxiway A – October through December 2009

Madera Municipal Airport – General Aviation Apron Expansion Phase 2B – August-November 2010

Tulelake Municipal Airport – Reconstruct Aircraft Parking Apron – July 2012

Madera Municipal Airport – Reconstruct General Aviation Apron – July-August 2013

Watsonville Municipal Airport – Reconstruct Taxiway C & GA Apron Phase 1 – June 2014

Chico Municipal Airport – Reconstruct T/W H and Apron Phase 5 – April to August 2015

DAVID BALTAZAR - RESIDENT INSPECTOR/TESTING TECHNICIAN

Education: B. Sc. in Mechanical Engineering, California State University, Sacramento 2007

PROFESSIONAL EXPERIENCE:

Mr. Baltazar has been involved in airfield pavement testing and inspection on airports in the Western United States for the past 10 years. He has 10 years of progressive field and laboratory experience in testing and inspection of airfield projects in our office. He is experienced in the inspection of runways, taxiways, aprons, and roads, including paving, grading, drainage, lighting, utilities, etc. Mr. Baltazar has been responsible for field and laboratory testing and inspection on several airports over the past few years.

REPRESENTATIVE PROJECTS:

Laboratory Testing:

- AC Mix Designs
- California Bearing Ratio
- Gradation
- Marshall Testing
- Moisture/Density Testing
- Compressive Strength
- Atterberg Limits

Field Inspection and Testing:

Gansner Field – Rehabilitate Taxiways and Aircraft Parking Apron – November 2004

Cedarville Municipal Airport – Construct Tee Hangar Taxiways – June-July 2005

Georgetown Airport - Reconstruct and Light Runway 16-34 – July-August 2005

Gansner Field – Reconstruct Aircraft Parking Apron Phase 2 – August 2005

Lincoln Regional Airport - Reconstruct S. T/W, Replace VASI with PAPI – July 2007

Placerville Airport - Remove Obstructions, Phase 1 Hangar Area – September 2007

Stockton Metropolitan Airport - Rehabilitate Runway 11R-29L – September 2007

Mammoth Yosemite Airport – Reconstruct Runway 9-27 & Taxiways – July 2008

Lake Tahoe Airport – Reconstruct Runway 18-36 – August-October 2008

Lake Tahoe Airport – Reconstruct Terminal Ramp Phases 1 and 2 – August- October 2009

Chico Municipal Airport – Rehabilitation of Aircraft Parking Aprons – 2008 through 2010

Oroville Municipal Airport – Rehabilitate Airfield Pavements – Crack Seal, Remark Airfield Markings – May 2011

Tulelake Airport – Rehabilitation of Aircraft Parking Apron – June 2012

Truckee Tahoe Airport – Reconstruct Runway 10-28 – July-August 2012

Rogers Field – Joint Seal Airfield Pavements – May-July 2013

Watsonville Municipal Airport – Reconstruct T/W C & GA Apron Phase 1 – July 2014

Rogers Field – Reconstruction of Tie Down Apron – May-July 2015

IV. RESUMES OF CONTRACTOR'S QUALITY CONTROL PERSONNEL

Project Superintendent

(To be added once Contractor has been selected)

Quality Control Manager

(To be added once Contractor has been selected)

Quality Control Testing

(To be added once Contractor has been selected)

V. INSPECTION PROCEDURES AND FREQUENCIES

INSPECTION PROCEDURES AND FREQUENCIES

A. Surveying and Grade Control

The surveying to be included in this program will be provided by the Contractor and shall be limited to that required for construction of the project. All field notes and data collected during construction shall be made available to the Resident Engineer. The survey party shall consist of a qualified party chief and survey crew. All survey equipment shall be verified for proper working operation prior to use. All required horizontal and vertical control is in place and was established in design surveys.

For horizontal control, the referenced datum is NAD83. For vertical control, the referenced datum is NAVD88. The construction monuments shall be adequately protected throughout the duration of the project.

The Contractor shall accomplish construction layout and staking by using horizontal and vertical control monuments established by the Sponsor's surveyor. The responsibility and risk associated with the construction layout shall be borne by the Contractor. The Resident Engineer will review Contractor's layouts and final grades.

During the course of the project work, the Sponsor's survey party shall make spot checks on alignment, verify final layouts, and verify final cross sections for computing final pay quantities as required. Where applicable, Resident Engineer will observe and verify Contractor's final grade surveys and utilize these data for calculating pay quantities. A copy of all Contractor's survey notes shall be given to the Resident Engineer.

B. Quality Control By Contractor – Inspection and Testing Responsibility

The Contractor is responsible for Quality Control on this project. All definable features of work will be inspected on a daily basis to ensure continuing compliance with contract requirements until completion of the particular item of work. The following inspections will be addressed:

1. The Contractor will prepare the hot mix asphalt (HMA) mix design for the HMA proposed for use on the project. The laboratory will be accredited in accordance with ASTM D3666. The laboratory accreditation must be current and listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Engineer prior to start of construction.

2. During plant operation for material production, quality control test results and periodic inspections will 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 specifications. All equipment utilized in proportioning and mixing will be inspected to ensure its proper operating condition. All necessary inspections will be performed by certified technicians on a daily basis and documented.

3. 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 with the specifications and are within the plan dimensions, lines, grades, and tolerances specified. All necessary inspections will be performed by certified technicians on a daily basis and documented.

4. Any test results that do not meet specification requirements and any grade that is out of tolerance will be immediately reported to the Contractor's Superintendent and the Resident Engineer. Corrective measures will be implemented and new tests and inspections performed to demonstrate that corrections have been made.

5. Test reports will be prepared and transmitted to the Resident Engineer, as follows:

   a. Daily
   b. Weekly Summary in typewritten format
   c. Final Summary – Typewritten & Bound

   Failing test results will be highlighted and corrective action noted.

6. Submittals – All required submittals will be prepared, reviewed and submitted to the Resident Engineer. Only Contractor reviewed submittals will be accepted.

C. Quality Assurance By Resident Engineer – Inspection and Testing Responsibility

The Resident Engineer is responsible for Quality Assurance on this project. All definable features of work will be inspected on a daily basis to ensure continuing compliance with contract requirements until completion of the particular item of work. The following inspections will be addressed:

a. Grade and alignment
b. Suitability test results
c. Surface tolerance
d. Rideability
e. Finish grading and revegetation if necessary
f. Pavement marking
g. Drainage features.

A daily inspection report will be completed as shown in this section of the Construction Management Plan. Weekly reports (FAA Form 5370-1), along with a weekly statement of working days, will be submitted to the Sponsor, the Contractor, and the Federal Aviation Administration.

D. Quality Control Test Program

The Quality Control Test Program established for this project is shown on the Quality Control Testing Schedule included on Page VII-2.

Reports of all testing by the Contractor and Resident Engineer will be prepared daily and summarized weekly as required. Samples of the proposed report forms are included on the following pages.

REINARD W. BRANDLEY
CONSULTING AIRPORT ENGINEER
SACRAMENTO, CALIFORNIA

Report No. _____

INSPECTION REPORT

{X} Daily
{ } Weekly
{ } Monthly

AIRPORT: Oroville Municipal Airport, Oroville, California

DATE: _____

PROJECT: Runway 2-20 Drainage Improvements and Runway 20 Safety Area Grading

WEATHER: _____

AIP NO.: 3-06-0178-

TEMPERATURE: min____ max____

CONTRACTOR: _____

WORKING DAY: yes { } no { }

Contract Working Days 25

A. EARTHWORK
1. { } Grade Runway 20 Safety Area and Object Free Area (P-152) _____
2. { } _____

B. FLEXIBLE BASE COURSE
3. { } Crushed Aggregate Base Course (P-209) _____
4. { } _____

C. RIGID BASE COURSE
5. { } Bituminous Surface Course (P-401) _____
6. { } _____

D. RIGID PAVEMENT
7. { } Portland Cement Concrete Backfill of 42-inch RCP (P-610) _____
8. { } _____

E. MISCELLANEOUS PAVING
9. { } Bituminous Prime Coat (P-602) _____
10. { } Bituminous Tack Coat (P-603) _____
11. { } _____

F. MARKING
12. { } Runway and Taxiway Marking (P-620) _____
13. { } _____

G. DRAINAGE
14. { } Saw Cut Existing AC Pavement (D-701) _____
15. { } 42-inch Storm Drain Pipe (D-701) _____
16. { } 42-inch RCP Headwall (D-752) _____
17. { } Rip Rap (D-753) _____
18. { } _____

H. MISCELLANEOUS PROJECT
19. { } _____
20. { } _____

INSPECTION REPORT (Continued)

Dated: _____

REMARKS:

_____
_____
_____
_____
_____
_____
_____
_____
_____

CONTRACTOR'S PERSONNEL/EQUIPMENT ON SITE

EQUIPMENT	PERSONNEL

Visitors:_____ Personnel:_____

_____

Date: _____ By: _____

US Department of Transportation Federal Aviation Administration	**CONSTRUCTION PROGRESS AND INSPECTION REPORT** **Airport Grant Program**	**Period Ending** **Project Number** AIP 3-06-0178-

Airport Name
Oroville Municipal Airport, Oroville, Butte County, California

Project Description	**Contractor's Name**
R/W 2-20 Drainage Improvements and R/W 20 Safety Area Grading	

1. Rough Estimate of Percent Completion to Date of Construction Phases ***(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)***

2. Work Completed or In Progress This Period

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature ***(On earthwork jobs include soil conditions)***

4. Contract Time		**5. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests.** ***(Summarize out-of-tolerance material. Identify material subject to pay reduction.)***
No Days Charged To Date	**Last Working Day Charged (Date)**	

6. Describe Anticipated Work by Contractor for Next Period

7. Problem Areas/Other Comments ***(Revisions to plans and specifications approved or denied, delays, difficulties, etc actions taken.)***

SPONSOR'S INSPECTOR OR REPRESENTATIVE		
Date	**Typed or Printed Name and Title** Tom Steinkamp, E.I.T., Resident Engr.	**Signature**

Reinard W. Brandley
CONSULTING AIRPORT ENGINEER

6125 King Road, Suite 201 * Loomis, California 95650-8004 * (916) 652-4725

WEEKLY STATEMENT OF WORKING DAYS

AIRPORT: Oroville Municipal Airport **DATE:** _____

PROJECT: Runway 2-20 Drainage Improvements and Runway 20 Safety Area Grading **AIP NO:** 3-06-0178-

TO: (Contractor) _____

The following statement shows the number of working days charged to your contract for the week ending _____.

Date Contract Approved	
Date of First Chargeable Working Day	
Date Contractor Began Work	
Working Days Specified in Contract	25
Time Extensions by Approved Change Order	0
Total Authorized Working Days	25
Date Job Shutdown due to Ground Saturation	
Date Job Resumed	

DATE	DAY	WEATHER OR CONDITIONS	WORKING DAY	Nonworking Day Caused by Weather or *Other Conditions

Days this Week	
Days Previously Reported	
Total Days to Date	0

Working Days Remaining to Complete Contract	25
Project Completion this Week	%
Project Completion to Date	%
Contract Time Elapsed	%

Note: The Contractor will be allowed 15 days to protest in writing the correctness of this statement; otherwise, the statement shall be deemed to have been accepted by Contractor.

Tom Steinkamp, E.I.T.
PROJECT ENGINEER

*** Remarks:** _____

VI. SUBMITTAL PROCESS

SUBMITTAL PROCESS

At the start of the project, the Contractor will provide a listing of all submittals required for the project for approval by the Resident Engineer. After approval of this list, individual submittals will be submitted to the Resident Engineer for approval prior to delivery of any item. The Resident Engineer will review submittals and return them to the Contractor either approved or rejected. No materials will be delivered to the project until submittals are approved.

Certificates of compliance for all manufactured or prefabricated materials shall be delivered to the Resident Engineer.

Upon delivery to the site, the Resident Engineer will inspect each item to assure that it is the same as the approved submittal.

The Submittal Schedule and review path are shown on the following pages.

OROVILLE MUNICIPAL AIRPORT - RUNWAY 2-20 DRAINAGE IMPROVEMENTS & RUNWAY 2 SAFETY AREA GRADING AIP NO. 3-06-0178-__ - SUBMITTAL SCHEDULE					
Bid Item	Description	Type Submittal	Project Spec.	Test Procedure	Title
--	Construction Schedule	CPM	--	N/A	N/A
--	List of Materials	List	SC (16)b	N/A	N/A
--	Safety Plan Compliance Document	SPCD	SC (15)	N/A	N/A
4	Crushed Aggregate Base Course (P-209)	Suitability Tests	209-2.1	ASTM C88	Sodium Sulfate Soundness
				ASTM C 131	LA Rattler
				ASTM D 4791	Flat or Elongated Particles
				ASTM D 5821	Fractured Particles
				ASTM D 1883	CBR
				ASTM D 2419	Sand Equivalent
		Gradation	209-2.2	ASTM D 4318	Liquid Limit, Plastic Limit and Plasticity Index
5	Bituminous Surface Course (P-401)	Aggregate Suitability Tests	401-2.1	ASTM C 88	Sodium Sulfate Soundness
				ASTM D5821	Fractured Particles
				ASTM C 131	LA Rattler
				ASTM C142	Clay Lumps and Friable Particles
				ASTM D 2419	Sand Equivalent
				ASTM D 4318	Liquid Limit, Plastic Limit and Plasticity Index
				ASTM D 4791	Flat or Elongated Particles
		Bituminous Material-Certificate	401-2.3	N/A	N/A
		Gradation	401-3.2	C 136 & C 117	Sieve Analysis
		Marshall Tests		Asphalt Institute MS-2	Marshall Method of Mix Design
-	Bituminous Prime Coat (P-602)	Certificate	602-2.1	ASTM D 3628	Emulsified Asphalts
-	Bituminous Tack Coat (P-603)	Certificate	603-2.1	ASTM D 3628	Emulsified Asphalts
6	Portland Cement Cocrete Backfill of 42-inch RCP (P-610)	Alkali-Silica Reaction	610-2.1	ASTM C 1260	Alkali Reactivity
				ASTM C 1567	Alkali-Silica Reactivity
		Suitability Tests	610-2.1	ASTM C 33	Concrete Aggregates
			610-2.2	ASTM C 535	Percentage of Wear
		Gradation	610-2.2-2.3	ASTM C 136	Sieve Analysis
		Cement - Certificate	610-2.4	ASTM C 150	Portland Cement
		Fly Ash - Certificate	610-2.4	C 618 Class F	Fly Ash
		Admixtures	610-2.6	ASTM C 260	Air-Entertaining Admixtures
				ASTM C 494	Chemical Admixtures
		Joint Filler-Certificate	610-2,7	ASTM D 1751	Preformed Expansion Joint Filler
		Steel Reinforcement	610-2.9	ASTM A 615	Deformed Bars
		Concrete Curing-Certificates	610-2.10	ASTM C 309	Liquid Membrane Forming Compounds
				ASTM C 171	Sheet Materials for Concrete Curing
7	Airfield Marking (P-620)	Certificate	620-2.2	Fed Spec TT-P-1952	Paint, Traffic, and Airfield Marking
	Glass Beads (P-620)	Certificate	620-2.3	Fed Spec TT-B-1325	Beads (Glass Spheres) Retroreflective
9	Reinforced Concrete Pipe (D-701)	Certificate	701-2.2	ASTM C 76	Reinforced Concrete Storm Drain Pipe
	Rubber Gaskets (D-701)	Certificate	701-2.4	ASTM C 443	Rubber Gaskets
	Joint Mortar (D-701)	Certificate	701-2.5	C 150/C 144	Portland Cement/Sand
	Joint Fillers (D-701)	Certificate	701-2.6	D 6690	Joint & Crack Sealants, Hot Applied
	Plastic Gaskets (D-701)	Certificate	701-2.7	ASTM C 990	Plastic Gaskets
11	Rip Rap (D-753)	Suitability Test	753-2.1	ASTM C 127	Spec. Gravity & Absorption of Coarse Agg.
				Calif. Test 229	Durability Index
				ASTM C 88	Soundness of Aggregate
		Gradation	753-2.2	ASTM C136 & C117	Sieve Analysis

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RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND
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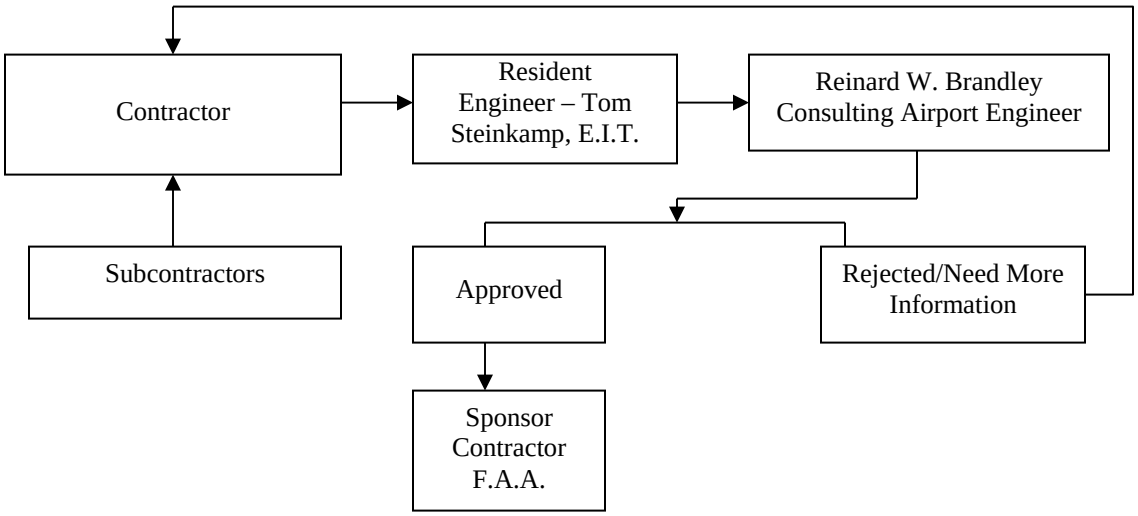
PATH FOR REVIEW AND APPROVAL OF SUBMITTALS



VII. QUALITY CONTROL TESTING

QUALITY CONTROL TESTING

Quality Control Testing will be performed under the direction of the Contractor and will be reviewed by the Resident Engineer.

The Quality Control Testing Schedule, flow path, and corrective action plan proposed for this project are shown on the following pages.

OROVILLE MUNICIPAL AIRPORT- RUNWAY 2-20 DRAINAGE IMPROVEMENTS
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QUALITY CONTROL TESTING SCHEDULE

Spec. No.	Material	Min Frequency	Testing	ASTM	Title
P-152	Excavation		Laboratory Compaction Test		
		1/1000 cy	Field Density Test - Nuclear (Control)	D 6938	In-Place Density - Nuclear
P-209	Aggregate Base Course		Original Suitability Test*		
			Control Gradation (Production)	C 136	Sieve Analysis - Fine & Coarse Aggregates
			Control Percent Crushed	D 693	Percent Crushed
			Field Thickness	N/A	N/A
			Field Surface Tolerance(1)	N/A	N/A
		As Needed	Laboratory Compaction Test		
		1/700 ton	Field Density Test - Nuclear (Control)	D 6938	In-Place Density - Nuclear
P-401	Bituminous Surface Course		Hot Mix Asphalt Mix Design	--	--
		1/1000 ton	Control Gradation (Production)	C 136	Sieve Analysis
		1/1000 ton	Control Percent Crushed		
		1/500 ton	Control Temperatures	N/A	N/A
		1/Lot	Moisture Content of Aggregates	C 566	Moisture Content of Aggregate
		1/Lot	Moisture Content of Mixture	D 1461	Moisture Distillates in Mixture
		4/Lot	Field Temperature	N/A	N/A
		1/500 ton	Field Test Cores	D 3665	Random Sampling of Materials
			Field Density Test - Nuclear (Control)	D 2950	Density of Bituminous Concrete
		1/1000 ton	Field AC Content Extraction and Gradings	D 2172	Extraction of Bitumen from Mixtures
		1/1000 ton	Field Theoretical Max Density (Rice Test)	D 2726	Bulk Specific Gravity
P-610	Structural PCC		Aggregate Suitability Tests*	--	--
			Control Percent Crushed		
			Mix Design	--	--
		4 sets/Lot	Beams - Flexural Strength	C 78	Flexural Strength
		2/Lot	Control Gradation	C 136	Sieve Analysis
			Control Slump	C 143	Slump of Concrete
			Control Air Content	C 173/ C 231	Air Content of Concrete
			Control Thickness	N/A	N/A
D-701	Reinforced Concrete Pipe		Compaction of Backfill-Nuclear (Control) Compliance Certificate	D 6938	In-Place Density - Nuclear
D-752	Headwall		Compaction of Bqackfill - Nuclear	D 6938	In-Place Density - Nuclear

*See Submittal Schedule

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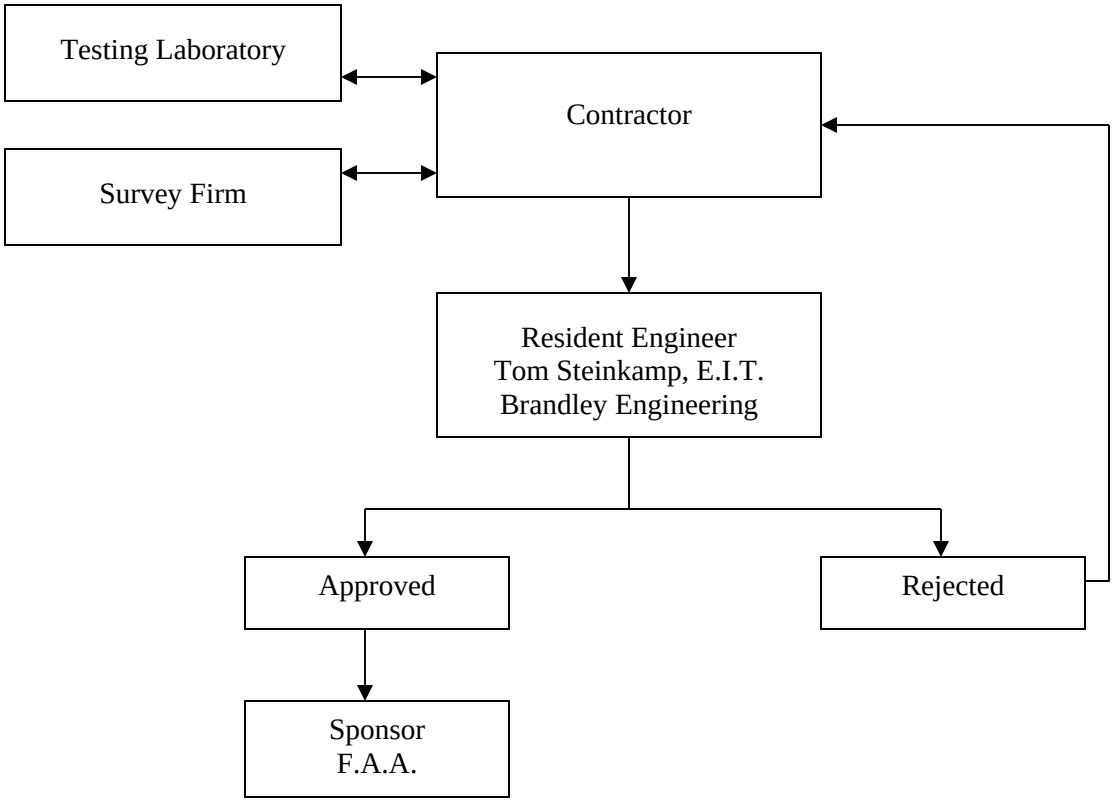
<u>FLOW CHART – QUALITY CONTROL RESPONSIBILITIES</u>
(Between Testing Laboratory, Contractor, and Resident Engineer)



QUALITY CONTROL CORRECTIVE ACTION PLAN

In the event that inspection or test results indicate unsatisfactory production or construction processes, immediate action will be taken. Corrective actions may range from a minor process adjustment to temporary termination of production. Correction action options are contained in this section of the Construction Management Plan.

Corrective actions will be taken each time that inspection or testing results show a material quality or process to be out of compliance. When any tests fall outside tolerance levels, an appropriate investigation will be set up to determine the cause and bring the material back into tolerance. Where two consecutive tests are outside tolerance levels, then Contractor will take immediate corrective action. This corrective action will occur regardless of its impact upon production. If three consecutive tests are out of specification, then production will immediately be halted and will not resume until it is demonstrated that all requirements can be met. Production will recommence upon approval of the Resident Engineer.

Item Description	Corrective Action
AGGREGATE BASE COURSE – ITEM P-209:	
Gradation	If test results are outside of the tolerances set forth in Table 1 of paragraph 209-2.2 of the specifications, an immediate investigation will be conducted to determine the cause. Corrections will be made and material will be tested immediately to assure that the correction has been effective.
Finished Grade	If finished grade of aggregate base is outside limits, then the surface will be regraded before bituminous surface course is placed. Bituminous surface course will not be placed until the corrections have been made and the QC Manager has inspected and approved.
Percent Crushed	If test results are outside the limits set forth in paragraph 209-2.1 of the specifications, an immediate investigation will be conducted to determine the cause. Corrections will be made and material will be tested immediately to assure that the correction has been effective.
Density of AB in-Place	If the field density of aggregate base in-place determination indicates that the aggregate base is not being placed to a minimum of the required maximum density of the lab specimen, immediate action will be taken. Corrections will be made and material will be tested immediately to assure that the correction has been effective.

BITUMINOUS SURFACE COURSE – P-401:

Surface Tolerance	If the finished surface varies more than 1/4" when tested with a 16-foot straightedge, immediate action will be taken to bring finish surface within the specified tolerance. If the completed thickness is deficient by more than ¼" of the design thickness, corrective action will be taken by excavating to the required depth and replacing with new material. If the completed thickness is thicker and/or surface straightedge tolerances are exceeded, Resident Engineer will evaluate suitability of finished product and Contractor may be requested to grind the surface or remove and replace the AC pavement.
Asphalt Content	If one point falls outside the suspension limit of ±0.70%, or two consecutive points fall outside the action limit of ±0.45%, an immediate investigation will be conducted to determine the cause. Corrections will be made and material will be tested immediately to assure that the correction has been effective.
Aggregate Gradation	If test results are outside of limits set forth in the control charts in paragraph 401-6.5 of the specifications, an immediate investigation will be conducted to determine the cause. Corrections will be made and material will be tested immediately to assure that the correction has been effective.
Aggregate Moisture	When individual or composite aggregate moisture values differ from those of the plant computer, the plant computer will be adjusted to reflect the most recent aggregate moisture.
Asphalt Temperature	If the asphalt temperature is not sufficient to provide adequate coating of aggregate particles or the asphalt temperature exceeds 325º F (148º C) the plant operator will immediately take corrective action to raise or lower the temperature as needed. Temperature will be closely monitored to verify that the correction was adequate.
Aggregate Temperature	If the aggregate and mineral filler temperature exceeds 347º F (175º C) when asphalt is added, the plant operator will immediately take corrective action to lower the temperature as needed. Temperature will be closely monitored to verify that the correction was adequate.
Mix Moisture Content	If the mix moisture exceeds 0.5%, the plant operator will be notified and corrective action will be taken to reduce the moisture in the mix. Aggregate piles may be spread to dry, aggregate time in the heater may be increased, etc.

Aggregate Base Preparation (P-209)	If the inspection indicates that the aggregate base is not compacted to 100% maximum density under areas to be paved, immediate action will be taken. Aggregate base problems will be corrected – dried, cleaned, compacted, graded, etc. Asphalt concrete will not be placed until the corrections have been made and the QC and QA Managers have inspected and approved.
Tack Coat (P-603)	If inspection indicates that the tack coat material or application is not in accordance with the specifications, immediately action will be taken. Tack coat will be re-applied, changed, time for "break" will be lengthened, etc. Bituminous surface course will not be placed until the corrections have been made and the QC and QA Managers have inspected and approved.
Base Temperature	If the surface temperature is less than specified in Table 4 of paragraph 401-4.1 of the specifications, bituminous mixture will not be placed unless approved by the Engineer.
Mix Temperature	If physical measurements indicate that the mix temperature is below the specified temperature, corrective action will be taken immediately. Cool mix will be returned to the plant and the operation will be changed to correct the situation that is causing the problem. AC will be held in tarped trucks and not windrowed until necessary.
In-Place Density	If field density determination indicates that the bituminous surface course is not being placed to a minimum relative mat density of 96.3% or joint density of 93.3%, immediate action will be taken. Roller operations will be investigated and may be changed, plant will be notified and mix quality will be examined, temperature will be determined, etc. Density will be tested immediately following the corrective action to assure that the action has been effective. If a lot does not equal 90 percent within limits (PWL) of the compaction of both mat and joints, corrective action will be taken to increase the degree of compaction.
Stability and Flow	If the lot does not equal 90 percent within the limits (PWL) of Table 5 of paragraph 401-5.2 of the specifications, the reason shall be determined and corrective action will be taken.
Air Voids	If the lot does not have air voids within the limits (PWL) of Table 5 of paragraph 401-5.2 of the specifications, the reason shall be determined and corrective action will be taken.

Surface Smoothness	If the finished surface varies more than 3/8” for base course and ¼” of surface course using a 12-foot straightedge, corrective action will be taken. If more than 15% of all measurements within a lot exceed these tolerances using methods set forth in the specifications, then corrective action will involve removing deficient material and replacing with new. High points will be ground off when required.
Re-sampling Pavement	Corrective action for pavement items may include re-sampling of pavement.

VIII. QUALITY ASSURANCE TESTING

QUALITY ASSURANCE TESTING

Quality Assurance Testing and Inspection will be performed by or under the direction of the Resident Engineer. Quality Assurance Testing, as a minimum, will include all final acceptance testing to make sure the final product is within specification limits and to determine pay factors for each item.

The Quality Assurance Testing Schedule, flow path charts, and pay factors are included on the following pages.

OROVILLE MUNICIPAL AIRPORT
RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND RUNWAY 20 SAFETY AREA GRADING
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QUALITY ASSURANCE TESTING SCHEDULE

Spec. No.	Material	Min Frequency	Testing	ASTM	Title
P-152	Safety Area Grading		Survey Check for Accuracy and Pay Quantities		
P-152	Unclassified Excavation		Field Density Acceptance Test - Sand Cone	D 1557	Laboratory Compaction
P-209	Aggregate Base Course		Control CBR	D 1883	California Bearing Ratio
		2/day	Field Gradation (Delivery)	C 136	Sieve Analysis
			Field Percent Crushed		
			Field Surface Tolerance (1)	N/A	N/A
			Field Delievery Moisture Content	D 1557	Laboratory Compaction
			Field Density Acceptance Test - Sand Cone	C 1557	Laboratory Compaction
P-401	Bituminous Surface Course		Field Temperature	N/A	N/A
		1/500 ton	Field Density, Voids, From Cores		
		1/500 ton	Field Marshall Tests	MS-2	Marshall Method
P-602	Bituminous Prime Coat		Spread	N/A	N/A
P-603	Bituminous Tack Coat		Spread	N/A	N/A
P-610	Structrual PCC	4 Sets/Lot	Control Flexural Strength	C 78	Flexural Strength
		2/Lot	Control Gradation	C 136	Sieve Analysis
			Control Slump	C 143	Slump of Concrete
			Control Air Content	C 173/C 231	Air Contenet of Concrete
P-620	Airfield Marking		Check Layout and Coverage	N/A	N/A
D-701	Reinforced Concrete Pipe		Compaction of Backfill - Sandcone (Acceptance) Check Compliance Certification	D 1557	Laboratory Compaction

OROVILLE MUNICIPAL AIRPORT
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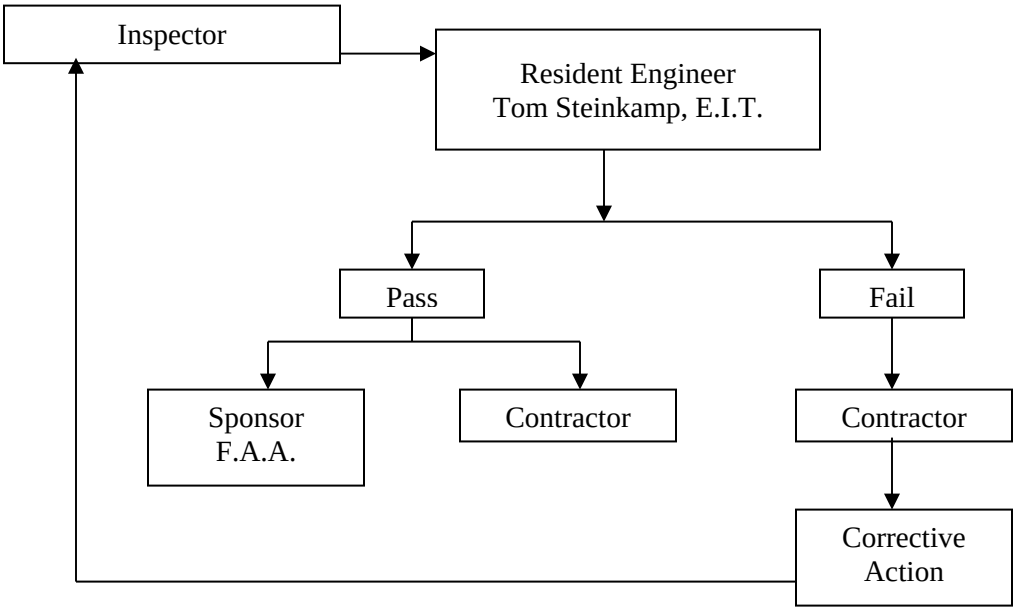
FLOW CHART – QUALITY ASSURANCE RESPONSIBILITIES

(Between Resident Engineer and Contractor)



PAY FACTORS

Crushed Aggregate Base Course – If grade is more than 3/8-inch high, the Contractor shall either remove this excess material at no cost to the Owner, or at the option of the Engineer the material may be left in place, but the quantity of this excess material will be deducted from the price paid to the Contractor. If grade is more than 3/8-inch low, the existing section shall be scarified, additional base course added, and the total section recompacted.

Bituminous Surface Course – ***Basis of Pay Adjustment – PWL*** **-** The pay factor for each individual lot shall be calculated in accordance with Table 6 of paragraph 401-8.1 of the specifications. A pay factor shall be calculated for mat density joint density and air voids. The lot pay factor shall be the higher of the three values when calculations for mat density joint density and air voids are 100 percent or higher. The lot pay factor shall be the average of the three values when only two of the calculations for mat density joint density or air voids is 100 percent or higher. The lot pay factor shall be the lower of the three values when two or more of the calculations for mat density joint density and air voids are less than 100 percent. If PWL of the mat density, joint density or air voids is less than 55, then at the option of the Engineer the lot shall be rejected or allowed to remain and paid for at 50 percent for the total lot. If PWL for joint density is less than 71 then the lot pay factor shall be reduced by 5% but be no higher than 95%.

PRICE ADJUSTMENT SCHEDULE	
Percentage of Material Within the Specification Limit (PWL)	Lot Pay Factor (Percent of Contract Unit Price) [1]
96-100	106
90-95	PWL + 10
75-89	0.5 PWL + 55
55-74	1.4 PWL – 12
Below 55	Reject[2]

[1]Although it is theoretically possible to achieve a pay factor of 106 percent for each lot, actual payment above 100 percent shall be subject to the total project payment limitation specified in paragraph 401-8.1.

[2]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 lot shall not be removed, and it will be paid for at 50 percent of the contract price AND THE TOTAL PROJECT PAYMENT LIMITATION SHALL BE REDUCED BY THE AMOUNT WITHHELD FOR THE REJECTED LOT.

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 or tonnage paid. Payment in excess of 100% for accepted lots of HMA shall be used to offset payment for accepted lots of bituminous concrete pavement that achieve a lot pay factor less than 100%.

The total project payment for plant mix bituminous concrete pavement will not exceed 106 percent of the product of the contract unit price and the total number of tons of bituminous mixture used in the accepted work.

Drainage Materials – Payment for accepted runway safety area grading will be made by the square yard at unit price bid. Payment for accepted drainage materials, such as storm drain pipe, headwalls, etc. will be measured in place and paid for at unit prices bid.

IX. TEST RESULT DOCUMENTATION

INSPECTION DOCUMENTATION

A. Contractor Tests and Inspections

The Contractor shall maintain current 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.

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

Test results from each day's work period shall be submitted to the Resident Engineer prior to the start of the next day's work period. The Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible Quality Control Manager and the Contractor.

Each week the Contractor will provide Summary Reports to the Resident Engineer for testing on each product – subbase, base, pave

The Contractor Superintendent shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Project Engineer. These technician's daily reports shall provide factual evidence that continuous inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description;
(2) Weather conditions;
(3) Compliance with approved submittals;
(4) Proper storage of materials and equipment;
(5) Proper operation of all equipment;
(6) Adherence to plans and technical specifications;
(7) Review of quality control tests;
(8) Safety inspection; and
(9) Test reports.

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 Manager and the Contractor. The Resident Engineer shall be provided at least one copy of each daily inspection report before the work starts on the following the day of record.

B. Quality Assurance Tests and Inspections

The Resident Engineer shall maintain current quality assurance 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.

Daily and weekly summary test reports will be prepared and furnished to Sponsor and Contractor.

The forms to be used for these records are included in this section of the Construction Management Plan.

C. Final Test Reports

After completion of the project and before final payment is made, all test data from the Contractor's Quality Control Testing for each material used on the project shall be summarized in tabular form and submitted to the Resident Engineer.

Copies of typical test reports for each item of work are attached.

Quality Assurance tests only shall be used in the determination of pay factors for any material or for acceptance or rejection of any portion of the work.

REINARD W. BRANDLEY - LOOMIS, CALIFORNIA

FIELD DENSITY TESTS & COMPACTION CONTROL

JOB NAME: _____ DATE: _____ DAY: _____

JOB NUMBER: _____ SOIL CLASSIFICATION: _____

	Test No.								
	Date of Test								
	Location (use back if needed)								
	Lift								
	Elevation								
A	Wet Soil - gm								
B	Sand, start - gm								
C	Sand, end - gm								
D	Vol. Ring - gm								
E	Sand, end – ring - gm (C – D)								
F	Sand in Hole - gm (B - E)								
G	Density Sand - lb/cu ft								
H	Wet Density - lb/cu ft (A/F) * G								
	Est. Moisture - %								
	Tare No.								
I	Wet Wt. – Tare								
J	Dry Wt. – Tare								
K	Wt. Water (I - J)								
L	Wt. Tare								
M	Wt. Dry Soil (J - L)								
N	Water - % (K/M)								
O	Dry Density - lb/cu ft [H/(1 – H)]								
P	Max Dry Density - lb/cu ft								
	Optimum Moisture - %								
	Relative Compaction - % [(O/P) x 100]								

Depth of Fill Remaining _____ REMARKS _____

Job Progress - % Completed _____ _____

Inspector _____ Time _____ Mileage _____

REINARD W. BRANDLEY * CONSULTING AIRPORT ENGINEER
FIELD ACCEPTANCE TESTING

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPROVEMENTS AND RUNWAY 20 SAFETY AREA GRADING

AIP NO 3-06-0178-__

SUMMARY OF FIELD COMPACTION TEST RESULTS
(i.e. Aggregate Base Course)

Test No.	Date	Northing	Easting	Elevation	Moisture Content (Percent)	Dry Density (pcf)	Maximum Dry Density (pcf)	Relative Compaction (percent)	Remarks
SPECIFICATION								***98% Min.***	

OROVILLE MUNICIPAL AIRPORT
OROVILLE, CALIFORNIA

RUNWAY 2-20 DRAINAGE IMPORVEMENTS AND RUNWAY 20 SAFETY AREA GRADING

AIP NO. 3-06-0003-__

ASPHALTIC CONCRETE TEST SUMMARY

Date	Location			Lot No.	Sublot No.	Tonnage	Max. Density (pcf)	Relative Compaction (%)		Flow (0.01")	Stability (lbs.)	Stability/ Flow	% Air Voids
	Area	Station	Offset					Mat	Joint				
SPECIFICATION								***96.3 Min.***	***93.3 Min.***	***8-16***	***2,150 Min.***	***200 Min.***	***2-5***

Oroville Muncipal Airport
Runway 2-20 Drainage Improvements and Runway 20 Safety Area Grading
AIP No. 3-06-0178-__
Bituminous Surface Course Payment Schedule Calculations

				L		200	2.0%	96.3%	93.3%
				U			5.0%		

Date	Lot-Sublot	Load	Sample Location	Lift	Stability	Stab/Flow	Air Voids	Mat Density	Joint Density
						Average			
						Std. Dev.			
						QL			
						QU			
						PL			
						PU			
						PWL			
						% Pay			
					Total	% Pay			

						Average			
						Std. Dev.			
						QL			
						QU			
						PL			
						PU			
						PWL			
						% Pay			
					Total	% Pay			

						Average			
						Std. Dev.			
						QL			
						QU			
						PL			
						PU			
						PWL			
						% Pay			
					Total	% Pay			

FINAL ENGINEER'S REPORT

At the end of the project the Resident Engineer shall submit a final inspection and quality assurance report documenting the results of all inspections performed by the Sponsor's Quality Assurance Program. Those inspections that showed deficiencies or did not meet the applicable standard shall be highlighted and corrective action noted. The report shall include the pay quantities paid and justification for accepting any out-of-tolerance materials.

At the completion of the project the Engineer will submit a Final Engineer's Report and Record Drawings. The summary inspection results of all Quality Control and Quality Assurance inspection will be included in this report. Included in this final report will be the following:

A. Scope of Work – Describing location, work constructed, and deleted work.

B. Engineering – Describing all engineering and inspection work. Shall include agreement date, amount, and FAA approval of any amendments.

C. Administrative – Describing all administrative work and costs.

D. Force Account/Change Order Work – Breakdown of all work performed and costs and FAA approval date.

E. Construction:

1. Summary of construction costs including as-bid, as-constructed, and any changes.
2. Narrative describing construction sequence, problems, and conditions.
3. Change orders and supplemental agreements.
4. Schedule information including dates for award, Notice to Proceed, contract time, and actual completion time.
5. Statement of compliance with labor clauses.
6. Completion:
   a. Final quantities
   b. Liquidated damages, if any
   c. As-built drawings
   d. Final inspection report
   e. Contractor statement that no further payment is due and subcontractors are paid in full and no liens exist or are pending.

F. Summary of Inspections:

Acceptance inspection summary sheets.

G. Summary of Project Costs – Final payment summary worksheet