

Lori Hendricks
Wagoner County Clerk



307 E. Cherokee St.
Wagoner, OK 74467
918.485.7716
Fax 918.485.7718

Invitation to Bid

The Board of County Commissioners, Wagoner County, Oklahoma is seeking sealed bids for Wagoner County Stream Bank Stabilization located in Wagoner County District 3. The project is located along an unnamed stream northwest of the intersection of E. 161st Street and S. 273rd East Ave. Project must comply with the prevailing wage requirements of the Davis Bacon Act. A pre-bid meeting will be held @ 9:00 AM on October 20, 2015. Bidders will meet and park @ the corner of Midway Road and Indian Road. Attendance at the pre-bid meeting is not mandatory, but all prospective bidders are encouraged to attend.

Bid # 2016-11

Date Published: October 7 and 14, 2015

Bidding Period Closing Date and Hour: October 30, 2015 @ 4:00 PM

Sealed Bid Opening Date and Hour: November 2, 2015 @ 9:00 Commissioners' Meeting Room

Requesting Authority: Wagoner County Commissioners

Bid submissions are to be: Addressed to:
Wagoner County Purchasing Agent
P O Box 156
Wagoner, OK 74477

Delivered to:
Wagoner County Purchasing Agent
307 E Cherokee
Wagoner, OK 74467

Lori Hendricks
Wagoner County Clerk
P O Box 156
Wagoner, OK 74477

Invitation to Bid
CONSTRUCTION PROPOSAL AND CONTRACT
FOR

**WAGONER COUNTY STREAM BANK STABILIZATION
WAGONER COUNTY DISTRICT 3**



**BOARD OF COUNTY COMMISSIONERS
WAGONER COUNTY, OKLAHOMA**

**James Hanning, Member
Commissioner District #1**

918-357-1927

**Chris Edwards, Chairman
Commissioner District #2**

918-485-4549

**Tim Kelley, Vice Chair
Commissioner District #3**

918-486-2170

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NOTICE TO BIDDERS

SEALED BIDS, submitted on forms prepared by the Board of County Commissioners of Wagoner County, Oklahoma, hereinafter referred to as the County, will be received by said COUNTY at the office of the County Clerk of Wagoner, Wagoner County Courthouse, 307 E Cherokee, Wagoner, Oklahoma 74467, until 4:00 PM October 30, 2015. Said Bids will be publicly opened in Commissioners' Meeting Room at 9:00 AM on November 2, 2015 at the regularly scheduled County Commission meeting and read aloud for:

**WAGONER COUNTY STREAM BANK STABILIZATION
WAGONER COUNTY DISTRICT 3**

The County reserves the right to reject any and all bids.

The County reserves the right to waive informalities or minor irregularities in the bid.

“Original Affidavit for Filing with Competitive Bid”, “Business Relationships Affidavit”, Certification of Non-Discrimination in Employment” Form and W-9 must have all blank spaces filled in, be signed, notarized as required and returned with bid or bid will not be accepted. Out of state bidders should change “State of Oklahoma” at the top of the form to indicate state where bidder is located.

Each bid greater than \$50,000.00, shall be accompanied by a certified check, cashier’s check or bid bond approved by The Board of County Commissioners in an amount of not less than five percent (5%) of the amount of the bid as a guarantee that, if awarded the contract, the bidder will enter into a contract with the Board of County Commissioners for the execution of the above-stated work, and in the event of failure to do so, there shall be paid to the Wagoner County Board of County Commissioners the sum of five percent (5%) of said bid as liquidated damages.

Bid forms and information concerning the project may be obtained after 2:00 PM October 7, 2015 from the office of the County Clerk, Wagoner County Courthouse, 307 E Cherokee, Wagoner, Oklahoma 74467 (918) 485-7712.

Bidders may contact the Wagoner County Engineer’s office at 918-485-7979 for further bidding information and to arrange inspection of the job site.

County Clerk

Date: _____

PROPOSAL WORKSHEET

SPECIFICATIONS FOR THIS PROJECT ARE AS PER SPECIAL PROVISIONS AND PLANS

Bidders are requested to view the jobsite. Further information and questions concerning this project should be directed to Monty Proctor, Wagoner County Engineer at (918) 485-7979.

LUMP SUM BID:

_____ \$ _____
In Writing

Work will be completed in _____ calendar days.

Bid Bond, certified check or cashier's check in the amount of not less than five percent (5%) must be enclosed.

Completed Affidavit for Filing with Competitive Bid, Business Relationships Affidavit, and Certification of Non-Discrimination in Employment must be enclosed.

Contractor receiving award of contract shall post wage rates at jobsite and be prepared to verify paying said rates.

This bid includes material, labor, insurance and bonding. Please note that the contractor receiving award of contract must provide Performance, Statutory and Maintenance bonds.

Wagoner County reserves the right to reject any and all bids that are not according to the specifications.

Submitted By: _____ **Title:** _____

Company: _____

Address: _____

Telephone Number: _____ **Federal Tax I.D. Number:** _____

Seal (If Corporation)

Attest: _____
Secretary

(State of Oklahoma)

§

(County of Wagoner)

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

My Commission Expires: _____

Notary Public

PROPOSAL

The bidders shall review the plans and specifications and must view the job site. Further information and questions concerning this project may be directed to the Wagoner County Engineering Department, at 918-485-7979. All construction shall comply with the 2009 Edition of the State of Oklahoma Standard Specifications for Highway Construction. The project shall be bid on a lump sum basis with the following quantities to be used to establish the total lump sum price. The unit prices requested below shall be used to establish prices for any approved changes in the work.

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	QTY.	UNIT COST	EXTENSION
1	202(A)	UNCLASSIFIED EXCAVATION	CY	762		
2	202(D)	UNCLASSIFIED BORROW (TOP SOIL)	CY	275		
3	202(F)	EMBANKMENTS	CY	268		
4	221(C)	TEMPORARY SILT FENCE	LF	496		
5	221(F)	TEMPORARY SILT DIKE	LF	26		
6	228	EROSION CONTROL MATTING, SIDE SLOPES	SY	1,500		
7	229	EROSION CONTROL MATTING, CHANNEL BOTTOM	SY	250		
8	230(A)	SOLID SLAB SODDING	SY	1,920		
9	601(A)	TYPE 1 PLAIN RIP-RAP	TON	30		
10	601(I)	FILTER FABRIC (RIP-RAP)	SY	350		
11	641	MOBILIZATION	LSUM	1		
12	642(A)	CONSTRUCTION STAKING, LEVEL 1	LSUM	1		
13		TIRE REMOVAL	LUMP	1		
14		SITE CLEAN-UP & RESTORATION	LUMP	1		

FOR PROJECT PERFORMANCE

THIS AGREEMENT, made and entered into by and between the Board of County Commissioners of Wagoner County, Oklahoma, a political subdivision of the State of Oklahoma, and hereinafter referred to as "County", and

Hereinafter called "Contractor".

WITNESSETH:



That for and in consideration of the mutual terms, covenants and conditions hereinafter set forth, the parties agree as follows:

1. Recitals. The County has heretofore called for bids for the construction of the **WAGONER COUNTY STREAM BANK STABILIZATION**

Hereinafter called the "Project", same to be in accordance with the plans and specifications therefore prepared by **MONTY PROCTOR, PE, WAGONER COUNTY ENGINEER** hereinafter referred to as **Engineer**, which plans and specifications are on file in the office of the County Clerk at the Wagoner County Courthouse and are further identified as all the contract documents, blueprints, drawings and any addenda thereto and are hereby made a part hereof; all of which instruments shall be hereinafter referred to as "plans and specifications", which shall mean the plans, specifications, drawings, general conditions and any and all other instruments prepared and filed with the County Clerk in connection with this project. Notice to Bidders dated

_____ wherein the County called for bids as aforesaid, was published in the _____ on _____ as appears more fully in the affidavit of the Wagoner Tribune, Inc., a corporation, said affidavit being on file in the office of the County Clerk of Wagoner County Courthouse. Pursuant to advertisement for bids, the sealed bid proposal of Contractor was duly received and publicly opened on the date and at the time prescribed in the Notice to Bidders, in the County Commission Room, Wagoner County Courthouse, and read aloud as were all other bids duly received. The bid of Contractor is now on file in the County Clerk and is incorporated herein and made a part hereof by reference, as fully as if copied at length herein. By order and direction of the Board of County Commissioners of Wagoner County, Oklahoma, all bids received for this project were filed and examined to determine the lowest responsible bid therefore. Thereafter, on _____, at a regular meeting of the Board of County Commissioners of Wagoner County, Oklahoma, the Contractor's bid was accepted as the lowest responsible bid for said construction. Contractor admits that he has visited the site of the project and that the plans and specifications are sufficient to accomplish their intended purposes, to which Contractor does agree and warrant. This contract, together with the plans and specifications, general conditions, Contractor's bid and any other documents hereinafter identified, constitutes the entire agreement between the parties hereto.

2. Bonds, Insurance and Indemnity. Contractor's performance bond, maintenance bond, statutory bond, and all insurance policies, shall be submitted to the County for approval by the District Attorney concurrently with the submission of this agreement. This contract shall be of no force or effect until all such bonds, insurance policies and/or insurance certificates required herein and in the contract documents are submitted to the District Attorney's office and there approved as to form and content and placed on file in the office of the County Clerk of Wagoner County. Upon approval of the bonds, insurance policies, and/or insurance certificates required herein and the contracts due execution and filing, the Contractor's bid bond shall be released.

Contractor shall submit all bonds, insurance policies and/or insurance certificates required in the plans and specifications and in the general conditions and contract documents, and shall do no work on this project until the same have been approved by the County. The Contractor shall purchase and maintain property insurance, if

EXAMPLE

required, upon the entire work at the site to the full insurable value thereof. This insurance shall include the interest of the County, the Contractor, Subcontractors and Sub-subcontractors in the work and shall insure against the perils of fire, extended coverage, vandalism and malicious mischief.

Contractor shall at all times save and hold the County harmless from any damage, loss or expense due to the performance of this contract and/or Contractor's operation hereunder. It is further understood and agreed that if any part of Contractor's work depends upon the work of any other contractor, firm, or person, other than one of the Contractor's sub-contractors, Contractor shall inspect and promptly report to County and/or Engineer any and all defects of such work as would render it unsuitable for proper performance under this contract. The term "Work" shall mean labor and materials and/or the furnishing and performance thereof. Failure by Contractor to inspect and report any such deficiency by any contractor other than one of his sub-contractors as not being fit, adequate and proper work for the reception of the work to be done by Contractor shall not excuse Contractor from timely, due and proper performance of his work under this contract, and this clause shall not be construed or interpreted as relieving the Contractor of any and/or the primary responsibility hereunder to report such deficiency.

Due and proper performance under this contract shall mean that all work shall be performed in a good and first-class, workmanlike manner, and the requirement of due performance of this contract in a good and workmanlike manner shall extend to and encompass any and all work done under this contract by the Contractor and/or any of his sub-contractors.

3. Scope of Work. The work to be done and performed by the Contractor is that contained in the basic bid proposal in which Contractor has agreed to do such work for the **base sum of _____**. In consideration of the payment thereof, Contractor shall, in a good and first-class, workmanlike manner, at his own cost and expense, furnish all labor, materials, and supplies, all necessary tools and equipment required to commence, perform and complete this project in strict accordance with the plans and specifications.

4. Construction. It is understood and agreed that Contractor shall, within ten (10) days after receipt of a work order, commence the performance of this contract, and shall thereafter diligently prosecute such performance until completion of same. In any event, Contractor shall complete construction and performance of this contract within _____ calendar days from the date of the work order, in accordance with the bid proposal of Contractor, and pursuant to the conditions stipulated in the general conditions. Contractor shall at all times be represented at the site of the project by a competent foreman or superintendent satisfactory to Engineer. Said representative shall have authority to act for the Contractor in all respects and in all matters concerning the work and performance of this contract, and any commitment, action or representation made by said agent shall be fully binding upon Contractor as fully as if made by it. All work shall be performed in a good and first-class, workmanlike manner in strict accordance with the said plans and specifications.

5. Title. Title to all materials to be furnished by Contractor shall remain in Contractor, and Contractor shall retain all risk of loss or injury to said materials until final approval and acceptance of complete performance of this contract.

6. Alterations and Extras. It is hereby specifically noted ~~and agreed that neither Engineer or any other agent of the County of Wagoner has authority to vary, modify or add to the terms and conditions of the contract documents to the prejudice of the County. Contractor shall not be entitled to any claim for extras in any amount, whether performed or not, unless before the commencement thereof such extras shall have been approved and authorized in writing by the Board of County Commissioners of the County of Wagoner, and ratifications of any extras subsequent to the act shall be illegal and not binding upon County.~~

EXAMPLE

7. Progress Payments. The County shall make payments on account of the contract and as provided in the contract document, as follows:

In the event Contractor has duly performed this contract without delay, deviation or default, Contractor may on or about the 10th day of each calendar month following the authorized commencement and performance of this contract, obtain Engineer's certificate of estimate as to the percent of value of completion, based on labor and

materials incorporated in the work, and of the materials suitably stored at the work site up to the last day of the preceding calendar month, and on the basis of daily certified and approved estimates of the work performed during the preceding month as submitted by the Contractor to the Engineer, together with the proofs of payment as required in the plans and specifications and the contract documents, and the County shall upon presentation of Engineer's certificate, including a sworn certification by the Engineer that work for which payment is claimed has been performed and that such work conforms to the plans and specifications for the project, pursuant to 61 O.S. Sec. 123 of the Oklahoma Public Competitive Bidding Act of 1974, and upon submission of affidavits as required by 61 O.S. Sec. 138, 74 O.S. Sec. 85.22, 85.23, pay to Contractor ninety percent (90%) of such estimates, less the aggregate of all previous payments made thereunder.

Requests for payment shall be submitted to Engineer on AIA document G702 accompanied by AIA document G702A or any other form acceptable to the County, listing the percentages of completion for the various items of the contract.

8. Subcontracts. A subcontractor is a person who has a direct contract with the Contractor to perform any of the work at the site. The Contractor shall submit a list of all Subcontractors proposed for the principal portions of the work within five (5) calendar days from the date hereof. Approval of all Subcontractors must be had before commencement of work, which approval shall not be withheld an unreasonable length of time. The Contractor shall not employ any Subcontractor to whom Engineer or the County may have a reasonable objection. In the event of any rejection of a proposed Subcontractor, the Contractor shall immediately submit an additional proposed Subcontractor for the work contemplated in the same manner as the original list.

9. Acceptance and Final Payment. Upon full performance hereof, and completion of the project, Contractor shall give written notice to Engineer that the work is ready for final inspection and acceptance, and shall at the same time submit evidence satisfactory to Engineer and the County that all payrolls, materials bills, sums due Subcontractors and any or all other indebtedness connected with the work has been fully paid. Engineer shall promptly make an inspection of the work and construction done. In the event any portion of the work is not in accordance with the plans and specifications or is faulty, whether such defect be latent or patent, discovered or undiscovered, before the final acceptance under this provision, Contractor shall at his expense remedy such deficiencies or defaults and correct any improper construction or workmanship as may be specified by the County, and/or its Engineer, and shall thereupon complete performance of this contract in accordance with the plans and specifications and these contract documents.

When, upon inspection, Engineer finds that the project has been fully completed and the contract fully performed, he shall promptly issue and deliver to the County and the Contractor Engineer's signed final certificate stating that the work specified in the contract has been completed and is ready for acceptance under the terms and conditions of this instrument. Such certificate shall state the entire balance found to be due to Contractor. Upon receipt of the final certificate from Engineer and the duly sworn certificate and affidavits as required in Section 7 above, and approval thereof by County, and a finding by County that said work has been completed according to the terms and conditions of the contract documents, County shall within twenty (20) days thereafter pay to Contractor the entire balance then due and payable under the terms of this contract. It is hereby specifically noted, understood and agreed that Engineer's certificates, whether for the issue of any progress payment or the final certificate for the issue of the final payment hereof, shall not of itself constitute an approval or acceptance of any faulty work or defective materials, whether latent or patent, neither shall any payments, whether progress payments or final payment by the County, constitute a waiver and/or acceptance of any defective or faulty workmanship or materials hereunder. On such final completion Contractor shall furnish to County a release of all claims and right of lien and sworn statements as required by law, and Contractor hereby acknowledges receipt of statutory notice to furnish the same before final payment shall be due under this contract. The full performance of this contract shall be subject to Contractor's full performance of all the obligations contained thereunder, together with the specific items and obligations and the full performance thereof contained in the contract documents, plans and specifications, general conditions, and addenda thereto, heretofore identified in this contract.

10. Discrimination Prohibited. The Contractor agrees, and further agrees to require of all Subcontractors, that no person in the United States shall, on the grounds of race, religion, color, national origin or sex be excluded from

participation in, be denied the benefits of, or be subjected to discrimination under this agreement or by performance thereof.

11. This contract is to be governed by and construed according to the laws of the State of Oklahoma. If it should appear that any of the terms hereof are in conflict with any rule of law or statutory provision of the State of Oklahoma, then the terms of the contract which may conflict with the laws of the State of Oklahoma shall be deemed inoperative and null and void insofar as they may be in conflict therewith, and shall be deemed modified to conform to such rule of law.

12. In the event of any conflict, inconsistency, or incongruity between the provisions of the Contract for Project Performance and any of the provisions of the plans and specifications, the provisions of this Contract for Project Performance shall in all respects govern and control.

IN WITNESS WHEREOF, the parties hereto have executed in multiple copies this _____ day of _____, 20 .

ATTEST:

“COUNTY”
Board of County Commissioners
Wagoner County, Oklahoma

County Clerk

Chairman

APPROVED AS TO FORM:

EXAMPLE

Assistant District Attorney

ATTEST:

“CONTRACTOR”

Secretary

Contractor

By: _____
Title

STATE OF OKLAHOMA

ss

COUNTY OF WAGONER

_____ of lawful age, being first duly sworn on oath says that (s) he is the agent authorized by Contractor to submit the above contract to the Board of County Commissioners of Wagoner County, Oklahoma. Affiant further states that Contractor has not paid, given, or donated or agreed to pay, give, or donate to any officer or employee of the County of Wagoner any money or other thing of value, either directly or indirectly, in the procuring of the contract.

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

Notary Public

My Commission Expires: _____

My Commission Number: _____

BUSINESS RELATIONSHIPS AFFIDAVIT

STATE OF OKLAHOMA)
) ss
COUNTY OF WAGONER)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to this statement between any officer or director of the bidding company and any officer or director of the architectural or engineering firm or other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships hereinabove mentioned exist, affiant should so state.)

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

Notary Public

My Commission Expires: _____

My Commission Number: _____

CERTIFICATION OF NONDISCRIMINATION IN EMPLOYMENT

Certification with regard to the performance of Previous Contracts or Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports:

The bidder____, proposed subcontractor____, hereby certifies that he has____, has not____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, and that he has____, has not____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirement.

(Company)

By:_____

Date:_____

NOTE: The certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000.00 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

 as Principal, and

 as Surety,

are hereby held and firmly bound unto The Board of County Commissioners of Wagoner County, Oklahoma, hereinafter called the Owner, in the sum of

_____ Dollars(\$_____)
 for the payment of which sum, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

The condition of the above obligation is such that whereas the Bidder has submitted to WAGONER COUNTY a certain bid which is attached hereto and hereby made a part thereof, to enter into agreement for the:

The condition of this obligation is such that if WAGONER COUNTY shall make any award to the Bidder, according to the terms of the advertised bidding documents of bid made by the Bidder therefore, and the Bidder shall duly make and enter into agreement with WAGONER COUNTY in accordance with the terms of said bid and award and shall, in case of failure so to do, pay to WAGONER COUNTY the damages to which the COUNTY may suffer by reason of such failure not exceeding the penalty of this bond, then this obligation shall be null and void. Otherwise, it shall be and remain in full force and effect.

Signed, sealed and dated this _____ day of _____, 20 _____ .

 Principal

By: _____

Attest:
 (Affix Corporate Seal)

 Corporate Surety

 Address

 Title

By: _____

 Title

Affidavit of Compliance

PREVAILING WAGES

I, _____
(Name of person signing affidavit) (Title)

do hereby certify that the wages paid to all employees of

(Company Name)

for all hours worked on the

(Project name and location)

project, during the period from _____ to _____ are in compliance with prevailing wage requirements of the Davis-Bacon rates in Oklahoma.

I further certify that no rebates or deductions have been or will be made, directly or indirectly, from any wages paid in connection with this project, other than those provided by law.

(Signature of Officer or Agent)

Sworn to and subscribed in my presence this _____ day of _____, 20_____.

(Notary Public)

The above affidavit must be executed and sworn to by the officer or agent of the contractor or subcontractor who supervises the payment of employees. This affidavit must be submitted to the owner (public authority) before the surety is released or final payment due under the terms of the contract is

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, and _____, a corporation organized under the laws of the State of _____ and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto the Board of County Commissioners of Wagoner County, Oklahoma in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors, and assigns, jointly and severally, firmly by these presents.

DATED this _____ day of _____, 20____.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a written Contract with the Board of County Commissioners of Wagoner County, Oklahoma dated _____, 20____, for

all in compliance with the plans and specifications therefore, made a part of said Contract and on file in the office of the County Clerk, of Wagoner County, Wagoner County Courthouse, Wagoner, Oklahoma.

NOW, THEREFORE, if said Principal shall, in all particulars, well, truly and faithfully perform and abide by said Contract and each and every covenant, condition, and part thereof and shall fulfill all obligations resting upon said Principal by terms of said Contract and said specifications; and if said Principal shall promptly pay, or cause to be paid, all labor, materials and/or repairs and all bills for labor performed on said work, whether by subcontract or otherwise, and if said Principal shall protect and save harmless said Board of County Commissioners of Wagoner County, Oklahoma, from all loss, damage, and expense to life or property suffered or sustained by any person, firm, or corporation caused by said Principal or his or its agents, servants or employees in the construction of said work, or by or in consequence of any negligence, carelessness or

misconduct in guarding and protecting the same, or from any act or omission of said Principal or his or
Performance Bond
Page 2

its agents, servants, or employees, and if said principal shall protect and save the Board of County Commissioners of Wagoner County, Oklahoma, harmless from all suits and claims of infringement or alleged infringement or patent rights or processes, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Principal:

By:_____

ATTEST:

(Seal)

Surety:

By:_____

(Seal)

Attorney-in-Fact

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as
Principal, and _____, a
corporation organized under the laws of the State of _____
_____ and authorized to transact
business in the State of Oklahoma, as Surety, are held and firmly bound unto the
Board of County Commissioners of Wagoner County, Oklahoma, in
the penal sum of
_____ Dollars
\$(_____) in lawful money of the United States of America, for the
payment of which, well and truly to be made, we bind ourselves and each of us, our
heirs, executors, administrators, trustees, successors, and assigns, jointly and
severally, firmly by these presents.

DATED this _____ day of _____, 20____.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a written Contract with the Board of County
Commissioners of Wagoner County, Oklahoma, dated _____, 20____,
for

all in compliance with the plans and specifications therefore, made a part of said Contract
and on file in the office of the County Clerk of Wagoner County, Wagoner County
Courthouse, Wagoner, Oklahoma.

NOW, THEREFORE, if said Principal shall fail or neglect to pay all indebtedness
incurred by said Principal or subcontractors of said Principal who perform work in the
performance of such contract, for labor and materials and repairs to and parts for
equipment used and consumed in the performance of said Contract within thirty (30) days
after the same becomes due and payable, the person, firm, or corporation entitled thereto
may sue and recover on this bond, the amount so due and unpaid.

It is further expressly agreed and understood by the parties hereto that no changes or alternations in said Contract and no deviations from the plan or mode of procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligations of this Bond.

Statutory Bond
Page 2

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Principal:

By: _____

Title: _____

ATTEST:

(Seal)

Surety:

By: _____

(Seal)

Attorney-in-Fact

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal, and _____, a corporation organized under the laws of the State of _____ and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto the Board of County Commissioners of Wagoner County, Oklahoma, in the penal sum of _____ Dollars (\$ _____) in lawful money of the United States of America, said sum being equal to one hundred percent (100%) of the contract price, for the payment of which, well and truly to be made, we bind ourselves and each of us, our heirs, executors, administrators, trustees, successors, and assigns, jointly and severally, firmly by these presents.

DATED this _____ day of _____, 20 _____.

WHEREAS, the said Principal has constructed certain improvements described as follows:

which said improvements have been constructed in compliance with the plans and specifications therefore, made a part of said Contract and on file in the office of the County Clerk of Wagoner County, Wagoner County Courthouse, Wagoner, Oklahoma.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall maintain said improvements for a period of one year, against any failure due to defective workmanship or materials, said year period to begin with the date of final acceptance of such completed improvements described above, then this obligation shall be null and void, otherwise to remain in full force and effect subject however to the following express provision:

MAINTENANCE BOND

Page 2

The Obligee, by and through its proper representative, shall give the Principal and the Surety written notice of all repairs to fulfill the terms of this maintenance guarantee; and the said Principal and Surety shall, after receipt of any such notice, be allowed a reasonable period of time in which to make any such repairs.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

Principal:

By:_____

ATTEST:

(Seal)

Surety:

By:_____

(Seal)

Attorney-in-Fact

SPECIFICATIONS

General

It is the intent of this specification to outline the general requirements for this project in accordance with the plans and specifications. All material and work on the roadway section shall comply with the Oklahoma Department of Transportation Standard Specification for Highway Construction.

Construction Inspection and Staking

Wagoner County will provide for all construction inspection. The contractor shall provide all construction staking, as needed.

Testing

The contractor shall provide material certifications for approval. Wagoner County will provide for all construction testing through the services of an independent testing laboratory via County Engineer's office.

Traffic Control

The contractor shall be responsible for traffic control and safety signage at all times during construction. All construction traffic control shall be in compliance with the latest edition of the MUTCD manual for work zone construction.

Construction Sequence

The contractor shall submit a construction sequence plan for approval by the County Commissioner and or the County Engineer.

Asphalt

No Asphalt is planned for this project.

Utilities

The contractor shall make all required arrangements to protect all utilities rightfully located within the limits of the project and shall comply with the

Underground Facilities Damage Prevention Act. All utility closures such as manholes, valves enclosures, etc. shall be raised to final grade in accordance with the plans.

Environmental Protection

The contractor shall comply with all Federal, State and Local laws and regulations controlling pollution of the environment.

Cleanup

The contractor shall be responsible for removal of all remaining tires from the stream and disposal of all trash, waste, refuse and construction debris not otherwise specified.

Bonds

The successful contractor shall provide the following bonds:

- 1. Performance bond in an amount equal to 100% of the contract price**
- 2. Statutory bond in an amount equal to 100% of the contract price.**
- 3. Maintenance bond in an amount equal to 100% of the contract price.**

Affidavit

The successful contractor shall provide an Affidavit of Compliance, certifying compliance with 25 O.S. S1313 and participation in the Status Verification System.

Insurance

The contractor (and any subcontractors) shall carry and keep in force during this contract, policies of insurance in minimum amounts as set forth below, or as required by the laws of the State of Oklahoma. The contractor shall name the Board of County Commissioner of Wagoner County as an additional named insured.

- 1. Public Liability insurance providing for a combined amount of not less than one million (\$1,000,000) dollars for all damages arising out of bodily injury, death and property damage for each occurrence with an aggregate limit of two million (\$2,000,000) dollars.**

2. Workers' Compensation and Employees Liability insurance as required by Workers' Compensation laws of the State of Oklahoma.

The contractor shall furnish certificates of insurance which shall provide that said insurance will not be cancelled by the insurer without insurer providing thirty (30) days written notice to the Board of County Commissioners of Wagoner County.

The insurance specified shall be acquired from insurance companies properly licensed by the State of Oklahoma to provide coverage in the State of Oklahoma.

Clarification of Plans and Specifications

The contractor shall request any required clarifications to the plans and specifications prior to bidding. Requested clarifications shall be made in writing to the Wagoner County Engineer, Monty Proctor, PE mproctor@wagonercounty.ok.gov or 918-906-3825.

SPECIAL PROVISIONS

WAGONER COUNTY STREAM BANK STABILIZATION

**ISSUE DATE
MAY 15, 2015**

**MCE PROJECT NO.
TU147108**

Prepared By:
McClelland Consulting Engineers, Inc.
501 E. Alliance Blvd.
Sand Springs, OK 74063
Phone: 918-246-0355
Fax: 918-245-9533

GENERAL SPECIAL PROVISIONS

Work Hours: Shall be 7:00 a.m. to 5:00 p.m. unless approved by the Engineer.

Traffic Control: Any traffic control associated with this project shall be completed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Clean Up: The contractor shall be responsible for complete clean up and restoration of the project site to the satisfaction of Project Engineer.

Utilities: There are no known utilities located within the limits of the project. However, the contractor shall contact the OKIE One Call system at 1-800-522-6543 no less than 48 hours nor more than 10 days prior to starting work on the project to verify presence or location of utilities. If any utilities are found to be located within the project limits the contractor shall comply with the Utilities section of the specifications.

SPECIAL PROVISION - SPECIFICATION NO. 228

EROSION CONTROL MATTING, SIDE SLOPES

PART 1. GENERAL

1.1 SUMMARY

- A. The Contractor shall provide and install soil stabilization in accordance with the methods outlined in the plans and specifications.

PART 2. PRODUCTS

2.1 PERMANENT TURF REINFORCEMENT MAT

A. Turf Reinforcement Mat (TRM)

- 1. Engineered armoring system consisting of Turf Reinforcement Mat (TRM) and pins. The TRM shall consist of non-degradable Trilobal polypropylene synthetic fibers, monofilaments, mesh and other elements, processed in to a three dimensional matrix. The TRM shall support the growth of grass roots through the material and provide adequate ground cover in times of removed vegetation. The material must have a dense closely woven homogenous matrix not composed of layers or discontinuous material held together by stitched or glued netting. Open weave allowing greater than 50% light penetration is unacceptable.
- 2. TRM Properties: (Minimum Average Roll Values (MARV) listed unless otherwise specified. Typical values are not allowed.

Property	Test Method	Units	Property Requirement
TURF REINFORCEMENT MAT			
Thickness	ASTM D-6525	in	0.25
Flexibility/Stiffness	ASTM D-6575	in-lbs	0.195
Resiliency (minimum value)	ASTM D-6524	percent	70
Mass Per Unit Area	ASTM D-6566	oz/sy	7.5
Tensile Strength (Grab) (minimum value)	ASTM D-6818	lbs/ft	(2000 x 1800)

Tensile Elongation (maximum value)	ASTM D-6818	percent	50
Light Penetration (% Passing) (maximum value)	ASTM D-6567	percent	50
Color	Visual	-	green
UV Resistance (minimum value)	ASTM D-4355	percent	90% at 3,000 hrs
Maximum Velocity	ASTM D-6460*	m/sec (ft/sec)	6.1 (20)
Maximum Shear Stress - * Manufacturer to provide a recently signed certification from the ASTM D-6460 Testing Facility stating velocity and shear values, the duration of flow for the test, and the time frame for vegetation establishment before beginning testing.	ASTM D-6460*	N/m ² (lb/ft ²)	575 (12)

3. Performance Properties shall be demonstrated by:

- a) Flume testing at an independent facility under conditions similar to this project provided that the manufacturer can demonstrate that the material tested is functionally equivalent to the material being supplied. This may be demonstrated by providing index property test results (listed in 2.2.A.4) from a GAI-LAP accredited laboratory for both the tested and supplied materials.
- b) Documented case histories of successful performance of 500,000 sy or greater on projects in North America
- c) Manufacturing Quality Control: Testing shall be performed at a laboratory accredited by GAI-LAP for tests required for the geosynthetic, at frequency exceeding ASTM D 4354, with following minimum acceptable testing frequency:

Property	Test Frequency sq m (sq yd)
Mass Per Unit Area ASTM D-6475/6566	1/20,000 (1/24,000)
Tensile Strength ASTM D-6818	1/20,000 (1/24,000)

Tensile Elongation ASTM D-6818	1/20,000 (1/24,000)
Light Penetration (% Passing)	1/20,000 (1/24,000)

A. ACCESSORIES

A. Pins

1. Length: (12 inches); sufficient ground penetration to resist pullout. Use longer anchors for loose soils.
2. Metal pins: Steel, minimum 5 mm (0.20 in) in diameter with 40 mm (1.5 in) steel washer.

B. SUBMITTALS

A. Certification:

1. The Contractor shall provide the Engineer a certificate stating the name of the TRM manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the geotextile.
2. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
3. The manufacturer's certificate shall state that the furnished TRM meets MARV requirements of the specification as evaluated under the manufacturer's quality control program. The certificate shall be attested to by a person having legal authority to bind the Manufacturer.

B. The TRM System shall be furnished by one supplier and not be sourced from multiple manufactures or suppliers.

C. Manufacturing Quality Control (MQC) test results shall be provided upon request.

D. Independent Performance Test Results shall be provided upon request.

E. Alternates to the TRM System specified herein shall be accompanied by a design analysis stamped by Oklahoma Professional Engineer demonstrating that the proposed alternate is engineered to stabilize the slope in this project.

C. DELIVERY, STORAGE, AND HANDLING

A. Rolled Erosion Control Product (RECP) labeling, shipment and storage shall follow ASTM D 4873.

- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each RECP roll shall be packaged with a material that will protect the RECP from damage due to shipment, water, sunlight, and contaminants.
- E. The protective wrapping shall be maintained during periods of shipment and storage.
- F. During storage, TRM shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F) and any other environmental condition that might damage the ARVS.

D. QUALITY ASSURANCE SAMPLING, TESTING, AND ACCEPTANCE

- A. RECP shall be subject to sampling and testing to verify conformance with this specification. Sampling for testing shall be in accordance with ASTM D 4354.
- B. Acceptance shall be in accordance with ASTM D 4759 based on testing of either conformance samples obtained using Procedure A of ASTM D 4354, or based on manufacturer's certifications and testing of quality control samples obtained using Procedure B of ASTM D 4354.
- C. Quality Assurance Sampling and Testing will be waived for ISO 9002 Certified Manufacturing Facilities. Documentation of ISO 9002 Certification shall be provided upon request.

E. PRODUCTS

A. Approved Suppliers

1. Propex Operating Company, LLC, Chattanooga, Tennessee. Jason Flory, (972) 439-2355, Jason.Flory@propexglobal.com.

2. Maxwell Supply, Oklahoma City, OK. Shannon Hudson, (918) 504-7630, Shannon@MaxwellSupply.com.
3. Any alternate products seeking approval may be submitted to the Engineer 10 days prior to the bid date. For acceptance on this project, any alternates seeking approval must meet the specifications outlined in this document. The alternate's product specifications and a product sample must be submitted to the Engineer for approval.
4. All product manufacturers seeking approval on this project MUST have a local representative in Oklahoma. Manufacturers seeking approval must also have a manufacturer's representative present at the prebid meeting.

F. EXECUTION

A. Preparation

1. Grade and compact area as directed and approved by Engineer. Subgrade shall be uniform and smooth. Remove all rocks, clods, vegetation or other objects so the installed mat will have direct contact with soil surface.
2. Prepare sod bed by loosening the top 2 -3 inches of soil.
3. A soil test shall be conducted to ensure soil fertility and appropriate sod selection.
4. Incorporate amendments such as lime, fertilizer, topsoil and/or wet the soil, if needed.
5. If seeding, broadcast amount equivalent to 50% of the total volume of seed on the subgrade before mat installation
6. If existing trees are on the channel's bank, remove trees to allow a minimum of 8.5 ft (2.6 m) between trees.

B. Installation

1. A mandatory pre-construction conference with an Engineer representing the TRM manufacturer, contractor, and inspector must be completed. The conference is to be scheduled by the contractor with at least one week's notice to all parties involved.

2. Experienced Representatives will be required to be on site for installation assistance on three separate occasions. The first occasion is to be the first day of TRM installation and the Contractor is to give the manufacturers' representative one weeks notice of the beginning of installation of the TRM System.
3. The following installation details are the minimums required. The installation details noted in the drawings will control the TRM installation. Note: All seam overlaps shall be a minimum of 6 in.
4. Install Initial Trench along the crest of the slope as designated in the drawings.
5. Anchor the TRM in the trench and roll the TRM down the slope
6. Beginning at the top of the slope and working down to the toe, install pins based on frequency and spacing of tie-down devices shown on the plans.
7. Install Longitudinal Edge trench on the first and the last roll of the project.
8. Install modified check slots as needed.
9. Terminate TRM in Terminal Trench at the toe of the slope.
10. The Engineer must approve alternate installation methods prior to execution.

C. Turf Establishment

1. Sodding
 - a) Quality Grade

Turfgrass sod shall be Premium Grade Bermuda grass and be free of weeds, pests, or foreign grasses (i.e., no other varieties of species). It may have no visible signs of disease or insect stress. The Turfgrass sod shall be neatly mowed and be mature enough that when grasped at one end, it can be picked-up and handled without damage. Broken pads, irregularly shaped pieces, and torn or uneven ends will not be accepted by Contracting Officer representative. The Sod should be applied in 2 to 4 feet wide rolls (a max. of 80 feet in length, weighing a maximum of 1000 lbs). The Sod shall be installed by rolling on the top of the slope down.

b) Installation of Turfgrass Sod

Prior to the commencement of the Turfgrass sodding operation, the Contractor shall verify that the Turf Reinforcement Mat has been anchored and trenches backfilled as indicated in the drawings and in accordance with the specification. Place Turfgrass sod a maximum of 36 hours after initial harvesting, in accordance with TPI GSS as modified herein.

c) Manufacturer's Recommendations

Turfgrass Sod shall be installed in accordance with the manufacturer's recommendations. The Turfgrass manufacturer's certified installation recommendations shall be supplied to the Contracting Officer's Representative prior to Turfgrass installation. At a minimum the Turfgrass sod shall be placed from the top of the slope face back down the slope to ensure that the Turf Reinforced Mats remain taut. The Turfgrass sod shall be placed, spread, and compacted with hand rollers in such a manner that minimizes the development or movement of the Turf Reinforced Mats. A sod roller shall be used following installation to seat the sod against the TRM. The sod shall be damp when rolled. A modified rake shall be used to pull the sod tight against adjoining rolls of sod. Sod rolls shall abut one another. Any voids between the sod rolls shall be filled immediately with clean loose soil.

FINISHING AND SMOOTH TRANSITION

After completing the Turfgrass sodding, blend edges of Turfgrass sod areas smoothly into surrounding area. Air pockets shall be eliminated and a true and even surface shall be provided. Frayed edges shall be trimmed and holes and missing corners shall be patched with the Turfgrass sod.

d) Watering

After the installation of Turfgrass sod and its acceptance by the Contracting Officer's representative, the Contractor shall immediately water and soak the entire area. The amount of water required is identified below. The Turfgrass sod pads in storage shall be kept moist at all times and not stored for more than 24 hours from site arrival to installation. Warmer weather will necessitate more frequent application than listed below.

- 1) For each reach/segment of installed Turfgrass sod, watering shall be conducted immediately after each installation or the day's work.
- 2) First 30-days, completed segments shall be watered daily with a minimum of 0.75 and a maximum of 1.0 inches per square foot per day (20,364 gallons minimum, 27,152 gallons maximum per acre per day).
- 3) Second 30-days, the watering may be reduced to 0.50 inches per square foot per day (13,576 gallons maximum per acre per day) as required by the Contracting Officer Representative based upon the condition of the turf.
- 4) Contractor shall avoid excessive application of water, so that surface runoff does not occur. This will be strictly enforced and runoff is prohibited. Additional watering required for all damaged areas, including tire ruts and repairs to Turfgrass sodded areas, caused by watering shall be repaired as directed by the Contracting Officer's representative.

e) Fertilizer, Initial and Post

Initial fertilizing shall be applied 14-days after sod is placed, using 25-lbs per acre ammonium nitrate or ammonium sulfate. Post-fertilization shall be conducted after 30 to 45 days after installation, using an application rate of 25 lbs per acre (ammonium nitrate or ammonium sulfate). Application example: in order to apply ammonium nitrate or ammonium sulfate at a rate of 25 lbs per acre, 75 lbs of 33-0-0 is required.

f) New Turfgrass Sod Maintenance

Turfgrass areas established under this contract shall be mowed to a height no less than 6-inches and no greater than 12-inches from natural ground after a period of 60 days growth. The excessive grass clippings created from mowing shall be evenly spread on the slope section outside the TRM area. The Contractor shall perform periodic and final grass mowing within the limits of work until final inspection and acceptance of slope work. The Contractor shall monitor the sod throughout winter months and produce a Sod Monitoring Report stating progress of grass growth and any issues on a biweekly basis to the Contracting Officer's Representative.

g) Mowing Tractor

To prevent damage to the turf, the mowing tractor shall not be fitted with 3-rib agriculture tires. Note that tractors with 8-foot flail mower provide best results. The tractor with 15-foot brush hogs shall avoid sharp turns up the slope to prevent damage to Turfgrass sod.

h) Protection of Turf Areas

Immediately after Turfgrass sodding installation, signage and post shall be installed stating that "Vehicles and Pedestrians are Prohibited from Access" on the slopes and the newly placed Turfgrass sod. Signage shall be posted every 1500 linear feet. Any damage to the newly installed sod during the contract period shall be repaired at no cost to the Owner and will be completed by the Contractor.

i) Acceptance

Turfgrass sod operation will be considered completed when the areas to be treated have produced, over a minimum of 85% percent of the entire area, and no areas of browned/dead sod greater than 2-square feet as determined by the Contracting Officer's representative (COR) by random sampling. Eighty five percent coverage shall be confirmed by the use of a 1 meter square constructed from PVC with 100 blocks of 100 cm² (10 cm grid). Measurements shall be made on the slopes every 100 to 250 feet. If 25 blocks of the 1 meter square are not filled with the intended vegetative species; that section of the slope shall be deemed unacceptable. Bare areas with diameters larger than 24 inches are to be considered unacceptable and shall be noted for repairs. The repair area work effort and materials will be performed at no additional cost to the Owner.

G. PROJECT ACCEPTANCE

- A. All areas that erode prior to project acceptance shall be repaired at the expense of the contractor including necessary re-sodding, watering, and repair of the TRM.

H. PAYMENT

- A. Turf Reinforcement Mat (TRM) will be measured by the square yard. Such payment shall be full compensation for materials, equipment, labor and incidentals required to perform all operations in connection with installation of TRM in reasonable accordance with the lines, design and dimensions shown on the plans and as specified herein,

including, but not limited to preparation of soil base for mat, pinning the mat with specified pins, constructing anchor trenches and attending pre-construction conference.

B. Accepted TRM, measured as provided, shall be paid for at the contract unit price as follows:

1. TURF REINFORCEMENT MAT (TRM) - SQUARE YARD

SPECIAL PROVISION - SPECIFICATION NO. 229

EROSION CONTROL MATTING, CHANNEL BOTTOM

PART 1. GENERAL

1.1 SUMMARY

- A. The Contractor shall provide and install soil stabilization in accordance with the methods outlined in the plans and specifications.

2.2 HIGH PERFORMANCE TURF REINFORCEMENT MAT

- A. High Performance Turf Reinforcement Mat (HPTRM)
 - 1. Engineered armoring system consisting of High Performance Turf Reinforcement Mat (HPTRM) and pins. The HPTRM shall consist of non-degradable Trilobal polypropylene synthetic fibers, monofilaments, mesh and other elements, processed in to a three dimensional matrix. The HPTRM shall support the growth of grass roots through the material and provide adequate ground cover in times of removed vegetation. The material must have a dense closely woven homogenous matrix not composed of layers or discontinuous material held together by stitched or glued netting. Open weave allowing greater than 20% light penetration is unacceptable.
 - 2. HPTRM Properties: (Minimum Average Roll Values (MARV) listed unless otherwise specified. Typical values are not allowed.

Property	Test Method	Units	Property Requirement
HIGH PERFORMANCE TURF REINFORCEMENT MAT			
Thickness	ASTM D-6525	in	0.40
Flexibility/Stiffness	ASTM D-6575	in-lbs	0.534
Resiliency (minimum value)	ASTM D-6524	percent	80
Mass Per Unit Area	ASTM D-6566	oz/sy	13.5
Tensile Strength (Grab) (minimum value)	ASTM D-6818	lbs/ft	(4000 x 3000)
Tensile Elongation (maximum value)	ASTM D-6818	percent	65

Light Penetration (% Passing) (maximum value)	ASTM D-6567	percent	20
Color	Visual	-	green
UV Resistance (minimum value)	ASTM D-4355	percent	85 at 10,000 hrs
Estimated Design Life	Calculated	Years	≥50
Maximum Velocity	ASTM D-6460*	m/sec (ft/sec)	7.5 (25)
Maximum Shear Stress - * Manufacturer to provide a recently signed certification from the ASTM D-6460 Testing Facility stating velocity and shear values, the duration of flow for the test, and the time frame for vegetation establishment before beginning testing.	ASTM D-6460*	N/m ² (lb/ft ²)	718 (15)

3. Performance Properties shall be demonstrated by:

- a) Flume testing at an independent facility under conditions similar to this project provided that the manufacturer can demonstrate that the material tested is functionally equivalent to the material being supplied. This may be demonstrated by providing index property test results (listed in 2.2.A.4) from a GAI-LAP accredited laboratory for both the tested and supplied materials.
- b) Documented case histories of successful performance of 500,000 sy or greater on projects in North America
- c) Manufacturing Quality Control: Testing shall be performed at a laboratory accredited by GAI-LAP for tests required for the geosynthetic, at frequency exceeding ASTM D 4354, with following minimum acceptable testing frequency:

Property	Test Frequency sq m (sq yd)
Mass Per Unit Area ASTM D-6475/6566	1/20,000 (1/24,000)

Tensile Strength ASTM D-6818	1/20,000 (1/24,000)
Tensile Elongation ASTM D-6818	1/20,000 (1/24,000)
Light Penetration (% Passing)	1/20,000 (1/24,000)

A. ACCESSORIES

A. Pins

1. Length: (18 inches); sufficient ground penetration to resist pullout. Use longer anchors for loose soils.
2. Metal pins: Steel, minimum 5 mm (0.20 in) in diameter with 40 mm (1.5 in) steel washer.

B. SUBMITTALS

A. Certification:

1. The Contractor shall provide the Engineer a certificate stating the name of the HPTRM manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the geotextile.
 2. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
 3. The manufacturer's certificate shall state that the furnished HPTRM meets MARV requirements of the specification as evaluated under the manufacturer's quality control program. The certificate shall be attested to by a person having legal authority to bind the Manufacturer.
- B. The HPTRM System shall be furnished by one supplier and not be sourced from multiple manufactures or suppliers.
- C. Manufacturing Quality Control (MQC) test results shall be provided upon request.
- D. Independent Performance Test Results shall be provided upon request.
- E. Alternates to the HPTRM System specified herein shall be accompanied by a slope stability analysis stamped by Oklahoma Professional Engineer demonstrating that the anchors in the proposed alternate are engineered to stabilize the slope in this project.

C. DELIVERY, STORAGE, AND HANDLING

- A. Rolled Erosion Control Product (RECP) labeling, shipment and storage shall follow ASTM D 4873.
- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each RECP roll shall be packaged with a material that will protect the RECP from damage due to shipment, water, sunlight, and contaminants.
- E. The protective wrapping shall be maintained during periods of shipment and storage.
- F. During storage, HPTRM shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F) and any other environmental condition that might damage the ARVS.

D. QUALITY ASSURANCE SAMPLING, TESTING, AND ACCEPTANCE

- A. RECP shall be subject to sampling and testing to verify conformance with this specification. Sampling for testing shall be in accordance with ASTM D 4354.
- B. Acceptance shall be in accordance with ASTM D 4759 based on testing of either conformance samples obtained using Procedure A of ASTM D 4354, or based on manufacturer's certifications and testing of quality control samples obtained using Procedure B of ASTM D 4354.
- C. Quality Assurance Sampling and Testing will be waived for ISO 9002 Certified Manufacturing Facilities. Documentation of ISO 9002 Certification shall be provided upon request.

E. PRODUCTS

- A. Approved Suppliers

1. Propex Operating Company, LLC, Chattanooga, Tennessee. Jason Flory, (972) 439-2355, Jason.Flory@propexglobal.com.
2. Maxwell Supply, Oklahoma City, OK. Shannon Hudson, (918) 504-7630, Shannon@MaxwellSupply.com.
3. Any alternate products seeking approval may be submitted to the Engineer 10 days prior to the bid date. For acceptance on this project, any alternates seeking approval must meet the specifications outlined in this document. The alternate's product specifications and a product sample must be submitted to the Engineer for approval.
4. All product manufacturers seeking approval on this project MUST have a local representative residing in the State of Oklahoma. Manufacturers seeking approval must also have a manufacturer's representative present at the prebid meeting.

F. EXECUTION

A. Preparation

1. Grade and compact area as directed and approved by Engineer. Subgrade shall be uniform and smooth. Remove all rocks, clods, vegetation or other objects so the installed mat will have direct contact with soil surface.
2. Prepare sod bed by loosening the top 2 -3 inches of soil.
3. A soil test shall be conducted to ensure soil fertility and appropriate sod selection.
4. Incorporate amendments such as lime, fertilizer, topsoil and/or wet the soil, if needed.
5. If seeding, broadcast amount equivalent to 50% of the total volume of seed on the subgrade before mat installation
6. If existing trees are on the channel's bank, remove trees to allow a minimum of 8.5 ft (2.6 m) between trees.

B. Installation

1. A mandatory pre-construction conference with an Engineer representing the HPTRM manufacturer, contractor, and inspector must be completed. The conference is to be scheduled by the contractor with at least one week's notice to all parties involved.
2. Experienced Representatives will be required to be on site for installation assistance on three separate occasions. The first occasion is to be the first day of HPTRM installation and the Contractor is to give the manufacturers' representative one weeks notice of the beginning of installation of the HPTRM System.
3. The following installation details are the minimums required. The installation details noted in the drawings will control the HPTRM installation. Note: All seam overlaps shall be a minimum of 6 in.
4. Install Initial Trench along the crest of the slope as designated in the drawings.
5. Anchor the HPTRM in the trench and roll the HPTRM down the slope
6. Beginning at the top of the slope and working down to the toe, install pins based on frequency and spacing of tie-down devices shown on the plans.
7. Install Longitudinal Edge trench on the first and the last roll of the project.
8. Install modified check slots as needed.
9. Terminate HPTRM in Terminal Trench at the toe of the slope.
10. The Engineer must approve alternate installation methods prior to execution.

C. Turf Establishment

1. Sodding
 - a) Quality Grade

Turfgrass sod shall be Premium Grade Bermuda grass and be free of weeds, pests, or foreign grasses (i.e., no other varieties of species). It may have no visible signs of disease or insect stress. The Turfgrass sod shall be neatly mowed and be mature enough that when grasped at one end, it can be picked-up and handled without damage. Broken pads, irregularly shaped pieces, and torn or uneven ends will not be accepted by Contracting Officer representative. The

Sod should be applied in 2 to 4 feet wide rolls (a max. of 80 feet in length, weighing a maximum of 1000 lbs). The Sod shall be installed by rolling on the top of the slope down.

b) Installation of Turfgrass Sod

Prior to the commencement of the Turfgrass sodding operation, the Contractor shall verify that the High Performance Turf Reinforcement Mat has been anchored and trenches backfilled as indicated in the drawings and in accordance with the specification. Place Turfgrass sod a maximum of 36 hours after initial harvesting, in accordance with TPI GSS as modified herein.

c) Manufacturer's Recommendations

Turfgrass Sod shall be installed in accordance with the manufacturer's recommendations. The Turfgrass manufacturer's certified installation recommendations shall be supplied to the Contracting Officer's Representative prior to Turfgrass installation. At a minimum the Turfgrass sod shall be placed from the top of the slope face back down the slope to ensure that the High Performance Turf Reinforced Mats remain taut. The Turfgrass sod shall be placed, spread, and compacted with hand rollers in such a manner that minimizes the development or movement of the High Performance Turf Reinforced Mats. A sod roller shall be used following installation to seat the sod against the HPTRM. The sod shall be damp when rolled. A modified rake shall be used to pull the sod tight against adjoining rolls of sod. Sod rolls shall abut one another. Any voids between the sod rolls shall be filled immediately with clean loose soil.

FINISHING AND SMOOTH TRANSITION

After completing the Turfgrass sodding, blend edges of Turfgrass sod areas smoothly into surrounding area. Air pockets shall be eliminated and a true and even surface shall be provided. Frayed edges shall be trimmed and holes and missing corners shall be patched with the Turfgrass sod.

d) Watering

After the installation of Turfgrass sod and its acceptance by the Contracting Officer's representative, the Contractor shall immediately water and soak the entire area. The amount of water required is identified below. The Turfgrass sod pads in storage shall be kept moist at all times and not stored for more than 24

hours from site arrival to installation. Warmer weather will necessitate more frequent application than listed below.

- 1) For each reach/segment of installed Turfgrass sod, watering shall be conducted immediately after each installation or the day's work.
- 2) First 30-days, completed segments shall be watered daily with a minimum of 0.75 and a maximum of 1.0 inches per square foot per day (20,364 gallons minimum, 27,152 gallons maximum per acre per day).
- 3) Second 30-days, the watering may be reduced to 0.50 inches per square foot per day (13,576 gallons maximum per acre per day) as required by the Contracting Officer Representative based upon the condition of the turf.
- 4) Contractor shall avoid excessive application of water, so that surface runoff does not occur. This will be strictly enforced and runoff is prohibited. Additional watering required for all damaged areas, including tire ruts and repairs to Turfgrass sodded areas, caused by watering shall be repaired as directed by the Contracting Officer's representative.

e) Fertilizer, Initial and Post

Initial fertilizing shall be applied 14-days after sod is placed, using 25-lbs per acre ammonium nitrate or ammonium sulfate. Post-fertilization shall be conducted after 30 to 45 days after installation, using an application rate of 25 lbs per acre (ammonium nitrate or ammonium sulfate). Application example: in order to apply ammonium nitrate or ammonium sulfate at a rate of 25 lbs per acre, 75 lbs of 33-0-0 is required.

f) New Turfgrass Sod Maintenance

Turfgrass areas established under this contract shall be mowed to a height no less than 6-inches and no greater than 12-inches from natural ground after a period of 60 days growth. The excessive grass clippings created from mowing shall be evenly spread on the slope section outside the HPTRM area. The Contractor shall perform periodic and final grass mowing within the limits of work until final inspection and acceptance of slope work. The Contractor shall monitor the sod throughout winter months and produce a Sod Monitoring Report stating progress of grass growth and any issues on a biweekly basis to the Contracting Officer's Representative.

g) Mowing Tractor

To prevent damage to the turf, the mowing tractor shall not be fitted with 3-rib agriculture tires. Note that tractors with 8-foot flail mower provide best results. The tractor with 15-foot brush hogs shall avoid sharp turns up the slope to prevent damage to Turfgrass sod.

h) Protection of Turf Areas

Immediately after Turfgrass sodding installation, signage and post shall be installed stating that "Vehicles and Pedestrians are Prohibited from Access" on the slopes and the newly placed Turfgrass sod. Signage shall be posted every 1500 linear feet. Any damage to the newly installed sod during the contract period shall be repaired at no cost to the Owner and will be completed by the Contractor.

i) Acceptance

Turfgrass sod operation will be considered completed when the areas to be treated have produced, over a minimum of 85% percent of the entire area, and no areas of browned/dead sod greater than 2-square feet as determined by the Contracting Officer's representative (COR) by random sampling. Eighty five percent coverage shall be confirmed by the use of a 1 meter square constructed from PVC with 100 blocks of 100 cm² (10 cm grid). Measurements shall be made on the slopes every 100 to 250 feet. If 25 blocks of the 1 meter square are not filled with the intended vegetative species; that section of the slope shall be deemed unacceptable. Bare areas with diameters larger than 24 inches are to be considered unacceptable and shall be noted for repairs. The repair area work effort and materials will be performed at no additional cost to the Owner.

G. PROJECT ACCEPTANCE

- A. All areas that erode prior to project acceptance shall be repaired at the expense of the contractor including necessary re-sodding, watering, and repair of the HPTRM.

H. PAYMENT

A. High Performance Turf Reinforcement Mat (HPTRM) will be measured by the square yard. Such payment shall be full compensation for materials, equipment, labor and incidentals required to perform all operations in connection with installation of HPTRM in reasonable accordance with the lines, design and dimensions shown on the plans and as specified herein, including, but not limited to preparation of soil base for mat, pinning the mat with specified pins, constructing anchor trenches and attending pre-construction conference.

B. Accepted HPTRM, measured as provided, shall be paid for at the contract unit price as follows:

1. HIGH PERFORMANCE TURF REINFORCEMENT MAT (HPTRM) -
SQUARE YARD

PART 3. EXECUTION

3.1 INSTALLATION

A. Soil Stabilization products shall be installed in accordance with the details shown on the plans, supplemented by the manufacturer's instructions at the locations shown on the plans.

END OF SECTION