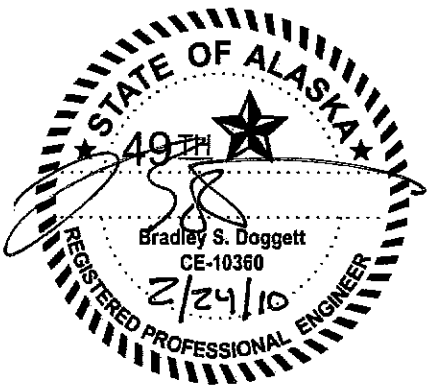
PART 4

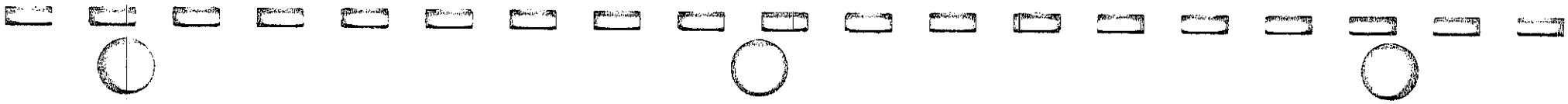
STANDARD MODIFICATIONS AND SPECIAL PROVISIONS

To the **STATE OF ALASKA**

STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

2004 EDITION





SECTION 101

DEFINITIONS AND TERMS

Standard Modifications

101-1.03 DEFINITIONS. Replace the definitions of SUBGRADE with the following:

SUBGRADE. The soil or embankment upon which the pavement structure is constructed. E22(1/1/06)

Delete text of PLANS and replace with: The Department's Contract drawings, profiles, typical cross sections, standard drawings, and supplemental drawings or reproductions showing the location, character, dimensions, and details of the work.
E32(01/27/07)

Add the following definition: **QUALIFIED PRODUCTS LIST.** A list of companies and products that the Department has found conforms to the SSHC. E36(01/27/07)

SECTION 102

BIDDING REQUIREMENTS AND CONDITIONS

Special Provisions

102-1.01 QUALIFICATION OF BIDDERS. After the last paragraph add the following paragraph: An Electrical Administrator, or a person whose Electrical Administrator's license is assigned to the Contractor must be employed by the Contractor under AS 08.40 at the time designated for bid opening. ES08(6/30/04)

Standard Modification

102-1.04 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND WORK SITE. Replace the second paragraph with the following: The records of geotechnical investigations including boring logs, test results, geology data reports, soil reports, material site reports, and geotechnical reports included in a bid package or made accessible to bidders or Contractors, are for information purposes only. These records are not part of the Contract. These records indicate subsurface conditions only at specific locations and times, and only to the depths penetrated. They do not necessarily reflect variations in soil, rock, or groundwater conditions that may exist between or outside such locations. Actual conditions may differ from what is shown in the records. Material Sources referenced in these records may not contain materials of sufficient quantity or quality to meet project requirements. The accessibility of these records does not constitute approval, nor guarantee suitability of soils or sources, or the rights to use sources for this project, except as specifically provided in subsections 106-1.02.4.b Mandatory Sources and 106-1.02.4.c Designated Sources. The records shall not substitute for independent investigation, interpretation, or judgment of the bidder or Contractor. The Department is not responsible for any interpretation or conclusion drawn from its records by the bidder or Contractor.

Bidders and Contractors shall examine subsection 106-1.02 Material Sources for further information about material source development. E23(1/1/06)

102-1.05 PREPARATION OF BID. Modify the second sentence in the third paragraph, after: "If a bidder is a corporation, the bid must be signed by a corporate officer," add: or agent. E18(6/30/04)

SECTION 103

AWARD AND EXECUTION OF CONTRACT

Standard Modifications

Delete Subsection 103-1.05 and replace with the following:

103-1.05 PERFORMANCE AND PAYMENT BONDS. The successful bidder shall furnish all required Performance and Payment Bonds on forms provided by the Department for the sums specified in the Contract. If no sum is specified, the successful bidder shall comply with AS 36.25.010. The Surety on each bond may be any corporation or partnership authorized to do business in the state as an insurer under AS 21.09 or two individual sureties approved by the Contracting Officer.

If individual sureties are used, two individual sureties must each provide the Department with security assets located in Alaska equal to the penal amount of each bond. Any costs incurred by the Contractor and the individual Surety are subsidiary and shall be borne by the Contractor or the individual Surety. In no event will the Department be liable for these Costs.

Individual sureties shall provide security by one, or a combination, of the following methods:

1. Escrow Account, with a federally insured financial institution, in the name of the Department. Acceptable securities include, but are not limited to, cash, treasury notes, bearer instruments having a specific value, or money market certificates.

2. Irrevocable letters of credit, with a financial institution approved by the Contracting Officer.

3. Cashier's or certified check, made payable to the State of Alaska issued by financial institutions approved by the Contracting Officer.

These bonds and security assets, as applicable, shall remain in effect for 12 months after the date of final payment or, if longer, until all obligations and liens under this Contract are satisfied, including, but not limited to, obligations under Subsection 107-1.19.

The Department may, in its discretion, notify the bonding company or Surety of any potential default or liability.

The Contractor shall substitute, within five working days, another bond or surety acceptable to the Department if an individual Surety or the Surety on any bond furnished in connection with the Contract:

1. Becomes insolvent or is declared bankrupt;
2. Loses its right to do business in any state affecting the work;
3. Ceases to meet Contract requirements;
4. Fails to furnish reports of financial condition upon request; or
5. Otherwise becomes unacceptable to the Department.

When approved by the Contracting Officer, the Contractor may replace:

1. An individual surety with a corporate surety; or
2. Posted collateral with substitute collateral.

Failure to maintain the specified bonds or to provide substitute bonds when required under this section may be grounds for withholding contract payments until substitute bonding is obtained, and may, in the Department's discretion, be grounds for declaring the Contractor in default.

E65-022209

SECTION 104

SCOPE OF WORK

Standard Modifications

104-1.01 INTENT OF CONTRACT. Add to the end of this subsection:

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

E58-072808

SECTION 105

CONTROL OF WORK

Standard Modification

105-1.02 PLANS AND WORKING DRAWINGS. In the third paragraph delete: "(24"x36")" and replace with: (22"x34")

105-1.03 CONFORMITY WITH PLANS AND SPECIFICATIONS. In the first sentence of the first paragraph after: "Work performed and materials furnished shall conform to the Plans and Specifications" add: and approved Working Drawings,

In the first sentence of the second paragraph after: "Work or material not conforming to the Plans and Specifications" add: and approved Working Drawings,

Special Provisions

105-1.06 COOPERATION WITH UTILITIES. Add the following: Request locates from the utilities having facilities in the area. Use the Alaska Digline, Inc. Locate Call Center for the following utilities:

ALASKA DIGLINE, INC. Locate Call Center Anchorage: 811 who will notify the following:
ACS
Alaska Fiberstar
Anchorage School District
Anchorage Water & Wastewater
AT&T Alascom, Inc.
Chugach Electric Assoc
DOT Street Lights, State of Alaska
Enstar Natural Gas
GCI Communications
MOA Street Maint. Dept MFS
Municipality of Anchorage
Municipal Light & Power

Call the following utilities and agencies directly:

Contact the Central Region Maintenance & Operations Office at (907) 269-0760 to obtain the appropriate District Superintendent's phone number for this project.

There are various utility appurtenances located within the project limits. Utilities scheduled for relocation are addressed in the following utility specific sections.
Right of Way and/or Construction surveying is required before utility relocation.

Payment will be made as follows:

1. Subsidiary to Item 642(1) Construction Surveying, if the Contractor is required to provide the surveying as part of the contract and/or

2. Under Item 642(3) Three Person Survey Party, if the construction or Right of Way staking required by the utility is either in advance of the 2 week work plan, or not required by the contract.

The utility shall give the Contractor, through the Engineer, 15 calendar days advance written notice for required staking.

(5/24/07)R3

Specific coordination requirements for the specific utilities are listed below:

MUNICIPAL LIGHT & POWER (ML&P) owns and operates overhead electrical transmission and overhead electrical distribution within the project limits. The following facilities will require relocation.
At station 102+00 ML&P's existing transmission pole on the south west quadrant of the 13th Avenue and Gambell Street intersection will require relocation due to the widening. A new pole will be placed to the south out of the proposed improvements. Allow ML&P seven (7) calendar days to complete the relocation.

Once the new Load Center has been inspected and green tagged, provide ML&P the appropriate information with location for service and the tag id numbers. Electrical service will be scheduled based on the current workload of the utility.

GENERAL COMMUNICATIONS INC. (GCI) owns and operates overhead telecommunications within the project limits. The following facilities will require relocation.

Once ML&P has completed the relocation described above GCI will transfer the cable attachments from the existing to the new pole. Allow GCI two (2) calendar days to complete the relocation.

105-1.13 MAINTENANCE DURING CONSTRUCTION. Add the following at the end of this subsection: Costs of maintenance work during construction and before the project is accepted as substantially complete 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 Engineer's opinion, the Contractor at any time fails to provide adequate maintenance, the Engineer 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 Engineer 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.

E33(01/27/07)

Standard Modification

105-1.16 FINAL ACCEPTANCE AND RECORD RETENTION. Modify the first paragraph, Item 4., after: "DOLWD" add: and State Department of Revenue. (6/30/04)E19

105-1.17 CLAIMS FOR ADJUSTMENT AND DISPUTES. Add the following: Appeals to the superior court under AS 36.30.685 must be filed in the Third Judicial District. R93(03/21/01)

Add the following Subsection:

105-1.18 INTERIM COMPLETION DATES.

1. Complete all underground work, paving, curb and gutter, signal and lighting pole foundations, and landscaping by September 1, 2010.

2. Complete all remaining contract work by October 31, 2010.

SECTION 106

CONTROL OF MATERIAL

Standard Modification

106-1.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. In fifth paragraph, in two places remove the text: "Approved Products List" and replace with: *Qualified Products List* E36(01/27/07)

Special Provisions

106-1.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. Add the following:

Buy America Provision. Comply with the requirements of 23 CFR 635.410, Buy America Requirements, and shall submit a completed Material Origin Certificate, Form 25D-60, before award of the contract.

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), scrap, 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 that 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.

Take whatever steps are necessary to ensure that manufacturing processes for each covered product comply with this provision. Non-conforming products shall be replaced at no expense to the State. 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. (02/07/05)R13

Standard Modification

106-1.02 MATERIAL SOURCES.

1. a. General. Within Item a. delete text and replace with: Utilize Useable Excavation according to subsection 104-1.04 before using material sources listed in subsection 106-1.02.4. When there is insufficient useable excavation furnish additional required materials from sources of the Contractor's choice, except that the Contractor shall use a mandatory source when identified in the Contract.

4. Type of Sources. Replace the first paragraph with the following: The Contractor shall utilize Useable Excavation according to subsection 104-1.04 before using material sources listed in this subsection. When there is insufficient Useable Excavation, the Contractor shall furnish additional required materials from sources of the Contractor's choice, except that the Contractor shall use a mandatory source when identified in the Contract.

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

4. d. Available Sources. Replace the second paragraph with the following: When the Department 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 assumptions the Contractor makes based on this data, and for exploring Available Sources to the Contractor's satisfaction.

4. e. Excluded Material Sources. Replace the paragraph with the following: Some material sources may not be considered acceptable regardless of location or ownership. The bid documents may identify some material sources excluded from use. The Department reserves the right to exclude a material sources or any portion of a material source, at any time after Contract award, that is determined by material testing to be unsuitable for use on the project. E24(1/1/06)

Add new subsection 106-1.08:

106-1.08 SUBMITTAL PROCEDURE. The Contractor shall complete a Submittal Register, and shall submit it to the Engineer on forms provided by the Department. 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 working drawings, schedules of work, and other items required to be submitted to the Department 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 Engineer for review, as required by the Materials Certification List and the Contract.

The number of copies required for submittals may be included in the specifications for individual bid items. If the number of copies of a submittal is not otherwise specified, three copies shall be required. On each sheet submitted to the Department, including working drawings, catalog cuts, manufacturer's certifications, etc., space shall be provided for Contractor and Department review stamps.

Each copy of each submittal shall include a Submittal Summary sheet. The Contractor may use forms provided by the Department or a similar form of the Contractor's choice as approved by the Department. The Contractor shall sign submittals and submit them to the Engineer. The Department will review submittals within 30 days after they are received. The Department 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 Engineer with more information or corrections. The Department will review resubmittals within 30 days after they are received.

The Contractor shall not order material or use working drawings that have not been approved by the Department. The Contractor shall be responsible for timely submittals. Failure by the Department to review submittals within the time given 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 Department 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 Engineer to identify the date, company and location of invoice (bill, certificate); project name and number where material will be incorporated; manufacturer, product number, quantity and cost.

E34(01/27/07)

SECTION 107

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Special Provisions

107-1.02 PERMITS, LICENSES, AND TAXES. Add the following: Obtain a written statement from the State Historic Preservation Officer stating that material disposal, extraction, stockpiling or staging, on off project site, is not expected to impact cultural resources. The State Historic Preservation Officer is with the Department of Natural Resources in Anchorage, and may be contacted at (907) 269-8715. If cultural resources are discovered during construction activities, stop work at that site and notify the Engineer.

Provide a wetland specialist able to conduct wetlands determinations and delineations according to the Corps of Engineers 1987 Wetland Delineation Manual. The wetland specialist shall conduct the determination and delineations of sites outside the project limits or not previously permitted, impacted by the Contractor's operations. These delineations will be subject to Corps of Engineers approval.

Provide the Engineer a copy of permits or clearances received before using sites outside the project limits. Additionally, provide the Engineer a written statement that permits or clearances have been obtained. Also provide a written statement to the Engineer listing agencies or offices contacted that responded that no additional action is required.

Add the following: The Department has received the following permits on the Contractor's behalf:

1. Alaska Department of Environmental Conservation Stormwater Review, Letter of Non-Objection, Stormwater Project No. 10-WW-198-002, dated July 27, 2009.

Provide information to comply with the US Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) General Permit for Alaska to discharge storm water from the construction site. Refer to Section 641, Erosion, Sediment, and Pollution Control for requirements for this permit.

A Municipality of Anchorage (MOA) Right-of-Way Use permit will be required. The Municipality will require a copy of the approved Traffic Control Plan and a copy of the Notice to Proceed from the Contractor.

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. Change the first sentence to the following: When operations encounters historic or prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, (shell heaps, land or sea mammal bones or tusks, or other items of historical significance), cease operations immediately and notify the Engineer.

Standard Modification

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. Add the following paragraphs:

7. 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: Before beginning operations, the Engineer 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. Before demobilization the Contractor shall repair damages attributed to its operations. The Contractor agrees that costs associated with repairs shall be subsidiary to other items of work and will not be paid for directly.

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

E35(01/27/07)

Add the following: If required water for 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 Engineer. The Water Resource Manager is with the Department of Natural Resources in Anchorage and may be contacted at (907) 269-8624. R7(05/29/02)

Special Provisions

Add the following subsection:

107-1.21 FEDERAL AFFIRMATIVE ACTION. The Federal Equal Employment Opportunity, Disadvantaged Business Enterprise, and On-the-Job Training affirmative action program requirements that are applicable to this Contract are contained in the project Special Provisions and Contract Forms, and may include:

Disadvantaged Business Enterprise (DBE) Program	Section 120
Training Program	Section 645
Federal EEO Bid Conditions	Form 25A-301
EEO-1 Certification	Form 25A-304
DBE Subcontractable Items	Form 25A-324
ADOT&PF Training Program Request	Form 25A-310
Training Utilization Report	Form 25A-311
Contact Report	Form 25A-321A

DBE Utilization Report	Form 25A-325C
Summary of Good Faith Effort Documentation	Form 25A-332A
Required Contract Provisions, Federal-Aid Contracts	Form 25D-55

In addition to the sanctions provided in the above references, non-compliance with these requirements is grounds for withholding of progress payments. S80(01/22/02)

SECTION 108

PROSECUTION AND PROGRESS

Special Provision

108-1.01 SUBLETTING OF CONTRACT. Delete paragraph four and replace with the following:

Submit the Contractor Self Certification for Subcontractors and Lower Tier Subcontractors, Form 25D-042, before the Contractor or a subcontractor sublets any portion of the Contract. The certification will be accepted by the Department in lieu of written approval of subcontracts. The Department maintains the authority to review subcontracts, require prior written approval of subcontracts, and to deny permission to sublet work. The Department may penalize the Contractor for false statements or omissions made in connection with Form 25D-042.

1. The Contractor shall ensure the following for each subcontract (agreement):

   a. The Department is furnished with one completed Contractor Self certification, Form 25D-042, and two copies of the subcontract signed by both parties and including item descriptions and prices of subcontracted work before the subcontracted work begins;

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

   c. The required prompt payment provisions of AS 36.90.210, as well as other items listed in Form 25D-042, are included in the subcontracts;

   d. The subcontractors pay current prevailing rate of wages according to subsection 107-1.04 and file certified payrolls with the Engineer and DOLWD for work performed on the project; and

   e. Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Department within 5 calendar days. R57(01/02/08)

108-1.03 PROSECUTION AND PROGRESS. Delete the last sentence of the first paragraph and substitute the following: Submit the following at the Preconstruction Conference:

Delete the last sentence of the first paragraph in item 1. A progress schedule. and substitute the following:

1.A Critical Path Method (CPM) Schedule is required, in a format acceptable to the Engineer, showing the order the work will be carried out and the contemplated dates the Contractor and subcontractors will start and finish each of the salient features of the work, including scheduled periods of shutdown. Indicate anticipated periods of multiple shift work in the CPM Schedule. Revise to the proposed CPM Schedule promptly. Promptly submit a revised CPM Schedule if there are substantial changes to the schedule, or upon request of the Engineer.

R261(12/13/02)

108-1.07 FAILURE TO COMPLETE ON TIME. Delete the first sentence of the first paragraph and substitute with the following:

For each calendar day that the work remains incomplete after the expiration of the contract time or the interim completion dates as set forth in Subsection 105-1.18 Interim Completion Dates, the liquidated damages per day given in the table below shall be deducted from any monies due the Contractor:

Delete Table 108-1 and replace with the following:

TABLE 108-1
DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH CALENDAR DAY OF DELAY

Completion Date	Daily Charge
September 1, 2010	$550
October 31, 2010	$750

SECTION 109

MEASUREMENT AND PAYMENT

Special Provisions

109-1.02 MEASUREMENT OF QUANTITIES. Under subtitle Electronic Computerized Weighing System item (1) add the following to the end of the first sentence: ", CD, or a USB device."

109-1.05 COMPENSATION FOR EXTRA WORK.
Under item 3. Equipment, item a. add the following to the second paragraph: The rental rate area adjustment factors for this project shall be as specified on the adjustment maps for the Alaska - South Region. R14(4/31/05)

Standard Modification

109-1.08 FINAL PAYMENT. Add the following sentence to the first paragraph:
The Department will not process the final estimate until the Contractor completes Items 1 through 4 in the first paragraph of subsection 105-1.16.

E11(6/30/04)

Add the following Section:

SECTION 120

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

120-1.01 DESCRIPTION. The work consists of providing Disadvantaged Business Enterprises (DBEs), as defined in Title 49, CFR (Code of Federal Regulations), Part 26, with the opportunity to participate on an equitable basis with other contractors in the performance of contracts financed in whole, or in part, with federal funds. The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT assisted contracts.

120-1.02 INTERPRETATION. It is the intent of this section to implement the requirements of 49 CFR, Part 26, and the Department's federally approved DBE Program.

120-1.03 ESSENTIAL CONTRACT PROVISION. Failure to comply with the provisions of this section will be considered a material breach of contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Department also considers failure to comply with this section to be so serious as to justify debarment action as provided in AS 36.30.640(4).

120-1.04 DEFINITIONS AND TERMS. The following definitions will apply.

1. Broker. A DBE certified by the Department that arranges for the delivery or provision of creditable materials, supplies, equipment, transportation/hauling, insurance, bonding, etc., within its certified category, that is necessary for the completion of the project. A broker of materials certified in a supply category must be responsible for scheduling the delivery of materials and fully responsible for ensuring that the materials meet specifications before credit will be given.

2. Commercially Useful Function (CUF). The execution of the work of the Contract by a DBE carrying out its responsibilities by actually performing, managing, and supervising the work involved using its own employees and equipment. The DBE shall be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, an evaluation of the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work. Other relevant factors will be considered. The determination of CUF is made by the Engineer after evaluating the way in which the work was performed during the execution of the Contract.

3. Disadvantaged Business Enterprise (DBE). An enterprise which is a for-profit small business concern

   a. that is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals;

   b. whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it; and

   c. has been certified by the Department in accordance with 49 CFR, Part 26.

4. DBE Key Employee. Permanent employees identified by the DBE owner in its certification file in the Department Civil Rights Office.

5. DBE Utilization Goal. The percent of work to be performed by certified DBEs that is established by the Department and specified in the Contract.

6. Good Faith Efforts. Efforts by the bidder or Contractor to achieve a DBE goal or other requirement of 49 CFR Part 26, by their scope, intensity, and appropriateness to the objective, that can reasonably be expected to fulfill the program requirement.

7. Manufacturer. A DBE certified by the Department in a supply category that changes the shape, form, or composition of original material in some way and then provides that altered material to the project and to the general public or the construction industry at large on a regular basis.

8. Notification. For purposes of soliciting DBE participation on a project and to count toward a Contractor's Good Faith Efforts, notification shall be by letter or fax transmission, with a return receipt requested or successful transmission report. Telephonic contact with a DBE may be allowed, however it shall be based on the ability of Civil Rights staff to independently verify this contact.

9. Regular Dealer. A DBE certified by the Department in a supply category that

   a. maintains an in-house inventory on a regular basis of the particular product provided to this project; and

   b. keeps an inventory in an amount appropriate for the type of work using that product; and

   c. offers that inventory for sale to the general public or construction industry at large (private and public sectors), not just supplied as needed on a project by project basis during the construction season, except where the product requires special or heavy equipment for delivery and the DBE possesses and operates this equipment on a regular basis throughout the construction season in order to deliver the

product to the general public or construction industry at large. If the distribution equipment is rented or leased, it must be on a repetitive, seasonal basis; and may additionally

d. fabricate (assembles large components) for use on a construction project, consistent with standard industry practice, for delivery to the project.

120-2.01 UTILIZATION GOAL. The DBE Utilization Goal for this contract is shown on Form 25A324 (DBE Subcontractable Items) as a percentage of the total basic bid amount. A DBE may be considered creditable towards meeting the DBE Utilization Goal at time of Contract award, if the DBE is certified by the Department in a category covering the CUF to be performed at the time of listing on Form 25A325C (DBE Utilization Report).

A bidder shall demonstrate the ability to meet the DBE Utilization Goal or perform and document all of the required Good Faith Efforts under Subsection 120-3.02 in order to be eligible for award of this Contract.

If the quantity of work of a bid item involving a DBE firm is reduced by the Department, the DBE Utilization Goal on Form 25A325C will be reduced proportionately.

120-3.01 DETERMINATION OF COMPLIANCE.

1. Phase I - Bid. Each bidder must register with the Civil Rights Office annually in accordance with §§26.11 & 26.53(b)(2)(iv) of 49 CFR, Part 26. No contract may be awarded to a bidder that is not registered.

2. Phase II - Award. The apparent low bidder will provide the following within 15 days of receipt of notice of intent to award:

   a. **Written DBE Commitment.** Written commitments from DBEs to be used on the project. The written commitment shall contain the following information:

      1) A description of the work that each DBE will perform;

      2) The dollar amount of participation by the DBE firm;

      3) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal; and

      4) Written confirmation from the DBE that it is participating in the contract as provided in the prime Contractor's commitment.

   b. **DBE Utilization Report.** Form 25A325C listing the certified DBEs to be used to meet the DBE Utilization Goal.

c. **Good Faith Effort Documentation.** Summary of Good Faith Effort Documentation (Form 25A332A and attachments) and DBE Contact Reports (Form 25A321A) if the Contractor submits less DBE utilization on Form 25A325C than is required to meet the DBE Utilization Goal. If accepted by the Department, this lower DBE utilization becomes the new DBE Utilization Goal. If the bidder cannot demonstrate the ability to meet the DBE Utilization Goal, and cannot document the minimum required Good Faith Efforts (as outlined in Subsection 120-3.02 below), the Contracting Officer will determine the bidder to be not responsible.

3. Phase III - Construction.

a. **Designation of DBE/EEO Officer**. At the preconstruction conference, submit, in writing, the designation of a DBE/EEO officer.

b. **DBE Creditable Work**. The CUF work items and creditable dollar amounts shown for a DBE on the DBE Utilization Report (Form 25A325C) shall be included in any subcontract, purchase order or service agreement with that DBE.

c. **DBE Replacement**. If a DBE replacement is approved by the Engineer, replace the DBE with another DBE for the same work in order to fulfill its commitment under the DBE Utilization Goal. In the event the Contractor cannot obtain replacement DBE participation, the Engineer may adjust the DBE Utilization Goal if, in the opinion of the Engineer and the Civil Rights Office, both of the following criteria have been met:

1) The Contractor has not committed any discriminatory practice in its exercise of good business judgement to replace a DBE.

2) If the Contractor is unable to find replacement DBE participation and has adequately performed and documented the Good Faith Effort expended in accordance with Subsection 120-3.02.

d. **DBE Utilization Goal**. The DBE Utilization Goal will be adjusted to reflect only that amount of the DBE's work that cannot be replaced.

120-3.02 GOOD FAITH EFFORT.

1. **Good Faith Effort Criteria**. The Contracting Officer will use the following criteria to judge if the bidder, who has not met the DBE Utilization Goal, has demonstrated sufficient Good Faith Effort to be eligible for award of the contract.

Failure by the bidder to perform and document the following actions constitutes insufficient Good Faith Effort.

a. Consideration of all subcontractable items. The bidder shall, at a minimum, seek DBE participation for each of the subcontractable items upon which the DBE goal was established as identified by the Department (on Form 25A324) prior to bid opening. It is the bidder's responsibility to make the work listed on the subcontractable items list available to DBE firms, to facilitate DBE participation.

b. If the bidder cannot achieve the DBE Utilization Goal using the list of available DBE firms based on the subcontractable items list, then the bidder may consider other items that could be subcontracted to DBEs.

c. Notification to all active DBEs listed for a given region in the Department's most current DBE Directory at least 7 calendar days prior to bid opening. The bidder must give the DBEs no less than 5 days to respond. The bidder may reject DBE quotes received after the deadline. Such a deadline for bid submission by DBEs will be consistently applied. DBEs certified to perform work items identified on Form 25A324 must be contacted to solicit their interest in participating in the execution of work with the Contractor. Each contact with a DBE firm will be logged on a Contact Report (Form 25A321A).

d. Non-competitive DBE quotes may be rejected by the bidder. Allegations of non-competitive DBE quotes must be documented and verifiable. A DBE quote that is more than 10 percent higher than the accepted non-DBE quote will be deemed non-competitive, provided the DBE and non-DBE subcontractor quotes are for the exact same work or service. Bidders must have a non-DBE subcontractor quote for comparison purposes. Such evidence shall be provided in support of the bidder's allegation. Where the bidder rejects a DBE quote as being non-competitive under this condition, the work must be performed by the non-DBE subcontractor and payments received by the non-DBE subcontractor during the execution of the Contract shall be consistent with the non-DBE's accepted quote. This does not preclude increases as a result of Change documents issued by the Department.

e. Provision of assistance to DBEs who need help in obtaining information about bonding or insurance required by the bidder.

f. Provision of assistance to DBEs who need help in obtaining information about securing equipment, supplies, materials, or related assistance or services.

g. Providing prospective DBEs with adequate information about the requirements of the Contract regarding the specific item of work or service sought from the DBE.

h. Follow-up of initial notifications by contacting DBEs to determine whether or not they will be bidding. Failure to submit a bid by the project bid opening or deadline by the bidder is de facto evidence of the DBE's lack of interest in bidding. Documentation of follow-up contacts shall be logged on the Contact Report (Form 25A321A).

i. Items c through h will be utilized to evaluate any request from the Contractor for a reduction in the DBE Utilization Goal due to the default or decertification of a DBE and the Contractor's subsequent inability to obtain additional DBE participation.

2. **Administrative Reconsideration**. Under the provisions of 49 CFR. Part 26.53(d), if it is determined that the apparent successful bidder has failed to meet the requirements of this subsection, the bidder must indicate whether they would like an opportunity for administrative reconsideration. The bidder must exercise such an opportunity within 3 calendar days of notification it has failed to meet the requirements of this subsection. As part of this reconsideration, the bidder must provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.

a. The decision on reconsideration will be made by the DBE Liaison Officer.

b. The bidder will have the opportunity to meet in person with the DBE Liaison Officer to discuss the issue of whether it met the goal or made adequate good faith efforts to do so. If a meeting is desired, the bidder must be ready, willing and able to meet with the DBE Liaison Officer within 4 days of notification that it has failed to meet the requirements of this subsection.

c. The DBE Liaison Officer will render a written decision on reconsideration and provide notification to the bidder. The written decision will explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

d. The result of the reconsideration process is not administratively appeal able to US DOT.

120-3.03 COMMERCIALLY USEFUL FUNCTION (CUF).

1. **Creditable Work**. Measurement of attainment of the DBE Utilization Goal will be based upon the actual amount of money received by the DBEs for creditable CUF work on this project as determined by the Engineer in accordance with this Section. CUF is limited to that of a:

a. regular dealer;
b. manufacturer;
c. broker;
d. subcontractor;
e. joint-venture; or
f. prime contractor.

2. **Determination of Commercially Useful Function.** In order for the CUF work of the DBE to be credited toward the goal, the Contractor will ensure the following requirements are met:

a. The CUF performed by a DBE certified in a supply category will be evaluated by the Engineer to determine whether the DBE performed as either a broker, regular dealer, or manufacturer of the product provided to this project.

b. A DBE trucking firm certified and performing work in a transportation/hauling category is restricted to credit for work performed with its own trucks and personnel certified with the CRO prior to submitting a bid to a contractor for DBE trucking. The DBE trucking firm must demonstrate that it owns all trucks (proof of title and/or registration) to be credited for work and that all operators are employed by the DBE trucking firm. A DBE trucking firm that does not certify its trucks and personnel that it employs on a job will be considered a broker of trucking services and limited to credit for a broker. (This does not effect the CUF of that same firm, when performance includes the hauling of materials for that work.)

c. The DBE is certified in the appropriate category at the time of

1) the Engineer's approval of the DBE subcontract, consistent with the written DBE commitment; and

2) the issuance of a purchase order or service agreement by the Contractor to a DBE performing as either a manufacturer, regular dealer, or broker (with a copy to the Engineer).

d. The Contractor will receive credit for the CUF performed by DBEs as provided in this Section. Contractors are encouraged to contact the Engineer in advance of the execution of the DBE's work or provision of goods or services regarding CUF and potential DBE credit.

e. The DBE may perform work in categories for which it is not certified, but only work performed in the DBE's certified category meeting the CUF criteria may be credited toward the DBE Utilization Goal.

f. The work of the DBE firm must meet the following criteria when determining when CUF is being performed by the DBE:

1) The work performed will be necessary and useful work required for the execution of the Contract.

2) The scope of work will be distinct and identifiable with specific contract items of work, bonding, or insurance requirements.

3) The work will be performed, controlled, managed, and supervised by employees normally employed by and under the control of the certified DBE. The work will be performed with the DBE's own equipment. Either the DBE owner or DBE key employee will be at the work site and responsible for the work.

4) The manner in which the work is sublet or performed will conform to standard, statewide industry practice within Alaska, as determined by the Department. The work or provision of goods or services will have a market outside of the DBE program (must also be performed by non-DBE firms within the Alaskan construction industry). Otherwise, the work or service will be deemed an unnecessary step in the contracting or purchasing process and no DBE credit will be allowed.

There will be no DBE credit for lower-tier non-DBE subcontract work.

5) The cost of the goods and services will be reasonable and competitive with the cost of the goods and services outside the DBE program within Alaska. Materials or supplies needed as a regular course of the Contractor's operations such as fuel, maintenance, office facilities, portable bathrooms, etc. are not creditable.

The cost of materials actually incorporated into the project by a DBE subcontractor is creditable toward the DBE goal only if the DBE is responsible for ordering and scheduling the delivery of creditable materials and fully responsible for ensuring that the materials meet specifications.

6) Subcontract work, with the exception of truck hauling, will be sublet by the same unit of measure as is contained in the Bid Schedule unless prior written approval of the Engineer is obtained.

7) The DBE will control all business administration, accounting, billing, and payment transactions. The prime contractor will not perform the business, accounting, billing, and similar functions of the DBE. The Engineer may, in accordance with AS 36.30.420(b), inspect the offices of the DBE and audit the records of the DBE to assure compliance.

g. On a monthly basis, report on Form 25A336 (Monthly Summary of DBE Participation) to the Department Civil Rights Office the payments made (canceled checks or bank statements that identify payor, payee, and amount of transfer) for the qualifying work, goods and services provided by DBEs.

3. **Decertification of a DBE.** Should a DBE performing a CUF become decertified during the term of the subcontract, purchase order, or service agreement for reasons beyond the control of and without the fault or negligence of the Contractor, the work remaining

under the subcontract, purchase order, or service agreement may be credited toward the DBE Utilization Goal.

Should the DBE be decertified between the time of Contract award and the time of the Engineer's subcontract approval or issuance of a purchase order or service agreement, the work of the decertified firm will not be credited toward the DBE Utilization Goal. The Contractor must still meet the DBE Utilization Goal by either

a. withdrawing the subcontract, purchase order or service agreement from the decertified DBE and expending Good Faith Effort (Subsection 120-3.02, items c through h) to replace it with one from a currently certified DBE for that same work or service through subcontractor substitution (Subsection 103-1.01); or

b. continuing with the subcontract, purchase order or service agreement with the decertified firm and expending Good Faith Effort to find other work not already subcontracted out to DBEs in an amount to meet the DBE Utilization Goal through either

   1) increasing the participation of other DBEs on the project;
   2) documenting Good Faith Efforts (Subsection 120-3.02, items c through h); or
   3) by a combination of the above.

4. **DBE Rebuttal of a Finding of No CUF**. Consistent with the provisions of 49 CFR, Part 26.55(c)(4)&(5), before the Engineer makes a final finding that no CUF has been performed by a DBE firm the Engineer will coordinate notification of the presumptive finding through the Civil Rights Office to the Contractor, who will notify the DBE firm.

   The Engineer, in cooperation with the Civil Rights Office, may determine that the firm is performing a CUF if the rebuttal information convincingly demonstrates the type of work involved and normal industry practices establishes a CUF was performed by the DBE. Under no circumstances shall the Contractor take any action against the DBE firm until the Engineer has made a final determination. The Engineer's decisions on CUF matters are not administratively appeal able to US DOT.

120-3.04 DEFAULT OF DBE. In the event that a DBE firm under contract or to whom a purchase order or similar agreement has been issued defaults on their work for whatever reason, immediately notify the Engineer of the default and the circumstances surrounding the default.

Take immediate steps, without any order or direction from the Engineer, to retain the services of other DBEs to perform the defaulted work. In the event that the Contractor cannot obtain replacement DBE participation, the Engineer may adjust the DBE Utilization Goal if, in the opinion of the Engineer, the following criteria have been met:

1. The Contractor was not at fault or negligent in the default and that the circumstances surrounding the default were beyond the control of the Contractor; and

2. The Contractor is unable to find replacement DBE participation at the same level of DBE commitment and has adequately performed and documented the Good Faith Effort expended in accordance with items c through h of subsection 120-3.02 for the defaulted work; or

3. It is too late in the project to provide any real subcontracting opportunities remaining for DBEs.

The DBE Utilization Goal will be adjusted to reflect only that amount of the defaulted DBE's work that cannot be replaced.

120-4.01 METHOD OF MEASUREMENT. The Contractor will be entitled to count toward the DBE Utilization Goal those monies actually paid to certified DBEs for CUF work performed by the DBE as determined by the Engineer. The Contractor will receive credit for the utilization of the DBEs, as follows:

1. Credit for the CUF of a DBE prime contractor is 100 percent of the monies actually paid to the DBE under the contract for creditable work and materials in accordance with 49 CFR 26.55.

2. Credit for the CUF of a subcontractor is 100 percent of the monies actually paid to the DBE under the subcontract for creditable work and materials. This shall include DBE trucking firms certified as a subcontractor and not a broker. Trucks leased from another DBE firm shall also qualify for credit and conforms to the provisions of 49 CFR 26.55(d).

3. Credit for the CUF of a manufacturer is 100 percent of the monies paid to the DBE for the creditable materials manufactured.

4. Credit for the CUF of a regular dealer of a creditable material, product, or supply is 60 percent of its value. The value will be the actual cost paid to the DBE but will not exceed the bid price for the item.

5. Credit for the CUF of a broker performed by a DBE certified in a supply category for providing a creditable material, product or supply is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the cost of the procurement contract for the creditable item.

6. Credit for the CUF of a broker performed by a DBE certified in the transportation/hauling category for arranging for the delivery of a creditable material, product or supply is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the cost of the hauling subcontract.

7. Credit for the CUF of a broker performed by a DBE certified in a bonding or insurance category for arranging for the provision of insurance or bonding is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the premium cost.

8. Credit for the CUF of a joint venture (JV) (either as the prime contractor or as a subcontractor) may not exceed the percent of the DBE's participation in the joint venture agreement, as certified for this project by the Department. The DBE joint venture partner will be responsible for performing all of the work as delineated in the certified JV agreement.

120-5.01 BASIS OF PAYMENT. Work under this item is subsidiary to other contract items and no payment will be made for meeting or exceeding the DBE Utilization Goal.

If the Contractor fails to utilize the DBEs listed on Form 25A325C as scheduled or fails to submit required documentation to verify proof of payment or documentation requested by the Department to help in the determination of CUF, the Department will consider this to be unsatisfactory work. If the Contractor fails to utilize Good Faith Efforts to replace a DBE, regardless of fault (except for subsection 120-3.04 item 3), the Department will also consider this unsatisfactory work. Unsatisfactory work may result in disqualification of the Contractor from future bidding under subsection 102-1.13 and withholding of progress payments consistent with subsection 109-1.06. S33(11/17/00)

SECTION 202

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

202-3.05 REMOVAL OF PAVEMENT, SIDEWALKS, AND CURBS. Add the following: Pavement removed may be used for embankment construction if it is not exposed at the completed embankment surface. The maximum allowable dimension of the broken asphalt pieces is 6 inches.

Obtain a solid waste disposal permit from DEC or use a site previously approved by DEC for disposal of removed asphalt if not using it in the embankment. A DEC permitting officer in Anchorage may be contacted at (907) 269-7590. R84(03/29/01)

SECTION 301

AGGREGATE BASE AND SURFACE COURSE

301-3.01 PLACING. Add the following: Base course material used for the sidewalk and pathway foundation shall be placed with a "Layton box" or similar equipment capable of providing a specified depth with a uniform surface. R26(09/01/89)

SECTION 306

ASPHALT TREATED BASE COURSE

Special Provisions

Replace Subsection 306-2.01 with the following:

306-2.01 MATERIALS.

Aggregate. Subsection 703-2.04.

Asphalt. The total asphalt cement content may be a combination of PG 52-28 and the asphalt binder in the existing asphalt or only PG 52-28. Documentation and conformance is only required for the PG 52-28. The Engineer may conditionally accept asphalt cement at the source. Before shipping the material, provide a manufacturer's certificate of compliance according to Subsection 106-1.05 and test results of the applicable quality requirements specified in Section 702.

Anti-Strip. As required by the approved Job Mix Design (JMD).

Recycled Asphalt Pavement (RAP). Process existing pavement removed under Subsection 202-3.05 so material passes the 1 1/2" sieve. Stockpile the material separately from the crushed aggregates for pavement. Perform one gradation and one asphalt content test for every 1000 tons of RAP or a minimum of 10 test sets whichever is greater.

CONSTRUCTION REQUIREMENTS

Replace Subsection 306-3.01 with the following:

306-3.01 COMPOSITION OF MIXES.

Submit to the Engineer at least 15 days before the production of HMA:

1. **A letter stating the location, size, and type of mixing plant, the proposed gradation for the Job Mix Design (JMD), gradations for individual stockpiles with supporting process quality control information, the blend ratio of each aggregate stockpile and the RAP. The proposed virgin aggregate gradation must meet the requirements of Table 703-3, Type II.**

2. **The asphalt process control data of the RAP.**

3. **Representative samples of each aggregate (coarse, intermediate, fine, blend material and mineral filler, if any) in the proportions required for the proposed mix design. Furnish 100 lbs of each intermediate and/or coarse aggregate, 200 lbs of fine aggregate, 22 lbs of blend sand, and 200 lbs of RAP.**

4. **Three separate 1-gallon samples, minimum, of the asphalt cement proposed for use in the HMA. Include name of product, manufacturer, test results of the applicable quality requirements of Subsection 702-2.01, curve for the asphalt cement or manufacturer's recommended mixing and compaction temperatures, and current Material Safety Data Sheet.**

5. **One sample, of at least 1/2 pint, of the anti-strip additive proposed, including name of product, manufacturer, and manufacturer's data sheet, and current Material Safety Data Sheet.**

The Engineer will evaluate the material and the proposed gradation using ATM 417 and the requirements of Table 401-1, Type II; Class B. The mix, the materials and proposed gradation meeting the specification requirements will become part of the Contract when approved, in writing, by the Engineer. HMA Design Requirements, except Voids in Mineral Aggregate (VMA) and Dust/Asphalt ratio specifications do not apply.

The design minimum asphalt content (RAP residual plus PG 52-28) is 5% by weight of total mix and with 1/4 % anti-strip by weight of PG 52-28.

The design maximum asphalt content is 5.5% by weight of total mix.

Approved JMD will have the full tolerances shown in Table 401-2 applied and will not be limited to the broad band listed in Table 703-3. Except that tolerances for the No. 200 sieve may not exceed the broad bank units in Table 703-3.

FAILURE TO MEET SPECIFICATION REQUIREMENTS

Submit a new JMD with changes noted and new samples in the same manner as the original JMD when:

- **The results do not achieve the requirements specified in Table 401-1**
- **The asphalt cement source is changed**
- **The source of aggregate, aggregate quality, gradation, or blend ratio is changed**
- **The source of RAP is changed**

Do not produce HMA for production paving and payment before the Engineer provides written approval of the JMD, the original or a new replacement JMD.

Payment for HMA will not be made until the new JMD is approved. Approved changes apply only to HMA produced after the submittal of changes.

Replace Subsection 306-3.02 Weather Limitations with 401-3.01 Weather Limitations.

Replace 'WAQTC TM6' with WAQTC FOP for AASHTO T 329'.

Delete Subsection 306-3.03 Stockpiling.

306-3.04 EQUIPMENT. Add the following:

Apply the requirements of Subsection 401-3.02 to Equipment.

Add the following to No. 1:

When using recycled materials the asphalt plant shall combine RAP with hot mix asphalt aggregates to produce a hot recycled asphalt treated base mixture.

Replace Subsection 306-3.06 Preparation of Aggregate with 401-3.09 Preparation of Aggregates.

306-3.07 MIXING. Add the following:

Apply the requirements of Subsection 401-3.10 to Mixing.

Replace Subsection 306-3.08 Spreading and Finishing with 401-3.12 Placing and Spreading.

Add the following:

During placement, the Engineer, using an infrared camera, may evaluate the asphalt surface immediately behind the paver for temperature uniformity. Areas with temperature differences more than 25° F lower than the surrounding asphalt may produce areas of low density. Contractor shall immediately adjust laydown procedure to maintain a temperature differential of 25° F or less. Thermal images and thermal profile data will become part of the project record and shared with the Contractor.

Replace Subsection 306-3.09 Compaction with 401-3.13 Compaction.

A mat area with density lower than 92% MSG is considered segregated and not in conformance with the requirements of the Contract. The work shall be deemed unacceptable by the Engineer according to Subsection 105-1.11 unless, the Engineer determines that reasonably acceptable work has been produced as permitted in Subsection 105-1.03.

Add the Subsections 3.12, 3.13, and 3.14:

306-3.12 PATCHING DEFECTIVE AREAS. Remove asphalt treated base course that becomes contaminated with foreign material, is segregated, or is determined to be defective. Do not skin patch. Remove defective materials for the full thickness of the course. Coat edges with a tack coat conforming to Section 402 and allow the material to cure. Place and compact the fresh ATB to the grade and smoothness requirements.

306-3.13 PREPARATION OF EXISTING SURFACE. Apply the requirements of Subsection 401-3.07 Preparation of Existing Surface.

306-3.14 TEMPORARY STORAGE. Apply the requirements of Subsection 401-3.11 Temporary Storage.

306-4.01 METHOD OF MEASUREMENT.

Delete the second paragraph, "Asphalt Cement".

Delete the third paragraph, "Anti-Strip Additive".

Add the Subsection 306-4.02:

306-4.02 ACCEPTANCE SAMPLING AND TESTING. The Engineer will sample and test ATB at 1000 ton intervals for acceptance. The Engineer will make the results of the acceptance testing available to the Contractor within seven working days from the date of sampling. Sample the blended virgin aggregate at the cold feed. At the pre-paving meeting, the Contractor may select the sample location of mix to determine the asphalt content.

Within 24 hours of final rolling, cut one 6 inch diameter core, full depth, from the finished mat to determine density. Neatly cut the sample using a core drill at the randomly selected location marked by the Engineer. Use a core extractor to prevent damage to the core. Do not cut a sample over a bridge deck.

Apply tolerances shown in Table 401-2 to test results to determine compliance with the JMD.

The Engineer will test for density, gradation, and asphalt content as specified in subsection 401-4.02.

306-5.01 BASIS OF PAYMENT. Add the following:

Anti-strip additive, asphalt cement, and patching defective areas are subsidiary to Pay Item 306(1) ATB.

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Special Provision

Add the following Section:

SECTION 408

HOT MIX ASPHALT AND SURFACE TREATMENTS
TYPE V
(Superpave)

408-1.01 DESCRIPTION. Construct one or more layers of plant-mixed Hot Mix Asphalt (HMA) pavement on an approved surface, to the lines, grades, and depths shown in the Plans.

1. In this Section HMA refers to Type V, except where noted otherwise.
   a. Use of Reclaimed Asphalt Pavement (RAP) is not permitted in HMA.
   b. Warm Mix Asphalt (WMA) is not permitted in HMA.

408-1.02 REFERENCE.

1. Section 401, Hot Mix Asphalt and Surface Treatments. HMA, Type I, II, III, and IV.
   a. Temporary Asphalt Pavement: HMA, Type II, Class B, minimum.
   b. Preleveling/Leveling Course: HMA, Type IV, Class B.

MATERIALS

408-2.01 COMPOSITION OF MIXTURE - JOB MIX DESIGN (JMD). Design the JMD according to AASHTO R35 using the design requirements of Table 408-1, except evaluate the moisture sensitivity using the Alaska Test Manual (ATM) 414 and not AASHTO T 283.

TABLE 408-1

HMA DESIGN REQUIREMENTS

DESIGN PARAMETERS	
Design ESALs, Millions	0.3 to < 3
Rut Index, Max., ATM 419	3
Asphalt Cement Content, Min. %	5.0

The JMD will specify the Target Values (TV) for gradation, the TV for asphalt cement content, the Maximum Specific Gravity (MSG) of the HMA, the additives, and the allowable mixing temperature range.

Target values for gradation in the JMD must be within the broad band limits shown in Table 703-3, for the Type of HMA specified. For acceptance testing, HMA mixture will have the full tolerances in Table 408-2 applied. The tolerance limits will apply even if they fall outside the broad band limits shown in Table 703-3, except the tolerance limit of the No. 200 sieve is

restricted by the broad band limits. Tolerance limits will not be applied to the largest sieve specified.

Do not mix HMA produced from different plants for testing or production paving. HMA from different plants will be rejected.

Submit the following to the Engineer at least 15 days before the production of HMA:

1. A letter stating the location, size, and type of mixing plant, the proposed gradation for the JMD, gradations for individual stockpiles with supporting process quality control information, and the blend ratio of each aggregate stockpile. The proposed gradation must meet the requirements of Table 703-3 for each type of HMA specified in the Contract.

2. Representative samples of each aggregate (coarse, intermediate, fine, and blend material and/or mineral filler, if any) in the proportions required for the proposed mix design. Furnish a total of 500 pounds of material.

3. Five separate 1 gallon samples of the asphalt cement proposed for use in the HMA. Include name of product, manufacturer, test results of the applicable quality requirements of Subsection 702-2.01, manufacturer's certificate of compliance according to Subsection 106-1.05, a temperature viscosity curve for the asphalt cement or manufacturer's recommended mixing and compaction temperatures, and current Material Safety Data Sheet.

4. One sample, of at least 1/2 pint, of the anti-strip additive proposed, including name of product, manufacturer, and manufacturer's data sheet, and current Material Safety Data Sheet.

The Engineer will evaluate the material and the proposed gradation using the requirements of Table 408-1 for Type V Hot Mix Asphalt. The mix, the materials and proposed gradation meeting the specification requirements will become part of the Contract when approved, in writing, by the Engineer.

The Engineer has the option to require further verification of the JMD. Evaluation of the JMD may be included in the Process Quality Controls, Supplemental Process Quality Controls, Subsection 408-2.05, Test Strip construction.

FAILURE TO MEET SPECIFICATION REQUIREMENTS

Submit a new JMD with changes noted and new samples in the same manner as the original JMD when:

- The results do not achieve the requirements specified in Table 408-1
- The asphalt cement source is changed
- The source of aggregate, aggregate quality, gradation, or blend ratio is changed
- The results of a Test Strip do not meet the requirements of the specification – the Engineer may require a new JMD.

Do not produce HMA for production paving and payment before the Engineer provides written approval of the JMD, the original or a new replacement JMD. If a Test Strip(s) is required, do not produce HMA for production paving and payment before the Engineer provides written approval of the Test Strip construction, construction process, the materials, and the JMD, Subsection 408-2.05.

Payment for HMA will not be made until the new JMD and the Test Strip, when required, is approved. Approved changes apply only to HMA produced after the submittal of changes.

The Engineer will asses a fee for each mix design subsequent to the approved Job Mix Design. The fee will be included under Item 408(6) Asphalt Price Adjustment – Quality.

408-2.02 AGGREGATES. Conform to Subsection 703-2.04.

Use a minimum of 3 stockpiles for crushed HMA aggregate (coarse, intermediate, and fine). Place blend material or mineral filler, if any, in a separate pile.

408-2.03 ASPHALT CEMENT. Conform to 702-2.01. If not specified, use PG 64-34.

Provide test reports for each batch of asphalt cement showing conformance to the specifications in Section 702 before delivery to the project. Require that the storage tanks used for each batch be noted on the test report, the anti-strip additives required by the mix design be added during load out for delivery to the project, and a printed weight ticket for anti-strip is included with the asphalt cement weight ticket. The location where anti-strip is added may be changed with the written approval of the Engineer.

Furnish the following documents at delivery:

1. Manufacturers certificate of compliance (Subsection 106-1.05).
2. Conformance test results of the batch (provide prior to delivery as noted above)
3. Batch number and storage tanks used.
4. Date and time of load out for delivery.
5. Type, grade, temperature, and quantity of materials loaded.
6. Type and percent of anti-strip added.

408-2.04 ANTI-STRIP ADDITIVES. Use anti-strip agents in the proportions determined by ATM 414 and included in the approved JMD. At least 70% of the aggregate shall remain coated when tested according to ATM 414. A minimum of 0.25% by weight of asphalt cement is required.

408-2.05 PROCESS QUALITY CONTROL. Sample and test materials for quality control of the HMA according to Subsection 106-1.03. Submit to the Engineer, with the JMD, a documentation plan that will provide a complete, accurate, and clear record of the sampling and testing results. When directed by the Engineer, make adjustments to the plan and resubmit.

Submit a paving and plant control plan at the pre-paving meeting to be held a minimum of 5 working days before initiating paving operations. Address the sequence of operations and joint

construction. Outline steps to provide product consistency, to minimize segregation, to prevent premature cooling of the HMA and to provide the mat and longitudinal density required by these specifications. Include a proposed quality control testing frequency for gradation, asphalt cement content, and compaction.

Failure to perform quality control forfeits the Contractor's right to a retest under Subsection 408-4.02.

Provide copies of the documented sampling and testing results no more than 24 hrs from the time taken.

SUPPLEMENTAL PROCESS QUALITY CONTROL

The Engineer has the option to require supplemental process quality controls including additional sampling and testing. Include the supplemental process quality controls in the documentation plan.

When directed by the Engineer; provide "Density Profiles" and or "Test Strips."

1. Density Profiles. Provide density profile testing, with a nuclear density gauge, of the mat and longitudinal joints. Include the frequency of the test groups, configuration of the test groups for mat density and joint density individually or combined. Indicate the number of tests in a test group intended to confirm the density of the mat and joints.

   Locations that may require testing include: all lanes on bridge decks, adjacent to longitudinal joints, areas where segregation is visible, thermal segregation potential exists, where mat density is lower than the minimum (considered segregated), and the paver starts/stops. The Engineer will identify these and other areas that require density testing.

2. Test Strips. Construct test strips (ATM 412) using the approved job mix HMA a minimum of 5 working days prior to planned production paving, except use the proposed JMD when the test strip is being constructed to help evaluate the JMD as part of the mix performance analysis. Submit a proposed test strip location to the Engineer for coordination, and approval; include in the process control documentation plan. The Engineers approval and written authorization of the location, date, and time, is required before construction of a test strip.

   Establish roller patterns and the number of passes required to assure that proper placement and compaction is achieved. The test strip shall include no less than 300 tons and no more than 1000 tons, except as may be authorized, in writing, by the Engineer. The full complement of the paving train will be on site to receive instructions from the Engineer as needed to complete the mix performance analysis. Make the equipment available for inspection as required by Subsection 408-3.02. Provide an onsite process control representative with authority to modify mix components as instructed by the Engineer.

   Payment for Test Strips: Subsection 408-5.01 Basis of Payment and as noted here.

a. Approved. Test strip construction and material, approved by the Engineer in writing, as meeting the specification requirements will be paid for at the Contract unit prices. Price adjustments will not be included for quality, unit price, or other.
b. Failed. The Engineer may direct the Contractor to remove and dispose of test strips not meeting specification requirements. Contractor, construct a new test strip or return the surface materials and grade to their original condition as directed by the Engineer. The materials, construction of, removal and disposal of a failed test strip will be at the Contractor's expense.

Only after the Engineer approves the test strip may HMA be produced for production paving and payment.

CONSTRUCTION REQUIREMENTS

408-3.01 WEATHER LIMITATIONS. Do not place HMA on a wet surface, on an unstable/yielding roadbed, when the base material is frozen, or when weather conditions prevent proper handling or finishing of the mix. Do not place HMA unless the roadway surface temperature is 40°F or warmer. Do not place mix after September 15 unless approved by the Engineer in writing.

408-3.02 EQUIPMENT, GENERAL. Use equipment in good working order and free of HMA buildup. Make equipment available for inspection and demonstration of operation a minimum of 24 hours before placement of production HMA, except when a test strip is required, 24 hrs before placement of the test strip HMA.

408-3.03 ASPHALT MIXING PLANTS. Meet AASHTO M 156. Use an asphalt plant designed to dry aggregates, maintain accurate temperature control, and accurately proportion asphalt cement and aggregates. Calibrate the asphalt plant and furnish copies of the calibration data to the Engineer at least 4 hours before HMA production.

Provide a scalping screen at the asphalt plant to prevent oversize material or debris from being incorporated into the HMA.

Provide a tap on the asphalt cement supply line just before it enters the plant (after the 3-way valve) for sampling asphalt cement.

Provide aggregate and asphalt cement sampling equipment meeting OSHA safety requirements.

408-3.04 HAULING EQUIPMENT. Costs associated with Subsection 408-3.04 are subsidiary to Section 408 Pay Items.

Vehicles/Equipment. Haul HMA in trucks with tight, clean, smooth metal beds, thinly coated with a minimum amount of paraffin oil, lime water solution, or an approved manufactured asphalt release agent. Do not use petroleum fuel as an asphalt release agent.

During HMA hauling activities, the hauling vehicle will have covers attached and available for use. Be prepared to demonstrate deployment of the cover when hauling material or empty.

Illustrate the efficiency of deployment and how the materials are protected from the environment and the environment is protected from the materials. When directed by the Engineer cover the HMA in the hauling vehicle(s).

Roadway Maintenance. Daily inspect, remove/clean, and dispose of project materials deposited on existing and new pavement surfaces(s) inside and outside the project area including haul routes.

The inspection plan and method of removal/clean and disposal shall be submitted in writing to the Engineer and approved by the Engineer 5 days before initiating paving operations. Include alternatives, options to immediately correct deficiencies in the inspection plan and methods of removal/clean and disposal that may be discovered as the work is being performed.

The Engineer may require the Contractor to include a vehicle/equipment cleaning station(s), to be added at the project site and or at the plant, in the basic plan or as one of the corrective alternatives/options. At a minimum, the cleaning station will include the materials and means to:

(1) Spray truck tires with an environmental degradable release agent if mix adheres to tires before dumping in front of the paver.
(2) Clean off loose mix from gates, chains, and tires that might fall on the pavement of the haul route.
(3) Contain, collect and disposal of (1) and (2).

The Contractor is responsible for the inspection plan, the means, and methods used for removal/clean and disposal of fugitive materials/debris. The Contractor is responsible for the damage as a result of not removing these materials (to the roadway material and the users and others) and the damage to the roadway materials from the removal method(s). Approval does not change the Contractor's responsibility, nor add responsibility to the Department for this work.

Repair damage to the existing roadway materials (asphalt type) as a result of the fugitive materials or their removal as specified in Subsection 408-3.16 Patching Defective Areas.

408-3.05 ASPHALT PAVERS. Use self propelled asphalt pavers having a heated vibratory screed. Control grade and cross slope with automatic grade and slope control devices. Use an erected string line, a 30-foot minimum mobile stringline (ski), or other approved grade follower, to automatically actuate the paver screed control system. Use grade control on either (a) both the high and low sides or (b) grade control on the high side and slope control on the low side.

Equip the paver with a receiving hopper having sufficient capacity for a uniform spreading operation and a distribution system to place the HMA uniformly in front of screed.

Use a screed assembly that produces a finished surface of the required smoothness, thickness, and texture without tearing, shoving, or displacing the HMA.

Equip the paver with a means of preventing segregation of the coarse aggregate particles from the remainder of the HMA when carried from the paver hopper back to the augers. Use means and methods approved by the paver manufacturer. Means and methods may include chain

curtains, deflector plates, or other similar devices or combination of devices. When required by the Engineer, provide a Certificate of Compliance that verifies the means and methods required to prevent segregation are being used.

408-3.06 ROLLERS. Use both steel-wheel (static or vibratory) and pneumatic-tire rollers. Avoid crushing or fracturing of aggregate. Use rollers designed to compact HMA mixtures and reverse without backlash.

All rollers shall have an attached infrared thermometer that measures and displays the surface temperature to the operator.

Use fully skirted pneumatic-tire rollers having a minimum operating weight of 3000 pounds per tire.

408-3.07 PREPARATION OF EXISTING SURFACE. Prepare existing surfaces conforming to the Plans and Specifications. Before applying tack coat to an existing paved surface, clean loose material from cracks for the depth of the cracks. Fill the cleaned cracks, wider than 1 inch, with an approved HMA tamped in place. Wash and or sweep the paved surface clean and free of loose materials.

Preparation of a milled surface:

- Prelevel remaining ruts, pavement delaminations, or depressions having a depth greater than 1/2-inch with HMA, Type IV. Compact the prelevel/leveling course using pneumatic-tire rollers. The Engineer's approval of the material and material installation is required. The Engineer will inspect the material and material installation. Correct material and material installations identified by the Engineer as required by the Engineer for approval. Density testing is not required for the leveling course (prelevel) material, material installation.

- Where planing equipment breaks through existing pavement, remove 2 inches of existing base material depth and replace with HMA, Type II, Class B.

  During the planing operation, notify the Engineer of pavement areas that may be thin or unstable.

Do not apply the tack coat material until the Engineer approves the existing surface including, not limited to; the existing paved surface, the milled surface, and a prior layer of HMA pavement.

Before placing the hot asphalt mix, apply tack coat material (Section 702) as specified here and in Section 402. Uniformly coat contact surfaces of curbing, gutters, sawcut pavement, cold joints, manholes, and other structures with tack coat material. Allow tack coat to break before placement of HMA on these surfaces.

408-3.08 PREPARATION OF ASPHALT. Provide a continuous supply of asphalt cement to the asphalt mixing plant at a uniform temperature, within the allowable mixing temperature range.

408-3.09 PREPARATION OF AGGREGATES. Dry the aggregate so the moisture content of the HMA, sampled at the point of acceptance for asphalt cement content, does not exceed 0.5% (by total weight of mix), as determined by WAQTC FOP for AASHTO T 329.

Heat the aggregate for the HMA to a temperature compatible with the mix requirements specified.

Adjust the burner on the dryer to avoid damage to the aggregate and to prevent the presence of unburned fuel on the aggregate. HMA containing soot or fuel is unacceptable (Subsection 105-1.11).

408-3.10 MIXING. Combine the aggregate, asphalt cement, and additives in the mixer in the amounts required by the JMD. Mix to obtain 98% coated particles when tested according to AASHTO T 195.

For batch plants, put the dry aggregate in motion before addition of asphalt cement.

408-3.11 TEMPORARY STORAGE. Silo type storage bins may be used, provided the characteristics of the HMA remain unaltered. Changes in the JMD, visible or otherwise, are cause for rejection. Changes may include: visible segregation, heat loss, and the physical characteristics of the asphalt cement, lumpiness, or stiffness of the HMA or similar.

408-3.12 PLACING AND SPREADING. Use asphalt pavers to distribute HMA. Place the HMA upon the approved surface, spread, strike off, and adjust surface irregularities. The maximum compacted lift thickness allowed is 3 inches.

During placement, the Engineer, using an infrared camera, may evaluate the HMA surface immediately behind the paver for temperature uniformity. Areas with temperature differences more than 25° F lower than the surrounding HMA may produce areas of low density. Contractor shall immediately adjust laydown procedure to maintain a temperature differential of 25° F or less. Thermal images and thermal profile data will become part of the project record and shared with the Contractor.

Use hand tools to spread, rake, and lute the HMA in areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable.

When the section of roadway being paved is open to traffic, pave adjacent traffic lanes to the same elevation within 24 hours. Place approved material against the outside pavement edge when the drop-off exceeds 2 inches.

When multiple lifts are specified in the Contract, do not place the final lift until all lower lifts throughout that section, as defined by the Paving Plan, are placed and accepted.

Do not pave against new Portland cement concrete curbing until it has cured for at least 72 hours.

Do not place the final lift until curb and gutter, all types, are installed complete, except as approved by the Engineer.

Place HMA over bridge deck membranes according to Section 508 and the manufacturer's specifications.

408-3.13 COMPACTION. Thoroughly and uniformly, compact the HMA by rolling. In areas not accessible to large rollers, compact with mechanical tampers or trench rollers. Do not leave rollers or other equipment standing on HMA that has not sufficiently cooled to prevent indentation.

A mat area with density lower than 93% MSG is considered segregated and not in conformance with the requirements of the Contract. The work shall be deemed unacceptable by the Engineer according to Subsection 105-1.11 unless, the Engineer determines that reasonably acceptable work has been produced as permitted in Subsection 105-1.03.

The density TV is 96% of the MSG, as determined by WAQTC FOP for AASHTO T 209. The MSG of the JMD will be used for the first lot of each type of HMA. The MSG for additional lots will be determined from the first sublot of each lot.

Acceptance testing for density will be performed according to WAQTC FOP for AASHTO T 166/T 275 using a 6 inch diameter core.

When directed by the Engineer, provide density profiles of the mat and longitudinal joints with a nuclear density gauge. Deliver the results of density tests to the Engineer at the time of the testing, in writing in the format detailed in the Quality Control Plan Subsection 408-2.05.

408-3.14 JOINTS. Minimize the number of joints. Do not construct longitudinal joints in the driving lanes unless approved by the Engineer in writing at the Pre-paving meeting. Place and compact the HMA to provide a continuous bond, texture, and smoothness between adjacent sections of the HMA.

Remove to full depth improperly formed joints resulting in surface irregularities. Before removing pavement, cut a neat, straight line along the pavement to be removed and the pavement to remain. Use a power saw or other method approved by the Engineer. Replace the removed asphalt with new HMA and thoroughly compact.

Form transverse joints by cutting back on the previous run to expose the full depth of the layer. Saw cut the joint, use a removable bulkhead or other method approved by the Engineer.

Offset the longitudinal joints in one layer from the joint in the layer immediately below by at least 6 inches. Align the joints of the top layer at the centerline or lane lines. Where preformed marking tape striping is required, offset the longitudinal joint in the top layer not more than 6 inches from the edge of the stripe.

On the final lift, before paving against the longitudinal joint (completing the joint) uniformly coat the surface below the final lift with tack coat material conforming to Section 702. Coat the vertical edge of pavement (including milled edges) with Crafco Pavement Joint Adhesive No. 34524, Deery Cold Joint Adhesive, or approved equal. Apply a 1/8 inch thick band of joint adhesive over the cold mat according to manufacturer's recommendations.

The Engineer shall evaluate the difference in elevation of the final surface of adjacent mats each side of the longitudinal joint, at the joint, with a straight edge and by requiring the Contractor to

flood the joint surface with water. The Engineer will determine where and how often to evaluate the joint. All differences in the surface elevations greater than 1/8 inch or that pond water shall be repaired at no cost to the Department. Heat the HMA pavement to be repaired with an infrared heater (310° F max) and roll flat or add HMA until the joint differential is within tolerance.

For the top layer of HMA, the minimum specification limit for longitudinal joint density is 91% of the MSG of the panel completing the joint. Cut one 6 inch diameter core centered on the longitudinal joint at each location that the panel completing the joint is cored for acceptance density testing. Density will be determined according to WAQTC FOP for AASHTO T 166/T 275.

For areas that fail to achieve the prescribed joint density seal the surface of the longitudinal joints with Asphalt Systems GSB-78 or approved equal, while the HMA is clean, free of moisture, and before traffic marking. Longitudinal joint sealing shall be according to the manufacturer's recommendations and a maximum application rate of 0.15 gallons per square yard. Apply the sealant at least 12 inches wide centered on the longitudinal joint.

Hot lapped joints formed by paving in echelon must be completed while the mat temperature is over 150°F. These joints do not need to be tacked and will not be measured or evaluated for joint density.

Longitudinal joints will be evaluated for acceptance according to Subsection 408-4.03.

408-3.15 SURFACE TOLERANCE. The Engineer will test the finished surface after final rolling at selected locations using a 10-foot straightedge. Correct variations from the testing edge, between any two contacts, greater than 1/4 inch.

Costs associated with meeting surface tolerances are subsidiary to the HMA pay item.

408-3.16 PATCHING DEFECTIVE AREAS. . Remove HMA that is contaminated with foreign material, is segregated (determined visually or by testing), flushing or bleeding asphalt after compaction is completed or is in any way determined to be defective. Do not skin patch. Remove defective HMA for the full thickness of the course. Cut the pavement so that edges are vertical, the sides are parallel to the direction of traffic. Coat edges with a tack coat meeting Section 402 and allow to cure. Place and compact fresh HMA according to Subsection 408-3.13 to grade and smoothness requirements.

Costs associated with patching defective areas are subsidiary to the HMA Pay Item.

408-4.01 METHOD OF MEASUREMENT. Section 109 and the following:

1. Hot Mix Asphalt.
   a) By weighing, no deduction will be made for the weight of asphalt cement, anti-stripping additive or cutting back joints.
   b) By the area of final HMA surface.

2. Asphalt Cement. By the ton as follows:
   Method 1:

Percent of asphalt cement for each sublot multiplied by the total weight represented by that sublot. ATM 405 or WAQTC FOP for AASHTO T 308 will determine the percent of asphalt cement. The same tests used for the acceptance testing of the sublot will be used for computation of the asphalt cement quantity. If no acceptance testing is required, the percent of asphalt cement is the target value for asphalt cement in the JMD.

Method 2:

Supplier's invoices minus waste, diversion, and remnant. This procedure may be used on projects where deliveries are made in tankers and the asphalt plant is producing HMA for one project only.

The Engineer may direct, at any time tankers be weighed in the Engineers presence before and after unloading. If the weight determined at the project varies more than 1% from the invoice amount, payment will be based on the weight determined at the project.

Any remnant or diversion will be calculated based on tank stickings or weighing the remaining asphalt cement. The Engineer will determine the method. The weight of asphalt cement in waste HMA will be calculated using the target value for asphalt cement as specified in the JMD.

Method 1 will be used for determining asphalt cement quantity unless otherwise directed in writing. The procedure initially used will be the one used for the duration of the project. No payment will be made for any asphalt cement more than .4% above the optimum asphalt cement content specified in the JMD.

3. Job Mix Design. When specified, Contractor furnished JMD(s) will be measured as one according to the HMA Class and Type.

4. Temporary Pavement. Section 401.

5. Preleveling/Leveling Course. Section 401.

6. Asphalt Price Adjustment – Quality. Calculated by quality level analysis under Subsection 408-4.03. Also included in the measurement are the fees and deductions specified in Subsection 408-2.01 and Subsection 408-4.02.

   Asphalt Price Adjustment – Quality, does not apply to, and measurements will not be made for Approach HMA.

7. Longitudinal Joint and Joint Adhesive. By the linear foot of longitudinal joint.

408-4.02 ACCEPTANCE SAMPLING AND TESTING. The total price adjustment is the sum of the individual lot price adjustments as determined in Subsection 408-4.03 Evaluation of Materials for Acceptance and is included in Item 408(6) Asphalt Price Adjustment-Quality. Penalties assessed are also included in Item 408(6).

A mat area of finished surfacing that is visibly segregated, has a lower density than specified (Subsection 408-3.13), fails to meet surface tolerance requirements, or is flushing asphalt cement is considered unacceptable according to Subsection 105-1.11.

HOT MIX ASPHALT

The quantity of each class and type of HMA produced and placed will be divided into lots and the lots evaluated individually for acceptance.

A lot will normally be 5,000 tons. The lot will be divided into sublots of 500 tons; each randomly sampled and tested for asphalt cement content, density, and gradation according to this subsection. If the project has more than 1 lot, and less than 8 additional sublots have been sampled at the time a lot is terminated, either due to completion of paving operations or the end of the construction season (winter shutdown), the material in the shortened lot will be included as part of the prior lot. The price adjustment computed, according to Subsection 408-4.03, for the prior lot will include the samples from the shortened lot.

If 8 or 9 samples have been obtained at the time a lot is terminated, they will be considered as a lot and the price adjustment will be based on the actual number of test results (excluding outliers) in the shortened lot.

If the contract quantity is between 1,500 tons and 5000 tons, the Contract quantity will be considered one lot. The lot will be divided into sublots of 500 tons and randomly sampled for asphalt cement content, density, and gradation according to this subsection except that a determination for outliers will not be performed. HMA quantities of less than 300 tons remaining after dividing the Contract quantity into sublots will be included in the last sublot. HMA quantities of 300 tons or greater will be treated as an individual sublot. The lot will be evaluated for price adjustment according to Subsection 408-4.03 except as noted.

For Contract quantity of less than 1,500 tons, (also for approaches) HMA will be accepted for payment based on the Engineer's approval of a JMD and the placement and compaction of the HMA to the specified depth and finished surface requirements and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance. Remove and replace any HMA that does not conform to the approved JMD.

Samples collected at the plant from dry batched aggregates, the conveyor system, or the asphalt cement supply line shall be taken by the Contractor in the presence of the Engineer. The Engineer will take immediate possession of the samples.

The Engineer will determine where samples are taken.

1. Asphalt Cement Content. Hot mix samples taken for the determination of asphalt cement content will be taken randomly from behind the screed before initial compaction, or from the windrow according to WAQTC FOP for AASHTO T 168 and ATM 403 as directed by the Engineer. HMA samples taken for the determination of both asphalt cement content and

gradation will be taken randomly from behind the screed before initial compaction or from the windrow according to WAQTC FOP for AASHTO T 168 and ATM 403.

Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. At the discretion of the Engineer, asphalt cement content will be determined according to ATM 405 or WAQTC FOP for AASHTO T 308.

2. Aggregate Gradation.

a. Drum Mix Plants. Samples taken for the determination of aggregate gradation from drum mix plants will be from the combined aggregate cold feed conveyor via a diverter device, or from the stopped conveyor belt according to WAQTC FOP for AASHTO T 2, or from the same location as samples for the determination of asphalt cement content. Locate diverter devices for obtaining aggregate samples from drum mix plants on the conveyor system delivering combined aggregates into the drum. Divert aggregate from the full width of the conveyor system and maintain the diverter device to provide a representative sample of aggregate incorporated into the HMA. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. The aggregate gradation for samples from the conveyor system will be determined according to WAQTC FOP for AASHTO T 27/T 11. For HMA samples, the gradation will be determined according to WAQTC FOP for AASHTO T 30 from the aggregate remaining after the ignition oven (WAQTC FOP for AASHTO T 308) has burned off the asphalt cement.

b. Batch Plants. Samples taken for the determination of aggregate gradation from batch plants will be from the same location as samples for the determination of asphalt cement content, or from dry batched aggregates according to WAQTC FOP for AASHTO T 2. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. Dry batched aggregate gradations will be determined according to WAQTC FOP for AASHTO T 27/T 11. For HMA samples, the aggregate gradation will be determined according to WAQTC FOP for AASHTO T 30 from the aggregate remaining after the ignition oven (WAQTC FOP for AASHTO T 308) has burned off the asphalt cement.

3. Density.

a. Acceptance Testing.

The Engineer will determine and mark the location(s) where the Contractor will take each core sample. Core samples will not be taken at bridge decks or the milled edge of existing pavement.

1) Mat Cores: The location(s) for taking core samples will be determined using a set of random numbers and the Engineer's judgment.

2) Longitudinal Joint Cores: The Engineer will mark the location(s) to take the core sample, centered on the visible surface joint, and adjacent to the mat core sample taken in the panel completing the joint. Take joint core samples in the presence of the Engineer.

Cut full depth core samples, centered on the marks and as noted above, from the finished HMA within 24 hours after final rolling. Neatly core drill one six inch diameter sample at each marked location. Use a core extractor to remove the core - do not damage the core. Backfill and compact voids left by coring with new HMA within 24 hrs.

The Engineer will immediately take possession of the samples. Density of the samples will be determined, by the Engineer, according to WAQTC FOP for AASHTO T 166/T 275.

A penalty will be assessed for each failure to take core samples or backfill core sample voids within the specified period, or take core samples at the location marked by the Engineer.

4. Retesting. A retest of any sample outside the limits specified in Table 408-2 may be requested provided the quality control requirements of 408-2.05 are met. Deliver this request in writing to the Engineer within 7 days of receipt of the final test of the lot. The Engineer will mark the sample for the density retest within a 2 foot radius of the original core. The original test results will be discarded and the retest result will be used in the price adjustment calculation regardless of whether the retest result gives a higher or lower pay factor. Only one retest per sample is allowed. Except for the first lot, gradation and asphalt cement content are determined from the same sample, retesting for gradation or asphalt cement from the first sublot of a lot will include retesting for the MSG; when separate samples are used, retesting for asphalt cement content will include retesting for MSG.

ASPHALT CEMENT.

The lot size for asphalt cement will normally be 200 tons. If a project has more than one lot and the remaining asphalt cement quantity is less than 150 tons, it will be added to the previous lot and that total quantity will be evaluated for price adjustment as one lot. If the remaining asphalt cement quantity is 150 tons or greater, it will be sampled, tested and evaluated as a separate lot.

If the Contract quantity of asphalt cement is between 85 – 200 tons, the contact quantity will be considered as one lot and sampled, tested, and evaluated according to this subsection. Quantities of asphalt cement less than 85 tons will be accepted based on manufacturer's certified test reports and certification of compliance.

Asphalt cement will be sampled according to WAQTC FOP for AASHTO T 40, tested for conformance to the specifications in Section 702, and evaluated for price adjustment in accordance with 408-4.03. Asphalt cement pay reduction factors for each sample will be determined from Table 408-4. Three separate samples from each lot will be taken, one for

acceptance testing, one for Contractor retesting, and one held in reserve for referee testing if applicable.

408-4.03 EVALUATION OF MATERIALS FOR ACCEPTANCE.

Price adjustments in this subsection are addressed under Item 408(6) Asphalt Price Adjustment – Quality.

HOT MIX ASPHALT

The total Hot Mix Asphalt price adjustment is the sum of all price adjustments for each lot.

The following method of price adjustment will be applied to each type of HMA when the contract quantity equals or exceeds 1,500 tons, except as defined in Subsection 408-4.02.

Acceptance test results for a lot will be analyzed collectively and statistically by the Quality Level Analysis method as specified in Subsection 106-1.03 to determine the total estimated percent of the lot that is within specification limits.

The price adjustment is based on the lower of two pay factors. The first factor is a composite pay factor for HMA that includes gradation and asphalt cement content. The second factor is for density.

A lot containing HMA with less than a 1.00 pay factor will be accepted at an adjusted price, provided the pay factor is at least 0.75 and there are no isolated defects identified by the Engineer. A lot containing HMA that fails to obtain at least a 0.75 pay factor will be considered unacceptable and rejected under Subsection 105-1.11.

The Engineer will reject HMA that appears to be defective based on visual inspection. A minimum of two samples will be collected from the rejected HMA and tested if requested. If test results are within specification limits, payment will be made for the HMA. If any of the test results fail to meet specifications, no payment will be made and the cost of the testing will be subtracted as a price adjustment. Costs associated with removal and disposal of the rejected HMA are subsidiary to the Hot Mix Asphalt Pay Item.

Outlier Test. Before computing the price adjustment, the validity of the test results will be determined by SP-7, the Standard Practice for Determination of Outlier Test Results. Outlier test results will not be included in the price adjustment calculations.

When gradation and asphalt cement content are determined from the same sample, if a sieve size on the gradation test or the asphalt cement content is an outlier, then the gradation test results and the asphalt cement content results for that sublot will not be included in the price adjustment. The density test result for that sublot will be included in the price adjustment provided it is not an outlier.

When gradation and asphalt cement content are determined from separate samples, if any sieve size on the gradation test is an outlier, then the gradation test results for that sample will not be included in the price adjustment. The asphalt cement content and density test results for that sublot will be included in the price adjustment provided neither is an outlier. If the asphalt cement content test result is an outlier, it will not be included in the price adjustment but the gradation and density test results for the sublot will be included provided neither is an outlier. If the density test result is an outlier, it will not be included in the price adjustment but the gradation and asphalt cement content test results will be included provided neither is an outlier.

Quality Level Analysis. Pay factors are computed as follows:

1. Outliers (determined by SP-7), and any test results on material not incorporated into the work, are eliminated from the quality level analysis.

   The arithmetic mean $(\bar{x})$ of the remaining test results is determined:

   $$\bar{x} \quad \frac{\sum x}{n}$$

   Where: $\sum$ = summation of
   x = individual test value to x_n
   n = total number of test values

   $(\bar{x})$ is rounded to the nearest tenth for density and sieve sizes except the No. 200 sieve.
   $(\bar{x})$ is rounded to the nearest hundredth for asphalt cement content and the No. 200 sieve.

2. The sample standard deviation (s) after the outliers have been excluded, is computed:

   $$s = \sqrt{\frac{n\sum(x^2) - (\sum x)^2}{n(n-1)}}$$

   Where: $\sum(x^2)$ = sum of the squares of individual test values.
   $(\sum x)^2$ = square of the sum of the individual test values.

   The sample standard deviation (s) is rounded to the nearest hundredth for density and all sieve sizes except the No. 200 sieve. The sample standard deviation (s) is rounded to the nearest 0.001 for asphalt cement content and the No. 200 sieve.

   If the computed sample standard deviation (s) is <0.001, then use s = 0.20 for density and all sieves except the No. 200. Use s = 0.020 for asphalt cement content and the No. 200 sieve.

3. The USL and LSL are computed. For aggregate gradation and asphalt cement content, the Specification Limits (USL and LSL) are equal to the Target Value (TV) plus and minus the allowable tolerances in Table 408-2. The TV is the specified value in the approved JMD. Specification tolerance limits for the largest sieve specified will be plus 0 and minus 1 when performing Percent Within Limits (PWL) calculations. The TV for density is 96% of the MSG, the LSL is 93% of MSG, and the USL is 99%.

TABLE 408-2

LOWER SPECIFICATION LIMIT (LSL) & UPPER SPECIFICATION LIMIT (USL)

Measured Characteristics	LSL	USL
3/4 inch sieve	TV -6.0	TV + 6.0
1/2 inch sieve	TV -6.0	TV + 6.0
3/8 inch sieve	TV -6.0	TV + 6.0
No. 4 sieve	TV -6.0	TV + 6.0
No. 8 sieve	TV -6.0	TV + 6.0
No. 16 sieve	TV -5.0	TV + 5.0
No. 30 sieve	TV -4.0	TV + 4.0
No. 50 sieve	TV -4.0	TV + 4.0
No. 100 sieve	TV -3.0	TV + 3.0
No. 200 sieve*	TV -2.0	TV + 2.0
Asphalt Cement %	TV -0.4	TV + 0.4
Mat Density %	93	99

*Tolerances for the No. 200 sieve may not exceed the broadband limits in Table 703-3.

4. The Upper Quality Index (Q_U) is computed:

$$Q_U = \frac{USL - \bar{x}}{S}$$

Where: USL = Upper Specification Limit
Q_U is rounded to the nearest hundredth.

5. The Lower Quality Index (Q_L) is computed:

$$Q_L = \frac{\bar{x} - LSL}{S}$$

Where: LSL = Lower Specification Limit
Q_L is rounded to the nearest hundredth.

6. P_U (percent within the upper specification limit which corresponds to a given Q_U) is determined.
See Subsection 106-1.03.

7. P_L (percent within the lower specification limit which corresponds to a given Q_L) is determined.
See Subsection 106-1.03.

8. The Quality Level (the total percent within specification limits) is determined for aggregate gradation, asphalt cement content, and density.

Quality Level = $(P_L + P_U) - 100$

9. Using the Quality Levels from Step 8, the lot Pay Factor (PF) is determined for Density (DPF) and gradation and asphalt cement content pay factors from Table 106-2. The maximum pay factor for the largest sieve size specification for gradation is 1.00.

10. The Composite Pay Factor (CPF) for the lot is determined using the following formula:

$$CPF = \frac{[f_{3/4\ inch}\ (PF_{3/4\ inch}) + f_{1/2\ inch}\ (PF_{1/2\ inch}) + \ldots f_{ac}\ (PF_{ac})]}{\Sigma f}$$

The CPF is rounded to the nearest hundredth.

Table 408-3 gives the weight factor (f), for each sieve size and asphalt cement content.

TABLE 408-3
WEIGHT FACTORS

Sieve Size	Type V Factor "f"
3/4 inch sieve	4
1/2 inch sieve	5
3/8 inch sieve	5
No. 4 sieve	4
No. 8 sieve	4
No. 16 sieve	4
No. 30 sieve	5
No. 50 sieve	5
No. 100 sieve	4
No. 200 sieve	20
Asphalt Cement Content, %	40

The price adjustment will be based on either the CPF or DPF, whichever is the lowest value. The price adjustment for each individual lot will be calculated as follows:

Price Adjustment = *[(CPF or DPF)* -1.00] x (tons in lot) x (PAB)*

*CPF or DPF, whichever is lower.

PAB = Price Adjustment Base = $140 per ton

ASPHALT CEMENT

The total asphalt cement price adjustment is the sum of all price adjustments for each lot.

Asphalt cement will be randomly sampled and tested in accordance with Subsection 408-4.02. Asphalt cement pay reduction factors for each sample will be determined from Table 408-4.

Table 408-4
ASPHALT CEMENT PAY REDUCTION FACTORS
(Use the single, highest pay reduction factor)

Test	Spec	Pay Reduction Factor (PRF)								
		0.00	**0.04**	**0.05**	**0.06**	**0.07**	**0.08**	**0.10**	**0.25**	**Reject or Engr Eval**
Tests On Original Binder										
Viscosity	< 3 Pa-s	≤ 3		> 3						
Dynamic Shear	> 1.00 kPa	> 1.00		0.88-0.99				0.71-0.89	0.50-0.70	< 0.50
Toughness	> 110 in-lbs	> 93.5	90.0-93.4	85.0-89.9	80.0-84.9	75.0-79.9	70.0-74.9			< 70.0
Tenacity	> 75 in-lbs	> 63.8	61.0-63.7	58.0-60.9	55.0-57.9	52.0-54.9	48.0-51.9			< 48.0
Tests On RTFO										
Mass Loss	< 1.00 %	< 1.00		1.001-1.092				1.093-1.184	1.185-1.276	> 1.276
Dynamic Shear	> 2.20 kPa	> 2.20		1.816-2.199				1.432-1.815	1.048-1.431	< 1.048
Test On PAV										
Dynamic Shear	< 5000 kPa	< 5000		5001-5289				5290-5578	5579-5867	> 5867
Creep Stiffness	< 300 MPa	< 300		301-338				339-388	389-450	> 450
Creep Stiffness, m-value	> 0.300	> 0.300		0.287-0.299				0.274-0.286	0.261-0.273	< 0.261

Asphalt Cement Price Adjustment = *5 x PAB x Qty x PRF* (for each sample)
PAB = Price Adjustment Base
Qty = Quantity of asphalt cement represented by asphalt cement sample
PRF = Pay Reduction Factor from Table 408-4

Asphalt Cement Appeal Procedure. Once notified of a failing test result of an asphalt cement sample, the Contractor has 21 days to issue a written appeal. The appeal must be accompanied by all of the Contactor's quality control test results and a test result of Contactor's sample of this lot tested by an AASHTO accredited asphalt laboratory (accredited in the test procedure in question). The Engineer will review these test results using ASTM D3244 to determine a test value upon which to base a price reduction.

If the Contractor challenges this value, then the referee sample held by the Engineer will be sent to a mutually agreed upon independent AASHTO accredited laboratory for testing. This test result will be incorporated into the ASTM D3244 procedure to determine a test value upon

which to base a price reduction. If this final value incurs a price adjustment, the Contractor shall pay the cost of testing the referee sample.

LONGITUDINAL JOINT DENSITY

Longitudinal joint density price adjustments apply when HMA quantities are equal to or greater than 1,500 tons. A longitudinal joint density price adjustment for the top layer will be based on the average of all the joint densities on a project and determined as follows:

1. If project average joint density is less than 91% MSG, apply the following disincentive:
   a. Longitudinal joint density price adjustment equal to $3.00 per lineal foot is deducted.

   Sections of longitudinal joint represented by cores with less than 91% density shall be surface sealed according to Subsection 408-3.14.

2. If project average joint density is greater than 92% MSG apply the following incentive:
   a. Longitudinal joint density price adjustment equal to $1.50 per linear foot is added.

408-4.04 ASPHALT MATERIAL PRICE ADJUSTMENT – UNIT PRICE.

This subsection provides a price adjustment for asphalt material by:
(a) additional compensation to the Contractor or
(b) a deduction from the Contract amount.

1. This provision shall apply to asphalt material meeting the criteria of Section 702, and is included in items listed in the bid schedule of Sections 306, 307, 308, 318 and 401 through 409, except Section 402. Also included is the asphalt material in the Approach HMA as included in 408 or 639 and Pathway HMA as part of 608.

2. This provision shall only apply to cost changes in asphalt material that occur between the date of bid opening and the date the asphalt material is incorporated into the project.

3. The asphalt material price adjustment will only apply when:
   a. More than 500 tons of asphalt material in the bid schedule of Sections described in Item 1; and
   b. More than a 7.5% increase or decrease in the Alaska Asphalt Material Price Index, from the date of bid opening to the date the asphalt material is incorporated into the project.

4. The Alaska Asphalt Material Price Index (AAMPI) is posted on the Department's Materials website along with the formula used to calculate the Index. The AAMPI as used in the determination of the "Asphalt Material Price Adjustment – Unit Price" is calculated for the first and third Friday of each month. The index applies from the beginning of the period start day 00:00 hrs, and ends 00:00 hrs the start of the next period. Other calculation and or period start/end days, including the post day (except as fall on the 1st and 3rd Friday) are not permitted.

5. Price adjustment will be cumulative and calculated with each progress payment. Use the price index in effect on the last day of the pay period, to calculate the price adjustment for asphalt material incorporated into the project during that pay period. The Department will increase or decrease payment under this Contract by the amount determined with the following asphalt material price adjustment formula:

For an increase exceeding 7.5%, additional compensation = *[(IPP – IB) – (0.075 x IB)] x Q*

For a decrease exceeding 7.5%, deduction from contract = *[(IB – IPP) – (0.075 x IB)] x Q*

Where: Q = Quantity of Asphalt Material incorporated into project during the pay period, in tons

IB = Index at Bid: the bimonthly Alaska Asphalt Material Price Index in effect on date of bid, in dollars per ton

IPP = Index at Pay Period: the bimonthly Alaska Asphalt Material Price Index in effect on the last day of the pay period, in dollars per ton

Method of measurement for determining Q (quantity) is the weight of asphalt material meeting the criteria of this subsection and is incorporated into the project. The quantity does not include aggregate, mineral filler, blotter material, thinning agents added after material qualification, or water for emulsified asphalt.

408-5.01 BASIS OF PAYMENT.

Except where specified as individual Pay Items:

Anti-stripping additives, tack coat, crack sealing, **asphalt cement,** surface sealing of longitudinal joints, surface tolerance corrections, patching defective areas and the work and materials associated with Subsection 408-3.04 Hauling Equipment are subsidiary to the associated Hot Mix Asphalt Pay Items.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
408(1)	Hot Mix Asphalt, Type V	Ton

CR408-021810

SECTION 606

GUARDRAIL

Special Provisions

606-1.01 DESCRIPTION. Add the following: provide and install steel posts as indicated on the plans.

606-2.01 MATERIALS. Add the following: Posts shall be 4" diameter steel (SCH#40) pipe filled with concrete. Paint post caterpillar yellow (NO. 4C-6129, CAT DEALER) after installation with sufficient coats of paint to mask the steel.

606-4.01 METHOD OF MEASUREMENT. Add the following:

4. STEEL POST. Per each, installed in place.

606-5.01 BASIS OF PAYMENT. Add the following:

Pay Item No.	Pay Item	Pay Unit
606(17)	Steel Post	Each

SECTION 607

FENCES

Special Provisions

607-1.01 DESCRIPTION. Add the following: The work consists of fabrication and installation of landscape fence as shown on the drawings.

607-3.01 CONSTRUCTION. Add the following:

1. Quality Assurance
   a. Qualifications of Fabricators and Installers
      i. Shall have not less than five years of continuous experience in the fabrication of similar products.
      ii. Welders shall be currently certified by the American Welding Society (AWS).
   b. Codes and Standards
      i. Comply with "Code for Welding in Building Construction" of the American Welding Society, latest edition.
         c. The contractor stores and handles product as follows:
            i. Place steel fabrications and materials on skids above the ground. Keep steel clean and properly drained.
            ii. Finishes: Keep steel materials dry during delivery and storage. Protect against exposure to weather and contact with damp or wet surfaces.

2. Fabrication
   a. Provide powder coat paint color samples for approval. Match wood preservative for application on cut faces of fence posts to existing all-weather wood treatment and submit for approval.
   b. Submit shop drawings of fence panels and posts prior to fabrication clearly showing materials, finishes, connections, joining methods, location of installation and field measurements for construction of landscape fence. Approved shop drawings will become the basis for acceptance of Work.
   c. Provide a full size sample panel that serve as the basis of quality control for metal fabrication. Make finished sample available for review at an Anchorage location. Subsequent panels shall meet the fabrication standard established by the approved sample.
   d. Furnish finished fence panels, pipes and connectors for approval prior to installation. The completed fence components shall be free of fabrication defects, scratches, chipped paint, rust or other discoloration.
   e. Assemble panels in a shop or factory. Construct welds neat and clean, by the gas metal arc method. Grind flush welds smooth. Predrill holes for attachment prior to powder coating.

3. Powder Coating
   a. Provides color chips from standard RAL color chart for approval.
   b. Prepare powder coated surfaces through a five step process to provide an acceptable finish.
      i. Rinse and clean with clear water
      ii. Phosphate treat to etch surfaces
      iii. Rerinse with clear water
      iv. Oven dry surfaces prior to powder coating
      v. Apply polyester powder by the electrostatic spray process to a thickness of 2.5 mils. The metal shall be oven heated at 450°F for 14 minutes.
   c. Powder coat landscape fence panel with Tiger Drylac Polyester TGIC RAL 6002, product #49/525900 polyester coating as manufactured by TIGER Drylac U.S.A. Inc., 18808 142nd Avenue NE, #5B, Woodinville, WA 98702, Phone: (425) 481-3160 (www.tigerdrylac.com) or an approved equal.
   d. Powder coat the 2 ½" OD pipe with Tiger Drylac Polyester TGIC RAL 4003, product #49/32270 polyester coating as manufactured by TIGER Drylac U.S.A. Inc., 18808 142nd Avenue NE, #5B, Woodinville, WA 98702, Phone: (425) 481-3160 (www.tigerdrylac.com) or an approved equal.

4. Posts
Set posts plumb and of uniform and equal height above the ground. Attach fence panels as shown on the drawings. Secure and tightly fit post.

5. Fence Panels
Securely fasten fence panels as shown on the drawings. Do not install fence panels that are bowed, contain surface irregularities, or are not square.

607-4.01 METHOD OF MEASUREMENT. Add the following:

Landscape Fence: Measure by linear foot at the base of the fence parallel to the ground.

607-5.01 BASIS OF PAYMENT. Add the following pay item

Pay Item No.	Pay Item	Pay Unit
607(7)	Landscape Fence	Linear Foot

SECTION 608

SIDEWALKS

Special Provision

608-1.01 DESCRIPTION. Add the following:

This work also includes the construction of imprinted concrete sidewalk.

608-2.01 MATERIALS.

Add the following:

Use Dayton Superior J-22 curing compound or approved equal for imprinted concrete.

608-3.01 CONCRETE SIDEWALKS. Add the following:

Imprint concrete sidewalks where indicated on the plans. Apply "Bomanite" or approved equal imprinting tools while concrete is still in the plastic stage of set in accordance with the manufacturer's specifications to achieve the desired "Running Bond Brick" pattern.

Uniformly apply curing compound with a roller or sprayer immediately after imprinting. Apply un-thinned curing compound at a rate of 600 to 650 square feet per gallon.

Standard Modification

608-3.03 CURB RAMPS. Delete subsection in its entirety and replace with the following:

Construct curb ramps according to the details and the locations shown on the Plans. Follow the construction requirements of subsection 608-3.01. Give the exposed concrete surface a coarse broom finish. Install detectable warnings.

Add new subsection:

608-3.04 DETECTABLE WARNINGS. Construct detectable warnings according to the details and the locations shown on the Plans. Install detectable warning tile by embedding tile flanges into cast in place concrete construction so there are no vertical changes in grade exceeding 0.25 inch or horizontal gaps exceeding 0.5 inch. Align pattern on a square grid in the predominant direction of travel. Install the same type of detectable warning tile throughout the project. Install the following:

1. ***Deleted***

2. Cast iron, red polymer soaked, black asphalt dip finish, **or other color approved by the Engineer** with slip resistant surface, with handle or flange on bottom, and with truncated dome pattern; or

3. ***Deleted***

Detectable warnings shall be manufactured and installed according to the Americans with Disabilities Act Accessibility Guidelines.

608-4.01 METHOD OF MEASUREMENT. Delete fifth paragraph beginning with: "Curb Ramp" and replace with the following:

Curb Ramp. By each installation, complete in place, including detectable warnings, ramp runs, backing curbs, flares, and landings necessary to provide a single street level access.

E40(01/27/07)

Special Provision

608-5.01 BASIS OF PAYMENT. Delete the first sentence and replace with the following:

Excavation, backfill, reinforcement, expansion joint material, imprinting and other related miscellaneous items are subsidiary.

SECTION 609

CURBING

Special Provisions

609-1.01 DESCRIPTION. Add the following: This work also consist of construction of island nose in accordance with the drawings.

609-4.01 METHOD OF MEASUREMENT. Add the following: Curb nose will not be measured for payment.

609-5.01 BASIS OF PAYMENT. Add the following: Curb nose will not be paid for directly but will be subsidiary to Item 609(7) Curb and Gutter, All Types. Payment for Curb and Gutter, regardless of type will be made under:

Pay Item No.	Pay Item	Pay Unit
609(7)	Curb and Gutter, All Types	Linear Foot

SECTION 615

STANDARD SIGNS

Special Provisions

615-2.01 MATERIALS. Delete the first paragraph of Item 2, including subitems a., b., and c. and replace with:

2. Sign Fabrication. Use the following reflective sheeting (for lettering, symbols, borders, and background) on sheet aluminum panels for signs:

   a. Orange Background Signs: Use either Type II or Type III orange reflective sheeting or use Type VII or Type IX fluorescent orange reflective sheeting. For temporary installations place reflective sheeting on sheet aluminum, plastic, or plywood panels.

   b. Railroad Crossbucks and Vertical Crossbuck Supports: Use white Type VIII or Type IX reflective sheeting for background of sign and strips.

   a. 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 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.
   b. Fluorescent Yellow-Green School Area Signs: Use Type VIII or Type IX reflective sheeting for background.
   c. All other signs use Type IX reflective sheeting.

Add the following paragraph:

Reflective Sheeting Warranty. Supply manufacturer's warranty for reflective sheeting, including retention of fluorescent yellow-green (measured according to ASTM E 2301) for ten years according to the following criteria:

Minimum Fluorescent Luminance Factor	Y_F: 20%
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 8^{th} through the 10^{th} year from the date of fabrication, the manufacturer shall, at the manufacturer's expense, provide enough new

replacement sign sheeting to the Department to restore the sign surface to its original effectiveness. E26(1/1/06)

615-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Add the following:
Existing signs to be removed shall be salvaged and delivered to the MOA Paint and Sign shop at 2839 Mt. View Drive. Coordinate delivery with Don Carlson, Paint and Sign Foreman, 343-4384

SECTION 618

SEEDING

Special Provisions

618-1.01 DESCRIPTION. Add the following: Topsoil and seed new or disturbed slopes and other areas directed by the Engineer. Track the soil and apply seed, mulch, fertilizer, and water. Provide a living ground cover on slopes as soon as possible.

618-2.01 MATERIALS. Add the following to the list of material specifications:

Mulch	subsection 727-2.01

Standard Modification

618-3.01 SOIL PREPARATION. Delete the fourth paragraph and replace with the following: 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 before 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.

Rounding the top and bottom of slopes to facilitate tracking or raking and to create a pleasant appearance is acceptable, but disrupting drainage flow lines is not.

618-3.02 SEEDING SEASONS. Add the following: Seed disturbed areas that require seeding within 14 days of the permanent cessation of ground disturbing activities in that area.

Seed between May 15 and August 15, or obtain written approval from the Engineer to seed at a different date.

618-3.03 APPLICATION. Add the following: Apply seed, mulch, and fertilizer as follows per msf. Apply seed and mulch in one application if using the hydraulic method. Apply fertilizer with the hydraulic method.

Delete the first three sentences and replace with: Apply seed mix, fertilizer, and mulch (if required) at the rate specified in the Special Provisions. If no seed mix, seed mix application rate, or fertilizer rate are specified in the special provisions, use the recommendations of the Alaska Department 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.

Add the following: Apply seed as detailed in subsection 618-3.03 immediately after the shaping of the slopes. Cover all slopes to be seeded with topsoil according to Section 620. Complete slope preparation as soon as topsoil is placed on the slopes.

Component	Ingredients	Application Rate (per MSF)
Seed	Slender Wheatgrass (Wainwright) Red Fescue (Arctared) Annual Ryegrass (Lolium)	0.50 lbs. 0.40 lbs. 0.10 lbs. Total = 1.00 lbs
Soil Stabilizer Slope ≤ 3:1 Slope >3:1	 Mulch Mulch with tackifier	 46 lbs. 45-58 lbs.
Fertilizer	20-20-10	12.0 lbs.

Do not remove the required tags from the seed bags.

Upon the Engineer's approval, Nortran Tufted Hairgrass may be used as a substitute for Slender Wheatgrass (Wainwright) if Slender Wheatgrass (Wainwright) is commercially unavailable. If this substitution is made, apply at the same application rate.

R52(01/27/07)

Delete subsection 618-3.04 in its entirety, and add the following new subsections:

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 a paid Contract item. If, in the opinion of the Engineer, 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 inches deep.

Contact ADNR for advice or corrective measures, when seeded areas are not showing evidence of satisfactory growth. The Contractor is 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 Engineer will perform a visual inspection of seeding to determine final stabilization. During the visual inspection each station

and each side of the road will be considered a separate area. The Engineer will accept seeding that has become a vegetative matt with 70% cover density in the inspection area.

Reseed areas that are not acceptable to the Engineer.

618-3.06 PERIOD OF ESTABLISHMENT. Establishment periods extend for one complete growing season following acceptable seeding. Employ possible means to preserve the new vegetative matt in a healthy and vigorous condition to ensure successful establishment. Reseed areas that do not meet the specifications. Watering and reseeding after the final inspection are subsidiary.

The Engineer 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.

E42(01/27/07)

618-4.01 METHOD OF MEASUREMENT. Delete subsection 618-4.01 in its entirety and replace with the following:

Seeding will not be measured for payment.

618-5.01 BASIS OF PAYMENT. Delete subsection 618-5.01 in its entirety and replace with the following:

Seed, soil preparation, fertilizer, water required for hydraulic method and water applied for growth of vegetative mat and maintenance of seeded areas will not be paid for directly but will be subsidiary to other items.

SECTION 620

TOPSOIL

Special Provisions

620-3.01 PLACING. Delete paragraph in its entirety and substitute the following:

Evenly spread topsoil to a minimum depth of 24 inches after settlement on areas to be established as planting beds for trees or shrubs as shown on the Plans or as directed by the Engineer.

Establish an even finish grade for topsoil after compaction at the elevation shown on the Plans or as directed by the Engineer. Place topsoil only after excavation, rough grading, and other subgrade preparation has been completed and approved by the Engineer.

Seed and prepare slopes with the ratio of 1V:4H or steeper by a method approved by the Engineer to result indentations perpendicular to the fall of the slope. Complete this as soon as topsoil is placed on the slopes. The Contractor may round the top and bottom of the slopes to create a pleasing appearance, but drainage flow lines will not be disrupted. The performance of this work is subsidiary to seeding and will not be paid for directly. Keep equipment performing the placement of topsoil, or other operations for this project clear of wetland areas. If access into the wetland is required, it will be approved by the Engineer and will be performed under close supervision.

Do not place topsoil in heavy rainfall, snowfall, when the soil is frozen or during other conditions detrimental to the work. Keep all roadway surfaces clean of topsoil during hauling and spreading operations.

620-4.01 METHOD OF MEASUREMENT. Add the following: Preparation of slopes as described above will be subsidiary to Item 620(1) Topsoil. Limestone, if required, will not be measured for payment, but will be subsidiary to Item 620(1) Topsoil.

620-5.01 BASIS OF PAYMENT. Add the following pay items:

Pay Item No.	Pay Item	Pay Unit
620(1)	Topsoil (24 inch Depth)	Square Yard

SECTION 621

PLANTING TREES AND SHRUBS

Special Provisions

621-1.01 DESCRIPTION. Delete this subsection in its entirety and substitute the following: This work consists of collecting, furnishing, planting, transplanting and maintaining Trees, Shrubs, and other plants on prepared areas as shown and scheduled on the Plans.

This work also includes preparation of planting beds including furnishing and installing shredded bark mulch, and Aluminum Landscape Edging as shown on the Plans.

Add the following subsection:

621-1.02 QUALIFICATIONS FOR LANDSCAPE CONTRACTOR. Provide documentation which verifies the experience of the landscaper performing the work described in this section and maintaining landscaping projects comparable in scope, materials and diversity in three (3) construction projects and one (1) maintenance project within the last five (5) years before to the bid date of this project. This experience only includes projects from cold climate states or provinces and three (3) from South-central Alaska. Provided documentation must demonstrate experience in landscape installation, tree and shrub planting and transplanting

Add the following subsection:

621-1.04 SUBMITTALS. The landscaper performing the work meets the following minimum requirements and submits the necessary documentation to show compliance to the Engineer for review and approval:

1. Project Experience: Prior to commencing landscaping activities, provide documentation listing three (3) construction projects and (1) maintenance project completed by the landscaper under the same company name that are similar in scope, landscape materials, plant materials, methods of installation and maintenance to the project in the Plans and Specifications. Include, at a minimum, the dates, type, description and amount of work performed and the name and telephone number of a contact person at the agency or entity for which the work was performed.

2. Personnel: Submit a list of proposed key personnel, including the name of the superintendent and his assistant(s), who directs the actual installation to the Engineer fourteen (14) days after Notice to Proceed. Accompany the list of personnel with a resume from the superintendent and his/her assistant(s). Assign the superintendent full time to this project during installation.

   The superintendent and assistant must have a minimum of five (5) years experience in directing landscape projects before the bid date of this project, three (3) of which are in

Alaska. Include the following information with the resumes and demonstrate compliance with any requirements requested:

1.) Number of years of continuous relevant experience in landscaping projects. List significant projects in the resume.
2.) Recent relevant landscaping, vegetation restoration, including project description, date of work, individual's role on the project, and one reference for each project.

The Engineer has the right to approve or reject the personnel based on the qualifications as submitted. Upon approval, the landscaper, the superintendent and assistant(s) will be authorized to work on this project. The Engineer may suspend work if the Contractor substitutes landscape personnel during construction without approval. If work is suspended due to such substitutions the Contractor takes full liability for additional costs resulting from the suspension of work and no adjustments in Contract time resulting from suspension of work is allowed.

621-2.01 PLANT STOCK. Delete this subsection in its entirety and substitute the following: Provide plants that are true to type and name in accordance with the current edition of Standardized Plant Names, American Joint Committee on Horticultural Nomenclature. Plant species which are scheduled, but not included in the current edition of Standardized Plant Names, must be certified by a botanist. Label each bundle, flat, or plant if not bundled, with the scientific name.

Provide trees and shrubs typify the species or variety and, unless otherwise specified, conform to the American Standard for Nursery Stock (ANSI-Z 60.1-2004) of the American Association of Nurserymen (AAN) for type and grade. Reject plant stock with severely damaged bark or trunks, broken leaders or main branches, severed main roots, or evidence of disease or injurious insects. Do not use bare root trees and shrubs.

1. Nursery Stock.

   a. Nursery furnished trees and shrubs shall have a fibrous compact root system suitable for the various species and sizes called for on the plans.

   b. Container-grown plants shall be healthy, vigorous, well rooted and established in the container in which they are furnished. Root mass retains its shape and holds together when removed from the container without being root-bound.

2. Collected Stock. These materials are plants growing under natural conditions in soils and in locations, which lend themselves to proper collecting practices. Obtains permits required for collection of plant stock from natural areas. The root system of collected stock shall be larger than those specified for nursery grown material in accordance with ANSI-Z60.1-2004, Section 1.5.2, 2.4.8, 3.3.6 - Collected.

3. Balled and Burlapped Plants.

a. The diameter and depths of balls on balled and burlapped Trees and Shrubs shall be in accordance with ANSI-Z60.1-2004.

b. Furnish balled and burlapped Trees and Shrubs with a firm ball of earth from the original and undisturbed soil in which the plant was growing. The ball is wrapped with burlap or similar approved material and tightly laced to hold the ball firm and intact. Reject any balled and burlapped designated plant material arriving at the planting site with broken or loose balls or of manufactured earth.

c. Do not use plants determined to be rootbound by the Engineer.

4. Substitutions. Do not substitute plant stock without the written approval of the Engineer. Submit request for substitutions for Trees and Shrubs in writing six (6) months before installation.

5. Storage and Packing. Handle and pack all plant material in accordance with good nursery practices as required by soil and climatic conditions. Reject plants that show signs of improper storage or handling.

6. Inspection.

a. Make planting stock is available for inspection in the nursery or collection field before it is dug. Furnish complete and detailed information concerning the source of supply for each item of plant materials not less than 14 working days in advance of digging operations.

b. The Engineer will inspect the plant materials for size of rootball, color, absence of defects, and for other requirements at the planting site prior to the placement of plants in their permanent positions.

c. The Engineer may direct the removal of any plant materials installed prior to inspection.

621-2.02 FERTILIZER. Add the following: Deliver fertilizer in moisture-proof containers marked with weight and manufacturer's guaranteed analysis showing proportions of the chemical ingredients of nitrogen, phosphoric acid, and potassium within a tolerance of +/- 2 percent. Use a slow release fertilizer 8-32-16 (N-P-K) with all Trees, Shrubs, early in the first full growing season following installation. Apply fertilizer at a rate determined by the Engineer, and based on the soil analysis tests provided by the Contractor for the topsoil used for this project. Place fertilizer tablets near the root zone in accordance with the fertilizer manufacturer's instructions. Well-water fertilizer immediately after application.

621-2.03 LIMESTONE. Add the following: Apply limestone at a rate determined by the Engineer, as described in Subsection 726, in Table 726-1, and based on the soil analysis tests provided by the Contractor for the topsoil used for this project.

621-2.06 STAKES. Add the following: Install stakes shall as shown on Plans.

621-2.07 TREE WOUND DRESSING. Delete this subsection in its entirety.

Add the following subsection:

621-3.02 ADVANCE PREPARATION AND CLEANUP. Add the following: Lay out areas which receive group plantings as shown on Plans. Mark these areas individually with flags, or other approved methods to delineate between planting areas. The Engineer will approve the shape, size, location and general layout of planting areas before the work may proceed.

Stake or mark the location of individual trees within each planting area for approval by the Engineer.

621-3.03 PLANTING. Delete Items 1 and 2 and substitute the following:

1. Plant Season.

   a. Locally grown: Plant locally grown native species of trees and shrubs between June 1 and September 15. Plant fully leafed out trees and shrubs.

   b. Imported: Handle imported nursery grown plants in accordance with nursery recommendations. Plant trees and shrubs imported from out of state between May 15 and August 1.

2. Excavation.

   a. Keep topsoil separate from subsoil and render it loose and friable. Separate and dispose any material detrimental to plant growth.

   b. Create planting pits for trees and shrubs in accordance with the details shown on the Plans.

3. Pruning. Delete the last two sentences of paragraph b in their entirety.

5. Placing Plants.

   Add the following to paragraph a.: Plant Trees and Shrubs as shown on the Plans and as directed on site by the Engineer.

   Delete paragraph b and substitute the following: Handle balled and burlapped plants, plants in wire baskets or containers by the earth ball, container, or basket and not by the plant itself. Clip wire baskets and burlap and lay flat on the bottom of the planting pit as

indicated on the Plans. Remove containers from the site. The Engineer may reject any plants whose rootballs collapse during planting

6. Backfilling. Delete in its entirety and substitute the following:
Hold plants upright during the backfilling operation. Backfill around the roots and lightly compact the soil to eliminate air pockets. Avoid damaging roots. When the backfilling is 1/3 complete, clip wire baskets and burlap from around the root ball and remove. The Engineer may reject any plants where root balls collapse during planting. Add water while placing backfill, allowing the soil to soak up the water. When backfilling is complete, build an earth berm approximately 3 inches high around the outer edge of the planting area to facilitate watering. Remove berm after one growing season.

7. Wrapping. Delete this paragraph in its entirety.

Add the following subsection:

9. Certified Arborist. Retain the services of an arborist certified by the International Society of Arboriculture or the American Association of Nurserymen whose experience and qualifications are acceptable to the Engineer. Submit a resume at least 10 calendar days before the delivery of plant material. The certified arborist shall oversee quality assurance of trees, their installation and inspects trees for health and vigor. Specifically, the arborist is responsible for the following:

The certified arborist shall inspect plants for health and vigor prior to installation, to assure the requirements of Section 621-2.01 for plant stock, including that the materials are disease free, free of wounds, broken branches, double leaders, co-dominant trunks, or other defects. Reject plants that do not meet the standards prior to installation. The certified arborist is also responsible for the following:

a. Inspection of the tree planting process to assure that planting techniques meet the specifications of the Contract documents and match standard industry practices.

b. Inspection of the plantings after installation is complete to assure that they are ready to be accepted by the Engineer.

c. Inspection of plantings twice during the growing season during Plant Establishment Period for any needed maintenance, such as watering, pruning, or removal of dead, dying, or untreatable diseased trees.

621-3.04 PERIOD OF ESTABLISHMENT. Delete the first sentence and substitute the following: Establishment periods extend for two full growing seasons after acceptance of all work described in this section and under Sections 618 and 620. Define one full growing season as the period between May 1 and September 30 for the purpose of this Contract. The two full growing season period of establishment starts on May 1st after the acceptance of the work as

complete. Partial growing seasons will not be counted against the one full growing season requirement.

621-3.05 CLEANUP. Add the following: Keep planted trees and shrubs free of litter and garbage.

621-3.06 PLANT REPLACEMENTS. Delete the last sentence and substitute the following: Replace plants following the same details and specifications as used in the original plans. Replace plants which are dead or dying immediately during the months of June through September. Replace plants dead at the end of the growing season at the beginning of the following season.

621-3.07 MAINTENANCE. Delete the paragraph and substitute with the following: Maintenance includes the care of trees and shrubs during the period of establishment, including the non-growing season. Specific work includes watering, pruning, weeding, pest control, and protection of planted areas. Conduct a joint inspection with the Engineer to review conditions and document any changes in maintenance or acceptance of plantings at the beginning and end of each growing season.

1. Watering. Water all trees and shrubs to maintain the plants in a healthy, vigorous growing condition. Keep root zone of plants moist at all times.

2. Disease Control. Apply pesticides, insecticides, or other disease-control methods as necessary to maintain plant health. Obtain permission of the Engineer and appropriate permits for the application of insecticides from the Alaska Department of Environmental Conservation prior to the application of any regulated products.

3. Pruning. Prune plant materials, with appropriate pruning techniques, to remove dead or dying wood and to improve the shape and or vigor of the plants. Do not paint cuts. Schedule the pruning of flowering trees to occur right after flowers drop off or decay. Prune damaged trees or those that constitute health or safety hazards as directed by the Engineer at any time of the year.

4. Fertilizing. Fertilize trees and shrubs in accordance with Section 621-2.02 Fertilizer. Apply between May 15 and June 15 of each growing season following planting. Place fertilizer tablets near the root zone in accordance with the fertilizer manufacturer's instructions. Sufficiently water the fertilized areas immediately after application. Notify the Engineer in writing 4 working days before applying any fertilizers. Written notice shall state the time and location of fertilizer application.

TABLE 621-1
MAINTENANCE FERTILIZER SCHEDULE

Plant Type	Fertilizer	Application Rate
Coniferous Trees	8-32-16	1/3 lb for each 1 inch of Caliper
Deciduous Trees	8-32-16	1/3 lb for each 1 inch of Caliper
Shrubs and Ground Cover	8-32-16	7 lbs per 1,000 square feet.

621-4.01 METHOD OF MEASUREMENT. Delete this entire subsection and substitute the following: Measurement of Shrubs is by the actual number planted and maintained in accordance with the Plans and Specifications, and as accepted by the Engineer.

Furnishing and installing shredded bark mulch, additional topsoil backfill mix, fertilizing, disposal of unsuitable and surplus material, water for maintenance and work required during the two full growing season period of establishment is subsidiary.

621-5.01 BASIS OF PAYMENT. Delete second sentence. Add the following: 80% of the bid amount for Item 621(1) Tree and Item 621(2) Shrub will be paid at the time of acceptance. The final 20% will be paid at the completion of the period of establishment.

Add the following Pay Items:

Pay Item No.	Pay Item	Pay Unit
621(1)	Tree	Each
621(2)	Shrub	Each

SECTION 627

WATER SYSTEM

Special Provisions

627-1.01 DESCRIPTION. Add the following: Coordinate a pre inspection of the AWWU facilities located within the limits the project before pavement removal begins and a post inspection after paving operations are complete. Any deficiencies found during the pre-inspection of the AWWU facilities and prior to the contractor beginning work on the project will be AWWU responsibility to correct.

627-3.01 GENERAL. Delete the fifth, sixth and seventh paragraphs and substitute the following: Contact the Anchorage Fire Department Chief Dispatcher and Deputy Fire Chief at least 72 hours prior to removing or disrupting service to fire hydrants.

Contact Joe Sanks at AWWU in writing a minimum of three working days in advance removing any pavement to schedule a pre inspection of the valves and valve boxes. Provide the Engineer a copy of the written notice. Furnish all the required traffic control and personal to assist AWWU while locating and performing the pre-construction and post-construction inspections. Both you and the Engineer shall witness the condition and location of each valve and/or valve box. You forfeit all right to deny damages done by you or your agents during the course of work if you fail to participate in this inspection. It is your responsibility to protect and maintain all valves and valve boxes in an operable condition during all phases of construction. If AWWU finds any valves or valve boxes damaged or rendered inoperable after the above inspection and before or during final inspection you shall repair the valves and/or valve boxes at your expense.

The fire hydrant relocation under this project will require the shutdown of the water main in 13th Avenue from Gambell Street to Eagle Street. Notify the water utility (Joe Sanks, 564-2717), the Engineer, the Anchorage Fire Department and all affected property owners 72 hours prior to interruption of their water service.

The allowable interruption of water service is limited to 5 hours and must occur between the hours of 10:00pm and 7:00 am. If service is disrupted for more than 5 hours, provide an alternate water supply to affected property owners with sufficient pressure and flow to meet fire protection and domestic requirements.

627-3.03 FIRE HYDRANTS. Add the following: Remove and properly dispose of the existing 6" asbestos concrete pipe from the main to the hydrant as well as existing valves and valve boxes.

Delete the fourth paragraph and replace with the following: Restrain all joints from the main to the hydrant with mechanical joints in accordance with the plans.

Special Provisions

Delete Section 641 and replace with the following:

SECTION 641

EROSION, SEDIMENT, AND POLLUTION CONTROL

641-1.01 DESCRIPTION. As approved by the Engineer, provide project administration and construction activities to control erosion, sedimentation, and pollution from the Project, 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.

Alaska Certified Erosion and Sediment Control Lead (AK-CESCL). Certification documenting the person has completed training, testing, and other requirements recognized by the Department to satisfy the APDES Construction General Permit requirement for "qualified personnel." AK-CESCL certificates issued in conformance with, and under the authority of the AK-CESCL Memorandum of Understanding are recognized by the Department as meeting this standard. An AK-CESCL certification must be recertified every three years. CPESC, Certified Professional in Erosion and Sediment Control: CISEC, Certified Inspector in Sediment and Erosion Control; and CESCL, Washington Department of Ecology Certified Erosion and Sediment Control Lead are the only other certifications allowed as substitute for the AK-CESCL certification.

Alaska Department of Environmental Conservation (ADEC). The state department that has been authorized to administer the Clean Water Act's National Pollutant Discharge Elimination System in a phased process.

Alaska Pollutant Discharge Elimination System (APDES). The Alaska Pollutant Discharge Elimination System, administered by ADEC.

Area of Land Disturbance. The area of land (soil) that will be disturbed by Construction Activity. Area of Land disturbance does not include pavement removal or pavement milling if the activity does not remove the aggregate underlying the pavement.

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 reduce 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.

Certified Erosion and Sediment Control Lead (CESCL). Issued by the Washington Department of Ecology.

Certified Inspector of Sediment and Erosion Control (CISEC).

Certified Professional in Erosion and Sediment Control (CPESC). A recognized specialist in soil erosion and sediment control. A CPESC has educational training, demonstrated expertise, experience in controlling erosion and sedimentation, and meets certification standards.

Clean Water Act (CWA). United States Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.)

Construction Activity. Physical activity by the Contractor or any Subcontractor or Utility Company that may result in land disturbance. Construction Activity includes, but is not limited to, clearing, grubbing, excavating, constructing embankment, grading, stockpiling erodible material, processing material, and installation or maintenance of BMP's.

Construction General Permit (CGP). The Alaska Pollutant Discharge Elimination System General Permit for Discharges from Large and Small Construction Activities.

Department Furnished Disposal Site. Areas designated in the Contract for disposal of unsuitable materials.

Department Furnished Haul Route. Areas designated in the Contract for construction, reconstruction, or rehabilitation of the roadway, or areas designated, in the Contract, for temporary use as transport route for material or equipment related to the Project.

Department Furnished Materials Site. A material site identified in the Contract as a "Mandatory Source," or excavated portions within the Project limits where useable material is excavated for use as fill, embankment, or cover in other areas of the Project. A material site identified in the Contract as "Designated Source" is considered a Department Furnished Materials Site if the Contract defines the Department as co-operator for the site. Material sites identified in the Contract as "Available Sources" are not considered Department Furnished for the purpose of defining who has operational control.

Department Furnished Staging and Equipment Areas. Areas designated in the Contract for storage or staging of material or equipment related to the Project

Electronic Notice of Intent (eNOI). The Electronic Notice of Intent submitted to ADEC, to begin Construction Activity under the CGP.

Electronic Notice of Termination (eNOT). The Electronic Notice of Termination submitted to ADEC, to end coverage under the CGP.

Environmental Protection Agency (EPA). The United States Environmental Protection Agency.

Erosion and Sediment Control Plan (ESCP). A project-specific document prepared by the Department to identify specific information about the Project. The ESCP may include measures to minimize erosion and contain sediment within the Project site. The ESCP provides information for the Contractor's use in developing the Project SWPPP.

Final Stabilization. Soil disturbing activities at the site have been completed and one of the following methods, as identified in the contract, has been completed:

- establish a uniform and evenly distributed perennial vegetative cover with a density of 70 percent of the native background vegetative cover, or
- construct non-erodible permanent stabilization measures (such as riprap, gabions, geotextiles, pavement, or crushed aggregate base course) where vegetative cover is not required.

Haul Route. Existing or newly constructed road where construction materials are transported and where deposition of sediments or erodible materials may result from the material hauling activity or from the Contractors activity to construct or maintain the road.

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 not limited to, petroleum products related to construction activities and equipment. The HMCP is included as an appendix to the SWPPP.

Joint Inspection. SWPPP inspection performed together as a collaborative effort of the Contractor and the Department. Contractor's staff performing the inspection must be the Superintendent, SWPPP Manager, or SWPPP Manager's Representative. The Department's staff performing the inspection will be the Engineer or Engineer's qualified representative.

Multi-Sector General Permit (MSGP). The Alaska Pollutant Discharge Elimination System General Permit for Storm Water Discharges associated with Industrial Activity.

Operator. The party associated with a regulated activity that has responsibility to obtain storm water permit coverage. Operator is defined separately in the storm water general permits (construction and industrial general permits).

Pollutant. Any substance or item meeting the definition of pollutant contained in 40 CFR 122.2

Project Area. The physical limits of the construction site, Department furnished project staging and equipment areas, Department furnished haul routes where deposition of sediments or erodible materials may result from material hauling activities and Department furnished material and disposal sites directly related to the Contract. The project area also includes all areas of utility relocation and installation, including adjacent utility easements and tie-ins that may extend beyond the defined project limits. Contractor or Commercial Operator furnished material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas are not included in the Project Area.

Regional Storm Water Specialist. Department employee or representative who provides compliance assistance related to the CGP within a specified region.

Spill Prevention, Control, and Countermeasure Plan (SPCC). The Contractor's detailed plan for petroleum spill prevention and control measures that meets 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, and for the Contractor's compliance with 40 CFR 112, and other applicable federal, state, and local laws and regulations related to hazardous materials.

Stormwater Discharges From Municipal Separate Storm Sewer Systems (MS4s). A conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that discharges into waters of the United States and is owned or operated by a public agency.

Storm Water Inspector. Department employee or representative who conducts CGP inspections.

Storm Water Pollution Prevention Plan (SWPPP). The Contractor's detailed project specific plan to minimize erosion and contain sediment within the Project site, and to prevent discharge of pollutants that exceed applicable water quality standards. The SWPPP includes, but may not be 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.

Subcontractor Spill Response Coordinator. The Subcontractor's representative with authority and responsibility for coordinating the Subcontractor's activities in compliance with HMCP and SPCC.

Subcontractor SWPPP Coordinator. The Subcontractor's representative with authority to direct the Subcontractor's work; and who is responsible for coordination with the SWPPP Manager and for the Subcontractor's compliance with the SWPPP.

Superintendent. The Contractor's authorized representative in responsible charge of the work, who is duly authorized by the Contractor, in accordance with CGP, Appendix F. 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 responsible for CGP compliance, implementing the SWPPP, conducting inspections, updating the SWPPP, supervising Section 641 work, monitoring construction activities, and with authority to suspend work and implement corrective actions.

SWPPP Manager's Representative. The Contractor's qualified representative who may be assigned certain SWPPP Manager's tasks and authorities.

SWPPP Preparer. The Contractor's qualified representative who is responsible for developing the initial SWPPP.

SWPPP Template. EPA's template for the Contractor's use in developing the SWPPP. The template is available online at EPA's website. Select "SWPPP Template – Unauthorized States."

Temporary Stabilization. The protection of exposed soils (disturbed land) from wind and water erosion during the construction process, until final stabilization is established.

Utility Company. A Utility Company or their contractor performing work concurrently with the construction of this project as outlined in Section 105-1.06.

Utility Spill Response Coordinator. The Utility's representative with authority and responsibility for coordinating the utility's activities in compliance with HMCP and SPCC.

Utility SWPPP Coordinator. The Utility's representative with authority to direct the Utility's work; and who is responsible for coordination with the SWPPP Manager and for the Utility's compliance with the SWPPP.

641-1.03 PLAN AND PERMIT SUBMITTALS. Contractor submission and department review deadlines in this section supersede subsection 1.06-1.08 and 108-1.03.

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.

1. SWPPP. Submit three signed copies of the SWPPP to the Engineer for approval. Deliver these documents to the Engineer at least 21 calendar days before you plan to begin Construction Activity. Organize and bind the SWPPP and related documents for submittal according to the requirements of 641-2.01, paragraph 2.

   The Department will review the SWPPP submittals within 14 calendar days after they are received. Submittals will be returned to the Contractor, and marked as either requiring modification or as approved by the Department.

2. HMCP. Submit three copies of the HMCP as an appendix to the SWPPP, and in accordance with the requirements for submitting the SWPPP.

3. SPCC. When SPCC is required under subsection 641-2.03, submit three signed copies of the SPCC to the Engineer. Deliver these documents to the Engineer at least 21 calendar days before you plan to begin construction activity.

   The Department will keep the SPCC as a record document, and reserves the right to review it and require modifications.

4. eNOI. Obtain APDES construction authorization for the Project under the CGP. APDES authorization and compliance for Contractor furnished and commercial operator furnished areas are the sole responsibility of the Operators.

   The Contractor and the Engineer must sign and certify the approved SWPPP in accordance with CGP, Appendix F, before the Contractor submits their eNOI for the Project to ADEC. The certification statement cannot be amended or edited.

   Submit an eNOI for the Project to ADEC with the required fee. Submit three copies of the eNOI to the Engineer when the eNOI is submitted to ADEC. The Department will submit the Department's eNOI to the ADEC and provide a copy to the Contractor for inclusion in the SWPPP. Allow adequate time for state processing of the eNOI, and for the ADEC to list the eNOIs as active status, before beginning Construction Activity.

5. eNOT. Within 30 days after the Engineer has determined you may end SWPPP activities for the Project, submit your eNOT for the Project to ADEC, and send a copy of the eNOT to the Engineer. Within 30 days of the Engineer's determination, the Department will submit the Department's eNOT to the ADEC, and will terminate the Department's CGP coverage for the Project and send a copy to the contractor.

6. ADEC SWPPP Review. When CGP, Part 10, F requires ADEC SWPPP review; transmit a copy of the Department approved SWPPP with the required fee to ADEC using delivery receipt confirmation. Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) calendar days of receiving the confirmation. Transmit a copy of the ADEC SWPPP review letter to the Engineer within seven (7) calendar days of receipt from ADEC. Amend the SWPPP as necessary to address ADEC comments and transmit a copy of the SWPPP Amendments to the

Engineer within seven (7) calendar days of receipt of ADEC review comments. Include a copy of the ADEC SWPPP review letter in the SWPPP.

7. Local Government SWPPP Review. When CGP, Part 10 F requires local government review, transmit a copy of the Department-approved SWPPP with the required fee using delivery receipt confirmation. Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) calendar days of receiving the confirmation. Transmit a copy of any comments by the local government to the Engineer within seven (7) days of receipt. Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Engineer within seven (7) days of receipt of the comments.

641-1.04 PERSONNEL QUALIFICATIONS. Include qualifications of the Superintendent, SWPPP Preparer, SWPPP Manager, and SWPPP Manager's Representatives in the SWPPP.

The SWPPP Preparer must meet at least one of the following qualifications:

- current certification as a CPESC
- current certification as AK-CESCL, and at least three years experience in erosion and sediment control (provide documentation including project names, project timelines, and work responsibilities demonstrating the experience requirement) and completion of the ADEC SWPPP writing course.
- Professional Engineer registered in the State of Alaska and current certification as AK-CESCL

Include the SWPPP Preparer's qualification in the SWPPP.

The Superintendent and any designated Relief Superintendent must meet all the following qualifications:

- current certification as AK-CESCL
- duly authorized representative, as defined in the CGP, Appendix F

The SWPPP Manager and SWPPP Manager's Representative must hold current AK-CESCL certification.

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, in accordance with CGP Appendix F. 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 and certification authority to the Superintendent, in accordance with CGP Appendix F, for the SWPPP. SWPPP inspections, and other reports required by the CGP. Use form 25D-108. The form and certification must be used verbatim and must not be altered other than to insert names, dates, and signatures as included on the form. Include a copy of the written delegation form 25D-108, and the Department's delegation form 25D-107 in the SWPPP. Delegation is not required if the Superintendent is a responsible corporate officer for the Contractor, as defined in CGP Appendix F.

641-1.06 OPERATORS.

1. The Department and the Contractor are both Operators for the Project and for Department furnished:

   - material sites
   - disposal sites
   - haul routes where deposition of erodible materials may result from material hauling activity
   - staging areas
   - equipment storage areas
   - utility relocation and installation activities associated with the project

2. The Department is not an operator for Contractor furnished:

   - material sites
   - material processing sites
   - disposal sites
   - haul routes where deposition of erodible materials may result from material hauling activity
   - staging areas
   - equipment storage areas

   The Contractor is an operator for the above listed Contractor furnished areas. Compliance with APDES and other applicable federal, state, and local requirements, and securing all necessary clearances, rights, and permits for these Contractor furnished areas are the sole responsibility of the Contractor. Document the name of each operator, and the locations of these areas in the Project SWPPP. The control measures for these sites may be included in the Project SWPPP if they are eligible for CGP coverage. If this is the case, then the Contractor's and the Department's eNOI acreage will be different. If the area must be covered by the industrial storm water permit, note that there is a 30-day waiting period for the eNOI to become active.

3. The Department is not an operator for commercial and utility operator furnished:

   - material sites
   - material processing sites
   - disposal sites
   - haul routes
   - staging areas
   - equipment storage areas

   The commercial operator is an operator for the above-listed commercially operator-furnished sites. Compliance with APDES and other applicable federal, state, and local requirements, and securing all necessary clearances, rights, and permits for these commercial operator furnished areas are the sole responsibility of the commercial operator. Document the name of each operator, and the locations of these areas in the Project SWPPP.

4. A Utility company is not an Operator when utility relocation is performed concurrently with the Project. The Department maintains operational control over the plans and specifications, and the Contractor has day-to-day control over the various utility construction activities that occur in

support of the Project. A Utility company is considered a subcontractor for concurrent relocation.

The Department and a Utility company are both Operators for the Project when utility relocation is performed in advance of Project construction. After the Highway Contractor has an active NOI for the Project, the Utility company no longer has Operator status and files a NOT for the SWPPP covering only the utility work. Remaining relocation is identified in and performed under the Project SWPPP.

641-2.01 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS. Use a SWPPP preparer to develop the SWPPP and associated documents, in accordance with the requirements of the CGP. The SWPPP Preparer must put their name, title and company name and qualifications in the SWPPP.

Use the Department's ESCP as a starting point for developing the SWPPP. The approved SWPPP replaces the ESCP. Develop the SWPPP in accordance with EPA's SWPPP template for Unauthorized States, with the following exceptions:

- In Section 3 (Good Housekeeping), add a subsection to describe dedicated asphalt plants and/or dedicated concrete plants, give their locations, and identify the controls that will be used to minimize pollutants from them. If there are no dedicated asphalt or concrete plants, then state that in the SWPPP.
- Appendix H is not required
- Add appendices for:
    - Endangered Species Act and historic preservation documents
    - Other Permits (404, Section 10, etc.)
    - Hazardous Material Control Plan
    - Subcontractor and Utility Certifications
    - BMP descriptions†
    - Rainfall logs
    - NOT form
    - Personnel qualification & training certifications for:
        - Superintendent
        - SWPPP Preparer
        - SWPPP Manager
        - SWPPP Manager's Representative
        - Department's SWPPP Inspector
- Add forms completed by the Department:

SWPPP Delegation of Signature Authority (25D-107)

DOT&PF SWPPP Certification (25D-109)

- Use Department forms for:
    - Construction Site Inspection Report (25D-100 parts 1&2)

- SWPPP Subcontractor Certification (25D-105)
- SWPPP Pre-Construction Site Visit (25D-106)
- Pre-Construction Site Visit (25D-106)
- SWPPP Delegation of Signature Authority for CGP Documents (25D-108 Contractor, 25D-107 DOT&PF)
- SWPPP Grading and Stabilization Activities Log (25D-110)
- Contractor's SWPPP Certification (25D-111)
- SWPPP Corrective Action Log (25D-112)
- SWPPP Delayed Action Item Report (25D-113)
- SWPPP Amendment Log (25D-114)
- SWPPP Daily Record of Rainfall (25D-115)
- SWPPP Training Log (25D-125)
- Utility Certification Form

† BMP descriptions and/or schematics in the SWPPP or SWPPP amendment must provide a citation for the BMP Manual or publication that was used as a source. The description must include either or both schematics and text descriptions, the full title of the reference, author, publisher, and date of publication. If a BMP was created for a project specific situation and no published source was used, then the SWPPP or SWPPP amendment must state that no manual or publication was used as a source; and a description, design schematic and placement of the BMP must be described.

Compile the SWPPP in three ring binders with tabbed and labeled dividers for each section and appendix included in EPA's template for Unauthorized States. Incorporate and cite applicable requirements of the project permits and environmental commitments into the SWPPP. Incorporate SWPPP activities into the Project CPM Schedule.

Use the Department's documentation of consultation with the State Historic Preservation Officer and federal agencies for consideration of historic properties and endangered species. Make additional consultations as necessary for Contractor or commercial operators' specific activities which fall outside the Project limits, or which may result in changes to the Project footprint or timeline. You may cover these activities within the project SWPPP provided they are eligible for coverage under the CGP, and provided the SWPPP clearly and specifically identifies the Operators, their activities, and the portions of the SWPPP and project areas for which they are responsible.

The SWPPP Preparer must visit the project site before construction activity begins. Document the site visit on Form 25D-106, SWPPP Pre-Construction Site Visit. The SWPPP Preparer must visit the site accompanied by the Contractor, if the SWPPP Preparer is not a Contractor employee. Give the Department at least seven days notice of the site visit, so that the Department may participate. The pre-construction inspection must:

- Identify or verify the SWPPP's stated opportunities to phase construction activities.
- Identify or verify the SWPPP's description of appropriate BMPs and their sequencing.
- Identify or verify the SWPPP's list of sediment controls that must be installed prior to beginning Construction Activities.
- Be documented in the SWPPP on Form 25D-106, SWPPP Pre-Construction Site Visit, including the names of attendees and the date.

The findings of the visit must be incorporated in the development of the SWPPP, or by amendment if the SWPPP was submitted prior to the visit.

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 site specific BMPs, source controls, sediment controls, discharge points, and a plan including schedule and implementation procedures for temporary and final stabilization. Describe all temporary and permanent stabilization measures. Include typical installation drawings for all BMPs that will be incorporated in the Project. Include the Contractor's schedule and the schedule for stabilization and installation of other BMPs.

The SWPPP must provide erosion and sediment control measures for all land disturbances resulting from the Contractor, Utility Companies and all Subcontractors activities during the course of the contract. The SWPPP must consider the activities of utility companies performing work on the Project. The SWPPP must describe the roles and responsibilities of the Contractor, Utility Companies, subcontractors, and the Department with regard to implementation of the SWPPP. The SWPPP must identify all operators for the Project and identify the areas over which each operator has operational control.

Specify the line of authority and designate a Superintendent, SWPPP Manager, and each SWPPP Manager's Representative. Provide 24 hour contact information for the Superintendent, SWPPP Manager, and for each SWPPP Manager's Representative. The Superintendent, SWPPP Manager, and each SWPPP Manager's Representative must have 24 hour contact information for all Subcontractor SWPPP Coordinators.

Identify the SWPPP inspection schedule in the SWPPP.

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 documents necessary to satisfy the requirements of the CGP and this specification.

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 (See 40 CFR 117 and 302 for listing of hazardous materials).

Compile Material Safety Data Sheets in one location and reference that location in the HMCP.

List and give the location and estimated quantities of hazardous materials to be used or stored on the Project. Store hazardous materials in covered storage areas. Include secondary containment for all hazardous material storage areas.

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).

Designate a Spill Response Field Representative and identify the line of authority. Designate a Subcontractor Spill Response Coordinator for each subcontractor. Provide 24 hour contact information for the Contractor's Spill Response Field Representative. The Contractor's Spill Response Field Representative must have 24 hour contact information for each Subcontractor Spill Response Coordinator.

Identify the locations where storage, fueling and maintenance activities will take place, describe the maintenance activities, and list controls to prevent the accidental spillage of oil, petroleum products, and other hazardous materials.

Detail procedures for containment and cleanup of hazardous substances. Detail a plan for the prevention, containment, cleanup, and disposal of soil and water contaminated by spills. Detail a plan for dealing with contaminated soil and water encountered during construction.

Detail methods of disposing of waste petroleum products and other hazardous materials generated by the Project. Identify haul methods and final disposal areas. Assure final disposal areas are permitted for hazardous material disposal.

Store spill response materials, appropriate to the hazards associated with that site, in sufficient quantity at each identified location.

Include the HMCP as an appendix to the SWPPP.

641-2.03 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN (SPCC) REQUIREMENTS. Prepare and implement an SPCC when required by 40 CFR 112; when both of the following conditions are present on the Project:

- oil or petroleum products from a spill may reach navigable waters, and
- 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 in the SWPPP.

641-2.04 RESPONSIBILITY AND AUTHORITY OF THE SUPERINTENDENT, SWPPP MANAGER, AND SWPPP MANAGER'S REPRESENTATIVE. 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, SWPPP inspections, 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, SWPPP inspections, and other reports required by the CGP. If the superintendent is unavailable, a relief superintendent may sign and certify reports required by the CGP. If a relief Superintendent is used, document the personnel change, including a photo copy of their AK-CESCL certification, and include their beginning and ending dates in the SWPPP.

The Superintendent may assign certain duties to the SWPPP Manager. Those duties may include:

1. Ensuring Contractor's compliance with the SWPPP and CGP,

2. Ensuring construction activity does not result in discharge of pollutants that exceed applicable water quality standards,
3. Performing SWPPP inspections,
4. Updating the SWPPP with amendments and forms, and
5. Directing and overseeing installation, maintenance, and removal of BMPs

The SWPPP Manager may assign their duties to a SWPPP Manager's Representative.

The Superintendent, SWPPP Manager, and the SWPPP Manager's Representative shall be knowledgeable in the requirements of this section, the SWPPP, CGP, BMPs, HMCP, SPCC, environmental permits, and environmental commitments.

The Superintendent, SWPPP Manager, and the SWPPP Manager's Representative shall have the Contractor's complete authority to suspend construction activities that do not conform to the SWPPP or CGP.

641-2.05 MATERIALS. Comply with the material requirements described in the Plans and Specifications.

Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments in accordance with the requirements of the CGP.

Straw that is certified as free of noxious weed by the United States Department 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.

Silt fences ..... Subsection 729-2.04, Sediment Control.

Temporary Seed .....Section 724

Erosion, Sediment, and Pollution Control - Material .....Section 744

641-3.01 CONSTRUCTION REQUIREMENTS. Comply with the SWPPP and the requirements of the CGP.

Ensure all subcontractors and utility companies understand and comply with the SWPPP and the CGP. Provide SWPPP information to utility companies. Notify the Engineer immediately if the actions of any utility company or subcontractor do not comply with the SWPPP and the CGP. Provide training to subcontractors & utility companies on control measures at the site and applicable storm water pollution prevention procedures and document the dates and attendees to these trainings in Appendix J of the SWPPP.

1. Starting Construction:

   Do not begin Construction Activity until:

   - the SWPPP has been approved by the Engineer
   - authorized by the Engineer

- the Project eNOI for the Department and for the Contractor are both listed as Active Status on the ADEC website
- the SWPPP preparer has visited the Project and the SWPPP has been developed (or amended) with findings from the visit. Also document in the SWPPP the date of the visit and the persons conducting the visit.

Post notices on the outside wall of the Contractor's project office, and at publicly accessible locations near the beginning and end of the Project. Protect postings from the weather and locate so the public can read them without obstructing construction activities (for example, at an existing pullout). Include the following information in each of the posted notices:

- Copy of all eNOIs related to this project
- Name and phone number of SWPPP Manager
- Location of the SWPPP available for public viewing.

Install an outdoor rain gauge in an approved and readily accessible location on the Project.

2. During Construction:

Comply with requirements of the HMCP and SPCC, and all state and federal regulations that pertain to the handling, storage, cleanup, and disposal of petroleum products or other hazardous substances. Contain, clean up, and dispose of discharges of petroleum products and other hazardous materials. Place absorbent pads or other suitable containment under fill ports while fueling and under equipment during maintenance or repairs. Install secondary containment under all stationary equipment that contains petroleum products.

Comply with the requirements of 18 AAC 75 and AS 46, Oil and Hazardous Substances Pollution Control. Report petroleum product spills as required by federal, state, and local law, and as described in the HMCP and SPCC.

Comply with the requirements of the SWPPP. Implement temporary and permanent erosion and sediment control measures identified in the SWPPP and as directed by the Engineer. Keep the SWPPP current. If storm water discharges threaten water quality, take immediate action. Comply with the requirements of 18 AAC 70 State of Alaska Water Quality Standards, AS 16.05.841 and 16.05.871 Protection of Fish and Game, 11 AAC 112 Alaska Coastal Management Program, Section 404 of the CWA, and all other applicable federal, state, and local statutes and regulations.

Coordinate with subcontractors and utility companies doing work in the project area so BMPs and temporary and permanent stabilization are installed, maintained, and protected from damage.

If you suspect or have determined that there has been an incident of CGP non-compliance that may endanger health or the environment, then immediately report it to the Engineer. The Engineer will determine whether the incident is required to be reported to the EPA and ADEC as described in the CGP. If the incident is reported to the EPA and ADEC, the Department will submit oral and written reports on behalf of the Department and the Contractor. Be prompt with your notice to the Engineer because the oral report to EPA and ADEC is required within 24 hours of the time you become aware of the incident. The Superintendent must co-sign with the Department, the written report to EPA and ADEC.

3. Corrective Action and Maintenance of BMPs:

Maintain temporary and permanent erosion and sediment control measures in effective operating condition. Remove sediment and debris from sediment traps, silt fences, and sediment ponds before sediment or debris accumulates to 50% of the BMP's design capacity.

Implement corrective action:

- if an incident of non-compliance with the SWPPP or CGP is identified
- if an inspection identifies the SWPPP or any part of the SWPPP is ineffective in preventing the discharge of pollutants that exceed applicable water quality standards
- if the Engineer determines the SWPPP or any part of the SWPPP is ineffective in preventing the discharge of pollutants that exceed applicable water quality standards
- if any BMP is damaged, undercut, or unable to effectively perform the intended function
- if any BMP is at or exceeding 50% of its design storage capacity
- whenever there is a change in conditions, design, construction, operation, or maintenance that could affect the discharge of pollutants in storm water leaving the Project

Complete corrective action:

- as soon as possible
- before the next storm event whenever practicable
- no later than the end of the day, six calendar days following the day of inspection identifying the need for corrective action

If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP using the "Delayed Action Item Report" and alternative BMPs must be implemented as soon as possible.

4. Stabilization.

Stabilization may be accomplished using temporary or permanent measures. Initiate stabilization of disturbed areas, stockpiles, and of erodible aggregate layers so that all of the following conditions are satisfied:

- as soon as practicable
- as soon as necessary to avoid discharge of pollutants, that exceed applicable water quality standards
- prior to freezing conditions that may limit or eliminate options for temporary stabilization
- prior to seasonal thaw Seasonal thaw is the annual (first) recurrence of snow and ice melting after a prolonged period of freezing conditions.
- as identified in the SWPPP schedule and/or phasing
- in accordance with stabilization schedule requirements of applicable project permits
- no later than 14 days after each cessation of land-disturbing activities

Land may be disturbed multiple times during a project. Coordinate work to minimize area of land disturbance as much as practicable. Do not disturb more area than you can stabilize in the time limits specified, and with the resources available.

Temporary stabilization measures may include individual or 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.

Prepare the surface to be seeded to reduce erosion potential and to facilitate germination and growth of vegetative cover. Maintain seeded areas. Reseed areas where growth of temporary vegetative cover is inadequate to stabilize disturbed ground.

Apply permanent seed in accordance with Section 618, at locations where permanent seed is indicated on the plans and land-disturbing activity is permanently ceased.

Before deactivating a stream bypass or stream diversion used for construction of a bridge, culvert, or drainage structure, install stabilization up to ordinary high water:

- at the inlet and outlet of the culvert, drainage structure, or bridge
- 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
- under the bridge

Immediately after placing a culvert or drainage structure, install temporary or permanent stabilization when a stream bypass is not used for construction:

- at the culvert or drainage structure inlet and outlet
- in the area upstream and downstream of the culvert or drainage structure, that is disturbed in the process of installing the culvert, culvert end walls, culvert end sections, or drainage structure

5. Ending SWPPP Activities and SWPPP Maintenance.

The Engineer will determine SWPPP activities have ended when all of the following requirements are met:

- Land disturbing activities have ceased
- The Project site (including Department furnished material sources, disposal sites, staging areas, equipment areas, etc.) has achieved final stabilization
- Temporary BMPs have been removed

Submit eNOT in accordance with Subsection 641-1.03.5.

If the contractor's eNOI acreage includes areas where the Department is not an operator and co-permittee, then the contractor may not be able to file an eNOT at the same time as the Department. In this case, the Contractor must state in the SWPPP which project areas have reached final stabilization.

The Department will provide a copy of its eNOT to the contractor for inclusion in the SWPPP.

6. Record Transmittal and Retention.

Contractor must provide the Department a copy of all Records as defined herein.

Transmit one electronic copy of the initially approved SWPPP and the final SWPPP, including all amendments and appendixes, to the Engineer when the project eNOTs are filed.

Retain copies of the SWPPP, including documents listed under 641-3.02 SWPPP DOCUMENTS, for at least three years after the date of eNOT. If EPA or ADEC inspects the project, issues a Notice of Violation (NOV), or begins investigation for a potential NOV before the three year retention period expires, retain the SWPPP and all records related to the SWPPP and CGP until EPA and/or ADEC has determined all issues related to the investigation are settled.

Retain copies of the SWPPP, and records required by the EPA Consent Decree, including documents listed under 641-3.02 SWPPP DOCUMENTS, for at least one year after the termination of the Consent Decree.

641-3.02 SWPPP DOCUMENTS. The SWPPP and related documents maintained by the Contractor are the record documents for demonstrating compliance with the CGP. SWPPP documents transmitted to the Engineer 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 approved SWPPP, HMCP, and SPCC at the on-site project office. If there isn't an on-site project office, keep the information in an office that is within 30 miles, by road from the Project.

Maintain all SWPPP documents in binders in one common location. Include the following items in the SWPPP binders:

- eNOI (all applicable)
- Acknowledgement letters from EPA or ADEC to each operator filing an eNOI
- SWPPP Subcontractor Certification (25D-105)
- SWPPP Pre-Construction Site Visit (25D-106)
- SWPPP Delegation of Signature Authority for CGP Documents (25D-108 Contractor, 25D-107 DOT&PF)
- Copies of current AK-CESCL card for Superintendent, SWPPP Manager, SWPPP Manager's Representative, and Department's SWPPP Inspector(s)
- Approved SWPPP
- SWPPP Grading and Stabilization Activities Log (25D-110)
- SWPPP Certification (25D-111 Contractor, 25D-109 Department)
- HMCP (with lines of authority and contract information)
- SPCC when required
- SWPPP Preparer's qualifications
- SWPPP Amendments
- SWPPP Amendment Log (25D-114)
- SWPPP Inspection Reports (25D-100 parts 1&2)
- SWPPP Corrective Action Log (25D-112)
- SWPPP Grading and Stabilization Activities Logs (25D-110)
- SWPPP Delayed Action Item Report (25D-113)
- SWPPP Daily Record of Rainfall (25D-115)
- SWPPP Training Log (25D-125)

- Lines of Authority and Contact Information for Superintendent, SWPPP Manager, SWPPP Manager's Representative, and Subcontractor SWPPP Coordinators
- ADEC SWPPP Review Letter (when required and once received)
- eNOT (all applicable)
- Any other records related to the SWPPP, SWPPP compliance, or CGP reporting requirements

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. Prepare SWPPP Corrective Action Log, SWPPP Amendment Log, SWPPP Grading and Stabilization Logs, and SWPPP Daily Record of Rainfall forms. Joint SWPPP inspections must be performed by the Superintendent, SWPPP Manager, or the SWPPP Manager's Representative; and by the Engineer or Engineer's qualified representative.

1. Before Construction.

   Before beginning Construction Activity, conduct a Joint Inspection of the Project with the SWPPP Preparer. Document the Joint Inspection on form 25D-106. Incorporate the results of the visit into the SWPPP and document, including the date of the visit and personnel attending the visit.

2. During Construction.

   Conduct Joint Inspections (see Definitions 641-1.02) on one of the following schedules:

   - at least once every seven days during construction, or
   - at least once every 14 days during construction and within 24 hours of the end of a storm event of 1/2 inch or greater rainfall in a 24 hour period (1/2 inch rainfall as recorded at the project site rain gauge)

   Indicate the inspection schedule in the SWPPP and conduct Joint Inspections in accordance with the selected schedule.

   If the Engineer approves the Contractor conducting an inspection that is not joint, then the Contractor must provide the Engineer with a copy of the inspection report within three days of the inspection and must document the transmittal as well. In this case, the Contractor must explain why conducting a Joint Inspection was not practical and include the explanation in the SWPPP.

3. Before Seasonal Suspension of Work.

   Conduct Joint Inspection before seasonal suspension of work to review condition and applicability of BMPs and SWPPP. Confirm SWPPP, temporary stabilization, and BMPs are installed and functioning in accordance with the requirements of Subsection 641-3.01.

4. During Seasonal Suspension of Work.

   Conduct Joint, or as otherwise approved by the Engineer, Inspections in accordance with the inspection schedule indicated in the approved SWPPP. Inspection frequency during seasonal suspension of work may be reduced to at least one inspection every month if approved by the

Engineer and the revised inspection frequency is documented as an amendment to the SWPPP, and either of the following requirements is met:

- the entire site is temporarily stabilized, or
- runoff is unlikely due to winter conditions (e.g. the site is covered with snow, ice or the ground is frozen)

The Engineer may waive winter monthly inspection requirements until one month before thawing conditions are expected to result in a discharge, if all of the following requirements are met:

- below-freezing conditions are anticipated to continue for more than one month
- land disturbance activities have been suspended, and
- beginning and ending dates of the waiver period are documented as an amendment to the SWPPP.

The Engineer may waive requirements for updating the Grading and Stabilization Activities Log and Daily Record of Rainfall form during seasonal suspension of work. Resume collecting and recording weather data on the Daily Record of Rainfall form one month before thawing conditions are expected to result in a discharge. Resume recording land disturbance and stabilization activities on the Grading Activities Log when Construction Activity resumes.

5. During Winter Work.

Conduct Joint Inspections in accordance with the inspection schedule indicated in the approved SWPPP.

Inspection frequency during winter work may be reduced to at least one inspection every month if all of the following requirements are met:

- runoff is unlikely due to winter conditions (e.g. the site is covered with snow, ice or the ground is frozen)
- approval from the Engineer
- the revised inspection frequency is documented as an amendment to the SWPPP

6. Project Completion.

Conduct Joint Inspection to ensure final stabilization is complete throughout the Project and all temporary BMPs are removed.

7. Items and Areas to Inspect.

Inspect all items and areas covered under both the Department's and the Contractor's Project eNOIs; and items and areas included in the SWPPP.

Areas referenced in the Project SWPPP that are Contractor furnished, commercially, or utility furnished, and the Department is not an operator, do not require Joint Inspection in accordance with this contract. For Contractor, commercial, or utility operator furnished areas, the Contractor or commercial operator is solely responsible for inspecting and assuring compliance with all APDES requirements, and any other federal, state, local, or tribal permitting requirements.

8. Inspection Reports.

Use only DOT&PF SWPPP Construction Site Inspection Report, Form 25D-100 to record SWPPP inspections. Changes or revisions to Form 25D-100 are not permitted. Complete all fields included on the inspection form.

The Superintendent must sign and certify the inspection report on the day of the inspection, and must provide the report to the Engineer the same day. The Engineer will sign and certify the inspection report and will return the original to the Contractor within three working days.

Unless otherwise approved by the Engineer, insert the date six calendar days after the date of the inspection as the date each corrective action will be completed.

9. SWPPP Amendments and SWPPP Amendment Log.

The Superintendent, SWPPP Manager, or SWPPP Manger's Representative are responsible for amending the SWPPP. They shall initial amendments to the SWPPP; and update and initial DOT& PF Form 25D-114, SWPPP Amendment Log. Amend the SWPPP:

- whenever there is a change in design, construction operation, or maintenance at the construction site that has or could have significant effect on the discharge of pollutants that has not been previously addressed in the SWPPP
- if a Joint Inspection identifies the SWPPP or any portion of the SWPPP is ineffective in preventing the discharge of pollutants from the Project, that exceed applicable water quality standards
- if the Engineer or Contractor determines the SWPPP or any portion of the SWPPP is ineffective in preventing the discharge of pollutants from the Project, that exceed applicable water quality standards
- whenever an inspection identifies a problem that requires additional or modified BMPs

Amend the SWPPP narrative as soon as practicable after any change or modification, but in no case, later than seven (7) calendar days following an inspection.

Include the following information when documenting modifications to the SWPPP:

- date the action was completed
- Name and AK-CESCL number of the person documenting the action
- description of the action

Update the SWPPP drawings including date, location, action taken, and initials of the person recording the action for:

- installation of BMP
- modification of BMP (including any changes to BMP typical installation details)
- removal of BMP

Keep the SWPPP Amendment Log current and submit a copy to the Engineer, including copies of any documents amending the SWPPP, prior to performing each scheduled SWPPP inspection.

Include the current SWPPP Amendment Log as an appendix to the SWPPP.

10. Corrective Action.

Action required to restore effective function of BMPs is corrective action and must be documented.

Use DOT&PF SWPPP Corrective Action Log, Form 25D-112, to document corrective actions to the SWPPP and to BMPs. The Superintendent, SWPPP Manager, or SWPPP Manger's Representative shall initial all entries on Form 25D-112.

After each inspection report has been signed and certified, update the corrective action log to include all corrective actions noted on the inspection report.

After the corrective action has been accomplished, note the action taken, and date and initial the entry.

Keep the corrective action log current and submit a copy to the Engineer prior to performing each scheduled SWPPP inspection.

Keep the corrective action log as an appendix to the SWPPP.

11. Grading and Stabilization.

Use DOT&PF SWPPP Grading and Stabilization Activities Log, Form 25D-110, to record land disturbance and stabilization activities. The Superintendent, SWPPP Manager, or SWPPP Manger's Representative shall initial all entries or all dates on Form 25D-110.

Keep the grading and stabilization activities log current and submit a copy to the Engineer prior to performing each scheduled SWPPP inspection.

Keep the grading and stabilization activities log as an appendix to the SWPPP.

12. Daily Weather Records.

Use DOT&PF SWPPP Daily Record of Rainfall, Form 25D-115, 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 Engineer prior to performing each scheduled SWPPP inspection.

Include the daily record of rainfall form as an appendix to the SWPPP.

641-3.04 EROSION, SEDIMENT, AND POLLUTION CONTROL PRICE ADJUSTMENT. The total value of this contract will be adjusted as specified herein. A price adjustment, under Item 641(5), will be assessed as follows.

1. Fines and Penalties: A Price adjustment equal to any penalties and fines levied against the Department by local, state, or federal agencies for pollutant violations, including violations of the CWA and the CGP, except when due to Department negligence. An amount equal to the anticipated penalties and fines for the violation or violations, excluding any due to negligence by the Department, will be withheld temporarily until the actual cost of the penalties and fines is

known. Anticipated penalties and fines will be determined by the Engineer. The Contractor is also responsible for the payment of penalties and fines levied against the Contractor.

2. Failure to stabilize Area of Land Disturbance.

   - Failure to stabilize a project prior to Seasonal Thaw - $5,000/project/year.

3. Failure to perform Inspections:

   By each 24 hour period per occurrence, a price adjustment of $750 will be assessed where the Contractor:

   - delayed a SWPPP inspection
   - did not sign a SWPPP inspection
   - did not certify a SWPPP inspection
   - did not complete a SWPPP inspection in accordance with the schedule identified in the approved SWPPP

   By each project, a price adjustment of $2000 will be assessed where the Contractor does not complete a pre-construction inspection.

4. Failure to perform Corrective Action. By each 24 hour period following 24 hours after written notice by the Engineer, per occurrence, a price adjustment of $750 will be assessed where the Contractor:

   - fails to complete SWPPP administrative requirements as identified in the Contract or the CGP,
   - fails to initiate work required by the SWPPP, not to exceed $250,000 per year, or
   - fails to initiate corrective action to respond to a deficiency noted during an inspection or by the Engineer.

   The same deficiency remaining uncorrected will be considered an additional occurrence for each additional 24 hour period, without requiring additional written notice by the Engineer.

641-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Items 641(2) and (4) will be measured as specified in the Contract or Directive authorizing the work.

641-5.01 BASIS OF PAYMENT. The Bid Schedule will include either items 641(1) and (2), or items 641(1), (3), and (4). The Bid Schedule may or may not, include Items 641(5) and 641(6). When 641(6) does not appear in the Bid Schedule, the SWPPP Manager is subsidiary to other items of work.

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 preparation, agency fees for SWPPP reviews, SWPPP amendments, inspections, monitoring, reporting, and all record keeping related to the SWPPP and required by the CGP.

Item 641(2) Temporary Erosion, Sediment, and Pollution Control. At the contingent sum prices specified in the Contract or the Directive authorizing the work to install, maintain, remove, and dispose of temporary erosion, sedimentation, and pollution control measures required to complete the project using the approved SWPPP, SPCC, and HMCP.

Item 641(3) Temporary Erosion, Sediment, and Pollution Control. At the contract lump sum price to install, maintain, remove, and dispose of temporary erosion, sedimentation, and pollution control BMPs identified in the ESCP, and for BMPs and other measures included in the HMCP and SPCC.

Item 641(4) Temporary Erosion Sediment and Pollution Control Additives. At the contingent sum prices specified in the Directive for extra, additional, or unanticipated work to install, maintain, remove, and dispose of temporary erosion, sedimentation, and pollution control measures. All work paid under this Item will be shown as amendments to the original approved SWPPP or HMCP

Item 641(5) Erosion, Sediment, and Pollution Control Price Adjustment. As specified in Section 641-3.04.

Item 641(6) SWPPP Manager. At the contract lump sum price for a SWPPP Manager and SWPPP Manager's Representative that conforms to this specification.

Temporary erosion, sediment and pollution control measures that are required at Department furnished, Contractor furnished, or commercial operator furnished material sources, disposal sites, haul routes, fuel and material storage areas, and at equipment or material staging areas, will not be paid for separately but are subsidiary to other items of work. Work required by the HMCP and SPCC including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to other items of work.

Work that is paid for directly or indirectly under other pay items will not be measured and paid for under this Section 641. This work includes but is not limited to dewatering, shoring, bailing, permanent seeding, installation and removal of temporary work pads, temporary accesses, temporary drainage pipes and structures, diversion channels, settling impoundment, filtration, etc.

Permanent erosion, sediment, and pollution control measures will be measured and paid for under other Contract items, when shown on the bid schedule.

Temporary erosion, sediment, and pollution control measures that are required due to negligence, carelessness, or failure to install permanent controls as scheduled or ordered by the Engineer, or for the Contractor's convenience, are at the Contractor's expense.

If, after 24 hours following written notice by the Engineer, the Contractor fails to pursue work required by the SWPPP, respond to inspection recommendations or deficiencies in the SWPPP, or implement erosion and sedimentation controls identified by the Engineer, or fails to perform any of the contract obligations, the Engineer may employ others to correct the condition and deduct the cost from the Contract amount.

The Engineer may suspend earthwork operations and withhold any monies due the Contractor for failure to:

- perform SWPPP Administration
- perform timely SWPPP inspections

- update the SWPPP
- transmit SWPPP, SWPPP Inspection Reports, and associated Section 641 submittals to the Engineer
- maintain effective BMPs that minimize erosion, control sediment, or prevent discharge of pollutants that exceed applicable water quality standards
- perform duties in accordance with the requirements of this Section 641
- meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control

The Contractor shall be due no additional monies or Contract time extension as result of delays resulting from suspension of earthwork for failure to perform required erosion, sedimentation, or pollution duties as outlined in this Section 641.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
641(1)	Erosion, Sediment, and Pollution Control Administration	Lump Sum
641(3)	Temporary Erosion, Sediment, and Pollution Control	Lump Sum
641(5)	Erosion, Sediment, and Pollution Control Price Adjustment	Contingent Sum
641(6)	SWPPP Manager	Lump Sum

CR641-030710

SECTION 643

TRAFFIC MAINTENANCE

Special Provisions

643-1.01 DESCRIPTION. Add the following as a third paragraph:
Illuminate construction activities listed in Table 643-3 during hours of night work on roads open to the public within project limits.

643-1.02 DEFINITIONS. Add the following paragraphs after paragraph titled "Construction Phasing Plan":

Balloon Light: Light surrounding by a balloon-like enclosure kept inflated by pressurized air or helium, and producing uniform light through 360 horizontal degrees. The top half of the balloon enclosure shall be constructed of an opaque material.

Night Work: Work occurring between sunset and sunrise on all days except the "No Lighting Required" period shown in the table below:

Latitude	No Lighting Required		Nearby
(degrees)	Start	End	Cities
< 61	Lighting Required All Year		Everything S 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	Delta Junction, Nome, Tok
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	

643-1.03 TRAFFIC CONTROL PLAN. Replace the last paragraph with the following:

A waiver may be requested, in writing, of regulation 17 AAC 25 regarding oversize and overweight vehicle movements inside the project limits. If the waiver is approved, movements of oversize and overweight vehicles in or near traffic inside the project limits will be done according to the provisions of an approved Traffic Control Plan. Maintain a minimum 12 foot lateral separation between the nonstreet legal vehicles and the motoring public. The Traffic Control Plan shall specify the traffic control devices required for these operations.

Add the following:

Road Closures and Major Traffic Sequencing (events). Submit a written request to the Engineer for review and approval of each proposed event and event date. Allow 7 days for the Engineer to review any proposed event or subsequent changes/corrections. The proposed event date will be no less than 14 days from the date of written approval.

643-1.04 WORKSITE SUPERVISOR. Add the following to Item 2. Duties:

i. Supervise lighting of Night Work.

643-2.01 MATERIALS. No. 12, replace with:

12. Portable Changeable Message Board Sign. Use new truck or trailer mounted portable changeable message board signs with self contained power supply for the sign and with:
    a. Message sign panel large enough to display 3 lines of 18 inch high characters.
    b. Eight character display per message module.
    c. Fully programmable message module.
    d. Remote control cellular, wireless radio frequency (RF), landline.
    e. Waterproof, lockable cover for the controller keyboard.
    f. Capacity for electric/hydraulic sign raising or lowering.
    g. Radar over speed detection.
    h. Variable flash and sequence rates.
    i. Light emitting diode (LED) display, using Institute of Transportation Engineers (ITE) amber/yellow
    j. The capacity for a minimum of 150 pre-programmed messages.
    k. Battery-Pack Operation Duration: minimum of 55 hours under full load.
    l. Power chords shall comply with the National Electrical Code (NEC) Article 600.10 Portable and Mobile Signs, paragraph 600.10(c) (2) ground fault circuit interrupter (GFCI). The chord will have integral GFCI protection located either in the attachment plug or 12 inches or less from the plug.

Standard Modifications

Under Item 16. Flagger Paddles, replace the last sentence with the following: 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. E56(5/01/07)

Add the following:

17. Flexible Markers. Refer to Subsection 606-2.01 Materials.

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Add the following:

Where construction activity encroaches onto the safe route in a traffic control zone, station a flagger at the encroachment to assist pedestrians and bicyclists past the construction activity.

Maintain business access(s) during flagging operations.

Standard Modifications

Immediately notify the Engineer of a traffic related accident that occurs within the project limits as soon as becoming aware of the accident. (05/01/07)E56

643-3.02 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Add the following:

*****Deleted*****

Pave lanes next to the median first. Pave lanes next to exit and entrance ramps last. Place temporary 12:1 sloped wedge of asphalt concrete against the abrupt pavement edge on lanes next to exit and entrance ramps. Do not open the roadway to traffic until slope wedges are in place.

643-3.04 TRAFFIC CONTROL DEVICES. In the sixth paragraph replace: "ATTSA" with: "ATSSA"

Replace the first sentence of the eighth paragraph with:

Items paid under this Section remain the Contractor's property unless stated otherwise.

Add the following to No. 1, Embankments:

Close trenches and excavations at the end of each continuous work shift, except as indicated by the Engineer.

Add the following to No. 3, Fixed Objects:

Remove obstructions greater than 4 inches above the nominal foreslope grade at the end of each continuous work shift.

Delete No. 4.b, and replace with:

Flagger Certification by ATSSA.

Delete No. 6, and replace with:

6. Street Sweeping and Power Brooming. Keep free of loose material paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where the Contractor's operations have deposited loose material. Use equipment for brooming and sweeping as recommended by the manufacturer and the following:

Dirt, dust and construction materials, mobilized as a result of power brooming and or sweeping, shall not be pushed, ejected, thrown or drift beyond the lesser of, 2 feet from the equipment perimeter or the edge of the paved surface.

All equipment shall operate to typical industry standards. Maintain equipment to operate as designed by the manufacturer. Equipment will employ safety equipment, warning lights, and other as required by the Specifications and these Special Provisions.

Sweeper and Broom Options: Table 643-4, Traffic Control Rate Schedule, Street Sweeping.

a. Regenerative Sweeper: Sweeper that blows a stream of air at the paved surface causing fine particles to rise and be caught through a vacuum system.

b. Vacuum Sweeper: Sweeper that creates a vacuum at the paved surface sucking dirt, dust, and debris into the collection system.

c. Mechanical Broom Sweeper: Sweeper designed to pick up and collect larger size road debris, stones and litter, etc. In addition to the requirements noted in these specifications, use of a mechanical broom sweeper requires the Engineer to approve the sweeper for the intended use.

d. Power Broom: Power brooming that wets, pushes and or ejects loose material directly into an attached collection/pickup container may be used when approved by the Engineer. The added moisture will be contained to the paved roadway surface.

   Dry Power Brooming is not permitted. Power brooming without direct/immediate means of collection/pickup is not permitted.

Add the following:

9. ET-PLUS. The price listed in the Traffic Control Rate Schedule, Table 643-4, will be full compensation for the purchase, installation, maintenance during construction, removal, and salvaging the EP-PLUS unit(s). Deliver the salvaged unit(s) to the nearest ADOT & PF Maintenance & Operations yard or as directed by the Engineer.

643-3.05 AUTHORITY OF THE ENGINEER. Replace the first sentence with:

When existing conditions adversely affect the public's safety or convenience, the Contractor will receive an oral notice. A written notice will follow the oral notice according to Subsection 105-1.01, Authority of the Engineer.

Add the following after the second sentence:

In no case shall this time exceed 24 hours.

643-3.06 TRAFFIC PRICE ADJUSTMENT. Add the following:

Failure to maintain an acceptable infrastructure or traffic control plan will result in a price adjustment equal to 100 percent of the applicable rate shown in Table 643-1, Adjustment Rates, for the time the roadway or pedestrian facility is in an unacceptable condition.

Replace Table 643-1 with the following:

TABLE 643-1
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Delay/Lane
0 – 5,000	$ 30
5,000 +	$ 40

643-3.08 CONSTRUCTION SEQUENCING. Replace the last sentence with:

Unless otherwise determined by the Engineer and on an approved Traffic Control Plan (TCP), do not restrict traffic during the times listed below.

1. No restrictions to traffic between the following time periods:

   a. 13th Avenue: Monday through Friday 0600 to 0800 and 1600 to 1800

   b. Gambell Street: 0600 to 2000 daily

Obtain the local school bus schedule and coordinate work efforts to ensure the school buses are not delayed through the construction zone. This plan shall be submitted, as a TCP, to the Engineer for approval before the implementation of the school bus coordination plan.

Add the following:

One full weekend intersection closure will be permitted for the storm drain work. The closure will be allowed from 2000 Friday to 0600 Monday.

643-3.09 INTERIM PAVEMENT MARKING. In the second paragraph, delete the words:

"or cover them with black removable preformed marking tape."

Replace the first sentence in the last paragraph with:

Apply final pavement markings according to Subsection 670-3.01, Construction Requirements, of these Special Provisions.

Standard Modification

Add the following new subsection:

643-3.11. HIGH VISIBILITY CLOTHING. Ensure workers within project limits wear an outer visible surface or layer that complies 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; except you may use previously purchased garments labeled in conformance with ANSI/ISEA 107-1999 until 1/1/08.

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 requirements of in 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 clothing.

7. Condition.

   Furnish and maintain vests, jackets, coveralls, rain gear, hard hats, and other apparel in a neat, clean, and presentable condition. Maintain retroreflective material to Level 2 standards. E56(5/07/07)

643-4.01 METHOD OF MEASUREMENT. Replace the second sentence of No. 2. with:

Special Construction signs are measured by the total area of legend bearing sign panel, as determined under Subsection 615-4.01 and compensation for a 24 hour period shall be made under Construction Signs in the Traffic Control Rate Schedule, Table 643-4.

Add the following:

No measurement required to provide a 24-hour toll free (1-800 ###-####) "Hotline Road Report" telephone with a prerecorded message, and weekly notices with daily updates. Work will be subsidiary to Pay Item 643(1) or 643(2), Traffic Maintenance.

643-5.01 BASIS OF PAYMENT. Add the following to No. 7:

The Engineer will pay for Item 643(15) Flagging on a contingent sum basis at the rate of $46.00/hour. The Engineer does not require a change order/directive for the flagging Pay Item. Flagging associated with Change Order work will be paid at the prices according to Subsection 109-1.05 Compensation for Extra Work.

Add the following to No. 11:

The Engineer does not require a change order/directive for Pay Item 643(25), Traffic Control.

Add the following:

16. Work Zone Illumination. Payment for work zone illumination is subsidiary to other items.

ES14(03/15/06)

Standard Modification

Add the following: Payment for high visibility garments for workers is subsidiary to other items.
E56(5/01/07)

TABLE 643-4
TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Device	Pay Unit	Unit Rate
Construction Signs	Each/Day	$5.00
Special Construction Signs	Square Foot	$24.00
Type II Barricade	Each/Day	$3.00
Type III Barricade	Each/Day	$10.00
Traffic Cone or Tubular Marker	Each/Day	$1.00
Drums	Each/Day	$3.00

Sequential Arrow Panel	Each/Day	$55.00
Portable Concrete Barrier	Each	$60.00
Temporary Crash Cushion / ET-PLUS	Each	$5000.00
Pilot Car	Hour	$65.00
Watering	M-Gallon	$20.00
Street Sweeping: Regenerative Sweeper, Vacuum Sweeper, Mechanical Broom Sweeper, Power Broom	Hour	$150.00
Plastic Safety Fence	Foot	$0.75
Portable Changeable Message Board Sign	Calendar Day	$150.00
Temporary Sidewalk Surfacing	Square Foot	$1.15
Flexible Markers	Each	$50.00
Removal of Pavement Markings	Foot	$1.25
Temporary Guardrail	Foot	$21.00

Replace Pay Item 643(15) with:

Pay Item No.	Pay Item	Pay Unit
643(15)	Flagging	Contingent Sum

CR6431-021110

SECTION 646

CPM SCHEDULING

Special Provisions

646-2.01 SUBMITTAL OF SCHEDULE. Replace this Subsection with the following: Submit a detailed initial CPM Schedule at the preconstruction conference for the Engineer's acceptance as set forth below.

The construction schedule for the entire Project shall not exceed the specified contract time. Allow the Engineer 14 days to review the initial CPM Schedule. Revise promptly. The finalized CPM Schedule must be completed and accepted before beginning work on the Project.

646-3.01 REQUIREMENTS AND USE OF SCHEDULE.

Delete item 2. 60-Day Preliminary Schedule.

Delete the first sentence of item 3. Schedule Updates. and substitute the following: Hold job site progress meetings with the Engineer for the purpose of updating the CPM Schedule. Meet with the Engineer monthly or as deemed necessary by the Engineer.

R261M98(12/13/02)

SECTION 660

SIGNALS AND LIGHTING

Standard Modification

660-2.01 MATERIALS. Under Item 1.a. change title by removing: "Materials on the *Approved Products List*:" and replace with: Materials on the *Qualified Products List*:
E36(01/27/07)

Under Item 1.b. change title by removing: "Materials Not on the *Approved Products List*:" and replace with: Materials Not on the *Qualified Products List*:
E36(01/27/07)

Special Provisions

1. Equipment List(s) and Drawings. Delete item a in its entirety and the last sentence in item d and substitute the following:

    a. Materials on the *Approved Products List*: The Approved Products List does not apply to the 660 items. Provide catalog cuts of materials to the Engineer for review and approval.
    d. Materials Not Requiring Certification: Only submit these materials for review and approval if they are included on the Materials Certification List (MCL).

2. As-Built Plans. Add the following:

    The Engineer will deliver one copy each to State Maintenance and Operations; Technical Services; and attach the appropriate sheets of the last set in clear plastic envelopes to the inside of each controller assembly and load center. In addition, submit two complete sets of all electrical related plan sheets. The engineer will deliver one copy each to MOA Signal Electronics and MOA Street Lighting Maintenance.

CONSTRUCTION REQUIREMENTS

660-3.01 GENERAL. Delete items 3 through 8 in their entirety and substitute the following:

3. Excavating and Backfilling. Complete excavation and backfill required to install the signal and lighting components embedded in the roadway as shown in the Plans, including foundations, conduits, junction boxes, and loop detectors. Provide traffic control to complete this work according to the requirements of Section 643. Place excavated materials where it will not interfere with surface drainage.

    Support and protect conduits and utilities scheduled to remain in service when encountering them during excavation.

Excavate trenches wide enough to install the number of conduits specified side by side, to provide clearances of at least 2½ inches around 2 inch conduits and at least 2 inches around conduits larger than 2 inches, and to compact the bedding and backfill materials according to these specifications.

To install conduits, excavate trenches deep enough to allow for 6 inches of bedding material, the depth of the largest conduit, and the minimum burial depth specified between the top of the conduit and finished grade of the ground above the conduit. Keep the longitudinal profile of trench bottoms free of irregularities that would prevent the assembled conduit run from continuously contacting the top of the bedding material.

Dispose of, according to subsection 203-3.01, excavated materials that remain after completing backfill work and excavated material not meeting the requirements of Selected Material, Type C, as defined in subsection 703-2.07.

Dewater foundation and conduit excavations immediately before and during embedding and backfilling operations. Backfill excavations with materials that meet the following requirements

a. Backfill foundations with material that meets the requirements of Selected Material, Type A that passes through a 3 inch sieve.
b. Within the limits of the typical section, embed conduits and backfill trenches using material that meets the requirements of the lift where it is located, reusing excavated materials if it meets the requirements of the applicable lift,
c. In other locations, embed conduits and backfill trenches using material that meets the requirements of Selected Material, Type C, reusing excavated materials if it meets this requirement.
d. Import, when ordered, embedment and backfill materials that satisfy the preceding materials requirements.

Embed conduit(s) between two 6 inch lifts of material gleaned free of rocks exceeding a 1 inch maximum dimension. Grade and compact the first lift to provide a surface that continuously contacts the assembled conduit run.

Within 6 feet of paved surfaces and around foundations, backfill in uniform layers no more than 6 inches deep and compact each layer according to subsection 203-3.04. In other locations, compaction may be as approved by the Engineer.

4. Welding. Complete welding according to subsection 504-3.01.8. Welding and approved shop drawings.

Submit shop drawings of the proposed work with the welding plans for approval. The shop drawings shall include material specifications, component dimensions, the types of welds that will be made, and the proposed type and extent of weld inspection.

Repair the holes, which were used to mount equipment, in reused poles and mast arms by welding in disks flush with the adjoining surface. For the disk material, use steel that

matches the ASTM designation, grade, and thickness of the steel used to fabricate each pole. Cut disks that match the dimensions of the hole being repaired from pieces of steel plate bent to match the pole's radius at the hole. Grind the welds smooth and flush with the adjoining pole and disk surfaces. Repair the damaged finish according to subsection 660-3.01.8.

5. Removing and Replacing Improvements. The Contractor shall complete the following work at the Contractor's expense.
   a. Remove improvements that block completion of the work detailed in the Plans as specified herein.
   b. Reconstruct with new materials the nonreusable improvements the Contractor removed to complete the work, unless other items in the contract cover the improvements.
   c. Replace with new materials the reusable items damaged by the Contractor, that are specified for reuse.
   d. Reconstruct with new materials improvements that the Contractor damaged or removed, that do not conflict with the work and are not scheduled for removal.

Nonreusable improvements consist of cast in place items, including: asphalt concrete pavement, sidewalks, curb and gutter, lawns, and traffic markings. Reusable improvements include the items that were made before installation. Crushed aggregate base material may not be used as backfill in the base course if excavation depth exceeds the thickness of the base course.

Complete reconstruction work, including materials, according to the applicable sections of the Alaska SSHC, and leave the work in a satisfactory and serviceable condition. In completing the reconstruction work, match the alignments, widths, thicknesses, shapes, sizes, cross sections, and finishes of the existing improvements.

If removing a portion of sidewalk or curb and gutter, remove an entire segment between the weakened plane contraction joints or between an expansion joint and a weakened plane contraction joint.

Before removing a segment of Portland or asphalt cement concrete material, cut completely through the material with a saw along the outline of the area to be removed. Make cuts neat and true and prevent shatter outside the area removed.

To replace lawns, leave the top of the backfilled excavation low enough to install 4 inches of compacted topsoil. Match the top of the topsoil with the bottom of the vegetative mat. Apply seed and keep the seeded areas watered according to Section 618.

Remove, keep alive, and replant trees, shrubs, and plants according to Section 621. Replace the trees, shrubs, and plants that do not survive with plants of like size and type.

6. Salvaging and Reusing Electrical Equipment. When the Plans include existing electrical equipment scheduled for removal or relocation, remove and store the equipment listed in

the following paragraph without damaging it. Deliver removed equipment not scheduled for reuse to the MOA Traffic Signal Warehouse at 5923 Rowan Street. Delivered salvaged poles and mast arms to the MOA Traffic Signal Pole Yard and 3rd and Orca Street. Allow MOA personnel to select equipment and pole items to salvage. Dispose of remaining items. Notify MOA Signal Electronics Shop by telephone at 343-8355 one-week before planned delivery date.

Salvage the controller assemblies, signal heads, mounting brackets, luminaires, lighting standards, signal posts and poles, mast arms, optical detectors, load centers, light emitting diode optical units, and the lids of junction boxes scheduled for removal and other materials scheduled for relocation. The Contractor shall replace at the Contractor's expense salvaged equipment damaged or destroyed before or during delivery or reinstallation.

Controller assemblies and load centers include the cabinet and equipment contained in the cabinet before Contract award.

Remove from the highway right-of-way materials associated with the equipment removed or relocated and not scheduled for reuse, including conduits, junction boxes, conductors, and foundations. Raze the tops of foundations abandoned in place according to subsection 660-3.02. Fill the holes left by removing junction boxes and foundations with selected material type A and compact as directed.

With approval, after removing conductors, buried conduits that do not interfere with other construction may be abandoned in place with a credit taken by the Department. Remove the ends of abandoned conduits from the junction boxes that will remain in service.

Within 15 days of the Notice to Proceed, complete an inventory of the materials that will be salvaged in the presence of the Engineer. Note the location and condition of the materials. When material specified for reuse is found in an unserviceable condition, the Engineer will determine whether to repair it or replace it with new material, which will be paid for as extra work under subsection 109-1.05. Retain a copy of the inventory and give the original documents to the Engineer.

When the Plans specify reinstalling existing equipment at new locations and installing State furnished equipment, complete the following work at the Contractor's expense.

a. For poles, install new foundations, furnishing the new nuts, bolts, washers, and conduits needed to complete the installations.
b. For lighting poles, install new illumination tap wires and fused disconnect kits.
c. For luminaires, clean the luminaires inside and out and install new lamps of the same wattage.
d. For signal heads, furnish and install the mounting brackets needed to complete the relocation, and clean the signal heads inside and out.
e. For poles and undisturbed poles from which the Plans specify removing equipment, repair the holes that were made to mount equipment according to

subsection 660-3.01.4. Welding and repair the finishes according to subsection 660-3.01.8.

When ordered, the Engineer will pay for repairing damaged finishes on existing equipment according to subsection 660-3.01.8 as extra work.

If deciding to use new equipment rather than reusing the equipment specified, notify the Engineer of the change and include a submittal according to subsection 660-2.01.1.

7. Field Tests. Electrical circuits must pass the following tests before the Engineer will accept the work for payment. Perform these tests in the presence of the Engineer, and document the results of each test on a per circuit basis. Retain a copy of test results and give the original documents to the Engineer. Furnish equipment needed to perform these tests.

Replace or repair at the Contractor's expense, and in an approved manner, faulty materials and work revealed by these tests. After making repairs, repeat tests on the repaired circuit and continue this process until circuits have passed required tests. The Department reserves the right to have the Contractor retest circuits, and to use the retest results to accept or reject individual circuits.

a. Grounds. Before completing the circuitry and functional tests, physically examine conduits ends, junction box lids, load centers, and the foundations for signal posts and poles, lighting poles, and controller cabinets to ensure the grounding system required by subsections 660-3.06 and 661-3.01 has been installed and splices and connections are mechanically firm.

b. Continuity. Test each loop detector circuit for continuity at the roadside junction box before splicing the loop detector to the lead-in cable. Each loop detector must have a resistance less than 0.5 ohms.

After splicing the loop detectors to the lead-in cables, test each pair at the controller or detector cabinet. Each pair must have a value less than 5 ohms for single pair lead-in cables and 10 ohms for multipair lead-in cables. The continuity test ohm reading at the cabinet must be greater than the ohm reading measured for the loop detector at the junction box.

c. Insulation Resistance (megohm) Test. Complete this test to verify the integrity of each conductor's insulation after pulling the conductors and cables into position and before terminating the conductors. At 500 volts DC, each conductor's insulation shall measure a minimum resistance of 100 megohms or the minimum specified by the manufacturer. With single conductors, complete the test between each conductor and ground. In each multiconductor cable, complete the test between conductors and between each conductor and ground.

After splicing the loops to the shielded pairs in the lead-in cables, measure each pair in the lead-in cables at the controller or detector cabinet between one conductor and the cabinet ground rod.

d. Inductance Test. Measure each detector loop and lead-in cable system at the controller or detector cabinet. The inductance must be in the range of 50 to 500 microhenries.

e. Circuit. Energize every signal indication circuit with lamps installed before installing the load switches.

f. Functional. Perform the following tests on each signal and lighting system after the component circuits have satisfactorily passed the tests for continuity, grounding, insulation integrity, and circuitry.

1) For each new traffic signal system, complete at least 24 hours of flashing operation, followed by not less than 5 days of continuous, satisfactory operation. The Engineer may decide to omit the flashing portion of the test for modified signal systems and for new signals that replaced existing signals that remained in operation during the construction phase.

If the Engineer omits flashing operation and the system performs unsatisfactorily, correct the condition and repeat the test until the system runs for five days with continuous, satisfactory operation.

Begin the signal functional tests between 9:00 a.m. and 2:00 p.m. on any day, except a Friday, Saturday, Sunday, a legal holiday, or the day before the legal holiday.

Before each system turn on, aim signal faces according to subsection 660-3.08 and ensure equipment specified in the Plans is installed and operable, including: pedestrian signals and push buttons; signal backplates and visors; vehicle detectors; highway lighting; and regulatory, warning, and guide signs.

2) Perform the functional test for each highway lighting system and sign illumination system until the systems burn continuously 5 days without the photocell, followed by a 5 day operational test using the photocell.

3) Perform the functional test for each flashing beacon system for not less than 5 days of continuous, satisfactory operation.

4) Perform a continuous 5 day burning test on each pedestrian overpass and underpass lighting system before final acceptance.

A shut down of the electrical system due to a power interruption does not constitute discontinuity of the functional test if the system functions normally when power is returned.

8. Repairing Damaged Finishes. Examine new, reused, and State furnished equipment for damage to its finish before putting the equipment into service. Repair the damaged finishes found according to the following:

   a. Galvanized. Repair damaged areas more than 12 inches away from welds and slip fit areas, by applying a minimum 7.8 mils of zinc based alloy applied according to ASTM A780.

      If the damaged areas are within 12 inches of welds and slip fit areas, make the repair by applying a minimum 7.8 mils of zinc rich paint applied according to ASTM A780.

   b. Painted. Repair damage to painted finishes according to the following

      (1) Wash the equipment with a stiff bristle brush using a solution containing two tablespoons of heavy-duty detergent powder per gallon of water. After rinsing, wire brush surfaces to remove poorly bonded paint, rust, scale, corrosion, grease, or dirt. Remove dust or residue remaining after wire brushing before priming.

      (2) Factory or shop cleaning methods may be used for metals if equal to the methods specified herein.

      (3) Immediately after cleaning, coat bare metal with pretreatment, vinyl wash primer, followed by 2 prime coats of zinc chromate primer for metal.

      (4) Give signal equipment, excluding standards, a spot finishing coat on newly primed areas, followed by 1 finishing coat over the entire surface.

      (5) Give nongalvanized standards 2 spot finish coats on newly primed areas.

   Paint coats may be applied either by hand brushing or by approved spraying machines. Perform the work in a neat and workmanlike manner. The Engineer reserves the right to require the use of brushes for the application of paint, should the work done by the paint spraying machine prove unacceptable.

Add the following new item 9:

9. Regulations and Code. Complete work according to the standards of the NEC, the NESC, and local safety codes as adopted and amended by the authority having jurisdiction.

660-3.02 FOUNDATIONS. Under item 1. Cast-in-Place Foundations., add the following to the first paragraph: Locate the tops of traffic signal post and pole foundations flush with the adjacent finished: walkway, shoulder, or surrounding ground.

1. Cast-in-Place Foundations. In subparagraph f, revise the second sentence to read: Before placing the form or reinforcing steel cage, remove loose material from the bottom of the hole to ensure the foundation rests on firm, undisturbed ground.

In the second sentence of sub-item i delete "prior to grouting." and substitute "before attaching the skirt."

In the first sentence of sub-item j, delete "concrete pile caps" and substitute "foundations"

Delete item k and add the following new items k and l:

k. Install the bottoms of the bottom leveling nuts in a level plane within 1 inch of the top of foundations. Adjust all nuts until their tops form a level plane. Install one washer on top of all leveling nuts and, after setting the pole on these washers, install one washer under all top nuts.

Bring leveling nuts (bottom nuts) to full bearing on the bottom of the base plate.

Generously lubricate the bearing surface and internal threads of top nuts with beeswax. Tighten all top nuts to a "snug" condition. Use a click-type torque wrench to apply 600 foot-pounds of torque to the "snug" top nuts.

After torquing the top nuts, use a hydraulic wrench to rotate all top nuts an additional one sixth (60°) turn, while preventing the leveling nuts from turning.

l. Attach a 4 AWG, bare, solid copper wire as a grounding electrode conductor to the #4 spiral bar in the reinforcing steel cage. Use an irreversible compression connector or cadweld to make the attachment. Protect the attachment during concrete placement. In foundations that lack reinforcing steel cages, install 21 feet of coiled 4 AWG, bare, solid copper wire as the grounding electrode. Route the conductor to protrude near the top, center of the foundations. Slide a minimum 6 inch long, nonmetallic, protective sleeve over the conductor. Allow 1 inch of the sleeve and 24 inches of conductor to protrude from the foundations.

2. Pile Foundations. Add the following new item g:

g. Use no more than one splice per foundation. Locate the splice at least 10 feet from the top of pile.

Replace subsection 660-3.03 with the following:

660-3.03 CONDUIT. Electrical conductors shall be installed in conduit, except for overhead wiring, wiring inside poles, and when otherwise specified. Use rigid metal conduits (RMC) and fittings for raceways, including bored casings, except when the Plans specify using polyethylene conduits. Install conduits of the sizes specified along the routes detailed on the Plans. When routing is not shown, route conduits as directed by the Engineer.

1. Install conduits at least 30 inches below the finished grade of the ground above the conduit, except conduits that will be sealed under a minimum 4 inch thick Portland cement concrete sidewalk may be installed a minimum of 18 inches below the top back of curb or surface above the conduit, whichever is lower.

2. Install conduits that cross unpaved areas and paved roadways that will be overlaid in excavated trenches. Excavate, bed conduits, and backfill trenches according to subsection 660-3.01.3, Excavating and Backfilling.

3. Install conduit(s) under paved roadways and approaches that will not be overlaid by boring or drilling methods. Jacking conduits into position is allowed. However, if subsurface conditions prevent the successful completion of the work, install the conduit(s) by boring or drilling methods without additional compensation.

4. Sweep both rigid metal and polyethylene conduits through the open bottom of junction boxes by installing 90 degree rigid metal elbows on the ends of conduit runs. To each elbow, install a nipple that terminates 5 to 12 inches above the bottom edge of each junction box.

5. Install the tails of loop detectors without elbows through the walls of junction boxes at elevations that ensure the loops drain into the box. Extend the ends a minimum of 2 inches beyond the inside wall of the box.

6. Drill a 3/8 inch drain hole in the bottom of the lower straight section of elbows and in the bottom of conduits at the low points of conduit runs. Smooth the edges of the drilled holes on the inside of elbows to prevent scraping the conductors. Cover the holes with a wrap of approved filter cloth secured with 2 self clinching nylon cable ties.

7. Keep conduits clean. Install grounding bushings and approved plastic insert type plugs on the ends of conduit runs before backfilling around the conduit ends.

8. At the low points of conduit runs, install sumps containing a minimum 2 cubic-feet of coarse concrete aggregate material that conforms to subsection 703-2.02. Compact the aggregate sumps as directed to prevent settlement of the trench backfill.

9. Install conduits that must cross existing facilities such as storm drain pipes, duct systems, and other underground utilities at the minimum depths specified, going under the

facilities if necessary. Install additional drains and aggregate sumps at the low spots, if any.

10. Position conduits in trenches, junction boxes, and foundations to provide clearances of at least 2½ inches around 2 inch conduits and at least 2 inches around conduits larger than 2 inches.

11. Fabricate rigid metal conduits less than 10 feet long from standard lengths of conduit. Cut conduits squarely to ensure the threading die starts squarely on the conduit. Cut the same number of threads as found on the factory threaded ends. Ream the inside of conduit ends cut in the shop or field to remove burrs and sharp edges. Do not use slip joints or pieces of running thread pipe.

12. Coat drilled holes, shop and field cut threads, and the areas with damaged zinc coating with zinc rich paint.

13. When standard couplings cannot be used to join conduit components, use approved threaded unions.

14. Bury a continuous strip of 4 mils thick, 6 inch wide polyethylene marker tape above underground conduit runs. Install the tape 9 inches (± 3 inches) below finished grade, using two strips side by side to mark road crossings. Furnish tapes with a black legend on a red background.

15. If encountering obstructions during jacking or drilling operations, obtain approval and cut small holes in the pavement to clear the obstruction. Locate the bottom inside face of the bore pit no closer than the catch point of a 1¼ to 1 slope (a horizontal to vertical ratio) from the edge of pavement. Do not leave these pits unattended until installing an approved means of protection.

16. When the Plans specify using polyethylene conduit, install RMC in structures and foundations, between type 2 and 3 load centers and the nearest junction box, and on the surfaces of poles and other structures.

17. In foundations, install 90 degree elbows and conduits of the size and quantity shown on the Plans. Extend the conduits a maximum of 2 inches above the top of the foundations for posts and poles with breakaway bases and 4 inches above the top of foundations for fixed base structures.

18. Seal conduits leading to electrical equipment mounted on soffits, walls, and other locations below the grade of the serving junction box with an approved duct sealing compound.

19. Install expansion fittings in conduits that cross expansion joints.

20. Install a polypropylene pull rope with a minimum 200 pound tensile strength in future use or spare conduits, and reinstall the plugs. Double back at least two feet of pull rope into both ends of each conduit.

21. The Contractor may install conduits larger than the sizes specified. If used, it must be for the entire length of the run. Reducing couplings or bushings are not allowed. Complete work associated with installing conduits larger than specified without extra compensation.

22. Clean existing conduits that will remain in service using a heavy duty air compressor that delivers at least 125 cubic feet of air per minute at a pressure of 110 pounds per square inch. Clean the conduits before pulling in new cables and after removing cables specified to be removed or replaced as follows:

    a. When the conduits contain cables that will remain in service, leave the cables in place during the cleaning, and
    b. Ream empty conduits with a mandrel or cylindrical wire brush before blowing them out with compressed air.

23. When modifying existing conduit runs, complete the work as required for new installations using the same sizes and types of conduit. When extending existing conduits, add no more than 90 degrees of horizontal bend to the extension.

24. When installing a junction box in a continuous run of existing conduit, remove a length of conduit in each conduit run and complete the work of installing the conduits, elbows, and nipples as required for a new installation.

25. When adjusting existing junction boxes to a new grade, remove cables and replace the nipples as required to provide the clearances specified for new installations.

26. Remove the ends of abandoned conduits from junction boxes that will remain in service.

27. When Plans call for connecting polyethylene conduit to RMC use an electrofusion coupler rated for direct bury application. The coupler must be rated for same wall thickness as the adjoining conduits. Thread the ends of the RMC with the same number of threads as found on the factory threaded ends of RMC. Ream the inside of conduit ends cut in the shop or field to remove burrs and sharp edges.

Replace subsection 660-3.04 with the following:

660-3.04 JUNCTION BOXES. Install precast reinforced concrete junction boxes of the types specified. For junction boxes that contain traffic signal conductors, furnish cast iron lids with the word TRAFFIC inscribed into them. For junction boxes that contain lighting conductors exclusively, furnish cast iron lids with the word LIGHTING inscribed into them.

When routing a new conduit into an existing junction box or replacing an existing junction box, improve groundings in new and existing conduits to current specifications.

660-3.07 TRAFFIC CONTROLLER ASSEMBLIES. In the 3rd subparagraph replace "3.5 inch floppy" with "compact".

Replace subsection 660-3.08 with the following:

660-3.08 SIGNAL AND LIGHTING INSTALLATION REQUIREMENTS. Install signal and lighting equipment according to the details shown on the Plans and the following:

Apply antiseizing compound to the following fasteners: frangible couplings, mechanical grounding connectors, bolts that secure hand hole covers and signal mounting hardware to poles and mast arms. Remove the fasteners from luminaire mounting brackets, fused disconnect kits, grounding bushings, and signal faces which secure the visors, and apply antiseizing compound to these fasteners before completing the installation.

Before passing conductors through the holes made in posts, poles, and mast arms for wireways, remove the burrs and sharp edges from the inside and outside of these holes.

Until each traffic signal and/or flashing beacon goes into operation, keep the vehicular and pedestrian signal faces covered with beige colored canvas shirts sized to fit the signal faces shown in the Plans. Each signal shirt shall feature elasticized openings that fit over the visors and at least two straps to secure it to the signal. Provide shirts with a legend that reads "out of service" and a center section that allows an operator to see the indications during system tests.

When not shown in the Plans, determine the shaft lengths of lighting and signal poles and signal mast arm connector plate locations to provide the plan mounting heights of luminaires and traffic signal heads.

Furnish work to install foundations for relocated poles, including: conduit, excavation, reinforcing steel, class A concrete, anchor bolts, nuts, and washers.

1. Electrolier Installation. Before installing electroliers, check the socket position of each luminaire to verify it matches the position indicated in the instructions for the light distribution type shown on the Plans.

   Install electroliers with mast arms with a slight rake by plumbing the side of the pole opposite the mast arm. After the pole has been plumbed, level the luminaire as recommended by the manufacturer.

   Install electroliers without mast arms with the centerline of the pole plumb.

2. Signal Pole Installation. Install signal poles with a slight rake by plumbing the side of the pole opposite the mast arm just above the base plate. Tighten the nuts on the anchor bolts as described in subsection 660-3.02k.

Cover the gap between the foundation and base plate by installing a metal skirt around the base plate, secured with stainless steel sheet metal screws.

3. Vehicular Signal Head Installation. With two piece mast arms, do not install signal heads within 12 inches on either side of the slip type field splice.

Attach each side mounted terminal compartment with two ½" x 13 bolts, with washers, threaded into holes tapped into the side of the pole at the location shown on Standard Drawing T-30. Install the vertical pipe members plumb.

When installing 5 section vertically stacked signal heads on the sides of poles, secure the vertical pipe to the pole using a steel conduit hanger mounted 6 inches below the top horizontal pipe.

Aim through phase vehicular signal faces at a point located a distance from the face as shown in Table 660-2. If two through signal faces are not visible from this point at a height of 42 inches above finished grade, consult the Engineer for corrective measures.

TABLE 660-2

THROUGH PHASE SIGNAL FACE AIMING POINTS

85^{th} Percentile Speed (mph)	Minimum Visibility Distance (feet)
20	175
25	215
30	270
35	325
40	390
45	460
50	540
55	625
60	715

4. Pedestrian Signal and Push Button Installation. Orient pedestrian signal faces at the center of the crosswalk on the opposite side of the street. Attach each clamshell bracket with two ½" x 13 bolts threaded into holes tapped into the side of the pole. Install a spacer, furnished by the bracket manufacturer, on each bolt. Keep the bolt head clear of the recess that holds the nut in a through bolted installation.

660-3.09 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS. Delete this subsection in its entirety and substitute the following: This work consists of protecting and maintaining the existing and temporary electrical systems during the life of the contract. The work includes: locating, repairing, replacing, adjusting, realigning, cleaning, and

relocating components of traffic signals, lighting systems, and flashing beacons to keep them wholly operational and positioned according to the following specifications.

If the existing lighting systems is not kept fully operational as specified herein, the Engineer will reduce the payments under Item 660(22) Illumination Price Adjustment.

Furnish the Engineer with the name and phone number of the person who will maintain the existing and temporary electrical facilities at the Preconstruction Conference. Make this person available at times until the date of Acceptance for Traffic and Maintenance and provide labor, materials, and equipment this person may need to complete repairs ordered by the Engineer.

When beginning work, the Engineer will notify the Contractor and the local maintenance agencies in writing of the transfer of maintenance responsibilities, providing an effective date and time. Maintenance does not include replacing defective equipment or repairing equipment damaged before the transfer of maintenance responsibility. Therefore, before starting work on the project, inventory the condition of the existing equipment with the Engineer and document the damaged and defective equipment. If beginning work before providing the Engineer with an inventory, the Contractor waives the right to claim extra compensation when the Engineer later finds damaged or defective equipment.

Keep components of the existing and temporary electrical systems operational during the progress of the work, except when the Engineer allows shutdowns to alter or remove the systems. The Engineer will consider these systems operational when no damaged or defective equipment is found in service, components are clean, located, and aligned as specified herein, and photoelectric controls operate the lighting systems. The State will pay for electricity used to operate the systems, if the public benefits from their operation. Furnish replacement equipment compatible with equipment used in the Central Region.

Begin work to repair, replace, adjust, realign, clean, and/or relocate components of an affected system within one hour when ordered by the Engineer. If work is not complete, the Engineer may have outside forces complete the repairs and deduct the amount billed from monies due the Contractor.

Records. When working on a traffic signal system, print a record of work performed in the diary found in each controller cabinet. Make sure each entry includes

1. The dates and times beginning and completing work, and the names of the crewmembers completing the work.
2. The characteristics of the equipment failure or faulty operation evident before repair.
3. The changes made or corrective actions taken.
4. The printed name and signature of the person responsible for making the repairs or changes.

The Engineer will limit signal system shutdowns to the hours traffic restrictions allowed in subsection 643-3.08, Construction Sequencing. During shutdowns, use flag persons to control traffic. Provide local traffic enforcement and maintenance agencies 24 hour notice before shutting down a traffic signal system.

Locate existing conduit runs, buried cables, junction boxes, and underground utilities before starting work that may damage these facilities or interfere with these systems.

Where roadways remain open to traffic and the work includes modifying the existing lighting systems, energize the modified circuit by sunset on the same day the Contractor retires the original circuit.

Relocate or replace signal poles, lighting standards, sign poles, flashing beacon poles, load centers, and controller cabinets whenever reducing clearance from the traveled way to less than 6 feet.

Alignment. During the various phases of construction, shift the signal heads to keep them aligned horizontally and vertically with the approaches according to the following:

1. For overhead signals located 53 feet and more from the stop line, maintain 17.5 feet to 21.5 feet of clearance between the traveled way and the bottom of each signal. For closer signals refer to the MUTCD for maximum clearances.

2. For side mounted signals, maintain nine feet to 11 feet of clearance between the traveled way and the bottom of the signal.

3. Align overhead signals controlling a single lane with the center of the lane.

4. Align overhead signals controlling two or more lanes with the lane lines separating the lanes.

5. When the horizontal angle to the side mounted far right signal exceeds 20°, relocate this signal to an overhead location. Measure the angle 10 feet back from the stop line on the lane line between the two farthest left through lanes.

    i. With two or more through lanes, center one signal head over each lane.

    ii. With one through lane and protected permitted signal phasing, leave the five section signal over the lane line and center the signal to be relocated over the through lane.

    iii. Otherwise, install the relocated signal 8 feet to the right of the signal centered over the through lane.

6. For pedestrian signals, maintain 7 to 9 feet between the traveled way and the bottom of each pedestrian signal.

7. Aim signal heads according to Table 660-2 found in subsection 660-3.08, Signal and Lighting Structures.

When no longer required, salvage original and Department provided equipment according to the Plans and item 6. Salvaging or Reusing Electrical Equipment found in subsection 660-3.01, and remove other materials used in the temporary systems from the project.

Add the following subsection:

660-3.11 SIGNAL SYSTEM TIMING AND ADJUSTMENTS. The Engineer will use Municipality of Anchorage (MOA) signal maintenance personnel for certain work inside controller cabinets. Before MOA personnel arrive to terminate conductors, ensure terminal connectors are attached to conductor ends and paired loop detector conductors and cables are labeled as specified in subsection 660-3.05, Wiring. On projects outside the MOA, send controller equipment to the MOA for testing and complete work specified inside controller cabinets.

Controller Cabinet Preparation. Ship the traffic controller cabinet(s) and equipment to the Municipality of Anchorage Traffic Signal Electronics Shop at 3601 Dr. Martin Luther King Jr. Drive. MOA will inspect cabinet wiring, burn in signal equipment, customize cabinets for desired operation, and test the equipment according to subsection 660-3.07, Shop Tests.

1. Loop Detector Wiring. Municipality of Anchorage Traffic Signal Maintenance (MOA Signal Maintenance) will test and connect paired loop detector conductors to the terminal blocks.

2. Control Cable Wiring. When modifying an operational signal system or controller assembly, MOA Signal Maintenance will connect control cables within the controller cabinet to the terminal blocks.

3. Timing Adjustments. During construction, MOA Signal Maintenance may adjust the system and intersection operational timing to accommodate project conditions.

4. Interconnect Wiring. MOA Signal Maintenance will test, splice, and connect interconnect wiring to the terminal blocks.

660-4.01 METHOD OF MEASUREMENT. Add the following:

Item 660(22) Illumination Price Adjustment. By the mile for each roadway with all or part of its illumination system inoperative. A divided roadway is considered one roadway. Ramps are considered a separate roadway. The Engineer will measure each unlit section less than one mile long as one mile.

660-5.01 BASIS OF PAYMENT. Add the following: The Engineer will pay Item 660(26) Signal System Timing and Adjustments, based on paid receipts plus 15 percent for authorized work performed by the Municipality of Anchorage. A directive will not be required to initiate payment for work performed under Item 660(26). Pay costs of the Municipality retesting equipment that fails to comply with the Plans and Specifications.

The amount bid for an item shall include full compensation for:

a. Excavation, bedding, and backfill to install the components shown in the Plans. Dewatering excavations is subsidiary to completion of the excavation work.

b. Removing and repairing existing improvements to complete the work, unless other items in the contract cover the repairs.

c. Work associated with installing loop detectors, including: saw cutting, asphalt removal, aggregate base course, tack coating, and installing new asphalt concrete.

The Engineer will pay for the disposal of surplus and unusable excavation and for imported backfill and bedding material at respective contract unit prices, or as extra work if the contract does not include these items.

The cost of repairing damage to finishes on new equipment is subsidiary.

The cost of maintaining the existing and keeping the temporary electrical system fully operational is subsidiary to 660 items included in the Contract.

For each mile of roadway with existing lighting systems that is not kept fully operational, the Engineer will deduct $1275.00 per day from the payments due the Contractor.

R66(4/17/07)

SECTION 661

ELECTRICAL LOAD CENTERS

Standard Modification

661-2.01 MATERIALS. Under Item 1. change title by removing: "Materials on the *Approved Products List:*" and replace with: Materials on the *Qualified Products List:*

Under Item 2. change title by removing: "Materials Not on the *Approved Products List:*" and replace with: Materials Not on the *Qualified Products List:*

E36(01/27/07)

Add the following Section:

SECTION 662

SIGNAL INTERCONNECT

Special Provisions

662-1.01 DESCRIPTION. This item consists of the work required to furnish and install signal interconnect in conduit between the controller assemblies shown on the Plans along the route indicated or on a route as directed by the Engineer.

662-1.02 REGULATIONS AND CODE. Complete the work according to these Specifications and Section 660, Signals and Lighting. The Department requires third party certification for high density polyethylene conduit. Equal to or exceeding UL 651 B and NEMA TC-7.

662-2.01 MATERIALS. Submit the materials for review and approval according to the requirements of item 1. Equipment List and Drawings. of subsection 660-2.01, Materials.

Furnish a 25 pair #19 telephone cable conforming to REA Specification PE-39 for the interconnect cable. Install the interconnect cable in a 2 inch polyethylene conduit.

Encapsulate completed splices in waterproof reenterable type splice kits of the same type used for loop lead-in cable splices. REA Bulletin 344-2 entitled "Lists of Materials Acceptable for use on Telephone Systems of REA Borrowers" provides a list of acceptable splice materials.

662-2.02 POLYETHYLENE DUCT SYSTEM. Install a polyethylene (or rigid metal conduit if indicated on the plans) duct system in which to pull the interconnect cable. The Department will not permit the installation of the polyethylene conduit in a plowed trench.

Furnish a Type III polyethylene duct made from extra high molecular weight, high density, polyethylene (PE) pipe, with a cell classification equal to or exceeding 335444C when tested according to ASTM D 3350.

Furnish fittings used in the duct system such as elbows, made from the same type polyethylene as the duct. Fuse connections using the manufacturer's recommended procedure and equipment. Except elbows weeping into junction boxes shall be rigid metal conduit. Join the rigid metal conduit to the HDPE with Electrofusion Type Coupler.

Keep junction boxes and ends of conduit covered unless pulling conductors.

Mark underground conduits with a continuous strip of polyethylene marker taped. Furnish marker tape with a black legend on a red background that is 4 mil thick and 6 inches wide. Install the tape 6 inches below finished grade.

Use care during compaction operations to prevent damage to the junction boxes and conduits.

Remove and replace items damaged during the backfill and compaction operations at no additional cost to the Department.

After testing and installing the conductors, plug conduit openings with duct seal to prevent water from entering the duct system.

662-2.03 JUNCTION BOX. Furnish precast, reinforced concrete junction boxes conforming to the sizes and details shown on the Plans. Install junction box lids made of cast iron.

662-3.01 CONSTRUCTION REQUIREMENTS. The signal interconnect consists of cable, conduit, junction boxes, other necessary hardware required to complete the item, cable splicing, and the termination of conductors on terminal blocks.

Install the polyethylene conduits at least 30 inches below finished grade.

Install junction boxes at all abrupt changes in conduit alignment and on 300-foot maximum centers. Angle points and curves with delta angles greater than 45 degrees constitute an abrupt change. Install junction boxes of the sizes indicated on the Plans. Complete the splices in accordance with Rural Electrification Administration (REA) Specification PC-2 for splicing telephone cables. The Engineer shall determine the locations for making signal interconnect splices. Splices are not allowed at low points in the terrain or the bottom of sag vertical curves. Keep splices in the interconnect cable to an absolute minimum.

Furnish the controller cabinets with terminal blocks for the interconnect cable.

662-3.02 EXCAVATING AND BACKFILLING. Backfill the excavations according to Section 204.

The Engineer will not allow ripping or plowing for installation of conduit. Backfill around the polyethylene conduit with a 6 inch lift of material free of rocks exceeding a 1 inch maximum dimension.

662-4.01 METHOD OF MEASUREMENT. The Engineer will measure signal interconnect by the linear foot from the center of junction box to center of the next junction box, following the slopes of the existing ground.

662-5.01 BASIS OF PAYMENT. The contract unit price paid per linear foot for signal interconnect constitutes full compensation for furnishing work required to complete the work specified. Terminal blocks for the interconnect cable shall be paid under Item 660(1) Traffic Signal System Complete. (06/21/06)R67

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
662(1)	Signal Interconnect	Linear Foot

SECTION 670

TRAFFIC MARKINGS

Special Provisions

670-1.01 DESCRIPTION. Add the following:

Furnish, locate and install Pavement Markings as shown on the Plans and as directed.

Pavement Marking Type: Methyl Methacrylate (MMA)

670-2.01 MATERIALS. Replace the material reference,

"Methyl Methacrylate Markings Subsection 712-2.17",
with,

Methyl Methacrylate Pavement Markings Subsection 712-2.17

Methyl Methacrylate Pavement Markings are a combination of methyl methacrylate, glass beads and anti-skid aggregate.

Replace the last sentence with the following:

Submit a single certification from the manufacturer of the marking material, for each material combination, certifying the combination of marking material, glass beads and anti-skid aggregate, as furnished, provides the durability, retroreflectivity, and skid resistance specified.

670-3.01 CONSTRUCTION REQUIREMENTS. Delete No. 4 and substitute the following:

4. Methyl Methacrylate Pavement Markings (MMA).

   a. General. 15 days before starting work meet with the Engineer for a prestriping meeting. At this meeting, do the following:
      (1) Furnish a striping schedule showing areas and timing of work, placing materials and the Traffic Control Plans to be used.
      (2) Discuss placement of materials, potential problems.
      (3) Discuss work plan at off ramps, on ramps and intersections.
      (4) Discuss material handling procedures.
      (5) Provide copies of the manufacturer's installation instructions and copies of the Material Safety Data Sheets.

   b. Manufacturer's Representative. Provide the services of a manufacturer's representative (the "Manufacturer's Representative"). Ensure the Manufacturer's Representative observes the application of the pavement marking materials. Cooperate with the

Manufacturer's Representative and the Engineer to ensure that the materials are placed according to these Specifications and the manufacturer's recommended procedures.

c. Manufacturer Certified Installers. Install pavement markings using only striping installers certified by the marking materials manufacturer for the specific striping material and method. Submit these certifications to the Engineer at the Preconstruction Conference.

d. Preparation. Prepare the roadway surface to receive pavement markings according to these Specifications and the manufacturer's recommendations. Clean and dry the roadway surface. Completely remove contaminants such as dirt, loose asphalt, curing agents, surface oils, or existing road marking materials before applying pavement marking material.

e. Equipment.

(1) Grooving Equipment.
Use grooving equipment that produces a dry cut. Use vacuum shrouded equipment or other equally effective containment procedures.

(2) Marking Equipment.
(a) Longitudinal Marking: Use truck mounted application equipment capable of installing a double centerline and a single shoulder line in a single pass. Use automatic bead applicators that place a uniform layer of beads on the lines. Hand units are not permitted.
(b) Other Markings: Use manual or automatic application equipment. Use stencils or extruders to form sharply defined markings.

f. Application. Apply marking material according to these Specifications and the manufacturer's recommendations. Use equipment designed and capable of properly mixing at the place and time of application and approved by the manufacturer for the type of product being installed.

Anti-skid Aggregate. During marking material application, anti-skid aggregate will be evenly distributed and visible throughout the top 20 mils of the marking material mixture, and after the application, in the surface of the cured material.

SURFACE APPLIED

Marking thickness will be measured from the pavement surface.

(1) Longitudinal Markings. Apply markings for lane lines, edge lines, and centerlines to yield a thickness of 60 mils.

(2) Other Markings.
(a) Transverse and Symbol Markings:

Apply marking for symbols, arrows, stop bars, railroad symbols, and cross walks to yield a thickness of 60 mils.

(b) Gore Markings:
Apply diagonal gore markings to yield a thickness of 60 mils.

g. Disposal of Waste. Waste material(s) are the Contractor's property. This includes grindings and removed marking material. Do not dispose of or store waste material(s) on State property. Dispose of waste material(s) according to applicable Federal, State, and local regulations.

h. Sampling. On the form provided by the Engineer, record the following readings and locations where they were taken using project stationing, and submit them to the Engineer with 24 hours for evaluation. Thickness of material and depth of slot are measured from the surface of the pavement.

SURFACE APPLIED

(1) For surface applied longitudinal applications, measure the thickness of the lines (above the pavement surface) at the time of application, every 500 feet.

(2) For surface applied other markings measure the thickness in three locations for each marking.

Inspect the markings initially, and again two weeks after placement, to ensure the material has cured properly. Remove soft spots or abnormally darkened areas and replace with material meeting specifications.

The Engineer may elect to use the Contractor's readings or perform additional sampling.

Add the following:

Refer to the Survey Field Books identifying the no passing zones (see Subsection 642-3.01)

670-3.04 PAVEMENT MARKING REMOVAL. Add the following:

Coordinate removal work with construction activity. Remove pavement markings the same day permanent markings are applied, unless otherwise directed. Use vacuum shrouded equipment or other equally effective containment procedures.

Add the following Subsection:

670-3.06 TOLERANCE FOR LANE STRIPING.

1. Length of Stripe. ± 2 inches.
2. Width of Stripe. ± 1/8 inch.

3. Lane Width. ± 4 inches from the width shown on the Plans.
4. Stripes on Tangent. Do not vary more than 1 inch laterally within a distance of 100 feet when using the edge of the stripe as a reference.
5. Stripes on Curves. Uniform in alignment with no apparent deviations from the true curvature.
6. All Stripes. Keep the center of the stripe within planned alignment.
7. Double Stripes. ± 1/4 inch.
8. Thickness of Surface Applied. Minimum specified to a maximum of + 30 mils.
9. Depth of Inlay Slot. Minimum specified to a maximum of + 40 mils.
10. Thickness of Inlaid Marking Material. Fill inlay area completely from the bottom of the inlay to the surface of the pavement.

If it is determined that the material is being placed too thin, the beads are not properly placed, the anti-skid aggregate is not visible, or otherwise not to specification, make immediate adjustments to correct the problem.

Pavement markings applied by any method will be unacceptable if:

1. Marking is not straight or wide enough.
2. Thickness of line is not uniform.
3. Thickness of line is less than specified.
4. Material is uncured.
5. Material blackens or is inconsistent in color.
6. Inlay slot is not the specified depth.
7. Inlay slot is not filled to the specified depth.
8. Edge of the markings is not clear cut and free of overspray.
9. Reflective elements are not properly embedded.
10. Retroreflectivity of the markings is less than specified.
11. Anti-skid aggregate is not visible in the marking material during application and the dried surface.
12. Markings exhibit poor adhesion.
13. Color is not as specified.

Perform repairs using equipment similar to the equipment initially used to place the materials. Do not perform repairs in a "patch work" manner. If more than one repair is required in a single 500 foot section, grind and repair the entire section.

Add the following Subsection:

670-3.07 CONTRACTOR'S WARRANTY. Provide a warranty, for the Methyl Methacrylate Pavement Markings, as specified herein.

The period of warranty is 2 years. The warranty period will start on the date the Engineer accepts the work and authorizes payment.

Pavement markings that do not satisfy the specified performance requirements will be repaired and or replaced by the Contractor. The Department will determine if the failed markings will be repaired or replaced. The Contractor will be notified, in writing, of the marking failure(s) and the corrective measures required including repairs and or replacement.

The Contractor will have 6 months to complete repairs. The Contractor will coordinate the repair start and end dates with the Department.

The warranty period, for all project MMA pavement markings, will stop until corrective work is approved complete by the Department.

Performance Requirements.

1. Retroreflectivity. If retroreflectivity becomes a concern during the warranty period, the Engineer will measure the retroreflectivity of the area in question. The roadway surface will not be cleaned in preparation for taking readings, but areas of obvious contamination or debris will be avoided.

   a. Longitudinal sample areas will be a minimum length of 500 feet and have at least three samples taken.
   b. Transverse, symbols and gore samples will be three per transverse line or symbol.

Table 670-1
PAVEMENT MARKING MINIMUM RETROREFLECTIVITY REQUIREMENTS

Marking Color	Retroreflectivity, Minimum Levels		
	Initial Retroreflectivity [a]	6 Months [b]	2 Years [b]
Yellow, White	200 mcd/m^2-lux	150 mcd/m^2-lux	40 mcd/m^2-lux

Footnotes:
a. The initial retroreflectivity readings will be completed after the MMA has cured and no more than 7 days prior to the Engineer accepting the work.
b. The 6 month and 2 year readings will be measured from the date of the initial retroreflectivity readings.

2. Color Stability. The pavement markings shall retain color throughout the warranty period. Yellow striping will be compared to the PR-1 chart, and shall meet 33538 Federal Yellow. White striping shall have a minimum daylight reflectance of 84 throughout the Warranty period.

3. Adhesion. For the purpose of the warranty a cumulative 5% or greater loss of longitudinal line of any 500 foot segment of marking and 5% or greater loss of each transverse line, gore stripe and symbol, due to nonadhesion, shall constitute failure of the material in that segment.

Repair. Repair pavement markings as specified by the Department.

Replacement. Replace pavement markings as specified in Section 670-3.01 Construction Requirements 4.f. Application and as specified by the Department.

670-4.01 METHOD OF MEASUREMENT. Add the following:

Thickness will be measure from the top of the marking to the top of the pavement surface. Marking material placed in a depression left by pavement line removal will not be included in measuring the thickness of the line.

Delete No. 2.

Delete No. 3 and replace with the following:

3. Each. Pavement markings using letters, numbers, and arrows will be measured on a unit basis with each separate word or symbol constituting a unit. Railroad Markings will be measured by the complete unit shown for each lane of travel.

Add the following No. 4:

4. Foot Basis. Longitudinal pavement markings, transverse, and gore markings, surface applied or inlaid will be measured by the linear foot of 4 inch wide line. Wider striping will be measured in multiples of 4 inches.

670-5.01 BASIS OF PAYMENT. Add the following:

Payment for Methyl Methacrylate (MMA) Pavement Markings includes furnishing the Warranty. Payment for the installation of the pavement markings will be limited to 80% of the amount due until the Department has received a signed Warranty.

For all phases of construction: There will be no separate payment for:

- Over-runs of material caused by the variation of the gradation of the asphalt
- Additional material required to achieve the thickness specified on open graded pavement

All work and materials associated with pavement markings are subsidiary to 670 items, including but not limited to:

- Milling for installation of the inlaid pavement markings including the removal of millings
- Temporary pavement markings and removal of conflicting markings, including repair of the roadway surface, milled surface or otherwise

- Traffic Control required for the installation of permanent and temporary pavement markings, removal of conflicting markings, and repairs

Replace Item 670(10) with the following:

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
670(10)	MMA Pavement Markings	Lump Sum

Delete Items 670(11) and 670(12).

CR246-010109

SECTION 702

ASPHALT MATERIALS

Special Provision

702-2.01 ASPHALT CEMENTS. Meet AASHTO M 320 and the following:

ADDITIONAL REQUIREMENTS FOR PERFORMANCE GRADED ASPHALTS

Replace the column heading, **PG 64-28**, with, **PG 64-34**.

CR702-040209

SECTION 703

AGGREGATES

Special Provisions

703-2.03 AGGREGATE FOR BASE.

Delete Table 703-2 and substitute the following:

TABLE 703-2
AGGREGATE FOR UNTREATED BASE
(Percent Passing By Weight)

Sieve Designation	Grading C-1	Grading D-1	Grading E-1
1 ½ inch	100	-	-
1 inch	70-100	100	100
3/4 inch	60-90	70-100	70-100
3/8 inch	45-75	50-79	50-85
No. 4	30-60	35-58	35-65
No. 8	22-52	20-47	23-50
No. 30	10-33	10-26	13-31
No. 50	6-23	6-19	10-26
No. 200	0-6	0-6	8-15

Replace Subsection 703-2.04 with the following:

703-2.04 AGGREGATE FOR HOT MIX ASPHALT PAVEMENT. 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, V and R mixtures.

Coarse Aggregate. Aggregate retained on the No. 4 Sieve.

Meet the following requirements:

Description	Specification	Type IIA	Type I, IIB, III	Type IV	Type V, R
LA Wear, % max	AASHTO T 96	45	45	45	45
Degradation Value, Min	ATM 313	30	30	30	30
Sodium sulfate Loss % max (5 cycles)	AASHTO T 104	9	9	9	9

Fracture, min %	WAQTC FOP for AASHTO TP 61	90, 2 face	80, 1 face	90, 2 face	98, 2 face
Thin-Elongated Pieces, max %	ATM 306				
1:5		8	8	8	8
1:3		20	-	-	20
Absorption, max. %	AASHTO T 85	2.0	2.0	2.0	2.0

Fine Aggregate. Aggregate passing the No. 4 sieve.

Aggregate shall meet the quality requirements of AASHTO M 29, including S1.1, Sulfate Soundness.

Aggregate for Type IV, V, and R mixes:

- do not blend back natural sand
- shall be non-plastic as determined by WAQTC FOP for AASHTO T 90
- shall have a minimum uncompacted void content (Fine Aggregate Angularity) determined by AASHTO T 304, Method A, of 45%

TABLE 703-3
BROAD BAND GRADATIONS FOR HOT MIX ASPHALT PAVEMENT AGGREGATE
(Percent Passing by Weight)

Sieve	Gradation					
	Type I	**Type II**	**Type III**	**Type IV**	**Type V**	**Type R**
1 inch	100	-	-	-	-	-
3/4 inch	80-90	100	-	-	100	100
1/2 inch	60-84	75-90	100	100	65-90	70-100
3/8 inch	48-78	60-84	80-90	80-95	55-80	50-70
No. 4	28-63	33-70	44-81	55-70	40-60	30-42
No. 8	14-55	19-56	26-70	35-50	≤ 45	20-32
No. 16	9-44	10-44	16-59	20-40	≤ 35	15-25
No. 30	6-34	7-34	9-49	15-30	≤ 25	10-20
No. 50	5-24	5-24	6-36	10-24	≤ 20	7-15
No. 100	4-16	4-16	4-22	5-15	≤ 12	5-12
No. 200	3-8	3-8	3-8	4-8	3-8	4-10

Note:
1. No tolerance is allowed beyond the Broad Band Limits of the No. 200 Sieve.
2. For Type R, the mix design gradation JMD shall provide a minimum of 8 % difference of percent passing the No. 4 and the No. 8 sieve.

CR703-112709

SECTION 712

MISCELLANEOUS

Special Provisions

712-2.17 METHYL METHACRYLATE PAVEMENT MARKINGS. Replace No. 1. Quality Requirements: with the following:

1. Quality Requirements: Use a marking material formulated for the application type specified. Use a marking material manufactured from new materials and free from dirt and other foreign material. Use a methyl methacrylate based resin system for part "A". Use benzoyl peroxide system for part "B".

   Extruded or stenciled application: Material formulated for extruded or direct stenciled application with factory intermix beads, and anti skid aggregate and the application of additional surface applied beads.

   Submit a manufacturer certification for both the methyl methacrylate material, glass beads and anti-skid aggregate to ensure that the materials furnished conform to these Specifications.

2. Performance Properties: Add the following:

   I. Color: Yellow, PR-1 Chart, 33538 Federal Yellow. White, minimum daylight reflectance of 84.

712-2.18 GLASS BEADS FOR METHYL METHACRYLATE PAVEMENT MARKINGS. Replace the bead table with the following:

Use the type and quantity of beads specified in writing by the marking material manufacturer required to satisfy the specified performance requirements. The written certification will note the bead coating is compatible with the marking material binder.

1. Bead Manufacturer and Type.

   a. Swarco, Megalux-Beads or

   b. Approved equal beads

      Approved Equal Beads. Equal beads will demonstrate:

      (1) Bead coatings compatible with marking materials. Marking Material Manufacturer will certify compatibility.

      (2) Lasting retroreflectivity. For the two year specified Warranty Period and retroreflectivity levels, Subsection 670-3.07. The Engineer will determine the test location.

CR246-010109

SECTION 719

STEEL, GRAY-IRON AND MALLEABLE- IRON CASTINGS

Standard Modification

719-2.02 GENERAL REQUIREMENTS. In Gray-Iron Castings, delete text and replace with:
AASHTO M 306 and AASHTO M 105, Class 35B.
E47(01/27/07)

SECTION 724

SEED

Special Provisions

724-2-02. MATERIALS. Delete Table 724-1 and substitute with the following:

TABLE 724-1
SEED REQUIREMENTS

Species	Sproutable Seed*, %, Min.
Arctared Red Fescue	78
Egan American Sloughgrass	67
Norcoast Bering Hairgrass	71
Nortran Tufted Hairgrass	71
Wainwright Slender Wheatgrass	88
Alyeska Polargrass	71
Bluejoint	71
Tilesy Sagebrush	71
Tundra Glaucous Bluegrass	76
Gruening Alpine Bluegrass	72
Nugget Kentucky Bluegrass	76
Beach Wildrye	70
Annual Ryegrass	76
Perennial Ryegrass	76

* Sproutable Seed is the mathematical product of Germination and Purity.

R52(01/27/07)

Delete this Section, except for Table 726-1 and substitute the following:

SECTION 726

TOPSOIL

Special Provisions

726-2.01 TOPSOIL. Furnish topsoil that is representative of the existing, natural organic blanket of the project area. Perform a quality test, as defined by ATM 203, on the soil to determine the organic content of the soil. Supply the results to the Engineer.

Soil with an organic content of 5 percent or more may be reused and spread on the finished slopes where topsoil is noted on the plans. Remove roots, stumps, unnatural material, and rocks greater than 3 inch in diameter from the organic material before it is graded onto the finished slope.

Soil with an organic content of less than 5 percent cannot be used as topsoil for the project. In this case, furnish topsoil consisting of a natural friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials having an organic content of 5 percent or more, as determined by ATM 203. The material shall be reasonably free from roots, clods, hard clay, rocks greater than 3 inches in diameter, noxious weeds, tall grass, brush, sticks, stubble or other litter, and shall be free draining and nontoxic. Notify the Engineer of the location topsoil is to be furnished at least 30 calendar days before delivery of topsoil to the project from that location. The Engineer will inspect the topsoil and its sources before approval will be granted for its use. R208(11/27/07)

SECTION 727

SOIL STABILIZATION MATERIAL

Special Provisions

727-2.01 MULCH. Delete numbered item 1. in its entirety and substitute the following:

1. Virgin/Recycled Wood Fiber, or Blended Wood-Paper Mulch.

   Mulch shall consist of specially prepared wood fiber processed to contain no growth or germination inhibiting factors. Manufacture and process mulch in such a manner that the fibers will remain in uniform suspension in water under agitation and will blend with grass seed, fertilizer and other additives to form a homogeneous slurry. The mulch shall be of a texture such that it can be applied uniformly to the soil surface. Mulch shall not create a hard crust upon drying and it shall have moisture absorption and retention properties as well as the ability to hold grass seed in contact with the soil.

   Ship mulch in packages of uniform weight (plus or minus 5%) bearing the name of the manufacturer and the air-dry weight content.

   Dye the mulch a suitable color to facilitate inspection of the placement of the material.

   Use a commercial tackifier on seeded areas where mulch is applied. The amount added will be as recommended by the manufacturer.

3. Shredded Bark Mulch: Shredded Bark Mulch shall consist of shredded bark and wood. Maximum length of any individual components shall be two (2) inches and a minimum of 75% of the mulch shall pass through a one (1) inch sieve. Mulch shall be free of growth or germination-inhibiting ingredients. The bark mulch shall have the characteristics of retaining moisture, forming a mat not susceptible to spreading by wind or rain, and providing a good growth medium for plants. Shredded bark may contain up to 50% shredded wood material. Wood chips are not acceptable. Bark mulch containing shredded wood shall be aged for one-year minimum prior to installation. The mulch shall not contain resin, tannin, or other compounds in quantities that are detrimental to plant life. Spread mulch evenly in all planting beds as shown on Plans.

SECTION 740

SIGNALS AND LIGHTING MATERIALS

Special Provisions

Replace subsection 740-2.02 with the following:

740-2.02 SIGNAL AND LIGHTING POLES.

1. Design. Design and fabricate highway lighting and traffic signal structures with pole shaft lengths to 65 feet long to conform to the 1994 Edition of AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* with interim revisions. For the design and fabrication of high tower poles, see subsection 740-2.04.

   A registered professional engineer shall design the structures and provide stamped shop drawings and calculations. Submit the stamped drawings and calculations for each pole to the Engineer for approval. Design for stresses on the completed structure with hardware in place.

   a. In the stamped calculations, indicate the edition of Standard Specifications to which the poles are being designed and provide the input data used to design each pole and mast arm, including: design wind speed, cross section shape, yield strengths of the component materials, dimensions of the pole components, and a summary of the loads used.

   b. On the stamped shop drawings, provide design wind speed and the details for building the poles and mast arms, including: materials specifications, slip fit joint dimensions, pole component dimensions, welds that will be made, and the welding inspection that will be done.

   Submit the mill certifications for the steel items (piles, plates, bolts, and other related items) to the Engineer for approval.

   Design poles for 100 mph winds with a 1.3 gust factor.

   Design each electrolier to support a sign with an area of 16 square feet with its centroid located 14 feet above the base of the pole.

2. Fabrication. Fabricate signal and lighting structures from tapered steel tubes with a round or 16 sided cross section. Orient hand holes located near the base of poles to face downstream of traffic flow.

   Provide traffic signal poles, lighting poles, and signal mast arms in lengths evenly divisible by 5 feet.

Furnish poles and mast arms up to 40 feet long in one piece. Poles and mast arms longer than 40 feet may be furnished in one piece or in two segments with a slip type field splice. For slip type joints, provide a minimum overlap of two feet or 1.5 times the inside diameter of the female section whichever is larger. In mast arms, locate these splices at least one foot away from the Plan location of signal heads and signs. In signal poles, locate the edge of the female section at least 6 inches above the top of the signal mast arm connection.

Fabricate tubes with walls up to ½ inch thick from the prequalified base metals listed in AWS D1. Fabricate elements greater than ½ inch thick from steel that conforms to ASTM A 709 and meets the Fracture Critical Impact Test requirements for zone 3. The Department will not accept structures that contain or are made with laminated steel elements.

Fabricate each tube from no more than 2 pieces of steel. When using 2 pieces, place the longitudinal welded seams directly opposite one another. Place the welded seams on adjacent sections to form continuous straight seams from the base to the top of the pole.

When tenons are needed to install traffic signals and luminaires, make them from two inch nominal schedule 40 pipe that conforms to ASTM A 53 Grade B.

Fabricate 10 feet long signal posts from 11 US Standard Gage sheet steel. Fabricate each post with a minimum inside diameter of five inches at the base plate. Use a 3½-inch long piece of four inch nominal schedule 40 pipe that conforms to ASTM A 53 Grade B as a post-top adapter.

The Department does not allow holes made for lifting purposes in the ends of tubular segments, except in the free ends of luminaire mast arms. To add lift points, weld them to the tube opposite the longitudinal seam weld on the outside of female segments and on the inside of male segments. Before shipment, remove lift points added to the outside of the tubes, grind the area smooth with the base metal, and hot stick repair the finish according to subsection 660-3.01.8.a. Lift points added to the inside of tubes in place may be left in place.

Hot dip galvanize lighting and signal structures to meet AASHTO M 111 and these specifications. Completely submerge pole and mast arm segments in one dip in a kettle of concentrated zinc ammonium chloride flux solution heated to 130 °F, then completely submerge in one dip in a separate kettle of prime western grade zinc heated to approximately 825 °F. Galvanize bolts and fasteners to meet AASHTO M 232.

After the poles and mast arms are galvanized, remove all excess zinc from all drip lines and points and the surfaces of all tube ends that form slip type joints to provide a smooth finish.

The Department will reject poles and mast arms that are:

a. Not fabricated according to these specifications or the approved shop drawings,

b. Bowed with sweeps exceeding ¾ inch throughout the length of the pole, mast arm, or segment, if furnishing a 2 piece pole or mast arm,

c. Out of round. Sections are out of round when the diameters of round members or the dimension across the flats of multisided members exceed 2 percent of the dimension specified on the shop drawings.

Fabricate pile cap adapters from grade X42 steel line pipe that conforms to API 5L and from steel plate that conforms to ASTM A 709 Grade 50. Attach the anchor plate to the pile section with a complete joint penetration (CJP) weld. Fabricate the anchor plate to match the base plate of the lighting standard.

3. Welding. Perform welding to conform to subsection 504-3.01 8. Welding and the following:

a. Make welds continuous. Grind exposed welds flush with the base metal at slip joints, the length of the slip fit joint plus on half diameter of the female section.

b. Use partial joint penetration (PJP) welds in longitudinal seams. PJP welds must provide at least 60% penetration.

c. Use CJP groove welds to connect base plates to tubes with walls 5/16 inch thick and thicker. When CJP groove welds are used, the designer may use additional fillet welds when deemed necessary.

d. Use socket type joints with two fillet welds to connect base plates to tubes with walls less than 5/16 of an inch thick.

e. On steels 5/16 of an inch thick and thicker, inspect 100 Percent of CJP welds by either radiography (RT) or ultrasound (UT).

f. Inspect a random 25 percent of PJP and fillet welds by magnetic particle (MT). If a defect is found, inspect 100% of the PJP and fillet welds made to fill the order. In steels less than 1/8 inch thick, complete the tests according to AWS D1.3.

g. Only visually inspect welds made on luminaire mast arms.

4. Miscellaneous. Finish the edges of poles and mast arms to conform to the following requirements. Before hot dip galvanizing, neatly round the following features to the radius specified

a. On holes through which electrical conductors pass, provide a 1/16 inch radius on both the entrance and exit edges,

b. On pole base plates, provide a 1/8 inch radius on edges along which plate thickness is measured and a smooth finish on all other exposed edges,

c. On the ends of tubes that form slip type joints, complete the following tasks on the two surfaces that contact one another. First, provide 1/16 inch radii on the inside and outside edges of the female and male segments, respectively. Then for the length of the joint plus 6 inches grind down welds until they feature a radius concentric with the mating surface and remove material protruding from the two surfaces, and

d. Grind exposed welds flush with the base metal, except fillet welds and seam welds on top of mast arms. Grinding seam welds on multisided poles is not required, except in slip type joints.

Provide caps to cover the free ends of poles and mast arms.

Identify critical information for poles and arms with visible permanent aluminum tags that contain the information shown in Table 740-1. The measurements shown are for illustration purposes only. Use tags large enough to include required information using ¼ inch high text, 3/8 inch of space between successive lines of text, and at least 3/8 inch of space between the edges of the tag and the text. Secure the tags with two 1/8 inch blind rivets at the base of poles and the under side of mast arms. If furnishing a two piece signal mast arm with slip type joint, mark both pieces with the same message.

TABLE 740-1

POLE MARKINGS

Note: *Italic type indicates additional Tag Markings if poles have 2 luminaire or 2 signal mast arms.*

	MEASUREMENTS	TAG MARKINGS
Signal Poles		
a) Signal mast arm length	45 ft./*55 ft.*	SMA 45/*SMA 55*
b) Luminaire mast arm length	22 ft./*18 ft.*	LMA 22/*LMA 18*
c) Pole height	36 ft.	PH 36
d) Intersection number (if more than one) -pole number		1 - P 4
e) Sum of signal mast arm moments about centerline of signal pole		SM 4000/*SM 3200*
f) Design wind speed	100 mph	DWS 100
Light Poles		
a) Luminaire mast arm length	15 ft./*15 ft.*	LMA 15/*LMA 15*
b) Pole height	37 ft.	PH 37
Signal Mast Arm		
a) Mast arm length	40 ft.	SMA 40
b) Intersection number (if more than one) -pole number		1 - P 4
c) Sum of signal mast arm moments about centerline of signal pole		SM 3740

TABLE 740-1 POLE MARKINGS		
Note: *Italic type indicates additional Tag Markings if poles have 2 luminaire or 2 signal mast arms.*		
	MEASUREMENTS	**TAG MARKINGS**
d) Design wind speed	100 mph	DWS 100
Luminaire Mast Arm		
a) Mast arm length	18 ft.	LMA 18
b) Pole number (if unique arm design)		P 4

740-2.05 CONDUCTORS. Replace Table 740-2 with the following:

TABLE 740-2
CONDUCTOR TERMINATION TABLE

CONDUCTORS PER CABLE	CIRCUIT	WIRE COLOR	AWG. NO.	BAND LEGEND
7	Vehicle Red Vehicle Yellow Vehicle Green Common Neutral Spare Spare Spare	Red Orange Green White White/Black Black Blue	14	Head No.
7	Vehicle Red Arrow Vehicle Yellow Arrow Vehicle Green Arrow Common Neutral Spare Spare Spare	Red Orange Green White White/Black Black Blue	14	Head No.
7	Vehicle Red Vehicle Yellow Vehicle Green Common Neutral Spare Vehicle Yellow Arrow Vehicle Green Arrow	Red Orange Green White White/Black Black Blue	14	Head No.
5	Pedestrian Don't Walk Pedestrian Walk Common Neutral Spare Spare	Red Green White Orange Black	14	Head No.
3	Pedestrian Pushbutton Neutral Spare	Black White Red	14	Head No.
5	Photo Electric Control Load to Contactor Neutral Spare	Black Red White Orange	14	PEC
3	Flashing Beacon Neutral Spare	Black White Red	14	Head No.

TABLE 740-2
CONDUCTOR TERMINATION TABLE

CONDUCTORS PER CABLE	CIRCUIT	WIRE COLOR	AWG. NO.	BAND LEGEND
3	Preemption Neutral Spare	Per Manufacturer Wiring Instruction	20	"PRE"
3	Preemption Confirmation Neutral Spare	Black White Red	14	"PRECON"
3	Highway Luminaire Highway Luminaire Highway Luminaire Spare	Black Red White	8 or 6	Circuit No. Circuit No.
3	Service to Controller Neutral Spare	Black White Red	6 or 4	"SIG" No Band No Band
3	Sign Luminaire Sign Luminaire Sign Spare	Black Red White	8	SIGN SIGN

Replace Item 7. with the following:

7. Detector Loops. Use No. 14 AWG conductors for detector inductive loops that meet IMSA Specification 51-3, Type RHW/USE, or IMSA Specification 51-5, when called for on the Plans or specified in the Special Provisions.

Replace subsection 740-2.06 with the following:

740-2.06 ELECTRICAL CONDUIT AND FITTINGS. Unless specified otherwise, use rigid metal conduit and fittings for raceways. Furnish galvanized rigid type conduit and elbows that conform to UL-6 and are manufactured of mild steel according to ANSI C80.1. Furnish third party certified fittings designed for rigid metal conduit.

For loop detectors, use Schedule 80 polyvinyl chloride (PVC) conduit that conforms to UL-651. Use PVC fittings meeting NEMA TC 3.

When polyethylene conduits are specified in the Plans, use a smooth wall, schedule 40, high-density polyethylene (HDPE) pipe that conforms to UL 651 B.

Furnish insulated throat grounding bushings made of malleable iron or steel with a mechanically galvanized or zinc plated finish. Grounding lugs shall either be an integral part of the bushing or consist of an attached tin plated copper saddle. Grounding lugs shall feature a stainless steel screw, the centerline of which falls within 20 degrees of conduit centerline. The bushings

furnished shall also feature a stainless steel or brass mounting screw that locks the bushing onto the conduit end.

Furnish conduit outlet bodies and their covers with a hot dip galvanized finish and stainless steel screws. For loop detectors, furnish type X bodies and, for photoelectric control installation, furnish types C and LB conduit bodies.

When Myers hubs are specified, furnish rain tight, grounding type hubs made of malleable iron with a hot dip or mechanically galvanized finish.

At expansion joints, provide watertight expansion fittings capable of the following movements without damaging the conduits attached to it or the conductors that pass through it. The movements include: axial expansion or contraction to ¾ inch, angular misalignments in any direction to 30 degrees, and parallel misalignment of the conduits to ¾ inch. The fittings shall also include a braided copper bonding jumper equal to an 8 AWG conductor, bushings to prevent scraping the conductors, and a smooth inner sleeve that maintains a constant diameter regardless of conduit alignment.

740-2.11 CONTROLLER CABINET.

Replace bullet (e) of subpart (3) Field Terminal Blocks of subitem c. Cabinet Wiring. of item 1. Standard Features. : On the right side of controller cabinets, install two 16 position bus bars, for terminating the equipment grounding and neutral conductors used inside the cabinets. On the left side of the controller cabinets, install two 32 position bus bars, for terminating the equipment grounding and neutral conductors from field wiring.

Replace the first three sentences of subpart (5) Light Fixture. of subitem D. Cabinet Accessories. of item 1. Standard Features. with the following : Mount a third party certified, incandescent luminaire on the inside of each cabinet near the top edge of the door opening. Install white porcelain, surface mounted lamp holders that fit medium base lamps and are rated for a minimum 600 watts and 250 volts ac. Furnish each lamp holder with a 100 watt soft white incandescent lamp.

740-2.12 STANDARD AUXILIARY EQUIPMENT. Under item 3. Conflict Monitors, add the following:

d. Supply conflict monitors with an RS-232 serial port that allows the monitor to download information through an external dial up modem or to a personal computer using the Microsoft Windows NT operating system.

740-2.13 SPECIAL AUXILIARY EQUIPMENT. Add the following items:

6. Opticom Priority Control System. Install the following components of the 3M Company's Opticom Priority Control System according to 3M's written installation instructions at the signalized intersections listed on the Plans.

Install the quantity of model 711, 721, and 722 optical detectors on the signal pole mast arms shown on the Plans. Before installing the detectors, gain approval of their final lateral location from the Engineer. See the Plans for installation details.

Install Model 138 Optical detector lead in cable between the end of each signal mast arm and the controller cabinet. Furnish enough slack in these cables for them to extend 2 feet beyond the end of each signal mast arm and to leave 10 feet of slack in the controller cabinet. Seal both ends of each lead in cable with mastic lined, heat shrink tubing end caps.

Before attaching the conductors to the optical detectors, strip the insulation for the conductors and attach four conductors to ground in the controller cabinet. Attach the signal cable to the confirmation light. The Municipality of Anchorage Signal Maintenance Section (MOA Signal Maintenance) will tie down the conductors in the controller cabinet under Item 660(26) Signal Timings and Adjustments.

Furnish each controller cabinet with a Model 754 phase selector, a Model 760 card rack, and an Opticom Panel Assembly, U.S. Traffic Corporation part number 103303. The panel assembly interfaces the card rack to the controller cabinet. Furnish new controller assemblies with these parts installed by the controller assembly manufacturer. To retrofit existing controller assemblies, deliver the parts to MOA Signal Maintenance, who will install the parts under Item 660(26) Signal Timings and Adjustments.

Emergency preemption communication equipment shall be Actelis Intelligent Transportation Systems equipment. Submit equivalent substitutions to the Traffic Engineer for testing and approval prior to installation.

Provide and install one Actelis Intelligent Transportation Systems model ML688 with 4x10/100M copper Ethernet ports and a 100Base-FX optical SFP port or equivalent in each controller assembly. Submit equivalent substitutions to the Traffic Engineer for testing and approval prior to installation.

740-2.14 VEHICULAR SIGNAL HEADS. Replace the first sentence of Item 1. b. with the following:

Use red, yellow, and green LED signal modules that meet the requirements of Chapter 2a of *Equipment and Material Standards of the ITE* (Publication ST-0017A), Vehicle Traffic Control Signal Heads (VTCHS2), and the following:

Replace item 4 with the following and add item 5:

4. Backplates. Backplates shall not be louvered. Install backplates around vehicular signal faces except post-mounted flashers. Furnish backplates constructed of 0.063 inch minimum thickness aluminum alloy sheet meeting ASTM B 209, alloy 3003-H14. For those backplates fabricated from 2 or more pieces of sheeting, furnish them fastened together with 3/16" aluminum rivets or bolts peened after assembly.

For traffic signals that consist of all 8 inch or all 12 inch signal sections, furnish 5 or 5½ inch wide backplates regardless of where the signals are installed, for example on mast arms, on top of posts, or on the sides of poles.

For traffic signals that consist of combinations of vertically stacked 8 and 12 inch signal sections, furnish backplates with nominal borders of 8 inch for the 8 inch sections and 5 inch for 12 inch sections.

Furnish backplates with the back and front faces factory finished with 2 coats of dark olive green enamel and 2 coats of flat black enamel, respectively.

5. Signal Mounting Hardware: Furnish elevator plumbizers, elbow pipe fittings, and post top adapters (without a terminal compartment) with integral serrated contacts that feature 72 teeth.

Provide signal heads that will be mounted on mast arms or pipe tenons with ferrous or bronze elevator plumbizers.

For signal faces installed on the sides of poles, furnish signal frames that consist of watertight assemblies of 1½ inch nominal diameter standard steel pipe, malleable iron or brass pipe fittings, and bronze terminal compartments. The side of the terminal compartment opposite the door shall feature a saddle shape for wobble free mounting on round poles and include a cable guide and two holes for mounting the compartment.

Furnish vehicular signal frames with a horizontal dimension between the center of the terminal compartment and the axis of the adjacent signal face of 22 inches in side mounted frames and 11 inches in post top installations.

Post top adapters shall slip fit over 4 inch nominal standard pipe and feature two rows of three cadmium plated steel setscrews. Furnish post top adapters with terminal compartments, except one way signal heads may be installed on adapters without a terminal compartment provided the adapters include offset openings. Provide post top adapters without a terminal compartment made of cast iron.

Furnish terminal compartments with a terminal block containing 12 poles, each with two screw type terminals. Each terminal must accommodate at least three 14 AWG conductors. Provide terminal compartments with a rain tight door that provide ready access to the terminal block.

For mounting each terminal compartment, furnish two ½" x 13 hot dip galvanized bolts that conform to ASTM A 325 and two ½" hot dip galvanized washers that conform to ASTM F 436.

740-2.15 PEDESTRIAN SIGNALS. Add the following as item 12: Furnish pedestrian signals side mounted on poles with a 2 piece, hinge connected, cast aluminum clamshell bracket that mounts directly between the pole and the side of the housing. The bracket shall fit round poles

with outside diameters of 4.5 inches and greater without wobbling and allow a minimum rotation of ±15 degrees when mounted on a 4.5 inch O.D. pole. The bracket shall feature a rain-tight terminal compartment and include a 3 position terminal block. Installed, the bracket shall take less than three inches of space between the housing and pole.

For mounting each clamshell bracket, furnish two ½" x 13 hot dip galvanized bolts that conform to ASTM A 325 and two spacers provided by the bracket manufacturer.

Replace subsection 740-2.17 with the following:

740-2.17 FLASHING BEACONS. Furnish beacons that consist of one or more traffic signal sections meeting the requirements of subsection 740-2.14 Vehicular Signal Heads. See the Plans for the number, size and color of the signal sections required for each beacon.

Use the flasher in signal controller cabinets to energize beacons that flash continuously and are installed near traffic signals. Otherwise, each flashing beacon controller assembly consists of the following 120 volt ac equipment housed in a NEMA 3R enclosure: a circuit breaker, a radio interference suppressor, a transient voltage suppressor, a NEMA type 3 flasher, neutral and ground busses, and terminal blocks.

Controller assemblies for school zone speed limit sign beacons shall also include a time switch and a second 120 volt ac circuit breaker that protects a thermostat and heater.

The NEMA 3R enclosure shall feature a single shelf and a top hinged cover with a hasp and staple for sealing and locking the cabinet door.

The radio interference and transient voltage suppressors shall meet the requirements of subsections 740-2.11.1.d.(3) and (4), respectively.

Use a solid state NEMA Type 3 flasher meeting the requirements of NEMA Standard TS 1-1989, Traffic Control Systems.

Use 20 ampere, 600 volt barrier type phenolic terminal blocks with plated brass screw type terminals and integral strips can be marked with a pen or pencil.

Furnish an RTC Manufacturing model AP41-L time switch complete with wiring harness, or an approved, calendar programmable, solid-state time switch with liquid crystal display, keyboard, input/output port, and wiring harness. The approved time switch shall:

1. Operate on line voltages from 95 to 135 volts ac, operate in temperatures from -22° F to 165° F, and include a capacitor that provides 48 hours of backup power to retain programming and time when the unit is disconnected from ac voltage.
2. Include a backlit display and provide 2 lines of alphanumeric legend with 16 characters per line. The display shall automatically prompt the operator while programming the device through the keyboard for ease of use.

3. Include an input/output port and keyboard activated special functions that transfer the program to other units and download the program to a printer for a hard copy record of the program.
4. Automatically compensate for changes in Daylight Savings Time and leap years and include a keyboard activated special function to quickly change the dates for the begin and end of Daylight Savings Time.
5. Provide at least 10 basic plans for daily and/or weekly use and at least 200 program steps that are equally divided amongst the actual number of basic plans. Each program step shall be assignable to a single day, weekend, weekday, or every day. The time switch shall also include 20 plans that activate the basic plans to provide one year of time based control.
6. Include at least 4 single pole double throw, relay controlled outputs rated for 15 amperes of resistive load at 115 volts ac. Each pole shall be independently activated for steady on or momentary on and be manually switched on through the keyboard.

When a signal controller cabinet flasher is used to energize a beacon, furnish a two pole, fused block with built in fuse pullers to protect the flasher. Furnish third party certified blocks that hold 13/32" x 1-1/2" midget ferrule fuses, are rated for 30 amperes, and feature tubular screw terminals that accommodate conductors to 8 AWG. Furnish blocks with two fast acting, 3 ampere (BAF-3) fuses and flat bases that can be directly mounted on a dead panel.

Replace subsection 740-2.18 with the following:

740-2.18 ROADWAY LUMINAIRES. Furnish luminaires that conform the following specifications and provide the light distributions specified. When luminaire performance criteria are specified, luminaires shall also:

- Meet or exceed the minimum initial light levels indicated.
- Provide light distribution uniformity ratios and veiling luminance ratios equal to or less than the maximums indicated.

When luminaire performance criteria are specified, submit the following information for each luminaire type and light distribution type specified: luminaire specifications, the lumen output of the lamps that will be furnished, and current electronic photometric data to the Engineer for approval. Furnish the photometric data in Illuminating Engineering Society (I.E.S.) format. The Engineer will use software that calculates light levels and uniformity ratios according to the American National Standard Practice for Roadway Lighting, A.N.S.I./I.E.S RP-8 to verify each luminaire provides the light levels, uniformities, and veiling luminance ratios specified.

When cut off distributions are specified, furnish luminaires with flat glass lenses and a full cutoff light distribution as defined in the American National Standard Practice for Roadway Lighting, A.N.S.I./I.E.S RP-8, dated 2000.

Furnish each luminaire with a high pressure sodium lamp of the wattage specified and matching ballast with an input voltage equal to circuit voltage. Furnish lamps that feature a rated life of 24,000 hours based on 10 hours per start and ballasts that conform to subsection 740-2.21.

Luminaries General

Install luminaires that feature:

1. Corrosion resistant enclosures with gray paint finish and space for the ballast.
2. Third party certification for use in wet locations.
3. Glass lenses, unless polycarbonate resin refractors are specified.
4. Terminal blocks for attaching the illumination tap conductors.
5. Aluminum reflectors with an ALZAK or ALGLAS finish.
6. Optical components free of substances that affect photometric performance, e.g. paint.
7. Housings cast with no provision for a photoelectric control receptacle.
8. Airtight reflector and lens units that breathe through activated charcoal filters and include elastomer gaskets to seal the gap between the two components. Gasket material must withstand the temperatures involved and be securely held in place.
9. Plug in starting aids in fixtures with lamps through 400 watts.

Luminaries – Cobrahead

Each cobrahead luminaire shall also include:

1. An easily removed hinged door used exclusively for mounting the ballast.
2. A second door that frames the lens, hinges on the house side, and fastens on the street side with an automatic type latch.
3. A four bolt mounting brackets that fit 2 inch nominal diameter standard pipe and feature a center pivot for leveling the luminaire.

Offset luminaires shall also include knuckle style pole top adapters that are sized to fit 2 inch nominal diameter standard pipe and feature a wire way meeting NEC requirements for installing three size 10 AWG conductors between the pole and the terminal block located in the luminaire.

Lenses.

When polycarbonate resin lenses are specified, furnish lenses the fabricator certifies conforms to the following criteria.

1. The lenses are molded in a single piece from virgin polycarbonate resin.
2. The lenses are free from cracks, blisters, burns, and flow lines, and furnished with the natural molded surface.
3. The lenses are of uniform density throughout and free from air, gas, or moisture pockets, and uncured areas.
4. The lenses are transparent with a clear bluish tint, produced from ultraviolet stabilized resin to reduce the effects of ultraviolet radiation on their color properties.
5. The resins used meet the requirements for the self extinguishing classification of ASTM D 635 and feature a minimum impact strength, Izod notched of 12 foot pounds per inch when tested according to ASTM D 256, Method A, using a 1/8 inch by ½ inch bar molded according to ASTM recommended practice.

Delete subsection 740-2.20, Illumination Control, in its entirety.

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Standard Modification

INDEX Remove the text. "*Approved Products List*" *and replace with*: *Qualified Products List*

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