

FORM F.R. 50

**UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS**

**GENERAL SPECIFICATIONS
FR 50 - 1935
FOR
FOREST AND PARK
ROAD CONSTRUCTION**

WASHINGTON, D.C.
1935

This CONTRACT DOCUMENT

in its entirety is binding upon the parties signatory to the deed of contract (Standard Form No. 23) which, under Article 1, cites GENERAL SPECIFICATION FR-50-1935, except that such construction items contained herein as are not cited or involved in the "Plans," "Bid Schedule," "Special Provisions" or other contract documents are void as to the particular contract and except that anything contained herein which is modified by, or is in conflict with, any "Supplemental Specifications" identified as such and as part of the contract under Article 1, or is in conflict with the "Special Provisions," prepared and approved for the contract before the execution thereof, is not binding for the particular contract.

Pursuant to Standard Form 23, this document includes an article on patents, an article on liquidated damages, an article construing matters applicable under Articles 3 and 4, an article providing certain procedures for partial payments and other interpretative articles necessary in applying Articles 2, 3, 4, 5, and 15 to the various contingencies encountered, and the detailed administrative procedures thereunder. All these articles are made a part of the essence of the contract, are expressly and mutually agreed to before the execution thereof, and include

TERMS OF SPECIAL SIGNIFICANCE

Articles 1.0 to 1.44

DIVISION I GENERAL REQUIREMENTS AND COVENANTS

1.0 TERMS OF SPECIAL SIGNIFICANCE

The following matters of administrative detail, adopted pursuant to Standard Form 23, are set out in interpretation and amplification thereof. Whenever in these specifications or in other contractual documents the following terms, or pronouns in place of them, are used, the intent and meaning shall be interpreted as follows.

1.1 Plans and Drawings. Contract documents, or exact reproductions thereof, showing the alignment of road, layout and design of structures, profiles, typical cross sections, earthwork cross sections, accessory features, the particular location, character, dimensions and details of the work to be done.

1.2 Specifications. The general term comprising all the directions, provisions and requirements contained herein or as may be added as adopted "Supplemental Specifications" and so identified in Article 1 of Standard Form 23 prepared for the project, all setting out or relating to the method and manner of performing the work or to the quantities and qualities of materials and labor to be furnished under the contract. Any such adopted "Supplemental Specifications" so identified shall prevail over the general specifications whenever in conflict therewith.

1.3 Special Provisions. Certain specific directions, provisions and requirements included within the general term "Specifications" and made a part of the contract with the express purpose that they shall prevail over all other specifications and over all plans in that and because they set forth the final contractual intent as to the matter involved. On each sheet of special provisions, for positive identification, will appear the caption "Special Provisions, Project _____."

1.4 Contract. The agreement between the United States of America by the contracting officer and the contractor covering the performance of the work and the furnishing of materials in the construction thereof. The contract shall include, but not be limited to, the plans, the specifications and the mutual understandings and agreements herein set out, and "Change Orders" and "Extra Work Orders," which are required to complete the construction of the work in a substantial manner, including authorized extensions thereof.

1.5 (a) "Change Orders." Written orders, signed by the engineer, to the contractor ordering a change in the work from that originally shown by the plans and specifications that has been found necessary and that has been determined as of a nature involving an adjustment of unit price in agreement with the contractor, stating the price adjustment so agreed upon and ordering the performance of the change under such adjusted price or compensation. "Change Orders," duly signed and executed by the contractor constitute modifications of the contract as prescribed in Article 3 of Standard Form 23.

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(b) "Change Orders" are necessary for the performance of work or furnishing of materials resulting from or involved in "Changes" or "Changed Conditions" developed under Articles 3 and 4 of Standard Form 23 as construed by Article 4.2 and for performance of work or furnishing of materials resulting in changes in quantities beyond the percentage limits recognized in Article 4.3 (d) and within the percentage limits recognized in Article 4.3 (e).

(c) A "Change Order" is necessary for the performance of any work or furnishing of any material not prescribed by the original approved plans unmodified, unless such performance or furnishing is covered under an "Extra Work Order," provided, however, that "Minor Adjustments" recognized and defined under Article 4.3 (a) are not to be construed as constituting "modifications" of the original approved plans and do not therefore require "Change Orders" or "Extra Work Orders." "Overruns" and "Underruns," as defined and limited in Article 4.3 (c), do not require "Change Orders" nor "Extra Work Orders."

(d) "Change Orders" require signature by the contractor and if the amount involved is \$500 or more, the "Change Orders" must be approved by the Head of the Department. The contractor shall not proceed with work requiring a "Change Order" until he has received the "Change Order" therefor, duly approved, if the case so requires.

(e) Assertions of claims for adjustment (Article 3) and disputes (Article 15) will be valid only when made and submitted in writing by the contractor within the prescribed time limit after the issue date of the order dealing therewith and any disagreement with the interpretation of plans or specifications made by the engineer must likewise be asserted and submitted by the contractor in writing within 10 days from the date of such interpretation, subject to appeal under Article 15. Written orders (Article 3) or orders in writing (Article 5) mean "Change Orders" or "Extra Work Orders" as the case may be.

1.6 "Extra Work." Work or material the performance or furnishing of which is found necessary for proper completion of the improvement and which in principle is an obligation of the contractor, but which is not covered by any item in the bid schedule and for which no means of payment, direct or indirect, has been provided in the contract, and which is an obligation for which special remuneration by an "Extra" price or by other consideration, in any case to be duly negotiated, or by "Force Account," shall be paid to the contractor.

1.7 "Extra Work Orders." Written orders signed by the engineer to the contractor concerning the performance of work or furnishing of materials involving "Extra Work" as defined under Article 1.6.

Necessary items may be added to the contract under "Extra Work Orders." An "Extra Work Order" is necessary for the performance of any "Extra Work" unless the same is duly covered by or included under a "Change Order."

"Extra Work Orders" require signature by the contractor and if the amount is \$500 or more the "Extra Work Order" must be approved by the Head of the Department. The order will be so drawn as to indicate acceptance on the part of the contractor, as evidenced by his signature, of the agreed prices, lump sum or other basis of payment provided therein. The contractor shall not proceed with work requiring an "Extra Work Order" until he has received the "Extra Work Order" therefor.

1.8 "Work Orders." (a) Written orders signed by the engineer, or by his designated representative, of a contractual status requiring performance by the contractor without negotiation of any sort. "Work Orders" do not embrace any change of the character defined in Article 4.2 nor any extra work as defined in Article 1.6.

(b) "Work Orders" are applicable in cases arising during construction where no payment of funds is involved but where written instructions are necessary concerning features, payment for which has been, or is to be, otherwise made under the contract as follows:

(1) "Work Orders" are applicable where it is necessary to issue written orders to perform work or furnish material embraced under the original unchanged contract in cases where the said performance or furnishing is, by the terms of the specifications, included under the bid price for some contract item as a necessary or subsidiary element thereof and consequently is not eligible for direct measurement or payment, while the said contract item as a whole is eligible for direct payment by its measured quantities multiplied by its unit price. These cases may arise where the said work has not been brought to the attention of the contractor or has been neglected, overlooked or delayed by the contractor or for any other reason has been held by the engineer to require the issuance of a written order to secure its proper execution under the contract.

(2) "Work Orders" are applicable for the performance of work or the furnishing of material involved in or resulting from any "Changes" or "Changed Conditions" recognized in Article 4.3 (a).

(3) "Work Orders" are used to require performance of any "Overruns" or "Underruns" recognized by Article 4.3 (c) and requiring written orders.

(c) The term "Work Orders" also includes orders concerning the performance of work in connection with "Special Detours" and in connection with maintenance work on portions "Accepted for Traffic" whether by unit price, lump sum or by force account, provided that a contingent sum to cover has been set up in the bid schedule and is available.

(d) Since in all cases where "Work Orders" as herein defined are used automatic agreement on the part of the contractor is presumed as of the essence of the original contractual agreement, specific assent to such "Work Orders" is not necessary. No negotiation is involved and such orders upon receipt are binding upon the contractor, who shall thereupon acknowledge them merely to establish the fact of receipt and proceed with the execution thereof.

1.9 Secretary. The Secretary of that Department of the United States in which the contract is executed.

1.10 Chief of Bureau. The Chief of Bureau of Public Roads of the United States Department of Agriculture, who is hereby designated an authorized representative of the Head of the Department.

1.11 Chief Engineer. The Chief Engineer of the Bureau of Public Roads of the United States Department of Agriculture.

1.12 Engineer. The district engineer of the Bureau of Public Roads of the United States Department of Agriculture in whose district the proposed improvement is to be located.

1.13 Contracting Officer. The officer signing the contract on behalf of the United States of America. The Chief of Bureau, Chief Engineer and Engineer are hereby designated as authorized representatives of the contracting officer.

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1.14 Inspector. An authorized representative of the engineer, assigned to make any or all necessary inspections of the work performed and materials furnished by the contractor.

1.15 Bidder. Any individual, firm or corporation submitting a bid for the work contemplated, acting directly or through a duly authorized representative.

1.16 Contractor. Party of the second part to the contract, acting directly or through an authorized lawful agent or employee.

1.17 Surety. The individuals or company signing, as guarantors, the performance bond furnished by the contractor.

1.18 Bid. The approved prepared form on which the bidder has submitted in detail the statement of his offer to perform the work and to furnish material. The Bid Schedule to be used will be included in the "Bid" form.

1.19 Bid Guaranty. The required security submitted with the bid to insure execution of contract and bond for the performance of the work if the bid is accepted.

1.20 Performance Bond. The security furnished by the contractor to guarantee the completion of the work in accordance with the terms of the contract.

1.21 Highway. The whole right of way or the whole area which is reserved for use in the construction and maintenance of the public roadway, including its appurtenances and the improvement of the roadsides.

1.22 Roadway. The portion of the highway included between the outside lines of gutters or side ditches, including also the appertaining structures and all slopes, ditches, channels, waterways and appurtenances necessary to proper drainage, protection and use.

1.23 Roadbed. That portion of the roadway between the outside shoulder lines. Where there are raised curbs such curbs constitute the "outside shoulder line."

1.24 Roadside. The portion of the highway outside of the roadbed. For the purposes of mowing and related work the "shoulders" shall be considered as part of the "roadside." "Roadside" work shall include all work done beyond the limits of the "roadbed," which is not for the express purpose of drainage, removal of obstacles to traffic or construction of adjuncts to traffic facilities.

1.25 Subgrade. That portion of the roadbed upon which the wearing course (or base course) is placed or is to be placed.

1.26 Profile Grade. The trace of a vertical plane intersecting the pavement or wearing surface, usually along the longitudinal center line of the pavement. Infers both elevation and gradient of such trace according to the context.

1.27 Crown. The vertical rise expressed in inches between the edge of a pavement surface and the centerline of the same surface, or the rate of rise. The term does not refer to the elevation of the surface.

1.28 Bridges. Structures of over 20-foot span, measured under the copings, and parallel to the center of the road, and multiple span structures

where the individual spans are in excess of 10 feet. The width of bridges is the distance between inside faces of curb.

1.29 Culverts. Structures for purposes similar to "Bridges" but of spans less than the minimum spans defined for bridges.

1.30 Substructure. All of that part of the structure below the bridge seats or below the spring line of arches or below the bottoms of caps of timber trestles.

1.31 Superstructure. All of that part of the structure above the bridge seats or above the spring line of arches, or above the bottoms of caps of timber trestles.

1.32 Skew (or Skew Angle). The acute angle formed by the intersection of the line normal to the centerline of the road improvement with a line parallel to the face of the abutments or with the centerline in the case of culverts.

1.33 Equipment. All machinery and livestock, 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.

1.34 Material. Any substance proposed to be used in connection with the construction of any structure or of the roadway and its appurtenances, provided, however, that this term shall not include material used in falsework but not incorporated in the improvement.

1.35 Material Delivered on the Site. Materials, except living or perishable plant material, to be directly incorporated in the work, delivered at the site of the work or at points designated by the engineer and stored to the engineer's satisfaction, when supported by receipted bills.

1.36 Preparatory Work Done. Direct work on pay items of the contract when supported by the contractor's pay rolls.

1.37 The Work. All the work specified or mentioned herein or indicated on the plans and as covered by the contract.

1.38 Time or Date of Completion. The number of calendar days shown in the bid and in the contract, counting from the date of receipt of Notice to Proceed, unless otherwise provided, indicates the time of completion of the work contemplated in the contract.

1.39 A.S.T.M. American Society for Testing Materials.

1.40 A.A.S.H.O. American Association of State Highway Officials.

1.41 A.A.N. The American Association of Nurserymen. Where these initials are used, it is the intent that the latest edition of Horticultural Standards for the growing and grading of nursery stock shall govern.

1.42 O.C.S.P.N. The Official Code of Standardized Plant Names. Where these initials are used it is the intent that the latest revised edition of the Official Code of Standardized Plant Names, adopted and published by the American Joint Committee on Horticultural Nomenclature shall govern.

1.43 Regional Lumber Manufacturers' Association. Where manuals are cited, only such part of the text of the manual as is specifically cited shall govern.

1.44 Standard Form 23. The United States Standard Government Form of Contract approved by the President November 19, 1926, or the latest revision thereof approved to date of opening of bids for contract.

Abbreviations used herein are in lieu of and are to be construed the same as the entire word represented; abbreviations include but are not limited to "Sp. gr." - specific gravity; "Pene." - penetration; "Sol." - soluble; "Insol." - insoluble; "Duct." - ductility; "Sp. vis." - specific viscosity; "Soft." - softening; "Pt." - point.

2.0 BIDDING REQUIREMENTS AND CONDITIONS

2.1 Contents of Bid Forms. Bids must be submitted upon the Standard Government Form and on the prepared Bid Schedule Form, and the successful bidder will be required to execute the Standard Government Contract Form for construction. The prepared form mentioned schedules the quantity set up for each and every item upon which a bid is invited, and is furnished expressly for the actual bid. The schedule and contract forms appear in this book in blank for convenience of reference only, not for use as the actual bid for submission. The Standard Government Instructions to Bidders and Standard Government Forms for Bid Bond and Performance Bond and other forms to be used may be obtained upon application. Any "Special Provisions" and any "Supplemental Specifications" that are to govern the execution of the work will be attached to the prepared Bid Schedule Form.

2.2 Interpretation of Estimate. The quantities appearing in the prepared Bid Schedule are to be considered as approximate and as prepared for the comparison of bids only. Payment to the contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the contract and it is understood that the scheduled quantities of work to be done and materials to be furnished may each be increased or diminished as hereinafter provided.

2.3 Examination of Plans, Specifications and Site of Work. Pursuant to the requirement of Article 1 of Standard Form 22, the bidder is required to examine carefully the site of the work contemplated, and the bid forms, Bid Schedule, plans, specifications and contract forms prepared for the work contemplated; it will be assumed that the bidder has investigated and is satisfied as to the conditions to be encountered in performing the work as scheduled, or as at any time altered without resulting in increases or decreases of more than the percentage limits hereinafter stipulated, and as to the character, quality and quantities of work to be performed and material to be furnished, including said contingent increases and decreases, and as to the requirements of the specifications, special provisions and contract. It is mutually agreed that submission of a bid shall be considered prima facie evidence that the bidder has made such examination and is satisfied as to all the conditions and contingencies.

2.4 Bid Guaranty. Liquidated Damages. Partial Payments. Guarantee will be required with each bid in the sum of not less than 5 percent of the total amount bid for the work. Checks must be certified. Checks must be made payable to the Treasurer of the United States. Performance bond will be required on the standard form in the sum of 100 percent of the total amount bid for the work awarded. Performance must begin within the number of calendar days after date of receipt of "Notice to Proceed" stated in the bid and must be completed within the number of calendar days also stated in the bid, counting from the said

date of receipt. Liquidated damages for delay have been determined on the basis of the cost of engineering and inspection fixed by the size of the project and will be in the amount calculated as required in Article 8.7. Partial payments will be made as stated in Article 16 of Standard Form 23 and in the specifications

2.5 Patents and Alternates. It is hereby mutually understood that the article on patents provided conditionally in Standard Form 23, page 7, is a part of the contract.

Where alternates are provided in the bidding, unless definitely stated to the contrary, contractors are not required to bid on any particular alternate item unless they so elect. Any particular proprietary alternate is required by the Government only in the event the contract is awarded based on the use of such particular item, and any contractor choosing to base his bid on a proprietary or patented alternate shall be assumed to have the necessary right to such use and control of any proprietary feature or article as is involved in his bid on such alternate. Contractors bidding on a particular item of their own choice shall include in their estimates and unit price bid such additional cost as they believe necessary to cover any liability or claims, if any, which may be established under any patents, copyrights or suits for infringements which may be brought in connection with the construction of said item, according to the specifications, and shall hold and save the Government, its officers, agents, servants and employees harmless from liability of any nature or kind for or on account of the use of this item.

2.6 Competency of Bidders. Each bidder shall submit with his bid, or previously, an attested statement, on the prescribed forms, of the business and technical organization of the bidder, available for the contemplated work, including financial resources and highway construction experience, compared with the project bid upon.

The United States expressly reserves the right to reject any bid in which the facts as to business and technical organization, financial resources, or construction experience, compared with the project bid upon, justify such rejection.

Bidders must submit with their bids a plan and equipment questionnaire showing in complete detail the proposed manner of handling the contract, the organization of forces, the equipment and equipment layout, camp set-ups and other pertinent information.

3.0 AWARD AND EXECUTION OF CONTRACT

3.1 Consideration of Bids. The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified by specific limitation.

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4.0 SCOPE OF WORK

4.1 Intent of Plans and Specifications. The intent is to prescribe a complete work or improvement which the contractor undertakes to do, in full compliance with the plans, specifications, bid and contract. The contractor shall perform the work in accordance with the lines, grades, typical cross sections and dimensions shown on the plans or as modified by written orders; he shall furnish, unless definitely and expressly provided to the contrary, all materials and equipment, including implements, machinery, tools and supplies and all labor necessary to the prosecution of the work.

4.2 Subsurface and/or Latent Conditions at the Site. It is mutually agreed that the words "Subsurface and/or Latent Conditions at the Site," as used in Article 4 of Standard Form 23 shall be construed to mean and to refer solely to conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the plans and specifications. With respect to such conditions thus defined, Article 4 presumes the waiving of the particular contract unit price or prices immediately involved and the negotiation of new unit price or prices as the "equitable adjustment" provided in Article 3. For all such cases, the administrative procedure shall be by "Change Order," and agreement evidenced by signature of the engineer and the contractor thereon. Assertion of claim for adjustment under Article 3 or 4 of Standard Form 23 shall be valid only if made by the contractor in writing.

4.3 Increased or Decreased Quantities of Work. (a) It is mutually admitted that due to latent or unforeseen conditions, the exact final quantities cannot be known at the time of advertising and it is therefore of the essence of the contract, while holding as still binding the original unit prices, to recognize and permit automatically, as a "normal and expected" margin of adjustment to field conditions, reasonable "overruns" and "underruns" from the quantities in the bid schedule whether or not these "overruns" or "underruns" result from adjustments of the plans, provided only that the adjustments, if any, are in the nature of "minor adjustments" of line, profile, cross sections, layout of structures and accessories or are changes of like nature resulting from changed conditions not construed as "unusual" and "differing materially" in the meaning of Article 4.2.

(b) It is further necessary and expedient that the contract fix within itself the reasonable percentage limits of departure within which "overruns" and "underruns" from the bid schedule quantities are to be mutually and automatically accepted as "normal and expected" and as therefore not subject to negotiation but as falling within the original intent of the contract.

(c) It is therefore mutually agreed that claims for adjustment, or negotiation, or new unit prices because of "overruns" or "underruns" in quantities, whether or not resulting from adjustments of plans, where the resulting change in contract amount or in extensions is within the percentage limits as prescribed in (1) and (2), are hereby waived as set out below; provided, however, that such "adjustments of plans" are determined in fact as not resulting from "changed conditions" "unusual" and "differing materially" within the meaning and intent of Article 4.2.

(1) If upon the completion of construction the actual quantities of any or all items show "overruns" or "underruns" from the quantities in the bid schedule resulting in a sum total change of 25 percent, or less, of the total cost of the

work calculated from the original bid quantities and the original contract unit prices, such departures shall not be considered to involve or constitute an increase or decrease in the amount due the contractor, or any adjustment thereof, save the payment for such altered quantities at the original contract prices.

(2) Similarly, and within the above limitation for sum total change, no adjustment of unit prices nor any negotiated agreement shall be necessary or involved should such departure from bid schedule quantities result in an increase or decrease of more than 25 percent in any minor contract item, which for this purpose shall include, but not be limited to, items of foundation piling or items of excavation of any class other than earth, common roadway excavation or unclassified excavation or any item amounting in the bid schedule to less than 5 percent of the total money value thereof. Where considered necessary, Work Orders will be given the contractor for such modifications in quantities of "minor contract items."

(d) It is further mutually agreed that changes or changed conditions involving departure of more than 25 percent from the quantity in the "Bid Schedule" of any one major item of the contract, including in this category earth, common and unclassified excavation, shall require a negotiated "Change Order" in writing. Before work shall be started on any such alteration the Change Order setting forth an equitable adjustment of compensation mutually agreed upon shall be executed by the engineer and the contractor. The contractor shall then perform the work as increased or decreased.

(e) In any case no alterations, single or accumulated, shall involve an extension of the length of the project of more than 25 percent. No alterations, single or accumulated, shall involve an increase of more than 25 percent of the total cost of the work calculated from the original bid quantities, and the original contract unit prices.

4.4 "Extra Work." Extra Work, as defined in Article 1.6 herein, shall in all cases be covered by a written order. Such order shall be an "Extra Work Order," unless included by the engineer under a "Change Order" as more expedient.

"Extra Work" developed under Articles 3 and 4 of Standard Form 23, construed under Article 4.2, shall require an "Extra Work Order" or may be covered under a "Change Order." If the amount is \$500, or more, the order must be approved by the Head of the Department before the work may proceed. Necessary items may be added to the contract under an Extra Work Order signed by the engineer and accepted by the contractor, provided that if the amount is \$500, or more, the order must be approved by the Head of the Department. The contractor shall then perform the work as ordered.

Work or material for maintenance of "Special Detours" or of portions of road "Accepted for Traffic," where such are included in the contract and provided for under a contingent sum in the bid schedule, shall be covered by "Work Orders." Upon receipt of a "Work Order" the contractor shall immediately proceed with the execution and performance thereof as ordered, except that where such contingent sum is not provided, or is exhausted, an "Extra Work Order" shall be issued before work may proceed.

4.5 Funds Programmed. In case the work under this contract as completed shall leave available any portion of the funds programmed for the construction of this project, the right is reserved to extend this contract to such extent

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as will absorb the funds so remaining available, either by increasing the quantities of work to be performed on the original length or by increasing the length of the project beyond the termini as shown on the plans; provided that no such extension shall be made which will exceed in amount 25 percent of the original amount of this contract either in dollars or in miles. The right is reserved to shorten the project if necessary to keep the cost of the work within the funds programmed. For the purposes of this clause appropriate "Work Orders" shall be issued but "Change Orders" are not required.

4.6 Maintenance of Detours for Public Traffic. Provisions for traffic shall be made as required below under (1) and (2). All expense of construction and maintenance for the accommodation of traffic shall be the obligation of the contractor without direct compensation except insofar as provided under "Special Detours."

(1) Maintenance of Roadway in Travelable Condition. Except where "Special Detours" are directed, the road, while undergoing improvement, shall be kept continuously open to public traffic and in a condition satisfactory to the engineer. All trails, roads and highways intersecting it shall be kept open and passable; temporary approaches and crossings shall be provided and maintained in safe condition. In lieu of maintaining traffic along the improvement, the contractor may by-pass the traffic over detours constructed and maintained at his own expense, and subject to the approval of the engineer. For this class of detour no payment shall be made. This class of detour shall not be included under the item "Maintenance of Detours" nor paid for under "Extra Work" or Force Account Work.

(2) Special Detours. Where the bid schedule contains a lump sum set up for the item "Maintenance of Special Detours" and the project plans expressly show "Special Detours" the contractor shall construct and maintain them as located by the engineer, including any temporary bridges and accessory features. The cost of construction and maintenance of such detours, appertaining temporary bridges and accessory features as ordered shall be considered as a segregated amount to be accumulated as earned under the item in the bid schedule identified as "Maintenance of Special Detours" and paid for in the manner provided hereinafter under Article 9.3 or 9.4. Only such detours as are located on the plans and identified as "Special Detours" shall be recognized or paid for.

4.7 Removal and Disposal of Structures and Obstructions. All fences, buildings, structures, or encumbrances of any character upon or within the limits of the right of way, not necessary to the improvement, shall be removed by the contractor and carefully placed on the abutting property or otherwise disposed of, if and as required.

Payment for this work shall not be made directly except for specific operations expressly identified for payment in the bid schedule, and except for unforeseen "removal and disposal" operations of major cost made necessary by latent causes or conditions developed under Article 4.2 due to no fault of the contractor, in which case payment shall be made in the manner provided hereinafter under Articles 9.3 or 9.4.

4.8 Rights in and Use of Materials Found on the Work. The contractor may use in the proposed construction suitable stone, gravel or sand found in the excavation and will be paid for the excavation of such materials at the corresponding contract unit price therefor, but he shall replace at his own expense with other suitable material all of that portion of the material so removed and used as was originally contemplated for use in the embankments, backfills, approaches or otherwise. No charge for materials so used will be

made against the contractor except the replacement herein provided for. The contractor shall not excavate or remove any material from within the highway location which is not within the excavation, as indicated by the slope and grade lines, without written authorization from the engineer.

4.9 Final Cleaning Up. Before acceptance and final payment shall be made, the right of way, borrow pits, and all ground occupied by the contractor in connection with the work shall be cleaned of all rubbish, excess materials, temporary structures and equipment and all parts of the work shall be left in a neat and presentable condition.

5.0 CONTROL OF WORK

5.1 Working and Detail Drawings. The plans furnished by the engineer shall be supplemented by the contractor with such additional working and detail drawings as may be found necessary to control adequately the work and its prosecution. For structures they shall include but not be limited to shop details, erection layouts, masonry layout diagrams, and bonding diagrams for reinforcing steel, approval of which by the engineer must be obtained before any work involving these plans shall be performed. Layouts for cribs, cofferdams, falsework, centering and form work may also be required and in such case shall be likewise subject to approval by the engineer, but such approval shall not operate to relieve the contractor of any of his responsibility under the contract for the successful completion of the improvement. The contract price shall be considered to cover the cost of furnishing all working drawings in the size and form required, including tracings. It is mutually agreed that approved plans and all specifications shall prevail over these working and detail drawings.

5.2 Conformity with Plans and Allowable Deviations. Finished surfaces in all cases shall conform with lines, grades, dimensions and adjustments shown on the approved plans, except as modified by written orders herein elsewhere defined and standardized. The crown of the finished roadbed shall be as shown on the plans, except at intersecting highways or wherever, to insure correct drainage or for other reasons, changes may be directed. On curves or at other places, where deemed necessary, the contractor will be required to superelevate the roadbed. Any deviations from the plans and approved working drawings that may be required by the exigencies of construction or otherwise will in all cases be determined by the engineer and authorized by written orders.

5.3 Coordination of Plans, Specifications and "Special Provisions." These specifications, the approved plans, "Special Provisions" and all documents affecting the work duly issued by the engineer to the contractor are essential parts of the contract. They are intended to be mutually complementary. In case of discrepancy, figured dimensions shall govern over scaled dimensions, "Supplemental Specifications" (Article 1.2) shall prevail over these general specifications; "Special Provisions" shall govern over all "Supplemental Specifications" and over these and all other general specifications and over all plans.

5.4 Construction Stakes. As constituting the field control by and in accordance with which the contractor shall govern and execute the work, the engineer will set construction stakes establishing lines, slopes and continuous profile-grade in road work, and center line and bench marks for bridge work, culvert work, protective and accessory structures and appurtenances as he may deem necessary, and will furnish the contractor with all necessary information relating to lines, slopes and grades.

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The contractor shall furnish, free of charge, all additional stakes, all templets, batter boards and other materials necessary for marking and maintaining points and lines given, and shall furnish the engineer such labor as he may require in establishing points and lines necessary to the prosecution of the work to satisfactory completion. The contractor shall be held responsible for the preservation of all stakes and marks, and if any of the construction stakes or marks have been carelessly or wilfully destroyed or disturbed by the contractor, the cost of replacing them shall be charged against, and shall be deducted from, the payment for the work.

In the case of "changes" or "changed conditions" which involve any changes in stakeout, the contractor shall cooperate with the engineer and facilitate the prompt reestablishment of the field control for the altered or adjusted work, whether the new stakeout is authorized under an "Extra Work Order," "Change Order," or a "Work Order."

5.5 Final Inspection. Whenever the work provided and contemplated by the contract shall have been satisfactorily completed and the final cleaning up performed, the engineer shall, within ten days, or as soon thereafter as practicable, make the final inspection.

6.0 CONTROL OF MATERIAL

6.1 Source of Supply and Quality. Information required under certain circumstances under Article 7 of Standard Form 23 shall be construed to include, when required, a complete written statement of the origin, composition and manufacture of any or all materials to be used in the work.

6.2 Samples and Tests. Tests of materials will be made by the engineer in accordance with the methods given in the 1935 "Standard Specifications for Highway Materials and Methods of Sampling and Testing" of the American Association of State Highway Officials unless otherwise provided. In cases where definite identification of a particular test or method is necessary, the citation "Standard Test" in this text shall be construed to mean the method given in the said publication, or the said revisions, for sampling and testing the particular material or product involved, provided, however, that in the case of seeds, samples and test methods shall be as prescribed by U.S. Department of Agriculture Circular 406, "Rules for Seed Testing (April, 1928)."

Where the abbreviated reference "A.A.S.H.O. Tentative Standard Specification" is used, it shall be construed to refer to the appropriate section of the above-mentioned publication of the American Association of State Highway Officials or of the said revisions. Where A.S.T.M. specifications and serial numbers are stipulated the reference shall be construed to be the specification and serial number of the American Society for Testing Materials, as amended to date of opening of bids for the contract either as an adopted standard, an adopted tentative standard or an adopted supplement. When the term "Federal Specification" or "Federal Board Specification" is cited the reference shall be construed to mean the specification as modified by any amendments promulgated before the date of opening of bids for the contract. Where a "Federal Board Specification" has been superseded by a "Federal Standard Specification," promulgated before the date of opening of bids for the contract, citation of such "Federal Board Specification" shall be construed to mean the superseding "Federal Standard Specification."

Sieves in these specifications and in plans, special provisions and any contract documents, referred to by sieve number, in sizes up to and including the No. 4 size, are laboratory sieves with square openings meeting the American Association of State Highway Officials Standard Method of Test T-27. Larger sieves referred to by size of opening in inches are laboratory sieves with corresponding square openings also meeting the American Association of State Highway Officials Standard Method of Test T-27.

6.3 Storage and Stockpiling of Materials. Materials shall not be stored on the highway except where and as permitted by the engineer. Stockpiling of construction materials along the road shall be confined to such cleared areas as may be approved by the engineer.

Where stockpiling is done outside of the roadway, the site shall be abandoned immediately when the portion of the project for which it is required is completed and the natural surfaces shall then be restored as nearly as possible to the original condition by the contractor at his expense. This shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work as specifically prescribed under these specifications.

In the case of plant materials of a perishable nature, a temporary or "heeling in" nursery shall be required, the location of which shall be approved by the engineer. The contractor shall give proper care to such perishable materials before and during planting. Immediately following delivery and inspection at the job, all plants with exposed roots shall be "puddled" and such plants as cannot be planted promptly shall be "heeled in" in moist soil and in a manner satisfactory to the engineer. All plants "heeled in" shall be properly maintained by the contractor until planted. In the event "heeled in" plant material must be held over until the next planting season, such "heeled in" material shall be lifted and replanted in a satisfactory manner in nursery rows. Such emergency storage of materials shall be at the entire risk of the contractor, including maintenance of same.

The ball of roots of balled and burlapped (B.& B.) plants, if not immediately planted after delivery and inspection, shall be adequately protected by topsoil covering until removed for planting, in a manner appropriate to the conditions and satisfactory to the engineer.

6.4 Defective Materials. All materials not conforming to the requirements of these specifications shall be considered as defective. No defective material, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure on the part of the contractor to comply forthwith with any order of the engineer made under the provisions of this article, the engineer shall have authority to remove and replace defective material and to deduct the cost of removal and replacement from any moneys due or to become due the contractor.

7.0 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7.1 Laws to be Observed. The contractor is assumed to be familiar with, and at all times shall observe and comply with, all Federal, State and local laws, by-laws, ordinances and regulations in any manner affecting the conduct

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of the work. Before any camp, quarry, borrow pit, storage, detour or by-pass site is opened or operated on Government property permit shall be obtained from the Forest, Park or other Federal officer having jurisdiction.

7.2 Permits and Licenses. The contractor shall pay all charges and fees and give all notices necessary and incident to the due and lawful prosecution of the work.

7.3 Patented Devices, Materials and Processes. The contractor shall hold and save the Government, its officers, agents, servants and employees harmless from liability of any nature or kind for or on account of the use of any patented or unpatented invention, article, or appliance furnished or used in the performance of this contract, excepting patented articles required by the Government in its specifications, the use of which the contractor does not control.

7.4 Restoration of Surfaces Opened by Permit. Openings in the highway for other purposes than those required for the prosecution of the contract shall not be allowed by the contractor without written permission from the engineer. When such openings are to be made the contractor shall make or repair them upon written order by the engineer and such work will then be paid for as "Extra Work."

7.5 Sanitary Provisions and Camps. The contractor shall provide at locations approved by the engineer and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements and regulations of the State Health Department, National Forest Service or National Park Service, or other authorities having jurisdiction. All such regulations, when duly promulgated, prior to the opening of bids for the contract, shall be considered as binding upon the contractor, the same as if actually included in these specifications.

The location of the contractor's camps shall require written approval by the engineer. The preservation of the landscape shall be an imperative consideration in the selection of the site and in the construction and the operation of such camps. All camps shall be placed upon cleared portions of the right of way, unless permission to do otherwise is secured in writing from the engineer.

The contractor shall observe the following specific regulations pertaining to camp sanitation:

(a) Sleeping quarters shall be provided for all employees and shall have ample window and air space, and floors that can be kept clean.

(b) Cooking and dining quarters shall be well lighted and ventilated, fly proof and kept in a clean sanitary condition at all times. Places used for dining rooms, kitchens, or for storing or preparing foods shall not be used for sleeping or living rooms and persons affected with communicable diseases shall not be allowed in the cooking and dining quarters. All perishable food shall be protected from putrefaction and insects and all food served shall be handled in a cleanly and sanitary manner.

(c) A water supply for domestic purposes shall be obtained from a source free from contamination.

(d) Sewage shall be disposed of in earth pit toilets covered with fly-proof and well-ventilated buildings, or chemical toilets, or by other approved methods. If pit toilets are used, they shall be located not less than 100 feet from streams, 75 feet from sleeping quarters and 150 feet from kitchens or mess houses and the pits shall be sprayed with disinfectant three times each week. Flush toilets shall not be used before plans for method of disposing of sewage have been approved by the engineer.

(e) Garbage and refuse shall be stored in closed containers and shall be disposed of either by burning or by burial and covering every day.

Liquid kitchen wastes shall be discharged through vitrified or iron pipe to a covered cesspool located not less than 50 feet from the kitchen.

(f) Stables and corrals shall be located not less than 600 feet distant from kitchens and 500 feet distant from sleeping quarters.

(g) When a camp is abandoned, all tin cans, rubbish, toilet buildings and other foreign material shall be removed and disposed of to the satisfaction of the Forest or Park Service officer through the engineer. All pits used for toilets, garbage or cesspools shall be covered with chloride of lime or other disinfectant and filled with earth. The entire camp area shall be left by the contractor in a neat and clean condition appropriate to the surrounding landscape.

7.6 Public Convenience and Safety. Where the contractor constructs temporary bridges or provides temporary stream crossings, his responsibility for accidents shall include the roadway approaches as well as the structures at such crossings. Material stored upon the highway shall be placed so as to cause only such obstruction to the traveling public as is considered unavoidable. No road shall be closed by the contractor to the public except by express permission of the engineer. Care shall be taken at all times to regulate the operations so as to protect visitors and campers in the National Forest or Park or other Government reservation involved. The contractor shall take reasonable care at all times in all the operations to protect the traveling public and to facilitate traffic.

7.7 Barricades, Danger, Warning and Detour Signs. The contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient red lights, danger signals, detour and other signs, provide a sufficient number of watchmen and take all necessary precautions for the protection of the work and safety of the public. Highways closed to traffic shall be protected by effective barricades and obstructions shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise.

The contractor will be required to erect warning signs outside of the project and 500 feet from each end of the project and 500 feet in advance of any place on the project where operations interfere with the use of the road by traffic, including all intermediate points where the new work crosses or coincides with the existing road. The warning signs shall be constructed and erected in accordance with the plans furnished. Payment for these signs shall not be made directly, but payment for the pay items performed and accepted under the contract shall be considered to cover the furnishing and erecting of these signs.

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7.8 Use of Explosives. When the use of explosives is necessary for the prosecution of the work, the contractor shall use the utmost care not to endanger life or property.

Blasting operations shall be conducted under the most careful supervision and only light shooting will be permitted without specific permission from the engineer. The contractor shall adopt precautions in using explosives which will prevent damage to surrounding objects and the scattering of rocks, stumps, or other debris outside of the roadway slopes. Where necessary and at any point of special danger the contractor shall, upon special order of the engineer, use suitable mats or some other approved method to smother the blasts.

Failure to observe the necessary precautions to prevent damage or to repair immediately any damage which may occur will be sufficient grounds for "Temporary Suspension of the Work" until the contractor has given evidence to the satisfaction of the engineer that these provisions will be strictly complied with.

All explosives shall be stored in a secure manner, in compliance with local laws and ordinances, and all such storage places shall be marked clearly "DANGEROUS - EXPLOSIVES." Where no local laws or ordinances apply, storage shall be provided satisfactory to the engineer and in general not closer than 1,000 feet from the road or from any building or camping area.

7.9 Protection and Restoration of Property. The contractor shall be responsible for the preservation of all public and private property, monuments, telephone lines, other utilities, etc., along and adjacent to the roadway; shall use every precaution necessary to prevent damage to pipes, conduits and other underground structures; and shall protect carefully from disturbance or damage all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed. Any utility lines injured by the contractor shall be repaired at once at his expense. All trails and roads adjacent to or intersecting the project shall be protected from damage. The contractor shall be responsible for the preservation of all artifacts found in the roadway or disclosed by his operations and shall deliver same promptly into the custody of the engineer.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof on the part of the contractor, such property shall be restored by or for the contractor and at the contractor's expense to a condition similar or equal to that existing before such damage or injury was done by repairing, rebuilding or otherwise restoring same or he shall make good such damage or injury in an acceptable manner.

7.10 Responsibility for Damage Claims, etc. The contractor shall save harmless the Government and all of its representatives from all suits, actions or claims of any character brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work or through the use of unacceptable materials in the construction of the improvement or on account of any act or omission by the said contractor or his employees or from any claims or amounts arising or recovered under the Workmen's Compensation Laws or any other law, by-law, ordinance, order or decree. 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 the manner

or method of executing said work satisfactorily or due to the nonexecution of said work at any time or due to defective work or materials and said responsibility shall continue until the work shall have been completed and accepted, the final inspection made and the work accepted by the engineer.

7.11 Opening of Sections of Highway to Traffic. When any substantial portion or feature of the project is completed it may be designated as "Accepted for Traffic" previous to the completion of the whole project, if and as deemed expedient by the engineer. Such opening shall not be held to be final acceptance of the work or any part of it or as a waiver of any provisions of the contract; provided, however, that on such portions of the project "Accepted for Traffic," the contractor shall not assume any expense entailed in maintaining traffic as a result of ordinary wear and tear after such acceptance, but shall be compensated therefor in the manner provided hereinafter under Article 9.3 or 9.4. Any damage to the highway that may occur on such section not attributable to traffic shall be repaired by the contractor at his expense provided, however, that any "slides" shall be removed as ordered and paid for at the respective contract unit prices for the quantities and items or work involved.

7.12 Contractor's Responsibility for Work. Until the final acceptance of the work by the engineer, as evidenced in writing, the contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the nonexecution of the work. The contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before its completion and acceptance and shall bear the expense thereof, except damages to the work due to unforeseeable causes beyond the control of and without fault or negligence of the contractor, including but not restricted to acts of God or of the public enemy, acts of the Government, slides found by the engineer to have been unavoidable and ordinary wear and tear on any section of the road opened to traffic by order of the engineer.

In case of suspension of work from any cause whatever, the contractor shall be responsible for all materials and shall properly store them, if necessary, and shall provide suitable drainage of the roadway and erect necessary temporary structures at his expense. He shall properly and continuously maintain in an acceptable growing condition all live or perishable material in newly established plantings, seedings and soddings furnished under his contract and shall take adequate precautions to protect and establish new tree growth and other important vegetative growth from injury. Material not incorporated in the work shall be considered under the responsibility of the contractor and at his risk.

7.13 Personal Liability of Public Officials. In carrying out any of the above provisions or in exercising any power or authority granted to the contracting officer or engineer, or their agents and employees by this contract, there shall be no liability either personally or as officials or representatives of the Government; it shall be understood that in such manner they act as the agents and representatives of the Government.

7.14 No Waiver of Legal Rights. The Government shall not be precluded or estopped by any measurement, estimate or certificate made either before or after the completion and acceptance of the work and payment therefor from showing the true amount and character of the work performed and materials furnished by the contractor, nor from showing that any such measurement, estimate or certificate is untrue or incorrectly made, nor that the work or materials do not conform in fact to the contract. The Government shall not be precluded or estopped, notwithstanding any such measurement, estimate or certificate and payment in accordance therewith from recovering from the contractor and

his Sureties such damages as it may sustain by reason of his failure to comply with the terms of the contract. Neither the acceptance by the engineer or by his representative, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the engineer shall operate as a waiver of any portion of the contract or of any power herein reserved, or any right to damages herein provided. A waiver of any breach of the contract shall not be held to be a waiver of any other or subsequent breach.

8.0 PROSECUTION AND PROGRESS

8.1 Subletting, Subcontracting or Assigning of Contract. The contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than 80 percent of the value of all work embraced in the contract exclusive of items not commonly found in contracts for similar work, or which require highly specialized knowledge, craftsmanship or equipment not ordinarily available in the organizations of contractors performing work of the character embraced in the contract.

Provided, that if any bidder shall state in his bid the particular item or items of work which he proposes to sublet and shall name therein the subcontractor to whom he proposes to sublet such work in the event of an award to him, such item or items of work may be performed by such subcontractor notwithstanding the 80 percent limitation above mentioned, provided that the subcontractor named in the proposal is a contractor of recognized standing, has a record of satisfactory performance, and the work proposed to be sublet does not constitute the major item or items of work embraced in the contract. Any bidder who shall name a subcontractor in his bid shall attach thereto a certificate that the use of the name of such subcontractor was with his knowledge and consent. Any subcontractor so named in any bid may be required to submit questionnaires to establish his experience and financial ability. The naming of a subcontractor in any such bid will not insure approval of the proposed subletting of work to him, and in the event of disapproval of such subletting, the contractor shall perform such item or items of work with his own organization in full compliance with all applicable terms of his contract.

No portion of the contract shall be sublet, assigned or otherwise disposed of, except with the written consent of the contracting officer or his authorized representative. Requests for permission to sublet, assign or otherwise dispose of any portion of the contract shall be in writing and accompanied by a showing that the organization which will perform the work is particularly experienced and equipped for such work. The contractor shall give assurance that the minimum wage for laborers and mechanics shall apply to labor performed on all work sublet. Written consent to sublet any portion of the contract shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

The contractor will not be permitted to subcontract the construction and maintenance of messes and camps necessary for the boarding and lodging of his employees without prior written permission from the District Engineer.

No claim against the United States under this contract shall be assigned, unless such assignment is for the purpose of expediting the actual construction of the project and to provide a means of financial assistance to the contractor. No such assignment shall be valid without the written consent of the Sureties

on the bonds executed in connection with the contract and the written approval of the contracting officer or his authorized representative. Attention is invited to Section 207 of the National Industrial Recovery Act, which provides that funds received by a contractor under any advances made in consideration of any such assignment are declared to be trust funds in the hands of such contractor to be applied first to the payment of claims of subcontractors, architects, engineers, surveyors, laborers and material men in connection with the project, and on insurance policies taken in connection therewith. Attention also is invited to the further provision in said section of the Act that any contractor, and any officer, director or agent of any such contractor, who applies or consents to the application of such funds for any other purpose and shall fail to pay any claim or premium hereinabove mentioned shall be guilty of a misdemeanor and shall be punished by a fine of not more than \$1,000 or by imprisonment for not more than one year, or by both such fine and imprisonment.

8.2 Prosecution of Work. After receipt of "Notification of Award" and "Notice to Proceed" the contractor shall start work as required by the orders contained in the "Notice to Proceed."

The contractor, within 10 days after receipt of "Notice to Proceed," shall file with the engineer a time chart or schedule of proposed progress, a plan of construction and the proposed detailed method of carrying on the work, including a full statement of the equipment and equipment layout for the job. He shall start the improvement at the part of the road designated by the engineer, and the same shall be conducted in such manner and with sufficient materials, equipment and labor as is considered necessary to insure its completion in accordance with the plans and specifications as interpreted by the engineer, within the time set forth in the proposal. Should the prosecution of the work for any reason be discontinued, he shall notify the engineer at least 24 hours in advance of resuming operations.

8.3 Limitations of Operations. Defacing Landscape. Forest Fires. Seasonal Operations. The contractor shall at all times conduct the work in such manner as will insure the least practicable interference with traffic and shall have due regard to convenient detours. He shall not open up work to the prejudice of work already started and the engineer may require the contractor to finish a section on which work is in progress before work is started on any additional section. Each contractor shall be held responsible for any damage done by him or his agents to the work performed by another contractor.

The location of temporary roads, quarries, storage buildings and other construction buildings and operations shall require written approval of the engineer. Construction buildings, located on public land or on private land and within sight of the highway, shall be removed and the site shall be restored by the contractor and at the contractor's expense to a neat and presentable condition appropriate to the surrounding landscape.

Where the contractor may require temporary roads in the performance of the work, so far as possible such roads shall be confined to cleared areas or areas to be cleared unless otherwise authorized in writing by the engineer. All location of such temporary roads and trails shall be abandoned immediately when the construction of the portion of the project for which they were required is completed and the natural surfaces disturbed by their construction and use shall be restored as nearly as possible to the original condition by the contractor at his expense and to the satisfaction of the engineer.

Special attention shall be given the landscape features of the work and special care taken to protect the natural surroundings. The contractor shall

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not deface, injure or destroy trees or shrubs nor remove or cut them without special authority.

Specimen trees that in the opinion of the engineer may be defaced, bruised, injured, or otherwise damaged by the contractor's construction equipment or operations shall be protected by boards or planks. Monuments and works of art shall be similarly protected before beginning operations near them.

Any timber, trees or landscape features scarred or damaged by the contractor's operations shall be removed, neatly trimmed up, or restored as nearly as possible to the original condition, as required by the engineer and at the contractor's expense. All scars made on trees by construction operations or the removal of limbs shall be painted as soon as possible with an approved paint. No ropes, cables or guys are to be fastened to or attached to any existing nearby trees for anchorages, or in lieu of placing of dead men, unless specifically authorized by the engineer, in which special emergency use the contractor will first adequately wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied, before any wire, cable or rope is placed. The contractor shall in any event be responsible for any damage to any tree so used and shall repair any such damage due to this use of the tree if any occurs.

The engineer may direct the contractor to protect trees against his blasting and dumping operations by placing lumber or poles around such trees. These precautions will be at the expense of the contractor, as they will not be necessary if the blasting and dumping are carried on in a cautious manner.

When directed by the engineer, all trees remaining within an area designated to be cleared shall be left as a protective screen for surrounding vegetation during blasting operations and shall not be removed until blasting has been completed.

For breaking up surface boulders or rock fragments, the method of "plastering" or "mudcapping" shall be used in preference to "blockholding." Rock blasting and sidehill excavation shall not be done by means of "coyote" holes or "gopher" holes except with the prior written consent of the engineer. The engineer's consent, if given, will be only on the condition that any damage to the roadway or slopes, trees or other landscape features, or to any part of the work resulting from such blasting will be repaired by the contractor at his own expense.

The contractor shall be required to use electric detonators exclusively in connection with all blasting operations except when, in the opinion of the National Forest or Park Service officer, obtained through the engineer, weather conditions give absolute assurance that other methods of blasting will not cause a fire hazard in the area in which the contractor is operating. The contractor shall maintain a fire patrol in the vicinity of blasting or other operations creating a fire hazard except when, in the opinion of such officer, obtained through the engineer, weather conditions make such a patrol unnecessary.

The contractor shall abide by such rules and instructions as to the time and place for burning and for fire control generally as the National Forest or Park Service officer may formally prescribe. Before setting any fires whatsoever the contractor shall communicate with a responsible National Forest or Park Service officer for the area concerned. The contractor will take all necessary steps to prevent his employees from setting fires not required in the construction of the project and shall, under the direction of the appropriate National Forest or Park Service officer, or in the absence of any such officer,

acting independently, extinguish such fires without expense to the United States. It shall be the responsibility of the contractor to prevent the escape of fires set in the construction of the project and to extinguish such as may escape, without expense to the United States.

For the purpose of fighting forest fires in the vicinity of the right of way which are not caused by the contractor or his employees, the contractor, when requested by the National Forest or Park Service officer, shall place his employees temporarily at the disposal of the appropriate Federal Service, with the understanding, however, that payment to such employees for such services will be made by the United States at not less than the current rate for such services established by the Federal Service in the area concerned, and any employees furnished will be relieved from fire fighting as soon as the said officer in charge finds that it is practicable to employ other labor adequate for the protection of the area. If the said officer is on the ground, the fighting of the fire will be under his direction.

All burning shall be done at night unless otherwise authorized in writing by the engineer. During burning operations special care shall be taken to prevent scorching or causing any damage to adjacent trees and shrubbery and the piles of material shall be so placed and burned that no damage to adjacent objects will result.

During the period of operations on the contract the contractor shall maintain spark arresters satisfactory to the National Forest or Park Service officer on all steam engines and internal combustion engines operated by the contractor and on all flues at construction camps.

Upon order of the engineer the contractor will be required to furnish a portable gasoline-driven pump and not less than 1500 feet of 1-1/2-inch hose and nozzle. The pump shall be powered with a four-cycle engine and be capable of delivering at least 25 gallons per minute through 1500 feet of 1-1/2-inch hose with a 3/8-inch nozzle, at an elevation of 300 feet above the pump.

When in the judgment of the National Forest or Park Service officer, Brush should be burned only when a suitable pump and sufficient water are available, the engineer will require the contractor to suspend burning operations or to pump water with the above described pumps and equipment to extinguish all burning embers before they are left unattended and for any other protective purpose ordered.

The contractor shall perform all planting, seeding, and sodding operations only at times when the local weather and other conditions affecting such work are normal and favorable to the proper prosecution of the particular work and in no case except within the dates specified (as indicated below) as the normal planting, seeding or sodding seasons for the respective classified materials and work. Movement of perishable materials to or from nursery rows, storage warehouses, heeling-in grounds and similar operations are considered a part of planting operations.

The beginning and ending of the normal planting, seeding and sodding seasons for such of the following classes of work as are involved in this contract are specified in the Special Provisions, by citing the normal seasons by letter (a), (b), (c), etc., accompanied by the limiting dates applicable.

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- (a) For deciduous (dry or bare-rooted) plant stock
- (b) For deciduous (balled and burlapped) (B. & B.) stock
- (c) For evergreen (balled and burlapped) (B. & B.) stock
- (d) For spring (grass) seeding operations
- (e) For fall (grass) seeding operations
- (f) For sodding operations
- (g) For wild flower seeding operations
- (h) For large size tree-moving operations

8.4 Character of Workmen and Equipment. The contractor shall at all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time specified in these specifications.

All workmen must have sufficient skill and experience to properly perform the work assigned them. All workmen engaged on special work, or skilled work, such as bituminous pavements or mixtures, concrete bases, pavements, or structures, or in planting, seeding or landscaping work, or in any trade, shall have sufficient experience in such work to properly and satisfactorily perform it, and operate the equipment involved.

Any foreman or workman employed by the contractor or by any subcontractor who, in the opinion of the engineer or his authorized representative, does not perform his work in a proper and skillful manner or is disrespectful, intemperate, disorderly or otherwise objectionable, shall, at the written request of the engineer, be removed forthwith by the contractor, or subcontractor, employing such foreman or workman, and shall not be employed again in any portion of the work without the written consent of the engineer. Should the contractor fail to remove such person or persons or fail to furnish suitable and sufficient machinery, equipment or personnel for the proper prosecution of the work, the engineer may withhold all estimates, which are or may become due, or may suspend the work until such orders are complied with.

All machinery and equipment owned or controlled by the contractor which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet with the requirements of the work and to produce a satisfactory quality of work. The engineer may order the removal and require replacement of any unsatisfactory equipment. No change in the machinery and equipment employed on the work, which shall have the effect of decreasing its capacity, shall be made except by written permission of the engineer. The measure of the capacity of machinery and equipment shall be its actual performance of and on the work.

Failure of the contractor to provide adequate and satisfactory equipment may result in the annulment of the contract as hereinafter provided. Equipment used on any portion of the work shall be such that no injury to roadway, adjacent property, or other highways will result from its use.

8.5 Temporary Suspension of Work. The contracting officer shall have the authority to suspend the work wholly or in part, for such period as he may deem necessary, due to unsuitable weather, or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such

time as he may deem necessary, due to the failure on the part of the contractor to carry out orders given, or to perform any provision of the contract. The contractor shall immediately respect the written order of the contracting officer to suspend the work wholly or in part.

8.6 Determination of Contract Time for Completion. Extensions and Allowances. The time of performance is based on the estimated quantities appearing in the Bid Schedule. If satisfactory completion of the contract, with authorized extensions and increases under Articles 4.2, 4.3, 4.4 and 4.5, shall require the performance of work in greater quantities than those set forth in the Bid Schedule, the time allowed for performance shall be increased in the same ratio that the total cost of work actually performed shall bear to the total cost in the Bid Schedule, and as may be allowed under Articles 3 and 4, Standard Form 23. In case of total suspension not due to any fault of the contractor and involving cessation of work on all items except such minor items or work of emergency nature for convenience of public traffic, the extension of which is ordered by the engineer or minor construction not affected by the cause of suspension, elapsed time between effective dates of order to suspend operations and order to resume work shall be allowed in adjusting the time allowed for performance. No time allowance will be granted as a result of partial suspension.

Where all work is completed but deferment of final acceptance is necessary pending lapse of any 45-day growing period and due solely to that cause, no daily time charge shall accrue against the contractor. When at the end of any 45-day growing period replacements are found necessary, the appropriate time charge, if any charge is applicable due to delay in completion of work, shall accrue from the beginning of such field planting operations until the completion and acceptance of the replacements.

Where any work involving living plant material is not yet completed at the cessation of work in the fall at the order of the engineer or before the close of the planting season, no daily time charge shall accrue against the contractor for the days intervening between such date of stoppage of work and the date of the order to resume work in the spring or such earlier date within a planting period on which the contractor may elect to resume operations or to make replacements.

8.7 Failure to Complete Work on Time. Pursuant to Article 9 of Standard Form 23 providing for "liquidated damages for each calendar day of delay until the work is completed or accepted" the amount per day of such delay has been determined on the basis of the cost of engineering and inspection fixed by the size of the project and the total amount will be as calculated from the daily charge given in the table below corresponding to the total original contract amount of the particular contract. The daily charge for delay will cease upon final acceptance of work by the engineer and as provided under Article 8.6. In cases of delay pending lapse of any 45-day growing period and due solely to that cause, the daily time charge will be the charge fixed for a project of a value corresponding to the contract amount of such living plant material involved in the 45-day growing period.

Original Contract Amount	Daily Charge
Up to \$25,000	\$10.00
\$25,000 to 50,000	20.00
50,000 to 100,000	25.00
100,000 to 500,000	50.00
500,000 to 750,000	75.00

8.8 Termination of Contractor's Responsibility. This contract will be considered complete when all work has been completed, the final inspection made, the work accepted by the engineer, and the final estimate and voucher approved for payment and the date of said approval shall be the date of final completion and settlement. The contractor will then be released from further obligation except upon proof of error and as set forth in the performance bond.

9.0 MEASUREMENT AND PAYMENT

9.1 Measurement of Quantities. All work completed under the contract shall be measured by the engineer according to United States Standard measures, unless otherwise agreed upon in writing. All longitudinal measurements for area of pavement will be made along the actual surface of the same and not horizontally, and no deduction will be made for fixtures in the roadbed having an area of 9 square feet or less.

9.2 Scope of Payments. The quantities listed in the Bid Schedule do not govern final payment. Payments to the contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications and if, upon completion of the construction, these actual quantities shall show either an increase or decrease from the quantities given in the Bid Schedule the unit prices bid will still prevail except as otherwise herein specifically provided.

The contractor shall accept the compensation, as herein provided, in full payment for furnishing all materials, labor, tools and equipment necessary to the completed work and for performing all work contemplated and embraced under the contract; also for all loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until its final acceptance by the engineer, and for all risks of every description connected with the prosecution of the work; also for all expenses incurred in consequence of the suspension or discontinuance of the work as herein specified.

In cases where the "Basis of Payment" clause relating to any unit price in the Bid Schedule requires that the said unit price cover and be considered compensation for certain work essential to the item, this same work shall not also be measured or paid for under any other pay item, which may appear elsewhere in the specifications.

The payment of any partial estimate or of any retained percentage except by and under the approved final estimate and voucher in no way shall affect the obligation of the contractor to repair or renew any defective parts of the construction or to replace any defective materials used in the construction and to be responsible for all damage due to such defects.

9.3 Altered Quantities and Extra Work; Payment for, on Price Basis.
(a) When the actual quantities of work ordered and performed vary from the corresponding quantities set out in the Bid Schedule but such variance is within the "percentage limits" hereinbefore agreed upon in Article 4.3 as "normal and expected," whether or not there has been any shifting of line, adjustment of profile, structure or similar "minor adjustments," or whether there has been encountered any "changed conditions" to the extent recognized in Article 4.3 (a), as reasonable, incidental and inherent in the original purpose and not construed under Article 4.2, the contractor shall accept payment

in full at the contract unit prices for the actual quantities of work done and no allowance or other adjustment will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the contractor resulting either directly from such alterations, or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the bidder and subsequent loss of expected reimbursement therefor or from any other cause save the said payment for the actual quantity done at the original contract unit price.

(b) Where quantities vary from the original beyond the percentage limits recognized in Article 4.3 (d) and within the percentage limits recognized in Article 4.3 (e) adjusted prices and terms (not more than 15 percent in excess of estimated cost) shall be agreed upon and stated in the covering "Change Orders."

(c) Work and material that may be required as a result of "changes" or "changed conditions," developed under Articles 3 and 4 of Standard Form 23 but determined as not coming within the scope of Article 4.2, may be covered by "Work Orders" which shall provide that such work or material shall be paid for at the scheduled contract unit prices, if any, bid for work or material which is of the same character, as determined by estimated cost of performance.

(d) If, however, there are no such prices in the Bid Schedule and such work and material does come within the meaning of Article 4.2 and does increase or decrease the unit cost of performance, the price therefor may be agreed upon (not exceeding the estimated cost thereof plus 15 percent) and in such case the agreed prices shall be stated in and the work when performed will be paid for under "Change Orders," or "Extra Work Orders," as the case may be. If no price agreement is reached, then the order shall be drawn for force account as required under Article 9.4.

(e) If quantities of work are increased or decreased or contract extended, up to 25 percent, on account of the provisions for "Funds Programmed" the contractor shall accept payment in full at the contract unit price for the actual quantities of work done and no allowance will be made for anticipated profits.

9.4 Force Account Work. Force Account Work shall be covered by "Extra Work Orders" except that with respect to work or materials for maintenance of portions of road "Accepted for Traffic" and with respect to work or materials for "Special Detours" where, in both instances, a sufficient contingent sum therefor is set up in the bid schedule and is available, "Work Orders" shall be issued and may be drawn on the "Force Account" basis.

Under all orders requiring force account basis of payment the work shall be done on the following arrangements for compensation.

(1) For all labor, teams and foremen in direct charge of the specific operation, the contractor shall receive the wage required by the contract in each case or if not specified then the current local rate of wage and the cost of "Workmen's Compensation Insurance," to be agreed upon in writing before starting the work, to which shall be added an amount equal to 15 percent of the sum thereof. No allowance shall be made for general superintendence and the use of small tools and manual equipment.

(2) For all materials accepted by the engineer and used, the contractor shall receive the actual cost of such material, including transportation charges, to which cost shall be added a sum equal to 15 percent thereof.

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(3) For any machine-power tools or special equipment, including pertinent fuel and lubricants, which it may be deemed necessary or desirable to use, the contracting officer shall allow the contractor a reasonable rental price to be agreed upon in writing before such work is begun for the time that such tools or equipment are in use on the work and to which sum no percentage shall be added.

The compensation as herein provided shall be received by the contractor as payment for work done on a force account basis. The contractor's representative and the inspector shall compare records of work done as ordered on a force account basis at the end of each day. Copies of these records shall be made upon suitable forms provided for this purpose, and signed by both the inspector and the contractor's representative, one copy being forwarded to the engineer and one to the contractor. All claims for work done on a force account basis shall be submitted to the engineer by the contractor upon certified statements, and such statements shall be filed not later than the tenth day of the month following that in which the work was actually performed.

9.5 Partial Payments. Pursuant to Article 16 of Standard Form 23 partial payments will be made. It is hereby mutually agreed that in case of planting operations no partial payments will be made on living or perishable plant materials until planted in place.

9.6 Acceptance and Final Payment. When the work provided for in the contract shall have been satisfactorily completed and maintained during construction and in the case of living plant materials, "established" by a 45-day growing period, the engineer will accept the project subject to Article 8.8 and prepare the final estimate and voucher.

Where or if planting and seeding operations are involved final inspection and acceptance of any planting or seeding work will be deferred until the elapse of a 45-day growing period subsequent to the completion of the planting and seeding work to "establish" the living material and to determine that all the material is in an acceptable growing condition. By "acceptable growing condition" is meant that the plant or seed material has a normal head of leaves of healthy color. Sodding is not included within the meaning or operation of this Article 9.6.

The growing period for barerooted deciduous types of plant material will be considered to begin on the date specified pursuant to (a) in Article 8.3 as the end limit of the normal planting season for such material. Where perishable material is planted in the fall at the close of the current growing season, the engineer will make the final inspection after the planting and seeding has been "established" the following spring by a 45-day growing period as above specified.

In the case of planting and seeding work, however, where the landscape planting contract is limited to such items as balled and burlapped stock and seeding or other items which may only be performed during the normal growing season for plant materials, and the planting of which shall have been completed in sufficient time to allow a subsequent 45-day growing period to elapse before the close of the current normal growing season for local plant life, the engineer will make the final inspection after the elapse of a 45-day growing period subsequent to the completion of the said planting or seeding work.

If at the inspection at the conclusion of such 45-day growing period, the cost of the material found unacceptable (defective or dead plants and seedings) exceeds 10 percent of the total cost of the plant and seed items of the work done by the contractor, then the engineer may defer final acceptance of the project until all such items involving living material are made acceptable, or he may,

at his discretion, deduct from the amount of the final estimate and voucher otherwise due the contractor such an amount as may be determined necessary to replace such unacceptable material with satisfactory material meeting the specifications, and prepare the final estimate and voucher accordingly to cover final completion and settlement of the project.

After acceptance, as above provided, final payment and settlement will be made in accordance with Article 16d of Standard Form 23.