Manokotak Village Council
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SECOND AND THIRD STREET REHABILITATION PROJECT MANOKOTAK, ALASKA

PROJECT SPECIFICATIONS

"100% Design Submittal"

January 2021

Adaptation of ADOT&PF Standard Specifications for Highway Construction

Project No. 32150007

Bristol
ENGINEERING
SERVICES COMPANY, LLC

PREFACE

The specifications presented in this document are to be used for the construction of the Second and Third Street Rehabilitation Project located in Manokotak, Alaska.

These project specifications were developed from the Alaska Department of Transportations For Highway Construction And Public Facilities (ADOT&PF) Standard Specifications, 2015 Edition. For convenience, all project specific modifications to the ADOT&PF Standard Specifications have been incorporated within this document. The intent is to have all the project specifications in one document. At the time of development, all applicable specifications were included in this document. If, during construction, items of work, sections or subsection are not found in this document then the contract shall revert to the ADOT&PF Standard Specifications. There may be sections in this document that are not relevant to the project, from time to time.

All additions to the specifications are shown in underlined format. For clarity, deletions are as follows. Sub-Sections that are not applicable will have a (Not Used) in the title. Where the sub-section remains and words, or phrases, are removed, they will remain shown but in stricken form as follows, ~~Deleted~~.

In general, all references to "The Department" have been changed to "The Owner" these are not shown as deletions and additions.

The specifications assume United States Customary (English) units unless noted otherwise.

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DEFINITIONS AND TERMS

101-1.01 GENERAL. The following terms and definitions apply in these Specifications. If a term is not defined, the ordinary, technical, or trade meanings for that term shall apply, within the context in which it is used.

Titles and headings of sections, subsections, and subparts are intended for convenience of reference and will not govern their interpretation.

Cited publications refer to the most recent issue, including interim publications, in effect on the date of the Invitation To Bid, unless specified by year or date.

These Specifications are written to the Bidder or Contractor. Unless otherwise noted, all actions required by the specifications are to be performed by the Bidder, the Contractor, or the Contractor's agent.

Beginning in Division 200 we use imperative mood and active voice to communicate the Contractor's responsibilities in a direct and concise manner. Omission of words or phrases such as “a,” “an,” “the,” “the Contractor shall,” “unless otherwise specified,” or “unless otherwise directed” is intentional. Interpret the Contract as if they were included.

Beginning in Division 200 whenever anything is, or is to be, done, if, as, or, when, or where “acceptable, accepted, approval, approved, authorized, determined, designated, directed, disapproved, ordered, permitted, rejected, required, satisfactory, specified, submit, sufficient, suitable, suspended, unacceptable, unsatisfactory, or unsuitable,” the expression is to be interpreted as if it were followed by the words “by the Owner’s Representative” or “to the Owner’s Representative.”

101-1.02 ACRONYMS. Acronyms used in the Contract include the following (publications and plans are italicized):

AAC	Alaska Administrative Code
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
AKOSH	Alaska Occupational Safety and Health
AS	*Alaska Statute*
ASDS	*Alaska Sign Design Specifications*
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing & Materials
ATM	Alaska Traffic Manual
ATMM	Alaska Test Methods Manual
ATSSA	American Traffic Safety Services Association
AWPA	American Wood Preservers Association
AWG	American Wire Gage
AWS	American Welding Society

AWWA American Water Works Association
CFR *Code of Federal Regulations*
CRSI Concrete Reinforcing Steel Institute
DOLWD Alaska Department of Labor and Workforce Development
DOT&PF Alaska Department of Transportation and Public Facilities
EEI Edison Electrical Institute
EIA Electronic Industries Association
FHWA Federal Highway Administration
FM Factory Mutual
FOP Field Operating Procedure (see *ATMM*)
FSS Federal Specifications and Standards, General Services Administration
IMSA International Municipal Signal Association
ICEA Insulated Cable Engineers Association
ITE Institute of Transportation Engineers
MRP *Mining and Reclamation Plan*
MUTCD *Manual on Uniform Traffic Control Devices*
NEC *National Electrical Code*
NESC *National Electrical Safety Code*
NEMA National Electrical Manufacturers Association
SAE Society of Automotive Engineers
SSHC *DOT&PF Standard Specifications for Highway Construction*
SSPC Steel Structures Painting Council
SWPPP *Storm Water Pollution Prevention Plan*
UL Underwriters Laboratory
VAC Voltage Alternating Current
VECP Value Engineering Change Proposals
WAQTC Western Alliance for Quality in Transportation Construction (see *ATMM*)

101-1.03 DEFINITIONS.

ADDENDA. Clarifications, corrections, or changes to the Plans, Specifications, or other Contract documents issued graphically or in writing by the Owner after the advertisement but prior to bid opening.

ADVERTISEMENT. The public announcement, as required by law, inviting bids for specified work or materials.

AGREED PRICE. An amount negotiated between the Owner and the Contractor after Contract award for additional work performed or additional materials supplied under the Contract.

ALASKA TEST METHODS MANUAL. The materials testing manual used by the Owner. Contains Alaska Test Methods, WAQTC Test Methods, WAQTC FOPs for AASHTO Test Methods, and Alaska Standard Practices for evaluating test results and calibrating testing equipment.

AWARD. Acceptance of the successful bid by the Owner. The award is effective upon execution of the Contract by the Contracting Officer.

BASE COURSE. One or more layers of specified material placed on a subbase or subgrade to support a surface course.

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BID. The bidder's offer, on the prescribed forms, to perform the specified work at the prices quoted.

BID BOND. A type of bid guaranty.

BIDDER. An individual, firm, corporation, joint venture, or any acceptable combination of individuals and entities submitting a bid for the advertised work.

BID GUARANTY. The security furnished with a bid to guarantee that the bidder will enter into a contract if the Owner accepts the bid.

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 a length measured along the roadway center of more than 20 feet between undercopings of abutments or spring lines of arches or extreme ends of openings of multiple boxes. The length of a bridge structure is the overall length measured along the line of survey stationing between backs of abutment backwalls or between ends of the bridge floor.

CALENDAR DAY. Every day shown on the calendar, beginning and ending at midnight.

CHANGE ORDER. A written order by the Owner to the Contractor making changes to the Contract, within its general scope, and establishing the basis of payment and time adjustment, if any, for the work affected.

COMPLETION DATE. The date on which all Contract work is specified to be completed.

CONSTRUCTION. Physical activity by the Contractor or any Subcontractor using labor, materials or equipment within the Project, or within material sources planned for use on the Project.

CONTINGENT SUM. A method for paying for a Contract bid item reserved by the Owner for specified contingencies. The Contractor shall perform Contingent Sum work only upon the Directive of the Owner's Representative. The basis of payment for Contingent Sum work shall be specified in the Contract or the Directive.

CONTRACT. The written agreement between the Owner and the Contractor setting forth the obligations of the parties for the performance and completion of the work.

The Contract includes the Invitation To Bid, Bid Form, Contract, ~~Standard~~ Specifications, ~~Standard Modifications, Special Provisions,~~ Plans, Bid Schedule, Contract Forms, Contract Bonds, Addenda, and any Change Orders, Interim Work Authorizations, Directives, or Supplemental Agreements that are required to complete the work in an acceptable manner, all of which constitute one instrument.

CONTRACT ITEM (PAY ITEM). A specifically described item of Contract work listed on the Bid Schedule or in a Change Order.

CONTRACTOR. The individual, firm, corporation, joint venture, or any acceptable combination of individuals and entities contracting with the Owner for performance of the Contract.

CONTRACT TIME. The time allowed under the Contract, including authorized time extensions, for the completion of all work by the Contractor.

CONTROLLING ITEM. Any feature of the work considered at the time by the Owner's Representative: (1) essential to the orderly completion of the work and (2) a feature which, if delayed, will delay the time of completion of the Contract (such as an item of work on the critical path of a network schedule).

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COST. Amounts actually incurred by the Contractor in the performance of the Contract that are (a) actually reflected in contemporaneously maintained accounting or other financial records and (b) supported by original source documentation. Costs are to be stated in U.S. dollars.

CULVERT. Any structure not classified as a bridge that provides an opening under the embankment.

DAY. Calendar day unless preceded by the word "working".

~~**DEPARTMENT.** The State of Alaska Department of Transportation and Public Facilities.~~

DIRECTIVE. A written communication to the Contractor from the Owner's Representative enforcing or interpreting a Contract requirement or ordering commencement or suspension of an item of work already established in the Contract.

EQUIPMENT. All machinery, tools, apparatus, and supplies necessary to preserve, maintain, construct, and complete the work.

EQUITABLE ADJUSTMENT. An increase or decrease in Contract price or time calculated according to the terms of this Contract.

EXTRA WORK. An item of work not provided for in the Contract as awarded but found essential by the Owner's Representative for the satisfactory completion of the Contract within its intended scope.

HIGHWAY, STREET, OR ROAD. A general term denoting a public way used by vehicles and pedestrians, including the entire area within the right-of-way.

HOLIDAYS. Recognized holidays are:

1. New Year's Day - January 1
2. Martin Luther King, Jr. Day - Third Monday in January
3. Presidents' Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday in November
11. Christmas Day - December 25

INSPECTOR. The Owner's Representative's representative authorized to make detailed inspections of Contract performance and materials.

INTERIM WORK AUTHORIZATION. A written order by the Owner's Representative initiating changes to the Contract, within its general scope, until a subsequent Change Order is executed.

INVITATION TO BID. The advertisement for bids for all work or materials on which bids are required.

MAJOR CONTRACT ITEM. A Contract item with a total value of 5 percent or more of the Contract award amount.

MATERIALLY UNBALANCED BID. A mathematically unbalanced bid that either (a) gives rise to a reasonable doubt that it will ultimately result in the lowest overall cost to the Owner, even though it may be the lowest bid or (b) is so unbalanced as to be tantamount to allowing a significant advance payment.

MATERIALS. Substances specified for use in the construction of the project.

MATERIALS CERTIFICATION LIST (MCL). A list of materials for which certifications must be submitted to the Owner's Representative. The MCL will also designate electrical products requiring listing by an approved independent electrical testing laboratory. ~~The MCL is included in the Contract documents as an appendix.~~

MATHEMATICALLY UNBALANCED BID. A bid (a) where each pay item fails to carry its share of the cost of the work plus the bidder's overhead and profit, or (b) based on nominal prices for some pay items and enhanced prices for other pay items.

MEDIAN. The portion of a divided highway separating the traveled ways.

MINOR CONTRACT ITEM. A Contract item with a total value of less than 5 percent of the Contract award amount.

NOTICE OF INTENT TO AWARD. The written notice by the Owner announcing the apparent successful bidder and establishing the Owner's intent to award the Contract when all required conditions are met.

NOTICE TO PROCEED. Written notice to the Contractor to begin the Contract work.

ORIGINAL GROUND (OG). The ground surface prior to the start of work.

OWNER. In this contract, the owner is the Manokotak Village Council.

The final end user of the project is the City of Manokotak.

OWNER'S REPRESENTATIVE. The authorized representative of the Owner. The Owner's Representative is responsible for administration of the Contract. May also be referred to as "Engineer".

PATHWAY. A paved or unpaved path for multiple uses.

PAVEMENT STRUCTURE. The combination of subbase, base course, and surface course placed on a subgrade to support the traffic load and distribute the traffic load to the roadbed.

PAYMENT BOND. The security furnished by the Contractor and the Contractor's Surety to guarantee payment of all persons who supply labor and material in prosecution of the work provided for in the contract.

PERFORMANCE BOND. The security furnished by the Contractor and the Contractor's Surety to guarantee performance and completion of the work provided for in the contract.

PLANS. Contract drawings, profiles, typical cross sections, standard drawings, and supplemental drawings or reproductions showing the location, character, dimensions, and details of the work.

PRECONSTRUCTION CONFERENCE. A meeting between the Contractor and the Owner's Representative to discuss the project before the Contractor begins the work.

PROFILE. The vertical elevation of the surface of the layer at the location indicated. On a roadbed it is typically indicated at the longitudinal centerline of the top layer of pavement. On a material or fabrication it may be used to indicate a thickness of material or thickness of a coating.

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PROJECT. (a) The specific section of the highway or other property and related facilities on which construction is to be performed, or (b) the work that is to be performed under the Contract whether completed or partially completed.

RESOURCES. Labor, equipment, materials, supplies, tools, transportation, and supervision necessary to perform the work.

RESPONSIBLE BIDDER. A bidder that the Owner determines has the skill, ability, financial resources, legal capacity to contract, equipment, required licenses, integrity, satisfactory record of performance and that is otherwise fully capable of performing the Contract.

RESPONSIVE BID. A bid that the Owner determines conforms in all material respects with the solicitation for bids.

RETAINAGE. A percentage of a payment established in advance under a contract or subcontract to be withheld from a progress payment due on the contract or subcontract. Payment or a percentage of payment withheld for unsatisfactory performance in not retainage.

RIGHT-OF-WAY. Land or property or an interest in property available for a project. The uses allowed in portions of right-of-way may be restricted.

ROADBED. Graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

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.

ROADWAY. Portion of a highway including shoulders, for vehicular use.

SHOULDER. Portion of the roadway adjacent to the traveled way for accommodation of stopped vehicles for emergency use, and for lateral support of base and surface courses.

SIDEWALK. Portion of the project constructed for the exclusive use of pedestrians.

~~**SPECIAL PROVISION.** Addition or revision that amends or supersedes the Standard Specifications or Standard Modifications, and is applicable to an individual project.~~

SPECIALTY ITEM. A Contract item identified in the Contract that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract.

SPECIFICATIONS. General term applied to all Contract terms, conditions, directions, provisions, and requirements.

STANDARD DRAWING. Drawing approved by the Alaska Department of Transportation and Public Facilities for repetitive use, showing details to be used where appropriate.

~~**STANDARD MODIFICATION.** Addition or revision that amends or supersedes the Standard Specification, and is approved by the Department for general application and repetitive use.~~

~~**STANDARD SPECIFICATIONS.** A book or electronic file of specifications approved by the Department for general application and repetitive use.~~

~~**STATE.** The State of Alaska, acting through its authorized representative.~~

STATION. A distance of 100 feet measured horizontally, usually along centerline.

STRUCTURE. Bridge, culvert, catch basin, drop inlet, retaining wall, cribbing, manhole, endwall, building, sewer, service pipe, underdrain, foundation drain, or other similar feature that may be encountered in the work.

SUBBASE. Layer of specified material between the subgrade and base course.

SUBCONTRACTOR. Individual or legal entity to whom or to which the Contractor sublets part of the Contract.

SUBGRADE. The soil or embankment upon which the pavement structure is constructed.

SUBSIDIARY. Work or material not measured or paid for directly. Compensation for such work is included in the payment for other items of work.

SUBSTANTIAL COMPLETION. The point at which the project (1) can be safely and effectively used by the public without further delays, disruption, or other impediments; and (2) pavement structure, shoulder, drainage, sidewalk, permanent signing and markings, guardrail and other traffic barrier, safety appurtenance, utilities, lighting and all bridge deck and parapet work is complete.

For projects that will not be opened to the traveling public or are being built in phases, the work is substantially complete when it is ready for the subsequent project.

SUBSTRUCTURE. All portions of a bridge below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, including backwalls, wingwalls, and wing protection railings.

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

SUPERSTRUCTURE. The entire bridge structure above the substructure.

SUPPLEMENTAL AGREEMENT. Negotiated written agreement between the Owner and the Contractor authorizing performance of work beyond the general scope of, but in conjunction with, the original Contract. ~~Supplemental agreements are new procurements under the State Procurement Code, AS 36.30.~~

SURETY. Corporation, partnership, or individual, other than the Contractor, executing a bond furnished by the Contractor.

SURFACE COURSE. Top homogenous layer of the pavement structure. It is designed to withstand the wear of traffic and the disintegrating effects of climate. Sometimes called the wearing course.

TRAFFIC CONTROL PLAN (TCP). One or more project-specific plans detailing the routing of vehicular or pedestrian traffic through or around a construction area including the location of all traffic control devices.

TRAIL. An unpaved path for multiple uses.

TRAVELED WAY. Portion of the roadway designed for vehicle use, excluding shoulders.

UTILITY. Line, facility, or system for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, or other similar commodity, including a publicly owned fire or police signal system, street lighting system, or railroad which directly or indirectly serves the public. Also means a utility company, inclusive of any subsidiary.

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WORK. Depending on the context, (a) The act of furnishing all resources for the project and performing all duties and obligations required by the Contract or (b) the physical construction, facility or end–product that is contemplated under the Contract, whether completed or partially completed.

WORKING DAYS. Calendar days, except holidays, indicated in this section.

WORKING DRAWINGS. Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, wiring diagrams and schematics, traffic control plans, night work lighting plans, or any other supplementary plans or similar data which the Contractor is required to submit to the Owner's Representative for approval.

SECTION 104
SCOPE OF WORK

104-1.01 INTENT OF CONTRACT. The intent of the Contract is to provide for the construction and completion of every detail of the described work. The Contractor shall furnish all labor, material, supervision, equipment, tools, transportation, supplies, and other resources required to complete the work in the time specified and in accordance with the Contract.

The Contractor is responsible for the means, methods, techniques, sequence, and procedures of construction, safety, and quality control, and is responsible to perform and furnish the work in accordance with the Contract documents.

104-1.02 CHANGES. *(NOT USED)*

104-1.03 DIFFERING SITE CONDITIONS. The Contractor shall immediately notify the Owner's Representative in writing and specifically describe the alleged differing site condition if the Contractor discovers:

1. Subsurface or latent physical conditions at the site, differing materially from those shown in the Contract documents, that could not have been discovered by a careful examination of the site; or
2. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

Failure to give the Owner's Representative immediate written notice of the alleged differing site condition as required under this section constitutes a waiver of any future claim arising from or relating to the alleged differing site condition.

Unless otherwise directed by the Owner's Representative, the Contractor shall leave the affected area undisturbed and suspend work in that area until the Owner's Representative investigates the conditions.

If the Owner's Representative finds that such conditions differ materially and increase or decrease the cost of, or the time required for, performance of the Contract, the Owner's Representative will prepare a Change Order for an Equitable Adjustment to the Contract. The Contractor shall cooperate with the Owners Representative's preparation of the Change Order.

If the Contractor and the Owner's Representative are unable to reach an agreement concerning the alleged differing site condition, the Contractor may file a claim in accordance with the contract documents. ~~under Subsection 105-1.17.~~

The Contractor shall keep accurate and detailed records of the actual cost of the work done as a result of the alleged differing site condition and shall allow the Owner's Representative access to those records. Failure to keep records, to provide the Owner's Representative with access to those records, or to give the notice required above will bar any recovery for the alleged differing site condition.

104-1.04 USE OF MATERIALS FOUND ON THE WORK. Before using borrow, the Contractor shall utilize Useable Excavation to construct the selected material layers on the project. For the purposes of this subsection, Useable Excavation is material encountered in the excavation that meets the requirements

of Selected Material, Type B, Subsection 703-2.07 Selected Material. For excavating the Useable Excavation and constructing the selected material layers with Useable Excavation, the Contractor shall be paid only the unit bid price for excavation. Hauling, placing, compacting and other activities required to construct the selected material layers with Useable Excavation shall be subsidiary to excavation, and the Contractor shall not be paid additional sums for those activities. The Owner's Representative may approve the use of borrow when Useable Excavation is not available.

The Owner's Representative may authorize the Contractor to use the Useable Excavation for Contract items other than construction of the selected material layers on the project, and the Contractor shall be paid both for the excavation of the Useable Excavation and for the other Contract item for which it is acceptably used. If this action results in a shortage of material for the selected material layers:

1. The Contractor shall replace Useable Excavation used for other Contract items on a yard for yard basis with borrow acceptable to the Owner's Representative; and
2. This replacement shall be at the Contractor's expense and at no additional cost to the Owner. The Contractor shall pay any royalties required for the borrow.

The Contractor shall not excavate or remove any material that is within the right-of-way but outside the slope and grade lines described in the Contract, without written authorization from the Owner's Representative.

In the event the Contractor has processed material from owner-furnished sources in excess of the quantities required for performance of the Contract, the Owner may retain possession of the surplus processed materials, including any waste material produced as a by-product, without obligation to pay the Contractor for processing costs. When the surplus materials are in a stockpile, the Owner's Representative may direct the Contractor to leave the materials in the stockpile, level the stockpile(s) or remove the materials and restore the premises to a satisfactory condition at no additional cost to the Owner. This provision does not apply to material specifically produced under Section 305, Stockpiled Material.

The Contractor may temporarily use material from a structure that is designated to be removed to erect a new structure, but shall not cut or otherwise damage such material without the Owner's Representative's approval.

104-1.05 CLEANUP. The Contractor shall remove all rubbish, temporary structures, excess materials, and equipment from the project site, from state owned materials sources, and from all work areas before project completion.

104-1.06 VALUE ENGINEERING CHANGE PROPOSAL BY CONTRACTOR.

1. Purpose and Scope. The purpose of this section is to encourage the Contractor to propose changes to Contract designs, materials, or methods based on the Contractor's experience and ingenuity. The Value Engineering Change Proposals (VECPs) contemplated are those that may result in immediate savings to the Onwer under this Contract without impairing essential functions and characteristics of the Project, including, but not limited to: service life, economy of operation, ease of maintenance, desired appearance, and safety. Cost savings on this project resulting from VECPs offered by the Contractor and accepted by the Owner shall be shared as outlined in section 104-1.06. ~~equally between the Contractor and the Owner.~~

2. Submitting Proposals. All VECPs must be in writing. The Contractor shall submit the following with each VECP:

a) A statement that the proposal is submitted as a VECP under Subsection 104-1.06;
b) A description of the difference between the existing Contract requirements and the proposed change, stating the comparative advantages and disadvantages of each, including effects on service life, economy of operations, ease of maintenance, desired appearance, and safety;
c) Drawings or specifications that show the proposed revisions relative to the original Contract requirements. The Contractor may submit schematics for conceptual approval of the proposal;
d) A detailed and complete cost estimate comparing the original estimated costs for performing the work under the existing Contract and under the proposed VECP;
e) A summary of the Contractor's development costs for the VECP, including costs for designing, testing, preparing and submitting the VECP;
f) A description and estimate of added costs the Owner may incur in implementing the VECP, such as review, testing and evaluation of the VECP and Contract administration costs;
g) A date by which the Owner must make a decision to obtain the cost savings projected in the VECP. The date identified must allow a reasonable time for the Owner to conduct an adequate review and evaluation of the VECP and process a Change Order without affecting the Contractor's schedule
h) A statement of the probable effect the VECP would have on the Contract completion time. The Owner's approval of the VECP shall not change the Contract completion date unless a change to the completion date is specifically provided for in the Change Order authorizing the VECP; and
i) A description of any previous use or testing of the proposed change and the conditions and results. If the proposal was previously submitted on another Owner project, indicate the date, project name and number, and the action taken by the Owner.

3. Conditions. VECPs will be considered only when all of the following conditions are met:

a) The Contractor has not based any bid prices on the anticipated acceptance of a VECP. If the VECP is rejected, the Contractor shall complete the work at the Contract prices.
b) VECPs, regardless of their approval status, become the property of the Owner. The Contractor shall submit VECPs without use or disclosure restrictions. The Owner shall have the right to use, duplicate or disclose the VECP and any data necessary to use the VECP on the Project, on any other project, and on any other Contracts. The Contractor shall identify any trade secret information, patented materials or proprietary processes that restrict use of the VECP.
c) The Owner is the sole judge as to whether a VECP qualifies for consideration and evaluation. It may reject any VECP that does not allow a reasonable time for adequate review and evaluation by the Owner or that requires excessive time or costs for review, evaluations, or investigations, or which is not consistent with the Owner's design standards and policies, safety considerations, land use restrictions, permit stipulations, right-of way limitations, or other essential criteria for the project. The Owner may reject a VECP without obligation to the Contractor if it contains proposals that are already under consideration by the Owner or that have already been authorized for the Contract.
d) If additional information is needed to evaluate a VECP, the Contractor shall provide it in a timely

manner. Failure to do so may result in rejection of the VECP.

e) The Contractor may submit VECPs for an approved subcontractor if the Owner makes reimbursement to the Contractor.

f) If the Contractor hires a design professional to prepare the proposal, they must be registered in the State of Alaska. That professional must seal the documents and provide evidence of Professional Liability Insurance with limits acceptable to the Owner.

g) The Contractor shall not implement proposed changes before the Owner accepts the VECP.

h) The Owner shall not consider VECPs to share in cost savings due to changes previously ordered or authorized under other Contract sections or for work already done.

i) The Owner's Representative shall reject all unsatisfactory work resulting from an accepted VECP. The Contractor shall remove all rejected work or materials, and shall reconstruct the work under the original Contract at the Contractor's sole expense under Subsection 105-1.11.

j) Reimbursement for modifications to the VECP to adjust field or other conditions is limited to the total amount of the original Contract bid prices.

k) The Owner shall not be held liable for costs or delays due to the rejection of a VECP, including but not limited to the Contractor's development costs, loss of anticipated profits and increased material, labor or overhead costs

4. Processing.

a) The Owner's Representative shall accept or reject the VECP, in writing, by the date the Contractor specifies, unless extended by mutual consent. If rejected, the Owner's Representative will explain the reasons for rejection. A VECP may be rejected if the Contractor allows the Owner insufficient time to adequately review and evaluate it.

b) The Contractor may withdraw or modify a VECP at any time before it is accepted.

c) If the VECP is approved in concept (without final drawings and specifications), the Owner may either undertake the re-design itself or issue the Contractor a limited notice to proceed, subject to mutual agreement, authorizing the final design. The notice to proceed will include reference to any pertinent design criteria, Owner policies, and other limitations on the design or construction methods. Approval in concept does not constitute acceptance of the VECP and will not obligate the Owner to accept or pay for the final design.

d) If the final VECP is accepted, the Owner's Representative will issue a Change Order ~~under Subsection 104-1.02~~ incorporating the VECP into the Contract.

5. Payment. If the Owner accepts the VECP, payment will be authorized as follows:

a) The Owner will make a direct payment for the changed work at the unit or lump sum agreed prices in the Change Order. ~~Such prices will include reimbursement of the Contractor's costs to develop and submit the VECP, including overhead and profit.~~

b) In addition, the Owner will share the net savings with the Contractor in a separate lump sum contract item, VECP Incentive, Item 104(1). The amount of the VECP incentive will be equal to 50 percent of the net savings to the Owner. The net savings are the difference between the original Contract price for the affected work and the cost of the revised work. For the purpose of this calculation, the cost of the revised work will include costs the Owner may incur as a result of the VECP, such as review of the proposal, testing and evaluation, and added Contract administration costs. These costs will be estimated and agreed to in the Change Order.

c) The VECP Incentive, Item 104(1), will be paid on a prorated basis as the revised work is performed.

SECTION 105
CONTROL OF WORK

105-1.01 AUTHORITY OF THE OWNER'S REPRESENTATIVE. The authorized representative of the Owner. The Owner's Representative is responsible for administration of the Contract.

The Owner's Representative has immediate charge of the engineering details of the project and is responsible for Contract administration. The Owner's Representative has authority to reject defective material and suspend work being performed improperly. The Owner's Representative has authority to accept completed work, issue Directives, issue Interim Work Authorizations, issue Change Orders, and recommend Contract payments.

The Owner's Representative will decide all questions about the quality and acceptability of the materials furnished and the work performed by the Contractor, the Contractor's rate of progress, Contract interpretation and all other questions relating to Contract performance.

The Owner's Representative has authority to suspend work for reasons listed under Subsection 108-1.06. If the suspension is to protect workers or the public from imminent harm, the Owner's Representative may orally order the suspension of work. Following an oral order of suspension, the Owner's Representative will promptly give written notice of suspension. In other circumstances, the Owner's Representative will give the Contractor written notice of suspension before suspension of work. A notice of suspension will state the defects or reasons for a suspension, the corrective actions required to stop suspension, and the time allowed to complete corrective actions. If the Contractor fails to take the corrective action within the specified time, the Owner's Representative may:

1. Suspend the work until it is corrected; and
2. ~~Employ others to correct the condition and deduct the cost from the Contract amount~~.

~~The Engineer may, at reasonable times, inspect any part of the plant or place of business of the Contractor or any subcontractor that is related to Contract performance, including private or commercial plants, shops, offices, or other places of business.~~

~~The Engineer may audit all books and records related to performance of the Contract, whether kept by the Contractor or a subcontractor, including cost or pricing data submitted under Subsection 104-1.02.~~

105-1.02 PLANS AND WORKING DRAWINGS.

The Owner shall provide the Contractor at least two full size sets of the conformed Plans and Contract ~~including Special Provisions~~. If cross-sections are available, one set will be provided if requested in writing by the Contractor. The Contractor shall keep a complete set of these documents available on the project site at all times.

The Contractor shall supplement structure plans with working drawings that include all details that may be required to adequately control the work and that are not included in the Plans furnished by the Owner. The Contractor shall not perform work or order materials until the working drawings for such work, or for changes, are approved by the Owner's Representative.

The Contractor shall submit to the Owner's Representative for approval of any required preliminary detail or working drawings. The project name and number shall be stated in the title block for all drawings. The Contractor shall submit drawings in either an electronic or paper format that is acceptable to the Owner's Representative. When paper copies are submitted, provide three sets.

The Contractor shall submit drawings to the Owner's Representative in time to allow for review and correction before beginning the work detailed in the drawing. The Owner's Representative shall return one set of these drawings, either approved or marked with corrections to be made, and shall retain the other sets. The Owner's Representative's approval of working drawings does not change the Contract requirements or release the Contractor of the responsibility for successful completion of the work.

The Contractor is responsible for the accuracy of dimensions and details and for conformity of the working drawings with the Plans and Specifications. The Contractor shall indicate clearly on the working drawings any intended deviations from the Plans and Specifications and itemize and explain each deviation in the Contractor's transmittal letter. The Owner's Representative may order the Contractor to comply with the Plans and Specifications at the Contractor's sole expense if the approved working drawings deviate from the Plans and Specifications and the Contractor failed to itemize and explain the deviations in the Contractor's transmittal letter.

Once the Contractor receives approval of the working drawings, the Contractor shall furnish to the Owner's Representative:

1. ~~Enough additional copies to provide eight approved sets of prints~~;
2. ~~One set of reproducible transparencies (polyester film); an~~d
3. A digital copy of the approved sets of prints; and
4. If requested, an electronic file in AutoCAD drawing interchange format (.DXF).

The Contractor shall include the cost of furnishing all working drawings in the Contract price.

105-1.03 CONFORMITY WITH PLANS AND SPECIFICATIONS. Work performed and materials furnished shall conform to the Plans and Specifications and approved Working Drawings and be within specified tolerances. When tolerances are not specified, the Owner's Representative will determine the limits allowed in each case.

All work or material not conforming to the Plans and Specifications and approved Working Drawings is considered unacceptable unless the Owner's Representative finds that reasonably acceptable work has been produced. In this event, the Owner's Representative may allow non-conforming work or material to remain in place, but at a reduced price. The Owner's Representative will document the basis of acceptance and payment by Change Order, unless the contract specifies a method to adjust the price of that item.

The failure of the Owner's Representative to strictly enforce the Contract in one or more instances does not waive its rights to do so in other or future instances.

105-1.04 COORDINATION OF PLANS, SPECIFICATIONS, AND CONTRACT. These ~~Standard~~ Specifications, the Standard Drawings~~, Standard Modifications~~, Plans, ~~Special Provisions~~, Contract, and all supplementary documents are essential parts of the Contract. They are intended to complement each other and describe and provide for a complete project. A requirement occurring in one is as binding as if occurring in all.

In case of conflict, calculated dimensions will govern over scaled dimensions. In the event that any of the following listed contract documents conflict with another listed contract document, the order of precedence is:

~~1. Special Provisions~~

~~2. Plans~~

~~3. Standard Modifications~~

~~3. Standard Specifications~~

~~4. Standard Drawings~~

1. Contract

2. Plans

3. Specifications

4. Standard Drawings

The Contractor shall not take advantage of any apparent error or omission in the Contract documents. The Contractor may not base a claim for additional compensation or Contract time on a patent error, omission, or conflict in the Contract documents. The Contractor shall notify the Owner's Representative immediately of any apparent errors or omissions in the Contract documents. The Owner's Representative will make any corrections or interpretations necessary to fulfill the intent of the Contract.

105-1.05 COOPERATION BY CONTRACTOR. The Contractor shall give the work the constant attention necessary for its progress, and shall cooperate fully with the Owner's Representative, Inspector, Owners staff and other contractors in every way possible.

Either the Contractor's Superintendent of an acting Superintendent with authority to represent and act for the Contractor shall be available within the proximity of the project whenever work is occurring. The Contractor shall employ, as its agent, a competent superintendent thoroughly experienced in the type of work being performed and capable of reading and thoroughly understanding the Plans and Specifications. The Contractor shall provide 24-hour contact information for the Superintendent. The Contractor shall ensure that the superintendent is available at all times to receive and execute Directives and other instructions from the Owner's Representative, to supervise workers and to coordinate the work of subcontractors. The Contractor shall give the superintendent full authority to supply the resources required. The Contractor shall furnish superintendence regardless of the amount of work sublet.

105-1.06 UTILITIES.

1. Bid Considerations. Bidders shall include in their bid the cost of:

   a. All utility work that is specified in the Contract as work to be performed by the Contractor;

   b. Working around or through all permanent and temporary utilities shown on the Plans, in both their present and adjusted positions;

   c. Accommodating the removal, adjustment, or relocation of utilities shown on the Plans by entities other than the Contractor;

   d. Construction and removal of temporary utilities, to provide temporary utility service during the construction or repair of a permanent utility; and

   e. Other utility work not specifically identified as compensable in Subparagraph 4 Compensation.

   The Owner will show the approximate locations of utilities it knows to be within the work zone on the Plans. Bidders shall expect that the location, elevation and nature of utilities may vary from what

is shown on the Plans and shall factor those contingencies into the bid price. Additional utilities may exist that are not shown on the Plans. Compensation related to utilities not shown on the plans will only be available in accordance with Subparagraph 4 Compensation.

When an entity other than the Contractor is to remove, adjust or relocate any utility, or perform other utility related work within the project boundaries, the applicable completion dates or specific calendar days to complete the removal, adjustment, relocation, or other utility related work may be stated in Section 651. If no date is stated, the Contractor shall work cooperatively with the utility owner during the project.

2. Cooperation with Utility Owners. The Contractor assumes the obligation of coordinating their activities with utility owners, and shall cooperate with utility owners to facilitate removal, adjustment, or relocation operations, avoid duplication of work, and prevent unnecessary interruption of services. When a utility owner is identified in the Contract as being responsible for removing, adjusting, or relocating a utility, the Contractor shall give the utility owner 15 days advance written notice regarding the dates when the utility owner is required to begin and end operations.

   The Contractor shall cooperate with utility owners to determine a utility progress schedule for all parties' utility work. The Contractor shall submit the schedule to the Owner's Representative before beginning that portion of utility work. The Contractor shall update the utility progress schedule monthly and shall note time delays and their cause.

   Utility owners are not required to work in more than one location at a time, and shall be allowed to complete a specific section of work prior to commencing another section. Utility owners will not normally perform adjustment or relocation of underground utilities when the ground is frozen. Utility owners may prohibit the Contractor, through the Owner's Representative, from working near utilities when the ground is frozen.

   ~~The Department has sole discretion to grant permits for utility work within the state right-of-way. The Contractor shall allow parties with utility permits to work and make excavations in the project.~~

   If utility owners do not complete their work in a timely manner, the Owner's Representative may direct the Contractor to temporarily relocate the utilities, to construct new utilities, or to make necessary repairs to complete the utility work.

3. Utility Work. The Contractor shall:

   a. Make all necessary arrangements with utility owners to locate all utilities that may be within an area of work before excavation in that area, in accordance with AS 42.30.400;

      (1) Request locates from utilities having facilities in the area by calling the Alaska Digline, Inc. (800) 478-3121, City of Manokotak (907) 289-1027, and Nushagak Electric & Telephone Cooperative, Inc (800) 478-5296.

   b. Provide right-of-way staking and construction staking with lines and grades before excavation in that area;

   c. Prevent damage to utilities or utility property within or adjacent to the project;

   d. Carefully uncover utilities where they intersect the work;

   e. Immediately stop excavating in the vicinity of a utility and notify the Owner's Representative

and the utility owner if an underground utility is discovered that was not field marked or was inaccurately field marked;

f. Promptly notify the utility owner and the Owner's Representative in the event of accidental interruption of utility service, and cooperate with the utility owner and the Owner's Representative until service is restored;

g. Take all precautions necessary to protect the safety of workers and the public when performing work involving utilities;

h. Follow an approved traffic control plan;

i. Keep the length of open trench excavation to a minimum, backfill trenches as work is completed;

j. Cover open trenches with metal plates capable of bearing traffic where traffic will cross trenches;

k. Maintain continuous utility service and install temporary utility systems where needed;

l. Ensure all excavation conforms to AS 42.30.400 – 42.30.490;

m. Ensure all excavation and utility work conforms to excavation requirements in 29 CFR 1926, Subpart P, and confined space requirements in 29 CFR 1926.21(b)(6);

n. Ensure all work undertaken near energized high voltage overhead electrical lines or conductors conforms to AS 18.60.670, AS 18.60.675, AS 18.60.680 or other applicable law;

o. Ensure all work undertaken near energized high voltage underground electric lines or conductors conforms to all applicable laws and safety requirements of the utility owner;

p. When required by the utility owner, provide for a cable watch of overhead power, underground power, telephone, and gas;

q. Obtain plan approval from the local fire authority, and provide for the continued service of fire hydrants, before working around fire hydrants;

r. Do all pressure testing or camera testing required to verify utility acceptance in a timely manner; and

s. Coordinate the Storm Water Pollution Prevention Plan (SWPPP) (Section 641) with their work and the utility companies' work.

4. Compensation.

a. Except as otherwise specifically provided in this Subparagraph 4, no equitable adjustment will be paid by the Owner:

(1) Due to any variations in location, elevation, and nature of utilities shown on the Plans, or the operation of removing, adjusting, or relocating them;

(2) For any delays, inconvenience, or damage sustained as a result of interference from utility owners, interference from utilities, or interference from the operation of removing, adjusting, or relocating utilities; or

(3) For any adjustments or relocations of utilities requested for the Contractor's

convenience.

b. Except as otherwise specifically provided in this Subparagraph 4, the Owner's Representative will issue a Change Order with equitable adjustment if:

(1) Utilities not shown on the Plans require removal, adjustment, or relocation;

(2) Conflicts occur between utilities not shown on the Plans and other necessary work; or

(3) Conflicts due to the required elevation of a utility occur between new and existing utilities that are both shown on the Plans.

c. When the Contractor damages utilities, the utility owner may choose to repair the damage or require the Contractor to repair the damage. When the Contractor damages utilities:

(1) No equitable adjustment will be paid by the Owner, and the Contractor shall be solely responsible for repair costs and expenses, when:

(a) The Contractor failed to obtain field locates before performing the work that resulted in the damage;

(b) The utility was field located by the utility owner or operator, and the field locate is accurate within 24 horizontal inches if the utility is buried 10 feet deep or less, or the field locate is accurate within 30 horizontal inches if the utility is buried deeper than 10 feet;

(c) The plan profile or the field locate does not indicate or inaccurately indicates the elevation of a buried utility;

(d) The utility is visible in the field; or

(e) The Contractor could otherwise reasonably have been aware of the utility.

(2) The Owner's Representative will issue a Change Order with an equitable adjustment for the cost of repairing damage if:

(a) The field locate by the owner or operator of a buried utility erred by more than 24 horizontal inches if the utility is buried 10 feet deep or less, or 30 horizontal inches if the utility is buried deeper than 10 feet;

(b) The utility was not shown on the Plans or other Contract documents, and the Contractor could not reasonably have been expected to be aware of the utility's existence; or

(c) The Contractor made a written request for a field locate in accordance with AS 42.30.400, the utility owner did not locate the utility in accordance with AS 42.30.410, and the Contractor could not reasonably have been expected to be aware of the utility's existence or location.

d. If a delay is caused by a utility owner, is beyond the control of the Contractor, and is not the result of the Contractor's fault or negligence, the Owner's Representative may issue a Change Order with an equitable adjustment to contract time, but no equitable adjustment will be made for the cost of delay, inconvenience or damage. Additional contract time may be granted if the cause of delay is because a utility owner is to perform utility work:

(1) By dates stated in the Contract ~~Special Provisions~~, and the utility work is not completed by the dates stated; or

(2) In cooperation with the Contractor, and the utility owner does not complete the work in a timely manner, based on a written progress schedule agreed upon by the Contractor and the utility owner.

e. If the Owner's Representative orders the Contractor to make necessary construction or repairs due to incomplete utility work by utility owners, the Contractor will be paid as specifically provided for in the Contract, or the Owner's Representative will issue a Change Order with equitable adjustment.

105-1.07 COOPERATION BETWEEN CONTRACTORS *(Not Used).*

105-1.08 SURVEY CONTROL. The Owner will provide sufficient horizontal and vertical control data to establish the planned lines, grades, shapes, and structures. The Contractor shall provide all additional survey work to maintain control during the project.

105-1.09 DUTIES OF THE INSPECTOR. The Owner's inspectors are authorized to examine all work done and materials furnished, but cannot approve work or materials. Only the Owner's Representative can approve work or materials. The inspectors can reject work or materials until any issues can be referred to and decided by the Owner's Representative. The inspectors may not alter or waive any Contract requirements, issue instructions contrary to the Contract or act as foremen for the Contractor.

105-1.10 INSPECTION OF WORK. All materials and each part and detail of the work shall be subject to inspection by the Owner's Representative. The Contractor shall allow safe access to all parts of the work and provide information and assistance to the Owner's Representative to ensure a complete and detailed inspection.

Any work done or materials used without inspection by an authorized Owner's representative may be ordered removed and replaced at the Contractor's expense, unless the Owners representative failed to inspect after being given reasonable written notice that the work was to be performed.

The Contractor shall remove and uncover portions of finished work when directed. After inspection, the Contractor shall restore the work to Contract requirements. The cost to uncover and restore work shall be at the Contractor's expense, except the Owner will pay the cost to uncover and restore work if (1) an authorized Owner's representative had previously inspected the work or the Contractor had provided reasonable prior written notice that the work was to be performed and (2) the Owner finds the uncovered work to be acceptable. If the Owner finds the uncovered work to be unacceptable, the cost to correct the work, or remove and replace the work, shall be at the Contractor's expense.

Representatives of Contract funding agencies have the right to inspect the work. This right does not make that entity a party to the Contract and does not interfere with the rights of parties to the Contract.

The Owner's observations, inspections, tests and approvals shall not relieve the Contractor from properly fulfilling its Contract obligations and performing the work in accordance with the Contract. Work that has been inspected but contains latent or hidden defects shall not be deemed acceptable even though it has been inspected and found to be in accordance with the Contract.

105-1.11 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work that does not conform to the requirements of the Contract shall be deemed unacceptable by the Owner's Representative, unless otherwise determined acceptable under Subsection 105–1.03. The Contractor shall correct, or

remove and replace, work or material that the Owner's Representative deems unacceptable, as ordered by the Owner's Representative and at no additional cost to the Owner.

The Contractor shall establish necessary lines and grades before performing work. Work done before necessary lines and grades are established, work done contrary to the Owner's instructions, work done beyond the limits shown in the Contract, or any extra work done without authority, will be considered as unauthorized and shall not be paid for by the Owner, and may be ordered removed or replaced at no additional cost to the Owner.

If the Contractor fails to promptly correct, remove, or replace unacceptable or unauthorized work as ordered by the Owner's Representative, the Owner's Representative may employ others to remedy or remove and replace the work and will deduct the cost from the Contract payment.

105-1.12 LOAD RESTRICTIONS. The Contractor shall comply with all vehicle legal size and weight regulations of 17 AAC 25 and the *Administrative Permit Manual,* and shall obtain permits from the DOT&PF Division of Measurement Standards & Commercial Vehicle Enforcement before moving oversize or overweight equipment on a state highway.

The Owner's Representative may permit oversize and overweight vehicle movements within the project limits provided the Contractor submits a written request and an acceptable Traffic Control Plan under Subsection 643-1.03. No overloads will be permitted on a pavement, base or structure that will remain in place in the completed project. The Contractor shall be responsible for all damage done by their equipment due to overloads, and for damage done by a load placed on a material that is curing and has not reached adequate strength to support the load.

105-1.13 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the entire roadway and related roadway facilities located within the project (between the beginning of project and end of project shown on the Plans) from the date construction begins until the Contractor receives a letter of substantial completion. The Contractor shall maintain these areas continually and effectively on a daily basis, with adequate resources to keep them in satisfactory condition at all times. The Contractor shall maintain those areas outside the project that are affected by the work, such as haul routes, detour routes, structures, material sites, and equipment storage sites during periods of their use.

~~The Engineer may relieve the Contractor of this maintenance responsibility for specified portions of the project:~~

~~1. During a seasonal suspension of work (Subsection 643-3.04); or~~

~~2. Following partial completion (Subsection 105-1.14); or~~

~~3. Following substantial completion (Subsection 105-1.15).~~

~~The Owner is responsible for routine snow removal and ice control only on those portions of the project that the Engineer accepts for maintenance and that are open for public use.~~

The Contractor shall maintain previously constructed work until a subsequent course, layer, or structure covers that work. The Contractor shall repair damage done to the work as described in Subsection 107-1.15.

All costs of maintenance work shall be subsidiary to the prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

If in the Owners Representative's opinion, the Contractor at any time fails to provide adequate maintenance, the
Owner's Representative will notify the Contractor of such noncompliance. The notification will specify the areas or structures for which there is inadequate maintenance, the corrective maintenance required, and the time allowed to complete corrective maintenance. If the Contractor fails to take the corrective action within the specified time, the Owner's Representative may:

1. Suspend the work until corrective maintenance is completed;
2. Assess a traffic price adjustment against the Contract Amount when an adjustment rate is specified in the Contract; and
3. Employ others for corrective maintenance and deduct the cost from the Contract amount.

105-1.14 PARTIAL COMPLETION (*Not Used).*

105-1.15 PROJECT COMPLETION. The Contractor shall notify the Owner's Representative, in writing, upon substantial completion of all work provided for under the Contract. The Owner's Representative will then schedule and conduct the final inspection. If the inspection discloses that any work is incomplete or unsatisfactory, the Owner's Representative will give the Contractor a list of work items that must be completed or corrected to reach substantial completion and to reach final completion. The Contractor shall promptly complete or correct any work determined unsatisfactory by the final inspection and request a re-inspection.

The Owner's Representative will identify the date of substantial completion in a letter of substantial completion. The letter of substantial completion will relieve the Contractor of further maintenance responsibility of the completed work. The letter of substantial completion will not stop Contract time or relieve the Contractor of the obligation to fully complete the work as required by the Contract specifications.

When all physical work and cleanup provided for under the Contract is found to be complete, except for work specified under Subsection 618-3.06 Period of Establishment, the Owner's Representative will issue a letter of project completion. Project completion stops the Contract time, but does not relieve the Contractor of any other Contract obligations.

105-1.16 FINAL ACCEPTANCE AND RECORD RETENTION. The Owner's Representative will issue the letter of Final Acceptance after all of the following:

1. Project completion;
2. Receipt of all certificates, as-builts, warranties, and other required documents;
3. Receipt of the Contractor's Release, with no exceptions;
4. Certification of payment of payroll and revenue taxes by DOLWD (if applicable) ~~and State Department of Revenue~~; and
5. Final payment under the Contract.

Final Acceptance will release the Contractor from further Contract obligations, except those:

1. Specified under Subsection 107-1.19;
2. Required by law or regulation; or

3. Continuing obligations established by provisions of this Contract, such as warranty, guaranty, indemnity, insurance, or bond.

The Contractor and the subcontractors shall maintain all books and records relating to performance of the Contract for three years after the date of final payment of the Contract and each subcontract.

105-1.17 CLAIMS.

The Contractor shall notify the Owner's Representative as soon as the Contractor becomes aware of any act or occurrence that may form the basis of a claim for additional compensation or an extension of Contract time or of any dispute regarding a question of fact or interpretation of the Contract. The Owner's Representative has no obligation to investigate any fact or occurrence that might form the basis of a claim or to provide any additional compensation or extension of Contract time unless the Contractor notifies the Owner's Representative in a timely manner of all facts the Contractor believes form the basis for the claim.

If the Contractor believes that he is entitled to an extension of Contract time, the Contractor must state the contract section on which the extension request is based, provide the Owner's Representative with sufficient information to demonstrate that the Contractor has suffered excusable delay, and show the specific amount of time to which the Contractor is claiming entitlement. The Owner will not grant and extension Contract time if the Contractor does not timely submit revised schedules in accordance with Subsection 108-1.03.

If the basis of claim or dispute is not resolved by agreement within seven days of the date the Owner's Representative is notified by the Contractor, the Contractor shall within the next fourteen days submit a Contractor Intent to Claim (Form 25D-18) to the Owner's Representative. Failure to submit a Contractor Intent to Claim as required under this section constitutes a waiver of any future claim arising from or relating to the alleged act or occurrence.

If the Contractor believes additional compensation or time is warranted, the Contractor shall immediately begin keeping complete, accurate, and specific daily records concerning every detail of the potential claim including actual costs incurred, and shall give the Owner's Representative access to any such records and furnish the Owner's Representative copies, if requested. Equipment costs must be based on the Contractor's internal rates for ownership, depreciation, and operating expenses and not on published rental rates. In computing damages, or costs claimed for a change order, or for any other claim against the Owner for additional time, compensation or both, the contractor must establish actual damages based on internal costs for equipment, labor or efficiencies. Total cost, modified total cost or jury verdict forms of presentation of damage claims are not permitted. Labor inefficiencies must be shown to actually have occurred and can be proven solely based on job records. Theoretical studies are not a permissible means of showing labor inefficiencies. Home office overhead will not be allowed as a component of any claim against the Owner.

The Contractor shall submit a written claim to the Contracting Officer within 90 days after the date the Contractor became aware of the basis of the claim or should have known of the basis of the claim, whichever is earlier. The Contracting Officer will issue written acknowledgement of the receipt of the claim.

The Contractor waives any right to claim if the Owner's Representative was not notified properly or afforded the opportunity to inspect conditions or monitor actual costs or if the Claim is not filed on the date required.

1. The written Claim must include all of the following:
    a. The act, event, or condition giving rise to the claim;
    b. The Contract provisions that apply to the claim and that provide for the requested relief;
    c. The item or items of Contract work affected and how they were affected;
    d. The specific relief requested, including Contract time if applicable, and the basis upon which it was calculated;
    e. Revised progress schedules under Subsection 108–1.03; and
    f. A certification signed by the Contractor that to the best of the contractor's knowledge and belief, the data submitted is accurate, complete, and current and is the actual cost to the contractor or additional time for performing the additional work or supplying the additional materials.
2. The claim, in order to be considered, must show:
    a. That the Contractor suffered damages or delay;
    b. The damages or delay were caused by the act, event, or condition listed in the claim; and
    c. That the Contract entitled the Contractor for relief due to the act, event, or condition specified in the Claim.

The Owner may request the Contractor to provide additional information relating to the claim at any time before issuing a decision. The Contractor shall provide the Owner with the requested additional information within 30 days of receiving a request. Failure to furnish the additional information may be regarded as a waiver of the claim.

The Contracting Officer will issue a decision within 90 days of receipt of all information relating to the claim. The time for the Contracting Officer to issue a decision may be extended in accordance with AS 36.30.620.

The Contracting Officer's decision is final and conclusive unless the Contractor delivers a notice of appeal to the Commissioner within 14 days of receipt of the decision. The Contractor shall also serve a copy of the notice of appeal on the Contracting Officer.

Appeals from a Contracting Officer’s decision shall be decided in accordance with the State Procurement Code’s appeal procedures, including AS 36.30.625, AS 36.30.627, AS 36.30.630, and AS 36.30.631.

Criminal and civil penalties authorized under AS 36.30.687 (including, but not limited to, forfeiture of all claimed amounts) may be imposed on the Contractor if the Contractor makes or uses a misrepresentation in support of a claim, or defrauds or attempts to defraud the Owner at any stage of prosecuting a claim under this Contract.

105-1.18 RESERVED FOR WARRANTIES *(Not Used).*

Refer to Contract Documents for warranties.

SECTION 106
CONTROL OF MATERIAL

106-1.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The Contractor shall furnish all materials required to complete the work except those specified to be furnished by the Owner. The Contractor shall supply materials that are new and that meet Contract requirements.

The Contractor shall notify the Owner's Representative of proposed sources of materials at least 30 days before shipment, and shall submit to the Owner's Representative a complete list of materials to be purchased from suppliers sufficiently in advance of fabrication or shipment to permit the Owner's Representative to inspect the materials.

The Inspectors may inspect any materials, including those originating outside Alaska, at the supply source or other locations. Materials may be conditionally approved at the supply source or other location, but are subject to field inspection and may be ordered removed under Subsection 105-1.11 if they do not conform to Contract requirements. Inspectors are authorized to reject materials that do not conform to specifications. Inspectors will report their actions to the Owner's Representative.

The Contractor shall submit a manufacturer's certificate of compliance for each item listed on the Material Certification List. The Owner's Representative may authorize the use of materials based on a manufacturer's certificate of compliance, see Subsection 106-1.05. Materials incorporated into the project on the basis of a manufacturer's certificate of compliance may be tested at any time, whether in place or not, and, if they do not conform to Contract specifications, they may be rejected and ordered removed under Subsection 105-1.11.

The Contractor may request substitution of specified material with equivalent materials. Requests for substitution shall be submitted to the Owner's Representative, and shall include a manufacturer's statement that certifies, for each lot delivered:

1. Conformance to the specified performance, testing, quality or dimensional requirements; and
2. Suitability for the use intended in the Contract work.

The Owner's Representative will determine the acceptability of a proposed substitute for use in the project. If a substitute is approved, a Change Order will be executed. The Owner's Representative is never required to accept substitution. The Contractor shall not incorporate substitute materials into the project without written approval from the Owner's Representative. The Owner's Representative may test substitute materials at any time, whether in place or not, and, if the substitute materials do not meet Contract specifications, they may be rejected and ordered removed under Subsection 105-1.11.

BUY AMERICA PROVISION. On projects using federal funds, the Contractor shall comply with the requirements of 23 CFR 635.410, Buy America Requirements, and shall submit a completed Material Origin Certificate, prior to award of the contract. All steel and iron products which are incorporated into the work, shall be manufactured in the United States except that minor amounts of steel and iron products of foreign manufacture may be used, provided the aggregate cost of such does not exceed one tenth of one percent (0.001) of the total contract amount, or $2500, whichever is greater. For the purposes of this paragraph, the cost is the value of the products as they are delivered to the project including freight.

"Manufactured in the United States" means that all manufacturing processes starting with the initial mixing and melting through the final shaping, welding, and coating processes must be undertaken in the United States. The definition of "manufacturing process" is smelting or any subsequent process that

alters the material's physical form, shape or chemical composition. These processes include rolling, extruding, machining, bending, grinding, drilling, etc. The application of coatings, such as epoxy coating, galvanizing, painting or any other coating that protects or enhances the value of steel or iron materials shall also be considered a manufacturing process subject to the "Buy America Requirements."

Buy America does not apply to raw materials (iron ore), pig iron, and processed, pelletized and reduced iron ore. It also does not apply to temporary steel items (e.g., temporary sheet piling, temporary bridges, steel scaffolding, and falsework). Further, it does not apply to materials which remain in place at the Contractor's convenience (e.g., sheet pilings, and forms).

The North American Free Trade Agreement (NAFTA) does not apply to the Buy America requirement. There is a specific exemption within NAFTA (article 1001) for grant programs such as the Federal-aid highway program.

When steel and iron products manufactured in the United States are shipped to a foreign country where non steel or iron products are installed on or in them (e.g., electronic components in a steel cabinet), the steel and iron is considered to meet the requirements of this subsection.

The Contractor shall take whatever steps are necessary to ensure that all manufacturing processes for each covered product comply with this provision. Non-conforming products shall be replaced at no expense to the Owner. Failure to comply may also subject the Contractor to default and/or debarment. False statements may result in criminal penalties prescribed under Title 18 US Code Section 1001 and 1020.

ALASKA AGRICULTURAL/WOOD PRODUCTS. On wholly state-funded projects, agricultural/wood products harvested in Alaska shall be used pursuant to AS 36.15.050 and AS 36.30.322 whenever they are priced no more than seven percent above agricultural/wood products harvested outside the state and are of a like quality as compared with agricultural/wood products harvested outside the state.

The Contractor shall maintain records which establish the type and extent of agricultural/wood products utilized. When such products are not utilized, the Contractor shall document the efforts he made towards obtaining agricultural/wood products harvested in Alaska and include in this documentation a written statement that he contacted the manufacturers and suppliers identified on the Owner of Commerce and Economic Development's list of suppliers of Alaska forest products concerning the availability of agricultural/wood products harvested in Alaska and, if available, the product prices. The Contractor shall complete this documentation at a time determined by the Contracting Officer.

The Contractor's use of agricultural/wood products that fail to meet the requirements of this Subsection shall be removed and replaced in accordance with the last paragraph of Subsection 105-1.03, Conformity With Plans and Specifications.

106-1.02 MATERIAL SOURCES.

1. General. The Contractor shall:

   a. Utilize Usable Excavation ~~according to Subsection 104-1.04~~ before using material sources listed in Subsection 106-1.02.4. When there is insufficient usable excavation, furnish additional required materials from sources of the Contractors choice, except that the Contractor shall use mandatory sources when identified in the Contract:

      (1) Usable Excavation is material encountered in the excavation that meets the requirements of any material specified in Subsection 703, which is included in the contract pay items.

For excavating the Useable Excavation and constructing the selected material layers with Useable Excavation, the Contractor shall be paid only the unit bid price for the selected material. Excavation shall be subsidiary to selected material, and the Contractor shall not be paid additional sums for those activities. The Owner's Representative may approve the use of borrow when Useable Excavation is not available.

(2) For this contract, material within the existing road prism is assumed to be Unsuitable Excavation. If the Contractor encounters what the Owner's Representative deems Usable Excavation, the Owner's Representative may direct the contractor to use it as such.

b. Produce a sufficient quantity of materials meeting the specifications to complete the project;

c. As a subsidiary cost: clear and grub, strip, drill and blast, excavate, crush, sort, blend, screen, wash, stockpile, haul, and rehandle material as needed to produce and deliver the specified product;

d. Determine the type of equipment and methods to be used;

e. Expect variations in material quality within the deposits, and procure material only from acceptable portions of the deposit, regardless of source ownership; and

f. Prevent erosion, sedimentation, and pollution within a materials source.

The Contractor agrees that:

a. The costs to explore and develop material sources, including all production effort and permitting, are subsidiary to the cost of providing the specified material;

b. The Owner's Representative may order the Contractor to procure material only from certain portions of the source and may reject material from other portions of the source that does not conform to the specifications; and.

c. All material required may not be procurable from any one source and the Contractor may need to change between sources. That contingency is to be factored into the unit bid price for the Contract Item.

2. Inspection and Acceptance. The Contractor shall perform sampling and testing during materials processing and placement in accordance with its Quality Control Plan (Subsection 106-1.03, Testing and Acceptance) and shall obtain acceptable material samples from locations designated within the source.

   The Owner may sample and test materials to determine the quality of the source, at its expense, as part of its Acceptance Testing (106-1.03.2). The Owner's Representative will reject materials when the samples do not meet specifications. The Owner's Representative may reject a proposed materials site when samples do not meet specifications.

3. Awareness Training. The operator of the Contractor's sand and gravel surface mine or other similar materials source shall provide Site-Specific Hazard Awareness Training in compliance with 30 CFR 46.11 for all the Owners Representative's personnel upon request. All other workers shall be given training in compliance with 30 CFR 46 before exposure to mine hazards. The training must be offered at each surface mine that will be used to supply processed aggregates. A qualified person must provide the training. The training shall be in accordance with the operator's written training plan approved by the Mine Safety and Health Administration, covering the following items:

a. Site-specific health and safety risks;

b. Recognition and avoidance of hazards;

c. Restricted areas;

d. Warning and evacuation signals;

e. Evacuation and emergency procedures;

f. Other special safety procedures; and

g. A site tour.

The Contractor shall require the Owners Representative's personnel to sign the Visitor's Log Book upon completion of the training to indicate that training was provided. Training is a subsidiary cost.

4. Type of Sources. The contractor shall utilize Usable Excavation according to subsection 106-1.02 before using material sources listed in Subsection. When there is insufficient Usable Excavation, furnish additional required materials from sources of the contract choice, except that the contractor shall use mandatory sources when identified in the Contract.

When there is insufficient Usable Excavation, the contractor shall supply additional required material from the following sources:

a. Contractor-Furnished Sources. For a material source that is a commercial plant as defined in Subsection 108-1.01.3.a the Contractor shall:

(1) Acquire the necessary rights and permits to obtain material from a commercial plant;

(2) Pay as subsidiary costs all related costs to obtain and use material from the source; and

(3) Be solely responsible for the quality and quantity of materials.

For all Contractor-Furnished sources that are not a commercial plant, the Contractor shall:

(4) Acquire the necessary rights and permits to take materials from the sources ~~including state-owned sources that are not under the Department's control~~;

(5) Pay as subsidiary costs all related costs to obtain, develop, and use the sources, including but not limited to permit costs and mineral royalties;

(6) Be solely responsible for quality and quantity of materials; and

(7) Obtain all necessary rights, permits, and plan approvals before clearing or disturbing the ground in the material source. The Contractor shall certify in writing to the Owner's Representative that all permits and clearances relating to the use of the material source have been obtained prior to any clearing or ground disturbance in the materials source.

No equitable adjustment or other compensation will be made for any additional costs, including increased length of haul, if the Contractor:

(8) Chooses to change material sources for any reason;

(9) Is unable to produce a sufficient quantity or quality of materials from Contractor-Furnished sources; or

(10) Encounters unexpected, unforeseen, or unusual conditions within Contractor-Furnished

sources.

b. Mandatory Sources.

The Owner may identify material sources in the Contract from which the Contractor is required to take a specified quantity of material. No other source will be permitted for that portion of material unless prior approval is obtained from the Owner's Representative. The Contract will specifically define these sources as Mandatory Sources and define rights and stipulations for each site. The Owner will provide a materials report for these sources.

The Contractor acknowledges that samples from within a source may not be representative of the entire source. The Contractor must expect variations of quality and quantity within the source and shall factor that contingency into the unit bid price for the material. No equitable adjustment will be paid for variations encountered within the source.

When using a Mandatory Source, if it is found that the quality or quantity of material producible from the Mandatory Source does not meet project requirements, and a change of source is necessary for that reason alone, a Change Order with equitable adjustment will be made.

No mandatory sources are identified in this contract.

c. Designated Sources.

The Owner may identify material sources in the Contract which are available to the Contractor but which the Contractor is not required to use. The Contract will specifically define these sources as Designated Sources and define rights and stipulations for each site. The Owner will provide a materials report for these sources.

The Contractor acknowledges that samples from within a source may not be representative of the entire source. The Contractor must expect variations of quality and quantity within the source and shall factor that contingency into the unit bid price for the material. No equitable adjustment will be paid for variations encountered within the source.

If the Contractor elects to use a Designated Source, and it is found that the quality or quantity of material producible from the Designated Source does not meet project requirements, and a change of source is necessary for that reason alone, a Change Order with equitable adjustment will be made. If the Contractor chooses to change between or among sources for any other reason than quantity or quality of material, no equitable adjustment will be paid.

No designated sources are identified in this contract.

d. Available Sources.

The Owner may identify other material sources that are available for use for the project by the Contractor. The Contract will specifically define these sources as Available Sources. The Owner makes no guarantee as to quality or quantity of material in Available Sources. The Contractor is responsible for determining the quality and quantity of material, and if additional sources are needed. The Contractor shall be responsible for identifying the rights and stipulations for each site with the owner of the site.

When the Owner furnishes copies of existing boring logs, test results, or other data in its possession concerning Available Sources, the Contractor is responsible for determining the accuracy and completeness of this data, for any assumptions the Contractor makes based on this data, and for

exploring all Available Sources to the Contractor's satisfaction.

The Owner makes no representation, guarantees, or warranty whatsoever, expressed or implied, as to:

(1) The quality or quantity of materials producible from an Available Source, even if such information is indicated in a Materials Report or Soils Investigation Report;

(2) Whether boring logs, test results or data reliably represent current existing subsurface conditions;

(3) Whether interpretations of the boring logs, test results, or other data are correct;

(4) Whether moisture conditions and indicated water tables vary from those found at the time borings were made;

(5) Whether the ground at the location of the borings was physically disturbed or altered after the boring was made; and

(6) The condition, materials, or proportions of the materials between borings, regardless of any subsurface information the Owner may make available.

The availability of subsurface information from the Owner shall not relieve the Contractor from any risks, or of any duty to make on-site examinations and investigations, or of any other responsibility under the Contract or as may be required by law.

No equitable adjustment will be made if the quality or quantity of material available from an Available Source is not as represented in any information provided by the Owner, nor if a change of source is necessary for any other reason whatsoever. The use of Available Sources is entirely at the Contractor's option and the Contractor bears all risk associated with their decision to use an Available Source.

No available sources are identified in this contract.

e. Excluded Material Sources. ~~Department owned, managed, or permitted material sources not identified in the Contract are excluded from use for the project. This exclusion does not prevent the Contractor from considering material sources as provided for under section 4 of this Subsection, nor does it prevent post-award consideration of other material sources as provided under Subsection 104-1.06~~

The Owner reserves the right to exclude any material source that is determined by material testing or by Material Reports to be unsuitable for use on the project.

5. Rights, Permits and Plan Approvals for Material Sources. Before disturbing the site of a material source, the Contractor shall acquire and pay for all necessary rights, permits and plan approvals indicated in this Subsection and in Subsection 107-1.02. For each material site the Contractor shall:

   a. Acquire approval for a Mining and Reclamation Plan (MRP) or receive an exemption, in accordance with AS 27.19. The MRP shall include:

      (1) Plan and cross-sectional views of the site;

      (2) Applicable boundaries or property lines;

      (3) Areas and depths to be developed;

      (4) Locations of access roads, stripping, sorting, and waste piles, crushing and plant sites,

stockpile sites, drainage features, erosion and pollution control features; and

(5) Condition the Contractor will leave the site after the materials extraction is completed, including reseeding.

b. Submit a SWPPP as required by Section 641.

6. Reclamation. After completing work in a materials source, the Contractor shall finish and grade work areas to a neat, acceptable condition in accordance with the approved MRP. Reclamation of a Contractor-furnished source will be in accord with the Contractor's MRP.

106-1.03 TESTING AND ACCEPTANCE. Materials are subject to inspection and testing by the Owner at any time before, during, or after they are incorporated into the project. Use of untested materials is at the Contractor's risk. The Contractor shall remove and replace unacceptable material according to Subsection 105-1.11.

1. Quality Control. The Contractor is responsible for the quality of construction and materials used in the work. Quality control is process control, and includes all activities that ensure that a product meets Contract specifications. Quality control is subsidiary to the applicable items. The Contractor shall perform quality control as follows:

   a. Submit a Quality Control Plan no less than five working days before the preconstruction conference. Include, for each item being produced, the methods to be used for sampling and testing, the proposed testing frequency, personnel qualifications, and equipment descriptions. Include the use of control charts, chart update frequency, chart posting location, and criteria for corrective action.

   b. Sample materials during manufacturing or processing and perform quality control tests, as needed, to ensure materials produced conform to the Contract Specifications. Document quality control tests and make them available to the Owner's Representative on a daily basis.

   c. Sample and test according to test methods required in the Specifications and the frequencies established in Subsection 106-1.09.

2. Acceptance Testing. . The Owner has the exclusive right ~~and responsibility~~ for determining the acceptability of the construction and incorporated materials.

   ~~The Department will sample materials and perform acceptance tests at its expense. Copies of tests will be furnished to the Contractor upon request.~~

   The Owner may perform acceptance testing at the Owner's expense.

   The Contractor shall not rely on the Owner's acceptance testing for its quality control. The Owner's acceptance testing is not a substitute for the Contractor's quality control. ~~The Engineer may retest materials that have failed the Department's acceptance test, but is not required to do so.~~

~~3. Qualified Level Analysis (QLA). All statistical Quality Level Analysis (QLA) is computed using the Engineer's Price Adjustment program. The program calculates all intermediate values to 16 decimal places. Pay factors are rounded to the nearest 0.001. The basis of payment for production lots of selected pay items is adjusted using statistical analysis of acceptance test results. Analysis is based on an Acceptable Quality Level (AQL) of 90 percent. The AQL is the minimum Percent Within Limits (PWL) at which the material is considered fully acceptable and receives a 1.000 pay factor. As an~~

incentive to produce quality material, a pay factor greater than 1.000 is possible. The maximum pay factor obtainable is 1.050.

The procedure for estimating the PWL uses the number (*n*), the arithmetic mean ( ), and the sample standard deviation (*s*), of acceptance test results as shown below. If the sample standard deviation is less than 0.001, then it is set at 0.001.

a. The arithmetic mean is computed:

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n}$$

Where: X_i = test result for sublot i.

$\sum_{i=1}^{n}$ = sum of values from sublot 1 to n.

b. The sample standard deviation is computed:

$$s = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \bar{X})^2}{(n-1)}}$$

The upper specification limit (USL) and lower specification limit (LSL) are equal to the Target Value (TV) plus and minus the allowable tolerances as defined in the pay item specification.

Quality Indexes are computed as shown below. The maximum Quality Index obtainable is 10.000.

c. The Upper Quality Index (QU) is computed:

$$Q_U = \frac{USL - \bar{X}}{s}$$

d. The Lower Quality Index (QL) is computed:

$$Q_L = \frac{\bar{X} - LSL}{s}$$

The computed Q_U and Q_L are used with AASHTO R 9 to determine the Percent Within Upper Limits (PWL_U) and Percent Within Lower Limits (PWL_L).

e. The PWL used in pay factor determination is:

$$PWL = (PWL_U + PWL_L) - 100$$

When material requirements are one-sided, with only an upper or lower limit, then the PWL is equal to the percent within the side that has a limit. For example, if a material only has an upper specification (maximum) limit, then PWL= PWLU. Also, two-sided specification limits with one side that cannot be exceeded (like 100% passing) will be analyzed as if they are one-sided.

f. The pay factor (PF) for any given PWL is:

$$PF = 0.55 + \frac{PWL}{200}$$

Where: PWL varies from 50.000 to 100.000.

106-1.04 PLANT INSPECTION. The Owner may periodically inspect manufacturing methods, manufactured lots and materials at the source of production. The Owner may approve, conditionally approve, or reject them.

The Contractor shall:

1. Notify the Owner of the production and fabrication schedule at least 30 days before beginning work on any item requiring inspection, and notify the Owner 48 hours before beginning production or fabrication;
2. Give the Inspector full and safe access to all parts of the plant used to manufacture or produce materials; and
3. Cooperate fully and assist the Inspector during the inspection.

Materials may be rejected if the Owner requests a plant inspection and the materials are produced or fabricated without a plant inspection. The materials may be tested at any time before final acceptance, whether in place or not, and whether approved at a plant inspection or not. If the materials do not meet Contract specifications, they may be rejected and ordered removed under Subsection 105-1.11. If rejected materials are incorporated into the project, the Owner may require those materials to be removed and replaced at the Contractor's expense under Subsection 105-1.11.

106-1.05 CERTIFICATES OF COMPLIANCE. The Owner's Representative may authorize the use of certain materials or assemblies based on a manufacturer's certificate of compliance. The certificate must state that the material or assembly fully complies with Contract requirements, include the project name and number, and be signed by the manufacturer. The certificate must accompany each lot of the materials or assemblies delivered to the project and must clearly identify the lot.

The Contractor shall submit a manufacturer's certificate of compliance, or test data as required by the Contract documents. The Contractor shall submit additional manufacturer's certificates of compliance if required by the Contract or by the Owner's Representative.

Materials or assemblies incorporated into the project on the basis of a manufacturer's certificate of compliance may be tested at any time, whether in place or not, and, if they do not meet Contract specifications, they may be rejected and ordered removed under Subsection 105-1.11. The Owner's Representative may refuse permission to incorporate materials or products into the project based on a manufacturer's certificate of compliance that does not meet specifications.

106-1.06 STORAGE OF MATERIALS. Materials shall be stored to preserve their quality and fitness for the work, and so they can be readily inspected. Materials inspected before storage may be inspected again, before or after being incorporated into the project. The Contractor shall:

1. Use only approved portions of the project site for storage of materials and equipment or plant operations;
2. Provide any additional space needed for such purposes without extra compensation;
3. Restore Owner-owned or controlled storage and plant sites to their original condition without extra compensation;
4. Obtain the landowner's or lessee's written permission before storing material on private property, and furnish copies of the permission to the Owner's Representative, if requested; and

5. Restore privately owned or leased storage sites, without extra compensation from the landowner's or lessees, to their original condition or as agreed to between the Contractor and the private owner.

106-1.07 OWNER-FURNISHED MATERIAL *(Not Used).*

106-1.08 SUBMITTAL PROCEDURE. The Contractor shall develop a Submittal Register, and shall submit it to the Owner's Representative. The intent of the Submittal Register is to provide a blueprint for the smooth flow of specified project documents. The Contractor shall fill it out sequentially by bid item and allow at least three spaces between bid items. The Submittal Register shall list all working drawings, schedules of work, and other items required to be submitted to the Owner's Representative by the Contractor including but not limited to: Progress Schedule, anticipated dates of material procurement, Construction Phasing Plan, Traffic Control Plan, Storm Water Pollution Prevention Plan, Quality Control Program, Utility Progress Schedule, Blasting Plan, Mining Plan, annual EEO reports, DBE payment documentation and subcontracts.

The Contractor shall submit materials (product) information to the Owner's Representative for review, as required by the Contract.

Unless otherwise specified, provide all submittals in an electronic format acceptable to the Owner's Representative. Submittals shall be sent as individual files relating to a specific submittal. Bulk submittals will not be accepted. The Owner's Representative can require resubmission if they determine the submittal is confusing and not clearly presented.

If the Contract has a duration of 180 days or less, the Contractor shall, within fifteen days after the date of the Notice to Proceed, submit to the Owner's Representative for review all submittals and the submittal register. If the Contract has a duration greater than 180 days, the Contractor shall, within fifteen days after the date of the Notice to Proceed, submit to the Owner's Representative for review, an anticipated schedule for transmitting submittals.

Each submittal shall include a Submittal Summary sheet. The Contractor shall sign submittals and submit them to the Owner's Representative. Electronic submittals that are submitted by email from the Contractor's email account are considered signed. The Owner's Representative will return submittals to the Contractor as either: approved, conditionally approved with the conditions listed, or rejected with the reasons listed. The Contractor may resubmit a rejected submittal to the Owner's Representative with more information or corrections. The Owners Representative's approval of a submittal in no way relieves the Contractor of its responsibility for the means, methods, techniques, sequence, and procedures of construction, safety, and quality control.

The Contractor shall be responsible for timely submittals. Failure by the Owner's Representative to review submittals within 30 days or as otherwise provided in the applicable subsection may be the basis for a request for extension of Contract time but not for additional compensation.
Payment for a specific contract item will not be made until the Owner has received the Submittal Register for all items and approved all required submittals for that specific contract item.

When material invoices, freight bills, and mill certificates are submitted, they shall provide sufficient information for the Owner's Representative to identify: the date, supplier and origin of invoice (bill, certificate); project name and number where material will be incorporated; manufacturer, product number, quantity, cost and bid item.

106-1.09 CONTRACTOR SAMPLING AND TESTING. The contractor shall establish the following testing frequencies in their quality control plan for the materials listed below.

SECTION 106

TABLE 106-1
CONTRACTOR SAMPLING AND TESTING FREQUENCIES

Material or Product	Characteristic	Test Method	Sampling Frequency	Point of Sample	Split Sample	Report Time	Comments
Subgrade / Usable Excavation	Moisture-Density	AASHTO T180 or ATM 212	Once per type.	In place	Upon Request	Upon Receipt	
Subgrade	Compaction	AASHTO T310 or ATM 212	One per 1000 lf but not less than 2 tests per road	In Place	-	Prior to placement of next layer	May Establish Control Section for compaction verification or proof rolling for yield under load observed by onsite representative.
Select Material , Type B	Moisture-Density	AASHTO T180 or ATM 212	Once per type.	From Source	Upon Request	Prior to placement	
Select Material , Type B	Gradation / Performance Testing	See Section 703	Once per source or material change	From Source	-	Prior to placement	
Select Material , Type B	Compaction	AASHTO T310 or ATM 212	One per 1000 lf but not less than 2 tests per road	In Place	-	Prior to placement of next layer	May Establish Control Section for compaction verification.
Surface Course , E-1	Moisture-Density	AASHTO T180 or ATM 212	Once per type.	From Source	Upon Request	Prior to placement	
Surface Course , E-1	Gradation / Performance Testing	See Section 703	Once per 1,000 yd^3 of production	From Source	-	Prior to placement	
Surface Course , E-1	Compaction	AASHTO T310 or ATM 212	One per 500 lf but not less than 2 tests per road.	Roadway Embankment	-	Prior to placement of next layer	

SECTION 106

106-1.10 CONTROL SECTION. The Contractor may use a control section for establishment of acceptable compaction efforts for each material type noted in the table above. The purpose of this method is to establish an acceptable placement / watering / roller pattern that will achieve the required compaction for the project. If at any time the Owner's Representative feels that the control section is no longer valid for the type or location of compaction efforts, the Owner's Representative may require compaction test or the re-establishment of a new control section at no cost to the owner. If the Contractor wishes to use control sections these must be established in in the Contractor's Quality Control Plan.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107-1.01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of, observe, 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, that in any manner affect those engaged or employed on the work or which in any way affect the conduct of the work.

The Contractor and the Surety shall defend, indemnify, and hold harmless the Owner and its representatives against any claim or liability related to violations of any laws, regulations or decrees by the Contractor, the Contractor's agents, the Contractor's employees, a subcontractor at any tier, or a supplier or service provider.

The Contractor has the affirmative duty to keep informed of and comply with all laws. The Contractor is not entitled to and shall not rely on any Owner's Representatives interpretation, whether oral or written, or any law, ordinance, or regulation.

The Contractor is responsible for conspicuously displaying required posters in an area readily accessible to workers. For State funded jobs, display all posters listed on the Owner of Labor and Workforce Development website at http://www.labor.alaska.gov/lss/posters.htm

For Federal Funded jobs display posters required by law or funding agency including posters listed on the FHWA website http://www.fhwa.dot.gov/programadmin/contracts/poster.cfm

The Contractor is required to follow the bird clearing restrictions between May 1 and July 15 in accordance with the Migratory Bird Treaty Act, 16 U.S.C. 703.

107-1.02 PERMITS, LICENSES, AND TAXES. The terms, conditions, and stipulations in permits obtained either by the Owner or by the Contractor are made a part of this Contract.

The Owner will:

1. Secure permits and licenses that the Owner determines are required for the construction of the proposed project, and the use of mandatory sources, designated sources and designated waste disposal areas for the proposed project; and
2. Modify Owner-acquired permits during the performance of the contract, if deemed necessary by the Owner's Representative.
3. Not secure any permits for the project beyond what was provided in the contract documents.
4. Owner supplied clearances / permits:

    BIA Finding of No Significant Impact (FONSI)

    State Historic Preservation Office (SHPO)

    United States Fish and Wildlife Service (USFWS) Section 7

    Department of the Army Jurisdictional Determination POA-2016-471

    DNR Temporary Water Use Authorization (TWUA A2020-99)

    ADF&G Fish Habitat Permit FH20-II-0104

The Contractor shall:

1. Acquire any permits and licenses required to complete the project that are not acquired by the Owner;
2. Provide qualified professionals to collect data or perform studies necessary to acquire permits for the use of sites not previously permitted;
3. Give all notices required for the prosecution of the work;
4. Abide by all permits and licenses whether acquired by the Owner or by the Contractor;
5. Notify the Owner's Representative promptly if any activity cannot be performed as specified in the permits, and cease conducting the activity until permit modifications or any required additional permits are obtained;
6. Obtain modifications to permits acquired by the Contractor;
7. Pay all charges, fees and taxes; and
8. Provide proof of payment of all taxes before the Owner makes final payment.
9. Provide copies of all permits, applicable Federal and State notifications, to the Owner's Representative at the Preconstruction Conference, or if obtained after the Preconstruction Conference, within five days of receipt.
10. Provide the information necessary to comply with the Alaska Owner of Environmental Conservation, Alaska Pollutant Discharge Elimination System (APDES) to discharge stormwater from the construction site. Requirements for this permit are given under Section 641, Erosion and Pollution Control.
11. Obtain through the Owner's Representative a written statement from the State Historic Perseveration Officer stating that material disposal, extraction, stockpiling or staging on or off project site is not expected to impact cultural resources.

The provision of permits acquired by the Contractor, and of notices and information under this section does not shift of create responsibility for compliance with Federal or State law to the Owner, or otherwise impose a duty for oversight or review.

In addition, before using an area not previously permitted for use by the Contract, the Contractor shall:

1. Contact all government agencies having possible or apparent permit authority over that area;
2. Obtain all required permits and licenses from those agencies;
3. Obtain permission from any property owners or lessees with an interest in the property; and
4. Provide all of the following to the Owner's Representative:
    a. All permits or clearances necessary to use the site for its intended purpose(s);
    b. A written statement that all permits or clearances necessary have been obtained;
    c. Written evidence that the Contractor has contacted all of the relevant agencies and that no additional permits are required on the part of the Contractor, including at a minimum the name of the agency and staff person contacted, the date contacted, and result of coordination; and

d. A plan that identifies how the site will be finally stabilized and protected.

The Owner's Representative may reject a proposed site if the Contractor fails to provide any of the above information or to demonstrate that a proposed site can be finally stabilized to eliminate future adverse impacts on natural resources and the environment.

107-1.03 PATENTED DEVICES, MATERIALS AND PROCESSES. If the Contractor employs any design, device, material, or process covered by patent, trademark, or copyright, the Contractor shall obtain and provide the Owner's Representative with a copy of a suitable legal agreement with the patentee or owner.

The Contractor and the Surety shall defend, indemnify, and hold harmless the Owner and its representatives and any affected third party or political subdivision from any claim, cause of action, and damages for infringement arising from or relating to the Contractor's use of a patented design, device, material, process, trademark, or copyright.

107-1.04 WAGE RATES. *(Not Used)*

Refer to Contract Documents.

107-1.05 FEDERAL AID PROVISIONS. When the United States government pays all or any portion of the cost of a project, the Contractor shall observe all federal laws, rules, and regulations applicable to the project.

The Contractor shall allow appropriate federal officials access to inspect the work. The federal government is not a party to the Contract. Federal inspections will not form the basis for any claim for interference with the rights of the Contract parties.

107-1.06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain neat and sanitary accommodations for employees that meet all federal, state and local requirements.

The Contractor shall comply with federal, state, and local laws, rules, and regulations concerning construction safety and health standards, including U.S. Mine Safety and Health Administration rules when the project includes pit or quarry operations.

The Contractor shall not expose the public to, or require any workers to work under, conditions that are unsanitary, hazardous, or dangerous to health or safety.

The Contractor is responsible for ensuring all workers are adequately protected. The Contractor shall have a safety and health management program that complies with AKOSH requirements, and includes:

1. A worksite hazard analysis;
2. A hazard prevention and control plan including personal protective equipment and safe work procedures required for specific tasks;
3. New employee training and periodic worker training regarding safety and health;
4. Regular safety meetings with written documentation of attendance, safety topics discussed, worker safety complaints, and corrective actions taken; and
5. A designated safety officer, employed by the Contractor, who monitors the construction site and is responsible for implementing the safety and health management program.

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the Contractor's operation

encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, shell heaps, land or sea mammal bones, tusks, or other items of historical significance, the Contractor shall:

1. Immediately cease operations at the site of the find;
2. Immediately notify the Owner's Representative of the find; and
3. Not disturb or remove the finds or perform further operations at the site of the finds until directed by the Owner's Representative.

The Owner's Representative will issue an appropriate Change Order if the Owner's Representative orders suspension of the Contractor's operations or orders the Contractor to perform extra work in order to protect an archaeological or historical find.

107-1.08 RAILWAY-HIGHWAY PROVISIONS. The Contractor shall conduct all operations on or near a railroad according to the Contract, any contract between the Owner and the railroad, and any permits issued by the railroad. The Contractor shall obtain permits for hauling materials across railroad tracks, if needed, at the Contractor's expense.

107-1.09 CONSTRUCTION OVER OR ADJACENT TO WATERS. The Contractor shall fully comply with all laws, regulations and permits issued by agencies of the United States and the State of Alaska when working in, over or adjacent to wetlands, tidelands, anadromous fish streams, eagle nests, navigable waters, or coastal waters.

The Contractor shall ensure that all work in, over or adjacent to navigable waters is conducted so that free navigation of the waterways is not obstructed and that existing navigable depths are not impaired, except as allowed by the U.S. Coast Guard and the U.S. Army Corps of Owner's Representatives.

107-1.10 USE OF EXPLOSIVES. The Contractor shall obey all laws, regulations and permits applicable to using, handling, loading, transporting, or storing explosives. When using explosives, the Contractor shall take utmost care not to endanger life, property, new construction, or existing portions of the project and facilities that are to remain in place after the project is complete.

The Contractor shall provide notice to property owners, the traveling public, and utility companies in the vicinity before using explosives. The Contractor shall provide notice to the Federal Aviation Administration when required by law. The Contractor shall notify police and fire authorities in the vicinity before transporting or using explosives. The Contractor shall provide notice sufficiently in advance to enable all potentially affected parties to take whatever steps they may deem necessary to protect themselves and their property from injury or damage.

The Contractor is liable for all property damage, injury, or death resulting from the use of explosives on the project. The Contractor shall indemnify, hold harmless, and defend the Owner from all claims related to the use of explosives on the project, including claims from government agencies alleging that explosives were handled, loaded, transported, used, or stored improperly.

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.

1. Restoring Areas. Areas used by the Contractor, including haul routes, shall be restored to their original condition after the Contractor's operations are completed. The original condition of an area shall be determined as follows: Prior to commencement of operations, the Owner's Representative and the Contractor shall inspect each area and haul route that will be used by the Contractor and take photographs to document their condition. After construction operations are completed, the

condition of each area and haul route will be compared to the earlier photographs. Prior to demobilization the Contractor shall repair damages attributed to its operations. The Contractor agrees that all costs associated with repairs shall be subsidiary to other items of work and will not be paid for directly.

2. Material Disposal Sites. Offsite disposal areas may be at locations of the Contractor's choice, provided the Contractor obtains written permission from the land owner for such disposal and a waiver of all claims against the Owner for any damage to such land which may result therefrom, together with all permits required by law for such disposal. A copy of such permission, waiver of claims, and permits shall be filed with the Owner's Representative before commencing work on private property. The Contractor's selected disposal sites shall also be inspected and approved by the Owner's Representative prior to use of the sites.

3. Property marks. The Contractor shall:

   a. Be responsible for and protect from disturbance all land monuments and property marks until the Owner's Representative has approved the witnessing or otherwise referenced their locations; and

   b. Not move such monuments or marks without the Owner's Representative approval.

4. Damage to property. The Contractor shall:

   a. Be responsible for all damage to public or private property resulting from any act, omission, neglect, or misconduct in the manner or method of executing the work;

   b. Be responsible for all damage to public or private property resulting from defective work or materials at any time, before, during, or after project completion; and

   c. Restore all such damaged property to a condition similar or equal to that existing before the damage occurred, at no additional cost to the Owner.

5. Protection of natural resources. The Contractor shall:

   a. Conduct work in a manner that minimizes disturbance to and protects natural resources in compliance with all federal, state, and local laws and regulations;

   b. When working near designated wetlands, as defined by the Corps of Owner's Representatives, place no fill, nor operate equipment outside the permitted area;

   c. When working in or near designated anadromous fish streams, as defined by AS 41.14.840 and .870, place no fill or dredge material, nor operate equipment, within or on the banks of the stream (including fording) except as permitted by the State Fish Habitat Permit issued for the project; and

   d. Not refuel and service equipment within 100 feet of wetlands and/or other water bodies.

6. Hazardous materials. Hazardous materials include but are not limited to petroleum products, oils, solvents, paints, lead based paints, asbestos, and chemicals that are toxic, corrosive, explosive, or flammable. Except as otherwise specified in this Contract, the Contractor shall:

   a. Not excavate, nor use for fill, any material at any site suspected of or found to contain hazardous materials or petroleum fuels;

b. Not raze and remove, or dispose of structures that contain asbestos or lead-based paints;

c. Not stockpile, nor dispose of, any material at any site suspected of or found to contain hazardous materials or petroleum;

d. Report immediately to the Owner's Representative any known or suspected hazardous material discovered, exposed, or released into the air, ground, or water during construction of the project;

e. Report any containment, cleanup, or restoration activities anticipated or performed as a result of such release or discovery;

f. Handle and dispose of hazardous material with properly trained and licensed personnel who follow an approved Hazardous Material Control Plan as per Section 641.

7. Protected areas. The Contractor shall not use land from any park, recreation area, wildlife or waterfowl refuge, or any historical site located inside or outside of the project limits for excess fill disposal, staging activities, equipment or material storage, or for any other purposes unless permitted by the Contract or unless all permits and clearances necessary for such work have been obtained by the Contractor as detailed in Subsection 107-1.02.

8. Solid waste. The Contractor shall remove all debris, trash, and other solid waste from the project site as soon as possible and in accordance with the Alaska Owner of Environmental Conservation Solid Waste Program.

9. If water is required for a construction purpose from a non-municipal water source, obtain a Temporary Water Use Permit from the Water Resource Manager, and provide a copy to the Owner's Representative. The Water Resource Manager is the Owner of Natural Resources in Anchorage and may be contacted at (907) 269-8645.

107-1.12 FOREST PROTECTION. The Contractor shall:

1. Comply with all laws and regulations of the United States and the State of Alaska, local governments, or other authorities governing the protection of forests and the carrying out of work within forests;

2. Keep forest areas in an orderly condition;

3. Dispose of all refuse and 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 requirements of the supervising authorities;

4. Take all reasonable precautions to prevent and suppress forest fires;

5. Require workers and subcontractors, both independently and at the request of officials, to do all reasonably within their power to prevent and suppress and to assist in preventing and suppressing forest fires; and

6. Make every possible effort to notify the appropriate forestry agency at the earliest moment of the location and extent of any forest fire.

107-1.13 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall indemnify, hold harmless, and defend the Owner and its agents and employees from any and all claims or actions for injuries or damages whatsoever sustained by any person or property that arise from or relate to, directly or

indirectly, the Contractor's performance of the Contract; however, this provision has no effect if, but only if, the sole proximate cause of the injury or damage is the Owner's negligence.

This Contract does not create a third party benefit to the public or any member of the public, nor does it authorize any person or entity not a party to this Contract to maintain a suit based on this Contract or any term or provision of the Contract, whether for personal injuries, property damage, or any other claim or cause of action.

107-1.14 OPENING SECTIONS OF THE PROJECT TO TRAFFIC *(NOT USED).*

107-1.15 CONTRACTOR'S RESPONSIBILITY FOR WORK. The Contractor shall be responsible for implementing all preventative measures necessary to protect, prevent damage, and repair damage to the work from all causes at no additional cost to the Owner. This duty continues from the date construction begins until the date specified in a letter of Substantial Completion or Partial Acceptance of a specific section of the project. ~~Where there is a Partial Acceptance, the duty ends only as the accepted portion of the work.~~ This duty continues during periods of suspended work, except in specific sections the Owner has agreed to maintain in Section 643-3.07, if any.

The Contractor shall rebuild, repair, restore, and make good all losses or damages to any portion of the work including that caused by vandalism, theft, accommodation of public traffic, and weather. The Owner will only be responsible for loss or damage due to unforeseeable causes beyond the control of and without the Contractor's fault or negligence, such as Acts of God, the public enemy, and governmental authorities.

In case of suspension of work from any cause, the Contractor shall take such precautions as may be necessary to prevent damage to the work or facilities affected by the work. This will include providing for drainage and erecting any necessary temporary structures, signs, or other facilities and maintaining all living material such as plantings, seedings, and soddings.

107-1.16 RESERVED.

107-1.17 FURNISHING RIGHT-OF-WAY. The Owner will secure all necessary right-of-way or property in advance of construction. Any exceptions will be indicated in the Contract.

107-1.18 PERSONAL LIABILITY OF PUBLIC OFFICIALS *(NOT USED).*

Refer to Contract Documents.

107-1.19 NO WAVIER OF LEGAL RIGHTS *(NOT USED).*

Refer to Contract Documents.

107-1.20 GRATUITY AND CONFLICT OF INTEREST *(NOT USED).*

Refer to Contract Documents.

SECTION 108
PROSECUTION AND PROGRESS

108-1.01 SUBCONTRACTING OF CONTRACT. ~~The Contractor shall submit a Contractor Self Certification for Subcontractors and Lower Tier Subcontractors, Form 25D-042, before the Contractor or any subcontractor subcontracts, sells, transfers, assigns, or otherwise disposes of the Contract or any portion of the Contract. The Department has authority to review subcontracts and to deny permission to subcontract work. The Department may penalize the Contractor for false statements or omissions made in connection with Form 25D-042.~~

~~The Contractor shall perform, with the Contractor's own organization, work amounting to at least 30 percent of the difference between the original Contract price and the price of designated Specialty Items. For the purpose of this Subsection, work is defined as the dollar value of the services, equipment, materials, and manufactured products furnished under the Contract. The Engineer will determine the value of the subcontracts based on Contract unit prices or upon reasonable value, if entire items are not subcontracted.~~

The Owner's consent to the subcontracting, sale, transfer, assignment, or disposal of all or a part of the Contract shall not relieve the Contractor and the Surety of responsibility for fulfillment of the Contract or for liability under the bonds regardless of the terms of the transfer or sublet approvals.

1. The Contractor shall ensure that for all subcontracts (agreements):

   ~~a. The Owner is furnished with one completed Contractor Self Certification, Form 25D-042, for each subcontract;~~

   ~~b. The subcontractors have submitted a Bidder Registration Form, Form 25D-6;~~

   ~~c. The required prompt payment provisions of AS 36.90.210 are included in all subcontracts:~~

   ~~d. A clause is included requiring the Contractor to pay the subcontractor for satisfactory performance according to AS 36.90.210 and within eight (8) working days after receiving payment from which the subcontractor is to be paid;~~

   ~~e. A clause is included requiring the Contractor to pay the subcontractor interest, according to AS 45.45.010(a), for the period beginning the day after the required payment date and ending on the day payment of the amount is made:~~

   ~~f. A clause is included requiring the Contractor to pay the subcontractor all retainage due under the subcontract, within eight (8) working days after final payment is received from the Owner, or after the notice period under AS 36.25.020(b) expires, whichever is later;~~

   ~~g. A clause is included requiring the Contractor to pay interest on retainage, according to AS 36.90.250 and AS 45.45.101(a):~~

   ~~h. Other required items listed in Form 25D-042 are included in the subcontracts;~~

   i. The subcontractors pay current prevailing rate of wages identified in the Contract ~~as per Subsection 107-1.04~~ and file certified payrolls with the Owner's Representative and DOLWD for all work performed on the project (if applicable); and

   j. Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Owner's Representative within 5 calendar days.

k. The Owner is furnished an electronic copy of subcontracts for approval, signed and dated by both parties and including prices for the subcontracted work;

2. The Contractor shall ensure that for all lower tier subcontracts (agreements between subcontractors and lower tier subcontractors):

~~a. The required prompt payment provisions of AS 36.90.210 are included in all lower tier subcontracts;~~

~~b. A clause is included requiring the subcontractor to pay the lower tier subcontractor for satisfactory performance according to AS 36.90.210, and within eight (8) working days after receiving payment from which the subcontractor is to be paid;~~

~~c. A clause is included requiring the subcontractor to pay the lower tier subcontractor interest, according to AS 45.45.010(a), for the period beginning the day after the required payment date and ending on the day payment of the amount due is made;~~

~~d. A clause is included requiring the subcontractor to pay the lower tier subcontractor all retainage due under the subcontract, within eight (8) working days after final payment is received, or after the notice period under AS 36.25.020(b) expires, whichever is later;~~

~~e. A clause is included requiring the subcontractor to pay the lower tier subcontractor interest on retainage, according to AS 36.90.250 and AS 45.45.101(a);~~

f. ~~Other required items listed in Form 25D-042 are included in the lower tier subcontracts~~;

g. The lower tier subcontractors pay current prevailing rate of wages identified in the Contract ~~as per Subsection 107-1.04~~ and file certified payrolls with the Owner's Representative and DOLWD for all work performed on the project (if applicable); and

h. Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Owner's Representative within 5 calendar days.

3. The following will be considered as subcontracting, unless performed by the Contractor:

a. Roadside Production. Roadside production of crushed stone, gravel, and other materials with portable or semi-portable crushing, screening, or washing plants set up or reopened in the vicinity of the project to supply materials for the project, including borrow pits used exclusively or nearly exclusively for the project.

b. Temporary Plants. Production of aggregate mix, concrete mix, asphalt mix, other materials, or fabricated items from temporary batching plants, temporary mixing plants, or temporary factories that are set up or reopened in the vicinity of the project to supply materials exclusively or nearly exclusively for the project.

c. Hauling. Hauling from the project to roadside production, temporary plants, or commercial plants, from roadside production or temporary plants to the project, from roadside production or temporary plants to commercial plants, and all other hauling not specifically excluded in this subsection.

d. Other Contractors. All other contractors working on the project site under contract with the Contractor are considered subcontractors unless specifically excluded in this subsection.

4. The following will not be considered as subcontracting~~, but the Contractor shall comply with the prompt payment provisions of AS 36.90~~:

   a. Commercial Plants. The purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready-mixed concrete, asphalt paving mix, and any other material or fabrication produced at and furnished from established and recognized commercial plants that sell to both public and private purchasers.

   b. Hauling. Delivery of materials from a commercial plant to a different commercial plant, and delivery from a commercial plant to the project site by vehicles owned and operated by the commercial plants or by commercial freight companies that have a contract with the commercial plant. Commercial freight companies are trucking or hauling companies that deliver multiple types of materials to multiple clients, both public and private, on an established route and on a recurrent basis.

   c. Contractors' General Business. Work within permanent home offices, branch plants, fabrication plants, tool yards, and other establishments that are part of a contractor's or subcontractor's general business operations.

5. Owner-Operators. Hauling of materials for the project by bona fide truck owner-operators who are listed as such on the certified payroll of the Contractor or approved subcontractor is not considered subcontracting ~~for purposes of AS 36.30.115~~.

   ~~The Contractor shall ensure that the required prompt payment provisions of AS 36.90.210 are included in contracts with owner-operators.~~

   The Contractor shall collect and maintain at the project site current and valid copies of the following to prove that each trucker listed is a bona fide owner-operator:

   a. Alaska Driver's License with appropriate CDL class and endorsements;

   b. Business license for trucking with supporting documents that list the driver as the business owner or corporate officer;

   c. Documents showing the driver's ownership interest in the truck, including copies of:

      (1) Truck registration; and

      (2) Lease (if truck is not registered in driver's name or in the name of the driver's company).

   ~~The Contractor shall maintain legible copies of these records for a period of at least three years after final acceptance of the project.~~

   Owner-operators must qualify as independent contractors under the current Alaska Department of Labor’s criteria. Owner-operators may be required to show:

   a. The owner-operators right to control the manner in which the work is to be performed;

   b. The owner-operator's opportunity for profit or loss depending upon their managerial skill;

   c. The owner-operator's investment in equipment or materials required for their task, or the employment of helpers;

   d. Whether the service rendered requires a special skill;

   e. The degree of permanence of the working relationship; and

f. Whether the service rendered is an integral part of the owner-operator's business.

The status of owner-operators is subject to evaluation throughout the project period. If the criteria for an independent contractor are not met, the Contractor shall submit amended payrolls listing the driver as an employee subject to all labor provisions of the Contract.

The Contractor shall issue each owner-operator a placard in a form approved by the Owner's Representative that identifies both the truck driver and the vehicle. The placard shall be prominently displayed on the vehicle so that it is visible to scale operators and inspectors.

Notwithstanding the Owner's definitions of contracting and subcontracting, the Contractor shall be responsible for determining and complying with all federal and state laws and regulations regarding contracting, subcontracting, and payment of wages. The Contractor shall promptly pay any fines or penalties assessed for violations of those laws and regulations, and shall promptly comply with the directives of any government agency having jurisdiction over those matters.

108-1.02 NOTICE TO PROCEED. The Owner will issue a Notice to Proceed authorizing construction to begin and indicating the date when Contract time will begin. The Contractor shall not begin construction before the effective date of the Notice to Proceed. The Owner will, in its sole discretion, refuse to pay for construction begun before the effective date of the Notice to Proceed. The Contractor shall notify the Owner's Representative at least ~~48 hours~~ 1 week before construction begins at the project site.

108-1.03 PROSECUTION AND PROGRESS. The Contractor shall meet with the Owner's Representative at a mutually agreed upon site ~~the regional construction office~~ for a preconstruction conference before beginning construction. The Owner's Representative will schedule the Preconstruction Conference no less than five days after the following have been received:

1. A progress schedule, in a format acceptable to the Owner's Representative, showing the order in which the Contractor proposes to carry out the work and the contemplated dates on which the Contractor and the subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall indicate the anticipated hours of operation and any anticipated periods of multiple-shift work.
2. A list showing anticipated dates for procurement of materials and equipment, ordering of articles of special manufacture, furnishing of plans, drawings and other data required ~~under Subsection 105-1.02 and for other events such as inspection of structural steel fabrication~~.
3. A list showing all proposed subcontractors and material suppliers.
4. A Construction Phasing plan, as required under Subsection 643-1.05.
5. A Storm Water Pollution Prevention Plan and a Hazardous Material Control Plan, with the line of authority and designated field representatives, as required under Section 641.
6. A letter designating the Contractor's Project Superintendent, defining that person's responsibility and authority, and providing a specimen signature.

~~7. A letter designating an Equal Employment Opportunity Officer and a Disadvantaged Business Enterprise Officer, and designating those person's responsibilities and authority.~~

8. A Quality Control Plan, as required under Subsection 106-1.03.
9. A letter designating a Safety Officer, and designating that person's responsibilities and authority.

The Contractor shall provide adequate materials, labor and equipment to ensure the completion of the project according to the Plans and Specifications. The work shall be performed as vigorously and as continuously as weather conditions or other interferences may permit. The Contractor shall take into consideration and make due allowances at the Contractor's expense for foreseeable delays and interruptions to the work such as unfavorable weather, frozen ground, equipment breakdowns, shipping delays, quantity overruns, utility work, permit restrictions, and other foreseeable delays and interruptions. The Contractor shall identify these allowances on the progress schedule.

The Contractor shall adjust forces, equipment and work schedules as necessary to ensure completion of the work within the Contract time, and shall notify the Owner's Representative at least 24 hours before resuming suspended operations. Upon a substantial change to the work schedule or when directed by the Owner's Representative, the Contractor shall submit a revised progress schedule in the form required, including a written explanation for each revision made in the schedule or methods of operation.

The Owners Representative's review or approval of the documents, plans, and schedules provided by the Contractor under this section shall not change the Contract requirements, release the Contractor of the responsibility for successful completion of the work or relieve the Contractor of the duty to comply with applicable laws. The Owners Representative's review or approval of schedules shall not indicate agreement with any assertions of delay or claims by the Contractor.

It is the Contractor's responsibility to prepare and submit documents that satisfy all applicable contract requirements. By reviewing and approving the Contractor's documents, the Owner does not warrant that following the Contractor's documents will result in successful performance of the work. The Owner's failure to discover defects in the Contractor's documents, the assumptions upon which they are based or conditions that prevent the Contractor from performing the work as indicated in the documents will not entitle the Contractor to additional compensation or time. If the Contractor becomes aware of any act or occurrence that may form the basis of a claim for additional compensation or an extension of time, it must specifically advise the Owner's Representative of these conditions in accordance with the contract documents ~~Subsection 105-1.17~~ .

108-1.04 LIMITATION OF OPERATIONS. The Contractor shall not open up work to the detriment of work already started. The Contractor shall minimize interference with traffic within the project. The Contractor shall not stop or otherwise impede traffic outside the project limits without the Owner's Representative's prior written permission. The Owner's Representative may require the Contractor to finish a section of work in progress before starting additional sections if the Owner's Representative determines it is necessary for the convenience of the public or the Owner.

108-1.05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall employ sufficient labor and equipment to complete the work required under the Contract and to complete it on time.

The Contractor shall ensure that all workers on the project have the skills and experience necessary to properly perform their assigned work. Workers engaged in special work or skilled work shall have sufficient experience in that work and in the operation of the equipment required to properly perform that work.

The Contractor shall comply with any written order by the Owner's Representative to remove workers, who, in the opinion of the Owner's Representative, perform the work in an unskilled

manner, who are intemperate or disorderly, or who jeopardize the safety of the public, other workers or Owners Representative's personnel. The Contractor shall allow removed workers to return to the project only with the Owners Representative's written permission. The Owner's Representative may suspend the work if the Contractor fails to furnish suitable and sufficient personnel necessary to perform the work, or fails to remove any worker at the Owners Representative's order.

The Contractor shall not use prisoner labor on the project.

The Contractor shall use equipment of the appropriate size and mechanical condition to produce the specified quality and quantity of work by the means specified in the Contract, if any, and shall ensure that the equipment does not damage roadways or property.

The Contractor shall ensure all equipment, materials, and articles incorporated into the work are new and of the specified quality, unless the Contract specifically permits otherwise.

The Contractor shall provide the Owner's Representative with a list of all powered equipment that will be used on the project, showing the make, model, year, capacity, horsepower, and related information. The Contractor shall update this list when equipment is added or removed from the work site, but need not update more frequently than weekly.

When the methods and equipment to be used by the Contractor are not prescribed by the contract, the Contractor is free to use any method, means or equipment that is satisfactory to produce the specified work in conformity with the Contract, except as provided above. At the request of the Owner's Representative, the Contractor shall demonstrate that the method, means and equipment chosen will produce the work specified in the Contract in the time allowed under the Contract. The Contractor shall bear all costs and impacts associated with any means, methods and equipment chosen by the Contractor. No suggestion, statement or observation from the Owner's Representative or other Owner representatives shall alter this responsibility.

If the Contract specifies a particular method, means or type of equipment for performance of the work, the Contractor must use that method, means or equipment unless the Contractor first requests, in writing, permission to alter the Contract requirement and receives prior written approval from the Owner's Representative.

108-1.06 CONTRACT TIME, EXTENSION OF CONTRACT TIME AND SUSPENSION OF WORK.

Contract time will be specified in calendar days, by completion date, or both.

3. Calendar Days. When the contract time is specified on a calendar days basis, all work under the Contract shall be completed within the number of calendar days specified. If no starting day is specified in the Contract, the count of Contract time begins on the day following receipt of the Notice to Proceed by the Contractor.

   Calendar days shall continue to be counted against Contract time until and including the date of project completion. Calendar days shall not be counted during the period from November 1 through April 30, except for days that the Contractor is working on the project site.

4. Completion Date. When the contract time is specified on a completion date basis, all work under the Contract shall be completed by the specified completion date.

5. Reasons for Suspension of Work and Extension of Contract Time. The Owner may order a suspension of work for any reason listed in this subparagraph 3, items a through p.

The Owner shall not pay additional compensation, but may extend Contract time only, if there are delays in the completion of controlling items of work from unforeseeable causes that are beyond the Contractor's control and are not the result of the Contractor's fault or negligence, including:

a. Acts of God;
b. Acts of the public enemy;
c. Fires;
d. Floods;
e. Epidemics;
f. Quarantine restrictions;
g. Strikes;
h. Freight embargoes;
i. Unusually severe weather;
j. In accordance with Subsection 105-1.06.4.d, delays by utility owners beyond completion dates specified in the Special Provisions for relocating or adjusting utilities and related facilities; or
k. Delays of subcontractors, suppliers and fabricators from unforeseeable causes beyond the control of the subcontractors, suppliers or fabricators and that are not the fault of the subcontractors, suppliers or fabricators, including those causes listed in this Subparagraph 3, Items a through j.

No additional Contract time or additional compensation will be allowed due to delays caused by or suspensions ordered due to:

l. Failure to correct unsafe conditions for the workers or the public;

m. Adverse weather that is not unusually severe;

n. Failure to carry out Contract provisions;

o. Failure to carry out orders given by the Owner's Representative; or

p. Failure to timely obtain materials, equipment, or services.

The Contractor shall notify the Owner's Representative as soon as the Contractor becomes aware of any act or occurrence that may form the basis of a request for a time extension under this section. The Contractor shall submit a request for a time extension to the Owner's Representative within 10 days of the act or occurrence, and if an agreement is not reached, the Contractor may submit a Claim under Subsection 105-1.17.

The time allowed in the Contract, as awarded, is based on performing the original estimated quantities of work set out in the bid schedule. An assertion that insufficient time was originally specified shall not constitute a valid reason for extension of contract time. If satisfactory fulfillment of the Contract requires extra work, the Owner may extend Contract time on a basis commensurate with the amount and difficulty of the extra work, provided that the extra work is for a controlling item.

6. Suspension of Work. The Owner's Representative will suspend work on the project, in whole or in part, for such periods and for such reasons as the Owner's Representative determines to be reasonable, necessary, in the public interest, or for the convenience of the Owner.

   a. The Owner's Representative will issue a written order to suspend, delay, or interrupt all or

any part of the work. The Contractor shall not be compensated for the suspension, delay, or interruption if it is imposed for a reasonable time under the circumstances.

b. Unless another Contract section specifically provides otherwise, the Contractor will be compensated by equitable adjustment for a suspension, delay, or interruption of the work only if:

   1) The period of suspension, delay, or interruption is for an unreasonable time under the circumstances and another Contract section allows compensation in the event of a suspension, delay, or interruption of the work under the circumstances that actually caused the suspension, delay, or interruption; or

   2) The delay, suspension, or interruption results from the Owner's failure to fulfill a contractual obligation to the Contractor within the time period specified in the Contract or, if no time period is specified, within a reasonable time.

c. No equitable adjustment will be made under this subsection for any suspension, delay, or interruption of the work if the Contractor's performance would have been suspended, delayed, or interrupted by any other cause for which:

   1) The Owner is not responsible under the Contract, including the Contractor's fault or negligence; or

   2) An equitable adjustment is either provided for or excluded under any other section of this Contract.

d. Claims for equitable adjustments under this section shall be filed under Subsection 105-1.17 except that:

   1) The Contractor must give written notice of intent to claim no later than 20 days after the event giving rise to the delay, suspension, or interruption; and

   2) The claim may not include any costs incurred more than 20 days before the Contractor files the Contractor's written notice of intent to claim.

108-1.07 FAILURE TO COMPLETE ON TIME.

For each calendar day that the work is not substantially complete after the expiration of the Contract time or the completion date has passed, the Owner's Representative shall deduct the full daily charge corresponding to the original Contract amount shown in Table 108-1 from progress payments.

For each calendar day that the work is substantially complete but the project is not complete, after the expiration of the Contract time or the completion date has passed, the Owner's Representative shall deduct the full ~~20 percent of the~~ daily charge corresponding to the original Contract amount shown in Table 108-1 from progress payments.

If no money is due the Contractor, the Owner may recover these sums from the Contractor, from the Surety, or from both. These are liquidated damages and not penalties. These charges shall reimburse the Owner for its additional administrative expenses incurred due to the Contractor's failure to complete the work within the time specified.

SECTION 108

Table 108-1 Daily Charge for Liquidated Damages for Each Calendar Day of Delay.

Original Contract Amount		Daily Charge
From More Than	To and Including	
$ 0	$ 100,000	~~$ 300~~ $1,500
100,000	500,000	~~550~~ $1,500
500,000	1,000,000	~~750~~ $1,500
1,000,000	2,000,000	~~1,000~~ $1,500
2,000,000	5,000,000	~~1,500~~ $1,500
5,000,000	10,000,000	2,500
10,000,000	----------	3,000

Permitting the Contractor to continue work after the Contract time has elapsed or the completion date has passed does not waive the Owner's rights to collect liquidated damages under this section.

108-1.08 DEFAULT OF CONTRACT.

The Contracting Officer will give a written Notice of Default to the Contractor and the Surety if the Contractor:

1. Fails to begin work under the Contract within the time specified;
2. Fails to perform the work with sufficient workers, equipment, or materials to ensure the prompt completion of the work;
3. Performs the work unsuitably or neglects or refuses to remove materials or to replace rejected work;
4. Discontinues the prosecution of the work;
5. Fails to resume work that has been discontinued within a reasonable time after notice to do so;
6. Becomes insolvent except that if the Contractor declares bankruptcy, termination shall be in accordance with the Federal Bankruptcy Code. In the event that the Contractor declares bankruptcy, the Contractor agrees that the Contract will be assumed by the Surety in a timely manner so as to complete the Contract by the date specified in the Contract;
7. Allows any final judgment to stand against the Contractor unsatisfied for a period of 60 days;
8. Makes an assignment for the benefit of creditors, without the consent of the Owner's Representative;
9. Fails to comply with applicable minimum wage or civil rights requirements;
10. Is a party to fraud, deceit, misrepresentation, or malfeasance in connection with the Contract; or
11. Fails to perform the work in an acceptable manner for any other cause whatsoever.

The written Notice of Default will include a notice to cure and will establish a date by which the cure must be completed. The Contracting Officer may allow more time to cure than originally stated in the Notice to Default if the Contracting Officer deems it to be in the best interests of the Owner. Failure to cure the delay, neglect, or default within the time specified in the Contracting Officer's Notice of Default authorizes the Owner to terminate the contract. The Owner will provide the Contractor and the Contractor's Surety with a written Notice of Termination.

After the Notice of Termination is issued, the Owner may take over the work without further notice; may complete it by itself, by contract or otherwise; and may take possession of and use materials, appliances, equipment, or plant on the work site necessary for completing the work.

The Owner may transfer the obligation to perform the work from the Contractor to the Surety. In that event, the Surety shall submit its plan for completion of the work, including any contracts or agreements with third parties for completion, to the Owner for approval before beginning work. The Surety must follow the Contract requirements for approval of subcontracts, except that the limitation on percent of work subcontracted will not apply. On receipt of the transfer notice, the Surety shall take possession of all materials, tools, equipment, and appliances at the work site, employ an appropriate work force, and complete the Contract work as specified. The Contract specifications and requirements shall remain in effect, except that the Owner will make subsequent Contract payments directly to the Surety. The Contractor forfeits any right to claim for the work and is not entitled to receive any further balance of the amount to be paid under the Contract.

The Contractor and the Contractor's Surety are jointly and severally liable for any damage to the Owner resulting from the Contractor's delay, neglect, or default, whether or not the Owner terminates the Contractor's right to prosecute the work. The Owner's damages include any increased costs incurred by the Owner in completing the work or paying for the work to be completed. The Owner's rights and remedies are in addition to any other rights and remedies provided by law or under the Contract.

If, after notice of termination of the Contractor's right to proceed under this clause, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties will be determined under Subsection 108-1.09, Termination for Convenience.

108-1.09 TERMINATION FOR CONVENIENCE.

1. Notice. The Contracting Officer may terminate the Contract in whole or in part due to:
   a. Executive Orders of the President of the United States or the Governor of the State of Alaska with respect to the prosecution of war or the interest of national defense, or any disaster declaration.
   b. Restraining orders or injunctions by a court of competent jurisdiction affecting prosecution of the work based on acts or omissions of persons or agencies other than the Contractor.
   c. Any reason determined by the Contracting Officer to be in the best interest of the Owner.

The Contracting Officer will issue a written Notice of Termination to the Contractor. The Notice of Termination shall state the extent to which performance of work under the Contract is terminated, the effective date of the termination, and for which of the above-listed reasons the Contract is terminated.

2. Required Actions. Unless otherwise directed by the Contracting Officer, upon receipt of a Notice of Termination the Contractor shall immediately:
   a. Stop work as directed in the Notice.
   b. Place no further orders or subcontracts for materials, services, or facilities except as approved to complete work not terminated.
   c. Terminate all orders and subcontracts for the terminated work.
   d. Accomplish either (1) or (2) below as directed by the Contracting Officer:
      1) Assign to the Owner all right, title and interest in any terminated orders or subcontracts. The Contracting Officer will settle all claims on the terminated orders or subcontracts.
      2) Settle any outstanding liabilities and claims arising from termination of orders and subcontracts. Settlements must be limited to costs allowed under this Section.
   e. Submit to the Contracting Officer a list, certified as to quantity and quality, of all materials

acquired or produced for incorporation into the project and that are properly allocable to the terminated portion of the project, exclusive of items disposed of under Subsection 108-1.09.2.f., below.

f. Dispose of materials in the Contractor's possession or control that were acquired or produced but not incorporated into the project as of the termination date as directed by the Contracting Officer under either (1) or (2) below:

   1) Transfer title and deliver the materials to the Owner. The Owner will pay for the materials at the actual cost delivered to the project or storage site, including transportation charges, to which cost 15% will be added.
   2) Sell the materials. Credit will not have to be extended to prospective purchasers the Contractor may acquire the materials if the Contracting Officer approves the sale price and the Contractor meets any other conditions prescribed by the Contracting Officer.

      At the sole discretion of the Contracting Officer, the proceeds of any sale, transfer, or disposition of materials may be:

      (1) applied to reduce any payments to be made by the Owner under the Contract,

      (2) credited to the cost of the work, or

      (3) paid in any other manner as directed.

g. Deliver to the Owner completed or partially completed plans, drawings, information, and other property required to be furnished under the Contract.

h. Take all necessary actions and comply with all directives to protect contract-related property in which the Owner has or may acquire an interest.

i. Complete work not terminated.

The Contractor shall proceed immediately with performance of the above obligations notwithstanding any delay in determining or adjusting the amount of any item or reimbursable cost under this clause.

3. Claim. The Contractor shall submit any termination claim to the Contracting Officer within 90 days after the effective date of termination, unless the date for submitting a claim is extended in writing by the Contracting Officer.

   a. Without duplication of any amount paid for under Subsection 108-1.09.2., the claim may be for the total of:

      1) costs incurred in performing the terminated work from the date of Contract award to the effective date of the termination subject to the provisions of Subsection 108-1.09.3.b. regarding reimbursement of equipment costs and Subsection 108-1.09.3.c. regarding unallowable items.

      2) payments approved by the Contracting Officer under Subsection 108-1.09.2.d.(2) to settle the termination claims of suppliers and subcontractors to the extent not covered under Subsection 108-1.09.3.a.(1).

      3) reasonably incurred costs for:

         a. accounting, legal, clerical, and other costs reasonably necessary for preparation of the termination claim and settlement negotiations, excluding costs incurred after the date

an appeal is filed with the Appeals Officer under Subsection 108-1.09.8.

b. settling subcontractor and supplier claims, excluding the amounts of those settlements paid under Subsection 108-1.09.3.a.(2).

4) reasonable profit on the costs included in Subsection 108-1.09.3.a(1) based on the Contractor's bid rate for profit or as determined under any other reasonable accounting method. However, if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, the Contracting Officer will allow no profit and will reduce the settlement to reflect the indicated rate of loss under Subsection 108-1.09.4. The Owner will not pay profit on costs included in Subsections 108-1.09.3.a.(2) and 108-1.09.3.a.(3).

b. Equipment claims will be reimbursed as follows:

1) Contractor-owned equipment usage, based on the Contractor's ownership and operating costs for each piece of equipment as determined from the Contractor's accounting records. Do not base equipment claims on published rental rates.

2) Idle time for Contractor-owned equipment, based on the Contractor's internal ownership and depreciation costs. Idle equipment time is limited to the actual period of time equipment is idle as a direct result of the termination, not to exceed 30 days. Operating expenses will not be included for payment of idle equipment time.

3) Rented equipment, based on reasonable, actual rental costs. Equipment leased under "capital leases" as defined in Financial Accounting Standard No. 13 will be considered Contractor-owned equipment. Equipment leased from an affiliate, division, subsidiary or other organization under common control with the Contractor will be considered Contractor-owned equipment, unless the affiliate, division, subsidiary or other organization has an established practice of leasing to unaffiliated lessees.

c. The following costs are not payable under a termination settlement agreement or Contracting Officer's determination of the termination claim, or on appeal:

1) Loss of anticipated profits or consequential or compensatory damages

2) Unabsorbed home office overhead (also termed "General & Administrative Expense") related to ongoing business operations

3) Bidding and project investigative costs

4) Direct costs of repairing equipment to render it operable for use on the terminated work

4. Adjustment for Loss. If the Contractor would have sustained a loss on the entire Contract had it been completed, the Owner will not pay the Contractor more than the total of:

a. The amount due for termination claim costs under Subsection 108-1.09.3.a.(3); plus

b. The remainder of the total allowable claim amount due reduced by multiplying the remainder by the ratio of (1) the total contract price to (2) the remainder plus the estimated cost to complete the entire Contract; minus

c. All disposal and other credits, all advance and progress payments and all other amounts previously paid under the Contract.

5. Deductions. In arriving at the amount due under this Subsection, the Owner will deduct:

   a. All previous payments made before termination;

   b. Any claim which the Owner may have against the Contractor;

   c. The proceeds of the sale or transfer of any materials, supplies, or other items acquired for the terminated work and not otherwise recovered by or credited to the Owner;

   d. All partial payments made under this Section; and

   e. Any adjustment for loss determined under Subsection 108-1.09.4.

6. Agreed Settlement. The Contractor shall make every effort to arrive at a claim settlement with the Contracting Officer that is fair to both parties, that reflects the reasonable and allocable incurred costs allowable under Subsection 108-1.09.3, that includes a profit under Subsection 108-1.09.3.a.(4) or, where appropriate, a loss adjustment under Subsection 108-1.09.4, and that takes into account the Contractor's reasonable business judgment in performing the work.

   The total settlement, whether determined under this Subsection 108-1.09.6 or under Subsection 108-1.09.7, exclusive of the costs listed in Subsection 108-1.09.3.a.(3), may not exceed the total contract price as reduced by previous payments made and the contract price of work not terminated.

   If an agreement is reached in whole or in part, the Owner will amend the contract and will pay the agreed amount.

7. Determined Settlement. If the Contractor fails to submit a termination claim within the time allowed, or if an agreement is not reached on the amount due, the Contracting Officer may determine in a Contracting Officer's Decision, the amount due under Subsection 108-1.09 on the basis of information available to the Owner.

8. Right of Appeal. The Contractor may appeal a Contracting Officer's Decision within the time and in the manner specified in Subsection 105-1.17.

9. Partial Payments. In the sole discretion of the Contracting Officer, the Owner may make partial payments against costs incurred by the Contractor in connection with the terminated portion of the Contract. The sum of these partial payments will not exceed the Contracting Officer's estimate of the total amount that will be due as a result of the termination. The estimate will be based on available information. The Contracting Officer may adjust the estimate as additional information becomes available. If the Contracting Officer orders an audit of the Contractor's financial or project records, the Contracting Officer may decline to make partial payments until the audit is completed.

10. No Waiver of Rights. The termination of work by the Owner does not affect or extinguish any of the rights of the Owner against the Contractor or the Contractor's Surety then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due under the terms of the Contract will not release the Contractor or the Contractor's Surety from the contractual obligations or warranties made under ~~Subsection 107-1.19 or elsewhere in~~ the Contract.

11. Retaining Records. The Contractor shall unless otherwise provided for in the Contract or by applicable statute, keep all books, records, documents, and other evidence bearing on the Contractor's cost and expenses under the Contract and relating to the work terminated for a period of 3 years after final settlement under this Contract. Records must be made available to the Owner

at the Contractor's office and at all reasonable times.

12. Definitions. In this Subsection 108-1.09, the term "cost" and the term "expense" mean a monetary amount in U.S. Dollars actually incurred by the Contractor, actually reflected in the Contractor's contemporaneously maintained accounting or other financial records and supported by original source documentation.

13. Cost Principles. The Owner may use the federal cost principles at 48 CFR §§ 31.201-1 to 31.205-52 (or succeeding cost principles for fixed price contracts) as guidelines in determining allowable costs under this Subsection to the extent they are applicable to highway construction contracts and consistent with the specifications of this Contract. The provisions of this contract control where they are more restrictive than, or inconsistent with, these federal cost principles

SECTION 109
MEASUREMENT AND PAYMENT

109-1.01 GENERAL. Wherever the Contract provides that certain work is subsidiary or it is without extra compensation, the payment for that work is included in the payment for other items of work, and no further or additional payment shall be made for that work.

When more than one type of material or work is specified for a pay item, letter or numeric suffixes included within parentheses following the pay item number are used to differentiate the types.

Lump sum items will not be measured for payment. The Contractor shall accept the bid amount for a lump sum item as complete payment for all work necessary to complete that item. Quantities shown for lump sum items are approximate. No adjustment in the lump sum price will be made if the quantity furnished is more or less than the estimated quantity unless the Contract specifically states otherwise.

109-1.02 MEASUREMENT OF QUANTITIES. All work completed under the Contract will be measured using the U.S. Customary system of measure. The Owner's Representative may agree for purposes of making progress payments to use a method of measurement other than the methods described below. However, all final payments for quantities will be calculated using one or more of the methods of measurement described below and in the applicable pay item section. Unless otherwise specified, work will be measured as follows:

1. Acre (43,560 ft^2). Horizontally, unless specified on the ground surface. No deductions will be made for individual fixtures with an area of 500 ft^2 or less.
2. Contingent Sum. Measured as specified in the Contract or Directive authorizing the work. The method of payment may include: (1) a lump sum basis, (2) a price multiplied by the units of work performed, (3) a pay adjustment based on the quality of work, or (4) a deduction from the contract amount.
3. Cubic Yard (yd^3). At the location specified using method a, below. Methods b through e may be used with written approval of the Owner's Representative.
    a. Average End Area. End area is the calculated area between original ground cross section and either the design cross section or at the Owners Representative's discretion the final cross section. Volume of material is calculated using the average of end areas multiplied by the distance along centerline between end areas. In extreme cases where most of the earthwork lies along a single horizontal curve the Owner's Representative may compute volume using the average of end areas multiplied by the distance along centroid of cross section between end areas.
    b. Three-Dimensional. Where it is impractical to measure material by cross sectioning due to erratic location of isolated deposits, acceptable methods involving three-dimensional measurements may be used.
    c. Neat Line. Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions.
    d. Nominal. Volume calculated as nominal width times nominal thickness times the average length of each piece.

e. Weight. With the Owners Representative's written approval, material that is specified to be measured by volume may be weighed and converted to volume for payment purposes. The Owner's Representative will determine the appropriate conversion factors. When liquid asphalt is a pay item, ASTM D 4311 will be used to convert from weight to volume at 60 °F.

4. Cubic Yard Vehicle Measure (CYVM). Material measured by volume in the hauling vehicle will be measured at the point of delivery. Vehicles may be of any acceptable size or type provided that the volume of the actual contents may be readily and accurately determined. Vehicles shall be loaded to the measured vehicle volume. If vehicles are not loaded to the measured vehicle volume, the Owner's Representative at their discretion, may apply a percentage of full factor to the measured volume. Loads shall be leveled when directed. No payment will be made for loads that exceed the legal capacity of the vehicle. This method may only be used with prior written approval of the Owner's Representative.

5. Linear Foot (LF). From end to end, in place, parallel to the centerline of the item or ground surface on which the items are placed.

6. Thousand Feet Board Measure (MBM). Nominal volume based on nominal widths and thickness times actual extreme length of each piece. One thousand feet board measure = 1,000 ft^2 X 1 inch thick.

7. Thousand Gallon (MGal). By using method a, below. Methods b or c may be used with written approval of the Owner's Representative.

   a. Measured or calibrated volume tank;

   b. Metered volume, using a certified calibrated meter; or

   c. Weighed under this subsection and converted to volume, using a specified or approved conversion factor.

8. Mile. From end to end, measured horizontally along centerline.

9. Pound. Using a certified scale or the net weight of packaged material as labeled by the manufacturer. The Owner's Representative will accept nominal weights for standard manufactured items, unless otherwise specified. The Owner's Representative will accept industry-established manufacturing tolerances, unless otherwise specified.

10. Square Foot (ft^2). Parallel to the surface being measured. No deductions will be made for individual fixtures with an area of 1 ft^2 or less. Transverse measurement for area computations will be the neat dimensions shown on the Plans or as directed by the Owner's Representative.

11. Square Yard (yd^2). Parallel to the surface being measured. No deductions will be made for individual fixtures with an area of 1 yd^2 or less. Transverse measurement for area computations will be the neat dimensions shown on the Plans or as directed by the Owner's Representative.

12. Station (100 feet). Horizontally, parallel to centerline.

13. Ton (2,000 pounds). By method a or c, below. Method b may be used with written approval of the Owner's Representative.

    a. Commercial Weighing System. Permanently installed and certified commercial scale that meets the requirements for the project weighing system.

b. Invoices. Supplier's invoice with net weight or volume converted to weight for bulk material that is shipped by truck or rail and is not passed through a mixing plant. Periodic check weighing may be required. Net certified weights or volumes of asphalt materials are subject to correction for temperature and foaming. All materials are subject to correction for material that is lost, wasted, or otherwise not incorporated into the work, for computing quantities.

c. Project Weighing System. Approved automatic digital scale and scale house. All scales are subject to approval according to the Weights and Measures Act, AS 45.75. Scales must record weight to the nearest 100 pounds. The Contractor shall maintain scale accuracy to within 0.5 percent of the correct weight throughout the range of use.

Spring balances and belt conveyor scales shall not be used to determine pay weight.

The Contractor may use proportioning (batch) scales for weighing material for payment when the batching equipment includes an approved and certified automatic weighing, cycling, and monitoring system.

Weigh scales used with a storage silo may be used to weigh the final product for payment, provided the scales are approved and certified.

Vehicle scales shall be maintained with the platform level and rigid bulkheads at each end. The platform must be long enough to permit simultaneous weighing of all axle loads of the hauling vehicle, including coupled vehicles, in a single draft. Double draft weighing is not allowed.

Scale Requirements. The Contractor shall:

(1) Ensure that vehicle scale(s) are installed and maintained to the standards listed in the National Institute of Standards and Technology (NIST), Handbook 44, Specifications, Tolerances and other Technical Requirements for Commercial Weighing and Measuring Devices, as adopted by AS 45.75.050(d);

(2) Contact the Division of Measurement Standards/Commercial Vehicle Enforcement (MSCVE) to coordinate scale inspections before use, at required intervals or as directed by the Owner's Representative and for clarification or possible exceptions to this section;

(3) Ensure that a weatherproof housing is provided to protect the scale indicating/recording equipment and allows the scale operator convenient access to the weigh indicator, scale computer, ticket printer, and sequential printer;

(4) Use competent personnel to operate the scale system;

(5) For all projects advertised after May 1, 2015, furnish and maintain on-site, NIST Class-F cast iron test weights in denominations of 500lb and/or 1000lb. The required minimum for vehicle scales is 4000lbs; the required minimum for hopper scales is 2000lb. Test weights shall have a recognized calibration certificate on file which is dated no more than two years from date of Notice to Proceed. Test weights will be used as directed by the Owner's Representative or MSCVE for initial accuracy calibration testing and may be used for subsequent scale testing or inspection. Projects accessible by direct road access from the communities identified on the dot.alaska.gov/mscve website, 5 days before bid opening, are exempt from the requirement to furnish and maintain on-site test weights;

(6) Provide the following information on any scale used to weigh materials for payment:

(a) Owner of the scales and scale locations;
(b) Manufacturer's name, model serial number, maximum capacity, and type of scales (single beam, double beam, self-reading, etc.)
(c) Date(s) the scales were installed and/or adjusted;
(d) Scale service company inspections and accuracy checks (attach copy);
(e) Division of Measurement Standards inspections and accuracy checks (attach copy); and
(f) Time and dates of notification of any malfunctions.

Electronic Computerized Weighing System. The Contractor shall use an electronic computerized weighing system (ECWS) with the following minimum capabilities:

(1) Computer. A computer with a self-reading scale system that includes the scale load cell, a sealed direct reading weight indicator, scale computer, ticket printer, and sequential printer, and that can record a complete shift's transaction in an electronic format approved by the Owner's Representative.

The computer must store project numbers, all pay item descriptions for multiple projects and products that are weighed, and the following information for each hauling vehicle used on the project:

(a) Vehicle identification number marked on the vehicle;
(b) Tare weight; and
(c) Maximum allowable gross vehicle weight (MAVW).

During weighing operations, the ECWS must compare each vehicle's gross weight to its MAVW. If the vehicle exceeds its MAVW, the system must alert the scale operator that an "overload" exists. The system must not issue a ticket for an overload.

The computer must have a battery backup and protection for power surges or brown outs. The computer system must retain all stored data during a power outage and must operate during a power outage to allow the scale operator to shut down the hard drive without losing information.

(2) Tickets. The ECWS shall have a ticket printer that prints a legible, serially numbered weigh ticket for the Owner's Representative with the following information on each ticket in the order listed:

(a) Project number;
(b) Item number and description;
(c) Date weighed;
(d) Time weighed;
(e) Ticket number;
(f) Vehicle Identification Number;
(g) Maximum allowable gross vehicle weight;
(h) Gross weight;
(i) Tare weight;
(j) Net weight;
(k) Subtotal item net weight for each haul unit since start of shift; and
(l) Accumulated item net weight for all haul units since start of shift.

Tickets must show all weights to the nearest 100 pounds.

After printing, the weigh ticket must automatically advance to a perforation so it can be torn off and handed to the driver. Each ticket shall be initialed by the scale operator before handoff to the driver.

(3) Sequential Printer. A sequential printer that prints out all transactions (keystrokes) made by the computer concurrently with the ticket printer. For permanent commercial scales, the printer may print at the end of the company's daily shift with the Owners Representative's approval. The printer must print all scales transactions including tares, voided tickets, and data changes made by the scale operator. The printer must allow for advancing the paper manually so that the scale operator can write notes on the paper when special situations occur, such as voided tickets, incorrect vehicle identification number used, etc. The scale operator must also note these special situations in the Scales Diary.

The sequential printout must be submitted to the Owner's Representative at the end of each shift, if requested.

(4) Data Files. Submit electronic data files to the Owner's Representative at the end of each shift, with all ticket information produced during the shift recorded. These data files must be complete and correct without conversion or manipulation.

(5) Scale Diary. The scale operator shall keep a Scale Diary in an electronic format acceptable to the Owner's Representative. The scale operator shall complete the Scale Diary with the following information: dates of action, type of material, source, time the scale opened and time the scale closed, times of scale balance, ticket sequence, time the haul for each material started and stopped, voided ticket numbers, vehicle identification numbers, times of tare and tare weights, and the scale operator's signature. The Scale Diary shall include the following information on any scale used to weigh materials for payment:

(a) Owner of the scales and scale locations;
(b) Manufacturer's name, model serial number, maximum capacity, and type of scales (single beam, double beam, self-reading, etc.);
(c) Date(s) the scales were installed and/or adjusted;
(d) Scale service company inspections and accuracy checks (attach copy);
(e) Division of Measurement Standards inspections and accuracy checks (attach copy); and
(f) Time and dates of notification of any malfunctions.

The Scale Diary shall be given to the Owner's Representative at the end of each shift. The Scale Diary is the property of the Owner.

14. Weighing Procedures

The scale operator shall tare hauling vehicles and record tare weights at least once daily; perform additional tares and record additional tare weights as directed by the Owner's Representative; perform tares in the presence of the Owner's Representative when requested; and ensure that each hauling truck displays a unique, legible identification mark.

The Owner's Representative will calculate the MAVW for each vehicle and list all vehicles and their

MAVW(s) in the scale house. The MAVW is either the maximum allowable legal weight determined by the Owner's Representative when the Contractor cannot haul overloads, or the manufacturer's recommended maximum allowable gross vehicle weight as certified by the Contractor when vehicles are allowed to haul overloads. Only MAVWs that the Owner's Representative has provided in writing shall be used. Tickets may not be issued to a vehicle until the Owner's Representative provides the MAVW.

No payment will be made for any material weighed without using the ECWS, unless the Contractor obtains the Owners Representative's prior written authorization. If the ECWS malfunctions or breaks down, weights must be manually weighed and recorded for up to 48 hours as directed by the Owner's Representative. The manual weighing operation must meet all other Contract requirements.

The system must generate a report either during or at the end of the day or shift that summarizes the number of loads and total net weight for each date, project, and product. The scale operator shall submit the original report to the Owner's Representative at the end of each shift.

No payment for any hauled material on a given date will be made until the following are delivered to the Owner's Representative:

a. Sequential printout;

b. Daily data; and

c. Scale Diary.

The Contractor will not receive payment for any material hauled in a vehicle that does not conform to the requirements of Subsection 105-1.12, Load Restrictions, and this Subsection. The Contractor shall dump material from non-conforming vehicles until they conform, then reweigh the vehicles.

When a weighing device indicates less than true weight, the Contractor will not receive additional payment for material previously weighed and recorded. When a weighing device indicates more than true weight, all material received after the last previously correct weighing accuracy test will be reduced by the percentage of error that exceeds 0.5 percent.

If the Owner's Representative incurs extra construction engineering expenses from checking non-machine data entries or other data irregularities, the total value of those expenses will be deducted from the value of the Contract item before payment.

The Contractor shall accept natural variations in the specific gravity of aggregates, without adjustment in Contract unit price.

109-1.03 SCOPE OF PAYMENT. The Owner will make payment at the Contract price or prices for each item shown on the bid schedule or as modified by change order with specified price adjustments. The Contractor shall accept the Contract prices as full and complete payment for (a) furnishing all equipment, materials, tools, and labor necessary to complete the work in a complete and acceptable manner, and for (b) all of the Contractor's risk, loss, damage, or expense of whatever character arising from or relating to the work and performance of the work.

109-1.04 COMPENSATION FOR ALTERED QUANTITIES. Payment to the Contractor for unit price items shall be made only for the actual quantities of work performed and accepted or materials furnished, in conformance with the Contract. When the accepted quantities of work or materials vary from the

quantities stated in the bid schedule, the Contractor shall accept payment at the original Contract unit prices for the quantities of work and materials furnished, completed and accepted as payment in full. Payment at the Contract unit price shall compensate the Contractor for all costs, expenses, and profit that the Contractor is entitled to receive for the altered quantities, except as provided below:

1. When the final quantity of a Major Contract Item varies more than 25 percent above or below the bid quantity, either party to the Contract may receive an equitable adjustment in the Contract unit price of that item. If the final quantity of work is:

   a. Greater than 125 percent of the bid quantity, the equitable adjustment will be made only for those units that are in excess of 125 percent of the bid quantity.

   b. Less than 75 percent of the bid quantity, the equitable adjustment will be made for those units of work done and accepted, except that the total payment for the item shall not exceed 75 percent of the total amount bid for the item.

Except as provided above and in the Contract Documents, no allowance shall be made for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed, either directly from alterations in quantities or indirectly from unbalanced allocations among the contract items on the part of the bidder and subsequent loss of expected reimbursements, or any other causes.

The compensation of for altered quantities is not applicable for lump sum items.

In the event that a material quantity is in question, the contractor shall be responsible for all costs in determining the quantities.

109-1.05 COMPENSATION FOR EXTRA WORK ON TIME AND MATERIALS BASIS *(Not Used).*

109-1.06 PROGRESS PAYMENTS *(Not Used).*

Refer to Contract Documents.

109-1.07 PAYMENT FOR MATERIAL ON HAND *(Not Used).*

Refer to Contract Documents.

109-1.08 FINAL PAYMENT *(Not Used).*

Refer to Contract Documents.

109-1.09 ELIMINATED ITEMS *(Not Used).*

Refer to Contract Documents.

109-1.10 DETERMINATION OF QUANTITIES. The contractor shall, at their own expense, provide means for determining, and validating, contract quantities for payment. Prior to beginning construction activities, the contactor shall submit in writing all proposed methods for determining contract quantities to the Owner's Representative. The Owner's Representative has the right to reject the contractors proposed methods.

Cubic Yard Vehicle Measure will not be an acceptable unit of measure under this contract.

DIVISION 200 – EARTHWORK

SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS

202-1.01 DESCRIPTION. Remove and dispose or salvage all buildings, fences, guardrail, structures, old pavements, abandoned utilities and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed of under other items in the Contract. Backfill the resulting trenches, holes and pits. When the bid does not include pay items for removal of structures and obstructions as set out in this Section, perform such work under Section 203 or as specified. Remove and reset mailboxes and newspaper delivery tubes and the preserve from injury and defacement all vegetation and objects not scheduled to be removed.

202-2.01 MATERIALS *(Not Used).*

CONSTRUCTION REQUIREMENTS

202-3.01 GENERAL. Raze, remove, and dispose of, or salvage all buildings and foundations, structures, fences, and other obstructions, any portions of which are within the right-of-way, except utilities and those for which other provisions have been made for removal.

Fill basements, or cavities left by structure removal, to the level of the surrounding ground and, if within the prism of construction, compact backfill as specified under Section 203.

Stockpile all materials which are designated for use on the project at approved locations.

~~Burn or otherwise dispose of combustible debris as approved.~~

Burning is not allowed in this Contract.

Non-combustible debris or materials may be:

1. placed in embankments under the provisions of Subsection 203-3.03 for placing rock in embankments (No metal pipes, wires, or cables may be placed in any embankment),
2. buried on the project, outside the embankment at approved locations, under a minimum covering of 2 feet of earth, or
3. disposed of outside the right-of-way limits, provided that before dumping such materials or debris on private or public lands, obtain from the owner of such land written permission for such dumping and a waiver of all claims against the Owner for any damage to such land which may result, together with all permits required by law for such dumping. Furnish a copy of such permission, waiver of claims, and permits to the Owner's Representative before commencing work. Grade waste areas to drain.

202-3.02 MAIL BOXES *(Not Used).*

202-3.03 REMOVAL OF BRIDGES. CULVERTS, AND OTHER DRAINAGE STRUCTURES. Do not remove bridges, culverts and other drainage structures in use by traffic until satisfactory arrangements have been made to accommodate traffic.

Do not remove manholes, inlets, valves or any other portion or portions of the sewer or water systems until the new systems are in operation or suitable arrangements have been made for the diversion, interruption, or a temporary system has been installed.

When flexible pipe is designated on the Plans to be abandoned in place, crush and flatten the ends before covering. Securely plug other conduits by an approved method.

Remove the substructures of existing structures down to the natural stream bottom and remove those parts outside of the stream down 12 inches below natural ground surface. Where such existing structures lie wholly or in part within the limits for a new structure, remove such portions as necessary to accommodate the new structure.

Upon removal of existing bridges, dress all slopes or embankments according to the plan details. Dress slopes not designated in the Plans to conform to the natural ground surface or blend as directed. Fill all excavations and depressions.

Complete blasting or other operations necessary for the removal of an existing structure or obstruction, which may damage new construction, prior to placing the new work.

202-3.04 REMOVAL OF PIPE. When the bid schedule contains an item for the "Removal of Culvert Pipe", the removed pipe becomes your property.

202-3.05 REMOVAL OF PAVEMENT, SIDEWALKS, AND CURBS. Dispose of all concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal, in an acceptable manner.

In removing pavements, curbs, walks, driveways and similar structures, make all cuts clean, vertical, and true to designated lines where an abutting structure or a part of a structure is to be left in place.

The contractor shall be responsible for disposing at a contractor supplied approved site. Disposal shall not be allowed within the project limits.

202-3.06 STRUCTURE RELOCATION / REPLACEMENT. The contractor shall coordinate with the owner's representative and the property owner for a mutually acceptable relocation / replacement of private property as outlined below.

Line R02 – Demolish the existing structure and provide owner with a 20' standardized shipping container (conex). The conex shall be a new "one-trip" container. Placement of the conex shall be as directed by the owner's representative on the same lot as the demolished structure.

Line S01 – Relocate the existing structures as directed by the owner's representative. Relocation will be limited to the same lot. Foundation type shall match existing.

202-4.01 METHOD OF MEASUREMENT. Section 109 and the following:

1. Square Yard. Length times average width before removal.
2. Linear Foot. Length before removal.
3. Each. Each complete unit removed or installed. Newspaper tubes will not be measured.

202-5.01 BASIS OF PAYMENT. Item 202(1). Payment includes removing and disposing or relocating of all structures and obstructions encountered within the right-of-way under the provisions of this Section.

Items 202(2) through 202(9). Payment includes salvage of materials removed, their custody, preservation, storage off the right-of-way and disposal as provided.

SECTION 202

Items 202(10) through 202(12). Payment includes removal, temporary relocation, and final installation of mail boxes and newspaper tubes.

Excavation, backfill, and compaction are subsidiary.

Payment will be made under:

Pay Item	Pay Unit
~~202(1) Removal of Structures and Obstructions~~	~~Lump Sum~~
~~202(2) Removal of Pavement~~	~~Square Yard~~
~~202(3) Removal of Sidewalk~~	~~Square Yard~~
202(4) Removal of Culvert Pipe	Linear Foot
~~202(5) Removal of Sanitary Sewer Pipe~~	~~Linear Foot~~
~~202(6) Removal of Manhole~~	~~Each~~
~~202(7) Removal of Junction Box~~	~~Each~~
~~202(8) Removal of Inlet~~	~~Each~~
~~202(9) Removal of Curb and Gutter~~	~~Linear Foot~~
~~202(10) Single Mail Box Installation~~	~~Each~~
~~202(11) Multiple Mail Box Installation~~	~~Each~~
~~202(12) Double Mail Box Installation~~	~~Each~~
202(13) Structure Relocation / Replacement	Each

SECTION 203
EXCAVATION AND EMBANKMENT

203-1.01 DESCRIPTION. Excavate, haul, place, and compact or dispose of specified materials necessary to construct the project. Conform to the lines, grades, depths and typical cross sections shown on the Plans or as established. The Contract will designate material to be removed within the excavation limits as classified or unclassified excavation.

203-2.01 MATERIALS.

1. Unclassified Excavation. All materials of whatever character encountered in the work. May include rock, common, or muck.
2. Classified Excavation.
   a. Common Excavation. Silt, sand, gravel, and granular material other than rock or muck.
   b. Rock Excavation. Rock that cannot be excavated without blasting or ripping.
   c. Muck Excavation. Soils, organic matter, and other material not suitable for foundation material regardless of moisture content.
3. Borrow. Approved material required for embankments or for other portions of the work, and obtained from sources outside the right-of-way limits for the project.
4. ~~Rock Stabilization Materials. As specified on the Plans or Special Provisions~~.
5. ~~Rockfall Mitigation Materials. As specified on the Plans or Special Provisions~~.
6. ~~Crushed Glass. May be combined with soil-aggregate material to be used in embankment construction. Meet 703-2.15 requirements~~.

CONSTRUCTION REQUIREMENTS

203-3.01 GENERAL. Perform all necessary clearing and grubbing prior to beginning excavation, grading, and embankment operations in any area.

Keep excavation and embankment areas free draining at all times as the work progresses. Finish the excavation and embankments to reasonably smooth and uniform surfaces.

Excavate and embank material only within the limits on the Plans or as directed. Prevent disturbing material and vegetation outside of the slope limits.

The Owner's Representative may designate excavated soils, that cannot be properly compacted in embankments, as unsuitable.

When unsuitable material is encountered at the required depth of excavation, remove the unsuitable material to the depth specified or directed. Allow for measurements to be taken before backfill is placed.

Dispose of unsuitable material or excess usable material at approved locations.

Obtain the property owner's written permission to dispose of unsuitable material or excess usable material at locations outside the right-of-way limits and a waiver of all claims against the Owner for any damage to such land which may result. Obtain all permits required by law for such disposal. Furnish a copy of such permission, waiver of claims, and permits to the Owner's Representative before

commencing work.

Ensure that all waste areas are properly graded and drained. Blend the outer limits of waste into surrounding grounds with no noticeable break or variation readily discernible. When existing roadway embankment slopes are used as disposal sites for waste or surplus material, finish the slopes with a motor grader or other approved method.

When the volume of suitable excavation is not sufficient for constructing the fill to the grades indicated, furnish the necessary borrow from approved sources. Borrow may be necessary even though not shown on the Plans. The source and acceptability of the borrow is subject to approval.

Do not place borrow material until after the usable roadway excavation has been placed in the fill. If you place more borrow than is required, resulting in or as a result of the unnecessary wasting of usable excavation, the amount of such waste will be deducted from the borrow quantity.

Obliteration of Roadways includes all grading operations necessary to incorporate the existing roadway into the new roadway and surroundings in order to provide a pleasing appearance from the new roadway. Fill ditches not required for drainage and grade to the approximate original ground contour.

Do not place soil-aggregate containing glass cullet:

1. Within four feet from the face of any embankment slope,

2. Within 150 feet from any surface water body,

3. In embankment areas where culvert placement is required,

4. In contact with any geosynthetic material.

203-3.02 ROCK EXCAVATION *(Not Used).*

203-3.03 EMBANKMENT CONSTRUCTION. Prepare the areas upon which embankments are to be placed, construct dikes within or outside the right-of-way when required, place and compact approved material within the roadway areas where unsuitable material has been removed, and place and compact embankment material in holes, pits, and other depressions within the roadway area. Use only approved materials in the construction of embankments and backfills. Embankment material will be approved for gradation following placement but prior to compaction.

Construct the embankment with selected material meeting the requirements of Section 703-2.07. Selected material may be obtained from unclassified excavation, rock excavation, common excavation or borrow.

Do not place rocks, broken concrete or other solid materials in embankment areas where piling is to be placed or driven, or where culvert placement is required.

Bench slopes that are steeper than 4:1, when measured at right angles to the roadway, when embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when embankment is built half-width at a time. Continuously bench over those areas as the work is brought up in layers. Make benches wide enough to permit placing and compacting operations. Begin each horizontal cut at the intersection of the original ground and the vertical side of the previous bench. Incorporate material cut out, and deemed suitable, into the new embankment and recompact along with the new material.

Scarify existing roadways, lying within 3 feet of subgrade, to a depth of 6 inches and recompact to meet

Section 203-3.04 or 203-3.05.

When permanently frozen soils are encountered, place backfill or embankment materials in a timely manner, as directed, to minimize degradation of the foundation material. Do not place embankment over seasonally frozen ground unless authorized in writing.

Thaw and drain frozen material deemed acceptable for fill before placing in the embankment. Frozen cuts may require stage excavation: remove thawed material and allow the cut to thaw while work continues on some other portions of the project. After the material in the cut has thawed to a sufficient depth, remove the thawed material. Repeat this operation until all frozen material is removed or the cut is excavated to grade.

When excavation is performed when freezing weather is imminent, place the specified backfill promptly, following the excavation work, at least up to a level which will allow the surface to adequately drain. Make arrangements for the timely availability of such embankment or backfill materials prior to commencement of the stripping or excavation operations, when required.

If embankment can be deposited on one side only of abutments, wing walls, piers or culvert headwalls, prevent the overturning of or excessive pressure against the structure. Do not place the fill adjacent to the abutment of a bridge higher than the bottom of the backwall of the abutment until the superstructure is in place. When embankment is to be placed on both sides of a concrete wall or box type structure, keep the embankment at approximately the same elevation on both sides of the structure.

Place roadway embankment of earth materials in horizontal layers not to exceed 8 inches (uncompacted) for the full width of the embankment, except as required for traffic, and compact as specified before the next layer is placed. Use spreading equipment on each lift to obtain uniform thickness prior to compacting. Maintain uniform density, during compaction. Add or remove water, as necessary, to obtain the required density. Route compaction equipment uniformly over the entire surface of each layer.

Finish the subgrade surface so it will not vary more than 0.10 foot when tested using a 10-foot straightedge nor vary more than 0.10 ft from the established grade.

When embankment is to be placed over swampy or saturated ground, end dump an initial lift of material of sufficient depth to support hauling equipment, as directed.

Repair damage to embankment caused by hauling equipment.

Construct all embankments with moisture and density control unless the Owner's Representative determines that such controls are not feasible.

203-3.04 COMPACTION WITH MOISTURE AND DENSITY CONTROL. The maximum density and optimum moisture will be determined by ATM 207 or ATM 212.

Adjust the moisture content of the embankment material to within 2% of the optimum moisture content and compact each layer to not less than 95% of the maximum density. Acceptance densities will be determined by ATM 213 and ATM 214.

203-3.05 COMPACTION WITHOUT MOISTURE AND DENSITY CONTROL *(Not Used).*

203-4.01 METHOD OF MEASUREMENT. Section 109 and the following:

1. Item 203(3). The volume measured in original position.
2. Item 203(6). By weighing.

203-5.01 BASIS OF PAYMENT. When no pay item is shown in the big schedule for "Stripping Material Sources", removal of overburden and other waster material from such Material Sources is subsidiary.

The following work is subsidiary:

1. scarifying material in place
2. hauling of material
3. excavating overbreak material
4. slope rounding excavation and benching of slopes
5. water for compaction
6. test pits and explorations required to evaluate the acceptability of borrow
7. stage construction of cuts and stage excavation of material sources

Payment will be made under:

Pay Item	Pay Unit
203(3) Unclassified Excavation	Cubic Yard
203(6)-b ~~Borrow~~ Selected Material, Type B	Ton
~~203(6)-c Borrow, Type C~~	~~Ton~~

SECTION 204
STRUCTURE EXCAVATION FOR CONDUITS AND MINOR STRUCTURES

204-1.01 DESCRIPTION. Excavate and backfill for pipe culverts, storm drains, manholes, inlets and other minor structures.

Perform all pumping, bailing, draining, sheeting, bracing, and incidentals required for proper execution of the work.

204-2.01 MATERIALS. Use selected material, Type A (Section 703-2.07) passing the 3-inch sieve for bedding material, and for backfill material to 12 inches above the pipe.

Use bedding material, and backfill material within the pavement structure, meeting the requirements for the applicable lift of material.

Use all suitable material from structure excavation for bedding and backfill prior to using material from another source.

204-3.01 CONSTRUCTION REQUIREMENTS. Remove and dispose of unsuitable foundation material below the designed elevation as directed. Replace with approved material.

Remove rock or other unyielding material, when encountered, to the depth shown on the Plans or as directed and replace with approved material.

Place backfill in uniform layers not more than 6 inches deep and compact to meet Subsection 203-3.04. Ponding or jetting is not permitted.

Native material may be utilized for electrical conduit bedding and backfill outside the pavement structure if it meets the minimum requirements of Selected Material, Type C, as specified in Subsection 703-2.07. Compaction may be as approved by the Owner's Representative.

Do not place backfill against newly constructed masonry or concrete structures for a period of 14 days or until concrete achieves at least 80% of the design strength (f'c).

Support and protect existing conduits or utilities, which are not scheduled for removal or abandonment, when encountered in the excavation.

Remove all sheeting and bracing used in structure excavation upon completion of the work.

204-4.01 METHOD OF MEASUREMENT *(Not Used).*

204-5.01 BASIS OF PAYMENT. All work under this item is considered subsidiary other items.

SECTION 301

DIVISION 300 – BASES

SECTION 301
AGGREGATE BASE AND SURFACE COURSE

301-1.01 DESCRIPTION. Construct an aggregate base course or aggregate surface course on an approved foundation, as shown on the Plans.

301-2.01 MATERIALS.

Use aggregate conforming to Subsection 703-2.03.

CONSTRUCTION REQUIREMENTS

301-3.01 PLACING. Place material in layers not exceeding 8 inches in depth. Maintain the roadway surface to drain freely at all times.

When paving is specified in the Contract, schedule the work so that any base course placed will be covered prior to winter shutdown.

301-3.02 MIXING. Mix the aggregate, incorporating any specified additives. Add water, as needed, to provide the approximate optimum moisture content for compaction.

Mix the aggregate by one of the following methods:

1. Stationary Plant Method
2. Travel Plant Method
3. Road Mix Method

The aggregate will be accepted for gradation based on random samples taken for each lift from the roadway after spreading but prior to compaction.

301-3.03 SHAPING AND COMPACTION. The maximum density and optimum moisture will be determined by ATM 212.

Spread and shape the material to the required grade and section. Water or aerate as necessary to provide the approximate optimum moisture content for compaction. Compact each layer to a density of not less than 98% of the maximum density. Acceptance densities will be determined by ATM 213 and ATM 214.

Maintain the surface of each layer during the compaction operations in such manner that a uniform texture is produced and the aggregates firmly keyed.

The finished surface will be tested using a 10-foot straightedge at selected locations. Limit surface deviations to 3/8 inch, as measured from the testing edge of the straightedge between two contacts with the surface.

SECTION 301

301-4.01 METHOD OF MEASUREMENT. Section 109, by volume in final position or by weight.

301-5.01 BASIS OF PAYMENT. Water for compaction, added to the aggregate on the grade, is subsidiary.

Payment will be made under:

Pay Item	Pay Unit
301(3) Aggregate Surface Course, Grading E-1	Ton

SECTION 506

DIVISION 500 – STRUCTURES

SECTION 506
TIMBER STRUCTURES

506-1.01 DESCRIPTION. Construct timber structures and the timber portions of composite structures. Furnish, prepare, fabricate, erect, treat and/or paint timber and hardware, as specified.

506-2.01 MATERIALS. Use materials that conform to the following:

Timber	Section 713
Preservatives for Timber	Section 714
Structural Shapes, Rods, and Plates	Section 716

Glued-Laminated Timber Members. Construct of Douglas Fir produced and inspected in conformance with the requirements of ANSI/AITC A 190.1. Use laminating adhesives for timber to be used in wet conditions. Use Industrial-Grade glued-laminated members that have been treated with pressure preservative.

Bolts, Screws and Drive Spikes. Conform to ASTM A307 (ANSI/ASME B 18.2.1). Galvanize meeting AASHTO M 232. Use standard timber fasteners manufactured with economy heads and spiral threads as drive spikes for fastening glued-laminated deck panels.

Preservatives. Use pressure treatment preservatives for timber bridges as specified.

Mastic Sealer. Use Koppers Bitumastic Super Service Black, Chevron Wet Plastic Cement, ATCO 1714 Plastic Fibre Seal, Seal Tight 158 Rubber Asphalt Sealer, or approved equal.

Steel Dowels. Use uncoated steel dowels with a minimum yield strength of 36,000 psi on glued-laminated deck panels.

Timber Connectors. Conform to the requirements of the AASHTO Standard Specifications for Highway Bridges, Division II, Section 16.2.6, Timber Connectors.

CONSTRUCTION REQUIREMENTS

506-3.01 GENERAL. Employ competent bridge carpenters. Framing must be true and exact. Set the heads of nails and spikes flush with the wood surface. Workmanship on all metal parts must conform to specified requirements.

Stack all lumber and timber at the worksite to prevent warping. Open-stack untreated material at least 12 inches above the ground surface so that the pile will shed water. When required, cover untreated timber to protect it from the weather. Close-stack treated timber above the ground on blocks or lagging. Clear weeds and rubbish underneath and around all stacks.

Locate all non-removable erection marks on fabricated timber so they are hidden from view in the completed work.

Do not drag or drop timber members. Use web-belting slings and chokers to handle timber members. Protect corners with protection angles or blocking at pickup points.

The estimated quantity of treated timber shown on the Plans is approximate only and no guarantee is made that it is the exact quantity to be furnished. Glued-laminated timber quantities

shown on the Plans indicate gross quantities of timber, based on nominal dimensions and actual lengths before final planing of the laminated member.

506-3.02 TREATED TIMBER RETAINING WALL. Fabricate timber (including all cutting, shaping, and boring) before treatment. Handle timber carefully without dropping, breaking the outer fibers, or bruising or penetrating the surface with tools. In coastal waters, avoid cutting and boring below the high-water mark. Carefully trim all abrasions and treat all cuts in treated piles according to AWPA standard M4.

Before driving bolts, treat all holes bored after treatment according to the applicable AWPA standards. Plug remaining holes with treated plugs.

Construct timber retaining walls as indicated on the plans.

~~**506-3.03 UNTREATED TIMBER.** In structures of untreated timber, thoroughly coat the following surfaces with an AWPA-approved preservative before the timbers are assembled:~~

~~1. Ends, tops, and all contact surfaces of posts, sills, caps, floor beams, and stringers~~

~~2. All ends, joints, and contact surfaces of bracing and truss members~~

~~3. All surfaces of timber bumpers~~

~~4. The back faces of bulkheads~~

~~5. All other timber that will come in contact with earth~~

506-3.04 HOLES FOR BOLTS, DOWELS, RODS, AND LAG SCREWS. Bore holes for round drift-bolts and dowels with a bit 1/16 inch smaller in diameter than the bolt or dowel to be used. Bore holes for square drift-bolts or dowels equal to one side of the bolt or dowel. Bore holes for machine bolts 1/16 inch wider than the bolt. Bore holes for lag screws with a bit not larger than the body of the screw at the root of the thread. Bore holes for deck dowels in glued-laminated timber deck panels 1/2 inch deeper than the dowel embedment and no more than 1/16 inch oversize.

506-3.05 BOLTS AND WASHERS. Use washers of the type and size specified to protect wood from bolt heads and nuts. Use cast-iron washers with a thickness equal to the diameter of the bolt and with a diameter 4 times its thickness. Use malleable or plate washers with diameter or side dimensions of the square equal to 4 times the diameter of the bolt, and thickness equal to 1/2 the diameter of the bolt. Use cast-iron washers when the timber is in contact with the earth. Check or burr all nuts with a pointed tool after final tightening to prevent turning.

506-3.06 COUNTERSINKING. Countersink bolts where smooth faces are required. Paint recesses formed for countersinking, except in railing, with pentachlorophenol or creosote oil. After bolts or screws are in place, fill the recesses with hot pitch or mastic sealer. Countersink fasteners for attaching glu-lam deck panels to their supporting members below the top surface of the deck. After installation, fill all fastener recesses in the top surface of the deck with mastic sealer.

506-3.07 FRAMING. Cut all lumber and timber accurately and frame to a close fit so that the joints bear weight evenly over all contact surfaces without shimming.

506-3.08 FRAMING BENTS. Bed mud sills firmly and evenly to solid bearing. Tamp them in place.

Carefully finish concrete pedestals for supporting framed bents so that posts will bear evenly on

them. Set dowels for anchoring posts when the concrete is cast.

506-3.09 STRINGERS. Size stringers at bearings and place them in position so that knots near edges are in the top portions of the stringer.

Separate the lapped ends of untreated stringers by at least 1/2 inch for air circulation. Securely fasten the lapped ends by drift-bolting where specified. Stagger the joints when stringers are two panels in length.

Securely toe-nail cross-bridging between stringers with at least two nails in each end. Place cross-bridging at the center of each span.

506-3.10 PLANK FLOORS. Lay the planks heart side down. For seasoned material, use 1/4 inch openings between planks. For unseasoned material, use tight joints. Securely spike each plank to each stringer. Carefully grade the planks for thickness and lay them so that adjacent planks vary in thickness by no more than 1/16 inch.

~~**506-3.11 LAMINATED OR STRIP FLOORS.** Lay each piece vertically and tightly against the preceding piece. Each piece must bear evenly on all the stringers.~~

~~Use pieces long enough to bear on at least four stringers. Make end joints on any one stringer no closer than every third piece. Place end joints in adjoining pieces no closer than every second stringer.~~

~~Coat joints between adjacent glu-lam timber deck panels with mastic sealer before drawing the panels together.~~

~~**506-3.12 TRUSSES.** Check completed trusses to ensure that they show no irregularities of line. Chords must be straight and true from end to end in horizontal projection. Ensure that chords show a smooth curve through panel points conforming to the correct camber in vertical projection. Accurately fit all bearing surfaces and joints. The Engineer will reject pieces with uneven or rough cuts at the points of bearing.~~

506-3.13 PAINTING. Paint the structure only when specified.

506-4.01 METHOD OF MEASUREMENT. Section 109.

506-5.01 BASIS OF PAYMENT.

Mastic sealer, elastomeric bearing pads, and hardware are subsidiary. Structural steel is subsidiary unless shown on the bid schedule.

Concrete and hardware are subsidiary to Treated Timber Retaining Wall construction.

Payment will be made under:

Pay Item	Pay Unit
506(1) Treated Timber Retaining Wall	Lump Sum
~~506(2) Untreated Timber~~	~~Lump Sum~~
~~506(3) Treated Timber~~	~~MBM~~
~~506(4) Untreated Timber~~	~~MBM~~

SECTION 511
MECHANICALLY STABILIZED EARTH (MSE) WALL

511-1.01 DESCRIPTION. Furnish and install mechanically stabilized earth wall.

511-2.01 MATERIALS. Meet the following:

Class A Concrete	Section 501
Precast and Cast-in-Place Concrete Panels	Section 501
Reinforcing Steel	Section 503
Structural Steel	AASHTO M 270
Pipe and Perforated Pipe	Section 706
Geotextile for Drainage	Subsection 729-2.02
Geogrid	Subsection 729-2.05
Geocomposite Drainage System	As Specified
Porous Backfill Material	Subsection 703-2.10

1. Structure Backfill and Foundation Fill. Meet Subsection 703-2.07, Selected Material, Type B~~A~~. Use materials with a sodium sulfate soundness loss less than 30% after four cycles as determined by AASHTO T 104 and free of shale or other particles of low durability.

When using backfill material with 80% passing the 3/4 inch sieve, the minimum angle of internal friction on the portion of the material finer than the No. 10 sieve must be 34 degrees, as tested by AASHTO T 236.

When using steel soil reinforcement, use backfill material meeting the following electrochemical requirements:

- pH of 5 to 10 (AASHTO T 289)
- Resistivity not less than 30 ohmmeters (AASHTO T 288)
- Chlorides not greater than 100 ppm (AASHTO T 291)
- Sulfates not greater than 200 ppm (AASHTO T 290)

2. Wall Members. Provide facing consisting of precast concrete panels, modular units, cast-in-place concrete, or welded wire fabric, as specified.

Manufacture concrete panels with a minimum concrete compressive strength of 4,000 psi. Finish the exposed face with ordinary finish. For the face not exposed to view, provide a uniform surface finish free of open pockets of aggregate or surface distortions in excess of 1/4 inch. Locate soil reinforcement connection hardware during concrete placement to avoid contact with the panel reinforcing steel. Shop-fabricate welded wire fabric reinforcement from cold-drawn wire meeting AASHTO M 32, and the finished fabric meeting AASHTO M 55.

3. Soil Reinforcement. Use approved geogrid reinforcement. Galvanize all steel soil reinforcement and any steel connection hardware to meet AASHTO M111. Manufacture steel strip reinforcement by hot rolling to meet ASTM A572, Grade 450, or approved alternate.

4. Working Drawings. Submit all working drawings and design calculations, including:

a. Earthwork requirements including specifications for material and compaction of

backfill.

b. Details of revisions or additions to drainage systems or other facilities required to accommodate the system.

c. Existing ground elevations verified by the Contractor for each location involving construction wholly or partially in original ground.

d. Complete design calculations substantiating that all proposed designs satisfy the design parameters in the Contract documents.

e. Complete details of all elements required for the proper construction of the system, including complete material specifications.

5. Bin Walls. Contractor to provide commercially available bin wall system that meets the intention of the plans. Bin walls are subject to "Working Drawings" as discussed in *4. Working Drawings*, above.

Prohibit work on earth retaining systems for which working drawings are required until such drawings have been approved.

511-3.01 CONSTRUCTION.

1. Excavation and Backfill. Excavate and backfill earth retaining systems to meet Section 203 ~~205~~.

Replace excavated material with structure backfill material meeting Section 203 ~~205~~. Compact the material as specified under Subsection 203-3.04.

2. Drainage. Provide outlet works at sags in the profile and at the low ends of the gutter.

a. Weep Holes. Place a minimum of 2 cubic feet of porous backfill material encapsulated with geotextile at each weep hole. Cover joints between retaining wall panels, which function as weep holes, with geotextile. Dry and thoroughly clean the face panels that are to receive the geotextile.

b. Drainage Blankets. Construct drainage blankets consisting of porous backfill material encapsulated in geotextile, collector pipes, outlet pipes, and cleanout pipes. Construct and compact the subgrade to receive the geotextile so it is free of loose or extraneous material and sharp objects that may damage the geotextile. Stretch, align, and place the fabric in a wrinkle-free manner. Overlap adjacent borders of the fabric from 12 to 18 inches. Repair torn or punctured fabric by covering the damaged area with a piece of fabric large enough to cover the damaged area and meet the overlap requirement.

Place the porous backfill material in horizontal layers and thoroughly consolidate by the same methods specified for structure backfill. Prohibit ponding or jetting of porous backfill material or structure backfill material. Maintain a minimum of 6 inches of porous backfill material, structure backfill, or embankment material between the fabric and the equipment during spreading and compaction of the porous backfill material.

Place perforated collector pipe, when required, within the porous backfill material to the flow line elevations shown. Place outlet pipes at sags in the flow line and at the low end of the collector pipe. Construct rock slope protection, when required, at the end of outlet pipes, as shown on the Plans. Place cleanout pipes at the high ends of collector pipes.

c. Geocomposite Drainage Systems. Place and secure the geocomposite drainage material tightly against the excavated face, lagging or back of wall. Protect the drainage material against physical damage and grout leakage when concrete is to be placed against geocomposite drainage material.

3. Retaining Wall Construction. Construct mechanically stabilized earth walls consisting of a facing system to which steel or polymeric soil reinforcement is connected. Provide facing of precast concrete panels, cast-in-place concrete or welded wire fabric.

Install polymeric soil reinforcement under Section 634.

When constructing cast-in-place concrete facing, embed soil reinforcement which extends beyond the temporary facing into the facing concrete.

Form welded wire facing by bending the horizontal soil reinforcement 90 degrees upward to form the wire face. Connect the vertical portion of the welded fabric forming the face to the next upper level of soil reinforcement. Place a separate backing mat and hardware cloth immediately behind the vertical portion of soil reinforcement.

Provide a precast reinforced or cast-in-place concrete leveling pad at each panel foundation level. Place panels or wire fabric and support to achieve the final position.

Place and compact structure backfill material at the same time as placement of facing and soil reinforcement, without distortion, damage, or displacement of the facing or soil reinforcement. Backfill to an elevation approximately 1-1/4 inch above the facing connection level before placing the next level of soil reinforcement. Roughly level the backfill material before placing the soil reinforcement. Uniformly tension all soil reinforcement to remove any slack in the connection or material.

Install joint filler, bearing pads, and joint-covering material concurrently with face panel placement.

Furnish and install instrumentation for monitoring corrosion, where specified.

4. Bin Wall Construction. Construct bin walls in accordance with the manufacturer's recommendations.

511-4.01 MEASUREMENT. Section 109, by the square foot of wall face. The vertical height of each section is measured on the outer face from the bottom of the lowermost face element to the top of the wall.

511-5.01 PAYMENT.

Excavation and backfill are paid for under Section 203 ~~205~~. Payment will be made under:

Pay Item	Pay Unit
511(1) ~~Mechanically Stabilized Earth Wall~~ Bin Wall	Square Foot

DIVISION 600 – MISCELLANEOUS CONSTRUCTION

SECTION 603
CULVERTS AND STORM DRAINS

603-1.01 DESCRIPTION. Construct or reconstruct culverts and storm drains (pipe), to the lines and grades shown on the Plans.

603-2.01 MATERIALS. Use materials that conform to the following:

Bedding and Backfill	Subsection 204-2.01
Joint Mortar	Subsection 705-2.04
Flexible Watertight Gaskets	Subsection 705-2.05
Non-Reinforced Concrete Pipe	Subsection 706-2.01
Reinforced Concrete Pipe	Subsection 706-2.02
Corrugated Polyethylene Pipe	Subsection 706-2.07
Corrugated Steel Pipe and Pipe Arches	Subsection 707-2.01
Bituminous Coated Corrugated Steel Pipe and Pipe Arches	Subsection 707-2.02
Corrugated Aluminum Pipe	Subsection 707-2.03

When extending in-place metal culverts and/or reattaching end sections with dissimilar metal, provide an electrical insulating material to separate the dissimilar materials. The insulating material must be at least 1/16 inch thick and be approved by the Owner's Representative.

Select pipe for each installation which meets or exceeds the requirements shown on the Plans for height of cover.

CONSTRUCTION REQUIREMENTS

603-3.01 GENERAL. Excavation, bedding, and backfill must conform to the requirements of Subsections 204-2.01 and 204-3.01, and the details on the Plans.

The Owner's Representative will determine the final location and skew of culverts in the field.

603-3.02 LAYING PIPE. Begin the pipe laying at the downstream end of the pipe. Keep the lower segment of the pipe in contact with the shaped bedding throughout its full length. Place bell or groove ends of rigid pipe and outside circumferential laps of flexible pipe facing upstream.

Repair damaged metallic coating on metal pipe according to AASHTO M 36.

603-3.03 JOINING PIPE.

1. Rigid Pipe. *(Not Used).*
2. Metal Pipe. Join metal pipe firmly using one of the following types of coupling bands. Use bands that are no more than two nominal sheet thicknesses lighter than the pipe being joined, and in no case more than 0.052 inches lighter.
   a. Primary Band. Furnish and install corrugated bands so that the band corrugations match and conform to the corrugations of the pipe. Conform to the following guidelines:
      (1) The gap between the pipe being joined is in the center of the band and is no wider than

one corrugation width.

(2) Bands for 12-inch through 30 inch diameter pipe are at least 12 inches wide.

(3) Bands for pipe with diameters greater than 30 inches are at least 22 inches wide.

b. Secondary Band. Use this band only where it is not physically possible to use primary bands, such as on field-cut pipe ends, joining new pipe to existing pipe, etc. Furnish and install deformed metal sheet bands (dimple bands) so that the projections match and are the same depth as the pipe corrugations. Form these projections in circumferential rows with one projection for each corrugation of the helical pipe.

Conform to the following guidelines:

(1) The gap between the pipe being joined is in the center of the band and is no wider than 2 inches.

(2) Bands for 12-inch diameter pipe are at least 12 inches wide and have one circumferential row of projections for each pipe end being joined.

(3) Bands for pipe with diameters greater than 12 inches are at least 24 inches wide and have two circumferential rows of projections for each pipe end being joined.

(4) Furnish and install these bands with a gasket that resists infiltration and leakage.

3. Polyethylene Pipe. Ensure that polyethylene pipe couplings are corrugated to match the pipe corrugations and that their width is not less than one half the nominal pipe diameter.

Furnish all bolted connections on coupling bands with cutwashers placed between the nut and the angle bracket or use nuts with integral washers.

Take up any pipe that is out of alignment, unduly settled, or damaged and re-lay or replace it.

603-4.01 METHOD OF MEASUREMENT. Section 109, and as follows:

1. Culvert Pipe. The length of pipe, measured in place, along the invert.

2. End Sections. The number of units installed.

603-5.01 BASIS OF PAYMENT. Coupling bands and other items necessary for the proper joining of the sections are subsidiary.

Excavation, bedding, and backfill are subsidiary to culvert installation. ~~Excavation, bedding, and backfill are paid for under Section 204.~~

Payment will be made under:

Pay Item		Pay Unit
603(1)-12	12 Inch Corrugated Steel Pipe (CSP)	Linear Foot
603(1)-18	18 Inch CSP	Linear Foot
603(22)	12x18 CSP Reducer	Each

SECTION 604
MANHOLES AND INLETS

604-1.01 DESCRIPTION. Construct, reconstruct, relocate, or adjust manholes and inlets.

604-2.01 MATERIALS. Use materials that conform to the following:

Concrete	Section 501
Clay or Shale Brick	Subsection 704-2.01
Concrete Brick	Subsection 704-2.02
Concrete Masonry Block	Subsection 704-2.03
Joint Mortar	Subsection 705-2.04
Flexible Watertight Gaskets	Subsection 705-2.05
Reinforcing Steel	Subsection 709-2.01
Precast Concrete Manhole Sections	Subsection 712-2.05
Frames, Grates, Covers, & Ladder Rungs	Subsection 712-2.06
Corrugated Metal Units	Subsection 712-2.07

604-3.01 CONSTRUCTION REQUIREMENTS. Install precast concrete manholes consisting of a base, risers, cone or flat top; with ladder rungs, pipe boots, frame and cover as shown on the Plans. Use flexible watertight gaskets between concrete sections. Tighten watertight boots over all pipes, then grout pipes in place.

Install inlets consisting of a precast concrete catch basin box, risers, metal frame and grate as shown on the Plans. Grout pipes into place.

Construct poured concrete manholes and inlets to conform to the requirements of Section 501 and the details shown on the Plans.

Use full mortar joints no more than 1/2 inch wide. Set metal frames in full mortar bed.

When specified, plaster the outside face of concrete structures with a 1/2 inch thick cement-sand mortar coat.

Cure exposed surfaces of concrete and masonry with wet burlap for at least 48 hours.

Fit each pipe section flush on the inside of the structure wall and to project far enough outside to connect properly with the next pipe section.

Fit masonry neatly and tightly around the pipe.

Construct invert channels in all manholes used for sanitary or combined sanitary and storm sewers. Construct channels to be smooth and semicircular to conform to the inside of the adjacent sewer sections. Make changes in flow direction along a smooth curve with as large a radius as the manhole size permits. Make gradual and even changes in channel size and grade.

Form invert channels by using any of the following methods:

1. Directly in manhole concrete base
2. Built up with brick and mortar
3. Laying half tile in concrete
4. Breaking out the top one-half of full sections of pipe, laid through the manhole, after the

surrounding concrete has hardened

Construct smooth floor outside the invert channel so that it slopes towards the channel not less than 1 inch or more than 2 inches per foot.

Adjust existing manhole or inlet by raising or lowering the frame or ring casting 12 inches or less, without reconstructing the cone section.

Reconstruct existing manhole by using one or more of the following methods:

1. Bring the manhole frame and cover to grade if you remove the cone for lowering.
2. Raise the manhole frame and cover more than 12 inches.
3. Reconstruct a portion of the manhole with no change in line or grade.
4. Tap one or more additional pipes into an existing manhole.
5. Rotate the manhole cone to align the lid to the shoulder, lane line, or middle of driving lane.
6. Rotate the manhole cone to align the inlet casting to the curb line.
7. Align the access stairs by rotating the barrel sections or install new steps.

Reconstruct the manhole to the required elevation so that it conforms to plan details. Complete this work according to the requirements for new construction. Reuse material only if the Engineer approves.

Align manholes designed to fall within the paved roadway surface so that the casting is not in the driving lane wheel path or in the gutter pan flow line.

In roadways, set the manhole frame and cover flush with or no more than 3/8 inch below the finished pavement surface. In walkways and bike paths, set the manhole frame flush with the surface.

Do not impede existing sewer flow during construction.

Relocate inlet by removing and reinstalling inlet box, frame, and grate at new location.

Relocate manhole by removing and reinstalling manhole barrel, cone, frame, and cover at new location.

604-4.01 METHOD OF MEASUREMENT. The number of units installed and accepted.

604-5.01 BASIS OF PAYMENT. Excavation and backfill are paid for under Section 204. Payment will be made under:

Pay Item	Pay Unit
604(1) Storm Sewer Manhole	Each
604(2) Sanitary Sewer Manhole	Each
604(3) Reconstruct Existing Manhole	Each
604(4) Adjust Existing Manhole	Each
604(5) Inlet, Type A	Each
604(6) Relocate Inlet	Each
604(7) Relocate Manhole	Each

SECTION 605
UNDERDRAINS

605-1.01 DESCRIPTION. Construct underdrains and blind drains, underdrain outlets, cleanouts, and marker posts.

605-2.01 MATERIALS. Use materials that conform to the following:

Porous Backfill Material	Subsection 703-2.10
Perforated Concrete Pipe	Subsection 706-2.03
Perforated PVC Pipe	Subsection 706-2.06
Perforated Corrugated Polyethylene Pipe	Subsection 706-2.07
Corrugated Steel Pipe	Subsection 707-2.01
Bituminous Coated Corrugated Steel Pipe	Subsection 707-2.02
Corrugated Aluminum Pipe	Subsection 707-2.03
Gray Iron Casting	Subsection 719-2.02
Marker Post	Subsection 730-2.05

CONSTRUCTION REQUIREMENTS

605-3.01 PIPE INSTALLATION. Excavate trenches to the dimensions and grade required by the Plans or as directed. Place and compact a 3-inch minimum bedding layer of porous backfill material in the bottom of the trench for its full width and length.

Use coupling bands for 6 inch, 8 inch, and 10 inch diameter corrugated underdrain that are 2 piece, 7 inch minimum width and corrugated to match the corrugations of the pipe.

Place perforated pipe with the perforations down. Join pipe end sections securely with the appropriate coupling fittings or bands. Plug or cap up-grade ends of subdrain pipe to prevent entry of soil materials.

After the pipe installation has been inspected and approved, place porous backfill material to a height of 12 inches above the top of pipe. Place and compact the remainder of the porous backfill material as specified in Section 204, to the required height. Fill trench above the porous backfill with specified material.

605-3.02 UNDERDRAIN OUTLETS. Excavate trenches for underdrain outlets to the width and depth shown on the Plans. Lay pipe in the trench with ends firmly joined. Backfill the trench after inspection and approval of the pipe installation.

605-3.03 BLIND DRAINS. Excavate trenches for blind drains to the width and depth shown on the Plans. Fill the trench with specified backfill materials to the depths required by the Plans. Compact all backfill material.

605-4.01 METHOD OF MEASUREMENT. Section 109 and as follows: Underdrains, including outlets, and blind drains are measured along the invert.

Porous backfill material is measured by calculated volume, using Plan dimensions for trench width, depth, and measured invert length of perforated pipe.

SECTION 605

605-5.01 BASIS OF PAYMENT. When not listed in the bid schedule, porous backfill material is subsidiary.

Pipe cleanouts, including the cast iron cover and marker post are subsidiary. Excavation is paid for under Section 204.

Payment will be made under:

Pay Item	Pay Unit
605(5) Porous Backfill Material	Cubic Yard
605(6) 12-Inch Perforated Corrugated Polyethylene Pipe for Underdrain	Linear Foot

SECTION 606

GUARDRAIL

606-1.01 DESCRIPTION. Construct new guardrail, terminal sections, and transition rail of the kind and type specified.

Remove and reconstruct or remove and dispose of existing guardrail, terminal sections, and transition rail.

606-2.01 MATERIALS. Use materials that conform to the following:

Concrete, Class A or W (or an approved, pre-mixed, sacked concrete)	Subsection 501-3.01
Guardrail Connection Plate	Section 722
Guardrail Hardware	Subsection 710-2.07
Guardrail Posts and Blocks	Subsection 710-2.06
High Strength Bolts	Section 722
Metal Beam Rail	Subsection 710-2.04
Terminals	Subsection 710-2.11
Wire Cable	Subsection 709-2.02

Terminal Markers. Single piece marker, constructed of a durable UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material.

1. designed for use as road markers.

2. impact-resistant temperature range, -40°F to +140°F

3. 0.125 by 3.75 inches by 66 inches long, 18 inch burial depth

Furnish white flexible markers with a 3 inch by 12 inch retroreflective sheeting, color orange, shall meet ASTM D4956 requirements for Type VIII or IX. Alternately, use 3M Diamond Grade DG3 or approved equivalent.

Fabricate guardrail reflector assembly brackets from aluminum alloy, galvanized steel, or polycarbonate. Use retroreflective sheeting meeting AASHTO M 268-08 requirements for Type VIII or IX. Alternately, use 3M Diamond Grade DG3 or approved equivalent.

CONSTRUCTION REQUIREMENTS

606-3.01 GENERAL. Install guardrail and terminals at the locations shown on the Plans. Conform with the Standard Drawings and these Specifications.

At locations where public traffic is adjacent to guardrail work, have all materials on site, including crashworthy terminals, that are required to completely install a segment of guardrail before beginning work on that segment.

Start guardrail installation at the “upstream” end (the end adjacent traffic will encounter first) by either installing a crashworthy terminal or connecting to an existing barrier. Continue installation in the direction of traffic. Exception: if the guardrail run will connect to existing barrier, buried in the backslope, or guardrail, existing or new bridge railing, or other existing structure at the “downstream” end, guardrail installation may be started at the point of connection.

Do not leave posts installed for guardrail within the clear zone for more than 48 hours before installing the rail. At the end of each work shift, install drums or Type II barricades with flashing warning lights to delineate incomplete sections of guardrail and terminal sections.

If guardrail runs are not completed within 10 calendar days after beginning installation, install temporary crash cushions meeting NCHRP 350 or MASH test level 3 at all non-crashworthy guardrail ends within the clear zone. Apply Traffic Price Adjustment if the Contractor does not comply with the crash cushion requirement.

When possible, proceed with construction of guardrails with the direction of traffic.

Where necessary, adjust the height of existing guardrail to provide a smooth transition to new guardrail. Use 25 linear feet of guardrail or two 12' 6" pieces of guardrail to transition to match the existing or new guardrail elements and/or end treatments.

After shaping the slopes and staking proposed guardrail terminal section locations, request the Engineer to field verify their locations. Receive approval of the staked locations before installing terminal sections.

Treat field cuts to timber posts and blocks according to AWPA standard M 4. Install synthetic blocks according to manufacturer's recommendations.

Install side-mounted guardrail reflectors as follows:

1. At intervals noted on the Standard Drawings, starting with the first standard guardrail post
2. With the reflective sheeting facing approaching traffic
3. With both faces reflectorized, on two-way roadways
4. Not on the terminal sections

At the end of each work shift, install drums or Type II barricades with flashing warning lights to delineate incomplete sections of guardrail and terminal sections.

606-3.02 POSTS. Set posts to accommodate the line, grade, and curvature shown on the Plans. Use either wood or steel posts when allowed by the type of guardrail specified, subject to the following:

1. Use one type of post material on the project unless extending an existing run of guardrail.
2. Match existing post material to extend an existing run of guardrail.

Set posts as follows:

1. Set posts plumb, in the location and to the depth shown on the Plans or Standard Drawings.

2. Choose an installation method that does not damage the post, adjacent pavement, structures, utility conduits, and final slopes. Repair all damage to the satisfaction of the Engineer, or replace the damaged item, as per subsection 105-1.11.

3. Set wood or steel posts in dug, drilled, or pre-punched holes. Steel posts may also be set by ramming or driving if:

a. The underlying material is no larger than six inch; and

b. The posts are not damaged during installation.

4. Backfill and compact around posts with material as specified in the typical section to firmly support the post laterally and vertically. Compact under and around posts to the Engineer's satisfaction.

5. In solid rock or in broken rock embankment, construct holes for posts, no ramming or driving in the rock will be allowed.

6. In new roads, install posts before final shoulder or median compaction, surfacing, and paving.

606-3.03 BEAM RAIL. Fabricate metal work in the fabricator's shop. Bend curved guardrail elements with radii less than or equal to 100 feet in the fabricator's shop or with an approved bending apparatus.

Receive approval before field punching, cutting, or welding. Repair damaged spelter coat areas on galvanized rail elements according to AASHTO M 36.

Lap rail elements so that the exposed ends face away from approaching traffic.

Use bolts long enough to extend at least 1/4 inch beyond the nuts. Except where required for adjustments, do not extend bolts more than 1 inch beyond the nuts.

Locate bolts at expansion joints at the center of the slotted holes.

Tighten bolts at expansion joints to snug-tight. Make all other bolts fully-tight.

606-3.04 CABLE RAIL. Install cable guardrail according to the Plans and Specifications. Install at the locations shown on the Plans.

606-3.05 TERMINAL SECTIONS. Install terminal sections according to the manufacturer's recommendations. Install where shown on the Plans.

Follow Section 203 for excavation and embankment requirements.

Attach flexible markers, in a vertical position, to the first post of each parallel guardrail terminal using two pipe bracket holders spaced 24 inches apart. Attach to wooden guardrail posts with wood screws and to steel guardrail posts with hex bolts. Attach flexible markers in the same manner to the "P.T." post of Controlled Release Terminals.

606-3.06 REMOVAL AND RECONSTRUCTION OF GUARDRAIL. Remove and reconstruct guardrail as specified. Replace lost or damaged materials without extra compensation.

606-3.07 REMOVAL AND DISPOSAL OF EXISTING GUARDRAIL. Remove the existing guardrail shown on the Plans, including the rail, cable elements, terminal sections, hardware, posts, concrete bases, and steel tubes. Backfill resulting holes with material in 6-inch layers that is similar to the existing embankment and compact to the same approximate density. Removed items become your property.

606-3.08 ADJUST EXISTING GUARDRAIL. When called for on the Plans, reset existing guardrail to the height shown on the applicable Standard Drawing, measured from the top of the rail to the finished shoulder surface below the rail. Raise and lower the posts several times to prevent settlement and then re-drive them to the height shown on the Plans. Use other methods if approved.

606-3.09 INSTALL NEW GUARDRAIL. Install guardrail as shown on the applicable Standard Drawings, measured from the top of the rail to the finished shoulder surface below the rail. New guardrail installed with height less than 28", or greater than 30" is unacceptable and must be adjusted according to subsection 606-3.08. Adjusting new guardrail will not be paid for separately, but is subsidiary to other 606 pay items.

SECTION 606

606-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

1. Guardrail. Measured along the face of the rail or cable, from the center of the end posts.

   When the guardrail is connected to a terminal section, the pay limit for the rail ends where the specified terminal section begins.

2. Terminals. Per each, installed in place.

3. Transition Rail. Per each accepted connection.

606-5.01 BASIS OF PAYMENT.

Payment for temporary crash cushions installed to protect motorists from guardrail installations that have not been completed within 10 calendar days of beginning installation is subsidiary to other items.

1. Guardrail. Guardrail reflectors, flexible markers for terminal sections, posts, blocks, and associated hardware are subsidiary.

Adjusting the height of existing guardrail as needed to extend guardrail is subsidiary.

2. Terminal Sections.

   a. Parallel Guardrail Terminal. The contract price includes rail elements, posts, blocks, pipe sleeves, cable assemblies, guardrail extruders, terminal markers, and all associated hardware required for a complete installation.

   b. Controlled Release Terminals (CRT). The contract price includes all materials from the terminal anchor to and including the modified breakaway cable terminal assembly, terminal posts, CRT posts, rail elements, terminal markers, and associated hardware required for a complete installation.

   c. Buried in Backslope Guardrail Terminal. The contract price includes rail elements, posts, blocks, concrete, rebar, anchors, and all associated hardware required for a complete installation.

3. Transition Rail. The contract price includes all brackets, beam sections, transition pieces, and all posts and associated hardware required for a complete connection of the guardrail section to a bridge rail or barrier.

All material required for embankment widening for guardrail and terminal sections is paid for under the appropriate pay items shown in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
606(3) Box Beam Guardrail	Linear Foot

SECTION 610
DITCH LINING

610-1.01 DESCRIPTION. Construct ditch lining at the locations on the Plans or as staked.

610-2.01 MATERIALS. Use stones that are sound and durable, are no larger than 8 inches in greatest dimension, and not more than 50% by weight passing a 3-inch sieve as determined by ATM 304.

610-3.01 CONSTRUCTION REQUIREMENTS. Excavate to the dimensions shown on the Plans. Place and spread ditch lining materials so that the finished face is reasonably uniform and conforms with the lines and slope shown on the Plans or as directed.

610-4.01 METHOD OF MEASUREMENT. Section 109.

610-5.01 BASIS OF PAYMENT. Excavation required below normal ditch grade is subsidiary. Payment will be made under:

Pay Item	Pay Unit
610(1) Ditch Lining	Cubic Yard

SECTION 615
STANDARD SIGNS

615-1.01 DESCRIPTION. Furnish and install standard signs and delineators. Remove and relocate or remove and dispose of existing signs and markers, as specified.

615-2.01 MATERIALS. Use materials that conform to the following Subsections:

Sheet Aluminum	730-2.01
High Density Overlaid Plywood	730-2.02
Reflective Sheeting	730-2.03
Sign Posts	730-2.04
Delineator Posts	730-2.05
Acrylic Prismatic reflectors	730-2.06

1. Shop Drawings. Submit shop drawings, for all signs that must meet the ASDS letter width and spacing charts, for approval before fabrication. Submit 4 sets of collated shop drawings prepared according to Subsection 105-1.02. Show the following on each sign drawing:

   a. Dimensions of all horizontal and vertical characters and spaces

   b. Overall dimensions

   c. Sign material and sheeting material type

   d. Panel thickness

   e. Legend and letter series

   f. Whether the sign will be framed

2. Sign Fabrication. Use Type IV reflective sheeting (for lettering, symbols, borders, and background) on sheet aluminum panels for all signs except the following:

   a. Orange Background Signs:

      Use either Type VIII or Type IX fluorescent orange reflective sheeting. For temporary installations, place reflective sheeting on sheet aluminum, plastic, or plywood panels.

      For Roll-Up signs use 3M series RS 24, Reflexite Marathon Orange, or approved equal (based on durability and reflectivity, as determined by the Owner's Representative). Use flexible signs with fluorescent reflective sheeting that is Type VI or better.

   b. Railroad Crossbucks and Vertical Crossbuck Support Panels: Use white Type VIII or Type IX reflective sheeting for background of sign and all strips.

   c. Non-Illuminated Overhead Signs with White Legends on Green Backgrounds: Use Type IX reflective sheeting for legends and background. Create the legend in one of the following ways:

      (1) Cut border and legend from white Type IX reflective sheeting and adhere them to a green Type IX background, or

      (2) Cut stencil of border and legend out of green transparent acrylic film and use transparent adhesive to overlay the film on a white Type IX reflective background.

d. Fluorescent Yellow-Green School Area Signs: Use Type VIII or Type IX reflective sheeting for background.

Use a manufacturer-recommended clear coat on all screened signs.

Use sign layouts (including characters, symbols, corner radii, and borders) that conform to the ASDS.

Frame all rectangular signs over 53 inches (measured along the horizontal axis) and all diamond shape signs 60 x 60 inches and larger. Construct the frames of aluminum as indicated on the Plans.

3. Sign Posts and Bases. Use sign posts and bases of the types specified. The structural aspects of design and materials for sign supports must comply with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Do not splice sign posts.

4. Delineators. Use delineator assemblies that conform to the requirements shown on the Plans. Fabricate flexible delineators using Type III, IV, or V Reflective Sheeting.

5. Reflective Sheeting Warranty. Supply manufacturer's warranty for reflective sheeting, including retention of fluorescent yellow-green (measured in accordance with ASTM E2301) for ten years according to the following criteria:

   a. Minimum Fluorescent Luminance Factor Y_F: 20%

   b. Minimum Total Luminance Factor Y_T: 35%

   The warranty shall stipulate that: If the sheeting fails to meet the minimum fluorescence values within the first 7 years from the date of fabrication, the manufacturer shall, at the manufacturer's expense, restore the sign surface to its original effectiveness. If the reflective sheeting fails to meet the minimum fluorescence values within the 8th through 10th year from the date of fabrication, the manufacturer shall, at the manufacturer's expense, provide enough new replacement sign sheeting to the Owner to restore the sign surface to its original effectiveness.

615-3.01 CONSTRUCTION REQUIREMENTS.

1. Place wooden posts in excavated holes to the depth shown on the Standard Drawings.

2. Backfill the space around the posts in the holes to finish ground with selected earth or sand, free of rocks or deleterious material. Place backfill in layers approximately 6 to 12 inches thick and thoroughly compact it.

3. Dispose of surplus excavated material neatly along the adjacent roadway as directed.

4. Install flexible delineator posts according to the manufacturer's recommendations.

5. Attach sign panels to posts, electroliers, traffic signal standards, bridge rails, piers, and abutments using the types and sizes of fastening hardware shown on the Plans.

6. If using existing signs and mileposts that are removed and relocated, ensure they conform to the details shown on the Plans or as directed.

7. Notify the Owner's Representative 5 working days prior to beginning sign salvage activities. The Owner's Representative will physically identify those signs to be salvaged. Protect all items from damage during salvaging and delivery. For each sign so designated, disconnect sign post from panel and group the panels together. Group posts together with their hardware. Deliver sign panels, posts

and hardware to the City of Manokotak. Do not deliver salvaged materials until they have been inspected and approved by the Owner's Representative. Replace any items damaged by you at no additional cost to the Owner.

Remove and dispose of project signs and/or parts designated for removal and not selected for salvage.

Dispose of foundations from salvaged existing signs in a manner approved of by the Owner's Representative (remove and dispose, abandoned in place, or otherwise). If they are abandoned in place, remove the tops of the foundations, reinforcing steel, anchor bolts, and conduits to a depth of not less than 12 inches below roadway subgrade or unimproved ground, whichever applies. All signs and posts at a single installation will be considered as one unit.

8. All materials and finished signs are subject to inspection and acceptance in place.
    a. Surfaces exposed to weathering must be free of defects in the coating that impair serviceability or detract from general appearance or color match.
    b. Finished signs must be clean and have no chatter marks, burrs, sharp edges, loose rivets, delaminated reflective sheeting, or aluminum marks. Do not make repairs to the face sheet.
9. Install the various breakaway assemblies according to the manufacturer's written instructions.
10. Secure the anchors in templates and install them according to the manufacturer's written instructions.
11. Finish the foundation according to these tolerances:
    a. Do not use more than two shims per coupling.
    b. Do not use more than three shims to plumb each post.
12. Remove and replace all foundations requiring more than three shims to plumb a post without extra compensation.
13. Construct the top of any foundation located on a slope so that the finished slope passes through the top center of the foundation. Grade the area 24 inches up and down slope of the foundation edge so that no portion of the foundation projects above the surrounding slope and water will drain away from the foundation.

615-3.02 SIGN PLACEMENT AND INSTALLATION. The location and type of installation will be as shown on the Plans. Sign locations are approximate and subject to field adjustment by the Owner's Representative.

Do not allow the top of the embedded steel tube to extend more than 2 inches above the surrounding ground and concrete foundation.

On all signs, install 2-inch diameter wind washers, colored to match the sign face, between the fastener head and the sign. Use rust-resistant washers fabricated from a material equal in strength to the sign blank.

Bring existing signs that are to remain, into conformance with the plans. Keep existing signs in service until they are no longer needed.

SECTION 615

615-4.01 METHOD OF MEASUREMENT.

Standard Signs and Object Markers. By the total area of legend-bearing sign panel erected in place. No deductions in quantity for corner rounding will be made. Nominal dimensions for sign sizes indicated on the Plans will be used to calculate sign pay quantities. Octagons and round signs will be measured as rectangles. Only one side of each double-faced sign will be measured for payment.

Removal and Relocation. By each, complete in place.

Delineators. By each, complete in place. A single delineator consists of one post equipped with two reflectors.

Salvage Sign. By each complete sign delivered in acceptable condition.

615-5.01 BASIS OF PAYMENT. Sign posts, bases, and mounting hardware are subsidiary.

When Items 615(2) or 615(6) do not appear on the bid schedule, this work is subsidiary.

Payment will be made under:

Pay Item	Pay Unit
615(1) Standard Sign	Square Foot

SECTION 618
SEEDING

618-1.01 DESCRIPTION. Establish a perennial stand of grass or other specified living vegetative cover, by seeding, in the areas indicated on the Plans. Maintain the cover for the term of the Contract.

618-2.01 MATERIALS. Use materials that conform to the Contract Documents and the following:

Seed	Section 724
Fertilizer (20-20-10)	Section 725
Mulch	Section 727
Water	Section 712-2.01

CONSTRUCTION REQUIREMENTS

618-3.01 SOIL PREPARATION. Clear all areas to be seeded of stones 4 inches in diameter and larger and of all weeds, plant growth, sticks, stumps, and other debris or irregularities that might interfere with the seeding operation, growth of grass, or subsequent maintenance of the grass-covered areas.

Make areas to be seeded reasonably free of ruts, holes, and humps.

When specified, apply topsoil according to Section 620.

Roughen the surface to be seeded by grooving the soil in a uniform pattern that is perpendicular to the fall of the slope. Use one or more of the following grooving methods prior to the application of seed:

1. Manual raking with landscaping rakes;
2. Mechanical track walking with track equipment; or
3. Mechanical raking with a scarifying slope board. Form one inch wide grooves spaced no more than six inches apart.

You may round the top and bottom of slopes to facilitate tracking or raking and to create a pleasant appearance, but you may not disrupt drainage flow lines.

618-3.02 SEEDING SEASONS. Upon completion, seed disturbed areas within 14 days of permanent cessation of ground-disturbing activities within the area.

Seed between May 15 and August 15, or obtain written approval from the Owner's Representative to seed at a different date.

Do not seed during windy conditions or when climatic conditions or ground conditions would hinder placement or proper growth.

618-3.03 APPLICATION. Apply seed mix, fertilizer, and mulch (if required) at the rate specified in the Contract Documents. If no seed mix, seed mix application rate, or fertilizer rate are specified in the Contract Documents, use the recommendations of the Alaska Owner of Natural Resources (ADNR) and the Revegetation Manual for Alaska.

Do not seed areas of bedrock, plant beds, and areas indicated on the plans as "no seeding".

Water and fertilizer required for application are subsidiary to the Seeding bid item.

Apply seed, bonded fiber matrix, and fertilizer as follows. Apply fertilizer with the hydraulic method.

Component	Ingredients	Application Rate (per MSF)
Seed	Tufted Hairgrass – 'Nortran' 40% Red Fescue – 'Arctared' – 15% Red Fescue – 'Boreal' -20% Bluejoint Reedgrass – 'Sourdough' – 15% Annual Ryegrass – 10%	0.60 lbs 0.22 lbs 0.30 lbs 0.23 lbs 0.15 lbs Total = 1.50 lbs
Soil Stabilizer	Mulch	80.0 lbs
Fertilizer	21N-7P-14k with Slow Release	7 lbs

Use any of the following methods:

1. Hydraulic Method.
   a. Furnish and place a slurry made of seed, fertilizer, water, and other components as required by the Contract Documents.
   b. Use hydraulic seeding equipment that will maintain a continuous agitation and apply a homogeneous mixture through a spray nozzle. The pump must produce enough pressure to maintain a continuous, nonfluctuating spray that will reach the extremities of the seeding area with the pump unit located on the roadbed. Provide enough hose to reach areas not practical to seed from the nozzle unit situated on the roadbed.
   c. If mulch material is required, it may be added to the water slurry in the hydraulic seeder after adding the proportionate amounts of seed and fertilizer. Add seed to the slurry mixture no more than 30 minutes before application.
   d. Mix the slurry and apply it evenly.
2. ~~Dry Methods~~.
   ~~a. Use mechanical spreaders, seed drills, landscape seeders, aircraft, cultipacker seeders, fertilizer spreaders, or other approved mechanical spreading equipment when seed and fertilizer are to be applied in dry form.~~
   ~~b. Spread fertilizer separately at the specified rate.~~

618-3.04 MAINTENANCE AND WATERING. Protect seeded areas against traffic by approved warning signs or barricades. Repair surfaces gullied or otherwise damaged following seeding. Maintain seeded areas in a satisfactory condition until final acceptance of work.

Water and maintain seeded areas. Water applied by this subsection is subsidiary. If, in the opinion of the Owner's Representative, too much water is being applied, reduce amount of water as directed.

Reseed areas not showing evidence of satisfactory growth within 3 weeks of seeding. Bare patches of soil more than 10 square feet in area must be reseeded. Erosion gullies over 4 inches deep must be filled and reseeded. Fill the entire erosion gully to surrounding grade, even the portions less than 4 inch deep.

Contact ADNR for advice or corrective measures, when seeded areas are not showing evidence of satisfactory growth. You are responsible for retracking, reseeding, refertilizing and remulching areas that do not show satisfactory growth, and those actions are subsidiary.

618-3.05 ACCEPTANCE. During final inspection, the Owner's Representative will perform a visual inspection of the seeding to determine final stabilization. During the visual inspection each station of each side of the road will be considered separate areas. The Owner's Representative will accept seeding that has become a vegetative mat with 70% cover density in the inspection area.

Reseed areas that are not accepted by the Owner's Representative.

618-3.06 PERIOD OF ESTABLISHMENT. Establish periods extend for one complete growing season following acceptable seeding. Employ all possible means to preserve and maintain the new vegetative mat in a healthy and vigorous condition to ensure successful establishment. Reseed areas that do not meet the specifications. Watering and reseeding after final inspection are subsidiary.

The Owner's Representative may, but is not required to, determine the Project is complete except for the period of establishment, and issue a letter of final acceptance. After final acceptance, work or materials due under this subsection during any remaining period of establishment are considered warranty obligations that continue to be due following final acceptance in accordance with Subsection 105-1.16.

618-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Seeding by the Acre. By the area of ground surface acceptably seeded and maintained.

618-5.01 BASIS OF PAYMENT.

Seeding by the Acre. Payment is for established vegetative matt. Soil preparation, fertilizer, and water, required for hydraulic method are subsidiary.

Water for Seeding. Water applied for growth of vegetative matt is subsidiary. Water for hydraulic seeding, fertilizer or mulching is subsidiary. Water after project completion is subsidiary.

Payment will be made under:

Pay Item	Pay Unit
618(1) Seeding	Acre

SECTION 624
CALCIUM CHLORIDE FOR DUST CONTROL

624-1.01 DESCRIPTION. Furnish and apply calcium chloride on the aggregate surface course to control dust after construction operations. Use calcium chloride at locations and times specified or directed.

624-2.01 MATERIALS. Use materials that conform to the following:

Calcium Chloride	AASHTO M 144, Type S, Grade 3

624-3.01 CONSTRUCTION REQUIREMENTS. Moisten the surface as directed before and after applying dry calcium chloride.

Uniformly distribute and mix dry or liquid calcium chloride in the top 1-1/2 inches of road surface. Spread first application of calcium chloride at a rate of 1 pound per square yard of dry form equivalent for the full width of roadway. Apply additional calcium chloride at a rate of 1/2 pound per square yard for the full width of previously treated roadway.

Shape and compact the roadway surface to final grade as specified in Section 203.

Keep traffic off of the treated surface for 2 hours after application, or as directed.

624-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Bulk. By weighing in dry form.

Packaged. By Manufacturer's packed net weight.

624-5.01 BASIS OF PAYMENT.

Payment will be made under:

Pay Item	Pay Unit
624(1) Calcium Chloride	Ton

SECTION 627
WATER SYSTEM

627-1.01 DESCRIPTION. Furnish and place water main improvements and replacements, including all appurtenances, as shown on the Plans or specified in this Section. Remove, salvage and reinstall or abandon existing fire hydrants, valve boxes, and water meters, as specified.

The term "water conduit" refers to all conduits used for water mains. The term "service pipe" refers to service lines.

627-2.01 MATERIALS. Use materials that conform to the following:

Bedding and Backfill	Subsection 204-2.01
HDPE Pipe	Subsection 706-2.08
Ductile Iron Pipe	Subsection 707-2.05
Service Pipe	Subsection 707-2.06
Corporation Stops	Subsection 712-2.09
Gate Valves	Subsection 712-2.10
Valve Boxes	Subsection 712-2.11
Hydrants	Subsection 712-2.12

CONSTRUCTION REQUIREMENTS

627-3.01 GENERAL. Complete the water system and make sure it operates properly at the time of acceptance of the work. Furnish and install all incidental parts not shown on the Plans or specified in this Section that are necessary to complete the water system.

Meet the applicable provisions of Sections 201, 204, and 603 for all clearing and grubbing, excavation, bedding, backfill, conduit, and appurtenances.

Consult the Plans for estimated locations of existing sewers, water mains, and other utilities near the construction. Use this data for information only. The Owner does not guarantee their accuracy. Confirm and mark the exact locations of all existing utilities before starting work.

Excavate, bore, or probe by hand ahead of your work where necessary to determine the exact location of underground conduit or other features that might interfere with construction. Support and protect conduits or other services that cross the trench. Immediately repair or replace any existing utilities that you break or damage. Immediately replace any existing valves, valve boxes, or water lines that you break or damage.

Notify the local Fire Department at least 24 hours before removing or interrupting service to fire hydrants.

Give at least 24 hours' notice before interrupting water service to any area. Restore disrupted water service as soon as possible, or make temporary service connections. Use hoses or other suitable methods.

If your operations cause service interruptions, you are responsible for all damages.

Furnish and install concrete thrust blocks as shown on the Plans or specified in this Section. Place blocks against firm natural ground at the trench site. When the trench is in soft, unstable soil, remove the soft soil and replace it with a ballast backing large and heavy enough to resist the thrust.

Connect to existing water lines and structures, avoiding contamination of water in lines that are in use.

Where water mains under this contract approach within 10 feet horizontal clearance and are below or less than 3 feet above existing sanitary sewers, encase the sanitary sewer with a jacket of Class A concrete 3 inches thick for 10 feet on each side of the crossings, as shown on the Plans.

Concrete encasement is not required if the existing sewer is constructed of ductile iron pipe with joints at least 8 feet from the water main, or if you replace the existing sewer with such ductile iron pipe.

627-3.02 INSTALLATION OF CONDUIT. Install conduit and fittings according to these Specifications or the manufacturer's recommendations. Lay conduit to the grades and lines shown on the Plans.

Remove all foreign matter from conduit interiors before lowering conduit into the trench. When work is not in progress, securely close all open ends of conduit and fittings to keep out trench water, earth, rodents or other substances.

Keep trenches dry to avoid laying conduit in water. Do not lay conduit when weather or trench conditions are unsuitable. Keep water away from new joints, until the joint materials have hardened.

Use methods to cut conduit that will produce tight joints and will not damage the conduit.

Inspect conduit before lowering it into the trench. Replace defective, damaged, or unsound conduit.

Place conduit bedding to conform to plan details. Place bedding, if required, to give conduit a uniform bearing for its full length. Do not permit couplings to rest on solid or original trench bottoms.

Conduit bends must not exceed the manufacturer’s recommended limits. If the specified or required alignment requires deflections beyond the limits, furnish special bends or enough shorter lengths of conduit to provide angular deflection within the limits.

Use standard lengths of conduit except where fittings require short lengths, or where conduit passes through a rigid structure.

Make service and other connections to conform to the Plans. Valve, plug or cap conduit ends for future connections as shown on the Plans and provide thrust blocks.

627-3.03 FIRE HYDRANTS. Install, relocate, or adjust fire hydrants to the locations and grades shown on the Plans. Where required, furnish and install new fire hydrant extensions and any required conduit.

Clean all foreign matter from inside hydrants before installation.

Connect the hydrant to the main with 6-inch ductile iron conduit or the same size as the main, whichever is smaller. Provide with an auxiliary valve and cast iron valve box of the same size as the connecting conduit. Use a mechanical connection between the hydrant and the auxiliary valve.

Set hydrants at elevations that drain the connecting conduit to the main. Set the hydrant on a slab of stone or concrete at least 4 inches thick and 15 inches square. Firmly block the back of the hydrant with concrete at least 1 square foot in area against the vertical face of the trench. If the character of the soil does not allow the hydrant to be securely wedged, use bridle rods and rod collars of at least 3/4 inch stock and coated with acid-resisting paint.

Place at least 7 cubic feet of approved broken stone or clean gravel around the base of the hydrant to ensure drainage. Thoroughly compact the backfill around hydrant to the grade line in a satisfactory manner.

Tighten stuffing boxes and inspect the hydrants in opened and closed positions to make sure that all parts are in working condition.

When removing a fire hydrant from an existing main, plug the tee in the main and test for leakage according to Subsection 627-3.06.

Adjust existing fire hydrants for grade, using barrel extensions according to the hydrant manufacturer's recommendations.

627-3.04 VALVES. Install gate valves as shown on the Plans, on a firm base, and plumb. Remove all foreign matter from the interior before installation.

627-3.05 VALVE BOXES. Install valve boxes over the gate valves as shown on the Plans. Center box over valve and rest base section on well-compacted backfill. Set top section to allow equal movement above and below finished grade, with final elevation 1 inch below finished grade. Set top of base section approximately on line with nut at top of valve stem. The entire assembly must be plumb.

Place a concrete collar on valve boxes installed in pavement, as shown on the Plans.

Adjust existing valve boxes by raising or lowering to conform to the final grade and the details shown on the Plans. Salvage and reuse the existing cast iron valve box and cover. If the valve box is adjustable, adjust it with adaptable extension pieces. If the valve box is constructed with steel conduit, weld additional steel conduit to raise the cover. Lower by cutting the existing valve box pipe.

627-3.06 TESTING WATER SYSTEM. Test all water main and service connection work for both pressure and leakage after laying. Leave conduit joints fully exposed. Place only enough backfill between joints to hold the conduit in place during testing. Test services before insulation. Open corporation stops after successful tests. Conduct all tests with the Engineer present.

Furnish all testing equipment, labor, materials, and supplies. The Engineer has the right to test and approve all gauges used.

Where connection is made to an existing main with no valve present, blank off or plug the outlet leading to the existing main before testing.

Conduct tests after completing installation of the system or any portion thereof, before backfilling and after thoroughly flushing the test portion. Fill all lines with water and eliminate all air.

Use test pressure equal to the strength classification of the pipe. Use either pneumatic or hydraulic pressure. Maintain pressure on the tested portion for at least 2 hours. Allowable leakage during the test must not exceed the amount established by the AWWA. If visible leakage other than minor sweating occurs, immediately stop the test and tighten the joint to eliminate leakage when pressure is resumed. Replace leaking fittings, nipples, or lengths of conduit. Do not caulk or use paints, asphalts, enamels or other types of compounds to eliminate leaks.

Complete backfilling after acceptance of the tests.

627-3.07 DISINFECTION. After acceptance of pressure and leakage tests, disinfect all portions of the water system, including valves and stops and any portion of the existing connecting system that may have been contaminated during construction.

Use calcium hypochlorite as the disinfecting medium. Use “HTH,” Perchloron, or a similar commercial product with approximately 70% available chlorine. Make a 5% solution by mixing 5% of powder with

95% water (by weight). Mix the solution into a paste, thin it to slurry by adding water, and add it to the system. Place enough disinfecting material in the system to ensure a chlorine dosage of 50 ppm. This dosage is equivalent to 10 ounces of commercial hypochlorite powder to each 1,000 gallons of water.

After adding the chlorine solution, open and leave open all taps, valves, etc., until you notice a strong chlorine odor in the water coming from the outlets; then close the taps, valves, etc. Keep chlorinated water in the system for at least 24 hours; then thoroughly flush the system. During the retention period, operate all valves, stops, and other appurtenances to assist disinfection.

After treating the system, thoroughly flush. Then take samples from representative points in the system. Place samples in sterile bottles and submit them to proper authorities as directed for bacteriological examination. If the bacteriological examination report is unsatisfactory, repeat disinfection until you obtain satisfactory results.

627-4.01 METHOD OF MEASUREMENT.

1. Water Conduit. By the length, along the slope of the conduit, from center to center of fittings and valves, and center of tee in main to center of fire hydrant gate valve. No deduction in length will be made for valves and fittings.

2. Fire Hydrant Adjustment. By the number of fire hydrants adjusted only for grade.

3. Fire Hydrant Installation, Relocation, or Removal. By the number of fire hydrants installed, relocated, or removed.

4. Water Service Connection. By the number of water services installed.

5. Gate Valves and Valve Boxes. By the number of valves and valve boxes adjusted or installed.

627-5.01 BASIS OF PAYMENT. Barrel extensions for fire hydrant adjustment are subsidiary.

The contract prices for Fire Hydrant Installation, Relocation, and Removal include the tee in the main, auxiliary gate valve with service box, conduit between the fire hydrant and the gate valve and all fittings and materials required. If no item for water conduit exists, then all conduit removal or installation required between the main and the auxiliary gate valve is subsidiary

The contract price for Water Service Connection includes installation of a curb stop, valve box, service pipe and connection to a new or existing water main with a service saddle, tapped coupling or corporation stop, as shown on the Plans.

Excavation, bedding, and backfill are paid for under Section 204.

Clearing and grubbing, landscaping, disinfection, testing, couplings and/or thrust blocks, and encasement or replacement of existing sewer lines are subsidiary.

Any costs involved in service changeovers and providing temporary water service are subsidiary. Removing or abandoning existing water lines or appurtenances designated on the Plans is subsidiary.

Payment will be made under:

Pay Item	Pay Unit
627(10) Adjustment of Valve Box	Each

SECTION 630
GEOTEXTILE FOR EMBANKMENT SEPARATION AND STABILIZATION

630-1.01 DESCRIPTION. Prepare surfaces and furnish and place geotextiles for embankment separation and/or stabilization as shown in the Plans.

630-2.01 MATERIALS. Use materials that conform to the following:

Geotextiles and Sewing Thread	Section 729-2.01

630-3.01 CONSTRUCTION.

1. Surface Preparation. Prepare surface by removal of stumps, brush, boulders, and sharp objects. Fill holes and large ruts with material shown on the Plans or as approved.

2. Geotextile Placement. Unroll geotextile directly onto the prepared surface. Stretch geotextile to remove any creases or wrinkles. Do not expose geotextiles to the elements for longer than 5 days after removal of protective covering.

   a. Separation. Lay geotextile for embankment separation parallel to roadway centerline. On horizontal curves, place in segment lengths not exceeding those listed in Table 630-1, with butt ends cut to match and sewn or overlapped. On tangents, straighten the geotextile and sew or overlap butt ends.

   b. Stabilization. Lay geotextile for embankment stabilization perpendicular to the roadway centerline. Join segments by sewing or an approved bonding or attachment process.

Table 630-1 Geotextile Placement on Curves

Degree of Curve	Maximum Segment Length (ft.)
1	125
2	90
3	75
4	65
5	55
6	50

3. Joining. Join geotextile for embankment separation by sewing or overlapping. Join geotextile for stabilization by sewing. Use other attachment methods, if approved.

   a. Sew seams with a Butterfly or J-Seam. Use a double-thread chain stich (lock stitch). Bring adjacent sections of geotextile together and fold so that the stitching penetrates four layers of geotextile for the full seam length. Make the stitching line 1-1/4 inches (± 1/4 inch) from the folded edge of the seam and at least 1/2 inch from the free edge of the geotextile. Illustrations showing correct stitch formation and seam configurations are provided in Figure 1.2 (page 21) of the FHWA publication, Geosynthetic Design & Construction Guidelines, FHWA-HI-95-038, May 1995.

   b. Overlapped sections must overlap a minimum of 3 feet.

4. Material Placing and Spreading. During placing and spreading, maintain a minimum depth of 12 inches of cover material at all times between the fabric and the wheels or tracks of the construction equipment.

Spread the material in the direction of the fabric overlap. Maintain proper overlap and fabric continuity. If sewn or bonded seams are used, place the cover material and spread in only one direction for the entire length of the geotextile. On weak subgrades spread the cover material simultaneously with dumping to minimize the potential of a localized subgrade failure.

Compact using a smooth drum roller. Do not allow construction equipment to make sudden stops, starts, or turns on the cover material.

5. Geotextile Repair.

   a. Separation. Overlay torn area with geotextile with a minimum 3 foot overlap around the edges of the torn area. Ensure that the patch remains in place when material is placed over the affected area.

   b. Stabilization. Sew or bond according to Subsection 630-3.01.3.

630-4.01 METHOD OF MEASUREMENT. By multiplying plan neat line width by the measured length in final position parallel to installation centerline along the ground surface. No allowance will be made for overlap, whether at joints or patches.

630-5.01 BASIS OF PAYMENT. Material used to fill ruts and holes will be paid for at the unit price for the type of material used.

Payment will be made under:

Pay Item	Pay Unit
630(1) Geotextile, Separation	Square Yard
630(2) Geotextile, Stabilization	Square Yard

SECTION 633
SILT FENCE

633-1.01 DESCRIPTION. Furnish, place, maintain, and remove temporary silt fence as shown in the Plans or as directed.

633-2.01 MATERIALS. Use materials that conform to the following:

Geotextile	Section 729-2.04
Posts	Wood, steel, or approved synthetic material

633-3.01 CONSTRUCTION.

1. Post Installation. Place posts a maximum of 8 feet apart and drive a minimum of 18 inches into the ground.
2. Geotextile Placement. Install geotextile on posts in a vertical position and support by a wire mesh fence or self-support system. Set at the height specified in the Contract. Secure the bottom 18 inches of the geotextile on the upslope side of the fence as shown on the Plans. Backfill trench with tamped soil. Join adjacent sections of geotextile only at posts with a minimum of 6 inches overlap.

633-3.02 MAINTENANCE. Maintain the integrity of the fence as long as it is necessary to contain sediment runoff. Inspect daily and correct any deficiencies immediately. Remove and dispose of fence when adequate vegetative growth insures no further erosion of the slopes. Cut off the fabric at ground level and remove the wire and posts. When thickness of trapped sediment is in excess of 4 inches above the ground, either remove sediment from the site or spread sediment uphill of the fence and seed all exposed soil immediately, following the requirements of Section 618.

633-4.01 METHOD OF MEASUREMENT. Section 109.

633-5.01 BASIS OF PAYMENT. No payments will be made under this item.

All silt fence work is considered subsidiary to Section 641 Erosion, Sediment, and Pollution Control.

SECTION 639
DRIVEWAYS, INTERSECTIONS AND TURNOUTS

639-1.01 DESCRIPTION. Construct residential driveways, commercial driveways, intersections, and turnouts at the locations shown on the Plans.

639-2.01 MATERIALS. Use materials that conform to the standards for the main roadway.

639-3.01 CONSTRUCTION. Construct driveways, intersections, and turnouts to the dimensions shown on the Plans.

639-4.01 METHOD OF MEASUREMENT. By the number of driveways and intersections constructed as shown on the Plans or as directed.

639-5.01 BASIS OF PAYMENT. Excavation required beyond the limits of the adjacent mainline is subsidiary.

Materials required to construct driveways and intersections will be paid for separately under their respective items listed in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
639(1) ~~Residence~~ Driveway	Each
639(2) Commercial Driveway	Each
639(3) Intersections	Each

SECTION 640
MOBILIZATION AND DEMOBILIZATION

640-1.01 DESCRIPTION. Perform work and operations necessary to

1. move personnel, equipment, supplies, and incidentals to the project site;
2. establish offices, buildings, and other facilities, except as provided under Section 644;
3. perform other work and operations and pay costs incurred, before beginning construction;
4. complete similar demobilization activities; and
5. furnish required submittals such as as-builts, certificates, payrolls, civil rights reports, and equipment warranties.
6. Comply with the Alaska Department of Labor and Workforce Development (DOLWD) requirements for Worker Meals and Lodging, or Per Diem; as described in memo WHPL #197 and the State Laborer's and Mechanic's Minimum Rates of Pay (current issue). On Federal-aid projects, PL 109-59, 119 STAT. 1233, Sec. 1409(c) also applies.

   Ensure subcontractors comply with the Federal and State DOLWD requirements.

   Ensure facilities meet the Alaska Administrative Code 8 AAC 61.1010 and 8 AAC 61.1040 Occupational Safety and Health Standards, 18 AAC 31 Alaska Food Code, and U. S. Code of Federal Regulations 29 CFR Section 1910.142 Temporary Labor Camps.

   Do not consider the cost of Meals and Lodging, or Per Diem in setting wages for the worker or in meeting wage requirements under AS 23.10.065 or AS 36.05.

640-2.01 MATERIALS. None.

640-3.01 CONSTRUCTION REQUIREMENTS. None.

640-4.01 METHOD OF MEASUREMENT.

1. When you earn 4% of the original contract amount from other bid items: 40% of the amount bid for mobilization and demobilization, or 4% of the original contract amount, whichever is less, will be paid.
2. When you earn a total of 8% of the original contract amount from other bid items: An additional 40% of the amount bid for mobilization and demobilization, or an additional 4% of the original contract amount, whichever is less, will be paid.
3. The remaining balance of the amount bid for Mobilization and Demobilization will be paid after all submittals required under the Contract are received and approved.
4. Progress payments for Worker Meals and Lodging, or Per Diem will be computed as equivalent to the percentage, rounded to the nearest whole percent, of the original contract amount earned.

640-5.01 BASIS OF PAYMENT. Payment will be made under:

Pay Item	Pay Unit
640(1) Mobilization and Demobilization	Lump Sum

SECTION 641
EROSION, SEDIMENT, AND POLLUTION CONTROL

641-1.01 DESCRIPTION. Provide project administration and Work relating to control of erosion, sedimentation, and discharge of pollutants, according to this section and applicable local, state, and federal requirements, including the Construction General Permit.

641-1.02 DEFINITIONS.

These definitions apply only to Section 641.

Active Treatment System Operator. The Contractor's qualified representative who is responsible for maintaining and operating an active treatment system (as defined in the CGP) for storm water runoff.

Alaska Certified Erosion and Sediment Control Lead (AK-CESCL). A person who has completed training, testing, and other requirements of, and is currently certified as, an AK-CESCL from an AK- CESCL Training Program. An AK-CESCL is a "qualified personnel" as required by the CGP. An AK-CESCL must be recertified every three years.

Alaska Owner of Environmental Conservation (DEC). The state agency authorized by EPA to administer the Clean Water Act's National Pollutant Discharge Elimination System.

Alaska Pollutant Discharge Elimination System (APDES). A system administered by DEC that issues and tracks permits for storm water discharges.

Best Management Practices (BMPs). Temporary or permanent structural and non-structural devices, schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or minimize the discharge of pollutants to waters of the United States. BMPs also include, but are not limited to, treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

Clean Water Act (CWA). Federal Water Pollution Control Amendments of 1972, as amended (33 U.S.C. 1251 et seq.).

Construction Activity. Physical activity by the Contractor, Subcontractor or utility company; that may result in erosion, sedimentation, or a discharge of pollutants into storm water. Construction Activity includes soil disturbing activities (e.g. clearing, grubbing, grading, excavating); and establishment of construction materials or equipment storage or maintenance areas (e.g. material piles, borrow area, concrete truck chute washdown, fueling); and industrial activities that may discharge storm water and are directly related to the construction process (e.g. concrete or asphalt batch plants).

Construction General Permit (CGP). The permit authorizing storm water discharges from Construction Activities, issued and enforced by DEC. It authorizes stormwater discharges provided permit conditions and water quality standards are met.

Corps of Engineers Permit (COE Permit). A U.S. Army Corps of Engineers Permit for construction in waters of the US. Such permit may be issued under Section 10 of the Rivers and Harbors Act of 1899, or Section 404 of the Clean Water Act.

Electronic Notice of Intent (eNOI). The electronic Notice of Intent submitted to DEC, to obtain coverage under the CGP.

Electronic Notice of Termination (eNOT). The electronic Notice of Termination submitted to DEC, to

end coverage under the CGP.

Environmental Protection Agency (EPA). A federal agency charged to protect human health and the environment.

Final Stabilization. Is defined in this section as it is defined in the CGP.

Hazardous Material Control Plan (HMCP). The Contractor's detailed project specific plan for prevention of pollution from storage, use, transfer, containment, cleanup, and disposal of hazardous material (including, but are not limited to, petroleum products related to construction activities and equipment). The HMCP is included as an appendix to the SWPPP.

Inspection. An inspection required by the CGP or the SWPPP, usually performed by the Contractor's SWPPP Manager.

Municipal Separate Storm Sewer System (MS4) Permit. A DEC storm water discharge permit issued to certain local governments and other public bodies, for operation of storm water conveyances and drainage systems. See CGP for further definition.

Multi-Sector General Permit (MSGP). The Alaska Pollutant Discharge Elimination System General Permit for storm water discharges associated with industrial activity.

Operator(s). The party or co-parties associated with a regulated activity that has responsibility to obtain permit coverage under the CGP. "Operator" for the purpose of the CGP and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
2. The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Pollutant. Any substance or item meeting the definition of pollutant contained in 40 CFR § 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, wrecked or discarded equipment, rock, sand, cellar dirt and industrial or municipal waste.

Project Zone. The physical area designated for Construction. The Project Zone includes the area of highway or facility under construction, project staging and equipment areas, and material and disposal sites; when those areas, routes and sites, by the Contract and are directly related to the Contract.

Material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas; that are furnished by the Contractor or a commercial operator, are not included in the Project Zone.

Records. Any record, report, information, document or photograph required to be created or maintained pursuant to the requirements of the CGP, the CGP storm water requirements of the Clean Water Act; and applicable local, state, and federal laws and regulations regarding document preservation.

Spill Prevention, Control and Countermeasure Plan (SPCC Plan). The Contractor's detailed plan for

petroleum spill prevention and control measures, that meet the requirements of 40 CFR 112.

Spill Response Field Representative. The Contractor's representative with authority and responsibility for managing, implementing, and executing the HMCP and SPCC Plan.

Storm Event. A rainfall event that produces more than 0.5 inch of precipitation in 24 hours and that is separated from the previous storm event by at least 3 days of dry weather.

Storm Water Pollution Prevention Plan (SWPPP). The Contractor's detailed project specific plan to minimize erosion and contain sediment within the Project Zone, and to prevent discharge of pollutants that exceed applicable water quality standards. The SWPPP includes, but is not limited to, amendments, records of activities, inspection schedules and reports, qualifications of key personnel, and all other documentation, required by the CGP and this specification, and other applicable local, state, and federal laws and regulations.

Subcontractor Spill Response Coordinator. The subcontractor's representative with authority and responsibility for coordinating the subcontractor's activities in compliance with the HMCP and SPCC Plan.

Subcontractor SWPPP Coordinator. The subcontractor's representative with authority to direct the subcontractor's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the subcontractor's compliance with the SWPPP.

Superintendent. The Contractor's duly authorized representative in responsible charge of the work. The Superintendent has responsibility and authority for the overall operation of the Project and for Contractor furnished sites and facilities directly related to the Project.

SWPPP Amendment. A revision or document that adds to, deletes from, or modifies the SWPPP.

SWPPP Manager. The Contractor's qualified representative who conducts Inspections, updates SWPPP records, and has authority to suspend work and to implement corrective actions required for CGP compliance.

SWPPP Preparer. The Contractor's qualified representative who is responsible for developing the initial SWPPP.

Utility Spill Response Coordinator. The Utility's representative with authority and responsibility for coordinating the Utility's activities in compliance with the HMCP and SPCC Plan.

Utility SWPPP Coordinator. The Utility's representative with authority to direct the Utility's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the Utility's compliance with the SWPPP.

641-1.03 PLAN AND PERMIT SUBMITTALS. For plans listed in Subsection 108-1.03.5 (SWPPP and HMCP) use the Contractor submission and Owner review deadlines identified in Subsection 641-1.03.

Partial and incomplete submittals will not be accepted for review. Any submittal that is re-submitted or revised after submission, but before the review is completed, will restart the submittal review timeline. No additional Contract time or additional compensation will be allowed due to delays caused by partial or incomplete submittals, or required re-submittals.

1. Storm Water Pollution Prevention Plan. Submit an electronic copy and one hard copy of the SWPPP to the Owner's Representative for approval. Deliver these documents to the Owner's

Representative at least 21 days before beginning Construction Activity. Organize and bind the SWPPP and related documents for submittal according to the requirements of Subsection 641-2.01.2.

The Owner will review the SWPPP submittals within 14 days after they are received. Submittals will be returned to the Contractor, and marked as either "rejected" with reasons listed or as "approved" by the Owner. When the submittal is rejected, the Contractor must revise and resubmit the SWPPP. The 14 day review period will restart when the contractor submits an electronic copy and three hard copies of the revised SWPPP to the Owner's Representative for approval.

After the SWPPP is approved by the Owner, the Contractor must sign and certify the approved SWPPP. See Item 4 for further SWPPP submittal requirements.

2. Hazardous Material Control Plan. Submit an electronic copy and one hard copies of the HMCP, as an appendix to the SWPPP, to the Owner's Representative for approval. The HMCP submittal and review timeline, and signature requirements are the same as the SWPPP.
3. Spill Prevention, Control and Countermeasure Plan. When a SPCC Plan is required under Subsection 641-2.03, submit an electronic copy and one signed hard copy of the SPCC Plan to the Owner's Representative. Deliver these documents to the Owner's Representative at least 21 days before beginning Construction Activity. The Owner reserves the right to review the SPCC Plan and require modifications.
4. CGP Coverage. The Contractor is responsible for permitting of Contractor and subcontractor Construction Activities related to the Project. Do not use the SWPPP for Construction Activities outside the Project Zone where the Owner is not an operator.

   After Owner approval of the SWPPP and prior to beginning Construction Activity, contractor shall submit an eNOI with the required fee to DEC for coverage under the Construction General Permit (CGP). Submit a copy of the signed eNOI and DEC's written acknowledgement (by letter or other document), to the Owner's Representative as soon as practicable and no later than three days after filing eNOI or receiving a written response.

   Do not begin Construction Activity until the conditions listed in Subsection 641-3.01.1 are completed.

   The Owner will submit an eNOI to DEC for Construction Activities inside the Project Zone. The Owner's Representative will provide the Contractor with a copy of the Owner's eNOI and DEC's written acknowledgment (by letter or other document), for inclusion in the SWPPP.

   If the project is completed using Force Account labor, the Owner must submit a single NOI, pay the fee, and be responsible for all construction activities and SWPPP activities.

   Before Construction Activities occur transmit to the Owner's Representative an electronic copy of the approved and certified SWPPP, with signed Delegations of Signature Authorities, SWPPP Certifications, both permittee's signed eNOIs and DEC's written acknowledgement.

5. Ending CGP Coverage. Submit an eNOT to DEC within 30 days after the Owner's Representative has determined the conditions listed in Subsection 641-3.01.6 have been met. Submit a copy of the signed eNOT and DEC's acknowledgement letter to the Owner within three days of filing the eNOT or receiving a written response.
6. DEC SWPPP Review. When CGP Part 2.1.3, requires DEC SWPPP review:

a. Transmit a copy of the Owner-approved SWPPP to DEC using delivery receipt confirmation;
b. Transmit a copy of the delivery receipt confirmation to the Owner's Representative within seven days of receiving the confirmation; and
c. Retain a copy of delivery receipt confirmation in the SWPPP.

7. Local Government SWPPP Review. When local government or the CGP Part 2.1.4, requires local government review:
   a. Transmit a copy of the Owner-approved SWPPP and other information as required to local government, with the required fee. Use delivery receipt confirmation;
   b. Transmit a copy of the delivery receipt confirmation to the Owner's Representative within seven days of receiving the confirmation;
   c. Transmit a copy of any comments by the local government to the Owner's Representative within seven days of receipt;
   d. Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Owner's Representative within seven days of receipt of the comments;
   e. Include a copy of local government SWPPP review letter in the SWPPP; and
   f. File a notification with local government that the project is ending.
8. Modifying Contractor's eNOI. When required by The CGP Part 2.7, modify your eNOI to update or correct information. Reasons for modification include a change in start or end dates, small changes in number of acres to be disturbed, change in decision to use or not use treatment chemicals, or change. The Contractor must submit an eNOT and then submit a new eNOI instead of an eNOI modification when: the operator has changed, the original eNOI indicates disturbed area less than five acres and the project will disturb more than five acres, or a project over five disturbed acres grows by more than 50%.

641-1.04 PERSONNEL QUALIFICATIONS. Provide documentation in the SWPPP that the individuals serving in these positions meet the personnel qualifications.

The SWPPP Preparer must meet at least one of the following qualifications:

a. Current certification as a Certified Professional in Erosion and Sediment Control (CPESC);
b. Current certification as AK-CESCL, and at least two years' experience in erosion and sediment control, as a SWPPP Manager or SWPPP writer, or equivalent. Provide documentation including project names, project timelines, and work responsibilities demonstrating the experience requirement; or
c. Professional Engineer registered in the State of Alaska with current certification as AK-CESCL.

The SWPPP Manager must meet the CGP experience, training, and authority requirements identified for the Storm Water Lead and Storm Water Inspector positions as defined in the CGP, Appendix C, Qualified Person.

If the size of the project requires the SWPPP Manager to be AK CESCL certified (projects 5 acres or greater), the Owner accepts people having any of the following certificates as equivalent to AK-CESCL, if the certificates are current according to the sponsoring organization's policies:

a. CPESC, Certified Professional in Erosion and Sediment Control; or
b. CISEC, Certified Inspector in Sediment and Erosion Control.

SECTION 641

641-1.05 SIGNATURE/CERTIFICATION REQUIREMENTS AND DELEGATIONS.

1. eNOI and eNOT. The eNOI and eNOT must be signed and certified by a responsible corporate officer according to CGP Appendix A, Part 1.12.2. Signature and certification authority for the eNOI and eNOT cannot be delegated.
2. Delegation of Signature Authority for Other SWPPP Documents and Reports. Delegate signature authority and certification authority to the Superintendent position, according to CGP Appendix A, Part 1.12.3, for the SWPPP, Inspection Reports and other reports required by the CGP. The Superintendent position is responsible for signing and certifying the SWPPP, Inspection Reports, and other reports required by the CGP, except the eNOI and eNOT.
3. Subcontractor Certification. Subcontractors must certify that they have read and will abide by the CGP and the conditions of the project SWPPP.
4. Signatures and Initials. Handwrite signatures or initials on CGP documents and SWPPP forms, wherever a signature or initial is required.

641-1.06 RESPONSIBILITY FOR STORM WATER PERMIT COVERAGE.

1. The Owner and the Contractor are jointly are responsible for permitting and permit compliance within the Project Zone.
2. The Contractor is responsible for permitting and permit compliance outside the Project Zone. The Contractor has sole responsibility for compliance with DEC, COE and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits. Subsection 107-1.02 describes the requirement to obtain permits, and to provide permit documents to the Owner's Representative.
3. An entity that owns or operates, a commercial plant (as defined in Subsection 108-1.01.3) or material source or disposal site outside the Project Zone, is responsible for permitting and permit compliance. The Contractor has sole responsibility to verify that the entity has appropriate permit coverage. Subsection 107-1.02 describes the requirement to obtain permits, and to provide permit documents to the Owner's Representative.
4. The Owner is not responsible for permitting or permit compliance, and is not liable for fines resulting from noncompliance with permit conditions:
   a. For areas outside the Project Zone;
   b. For Construction Activity and Support Activities outside the Project Zone; and
   c. For commercial plants, commercial material sources, and commercial disposal sites.

641-1.07 UTILITY *(Not Used).*

641-2.01 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.

1. SWPPP Preparer.

Use a SWPPP Preparer to develop the SWPPP and associated documents, according to the requirements of the CGP and COE permit. The SWPPP Preparer must put their name, qualifications (including the expiration date of any certifications), title and company name in the SWPPP.

2. Developing the SWPPP.

Develop the SWPPP with sections and appendices, according to the current ADEC or DOT&PF SWPPP template. Include information required by the Contract and the CGP.

Use the forms located in the ADEC SWPPP Templates (most recent version from the ADEC website) or on

the ADOT&PF website.

Compile the SWPPP in three ring binders with tabbed and labeled dividers for each section and appendix.

3. SWPPP Considerations and Contents.

The SWPPP must provide erosion and sediment control measures for all Construction Activity within the Project Zone. Construction activity outside the Project Zone must have permit coverage and separate Contractor Inspections.

The SWPPP must consider the activities of the Contractor and all subcontractors and utility companies performing work in the Project Zone. The SWPPP must describe the roles and responsibilities of the Contractor, subcontractors, utility companies, and the Owner with regard to implementation of the SWPPP. The SWPPP must identify all operators for the Project, including utility companies performing Construction Activity, and identify the areas:

a. Over which each operator has operational control; and
b. Where the Owner and Contractor are co-operators.

For work outside the Project Zone the SWPPP must identify the entity that has storm water permit coverage, the operator, and the areas that are:

a. Dedicated to the Project and where the Owner is not an operator~~;~~ and
b. Not dedicated to the project, but used for the project.

Develop the SWPPP according to the requirements of the CGP and this specification. Account for the Contractor's construction methods and phasing. Identify the amount of mean annual precipitation.

Comply with the CGP Part 1.4.2 Allowable Non-Storm Water Discharges. List locations where authorized non-storm water will be used, including the types of water that will be used on-site.

Include the Anti-degradation Analysis in the SWPPP if storm water from the Project Zone discharges into receiving water that is considered a high quality water and that constitutes an outstanding national resource, according to CGP Part 2.1.5.

There are special requirements in the CGP Part 3.2, for storm water discharges into an impaired water body, and they may include monitoring of storm water discharges. For Projects meeting the permit criteria, the Contractor shall initiate a monitoring program for the storm water within the Project Zone, and will provide the required information and reports for inclusion in the SWPPP. The Contractor is responsible for monitoring and reporting outside the Project Zone.

Preserve natural topsoil unless infeasible. Delineate the site according to CGP Part 4.1. Use stakes, flags, or silt fence, etc. to identifying areas where land disturbing activities will occur and areas that will be left undisturbed. Minimize the amount of soil exposed during Construction activity according to CGP Part 4.1.2.

Comply with CGP Part 4.3, requirements for dewatering for trenches and excavations.

The SWPPP must identify specific areas where potential erosion, sedimentation, or pollution may occur. The potential for wind erosion must be addressed. The potential for erosion at drainage structures must be addressed.

Describe methods and time limits, to initiate temporary or permanent soil stabilization. For areas

with mean annual precipitation of:

a. 40 inches or less, initiate stabilization as soon as practicable and within 14 days; or
b. Greater than 40 inches, initiate stabilization as soon as practicable and within seven days.

Within seven days of initiating final stabilization, either complete final stabilization or continue maintenance of work until final stabilization is complete.

Include in the "Stabilize Soils" section of the SWPPP, a description of how you will minimize the amount of disturbed and unstabilized ground in the fall season. Identify anticipated dates of fall freeze-up and spring thaw. Describe how you will stabilize areas when it is close to or past the seasonal time of snow cover or frozen conditions, and before the first seasonal thaw. Include a plan for final stabilization.

The SWPPP must provide designated areas for equipment and wheel washing, equipment fueling and maintenance, chemical storage, staging or material storage, waste or disposal sites, concrete washouts, paint and stucco washouts, and sanitary toilets. These activities must be done in designated areas that are located, to the extent practicable, away from drain inlets, conveyance channels, and waters of the US. No discharges are allowed from concrete washout, paint and stucco washout; or from release oils, curing compounds, fuels, oils, soaps, and solvents. Equipment and wheel washing water that doesn't contain detergent may be discharged on-site if it is treated before discharge.

Design temporary BMPs for a 2 year 24 hour precipitation amount. Describe BMPs in the SWPPP and in SWPPP Amendments, including source controls, sediment controls, discharge points, and temporary and permanent stabilization measures. Describe the design, placement, installation, and maintenance of each BMP, using words and drawings as appropriate. Describe the design capacity of sediment basins (including sediment ponds and traps). Provide a citation to the BMP Manual or publication used as a source for the BMP, including the title of the BMP Manual or publication, the author (individual or agency), and date of publication. If no published source was used to select or design a BMP, then the SWPPP or SWPPP amendment must state that "No BMP manual or publication was used for this design."

Describe the sequence and timing of activities that disturb soils and of BMP implementation and removal. Phase earth disturbing activities to minimize unstabilized areas, and to achieve temporary or final stabilization quickly. Whenever practicable incorporate final stabilization work into excavation, embankment and grading activities.

Identify the inspection frequency in the SWPPP:

For projects where the mean annual precipitation is less than 40 inches, either

a. Inspect at least once every seven (7) calendar days; or
b. Inspect at least once every fourteen (14) calendar days and within twenty-four (24) hours of the end of a storm event that resulted in a discharge from the site.

For projects where the mean annual precipitation is forty (40) inches or greater:

a. Inspect once every seven (7) calendar days.
b. For periods of relatively continuous precipitation or sequential storm events inspect at least twice every seven (7) calendar days.

Linear Project Inspections, described in CGP Part 6.5, are not applicable to this project.

The SWPPP must cite and incorporate applicable requirements of the Project permits, environmental

commitments, COE permit, and commitments related to historic preservation. Make additional consultations or obtain permits as necessary for Contractor specific activities which were not included in the Owner's permitting and consultation.

The SWPPP is a dynamic document. Keep the SWPPP current by noting installation, modification, and removal of BMPs, and by using amendments, SWPPP amendment logs, Inspection Reports, corrective action logs, records of land disturbance and stabilization, and any other records necessary to document storm water pollution prevention activities and to satisfy the requirements of the CGP and this specification. See Subsection 641-3.03 for more information.

4. Recording Personnel and Contact Information in the SWPPP.

Identify the SWPPP Manager as the Storm Water Lead and Storm Water Inspector positions in the SWPPP. Document the SWPPP Manager's responsibilities in Section 2.0 Storm Water Contacts, of the SWPPP template and:

a. Identify that the SWPPP Manager does not have authority to sign inspection reports (unless the SWPPP Manager is also the designated project representative).
b. Identify that the SWPPP Manager cannot prepare the SWPPP unless the SWPPP Manager meets the Contract requirements for the SWPPP Preparer.

Include in the SWPPP, Records of the AK-CESCL cards or certificates for the SWPPP Manager, and acting SWPPP Managers. If the SWPPP Manager is replaced permanently or temporarily, by an acting SWPPP Manager; record in the SWPPP the names of the replacement personnel, the date of the replacement. For temporary personnel record their beginning and ending dates.

Provide 24 hour contact information for the Superintendent and SWPPP Manager. The Superintendent and SWPPP Manager must have 24 hour contact information for all Subcontractor SWPPP Coordinators and Utility SWPPP Coordinators.

Include in the SWPPP, Records of the AK-CESCL cards or certificates of ATS operators. Record names of ATS operators and their beginning and ending dates.

The Owner will provide Records of AK-CESCL cards or certificates for the Project Engineer and Monitoring Person (if applicable), and names and dates they are acting in that position. Include the Owner's Records in the SWPPP Appendix. Include the Owner's Storm Water Inspector and Storm Water Monitoring Person (if applicable) in section 2.0 of the SWPPP.

641-2.02 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS.

Prepare the HMCP for prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the SWPPP. Compile Material Safety Data Sheets in one location and reference that location in the HMCP.

Designate a Contractor's Spill Response Field Representative with 24 hour contact information. Designate a Subcontractor Spill Response Coordinator for each subcontractor. The Superintendent and Contractor's Spill Response Field Representative must have 24 hour contact information for each Subcontractor Spill Response Coordinator and the Utility Spill Response Coordinator.

List and give the location and estimated quantities of hazardous materials (Including materials or substances listed in 40 CFR 117 and 302, and petroleum products) to be used or stored on the Project. Hazardous materials must be stored in covered storage areas. Include secondary containment for

all hazardous material storage areas.

Identify the locations where fueling and maintenance activities will take place, describe the activities, and list controls to prevent the accidental spillage of petroleum products and other hazardous materials. Controls include placing absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.

List the types and approximate quantities of response equipment and cleanup materials available on the Project. Include a list and location map of cleanup materials, at each different work site and readily available off site (materials sources, material processing sites, disposal sites, staging areas, etc). Spill response materials must be stored in sufficient quantity at each work location, appropriate to the hazards associated with that site.

Describe procedures for containment and cleanup of hazardous materials. Describe a plan for the prevention, containment, cleanup, and disposal of soil and water contaminated by spills. Describe a plan for dealing with contaminated soil and water encountered during construction. Clean up spills or contaminated surfaces immediately.

Describe methods of disposing of waste petroleum products and other hazardous materials generated by the Project, including routine maintenance. Identify haul methods and final disposal areas. Assure final disposal areas are permitted for hazardous material disposal.

Describe methods of complying with the requirements of AS 46.04.010-900, Oil and Hazardous Substances Pollution Control, and 18 AAC 75. Include contact information for reporting hazardous materials and petroleum product spills to the Project Engineer and reporting to federal, state and local agencies.

641-2.03 SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN) REQUIREMENTS.

Prepare and implement an SPCC Plan when required by 40 CFR 112; when both of the following conditions are present on the Project:

a. Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and
b. Total above ground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons).

Reference the SPCC Plan in the HMCP and SWPPP.

641-2.04 RESPONSIBILITY AND AUTHORITY OF THE SUPERINTENDENT AND SWPPP MANAGER.

The Superintendent is responsible for the overall operation of the Project and all Contractor furnished sites and facilities directly related to the Project. The Superintendent shall sign and certify the SWPPP, Inspection Reports, and other reports required by the CGP, except the NOI and NOT. The Superintendent may not delegate the task or responsibility of signing and certifying the SWPPP submitted under Subsection 641-1.03.1, Inspection Reports, and other reports required by the CGP.

The Superintendent may assign certain duties to the SWPPP Manager those duties may include:

1. Ensuring Contractor's and subcontractor's compliance with the SWPPP and CGP;
2. Ensuring the control of erosion, sedimentation, or discharge of pollutants;

3. Directing and overseeing installation, maintenance, and removal of BMPs;
4. Performing Inspections; and
5. Updating the SWPPP including adding amendments and forms.

~~When Bid Item 641(7) is part of the Contract,~~ The SWPPP Manager must be available at all times to administer SWPPP requirements, and be physically present within the Project Zone or the project office, for at least eight hours per day when construction activities are occurring.

The Superintendent and SWPPP Manager shall be knowledgeable in the requirements of this Section 641, the SWPPP, CGP, BMPs, HMCP, SPCC Plan, environmental permits, environmental commitments, and historic preservation commitments.

The Superintendent and SWPPP Manager shall have the Contractor's complete authority and be responsible for suspending construction activities that do not conform to the SWPPP or CGP.

641-2.05 MATERIALS.

Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments according to the requirements of the CGP and the Specifications.

Use the temporary seed mixture specified by the Specifications or the Contract Documents, or use annual rye grass if no temporary seed mix is specified.

Use soil stabilization material as specified in Section 727.

Use silt fences as specified in Section 729.

Use straw that is certified as free of noxious weed by the United States Owner of Agriculture, Natural Resources Conservation Service, Local Soil and Water Conservative District. Alaska Weed Free Forage Certification Program must be used when available. Hay may not be substituted for straw.

641-2.06 CONTRACTOR REQUIREMENTS.

The Contractor must be familiar with the requirements of the CGP because Contractor's employees will be conducting duties that relate to compliance with the CGP.

641-3.01 CONSTRUCTION REQUIREMENTS.

Comply with the SWPPP and the requirements of the CGP.

1. Before Construction Activity may Begin.

The following actions must be completed before Construction Activity begins:

a. The SWPPP must be approved by the Owner's Representative;
b. The Contractor must be authorized to begin by the Owner's Representative;
c. The Project eNOIs for the Owner and for the Contractor, as well as any other eNOIs if there are additional operators, must be listed as Active Status on the DEC website;
d. The Owner approved SWPPP must be submitted to DEC and Local Government (when required); and
e. The Contractor has transmitted to the Owner's Representative an electronic copy of the approved SWPPP.

You may begin Winter Construction activity according to CGP Part 4.10.3, provided actions a through c above are completed before winter construction activity begins.

Post notices containing the following information:

(1) Copy of all eNOIs related to this project;
(2) Name and 24 hour phone number of SWPPP Manager; and
(3) Location of the SWPPP.

Post notices on the outside wall of the Contractor's project office, and near the main entrances of the construction project. Protect postings from the weather. Locate postings so the public can read them without obstructing construction activities or the traveling public (for example, at an existing pullout). Do not use retroreflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices. Update the notices if the listed information changes.

Delineate the site for both land disturbing activities and areas that will be left undisturbed. Install sediment controls and other BMPs that must be placed prior to the initiation of Construction Activity.

2. During Construction.
   Before subcontractors or utility companies begin soil disturbing activities, provide to them copies of applicable portions of the SWPPP, and require them to sign a SWPPP Subcontractor Certification. Include SWPPP Subcontractor Certifications as an appendix to the SWPPP. Ensure subcontractors and utility companies understand and comply with the SWPPP and the CGP. Inform subcontractors and utility companies of SWPPP amendments that affect them in a timely manner. Coordinate with subcontractors and utility companies doing work in the Project Zone so BMPs, including temporary and permanent stabilization are installed, maintained, and protected from damage.

   Provide on-going training to employees and subcontractors, on control measures at the site and applicable storm water pollution prevention procedures. Training must be specific to the installation, maintenance, protection, and removal of control measures. Training must be given at a frequency that will be adequate to ensure proper implementation and protection of control measures, and no less frequently than once a month during construction activity. Document on the SWPPP Training Log, the dates and attendees to these trainings. Include the SWPPP Training Log as an appendix to the SWPPP.

   Notify the Owner's Representative immediately if the actions of any utility company or subcontractor do not comply with the SWPPP and the CGP.

   Comply with Subsection 107-1.11 Protection and Restoration of Property and Landscape. Concrete washout must be fully contained.

   Fuel in designated areas. Place absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.

   Comply with requirements of the HMCP and SPCC Plan, and all local, state and federal regulations that pertain to the handling, storage, containment, cleanup, and disposal of petroleum products or other hazardous materials.

   Keep the SWPPP and HMCP current (refer to Subsection 641-2.01.3, SWPPP Considerations and Contents)

3. Pollutant and Hazardous Materials Reporting Requirements.
   If there has been an incident of non-compliance with the CGP that may endanger health or the environment, immediately report the incident to DEC according to the CGP, Appendix A, Part 3.0.

Notify the Owner's Representative immediately and to the extent possible coordinate reports to DEC with the Owner's Representative. The report must include:

a. A description of the noncompliance and its causes;
b. The exact dates and times of noncompliance ;
c. If not yet corrected the anticipated time the project will be brought back into compliance; and
d. The corrective action taken or planned to reduce, eliminate and prevent reoccurrence.
If there has been an incident of non-compliance with COE Permits, then notify the Owner's Representative immediately of the non-compliance.

Report spills of petroleum products or other hazardous materials to the Owner's Representative and other agencies as required by law. Use the HMCP and SPCC Plan (if available) for contact information to report spills to regulatory agencies.

4. Corrective Action and Maintenance of BMPs.

Implement maintenance as required by the CGP, SWPPP, and manufacturer's specifications, whichever is more restrictive.

Implement corrective action:

a. If an incident of non-compliance with the SWPPP, or CGP is identified;
b. If an Inspection or the Owner's Representative identifies the SWPPP or any part of the SWPPP is ineffective in preventing erosion, sedimentation or the discharge of pollutants;
c. If a required BMP was not installed according to the SWPPP schedule or phasing, or was installed incorrectly, or was not installed according to the CGP Part 4.0;
d. If a BMP is not operating as intended, has not been maintained in an effective operation condition, or is unable to effectively perform the intended function;
e. If a prohibited discharge of pollutants, as specified in CGP Part 4.6, is occurring or will occur; or
f. If there is accumulation of sediment or other pollutants, that is in or near any storm water conveyance channels, or that may enter a discharge point or storm sewer system. If there is accumulation of sediment or other pollutants that is being tracked outside the project zone.
g. For conditions that are easily remedied (i.e. removal of tracked sediment, maintenance of control measure, or spill clean-up), initiate corrective action within 24 hours and complete as soon as possible;
h. For all other conditions initiate correction actions so both of the following requirements are met:
    (1) Corrective action is completed in time to protect water quality; and
    (2) Corrective action is completed no later than the Complete-by-Date that was entered in an Inspection Report (see Subsection 641-3.03.2 for more information).

If a corrective action is not implemented within the time requirements of this section, document the situation in the SWPPP, notify the Owner's Representative and implement corrective action as soon as possible.

If a corrective action could affect a subcontractor, notify the subcontractor within three days of taking the corrective action. Require in your written subcontract, that subcontractors must notify the Contractor within 24 hours of becoming aware of a condition that requires a corrective action.

5. Stabilization.

Stabilization may be accomplished using temporary or permanent measures. Initiate stabilization of disturbed soils, erodible stockpiles, disposal sites, and of erodible aggregate layers so that all of the

following conditions are satisfied:

a. As soon as practicable;
b. As soon as necessary to avoid erosion, sedimentation, or the discharge of pollutants; and
c. As identified in the SWPPP.

Land may be disturbed and stabilized multiple times during a project. Coordinate work to minimize the amount of disturbed soil at any one time. Do not disturb more soil than you can stabilize with the resources available.

Temporarily stabilize from wind and water erosion portions of disturbed soils, portions of stockpiles, and portions of disposal sites, that are not in active construction. Temporary stabilization measures may require a combination of measures including but not limited to vegetative cover, mulch, stabilizing emulsions, blankets, mats, soil binders, non-erodible cover, dust palliatives, or other approved methods.

When temporary or permanent seeding is required, provide a working hydro seeding equipment located within 100 miles of the project by road; with 1,000 gallon or more tank capacity, paddle agitation of tank, and the capability to reach the seed areas with an uniform mixture of water, seed, mulch and tackifier. If the project is located in an isolated community the hydro-seeder must be located at the project.

Before applying temporary or permanent seeding, prepare the surface to be seeded to reduce erosion potential and to facilitate germination and growth of vegetative cover. Apply seed and maintain seeded areas. Reseed areas where growth of temporary vegetative cover is inadequate to stabilize disturbed ground.

Apply permanent seed according to Sections 618 and 724, within the time periods allowed by the CGP and the contract, at locations where seeding is indicated on the plans and after land-disturbing activity is permanently ceased.

When installing a culvert or other drainage structure where stream bypass is Not Used, install temporary or permanent stabilization concurrently or immediately after placing the culvert or drainage structure in a manner that complies with the SWPPP, applicable project permits and prevents discharge of pollutants. Install temporary and permanent stabilization:

a. At the culvert or drainage structure inlet and outlet; and
b. In the areas upstream and downstream that may be disturbed by the process of installing the culvert, culvert end walls, culvert end sections, or drainage structure.

Before deactivating a stream bypass or stream diversion used for construction of a bridge, culvert, or drainage structure, install permanent stabilization:

a. At the inlet and outlet of the culvert, drainage structure, or bridge;
b. In the area upstream and downstream of the culvert, drainage structure, or bridge, that is disturbed during installation or construction of the culvert, drainage structure, or bridge; and
c. Under the bridge.

Within seven days of initiating final stabilization, either complete final stabilization or continue maintenance of work until final stabilization is complete.

6. Ending CGP Coverage and BMP Maintenance.

The Owner's Representative will determine the date that all the following conditions for ending CGP

coverage have been met within the Project Zone:

a. Land disturbing activities have ceased;
b. Final Stabilization has been achieved (including all Owner furnished material sources, disposal sites, staging areas, equipment areas, etc.); and
c. Temporary BMPs have been removed.

After the Owner's Representative has determined the conditions for ending CGP coverage have been met, the Owner will:

a. Send written notice to the Contractor with the date that the conditions were met;
b. Submit an eNOT to DEC; and
c. Provide a copy of the eNOT and DEC's acknowledgement letter to the Contractor.

The Contractor is responsible for ending permit coverage within the Project Zone, by submitting an eNOT to DEC within 30 days of meeting the conditions for ending CGP coverage. The Contractor is responsible for BMP maintenance and SWPPP updates until permit coverage is ended.

If the Contractor's CGP eNOI acreage includes Support Activities and any other areas where the Owner is not an Operator, the Contractor may not be able to file an eNOT at the same time as the Owner. In this case, the Contractor must amend the SWPPP and separate SWPPP2(s), to indicate the Owner's CGP coverage has ended, and the Owner is no longer an Operator within the Project Zone.

The Contractor must indicate in the SWPPP the areas that have reached Final Stabilization, and the dates land disturbing activities ended and Final Stabilization was achieved. The Contractor must submit an eNOT to DEC, and insert copies of the Owner's and the Contractor's eNOTs with DEC's acknowledgement letters in the appendix of the SWPPP.

The Contractor must submit a copy of each signed eNOT and DEC's acknowledgement letter to the Owner within three days of filing the eNOT or receiving a written response.

The Contractor is responsible for coordinating local government inspections of work and ending permit coverage with local government. See Subsection 641-1.03.5 for more information.

7. Transmit final SWPPP.

Transmit one copy of the final SWPPP, including all amendments, appendices and maps, to the Owner's Representative; when the project eNOTs are filed, or within 30 days of the Owner's eNOT being filed, whichever is sooner. Transmittal must be by both electronic and hard copy.

641-3.02 SWPPP DOCUMENTS, LOCATION ON-SITE, AVAILABILITY, AND RECORD RETENTION.

The SWPPP and related documents maintained by the Contractor are the Record for demonstrating compliance with the CGP. Copies of SWPPP documents transmitted to the Owner's Representative under the requirements of this specification are informational and do not relieve the Contractor's responsibility to maintain complete records as required by the CGP and this specification.

Keep the SWPPP, HMCP and SPCC Plan at the on-site project office. If there is not an on-site project office, keep the documents at a locally available location that meets CGP requirements and is approved by the Owner's Representative. Records may be moved to another office for record retention after the eNOTs are filed. Records may be moved to another office during winter shutdown. Update on-site postings if records are relocated during winter shutdown. Provide the Owner with copies of all Records.

Retain Records and a copy of the SWPPP, for at least three years after the date of eNOT. If EPA or DEC inspects the project, issues a Notice of Violation (NOV), or begins investigation for a potential NOV before the retention period expires, retain the SWPPP and all Records related to the SWPPP and CGP until at least three years after EPA and/or DEC has determined all issues related to the investigation are settled.

The SWPPP and related documents must be made available for review and copy, to the Owner and other regulatory agencies that request them. See CGP Parts 5.10, 6.6 and 9.4.

641-3.03 SWPPP INSPECTIONS, AMENDMENTS, REPORTS, AND LOGS.

Perform Inspections, prepare Inspection Reports, and prepare SWPPP Amendments in compliance with the SWPPP and the CGP. Update SWPPP Corrective Action Log, SWPPP Amendment Log, SWPPP Grading and Stabilization Activities Log, and SWPPP Daily Record of Rainfall forms. For active projects update the Records daily.

1. Inspection during Construction.

Conduct Inspections according to the schedule and requirements of the SWPPP and CGP.

Inspections required by the CGP and SWPPP must be performed by the Contractor's SWPPP Manager. Report to the other Operator within three days of the Inspection date and document the date of the report transmittal.

2. Inspection Reports.

Use only the ADEC SWPPP Construction Site Inspection Report to record Inspections. Changes or revisions to the form are not permitted; except for adding or deleting data fields that list: Location of Discharge Points, and Site Specific BMPs. Complete all fields included on the Inspection Report form; do not leave any field blank.

Unless otherwise directed by the Owner's Representative, insert a Complete-by-Date for each corrective action listed that complies with:

a. Section 641-3.01 (4);
b. The CGP.

Provide a copy of the completed, unsigned Inspection Report to the Owner's Representative by noon on the day following the inspection.

The Superintendent must review, correct errors, and sign and certify the Inspection Report, within three days of the date of Inspection. The Owner's Representative may coordinate with the Superintendent to review and correct any errors or omissions before the Superintendent signs the report. Corrections are limited to adding missing information or correcting entries to match field notes and conditions present at the time the Inspection was performed. Deliver the signed and certified Inspection Report to the Owner's Representative on the same day the Superintendent signs it.

The Owner's Representative will sign and certify the Inspection Report and will return the original to the Contractor within three working days.

The Owner's Representative may make corrections after the Superintendent has signed and certified the Inspection Report. The Owner's Representative will initial and date each correction. If the Owner's Representative makes corrections, the Superintendent must recertify the Inspection Report by entering a new signature and date in the white space below the original signature and date lines. Send a copy of the recertified Inspection Report to the Owner's Representative on the day it is recertified.

If subsequent corrections to the certified Inspection Report are needed, document the corrections in an addendum that addresses only the omitted or erroneous portions of the original Inspection Report. The Superintendent and the Owner's Representative must both sign and certify the addendum.

3. Inspection before Seasonal Suspension of Work.

Conduct an Inspection before seasonal suspension of work to confirm BMPs are installed and functioning according to the requirements of the SWPPP and CGP.

4. Reduced Inspection Frequencies.

Conduct Inspections according to the inspection schedule indicated in the approved SWPPP. Any change in inspection frequency must be approved by the Owner's Representative, and beginning and ending dates documented as an amendment to the SWPPP.

Inspection frequency may be reduced to at least one Inspection every ~~30 days~~ month, if approved by the Owner's Representative and the entire site is temporarily stabilized.

When work is suspended due to freezing conditions, the Owner's Representative may suspend inspection requirements after fourteen days of freezing conditions if:

a. Soil disturbing activities are suspended; and
b. Soil stabilizing activities are suspended.

Inspections must resume according to the normal inspection schedule identified in the SWPPP, at least 21 days before anticipated spring thaw.

The Owner's Representative may waive requirements for updating the Grading and Stabilization Activities Log and Daily Record of Rainfall during seasonal suspension of work. If so, resume collecting and recording weather data on the Daily Record of Rainfall form one month before thawing conditions are expected to result in runoff. Resume recording land disturbance and stabilization activities on the Grading and Stabilization Activities Log when Construction Activity resumes.

5. Stabilization before Seasonal Thaw.

Construction Activities within the Project Zone must be stabilized with appropriate BMPs prior to seasonal thaw. Seasonal thaw is the annual (first) recurrence of snow and ice melting after a prolonged period of freezing conditions.

6. Inspection before Project Completion.

Conduct Inspection to ensure Final Stabilization is complete throughout the Project, and temporary BMPs that are required to be removed are removed. Temporary BMPs that are biodegradable and are specifically designed and installed with the intent of remaining in place until they degrade, may remain in place after project completion.

7. Items and Areas to Inspect.

Conduct Inspections of the areas required by the CGP and SWPPP.

8. SWPPP Amendments and SWPPP Amendment Log.

The Superintendent and the SWPPP Manager are the only persons authorized to amend the SWPPP and update the SWPPP Amendment Log. The Superintendent or the SWPPP Manager must sign and date amendments to the SWPPP and updates to the SWPPP Amendment Log.

SWPPP Amendments must be approved by the Owner's Representative.

Amendments must occur:

a. Whenever there is a change in design, construction operation, or maintenance at the construction site that has or could cause erosion, sedimentation or the discharge of pollutants that has not been previously addressed in the SWPPP;
b. If an Inspection identifies that any portion of the SWPPP is ineffective in preventing erosion, sedimentation, or the discharge of pollutants;
c. Whenever an Inspection identifies a problem that requires additional or modified BMPs;
d. Whenever a BMP is modified during construction, or a BMP not shown in the original SWPPP is added;
e. If the Inspection frequency is modified (note beginning and ending dates); or
f. When there is a change in personnel who are named in the SWPPP, according to Subsection 641-2.01.4.

Amend the SWPPP narrative as soon as practicable after any change or modification, but in no case, later than seven days following identification of the need for an amendment. Every SWPPP Amendment must be signed and dated. Cross-reference the amendment number with the Corrective Action Log or SWPPP page number, as applicable. When a BMP is modified or added, describe the BMP according to Subsection 641-2.01.3.

Keep the SWPPP Amendment Log current. Prior to performing each scheduled Inspection, submit to the Owner's Representative a copy of the pages of the Amendment Log that contain new entries since the last submittal. Include copies of any documents amending the SWPPP.

Keep the SWPPP Amendment Log as an appendix to the SWPPP.

9. Site Maps.

Document installation, routine maintenance, and removal of BMPs by making notes on the SWPPP Site Maps or in a table included with the site maps. Include the date and the recording person's initials by these notes. Identify areas where Construction Activities begin, areas where Construction Activities temporarily or permanently cease, and areas that are temporarily or permanently stabilized.

10. Corrective Action Log.

The Superintendent and SWPPP Manager are the only persons authorized to make entries on the SWPPP Corrective Action Log. Document the need for corrective action within 24 hours of either:

a. Identification during an inspection; or
b. Discovery by the Owner's or Contractor's staff, a subcontractor, or a regulatory agency inspector.

Modification or replacement of a BMP, installation of a new BMP not shown in the original SWPPP, or overdue maintenance (after sediment accumulated in sediment basins (including sediment traps and ponds) exceeds 50% of design capacity; or after sediment accumulates to more than half the above ground height on silt fences, check dams, or berms) is a corrective action and must be documented on the Corrective Action Log.

Within 24 hours of discovery, update the Corrective Action Log with the date of discovery and proposed corrective action. If discovered during an inspection, update log with inspection date and proposed corrective actions noted on the Inspection Report.

After the corrective action has been accomplished, note in the Corrective Action Log the action taken and if a SWPPP amendment was needed. Date and initial the entry.

Keep the Corrective Action Log current and submit a copy to the Owner's Representative prior to

performing each scheduled SWPPP Inspection.

Keep the Corrective Action Log as an appendix to the SWPPP.

11. Grading and Stabilization Activities Log.
The Superintendent and SWPPP Manager are the only persons authorized to date and initial entries on the SWPPP Grading and Stabilization Activities Log. Use the SWPPP Grading and Stabilization Activities Log, to record land disturbance and stabilization activities.

Keep the Grading and Stabilization Activities Log current and submit a copy to the Owner's Representative prior to performing each scheduled SWPPP Inspection. Keep the Grading and Stabilization Activities Log organized and completed to demonstrate compliance with the CGP Part 4.4.

Keep the Grading and Stabilization Activities Log as an appendix to the SWPPP.

12. Daily Record of Rainfall.
Use SWPPP Daily Record of Rainfall to record weather conditions at the Project. Update the form daily and include the initials of the person recording each day's entry. Submit a copy to the Owner's Representative prior to performing each scheduled Inspection. Keep the Daily Record of Rainfall as an appendix to the SWPPP.

641-3.04 FAILURE TO PERFORM WORK.

The Owner's Representative has authority to suspend work and withhold monies, for an incident of non-compliance with the CGP or SWPPP, that may endanger health or the environment or for failure to perform work related to this Section 641. If the suspension is to protect workers, the public, or the environment from imminent harm, the Owner's Representative may orally order the suspension of work. Following an oral order of suspension, the Owner's Representative will promptly give written notice.

In other circumstances, the Owner's Representative will give the Contractor written notice before suspension of work. A notice of suspension will:

- state the defects or reasons for a suspension,
- the corrective actions required to stop suspension and,
- the time allowed to complete the corrective actions.

If the Contractor fails to take the corrective action within the specified time, the Owner's Representative may:

1. Suspend the work until corrective action is completed;
2. Withhold monies due the Contractor until corrective action is completed;
3. Assess damages or equitable adjustments against the Contract Amount; and
4. Employ others to perform the corrective action and deduct the cost from the Contract amount.

Reasons for the Owner's Representative to take action under this section include, but are not limited to, the Contractor's failure to:

a. Obtain appropriate permits before Construction Activities occur;
b. Perform SWPPP Administration;
c. Perform timely Inspections;
d. Update the SWPPP;
e. Transmit updated SWPPP, Inspection Reports, and other updated SWPPP forms to the

Owner's Representative;

f. Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements;
g. Perform duties according to the requirements of this Section 641; or
h. Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control.

No additional Contract time or additional compensation will be allowed due to delays caused by the Owners Representative's suspension of work under this subsection.

641-3.05 ACCESS TO WORK.

The Project, including any related off-site areas or support activities, must be made available for inspection, or sampling and monitoring, by the Owner and other regulatory agencies. See CGP Part 6.6.

641-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Item 641(1), 641(3) and 641(7), are lump sum.

Items 641(2), 641(4) and 641(5), will be measured on a contingent sum basis as specified by the Directive authorizing the work.

Item 641(6) will be measured on a contingent sum basis with withholding determined by the Owner.

Table 641-1 BMP Values – Reserved (Not Used).

Table 641-2 Erosion, Sediment and Pollution Control – Liquidated Damages (Not Used).

641-5.01 BASIS OF PAYMENT. See Subsection 641-3.04 Failure to Perform Work, for additional work and payment requirements.

Item 641(1) Erosion, Sediment and Pollution Control Administration. At the Contract lump sum price for administration of all work under this Section. Includes, but is not limited to, SWPPP and HMCP and SPCC Plan preparation, agency fees for SWPPP reviews, SWPPP amendments, pre-construction Inspections, Inspections, monitoring, reporting, and Record keeping or copying Records related to the SWPPP and required by the CGP, and Record retention.

~~Item 641(2) Temporary Erosion, Sediment and Pollution Control. At the contingent sum prices specified for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of approved temporary erosion, sedimentation, and pollution control BMPs required to implement the SWPPP and SPCC Plan.~~

Item 641(3) Temporary Erosion, Sediment and Pollution Control. At the Contract lump sum price for all labor, supervision, material, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs identified in the SWPPP and SPCC Plan.

~~Item 641(4) Temporary Erosion Sediment and Pollution Control Additives. At the contingent sum prices specified in the Directive to authorize the work, for all labor, supervision, materials, equipment, and incidentals for extra, additional, or unanticipated work, to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.~~

~~Item 641(5) Temporary Erosion Sediment and Pollution Control by Directive. At the contingent sum prices specified in the Directive using time and materials to authorize the work, for all labor, supervision, materials, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs. Prices for this item will by time and materials according to Subsection 109-1.05, or by mutual agreement between the Owner's Representative and Contractor. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.~~

Item 641(6) Withholding. The Owner's Representative may withhold an amount equal to Liquidated Damages, assessed according to Section 641, from payment due the Contractor. Liquidated Damages for violations of the Contract, CWA, or CGP are determined by the Owner's Representative. The Owner's Representative may withhold payment due the Contractors until the Contractor pays the Liquidated Damages to the Owner.

The Owner will not release performance bonds until Liquidated Damages assessed according to Section 641 are paid to the Owner, and all requirements according to Subsection 103-1.05 are satisfied.

~~Item 641(7) SWPPP Manager. At the Contract lump sum price for a SWPPP Manager that conforms to this specification. When Item 641(7) appears in the Bid Schedule, the SWPPP Manager must be a different person than the superintendent, and must be physically present during construction activity with duties and authority as described in Subsection 641-2.04. When Item 641(7) does not appear in the Bid Schedule, the SWPPP Manager is subsidiary to Item 641(1).~~

Subsidiary Items. Temporary erosion, sediment and pollution control measures that are required outside the Project Zone are subsidiary. Work required by the HMCP and SPCC Plan including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to Item 641(1) Erosion, Sediment and Pollution Control Administration.

Work under other pay items. Work that is paid for directly or indirectly under other pay items will not be measured and paid for under Section 641. This work includes but is not limited to:

a. Dewatering;
b. Permanent seeding;
c. Installation and removal of temporary work pads;
d. Temporary accesses;
e. Temporary drainage pipes and structures;

Permanent erosion, sediment and pollution control measures will be measured and paid for under other Contract items, when shown on the bid schedule.

Work at the Contractor's Expense. Temporary erosion, sediment and pollution control measures that are required due to carelessness, negligence, or failure to install temporary or permanent controls as scheduled or ordered by the Owner's Representative, or for the Contractor's convenience, are at the Contractor's expense.

Payment will be made under:

Pay Item	Pay Unit
641(1) Erosion, Sediment and Pollution Control Administration	Lump Sum
641(3) Temporary Erosion, Sediment and Pollution Control	Lump Sum

SECTION 642
CONSTRUCTION SURVEYING

642-1.01 DESCRIPTION. Perform surveying and staking essential for the completion of the project and perform the necessary calculations required to accomplish the work in conformance with the Plans and Specifications and standard engineering and survey practice.

642-1.02 DEFINITIONS.

1. Monument: A fixed physical object marking a point on the surface of the earth; used to commence or control a survey; mark the boundaries of a parcel of land; or the centerline of a right-of-way corridor. Monuments will be Primary or Secondary, as shown on the Plans.
2. Point: An identified spot located on the surface of the earth. For purposes of this definition, a point can be a PK nail, wooden hub, rebar, large nail or other structure capable of being utilized as a marker.
3. Witness Corner: A material mark or point usually placed on a property or survey line, at a known distance from a property corner or other survey point. A witness corner is employed to witness the location of a corner/point that cannot be monumented at its true location.
4. Reference Monument: A material mark or point placed at a known distance and direction from a property corner or other survey point, usually not on a property or survey line. A reference monument is employed to perpetuate a corner/point that cannot be monumented at its true location or where the corner monument is subject to destruction.
5. Surveyor: The Contractor's Professional Land Surveyor, currently registered in the State of Alaska.

642-2.01 MATERIALS. None.

CONSTRUCTION REQUIREMENTS

642-3.01 GENERAL. Use competent, qualified personnel and suitable equipment for the layout work required and furnish traffic control, stakes, templates, straight-edges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

Furnish computer services to accomplish the work. Check data received from the computer for completeness and accuracy. As soon as practical after completion of the work, and in no case later than acceptance of the project, deliver field books, computer forms and computer output data to the Owner's Representative. This data becomes the property of the Owner.

Supervise construction surveying personnel. Correct errors resulting from the operations of said personnel at your expense. The Contractor is responsible for the accuracy of the work.

Work classified as Land Surveying under AS 08.48, and work involving the location, control, and monumentation of construction centerline and right-of-way, must be performed by or under the responsible charge of a Professional Land Surveyor.

Follow the *Alaska Owner of Transportation & Public Facility's most current Construction Surveying Requirements.*

Keep field notes in standard hardbound notebooks in a clear, orderly, and neat manner consistent with standard surveying and engineering practices, including titles, numbering, and indexing. Make field

books available for inspection by the Owners Representative's project personnel at any time. Store the field books in the Contractor's Project Office during periods of non-use.

Perform the following:

1. Staking necessary to delineate clearing and/or grubbing limits.
2. Cross sections necessary for determination of excavation and embankment quantities, including intermediate and/or remeasure cross sections as needed. Take cross sections after clearing and grubbing has been completed.
3. Slope staking.
4. Staking of signs, culverts, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.
5. Bridge staking.
6. Setting finishing stakes.
7. Measurement of pay quantities that require measurement.
8. Staking of right-of-way and material source limits.
9. Staking, referencing and other actions required to preserve or restore land monuments and property corners.
10. Other surveying and staking necessary to complete the project.

When the project centerline points have been established are established in the plans.

Furnish a notekeeper to record field survey notes, including documentation for quantity computations for payment. Ensure that the notekeeper is thoroughly familiar with generally accepted standards of good survey notekeeping practice and ADOT&PF *Construction Surveying Requirements*.

The Owner's may randomly spot check surveying, staking and computations. After the survey or staking has been completed, provide the Owner's Representative with a minimum of 72 hours notice before performing work, and furnish the appropriate data, to allow for random spot checking. The Owner assumes no responsibility for the accuracy of the work.

642-3.02 CROSS-SECTION SURVEYS AND OWNER SUPPLIED SURVEY SERVICES. When required, obtain right-angle cross sections to the construction centerline at the interval detailed in the ADOT&PF *Construction Surveying Requirements*.

The Owner will supply the following:

1. Construction Plans and Specifications
2. Design Cross Sections, if any

The contractor shall supply all other survey services, including but not limited to: replacement of lost or damaged monuments, survey for quantity determinations, final control for subbase and paving activities,

The contract shall perform the following:

1. Furnish hardbound field books (Level, Cross-Section, Slope Stake, etc.). Use "Rite-in-the- Rain" or

similar weather resistant books. Field books become the property of the Owner upon completion of the work.

2. Label the books and number the pages. Make a heading in the appropriate book (date, weather, names and duties of crew members) at the beginning of each day's work.
3. Update the index of the appropriate book at the end of each day's work.
4. Reduce, check, and adjust level notes.
5. The notekeeper shall compute the cross-section level notes and slope stake catches and a different crew member shall check the computation on a continual basis in the field.
6. Enter the grade data, shoulder width and/or ditch distance, stationing, slope, etc., in the slope stake books.
7. Maintain the position and identifying marks of slope stakes and reference points until used for their intended purpose.
8. Correct errors by drawing a line through them and writing the correct entry directly above. Erasures are not allowed.
9. Provide copies of the field books, upon request.
10. Ensure that survey crews comply with approved traffic control plans. Coordinate crews activities with the Worksite Traffic Supervisor.
11. Keep a daily survey Party Chief diary, and give a copy of the diary to the Owner’s upon request. The diary shall contain the following information:
    a. Date;
    b. Weather;
    c. Crew members’ names and duties;
    d. Type and location of work performed;
    e. Hours worked;
    f. Type of equipment used (brand) and date equipment was double centered or “peg” test was performed; and
    g. Signature of person in responsible charge.

642-3.03 MONUMENTS. Reference property markers/corners, monuments, or accessories that may be disturbed or buried during construction. Reestablish monuments in their original position before completion of the project.

Keep records and report to the Owner’s Representative evidence that a monument has been disturbed and is no longer reliable or cannot be located and is presumed to be lost or obliterated. Establish a minimum of two in-line reference points, or three swing-tie reference points in situations where in- line referencing is not desirable. Set reference points outside of the construction limits. Measure distances from the monument to the nearest 0.01 foot. Record referencing of monuments in a separate field book stamped by the Surveyor.

Replace existing monuments disturbed by construction with in kind monuments.

Any monument disturbed by construction activities will be replaced in kind at no expense to the Owner. All monuments must be reset by a Professional Land Surveyor registered in the State of Alaska.

642-3.04 OFFICE ENGINEERING *(Not Used).*

642-3.05 FINAL TRAVERSE *(Not Used).*

642-4.01 METHOD OF MEASUREMENT.

Item 642(2) Office Engineering. By the project mile along centerline for completed office engineering accepted.

Item 642(3) Three Person Survey Party. By the hour for extra, additional, or unanticipated work made necessary by changes in the project, as directed, and as supported by certified payrolls.

If staking for extra, additional or unanticipated work, as stated above, is performed by a two person survey party, measurement will be made at 75% of the hours worked and paid under Item 642(3), Three Person Survey Party. If a single person is required for additional office computations or other work requiring only one person, payment will be made at 32% of the hours worked and paid under Item 642(3).

Item 642(3A) Three Person Survey Party. Contingent sum work will be measured according to subsections 101-1.03 and 109-1.05. This item, when appearing on the Bid Schedule, will be used only for additional or unanticipated work made necessary by changes in the Contract. Payment will be made according to subsection 109-1.05 Compensation for Extra Work.

Items 642(4) through 642(8). The actual number of monuments installed, replaced, or adjusted as shown on the "State of Alaska Land Survey Monument Record" forms delivered to and accepted by the Owner's Representative.

Item 642(9) Reference Existing Monument. The actual number of monuments referenced as shown in the recorded Monument Record Forms delivered to and accepted by the Owner's Representative.

Items 642(10) and 642(11). The actual number of monument cases furnished and installed, or adjusted to new elevation, and accepted.

Owners Representative will perform calculations of pay quantities.

642-5.01 BASIS OF PAYMENT. Construction Surveying and Final Traverse includes field and office work required to accomplish the work, including furnishing necessary personnel, equipment, transportation and supplies. Payment for Final Traverse is based on the Owners Representative's acceptance of the Surveyor's certification letter and field notes.

When bid item 642(9) Reference Existing Monument does not appear in the bid schedule, work necessary to reference existing monuments, and prepare and file Monument Record Forms is subsidiary to Item 642(1) Construction Surveying. Five percent of the contract lump sum bid price for Item 642(1) will be withheld until the Monument Record Forms are prepared and recorded in the local Recorder's Office and accepted by the Owner's Representative.

When bid item 642(9) Reference Existing Monument appears in the bid schedule, payment will be made after the Monument Record Forms are prepared and recorded in the local Recorder's Office and accepted by the Owner's Representative.

SECTION 642

Office Engineering when required is in addition to Construction Surveying. Both items will appear on the bid schedule.

Traffic control devices necessary for the survey parties are considered subsidiary.

Survey monuments placed on bridges are subsidiary.

Payment for Traffic Control Plans will be paid under Section 643, Traffic Maintenance.

Payment will be made under:

Pay Item	Pay Unit
642(1) Construction Surveying	Lump Sum
642(2) Office Engineering	Mile
642(3) Three Person Survey Party	Hour
642(3A) Three Person Survey Party	Contingent Sum
642(4) Set Primary Monument	Each
642(5) Set Secondary Monument	Each
642(6) Replace Existing with Primary Monument	Each
642(7) Replace Existing with Secondary Monument	Each
642(8) Adjust Existing Monument	Each
642(9) Reference Existing Monument	Each
642(10) Monument Case	Each
642(11) Adjust Existing Monument Case	Each
642(12) Final Traverse	Lump Sum

SECTION 643
TRAFFIC MAINTENANCE

643-1.01 DESCRIPTION. Protect and control traffic during the contract. Furnish, erect, maintain, replace, clean, move and remove the traffic control devices required to ensure the traveling public's safety. Perform all administrative responsibilities necessary to implement this work.

Maintain all roadways and pedestrian and bicycle facilities affected by the work in a smooth and passable condition. Construct and maintain approaches, crossings, intersections, and other necessary features throughout the project for the life of the contract.

Illuminate construction activities listed in Table 643-4 during hours of night work on roads open to the public within the project limits.

643-1.02 DEFINITIONS.

ATM. When used in this Section, ATM stands for the *Alaska Traffic Manual*, which is the MUTCD with Alaska Supplement.

Balloon Light. Light surrounding by a balloon-like enclosure kept inflated by pressurized air or helium, and producing uniform light through 360 horizontal degrees.

Construction Phasing Plan. A plan for each phase of the project showing how you will accommodate traffic. Show the sequence of work by segment or phase, if required.

Fixed Objects. Private vehicles, parked flagger vehicles, idle construction equipment, construction material stockpiles, culvert ends, individual trees, power poles, utility poles and appurtenances, and other items deemed by the Owner's Representative to present a hazard to motorists, pedestrians, or bicyclists traveling through the work zone.

Night Work. Work occurring between sunset and sunrise on all days except the "No Lighting Required" period shown in Table 643-1 below:

TABLE 643-1
PROJECT LOCATIONS – NIGHT TIME ILLUMINATION EXCLUSION

Latitude (degrees)	No Lighting Period		Nearby Cities
	Start	End	
South of 61	Lighting Required All Year		Everything South of Hope
61	June 11	July 1	Anchorage, Valdez, Girdwood
62	June 2	July 13	Wasilla, Palmer, Glennallen, Talkeetna
63	May 27	July 17	Cantwell, Paxson, McGrath
64	May 22	July 21	Tok, Delta, Nome
65	May 18	July 25	Fairbanks
66	May 14	July 29	Circle City
67	May 10	August 2	Coldfoot, Kotzebue
68	May 7	August 6	Galbraith Lake
69	May 3	August 9	Happy Valley
70	April 30	August 12	Deadhorse
71	April 27	August 15	Barrow
72	April 24	August 19	

Traffic. The movement of vehicles, pedestrians, and bicyclists through road construction, maintenance operations, utility work, or similar operations.

Traffic Control Plan (TCP). A drawing or drawings indicating the method or scheme for safely guiding and protecting motorists, pedestrians, bicyclists, and workers in a traffic control zone. The TCP depicts the traffic control devices and their placement and times of use.

Traffic Control Zone. A portion of a road construction project, maintenance operation, utility work or similar operation that affects traffic and requires traffic control to safely guide and protect motorists, pedestrians, bicyclists, or workers.

643-1.03 TRAFFIC CONTROL PLAN. Implement an approved TCP before beginning work within the project limits.

The TCP includes, but is not limited to, signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the traffic control zone according to these Specifications and the ATM. Address in the TCPs placement of traffic control devices, including location, spacing, size, mounting height and type. Include code designation, size, and legend per the ATM and the Alaska Sign Design Specification (ASDS). Include longitudinal buffer space for the posted speed limit, according to Table 6C-2 of the ATM unless project conditions or geometric features prohibit including all of a portion of the buffer length.

When a TCP is included in the Plans, use it, modify it, or design an alternative TCP. When a TCP is omitted from the Plans, provide one according to this Section and the ATM.

Submit new or modified TCPs to the Owner's Representative for approval. All TCPs must include the following information:

1. Project name and number.
2. A designated TCP number and name on each page.
3. For TCPs more than one page, each page must be numbered.
4. The posted speed limit for each roadway.
5. Existing striping width, lane width, and road surfacing.
6. Construction lane widths, striping layout, and temporary pavement marker layout.
7. Provisions for Pedestrian, Bicycle, and ADA travel through the work zone.
8. Dates and times the TCP will be in effect and why it is being used.
9. The Worksite Traffic Supervisor's signature certifying that all TCPs conform with the ATM and the Contract.
10. The Project Superintendent's signature confirming the TCP is compatible with the work plan.
11. The name(s) of the Worksite Traffic Supervisor, his/her alternate and their 24 hour telephone number(s).
12. Signs to be used and the ASDS designation number and size.
13. Location and spacing of all devices and signs.
14. A plan to address any possible slopes, drop offs, paving joints, or similar temporary features that may occur during use of the TCP.
15. For TCPs proposed to be used at night, note how the requirements will be met for the required lighting and retro-reflective material.

TCPs submitted for approval without all the required information will be rejected. Allow 7 days for review of each TCP submittal. All required modifications to a TCP require a new submissions and an additional 7 days for review.

A minor revision to a previously approved TCP during construction requires 48 hours for review and approval by the Owner's Representative.

The TCPs, Plans, and Standard Drawings show the minimum required number of traffic control devices. If unsafe conditions occur, the Owner's Representative may require additional traffic control devices.

Use of oversize and overweight equipment within the project must conform to an approved TCP, including all traffic control devices there operations require.

643-1.04 WORKSITE TRAFFIC SUPERVISOR. Provide a Worksite Traffic Supervisor responsible for maintaining 24-hour traffic operations.

1. Qualifications. The Worksite Traffic Supervisor shall be knowledgeable and experienced regarding the requirements of the ATM and the implementation of those requirements. The Worksite Traffic Supervisor shall be familiar with the Plans, the Specifications, your proposed operations, and certified as one of the following:

   a. Traffic Control Supervisor, American Traffic Safety Services Association (ATSSA)

   b. Work Zone Temporary Traffic Control Technician, or Work Zone Safety Specialist, International Municipal Signal Association (IMSA)

   Certify that the Worksite Traffic Supervisor has a minimum 4000 hours of temporary traffic control work experience, is competent and capable, and has the authority to perform the duties and

responsibilities in accordance with this section.

- Temporary traffic control work experience shall demonstrate an understanding of concepts, techniques, and practices in the installation and maintenance of traffic control devices, and skill in reading, interpreting, implementing, and modifying TCPs.
- Temporary traffic control work experience includes: flagging; installing traffic control devices in accordance with TCPs; monitoring traffic control devices and TCP performance; and recognizing and reporting deficiencies in traffic control devices and TCPs for correction.
- Temporary traffic control work experience is gained while serving as a Worksite Traffic Supervisor-in-training, temporary traffic control support personnel, and Flagger.
- Four thousand (4,000) hours of experience serving solely as a Flagger does not satisfy these requirements.

Worksite Traffic Supervisors shall maintain current certification and be able to show their certification anytime they are on the project.

2. Duties.

a. Prepare the TCPs and public notices and coordinate traffic control operations between the Project Superintendent and the Owner's Representative.

b. Physically inspect the condition and position of all traffic control devices used on the project at least twice each day and at approximately 12 hour intervals. Ensure that traffic control devices work properly, are clean and visible, and conform to the approved TCP. Complete and sign a detailed written report of each inspection within 24 hours.

c. Supervise the repair or replacement of damaged or missing traffic control devices.

d. Review and anticipate traffic control needs. Make available proper traffic control devices necessary for safe and efficient traffic movement.

e. Review work areas, equipment storage, and traffic-safety material handling and storage.

f. Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Owner's Representative and Inspector to these meetings.

g. Supervise all traffic control workers, flaggers, and pilot car drivers.

h. Certify that all flaggers are certified as required by Subsection 643-3.04.4. Submit a copy of all flagger certifications to the Owner's Representative.

i. Supervise lighting of Night Work.

3. Authority. The Worksite Traffic Supervisor shall have the Contractor's authority to stop work and implement immediate corrective action to unsafe traffic control, in locations where unsafe traffic control is present.

643-1.05 CONSTRUCTION PHASING PLAN. Submit a Construction Phasing Plan for approval no less than 5 working days prior to the preconstruction conference. Include the following:

1. Written designation of the Worksite Traffic Supervisor, providing the 24-hour telephone number, and certifying minimum 4,000 hours of work experience as described in 643-1.04 Worksite Traffic Supervisor.
2. A construction phasing plan for each phase or segment of the project.
3. TCPs for the first phase of the project. Show permanent and temporary traffic control measures, including the times each TCP will be used.

Submit any changes to the Owner's Representative for approval 7 days before proposed implementation.

643-1.06 Traffic Maintenance Setup When shown on the bid schedule, Traffic Maintenance Setup items are site specific and are detailed as individual TCPs on the plan sheets. They depict the method or scheme required to route traffic safely and efficiently when any of the following restrictions occur:

1. Lane Closure. The closure of one or more lanes on a roadway.
2. Detour. The redirection of traffic through or around a traffic control zone.
3. Road Closure. The closure of a roadway with or without a specified detour route.
4. One Lane Road. A two-way roadway reduced to a single-lane roadway with flaggers, pilot cars, traffic signals, stop signs, or yield signs.

643-2.01 MATERIALS. Provide traffic control devices meeting the following requirements:

1. Signs. Use signs, including sign supports, that conform to Section 615, the ATM, and ASDS.
   a. Construction Signs: Regulatory, guide, or construction warning signs designated in the ASDS.
   b. Permanent Construction Signs: As designated on the Plans or an approved TCP.
   c. Special Construction Signs: All other signs are Special Construction Signs. Neatly mark the size of each sign on its back in 3-inch black numerals.
2. Portable Sign Supports. Use wind-resistant sign supports with no external ballasting. Use sign supports that can vertically support a 48 X 48 inch traffic control sign at the height above the adjacent roadway surface required by the ATM.
3. Barricades and Vertical Panels. Use barricades and vertical panel supports that conform to the ATM. Use Type III Barricades at least 8 feet long. Use reflective sheeting that meets AASHTO M 268 Type II or III.
4. Portable Concrete Barriers. Use portable concrete barriers that conform to the Plans. For each direction of traffic, equip each 12.5-foot section of barrier with at least two side-mounted retroreflective tabs placed approximately 6 to 8 feet apart, or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow tabs or stripe when barriers are placed at centerline. Use white tabs or stripe when barriers are placed on the roadway shoulder. Use reflective sheeting that meets AASHTO M 268 Type III, IV, or V.

5. Warning Lights. Use Type A (low intensity flashing), Type B (high intensity flashing) or Type C (steady burn) warning lights that conform to the ATM.

6. Drums. Use plastic drums that conform to the requirements of the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III.

7. Traffic Cones and Tubular Markers. Use reflectorized traffic cones and tubular markers that conform to the requirements of the ATM. Use traffic cones and tubular markers at least 28 inches high. Use reflective sheeting that meets AASHTO M 268 Type II or III.

8. Interim Pavement Markings. Apply markings according to Section 670 and the manufacturer's recommendations. Use either:

    a. Paint meeting Subsection 708-2.03 with glass beads meeting Subsection 712-2.08,

    b. Perforated Marking Tape (removable or non-removable) meeting Subsection 712-2.14, or

    c. Temporary Raised Pavement Markers meeting Subsection 712-2.15 or 712-2.16, as appropriate.

9. High-Level Warning Devices. Use high-level warning devices that conform to the ATM.

10. Temporary Crash Cushions. Must have FHWA Acceptance letter for NCHRP 350 or MASH Test Level 3. Use reflective sheeting that meets AASHTO M 268 Type III, IV, or V. Application of crash cushion must be appropriate for the intended use and be installed per manufacturer’s recommendation. Temporary crash cushions that are barrels or barricade filled with sand or water and may only be used when the forecasted temperature during their use is above 32 degrees Fahrenheit.

11. Sequential Arrow Panels. Use Type A (24 X 48 inch), Type B (30 X 60 inch) or Type C (48 X 96 inch) panels that conform to the ATM.

12. Portable Changeable Message Board Signs. Use truck or trailer mounted portable changeable message board signs with a self-contained power supply for the sign and with the following features:

    a. Message sign panel large enough to display 3 lines of 9 inch high characters

    b. Eight character display per message line

    c. Fully programmable message module

    d. The capacity to create, preview, and display new messages and message sequences

    e. A waterproof, lockable cover for the controller keyboard

    f. An operator’s manual, a service manual, and a wiring diagram

    g. Quick release attachments on the display panel cover

    h. Variable flash and sequence rates

    i. Manual and automatic dimming capabilities on lamp bulb matrix models

    j. Locate the bottom of the sign panel at least 7 feet above the pavement

    k. Operate with a battery pack a minimum of 2 hours under full load

13. Plastic Safety Fence. Use 4 foot high construction orange fence manufactured by one of the following companies, or an approved equal:

    a. "Safety Fence" by Services and Materials Company, Inc., 2200 South "J" Street, Elwood, Indiana, 46036. Phone (800) 428-8185.

    b. "Flexible Safety Fencing" by Carsonite, 1301 Hot Springs Road, Carson City, Nevada, 89706. Phone (800) 648-7974.

    c. "Warning Barrier Fence" by Plastic Safety Systems, Inc. P.O. Box 20140, Cleveland, Ohio, 44120. Phone (800) 662-6338.

14. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:

    a. Use plywood at least 1/2 inch thick for areas continuously supported by subgrade. Use plywood at least 1 inch thick for areas that are not continuously supported.

    b. Do not use unsupported 1-inch plywood longer than 30 inches.

    c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 1 inch.

    d. Use a method that will withstand 25 mph wind velocities to hold temporary surfacing in place.

15. Temporary Guardrail. Use temporary guardrail that meets Section 606, except that posts may require placement under special conditions, such as in frozen ground.

16. Flagger Paddles. Use flagger paddles with 24 inches wide by 24 inches high sign panels, 8 inch Series C lettering (see ASDS for definition of Series C), and otherwise conform to the ATM. Use reflective sheeting that meets AASHTO M 268 Type VIII or IX. Use background colors of fluorescent orange on one side and red on the other side.

17. Truck Mounted Attenuator, TMA. The TMA shall be mounted on a vehicle with a minimum weight of 15,000 pounds and a maximum weight per the manufacturer's recommendations. The TMA complies with NCHRP 350 or MASH Test Level 3 requirements.

18. Portable Steel Barriers. Use portable steel barriers that conform to the contract. For each direction of traffic, equip each section of barrier with side-mounted retroreflective tabs placed approximately 6 to 8 feet apart, or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow tabs or stripe when barriers are placed at centerline. Use white tabs or stripe when barriers are placed on the roadway shoulder. Use reflective sheeting that meets AASHTO M 268 Type III, IV or V.

643-2.02 CRASHWORTHINESS. Submit documentation, by the method indicated on Table 643-2, that the following devices comply with Test Level 3 requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or the Manual for Assessing Safety Hardware (MASH). Submit documentation of compliance to the Owner's Representative before installing devices on the project.

TABLE 643-2
WORK ZONE TRAFFIC CONTROL DEVICE AND BARRIER CRASH TESTING COMPLIANCE

Category	Devices	Method of Documentation
1	Cones, candles, drums w/o attachments, delineators	Manufacturer's Certification for devices exceeding height and weight limits
2	Barricades, portable sign supports, drums w/lights, other devices weighing less than 100 pounds but not included in category 1	FHWA acceptance letter indicating acceptance at Test Level 3 (when no test level is specified in the letter; it is implied that the tests were run for Test Level 3),
3	Truck mounted attenuators, redirective and nondirective temporary crash cushions, bridge railing, bridge and guardrail transitions, and guardrail and barrier end treatments.	FHWA acceptance letter indicating acceptance at Test Level 3 (when no test level is specified in the letter; it is implied that the tests were run for Test Level 3),
	Portable steel barriers	FHWA acceptance letter indicating acceptance at Test Level 3 unless otherwise required in the contract

Category 1 devices that exceed the following weights and heights require certification that they meet the evaluation criteria of NCHRP Report 350 of MASH, Test Level 3. This certification may be a one-page affidavit signed by the vendor. Documentation supporting the certification (crash tests and/or engineering analysis) must be kept on file by the certifying organization. No certification is required for devices less than or equal to both the weight and height on the schedule below:

Device	Composition	Weight	Height
Cones	Rubber	20 lb.	36 in.
	Plastic	20 lb.	48 in.
Candles	Rubber	13 lb.	36 in.
	Plastic	13 lb.	36 in.
Drums	Hi Density Plastic	77 lb.	36 in.
	Lo Density Plastic	77 lb.	36 in.
Delineators	Plastic or Fiberglass	N/A	48 in.

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Keep the work, and portions of the project affected by the work, in good condition to accommodate traffic safely. Provide and maintain traffic control devices and services inside and outside the project limits, day and night, to guide traffic safely.

Unless otherwise provided in this Section, keep all roadways, business accesses, and pedestrian facilities within the project limits open to traffic. Obtain the Owners Representative's approval before temporarily closing residential, commercial, or street approaches. Provide access through the project for emergency vehicles and school and transit buses. Properly sign and/or flag all locations where you must redirect or stop the traveling public. Organize construction operations so the total of all construction related stoppages experienced by a vehicle traveling through the project does not exceed 20 minutes except when indicated otherwise in the Contract.

Stop your equipment at all points of intersection with the traveling public unless an approved TCP shows otherwise.

Operate flood lighting at night according to the ATM. Adjust flood lighting so that it does not shine into oncoming traffic.

Provide and maintain safe routes for pedestrians and bicyclists through or around traffic control zones at all times, except when regulations prohibit pedestrians or bicyclists.

Immediately notify the Owner's Representative of any traffic related accident that occurs within the project limits as soon as you, an employee, or a subcontractor becomes aware of the accident.

643-3.02 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Obtain an approved TCP before reducing existing roadway lane and shoulder widths before starting construction. Maintain a clear area with at least 2 feet between the edge of traveled way and the work area. Use barricades, traffic cones, or drums to delineate this area. Place traffic control devices on the work side of the clear area. Space them according to the ATM.

If you are allowed to maintain traffic on an unpaved surface, conduct construction to provide a smooth and even surface that public traffic can use at all times. Properly crown the roadbed surface for drainage. Before beginning other grading operations, place sufficient fill at culverts and bridges to permit traffic to cross smoothly and unimpeded. Use part-width construction techniques when routing traffic through roadway cuts or over embankments under construction. Excavate the material or place it in layers. Alternate construction activities from one side to the other. Route traffic over the side opposite the one under construction.

You may detour traffic when the Plans or an approved TCP allows it. Maintain detour routes so that traffic can proceed safely. When detours are no longer required, obliterate the detour. Topsoil and seed appropriate areas.

If you cannot maintain two-way traffic on the existing roadway or detour, you may use half-width construction or a road closure if it is shown on an approved TCP. Make sure the TCP indicates closure duration and conditions. Schedule roadway closures so you do not delay school buses and peak-hour traffic. For road closures, post closure-start and road-reopen times at the closure site, within view of waiting traffic.

643-3.03 PUBLIC NOTICE. Give notice at least 3 days before major changes, delays, lane restrictions, or road closures to local officials and transportation organizations, including but not necessarily limited to:

- Alaska Trucking Association
- Alaska State Troopers
- Division of Measurement Standards
- Local Police Owner
- Local Fire Owner
- Local Government Traffic Engineer
- School and Transit Authorities
- Local Emergency Medical Services
- Local Media (newspapers, radio, television)
- Railroads (where applicable)
- U.S. Postal Service

- Major Tour Operators

Provide the Alaska State Troopers, local police and fire Owner with the radio frequencies used on the project and the 24-hour telephone numbers of the Worksite Traffic Supervisor and the Project Superintendent. Tell them to use these numbers to alert you when emergency vehicles must pass through the project. When notified of emergencies, use all equipment and make every necessary effort to expedite rapid passage.

The contractor shall work with the local residents within the project limits to ensure that access is provide to homes at all times. Where there is an anticipated blocking of traffic to a residence the contractor shall coordinate with the property owner to ensure open communication.

643-3.04 TRAFFIC CONTROL DEVICES. Before starting construction, erect permanent and temporary traffic control devices required by the approved TCPs. Use traffic control devices only when they are needed. The Owner's Representative will determine advisory speeds when necessary.

For lane closures on multilane roadways, use sequential arrow panels. During hours of darkness when required by the approved TCP use flashing warning lights to mark obstructions or hazards and steady-burn lights for channelization.

Use only one type of traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary traffic control devices. Store all unused traffic control devices in a designated storage area which does not present a nuisance or visual distraction to traffic. If sign panels are post mounted and cannot be readily removed, cover them entirely with either metal or plywood sheeting.

Keep signs, drums, barricades, and other devices clean at all times.

Use only traffic control devices that meet the requirements of the "Acceptable" category in ATTSA (American Traffic Safety Services Association) "Quality Standards for Work Zone Traffic Control Devices" and meet crashworthiness requirements per Section 643-2.02.

Immediately replace any devices provided under this Section that are lost, stolen, destroyed, inoperable or deemed unacceptable while used on the project. Stock repair parts for each Temporary Crash Cushion used on the project. Repair damaged crash cushions within 24 hours.

Maintain pre-existing roadside safety hardware at an equivalent or better level than existed prior to project implementation until the progress of construction necessitates removing the hardware. All existing hazards that are currently protected with roadside safety hardware or new hazards which result from project improvements shall be protects or delineated as required in the plans, specifications, and approve TCPs until permanent roadside safety hardware is installed. All temporary roadside safety hardware shall meet NCHRP 350 or MASH Test Level 3 unless otherwise noted.

All items paid under this Section remain your property unless otherwise noted in the Specifications or Contract Documents. Remove them after completing the project.

1. Embankments. Install portable concrete or steel barrier, plastic drums, barricades, tubular markers, plastic safety fence, and cones as specified on the Plans or TCPs to delineate open trenches, ditches, other excavations and hazardous areas when they exist along the roadway for more than one continuous work shift.

2. Adjacent Travel Lane Paving. When paving lifts are 2 inches or greater and you cannot finish paving adjacent travel lanes or paved shoulders to the same elevation before the end of the paving shift, install: CW8-11 (Uneven Lanes), CW8-9 (Low Shoulder), CW8-9A (Shoulder Drop-Off), CW14-3 (No Passing Zone), R4-1 (Do Not Pass), and R4-2 (Pass with Care), and CW8-1 (Bump) signs as appropriate. Place additional signs every 1500 feet if the section is longer than ½ mile.

3. Fixed Objects And Construction Vehicles And Equipment Working On Or Next To The Traveled Way. Do not park equipment in medians. Locate fixed objects at least 30 feet from the edge of traveled way. Fixed objects that exist prior to construction activity are not subject to this requirement unless the proposed temporary traffic routing moves the edge of traveled way closer to the pre-existing fixed object. Vehicles and other objects within parking lots in urban environments are considered preexisting fixed objects regardless of whether they are or are not present continuously throughout the day.

   When worksite restrictions, land features, right of way limitations, environmental restrictions, construction phasing, or other construction conditions allow no practicable location meeting the preceding requirements, the Owner's Representative may approve alternate locations for fixed objects. Alternate locations shall be as far as practicable from the edge of traveled way. When the alternate location provides 15 feet or more separation from the edge of traveled way, the Owner's Representative may verbally approve the alternate location. When the alternate location provides less than 15 feet separation, written approval is required.

   When the Owner's Representative determines a fixed object or fixed objects present unacceptable hazard, use drums or Type II barricades with flashing warning lights, or use portable concrete or steel barriers, or temporary crash cushion to delineate or shield the hazard, as approved by the Owner's Representative.

4. Flagging. Furnish trained and competent flaggers and all necessary equipment, including lighting of the flagging position during nighttime operations, to control traffic through the traffic control zone. The Owner's Representative will approve each flagging operation before it begins and direct adjustments as conditions change.

   Flaggers must be certified by one of the following:

   a. Flagging Level I Certification by IMSA

   b. Flagger Certification by ATTSA

   c. Traffic Control Supervisor, ATSSA

   d. Work Zone Safety Specialist, IMSA

   e. ATSSA Flagging Instructor

   Flaggers shall maintain current certification. Flaggers must be able to show their flagger certification anytime they are on the project.

   Flaggers must maintain their assigned flagging location at all times, unless another qualified flagger

relieves them, or the approved traffic control plan terminates the flagging requirements. Remove, fully cover, or lay down flagger signs when no flagger is present. Keep the flaggers' area free of encumbrances, keep the flagger vehicle well off the roadway and not close to the flagger station, so that flaggers can be easily seen.

Provide approved equipment for two-way radio communications between flaggers when flaggers are not in plain, unobstructed view of each other.

Obtain the Owners Representative's written approval before flagging signalized intersections. When you flag a signalized intersection, either turn off and cover the traffic signal or place it in the All- Red Flash mode. Coordinate changing traffic signal modes and turning off or turning on traffic signals with the agency responsible for signal maintenance and operation and the Owner's Representative. Get their written approval in advance. Only uniformed police officers are permitted to direct traffic in an intersection with an operating traffic signal.

5. Pilot Cars. You may use pilot cars when part of an approved TCP, if the Owner's Representative determines one-way traffic is necessary, or if the route through the traffic control zone is particularly hazardous, involved, or frequently altered to preclude adequate signing. Do not use pilot cars to avoid localized traffic control at several locations. Pilot car operator may not control Automated Flagger Assistance Devices while operating a pilot car.

   Organize construction operations so the total of all stoppages experienced by a vehicle traveling through a project does not exceed 20 minutes. However, this does not imply that you may allow 20 minutes in all cases. Coordinate multiple pilot-car operations within a project or adjoining projects to minimize inconvenience to the traveling public. You may use two or more pilot cars to provide two-way traffic through the traffic control zone to reduce the waiting period. The flagger or pilot car operator must record each pilot car's departure time in a bound field book furnished by the Owner's Representative. Whenever practical, the flagger should tell the motorist the reason for and approximate length of the delay. Make every reasonable effort to yield right-of-way to the public and prevent excessive delay.

   Use an automobile or pickup as the pilot car, with your company logo prominently displayed. Equip the pilot car with a two-way radio for contact with flaggers and other pilot cars. Mount a G20-4 sign (Pilot Car Follow Me) on the rear at least 5 feet above the driving surface. Use high intensity flashing strobe lights, oscillating beacons, or rotating beacons on all Pilot Cars. Vehicle hazard warning lights may supplement but are not permitted to be used instead of high intensity flashing strobe lights, oscillating beacons, or rotating beacons. Identify the last vehicle in the column.

   When pilot car operations are approved, establish all required pilot car traffic control devices before beginning work. Continue pilot car operations until no longer necessary and an approved TCP is in place for operations without pilot car, including all required traffic control devices.

6. Street Sweeping. Keep free of loose material on all paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where your operations have deposited loose material. Use a street sweeper that can collect the material.

7. Watering. Furnish, haul, and place water for dust control and pavement flushing, as directed. Use water trucks that can provide a high-pressure water stream to flush the pavement and a light-water spray to control dust. If the flushing operations contaminate or fill adjacent catch basins, clean and restore them to their original condition. This requirement includes sections of roadway off the

project where flushing is required. The Owner's Representative will control water application.

If you take water from a lake, stream, or other natural water body, first obtain a water removal permit from the Alaska Owner of Natural Resources. Comply with the Alaska Owner of Fish and Game screening requirements for all water removal operations.

8. Portable Changeable Message Board Signs. Furnish Changeable Message Signs when approved on a TCP. Display only messages approved on the TCP. Follow application guidelines in the ATM.

9. Truck Mounted Attenuator, TMA. TMAs are mounted on the rear of work vehicles. Impact attenuators are defined by NCHRP 350 or MASH as a category 3 device. TMA shall be mounted on a vehicle with a minimum weight of 15,000 pounds and a maximum weight in accordance with the manufacturer's recommendations. TMA shall have an adjustable height so that it can be placed at the correct elevation during usage and to a safe height for transporting. Approach ends of TMAs shall have impact attenuator markings in accordance with the ATM. Do not use a damaged attenuator in the work. Replace any damaged TMA at your expense.

10. Traffic Control Vehicles. Use high intensity flashing strobe lights, oscillating beacons, or rotating beacons on the Work Zone Supervisor's vehicle and on vehicles being used to transport and set-up traffic control devices. Vehicle hazard warning lights may supplement but are not permitted to be used instead of high intensity flashing strobe lights, oscillating beacons, or rotating beacons.

643-3.05 AUTHORITY OF THE ENGINEER. When the Owner's Representative determines conditions may adversely affect the traveling public's safety and/or convenience, you will receive a written notice. The notice will state the defect(s), the corrective action(s) required, and the time required to complete such action(s). If you fail to take corrective action(s) within the specified time, the Owner's Representative will immediately close down the offending operations until you correct the defect(s). The Owner's Representative may require outside forces to correct unsafe conditions. The cost of work by outside forces will be deducted from any monies due under the terms of this Contract.

643.3.06 TRAFFIC PRICE ADJUSTMENT *(Not Used).*

Table 643-3 Adjustment Rates (Not Used).

643-3.07 MAINTENANCE OF TRAFFIC DURING SUSPENSION OF WORK. Approximately one month before you suspend work for the season, schedule a preliminary meeting with the Owner's Representative and Owner to outline the work you expect to complete before shutdown and the anticipated roadway condition. Schedule a field review with the Owner's Representative for winter maintenance acceptance. At the field review the Owner's Representative will prepare a punch list for implementation before acceptance.

To be relieved of winter maintenance responsibility, leave all roads with a smooth and even surface for public use at all times. Properly crown the roadbed surface for drainage and install adequate safety facilities. Make sure all illumination and signals, including vehicle detectors, are in good working order.

After the project is accepted for winter maintenance and until you are ordered to resume construction operations, the Owner is responsible for maintaining the facility. The Owner will accept maintenance responsibility only for portions of the work that are open to the public, as determined by the Owner's Representative. The Owner will not accept maintenance responsibility for incomplete work adjacent to accepted roads. You are responsible for maintaining all other portions of the work. The Owner's Representative will issue a letter of "Acceptance for Winter Maintenance" that lists all portions of the

work that the Owner will maintain during a seasonal work suspension. You retain all contractually required maintenance responsibilities until you receive this letter.

If you suspend work due to unfavorable weather (other than seasonal) or due to your failure to correct unsafe conditions, carry out Contract provisions, or carry out the Owners Representative's orders, you must bear all costs for traffic maintenance during the suspended period.

When you resume work, replace or renew any work or materials lost or damaged during temporary use. If the Owner caused damage during winter suspension, payment will be made for repairs by unit pay item of in accord with the Contract Documents. When the Owner's Representative directs, remove any work materials used in the temporary maintenance. Complete the project as though work has been continuous.

643-3.08 CONSTRUCTION SEQUENCING. The construction sequencing will be detailed by the contractor.

643-3.09 INTERIM PAVEMENT MARKINGS *(Not Used).*

643-3.10 LIGHTING OF NIGHT WORK.

Illuminate the night work areas according to Table 643-4.

Table 643-4 does not provide a comprehensive list of operations that require lighting. Provide lighting for other operations when necessary.

Use balloon lighting as the main light sources. Do not use floodlights without prior approval by the Owner's Representative. When approved, install floodlighting in a manner that minimizes glare for motorists, workers, and residents living along the roadway. Locate, aim, louver, and/or shield light sources to achieve this goal.

The Owner's Representative shall be the sole judge of when glare is unacceptable, either for traffic or for adjoining residences. When notified of unacceptable glare, modify the lighting system to eliminate it.

TABLE 643-4
NIGHT WORK ILLUMINATION EQUIPMENT AND LOCATION REQUIREMENTS

Type of Work or Equipment	Lighting Configuration
Paving, Milling, Striping, Pavement Marking Removal, Rumble Strip Installation	At least one machine-mounted balloon light of at least 2,000 watts. Provide additional lights or wattage if necessary to provide complete coverage.
Rolling, pavement sweeping	At least 4 sealed beam halogen lamps in the front and four in the back, Each should be at least 55 watts.
Flagging	One balloon light of at least 2,000 watts, located within 30 feet of the flagger location. Locate so the flagger and the flagging location are illuminated. Provide additional lights or wattage if necessary to provide complete coverage of the flagging location.
Truck crossings where haul vehicles cross or enter a road with more than 10,000 ADT, or where the haul vehicle crossing or entering location is controlled by portable traffic signals or flaggers	At least one balloon light of at least 2,000, located on the main road, one on the far right side of the intersection. Locate light within 30 feet of the edge of the side street. If there is a flagger at the crossing, locate the light or lights so the lighting requirements for Flagging are also satisfied.

If the Contractor fails to provide required lighting equipment or provides lighting that creates unacceptable glare, the Contractor shall cease all construction activities that require illumination, including flagging operations, until the condition or conditions are corrected.

Use lighting equipment in good operating condition and that complies with applicable OSHA, NEC, and NEMA codes.

Provide suitable brackets and hardware to mount lighting fixtures and generators on machines and equipment. Design mountings so lights can be aimed and positioned as necessary to reduce glare.
Locate mounting brackets and fixtures so they don't interfere with the equipment operator or overhead structures. Connect fixtures securely in a manner that minimizes vibration.

Ensure ground, trailer, and equipment-mounted light towers or poles are sturdy and freestanding without the aid of guy wires. Towers shall be capable of being moved as necessary to keep pace with the construction operation. Position ground and trailer-mounted towers and trailers to minimize the risk of being impacted by traffic on the roadway or by construction traffic or equipment.

Raise trailer or equipment mounted lights to maximum height, except do not exceed the clearance required for overhead objects such as overhead signals, overhead signs, trees, aerial utilities, or bridges.
Aim and adjust lights to provide the required light levels. Provide uniform illumination on the hopper, auger, and screed areas of pavers. Illuminate the operator's controls on all machines uniformly.

Furnish each side of non-street legal equipment with a minimum of 75 square inches high intensity retroreflective sheeting in each corner, so at least 150 square inches of sheeting is visible from each direction. Provide red sheeting on the rear of the equipment and yellow sheeting elsewhere.

Existing street and highway lighting and conventional vehicle headlights may supplement but do not relieve the Contract requirements to provide lighting for night work, according to the requirements of Table 643-4.

Provide sufficient fuel, spare lamps, spare generators, and qualified personnel to ensure that all required lights operate continuously during nighttime operations. Ensure generators have fuel tanks of sufficient capacity to permit operation of the lighting system for a minimum of 12 hours. In the event of any failure of the lighting system, discontinue the operation that requires illumination until the required level and quality of illumination is restored.

Maintain a supply of at least twenty emergency flares for use in the event of emergency or unanticipated situations. Comply with local noise ordinances.

Install all post-mounted electroliers located within the clear zone, on NCHRP 350 or MASH compliant breakaway bases.

643-3.11 HIGH VISIBILITY GARMENTS. Ensure all workers within project limits wear outer garments that are highly visible and comply with the following requirements:

1. Standards. Use high visibility garments conforming to the requirements of ANSI/ISEA 107-2004, Class 2 for tops or Class E for bottoms, and Level 2 retroreflective material.
2. Labeling. Use garments labeled in conformance with Section 11.2 of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010.
3. Tops. Wear high visibility vests, jackets, or coverall tops at all times.
4. Bottoms. Wear high visibility pants or coverall bottoms during nighttime work (sunset to sunrise). Worksite traffic supervisors, employees assigned to traffic control duties, and flaggers wear high visibility pants or coverall bottoms at all times.
5. Outer Raingear. Wear raingear tops and bottoms conforming to the requirements of this Subsection 643-3.11.
6. Exceptions. When workers are inside an enclosed compartment of a vehicle, they are not required to wear high visibility garments.
7. Condition. Furnish and maintain all vests, jackets, coveralls, rain gear, hard hats, and other apparel in a neat, clean, and presentable condition. Maintain retroreflective material to Level 2 standards.

Payment for high visibility garments for workers is subsidiary to other traffic contract items.

643-4.01 METHOD OF MEASUREMENT. Section 109 and as follows. Quantities will not be measured during winter suspension of work.

1. Traffic Maintenance. Calendar Day: Every day shown on the calendar, beginning and ending at midnight. Measurement begins on the day following your receipt of the Notice to Proceed or on the first day of work at the project site, whichever is later, and ends on the date of project completion.

2. Traffic Control Device Items. By the number of units of each bid item shown on the bid schedule (or the Traffic Control Rate Schedule, if item 643(25), Traffic Control, is included) that are installed, accepted, and operational. Incomplete or unsatisfactory devices will not be measured. Special Construction Signs are measured by the total area of legend-bearing sign panel, as determined

under Subsection 615-4.01. Items measured by the day are for each item per 24-hour period.

3. Traffic Maintenance Setup Items. By each lane closure or one-lane road in place per hour. By each detour or road closure in place per 24-hour period.

4. Portable Concrete Barrier. By each nominal 12.5 foot section placed according to the approved TCPs, for the initial placement and for each subsequent relocation when moved more than 10 feet in any direction. Each transition piece (sloping end) will be measured as a single section.

5. Temporary Crash Cushion. By each acceptable installation.

6. Interim Pavement Marking. By the single-stripe station. A single stripe is a marking or a temporary raised pavement marker 4 inches wide. Wider striping is measured in multiples of 4 inches. Centerline gaps are not deducted from measurements.

7. Flagging and Pilot Car. By the number of approved hours, supported by certified payroll.

8. Street Sweeping. By the number of operated hours, supported by certified payroll and approved by the Owner's Representative.

9. Watering. Lump sum price. ~~By the 1,000 gallons (M-Gallon) of water applied. The Owner's Representative may specify measurement by weight or volume. If by weight, convert to gallons at 8.34 pounds per gallon. If by volume, convert to gallons at 7.48 gallons per cubic foot.~~

10. Traffic Price Adjustment. By each minute that any lane of traffic is not open to full use by the traveling public, measured to the nearest minute. The Owner's Representative will determine whether the roadway is opened to full use.

11. Traffic Control. By the units specified in the Specifications or Contract Documents.

12. Portable Changeable Message Board Sign. By the 24-hour period for each sign, as shown on an approved TCP and displaying an approved message.

13. Plastic Safety Fence. By the linear foot, as placed, to protect or channelize pedestrian traffic as shown on an approved TCP. Any adjustments in configuration of the fence at the same location that does not result in an increased amount of fence is not measured. Opening and closing the fence to gain access to and from the worksite is not measured.

14. Temporary Sidewalk Surfacing. By the square yard as shown on an approved TCP.

15. Temporary Guardrail. By the linear foot, including end treatments, as shown on an approved TCP.

16. Portable Steel Barrier. By the linear foot placed according to the manufacturer's recommendation and approved TCPs, for the initial placement, and for each subsequent relocation when moved more than 10 feet in any direction.

643-5.01 BASIS OF PAYMENT.

1. Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, the Construction Phasing Plan, and the maintenance of all roadways, approaches, crossings, intersections and pedestrian and bicycle facilities, as required. This item also includes any Traffic Control Devices required but not shown on the bid schedule.

   Items required by the Contract that are not listed on the bid schedule or not included in other

items are subsidiary to Item 643(2) Traffic Maintenance.

Traffic control devices, barriers, and crash cushions required to delineate or shield fixed objects will not be measured or paid for separately, but will be subsidiary

Traffic control devices, barriers, and crash cushions required to delineate or shield guardrail posts or non-crashworthy ends will not be measured or paid for separately, but will be subsidiary, when required for failure to meet completion timelines in subsection 606-3.01.

Payment will be made under:

Pay Item	Pay Unit
643(2) Traffic Maintenance	Lump Sum
643(18) Watering	Lump Sum

SECTION 646
CPM SCHEDULING

646-1.01 DESCRIPTION. Provide and maintain a Critical Path Method (CPM) progress schedule for the project. Use the schedule in coordinating and monitoring of all work under the Contract including activity of subcontractors, manufacturers, suppliers, and utility companies, and reviews by the Owner's Representative. Update CPM, as required.

646-2.01 SUBMITTAL OF SCHEDULE.

Submit a detailed initial CPM schedule at least 5 working days prior to the preconstruction conference, for the Owner's Representative's approval. Meet the requirements set forth below.

The construction schedule, for the entire project, may not exceed the specified contract time.

Following the Owner's Representative's review, if revisions to the proposed CPM schedule are required, do so promptly. The CPM schedule must be finalized within 60 days of the Notice to Proceed.

646-3.01 REQUIREMENTS AND USE OF SCHEDULE.

1. Schedule Requirements. Prepare the CPM schedule as a Precedence Diagram Network developed in the activity-on-node format which includes:

   a. Activity description

   b. Activity duration

   c. Resources required for each of the project activities, including:

      (1) Labor (showing work days per week, holidays, shifts per day, and hours per shift)

      (2) Equipment (including the number of units of each type of equipment)

      (3) Materials

   Show on the activity-on-node diagram the sequence and interdependence of all activities required for complete performance of all items of work under this Contract, including shop drawing submittals and reviews and fabrication and delivery activities.

   No activity duration may be longer than 15 work days without the Owner's Representative's approval.

   The Owner's Representative reserves the right to limit the number of activities on the schedule.

   Consider that schedule float time is shared equally with the Owner.

   The contract completion time will be adjusted only for causes specified in the Contract Documents.

   As determined by CPM analysis, only delays in activities which affect milestone dates or contract completion dates will be considered for a time extension.

2. 60-Day Preliminary Schedule. Before proceeding with any work on site, prepare, submit, and receive the Owner's Representative's approval of a 60-Day Preliminary Schedule. Provide a detailed breakdown of activities scheduled for the first 60 days of the project and include mobilization, submittals, procurement, and construction.

   No contract work may be pursued at the site without an approved 60-Day Preliminary Schedule or

an approved CPM schedule.

3. Schedule Updates. Hold weekly job site progress meetings with the Owner's Representative for the purpose of updating the CPM schedule. Review progress and verify finish dates of completed activities, remaining duration of uncompleted activities, and any proposed logic and/or time estimate revisions. Submit a revised CPM schedule, within 5 working days after this meeting, showing the finish dates of completed activities and updated times for the remaining work, including any addition, deletion, or revision of activities required by Contract modification.

4. Work Plans. In addition to the CPM schedule, submit a work plan every two weeks during construction detailing your proposed operations for the forthcoming two weeks. Include:

    a. work activities

    b. manpower involved by trade

    c. work hours

    d. equipment involved

    e. location of the work to be performed

646-4.01 METHOD OF MEASUREMENT. Section 109.

646-5.01 BASIS OF PAYMENT. Payment will be made under:

Pay Item	Pay Unit
646(1) CPM Scheduling	Lump Sum

SECTION 662
UTILITY RELOCATION

Add this section in its entirety.

662-1.01 DESCRIPTION. Provide utility relocation as identified on the plans. This will be completed by Nushagak Electric & Telephone Cooperative, Inc. or under their direct supervision.

662-2.01 MATERIALS.

Materials for the Overhead Electric / Telephone Relocation shall be as directed the Nushagak Electric & Telephone Cooperative, Inc.

662-3.01 CONSTRUCTION REQUIREMENTS.

The contractor shall coordinate the overhead electric / telephone relocation with the Nushagak Electric & Telephone Cooperative, Inc. All construction requirements shall be as directed by the utility owner.

662-4.01 METHOD OF MEASUREMENT. Section 109.

662-5.01 BASIS OF PAYMENT. Payment will be made under:

Pay Item	Pay Unit
662(1) Utility Relocation, Overhead Electric / Telephone	Each

DIVISION 700 – MATERIALS

SECTION 701
HYDRAULIC CEMENT

701-1.01 GENERAL. Meet the following general requirements for all cement furnished:

Provide produce from only one mil for any brand and type of hydraulic cement except to reduce excessive air entrainment when using air-entraining cement.

Cement may be shipped from pretested approved bins. Before using, retest cement that has been stored longer than 60 days in unsealed bins or silos. Store separately different types or brands of cement, or cement from different mills.

Protect cement from dampness during shipment and storage. Do not use partially set cement or cement which contains caked lumps. Do not use cement salvaged from discarded or used bags.

701-2.01 PORTLAND CEMENT. Meet AASHTO M 85, Type I, II, or III, including low-alkali cement requirement shown in Table 2.

701-2.02 BLENDED HYDRAULIC CEMENT. Meet AASHTO M 240, Type IP (Portland-pozzolan cement), modified as follows:

1. Cement constituent: meet Subsection 701-2.01.
2. Pozzolan constituent: fly ash meeting Subsection 711-2.03 and constituting between 15% and 20% (by weight) of the blended cement.
3. Furnish a certificate of compliance meeting AASHTO M 240, Section 14 as required by Subsection 106-1.05.

701-2.03 GROUT. Non-shrink, non-corrosive, non-metallic, cement-based grout meeting ASTM C1107. Meet the requirements of ATM 520. Develop a 28-day compressive strength of 9,000 psi from specimens made in accordance with ATM 507.

SECTION 703
AGGREGATES

703-2.01 FINE AGGREGATE FOR CONCRETE. Meet AASHTO M 6, Class A, except as follows:

Delete paragraph 8.2 of AASTHO 6.

Delete the flowing methods of sampling and testing:

AASHTO T 11	Amount of Material Finer than No. 200 Sieve
AASHTO T 27	Sieve Analysis
AASHTO T 103	Soundness (freezing and thawing)

And substitute the following:

ATM 304 (Method A)	Sieve Analysis of Fine and Coarse Aggregates and Material Finer Than No. 200 Sieve in Mineral Aggregates by Washing

Add the following: Meet AASHTO T 104 using sodium sulfate solution.

In AASHTO M 6, Section 7.1, table entitled "Deleterious Substances Limits", change the maximum percent of material by mass finer than No. 200 Sieve in a. (concrete subject to surface abrasion), from 2.0 to 3.0.

703-2.02 COARSE AGGREGATE FOR CONCRETE. AASHTO M 80, Class B, except as follows:

Delete the flowing methods of sampling and testing:

AASHTO T 11	Amount of Material Finer than No. 200 Sieve
AASHTO T 27	Sieve Analysis

And substitute the following:

ATM 304 (Method A)	Sieve Analysis of Fine and Coarse Aggregates and Material Finer Than No. 200 Sieve in Mineral Aggregates by Washing

Add the following: Meet AASHTO T 104 using sodium sulfate solution.

703-2.03 AGGREGATE FOR BASE AND SURFACE COURSE. Crushed stone or crushed gravel, consisting of sound, tough, durable pebbles or rock fragments of uniform quality. Free from clay balls, vegetable matter, or other deleterious matters. Meet Table 703-1:

TABLE 703-1
AGGREGATE QUALITY PROPERTIES FOR BASE AND SURFACE COURSE

PROPERTY	BASE COURSE	SURFACE COURSE	TEST METHOD
L.A. Wear,%	50, max.	45, max.	AASHTO T 96
Degradation Value	45, min.	45, min.	ATM 313
Fracture,%	70, min.	70, min., 1 Face	ATM 305
Liquid Limit	---	35, max.	ATM 204
Plastic Index	6, max.	10, max.	ATM 205
Sodium Sulfate Loss,%	9, max. (5 cycles)	9, max. (5 cycles)	AASHTO T 104

Meet Table 703-2 aggregate gradation requirements, as determined by ATM 304:

TABLE 703-2
AGGREGATE GRADATION FOR BASE AND SURFACE COURSE
Percent Passing By Weight

SIEVE	GRADATION			
	BASE COURSE		SURFACE COURSE	
	C-1	D-1	E-1	F-1
1-1/2 in.	100			
1 in.	70-100	100	100	100
3/4 in.	60-90	70-100	70-100	85-100
3/8 in.	45-75	50-80	50-85	60-100
No. 4	30-60	35-65	35-65	50-85
No. 8	22-52	20-50	20-50	40-70
No. 50	6-30	6-30	15-30	25-45
No. 200	0-6	0-6	8-15	8-20

703-2.04 AGGREGATE FOR HOT MIX ASPHALT. Process and crush aggregate that is free from clay balls, organic matter, other deleterious material, and not coated with dirt or other finely divided mineral matter. Aggregate used must consist of sound, tough durable rock of uniform quality.

Remove all natural fines passing a No. 4 sieve before crushing aggregates for Type IV mixes.

Coarse Aggregate. Aggregate retained on the No. 4 sieve.

Meet Table 703-3 requirements:

TABLE 703-3
COARSE AGGREGATE QUALITY FOR HMA

Description	Specification	Type II, Class A	Type I, Type II Class B, Type III	Type IV	Type V	Type SP
L.A. Wear, % max.	AASHTO T 96	45	45	45	45	45
Degradation Value, min.	ATM 313	30	30	30	30	30
Sodium Sulfate Loss, % max. (5 cycles)	AASHTO T 104	9	9	9	9	9
Fracture, % min.	ATM 305	90, 2 face	80, 1 face	90, 2 face	98, 2 face	90, 2 face
Flat - Elongated Pieces, % max. 1:5	ATM 306	8	8	8	8	8
Absorption, % max.	ATM 308	2.0	2.0	2.0	2.0	2.0
Nordic Abrasion, % max.	ATM 312	-	-	-	8.0	8.0

Fine Aggregate. Aggregate passing the No. 4 sieve. Fine aggregate shall meet the quality requirements of AASHTO M 29, including S1.1, Sulfate Soundness.

Fine aggregate for Type II, Class A mix shall not contain more than 20% natural fines (blend sand and mineral filler) added to the crushed aggregate, and shall not exhibit rut depth larger than 6.0 mm, as determined by ATM 419.

Fine aggregate for Type IV mixes:

- Do not blend back natural sand
- Shall be non-plastic as determined by ATM 205
- Shall have a minimum uncompacted void content (Fine Aggregate Angularity) determined by AASHTO T 304, Method A, 0f 45%

TABLE 703-4
BROAD BAND GRADATIONS FOR HOT MIX ASPHALT AGGREGATE
Percent Passing by Weight

SIEVE	GRADATION					
	Type I	**Type II**	**Type III**	**Type IV**	**Type V**	**Type SP**
1 in.	100	-	-	-	-	-
3/4 in.	80-90	100	-	-	100	100
1/2 in.	60-84	75-90	100	100	65-90	90-100
3/8 in.	48-78	60-84	80-90	80-95	55-80	74-90
No. 4	28-63	33-70	44-81	55-70	40-60	42-54
No. 8	14-55	19-56	26-70	35-50	≤45	25-35
No. 16	9-44	10-44	16-59	20-40	≤35	-
No. 30	6-34	7-34	9-49	15-30	≤25	-
No. 50	5-24	5-24	6-36	10-24	≤20	-
No. 100	4-16	4-16	4-22	5-15	≤12	-
No. 200	4-7	4-7	4-7	4-7	4-7	2-10

703-2.05 AGGREGATE FOR COVER COAT AND SURFACE TREATMENT *(Not Used).*

Table 703-5 Quality Properties for Cover Coat and Surface Treatment (Not Used).

Table 703-6 Aggregate Gradation for Cover Coat Material (Not Used).

Table 703-7 Aggregate Gradation for Asphalt Surface Treatment (Not Used).

703-2.06 MINERAL FILLER. Meet AASHTO M 17. Determine material grading using AASHTO T 37.

703-2.07 SELECTED MATERIAL. Meet the following requirements for the type specified. Obtain the Engineer's approval for the intended purpose, prior to use on the project.

1. Type A. Aggregate containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. Meet the following gradation as tested by ATM 304:

Sieve	Percent Passing by Weight
No. 4	20-60%
No. 200	0-6%, determined on the minus 3-inch portion of the sample

2. Type B. Aggregate containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. Meet the following gradation as tested by ATM 304:

Sieve	Percent Passing by Weight
No. 200	0-10%, determined on the minus 3-inch portion of the sample

3. Type C. Earth, sand, gravel, rock, or combinations thereof containing no muck, peat, frozen material, roots, sod, or other deleterious matter and is compactable under the provisions of Subsections 203-3.04.

703-2.08 FILTER BLANKET *(Not Used).*

703-2.09 SUBBASE. Hard, durable particles or fragments of stone or gravel. Do not use materials that break up when alternately frozen and thawed or wetted and dried. Do not include muck, frozen material, roots, sod, or other deleterious matter. Meet Table 703-8.

TABLE 703-8
QUALITY PROPERTIES FOR SUBBASE

L.A. Wear,%	AASHTO T 96	50 max.
Liquid Limit	ATM 204	25 max.
Plasticity Index	ATM 205	6 max.
Degradation Value	ATM 313	40 min.

Meet the grading requirements of Table 703-9 (ATM 304).

Grading C and Grading D: Crushed aggregate with at least 50% by weight of the particles retained on the No. 4 sieve having at least one fractured face as tested by ATM 305.

TABLE 703-9
AGGREGATE GRADATION FOR SUBBASE
Percent Passing by Weight

SIEVE	GRADING				
	A	B	C	D	E
4 in.	100	--	--	--	--
2 in.	85-100	100	--	--	--
1 in.	--	--	100	--	--
3/4 in.	--	--	--	100	--
No. 4	15-60	15-60	40-75	45-80	--
No. 16	--	--	20-43	23-50	--
No. 200 *	10 Max.	0-6	4-10	4-12	0-6

* Gradation shall be determined on that portion passing the 3-inch screen.

703-2.10 POROUS BACKFILL MATERIAL

Gravel consisting of crushed or naturally occurring granular material containing not more than 1% clay lumps or other readily decomposed material (AASHTO T 112). Meet the grading requirements of Table 703-10 (ATM 304).

TABLE 703-10
AGGREGATE GRADATION FOR POROUS BACKFILL MATERIAL

SIEVE	PERCENT PASSING BY WEIGHT
3 in.	100
1 in.	0-10
No. 200	0-5

703-2.11 GABION BACKFILL (*Not Used).*

703-2.12 SAND BLANKET. Sand containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as determined by ATM 204 and ATM 205. Meet the grading requirements of Table 703-11 as determined by ATM 304.

TABLE 703-11
SAND BLANKET MATERIAL GRADATION

SIEVE	PERCENT PASSING BY WEIGHT
3/8 in.	100
No. 4	95-100
No. 200	0-6

703-2.13 STRUCTURAL FILL *(Not Used).*

Table 703-12 Aggregate Gradation for Structural Fill (Not Used).

703-2.14 AGGREGATE FOR ABRASIVE FINISH *(Not Used).*

Table 703-13 Gradation for Sand for Abrasive Finish (Not Used).

703-2.15 CRUSHED GLASS *(Not Used).*

Table 703-14 Combined Aggregate/Glass Cullet Gradation (Not Used).

703-2.16 RECYCLED ASPHALT PAVEMENT (RAP) RAP shall be free of contamination and deleterious materials. RAP maximum particle size shall not exceed 1.5in.

For HMA, the combined gradation of all aggregates, virgin and recycled, shall meet the requirements of Table 703-4 for the specified HMA Type.

SECTION 705
JOINT MATERIALS

705-2.01 JOINT FILLERS. Meet AASHTO M 213.

705-2.02 JOINT SEALER.

Silicone Joint Sealer	ASTM D6990
Hot Pour Joint Sealer	AASHTO M 173

705-2.03 BRIDGE SEAL *(Not Used).*

705-2.04 JOINT MORTAR. Use a mixture of one part portland cement and two parts approved sand with water as necessary to obtain the required consistency. Use mortar within 30 minutes after its preparation.

705-2.05 FLEXIBLE WATERTIGHT GASKETS *(Not Used).*

705-2.06 HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN *(Not Used).*

SECTION 707
METAL PIPE

707-2.01 CORRUGATED STEEL PIPE, PIPE ARCHES, AND UNDERDRAINS. Meet AASHTO M 36 for conduits and coupling bands including special sections such as elbows and flared end sections. Meet the specified sectional dimensions and gages. Furnish shop-formed elliptical pipe where specified. Fabricate pipe using one of the following:

1. Zinc-coated steel meeting AASHTO M 218
2. Aluminum-coated steel meeting AASHTO M 274
3. Aluminum-zinc alloy coated steel meeting AASHTO M 289

707-2.02 BITUMINOUS COATED CORRUGATED STEEL PIPE, PIPE ARCHES, AND UNDERDRAINS *(Not Used).*

707-2.03 CORRUGATED ALUMINUM ALLOY CULVERT PIPE AND UNDERDRAINS

Meet AASHTO M 196.

707-2.04 STRUCTURAL PLATE CULVERTS *(Not Used).*

707-2.05 DUCTILE IRON PIPE FOR WATER AND SANITARY SEWER *(Not Used).*

707-2.06 SERVICE PIPE *(Not Used).*

707-2.07 GALVANIZED STEEL WATER CONDUIT *(Not Used).*

SECTION 708
PAINTS

708-1.01 GENERAL REQUIREMENTS. Ship paint in strong, substantial containers, plainly marked with the name, weight, and volume of the paint content, together with the color formula, batch number, and the name and address of the manufacturer.

Store materials in a closed weather proof, dry shelter at all times.

Have the paint manufacturer furnish samples of the actual batches of paint supplied for the project for independent laboratory testing of chemical composition.

Use reduction and clean up thinners approved by the coating manufacturer. Measure and document all thinner reduction with records provided to the Engineer. Ship all thinners in their manufacturer's original containers.

708-2.01 PAINT FOR STEEL STRUCTURES

1. Prime Coat. A single component, moisture cure, polyurethane (SC-MC-U) using zinc dust pigment, meeting the following:

zinc powder 78% by weight, min.
volume of solids 60% min.
zinc in dry film 83% minimum, by weight (ASTM D521)
weight per gallon 23 pounds, min.
VOCs 3.75 pounds per gallon, max.

2. Intermediate Coat. A single component, moisture cure, polyurethane (SC-MC-U). Pigment color must contrast with the prime coat and the top coat. Meet the following:

micaceous iron oxide (MIO) 3.3 pounds per gallon, min. (ASTM D5532, Type I)
volume of solids 60% min.
weight per gallon 12.5 pounds min.
VOCs 3.75 pounds per gallon, max.

3. Top Coat. A single component, moisture cure, aliphatic polyurethane (SC-MC-ALIP-U). Pigment color FSS FED-STD-595B, color number 26492. Evaluate the color match as a general match under a daylight source using ASTM D1729. Meet the following:

micaceous iron oxide (MIO) 3.3 pounds per gallon, min. (ASTM D5532, Type I)
Volume of solids 60% min.
Weight per gallon 12 pounds min.
VOCs 3.75 pounds per gallon, max.

All coatings must pass the following tests:

Corrosion Resistance, ASTM B117, Salt Spray Test. Minimum of 5000 hours with less than 1/16 inch creep from scribe. Use 1/8 inch minimum thickness ASTM A36 steel panels, having SSPC-SP 10 Near White Blast with 1 to 2 mils angular profile.

Accelerated Weathering, ASTM G154. Minimum 400 hours QUV B bulb with no chalking, cracking, or gloss loss greater than 20%.

Forward Impact, ASTM D2794. Minimum 150 in-lb impact.

Abrasion Resistance, ASTM D4060. Less than 90 mg loss on CS-17 wheel, 1 kg/load, 1000 cycles.

Moisture Resistance, ASTM D4585. Minimum 1000 hours at 100 °F with no change in appearance.

Flexibility, ASTM D522, Cylindrical Mandrel Bend Test. Bend around 1/2 inch diameter mandrel with no cracking.

Adhesion, ASTM D4541. Minimum 500 psi on a certified pull test.

Cyclic Weathering, ASTM D5894. Minimum 5000 hours, 15 cycles with less than 1/16 inch creep from scribe. Use 1/8 inch minimum thickness ASTM A36 steel panels, having SSPC-SP 10 Near White Blast with 1 to 2 mils angular profile.

708-2.02 PAINT FOR TIMBER *(Not Used).*

708-2.03 PAINT FOR TRAFFIC MARKINGS. Use one of the following:

1. AASHTO M 248, Type F (Alkyd Resin), or
2. A-A-3183 Paint, Latex (Acrylic Emulsion, Exterior), or
3. The current State of Alaska DOT&PF maintenance specification for pavement marking paint.

708-2.04 PAINT FOR CONCRETE *(Not Used).*

SECTION 709
REINFORCING STEEL AND WIRE ROPE

709-2.01 REINFORCING STEEL. Furnish the type, grade, and size specified.

Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	AASHTO M 31
Fabricated Deformed Steel Bar Mats for Concrete Reinforcement	AASHTO M 54
Steel Welded Wire Fabric, Plain, for Concrete Reinforcement	AASHTO M 55
Steel Wire, Plain, for Concrete Reinforcement	AASHTO M 32
Epoxy-Coated Reinforcing Bars	ASTM A775

Use deformed reinforcing bars for concrete structures meeting the tensile properties for the grade specified. Plain bars may be used for spirals and ties.

709-2.02 WIRE ROPE OR WIRE CABLE. Meet AASHTO M 30, for the type specified.

SECTION 710
FENCE AND GUARDRAIL

710-2.01 BARBED WIRE *(Not Used).*

710-2.02 WOVEN WIRE *(Not Used).*

710-2.03 CHAIN LINK FABRIC *(Not Used).*

710-2.04 METAL BEAM RAIL. Meet AASHTO M 180-00, Class A, Type II. Galvanize the rail per AASHTO M111 after fabrication.

710-2.05 FENCE POSTS *(Not Used).*

710-2.06 GUARDRAIL POSTS AND BLOCKS. Furnish posts and blocks, as specified, meeting the following requirements.

1. Wood Posts and Blocks. Use timber with a stress grade of 1200 psi or more. Testing must meet the standards of the West Coast Lumber Inspection Bureau. Use timber for posts and blocks that is either rough sawn (unplaned) or S4S with nominal dimensions indicated. Allowable size tolerance of rough sawn blocks in the direction of the bolt holes is ±1/4 inch. Only one combination of post and block finish may be used for any one continuous length of guardrail. Treat all timber to meet Section 714.
2. Steel Posts and Blocks. Meet the section and length specified or shown on the Plans. Use copper bearing steel when so specified. Use steel meeting the requirements of ASTM A36 and galvanized per ASTM A 123/A.
3. Synthetic Blocks. Products made from alternate materials may be used if accepted by the FHWA for use on the National Highway System.

710-2.07 GUARDRAIL HARDWARE. Meet AASHTO M 180. Galvanize after fabrication fittings, bolts, washers, and accessories meeting AASHTO M 111 or AASHTO M 232, whichever applies.

710-2.08 WIRE MESH *(Not Used).*

710-2.09 ANCHOR WIRE *(Not Used).*

710-2.10 PIPE COUPLINGS *(Not Used).*

710-2.11 GUARDRAIL TERMINALS. Meet coating requirements of AASHTO M 180, Class A, Type II. Galvanize after fabrication. Fabrication includes forming, cutting, shearing, punching, drilling, bending, welding and riveting. Provide one of the following terminal types as shown on the plans, for single-rail W-beam guardrail. Provide terminals that pass NCHRP 350 or MASH Test Level 3 and meet the following requirements:

1. Control Release Terminal. Meet the requirements of Standard Drawing G-25.
2. Parallel Terminal.
    a. Requirements:
    (1) Crashworthiness: Provide terminals that pass NCHRP 350 or MASH Test Level 3.
    (2) Length: 50 feet.
    (3) End Offset: 0 to 2 feet (25:1 or flatter straight taper) Offset end as shown on the plans.
    (4) Posts: Use posts that are:
        i) Steel post with hinge or
        ii) Yielding or breakaway steel post in tube

b. Acceptable models include the following or approved equivalent:
    (1) Sequential Kinking Terminal (SKT) manufactured by Road Systems, Inc., 3616 Old Howard County Airport, Big Spring Texas 79720, Telephone 432-263-2435.
    (2) Extruder Terminal (ET-Plus) manufactured by Trinity Highway Products, L.L.C., 950 West 400 South, Centerville, Utah 84014, Telephone 801-292-4461.

c. Install AASHTO M 268, Type III, IV, or V retro-reflective sheeting (2.0 square feet, minimum) on the end section of parallel terminals consisting of yellow and black bars sloping 45 degrees downward toward the traffic side of the terminal.

3. Buried in Backslope Terminal: Meet the requirements of Standard Drawing G-15.

SECTION 711
CONCRETE CURING MATERIALS AND ADMIXTURES

711-2.01 CURING MATERIALS.

Burlap Cloth made from Jute or Kenaf	AASHTO M 182
Sheet Materials for Curing Concrete	ASTM C171
Liquid Membrane-Forming Compounds for Curing Concrete	AASHTO M 148, Type I, except do not use compounds containing linseed oil.

711-2.02 CHEMICAL ADMIXTURES.

Air-Entraining Admixtures	AASHTO M 154
Water-Reducing Admixtures	AASHTO M 194
Set-Retarding Admixtures	AASHTO M 194
Set-Accelerating Admixtures	AASHTO M 194

711-2.03 FLY ASH. Class C or Class F meeting AASHTO M 295, including optional requirements, except change:

1. Moisture content to 1% maximum.
2. Amount retained on the No. 325 sieve to 30% maximum.

711-2.04 MICROSILICA ADMIXTURE. Meet AASHTO M 307, as modified below:

Table 1 Chemical Requirements

Loss on Ignition, max., %	4.0

Add the following:

Other compounds, total*, max., %	7.0

*Includes aluminum, ferric, magnesium, and calcium oxides

Table 3 Physical Requirements

Add the following:

Specific Surface Area, min.	$15 m^2/g$
(ASTM C1069)	

SECTION 712
MISCELLANEOUS

712-2.01 WATER. Use water in mixing or curing concrete that is clean and free of oil, salt, acid, alkali, sugar, vegetable or other substances injurious to the finished product. Meet the suggested requirements of AASHTO T 26. Use mix water that contains less than 500 parts per million of chlorides as CI or of sulphates as SO_4. Water known to be of potable quality will not require testing. Where the source of water is relatively shallow, enclose the intake to exclude silt, mud, grass, or other foreign materials.

Use water for irrigating trees, plants, and seeded areas that is free of elements harmful to plant growth.

712-2.02 CALCIUM CHLORIDE. AASHTO M 144.

712-2.03 LIMESTONE *(Not Used).*

712-2.04 PRECAST CONCRETE CURBING *(Not Used).*

712-2.05 PRECAST CONCRETE MANHOLE SECTIONS *(Not Used).*

712-2.06 FRAMES, GRATES, COVERS, AND LADDER RUNGS *(Not Used).*

712-2.07 CORRUGATED METAL UNITS *(Not Used).*

712-2.08 GLASS BEADS. Submit certifications of compliance as specified in Section 106-1.05 for each lot of glass beads used on the contract. Glass beads shall contain no more than 200 ppm of lead, 200 ppm of antimony, or 200 ppm of arsenic when tested in accordance with EPA 40 CFR 261.4. Glass Beads shall meet AASHTO M 247, Type 1, with a moisture resistant coating when tested in accordance with AASHTO T346.

712-2.09 CORPORATION STOPS AND CURB STOPS *(Not Used).*

712-2.10 GATE VALVES *(Not Used).*

712-2.11 VALVE SERVICE BOXES *(Not Used).*

712-2.12 HYDRANTS *(Not Used).*

712-2.13 GABIONS *(Not Used).*

712-2.14 PREFORMED PAVEMENT MARKING TAPE *(Not Used).*

712-2.15 RAISED AND RECESSED PAVEMENT MARKINGS *(Not Used).*

712-2.16 TEMPORARY RAISED PAVEMENT MARKERS FOR SHORT-TERM OPERATIONS, SEAL COATS, AND SURFACE TREATMENTS *(Not Used).*

712-2.17 METHYL METHACRYLATE PAVEMENT MARKINGS *(Not Used).*

712-2.18 GLASS BEADS FOR METHYL METHACRYLATE PAVEMENT MARKINGS *(Not Used).*

SECTION 713
STRUCTURAL TIMBER, LUMBER, AND PILING

713-2.01 MATERIAL REQUIREMENTS. Meet AASHTO M 168. Use the grade and species shown on the Plans, or if not shown on the plans use Douglas Fir No. 1 or equal for timber, lumber and piling.

SECTION 715
PRESERVATIVES FOR TIMBER

714-2.01 PRESERVATIVES. Apply preservative to all timber that is exposed to weather, water, or soil. Meet the following:

1. Timber. Use the preservatives and treatment processes of AASHTO M133 and *Best Management Practices for the Use of Treated Wood in Aquatic Environments* (BMPs), published by the Western Wood Preservers Institute, 601 Main Street, Suite 405, Vancouver, WA 98660 (Phone: 800-279-9663). Use Copper Naphthenate with a retention of preservative conforming to AWPA Use Category 4B for highways and bridges, and Use Category 4A for non-highway. Pressure treat by empty cell method in accordance with AWPA Standards C1 and C2.

2. Glued-Laminated Timber. Use Copper Naphthenate with a retention of preservative conforming to AWPA Use Category 4B for highways and bridges. Pressure treat by empty-cell process after gluing, in accordance with AWPA Standards C1 and C28.

3. Timber Piling. (Not Used).

When oil-borne preservatives are used, treat all lumber and timber, including glued-laminated members, by the empty-cell process, except treat material subject to salt water immersion by the full-cell process.

SECTION 715
STEEL FOR PILES

715-2.01 SCOPE. Steel used for Structural Steel Piling, Sheet Piling, and Steel Shells for Cast-in-Place Concrete Piles.

715-2.02 GENERAL REQUIREMENTS. Conform to the dimensions, weights, grades, and cross-sections shown on the Plans. Meet the applicable impact test requirements of Subsection 716-2.02 for Zone 3 fracture critical impact testing.

1. Structural Steel for Piling.

a. Meet ASTM A709, Grade 50T3. Piles 14 inches in diameter or less must be seamless. Fabricate according to the American Petroleum Institute (API) Specification 2B.

b. Meet American Petroleum Institute Specification 5L.

c. Meet ASTM A53 grade B. Piles 14 inches in diameter or less must be seamless.

2. Steel Shells for Cast-in-Place Concrete Piles. Use steel shells of sufficient strength and rigidity to permit their driving and to prevent distortion caused by soil pressures or the driving of adjacent piles, until filled with concrete. Ensure pipe is sufficiently tight to exclude water during the placing of the concrete.

3. Sheet Piling. Meet the requirements of AASHTO M 202 for sheet piles to be a permanent part of the structure. Maintain the integrity of the interlock when the piles are in place.

715-2.03 CERTIFICATION. Furnish 4 copies of a certified mill test report covering chemical and physical tests conducted on the steel to the Department for each heat number of metal included in the shipment.

SECTION 716
STRUCTURAL STEEL

716-2.01 SCOPE. Structural steel for highway bridges and other structural purposes.

716-2.02 GENERAL REQUIREMENTS. Meet the following:

1. General requirements for delivery of rolled steel plates, shapes, sheet piling, and bars for structural use ASTM A6

2. Structural Steel ASTM A709

3. High Strength Low-Alloy Columbium, Vanadium Steels of Structural Quality ASTM A709

4. High Strength Low-Alloy Steel with 50,000 psi, minimum yield point to 4 inches thick ASTM A709

5. High Yield Strength, Quenched and Tempered, Alloy Steel Plate Suitable for Welding ASTM A709

6. Welded and Seamless, High Strength, Low-Alloy Tubing ASTM A618

7. Filler Metal for Applicable Arc-Welding Electrodes AWS Specifications

8. Stud Shear Connectors ASTM A108, Gr. 1015, or 1020

9. Raised Pattern Plate. Where shown on the Plans, use plates for steel expansion joints fabricated from steel plate, with a raised pattern surface meeting the following requirements:

   a. Use diagonal type pattern, with the intersecting diagonals at right angles to one another. Use the same material for the raised portions of the pattern as the base metal of the plate. The raised pattern must be an inherent part of the plate. The pattern must be continuous throughout the surface of the plate and the projections along any diagonal must be spaced alternately with the projections along the normal diagonals.

   b. Use plate with projections that are self-draining and self-cleaning and provide a skid-resistant surface from all angles of approach. The projections must have flat tops and be designed not to chip, crack, split, or buckle at their intersection with the base metal.

10. Impact Test Requirements.

   a. Meet the supplemental requirements for impact toughness testing (Charpy V-Notch) and marking under ASTM A709, Zone 3. These supplemental requirements are mandatory for material designated on the Plans as fracture critical (F) or as main members subject to tensile stress (T).

   b. Submit impact test reports to the Engineer.

716-2.03 HIGH TENSILE STRENGTH BOLTS. Meet the following:

High Strength Bolts for Structural Steel Joints ASTM A325

Nuts for AASHTO M 164 bolts AASHTO M 292

Hardened Steel Washers ASTM F436

716-2.04 STEEL GRID FLOORS. Meet ASTM A709, Grade 36. Unless the material is galvanized, it must have a copper content of 0.2% minimum.

Unless painting of floors is specified in the Special Provisions, open type floors must be galvanized.

716-2.05 MACHINE BOLTS. Meet ASTM A307.

716-2.06 STEEL PIPE. Meet ASTM A53.

716-2.07 GALVANIZING. Hot-dip galvanize structural steel shapes, plates, bars and their products according to AASHTO M 111. Galvanize tubes and piles on inside and outside surfaces.

Hot-dip galvanize steel poles, mast arms, pedestals, and posts, according to AASHTO M 111. Submerge each component in the galvanizing kettle in one dip. Use only the dry kettle method of fluxing for high tower poles.

Hot-dip galvanize all anchor bolts, nuts, washers, tie-rods, clamps, and other miscellaneous ferrous parts in conformance with AASHTO M 232. After galvanizing, ensure that the bolt threads accept galvanized standard nuts without requiring tools or causing removal of protective coatings.

Galvanize rigid metal conduit in conformance with AASHTO M 232.

For Steel Bridge members, apply 10 mils zinc galvanizing by spray-metalizing process according to Steel Structures Painting Council (SSPC) Coating System Guide No. 23.00. Prepare surfaces before galvanizing in accordance with SSPC-SP 5 White Metal Blast Cleaning.

716-2.08 CERTIFICATION. Submit 5 copies of a certified mill test report covering chemical and physical tests conducted on all structural steel to the Department for the material in each shipment.

SECTION 724
SEED

724-2.01 DESCRIPTION. Grass seed to provide a living vegetative cover.

724-2.02 MATERIALS. Provide seed mix as specified in the Special Provisions. Provide seed collected or harvested within 2 years of the targeted seeding date. Provide all seed in pure live seed (PLS) unless otherwise directed.

Furnish seed true of genus and species. Meet applicable requirements of the State of Alaska Seed Regulations, 11 AAC 34, Article 1 and Article 4, and the Federal Seed Act, 7 CFR Part 201.

The Engineer will review requests for species or cultivar substitution(s); genus substitution is not allowed. Substitution requests need to be submitted a minimum of 60 calendar days in advance of purchase.

1. Prohibited and Restricted Noxious Weeds and Quarantined Pests. Furnish seed and appliances certified to be free of prohibited noxious weeds or quarantined pests, and certified to contain no more than the maximum allowable tolerances for restricted noxious weeds, according to Alaska Administrative Code, Title 11, Chapter 34 (11 AAC 34).

    a. Seed or appliances found to contain prohibited noxious weeds or quarantined pests will be rejected, according to 11 AAC 34.020(a) and 11 AAC 105-180, respectively.

    b. Seed or appliances found to contain restricted noxious weed seed in excess of the maximum allowable tolerance per pound will be rejected, according to 11 AAC 34.020(b).

Prohibited and restricted noxious weeds are listed in 11 AAC 34.020, and can be viewed at the following URL: http://plants.alaska.gov/invasives/noxious-weeds.htm.

2. Labeling. Ensure each bag or container of individual seed species is labeled to meet requirements of 11 AAC 34.010. Do not remove labels from bags or containers.

3. Certification. Certify seed is free of prohibited noxious weeds and restricted noxious weeds are within allowable tolerances. Furnish to the Engineer a statement signed by the vendor identifying the lot number or lot numbers, certifying each lot of seed has been tested within the preceding nine months, by a recognized seed testing laboratory, a member of the Association of Official Seed Certifying Agency (AOSCA), or the Alaska Plant Materials Center.

Seed will be rejected if:

a. Contains prohibited noxious weeds;

b. Contains restricted noxious weeds above maximum allowable tolerances;

c. Not certified as tested within the preceding nine months;

d. Wet, moldy, or otherwise damaged in transit or storage; or

e. Containers do not have labels or the labels have been removed.

Seed may be rejected for:

f. Discrepancies in the lot numbers listed on the statement to the lot numbers indicated on the labels of the seed containers.

The Contractor shall immediately remove rejected seed from the project premises. If seed is rejected for containing prohibited noxious weeds or for exceeding maximum allowable tolerances of restricted noxious weeds, dispose of rejected seed according to 11 AAC 34.075(g).

SECTION 725
FERTILIZER

725-2.01 DESCRIPTION. Standard commercial fertilizer supplied separately or in mixtures, and furnished in moisture proof containers. Mark each container with the weight and with the manufacturer's guaranteed analysis of the contents showing the percentage for each ingredient contained therein.

725-2.02 MATERIALS. Furnish a mixture of chemical ingredients providing the total available nitrogen, phosphoric acid, and potassium required by the soil analysis or as specified in the Contract Documents. Tolerances of the chemical ingredients are plus or minus 2%.

No Cyanamid compounds or hydrated lime are permitted in mixed fertilizers.

SECTION 726
TOPSOIL

726-2.01 TOPSOIL. Furnish a natural friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials. Meet the following:

1. Reasonably free from roots, clods, hard clay, noxious weeds, tall grass, brush, sticks, stubble or other litter, and be free-draining and non-toxic.
2. Contain between 3% and 20% organic matter as determined by loss-on-ignition of oven dried samples according to ATM 203.
3. Grading requirements:

Sieve	Percent Passing
2 in.	100
No. 4	75-100
No. 10	60-100
No. 200	10-70

Notify the Engineer of the source of topsoil at least 30 days prior to delivery of topsoil to the project from that location. The Engineer will inspect and test the topsoil and its source before approval will be granted for its use.

Unsuitable topsoil sources may be used if, prior to delivery to the project, sufficient organic matter in the form of pulverized peat moss or rich organic soil from other sources is thoroughly mixed with the topsoil to provide a product meeting the above requirements.

Use the application rates, determined by the Engineer, of fertilizer and limestone per acre of ground area of topsoil, based on soil analysis tests so that the total natural and applied chemical constituents are as follows:

Nitrogen	45 - 65 pounds per acre
Phosphoric Acid	45 - 90 pounds per acre
Potassium	45 - 90 pounds per acre

TABLE 726-1
LIMESTONE REQUIREMENTS

Soil pH	Limestone, tons/acre
Above 6.0	0
5.0-6.0	1.5
Below 5.0	3.0

SECTION 727
SOIL STABILIZATION MATERIAL

727-2.01 MULCH. Use one of the following:

1. Wood Cellulose Fiber or Natural Wood Fiber. Processed wood fiber with the following characteristics:
   a. Contains no germination- or growth-inhibiting factors.
   b. Will remain in uniform suspension in water under agitation and will blend with grass seed, fertilizer and other additives to form a homogeneous slurry.
   c. Will form a blotter-like ground cover on application, having moisture absorption and percolation properties and the ability to cover and hold grass seed in contact with soil.
   d. Dyed a suitable color to facilitate inspection of its placement.
2. Ship the mulch material in packages of uniform weight (plus or minus 5%) and bearing the name of the manufacturer and the air-dry weight content.
3. Use a commercial tackifier on all slopes steeper than 2:1. Use the amount recommended by the manufacturer.
4. Dried Peat Moss. Partially decomposed fibrous or cellular stems and leaves of any of several species of Sphagnum mosses with the following characteristics:
   a. Chopped or shredded to allow distribution through normal hydraulic type seeding equipment and capable of being suspended in water to form part of a homogeneous slurry.
   b. Free from woody substances and mineral matter such as sulfur or iron and with a pH value of between 4.0 and 6.5.
   c. Furnished in an air dry condition and contain less than 35% moisture by weight. Have a water holding capacity of not less than 800% by weight on an oven dry basis.
   d. Non-toxic.

727-2.02 MATTING. Use one of the following:

1. Burlap. Standard weave with a weight of 3.5 to 10 oz/ yd^2.
2. Jute Mesh Fabric. Cloth of a uniform, open, plain weave of undyed and unbleached single jute yarn. Use yarn that is loosely twisted and not varying in thickness more than one-half its normal diameter. Furnish jute mesh in rolled strips meeting the following requirements:
   a. Width: 45 to 48 inches, ± 1 inch
   b. 78 warp-ends per width of cloth (minimum)
   c. 41 weft-ends per yard (minimum)
   d. Weight: 20 ounces per linear yard, ± 5%
3. Woven Paper or Sisal Mesh Netting. Woven from twisted yarns available in rolls 45 to 48 inches wide. Mesh may vary from closed to open weave, ranging from 1/8 to 1/4 inch openings. Shrinkage after wetting may not exceed 20% of the surface area.
4. Knitted Straw Mat. Commercially manufactured erosion control blanket. Use photodegradable netting and biodegradable thread. Use straw from oats, wheat, rye, or other approved grain crops

that are free from noxious weeds, mold, or other objectionable material. May contain coconut or fiber to reinforce the straw. Follow the manufacturer's published recommendations.

5. Woven/Curled Wood Blanket. Machine produced mat of curled wood shavings with a minimum of 80% 6-inch or longer fibers, with consistent thickness and the fibers evenly distributed over the entire area of the blanket. Smolder resistant without the use of chemical additives. Cover the top side of the blanket with biodegradable extruded plastic mesh.

727-2.03 STAPLES. U-shaped staples for anchoring matting, approximately 6 inches long and 1 inch wide. Machine-made: No. 11 gage or heavier steel wire. Hand-made: 12-inch lengths of No. 9 gage or heavier steel wire.

SECTION 729
GEOSYNTHETICS

729-2.01 GEOTEXTILE, SEPARATION AND STABILIZATION.

1. Separation. Meet AASHTO M 288 for Separation, except provide a minimum permittivity of 0.05 sec^{-1}.

2. Stabilization. Meet AASHTO M 288 for Stabilization, except provide a minimum permittivity of 0.08 sec^{-1}.

729-2.02 GEOTEXTILE, SUBSURFACE DRAINAGE AND EROSION CONTROL.

1. Subsurface Drainage. Meet AASHTO M 288 for Subsurface Drainage.

2. Erosion Control. Meet AASHTO M 288 for Permanent Erosion Control.

729-2.03 PAVING FABRIC *(Not Used).*

729-2.04 SILT FENCE.

Meet AASHTO M 288 for Temporary Silt Fence.

729-2.05 GEOGRID

Biaxial polymer grid, specifically fabricated for use as a soil reinforcement, having high tensile strength, modulus, and stiffness in both principal directions. Use a single-layered, integrally-formed grid structure. Use either extruded or punched and drawn polypropylene or high density polyethylene. Geogrid must be UV-stabilized, chemically inert, and meet the physical requirements in Table 729-1.

Package, label, handle, and store geogrid material according to ASTM D4873.

TABLE 729-1
GEOGRID PHYSICAL REQUIREMENTS

PROPERTY	REQUIREMENT	TEST METHOD
Average Aperture Size, MD(1) XD(2)	 0.8-2.0 in. 0.8-2.0 in.	I.D Calipered Maximum Inside Dimension
Installation Damage Resistance	80% (3)	Sample per D5818 Test per D6637
Rib Thickness, min. (Nominal)	40 mils	Rib Thickness Calipered Minimum
Tensile Strength, min. At 2% Strain At 5% Strain	MD & XD 400 lb/ft 800 lb/ft	ASTM D6637
Junction Strength, min.	90%(4)	GRI GG-GG2

(1) MD: Machine Direction which is along roll length.
(2) XD: Cross machine direction which is across roll width.
(3) 80% relative to pre-installation Tensile Strength values. Perform Test install using GP or GW Class soil.
(4) determined by ASTM D6637

SECTION 730
SIGN MATERIALS

730-2.01 SHEET ALUMINUM. Use alloy 6061-T6, 5052-H36, 5052-H38, or recycled aluminum meeting alloy 3105, as specified in ASTM B 209. Meet the thickness of aluminum sheet designated on the Plans. Verify alloy and temper designations by mill certification.

Treat the aluminum base metal sheets with a rinsed non-hexavalent chromium conversion coating for aluminum and aluminum alloys that meets ASTM B 921, class one. Handle the cleaned and coated base metal only by a mechanical device or by operators wearing clean cotton or rubber gloves. After cleaning and coating operations, protect the panels at all times from contact or exposure to greases, oils, dust or other contaminants.

Make each sign panel a continuous sheet for all lengths 72 inches or less in the horizontal direction. Use no more than one vertical splice for signs up to 144 inches in length and 48 inches or less in height.

Meet the panel dimensions specified with a tolerance of 1/16 inch. Furnish metal panels that are cut to size and shape and free of buckles, warp, dents, cockles, burrs and any other defects resulting from fabrication. Complete all possible fabrication, including shearing, cutting and punching of holes prior to the base metal preparation.

730-2.02 HIGH DENSITY OVERLAID PLYWOOD. Construct plywood sign panels, for Construction and Maintenance Signs, of high density plywood, exterior type Grade B-C or better. Meet the requirements in PS 1-66 *Products Standard for Softwood Plywood, Construction and Industrial* published by the Products Standards Section of the U.S. Owner of Commerce.

Use high density type overlay, with the following properties:

1. Minimum weight of 60 pounds per thousand square feet of surface
2. Minimum thickness of 0.012 inch before pressing
3. Contain a minimum resin content of 45% based on the dry weight of the impregnated fiber
4. Contain sufficient resin content to bond itself to the plywood

Single Panel Signs	Thickness, inches, Minimum
Up to and including 18 inches wide	3/8
Over 18 inches wide	1/2
Plywood shields on destinations signs	3/8
Multiple Panel Signs	5/8

Prime the sign back with one coat of white exterior enamel undercoat and finish with one coat of white exterior enamel. Use primer recommended by the supplier of the finish coat which is completely compatible.

Before applying reflective sheeting:

1. Clean the surface thoroughly with lacquer thinner, heptane, benzene, or solvent recommended by sheeting manufacturer.
2. Sand the surface with light sandpaper or steel wool and wipe dry and clean with clean cloth.

730-2.03 REFLECTIVE SHEETING. Meet AASHTO M 268, for the type specified.

730-2.04 SIGN POSTS. Use the type and size of posts designated on the Plans.

1. Metal Pipe Posts.
   a. Fabricate from steel pipe to meet ASTM A 53 Standard Weight (Schedule 40), Type E or S, Grade B. Furnish square posts with 7/16 inch diameter holes drilled or punched as necessary to permit mounting of the sign.
   b. Hot dip galvanized to meet AASHTO M 111 after fabrication. When cutting metal posts after hot dip galvanizing, minimize damage to the zinc coating and protect all exposed surfaces by treating the exposed area.
   c. Repair galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating to meet the applicable provisions of AASHTO M 36.
2. Perforated Steel Posts.
   a. Fabricate posts from 0.105-inch (12 gauge) thick cold-rolled carbon steel sheets, commercial quality, to meet ASTM A653 and ASTM A924. Zinc coat, both sides, to meet coating designation G90. Form posts into a steel tube, roll to size, and weld in the corner.
   b. Perforate all members for their entire length with 7/16 inch diameter holes on 1 inch centers.
   c. Furnish members that are straight and with a smooth, uniform finish, with no splices.
   d. Ensure that all perforations and cut off ends are free from burrs.
   e. Ensure that consecutive sizes will telescope freely with a minimum of play.
3. Finished Wooden Posts. *(Not Used).*
4. Wide Flange Posts.
   a. Steel. Meet ASTM A 36.
   b. Hot dip galvanize to meet AASHTO M 111 after fabrication. When cutting galvanized metal posts, minimize damage to the zinc coating and treat the exposed area as follows.
   c. Repair galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating to meet the applicable provisions of AASHTO M 36.
5. Flanged Channel Posts. Use either of the following:
   a. Aluminum meeting ASTM B221, alloy 6061-T6.
   b. Steel meeting ASTM A36. Galvanize steel posts per AASHTO M 111.
6. Square Non-Perforated Steel Tubes.
   a. Fabricate from 3/16 inch thick cold-rolled carbon steel sheets, commercial quality, to meet ASTM A500, Grade B. Form posts into a steel tube, roll to size, and weld in the corner. Furnish with 7/16-inch diameter holes drilled or punched as necessary to permit mounting of the sign.
   b. Hot dip galvanize to meet AASHTO M 111 after fabrication. When cutting metal posts after

hot dip galvanizing, minimize damage to the zinc coating and protect all exposed surfaces by treating the exposed area.

c. Repair galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating to meet the applicable provisions of AASHTO M 36.

730-2.05 FLEXIBLE DELINEATOR POSTS. Durable plastic material meeting the dimensions and colors shown on the Plans. Resistant to ultraviolet light, ozone and hydrocarbon damage and remain flexible at a temperature of minus 40 °F. Provide posts with reflectors that are capable of self-erecting and remaining serviceable after 5 head-on impacts at 55 mph and 10 impacts at 35 mph with an automobile at an air temperature of plus 40 °F.

730-2.06 ACRYLIC PRISMATIC REFLECTORS. Meet AASHTO M 290 and the dimensions and colors shown on the Plans.

END OF TECHNICAL SPECIFICATIONS.