RFB #18-0014

ADDENDUM NO. 1

Sedgwick County Project: 2018 Cold Mix & Gravel Road Replacement Program (R342)

The items contained herein now become a part of the referenced plans and specifications. Please read the following items and acknowledge receipt of this addendum on the Proposal Page Number P-1. NOTE: THIS ADDENDUM MUST BE ACKNOWLEDGED TO CONSTITUTE A VALID BID.

***SPECS*:**

Replace page SOP-1 with page SOP-1R

Replace page GN-1 with page GN-1R

Replace pages CSTB-1 to 5 with pages CSTB-1R to 5R

Replace pages CTB-1 to 4 with pages CTB-1R to 4R

***PLANS*:**

Replace page SI-1 with SI-1R

By: David C. Spears, P.E.
Assistant County Manager/County Engineer

Date: March 20, 2018

SCHEDULE OF PRICES

Project: 2018 Cold Mix & Gravel Road Replacement Program (R342)
Type of Work: Modified subgrade and pavement surface construction

Items	Approx. Quantity	Unit	Unit Price	Amount
Mobilization	1	LS		
Construction Staking	1	LS		
Cement Treated Base (10")	73,402	S.Y.		
Water (Set Price)	1	Mgal.	$35.00	
Manipulation for In-Place Material Subgrade Modification (Cement)(Set Price)	1	C.Y.	$20.00	
Traffic Control	1	LS		
SUBTOTAL - Base Bid				
Alternate 1 - HMA Surfacing				
Bituminous Surface Construction (BM-2)	7,533	Ton		
SUBTOTAL - Base Bid				
GRAND TOTAL Alternate 1				

In Words:

DOLLARS

Alternate 2 - Cold Recycled Asphalt Surfacing				
Cold Recycled Asphalt Construction	69,273	S.Y.		
Cold Central Plant Recycling	10,832	Ton		
Emulsified Asphalt	271	Ton		
SUBTOTAL - Cold Recycled Asphalt Surfacing				
SUBTOTAL - Base Bid				
GRAND TOTAL Alternate 2				

In Words:

DOLLARS

Company or Firm Name

BY

TITLE

GENERAL NOTES

Alternate Bid Items

The Contractor is required to bid on at least one of the two alternate surfacing applications to constitute a valid bid response. County may award the contract based upon the lowest cost of whichever alternate County determines is in its best interests.

Material Hauling

Sedgwick County is available to haul the RAP to the Contractor supplied pug mill or batch plant, as well as haul the produced asphalt mixture to the various job sites in coordination with the Contractor. County will provide an employee to act as the hauling coordinator and up to sixteen (16) tandem axle trucks and drivers each day for use by the Contractor to haul material for the Project. County will make reasonable accommodations to ensure efficient material delivery throughout the project. Optionally, trucks may be substituted or added at the expense of the Contractor.

Sedgwick County will haul material to/from the Contractor's plant site within a 20 mile perimeter of Sedgwick County. The Contractor shall coordinate hauling of materials with Mr. Brian Cavin, (316) 640-7672.

Reclaimed Asphalt Pavement (RAP)

County-owned RAP sources containing 100% milled RAP shall be used by the Contractor. It shall be reasonably free of deleterious materials. The Contractor may not substitute from other RAP sources.

Available RAP stockpiles that were obtained from milling Sedgwick County road projects will be identified in the Contract Documents and made accessible for sampling and visual inspection.

Manipulation for In-Place Material Subgrade Modification

The bid item "Manipulation for In-Place Material Subgrade Modification (Cement)(Set Price)" is a contingency bid item intended for use in cases where unusual subgrade conditions prevent proper compaction requirements. It shall meet the requirements of SECTION 301 of the Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction (2015 Ed.) except as noted below.

The Engineer will measure "Manipulation for In-Place Material Subgrade Modification (Cement)(Set Price)" by the square yard. The Engineer will not measure cement, fly ash, millings, calcium chloride, water and other materials used to reduce the moisture content and stabilize the subgrade. These items are considered SUBSIDIARY.

The contract unit set price for "Manipulation for In-Place Material Subgrade Modification (Cement)" shall govern regardless of the amount of overrun or underrun. This item may be underrun in its entirety.

Typical Cross Section

Each road base shall be constructed and trimmed in order to achieve a typical 2% cross grade throughout with the crown grade at the center of the road. Road widths will vary and may not use the total width of the existing gravel road. The top elevation of the cement modified subgrade shall reasonably match that of the exiting road, except the contractor will adjust the elevation at the intersections and match points to ensure a smooth transition.

SPECIAL PROVISION

NOTE: This special provision is generally written in the imperative mood. The subject, "the *Contractor*" is implied. Also implied in this language are "*shall*", "*shall be*", or similar words and phrases. The word "*will*" generally pertains to decisions or actions of Sedgwick County Public Works.

CEMENT TREATED BASE (SLURRY)

1.0 DESCRIPTION

Design a cementitious slurry mixture consisting of a homogeneously blended mix of cementitious materials and water for modification and stabilization of subgrade soils, sub-bases, and bases. Construct one or more courses of the cementitious slurry treated base as shown in the Contract Documents.

BID ITEMS	**UNITS**
Cement Treated Base (Special)	Sq. Yd.

2.0 MATERIALS

Provide materials that comply with the applicable requirements of the Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction (latest edition).

Admixtures, Plasticizers, and Silica Fume .....DIVISION 1400
Cement, Fly Ash, and Ground Granulated Furnace Slag .....DIVISION 2000
Water for use with Cement……DIVISION 2400

The Contractor shall submit the mix design for the cement slurry to the Engineer for approval prior to construction of the base course. The mix design submittal shall include all necessary certifications for supplementary cementitious materials and additives to be used. The Engineer may sample and test project materials at any time before and during placement.

a. **Cement.** Furnish cement conforming to Section 2001, "Blended Hydraulic Cement," of the KDOT Standard Specifications. Properly store the cement to prevent moisture damage. Do not use material which has become caked due to moisture absorption. Do not use cement containing lumps or foreign matter of a nature and in amounts that may be deleterious to the mixing operations.

3.0 PROCESS CONTROL

a. **General.** During construction, the Engineer may conduct tests to verify compliance of the approved mix design. Any load that fails a test for consistency or viscosity shall be re-tested at least one additional time within 30 minutes after the initial failed test. A second failure will result in rejection of the entire load.

b. **Consistency.** A 500 cc portion of the slurry will be removed from the middle of the load. The slurry suspension will be allowed to sit with no vibration or agitation at

ambient temperature for 30 minutes. Little or no separation of liquid or solid should occur.

c. **Viscosity.** The Marsh Funnel Viscosity of the slurry shall be a minimum of 60 seconds when measured according to ASTM D6910.

4.0 Slurry Mix

a. **General**. Design the slurry mix specified in the Contract Documents.

Provide cementitious materials that comply with the requirements of DIVISION 2000 of the KDOT Standard Specifications.

Submit all slurry mix designs to the Engineer for review and approval.

Do not place any slurry on the project until the Engineer approves the mix design. Once the Engineer approves the slurry mix design, do not make changes without the Engineer's approval.

b. **Cementitious Material.** The slurry mix shall contain a minimum of 55% cementitious material by mass. The 7-day minimum and maximum required unconfined compressive strength for soil cement shall be 200 psi and 400 psi, respectively.

c. **Stabilizing Agent**. The slurry mixture shall contain a stabilizing agent capable of maintaining a homogeneous mixture of the cementitious materials in the water for at least four (4) hours after it has been batched.

5.0 EQUIPMENT

Provide a mixing plant, tools, and equipment necessary for proper mixing and delivery of the slurry.

a. **Storage Facility.** Store all components, except water, in weatherproof containers.

b. **Slurry Plant.** Provide a pneumatic/hydraulic mixing plant with monitoring devices to regulate flow rates and line pressures. Regulate slurry proportions by calibrated scales. Include all storage silos, weather protection, sheds, scales, pumps, mixers, valves, gauges and regulating devices required to continuously measure and mix cementitious slurry at the batch plant. The plant should provide safe and easy access for the Engineer to obtain samples.

All components of the slurry solution shall be mixed using a high energy static mixing apparatus. All mechanical mixing must be pump driven. Lime slaking tanks, paddle driven mixers and other similar technology shall not be employed.

c. **Delivery equipment.** Deliver slurry to the project site in a non-baffle tank vehicle that does not re-circulate or agitate the slurry material by any means other than the motion of the vehicle in normal movement. Application of the slurry will be through a vehicle that both injects the slurry into the substrate soil and meters the precise amount of product per square yard that is recommended**.**

d. **Tickets.** Generate tickets through the function of the calibrated plant scales. Tickets shall document the amount of cementitious product in a dry ton mass.

6.0 CONSTRUCTION REQUIREMENTS

Construct each layer uniformly, free of loose or segregated areas and with the required density and moisture content. Provide a surface that conforms to the typical sections, lines, and grades shown in the Contract Documents.

a. **Preparation.** Before treating the existing base, pulverize, mill or remove existing pavement in accordance with the Contract Documents. Shape existing material to conform to the typical sections shown on the plans. Correct soft spots as directed.

   When new base material is required to be mixed with existing base, deliver, place, and spread the new material in the required amount per station. Manipulate and thoroughly mix new base with existing material to provide a uniform mixture to the specified depth before shaping.

b. **Pulverization.** After shaping, pulverize or scarify existing material so that 100% passes a 2½" sieve. If the material cannot be uniformly processed to the required depth in a single pass, windrow and excavate the material to expose a secondary grade to achieve plan depth.

c. **Application of Cementitious Slurry.** Uniformly inject cementitious material into the pulverized pavement or soil that is below optimum moisture for compaction. Distribute slurry uniformly in successive passes until desired cement content is achieved. The substrate soil should be ripped, scarified or ground, to expose the maximum amount of surface area to be coated by the slurry. The slurry shall be mixed throughout the substrate material with a mixer of sufficient size and power in a timely manner.

d. **Application rate.** The Engineer will work with the Contractor to determine the application rate of the cementitious slurry to produce a base course that meets the requirements shown in the Contract Documents.

   Thorough mixing and compaction of cementitious slurry treated base must be completed within two hours after injecting the slurry into the substrate soil/pulverized material. The slurry may begin to dry or form a white crust when exposed to high temperatures. This will require a light application of water spraying or misting of sufficient means to return the slurry to its original gray color. Apply only the proper amount of water to achieve the desired compaction.

e. **Compaction.** For the initial compaction of the mixture, use a vibratory roller having a minimum operating weight of 12 tons, with a minimum centrifugal force of 24 tons. Use a rubber-tired or smooth-wheeled roller to complete the compaction of the surface. Compact the base course in one lift using density control unless otherwise shown in the Contract Documents. Compact the treated subgrade to a minimum of 95% of the combined materials dry density. Complete the compaction operations within 2 hours of incorporating the cement into the subgrade. If any of these requirements are not satisfied, reprocess, recompact and refinish the deficient areas.

   Begin rolling longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least one-half the width of the roller unit. Offset alternate trips of the roller. Operate rollers at a speed between 2 and 6 MPH, as directed. Remove areas that lose required stability, compaction, or finish. Replace with cementitious mixture at the Contractor's expense.

Roll with approved compaction equipment, as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing treated material as required, reshaping, and re-compacting.

f. **Trimming.** After compaction of the treated subgrade, trim and recompact the treated subgrade to the specified lines and grades. Use automatic grade controlled equipment to trim the subgrade. In irregular areas, trim the subgrade by wetting, blading and rolling.

Trim and recompact the subgrade within 2½ hours of the time the slurry mix is added to the subgrade. Recompact the trimmed surface of the treated subgrade with a smooth-wheel or a pneumatic-tire roller. Lightly scarify and blade the surface to eliminate equipment imprints while performing final rolling.

Keep the surface moist during all finishing operations.

Perform the trimming and compacting operations to produce a dense surface, free of surface compaction planes, cracks, ridges or loose material that meets the specified lines and grades.

g. **Protection and Curing.** Protect the cement modified subgrade against the loss of moisture for a curing period of 7 days (unless the Contractor's mix design test results justify a different curing period). Protect the CTB against freezing during the curing period. Do not allow equipment on the finished course during curing except as required for sprinkling, unless otherwise approved.

Local traffic may require access during the curing period. The Contractor shall maintain traffic control measures during this period, and shall take reasonable precautions to ensure traffic does not damage the CTB. Reasonable precautions include, but are not limited to, advanced communications with local residents and businesses, scheduling modifications to meet local needs, utilizing flagmen to monitor traffic, and limited emergency access only periods to select portions of the work area.

7.0 WEATHER LIMITATIONS

Do not construct the cementitious slurry treated base course on any wet or frozen surface or when weather conditions otherwise prevent the proper handling and finishing of the mixture.

Unless authorized by the Engineer, discontinue mixing and placement operations when the descending ambient air temperature reaches 40°F. Do not begin placement operations until an ascending ambient air temperature reaches 35°F and is expected to exceed 40ºF.

As a general rule, do not use fly ash, GGBFS or blended cement between the dates of October 1 and April 1. However, if weather conditions are unseasonably warm, the Engineer may waive this rule on a day by day basis. The Engineer will consider the nighttime temperatures, the extended weather forecast and the performance and setting of the mix when deciding whether to waive the restrictions.

During periods of hot weather or windy conditions, special precautions shall be taken to minimize moisture loss due to evaporation. Precautions may include temporary windbreaks

to reduce wind velocity, cooling of slurry mix water, decreasing the allowable time between mixing and final compaction, and keeping the surface of the newly constructed base course damp with a light spray during compaction and finishing operations.

Do not construct the cementitious slurry treated base course when rain is imminent. Cease all operations if rain occurs during construction of the base course.

8.0 MEASUREMENT AND PAYMENT

The Engineer will measure the cementitious slurry treated base course by the square yard. Material placed beyond the neat lines indicated in the Contract Documents is not measured for payment unless authorized by the Engineer.

Payment for "Cementitious Slurry Treated Base (Special)" at the contract unit prices is full compensation for the specified work.

SPECIAL PROVISION

NOTE: This special provision is generally written in the imperative mood. The subject, "the *Contractor*" is implied. Also implied in this language are "*shall*", "*shall be*", or similar words and phrases. The word "*will*" generally pertains to decisions or actions of Sedgwick County Public Works. The term "Standard Specifications" refers to the Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction (latest edition).

CEMENT TREATED BASE (DRY)

1. DESCRIPTION

Design a cement treated base (CTB) mixture using the dry form of cement. Homogeneously blend the mixture of cementitious materials and water for modification and stabilization of subgrade soils, sub-bases, and bases. Construct one or more courses of the CTB on a prepared roadway as shown in the Contract Documents.

BID ITEMS	**UNITS**
Cement Treated Base (Special)	Square Yard

2. MATERIALS

Provide materials that comply with the applicable requirements.

Concrete Admixtures & Curing Material ..... **DIVISION 1400**
Portland Cement and Fly Ash ..... **DIVISION 2000**
Water for CTB ..... **DIVISION 2400**
Aggregates for CTB .....**DIVISION 1100**

3. Mix Design

a. **General**. Design a mixture of aggregate and portland cement and submit to the Engineer for review and approval. Do not place the mixture on the project until the Engineer approves the mix design. Once the Engineer approves the mix design, do not make changes without the Engineer's approval.

b. **Compressive Strength.** The 7-day minimum and maximum required unconfined compressive strength for soil cement shall be 200 psi and 400 psi, respectively.

4. CONSTRUCTION REQUIREMENTS

a. **Preparation and Maintenance of the Subgrade**. Use automatic grade control equipment to trim the surface of the subgrade to the line, grade and cross-section as shown in the Contract Documents. Maintain the subgrade surface to readily drain at all times. Protect the subgrade from damage when handling materials, tools and equipment. Do not store or stockpile materials on the subgrade. Do not place material or lay CTB on a frozen or muddy subgrade.

Lightly spray the subgrade with water to obtain a thoroughly moistened condition before the CTB

is placed.

Do not puddle water on the grade.

Do not place CTB on frozen subgrade. Do not deposit any material until the subgrade or base has been checked and approved by the Engineer.

b. **Application**. Apply cement using a controlled application system. This system may be pressurized or mechanical in nature, utilizing vane or augers feeding the cementitious material through a funnel or hood at a controlled rate. The cementitious material shall be applied uniformly in a manner that minimizes dust and is satisfactory to the Engineer.

In irregular areas, submit a plan to the Engineer for approval that includes equipment and procedures that address subgrade preparation and application process to spread the cementitious material at the specified rate.

The Contractor shall take precautions to ensure the cementitious material stays confined to the roadway area to be stabilized.

Do not apply the cementitious material when conditions are such that the material is lost due to the wind. Do not use cement that was not properly handled and not stored in weatherproof containers.

c. **Mixing the Materials**. Do not place CTB on the project until the Engineer has reviewed and approved the submitted mix design.

Mix the scarified subgrade and cementitious material. Continue mixing and adding water until a homogeneous, friable mixture that complies with TABLE 1 is obtained. Use equipment with a recycling or mixing drum, and with an automatic water proportioning system to pulverize the subgrade to the specified depth.

Do not perform treated subgrade operations when the ambient air temperature is below 40°F, or the soil is frozen.

Table 1: Percent Retained – Square Mesh Sieves	
1½ inch	**½ inch**
0	50 maximum

Complete the mixing within 30 minutes of adding the cement or fly ash to the pulverized subgrade.

The uniform moisture content of the mixture immediately before being compacted shall be ±2 percentage points of the optimum moisture content. Spray the mixture with water, as necessary, to maintain the specified moisture content during the compaction operations.

d. **Compaction.** For the initial compaction of the mixture, use a vibratory roller having a minimum operating weight of 12 tons, with a minimum centrifugal force of 24 tons. Use a rubber-tired or smooth-wheeled roller to complete the compaction of the surface. Compact the base course in one

lift using density control unless otherwise shown in the Contract Documents. Compact the treated subgrade to a minimum of 95% of the combined materials dry density. Complete the compaction operations within 2 hours of incorporating the cement into the subgrade. If any of these requirements are not satisfied, reprocess, recompact and refinish the deficient areas.

Begin rolling longitudinally at the sides and proceed towards the center, overlapping on successive trips by at least one-half the width of the roller unit. Offset alternate trips of the roller. Operate rollers at a speed between 2 and 6 MPH, as directed. Remove areas that lose required stability, compaction, or finish. Replace with cementitious mixture at the Contractor's expense.

Roll with approved compaction equipment, as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing treated material as required, reshaping, and re-compacting.

e. **Trimming.** After compaction of the treated subgrade, trim and recompact the treated subgrade to the specified lines and grades. Use automatic grade controlled equipment to trim the subgrade. In irregular areas, trim the subgrade by wetting, blading and rolling.

Trim and recompact the subgrade within 2½ hours of the time the water and cementing agent is added to the subgrade. Recompact the trimmed surface of the treated subgrade with a smooth-wheel or a pneumatic-tire roller. Lightly scarify and blade the surface to eliminate equipment imprints while performing final rolling.

Keep the surface moist during all finishing operations.

Perform the trimming and compacting operations to produce a dense surface, free of surface compaction planes, cracks, ridges or loose material that meets the specified lines and grades.

f. **Protection and Curing.** Protect the CTB against the loss of moisture for a curing period of 7 days (unless the Contractor’s mix design test results justify a different curing period). Protect the CTB against freezing during the curing period. Do not allow equipment on the finished course during curing except as required for sprinkling, unless otherwise approved.

Local traffic may require access during the curing period. The Contractor shall maintain traffic control measures during this period, and shall take reasonable precautions to ensure traffic does not damage the CTB. Reasonable precautions include, but are not limited to, advanced communications with local residents and businesses, scheduling modifications to meet local needs, utilizing flagmen to monitor traffic, and limited emergency access only periods to select portions of the work area.

f. **Weather Limitations**. Do not place material if the CTB will be exposed to ambient air temperatures below 32ºF during the first 7 days of cure. (See subsections 3.b. and e.). Remove and replace all CTB that is permitted to freeze within the first 24 hours, whether frozen on the surface or full depth. When materials are exposed to freezing ambient air temperatures after the first 24 hours but before the 7 day cure period is complete, demonstrate that the 7 day design strength has been achieved. Failure to demonstrate the 7 day design strength has been achieved shall require removal and replacement at Contractor’s expense.

As directed by the Engineer and at the Contractor’s expense, repair or replace cured materials

exposed to ambient air temperatures below freezing or repeated freeze/thaw cycles that result in loosening or fluffing of the surface.

A lift of pavement placed prior to exposure to freezing ambient air temperatures constitutes curing of the CTB.

Do not place material on frozen subgrade. Mixing and placing may proceed when the ambient air temperature is 40ºF and rising, and discontinue when the ambient air temperatures reaches 45ºF and falling.

5. MEASUREMENT AND PAYMENT

The Engineer will measure the CTB and quality control testing of CTB by the square yard. Material placed beyond the neat lines indicated in the Contract Documents is not measured for payment unless authorized by the Engineer.

Payment for "Cement Treated Base" and "Quality Control Testing (CTB)" at the contract unit prices is full compensation for the specified work.

No adjustment of the contract unit price for "Quality Control Testing (CTB)" is made for overruns or underruns in the contract quantity.

If the PCCP in the contract is specified as QC/QA, (Quality Control Testing (CTB) is included as a bid item), compressive strength pay adjustments will apply under the bid item "Cement Treated Base Compressive Strength Pay Adjustment", and will be shown as an added item to the contract.

Site Information (R342)

	Location (See Map)	Length (L.F.)	Cement Mod. Base		Hot Mix Asphalt			Cold Recycled Asphalt Option					Remarks
			Avg. Road Width (Ft.)	Total Area (Sq. Yd.)	Avg. Surface Width (Ft.)	Surface Depth (in.)	BM-2[♯] (Tons)	Avg. Surface Width (Ft.)	Surface Depth (in.)	Cold Recycled Constr. (Sq. Yd.)	Central Plant Recycling[¥] (Tons)	Emuls. Asphalt[Ω] (Tons)	
A	37th St N between 127thSt E and 143rd St E 610-35	5,284	24.0	14,519	23.0	2	1,469	23.0	3	13,504	2,112	53	One bridge deck to be covered with select material & surfacing material. Includes north & east intersection returns at 127th E.
B	Central Ave. between 199th St W and 183rd St W 618-14	5,266	25.0	14,687	24.0	2	1,527	24.0	3	14,043	2,196	55	One bridge deck to be covered with select material & surfacing material. Includes full intersection plus 100' of 183rd W.
C	87th St S between Webb and Greenwich Rds. 640-33	5,286	24.0	14,368	23.0	2	1,469	23.0	3	13,509	2,112	53	One RCB; sufficient existing material should be available over the structure. Includes full intersection at Webb Rd.
D	Hoover Rd between 77th St N and 85th St N 813-F	5,154	24.5	14,099	23.5	2	1,464	23.5	3	13,458	2,104	53	Includes intersection at 77th St N.
E	Hillside between 111th St S and 119th St S (County Line) 825-DD	5,535	25.0	15,729	24.0	2	1,605	24.0	3	14,760	2,308	58	Includes full intersection at 111th St S.
	Totals	26,525		73,402			7,533			69,273	10,832	271	

[♯]Hot Mix Asphalt calculated at the rate of 145 lb/ft^3.

[¥]Cold Central Plant Recycled Asphalt calculated at the rate of 139 lb/ft^3.

[Ω]Emulsified Asphalt calculated at the 2.5% by weight of RAP.

NOTES: All information provided is based on the best information available at the time of design. Any discrepancies should be reported to the Engineer prior to bidding.

All pavement marking shall be completed by others.

Pavement and aggregate edge wedges used to transition from the new road elevation to the drive or sideroad elevation shall be completed by others.

The Contractor shall adjust the elevation of the base course to ensure a smooth transition between the beginning/end of construction and the adjacent surface.

The actual limits of construction may be adjusted in the field as directed by the Engineer.

RCB bridge and culvert decks shall be covered with select fill material provided and hauled to the project site by County unless otherwise noted. Contractor shall compact the fill material and construct the same surface as prepared for the remaining road section.

The Contractor shall ensure sufficient cover is available over crossroad pipes other drainage structures. If insufficient material is encountered, the Contractor shall notify the Engineer at least 48 hours ahead of constructing the cement treated base work in that area. County will provide and haul the material to cover the structure. Contractor will spread, compact and otherwise prepare material for use. All cost associated with this work shall be SUBSIDIARY to other contract items.