TECHNICAL SPECIFICATIONS FOR OCEANSIDE MUNICIPAL AIPORT FENCE PROJECT

Bid Set

For

The City of Oceanside, CA
November 8, 2013

By

HNTB

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ITEM G-10

DEFINITION OF TERMS

Whenever the following terms are used in these specifications, in the contract, or 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 AIP. The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

10-05 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area 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 means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas, and includes a heliport.

10-07 ASTM. The American Society for Testing and Materials.

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: The Advertisement; The Contract Form; The Proposal; The Performance Bond; The Payment Bond; any required insurance certificates; The Specifications; The 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 calendar days or 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 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-18 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.

10-19 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.

10-20 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 the intended scope of the contract as previously modified.



10-21 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/her duly authorized representative.

10-22 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.

10-23 FORCE ACCOUNT. Force account construction work is construction that is accomplished through the use of material, equipment, labor, and supervision provided by the Owner or by another public agency pursuant to an agreement with the Owner.

10-24 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.

10-25 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of 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.

10-26 LABORATORY. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer.

10-27 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 taxing on the airport surface.

10-28 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 award contract. All other items shall be considered minor contract items.

10-29 MATERIALS. Any substance specified for use in the construction of the contract work.



10-30 NOTICE TO PROCEED. 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.

10-31 OWNER. The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. For AIP contracts, the term "sponsor" shall have the same meaning as the term "Owner." Where the term "Owner" is capitalized in this document, it shall mean airport owner or sponsor only.

10-32 PAVEMENT. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-33 PAYMENT BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-34 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-35 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.

10-36 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-37 PROPOSAL. 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.

10-38 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.

10-39 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-40 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.

10-41 SPONSOR. See definition above of "Owner."



10-42 STANDARD SPECIFICATIONS – The 2012 edition of the Standard Specifications for Public Works Construction, including all supplements, as written and promulgated by the Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California District of the Associated General Contractors of California. Copies of the Standard Specifications are available from the publisher, Buildings News, Incorporated, 3055 Overland Avenue, Los Angeles, CA 90034, 1-888-264-7483.

10-43 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.

10-44 SUBGRADE. The soil that forms the pavement foundation.

10-45 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.

10-46 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 percent, 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.

10-47 SURETY. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

10-48 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 or aircraft parking areas.

10-49 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.

10-50 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, Saturdays, Sundays and holidays on which the Contractor's



forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

END OF ITEM G-10



ITEM G-20

PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT (Notice to Bidders).

(See **SECTION 1: NOTICE INVITING SEALED BIDS** of the Contract Documents)

20-02 PREQUALIFICATION OF BIDDERS. Each bidder shall furnish the owner satisfactory evidence of his/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/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 Contractor'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/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 his/her (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 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 hereinbefore specified. 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.** Contractor default under previous contracts with the Owner.
- **d.** 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 agrees 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 the subsection titled ALTERATION OF WORK AND QUANTITIES of Section G-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. He shall satisfy himself 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.

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 he proposes to do 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 his/her 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 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 that 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.
- **f.** 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.

To be determined responsible, a prospective contractor must—

- (a) Have adequate financial resources to perform the contract, or the ability to obtain them
- (b) Be able to comply with the required or proposed delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments;
- (c) Have a satisfactory performance record (see 48 CFR 9.104–3(b) and part 42, subpart 42.15). A prospective contractor shall not be determined responsible or nonresponsible solely on the basis of a lack of relevant performance history, except as provided in;
- (d) Have a satisfactory record of integrity and business ethics;
- (e) Have the necessary organization, experience, accounting and operational controls, and technical skills, or the ability to obtain them (including, as appropriate, such elements as production control procedures, property control systems, quality assurance measures, and safety



programs applicable to materials to be produced or services to be performed by the prospective contractor and subcontractors) (see 48 CFR 9.104–3(a));

- (f) Have the necessary production, construction, and technical equipment and facilities, or the ability to obtain them (see 48 CFR 9.104–3(a)); and
- (g) Be otherwise qualified and eligible to receive an award under applicable laws and regulations.

20-09 BID GUARANTEE. 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.

20-10 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 before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-11 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 telegram 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.

20-12 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 telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-13 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 the subsection titled ISSUANCE OF PROPOSAL FORMS of this section.

END OF ITEM G-20



ITEM G-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 titled IRREGULAR PROPOSALS of Item G-20
- **b.** If the bidder is disqualified for any of the reasons specified in the subsection titled **DISQUALIFICATION OF BIDDERS** of **Item G-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 60 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.

This project will be funded by a federal grant for the AIP program, therefore no award shall be made until the FAA has concurred in the Owner's recommendation to make such award and has approved the Owner's proposed contract to the extent that such concurrence and approval are required by 49 CFR Part 18.

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 hereinbefore specified in the subsection 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 contracts bonds as specified in the subsection 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.

The performance and payment bonds shall be in the full amount of the awarded 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 the subsection titled **REQUIREMENTS OF CONTRACT BONDS** of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder. If the contract is mailed, special handling is recommended.

49 CFR Part 26 provides that each contract the owner signs with a contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

The contractor, sub-recipient 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 Department of Transportation (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.



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 15 calendar day period specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS 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.

END OF ITEM G-30



ITEM G-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 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25 percent 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 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.

All supplemental agreements shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds \$2,000. However, if the Contractor elects to waive the limitations on work that increase or decrease the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of Labor wage determination as was included in the originally awarded contract.

All supplemental agreements shall 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 nonperformed, 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 the subsection titled PAYMENT FOR OMITTED ITEMS of Item G-90.

40-O4 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, he may order the Contractor to proceed with Extra Work by force account as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Item G-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 hereinbefore defined in the subsection titled SUPPLEMENTAL AGREEMENT of Item G-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. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled LIMITATION OF OPERATIONS of Item G-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 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Item G-70.

With respect to his/her own operations and the operations of all his/her 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.

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 furnish erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

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.

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 the subsection 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, he 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 his/her 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., he 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 his/her use of such material so 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 CLEANING UP. 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. He 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.

END OF ITEM G-40



ITEM G-50

CONTROL OF WORK

50-O1 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 Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for the under contract.

The Engineer does not have the authority to accept airfield 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/her 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 his/her 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 good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (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 prosecution 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 FAA, to use good 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; contract general provisions shall govern over cited standards for materials or testing, and cited FAA advisory circulars; plans shall govern over cited standards for materials or testing and cited FAA advisory circulars. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited standards for testing occur due to the timing of changing, editing, and replacing of standards. In the event the Contractor discovers any apparent discrepancy within standard test methods, he shall immediately call upon the Engineer for his/her 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 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. He 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 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 his/her 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 by him 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 layouts required for the construction of the work. Such stakes and markings as the Engineer may set for either his/her own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or his/her 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 weekly copies of the survey notes to the Engineer so that the Engineer may check them as to accuracy and method of staking. All areas that are staked by the Contractor must be checked by the Engineer prior to beginning any work in the area. The Engineer will



make periodic checks of the grades and alignment set by the Contractor. In case of error on the part of the Contractor, or his/her employees, resulting in establishing grades and/or alignment that are not in accordance with the plans or established by the Engineer, all construction not in accordance with the established grades and/or alignment shall be replaced without additional cost to the Owner.

No direct payment will be made, unless otherwise specified in 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.** Fence lines at 100-foot stations.

Note: 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 48 hours following the breakdown or malfunction, provided this 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 representatives 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 his/her 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 complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions 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 that 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 the subsection 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 the subsection titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Item G-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 given, 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.

Control of Work



Upon failure on the part of the Contractor to comply forthwith 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 that 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. This 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 the subsection 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 Owner 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, he 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, he may accept it as being completed, 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 completed 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 him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his/her intention to claim such additional compensation before he begins the work on which he 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 his/her 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.

END OF ITEM G-50



ITEM G-60

CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on 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 source of supply before delivery is stated. 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.

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. Unless otherwise designated, 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, tests in accordance with the cited standard methods of ASTM, 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 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. Unless otherwise designated, samples 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 his/her request.

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 certificates 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/her 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/her 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 he 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.

60-06 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 used in the work.

60-08 OWNER FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (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.

END OF ITEM G-60



ITEM G-70

LEGAL REGULATIONS 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. He 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 his/her 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 himself or his/her employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution 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, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save 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-O4 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:

- **a.** Owner (Utility or Other Facility)
- **b.** Location (See Plan Sheet No.)
- **c.** Person to Contact (Name, Title, Address and Phone)



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 so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the 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 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 States 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 Administrator, FAA, 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 that 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 the subsection titled MAINTENANCE OF TRAFFIC of Item 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled LIMITATION OF OPERATIONS of Item 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 shall be a maximum of 18 in high. Unless otherwise specified, barricades shall be spaced not more than 25 feet apart. Barricades, warning signs, and markings shall be paid for under Item 40-05.

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 of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

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 AC 150/5340-1, Standards for Airport Markings.

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

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



The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer. Open-flame type lights shall not be permitted within the air operations areas of the airport.

70-09 USE OF EXPLOSIVES. Use of explosives is prohibited

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 prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will 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 non-execution thereof by the Contractor, he 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 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 as aforesaid 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 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:

- a. Phase or Description
- **b.** Required Date or Sequence of Owner's Beneficial Occupancy
- c. Work Shown on Plan Sheet

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection titled PARTIAL ACCEPTANCE of Item 50.

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 provision 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 AC 150/5370-2, Operational Safety on Airports During Construction (See Special Provisions.)



Contractor shall refer to the approved safety plan 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 the subsection titled PARTIAL ACCEPTANCE of Item 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 non-execution 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 the public enemy or of government 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, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in the subsection 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.

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 his/her 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 the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. 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 commencing 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 days' notice hereinabove provided 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, he 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 his/her operations whether or not 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.

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 to him by this contract, there shall be no liability upon the Engineer, his/her authorized representatives, or any officials 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. He 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. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior. Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, he 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 his/her 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 modification (change order or supplemental agreement) as provided in the subsection titled EXTRA WORK of Item 40 and the subsection titled PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK of Item 90. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Item 80.

END OF ITEM G-70



ITEM G-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.

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. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer.

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

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.

80-03 PROSECUTION 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 prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.



For AIP contracts, 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 the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Item 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 hereinafter 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:

- **a.** AOA
- **b.** Time periods AOA can be closed
- c. Type of communications required when working in an AOA
- **d.** Control authority

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 provisions set forth within the current version of Advisory Circular 150/5370-2. The Contractor shall prepare and submit a safety plan that details how it proposes to comply with the requirements.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks of the safety plan measures to assure compliance with the safety plan 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 safety plan and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved safety plan 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 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 prosecution 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, he 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 he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution 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. He 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 calendar or 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).
- **b.** The Engineer shall base his/her 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 the subsection titled FINAL ACCEPTANCE of Item 50.
 - (5) The Contractor will be allowed 1 week in which to file a written protest setting forth his/her objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.
- **c.** The contract time (stated in the proposal) is based on the originally estimated quantities as described in the subsection titled INTERPRETATION OF ESTIMATED PROPOSAL



QUANTITIES of Item 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.

- **d.** 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.
- **e.** 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.
- **f.** When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.
- g. 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 Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded which could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. 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 the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Item) 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 each construction phase is specified in Section 160-07 CONSTRUCTION SEQUENCING.

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, **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 judgment 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.
- **j.** Should the Engineer consider the Contractor in default of the contract for any reason hereinbefore, he 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 prosecution 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 prosecution 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 insure safety and a minimum of hindrance to flight operations. All Contractor equipment and material stockpiles shall be stored a minimum or 250 feet from the centerline of an active runway. 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 an active runway at any time.



END OF ITEM G-80



ITEM G-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 material 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 sq ft 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 such 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 sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of in.

The term "ton" will mean the short ton consisting of 2,000 lb avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the 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 to the Engineer, 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 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 or ton. When measured by volume, such volumes will be measured at 60 °F (15 °C) or will be corrected to the volume at 60 °F (15 °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 or hundredweight.

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 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 the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT 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.

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 prosecution thereof, subject to the provisions of the subsection titled NO WAIVER OF LEGAL RIGHTS of Item 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 the subsection titled ALTERATION OF WORK AND QUANTITIES of Item 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 the subsection titled OMITTED ITEMS of Item 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 nonperform 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 the amount of such costs.

90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. Extra work, performed in accordance with the subsection titled EXTRA WORK of Item 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance for overhead and profit.

- 1. **Miscellaneous**. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
- 2. **Comparison of Record**. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.
- 3. **Statement**. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:
 - a. Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.
 - b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - c. Quantities of materials, prices, and extensions.
 - d. Transportation of materials.
 - e. Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.
- 4. Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such



materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

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 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.

The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 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 30 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, 10 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 the subsection titled PAYMENT OF WITHHELD FUNDS of this section. The balance of the amount payable, less all previous payments, shall be certified for payment. Should the Contractor exercise his/her option, as provided in the subsection titled PAYMENT OF WITHHELD FUNDS of this section, no such 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.

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 the subsection 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 any time 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 the subsection titled FINAL ACCEPTANCE of Item 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 his/her 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 the subsection titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Item 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, 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 payments 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 the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Item 50 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.

END OF ITEM G-90



ITEM G-100

CONTRACTOR QUALITY CONTROL PROGRAM

100-01 GENERAL. When the specification requires a Contractor Quality Control Program, 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, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed.

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

100-02 DESCRIPTION OF PROGRAM.

a. General Description. The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the technical specifications,

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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 at least **20** calendar days before the **preconstruction conference**.

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

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

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

100-03 QUALITY CONTROL ORGANIZATION. The Contractor 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.

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

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

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

Additional qualifications for the Program Administrator shall include at least 1 of the following requirements:

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



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

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

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

- (1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 100-06.
- **(2)** Performance of all quality control tests as required by the technical specifications and Section 100-07.

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), 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 (e.g., mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

- **a.** Specification item number;
- **b.** Item description;
- **c.** Description of submittal;
- d. Specification paragraph requiring submittal; and
- e. 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 Section 100-07.

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

- **a.** During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.
- **b.** During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.

100-07 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 (e.g., C-1);
- **b.** Item description (e.g., Plant Mix Bituminous Pavements);
- **c.** Test type (e.g., gradation, grade, asphalt content);
- **d.** Test standard (e.g., ASTM or AASHTO test number, as applicable);
 - **e.** Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);
- f. Responsibility (e.g., plant technician); and
- g. Control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples 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 Section 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 on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence



that continuous quality control inspections have been performed and shall, as a minimum, include the following:

- (1) Technical specification item number and description;
- (2) Compliance with approved submittals;
- (3) Proper storage of materials and equipment;
- **(4)** Proper operation of all equipment;
- (5) Adherence to plans and technical specifications;
- (6) Review of quality control tests; and
- (7) Safety inspection.

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

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

- **b. Daily Test Reports.** The Contractor shall be responsible for establishing a system that 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 utilize 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 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 ITEM G-100



ITEM G-140

MOBILIZATION

DESCRIPTION

140-1.1 GENERAL. This item shall consist of the preparatory work and miscellaneous support operations required for beginning work on the Project; for the subsequent demobilization and removal of these items at the conclusion of the project; and for various support work throughout the project.

Payment for these items shall be paid in accordance with Section 140-2.1.

- 140-1.2 MOBILIZATION/DEMOBILIZATION. Mobilization shall include, but shall not be limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the Project Site, and for the establishment of temporary offices, fencing and access gates, staging areas, employee parking lots, stockpile areas, access and haul roads, building facilities, utilities including provision of utility services from utility providers, safety equipment and first aid supplies, sanitary and other facilities, as required by the Contract Drawings, Specifications, and by all Federal, State and local laws and regulations. This item shall include any contractor badging of contractor's employees and any security screening of equipment and crews as required maintaining the required site security. It shall also include any preparatory work not included in other bid items below. Demobilization shall include removal of construction facilities, including all utilities and equipment off the Site, and final cleanup of the Site after completion of the Project. Ninety percent of the pay item will be paid after completion of mobilization tasks, with 10% retained for satisfactory demobilization at the completion of the project.
- **140-1.3 SCHEDULE PREPARATION.** This item shall cover all costs for labor, materials and incidentals related to the development and monthly updating of a detailed Critical Path Method construction schedule to the satisfaction of the Engineer.
- **140-1.4 PERMITS.** This item shall cover the acquisition, and payment of fees, for all permits required for the project.
- **140-1.5 INSURANCE.** This item shall cover the acquisition and maintenance of all insurance required for the project



140-1.6 AIRFIELD CONSTRUCTION AREA CONTROL. This item shall cover all costs of labor, materials and incidentals necessary for maintaining operational safety on the airfield to the requirements of the FAA, airport management, and these specifications.

140-1.7 DUST CONTROL. This item shall cover all costs of labor, materials and incidentals necessary for maintaining sweepers and water trucks to otherwise ensure control of Foreign Object Damage on the airport to the requirements of the FAA, airport management, and these specifications.

Vehicles exiting the Site shall have all dirt clods and haul routes mud removed from their tires.

The Contractor shall contain dust and remove it from the Site at intervals sufficient to prevent contamination outside work limits and as directed by the Engineer. The Contractor shall use adequate watering techniques to alleviate accumulation of construction-generated dust.

BASIS OF PAYMENT

140-2.1 The work and incidental costs covered under this item will be paid at the contract lump sum price for each item of work and shall include the costs for all labor, materials, supervision and incidentals necessary to complete the work in conformance with these specifications and to the satisfaction of the Engineer.

Payment shall be made under:

Item G-140-1 Mobilization/Demobilization per lump sum

END OF ITEM G-140



ITEM G-160

PROJECT PHASING

100-01 GENERAL The Contractor shall perform all work in accordance with the construction phasing plans as shown on the plans and as described herein. The plans and descriptions are intended to give a general outline of the order in which the work is to be accomplished, and to set forth operating restrictions which will be in effect for each Phase. Neither the phasing plans, nor the descriptions contained in this section, are intended to be a comprehensive list of work items. It is the Contractor's responsibility to anticipate upcoming work and to coordinate his operations and schedule accordingly to ensure a timely flow of construction operations. The Contractor's schedule shall be submitted to the Engineer prior to commencement of construction as required under these Specifications. The Contractor's Schedule shall be based upon furnishing sufficient labor, equipment, and materials that will allow all work to be completed within the contract time limit.

The Contractor shall closely coordinate and schedule work with other Contractors completing work on the airfield, utility companies, and other affected parties. Prior to preparing the construction schedule and regularly during the construction, the Contractor shall meet with the Engineer to discuss other work occurring on the airfield. The Contractor shall incorporate into the construction schedule any required restrictions or dates required to make sure that no conflicts with other Contractors occur. The contractor shall protect their construction entrance and shall install those portions of fence as required, when the construction entrance will no longer be needed.

The Contractor shall perform improvements within each Phase in the order presented in this section, and shall complete each Phase within the periods of time specified. Included in the Phase time allotment is the cure time for any epoxy, paints, cement, etc. required for approval by the Engineer. As described below, some Phases shall be completed and inspected by the Engineer prior to commencement of other phases of work. Liquidated damages in the amounts specified in the specifications shall be assessed if the Contractor fails to complete all Phases within the specified allowable duration.

The word "Phase" is used hereafter to describe either the period of time, and/or the area in which certain work is to be done. These are indicated on the plans and herein with numeric or alpha-numeric labels. The most demanding operational restrictions or



closures of adjacent terminal apron areas, as outlined below for each Phase, shall apply regardless of other concurrent work in progress. The term "Predecessor" used in the descriptions below identifies Phases for which all work must be completed, and in some cases, the area opened to aircraft traffic before work in the Phase under discussion can begin. Earliest start date, as used in the descriptions below, identifies Phases for which no work may begin until all work in the Phase under discussion has been completed, beneficial occupancy granted, and the area opened to aircraft traffic.

PROJECT PHASING

160-02 WORK WITHIN PHASE LIMIT LINES The Contractor shall maintain conditions for Runway and Taxiway safety areas, Obstacle Free zones (OFZ), object free areas (OFA), and approach surfaces are described in FAA Advisory Circular AC 150/5300-13.

- **a.** Runway Safety Area (RSA). The RSA for Runway 6-24 is 120 feet wide, centered on the runway centerline, and extends 240 feet beyond the runway ends. No construction may occur within the existing RSA while the runway is open for aircraft operations.
- **b.** Taxiway Safety Area (TSA). The TSA is 49 feet wide centered on the centerline of the taxiway. No construction may occur within the existing TSA while the taxiway is open for aircraft operations.
- c. Runway Object Free Area/Object Free Zone (ROFA/ROFZ). The ROFA is centered about the runway centerline, 250 feet wide, extending 240 feet beyond the runway end. Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The ROFZ is a defined volume of airspace centered above the runway centerline, above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The ROFZ extends 200 feet beyond each end of the runway, and its width is 250 feet for Runway 6-24. In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. The Airport shall coordinate with the FAA through the appropriate FAA Airports Regional or District Office.



- **d.** Taxiway Object Free Area (TOFA). The TOFA is centered about the taxiway centerline 89 feet wide. Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.
- e. Runway Approach/Departure Areas and Clearways. All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in Appendix 2, "Threshold Siting Requirements," of AC 150/5300-13.

The Engineer shall retain the right to shut down Contractor operations in any Phase if these conditions are not being met.

160-03 OPERATIONS The Contractor shall conduct all his earthwork construction in such a manner to minimize airborne dust pollution, and shall implement dust control measures as outlined in Section G-140 of these specifications.

Phases, which are not under construction, shall be accessible and operational at all times unless otherwise approved by the Engineer.

The Contractor shall work closely with Airport Operations personnel and the Engineer to ensure that the work is accomplished with minimal interference to aircraft and vehicle movements.

Elements of the various Phases as shown on the Construction Phasing Plans shall be constructed in accordance with the schedule and sequence outlined on the plans and in this Section. The duration period shown in each schedule is the maximum time allowed for completion of each Phase. Mobilization will be the first work activity the Contractor will be required to perform under the contract prior to beginning any Phase as outlined below. See Section G-140 of these specifications for a list of work tasks considered necessary for completion of Mobilization.

160-04 AIRFIELD SECURITY

Basic security requirements shall include, but may not be limited to:

a. The gates shall be opened to allow vehicular passage, and closed at all other times.



- b. All vehicles must have an approved logo or company name displayed on both sides of the vehicle.
- c. A driver's license is required for all drivers.
- d. All Contractors, equipment and vehicles entering the Airport Property must display a checkered flag mounted firmly on the highest part of the vehicle. Flags shall be replaced when they become worn and tattered as directed by the engineer.
- e. Vehicle inspections for all project vehicles entering the Airport Property
- f. No one is allowed to enter the Airport Property unless, at a minimum, the preceding conditions are met.

OPENING SECTIONS OF THE WORK

COMPLETION OF PHASES The Contract work on this project will be accepted for beneficial occupancy on a Phase basis. Each Phase of the work as specified hereafter, and as shown on the plans, shall be completed within the period of time specified. As each Phase is completed, the Contractor shall request, in writing, that the Engineer accept beneficial occupancy of that portion of the work. If the Engineer deems the work to be complete, a written notice of substantial completion and acceptance for beneficial occupancy will be given and the calculation of liquidated damages for that portion of the work will cease. If the Engineer deems that additional work is required on that Phase, but still accepts beneficial occupancy, contractor will be required to schedule with the engineer on the work hours to complete the final items on the Phase.

160-06 DAILY INSPECTION AT COMPLETION OF WORK SHIFT Conditions which Inspectors will consider potentially hazardous, and which must be corrected prior to reopening the runways and taxiways each morning, include:

a. Trenches, holes, or excavation on or adjacent to any open taxiway, taxilane or related safety area.



- b. Mounds or piles of earth, construction materials, temporary structures, or other objects on or in the vicinity of any open runway, taxiway, taxilane, or in a related safety, approach or departure area.
- c. Vehicles or equipment (whether operating or idle) on any open runway, taxiway, taxilane, or in any related safety, approach or departure area.
- d. Vehicles, equipment, excavations, stockpiles, or other materials which could impinge upon NAVAID critical areas and degrade or otherwise interfere with electronic signals from radios or electronic NAVAIDs or interfere with visual NAVAID facilities. NAVAID critical areas are shown on the plans.
- e. Unmarked utility, NAVAID, weather service, runway lighting, or other power or signal cables that could be damaged during construction.
- f. Objects (whether marked/flagged or not) or activities anywhere on or in the vicinity of airport which could be distracting, confusing, or alarming to pilots during aircraft operations.
- g. Unflagged/unlighted low visibility items (such as tall cranes, drills, etc.) in the vicinity of an active runway, or in any approach or departure area.
- h. Unlighted/unmarked obstruction in an approach to any open runway.
- i. Inadequate approach/departure surfaces (needed to assure adequate landing/takeoff clearance over obstructions or work or storage areas).
- j. Water, dirt, debris, or other transient accumulation which temporarily obscures pavement marking, pavement edges, or derogates the visibility of runway/taxiway marking, lighting or of construction and maintenance areas.
- k. Trash or other materials with foreign object damage (FOD) potential, whether on runways, taxiways, aprons or related safety areas.
- l. Inadequate fencing or other marking to separate construction or maintenance areas from open aircraft operating areas.
- m. Inadequate control of vehicle and human access, and non-essential, non-aeronautical activities, on open aircraft operating areas.



- n. Improper radio communication maintained between construction/ maintenance vehicles and Airport Operations.
- o. Bird attractants such as edibles (food scraps, etc.), trees, brush, other trash, grass/crop seeding, or pond water on or near the airport.
- p. Personnel at the construction site without proper identification.
- q. No escorts for persons at the job site without proper identification.
- r. Vehicles involved in the project that do not meet the safety requirements of airport rules and regulations.
- s. Improperly marked, lighted and flagged vehicles involved in the project.
- t. The time restrictions for all work shifts, including the nightly work shifts, are totally inclusive of the Contractor moving onto the site, performing work activities, performing all clean-up, having the Phase, pavements, and haul routes inspected and approved by the inspector(s) and moving off the site. The Contractor shall provide adequate lighting for the needs of the inspection personnel.

160-07 CONSTRUCTION SEQUENCING The Contractor shall perform all work in accordance with the construction phasing plans.

PHASE 1:

- A. Description of Phase 1 Mobilization and Construction within Phase 1 Limits
- B. Work to be done in Phase 1- Completion of all items of mobilization described in Section G-140, including:
 - 1. Set- up of Staging Area
 - 2. Obtain all permits
 - 3. Preparation of Requests for Information
 - 4. Preparation of Submittals



- 5. Procurement and transport of long lead construction materials to the job site.
- C. Other Conditions for Phase 1 -
 - 1. No work hour restrictions
 - 2. All utilities within and passing through the work area shall be kept operational at all times, unless otherwise specified.
- F. Earliest Start Date for Phase 1 Notice to Proceed (NTP)
- G. Time Allowed for Completion Phase 1 –45 Days from NTP

PHASE 2:

- A. Description of Phase 2 Construction within Phase 2 Limits.
- B. Work to be done in Phase 2- Completion of all items as shown on the plans within Phase 2 Limits.
- C. Other Conditions for Phase 2 -
 - 1. No work hour restrictions
 - 2. All utilities within and passing through the work area shall be kept operational at all times, unless otherwise specified.
- F. Earliest Start Date for Phase 2 Notice to Proceed (NTP). To be determined by the Airport.
- G. Time Allowed for Completion Phase 2 –20 Days.

PHASE 3:

- A. Description of Phase 3 Construction within Phase 3 Limits.
- B. Work to be done in Phase 3- Completion of all items as shown on the plans within Phase 2 Limits.
- C. Other Conditions for Phase 1 -
 - 1. No work hour restrictions



- 2. All utilities within and passing through the work area shall be kept operational at all times, unless otherwise specified.
- F. Earliest Start Date for Phase 3 Notice to Proceed (NTP). To be determined by the Airport.
- G. Time Allowed for Completion Phase 3 –20 Days from NTP

160-08 MEASUREMENT AND PAYMENT Phasing of the work as described herein will not be measured for payment. The Contractor shall make his own estimate of the inherent difficulties involved in completing the work under the conditions stated and shall not claim any added compensation by reason of delay or increased costs due to opening a portion of the contract work or for difficulties or costs associated with other staging considerations. No separate payment will be made for phasing the work under the requirements of this section

END OF ITEM G-160



ITEM P-150

DEMOLITION

DESCRIPTION

150-1.1 This item shall consist of the demolition, removal, and disposal of pavements, chain-link fence, gates and other miscellaneous items as described on the plans or as required by the Engineer.

CONSTRUCTION METHODS

150-2.1 GENERAL. Items to be demolished are indicated on the plans to the extent of information available. If other items are encountered in the course of constructions that require demolition, they will be considered incidental to the items identified for demolition in this section. All material, unless otherwise specified, become the property of the Contractor and shall be disposed of in a legal manner off the airport.

Pavements shall be saw cut and removed as indicated on the plans.

All other materials shall be removed as indicated on the plans.

The manner and location of disposal of materials shall be subject to the approval of the Engineer. When the Contractor is required to locate a disposal area outside the airport property limits at his/her own expense, he shall obtain and file with the Engineer, permission in writing from the property owner for the use of private property for this purpose. The Contractor shall provide documentation to the Owner that off-site disposal sites are in compliance with applicable environmental regulations.

150-2.2 REMOVAL OF EXISTING CHAIN LINK FENCE AND GATES. The

Contractor shall remove existing fence and gates as shown on the plans and as required to complete the installation of new fence or as directed by the engineer. The Airport property shall be secured at all times during the removal of the existing fence and gates and prior, to completing the installation of new fence and gates. The fence post shall be removed to a minimum of 4 inches below the existing grades and the hole filled with approved material and repaired with concrete or asphalt to match the existing pavement.

METHOD OF MEASUREMENT



150-3.1 Removal of Chain-link fence will be measured for payment by the linear foot. Measurement will be along the top of the fence from center to center of end posts, excluding the length occupied by gate openings.

Removal of Gates will be measured as complete units.

Removal of Existing AC Curb will be measured for payment by the linear foot.

BASIS OF PAYMENT

150-4.1 Payment for chain-link fence removal will be made at the contract unit price per linear foot.

Payment for gate removal will be made at the contract unit price for each gate.

Payment for AC curb removal will be made at the contract unit price per linear foot.

This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, permitting, and incidentals necessary to complete the item and shall include removal and off-site disposal.

All other miscellaneous demolition items not included in the basis of payment shall be considered incidental to the contract.

Payment will be made under:

Item P-150-1	Remove Existing Fence	per linear foot
Item P-150-2	Remove Existing Gate	per unit
Item P-150-3	Remove AC Curb	per linear foot

END OF ITEM P-150



ITEM P-151

CLEARING AND GRUBBING

DESCRIPTION

151-1.1 This item shall consist of clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Engineer.

Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the Engineer is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing by burning or otherwise.

CONSTRUCTION METHODS

151-2.1 GENERAL. The areas to be cleared and grubbed for the fence construction as specified in Section F-162, shall be staked on the ground by the Engineer. The clearing and grubbing shall be done at a satisfactory distance in advance of the grading operations and shall include stripping of grass, sod and the top 2 inches in the areas as indicated on the plans.

All spoil materials removed by clearing and grubbing shall be disposed of by removal to approved disposal areas. When burning of material is permitted, it shall be burned under the constant care of competent watchmen so that the surrounding vegetation and other adjacent property will not be jeopardized.

As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry that cannot be used in construction and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be



subject to the approval of the Engineer and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits at his/her own expense, he shall obtain and file with the Engineer, permission in writing from the property owner for the use of private property for this purpose.

No blasting will be allowed.

The removal of existing structure and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone or telegraph pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated, the Contractor shall advise the Engineer who will notify the proper local authority or owner and attempt to secure prompt action.

151-2.2 CLEARING AND GRUBBING. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed, except where embankments exceeding 3-1/2 feet in depth are to be made outside of paved areas. In cases where such depth of embankments is to be made, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off within 6 inches above the ground and allowed to remain. Tap roots and other projections over 1 inch in diameter shall be grubbed out to a depth of at least 18 inches below the finished subgrade or slope elevation.

All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required in Item P-152. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

METHOD OF MEASUREMENT

151-3.1 The quantities of clearing and grubbing as shown by the limits on the plans or as ordered by the Engineer shall be the number of acres or fractions thereof, of land specifically cleared or cleared and grubbed.

BASIS OF PAYMENT

151-4.1 Payment shall be made at the contract unit price per acre for clearing and



grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-151 Clearing and Grubbing.....per acre

END OF ITEM P-151



ITEM P-152

EXCAVATION AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required for construction, in accordance with these specifications and in conformity to the dimensions and typical section(s) shown on the plans.

Excavation and backfill required for the installation of Fence will not be measured for payment under this section but will be considered incidental to the fence items for which it is required.

152-1.2 CLASSIFICATION. All earthwork materials shall be classified as defined below:

152-1.2.1 Excavation Classifications:

- a. Unclassified Excavation. Unclassified excavation shall consist of the excavation and legal disposal of all material, regardless of its nature, which is not otherwise classified and paid for under other items.
 - Unclassified excavation shall include fine grading and compaction of upper soil levels under areas to be paved as described in 152-2.5, 152-2.6 and 152-2.7.
- b. Unsuitable Excavation includes localized overexcavation of soft and yielding or otherwise unsuitable soils from construction areas. It shall include any material containing vegetable or organic matter, such as muck, peat, organic silt, or sod, or material which is otherwise determined by the Engineer to be unsuitable for use in construction.

Soils shall be removed to the lines and grades as directed by the Engineer.

152-1.2.2 Embankment / Fill Classifications:

a. Select Material. When "select material", or "certified material", is specified on the plans, the more suitable material as designated by the Engineer



shall be used in constructing the embankment, in structure backfilling, or in capping the pavement subgrade. These selective materials shall be of the following quality, unless otherwise approved by the Engineer:

- 1) Maximum Size: 3 inch
- 2) Maximum Percent Passing #200 Sieve: 5%

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 in waste areas shown on the plans or legally offsite. All waste areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable areas of the airport, unless specified on the plans or approved by the Engineer.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued. 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.

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 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 elevations and measurements of the ground surface. All suitable excavated material shall be used in the formation of embankment, subgrade, or for other purposes shown on the plans. All unsuitable material shall be disposed of as shown on the plans, or legally 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 disposed of as directed. 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. 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 for potential use elsewhere on the project.
- b. Removal of Utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by someone other than the Contractor, e.g., the utility unless otherwise shown on the plans. All existing foundations shall be excavated for at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed. All foundations thus excavated shall be backfilled with suitable material and compacted as specified herein. See Demolition specification Section P-150.
- c. Compaction Requirements. The subgrade under embankment shall be compacted to a depth of 6 inches and to a density of not less than 95 percent of the maximum density for cohesive and 100 percent for noncohesive soils as determined by ASTM D 1557. The material to be compacted shall be within +/- 2 percent of optimum moisture content before rolled to obtain the prescribed compaction (except for expansive soils).

The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 2167. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade. The finished grading operations, conforming to the typical cross section, shall be completed and maintained at least 1,000 feet ahead of the paving operations or as directed by the Engineer.

In cuts, all loose or protruding rocks on the back slopes shall be barred loose or otherwise removed to line of finished grade of slope. All cut-and-fill slopes shall be uniformly



dressed to the slope, cross section, and alignment shown on the plans or as directed by the Engineer.

Blasting will not be permitted.

152-2.3 UNSUITABLE EXCAVATION (FOR SPECIAL SUBGRADE TREATMENT). In cut areas, where it is determined by the Engineer that soft and yielding soil conditions will prevent the Contractor from obtaining the required subgrade density, the Engineer may order these unsuitable soils to be removed. Materials shall be removed to the lines and grades indicated by the Engineer and the voids filled as described in Special Subgrade Treatment, 152-2.10.

152-2.4 PREPARATION OF EMBANKMENT AREA. Where an embankment is to be constructed to a height of 4 feet or less, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing or scarifying to a minimum depth of 6 inches. This area shall then be compacted as indicated in paragraph 152-2.5. When the height of fill is greater than 4 feet, sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

Where embankments are to be placed on natural slopes steeper than 3 to 1, horizontal benches shall be constructed as shown on the plans.

No direct payment shall be made for the preparation work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.5 FORMATION OF EMBANKMENTS. Embankments shall be formed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

The grading 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. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing, or other unsatisfactory conditions of the field. The



Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

The material in the layer shall be within +/-2 percent of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve a uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be required when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Sprinkling of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 1,000 cubic yards. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content in order to achieve the correct embankment density.

Rolling operations shall be continued until the embankment is compacted to not less than 95 percent of maximum density for noncohesive soils, and 90 percent of maximum density for cohesive soils as determined by ASTM D 1557. Under all areas to be paved, the embankments shall be compacted to a depth of 36 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D 1557.

If nuclear density machines are used, they shall be calibrated in accordance with ASTM D 2922. The nuclear equipment shall be calibrated using blocks of materials with densities that extend through a range representative of the density of the proposed embankment material. See Section G-120 of the General Provisions for additional guidance with nuclear density testing.

On all areas outside of the pavement areas no compaction will be required on the top 4 inches.

The in-place field density shall be determined in accordance with ASTM D 1556 or ASTM D 2167.

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 his equipment at all



times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, layer placement shall begin in the deepest portion of the fill; as placement progresses, layers shall be constructed approximately parallel to the finished pavement grade line.

There will be no separate measurement of payment for compacted embankment, except for backfill as itemized in 152-3.2, and all costs incidental to transporting material, 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, borrow, or other items.

152-2.6 FINISHING AND PROTECTION OF SUBGRADE. After the subgrade has been substantially completed, the full width shall be conditioned by removing any soft or other unstable material that will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to grade with suitable select 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 the subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. He shall limit hauling over the finished subgrade to that which is essential for construction purposes.

All ruts or rough places that develop in a completed subgrade shall be smoothed and recompacted.

No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

152-2.7 HAUL. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included 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.



METHOD OF MEASUREMENT

152-3.1 The quantity of excavation and embankment to be paid for shall be the number of cubic yards measured in its final position.

Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

BASIS OF PAYMENT

152-4.1 For Excavation/Embankment payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item

Payment will be made under:

Item P-152 Excavation/Embankmentper cubic yard

TESTING REQUIRMENTS

ASTM D 1556	Test for Density of Soil In Place by the Sand-Cone Method
ASTM D 1557	Test for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D 2167	Test for Density and Unit Weight of Soil In Place by the Rubber Balloon Method.

END OF ITEM P-152



ITEM P-206

PROCESSED MISCELLANEOUS BASE (PMB)

206-1 GENERAL

This item covers the construction of Processed Miscellaneous Base (PMB) haul road surfacing at the locations and to the lines and grades shown on the plans or as directed by the Engineer.

206-2 MATERIAL

Processed Miscellaneous Base shall conform to Section 200-2.5 of the Standard specifications. The Contractor shall provide material from approved sources. PMB shall be tested and approved by the Engineer prior to acceptance. PMB may be constructed of recycled materials.

The portion of the material passing the No. 40 sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested in accordance with ASTM D 4318.

206-3 CONSTRUCTION METHODS

Processed Miscellaneous Base shall be placed and compacted in horizontal layers not to exceed 6 inches in depth and shall be compacted per section 206-3.6 and in conformance with the Standard Specifications Section 301-2. The Contractor shall conduct his operations in a manner so as to minimize the production of dust, including the use of water as described in Item G-100 of these specifications.

206-3.1Preparing Underlying Course

Before any PMB material is placed, the underlying course shall be prepared and conditioned as specified per Item P-152 of these Specifications. The course shall be checked and accepted by the Engineer before placing and spreading operations are started.

206-3.2 Materials Acceptance in Existing Condition

When the entire PMB material is secured in a uniform and satisfactory condition and contains approximately the required moisture, such approved material may be moved directly to the spreading equipment for placing. All PMB materials shall meet the requirements for gradation, quality, and consistency. It is the intent of this section of the specifications to secure materials that will not require further mixing. The moisture content of the material shall be approximately that required to obtain maximum density. Any minor deficiency or excess of moisture may be corrected by surface sprinkling or by aeration. In such instances, some mixing or manipulation may be required,



immediately preceding the rolling, to obtain the required moisture content. The final operation shall be blading or dragging, if necessary, to obtain a smooth uniform surface true to line and grade.

206-3.3 Plant Mixing

When materials from several sources are to be blended and mixed, the PMB material shall be processed in a central or travel mixing plant. The PMB material, together with any blended material, shall be thoroughly mixed with the required amount of water. After the mixing is complete, the material shall be transported to, and spread on, the underlying course without undue loss of the moisture content.

206-3.4 Mixed in Place

When materials from different sources are to be proportioned and mixed or blended in place, the relative proportions of the components of the mixture shall be as necessary to meet the gradation and soil constants specified above.

The PMB material shall be deposited and spread evenly to a uniform thickness and width. Then the binder, filler or other material shall be deposited and spread evenly over the first layer. There shall be as many layers of materials added as may be necessary to obtain the required PMB mixture.

When the materials have been placed, they shall be thoroughly mixed and blended by means of graders, discs, harrows, rotary tillers, supplemented by other suitable equipment if necessary. The mixing shall continue until the mixture is uniform throughout. Areas of segregated material shall be corrected by the addition of binder or filler material and by thorough remixing. Water in the amount and as directed by the Engineer shall be uniformly applied prior to, and during, the mixing operations, if necessary, to maintain the material at its required moisture content. When the mixing and blending has been completed, the material shall be spread in a uniform layer which, when compacted, will meet the requirements of thickness and typical cross section.

206-3.5 General Methods for Placing

The PMB course shall be constructed in layers. Any layer shall be not less than 3 inches nor more than 6 inches in compacted thickness. The material, as spread, shall be of uniform gradation with no pockets of fine or coarse materials. The PMB, 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 this limit. No material shall be placed on a soft or muddy course.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.



During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, shoulder, or foreign material into the subbase course mixture.

206-3.6 Finishing and Compacting

After spreading or mixing, the PMB material shall be thoroughly compacted by rolling and sprinkling, when necessary. Sufficient rollers shall be furnished to adequately handle the rate of placing and spreading of the subbase course.

The field density of the compacted material shall be at least 95 percent of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite for airfield pavement bases or subbases, and at least 95 percent of the maximum density of laboratory specimens prepared from samples of the surface material delivered to the jobsite for haul roads. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The in-place field density shall be determined in accordance with ASTM D 1556. The moisture content of the material at the start of compaction shall not be below nor more than 1-1/2 percentage points above the optimum moisture content.

The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the subbase. When the rolling develops irregularities that exceed 1/2 inch when tested with a 16-foot straightedge, the irregular surface shall be loosened and then refilled with the same kind of material as that used in constructing the course and again rolled as required above.

Along places inaccessible to rollers, the PMB material shall be tamped thoroughly with mechanical or hand tampers.

Sprinkling during rolling, if necessary, shall be in the amount and by equipment approved by the Engineer. Water shall not be added in such a manner or quantity that free water will reach the underlying layer and cause it to become soft.

206-3.7 Surface Test

After the course is completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown; any portion found to lack the required smoothness, or to fail in accuracy of grade or crown, shall be scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy be obtained. The finished surface shall not vary more than 1/2 inch when tested with a 16-foot straightedge applied parallel with, and at right angles to, the centerline.



206-3.8 Thickness

The thickness of the completed PMB course shall be determined by depth tests or cores taken at intervals so each test shall represent no more than 1500 square yards. When the deficiency in thickness is more than 1/2 inch, the Contractor shall correct such areas by scarifying, adding satisfactory mixture, rolling, sprinkling, reshaping, and finishing in accordance with these specifications. The Contractor shall replace, at his expense, the PMB material where borings are taken for test purposes.

206-3.9 Protection

Work on the PMB course shall not be conducted during freezing temperatures nor when the subgrade is wet. When the subbase material contains frozen material or when the underlying course is frozen, the construction shall be stopped.

206-3.10 Maintenance

Following the final shaping of the material, the PMB shall be maintained throughout its entire length by the use of standard motor graders and rollers until, in the judgment of the Engineer, the PMB meets all requirements and is acceptable for the construction of the next course.

206-4 TESTING REQUIREMENTS

ASTM C 136	Sieve or Screen Analysis of Fine and Coarse Aggregate
ASTM D 1556	Density of Soil in Place by the Sand-Cone Method
ASTM D 1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5 kg) Rammer and 18-in (457 mm) Drop
ASTM D 4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils

206-5 METHOD OF MEASUREMENT

The quantity of processed miscellaneous base measured for payment shall be the number of cubic yards of material hauled, placed, shaped, compacted and measured in place for the initial construction of a completed and accepted airfield pavement base course, subbase course, haul road surface or other purpose.



206-6 BASIS OF PAYMENT

Payment shall be made at the contract unit price per cubic yard for Processed Misc Base for material placed and accepted. This price shall be full compensation for all providing, hauling, placing and compacting these materials, and for all labor, supervision, equipment, tools, and incidentals necessary to complete the item.

Subgrade preparation will be paid under Item p-152 of these Specifications.

No additional payment will be made for difficulties encountered when constructing processed miscellaneous base in areas of night, weekend or limited-time construction, or in other areas subject to construction phasing restrictions.

Payment will be made under:

Item 206 Processed Miscellaneous Base.....per cubic yard

END OF SECTION 206



ITEM C-1

CALTRANS ASPHALT CONCRETE

DESCRIPTION

1-1.1 GENERAL Asphalt concrete shall be constructed to the lines, grades, and designs as shown in the contract documents. Work includes, but is not limited to, ramps, curbs, and sidewalks.

1-1.2 STANDARD SPECIFICATIONS For Item C-1, the Standard Specifications are defined as:

Standard Specifications (2006), Current Amendments and Current Standard Special Provisions

State of California Business, Transportation and Housing Agency

Department of Transportation (Caltrans)

Section 39 – for Asphalt Concrete; Section 93 – Liquid Asphalts, for Prime Coat; Section 94 – Asphaltic Emulsions, for Tack Coat

1-1.3 EXCEPTIONS All work for Item C-1 shall be in conformance with the Standard Specifications, except as specified otherwise.

MATERIALS

1-2.1 MATERIALS Materials for asphalt concrete shall be Type A, PG 64-10, ½ Inch Maximum, Coarse in conformance with the Standard Specifications.

Tack Coat shall be grade SS-1h.

COMPOSITION

1-3.1 RECYCLED ASPHALT CONCRETE Recycled asphalt concrete shall not be used.

CONSTRUCTION METHODS (No changes to Caltrans Standard Specifications)

MATERIAL ACCEPTANCE (No changes to Caltrans Standard Specifications)



CONTRACTOR QUALITY CONTROL (No changes to Caltrans Standard Specifications)

BASIS OF PAYMENT

1-4.1 PAYMENT. Payment for an accepted lot of asphalt concrete payement shall be made at the contract unit price, or the contract lump sum price, as indicated on the bid schedule, for Caltrans Asphalt Concrete mixture conforming to the Caltrans specification for the mix type indicated. The price shall be full 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.

Payment will be made under:

Item C-1 Caltrans Asphalt Concrete...... per bid schedule

END OF ITEM C-1



ITEM C-2

CALTRANS PORTLAND CEMENT CONCRETE

DESCRIPTION

2-1.1 GENERAL Portland Cement Concrete shall be constructed to the grades and designs as shown in the contract documents. Work includes, but is not limited to, ramps, curbs, sidewalks, and fence posts.

2-1.2 STANDARD SPECIFICATIONS For Item C-2, the Standard Specifications are defined as:

Standard Specifications (2006), Current Amendments and Current Standard Special Provisions

State of California Business, Transportation and Housing Agency

Department of Transportation (Caltrans)

Section 40 – for Portland Cement Concrete; Section 90 – Portland Cement Concrete.

2-1.3 EXCEPTIONS All work for Item C-2 shall be in conformance with the Standard Specifications, except as specified otherwise.

MATERIALS

2-2.1 MATERIALS Materials for Portland cement concrete shall be Type II Modified, in conformance with the Standard Caltrans Specifications with the following modifications.

Cement:

Class 1 Concrete

Cement requirement: 600 pounds per cubic yard.

Water/Cement Ratio: not to exceed 0.45.

Minimum Strength Requirement: 4,000 PSI at 28-days. An additional 14 days will not be allowed to reach strength.

Aggregate:

Allowable loss of coarse aggregate: 40% based on LA Rattler test.



Reactivity: Fine and coarse aggregates to be used in PCC shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with ASTM C 1260. The laboratory conducting the tests shall be accredited under ASTM C 1077. Fine and course aggregates shall be evaluated separately in accordance with ASTM C 1260.

Aggregates / Water / Admixtures
(No changes to Caltrans Standard Specifications with the exception of the changes provided herein.)

COMPOSITION

CONSTRUCTION METHODS (No changes to Caltrans Standard Specifications)

MATERIAL ACCEPTANCE (No changes to Caltrans Standard Specifications)

CONTRACTOR QUALITY CONTROL (No changes to Caltrans Standard Specifications)

BASIS OF PAYMENT

2-3.1 PAYMENT. Payment for an accepted lot of Portland cement concrete pavement shall be made at the contract lump sum price, as indicated on the bid schedule, for Caltrans Portland Cement Concrete mixture conforming to the Caltrans specification for the mix type indicated. The price shall be full compensation for furnishing all materials (including but not limited to, dowel bars, reinforcement and joint seals), for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item C-2 Portland Cement Concrete Driveway......per bid schedule

END OF ITEM C-2



ITEM F-162

FENCING

DESCRIPTION

162-1.1 This item shall consist of furnishing and erecting chain-link fence and pedestrian gates in accordance with these specifications and the details shown on the plans and in conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIALS

- **162-2.1 FABRIC.** The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch mesh and shall meet the requirements of ASTM A 392, Class 2.
- **162-2.3 POSTS, RAILS AND BRACES.** Line posts, rails, and braces shall conform to the requirements of ASTM F-1043 or ASTM F 1083 as follows:

Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.

Posts, rails, and braces furnished for use in conjunction with aluminum alloy fabric shall be aluminum alloy or composite.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Fed. Spec. RR-F-191/3.

- **162-2.4 GATES.** Gate frames shall consist of galvanized steel pipe and shall conform to the specifications for the same material under paragraph 162-3.3. The fabric shall be of the same type material as used in the fence.
- **162-2.5 WIRE TIES AND TENSION WIRES.** Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A 824.

All material shall conform to Fed. Spec. RR-F-191/4.

- **163-2.6 MISCELLANEOUS FITTINGS AND HARDWARE.** Miscellaneous steel fittings and hardware for use with zinc-coated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A 153.
- **162-2.7 CONCRETE.** Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 2,500 psi.
- **162-2.8 MARKING.** Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

CHAIN LINK CONSTRUCTION METHODS

- **162-3.1 CLEARING FENCE LINE.** All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 5 feet on each side of the fence centerline before starting fencing operations. Clearing shall be performed following Specification P-151, Clearing and Grubbing.
- **162-3.2 INSTALLING POSTS.** All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches. After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

Fencing

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

- **162-3.3 INSTALLING TOP RAILS.** The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.
- **162-3.4 INSTALLING BRACES.** Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.
- **162-3.5 INSTALLING FABRIC.** The wire fabric shall be firmly attached to the posts and braced in the manner shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1 inch or more than 4 inches from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used.

162-3.6 ELECTRICAL GROUNDS. Electrical grounds shall be constructed where a power line passes over the fence and at 500-foot intervals. The ground shall be installed directly below the point of crossing. The ground shall be accomplished with a copper clad rod 10 feet long and a minimum of 5/8 inch in diameter driven vertically until the top is 6 inches below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction.

METHOD OF MEASUREMENT

162-4.1 Chain-link fence will be measured for payment by the linear foot. Measurement will be along the top of the fence from center to center of end posts, excluding the length occupied by gate openings.

Gates will be measured as complete units.

BASIS OF PAYMENT



162-5.1 Payment for chain-link fence will be made at the contract unit price per linear foot.

Payment for pedestrian gates will be made at the contract unit price for each gate.

The price shall be full compensation for furnishing all materials, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item F-162-1	8' Chain Link Fenceper linear foot
Item F-162-2	Chain Link Fence Attached to Wallper linear foot
Item F-162-3	4' Pedestrian Swing Gateper unit

CHAIN LINK MATERIAL REQUIREMENTS

ASTM A 121	Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 572	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Steel Quality
ASTM A 653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 824	Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM A 1011	Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-

	Strength Low-Alloy with Improved Formability
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B 221	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire Shapes and Tubes
ASTM B 429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F 668	Poly(vinyl Chloride)(PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
ASTM F 1083	Pipe, Steel, Hot-Dipped Zinc-coated (galvanized) Welded, for Fence Structures
ASTM F 1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F 1345	Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain Link Fence Fabric
ASTM G 152	Operating Open Flame (Carbon-Arc) Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 153	Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 154	Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G 155	Operating (Xenon- Arc) Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)
	RR-F-191/3
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Accessories)
	DD E 101/4

RR-F-191/4

END OF ITEM F-162



ITEM F-165

SILT FENCE FABRIC

DESCRIPTION

165-1.1 This item shall consist of furnishing and erecting silt fence fabric attached to the perimeter fence in accordance with these specifications and the location and details shown on the plans and in conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIALS

165-1.1 FABRIC.

Silt fence fabric should be woven polypropylene with a minimum width of 36 in. The fabric should conform to the requirements in ASTM designation D4632 and should have an integral reinforcement layer. The reinforcement layer should be a polypropylene, or equivalent, net provided by the manufacturer.

When tested under the referenced ASTMs, the properties of silt fence fabric must have the values shown in the following table:

SILT FENCE FABRIC

Droporty	Test	Value	
Property	1681	Woven	Nonwoven
Grab breaking load, 1-inch grip, lb min, in	ASTM D	120	120
each direction	4632	120	120
Apparent elongation, percent min, in each	ASTM D	15	50
direction	4632	15 50	
Water flow rate, gal per minute/sq ft min	ASTM D	10-100	100-150
and max average roll value	4491	10-100	100-130
Permittivity, sec-1 min	ASTM D	0.1	1.1
	4491	0.1	1.1
Apparent opening size, inches max average	ASTM D	0.023	0.023
roll value	4751	0.023	
Ultraviolet resistance, percent min retained	ASTM D	70	70



grab breaking load, 500 hours	4355	

CONSTRUCTION METHODS

165-2.1 EXCAVATION. A trench should be excavated approximately 6 in. wide and 6 in. deep along the line the proposed silt fence.

Bottom of the silt fence should be keyed-in a minimum of 12 in.

The trench should be backfilled with compacted native material.

165-2.2 FABRIC SUPPORT. When standard strength filter fabric is used, a plastic or wire mesh support fence should be fastened securely to the upslope side of posts using heavy–duty wire. The mesh should extend into the trench. When extra-strength filter fabric and closer post spacing are used, the mesh support fence may be eliminated. Filter fabric should be purchased in a long roll, and then cut to the length of the barrier. When joints are necessary, filter cloth should be spliced together only at a support post, with a minimum 6 in. overlap and both ends securely fastened to the post.

METHOD OF MEASUREMENT

162-4.1 Silt fence fabric will be measured for payment by the linear foot. Measurement will be along the top of the fence to which it is attached, from center to center of end posts, excluding the length occupied by gate openings.

BASIS OF PAYMENT

165-3.1 Payment for silt fence fabric (attached to security fence) will be made at the contract unit price per linear foot. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfill, and installation of this material, and for all labor, equipment, tools, and incidentals necessary to provide silt fence fabric indicated on the plans and required by the specs for a completed silt fencing installation.

Payment will be made under:

Item F-165-1 Silt Fence Fabric per linear foot



MATERIAL REQUIREMENTS

ASTM D 4355	Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
ASTM D 4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D 4632	Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	Standard Test Method for Determining Apparent Opening Size of a Geotextile

END OF ITEM F-165



ITEM F-171

VEHICLE GATES

DESCRIPTION

171-1.1 GENERAL. The work in this section shall include furnishing all labor, materials, equipment and appliances necessary to complete all cantilever slide gate system(s) required for this project in strict accordance with this specification section and drawings. The gate and operator shall be specifically designed to complement each other as a system. The gate(s) shall be installed at the locations as shown on the Plans and as directed by the Engineer.

171-1.2 REFERENCES.

- a. Underwriters Laboratory Gate Operator Requirements (UL 325).
- b. ASTM F 1184 Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2.
- c. American Welding Society AWS D1.2 Structural Welding Code.
- d. ASTM F 1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Like Fence Framework.
- e. ASTM 123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel.
- f. ASTM F 2200 Standard Specification for Automated Vehicular Gate Construction.
- g. ASTM F 900 Standard Specification for Industrial and Commercial Swing Gates.

171-1.3 SUBMITTALS:

171-1.3.1 Product Data.

- a. Provide manufacturer's catalog cuts with printed specifications and installation instructions.
- b. Furnish detailed sequence of operation (description of system).
- c. Deliver two (2) copies of operation and maintenance data covering the installed products, including name, address and telephone number of the nearest fully equipped service center.
- d. Material Safety Data Sheets (MSDSs)



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171-1.3.2 Shop Drawings.

- a. Supply shop drawings showing the relationship of operating systems with other work.
- b. Include details of all major components.
- c. Include parts list showing manufacturer's names and part numbers for the complete installation.
- d. Include complete details of gate construction, gate height, post spacing dimensions and unit weights of structural components.

171-1.3.3 Certifications.

- a. Gate in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction.
- b. Manufacturer shall supply gate design performance certification as per section 171-3.4.
- c. The Structural Cantilever Slide Gate system must be cycle-tested and certified per section 171-2.1c.
- d. The aluminum welders and welding process must be certified per section 171-2.1c.

171-3.4 Certification of Performance Criteria for Cantilever Slide Gate System.

- a) Manufacturer of gate system shall provide certification stating the gate system includes the following material components that provide superior performance and longevity. Alternate designs built to minimum standards that do not include these additional structural features shall not be accepted.
 - 1) Gate track system shall be keyed to interlock into gate frame member (providing 200% additional strength when compared to weld only keyless systems). When interlocked with and welded to the "keyed" frame top member, gate track forms a composite structure.
 - 2) Gate shall have a minimum counterbalance length of 50% opening width which provides a 36% increase in lateral resistance (when compared to ASTM minimum of 40% counterbalance). If gate is ever to be automated, counterbalance section shall be filled with fabric or other specified material.
 - 3) To provide superior structural integrity, intermediate vertical members shall be

- used with spacing between verticals to be less than 50% of the gate frame height.
- 4) Entire gate frame (including counterbalance section) shall include 2 adjustable stainless steel cables (minimum 3/16") per bay to allow complete gate frame adjustment (maintaining strongest structural square and level orientation).
- 5) Gate truck assemblies shall be tested for continuous duty and shall have precision ground and hardened components. Bearings shall be pre-lubricated and contain shock resistant outer races and captured seals.
- 6) Gate truck assemblies shall be supported by a minimum 5/8" plated steel bolt with self aligning capability, rated to support a 2,000 # reaction load.
- 7) Hanger brackets shall be hot dipped galvanized steel with a minimum 3/8" thickness that is also gusseted for additional strength.
- 8) Gate top track and supporting hangar bracket assemblies shall be certified by a licensed professional engineer to withstand a 2,000 lb. vertical reaction load

PRODUCTS

171-2.1 GATE SYSTEM MANUFACTURERS.

- a. The cantilever sliding gate system shall be Cantilever Slide Gates shall be Tymetal Corp. TYM-1000 Security Gate System or approved equal. As shown on the plans, contractor shall re-connect existing operator, access controls and loops to establish a fully functioning system.
- b. The heavy duty swing gates shall be manufactured by Tymetal Corp., 2549 State Route 40, Greenwich, NY 12834 (800) 328 4283 or approved equal.
- c. Gate manufacturer shall provide independent certification as to the use of a documented Welding Procedure Specification and Procedure Qualification Record to ensure conformance to the AWS D1.2 welding code. Upon request, Individual Certificates of Welder Qualification documenting successful completion of the requirements of the AWS D1.2 code shall also be provided.

171-2.2 SYSTEM DIMENSIONS. Cantilever Slide Gate System and Heavy Duty Swing Gate dimensions shall be as shown on the detail drawings.

171-2.3 HEAVY DUTY SWING GATE DETAILS

171-2.3.1 Gate Frame. The gate frame shall be fabricated from 6063-T6 aluminum alloy extrusions. The top member shall be a 3" x 5" aluminum structural channel/tube extrusion weighing not less than 3.0 lb. /lf. The bottom member shall be a 2" x



5"aluminum structural tube weighing not less than 2.0 lb/lf.

The vertical members at the ends of the opening portion of the frame shall be "P" shaped in cross section with a nominal base dimension of no less than 2" x 2" (51mm x 51mm) and weighing not less than 1.6 lb/lf (2.3kg/m). The intermediate vertical members shall alternate between 2" x 2" (51mm x 51mm) and 1" x 2" (25mm x 51mm) in cross section weighing not less than 1.1 lb/lf (1.6kg/m) and 0.82 lb/lf (1.2kg/m) respectively. The spacing for the vertical intermediates shall be less than 50% of the gate frame height.

Each gate leaf shall be provided with a minimum of two pivoting hinges to allow proper operation, and shall be connected to the gate side of the hinge by means of two throughbolts.

171-2.3.2 Diagonal Bracing. Diagonal "X" bracing of 3/16" minimum diameter stainless steel aircraft cable shall be installed throughout the gate to provide additional vertical adjustment.

171-2.3.3 Posts. Gate hanger posts (by others) shall be sized in accordance with gate dimensions as specified by the manufacturer. Height of the post and depth of footing shall be as specified by the engineer.

171-2.3.4 Lock. Single gates shall have a latch assembly to provide a means for locking with a padlock. Double gates shall have a drop-bar mechanism extending into the ground, and a center locking kit to provide a means for locking with a padlock.

171-2.3.5 Gate Filler. The gate shall be completed by installation of approved filler as specified. The gate filler will either be chain link or ornamental pickets as defined.

- a. Chain Link: 2" x 2" x 9 gauge aluminized steel chain link fabric shall extend the entire length of the gate and shall be secured at each end of the gate frame by standard fence industry tension bars and tied at each vertical member with standard fence industry ties.
- **171-2.3.6 Finish.** Gate to be mill finish aluminum or color coated with polyester powder as specified. If powder coated, the gate and all accessories shall be pretreated chemically by sand blasting or other acceptable method to ensure proper coating adherence. Gate posts shall be PVC coated

171-2.4 CANTILEVER SLIDE GATE DETAILS

171-2.4.1 Gate Frame. The gate frame shall be fabricated from 6063-T6 aluminum alloy extrusions. The top member shall be a 3" x 5" aluminum structural channel/tube extrusion weighing not less than 3.0 lb/lf. To maintain structural integrity this frame member shall be "keyed" to interlock with the "keyed" track member. If fabricated as a single horizontal piece, the bottom member shall be a 2" x 5"aluminum structural tube weighing not less than 2.0 lb/lf. If fabricated in two horizontal pieces, the bottom member shall be a 5" aluminum structural channel weighing not less than 2.6 lb/lf. When the gate frame is manufactured in two horizontal pieces or sections, they shall be spliced in the field (the gate frame shall be fabricated in one or multiple sections depending on size requirements or project constraints).

The vertical members at the ends of the gate frame shall be "P" shaped in cross section with a nominal base dimension of no less than 2" x 2" and weighing not less than 1.6 lb/lf. Major 2" x 2" vertical members weighing not less than 1.1 lb/lf shall separate each bay and shall be spaced at less than gate height intervals.

Intermediate 1" x 2" vertical members weighing not less than .82 lb/lf shall alternate between 2" x 2" major members.

171-2.4.2 Gate Track. The gate frame shall have a separate semi-enclosed "keyed" track, extruded from 6005A-T61 or 6105-T5 aluminum alloy, weighing not less than 2.9 lb/lf (4.2kg/m). The track member is to be located on only one side of the top primary. Welds to be placed alternately along the top and side of the track at 9" centers with welds being a minimum of 2".

171-2.4.3 Gate Mounting:

- a. The gate frame is to be supported from the track by two (2) swivel type, self-aligning, 4-wheeled, sealed lubricant, ball-bearing truck assemblies.
- b. The bottom of each support post shall have a bracket equipped with a pair of 3" UHMW guide wheels Wheel cover protectors shall be included with bottom guides to comply with UL325.
- c. Gap protectors shall be provided and installed, compliant with ASTM F 2200-05.

171-2.4.4 Diagonal Bracing. Diagonal "X" bracing of 3/16" minimum diameter stainless steel aircraft cable shall be installed throughout the entire gate frame.



171-2.4.5 Gate Filler. The gate shall be completed by installation of approved filler as specified.

a. Chain Link: 2" x 2" x 9 gauge aluminized steel chain link fabric shall extend the entire length of the gate (if operated gate, counterbalance must also have fabric to prevent reach through and comply with ASTM F2200. Fabric shall be attached at each end of the gate frame by standard fence industry tension bars and tied at each 2" x 2" vertical member with standard fence industry ties. ASTM F2200 requires attachment method that leaves no leading or bottom edge protrusions (cannot exceed 0.5 inch).

171-2.4.6 Posts. A single set of support posts shall be minimum 4" O.D. round Schedule 40 or 4" x 4" x 3/16" wall square steel tubing, grade 500. Gate posts shall be galvanized or coated and supported in concrete footings as specified by the design team.

171-2.4.7 Finish. Gate to be mill finish aluminum or color coated with polyester powder as specified. If powder coated, the gate (including track member) and all accessories shall be pretreated chemically by sand blasting or other acceptable method to ensure proper coating adherence.

171-2.4.8 Warranty. The truck assembly shall be warranted against manufacturing defects by the manufacturer for a period of (5) five years from date of sale.

171-2.5 KNOX SYSTEM

Contractor shall contact Fire Prevention at 760-435-4101 for order information and mounting assistance. The City of Oceanside Fire Department will provide the Contractor with an order form to purchase the required Knox products. After installation, Contractor shall contact Fire Prevention to have an Inspector assist in testing electrical gates, placing padlocks and closing and securing Knox boxes.

All Knox Boxes shall have an aluminized finish to protect against salt air corrosion. All padlocks must be weather protected.

Website for further Knox Box information: http://www.knoxbox.com

CONSTRUCTION METHODS



171-3.1 INSTALLATION. Excavate, place concrete and install specified sized posts as detailed, and in accordance with approved shop drawings. Install hinges on gate frame and gateposts. Make final adjustments to maintain alignment of gate leaves. Install equipment of this section in strict accordance with the company's printed instructions unless otherwise shown on the contract drawings.

171-3.1.1 Heavy Duty Swing Gate. The gate and installation shall conform to ASTM F 900 standards for aluminum swing gates.

171-3.1.2 Cantilever Slide Gate:

- a. The gate and installation shall conform to ASTM F 1184 standards for aluminum cantilever slide gates, Type II, Class 2.
- b. If the gate system is to be automated, the gate and installation shall also comply with ASTM F 2200 and UL 325.

171-3.2 SYSTEM VALIDATION. The complete system shall be adjusted to assure it is performing properly. The system shall be operated for a sufficient period of time to determine that the system is in proper working order.

171-3.3 SITE INSPECTION. Final grades and installation conditions shall be examined. Installation shall not begin until all unsatisfactory conditions are corrected.

METHOD OF MEASUREMENT

- **171-4.1** Cantilever slide gates will be measured per each slide gate completed and in operation as measured in place by the Engineer.
- **171-4.2** Heavy duty swing gates will be measured per each gate completed and in operation as measured in place by the Engineer.
- **171-4.3** Knox systems will be measured per each system completed and in operation as measured in place by the Engineer.

BASIS OF PAYMENT

171-5.1 Cantilever slide gates will be paid for at the contract unit price per each gate. This price shall include full compensation for furnishing all labor, materials, equipment, tools,

and incidentals and for doing all the work of this item complete in place, as shown on the drawings and as specified in these Specifications.

171-5.2 Heavy duty swing gates will be paid for at the contract unit price per each gate. This price shall include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing all the work of this item complete in place, as shown on the drawings and as specified in these Specifications.

171-5.3 Knox Systems will be paid for at the contract unit price per each gate. This price shall include full compensation for furnishing all labor, materials, equipment, tools, and incidentals and for doing all the work of this item complete in place, as shown on the drawings and as specified in these Specifications.

Payment will be made under:

Item F-171-1	Cantilever Slide Gate (18-Foot Wide)per unit
Item F-171-2	Cantilever Slide Gate (16-Foot Wide)per unit
Item F-171-3	Heavy Duty Swing Gateper unit
Item F-171-4	Knox Systemper unit

CHAIN LINK MATERIAL REQUIREMENTS

ASTM A 121	Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 572	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Steel Quality
ASTM A 653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated



	(Galvannealed) by the Hot-Dip Process
ASTM A 824	Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM A 1011	Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High- Strength Low-Alloy with Improved Formability
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B 221	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire Shapes and Tubes
ASTM B 429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F 668	Poly(vinyl Chloride)(PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
ASTM F 1083	Pipe, Steel, Hot-Dipped Zinc-coated (galvanized) Welded, for Fence Structures
ASTM F 1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F 1345	Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain Link Fence Fabric
ASTM G 152	Operating Open Flame (Carbon-Arc) Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 153	Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 154	Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G 155	Operating (Xenon- Arc) Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)



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FED SPEC Fencing, Wire and Post, Metal (Chain-Link Fence

Accessories)

END OF ITEM F-171

