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ADDENDUM NO. 03

Date:	**March 21, 2021**
Project Name:	**Apron Design Phases 2 Through 6**
Owner:	**City of Clinton, MO**
Garver Project No.	**19A15701**

This addendum shall be a part of the Plans, Contract Documents and Specifications to the same extent as though it were originally included therein, and it shall supersede anything contained in the Plans, Contract Documents, and Specifications with which it might conflict. This addendum, including all attachments, shall become part of the Contract and all provisions of the Contract shall apply thereto, with exception to the items listed under "Other Project Information" at the end of this Addendum No. 03, which are supplements provided for the Contractor's convenience. The time provided for completion of the Contract has not been changed as noted in this addendum. Acknowledgement of receipt of this addendum must be noted in the appropriate section of the Bid Form and included with the Contract Documents.

A. GENERAL

1. Bid Options for both Lime Treated Subgrade and Lime Kiln Dust Treated Subgrade have been added to both the Base Bid and Additive Alternate.

B. DRAWINGS:

1. **General** – Delete all references to "Proposed 12" Fly Ash Treated Subgrade (P-158)" and replace with "Proposed 12" Treated Subgrade – Selected Bid Option (P-155, P-157, or P-158).

C. SPECIFICATIONS

1. **Clarification** - Table of Contents – Section 5 – Technical Specifications were moved to the end of the Project Manual after the Form of Contract Agreement

2. **Table of Contents for Section 5** – Delete and replace with Table of Contents for Section 5 attached to this Addendum No. 03.

3. **Proposal Form** – Delete Proposal Form and Replace with the Proposal Form attached to this Addendum No. 03.

4. **Technical Specification Item P-155 and Item P-157** – Add the Technical Specifications to the project as attached to this Addendum No. 03.

D. OTHER PROJECT INFORMATION

1. **Clarifications** – All Drawings and Specifications shall be updated once the appropriate bid alternates have been selected for an Issued for Construction set to the selected bidder.

By: Digitally signed by Jason C. Fuehne
DN: C=US, E=jcfuehne@garverusa.com, OU="Garver, LLC", CN=Jason C. Fuehne
Date: 2021.03.21 17:01:15-05'00'

Jason C. Fuehne, P.E.
Project Manager
Civil Engineer

Attachments:

1. Table of Contents – Section 5
2. Proposal Form
3. Technical Specification Item P-155
4. Technical Specification Item P-157

END OF ADDENDUM NO. 03

SECTION 5
TECHNICAL SPECIFICATIONS

SUPPLEMENTAL SPECIFICATIONS

SS-101	Safety Plan Compliance Document (SPCD)
SS-110	Standard Specifications
SS-120	Construction Safety and Security
SS-130	Trench and Excavation Safety Systems
SS-262	Tiedown Anchors
SS-300	Basic Electrical Requirements
SS-301	Electrical Demolition and Relocation Work
SS-310	Airport Lighting Systems

TECHNICAL SPECIFICATIONS

C-100	Contractor Quality Control Program (CQCP)
C-102	Temporary Air and Water Pollution, Soil Erosion, and Siltation Control
C-105	Mobilization
L-108	Underground Power Cable for Airports
L-110	Airport Underground Electrical Duct Banks and Conduits
L-115	Electrical Manholes and Junction Structures
L-125	Installation of Airport Lighting Systems
P-101	Preparation/Removal of Existing Pavements
P-152	Excavation, Subgrade, and Embankment
P-155	Lime Treated Subgrade
P-157	Lime Kiln Dust Treated Subgrade
P-158	Fly Ash Treated Subgrade
P-208	Aggregate Base Course
P-403	Asphalt Mix Pavement Surface Course
P-501	Cement Concrete Pavement
P-602	Emulsified Asphalt Prime Coat
P-603	Emulsified Asphalt Tack Coat
P-604	Compression Joint Seals for Concrete Pavements
P-620	Runway and Taxiway Marking
D-701	Pipe for Storm Drains and Culverts
T-901	Seeding
T-905	Topsoil
T-908	Mulching

PROPOSAL FORM

City of Clinton, Missouri

State Block Grant Project No. **19-022A-1**

TO: City/County Manager

The undersigned, in compliance with the request for bids for construction of the following Project:

Apron Design Phases 2 Through 6: Construct new apron pavement. Work includes, but is not limited to, concrete pavement construction, asphalt transition, earthwork and associated items.

Hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment to faithfully perform all work required for construction of the Project in accordance with the project manual, project drawings and issued Addenda within the specified time of performance for the following prices:

BASE BID							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	SS-120-3.1	Construction Safety and Security	1 LS				
2	SS-130-4.1	Trench and Excavation Safety Systems	1 LS				
3	SS-262-5.1	Tiedown Anchor	15 EA				
4	SS-300-5.1	Lockout/Tagout and Constant Current Regulator Calibration Procedures	1 LS				
5	C-100-14.1	Contractor Quality Control Program	1 LS				
6	C-102-5.1	Temporary Erosion Control	1 LS				
7	C-105-6.1	Mobilization (Maximum 10% of Total Bid)	1 LS				
8	P-101-5.1	Asphalt Pavement Removal	4,284 SY				
9	P-101-5.3	Asphalt Pavement Markings Removal	535 SY				
10	P-101-5.6	Cold Milling (2 inch)	161 SY				
11	P-152-4.1	Unclassified Excavation	2,000 CY				
12	P-152-4.2	Unsuitable Excavation	200 CY				
13	P-208-5.1	Aggregate Base Course (4 in)	4,083 SY				
14	P-208-5.2	Aggregate Base Course (Varying Depth)	19 SY				
15	P-403-8.1	Asphalt Mixture Surface Course	56 TON				
16	P-501-8.1	7” Concrete Pavement	4,049 SY				

17	P-620-5.1	Runway and Taxiway Marking	2,800 SF				
18	D-701-5.1	30” RCP (Class IV)	84 LF				
19	D-701-5.2	MoDOT Precast Concrete Flared End Sections	2 EA				
20	T-901-5.1	Seeding	0.70 AC				
21	T-904-5.1	Sodding	1,778 SY				
22	L-108-5.1	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit	1,710 LF				
23	L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed in Trench, Duct Bank, or Conduit, Including Connections/Terminations	430 LF				
24	L-108-5.3	No. 6 AWG, 600V Rated, Type XPLE/USE Cable, Installed in Trench, Duct Bank, or Conduit	250 LF				
25	L-108-5.4	No. 6 AWG, 600V Rated, Type XPLE/USE, Green Insulated Equipment Ground, Installed in Trench, Duct Bank, or Conduit	130 LF				
26	L-110-5.1	Non-Encased Electrical Duct Bank, 1-Way 2”C	300 LF				
27	L-110-5.2	Non-Encased Electrical Duct Bank, 2-Way 2”C	130 LF				
28	L-115-5.1	Concrete Encased Electrical Junction Structure, L-867D Class 1, Size 16” Diameter by 24” Depth	1 EA				
29	L-115-5.2	Concrete Encased Electrical Junction Structure Plaza, Two L-867D Class 1, Size 16” Diameter by 24” Depth	2 EA				
30	L-125-5.1	L-853 Elevated Retroreflective Markers with Concrete Pad, Installed	21 EA				
TOTAL BID (Base Bid)							

BASE BID OPTION 1: Fly Ash Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-158-8.1	Fly Ash Treated Subgrade	4,083 SY				
2	P-158-8.2	Fly Ash	303 TON				
TOTAL BID (Base Bid Option 1)							

BASE BID OPTION 2: Lime Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-155-8.1	Lime Treated Subgrade	4,083 SY				
2	P-155-8.2	Lime	160 TON				
TOTAL BID (Base Bid Option 2)							

BASE BID OPTION 3: Lime Kiln Dust Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-157-8.1	Lime Kiln Dust Treated Subgrade	4,083 SY				
2	P-157-8.2	Lime Kiln Dust	170 TON				
TOTAL BID (Base Bid Option 3)							

Basis of Award – Base Bid: Basis of award shall be the lowest aggregate of the Base Bid plus Base Bid Option that is within the available project funding. The options of combined schedules to be considered for award is as follows:

- Base Bid + Base Bid Option 1
- Base Bid + Base Bid Option 2
- Base Bid + Base Bid Option 3

ADDITIVE ALTERNATE 1							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	SS-262-5.1	Tiedown Anchor	18 EA				
2	P-101-5.1	Asphalt Pavement Removal	2,133 SY				
3	P-101-5.2	Concrete Pavement Removal	29 SY				
4	P-101-5.3	Pavement Markings Removal	(375) SF				
5	P-101-5.6	Cold Milling (2 inch)	(161) SY				
6	P-152-4.1	Unclassified Excavation	250 CY				
7	P-152-4.2	Unsuitable Excavation	30 CY				
8	P-208-5.1	Aggregate Base Course (4 in)	2,466 SY				
9	P-403-8.1	Asphalt Mixture Surface Course	(56) TON				
10	P-501-8.1	7" Concrete Pavement	2,417 SY				
11	P-620-5.1	Runway and Taxiway Marking (Phase 2 - remarking of existing pavement)	(1,041) SF				

12	P-620-5.1	Runway and Taxiway Marking	1,119 SF				
13	T-901-5.1	Seeding	0.15 AC				
14	T-904-5.1	Sodding	540.00 SY				
TOTAL BID (Additive Alternate 1)							

ADDTIVE ALTERNATE 1 OPTION 1: Fly Ash Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-158-8.1	Fly Ash Treated Subgrade	2,517 SY				
2	P-158-8.2	Fly Ash	187 TON				
TOTAL BID (Additive Alternate 1 Option 1)							

ADDTIVE ALTERNATE 1 OPTION 2: Lime Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-155-8.1	Lime Treated Subgrade	2,517 SY				
2	P-155-8.2	Lime	86 TON				
TOTAL BID (Additive Alternate 1 Option 2)							

ADDTIVE ALTERNATE 1 OPTION 3: Lime Kiln Dust Treated Subgrade							
BID ITEM	FAA or MoDOT SPEC.	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		EXTENSION	
				DOLLARS	CTS	DOLLARS	CTS
1	P-157-8.1	Lime Kiln Dust Treated Subgrade	2,517 SY				
2	P-157-8.2	Lime Kiln Dust	105 TON				
TOTAL BID (Additive Alternate 1 Option 3)							

Basis of Award – Additive Alternate 1: Basis of award for additive alternate is dependent on available project funding. If selected, the selected option shall be the lowest aggregate of Additive Alternate 1 plus Additive Alternate Bid Option that is within the available project funding. The options of combined schedules to be considered for award is as follows:

- Additive Alternate 1 + Additive Alternate 1 Option 1
- Additive Alternate 1 + Additive Alternate 1 Option 2
- Additive Alternate 1 + Additive Alternate 1 Option 3

ACKNOWLEDGEMENTS BY BIDDER

a. By submittal of a proposal, the BIDDER acknowledges and accepts that the quantities established by the OWNER are an approximate estimate of the quantities required to fully complete the Project and that the estimated quantities are principally intended to serve as a basis for evaluation of bids. The BIDDER further acknowledges and accepts that payment under this contract will be made only for actual quantities and that quantities will vary in accordance with the General Provisions subsection entitled "Alteration of Work and Quantities".

b. The BIDDER acknowledges and accepts that the Bid Documents are comprised of the documents identified within the General Provisions. The BIDDER further acknowledges that each the individual documents that comprise the Bid Documents are complementary to one another and together establishes the complete terms, conditions and obligations of the successful BIDDER.

c. As evidence of good faith in submitting this proposal, the undersigned encloses a bid guaranty in the form of a certified check, cashier's check or bid bond in the amount of 5% of the bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the owner as a liquidated damage.

d. The BIDDER acknowledges and accepts the OWNER'S right to reject any or all bids.

e. The BIDDER acknowledges and accepts the OWNER'S right to hold all Proposals for purposes of review and evaluation and not issue a notice of award for a period not to exceed **ninety (90)** calendar days from the stated date for receipt of bids.

f. The undersigned agrees that upon written notice of award of contract, he or she will execute the contract within thirty (30) days of the notice of award, and furthermore, and provide executed payment and performance bonds within fifteen (15) days from the date of contract execution. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall result in forfeiture of the bid guaranty to the owner as a liquidated damage.

g. Time of Performance: By submittal of this proposal, the undersigned acknowledges and agrees to commence work within ten (10) calendar days of the date specified in the written "Notice to Proceed" as issued by the OWNER. The undersigned further agrees to complete the Project Base Bid within **sixty (60) calendar days** and, if selected, the Project Base Bid and Additive Alternate within **ninety (90) calendar days** from the commencement date specified in the Notice to Proceed.

h. The undersigned acknowledges and accepts that for each and every Calendar day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of $**1,000** per Calendar day as a liquidated damage to the OWNER.

i. The undersigned prime contractor, if not a MoDOT certified DBE, hereby assures that they will subcontract **seven (7%)** percent of the dollar value of the prime contract to DBE firms or make good faith efforts to meet the DBE contract goal. In addition, the prime contractor will include the DBE clauses (see Supplementary Provision No. 6 of the Federal and State Provisions) required by the DBE Program adopted by MoDOT and the Sponsor in all contracts and subcontracts relating to this project. The undersigned will complete the DBE Participation information included herein when a DBE goal has been established, including a demonstration of good faith efforts if the DBE goal is not met. If the undersigned prime contractor is a MoDOT certified DBE firm, then the prime contractor must perform at least thirty percent (30%) of the total contract value work with its own forces, and will receive DBE credit for all work which the prime contractor and any other MoDOT certified DBE firm performs directly.

j. The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the Davis-Bacon Act and the Missouri Prevailing Wage Law. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached

wage rate determinations as issued by the United States Department of Labor and the Missouri Division of Labor Standards. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project. The highest rate between the two (Federal and State) for each job classification shall be considered the prevailing wage.

k. Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months preceding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:

1. Contractors/Subcontractors are not exempt based on 41 CFR 60-1,5.
2. Has 50 or more employees.
3. Is a prime contractor or first tier subcontractor.
4. There is a contract, subcontract, or purchase order amounting to $50,000 or more

l. The undersigned acknowledges receipt of the following addenda:

Addendum No. _____, dated _____ Date Received _____
Addendum No. _____, dated _____ Date Received _____
Addendum No. _____, dated _____ Date Received _____
Addendum No. _____, dated _____ Date Received _____
Addendum No. _____, dated _____ Date Received _____

REPRESENTATIONS BY BIDDER

By submittal of a proposal (bid), the BIDDER represents the following:

a. The BIDDER has read and thoroughly examined the bid documents, including all authorized addenda.
b. The BIDDER has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
c. The BIDDER has fully informed themselves of the project site, the project site conditions and the surrounding area.
d. The BIDDER has familiarized themselves with the requirements of working on an operating airport and understands the conditions that may in any manner affect cost, progress or performance of the work.
e. The BIDDER has correlated their observations with that of the project documents.
f. The BIDDER has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
g. The BIDDER is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
h. The BIDDER has complied with all requirements of these instructions and the associated project documents.

CERTIFICATIONS BY BIDDER

a. The undersigned hereby declares and certifies that the only parties interested in this proposal are named herein and that this proposal is made without collusion with any other person, firm or corporation. The undersigned further certifies that no member, officer or agent of OWNER'S has direct or indirect financial interest in this proposal.

b. Trade Restriction Certification (49 U.S.C. § 50104, 49 CFR Part 30)

The submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (U.S.T.R.);

2. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R.; and

3. has not entered into any subcontract for any product to be used on the project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

1. who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or

2. whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or

3. who incorporates in the public works project any product of a foreign country on such U.S.T.R. list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by U.S.T.R., unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

d. Certification of Offeror/Bidder Regarding Debarment (2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5)

By submitting a bid/proposal under this solicitation, the Bidder or Offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

e. Certification of Lower Tier Contractors Regarding Debarment (2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5)

The successful Bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov;
2. Collecting a certification statement similar to the Certificate of Offeror/Bidder Regarding Debarment and Suspension, above;
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the FAA and/or MoDOT later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA and/or MoDOT may pursue any available remedies, including suspension and debarment of the non-compliant participant.

f. Certification Regarding Lobbying (31 U.S.C. § 1352, 2 CFR § 200 Appendix II(J), 49 CFR Part 20, Appendix A)

The Bidder or Offer certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employer of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, United States Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for such failure.

g. Buy American Certification: (Title 49 U.S.C. § 50101)

The bidder agrees to comply with 49 U.S.C. § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued List.

A bidder or offeror must submit the appropriate Buy America certification included herein with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

Type of Certification is based on Type of Project:

There are two types of Buy American certifications.

- For projects for a facility, the Certificate of Compliance Based on Total Facility (Terminal or Building Project) must be submitted.

- For all other projects, the Certificate of Compliance Based on Equipment and Materials Used on the Project (Non-building construction projects such as runway or roadway construction; or equipment acquisition projects) must be submitted.

Certificate of Buy American Compliance for Manufactured Products
(Non-building construction projects, equipment acquisition projects)

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101 by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e. not both) by inserting a checkmark (√) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC 50101 by:
a) Only installing steel and manufactured products produced in the United States;
b) Installing manufactured products for which the FAA has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
c) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:
1. To provide to the Owner evidence that documents the source and origin of the steel and manufactured product.
2. To faithfully comply with providing U.S. domestic product.
3. To furnish U.S. domestic product for any waiver request that the FAA rejects.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

☐ Bidder or offeror hereby certifies it cannot comply with the 100% Buy American Preferences of 49 USC § 50101(a) but may qualify for either a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
1. To submit to the Owner within 15 calendar days of the bid opening, a formal waiver request and required documentation that support the type of waiver being requested.
2. That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination which may result in rejection of the proposal.
3. To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
4. To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 3 Waiver – The cost of the item components and subcomponents produced in the United States is more than 60% of the cost of all components and subcomponents of the "item". The required documentation for a Type 3 waiver is:

a) Listing of all product components and subcomponents that are not comprised of 100% U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
b) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
c) Percentage of non-domestic component and subcomponent cost as compared to total "item" component and subcomponent costs, excluding labor costs associated with final assembly and at place of manufacture.

Type 4 Waiver – Total cost of project using U.S. domestic source product exceeds the total project cost using non-domestic product by 25%. The required documentation for a Type 4 waiver is:

d) Detailed cost information for total project using U.S. domestic product.
e) Detailed cost information for total project using non-domestic product.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

_____	_____
Date	Signature
_____	_____
Company Name	Title

h. CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The bidder must complete the following two certification statements. The bidder must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The bidder agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The bidder represents that it is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) The applicant represents that it is not ( ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note:

If a bidder is unable to certify above, the bidder is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The bidder therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Certification - The information above is true and complete to the best of my knowledge and belief.

_____

Name and Title of Signer (Please Type)

_____ _____

Signature Date

i. Compliance with the Work Authorization Law (as required by Section 285.530, Revised Statues of Missouri)

For all contracts where the total bid amount is in excess of $50,000 (local match in excess of $5,000), the Bidder, by submission of an offer and by signing the Worker Eligibility Verification Affidavit for All Contract Agreements in Excess of $50,000, certifies that it:

1. does not knowingly employ any person who is an unauthorized alien in connection with the contracted services;

2. has enrolled and actively participates in a federal work authorization program;

A general contractor or subcontractor of any tier shall not be liable under sections 285.525 to 285.550 when such general contractor or subcontractor contracts with its direct subcontractor who violates subsection 1 of this section, if the contract binding the contractor and subcontractor affirmatively states that the direct subcontractor is not knowingly in violation of subsection 1 of this section and shall not henceforth be in such violation and the contractor or subcontractor receives a sworn affidavit under the penalty of perjury attesting to the fact that the direct subcontractor's employees are lawfully present in the United States.

WORKER ELIGIBILITY VERIFICATION AFFIDAVIT FOR ALL CONTRACT AGREEMENTS IN EXCESS OF $50,000 (Local match in excess of $5,000)

(for joint ventures, a separate affidavit is required for each business entity)

STATE OF _____)
) ss
COUNTY OF _____)

On this _____ day of _____, 20_____, before me appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be a person whose name is subscribed to this affidavit, who being by me duly sworn, deposed as follows:

My name is _____, and I am of sound mind, capable of making this affidavit, and personally certify the facts herein stated, as required by Section 285.530, RSMo, to enter into any contract agreement with the state or any of its political subdivisions to perform any job, task, employment, labor, personal services, or any other activity for which compensation is provided, expected, or due, including but not limited to all activities conducted by business entities:

I am the _____ (title) of _____ (business name), and I am duly authorized, directed, and/or empowered to act officially and properly on behalf of this business entity.

I hereby affirm and warrant that the aforementioned business entity is enrolled in a federal work authorization program operated by the United States Department of Homeland Security, and the aforementioned business entity shall participate in said program to verify information (employment eligibility) of newly hired employees working in connection to work under the within contract agreement. I have attached documentation to this affidavit to evidence enrollment/participation by the aforementioned business entity in a federal work authorization program, as required by Section 285.530, RSMo.

In addition, I hereby affirm and warrant that the aforementioned business entity does not and shall not knowingly employ, in connection to work under the within contract agreement, any alien who does not have the legal right or authorization under federal law to work in the United States, as defined in 8 U.S.C. § 1324a(h)(3).

I am aware and recognize that, unless certain contract and affidavit conditions are satisfied pursuant to Section 285.530, RSMo, the aforementioned business entity may be held liable under Sections 285.525 through 285.550, RSMo, for subcontractors that knowingly employ or continue to employ any unauthorized alien to work within the state of Missouri.

I acknowledge that I am signing this affidavit as a free act and deed of the aforementioned business entity and not under duress.

_____
(Affiant Signature)

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

_____
(Notary Public)

My commission expires:

Documentation of enrollment/participation in a federal work authorization program is attached. Acceptable enrollment and participation documentation consists of the following two pages of the E-Verify Memorandum of Understanding: (1) A valid, completed copy of the first page identifying the business entity; and (2) A valid copy of the signature page completed and signed by the business entity, the Social Security Administration, and the Department of Homeland Security – Verification Division.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION

The information shown in this section must be completed when a DBE contract goal has been established. The percentage must equal or exceed the DBE contract goal. If the percentage is below the contract goal, then the bidder must submit complete written documentation of good faith efforts taken to meet the DBE contract goal.

a. The undersigned submits the following list of DBEs to be used in accomplishing the work of this contract. The work, supplies or services, applicable value and percent of total federal contract each DBE is to perform or furnish is as follows:

b. Joint venture with a DBE. The undersigned submits the following list of bid items the DBE prime is responsible for and any items that will be subcontracted out are noted with an asterisk or a similar notation. The work, applicable value and percentage of total federal contract the DBE prime is responsible for are as follows:

(A) DBE Name and Address	(B) Bid Item Number(s) Or Work Performed	(C) Dollar Value of DBE Work **	(D) Percent Applicable to DBE Goal (100%, 60%)	(E) Dollar Amount Applicable to DBE Goal (C x D)	(F) Percent of Total Contract (C / Total Contract Amount)
TOTAL DBE PARTICIPATION				$	%

**Cannot exceed contract amount for given item of work.
Trucking services credited at 100% if the DBE owns the trucks or is leasing from a DBE firm
Merchant wholesalers (supply) are credited at 60%.
Brokered services will only receive credit for fees.

(Please reproduce the above sheet if additional space is needed.)

THIS EXECUTED PROPOSAL FORM MUST BE SUBMITTED IN ACCORDANCE WITH THE PROJECT MANUAL.

SIGNATURE OF BIDDER

The undersigned states that the correct LEGAL NAME AND ADDRESS of (1) the individual bidder, (2) each partner or joint venturer (whether individuals or corporations, and whether doing business under a fictitious name), or (3) the corporation (with the state in which it is incorporated) are shown below; that (if not signing with the intention to bind themselves to become responsible and sole bidder) they are the agent of, and they are signing and executing this (as indicated in the proper spaces below) as the bid of a

( ) sole individual ( ) partnership ( ) joint venture

( ) corporation, incorporated under the laws of state of _____.

Executed by bidder this _____ day of _____ 20_____.

Name of individual, all partners or joint venturers:	Address of each:
_____	_____
_____	_____
_____	_____
doing business under the name of:	Address of principal place of business in Missouri:
_____ (If using a fictitious name, show this name above in addition to legal names)	_____
_____ (If a corporation, show its name above)	_____
ATTEST: (SEAL)	_____
_____ (Signature) Secretary	_____ (Signature) (Title)
_____ Please print name	_____ Please print name

NOTE: If bidder is doing business under a fictitious name, the bid shall be executed in the legal name of the individual partners, joint ventures, or corporation, with the legal address shown, and registration of fictitious name filed with the secretary of state, as required by sections 417.200 to 417.230 RSMo. If the bidder is a corporation not organized under the laws of Missouri, it shall procure a certificate of authority to do business in Missouri, as required by section 351.572 et seq RSMo.

Item P-155 Lime-Treated Subgrade

DESCRIPTION

155-1.1 This item shall be used for soil modification that require strength gain to a specific level. This item shall consist of constructing one or more courses of a mixture of soil, lime, and water in accordance with this specification, and in conformity with the lines, grades, thicknesses, and typical cross-sections shown on the plans.

MATERIALS

155-2.1 Lime. Quicklime, hydrated lime, and either high-calcium dolomitic, or magnesium lime, as defined by ASTM C51, shall conform to the requirements of ASTM C977. Lime not produced from calcining limestone is not permitted.

155-2.2 Commercial lime slurry. Commercial lime slurry shall be a pumpable suspension of solids in water. The water or liquid portion of the slurry shall not contain dissolved material injurious or objectionable for the intended purpose. The solids portion of the mixture, when considered on the basis of "solids content," shall consist principally of hydrated lime of a quality and fineness sufficient to meet the following chemical composition and residue requirements.

a. Chemical composition. The "solids content" of the lime slurry shall consist of a minimum of 70%, by weight, of calcium and magnesium oxides.

b. Residue. The percent by weight of residue retained in the "solids content" of lime slurry shall conform to the following requirements:

Residue retained on a No. 6 (3.35 µm) sieve = maximum 0.0%

Residue retained on a No. 10 (2.00 µm) sieve = maximum 1.0%

Residue retained on a No. 30 (600 µm) sieve = maximum 2.5%

c. Grade. Commercial lime slurry shall conform to one of the following two grades:

Grade 1. The "dry solids content" shall be at least 31% by weight, of the slurry.

Grade 2. The "dry solids content" shall be at least 35%, by weight, of the slurry.

155-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

155-2.4 Soil. The soil for this work shall consist of on-site materials free of roots, sod, weeds, and stones larger than 2-1/2 inches and have a sulfate content of less than 0.3%.

COMPOSITION

155-3.1 Soil-lime mixture. Lime shall be applied at **5** % dry unit weight of soil for the depth of subgrade treatment as shown on the plans.

155-3.2 Tolerances. At final compaction, the lime and water content for each course of subgrade treatment shall conform to the following tolerances:

Tolerances

Material	Tolerance
Lime	+ 0.5%
Water	+ 2%, -0%

WEATHER LIMITATIONS

155-4.1 Weather limitation. Subgrade shall not be constructed when weather conditions detrimentally affect the quality of the materials. Lime shall not be applied unless the air temperature is at least 40°F and rising. Lime shall not be applied to soils that are frozen or contain frost. Protect completed lime-treated areas by approved methods against the detrimental effects of freezing if the air temperature falls below 35°F. Remove and replace any damaged portion of the completed soil-lime treated area with new soil-lime material in accordance with this specification.

EQUIPMENT

155-5.1 Equipment. All equipment necessary to grade, scarify, spread, mix, and compact the material shall be provided. The Resident Project Representative (RPR) must approve the Contractor's proposed equipment prior to the start of the treatment.

CONSTRUCTION METHODS

155-6.1 General. This specification is to construct a subgrade consisting of a uniform lime mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth, and have a smooth surface suitable for placing subsequent lifts. The Contractor shall be responsible to meet the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The mixing equipment must give visible indication at all times that it is cutting, pulverizing, and mixing the material uniformly to the proper depth over the full width of the cut.

155-6.2 Application. Lime shall be uniformly spread only over an area where the initial mixing operations can be completed during the same workday. Lime shall not be applied when wind conditions are detrimental to proper application. A motor grader shall not be used to spread the lime. Adequate moisture shall be added to the cement/soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

155-6.3 Mixing. The mixing procedure shall be as described below:

a. Preliminary mixing. The full depth of the treated subgrade shall be mixed with an approved mixing machine. Lime shall not be left exposed for more than six (6) hours. The mixing machine shall make two coverages. Water shall be added to the subgrade during mixing to provide a moisture content approximately 3% to 5% above the optimum moisture of the material and to ensure chemical reaction of the lime and subgrade. After mixing, the subgrade shall be lightly rolled to seal the surface and help prevent evaporation of moisture. The water content of the subgrade mixture shall be maintained at a

moisture content above the optimum moisture content for a minimum of 4 to 24 hours or until the material becomes friable. During the mellowing period, the material shall be sprinkled as directed by the RPR.

b. Final mixing. After the required mellowing time, the material shall be uniformly mixed by approved methods. Any clods shall be reduced in size by blading, discing, harrowing, scarifying, or by the use of other approved pulverization methods. After curing, pulverize lime treated material until 100% of soil particles pass a one inch (25.0 mm) sieve and 60% pass the No. 4 (4.75 mm) sieve when tested dry by laboratory sieves. If resultant mixture contains clods, reduce their size by scarifying, remixing, or pulverization to meet specified gradation.

155-6.4 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

155-6.5 Treatment Application and Depth Checks. The depth and amount of stabilization shall be measured by the Contractor with no less than 2 tests per day of material placed; test shall be witnessed by the RPR. Measurements shall be made in test holes excavated to show the full depth of mixing and the pH checked by spraying the side of the test hole with a pH indicator such as phenolphthalein. Phenolphthalein changes from clear to red between pH 8.3 and 10. The color change indicates the location of the bottom of the mixing zone. pH indicators other than phenolphthalein can be used to measure pH levels. If the pH is not at least 8.3 and/or if the depth of the treated subgrade is more than 1/2 inch (12 mm) deficient, additional lime treatment shall be added and the material remixed. The Contractor shall correct all such areas in a manner satisfactory to the RPR.

155-6.6 Compaction. Compaction of the mixture shall immediately follow the final mixing operation with the mixture compacted within 1 to 4 hours after final mixing. The material shall be at the moisture content specified in paragraph 155-3.2 during compaction. The field density of the compacted mixture shall be at least **95%** of the maximum density as specified in paragraph 155-6.10. Perform in-place density test to determine degree of compaction between 24 and 72 hours after final compaction and the 24-hour moist cure period. If the material fails to meet the density requirements, it shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

155-6.7 Finishing and curing. After the final lift or course of lime-treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The completed section shall then be finished by rolling, as directed by the RPR, with a pneumatic or other suitable roller sufficiently light to prevent hairline cracking. The finished surface shall not vary more than 1/2-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor at the Contractor's expense in a manner satisfactory to the RPR.

The completed section shall be moist cured for a minimum of seven (7) days before further courses are added or any traffic is permitted, unless otherwise directed by the RPR. The final lift should not be exposed for more than 14 days without protection or the placement of a base course material.

155-6.8 Maintenance. The Contractor shall protect and maintain the lime-treated subgrade from yielding until the lime-treated subgrade is covered by placement of the next lift. When material has been exposed

to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The maintenance cost shall be incidental to this item.

155-6.9 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

155-6.10 Acceptance sampling and testing. The lime treated subgrade shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one compaction and thickness test per **1000 square yards** of lime treated subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. All testing shall be done by **the RPR.**

The field density of the compacted mixture shall be at least **95%** of the maximum density of laboratory specimens prepared from samples taken from the material in place. The specimens shall be compacted and tested in accordance with ASTM D698 to determine maximum density and optimum moisture content. The in-place field density shall be determined in accordance with **ASTM D6938, Procedure A, direct transmission method**. If the material fails to meet the density requirements, the area represented by the failed test shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. The thickness of the course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch the Contractor shall correct such areas at no additional cost The Contractor shall replace, at his expense, material where depth tests have been taken.

155-6.11 Handling and safety. The Contractor shall obtain and enforce the lime supplier's instructions for proper safety and handling of the lime to prevent physical eye or skin contact with lime during transport or application.

METHOD OF MEASUREMENT

155-7.1 Lime-treated subgrade shall be paid for by the square yard in the completed and accepted work.

155-7.2 Lime shall be paid by the number of tons of Hydrated Lime applied at the application rate specified in paragraph 155-3.1.

a. Hydrated lime delivered to the project in dry form will be measured according to the actual tonnage either spread on the subgrade or batched on site into a slurry, whichever is applicable.

b. Quicklime delivered to the project in dry form will be measured for payment on the basis of the tons of equivalent hydrated lime using the following formula:

Equivalent Hydrated Lime ($Ca(OH)_2$) = Total Quicklime (CaO) × 1.32

c. Lime delivered to the project in slurry form will be measured for payment in tons dry weight of hydrated lime or equivalent hydrated lime in accordance with paragraph b above.

BASIS OF PAYMENT

155-8.1 Payment shall be made at the contract unit price per square yard for the lime-treated subgrade at the thickness specified. The price shall be full compensation for furnishing all material, except the lime, and for all preparation, delivering, placing, and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

155-8.2 Payment shall be made at the contract unit price per ton This price shall be full compensation for furnishing, delivery, and placing this material.

Payment will be made under:

Item P-155-8.1	Lime-treated subgrade - per square yard
Item P-155-8.2	Lime - per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C51	Standard Terminology Relating to Lime and Limestone (as used by the Industry)
ASTM C977	Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3)
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

END OF ITEM P-155

Item P-157 Lime Kiln Dust Treated Subgrade

DESCRIPTION

157-1.1 This item shall consist of constructing one or more courses of a mixture of soil, stabilizer, and water in accordance with this specification, and in conformity with the lines, grades, thickness, and typical cross-sections shown on the plans.

MATERIALS

157-2.1

Lime Kiln Dust (LKD). LKD used for stabilization shall meet the following chemical and physical requirements:

LKD Properties

Total Calcium & Magnesium Oxides (non-volatile basis) minimum	**60%**
Available Calcium Hydroxide (ASTM C25) plus total MgO content to be equivalent to $CaOH_2$; minimum	30%
Free Water (as received); maximum	4%
Loss on Ignition (as received, carbon dioxide plus moisture, combined and free); maximum	40%

Lime kiln dust shall be stored and handled in closed waterproof containers until immediately before distribution. Lime kiln dust exposed to moisture prior to mixing with soils shall be discarded.

157-2.2 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

157-2.3 Soil. The soil shall consist of on-site materials and shall be free of roots, sod, weeds, and stones larger than 2-1/2 inches with a sulfate content of less than 0.3%.

COMPOSITION

157-3.1 Soil-Kiln Dust Mixture. Kiln dust shall be added at an application rate of **6** percent dry unit weight of soil. Payment will be based on the amount of kiln dust required to obtain the minimum soil properties specified.

157-3.2 Tolerances. At final compaction, the kiln dust and water content for each course of subgrade treatment shall conform to the following tolerances:

Tolerances

Material/Properties	Target	Tolerance	Specifications
Kiln Dust	**6%***	0 to +2%	% Total Dry Materials
Moisture Content	Optimum	0% to 4%	ASTM D558
Plastic Index	< **10***	None	ASTM D4318

*** Kiln dust application and Plastic Index shall be confirmed by RPR prior to the start of construction.**

WEATHER LIMITATIONS

157-4.1 Weather limitation. Do not construct subgrade when weather conditions detrimentally affect the quality of the materials. Do not apply kiln dust unless the air temperature is at least 40°F and rising. Do not apply kiln dust to soils that are frozen or contain frost. Do not apply kiln dust when conditions are too windy to allow even distribution of the kiln dust to the subgrade. If the air temperature falls below 35°F protect completed kiln dust-treated areas by approved methods against the detrimental effects of freezing. Remove and replace any damaged portion of the completed soil-kiln dust treated area in accordance with this specification.

EQUIPMENT

157-5.1 Equipment. All equipment necessary to grade, scarify, spread, mix, and compact the material shall be provided. The Resident Project Representative (RPR) must approve the Contractor's proposed equipment prior to the start of the treatment.

CONSTRUCTION METHODS

157-6.1 General. This specification is to construct a subgrade consisting of a uniform kiln dust/soil mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth and have a smooth surface suitable for placing subsequent courses. The Contractor shall be responsible for meeting the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade, and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The machine must give visible indication at all times that it is cutting, pulverizing and mixing the material uniformly to the proper depth over the full width of the cut.

157-6.2 Application. Kiln dust shall be uniformly spread only over an area where the initial mixing operations and compaction can be completed during the same workday. The kiln dust shall not be applied when wind conditions are detrimental to proper application. Adequate moisture shall be added to the kiln dust-soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

157-6.3 Mixing Procedure. The full depth of the treated subgrade shall be mixed with equipment as approved by the RPR. Kiln dust shall not be left exposed for more than one (1) hour after distribution. Mixing shall continue until the mixture contains no clods greater than 1-1/2 inches in size. Final moisture content of the mix shall be determined by the Contractor immediately prior to compaction in accordance

with ASTM D2216 or ASTM D4959. 1 to 4 hours shall be allowed between start of moist mixing and start of compaction for LKD treated layer to ensure complete hydration prior to compaction .

157-6.4 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

157-6.5 Treatment Application and Depth Checks. The amount of kiln dust applied shall be monitored by the Contractor to assure that no less than the amount of kiln dust as specified in paragraph 157-3.1 is applied. The depth of stabilization shall be measured by the Contractor no less than 2 tests per day of material placed; test shall be witnessed by the RPR. Measurements shall be made in test holes excavated to show the full depth of mixing.

157-6.6 Compaction. The moisture content shall be within the tolerance as specified in paragraph 157-3.2. The field density of the compacted mixture shall be at least **95%**of the maximum density as specified in paragraph 157-6.10. Compaction of the soil/cement mixture shall begin within **30 minutes** after mixing the cement into the subgrade. All compaction operations shall be completed within **2 hours** from the start of mixing. Perform in-place density test immediately after completion of compaction to determine compaction. If the material fails to meet the density requirements, compaction shall continue, or the material shall be removed and replaced. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

157-6.7 Finishing and curing. After the final lift or course of treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections.

Finished portions of treated subgrade shall be protected to prevent equipment from marring, permanently deforming, or damaging completed work.

Not later than 24 hours after completion of final finishing, the surface shall be cured by being kept continuously moist for a period of 7 days with a fog-type water spray .

Sufficient protection from freezing shall be provided for at least 7 days after its construction or as approved by the RPR.

157-6.8 Maintenance. The Contractor shall maintain the entire treated subgrade in good condition from the start of work until all the work has been completed, cured, and accepted by the RPR. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The cost shall be incidental to this item.

157-6.9 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches ,reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved

continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

157- 6.10 Acceptance sampling and testing. Treated subgrade shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one (1) compaction and thickness test per **1000 square yards** of stabilized subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. The RPR shall perform all density tests

Each area shall be accepted for density when the field density is at least **95%**of the maximum density of laboratory specimens compacted and tested per ASTM **D698.** The in-place moisture content shall be determined in accordance with ASTM D4959. The in-place field density shall be determined per ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 . Perform in-place density test immediately after completion of compaction to determine compaction. If the material fails to meet the density requirements, compaction shall continue, or the material shall be removed and replaced. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

157-7.1 The amount of kiln dust treated subgrade shall be based on the number of square yards complete and accepted. The price shall be full compensation for all preparation, delivering, placing, and mixing these materials, and all labor, equipment, tools, and incidentals necessary to complete this item.

The amount of kiln dust used is based upon the application rate as determined in paragraph 157-3.1. The amount of kiln dust shall be paid by the number of tons of kiln dust used in the completed and accepted work. The price shall be full compensation for all preparation, delivering, placing, and mixing these materials, and all labor, equipment, tools, and incidentals necessary to complete this item.

BASIS OF PAYMENT

157-8.1 Payment shall be made at the contract unit price per square yard for the kiln dust treated subgrade for the thickness specified. The price shall be full compensation for furnishing all material, and for all preparation, delivering, placing and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

Payment for kiln dust shall be made at the contract unit price per ton.

Payment will be made under:

Item P-157-8.1	Lime Kiln dust treated subgrade - per square yard
Item P-157-8.2	Lime Kiln dust - per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C558	Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))
ASTM D1883	Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils
ASTM D2216	Test Methods for Laboratory Determination of Water (Moisture) Soil and Rock by Mass
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D4959	Standard Test Method for Determination of Water Content of Soil by Direct Heating
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

END OF ITEM P-157