



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

**Division of Facilities Construction and Management**

**DFCM**

## **STANDARD LOW BID PROJECT**

**September 14, 2009**

# **PAVING IMPROVEMENTS SPRINGVILLE FISH HATCHERY**

## **DIVISION OF WILDLIFE RESOURCES SPRINGVILLE, UTAH**

DFCM Project Number 09162520

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Technical Specifications:  
Drawings:

Current copies of the following documents are hereby made part of these contract documents by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov/StdDocs/index.html> "Standard Documents" – "Reference Documents I" – "Item 6. Supplemental General Conditions" or are available upon request from DFCM:

**DFCM Supplemental General Conditions dated July 1, 2009 \***  
DFCM Supplemental General Conditions dated July 15, 2008  
DFCM General Conditions dated May 25, 2005  
DFCM Application and Certification for Payment dated May 25, 2005.

**\* NOTE: THE NEW SUPPLEMENTAL GENERAL CONDITIONS EFFECTIVE JULY 1, 2009 ADDRESSING HEALTH INSURANCE AND IMMIGRATION ARE REFERENCED AT THE LINK ABOVE.**

The Agreement and General Conditions dated May 25, 2005 have been updated from versions that were formally adopted and in use prior to this date. The changes made to the General Conditions are identified in a document entitled Revisions to General Conditions that is available on DFCM's web site at <http://dfcm.utah.gov>

## NOTICE TO CONTRACTORS

Sealed bids will be received by the Division of Facilities Construction and Management (DFCM) for:

**PAVING IMPROVEMENTS – SPRINGVILLE FISH HATCHERY**  
**DIVISION OF WILDLIFE RESOURCES – SPRINGVILLE, UTAH**  
**DFCM PROJECT NO: 09162520**

Bids will be in accordance with the Contract Documents that will be available at 3:00 PM on Monday, September 14, 2009, and distributed in electronic format only on CDs from DFCM, 4110 State Office Building, Salt Lake City, Utah and on the DFCM web page at <http://dfcm.utah.gov>. For questions regarding this project, please contact Lucas V. Davis, DFCM, at 801-538-3791. No others are to be contacted regarding this bidding process. The construction estimate for this project is \$75,000.

A **mandatory** pre-bid meeting will be held at 10:00 AM on Wednesday, September 16, 2009 at the Springville Fish Hatchery, 1000 North Main Street, Springville, Utah. All bidders wishing to bid on this project are required to attend this meeting.

Bids will be received until the hour of 3:00 PM on Monday, September 28, 2009 at DFCM, 4110 State Office Building, Salt Lake City, Utah 84114. Bids will be opened and read aloud in the DFCM Conference Room, 4110 State Office Building, Salt Lake City, Utah. NOTE: Bids must be received at 4110 State Office Building by the specified time.

A bid bond in the amount of five percent (5%) of the bid amount, made payable to the Division of Facilities Construction and Management on DFCM's bid bond form, shall accompany the bid.

The Division of Facilities Construction and Management reserves the right to reject any or all bids or to waive any formality or technicality in any bid in the interest of DFCM.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT  
Marla Workman, Contract Coordinator  
4110 State Office Building, Salt Lake City, Utah 84114

## **PROJECT DESCRIPTION**

This project will be a 2” overlay with geotextile fabric on all existing asphalt at the Springville Fish Hatchery as shown on the drawings and according to the specifications. It is approximately 30,000 sq.ft. in size. It will also include some minor skim patching and re-striping.

**PROJECT SCHEDULE**

<b>PROJECT NAME: PAVING IMPROVEMENTS - SPRINGVILLE FISH HATCHERY</b>				
<b>DIVISION OF WILDLIFE RESOURCES – SPRINGVILLE, UTAH</b>				
<b>DFCM PROJECT NO. 09162520</b>				
<b>Event</b>	<b>Day</b>	<b>Date</b>	<b>Time</b>	<b>Place</b>
Bidding Documents Available	Monday	September 14, 2009	3:00 PM	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site *
<b>Mandatory</b> Pre-bid Site Meeting	Wednesday	September 16, 2009	10:00 AM	Springville Fish Hatchery 1000 North Main Street Springville, UT
Last Day to Submit Questions	Monday	September 21, 2009	2:00 PM	Lucas V. Davis – DFCM Lucasdavis@utah.gov Fax 801-538-3267
Addendum Deadline (exception for bid delays)	Tuesday	September 22, 2009	2:00 PM	DFCM web site *
Prime Contractors Turn In Bid and Bid Bond	Monday	September 28, 2009	3:00 PM	DFCM 4110 State Office Bldg SLC, UT
Sub-contractor List Due	Tuesday	September 29, 2009	3:00 PM	DFCM 4110 State Office Bldg SLC, UT Fax 801-538-3677
Substantial Completion Date	Wednesday	June 30, 2010		

\* **NOTE:** DFCM's web site address is <http://dfcm.utah.gov>



## BID FORM

NAME OF BIDDER \_\_\_\_\_ DATE \_\_\_\_\_

To the Division of Facilities Construction and Management  
4110 State Office Building  
Salt Lake City, Utah 84114

The undersigned, responsive to the "Notice to Contractors" and in accordance with the "Instructions to Bidders", in compliance with your invitation for bids for the **PAVING IMPROVEEMNTS – SPRINGVILLE FISH HATCHERY – DIVISION OF WILDLIFE RESOURCES – SPRINGVILLE, UTAH – DFCM PROJECT NO. 09162520** and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: \_\_\_\_\_

For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_ )  
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by **June 30, 2010**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$250.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of \_\_\_\_\_

The undersigned Contractor's License Number for Utah is \_\_\_\_\_

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in the Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract.

The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within the time set forth.

Type of Organization:

\_\_\_\_\_  
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

\_\_\_\_\_

Respectfully submitted,

\_\_\_\_\_  
Name of Bidder

ADDRESS:

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

# INSTRUCTIONS TO BIDDERS

## 1. Drawings and Specifications, Other Contract Documents

Drawings and Specifications, as well as other available Contract Documents, may be obtained as stated in the Invitation to Bid.

## 2. Bids

Before submitting a bid, each contractor shall carefully examine the Contract Documents, shall visit the site of the Work; shall fully inform themselves as to all existing conditions and limitations; and shall include in the bid the cost of all items required by the Contract Documents. If the bidder observes that portions of the Contract Documents are at variance with applicable laws, building codes, rules, regulations or contain obvious erroneous or uncoordinated information, the bidder shall promptly notify the DFCM Representative and the necessary changes shall be accomplished by Addendum.

The bid, bearing original signatures, must be typed or handwritten in ink on the Bid Form provided in the procurement documents and submitted in a sealed envelope at the location specified by the Invitation to Bid prior to the deadline for submission of bids.

A bid bond properly signed by a qualified surety, as indicated on the DFCM Bid Bond form provided along with this Instruction to Bidders, in the amount of 5% of the bid, shall accompany the bid submission to DFCM. **THIS BID BOND MUST BE ON THE DFCM BID BOND FORM PROVIDED WITH THIS INSTRUCTION TO BIDDERS IN ORDER TO BE CONSIDERED AN ACCEPTABLE BID** unless only one bid is received by DFCM, or the failure to comply with the bid bond requirements is determined by the Director of DFCM to be nonsubstantial based on the following:

- (a) the bid bond is submitted on a form other than DFCM's required Bid Bond form and the bid bond meets all other requirements including being issued by a surety firm authorized to do business in the State of Utah and be listed in the U.S. Department of the Treasury Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies for an amount not less than the amount of the bond to be issued. A co-surety may be utilized to satisfy this requirement; and
- (b) the contractor provides a bid bond properly signed by a qualified surety and on the required DFCM Bid Bond form by the close of business of the next succeeding business day after the DFCM notifies the bidder of the defective bid bond.

## 3. Contract and Bond

The Contractor's Agreement will be in the form found in the specifications. The Contract Time will be as indicated in the bid. The successful bidder, simultaneously with the execution of the Contract Agreement, will be required to furnish a performance bond and a payment bond, both bearing original signatures, upon the forms provided in the procurement documents. The performance and payment bonds shall be for an amount equal to one hundred percent (100%) of the contract sum and secured from a company that meets the requirements specified in the requisite forms. Any bonding requirements for subcontractors will be specified in the Supplementary General Conditions.

**4. Listing of Subcontractors**

Listing of Subcontractors shall be as summarized in the “Instructions and Subcontractor’s List Form”, which are included as part of these Contract Documents. The Subcontractors List shall be delivered to DFCM or faxed to DFCM at 801-538-3677 within 24 hours of the bid opening. Requirements for listing additional subcontractors will be listed in the Contract Documents.

DFCM retains the right to audit or take other steps necessary to confirm compliance with requirements for the listing and changing of subcontractors. Any contractor who is found to not be in compliance with these requirements is subject to a debarment hearing and may be debarred from consideration for award of contracts for a period of up to three years.

**5. Interpretation of Drawings and Specifications**

If any person or entity contemplating submitting a bid is in doubt as to the meaning of any part of the drawings, specifications or other Contract Documents, such person shall submit to the DFCM Project Manager a request for an interpretation thereof. The person or entity submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addenda posted on DFCM’s web site at <http://dfcm.utah.gov>. Neither the DFCM nor A/E will be responsible for any other explanations or interpretations of the proposed documents. A/E shall be deemed to refer to the architect or engineer hired by DFCM as the A/E or Consultant for the Project.

**6. Addenda**

Addenda will be posted on DFCM’s web site at <http://dfcm.utah.gov>. Contractors are responsible for obtaining information contained in each addendum from the web site. Addenda issued prior to the submittal deadline shall become part of the bidding process and must be acknowledged on the bid form. Failure to acknowledge addenda may result in disqualification from bidding.

**7. Award of Contract**

The Contract will be awarded as soon as possible to the lowest, responsive and responsible bidder, based on the lowest combination of base bid and acceptable prioritized alternates, provided the bid is reasonable, is in the interests of the State of Utah to accept and after applying the Utah Preference Laws in U.C.A. Title 63, Chapter 56. DFCM reserves the right to waive any technicalities or formalities in any bid or in the bidding. Alternates will be accepted on a prioritized basis with Alternate 1 being highest priority, Alternate 2 having second priority, etc.

**8. DFCM Contractor Performance Rating**

As a contractor completes each DFCM project, DFCM, the architect/engineer and the using agency will evaluate project performance based on the enclosed “DFCM Contractor Performance Rating” form. The ratings issued on this project will not affect this project but may affect the award on future projects.

**9. Licensure**

The Contractor shall comply with and require all of its subcontractors to comply with the license laws as required by the State of Utah.

**10. Permits**

In concurrence with the requirements for permitting in the General Conditions, it is the responsibility of the Contractor to obtain the fugitive dust plan requirements from the Utah Division of Air Quality and the SWPPP requirements from the Utah Department of Environmental Quality and submit the completed forms and pay any permit fee that may be required for this specific project. Failure to obtain the required permit may result in work stoppage and/or fines from the regulating authority that will be the sole responsibility of the Contractor. Any delay to the project as a result of any such failure to obtain the permit or noncompliance with the permit shall not be eligible for any extension in the Contract Time.

**11. Right to Reject Bids**

DFCM reserves the right to reject any or all Bids.

**12. Time is of the Essence**

Time is of the essence in regard to all the requirements of the Contract Documents.

**13. Withdrawal of Bids**

Bids may be withdrawn on written request received from bidder prior to the time fixed for opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened.

**14. Product Approvals**

Where reference is made to one or more proprietary products in the Contract Documents, but restrictive descriptive materials of one or more manufacturer(s) is referred to in the Contract Documents, the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the drawings and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the A/E. Such written approval must occur prior to the deadline established for the last scheduled addenda to be issued. The A/E's written approval will be in an issued addendum. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design as determined by the A/E.

**15. Financial Responsibility of Contractors, Subcontractors and Sub-subcontractors**

Contractors shall respond promptly to any inquiry in writing by DFCM to any concern of financial responsibility of the contractor, subcontractor or sub-subcontractor.

**16. Debarment**

By submitting a bid, the Contractor certifies that neither it nor its principals, including project and site managers, have been, or are under consideration for, debarment or suspension, or any action that would exclude such from participation in a construction contract by any governmental department or agency. If the Contractor cannot certify this statement, attach to the bid a detailed written explanation which must be reviewed and approved by DFCM as part of the requirements for award of the Project.



**Division of Facilities Construction and****INSTRUCTIONS AND SUBCONTRACTORS LIST FORM**

The three low bidders, as well as all other bidders that desire to be considered, are required by law to submit to DFCM within 24 hours of bid opening a list of **ALL** first-tier subcontractors, including the subcontractor's name, bid amount and other information required by Building Board Rule and as stated in these Contract Documents, based on the following:

**DOLLAR AMOUNTS FOR LISTING**

**PROJECTS UNDER \$500,000: ALL FIRST-TIER SUBS \$20,000 OR OVER MUST BE LISTED**  
**PROJECTS \$500,000 OR MORE: ALL FIRST-TIER SUBS \$35,000 OR OVER MUST BE LISTED**

- Any additional subcontractors identified in the bid documents shall also be listed.
- The DFCM Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law.
- List subcontractors for base bid as well as the impact on the list that the selection of any alternate may have.
- Bidder may not list more than one subcontractor to perform the same work.
- If there are no subcontractors for the job that are required to be reported by State law (either because there are no subcontractors that will be used on the project or because there are no first-tier subcontractors over the dollar amounts referred to above), then you do not need to submit a sublist. If you do not submit a sublist, it will be deemed to be a representation by you that there are no subcontractors on the job that are required to be reported under State law. At any time, DFCM reserves the right to inquire, for security purposes, as to the identification of the subcontractors at any tier that will be on the worksite.

**LICENSURE:**

The subcontractor's name, the type of work, the subcontractor's bid amount, and the subcontractor's license number as issued by DOPL, if such license is required under Utah Law, shall be listed. Bidder shall certify that all subcontractors, required to be licensed, are licensed as required by State law. A subcontractor includes a trade contractor or specialty contractor and does not include suppliers who provide only materials, equipment, or supplies to a contractor or subcontractor.

**'SPECIAL EXCEPTION':**

A bidder may list 'Special Exception' in place of a subcontractor when the bidder intends to obtain a subcontractor to perform the work at a later date because the bidder was unable to obtain a qualified or reasonable bid under the provisions of U.C.A. Section 63A-5-208(4). The bidder shall insert the term 'Special Exception' for that category of work, and shall provide documentation with the subcontractor list describing the bidder's efforts to obtain a bid of a qualified subcontractor at a reasonable cost and why the bidder was unable to obtain a qualified subcontractor bid. The Director must find that the bidder complied in good faith with State law requirements for any 'Special Exception' designation, in order for the bid to be considered. If awarded the contract, the Director shall supervise the bidder's efforts to obtain a qualified subcontractor bid. The amount of the awarded contract may not be adjusted to reflect the actual amount of the subcontractor's bid. Any listing of 'Special Exception' on the sublist form shall also include amount allocated for that work.

**GROUNDS FOR DISQUALIFICATION:**

The Director may not consider any bid submitted by a bidder if the bidder fails to submit a subcontractor list meeting the requirements of State law. Director may withhold awarding the contract to a particular bidder if one or more of the proposed subcontractors are considered by the Director to be unqualified to do the Work or for

**INSTRUCTIONS AND SUBCONTRACTORS LIST FORM**  
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such other reason in the best interest of the State of Utah. Notwithstanding any other provision in these instructions, if there is a good faith error on the sublist form, at the sole discretion of the Director, the Director may provide notice to the contractor and the contractor shall have 24 hours to submit the correction to the Director. If such correction is submitted timely, then the sublist requirements shall be considered met.

**CHANGES OF SUBCONTRACTORS SPECIFICALLY IDENTIFIED ON SUBLIST FORM:**

Subsequent to twenty-four hours after the bid opening, the contractor may change its listed subcontractors only after receiving written permission from the Director based on complying with all of the following criteria.

- (1) The contractor has established in writing that the change is in the best interest of the State and that the contractor establishes an appropriate reason for the change, which may include, but not is not limited to, the following reasons: the original subcontractor has failed to perform, or is not qualified or capable of performing, and/or the subcontractor has requested in writing to be released.
- (2) The circumstances related to the request for the change do not indicate any bad faith in the original listing of the subcontractors.
- (3) Any requirement set forth by the Director to ensure that the process used to select a new subcontractor does not give rise to bid shopping.
- (4) Any increase in the cost of the subject subcontractor work is borne by the contractor.
- (5) Any decrease in the cost of the subject subcontractor work shall result in a deductive change order being issued for the contract for such decreased amount.
- (6) The Director will give substantial weight to whether the subcontractor has consented in writing to being removed unless the Contractor establishes that the subcontractor is not qualified for the work.

**EXAMPLE:**

Example of a list where there are only four subcontractors:

TYPE OF WORK	SUBCONTRACTOR, "SELF" OR "SPECIAL EXCEPTION"	SUBCONTRACTOR BID AMOUNT	CONTRACTOR LICENSE #
ELECTRICAL	ABCD Electric Inc.	\$350,000.00	123456789000
LANDSCAPING	"Self" *	\$300,000.00	123456789000
CONCRETE (ALTERNATE #1)	XYZ Concrete Inc	\$298,000.00	987654321000
MECHANICAL	"Special Exception" (attach documentation)	Fixed at: \$350,000.00	(TO BE PROVIDED AFTER OBTAINING SUBCONTRACTOR)

\* Bidders may list "self", but it is not required.

**PURSUANT TO STATE LAW - SUBCONTRACTOR BID AMOUNTS CONTAINED IN THIS SUBCONTRACTOR LIST SHALL NOT BE DISCLOSED UNTIL THE CONTRACT HAS BEEN AWARDED.**



SUBCONTRACTORS LIST
FAX TO 801-538-3677

PROJECT TITLE: \_\_\_\_\_

Caution: You must read and comply fully with instructions.

Table with 4 columns: TYPE OF WORK, SUBCONTRACTOR, 'SELF' OR 'SPECIAL EXCEPTION', SUBCONTRACTOR BID AMOUNT, CONT. LICENSE #

We certify that:

- 1. This list includes all subcontractors as required by the instructions, including those related to the base bid as well as any alternates.
2. We have listed 'Self' or 'Special Exception' in accordance with the instructions.
3. All subcontractors are appropriately licensed as required by State law.

FIRM: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNED BY: \_\_\_\_\_

NOTICE: FAILURE TO SUBMIT THIS FORM, PROPERLY COMPLETED AND SIGNED, AS REQUIRED IN THESE CONTRACT DOCUMENTS, SHALL BE GROUNDS FOR OWNER'S REFUSAL TO ENTER INTO A WRITTEN CONTRACT WITH BIDDER. ACTION MAY BE TAKEN AGAINST BIDDERS BID BOND AS DEEMED APPROPRIATE BY OWNER. ATTACH A SECOND PAGE IF NECESSARY.

**CONTRACTOR'S AGREEMENT**

FOR:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THIS CONTRACTOR'S AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT, hereinafter referred to as "DFCM", and \_\_\_\_\_, incorporated in the State of \_\_\_\_\_ and authorized to do business in the State of Utah, hereinafter referred to as "Contractor", whose address is \_\_\_\_\_.

WITNESSETH: WHEREAS, DFCM intends to have Work performed at \_\_\_\_\_.

WHEREAS, Contractor agrees to perform the Work for the sum stated herein.

NOW, THEREFORE, DFCM and Contractor for the consideration provided in this Contractor's Agreement, agree as follows:

**ARTICLE 1. SCOPE OF WORK.** The Work to be performed shall be in accordance with the Contract Documents prepared by \_\_\_\_\_ and entitled "\_\_\_\_\_."

The DFCM General Conditions ("General Conditions") dated May 25, 2005 and Supplemental General Conditions dated July 15, 2008 and July 1, 2009 ("also referred to as General Conditions") on file at the office of DFCM and available on the DFCM website, are hereby incorporated by reference as part of this Agreement and are included in the specifications for this Project. All terms used in this Contractor's Agreement shall be as defined in the Contract Documents, and in particular, the General Conditions.

The Contractor Agrees to furnish labor, materials and equipment to complete the Work as required in the Contract Documents which are hereby incorporated by reference. It is understood and agreed by the parties hereto that all Work shall be performed as required in the Contract Documents and shall be subject to inspection and approval of DFCM or its authorized representative. The relationship of the Contractor to the DFCM hereunder is that of an independent Contractor.

**ARTICLE 2. CONTRACT SUM.** The DFCM agrees to pay and the Contractor agrees to accept in full performance of this Contractor's Agreement, the sum of \_\_\_\_\_ DOLLARS AND NO CENTS (\$\_\_\_\_\_.00), which is the base bid, and which sum also includes the cost of a 100% Performance Bond and a 100%

CONTRACTOR'S AGREEMENT  
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Payment Bond as well as all insurance requirements of the Contractor. Said bonds have already been posted by the Contractor pursuant to State law. The required proof of insurance certificates have been delivered to DFCM in accordance with the General Conditions before the execution of this Contractor's Agreement.

**ARTICLE 3. TIME OF COMPLETION AND DELAY REMEDY.** The Work shall be Substantially Complete by \_\_\_\_\_. Contractor agrees to pay liquidated damages in the amount of \$\_\_\_\_\_ per day for each day after expiration of the Contract Time until the Contractor achieves Substantial Completion in accordance with the Contract Documents, if Contractor's delay makes the damages applicable. The provision for liquidated damages is: (a) to compensate the DFCM for delay only; (b) is provided for herein because actual damages can not be readily ascertained at the time of execution of this Contractor's Agreement; (c) is not a penalty; and (d) shall not prevent the DFCM from maintaining Claims for other non-delay damages, such as costs to complete or remedy defective Work.

No action shall be maintained by the Contractor, including its or Subcontractor or suppliers at any tier, against the DFCM or State of Utah for damages or other claims due to losses attributable to hindrances or delays from any cause whatsoever, including acts and omissions of the DFCM or its officers, employees or agents, except as expressly provided in the General Conditions. The Contractor may receive a written extension of time, signed by the DFCM, in which to complete the Work under this Contractor's Agreement in accordance with the General Conditions.

**ARTICLE 4. CONTRACT DOCUMENTS.** The Contract Documents consist of this Contractor's Agreement, the Conditions of the Contract (DFCM General Conditions, Supplementary and other Conditions), the Drawings, Specifications, Addenda and Modifications. The Contract Documents shall also include the bidding documents, including the Invitation to Bid, Instructions to Bidders/ Proposers and the Bid/Proposal, to the extent not in conflict therewith and other documents and oral presentations that are documented as an attachment to the contract.

All such documents are hereby incorporated by reference herein. Any reference in this Contractor's Agreement to certain provisions of the Contract Documents shall in no way be construed as to lessen the importance or applicability of any other provisions of the Contract Documents.

**ARTICLE 5. PAYMENT.** The DFCM agrees to pay the Contractor from time to time as the Work progresses, but not more than once each month after the date of Notice to Proceed, and only upon Certificate of the A/E for Work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and ninety-five percent (95%) of the value of materials furnished in place or on the site. The Contractor agrees to furnish to the DFCM invoices for materials purchased and on the site but not installed, for which the Contractor requests payment and agrees to

safeguard and protect such equipment or materials and is responsible for safekeeping thereof and if such be stolen, lost or destroyed, to replace same.

Such evidence of labor performed and materials furnished as the DFCM may reasonably require shall be supplied by the Contractor at the time of request for Certificate of Payment on account. Materials for which payment has been made cannot be removed from the job site without DFCM's written approval. Five percent (5%) of the earned amount shall be retained from each monthly payment. The retainage, including any additional retainage imposed and the release of any retainage, shall be in accordance with UCA 13-8-5 as amended. Contractor shall also comply with the requirements of UCA 13-8-5, including restrictions of retainage regarding subcontractors and the distribution of interest earned on the retention proceeds. The DFCM shall not be responsible for enforcing the Contractor's obligations under State law in fulfilling the retention law requirements with subcontractors at any tier.

**ARTICLE 6. INDEBTEDNESS.** Before final payment is made, the Contractor must submit evidence satisfactory to the DFCM that all payrolls, materials bills, subcontracts at any tier and outstanding indebtedness in connection with the Work have been properly paid. Final Payment will be made after receipt of said evidence, final acceptance of the Work by the DFCM as well as compliance with the applicable provisions of the General Conditions.

Contractor shall respond immediately to any inquiry in writing by DFCM as to any concern of financial responsibility and DFCM reserves the right to request any waivers, releases or bonds from Contractor in regard to any rights of Subcontractors (including suppliers) at any tier or any third parties prior to any payment by DFCM to Contractor.

**ARTICLE 7. ADDITIONAL WORK.** It is understood and agreed by the parties hereto that no money will be paid to the Contractor for additional labor or materials furnished unless a new contract in writing or a Modification hereof in accordance with the General Conditions and the Contract Documents for such additional labor or materials has been executed. The DFCM specifically reserves the right to modify or amend this Contractor's Agreement and the total sum due hereunder either by enlarging or restricting the scope of the Work.

**ARTICLE 8. INSPECTIONS.** The Work shall be inspected for acceptance in accordance with the General Conditions.

**ARTICLE 9. DISPUTES.** Any dispute, PRE or Claim between the parties shall be subject to the provisions of Article 7 of the General Conditions. DFCM reserves all rights to pursue its rights and remedies as provided in the General Conditions.

**ARTICLE 10. TERMINATION, SUSPENSION OR ABANDONMENT.** This Contractor's Agreement may be terminated, suspended or abandoned in accordance with the General Conditions.

**ARTICLE 11. DFCM'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE USE THEREOF.** The DFCM may withhold from payment to the Contractor such amount as, in DFCM's judgment, may be necessary to pay just claims against the Contractor or Subcontractor at any tier for labor and services rendered and materials furnished in and about the Work. The DFCM may apply such withheld amounts for the payment of such claims in DFCM's discretion. In so doing, the DFCM shall be deemed the agent of Contractor and payment so made by the DFCM shall be considered as payment made under this Contractor's Agreement by the DFCM to the Contractor. DFCM shall not be liable to the Contractor for any such payment made in good faith. Such withholdings and payments may be made without prior approval of the Contractor and may be also be prior to any determination as a result of any dispute, PRE, Claim or litigation.

**ARTICLE 12. INDEMNIFICATION.** The Contractor shall comply with the indemnification provisions of the General Conditions.

**ARTICLE 13. SUCCESSORS AND ASSIGNMENT OF CONTRACT.** The DFCM and Contractor, respectively bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement, and to partners, successors, assigns and legal representatives of such other party with respect to all covenants, provisions, rights and responsibilities of this Contractor's Agreement. The Contractor shall not assign this Contractor's Agreement without the prior written consent of the DFCM, nor shall the Contractor assign any moneys due or to become due as well as any rights under this Contractor's Agreement, without prior written consent of the DFCM.

**ARTICLE 14. RELATIONSHIP OF THE PARTIES.** The Contractor accepts the relationship of trust and confidence established by this Contractor's Agreement and covenants with the DFCM to cooperate with the DFCM and A/E and use the Contractor's best skill, efforts and judgment in furthering the interest of the DFCM; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the Work in the best and most expeditious and economic manner consistent with the interests of the DFCM.

**ARTICLE 15. AUTHORITY TO EXECUTE AND PERFORM AGREEMENT.** Contractor and DFCM each represent that the execution of this Contractor's Agreement and the performance thereunder is within their respective duly authorized powers.

**ARTICLE 16. ATTORNEY FEES AND COSTS.** Except as otherwise provided in the dispute resolution provisions of the General Conditions, the prevailing party shall be entitled to reasonable attorney fees and costs incurred in any action in the District Court and/or appellate body to enforce this Contractor's Agreement or recover damages or any other action as a result of a breach thereof.



**PERFORMANCE BOND**

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

That \_\_\_\_\_ hereinafter referred to as the "Principal" and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, with its principal office in the City of \_\_\_\_\_ and authorized to transact business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah, hereinafter referred to as the "Obligee," in the amount of \_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, the Principal has entered into a certain written Contract with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, to construct \_\_\_\_\_ in the County of \_\_\_\_\_, State of Utah, Project No. \_\_\_\_\_, for the approximate sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), which Contract is hereby incorporated by reference herein.

**NOW, THEREFORE**, the condition of this obligation is such that if the said Principal shall faithfully perform the Contract in accordance with the Contract Documents including, but not limited to, the Plans, Specifications and conditions thereof, the one year performance warranty, and the terms of the Contract as said Contract may be subject to Modifications or changes, then this obligation shall be void; otherwise it shall remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the state named herein or the heirs, executors, administrators or successors of the Owner.

The parties agree that the dispute provisions provided in the Contract Documents apply and shall constitute the sole dispute procedures of the parties.

**PROVIDED, HOWEVER**, that this Bond is executed pursuant to the Provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**WITNESS OR ATTESTATION:**

\_\_\_\_\_

**PRINCIPAL:**

\_\_\_\_\_

By: \_\_\_\_\_ (Seal)

Title: \_\_\_\_\_

**WITNESS OR ATTESTATION:**

\_\_\_\_\_

**SURETY:**

\_\_\_\_\_

By: \_\_\_\_\_ (Seal)

Attorney-in-Fact

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney in-fact of the above-named Surety Company and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My commission expires: \_\_\_\_\_

Resides at: \_\_\_\_\_

\_\_\_\_\_  
NOTARY PUBLIC

**Agency:** \_\_\_\_\_  
**Agent:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**Phone:** \_\_\_\_\_

Approved As To Form: May 25, 2005  
By Alan S. Bachman, Asst Attorney General

**PAYMENT BOND**

(Title 63, Chapter 56, U. C. A. 1953, as Amended)

**KNOW ALL PERSONS BY THESE PRESENTS:**

That \_\_\_\_\_ hereinafter referred to as the "Principal," and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_ authorized to do business in this State and U. S. Department of the Treasury Listed (Circular 570, Companies Holding Certificates of Authority as Acceptable Securities on Federal Bonds and as Acceptable Reinsuring Companies); with its principal office in the City of \_\_\_\_\_, hereinafter referred to as the "Surety," are held and firmly bound unto the State of Utah hereinafter referred to as the "Obligee," in the amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, the Principal has entered into a certain written Contract with the Obligee, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, to construct \_\_\_\_\_ in the County of \_\_\_\_\_, State of Utah, Project No. \_\_\_\_\_ for the approximate sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), which contract is hereby incorporated by reference herein.

**NOW, THEREFORE**, the condition of this obligation is such that if the said Principal shall pay all claimants supplying labor or materials to Principal or Principal's Subcontractors in compliance with the provisions of Title 63, Chapter 56, of Utah Code Annotated, 1953, as amended, and in the prosecution of the Work provided for in said Contract, then, this obligation shall be void; otherwise it shall remain in full force and effect.

That said Surety to this Bond, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or to the Work to be performed thereunder, or the specifications or drawings accompanying same shall in any way affect its obligation on this Bond, and does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to the Work or to the specifications or drawings and agrees that they shall become part of the Contract Documents.

**PROVIDED, HOWEVER**, that this Bond is executed pursuant to the provisions of Title 63, Chapter 56, Utah Code Annotated, 1953, as amended, and all liabilities on this Bond shall be determined in accordance with said provisions to the same extent as if it were copied at length herein.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**WITNESS OR ATTESTATION:**

\_\_\_\_\_

**PRINCIPAL:**

\_\_\_\_\_

By: \_\_\_\_\_ (Seal)

Title: \_\_\_\_\_

**WITNESS OR ATTESTATION:**

\_\_\_\_\_

**SURETY:**

\_\_\_\_\_

By: \_\_\_\_\_ Attorney-in-Fact (Seal)

STATE OF \_\_\_\_\_ )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared before me \_\_\_\_\_, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, and who, being by me duly sworn, did say that he/she is the Attorney-in-fact of the above-named Surety Company, and that he/she is duly authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations, and that he/she acknowledged to me that as Attorney-in-fact executed the same.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

My commission expires: \_\_\_\_\_  
Resides at: \_\_\_\_\_

NOTARY PUBLIC

**Agency:** \_\_\_\_\_  
**Agent:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**Phone:** \_\_\_\_\_

Approved As To Form: May 25, 2005  
By Alan S. Bachman, Asst Attorney General



CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT \_\_\_\_\_ PROJECT NO: \_\_\_\_\_

AGENCY/INSTITUTION \_\_\_\_\_

AREA ACCEPTED \_\_\_\_\_

The Work performed under the subject Contract has been reviewed on this date and found to be Substantially Completed as defined in the General Conditions; including that the construction is sufficiently completed in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the State of Utah can occupy the Project or specified area of the Project for the use for which it is intended.

The DFCM - (Owner) accepts the Project or specified area of the Project as Substantially Complete and will assume full possession of the Project or specified area of the Project at \_\_\_\_\_ (time) on \_\_\_\_\_ (date).

The DFCM accepts the Project for occupancy and agrees to assume full responsibility for maintenance and operation, including utilities and insurance, of the Project subject to the itemized responsibilities and/or exceptions noted below:

\_\_\_\_\_

The Owner acknowledges receipt of the following closeout and transition materials:

- As-built Drawings
- O & M Manuals
- Warranty Documents
- Completion of Training Requirements

A list of items to be completed or corrected (Punch List) is attached hereto. The failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents, including authorized changes thereof. The amount of \_\_\_\_\_(Twice the value of the punch list work) shall be retained to assure the completion of the punch list work.

The Contractor shall complete or correct the Work on the list of (Punch List) items appended hereto within \_\_\_\_\_ calendar days from the above date of issuance of this Certificate. The amount withheld pending completion of the list of items noted and agreed to shall be: \$\_\_\_\_\_. If the list of items is not completed within the time allotted the Owner has the right to be compensated for the delays and/or complete the work with the help of independent contractor at the expense of the retained project funds. If the retained project funds are insufficient to cover the delay/completion damages, the Owner shall be promptly reimbursed for the balance of the funds needed to compensate the Owner.

\_\_\_\_\_ by: \_\_\_\_\_  
CONTRACTOR (include name of firm) (Signature) DATE

\_\_\_\_\_ by: \_\_\_\_\_  
A/E (include name of firm) (Signature) DATE

\_\_\_\_\_ by: \_\_\_\_\_  
USING INSTITUTION OR AGENCY (Signature) DATE

\_\_\_\_\_ by: \_\_\_\_\_  
DFCM (Owner) (Signature) DATE

**General Contractor Performance Rating Form**

Project Name:		DFCM Project#	
Contractor:  (ABC Construction, John Doe, 111-111-1111)	A/E:  (ABC Architects, Jane Doe, 222-222-2222)	Original Contract Amount:	Final Contract Amount:
DFCM Project Manager:		Contract Date:	
Completion Date:		Date of Rating:	

Rating Guideline	QUALITY OF PRODUCT OR SERVICES	COST CONTROL	TIMELINESS OF PERFORMANCE	BUSINESS RELATIONS
<b>5-Exceptional</b>	Contractor has demonstrated an exceptional performance level in any of the above four categories that justifies adding a point to the score. Contractor performance clearly exceeds the performance levels described as "Very Good"			
<b>4-Very Good</b>	Contractor is in compliance with contract requirements and/or delivers quality product/service.	Contractor is effective in managing costs and submits current, accurate, and complete billings	Contractor is effective in meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is effective
<b>3-Satisfactory</b>	Minor inefficiencies/errors have been identified	Contractor is usually effective in managing cost	Contractor is usually effective in meeting milestones and delivery schedules	Response to inquires technical/service/administrative issues is somewhat effective
<b>2-Marginal</b>	Major problems have been encountered	Contractor is having major difficulty managing cost effectively	Contractor is having major difficulty meeting milestones and delivery schedule	Response to inquiries, technical/service/administrative issues is marginally effective
<b>1-Unsatisfactory</b>	Contractor is not in compliance and is jeopardizing achievement of contract objectives	Contractor is unable to manage costs effectively	Contractor delays are jeopardizing performance of contract objectives	Response to inquiries, technical/service/administrative issues is not effective

<b>1. Rate Contractors quality of workmanship, management of sub contractor performance, project cleanliness, organization and safety requirement.</b>	<b>Score</b>
<u>Agency Comments:</u>	
<u>A &amp; E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

<b>2. Rate Contractor administration of project costs, change orders and financial management of the project budget.</b>	<b>Score</b>
<u>Agency Comments:</u>	
<u>A &amp; E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

<b>3. Rate Contractor's performance and adherence to Project Schedule, delay procedures and requirements of substantial completion, inspection and punch-list performance.</b>	<b>Score</b>
<u>Agency Comments:</u>	
<u>A &amp; E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

<b>4. Evaluate performance of contractor management team including project manager, engineer and superintendent also include in the rating team's ability to work well with owner, user agency and consultants.</b>	<b>Score</b>
<u>Agency Comments:</u>	
<u>A &amp; E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

5. Rate success of Contractor's management plan, completion of the plans mitigation of project risks and performance of value engineering concepts.	Score
<u>Agency Comments:</u>	
<u>A &amp; E Comments:</u>	
<u>DFCM Project Manager Comments:</u>	

<b>Signed by:</b>	<b>Date:</b>	<b>Mean Score</b>
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**Additional Comments:**

# Overlay and Striping Project

## DFCM Project #09162520 - Springville

### Index to Technical Specifications

#### Section Title

10	Bituminous Surface Course
02120	Geogrid Reinforcement
02580	Pavement Marking

## **CONSTRUCTION SPECIFICATIONS**

### **10. BITUMINOUS SURFACE COURSE**

#### **1. SCOPE**

The work shall consist of the construction of a surface course composed of mineral aggregate and bituminous binder, placed and compacted within the lines and grades shown on the plans.

#### **2. MATERIALS**

a. Asphaltic Cements: Viscosity grades of asphalt cement prepared from petroleum shall conform to the requirements of AASHTO Designation M-226.

b. Asphaltic Emulsions: Anionic emulsified asphalt shall conform to the requirements of AASHTO Designation M-140.

c. Mineral Aggregate: Mineral aggregate shall consist of crusher processed virgin aggregate material consisting of crushed stone, and gravel, conforming to the following requirements:

1. Course aggregate retained on the No. 4 sieve shall consist of clean, hard, tough, durable, and sound fragments, with not more than 3 percent by weight of flat, elongated, soft or disintegrated particles, and shall be free from vegetable matter or other deleterious substances.

2. That portion of the aggregate retained as the No. 4 sieve shall have not less than 50% of particles by weight with at least two mechanically fractured face, or clean angular face.

3. The aggregate shall have a percentage of wear not exceeding 50% for road mix and 40% for plant mix, when tested in accordance with AASHTO Designation T-96. The Contractor shall certify that the mineral aggregate used on the job shall meet this wear test prior to its placement in the surface course.

4. Fine aggregate passing the No. 4 sieve, may be either a natural or manufactured product. The aggregate shall be clean, hard-grained and moderately sharp, and shall contain not more than 2 percent by weight of vegetable matter or other deleterious substances.

5. That portion of the fine aggregate passing the No. 40 sieve shall be nonplastic when tested in accordance with AASHTO Designation T-90.

6. The weight of minus 200 mesh sieve material retained in the aggregate as determined by the difference in percent passing a No. 200 sieve by washing and dry sieving without washing shall not exceed 6 percent of the total sample weight.

7. The combined mineral aggregate plus any specified additives, when mixed with the specified bituminous binder in accordance with ASTM Designation D-1559, shall conform to the following requirements:

Marshall Stability.....1200-2500 lbs.  
 Flow (0.01 inch).....10-18  
 Voids content.....1.5% to 3.0%

The requirements specified in this subsection shall be used to determine the suitability of the aggregate sources.

8. The combined dry mineral aggregate shall be uniformly graded and of such size that it meets one of the following gradation bands:

	<u>Ideal Gradation of Passing Band</u>	<u>% Passing Gradation Band</u>
<u>½" Gradation</u>		
½"	100	100
#4	70	60-80
#16	35	28-42
#50	17	11-23
#200	7	5-9
<u>1" Gradation</u>		
1"	100	100
2"	83	75-91
#4	54	47-61
#16	28	23-33
#50	17	12-22
#200	7	5-9
<u>¾" Gradation</u>		
¾"	100	100
⅜"	83	75-91
#4	54	46-62
#16	28	22-34
#50	17	11-23
#200	7	5-9

Any deviation from the above gradation Bands must be approved in writing by the Engineer.

9. Contractor will be required to supply the Engineer with a job mix formula based on the proceeding criteria. Job mix formula must be approved by the Engineer

### 3. CONSTRUCTION METHODS

a. Hot Mix Plant: The mineral aggregate and bituminous binder shall be mixed at a central mixing plant. The shortest mixing time consistent with satisfactory coating of the aggregate shall be used, as determined by the Engineer. The mineral aggregate shall be considered satisfactorily coated with bitumen when all of the particles passing the No. 4 sieve and 98 percent of the particles retained on the No.4 sieve are coated.

b. Spreading and Compaction: Place asphalt concrete pavement of 3-inches or more, in total compacted thickness, in two equal courses. The mixture shall be spread and struck-off in such a manner that finished surface shall conform to the elevations, grades, and cross-sections shown on the drawings or as staked in the field.

After the mixture has been spread, the surface shall be longitudinally rolled, beginning at the outside edge or lower side and proceeding toward the high side. Each pass of one roller shall overlap the proceeding pass by at least one-half the width of the roller. The surface shall be rolled by 4 passes with a pneumatic or steelwheel exerting a minimum pressure of 40 psi., or by an approved equal method. Rolling operations shall be conducted in such a manner that shoving or distortion will not develop beneath the roller.

c. Finishing: The surface shall be finished to a smooth, uniform line and grade with surface deviations not exceeding 3/8-inch in 10 feet. Determination of compliance with smoothness may be made with a straight edge, chalk-line, or profilograph at the option of the Engineer. Any irregularities shall be satisfactorily corrected at the expense of the Contractor.

d. Temperature Control: The minimum temperature of the bituminous material at the time of application shall be 250 degrees Fahrenheit.

e. Weather Limitations: Bituminous material shall not be placed when weather conditions are unfavorable or when the air temperature in the shade is less than 50 degrees Fahrenheit.

f. Weight Devices: When the method of measurement is by weight, the Contractor shall provide weigh scales, at the job site. Scales will be certified by the Department of Agriculture.

The scales shall be accurate to within 1 percent of the correct weight throughout the range of use. Before using the scales and as frequently thereafter as the Engineer determines necessary to insure accuracy, the Contractor shall have the scales checked,

adjusted, and certified by a representative of the State agency. The Contractor shall maintain the scales to the required accuracy.

### **All Weighting Will Be On Certified Scales**

g. Sampling of Aggregate: The Contractor shall submit test results and a certification of compliance that states that the gradation of the aggregate meets the contract requirements. The Contractor shall equip crushing, screening, and mixing plants with sampling devices. The Contractor shall take additional samples of material for testing as directed by the Engineer. These samples may be required at any time to validate the certification furnished by the Contractor.

Provisions shall be made for accurate proportioning. Each compartment shall have an outlet feed that can be shut off completely when any bin becomes empty. The bins or aggregate feeding system shall be constructed so samples can be readily obtained. Positive weight measurement of the combined cold feed shall be maintained to allow regulation of the feed gate and permit automatic correction for variations in load.

The bitumen feed control shall be coupled with the total aggregate weight measurement device to automatically vary the bitumen feed rate and to maintain the required proportion. Means shall be provided for checking the quantity or rate of flow of bitumen into the mixing unit. Thermometers shall be fixed in the bitumen feed line at the charging valve of the mixer unit and at the discharge chute of the mixer unit. The Engineer may require replacement of any thermometer by an approved temperature-recording apparatus to allow better regulation of the material temperature.

A method shall be provided to automatically adjust the bituminous content in the mix for moisture variations in the cold feed.

h. Hauling Equipment: Trucks used for hauling bituminous mixtures shall have tight, clean, smooth metal beds that have been thinly coated with a material to prevent the moisture from adhering to the beds. Truck beds shall be drained prior to loading. Each truck shall have a cover to protect the mixture from the weather. When necessary to insure that the mixture will be delivered at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

i. Bituminous Pavers: Bituminous pavers shall be self-contained, power-propelled units, provided with an adjustable activated-screed or strike-off assembly heated, if necessary, and capable of spreading and finishing courses of bituminous plant mix material in lane widths and thicknesses shown on the drawings. When shown on the drawings, pavers shall be equipped with a control system capable of automatically maintaining the proper screed elevation. The control system shall be automatically actuated from either a reference line or surface through a system of sensors that will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface.

The transverse slope control system shall be capable of being made inoperative so that the screed can be controlled by mechanisms that will independently control the elevation of each end of the screed from reference line or surfaces.

The controls shall be capable of working in conjunction with any of the following attachments:

1. Ski-type device of not less than 40 feet in length.
2. Taut stringline (wire) set to grade.
3. Short ski or shoe.

j. Compaction: Shall be performed with either vibratory steel-wheel or steel-wheel and pneumatic-tire rollers.

Rolling shall begin at the sides and proceed longitudinally parallel to the road centerline, each trip overlapping one-half the roller width, gradually progressing to the center. When paving in echelons or abutting a previously placed land, the longitudinal joint shall be rolled first, then followed by the above rolling procedure. On superelevated curves the rolling shall begin at the low side and progress to the high side.

Along forms, curbs, header walls, and other places not accessible to the rollers, the mixture shall be thoroughly compacted with hot hand tampers, smoothing irons, or mechanical tampers.

k. Joints, trimming edges, and cleanup: Placing of the bituminous mixture shall be continuous. Rollers shall not pass over the unprotected end of a freshly laid mixture. Transverse joints shall be formed by cutting back into the previous run to expose the full depth of the course. Heat shall be applied to contact surfaces or transverse joints just before any additional mixture is placed against the previously rolled material.

#### 4. FLUSH COAT

When required, the coat shall be placed on the completed surface course. The coat shall not be placed within 7 days after the surface course is laid. Prior to placing the coat, the existing surface shall be cleaned of all dirt, sand, dust, or other objectionable material.

The material shall be sprayed over the prepared surface by means of a pressure distributor.

#### 5. ACCEPTANCE SAMPLING AND TESTING

a. Finished work samples. When required by the Engineer, the Contractor shall cut samples from the pavement. Samples size and locations will be designated by the Engineer. Samples shall be neatly cut with a saw or core drill. Voids left by

sampling shall be backfilled and compacted to the density of the surrounding material.

b. Testing of bituminous mixture (gradation and bituminous content). Acceptance samples of the mixture will be taken after it has been placed on the finished surface and just prior to compaction. Samples will be selected on a random basis and taken as frequently as the Engineer elects.

c. Acceptance and testing bituminous mixture (compaction). After the bituminous mixture has been placed and compacted, the pavement shall meet the following density requirements.

Percent of Relative Maximum Density From Job Mix Formula  
93 min.

Samples and tests will be taken as frequently and at such locations as the Engineer elects. Compaction testing will be done by the Engineer.

d. Acceptance sampling and testing of bituminous mixture (surface and thickness tolerance).

1. Surface. Acceptance testing will be performed on the top surface. The surface will be tested by the Engineer with a 10-foot straightedge. The variation of the surface from the testing edge of the straightedge shall not deviate at any point more than 3/8-inch.

2. Thickness. The total compacted thickness of the mixture shall not vary more than 1/4-inch from the specified thickness. The compacted thickness shall not consistently below nor consistently above the specified thickness. The Engineer reserves the right to test areas which appear defective and require immediate correction.

## 6. PRICE ADJUSTMENTS

1. Gradation and Asphalt Content – See Table A. The computation of the adjusted unit price will be based upon the minimum pay factor determined from Table A.

a. The Engineer may order the removal of the mix if the acceptance tests deviate from the job-mix formula for a particular sieve or sieves, or if the asphalt content is more than the values shown under the 0.70 pay factor for asphalt concrete in Table A.

b. The pay factor for material allowed to remain will be 0.50 for asphalt concrete.

c. A lot is the average of three tests taken in the same day and

represents the number of square feet placed during each production day.

2. Density

a. Areas with deficient density will be subject to the following price reductions:

<b>TABLE A</b>	<b>PAY FACTOR</b>
<b>AVERAGE DENSITY IN PERCENT ASPHALT</b>	<b>ASPHALT CONCRETE</b>
93 or more	1.00
91 to 92.9	0.90
Less than 91	0.50

<b>TABLE A ACCEPTANCE SCHEDULE FOR GRADATION (Percentage Points)</b>		
<b>SIEVE SIZE</b>	<b>PAY FACTOR A.C.</b>	<b>DEVIATIONS OF THE IDEAL GRADATION ACCEPTANCE TESTS FROM THE JOBMIX (PERCENTAGE POINTS)</b>
Asphalt Content	1.00 0-0.38	0-0.38
	0.95 0.39-0.43	0.39-0.43
	0.90 0.44-0.47	0.44-0.47
	0.80 0.48-0.52	0.48-0.52
	0.70 0.53-0.56	0.53-0.56
½ inch & larger	1.00	0-1
	0.95	1.0-2.0
	0.90	2.0-3.0
	0.80	3.0-4.0
	0.70	4.0-5.0
No. 4	1.00	0-10
	0.95	10-11.4
	0.90	11.5-11.9
	0.80	11.9-12.5
	0.70	12.5-13.0
No. 16	1.00	0-7.0
	0.95	7.0-7.3
	0.90	7.4-7.7
	0.80	7.8-8.1

	0.70	8.2-8.4
N. 50	1.00	0-6.0
	0.95	6.0-6.5
	0.90	6.6-6.8
	0.80	6.9-7.1
	0.70	7.2-7.5
No. 200	1.00	0-2.0
	0.95	2.0-2.9
	0.90	3.0-3.1
	0.80	3.2-3.3
	0.70	3.4-3.5

7. MEASUREMENT AND PAYMENT

- a. The bituminous material and mineral aggregate shall be measured by the square foot.
- b. Tack coat is required on all seams and overlays and will be subsidiary to this Bid Item and not paid for separately.
- c. Payment for the bituminous material, mineral aggregate will be made at the contract unit price. Such payment shall constitute full compensation for furnishing, mixing, spreading, the bituminous material and mineral aggregate, compacting all other items necessary and incidental to the performance of the work.

8. ITEMS OF WORK AND CONSTRUCTION DETAILS

Items of work to be performed in conformance with this specification and construction details are:

- a. 3” HMA AC-10 (PG58-22) (1/2-inch Max.)
  - 1. This item shall consist of furnishing the mineral aggregate, bituminous material, mixing the aggregate and bituminous material, spreading, and compacting the mixture as shown on the drawings.
  - 2. Contractor will supply the Engineer with the mix calibration factor, and a set of calibration samples 7 days prior to placement of asphalt.
  - 3. The aggregate shall meet the ( ) gradation requirements as listed in Section 2.C.8 of these specifications. The gradation of the aggregate shall be submitted in writing to the Engineer for his approval prior to the placing of the asphalt. The borrow area selected by the Contractor must meet the approval of the Engineer.

4. The asphalt shall be grade AC-10 (PG58-22), viscosity graded.
5. The aggregates and the bituminous material shall be measured or gaged and introduced into the mixer in the amount specified by the job mix formula. After the required amounts of aggregate and bituminous material have been introduced into the mixer, the materials shall be mixed until a complete and uniform coating of particles and a thorough distribution of the bituminous material throughout the aggregate is obtained.
6. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be placed and finished by hand tools.
7. Hot mixture shall be placed at a temperature not less than 250 degrees Fahrenheit.
8. Material trimmed from the edges and any other discarded bituminous mixture shall be removed from the runway and disposed of by the Contractor in an approved area.
9. Contractor will be required to hand rake all seams.
10. Testing noted in Section 5.a will not be required.
11. Asphalt shall be placed at the finished depth noted on the plans. Tack coat will be required on all asphalt edges.
12. Contractor will not stockpile hot asphalt on existing asphalt roads prior to placement.
13. Bituminous surface course will not be placed during rain, when the roadbed is wet or during other adverse weather conditions. The owner will not be responsible for any bituminous surface course that is on the project site, but unable to spread due to adverse weather.
14. Contractor will be required to deliver to the Engineer a weight invoice prior to placement of the asphalt surface course, invoices not received the day of placement will not be paid for.
15. Contractor will hand sweep and remove all sluffage on and against asphalt and concrete gutters just prior to bituminous surface course placement to assure a clean surface and proper depth.
16. Measurement and payment shall be in accordance with Section 7a and c for each type of asphalt concrete pavement actually placed.

b. 2" HMA Overlay AC-10 (PG58-22)(1/2-inch Max.)

1. This item shall consist of furnishing the mineral aggregate, bituminous material, mixing the aggregate and bituminous material, spreading, and compacting the mixture as shown on the drawings.
2. Contractor will supply the Engineer with the mix calibration factor, and a set of calibration samples 7 days prior to placement of asphalt.
3. The aggregate shall meet the ( ) gradation requirements as listed in Section 2.C.8 of these specifications. The gradation of the aggregate shall be submitted in writing to the Engineer for his approval prior to the placing of the asphalt. The borrow area selected by the Contractor must meet the approval of the Engineer.
4. The asphalt shall be grade AC-10 (PG58-22), viscosity graded.
5. The aggregates and the bituminous material shall be measured or gaged and introduced into the mixer in the amount specified by the job mix formula.

After the required amounts of aggregate and bituminous material have been introduced into the mixer, the materials shall be mixed until a complete and uniform coating of particles and a thorough distribution of the bituminous material throughout the aggregate is obtained.

6. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be placed and finished by hand tools.
7. Hot mixture shall be placed at a temperature not less than 250 degrees Fahrenheit.
8. Material trimmed from the edges and any other discarded bituminous mixture shall be removed from the runway and disposed of by the Contractor in an approved area.
9. Contractor will be required to hand rake all seams.
10. Testing noted in Section 5.a will not be required.
11. Asphalt shall be placed at the finished depth noted on the plans. Tack coat will be required on all asphalt edges.
12. Contractor will not stockpile hot asphalt on existing asphalt roads prior to placement.

13. Bituminous surface course will not be placed during rain, when the roadbed is wet or during other adverse weather conditions. The owner will not be responsible for any bituminous surface course that is on the project site, but unable to spread due to adverse weather.

14. Contractor will be required to deliver to the Engineer a weight invoice prior to placement of the asphalt surface course, invoices not received the day of placement will not be paid for.

15. Contractor will hand sweep and remove all sluffage on and against asphalt and concrete gutters just prior to bituminous surface course placement to assure a clean surface and proper depth.

16. Measurement and payment shall be in accordance with Section 7a and c for each type of asphalt concrete pavement actually placed.

c. Asphalt Pavement and Concrete Sawing

1. This item shall consist of furnishing the equipment and labor required to saw cut the existing asphalt pavement and existing sidewalk as staked in the field.

2. Saw cut edges shall be required where existing bituminous surface and new bituminous surface join. The edge shall be clean, vertical and full depth of bituminous surface. Cutting the edge shall be made just prior to placing new bituminous pavement. A tack coat will be applied to the edge prior to placing new bituminous pavement.

3. A diamond saw shall be required to make a vertical cut through the full depth of the asphalt surfacing and concrete sidewalk.

4. Traffic or construction equipment shall not be allowed to cross the saw cut edge. If sawed edges are broken due to construction equipment the damaged area will be recut at the Contractor's expense, Owner will not pay for recutting of damaged areas.

5. Measurement will be by the linear foot actually cut. Payment shall be at the contract unit price. Such payment shall constitute full compensation for saw cutting the existing asphalt surface, and sidewalk, including all equipment and labor as necessary or incidental to the completion of the work.

END OF SECTION

**SECTION 02120**  
**SPECIFICATION FOR GEOGRID REINFORCEMENT OF**  
**PAVED and UNPAVED ROADWAYS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes - Geogrid reinforcement of base/subbase course and/or subgrade improvement in the construction of paved or unpaved roadways, parking areas and similar installations. Design details for geogrid reinforcement, such as geogrid type, fill thickness, pavement cross-section and associated details, shall be as shown on the contract drawings. Work consists of:
1. Providing supplier representative for pre-construction conference with the Contractor and the Engineer.
  2. Furnishing geogrids as specified herein and shown on the contract drawings.
  3. Storing, cutting, and placing geogrids in accordance with these specifications and in reasonably close conformity with the lines, grades, and dimensions shown on the contract drawings or as established by the Engineer.
- B. Related Sections
1. Section 02200 - Site Preparation
  2. Section 02300 - Earthwork
  3. Section 02700 - Bases, Ballasts, Pavements, and Appurtenances

**1.02 REFERENCES**

- A. American Association of State Highway and Transportation Officials (AASHTO)
1. AASHTO Recommended Practice for Geosynthetic Reinforcement of the Aggregate Base Course of Flexible Pavement Structures, AASHTO PP46-01, April 2001 Interim Edition of the AASHTO Provisional Standards.
  2. Standard Specification for Highway Bridges (1997 Interim)
  3. AASHTO Guide for Design of Pavement Structures (1993)
- B. American Society for Testing and Materials (ASTM)
1. D1388-96 - Standard Test Method for Stiffness of Fabrics, Option A
  2. D6637-01- Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-rib Tensile Method
  3. D4354-96 - Practice for Sampling of Geosynthetics for Testing
  4. D4759-92 - Practice for Determining the Specification Conformance of Geosynthetics
  5. D5818-95 - Practice for Obtaining Samples of Geosynthetics from a Test Section for Assessment of Installation Damage
- C. Geosynthetic Research Institute (GRI)
1. GRI-GG2-87 - Standard Test Method for Geogrid Junction Strength
- D. U.S. Department of Transportation – Federal Aviation Administration (FAA)
1. Specification for Geogrid Reinforced Base Courses, Engineering Brief No. 49 (1994).
- E. U.S. Environmental Protection Agency (U.S. EPA)
1. EPA 9090 - Compatibility Test for Wastes and Membrane Liners

- F. U.S. Army Corps of Engineers (U.S. CoE)
  - 1. Draft Specification for Grid Aperture Stability by In-Plane Rotation
  - 2. CW-02215 Determination of Percent Open Area.
- G. American Society of Civil Engineers (ASCE)
  - 1. Giroud, J.P., and Han, J. (2004). "Design method for geogrid-reinforced unpaved roads. Part I – Development of design method." *Journal of Geotechnical and Geoenvironmental Engineering*, 130 (8), 775-786.
  - 2. Giroud, J.P., and Han, J. (2004). "Design method for geogrid-reinforced unpaved roads. Part II – Calibration and applications." *Journal of Geotechnical and Geoenvironmental Engineering*, 130 (8), 787-797.
- H. Thomas C. Kinney, P.E., PhD
  - 1. Determining the Aperture Stability Modulus of a Geogrid (2001).

### 1.03 DEFINITIONS

- A. Geogrid - A biaxial polymeric grid formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth to function primarily as reinforcement.
- B. Multi-Layer Geogrid - A geogrid product consisting of multiple layers of grid which are not integrally connected throughout.
- C. Woven Geogrid – A geogrid product formed by weaving discrete strips of polymer into a network. These geogrids usually require a protective coating to protect the polymer from pre-mature degradation.
- D. Welded Strip Geogrid – A geogrid product formed by heat bonding (welding) discrete strips of polymer into a regular network.
- E. Minimum Average Roll Value (MARV) - Value based on testing and determined in accordance with ASTM D4759-92.
- F. Traffic Benefit Ratio (TBR) (also known as Traffic Improvement Factor or TIF) - A ratio comparing the performance of a pavement cross-section with a geogrid-reinforced base course to a similar cross-section without geogrid reinforcement, based on the number of cycles to failure, with failure defined as a selected depth of rut.
- G. True Initial Modulus in Use - The ratio of tensile strength to corresponding zero strain. The tensile strength is measured via ASTM D6637 at a strain rate of 10 percent per minute. Values shown are MARVs. For multi-layer geogrid products, rib tensile testing shall be performed on the multi-layer configurations, as prescribed by ASTM D6637.
- H. Junction Strength - Breaking tensile strength of junctions when tested in accordance with GRI-GG2 as modified by AASHTO Standard Specification for Highway Bridges, 1997 Interim, using a single rib having the greater of 3 junctions or 8 inches and tested at a strain rate of 10 percent per minute based on this gauge length. Values shown are minimum average roll values. For multi-layer geogrid products, junction strength testing shall be performed across junctions from each layer of grid individually, and results shall not be assumed as additive from single layers to multiple layers.
- I. Flexural Stiffness (also known as Flexural Rigidity) - Resistance to bending force measured via ASTM D1388-96, Option A, using specimen dimensions of 864 millimeters in length by 1 aperture in width. Values shown are MARVs. For multi-layer geogrid products, flexural stiffness

testing shall be performed directly on the multi-layer configuration without using any connecting elements other than those used continuously throughout the actual product, and results shall not be assumed as additive from testing performed on a single layer of the multi-layer product.

- J. Aperture Stability Modulus (also known as Torsional Rigidity or Torsional Stiffness) - Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2.0 m-N) moment to the central junction of a 9-inch by 9-inch specimen restrained at its perimeter. Values shown are MARVs. For multi-layer geogrid products, torsional stiffness testing shall be performed on each layer of grid individually, and results shall not be assumed as additive from single layers to multiple layers.
- K. Subgrade Improvement – Placement of a geogrid immediately over a soft subgrade soil in order to improve the bearing capacity and mitigate deformation of the subgrade soil. The goal of this application may be to reduce undercut requirements, improve construction efficiency, reduce the amount of aggregate subbase/base material required, provide a stiff working platform for pavement construction, or combination of these.
- L. Base Reinforcement - Placement of a geogrid beneath or within the aggregate base course of a flexible pavement system to improve the stiffness of the system. The goal of this application may be to reduce the amount of aggregate base material required (reducing initial cost), increase the life of the pavement (reduce life-cycle cost), or a combination of the two.

#### **1.04 SYSTEM DESCRIPTION**

##### **A. Performance Requirements**

- 1. Subgrade Improvement Applications: The reinforcement benefit attributed to the geogrid shall be as derived by the Giroud-Han, Method. Appropriate partial safety factors shall be applied to results obtained using geogrids having properties or characteristics outside the range of rigorous model validation (Giroud and Han, 2004).
- 2. Base Reinforcement Applications: The Traffic Benefit Ratio (TBR) attributed to the proposed geogrid material shall be supported by evaluation and documentation of testing of the specific geogrid conducted in representative, full-scale laboratory conditions with repetitive loading applied by a passing wheel load of at least 4,500 pounds per single wheel or 9,000 pounds per dual wheel.

#### **1.05 SUBMITTALS**

- A. Submit geogrid product sample approximately 4 inches by 7 inches or larger.
- B. Submit geogrid product data sheet and certification from the Manufacturer that the geogrid product supplied meets the requirements of sub-part 2.02A of this Section.
- C. Submit Manufacturer’s installation instructions and general recommendations.
- D. For Alternate Geogrid Materials not meeting the requirements of sub-part 2.02A of this Section, submit the following at least 7 days prior to bid letting.
  - 1. Full-scale (in accordance with Section 1.04 A.2) laboratory and in-ground testing of pavement structures reinforced with the specific geogrid that quantifies TBR of the geogrid to the pavement structure. The TBR must meet or exceed that of the design geogrid.
  - 2. Independent certified test results stating that the alternate geogrid exhibits an aperture stability modulus at 20cm-kg (2.0 m-N), when testing in accordance with the “Grid

Aperture Stability In-Plane Rotation” test of 0.32 m-N/deg (for Type 1) or 0.65 m-N/deg (for Type 2).

3. A list of 5 comparable projects that are similar in terms of size and application, are located in the United States, and where the results of using the specific alternate geogrid material can be verified after a minimum of 1 year of service life.
4. A sample (meeting the requirements of sub-part 1.05A of this Section) of the alternate geogrid material and certified specification sheets.
5. Recommended installation instructions.
6. Additional information as requested by the Engineer to fully evaluate the product.

## 1.06 QUALITY ASSURANCE

- A. A representative of the geogrid supplier shall be available on an “as needed” basis during construction.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection
  1. Prevent excessive mud, wet concrete, epoxy, or other deleterious materials from coming in contact with and affixing to the geogrid materials.
  2. Store at temperatures above -20 degrees F (-29 degrees C).
  3. Rolled materials may be laid flat or stood on end.
  4. Geogrid materials should not be left directly exposed to sunlight for a period longer than the period recommended by the manufacturer.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. An approved source of geogrid is The Tensar Corporation, Morrow, GA or their designated representative or an approved equal.
- B. Substitutions - See Section 01600 and sub-part 2.02B of this Section.

### 2.02 MATERIALS

- A. Structural Soil Reinforcement Geogrid – The geogrid shall be integrally formed and deployed as a single layer having the following characteristics (ALL VALUES ARE MINIMUM AVERAGE ROLL VALUES UNLESS A RANGE OR CHARACTERISTIC IS INDICATED):

Property	Test Method	Units	Type 1	Type 2
Aperture Stability Modulus at 20 cm-kg (2.0 m-N)	Kinney (2001)	m-N/deg	0.32	0.65
Rib Shape	Observation	N/A	Rectangular or Square	Rectangular or Square
Rib Thickness	Calipered	in (mm)	0.03 (0.76)	0.05 (1.27)

Nominal Aperture Size	I.D. Calipered	in (mm)	1.0 to 1.5 (25 to 33)	1.0 to 1.5 (25 to 33)
Junction Efficiency	GRI-GG2-87	%	93	93
Flexural Rigidity	ASTM D1388-96	mg-cm	250,000	750,000
Minimum True Initial Modulus in Use	ASTM D6637-01			
- MD		lb/ft (kN/m)	17,140 (250)	27,420 (410)
- CMD		lb/ft (kN/m)	27,420 (400)	44,550 (620)

- B. Alternate Structural Soil Reinforcement Materials – Alternate structural soil reinforcement materials will be considered in accordance with the following conditions:
1. Geotextile materials shall not be considered as an alternate to geogrid materials for subgrade improvement or base/sub-base reinforcement applications. A geotextile may be used in the cross-section to provide separation, filtration or drainage; however, no structural contribution shall be attributed to the geotextile.
  2. Alternate geogrid materials shall not be used unless submitted to the Engineer and pre-approved in writing by the Engineer. In order to be considered, submittal packages for alternate geogrid materials must be prepared and submitted in accordance with sub-part 1.05D of this Section.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. The Contractor shall check the geogrid upon delivery to verify that the proper material has been received. The geogrid shall be inspected by the Contractor to be free of flaws or damage occurring during manufacturing, shipping, or handling.

#### **3.02 PREPARATION**

- A. The subgrade soil shall be prepared as indicated on the construction drawings or as directed by the Engineer.

#### **3.03 INSTALLATION**

- A. The geogrid shall be laid at the proper elevation and alignment as shown on the construction drawings.
- B. The geogrid shall be installed in accordance with the installation guidelines provided by the manufacturer or as directed by the Engineer.
- C. The geogrid may be temporarily secured in place with ties, staples, pins, sand bags or backfill as required by fill properties, fill placement procedures or weather conditions or as directed by the Engineer.

#### **3.04 GRANULAR FILL PLACEMENT OVER GEOGRID**

- A. Granular fill material shall be placed in lifts and compacted as directed under Section 02300 and Section 02700. Granular fill material shall be placed, spread, and compacted in such a manner that minimizes the development of wrinkles in the geogrid and/or movement of the geogrid.
- B. A minimum loose fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid. When underlying substrate is trafficable with minimal rutting, rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph) when integrally-formed geogrids are used. When woven, multi-layer or welded-strip geogrids are used, rubber-tired equipment shall not be allowed to pass directly on the geogrid. Sudden braking and sharp turning movements shall be avoided.

### **3.05 INSPECTION**

- A. The Owner or Owner's representative may randomly inspect geogrid before, during and after (using test pits) installation.
- B. Any damaged or defective geogrid (i.e. frayed coating, separated junctions, separated layers, tears, etc.) will be repaired/replaced in accordance with Section 3.06.

### **3.06 REPAIR**

- A. Any roll of geogrid damaged before, during and after installation shall be replaced by the Contractor at no additional cost to the Owner.
- B. Proper replacement shall consist of replacing the affected area adding 3ft (1m) of geogrid to either side of the affected area.

### **3.07 PROTECTION**

- A. Follow the Manufacturer's recommendations regarding protection from exposure to sunlight.

END OF SECTION

**SECTION 02580  
PAVEMENT MARKING**

**PART 1 GENERAL**

**1.1 SUMMARY**

A. Includes But Not Limited To

1. Furnish material and apply pavement and curb markings as described in Contract Documents.

**1.2 QUALITY ASSURANCE**

A. Regulatory Requirements - Paint handicap spaces to conform to ADA Standards and local code requirements.

**1.3 PROJECT/SITE CONDITIONS**

A. Environmental Requirements

1. Apply only on dry surfaces and during favorable weather.
  - a. Atmospheric temperature above 50 deg F.
  - b. When temperature is not anticipated to drop below 50 deg F during drying period.
  - c. When damage by rain, fog, or condensation not anticipated.

**PART 2 PRODUCTS**

**2.1 MATERIAL**

A. Paint

1. Acrylic emulsion or alkyd, non-reflectorized.
2. Colors -
  - a. As called out on contract documents

**PART 3 EXECUTION**

**3.1 PREPARATION**

- A. Apply two coats - the first after asphalt emulsion seal coat and Type II Slurry Seal has cured and then again after 14 days minimum.
- B. Surfaces shall be dry and free of grease and loose dirt particles. Scrape and wire brush chipped or damaged paint on existing curbs.
- C. Perform layout with chalk or lumber crayon only.

**3.2 APPLICATION**

A. Site Tolerances

1. General - Make lines parallel, evenly spaced, and with sharply defined edges.
2. Line Widths -
  - a. Plus or minus 1/4 inch variance on straight segments.
  - b. Plus or minus 1/2 inch variance on curved alignments.

B. Provide two coat application, each coat with coverage of 150 sq ft/gal.

**3.3 CLEANING**

A. Remove drips, overspray, improper markings, and paint material tracked by traffic by sand blasting, wire brushing, or other method approved by Engineer prior to performance.

END OF SECTION