

State Department of Highways
Division of Highways
State of Colorado

SUPPLEMENTAL SPECIFICATIONS TO THE 1986 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

Effective September 1, 1989 the Standard Specifications shall be amended and supplemented with the revisions, deletions, and additions contained herein. This includes a complete replacement of Section 100 General Provisions.



SEPTEMBER 1, 1989

**COLORADO DIVISION OF HIGHWAYS
SUPPLEMENTAL SPECIFICATIONS**

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SECTION 100 GENERAL PROVISIONS

SECTION 101 DEFINITIONS AND TERMS

Titles used in these specifications having a masculine gender, such as "workmen" and the pronouns "he" or "his", are for the sake of brevity and are intended to refer to persons of either sex.

The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not have any bearing on their interpretation.

When the Contract indicates that work shall be "accepted, acceptable, approval, approved, authorized, condemned, considered necessary, contemplated, deemed necessary, designated, determined, directed, disapproved, established, given, indicated, insufficient, interpretation, interpreted, ordered, permitted, rejected, required, reserved, satisfactory, specified, sufficient, suitable, suspended, unacceptable, unsatisfactory," it shall be understood that these expressions are followed by the words "By the Engineer," or "To the Engineer."

Wherever the following abbreviations, terms, or pronouns are used in these specifications, plans, or other contract documents, the intent and meaning shall be interpreted as follows:

101.01 Abbreviations.

AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGC	Associated General Contractors of America
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute, Inc.
ARA	American Railway Association
AREA	American Railway Engineering Association
ARTBA	American Road and Transportation Builders Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
AWG	American Wire Gauge
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CCA	Colorado Contractors Association
CDOH	Colorado Division of Highways
CP	Colorado Procedure
CRS	Colorado Revised Statutes, 1973, as amended
CRSI	Concrete Reinforcing Steel Institute
EIA	Electronic Industries Association
FHWA	Federal Highway Administration Department of Transportation
FSS	Federal Specifications and Standards
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IMSA	International Municipal Signal Association
IPCEA	Insulated Power Cable Engineers Association
ITE	Institute of Transportation Engineers
MIL	Military Specifications
MUTCD	Manual on Uniform Traffic Control Devices
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NIST	National Institute of Standards and Technology
NSF	National Sanitation Foundation (nSf)
SAE	Society of Automotive Engineers
UL	Underwriters Laboratories, Inc.

101.02 Advertisement. A public announcement inviting proposals for work to be performed or materials to be furnished.

101.03 Affected Area. As related to mined land reclamation the total disturbed surface of a pit or quarry such as sand, gravel, topsoil, or borrow, that is being mined or will be mined. The area includes, but is not limited to, the excavation area, plant, and stockpile areas, parking and storage areas, and the haul roads.

101.04 Award. The acceptance by the Division of a proposal.

101.05 Basis of Payment. The terms under which "work" is paid, as a designated "Pay Item" in accordance with the quantity measured and the "Pay Unit."

101.06 Bidder. An individual, firm or corporation submitting a proposal for the advertised work.

101.07 Bridge. A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than 20 feet between undercopings of abutments or extreme ends of openings for multiple boxes.

Length. The length of a bridge structure is the over-all length measured along the line of survey stationing back to back of backwalls of abutments, if present, otherwise, end to end of the bridge floor; but in no case less than the total clear opening of the structure.

Roadway Width. The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timbers or in the case of multiple height of curbs, between the bottoms of the lower risers.

101.08 Calendar Day. Each and every day shown on the calendar, beginning and ending at midnight.

101.09 Certified Invoice. An invoice from a supplier which has been reliably endorsed by the Contractor guaranteeing that the material was purchased and received for the project and establishing the value of the material.

101.10 Construction Requirement. Specifications covering performance of work required for proper completion and acceptance except for specific instances described hereinafter.

101.11 Contract. The written agreement between the State of Colorado through the Division of Highways, and the Contractor setting forth the obligations of the parties for the performance of the work and the basis of payment.

The Contract includes the Invitation for Bids, Proposal, contract bonds, Standard Specifications, Supplemental Specifications, Special Provisions, general and detailed plans, Notice to Proceed, and any contract modification orders that are required to complete the construction of the work in an acceptable manner, and authorized extensions of time, all of which constitute one instrument.

101.12 Contract Item (Pay Item). A specifically described unit of work for which a price is provided in the Contract.

101.13 Contract Modification Order. A written order issued to the Contractor by the Division covering contingencies, extra work, increases or decreases in contract quantities, and additions or alterations to the plans or specifications, within the scope of the Contract, and establishing the basis of payment and time adjustments for the work affected by the changes. The Contract Modification Order is the only method authorized for changing the Contract. Contract Modification Orders must be approved as established in subsection 105.09.

101.14 Contract Payment Bond. The security executed by the Contractor and Surety or Sureties and furnished to the Division to guarantee payment of all legal debts of the Contractor pertaining to the construction of the project.

101.15 Contract Performance Bond. The security executed by the Contractor and Surety or Sureties and furnished to the Division to guarantee completion of the work in accordance with the Contract.

101.16 Contract Time. The number of working days or calendar days allowed for completion of the Contract, including authorized time extensions. Where a calendar date of completion is specified, the Contract shall be completed on or before that date.

101.17 Contractor. The individual, firm or corporation contracting with the State of Colorado through the Division of Highways for performance of prescribed work.

101.18 County. The county in which the work is to be done.

101.19 Culvert. Any structure not classified as a bridge which provides an opening under the roadway.

101.20 Department. State Department of Highways. A department within the executive branch of the State of Colorado.

101.21 District Engineer. The Division's representative, responsible for construction, maintenance and safety activities, within the geographical jurisdiction established by the Division. The District Engineer is responsible for acting on written appeals made by the Contractor relating to contract claims for additional compensation or extension of contract time.

101.22 Division. Division of Highways. A division within the State Department of Highways that is responsible for the design, construction, and maintenance on State Highways.

101.23 Engineer. The Chief Engineer of the Division acting directly or through an authorized representative, who is responsible for engineering and administrative supervision of the project.

101.24 Equipment. All machinery, tools, and apparatus together with supplies for upkeep and maintenance, necessary for the proper construction and acceptable completion of the work.

101.25 Extra Work. Work not provided for in the Contract as awarded but found by the Engineer to be essential to the satisfactory completion of the Contract within its intended scope.

101.26 Force Account Work. See Subsection 109.04.

101.27 Free Time. That period, as established by subsection 108.06, during which contract time is not charged.

101.28 Highway. A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

101.29 Holidays. Holidays recognized by the State of Colorado are:

New Year's Day
Dr. Martin Luther King, Jr.'s Birthday (observed)
Washington-Lincoln Day
Memorial Day
Independence Day
Labor Day
Columbus Day
Veterans' Day
Thanksgiving Day
Christmas Day

When New Year's Day, Independence Day or Christmas Day fall on Sunday, the following Monday shall be considered a holiday.

Additional legal holidays, when designated by the Governor or the President of the United States will also be recognized by the State.

101.30 Inspector. The Engineer's authorized representative assigned to make detailed inspections of contract performance.

101.31 Invitation for Bids. All documents, whether attached or incorporated by reference, utilized for soliciting proposals. The advertisement will indicate with reasonable accuracy the quantity

and location of the work to be done or the character and quantity of the material to be furnished and the time and place of the opening of proposals.

101.32 Laboratory. The testing laboratory of the Division or any other testing laboratory which may be designated by the Engineer.

101.33 Materials. All components required for use in the construction of the project.

101.34 Method of Measurement. The manner in which a "Pay Item" is measured to conform with the "Pay Unit."

101.35 Notice to Proceed. Written notice to the Contractor to proceed with the contract work including, when applicable, the date of beginning of contract time.

101.36 Pavement Structure. The combination of one or more of the following courses placed on a subgrade to support and distribute the traffic load to the roadbed.

- (a) Subbase. The layer or layers of specified or selected material placed on a subgrade to support a base course, surface course or both.
- (b) Base Course. The layer or layers of specified or selected material placed on a subbase or a subgrade to support a surface course.
- (c) Surface Course. One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called "Wearing Course."

101.37 Planned Force Account. Items of work, included in the proposal form, payment for which will be made in accordance with subsection 109.04.

101.38 Plans. The drawings, or reproductions, provided by the Division which show the location, character, dimensions, and details of the work to be done.

101.39 Profile Grade. The trace of a vertical plane usually intersecting the top surface of the proposed wearing surface and usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the context.

101.40 Project. The specific section of the highway together with all appurtenances and construction to be performed under the Contract.

101.41 Project Special Provisions. See definition for special provisions.

101.42 Project Engineer. The Chief Engineer's duly authorized representative who is in direct charge of the work and is responsible for the administration and satisfactory completion of the project under contract.

101.43 Project Termini. Limits of the Project as shown on the plans.

101.44 Proposal. The offer of a bidder, on the prescribed form, to perform the work at the prices quoted.

101.45 Proposal Form. The documents furnished by the Division on which the offer of a bidder is submitted.

101.46 Proposal Guaranty. The security furnished with a proposal to guarantee that the bidder will enter into the Contract if the proposal is accepted.

101.47 Reasonably Close Conformity. Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances.

101.48 Right of Way. A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to a highway.

101.49 Road. A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

101.50 Roadbed. The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

101.51 Roadside. A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

101.52 Roadside Development. Those items necessary for the preservation of landscape materials and features. The rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers. Suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the highway.

101.53 Roadway. The portion of a highway within limits of construction.

101.54 Salvable Material. Material that can be saved or salvaged. Unless otherwise designated or directed by the Engineer or shown on the plans, all salvable material shall become the property of the Contractor.

101.55 Shop Drawings. Drawings, diagrams, illustrations, samples, schedules, calculations and other data prepared by the Contractor, subcontractors, manufacturers, suppliers, and distributors which are submitted by the Contractor to the Engineer for review. Shop Drawings include data which illustrate material, equipment and items which are incorporated in and become part of the permanent work in accordance with the Contract.

101.56 Shoulder. The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

101.57 Sidewalk. That portion of the roadway primarily constructed for pedestrian use.

101.58 Special Provisions. Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project or group of projects. Special provisions fall within one of the two following categories and take precedence as specified in subsection 105.04.

- (a) *Project Special Provisions.* Additions and revisions to the Standard and Supplemental Specifications, peculiar to the project.
- (b) *Standard Special Provisions.* Additions and revisions to the Standard and Supplemental Specifications, peculiar to a selected group of projects or which are intended for temporary use.

101.59 Specifications. A general term applied to all directions, provisions and requirements pertaining to performance of the work.

- (a) *Standard Specifications:* The Division's printed book (including errata) for Road and Bridge Construction. The book is divided into three parts namely:
 - (1) General Provisions (Section 100)
 - (2) Construction Details (Section 200 thru 600)
 - (3) Material Details (Section 700)
- (b) *Supplemental Specifications:* Additions and revisions to the Standard Specifications that are adopted subsequent to the issuance of the printed book.

The outline for "work" items in the Construction Details contains the following:

- (1) Description
- (2) Materials
- (3) Construction Requirements
- (4) Method of Measurement
- (5) Basis of Payment

101.60 Specified Completion Date. The date on which the contract work is specified to be completed.

101.61 Standard Special Provisions. See definition for Special Provisions, subsection 101.58.

101.62 State. The State of Colorado acting through its authorized representative.

101.63 Street. A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way.

101.64 Structures. Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, storm drains, service pipes, underdrains, foundation drains, fences, guard rail, signs, end sections, traffic signals, light standards and other features which may be encountered in the work and not otherwise classified.

101.65 Subcontractor. An individual, firm or corporation to whom the contractor sublets part of the Contract.

101.66 Subgrade. The top surface of a roadbed upon which the pavement structure, shoulders, and curbs are constructed.

101.67 Substructure. All of the structure below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with the backwalls, wingwalls and wing protection railings.

101.68 Superintendent. The Contractor's authorized representative in responsible charge of the work.

101.69 Superstructure. The entire structure except the substructure, as defined in subsection 101.67.

101.70 Supplemental Specifications. See definition for Specifications, subsection 101.59.

101.71 Surety. The corporation, partnership or individual, other than the Contractor, executing a bond furnished by the Contractor.

101.72 Town or City. A subdivision of the county used to designate or identify the location of the project.

101.73 Traveled Way. The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

101.74 Value Engineering. The systematic application of recognized techniques which identify the function of a product or service, establish a value for that function, and provide the necessary function reliably at the lowest life-cycle cost. Value engineering incentive clauses will be included in the special provisions when applicable to a project.

101.75 Work. The furnishing of all labor, materials, equipment, and incidentals necessary to successfully complete the project according to all duties and obligations imposed by the Contract.

101.76 Working Day. Any day, exclusive of Saturdays, Sundays and holidays, on which weather and other conditions not under the control of the Contractor will permit construction operations to proceed with the normal working force engaged in performing those items controlling the completion of the work.

SECTION 102 BIDDING REQUIREMENTS AND CONDITIONS

102.01 Prequalification of Bidders. Only prequalified bidders will be allowed to bid on any project. At least 10 days prior to opening of proposals, the bidder must file an experience questionnaire and a confidential financial statement on standard forms furnished by the Division. The confidential financial statement of bidders desiring to prequalify for projects \$500,000 and over, must be audited by a certified public accountant (CPA) and accompanied by an affidavit by the CPA. The statement shall include a complete report of the bidder's financial resources and liabilities, equipment, past record, and personnel.

Prequalification shall be in effect for one year except for those projects that require a special prequalification. Prequalification may be changed during that one year period upon the submission of additional favorable reports or upon evidence of unsatisfactory performance. Prequalification shall authorize a bidder to bid on individual projects of a given size or for a particular type of work.

102.02 Contents of Proposal Forms. Upon request, the Division will furnish the prospective bidder with a proposal form. This form will state the location and description of the contemplated construction and will show the estimate of the various quantities and types of work to be performed or materials to be furnished, and will have a schedule of items for which unit bid prices are invited. The

proposal form will state the time in which the project must be completed, the amount of the proposal guaranty, and the date, time and place of the opening of proposals.

All papers bound with or attached to the proposal form are considered a part of the proposal and must not be detached or altered when the proposal is submitted.

The plans, specifications and other documents designated in the proposal form, will be considered a part of the proposal whether attached or not.

The prospective bidder shall pay the Division the sum stated in the Invitation for Bids for each set of plans.

102.03 Issuance of Proposal Forms. The Division reserves the right to disqualify or refuse to issue a proposal form to a bidder for any of the following reasons:

- (a) Lack of competency and adequate machinery, plant and other equipment, as revealed by the financial statement and experience questionnaire required under subsection 102.01.
- (b) Uncompleted work on other projects which, the Division, determines will hinder or prevent the prompt completion of additional work.
- (c) Failure to pay, or satisfactorily settle, all bills due for labor and material on former contracts in force at the time of issuance of proposal forms.
- (d) Failure to comply with any prequalification regulation of the Division.
- (e) Default under previous contracts.
- (f) Unsatisfactory performance on previous work.
- (g) Failure to make timely submittal of required forms per contract provisions on previous or ongoing Contracts.

102.04 Interpretation of Quantities in Proposal Form. Except as otherwise provided in this subsection and the method of measurement for individual items, the quantities appearing in the proposal form are estimates prepared for the comparison of proposals. Payment to the Contractor will be made in accordance with the following procedures.

- (a) *Measurement Required.* When the Contract requires measurement of work performed or material furnished, payment will be made for actual quantities measured and accepted.
- (b) *Measurement Not Required.* When the Contract does not require quantities of work performed or materials furnished to be measured, payment will be made for the quantities appearing in the Contract.

The estimated quantities of work to be performed

and materials to be furnished may be increased, decreased or omitted.

102.05 Interpretation of Plans and Specifications. Any change to proposal forms, plans, or specifications prior to the opening of proposals will be issued by the Division by certified mail to all holders of proposal forms. Certain individuals are named in the project specifications, having authority to provide information, clarification or interpretation to bidders prior to opening of proposals. Information obtained from other than those named individuals is invalid.

102.06 Examination of Plans, Specifications, Special Provisions, and Site of Work. The bidder is expected to examine the site of the proposed work, the proposal, plans, specifications, supplemental specifications, special provisions, and contract forms, before submitting a proposal. The submission of a proposal will be considered conclusive evidence that the bidder has made this examination and is aware of the conditions to be encountered in performing the work according to the Contract.

Boring logs and other records of subsurface investigations are available for inspection by bidders. These logs and records are made available so that all bidders have access to identical subsurface information that is available to the Division, and is not intended as a substitute for personal investigation, interpretation and judgment of the bidders.

The Division does not warrant the adequacy of boring logs and other records of subsurface investigations, and such information is not considered to be a part of the Contract. When a log of test borings is included in the subsurface investigation record, the data shown in the individual log of each test boring apply only to that particular boring and are not intended to be conclusive as to the character of any material between or around test borings. If bidders use this information in preparing a proposal, it is used at their own risk, and bidders are responsible for all conclusions, deductions, and inferences drawn from such information.

Bidders may conduct subsurface investigations at the project site at bidder's expense. The Division will afford them this opportunity prior to public opening of proposals.

If a bidder discovers an apparent error or omission in the Contract, the bidder shall immediately notify the Engineer to enable the Division to make any necessary revisions. The Division may consider it to be detrimental to the Division for a bidder to submit an obviously unbalanced unit bid price.

102.07 Preparation of Proposal. The bidder shall submit the proposal upon the forms furnished by the Division. The bidder shall specify a unit price in words or figures, or both if required, for each pay item for which a quantity is given and shall also show the products of the respective unit prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amounts of the several items. All of the words and figures shall be in ink or type. In case of a discrepancy between the prices written in words and those written in figures, the prices written in words shall govern.

When an item in the proposal contains a choice to be made by the bidder, the bidder shall indicate his choice in accordance with the proposal for that particular item.

The bidder's proposal must be signed with ink by the individual, by one or more members of the partnership, by one or more members or officers of each firm representing a joint venture, or by two officers of a corporation, or by an agent of the Contractor legally qualified and acceptable to the Division. If the proposal is made by an individual, the individual's name and post office address must be shown; by a partnership, the name and post office address of each partnership member must be shown; as a joint venture, the name and post office address of each member or officer of the firms represented by the joint venture must be shown; by a corporation, the name of the corporation and the business address of its corporate officials must be shown.

A proposal may be executed for an individual, a partnership, a corporation or a joint venture by anyone having a power of attorney, provided a copy of the power of attorney is attached to the proposal or is previously filed with the Division.

102.08 Irregular Proposals. Proposals will be considered irregular and may be rejected for any of the following reasons:

- (a) If the proposal is on a form other than that furnished by the Division; or if the form is altered or any part thereof is detached.
- (b) If there are unauthorized additions, conditional or alternate proposals, or irregularities of any kind which make the proposal incomplete, indefinite, or ambiguous.
- (c) If the bidder fails to acknowledge in the proposal the receipt of any or all revisions current on the date of opening of proposals.
- (d) If the proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items.
- (e) If the Division determines that any of the unit bid prices are materially unbalanced to the potential detriment of the Division. There are two types of unbalanced bids: (1) mathematically unbalanced and, (2) materially unbalanced. The mathematically un-

balanced bid can be defined as a bid containing lump sum or unit bid items which do not reflect reasonable actual costs plus a reasonable proportionate share of the bidder's anticipated profit, overhead costs, and other indirect costs, but not necessarily to the detriment of the Division. These costs should all relate to the performance of the items in question. The materially unbalanced bid is a mathematically unbalanced bid which leaves reasonable doubt that award will result in the lowest ultimate cost to the Division or that award is in the public interest.

102.09 Proposal Guaranty. A proposal will not be read and will be rejected unless accompanied by a guaranty of the character and in an amount not less than the amount indicated in the Invitation for Bids.

102.10 Delivery of Proposals. Each proposal shall be submitted in a sealed envelope plainly marked to clearly indicate its contents. When mailed, the sealed proposal shall be addressed to the Division at the address and in care of the official in whose office the proposals are to be received. All proposals shall be filed prior to the time and at the place specified in the Invitation for Bids. Proposals received after the time specified will be returned to the bidder unopened.

102.11 Withdrawal or Revision of Proposals. A bidder may withdraw or revise a proposal after it has been deposited with the Division. Withdrawal of proposals may be made either in writing or in person; however, any proposal withdrawn for the purpose of revision must be re-deposited before the time set for opening of proposals. Proposals may not be withdrawn after the time set for opening of proposals.

102.12 Combination or Conditional Proposals. If provided for proposals may be issued for projects in combination and/or separately, so that proposals may be submitted either on the combination or on separate units of the combination. The Division reserves the right to make awards on combination or separate proposals to the advantage of the Division. Combination proposals will be considered, only when specified.

102.13 Public Opening of Proposals. Proposals will be opened and read publicly at the time and place indicated in the Invitation for Bids.

102.14 Disqualification of Bidders. Either of the following reasons will be considered sufficient for disqualifying a bidder and the rejection of the bidder's proposal or proposals:

- (a) More than one proposal for the same work from an individual, firm, or corporation under the same or different name.
- (b) Evidence of collusion among bidders. Participants in collusion will not receive recognition as bidders for any future work of the Division until they have been reinstated as a qualified bidder.

102.15 Anti-Collusion Affidavit. Every proposal submitted to the Division shall contain a statement certifying that the bidder has not participated in any collusion or taken any action in restraint of free competitive bidding. This statement shall be in the form of an affidavit provided by the Division and signed by the bidder. The original of the signed anti-collusion affidavit, CDOH Form No. 606, shall be submitted with the proposal. The proposal will be rejected if it does not contain the completed CDOH Form No. 606.

102.16 Material Guaranty. The successful bidder may be required to furnish a complete statement of the origin, composition, and manufacture of materials used in the construction of the work together with samples, which will be tested for conformance with Contract provisions.

SECTION 103 AWARD AND EXECUTION OF CONTRACT

103.01 Consideration of Proposals. After the proposals are opened and read, they will be compared on the basis of the summation of the products of the quantities shown in the proposal by the unit bid prices. The results of such comparisons will be available to the public. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals.

The Division reserves the right to settle proposal discrepancies, as defined in this subsection and in subsection 102.07, that occur in the low bidder's proposal at the time the Contract is awarded. Proposal discrepancies will be settled with the understanding that the low bidder waives any claims against the Division because of the bidder's mistakes in the proposal.

The low responsible bidder shall submit a completed CONTRACTORS PERFORMANCE CAPABILITY STATEMENT, CDOH Form No. 605, and a completed ASSIGNMENT OF ANTITRUST CLAIMS, CDOH Form No. 621 to the Award Officer prior to 4:30 P.M. on the 5th calendar day after the bid opening. Failure to submit the CDOH Form Nos. 605 and 621 may result in the denial of award to the

apparent low responsible bidder and forfeiture of the proposal guaranty.

103.02 Award of Contract. The award of Contract, will be made within 30 calendar days after the opening of proposals to the lowest bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing of the acceptance of the proposal and the award of the Contract.

103.03 Cancellation of Award. The Division reserves the right to cancel the award of any Contract before the execution of said Contract without any liability against the Division.

103.04 Return of Proposal Guaranty. All proposal guaranties consisting of bid bonds will be retained by the Division.

All proposal guaranties consisting of certified checks or cashiers checks will be treated as follows:

- (a) For the three lowest bidders, the proposal guaranty will be held until the Contract is awarded to the successful bidder. Proposal guaranty will then be returned immediately to the other two bidders. The proposal guaranty will not be returned to the successful bidder until a satisfactory performance bond has been furnished and the contract has been executed.
- (b) For all other bidders, the proposal guaranty will be returned promptly after the opening and verification of the proposals.

103.05 Requirement of Contract Bonds. At the time of the execution of the Contract, the successful bidder shall furnish a Contract Payment Bond and a Contract Performance Bond. Each bond shall be in a penal sum equal to the nearest integral one hundred dollars in excess of the original Contract amount. The bonds and the security shall be acceptable to the Division.

103.06 Execution and Approval of Contract. The Contract shall be signed and returned by the successful bidder together with the Contract Bonds, within 15 days after the date of award. If the signed Contract and bonds are returned by the successful bidder within 15 days after award and, if the Contract is not executed by the Division within 30 days from date of award, the bidder shall have the right to withdraw his bid without penalty. The Contract will not be considered effective until it has been fully executed by all of the parties to the Contract.

103.07 Failure to Execute Contract. Failure to execute the Contract and file acceptable bonds within 15 days after the date of award shall be just cause for the cancellation of the award and the

forfeiture of the proposal guaranty which shall become the property of the Division. The Chief Engineer may elect to waive forfeiture of the proposal guaranty only if it is determined that the bidder has made a good faith remedial error and that no damages were sustained by the Division as a result of the failure by the successful bidder to execute the Contract and file acceptable bonds within the time prescribed. Award will then be made to the next lowest responsive bidder, or the work will be readvertised at the Division's option.

SECTION 104 SCOPE OF WORK

104.01 Intent of Contract. The intent of the Contract is to provide for the construction and completion of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. Alterations of plans or the nature of the work will not involve or require work beyond the termini of the original project, until a contract modification order has been executed.

104.02 Differing Site Conditions, Suspensions of Work, and Significant Changes in the Character of Work.

- (a) *Differing Site Conditions.* During the progress of work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the Contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the Engineer will investigate the conditions, and if the Engineer determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an adjustment, excluding loss of anticipated profits, will be made and the Contract modified in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the Contract is warranted. No Contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

- (b) *Suspensions of Work Ordered by the Engineer.* If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the Contract in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the Contract is warranted. No Contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No Contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this Contract.

- (c) *Significant Changes in the Character of Work.* The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the surety, and the Contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the Contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the Contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or

against the Contractor in such amount as the Engineer may determine to be fair and equitable.

If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract. The term "significant change" shall be construed to apply only to the following circumstances:

- (1) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction, or
- (2) When a major item of work is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed. A major item is defined to be any item having an original contract value in excess of 10% of the original contract amount.

104.03 Extra Work. The Contractor shall perform unforeseen work, for which there is no price included in the Contract, whenever the extra work is necessary or desirable for contract completion. This work shall be performed in accordance with the Contract and as directed, and will be paid for as provided under subsection 109.04.

104.04 Maintaining Traffic. Unless otherwise provided, the Contractor shall keep the road open to all traffic in accordance with the traffic control plan during the progress of the work, and shall not have construction equipment or materials in the lanes open to traffic unless approved. The Contractor shall schedule construction operations so that only one side of the existing roadbed is denied to traffic at any time. The Contractor shall also provide and maintain in a safe condition temporary approaches or crossings and intersections with trails, roads, streets, businesses, parking lots, residences, garages and farms. The road and the intersections of the access points and the road shall be maintained in a manner that will safely and adequately accommodate traffic. Snow removal will not be required of the Contractor.

The Contractor shall not store materials or equipment nor park vehicles on the highway except in designated areas.

The Contractor shall be responsible for all expense of maintaining traffic within the roadway, except snow removal, and of constructing and maintaining approaches, crossings, intersections, and other

features as may be necessary to accommodate traffic without direct compensation, except as provided in (a) and (b) below.

- (a) *Approved Detours.* The cost of constructing detours, temporary bridges, and the removal of temporary bridges, and obliteration of the detour road will be paid for at the appropriate unit bid prices for the items of work involved.

Maintenance requirements, as approved, will be paid for by the appropriate bid item; however, if a bid item does not exist, then payment will be made as provided in subsection 104.03.

- (b) *Maintaining Traffic During Suspension of Work.* During any suspension ordered by the Engineer in accordance with subsection 105.01, the Contractor shall open to traffic the portions of the project agreed upon between the Contractor and the Engineer. Prior to allowing traffic on the project, the Contractor shall prepare the roadbed so that it will safely and adequately accommodate traffic. During the suspension period, the maintenance of the roadway will be the responsibility of the Division. When the suspension is lifted, the Contractor shall renew any work or replace materials lost or damaged on the project and shall remove, as directed, work or materials used during the suspension. The Contractor shall complete the project as though the prosecution of the work had been continuous and without interference. All additional work caused during the suspensions, for reasons beyond the Contractor's control, will be paid for as provided in subsection 104.02 when contract unit prices exist, or as extra work as provided in subsection 104.03 when no unit price exists.

- (c) *Maintaining Traffic During Free Time.* During the free time period, as provided in subsection 108.06, the Contractor shall be responsible for maintaining traffic control items as long as construction operations interfere with traffic. When construction operations which interfere with traffic cease, the Contractor shall notify the Engineer, in writing, and shall adhere to the same procedures as in paragraph (b) above. The Contractor shall notify the Engineer, in writing, when construction operations which interfere with traffic will resume and shall resume responsibility for maintaining traffic.

- (d) *Maintenance Directed by the Engineer.* If the Engineer directs special maintenance for the benefit of the traveling public, that is not included in the Contract, the Contractor will be paid for as provided in subsection 104.02 when contract unit prices exist, or as extra work, as provided in subsection 104.03, when

no contract unit prices exist. The Engineer will determine the work to be classed as special maintenance.

104.05 Rights in and Use of Materials Found on the Work. The Engineer may authorize the Contractor's use of materials found in the excavation for completing pay items other than excavation. Payment will be made for both the excavation of such materials at the corresponding contract unit price, and for the pay item for which the excavated material is used. The Contractor shall replace the removed material with acceptable material at no additional cost to the Division. The Division will not charge the Contractor royalty or additional cost of select material for the removed material. The Contractor shall not excavate or remove any material from within the roadway which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the Engineer.

Unless otherwise provided, the material from structures designated for removal and not to be salvaged may be used temporarily by the Contractor in the erection of the new structure.

104.06 Final Cleaning Up. Before final acceptance, the highway, material pits, and all ground occupied by the Contractor in connection with the project shall be cleaned of all rubbish, excess materials, temporary structures, and equipment; and all parts of the work shall be left in an acceptable condition. The cost of final cleanup will not be paid for separately but shall be included in the work.

SECTION 105 CONTROL OF WORK

105.01 Authority of the Engineer. The Engineer will decide all questions regarding the quality and acceptability of materials furnished, work performed, and the rate of progress of the work; all interpretation of the plans and specifications; and the acceptable fulfillment of the Contract.

The Engineer will, in writing, suspend the work, wholly or in part when the Contractor fails to correct conditions unsafe for the workmen or the general public; for failure to carry out Contract provisions; for failure to carry out orders; for periods of unsuitable weather; for conditions unsuitable for the prosecution of the work, or for any other condition or reason determined to be in the public interest.

105.02 Plans and Shop Drawings. The Division's plans will show details of all structures, lines, grades, typical cross sections of the roadway, location and design of all structures and a summary of items appearing on the proposal. Only general

features will be shown for steel and prestressed concrete bridges.

The plans shall be supplemented by shop drawings as necessary to adequately control the work. Shop drawings may consist of drawings, diagrams, illustrations, schedules, calculations, and other data prepared by the Contractor, subcontractor, manufacturer, supplier, or distributor, which will illustrate how specific portions of the work shall be fabricated and/or installed in accordance with the Contract.

Shop drawings are not part of the Contract documents.

Six sets of shop drawings shall be submitted to the Engineer. One additional set shall be submitted for railroad separation structures. After checking, two sets will be returned to the Contractor; one for his use and the other for the fabricator or supplier's use.

Shop drawings returned to the Contractor will be stamped to indicate the following:

- (1) Approved, No exception taken.
- (2) Approved. Revise as noted.
- (3) Not approved. Resubmit.

If shop drawings are returned for revision, revisions shall be made and they shall be resubmitted by the Contractor.

The time required for the Division's approval of each submittal will not exceed four weeks after shop drawings are received by the Engineer.

If the Contractor's controlling operations are delayed or interfered with by reason of the Division's failure to return shop drawings within the specified four weeks time, an extension of time commensurate with the delay in completion of the work thus caused will be granted as provided in subsection 108.06.

All shop drawings shall be 34 inches long and 22 inches wide overall. There shall be a two inch margin on the left side of the sheet and a one-half inch margin on the other three sides. A blank space, six inches by three inches, shall be left near the lower right-hand corner for an approval stamp.

Where design notes or catalogue cuts are required, they may be submitted on 8½ in. x 11 in. sheets in lieu of the size mentioned above.

There shall be a title block in the lower right-hand corner of each sheet. The title block shall show the project number, structure number, the location of the structure, and the contents of the sheet.

Any work performed on the project, regarding work requiring shop drawings, will not be accepted until after the shop drawings have been approved and the work is in conformance with the drawings and the provisions of the Contract.

Approval of the shop drawings shall not relieve the Contractor of the obligation to meet all requirements of the Contract and shall not relieve the Contractor of the responsibility for the correctness of the shop drawings. Change to the approved shop drawings requires reapproval. Upon completion of the work, the Contractor shall deliver to the Engineer one set of the approved corrected shop drawings.

The Contractor shall keep one set of plans and shop drawings available on the project at all times.

Payment for preparing and furnishing all shop drawings will not be paid for separately, but shall be included in the work.

105.03 Conformity with Plans and Specifications. All work performed and all materials furnished shall conform to the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the Contract.

For those items of work where working tolerances are not specified, the Contractor shall perform the work in a manner consistent with reasonable and customary manufacturing and construction practices.

When the Engineer finds the materials furnished, work performed, or the finished product does not conform with the Contract but that reasonably acceptable work has been produced, the Engineer will determine the extent the work will be accepted and remain in place. If accepted the Engineer will (1) document the basis for acceptance by Contract Modification Order which will provide for an appropriate adjustment in the Contract price for such work or materials not otherwise provided for in this subsection or (2) notify the Contractor in writing that the Contract unit price will be adjusted in accordance with this subsection when P is 25 or less, or (3) in lieu of a price adjustment, permit correction or replacement of the finished product provided the correction or replacement does not adversely affect the work.

When the Engineer finds the materials furnished, work performed, or the finished product are not in conformity with the Contract and has resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

Materials will be sampled and tested by the Division in accordance with the Standard Sampling and Testing schedules and procedures contained in the Division's Materials Manual. The approximate maximum quantity represented by each sample will be as set forth in the schedules. An additional number of samples in relation to the quantity of material represented may be selected and tested at the Engineer's discretion. The quantity represented by five consecutive random samples will constitute a lot whenever production schedules and material continuity permit. The Engineer may establish a lot consisting of the quantity represented by any number of consecutive random samples from one to seven inclusive when, it is necessary to represent short production runs, significant material changes, or other unusual characteristics of the work. Invalid tests with sampling or testing errors will not be used.

Materials or work will only be evaluated for price adjustment when deviations from specifications occur on any of the several individual tests for the lot.

The several individual test values will be averaged and the percent of price reduction for the lot will be determined by applicable formula. This will apply only when a price reduction factor for that element is listed in the following table. The formula in (a) and (b) below shall be used only when the lot includes three to seven tests inclusive.

- (a) The formula, $P = (\bar{X}n + aR - Tu) \cdot F$, will be used if a maximum limit only is specified or; when the average of the several test values is above the mid point of the specification band or above the job-mix formula value.
- (b) The formula, $P = (TL + aR - \bar{X}n) \cdot F$, will be used if a minimum limit only is specified or; when the average of the several test values is below the mid point of the specification band or below the job-mix formula value.
- (c) When the lot includes fewer than three tests, the materials will be evaluated for price reduction by the following procedure: Lots which include two tests shall be divided into two separate lots represented by one test each, as determined by the Engineer. Each lot which deviates from the specifications shall be price adjusted by one of the following formulae. When a maximum limit only is specified or the test value is above the maximum specified limit, the formula $P = 0.76 \cdot (To - Tu) \cdot F$ will be used. When a minimum limit only is specified or the test value is below the minimum specified limit, the formula $P = 0.76 \cdot (TL - To) \cdot F$ will be used. When a lot is represented by one test only, the materials will be evaluated for price adjustment as described in this paragraph.

Where:

- "P" is the percent of reduction in contract price,
- " $\bar{X}n$ " is the average of the several test values from samples taken from the lot, with "n" indicating the number of values,
- "a" is a variable factor to be used in "n" changes according to the following: when n is 3, a = 0.45; n is 4, a = 0.38; n is 5, a = 0.33; n is 6, a = 0.30; and n is 7, a = 0.28.
- "R" is the difference between the highest and lowest values in the group of several test results from the lot,
- "Tu" is the upper or maximum tolerance limit permitted by the specifications,
- "TL" is the lower or minimum tolerance limit permitted by the specifications, and
- "To" is the test value of the test which deviates from the specifications,
- "F" is price reduction factor to be applied for each element as shown in the following table:

**TABLE OF PRICE REDUCTION
FACTORS**

Element	Factor "F"
100 percent size sieve	1
½ inch sieve and larger	1
No. 100 sieve to ¾ inch sieve inclusive (except 100 percent size sieve)	3
No. 200 sieve	6
Compaction, bituminous mixtures (Sections 301 and 403)	7
Liquid Limit	3
Plasticity Index	10
Asphalt content, (all asphalt aggregate mixtures)	20
Asphalt penetration	1
AC 2.5, viscosity, 140° F., poises	0.4
AC 2.5, viscosity, 275° F., centistokes	1.2
AC 5, viscosity, 140° F., poises	0.20
AC 5, viscosity, 275° F., centistokes	0.80
AC 10, viscosity, 140° F., poises	0.10
AC 10, viscosity, 275° F., centistokes	0.60
AC 20, viscosity, 140° F., poises	0.05
AC 20, viscosity, 275° F., centistokes	0.40
AC 40, viscosity, 140° F., poises	0.025
AC 40, viscosity, 275° F., centistokes	0.30
Liquid asphalt, viscosity, 140° F., centistokes, Grade 30	1
Liquid asphalt, viscosity, 140° F., centistokes, Grade 70	0.7
Liquid asphalt, viscosity, 140° F., centistokes, Grade 250	0.25
Liquid asphalt, viscosity, 140° F., centistokes, Grade 800	0.08
Liquid asphalt, viscosity, 140° F., centistokes, Grade 3000	0.02
Asphalt residue	3
Portland Cement Concrete Pavement Density	8

If P is less than 3, or a negative quantity, the material will be accepted as being in conformity. In cases where one or more elements show a positive P value, such positive values will be added and the resulting sum will be used to determine whether the material is in conformity. If the total P value is between 3 and 25, the Engineer may require correction or he may accept the material at a reduced price. If P is greater than 25, the Engineer may: (1) require complete removal and replacement with specification material at no additional cost to the Division; (2) require corrective action to bring the material into conformity at no additional cost to the Division; or (3) where the finished product is found to be capable of performing the intended purpose and the value of

the finished product is not affected, permit the Contractor to leave the material in place with an appropriate price adjustment to be based on engineering evaluation but not to be less than that which would have occurred had an adjustment been made where P = 25.

When aggregate sieve analysis for Item 304 deviates from specification requirements and the total P is 3 or greater, the reduction will apply to the Contract price multiplied by 0.60.

If asphalt cement is not paid for separately, the following will apply:

- (1) When the penetration value or viscosity of asphalt deviates from specification requirements and P is 3 or greater, the reduction will apply to the Contract price multiplied by 0.30 for Items 301 and 403 and 0.20 for Item 410.
- (2) When the aggregate sieve analysis, asphalt content or compaction deviates from the specification requirements and the total P is 3 or greater, the reduction will apply to the Contract price multiplied by 0.60 for Items 301 and 403, and 0.70 for Item 410.

Acceptance and pay factors for air content and slump of all concrete will conform to 601.17.

When analyzing Item 412, Concrete Pavement, and Item 601, Structural Concrete, for determination of price adjustment, the following method will be used:

When the aggregate sieve analysis or concrete pavement density deviates from specification requirements and the total P for the item is 3 or greater, the reduction will apply to the contract price multiplied by 0.60 for Item 412 and 0.05 for Item 601.

When the aggregate sieve analysis for concrete aggregate deviates from specification requirements and the total P for the item is 3 or greater, the reduction will apply to the contract price multiplied by 0.20 for Items 507, Slope & Ditch Paving, 606, Guard-rail, 608, Sidewalks and 609, Curbing.

Price adjustment for those elements which are not included in the Table of Price Reduction Factors will be determined by the Engineer.

The Contractor will not have the option of accepting a price reduction in lieu of producing specification material. Continued production of non-specification material will not be permitted. Material which is obviously defective may be isolated and rejected without regard to sampling sequence or location within a lot.

105.04 Coordination of Plans, Specifications, Supplemental Specifications, and Special Provisions. These specifications, the supplemental specifications, the plans, special provisions, and all supplementary documents are essential parts of the Contract, and 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 the order of precedence is as follows:

- (a) Special Provisions
 - 1. Project Special Provisions
 - 2. Standard Special Provisions
- (b) Plans
 - 1. Detailed Plans
 - 2. Standard Plans

Calculated dimensions will govern over scaled dimensions.
- (c) Supplemental Specifications
- (d) Standard Specifications

The Contractor shall not take advantage of any apparent error or omission in the Contract. If the Contractor discovers an error or omission, the Engineer shall immediately be notified. The Engineer will make corrections and interpretations as necessary to fulfill the intent of the Contract.

105.05 Cooperation by Contractor. The Contractor will be supplied with a minimum of six sets of Contract documents.

The Contractor shall give the work the constant attention necessary to facilitate progress and shall cooperate with the Engineer, inspectors, and other contractors.

The Contractor shall have on the project at all times that work is being performed, a competent superintendent capable of reading and understanding the contract documents and experienced in the type of work being performed. The superintendent will receive instructions from the Engineer and shall be authorized to act for the Contractor on the project and to execute orders or directions of the Engineer without delay. The Superintendent shall promptly supply, irrespective of the amount of work sublet, materials, equipment, tools, labor and incidentals to complete the Contract.

105.06 Cooperation with Utilities. The Division will notify all utility companies, pipe line owners, or other parties affected, and have all necessary adjustments of the public or private utility fixtures, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable.

Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction are to be relocated or adjusted by the owners unless otherwise provided for in the Contract.

The Contractor shall cooperate with the owners of underground or overhead utilities in their removal and relocation operations, so that progress is expedited, duplication of work is minimized and service interruptions are avoided.

It is understood and agreed that the Contractor has considered in the proposal all of the permanent and temporary utility appurtenances in their present or relocated positions as shown in the Contract and as revealed by site investigation. No additional compensation will be allowed by the Division for any delays, inconvenience, or damage sustained due to any interference from the utility appurtenances or the removal or relocation operations unless the Division accepts responsibility.

The Contract will indicate those utility items, which are to be relocated or adjusted by the utility owner or which are to be relocated or adjusted by the Contractor. In case of failure by the utility owners to comply with their responsibility in relocating or adjusting their facility, the Contractor must seek relief from the utility company.

105.07 Cooperation Between Contractors. The Division reserves the right to contract for and perform other or additional work on or near the work covered by the Contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work without interfering or hindering the progress or 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 the Contract and shall protect and save harmless the Division from any and all damages or claims that may arise because of inconvenience, delay, or loss because of the presence and operations of Contractors working within the limits of the same or adjacent project.

105.08 Construction Stakes, Lines and Grades. Construction work shall not be performed until adequate lines and grades have been established by the Division or by the Contractor.

- (a) *Contractor Surveying.* When the proposal contains Item 625, Construction Surveying, the Division will provide control points and bench marks as described in the Contract. The Contractor shall furnish and set construction stakes establishing lines and grades in accordance with the provisions of Section 625, Construction Surveying. The Engineer may order extra surveying which will be paid for at the established rate of \$100 per hour.
- (b) *Division Surveying.* When the proposal does not contain Item 625, Construction Surveying, the Engineer will furnish one set of construction stakes and marks establishing lines and grades as described below for proper prosecution of the work.

Roadway staking will include stakes for; fence, centerline, slopes, grades (bluetops),

curb and gutter, sidewalk and median barrier. Grade stakes for finished subgrade will not be set until the grade established by the slope stakes is constructed to within 0.3 foot of the finished subgrade elevation.

Minor structures and retaining wall staking will be limited to stakes establishing line and grade by using offset line and grade stakes.

Major structures staking and references will be limited to centerlines (or work lines or control lines) as shown on the plans, appropriate offset lines and grades; and elevations set for footings, piers, pier caps, abutments, bottom of deck grades and finish deck screed grades.

It will be the responsibility of the Contractor to use these references and marks and establish any additional control and layout necessary for the proper prosecution of the work in its final location. The Contractor shall be responsible for the accuracy of all the vertical and horizontal control it transfers and establishes. The Contractor shall, when required, provide access to abutments, piers or other locations, and shall furnish working platforms that meet applicable safety requirements so the Engineer's duties can be performed.

The Contractor shall be held responsible for the preservation of all stakes and marks, and if any are destroyed, disturbed or removed by the Contractor, subcontractors, or suppliers, the cost of replacing them will be charged against the Contractor and will be deducted from the payment for the work at the rate of \$100.00 per hour.

It is the responsibility of the Contractor to perform all required layout work which shall include, but will not be limited to the following:

- (1) Piling locations and cut off elevation.
- (2) Steps on piers and abutments.
- (3) Bolt locations and patterns.
- (4) Construction sign locations.
- (5) Guardrail.

The Engineer reserves the right to check all staking and work in place to insure conformance with the plans and specifications. A minimum of two working days will be required as advance notice to the Engineer to provide project control staking.

105.09 Authority and Duties of the Project Engineer. The Project Engineer has immediate charge of the administrative and engineering details of each construction project. The Project Engineer has the authority to exercise all duties and responsibilities of the Engineer contained in the Contract, except those specifically retained by the Chief

Engineer. The Project Engineer is the only representative of the Chief Engineer authorized to sign Contract Modification Orders. The Project Engineer is responsible for initial decisions relating to Contractor claims for additional compensation or extension of contract time filed pursuant to subsection 105.17.

105.10 Duties of the Inspector. Inspectors employed by the Division are authorized to inspect all work done and materials furnished. This inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector is not authorized to alter or waive the provisions of the Contract. The inspector is not authorized to issue instructions contrary to the provisions of the Contract or to act as foreman for the Contractor.

105.11 Inspection and Testing of 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 information and assistance by the Contractor as required to make a complete and detailed inspection.

Before final acceptance of the work, the Contractor, shall remove or uncover such portions of the finished work, as directed. After examination, by the Engineer, the Contractor shall restore the work to the standard required by the Contract. If the work thus exposed or examined prove acceptable, the uncovering, removing, or restoring the work will be paid for as extra work. If the work exposed or examined proves unacceptable, the uncovering, removing, or restoring the work shall be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized Division representative may be ordered uncovered, removed, or restored at the Contractor's expense unless the Division representative failed to inspect the work after having been given notice in writing that the work was to be performed.

When any unit of government or political subdivision, utility or railroad corporation is to pay a portion of the cost of the work covered by a highway Contract, its respective representatives shall have the right to inspect the work. This inspection shall not make any unit of government or political subdivision, utility or railroad corporation a party to the Contract, and shall not interfere with the rights of either party.

All inspections and all tests conducted by the Division are for the convenience and benefit of the Division. These inspections and tests do not constitute acceptance of the materials or work tested or inspected, and the Division may reject or accept any work or materials at any time prior to the inspection pursuant to subsection 105.16(b) whether or not

previous inspections or tests were conducted by the Engineer or authorized representative.

105.12 Removal of Unacceptable Work and Unauthorized Work. Unacceptable work is work that does not conform to the requirements of the Contract.

Unacceptable work, resulting from any cause, found to exist prior to the final acceptance of the work, shall be removed and replaced in an acceptable manner at the Contractor's expense. The fact that the Engineer or an inspector may have overlooked the unacceptable work shall not constitute an acceptance of any part of the work.

Unauthorized work is work that was done without adequate lines and grades having been established by the Engineer or by the Contractor, work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans, or extra work done without the Engineer's authorization. Unauthorized work will not be paid for under the provisions of the Contract, and may be ordered removed or replaced at the Contractor's expense.

If the Contractor fails to comply with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to order unacceptable work remedied or removed and replaced and unauthorized work removed. The Engineer will deduct the costs from any monies due or to become due the Contractor.

105.13 Load Restrictions. The Contractor shall comply with all legal load restrictions in the hauling of equipment or materials on public roads beyond the limits of the project. A special permit will not relieve the Contractor of liability for damage resulting from the moving of equipment or material.

The operation of equipment or hauling loads which cause damage to structures, the roadway or any other construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited to prevent damage to the pavement structure. Loads will not be permitted on a concrete pavement or structure before the expiration of the curing period. The Contractor shall be responsible for the repair of all damage and related expense resulting from hauling equipment and construction operations.

105.14 Maintenance During Construction. The Contractor shall maintain the project during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted with adequate equipment and forces so the roadway or structures are kept in satisfactory condition at all times.

In the case of a Contract involving the placement of material on or utilization of, a previously constructed subgrade, pavement structure or structure, the Contractor shall maintain the previously con-

structed work during all construction operations.

All cost of maintaining the work during construction and before the project is accepted will not be paid for separately, but shall be included in the work.

Contractors transporting material weighed by Division personnel will not be given a scale ticket if the load exceeds the legal limit. If a vehicle's gross weight exceeds the legal limit as weighed by a certified weigher and the material transported by the vehicle is delivered to the project, the material and the scale will not be accepted.

If a scale ticket from an overweight vehicle is inadvertently accepted and the material incorporated into the project, the Engineer will adjust the price for the overweight load as follows:

- (1) The pay item quantity represented by the amount of material in excess of the legal weight will not be paid for.
- (2) A price reduction will be assessed for the overweight portion of the load based on the following schedule.

Overweight (pounds)	Price Reduction (dollars)
0 - 50	0
51 - 3,000	20
3,001 - 4,000	40
4,001 - 5,000	82
5,001 - 6,000	130
6,001 - 7,000	226
7,001 - 8,000	376
8,001 - 9,000	582
9,001 - 10,000	842
Over 10,000	870 plus \$164 for each 1,000 lbs., or fraction thereof, over 10,000 lbs.

105.15 Failure to Maintain Roadway or Structure. If the Contractor, at any time, fails to comply with the provisions of subsection 105.14, the Engineer will immediately notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, the Engineer may immediately proceed to maintain the project, and the entire cost of this maintenance will be deducted from monies due or to become due the Contractor on the Contract.

105.16 Acceptance.

- (a) *Partial Acceptance.* If at anytime during the prosecution of the project the Contractor satisfactorily completes a unit or portion of the project, such as a structure, an interchange, or a section of road or pavement that can be used advantageously for traffic, the Engineer may make final inspection of that unit. If the Engineer finds that the unit has been satisfactorily completed in compliance

with the Contract, the Contractor may be relieved of further responsibility for that unit except as otherwise provided in subsection 107.16. Partial acceptance shall not void or alter any of the terms of the Contract.

- (b) **Final Acceptance.** Upon notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If the work provided for by the Contract has been satisfactorily completed, that inspection shall constitute the final inspection and the Engineer will notify the Contractor in writing of final acceptance indicating the date on which the project was inspected and accepted.

If the inspection discloses any unsatisfactory work, the Engineer will give the Contractor the necessary instructions for correcting the work and the Contractor shall immediately comply with these instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection. If the work has been satisfactorily completed the Engineer will notify the Contractor in writing of the date of final inspection and acceptance. Final acceptance under this subsection does not waive any legal rights contained in subsection 107.21.

105.17 Claims for Contract Adjustments.

- (a) All claims filed by the Contractor based upon: (1) work or materials not clearly defined in the Contract, (2) extra work not ordered by the Engineer in accordance with subsection 104.03, (3) extensions of time made pursuant to subsection 108.06, or (4) any other cause, resulting in requests for additional compensation or time, shall be governed by this subsection.
- (b) Upon discovery of any facts which formulate the basis of a potential claim, the Contractor shall give immediate notice thereof to the Project Engineer to enable the Division to obtain its independent evidence of these facts. Said immediate notice may be made either verbally or in writing.

Within seven calendar days after the discovery of the facts giving rise to a claim, the Contractor shall formally notify the Project Engineer in writing of his intent to file a claim as defined in subsection 105.17(a). The Contractor's formal notification of intent to file a claim shall describe the contractual and legal basis of the claim and factual evidence supporting the claim.

If immediate and formal notifications are not properly given by the Contractor according to these specifications, the Contractor shall not be entitled to any additional compensation or extension of time for any cause related to the claim, including any act

or failure to act by the Engineer, and the Contractor shall be barred from asserting any such claim. Any claim based upon any cause, for which prior and formal notifications to file a claim are not properly given by the Contractor, will be considered invalid and will be denied by the Project Engineer on the basis that proper notifications, as required herein, were not given. The Contractor's prior and formal notifications of intent to file a claim and subsequent Division acknowledgement of those notifications shall not be construed as proving or substantiating the validity of the Contractor's claim as related to the contractual basis of the claim, factual information related to the claim, or cost, or amount of time extension related to the claim.

- (c) When the Contractor provides immediate and formal notifications of intent to file a claim pursuant to subsection 105.17(b), the claim will be reviewed by the Project Engineer and he will render a written decision to the Contractor to either affirm the claim as valid or deny the claim, in whole or part, in accordance with all contract documents and the following procedure:

1. At any time prior to final acceptance of the project, made pursuant to subsection 105.16(b), and regardless of what correspondence or documents have been previously transmitted, the Contractor shall formally submit to the Project Engineer a complete claim package including a quantification of all alleged costs and time impacts, and all supporting documents which represent the final position he wishes to have considered by the Division. The time period within which the Contractor is to provide such written documentation may be extended by the Project Engineer if it is so requested by the Contractor and if, in the opinion of the Project Engineer, such an extension would enhance the claim record and improve the potential for resolution of the claim. If the Contractor fails to provide such written documentation prior to final acceptance of the project, or within an extended time period authorized by the Project Engineer, the Project Engineer will base his decision upon the information previously submitted in the Contractor's notification of intent to file claim and pertinent specification and contract documents.
2. The Project Engineer: (1) will review the information in the Contractor's written notification of intent to file a claim, (2) will review all written documents as sub-

mitted by the Contractor in support of the claim, and (3) may consider any other information available to him in rendering a decision. The Project Engineer will assemble and maintain a claim record comprised of all written documents submitted by the Contractor in support of the claim and all other written documents considered by the Project Engineer in reaching his decision. All documentation to be considered shall be made available to the Project Engineer and made a part of the claim record during his review of the claim. Once the claim record has been assembled by the Project Engineer, the submission of additional information at any subsequent levels of review by anyone, shall not be permitted. The Project Engineer will provide a copy of the complete claim record to the Contractor when rendering his decision. The Project Engineer's written decision to the Contractor will describe the contractual basis and factual information considered by the Project Engineer in reaching his decision.

3. The Project Engineer will render a written decision to the Contractor within 60 days from his receipt of the Contractor's submission of all written documentation supporting the claim, unless both parties agree in writing to an extension. If more than one claim has been filed by the Contractor on the Project, the Project Engineer will have the right to consolidate all related claims and issue one decision on all such claims provided that consolidation of claims does not extend the time period within which the Project Engineer is to render a decision. Consolidation of unrelated claims will not be made. If the Project Engineer fails to render a written decision to the Contractor within the 60 day time period specified herein, or within any extended time period as agreed to by both parties, the Contractor must either: (1) accept this as a denial claim, or (2) appeal the claim to the District Engineer, in the same manner as if the Project Engineer had denied the Contractor's claim, according to subsection 105.17(d).
- (d) If the Contractor disagrees with the written decision of the Project Engineer, the Contractor must either: (1) accept the Project Engineer's decision as final, (2) file a one-time written appeal to the Project Engineer with the submission of additional information, or (3) file a written appeal to the

District Engineer based upon all information previously submitted and made a part of the claim record. The Contractor's written appeal shall be made within 30 days from his receipt of the Project Engineer's written decision. The Contractor hereby agrees that if a written appeal is not properly filed by him within this specified 30 day time period, the claim shall be considered to be abandoned by the Contractor and settled in the same manner as if the Contractor had agreed with and accepted the Project Engineer's written decision as final. Failure by the Contractor to properly file a written appeal, according to these specifications, shall bar the Contractor from any further administrative remedy for said claim under the Contract.

- (e) When the Contractor properly files a written appeal to the Project Engineer pursuant to subsection 105.17(d), the Project Engineer will review all new submissions made by the Contractor and render a decision to the Contractor pursuant to subsection 105.17(c), except that the decision will be due within 30 days. When a written appeal to the District Engineer is properly filed by the Contractor pursuant to subsection 105.17(d), the Project Engineer will provide the complete claim record, as defined by subsection 105.17(c) 2, to the District Engineer. The claim will be reviewed by the District Engineer, and he will render a written decision to the Contractor to either affirm, overrule, or modify the Project Engineer's decision, in whole or in part, in accordance with all contract documents and the following procedure:
 1. For the purpose of this subsection, District Engineer shall be understood to mean the District Engineer or the Assistant District Engineer.
 2. The District Engineer will maintain the claim record during his review of the claim. The Contractor's written appeal to the District Engineer shall be made a part of the claim record. Either the Contractor or the Division may request an oral hearing of the claim before the District Engineer. When an oral hearing is requested by either party, both the Project Engineer and the Contractor's representative shall be present and the hearing shall be conducted at a time which is convenient to all parties. In his analysis of the claim, the District Engineer will consider all written documents in the claim record and all oral presentations in support of that record made by the Contractor and the Project Engineer. The District Engineer will not

consider any written documents or oral arguments which have not previously been made a part of the claim record.

3. The District Engineer will render a written decision to the Contractor within 45 days from his receipt of the Contractor's written appeal, unless both parties agree to an extension of time. If the District Engineer fails to render a written decision to the Contractor within the specified 45 day time period, or within any extended time period as agreed by both parties, the Contractor must either:
 - (1) accept this as a denial of the claim, or
 - (2) appeal the claim to the Chief Engineer, in the same manner as if the District Engineer had denied the Contractor's claim, according to subsection 105.17(f).
- (f) If the Contractor disagrees with the written decision of the District Engineer, the Contractor must either: (1) accept the District Engineer's decision as final, or (2) file a written appeal to the Chief Engineer within 30 days from his receipt of the District Engineer's written decision. The Contractor hereby agrees that if a written appeal is not properly filed by him within this specified 30 day time period, the claim shall be considered to be abandoned by the Contractor and settled in the same manner as if the Contractor had agreed with and accepted the District Engineer's written decision as final. Failure by the Contractor to properly file a written appeal according to these specifications shall bar the Contractor from any further administrative remedy for said claim under the Contract.
- (g) When the Contractor properly files a written appeal to the Chief Engineer pursuant to subsection 105.17(f), the complete claim record as maintained by the District Engineer will be provided to the Chief Engineer. The Chief Engineer will review said claim and will render a written decision to the Contractor to either affirm, overrule, or modify the District Engineer's decision, in whole or in part, in accordance with the following procedure:
 1. The Contractor's written appeal to the Chief Engineer shall be made a part of the claim record. Either the Contractor or the Chief Engineer may request that a review board be convened to review the claim and provide a recommendation to the Chief Engineer, except that only the Chief Engineer may request that a review board be convened when the value of the claim is less than \$20,000. When such a request is made by either party, the review board shall be convened pursuant to subsection 105.17(h).
2. When a review board is not requested by either the Contractor or the Chief Engineer, the Chief Engineer will render his decision after his review of the information contained in the claim record. The Chief Engineer will not consider any written documents or oral arguments which have not previously been made available to the District Engineer and properly made a part of the claim record.
3. When a review board is requested by either the Contractor or the Chief Engineer, it shall be convened pursuant to subsection 105.17(h). The Chief Engineer will consider the entire administrative claim record, including the recommendation of the review board. The Chief Engineer will not consider any written documents or oral arguments which have not been made available to the review board and made a part of the claim record. The Chief Engineer will not be bound by the recommendation of the review board. The decision of the Chief Engineer will represent the final administrative remedy under the Contract available to the Contractor for said claim, and shall be subject to judicial review pursuant to 24-4-106, CRS.
- (h) When requested by either the Contractor or the Chief Engineer, pursuant to subsection 105.17(g), a review board shall be convened to review the facts associated with the claim and to provide a recommendation to the Chief Engineer in accordance with the following procedure:
 1. The review board shall consist of three members. One member shall be selected and directly paid by the Contractor. One member shall be selected by the Chief Engineer and directly paid by the Division. The third member shall be selected by mutual agreement of the other two members. Review board members shall not be employed by or affiliated with the claimant Contractor. Division employees from the District within which the claim originated shall not serve on the review board. Review board members shall not have assisted either in the evaluation, preparation, or presentation of the claim case either for the Contractor or the Division or have rendered an opinion on the merits of the claim for either party, and shall not do so during the proceedings of a review board hearing. The costs and reasonable ex-

penses of the third member shall be directly paid one-half by the Contractor and one-half by the Division.

2. Once established, the review board shall serve at the convenience of the Chief Engineer until he has rendered his final decision. The entire claim record will be made available to the review board by the Chief Engineer. An oral hearing of the claim will be conducted before the review board. The review board shall consider all written information available in the claim record and all oral presentations in support of that record by the Contractor and the Division. The review board shall not consider any written documents or oral arguments which have not previously been made a part of the claim record. After complete review of the facts associated with the claim, the review board shall provide a written recommendation for resolution of the claim to the Chief Engineer. The review board's recommendation shall include: (1) a summary of the issues and factual evidence presented by the Contractor and the Division concerning the claim, (2) recommendations concerning the validity of the claim, (3) recommendations concerning the value of the claim as to cost and time impacts if the claim is determined to be valid, and (4) the contractual and factual bases supporting the recommendations made. The review board shall act only in an advisory capacity to the Chief Engineer, with no direct authority for resolution of the claim.
3. Upon receipt of the recommendation of the review board, the Chief Engineer will render his final decision pursuant to subsection 105.17(g).
4. A practicing attorney may not serve on the review board, participate in the claimant Contractor's oral claim presentation, question or cross examine witnesses or object to the presentation of any testimony at the review board hearing. Either party may have an attorney present at the review board hearing to advise it during the proceedings.

SECTION 106 CONTROL OF MATERIAL

106.01 Source of Supply and Quality Requirements. All materials used shall meet all quality requirements of the Contract. In order to expedite the inspection and testing of materials, the Contractor

shall notify the Engineer of the proposed sources of materials at least two weeks prior to delivery.

When alternative materials are permitted for an item in the Contract, the Contractor shall state at the preconstruction conference the material that will be furnished for that item.

Reference in the Contract to a particular product, or to the product of a specific manufacturer, followed by the phrase "or approved equal" is intended only to establish a standard of quality, durability and design, and shall not be construed as limiting competition. Products of other manufacturers will be acceptable provided such products are equal to that specified.

106.02 Material Sources. Where practicable, borrow pits, gravel pits, and quarry sites shall be located so that they will not be visible from the highway.

- (a) *Available Source.* When the Contract shows a location that may be used by the Contractor as a source of sand, gravel, or borrow material, the location will be known as an available source. The Division will have an agreement with the property owner which allows removal of material under certain conditions and for a stated price. Conditions of this agreement which concern use of this material on the project and pit construction and reclamation requirements for the available source will be included in the Contract.

The Contract will indicate whether the Division has or has not obtained the necessary County or City Zoning Clearance and the required permit from Colorado Mined Land Reclamation Division needed to explore and remove materials from the available source. If the Division did not obtain the necessary clearances or permits, the Contractor shall obtain them. Any delays to the project or additional expenses that are incurred while these clearances or permits are being obtained shall be the responsibility of the Contractor. The Contractor shall ensure that the requirements of the permits do not conflict with the pit construction and reclamation requirements shown in the Contract for the available source.

The Division will investigate and obtain samples from the various available sources. These samples are not intended to indicate the full extent and composition of an entire deposit. These samples will be tested by the Division and may be combined with various materials such as mineral fillers and additives for further testing, especially for testing aggregate sources to obtain a satisfactory design mix. The Contract will show the location of the test holes where samples

were obtained, test results, and amounts and kinds of any added materials utilized in the testing to obtain a satisfactory product. The project specifications are developed based on these test results. If the Contractor uses an available source, all material shall meet contract specifications. The Division will not be responsible for the material as produced by the Contractor.

All costs of producing specification material shall be borne by the Contractor.

- (b) *Contractor Source.* Any source of sand, gravel, or borrow other than an available source will be known as a Contractor source. The material from a Contractor source must be approved by the Engineer prior to incorporation of the material into the project. The Contractor shall produce material which meets contract specifications throughout construction of the project.

The Contractor shall obtain all permits and agreements necessary to explore and remove material from a Contractor source. He shall also be responsible for any costs or delays associated with obtaining these permits and agreements.

106.03 Samples, Tests, Cited Specifications. All materials or the finished product in which the materials are used, will be inspected and tested by the Engineer. The Engineer will furnish copies of test results that indicate out of specification material, to the Contractor, promptly as the test results become available. Acceptance will be based on the applicable requirements of Section 105. Any work in which untested and uninspected materials are used shall be performed at the Contractor's risk and may be considered as unacceptable and unauthorized work.

Unless otherwise designated, when AASHTO, ASTM, or other specifications or methods are cited, the reference shall be to the latest edition as revised or updated by approved supplements or interim editions published and issued prior to the date of advertisement of bids.

Project sampling and testing will be done in accordance with the Division's minimum sampling and testing schedule and procedures contained in the Division Materials Manual.

Where the method of test is not cited, the applicable procedure shall be in accordance with the Standard AASHTO Method which was current on the date of advertisement for bids.

Samples will be taken by the Division except that the Contractor shall take samples of asphalt cement, in accordance with AASHTO T40; hot bituminous mixtures (items 403 and 410), in accordance with CP-41; and a composite of aggregates for hot bituminous mixtures, in accordance with CP-30. The Engineer will determine the sampling locations, and

the samples shall be taken in the presence of the Engineer. The Contractor shall reduce each sample to the size designated by the Engineer. The Contractor may retain a split of each sample.

All materials being used are subject to inspection and testing at any time prior to or during incorporation into the work. Tests will be made by and at the expense of the Division.

106.04 Material Inspection at Plant. If the Engineer inspects the materials at the source, the following conditions shall be met:

- (1) The Engineer shall have the cooperation and assistance of the Contractor and the materials producer.
- (2) The Engineer shall have full entry to all parts of the plant necessary for the manufacture or production of the materials being furnished.
- (3) Adequate safety measures shall be provided and maintained.

The Division reserves the right to retest all materials which have been previously tested or inspected. The retesting may be prior to or after incorporation of the materials into the work. Those materials inspected and tested after delivery on the project or after incorporation into the work, that do not meet the requirements of the Contract will be rejected, or accepted with an adjustment in price in accordance with the requirements of subsection 105.03

106.05 Storage of Materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, will be subject to inspection and testing prior to incorporation into the work. Stored materials shall be located to facilitate prompt inspection. Approved portions of the right of way may be used for storage of materials and equipment, and for the Contractor's plant. Any additional space required shall be provided by and at the Contractor's expense. Stored materials will be paid for in accordance with subsection 109.07. Private property shall not be used for storage purposes without written permission of the owner or lessee. If requested, copies of such written permission shall be furnished to the Engineer. All storage sites shall be restored to their original condition by the Contractor.

106.06 Handling Materials. All materials shall be handled so their quality and fitness for the work is preserved. Aggregates shall be transported to the work in vehicles constructed to prevent loss or segregation of materials.

106.07 Division Furnished Materials. Material furnished by the Division will be made available to the Contractor at the points specified in the Contract.

The cost of handling and placing materials after they are made available to the Contractor shall be included in the contract price for the item.

The Contractor will be held responsible for all material received until it is incorporated into the work and accepted.

Demurrage charges resulting from the Contractor's failure to accept the material at the designated time and point of delivery will be deducted from monies due to the Contractor.

106.08 Steel Products. All manufacturing processes for all steel products permanently incorporated in the work shall have occurred in the United States of America. All manufacturing processes are defined as, "all processes required to change the raw ore or scrap metal into the finished, in-place steel product". This requirement will not prevent a minimal use of foreign steel provided the total project delivered cost of all such steel, which includes the cost of delivering the steel to the project, does not exceed one-tenth of one percent of the total contract cost or \$2,500, whichever is greater.

The Contractor shall certify on each required mill test report that all manufacturing processes either have or have not occurred in the United States of America. The lack of such certification will be justification for rejection of the material represented by that mill test report. Upon completion of the project, the Contractor shall certify in writing his compliance with this requirement and provide evidence of the project delivered cost of all foreign steel permanently incorporated into the project.

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.01 Laws to be Observed. The Contractor shall keep fully informed and comply with all Federal, State and local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which may affect those engaged or employed on the work, or affect the conduct of the work. The Contractor shall protect and indemnify the Division and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by the Contractor, the subcontractors, suppliers of materials or services, or the employees of any of them.

107.02 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 Contract.

Prior to beginning work the Contractor shall furnish the Engineer a written list of all permits

required for the proper completion of the Contract. The list shall clearly identify the type of permit or permits that must be obtained before work on any particular phase or phases of work can be started. Copies of the fully executed permits shall be furnished to the Engineer upon request.

Publicly owned vehicles and Contractor's vehicles operating within the confines of the project are exempted from the payment of ton-mile taxes under Section 42-3-127, CRS. The confines of the project as exempted under Section 42-3-127, CRS are defined as including all sources of earthen or mineral aggregates and water for use on the project, and the connecting roads or areas between the project and such sources.

107.03 Patented Devices, Materials, and Processes. If the Contractor employs any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for their use by suitable legal agreement with the patentee or owner. The Contractor and the Surety shall indemnify and save harmless the Division any affected third party, or political sub-division from any and all claims for infringement resulting from the use of any patented design, device, material or process, or any trademark or copyright, and shall indemnify the Division for any costs, expenses, and damages which they may be obliged to pay by reason of any infringement, during the prosecution or after the completion of the Contract.

107.04 Restoration of Surfaces Opened by Permit. An individual, firm, or corporation may be issued a permit to construct or reconstruct a utility service. The Contractor shall allow permit holders to perform premitted work. The Contractor shall make necessary repairs resulting from this work, as directed. The repairs will be paid for as extra work in accordance with subsection 109.04. The repairs will be subject to the same requirements as the original work performed.

107.05 Federal Aid Provisions. When the United States Government participates in the cost of a project, the Federal laws and the rules and regulations made pursuant to such laws must be observed by the Contractor, and the work shall be subject to the inspection of the appropriate Federal agency.

Such inspection shall not make the United States Government a party to this Contract and shall not interfere with the rights of the parties to the Contract.

107.06 Sanitary Health, and Safety Provisions. The Contractor shall observe all rules and regulations of Federal, State and local health officials. The Contractor shall not require any worker to work in surroundings or under conditions

which are unsanitary, hazardous or dangerous to health or safety.

107.07 Public Convenience and Safety. The Contractor shall conduct the work to minimize obstruction to traffic. The safety and convenience of the general public and the residents along the highway and the protection of persons and property shall be provided for by the Contractor as specified under subsection 104.04.

107.08 Railway-Highway Provisions. If the Contract requires materials to be hauled across railroad tracks, the Division will make arrangements with the Railroad Company for any new crossings required or for the use of any existing crossings. The Contractor shall make arrangements for the use of crossings not provided in the Contract.

Work performed by the Contractor on the railroad right of way shall be performed to avoid interference with the movement of trains or traffic on the railroad tracks. The Contractor shall use care and precaution in order to avoid accidents, damage, or unnecessary delay or interference with the railway company's trains or property.

107.09 Construction Over and Adjacent to Navigable Waters. Work on navigable waters shall be conducted to avoid interference with free navigation of the waterways and so the existing navigable depths will not be impaired except as allowed by permit issued by the U.S. Coast Guard or the U.S. Army Corps of Engineers, as applicable.

107.10 Barricades and Signs. The Contractor shall provide, erect, and maintain barricades, suitable and sufficient lights, pavement markings, signs and other traffic control devices, and shall protect the work and safety of the public in accordance with the Contract. Highways closed to traffic shall be protected by barricades, and obstructions shall be illuminated during hours of darkness. Signs shall be provided to control and direct traffic.

The Contractor shall erect signs at locations where operations may interfere with the use of the road by traffic, and at all intermediate points where the new work crosses or coincides with an existing road. Signs shall be constructed erected, and maintained in accordance with the Contract.

Barricades, warning signs, lights, temporary signals, and other protective devices shall conform with the latest revision of the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the FHWA, the latest revision of the Colorado Supplement thereto, and the required traffic control plan.

107.11 Use of Explosives. When explosives are utilized in the prosecution of the work, the Contractor shall not endanger life, property, or new

work. The Contractor shall be responsible for all damage resulting from the use of explosives.

The Contractor's explosives shall be stored in a secure manner in compliance with laws and ordinances, and storage places shall be clearly marked. When electric blasting caps are used, stored or moved in the vicinity of the work, warning signs prohibiting the use of radio transmitters and mobile telephones shall be posted.

The Contractor shall notify property owners and public utility companies having structures in the proximity of the work of the intention to use explosives. Notice shall be given sufficiently in advance to enable them to protect their property.

In advance of doing any blasting work involving the use of electric blasting caps within 200 feet of any railroad's track or structures, the Contractor shall notify the proper authority of the railroad company as to the location, date, time and approximate duration of such blasting operations.

107.12 Protection and Restoration of Property and Landscape. The Contractor shall preserve private and public property and protect it from damage. Land monuments and property marks shall not be disturbed or moved until their location has been witnessed or referenced and their removal approved.

The Contractor shall be responsible for the damage or injury to property resulting from, (1) the Contractor's neglect, misconduct, or omission in the manner or method of execution or nonexecution of the work, or (2) the Contractor's defective work or the use of unacceptable materials.

The Contractor's responsibility shall not be released until the work has been completed in compliance with the Contract. The Contractor shall restore damaged or injured property, at the Contractor's expense, to a condition similar or equal to that existing before the damage or injury occurred, by repairing, rebuilding, or restoring the property.

Existing trees, shrubs, bushes or grass, outside the designated work areas but inside project limits, that are damaged due to the Contractor's operations shall be replaced in kind at the Contractor's expense.

107.13 Forest Protection. The Contractor shall comply with all regulations of the State Department of Natural Resources, the National Forest Supervisor, or other authority having jurisdiction, governing the protection of forests, and shall observe all sanitary laws and regulations with respect to the performance of work within or adjacent to state or National Forests. The Contractor shall keep the areas in an orderly condition, dispose of all refuse, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures in accordance with the regulations and instructions issued by the Forest Supervisor.

The Contractor shall take all reasonable precaution to prevent and suppress forest fires and shall require his employees and subcontractors, both independently and at the request of forest officials, to do all reasonably within their power to prevent and suppress and to assist in preventing and suppressing forest fires and to make every possible effort to notify a forest official at the earliest possible moment of the location and extent of any fire seen by them.

107.14 Interruption of Irrigation Water Flow. The Contractor shall arrange the work to avoid interference with the flow of irrigation water. If it is impractical to install the structure during the time the ditches are not flowing, the Contractor shall make arrangements with the ditch owners regarding temporary interruption of flow or temporary diversion of water. This will require construction of new ditches with appurtenant structures before old ditches or canals are altered. The Contractor shall provide any temporary ditches, canals or structures necessary for the uninterrupted flow of irrigation water. Temporary construction and removal shall be at the expense of the Contractor.

107.15 Responsibility for Damage Claims. The Contractor shall indemnify and save harmless the Division, its officers, and employees, from suits, actions, or claims of any type or character brought because of any and all injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or failure to comply with the provisions of the Contract; or on account of or in consequence of neglect of the Contractor 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 the Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright, unless the design, device, material or process involved is specifically required by the Contract; or from any claims or amounts arising or recovered under the Worker's Compensation Act, or other law, ordinance, order, or decree. The Division may retain as much of any moneys due the Contractor under any Contract as may be determined by the Division to be in the public interest.

The Contractor shall procure and maintain at the Contractor's own expense, until final acceptance of the project, insurance liability for damages imposed by law, of the kinds and in the amounts specified, with insurance companies authorized to do business in the State of Colorado. The insurance shall cover all operations under the contract, whether performed by the Contractor or by subcontractors. Before commencing the work, the Contractor shall furnish certificates of insurance in the form satisfactory to the Division certifying that the policies are in full force and effect and shall not be changed or cancelled

until 30 days after written notice thereof has been received by the Division. In the event such notice of change or cancellation is received by the Division, the Contractor, within 20 days of such receipt, shall submit a substitute policy which meets all of the requirements of the Contract. Such substitute policy must be effective no less than 48 hours prior to the date of the change or cancellation.

The types and limits of insurance are as follows:

- (1) Worker's Compensation Insurance in accordance with prevailing laws.
- (2) Comprehensive general liability \$500,000 combined single limit bodily injury and property damage, each occurrence; \$2,000,000 annual aggregate. If said aggregate is reduced by claim payments or otherwise exhausted, the Contractor shall immediately purchase additional aggregate limits for the remainder of the Contract and furnish certificates of such insurance to the Division.
- (3) Automobile liability \$500,000 combined single limit bodily injury and property damage, each accident.
- (4) Owner's protective liability applying separately to each project and showing the Division as Named Insured. Coverages shall remain in effect until the work is accepted by the Division and shall be written for limits of \$500,000 per occurrence and \$2,000,000 annual aggregate. The Contractor shall evidence coverages initially with an insurance binder with the actual insurance policy submitted to the Division within thirty days of the effective date. The Contractor shall be responsible for purchasing additional insurance coverage if the \$2,000,000 aggregate is exhausted before the project is completed.

Policies (2) and (3) enumerated above shall name the Division as an additional named insured. The Contractor shall submit the proof of such coverage to the Division contemporaneously with the submittal of the insurance certificates.

107.16 Opening Sections of Project to Traffic. When provided in the Contract, or when ordered by the Engineer, certain sections of the work may be opened for traffic. Such opening shall not constitute acceptance of the work, or provide a waiver of any provision of the Contract.

The Contract will designate the sections to be opened and specify the method of compensation for maintenance signing, and traffic control. The Contractor shall maintain the roadway in a condition equal to or better than the condition of the roadway when it was initially opened to traffic. Where applicable, the Contract may specify the time or date on which certain portions of the work shall be completed to provide for the accommodation of traffic.

The Engineer may order certain portions of the work opened for traffic due to unforeseen necessity. If the Engineer has not ordered the roadway opened because of unnecessary delay by the Contractor, and if no damage occurs other than that which can be attributed to traffic, the Contractor will be relieved of all responsibility for maintenance of traffic control devices and damage due to traffic. Any expense resulting from opening such sections shall be borne by the Division or the Contractor will be compensated for the added expense in accordance with subsection 109.04. If the opening causes changed working conditions, or delays the completion of other items of work on the project, compensation for the added expense and recommendations for additional time will be set forth by a Contract Modification Order.

If the Contractor is dilatory in completing the work, the Engineer may order all or a portion of the project to be opened to traffic. In such event, the Contractor will not be relieved of the liability and responsibility during the period the work is so opened prior to final acceptance. The Contractor shall conduct the remainder of his construction operations to cause the least obstruction to or interference with traffic.

Damages not attributable to traffic which might occur on sections opened to traffic, except slides, shall be repaired at the Contractor's expense. The removal of slides shall be done by the Contractor on a basis agreed to prior to the slide removal.

107.17 Contractor's Responsibility for Work. Until final written acceptance of the project by the Engineer, the Contractor shall be responsible and shall protect the work against injury or damage from all causes whether arising from the execution or the nonexecution of the work, including but not limited to action of the elements, traffic, fire, theft, vandalism, or third party negligence. The Contractor shall rebuild, repair, restore, or replace all work that is injured or damaged prior to final acceptance at no cost to the Division. Loss, injury, or damage 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, such as earthquake, tidal wave, tornado, hurricane, or other cataclysmic phenomenon of nature, or acts of the public enemy or of governmental authorities, shall be restored by the Contractor under the provision of subsection 104.02 or 104.03, as applicable. During periods that work is suspended, the Contractor shall be responsible for the work under the Contract and shall prevent damage to the project, provide for drainage, and shall erect necessary temporary structures, signs, or other facilities required to maintain the project. During the suspension period, the Contractor shall maintain in a growing condition all newly established plantings, seedings, and soddings furnished

under the Contract, and shall protect new tree growth and other vegetative growth against injury.

107.18 Contractor's Responsibility for Utility Property and Services. Where the Contractor's operations are adjacent to properties of railway, telegraph, telephone and power companies, or other utility property, to which damage might result in considerable expense, loss, or inconvenience, work shall not commence until arrangements for the protection of the utilities have been made.

If water or utility services are interrupted, the Contractor shall promptly notify the owner and shall cooperate in the restoration of service. If water service is interrupted, repair work shall be continuous until the service is restored. Work shall not be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

107.19 Furnishing Right of Way. The Division will be responsible for the securing of all necessary rights of way in advance of construction. Any exceptions will be indicated in the Contract.

107.20 Personal Liability of Public Employees. The Engineer or authorized representatives are acting solely as agents and representatives of the Division when carrying out and exercising the power or authority granted to them under the Contract. There shall not be any liability on them either personally or as employees of the Division.

107.21 No Waiver of Legal Rights. Upon completion of the Contract, the Division will make final inspection and notify the Contractor of acceptance. Final acceptance shall not preclude the Division from correcting any measurement, estimate, or certificate made before or after completion of the Contract, nor from recovering from the Contractor or surety or both, overpayments sustained because the Contractor failed to fulfill the obligations under the Contract. A waiver on the part of the Division 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 Division, for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Division's rights under any warranty or guaranty.

107.22 Third Party Beneficiary. It is specifically agreed between the parties executing this Contract that it is not intended by any of the provisions of any part of the Contract to create in the public or any member thereof a third party beneficiary hereunder, or to authorize any one not a party to this Contract to maintain a suit for personal injuries or property

damage pursuant to the terms or provisions of this Contract. The duties, obligations and responsibilities of the parties to this Contract with respect to third parties shall remain as imposed by law.

107.23 Archaeological and Paleontological Discoveries. When the Contractor's operations encounter plant or animal fossils, remains of prehistoric or historic structures, prehistoric or historic artifacts (bottle dumps, charcoal from subsurface hearths, old pottery, potsherds, stone tools, arrowheads, etc.), the Contractor's affected operations shall immediately cease. The Contractor shall notify the Engineer of the discovery of these materials. When ordered to proceed, the Contractor shall conduct operations in the vicinity of the discoveries as directed. The work will be paid for by the Division as provided in subsection 104.02 when contract unit prices exist, or as extra work as provided in subsection 104.03 when no unit prices exist. Delays to the Contractor because of the materials encountered may be cause for extension of contract time in accordance with subsection 108.06.

107.24 Air Quality Control. The Contractor shall comply with the "Colorado Air Quality Control Act," Title 25, Article 7, CRS and regulations promulgated thereunder.

107.25 Water Quality Control. The Contractor shall comply with the "Colorado Water Quality Control Act," Title 25, Article 8, CRS "Protection of Fishing Streams", Title 33, Article 5, CRS; "Clean Water Act", 33 USC 1344; regulations promulgated; certifications issued; and to the following requirements.

(a) *Temporary Water Quality Control.*

1. **DESCRIPTION.** This work shall consist of temporary measures needed to control water pollution. These temporary measures shall include the installation of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods, at the locations necessary to control erosion and water pollution.

Temporary pollution controls shall be coordinated with the permanent erosion control features specified in the Contract.

2. **MATERIALS.** Mulches may be hay, straw, fiber mats, netting, wood cellulose, corn stalks, corn cobs, bark, wood chips, or other suitable material, and shall be reasonably clean and free of noxious weeds and deleterious materials.

Slope drains may be constructed of pipe, fiber mats, rubble, portland cement concrete, bituminous concrete, plastic sheeting, or other acceptable materials.

Grass shall be a quick growing species (such as rye grass, or cereal grasses) suitable to the area, which will provide temporary cover and will not later compete with the grasses sown for permanent cover.

Fertilizer and soil conditioners shall be acceptable standard commercial grade.

3. **CONSTRUCTION REQUIREMENTS.** The Contractor shall provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams, lakes, ponds, or other watercourses or water impoundment areas.

Cut slopes shall be seeded and mulched as the excavation proceeds. The surface area of erodible earth material exposed at one time shall not exceed 750,000 square feet for clearing and grubbing and 750,000 square feet for earthwork operations.

Temporary pollution control shall include construction work outside the right of way where necessary for borrow pits, haul roads and equipment storage sites.

The Contractor shall prepare schedules for accomplishing temporary and permanent erosion control work and submit them for acceptance at the preconstruction conference. The schedules for the proposed method of erosion control shall include all construction activities within the project, haul roads, borrow pits, storage and plant sites, and the plan for disposal of waste material. Work shall not be started until the temporary erosion control schedules and methods of operations have been accepted.

The Contractor shall incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Erosion control features shall be maintained by the Contractor until the project is accepted.

In the event of conflict between these requirements and water quality control laws, rules, or regulations of other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

- (b) **Water Quality Management Requirements.** The Contractor shall perform the following requirements:

1. All reasonable steps shall be taken to insure that the Contractor's provisions for the control of erosion and sedimentation and the protection of water quality

- comply with applicable standards, permit conditions, and regulations of appropriate agencies.
2. Permanent erosion and sediment control measures shall be installed at the earliest practicable time. One of the first construction activities shall be the placement of permanent and temporary erosion and sediment control measures around the perimeter of the project or the initial work areas.
 3. Temporary erosion and sediment control measures shall be coordinated with permanent measures to assure economical, effective, and continuous control throughout the construction phase.
 4. Erosion and sediment control measures shall be continuously maintained to perform their intended function during construction of the project.
 5. Construction operations in rivers, streams, lakes, or other bodies of water shall be restricted to:
 - A. Channel change areas designated in the Contract.
 - B. Areas designated in the Contract which must be entered to construct structures or erosion and sediment control measures; and
 - C. Areas where waters must be forded no more than four times per day to facilitate construction. Fording waters more than four times per day will not be permitted; temporary bridges or other structures shall be constructed where more than four crossings per day are required.
 6. Pollutant byproducts of highway construction, solids, sludges, pollutants removed in the course of treatment of wastewater, and material from sediment traps shall be handled, stockpiled, or disposed of in such a manner so entry into any watercourse or impoundment is prevented.
 7. The use of chemicals such as soil stabilizers, dust palliatives, sterilants, growth inhibitors, fertilizers, deicing salts, etc., during highway construction shall be in accordance with the manufacturer's recommended application rates, frequency, and instructions. These chemicals shall not be used within 50 feet of the ordinary high water line of any watercourse or impoundment.
 8. When a project is subject to a water quality permit, the quantities of discharges, locations of discharges, composition of discharges, and quantities of dredging and fills will be stated in the permit. If the Contractor anticipates a change from permit conditions, or if construction activities result in noncompliance with permit conditions, the Contractor shall detail the anticipated changes or noncompliance in a written report to the Engineer. The submission of the report shall be within five days from the time the Contractor becomes aware of change or noncompliance. Within 10 days after receipt of the report, the Engineer will approve or disapprove the request for change, or detail the course of action after noncompliance.
 9. Any diversion from, or bypass of, facilities necessary to maintain compliance with the terms and conditions contained in the Contract is prohibited except, (1) where unavoidable to prevent loss of life or severe property damage, or (2) where excessive storm drainage or runoff would damage the facilities. If diversion or bypass of the facilities occurs, the Contractor shall notify the Engineer in writing within five days of the occurrence. The Engineer will assess the damage, if any, resulting from the occurrence, and detail a course of action.
 10. Fuels, lubricants, and other petroleum distillants shall be stored in accordance with the provisions of subsection 106.05. Equipment servicing shall occur within the designated area.
 11. Areas designated in the Contract shall be seeded or revegetated at the earliest practicable time to prevent soil erosion.
 12. Fill material shall be comprised of material which conforms to the requirements of Section 203 and shall be placed as provided in the Contract.
 13. The Contractor shall not place plastic concrete into wetlands, watercourses, or impoundments.
 14. The work shall be planned and executed to require a minimum amount of maintenance during construction. Whenever possible, work shall be done from the bank.
 15. Not less than 15 days prior to commencing dredging or fill operations in a watercourse, the Contractor shall provide written notification to owners or operators of domestic or public water supply intakes or diversion facilities, if these facilities are within five miles downstream from the dredging or fill operations.
 16. The construction activities shall not impair Indian tribal rights, including, but not limited to, water rights, and

treaty fishing and hunting rights.

17. The construction activity shall not disrupt the movement of those species of aquatic life indigenous to the waterbody.
18. The construction activity shall not interfere with navigation, unless a permit is granted from the U.S. Coast Guard.
19. The practices listed below shall be followed to minimize the pollution of wetlands, watercourses, and impoundments.
 - A. Discharge of dredged or fill material into waterbodies or wetlands shall be kept to a minimum.
 - B. Discharges into spawning areas during spawning seasons shall be kept to a minimum.
 - C. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water or the restriction of its flow shall be minimized.
 - D. Heavy equipment working in wetlands shall be on mats to prevent undue disturbance and damage to the wetlands area.
 - E. Discharge into breeding areas of migratory waterfowl shall be kept to a minimum.
 - F. All temporary fills shall be removed in their entirety.
 - G. Heavy equipment use in or around waterbodies or wetlands shall be of such type that will produce minimal environmental damage.
20. Requests for clarification of the permit or certification provisions shall be directed to the Engineer.

- (c) *Measurement and Payment.* Temporary erosion and pollution control measures required due to the Contractor's negligence, carelessness, or failure to install permanent controls shall be performed at the Contractor's expense.

Work performed to install temporary or permanent controls in accordance with the work as scheduled or as ordered, will be paid for at the contract unit price, or as extra work as provided in subsection 104.03 when no unit price exists.

SECTION 108 PROSECUTION AND PROGRESS

108.01 Subletting of Contract. The Contractor shall not sublet, sell, transfer, assign, or dispose of the Contract or Contracts, or any portion without written consent of the Division. The Contractor will

be permitted to sublet a portion of the Contract, however, the Contractor's organization shall perform work amounting to not less than 50 percent of the total contract cost. Any items designated in the Contract as "specialty items" may be performed by subcontract. The cost of specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor's own organization.

The agreement between the Contractor and a subcontractor will be approved by the Division prior to the subcontractor beginning work.

The calculation of the percentage of subcontracted work shall be based on the prime contract unit prices rather than subcontract unit prices. Proportional value for a subcontracted partial contract item shall be verified by the Engineer. For the purpose of calculating the value of subcontracted work, the cost of procuring materials and manufactured products can be included in either the prime contract or subcontract. However, when a firm both sells material to a prime contractor and performs the work of incorporating the materials into the project, these two phases shall be considered in combination and as constituting a single subcontract.

Subcontracts, or transfer of Contract shall not release the Contractor of liability under the Contract and bonds.

108.02 Notice to Proceed. The Contractor shall not commence work prior to the issuance of a Notice to Proceed. The "Notice to Proceed" will stipulate the date on which Contract time commences. When the Contractor proceeds with work prior to that date, contract time will commence on the date work actually begins. The Contractor shall commence work under the Contract on or prior to the 20th day following the date of award, or in accordance with the selected start date allowed in the special provisions.

108.03 Progress Schedule. The Contractor shall submit a Progress Schedule within 10 working days of the date construction is authorized to proceed. The Contractor shall revise the Progress Schedule, within 10 days of the Engineer's written request, to show any substantial change. Failure to submit a revised schedule will result in withholding progress payments.

The Progress Schedule may be submitted on Contractor furnished forms or on forms supplied by the Division. The Progress Schedule shall consist of a Comprehensive Bar Chart and a Methods Statement, each on a separate report.

- (a) The Comprehensive Bar Chart shall show, as a minimum, the following:

1. The salient features, as listed in the special provisions, listed in the order in which the Contractor proposes to carry out the work.

2. Any feature not listed in the special provisions that the Contractor considers a controlling factor for timely completion.
 3. The time span of construction activities for each salient feature, and its relationship in time to other salient features.
 4. The total anticipated time necessary to complete all work required under the Contract.
 5. Sufficient space for each salient feature to permit two additional plots parallel to the original time span plot, one for a revision of the planned time span, and one showing actual time spans achieved.
- (b) The Methods Statement shall be a narrative description of the activities displayed in the Comprehensive Bar Chart. It shall contain details as follows:
1. A description of the activities within each salient feature including methods to be employed,
 2. A description of activities within each salient feature, related to the location on or off of the project where these activities will occur.
 3. An estimate of the time during which a salient feature is inactive or partially inactive. This estimate shall show the beginning and ending dates of the reduced production or inactivity.
 4. The anticipated delivery dates for equipment or materials in any salient feature that can affect timely completion of the project.
 5. Critical completion dates for any activity within any salient feature to maintain the progress indicated in the Progress Schedule.

All information on the Methods Statement is proprietary and shall be kept confidential.

Within two weeks after the Contractor's specified progress estimate day, if requested by the Engineer, a copy of the comprehensive bar chart showing the status of work actually completed to that date. The Engineer may provide copies of the Contractor's comprehensive bar chart to other affected Contractors working within the project's area of influence.

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.

Meetings may be required to review progress and plan upcoming activities. The meetings may be requested by either the Engineer or the Contractor. A mutually agreed time, date, and location shall be determined for each meeting. Problem areas such as substantial deviations from the Project Schedule,

and methods for returning to the planned schedule will be discussed.

Payment for Progress Schedule preparation or revision will not be paid for separately but shall be included in the work.

108.04 Limitation of Operations. The Contractor shall conduct the work in a manner and sequence as to assure the least interference with traffic. The Contractor shall not open up work to the prejudice or detriment of work already started. The Engineer may require the Contractor to finish a section of work before starting any additional sections if the opening of a section is essential to public convenience.

108.05 Character of Workers; Methods and Equipment. The Contractor shall employ resources for completing the work to full completion in the manner and time required by the Contract.

All workers shall have skill and experience to perform the work assigned to them.

Any person employed by the Contractor or by any subcontractor who does not perform the work in a proper and skillful manner shall, at the written request of the Engineer, be removed by the Contractor or subcontractor and shall not be employed on the project without the approval of the Engineer.

Should the Contractor fail to remove this person or persons or fail to furnish skilled and experienced personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance is achieved.

All equipment used on the project shall be of size and mechanical condition to meet requirements of the work and to produce a satisfactory quality of work. Equipment used shall not cause injury to the roadway, adjacent property, or other highways.

When the methods and equipment to be used are not prescribed in the Contract, the Contractor shall use any methods or equipment that will accomplish the contract work in conformity with the Contract requirements.

When the methods and equipment, to be used are specified in the Contract, other methods and equipment shall not be used in the performance of the work unless the Contractor receives written authorization from the Engineer.

If the Contractor desires to use a method of equipment other than specified in the Contract, the Contractor may request approval from the Engineer. The request shall include a full description of the methods and equipment proposed to be used and the Contractor's explanation for the proposed change. The Contractor shall be fully responsible for producing work in conformity with contract requirements. If the substituted methods or equipment do not produce results conforming to contract requirements, the Contractor shall complete the remaining construction with the originally specified methods

and equipment. Deficient work shall be removed, repaired, or replaced to conform with the specified quality by and at the Contractor's expense. No increase will be made in the basis of payment for the construction items involved nor in contract time when a change in methods or equipment is authorized.

108.06 Determination and Extension of Contract Time. The number of working days, calendar days, or contract completion time allowed for the completion of the work is determined by the Division. It will be stated in the Contract, and will be known as the "Contract Time."

When the Contract time is on a working day basis, the Engineer will furnish the Contractor a weekly statement showing the number of days charged to the Contract for the preceding week and the number of days remaining for completion of the Contract.

When the Contract completion time is a fixed calendar date, it shall be the date on which all work on the project shall be completed.

When the contract time is on a calendar day basis, it shall consist of the number of calendar days specified in the Contract, counting from the effective date on the notice to proceed, including all Saturdays, Sundays, and holidays. All calendar days elapsing between the dates to suspend work and to resume work shall be excluded.

If the Contractor finds it impossible to complete the work within the Contract Time he shall, submit to the Engineer a written request for an extension of time or a correction in the weekly statement. The written request shall be submitted within 30 working days after receipt of the weekly statement and the Contractor shall set forth in detail the reasons the Contractor believes the statement is incorrect or the contract time should be extended. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer determines that delays resulted from conditions beyond the control and fault of the Contractor, the time for completion may be extended by the amount of time supported by justification. The extended time for completion shall be in force and effect as though it were the original contract time.

One whole day will be assessed for each working day on which the work can be effectively prosecuted during six hours or more of the Contractor's daily working schedule. One-half day will be assessed for each working day on which the work can be effectively prosecuted for at least two hours but not more than six hours of the day. Time will not be charged for less than two hours.

A one-half working day charge may be made on those days when conditions beyond the control of and unknown to the Contractor at the time of bidding make it impossible to prosecute the work with full, normal efficiency.

The Contractor shall not carry on construction operations on Saturdays, Sundays, or holidays unless previously arranged, except for prewetting, making emergency repairs, and providing proper protection of the work and traveling public. Saturdays, Sundays and holidays will be counted as working days when the Contractor utilizes such days for construction work.

Time will not be charged during the months of December, January, February or March, unless otherwise stipulated in the Contract. This time is defined as free time and work may continue if conditions permit.

Delays in delivery of materials or fabrication scheduling resulting from late ordering, financial considerations, or other causes which could have been foreseen and prevented, will be considered within the Contractor's control. Each working day for such delay will be considered one day of time count. However, construction delays caused by delay in delivery of materials, due to some unusual market condition caused by industry-wide strike, national disaster, area-wide shortage, or other reasons beyond the control of the Contractor, will be considered a basis for adjustment of time charges, if substantiated by written justifications from the Contractor.

When final acceptance has been made by the Engineer as prescribed in subsection 105.16, the daily time charge will cease.

108.07 Failure to Complete Work on Time. A daily charge will be made against the Contractor for each working day, or calendar day including free time, that any work remains uncompleted after the elapse of contract time. This daily charge, will be deducted from any money due the Contractor. This deduction will not be considered a penalty but as liquidated damages.

The schedule of liquidated damages set forth below is an amount, agreed to by the Contractor and the Division, as reasonably representing additional construction engineering costs incurred by the Division if the Contractor fails to complete performance within the contract time.

The schedule of liquidated damages will be:

Original Contract Amount		Daily Charge
From	To and	
More than	Including	
\$ 0	\$ 25,000	\$ 270
25,000	50,000	465
50,000	100,000	540
100,000	500,000	950
500,000	1,000,000	1,250
1,000,000	2,000,000	1,400
2,000,000	4,000,000	1,750
4,000,000	8,000,000	1,970
8,000,000	10,000,000	2,050

Over \$10,000,000 - daily charge will increase by \$100 increments for each \$2,000,000 over \$10,000,000.

Due account shall be taken of any adjustment of the contract time for completion of the work granted under the provisions of subsection 108.06.

Permitting the Contractor to continue and finish the work or any part thereof after elapse of contract time will not operate as a waiver on the part of the Division of any of its rights under the Contract.

Any deduction assessed as liquidated damages under this subsection shall not relieve the Contractor from liability for any damages or costs resulting from delays to other contractors on the project or other projects caused by a failure of the assessed Contractor to complete the work according to contract times.

108.08 Default of Contract. 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 with sufficient workers and equipment or with sufficient materials to assure the prompt completion of said work, or
 - (c) Performs the work not in accordance with the Contract requirements or refuses to remove and replace rejected materials or unacceptable work, 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 remain against unsatisfied for a period of 10 days, or
 - (h) Makes an assignment for the benefit of creditors, or
 - (i) Fails to comply with contract requirements regarding minimum wage payments or EEO requirements, or
 - (j) Is a party to fraud, or
 - (k) For any other cause whatsoever, fails to carry on the work in an acceptable manner;
- the Engineer will give notice in writing to the Contractor and the Surety of such delay, neglect, or default.

If the Contractor or Surety, within a period of 10 days after such notice, does not proceed, then the Division will, upon written notification from the Engineer 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 from the Contractor. The Division may appropriate or use the Contractor's materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement for the completion of the Contract according to the terms and provisions thereof, or use

other methods as, in the opinion of the Engineer, will be required for the completion of the Contract.

All costs and charges incurred by the Division, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due said 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 Division the amount of such excess.

If the Contractor notifies the Division that the Division has committed a material breach of the Contract which would, under the law, justify the Contractor in terminating or suspending performance, the claim shall be considered and the decision rendered within 30 days following such suspension or termination.

108.09 Termination of Contract.

- (a) *Termination Notice.* The Division may terminate work under this Contract in whole or in part if the Engineer determines that termination is in the Division's best interest. Contract termination will be initiated by the Engineer's written Contract Termination Notice to the Contractor. The notice will specify the effective date.
- (b) *Cancelled Commitments.* The Contractor, after receiving the Contract Termination Notice, shall cancel any outstanding commitments for procurement of materials, supplies, equipment and miscellaneous items. In addition, the Contractor shall use reasonable effort to cancel or divert any outstanding subcontract commitments to the extent they relate to any work terminated. With respect to such cancelled commitments the Contractor shall:
 - (1) Settle all outstanding liabilities and all claims arising out of these cancelled commitments. Such settlements shall be approved by the Engineer and shall be final; and
 - (2) Assign to the Division all of the rights, title and interest of the Contractor under the terminated orders and subcontracts, as directed by the Engineer. The Division will then have the right to settle or pay any or all claims arising out of the termination of these commitments.
- (c) *Termination Claim.* The Contractor shall submit the termination claim to the Engineer within 90 days after the termination notice effective date. During the 90 day period, the Contractor may make a written request for a time extension in preparing the claim. Any time extension must be approved by the Engineer. If the Contractor fails to submit the termination claim within the time allowed, the Engineer may determine the

amount due the Contractor by reason of the termination.

- (d) **Payment.** Subject to paragraph (c) above, the Contractor and Engineer may agree upon the whole or any part of the amount to be paid to the Contractor because of the termination. The amount may include reasonable cancellation charges incurred by the Contractor. The amount may also include any reasonable loss upon outstanding commitments for subcontracts which the Contractor is unable to cancel, provided the Contractor has made reasonable effort to divert the commitments to other activities. The amount agreed upon shall be embodied in a Contract Modification Order and the Contractor shall be paid that amount.

Payments claimed and agreed to pursuant to termination shall be based on the Contract unit prices. Payment for partially completed lump sum items may be made in the proportion that the partially completed work is to the total lump sum item. Where work performed is of a nature that it is impossible to separate the costs of uncompleted work from completed units, the Contractor will be paid the actual cost incurred for the necessary preparatory work and other work accomplished.

The Division may from time to time, under terms and conditions it may prescribe, make partial payments against costs incurred by the Contractor in connection with the contract termination. The total of such payments shall not exceed the amount, as determined by the Engineer, the Contractor will be entitled to hereunder.

- (e) **Disposition of Work and Inventory.** The Contractor shall transfer title and deliver to the Division, as directed by the Engineer, such items which, if the Contract had been completed, would have been furnished to the Division including:

- (1) Completed and partially completed work; and
- (2) Materials or equipment produced or in process or acquired in connection with the performance of the work terminated by the notice.

Other than the above, any termination inventory resulting from the contract termination may, with written approval of the Engineer, be sold or acquired by the Contractor under the conditions prescribed by and at prices approved by the Engineer. The proceeds of any such disposition shall be applied to reduce any payments to the Contractor under this Contract, or shall otherwise be credited to the cost of work covered by this Contract, or paid in a manner as directed by

the Engineer. Until final disposition, the Contractor shall protect and preserve all the material related to this Contract which is in his possession and in which the Division has or may require an interest.

- (f) **Cost Records.** The Contractor agrees to make cost records available to the extent necessary to determine the validity and amount of each item claimed.
- (g) **Contractual Responsibilities.** Termination of a Contract or portion thereof shall not relieve the Contractor of contractual responsibilities for the work completed, nor shall it relieve the Surety of its obligation for and concerning any just claim arising out of the work performed.

SECTION 109 MEASUREMENT AND PAYMENT

109.01 Measurement of Quantities. All work completed under the Contract will be measured by the Engineer according to United States standard measure.

A station when used as a definition or term of measurement will be 100 linear feet.

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 deductions will not be made for individual structures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or as 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.

Items which are measured by the linear foot, such as pipe culverts, guardrail, underdrains, etc., will be measured parallel to the base or foundation upon which the structures are placed, unless otherwise shown on the plans.

In computing volumes of excavation and embankment, the average end area method or other acceptable methods will be used.

The term "gage," when used in connection with the measurement of plates, will mean the U.S. Standard Gage.

When the term "gage" refers to the measurement of wire, it will mean the wire gage specified in ASTM A 510.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials which are measured or proportioned by weight shall be

weighed on accurate scales sealed by the Measurement Standards Section of the Colorado Department of Agriculture as often as the Engineer may deem necessary and at least once each year. Scales shall be furnished by the Contractor or the Contractor may utilize commercial scales operated by certified weighers.

When commercial or Contractor furnished scales are used, they shall be operated by weighers certified by the Measurement Standards Section of the Colorado Department of Agriculture. The cost of weighers, scales, and scale house will not be paid for separately but shall be included in the contract price for the weighed material. A representative of the Division may, at the discretion of the Engineer, be present to witness the weighing and to check and compile the daily record of such scale weights. The operator of each vehicle weighed by a certified weigher shall obtain a weight or load slip from the weigher and deliver the slip to the Engineer at the point of delivery of the material. The cost of the certified weigher and the delivery of the weight or load slip will not be paid for separately but shall be included in the contract price for the weighed material. If the certified weigher does not perform the duties according to the Colorado Department of Agriculture regulations, the weigher will not be allowed to weigh material for state projects.

A commercial scale is defined as one that is available to the general public, either at a commercial source of materials or a public weighing station.

Scales shall be accurate within the allowable tolerances as prescribed by State law. Scales shall be inspected and sealed whenever the Engineer determines there is reason to believe the scales are not accurate within the limits prescribed by State law. In the event scale accuracy is found acceptable, the cost involved in checking the scale shall be at the Division's expense. Should the scale accuracy be found unsatisfactory, the cost involved in checking the scale shall be at the Contractor's expense.

Poises shall be designed to be locked in any position to prevent accidental change of position.

Vehicles used to haul material being paid for by weight shall be weighed empty daily at times directed by the Engineer and shall bear a plainly legible identification mark. The Contractor shall furnish to the Engineer, in writing, a list of identification marks, number of axles, and the distance between extreme axles of each delivery vehicle to be used on the project. This information shall be furnished prior to time of delivery of the material and at any subsequent time the Contractor changes vehicles, combination vehicles, or axle length relationships.

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, provided

the body is shaped so the actual contents may be readily and accurately determined. All vehicles shall be loaded to their water level capacity and all loads shall be leveled when the vehicles arrive at the point of delivery.

Water used in the work will be measured by the M Gal. (1000 U.S. gallons). The weight of inherent moisture in the material will not be deducted. Water added for the Contractor's convenience will not be paid for.

Water may be measured either by volume or by weight. Water meters shall be accurate within a range of ± 3 percent. When water is metered, the Contractor shall use an approved metering device and shall furnish the Engineer a certificate showing that the meter has been accurately calibrated within the time allowed in the following schedule:

2 inch meter	4 years
4 inch to 6 inch meters	2 years
8 inch to 10 inch meters	1 year

Water meters shall be calibrated when the Engineer determines there is reason to believe the meters are not accurate within the allowable tolerance. In the event water meter accuracy is found acceptable, the cost involved in checking the water meter shall be at the Division's expense. Should the water meter accuracy be found unsatisfactory, the cost involved in checking the water meter shall be at the Contractor's expense.

For those materials specified to be measured by the cubic yard, an acceptable method of computing volumes of excavation is to determine a weight/volume factor and convert weights to volumes by means of the factor. The weight/volume factor shall be determined by Colorado Test Procedures CP22 or CP80 as described in the Division's Materials Manual. The number of tests used to determine the material weight/volume factor shall be determined by the Engineer. The locations where the tests are taken shall be at those locations specified in the "Method of Measurement" for the particular bid item; i.e., Unclassified Excavation - in its original position: Embankment Material - in its final compacted position, etc.

Bituminous materials will be measured by the gallon or ton. Volumes will be measured at 60° F. or will be corrected to the volume at 60° F. 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 or volume subject to correction for loss or foaming, will be used for computing quantities.

Cement will be measured by the ton.

Timber will be measured by the thousand feet

board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

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 include all necessary fittings and accessories.

Rental of equipment will be measured in hours of actual working time and necessary traveling time of the equipment within the limits of the project. If special equipment has been ordered by the Engineer in connection with force account work, travel time and transportation to the project will be measured. If equipment has been ordered held on the job on a standby basis by the Engineer, and is not otherwise utilized by the Contractor, standby rental rates for the equipment will be paid at the rates specified in subsection 109.04.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., the 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.

The transportation industry is now in a transition period, moving toward full adoption of the Metric System, generally known as the International System of Units (SI). The American Association of State Highway and Transportation Officials have officially endorsed such action and have published their AASHTO R1-77, Standard Metric Practice Guide in Part I, Specifications, of Highway Materials. Additionally, AASHTO M-92 uses the Metric System to establish Standard Sieve Sizes.

Following is a list of widely applicable conversion factors.

To convert from	To	Multiply by
inch	metre (m)	2.540 000 E-02
foot	metre (m)	3.048 000 E-01
foot ²	metre ² (m ²)	9.290 304 E-02
yard ²	metre ² (m ²)	8.361 274 E-01
foot ³	metre ³ (m ³)	2.831 685 E-02
yard ³	metre ³ (m ³)	7.645 549 E-01
pound-mass (lbm. avoird.)	kilogram (kg)	4.535 924 E-01
gallon (U.S. liquid)	metre ³ (m ³)	3.785 412 E-03
pound-force/inch ² (psi)	pascal (Pa)	6.894 757 E+03
pound-mass/foot ³	Kilogram/metre ³ (kg/m ³)	1.601 848 E+01
degree Fahrenheit °F	degree Celsius	t°C=(t°F-32)/1.8

Notation:

Conversion factors are presented for ready adaptation to computer readout and electronic data trans-

mission. The factors are written as a number greater than one and less than ten with six or less decimal places. This number is followed by the letter E (for exponent), a plus or minus symbol, and two digits which indicate the power of 10 by which the number must be multiplied to obtain the correct value. For example, 3.523 907 E-02 is $3.523\ 907 \times 10^{-2}$ or 0.035 23907. Similarly, 3.386 389 E+03 is $3.386\ 389 \times 10^3$ or 3 386.389.

109.02 Scope of Payment. The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials and 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 subsection 107.21.

Work or materials for which there are pay items and which are to be paid for separately will be included in the appropriate pay item in the Summary of Approximate Quantities on the plans. Work or materials that are essential to the project but for which there are no pay items, will not be measured and paid for separately but shall be included in the project.

Payment for any pay item listed in the Summary of Approximate Quantities on the plans, having additional items shown within parentheses, shall be full compensation for all work necessary to complete the item as designated.

109.03 Compensation for Altered Quantities. When the accepted quantities of work vary from the quantities in the Contract, the Contractor shall accept as payment in full, payment at the original contract unit prices for the accepted quantities of work done. Allowance will not be made except as provided in subsections 104.02 and 108.09, 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 of overhead expense among the contract items or from any other cause.

Should any such alteration directly cause the loss of any work or materials already furnished by the Contractor under the terms of the original contract, reimbursement for such work or of salvaging such materials will be at actual cost. Any such materials may, at the option of the Division, be purchased at the actual cost to the Contractor, as evidenced by certified invoices.

109.04 Extra and Force Account Work. Extra work performed in accordance with the requirements and provisions of subsection 104.03 will be paid for at the unit prices or lump sum stipulated in the order authorizing the work, or the Division may

require the Contractor to do the work on a force account basis to be compensated in the following manner:

- (a) **Labor.** For all labor and foremen in direct charge of the specific operations, the Contractor shall receive the rate of wage (or scale) agreed to in writing before beginning work for each and every hour that the labor and foremen are actually engaged in the work.

An amount equal to 67% of the above rates will also be paid the Contractor to cover overhead, additional bond, property damage and liability insurance, worker's compensation insurance premiums, unemployment insurance contributions, and social security taxes.

In addition to the wage plus 67% of the wage, the actual amount of fringe benefits will be paid to the Contractor for those work classifications which carry fringe benefits resulting from collective bargaining agreements or as required by U.S. Department of Labor Wage Schedules. (Fringe benefits are those payments made by the Contractor to a third party or trustee to cover such things as, but not limited to, health and welfare, pensions, vacations, apprenticeship programs, etc.). Also the Contractor shall receive the actual costs paid to, or in behalf of, workers by reason of subsistence and travel allowances which are the result of a collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work. The 67% loading factor shall not apply to fringe benefits, subsistence, and travel allowances paid to the workers, to a third party, or to a trustee.

- (b) **Materials.** For materials accepted by the Engineer and incorporated in the work, the Contractor shall receive the actual cost of such materials, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost 15% will be added.
- (c) Compensation will be paid to the Contractor for administrative expenses when all of the following conditions are present:
- (1) Extra work for which no unit bid price exists, is performed on the project on a force account basis.
 - (2) The work is performed by a subcontractor or specialty firm including utilities and railroads.
 - (3) The work is not included in a contract item.
 - (4) The work is not included in work that has been compensated at negotiated unit prices.

The compensation will be a percentage of the value of the work performed in accordance with the following:

To \$1,000	10%
Over \$1,000 to \$10,000	\$100 plus 5% of excess over \$1,000
Over \$10,000	\$550 plus 3% of excess over \$10,000

The percentages will be calculated after certified invoices are furnished by the Contractor. Compensation for administrative expenses will be applied to each individual billing for extra work, not to exceed one billing per month.

- (d) **Equipment.** For any machinery or special equipment (other than small tools), the use of which has been authorized by the Engineer, the Contractor will be paid for the use of equipment in the manner hereinafter specified. Rental rates will be from the current edition of the Rental Rate Blue Book for Construction Equipment and will be determined as follows:

Hourly rate: $RR = (ADJ\ BB/176)(RF)(SAF) + EOC$

Standby rate: $SR = (ADJ\ BB/176)(RF)(SAF)(0.5)$

Where: RR = Hourly rental rate

SR = Standby Rate

$ADJ\ BB/176$ = Blue Book Monthly Rate adjusted for year of manufacture/176

RF = Regional Factor of 1.06

SAF = State Adjustment Factor of 1.05

EOC = Estimated Hourly Operating Costs from Blue Book

OC = Ownership Costs

Rental of equipment not owned by the Contractor will be paid for by invoice cost plus operating cost (EOC).

- (e) **Miscellaneous.** Additional allowance will not be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
- (f) **Compensation.** The Contractor's representative and the Engineer shall compare records of the cost of work done as ordered on a force account basis to assure the costs are supported and were actually incurred.
- (g) **Statements.** Payment will not be made for work performed on a force account basis until the Contractor has furnished the Engineer with triplicate itemized statements of the cost of the force account work.

Statements shall be accompanied and supported by certified invoices for all materials used including transportation charges. If materials used on the force account work are not specifically purchased for the work

but are taken from the Contractor's stock, the Contractor shall furnish a written statement certifying that the materials were taken from the stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

109.05 Eliminated Items. Should any items contained in the Contract be found unnecessary for the proper completion of the work, the Engineer will notify the Contractor in writing, to eliminate the item. Such action will not invalidate the Contract. The Contractor, by Contract Modification Order, will be reimbursed for actual work done and all costs incurred, including mobilization of materials and equipment prior to the elimination of the items.

109.06 Partial Payments. Partial payments will be made once each month as the work progresses, when the Contractor is performing satisfactorily under the Contract. Payments will be based upon progress estimates prepared by the Engineer, of the value of work performed, materials placed in accordance with the Contract, and the value of the materials on hand in accordance with subsection 109.07. The amount of the progress estimate paid to the Contractor will be subject to the following:

(a) *Standard Amount Retained.* The Division will make a deduction from the progress estimate in the amount considered necessary to protect the interests of the State, pursuant to Section 24-91-103, CRS. That amount to be retained will be 10% of the value of the completed work, exclusive of mobilization and payments for materials on hand, to a maximum of 5% of the original contract amount. No further amount will be retained if the Contractor makes satisfactory progress in the contract work. The amount retained will be in effect until such time as final payment is made, with the following exceptions, each of which requires the Contractor's written request and consent of the Surety:

- (1) When 97½ % of the work has been completed, the Engineer may, reduce the retained amount to twice the value of the remaining work.
- (2) Upon completion and acceptance of the project, the Engineer may reduce the amount retained to 2% of the original contract amount.
- (3) After the project quantities are finalized and the Contractor has submitted the necessary forms, further reductions in the amount retained may be approved.

(b) *Securities in Lieu of Standard Amount Retained.* When the original contract

amount exceeds \$80,000 (eighty thousand dollars), the Contractor may withdraw all or any portion of the standard amount retained if acceptable securities are assigned to the Division, and deposited as set forth in Section 24-91-105, CRS and the implementing regulations. The securities shall at all times have a market value at least equal in value to the sums withdrawn. If at any time the Division determines that the market value of the securities has fallen below the sums withdrawn, the Contractor, shall deposit additional acceptable securities in an amount sufficient to reestablish a total deposit of securities equal in value to the sums withdrawn. This security substitution shall not apply if a part of the contract price is paid from federal, or other sources, and the federal or other source has requirements which are inconsistent with this subsection.

(c) *Subcontractor and Supplier Claims.* In addition to a standard amount retained, the Division shall withhold funds for all claims against the Contractor filed by subcontractors and suppliers, pursuant to Section 38-26-107, CRS.

(d) *No Payment.* A partial payment will not be made when the total value of the work done since the last estimate amounts to less than \$500.

109.07 Payment for Material on Hand (Stockpiled Material). Payments may be made to the Contractor for materials to be incorporated in the work as evidenced by invoices or cost analyses of material produced on the project subject to the following:

- (1) The material has been fabricated or processed and is ready for installation into the project and conforms to the requirements of the Contract.
- (2) The material is stored on the project, on State owned property, or at an acceptable location within the State of Colorado. In the latter case the Contractor must provide a document signed by the owner and lessee of the property establishing that the Division has a vested interest in, and the right of access to and possession of the material.
- (3) The Contractor provides the Engineer with a written cost analysis which confirms that the balance of funds in the corresponding item(s) is sufficient to complete the installation.
- (4) The Contractor initially provides the Engineer with a certified invoice followed by proof of payment (paid invoice) for the purchased material within 30 days of the date that the material was included in a partial payment. If proof of payment is not furnished within the 30 day limitation, the value of the stockpiled material will be deducted from the next partial payment.

Payment for stockpiled materials will not relieve the Contractor of responsibility for loss or damage to the material. Payment for living or plant materials, perishable materials, or materials which will not become an integral part of the finished project will not be made under this subsection.

109.08 Adjustments for Changes in Common Carrier Rates. It is understood and agreed that the accepted proposal for the contract work is based on common carrier rates in effect on the date of bid opening. Payments to the Contractor will be adjusted to compensate for increases and decreases in cost due to changes in common carrier rates becoming effective after the date of bid opening and before the date stipulated for the completion of the work, as adjusted because of authorized extensions of time. The adjustment shall be a product of the increase or decrease in the said common carrier rates multiplied by the net quantity of material shipped at the new rates to the work and incorporated therein, all as shown by receipted common carrier bills.

109.09 Acceptance and Final Payment. When the project has been accepted as provided in subsection 105.16, the Engineer will prepare the final estimate of the quantities of the various classes of work performed. After approval of the final estimate by the Contractor, payment of the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the Contract will be made.

All prior partial estimates and payments shall be subject to correction in the final estimate and payment.