



**STATE OF IOWA
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY**

**CROZIER FAMILY AML RECLAMATION PROJECT
BID NO. IA-365**

**SOUTHEAST 1/4 OF SECTION 16 AND THE NORTHEAST 1/4 OF
SECTION 21, TOWNSHIP 75 NORTH, RANGE 18 WEST,
MARION COUNTY, IOWA**

PREPARED BY:

LT LEON ASSOCIATES, INC.
1823 OHIO STREET SUITE 101
DES MOINES, IOWA 50314
515-422-7016

PREPARED FOR:

DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
MINES AND MINERALS BUREAU
HOOVER BUILDING
1305 EAST WALNUT STREET
DES MOINES, IOWA 50319
515-281-4246

AUGUST 2025

Crozier Family AML RECLAMATION PROJECT

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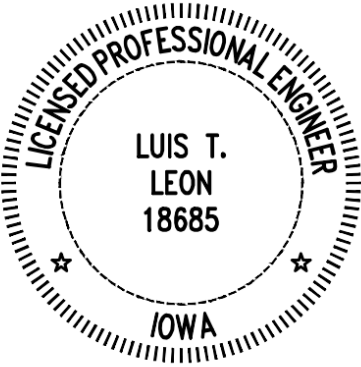
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CROZIER FAMILY AML RECLAMATION PROJECT

BID NO. IA-365

Project Engineer Certification

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa	
	Signature: <u>Luis T. Leon</u>	Date: <u>08-13-2025</u>
	Name (printed or typed): <u>LUIS T. LEON, P.E.</u>	
	License Number: <u>18685</u>	
	My license renewal date is: <u>DECEMBER 31, 2025</u>	
Pages or sheets covered by this seal: <u>All sheets</u>		

GENERAL REQUIREMENTS

CROZIER FAMILY AML RECLAMATION PROJECT, BID NO. IA-365
Southeast 1/4 of Section 16 and the Northeast 1/4 of Section 21, Township 75 North, Range 18 West,
Marion County, Iowa

Sealed bids will be received by the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality, 1305 East Walnut Street, Des Moines, Iowa, 50319, until 3:00 p.m. local time, on the **5th day of September, 2025** and opened at a public meeting and read aloud on the date last mentioned.

A pre-bid conference will be held on August 28, 2025 at 9:00 a.m., ISU Extension Office, 210 N Iowa Street, Knoxville, Iowa, 50138, telephone: 641-842-2014. Attendance at the pre-bid conference by prospective bidders is not mandatory but is encouraged.

In general, the work includes, but is not limited to, clearing and grubbing, excavation, grading, construction of terraces, intakes, storm sewer, wetlands, erosion control, subgrade preparation, fencing, and permanent seeding. This project includes approximately 124,965 cubic yards of excavation, approximately 1,731 lineal feet of fencing, approximately 14.7 acres of pasture seeding, and approximately 0.2 acres of wetland fringe seeding. The estimated construction cost range for this project is \$475,000-\$525,000.

The Plans and Construction Specifications governing the construction of the proposed improvements have been prepared by LT Leon Associates, Inc. and are hereby made a part of this notice by reference and the proposed Contract shall be executed in compliance therewith. **This project shall comply with Davis-Bacon Wage Requirements.** COPIES OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, CONSTRUCTION SPECIFICATIONS, AND BID PACKAGE, ARE ONLY AVAILABLE THROUGH THE WEBSITE LINK - [Requests for Bids and Proposals | Iowa Department of Agriculture and Land Stewardship \(iowaagriculture.gov\)](https://www.iowaagriculture.gov/Requests-for-Bids-and-Proposals). In order to be included on the plan holders list, which is required to receive meeting minutes, addenda and an updated plan holders list, interested bidders must make a written or verbal request to Luis Leon, P.E., LT Leon Associates, Inc., 515-422-7016 or llleon@ltleon.com.

Questions concerning the Plans and Construction Specifications should be addressed to Luis Leon, P.E., 515-422-7016. All other questions concerning other Contract Documents should be addressed to Angie Sebastian, Project Coordinator, 515-822-1538. In order to be considered in a final addendum, written questions must be received no later than September 2, 2025.

END OF DOCUMENT A

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01 BIDDER'S KNOWLEDGE AND PRE-BID CONFERENCE

The proposed project is located as specified in the Notice-to-Bidders. Bidders shall familiarize themselves with the Contract Documents and conditions which will affect the construction. Specific items relating to the preparation of bids and the submission thereof are listed elsewhere in the Contract Documents. It will be the responsibility of the bidder to examine all Contract Documents and to make a personal examination of the job site and the physical conditions which may affect bidding and performance under the Contract. Bidders may inspect the project site at their convenience.

A pre-bid conference will be held at the location, date and time as set forth in the Notice-to-Bidders. Attendance at the pre-bid conference by prospective bidders is not mandatory but is encouraged.

02 BIDDER'S QUALIFICATIONS

The bidder will be required to satisfy the Division as to the bidder's integrity, experience, equipment, personnel and financial ability to perform the work. The bidder must meet the following requirements:

- Contractors shall be pre-qualified for Minor Grading on the Iowa Department of Transportation Pre-Qualified Bidders List.
- Contractors are required to be registered with the Iowa Division of Labor.

If the successful bidder is a non-Iowa corporation, he shall submit proof to the Division, prior to the execution of the Contract, of authorization by the Secretary of State to do business in Iowa.

The Contractor must meet all the requirements of the forms listed in Section 11 in order to enter into a Contract with the Division for this project.

03 OBTAINING BID DOCUMENTS

A website has been developed for this project that includes an electronic copy of all of the bidding documents. These include Document A – Notice to Bidders, Document B – Instruction to Bidders, Document C – Proposal and Schedule of Prices, Document D – Bid Bond Form, Document F – Targeted and Small Business Enterprise Reporting Form, and Document N – General Conditions, Document AC – Davis-Bacon Acknowledgment Form, and Document AD – Build America Buy America (BABA) Statement Form,. The website also contains the Construction Specifications, the Supplemental Specifications developed by the engineer and the Construction Plans developed by the engineer. Other contract forms will be provided after bidding to the lowest responsible bidder (see Section 11). The documents on this website can be viewed or printed by those interested in the project.

In order to be added to the plan holders list, the interested party must contact Luis Leon, P.E., LT Leon Associates, Inc., at 515-422-7016 or lleon@ltleon.com. Those listed as a plan holder will receive meeting notes, any and all addenda and an updated plan holders list. The website will NOT be updated with the meeting notes, plan holders list, and any addenda. These must be received directly from the Engineer or Division.

04 METHOD OF BIDDING

Bidders shall submit unit price bids as required for the work items covered by the Contract Documents. Prices shall cover complete work and include all costs incidental thereto, unless otherwise indicated. The Division may change location, quantities and combination of units as required during the progress of construction. If work is added to the Contract which is not covered by a bid price set forth in the Proposal and Schedule of Prices (*Document C*), a Change Order, including the negotiated cost for said work, will be issued by the Division prior to the work being done.

Bids will be compared using quantities shown in the proposal. The quantities of work so shown represent the Engineer's estimate of work to be completed as shown on the plans and measured in accordance with provisions in this Contract defining the method to be used in measuring such quantities. The Contractor's compensation will be computed on the basis of final quantities of completed work. Where a lump sum is shown on the proposal as a unit bid price for a specified work item, the Contractor will be paid that amount for the completed and accepted work.

In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern. The bidder must submit a bid for all alternates, if any.

05 SUBMISSION OF BIDS

The bids shall be submitted on the proposal form included herewith. The proposal shall be submitted in a sealed envelope separate from the bid security. The envelope shall bear the return address of the bidder and shall be addressed as follows:

TO: IDALS-DSCWQ, Mines and Minerals Bureau
Attn: Angie Sebastian, Project Coordinator
1305 East Walnut Street
Des Moines, Iowa 50319

PROPOSAL FOR: Crozier Family AML Reclamation Project
Marion County, Iowa
Bid No. IA-365

- The bid shall be signed by a legally authorized representative of the bidder.
- The bid securities shall be placed in a separate No. 10 envelope attached to the envelope containing the bid.
- See Article 17 below. Do not submit Plans and/or Specifications with the bid. The following documents shall be included in the large envelope of the bid proposal:
 - ❖ Schedule of Prices (*Document C*)
 - ❖ Targeted and Small Business Enterprise Reporting Form (*Document F*)
 - ❖ Davis-Bacon Acknowledgement Form (*Document AC*)
 - ❖ Build America Buy America (BABA) Statement Form (*Document AD*)

06 BID SECURITY

Bidder shall provide a cashier's or certified check or bid bond for the project in the amount of ten (10) percent of the base bid (no alternates included). **The bid security shall be made payable to the State of Iowa, Division of Soil Conservation and Water Quality**, and shall be forfeited and become the property of the Division in case the bidder fails or refuses to enter into Contract and furnish bond within fourteen (14) calendar days after his proposal has been accepted. Checks will be returned to the bidders.

07 WITHDRAWAL OF BIDS

Bids may be withdrawn any time prior to the scheduled closing time for receipt of bids but no bid may be withdrawn for a period of thirty (30) calendar days thereafter.

08 EVALUATION OF BIDS AND AWARD OF CONTRACT

The Contract shall be awarded to the lowest responsive, responsible bidder as determined by the Division. In evaluating the bids, the Division may consider such factors as alternates, bid price, experience and responsibility of the bidder and similar factors in determining which bid it deems to be in the best interest of the Division for the project. In comparing bid prices, the total bids of the various bidders shall be determined by applying the unit prices bid for each work item against the estimated work item quantities set forth in the proposal.

09 TAXES

Materials purchased for all construction contracts let by the Division, will be exempt from sales and use tax, including local option taxes. This exemption applies only to materials that are components of the final project. The Contractor and subcontractors will be issued a Sales Tax Exemption Certificate from the Division that is specific for a Contract. Refer to Iowa Department of Revenue and Finance website for additional information: <https://tax.iowa.gov>.

The bidder shall include in his proposal all other federal and state taxes required by law.

10 PREFERENCE FOR LABOR AND MATERIALS

The Contractor shall observe all of the laws of the State of Iowa with regard to preference for labor and materials, except that preference for Iowa labor and materials shall not apply when federal funding is to pay for any part of the project. This project is one (100) hundred percent federally funded; therefore, there shall be no preference for Iowa labor and materials.

11 EXECUTION OF CONTRACT

The party to whom the Contract is awarded is required to complete the following documents within fourteen (14) days from receipt of the Notice of Award.

- a. CONTRACT (*Document I*) including Iowa Department of Labor Public Registration Number
- b. PERFORMANCE BOND (*Document J*) with signatures from bonding company
- c. EQUAL OPPORTUNITY CLAUSE (*Document E*) - Signed and dated
- d. CERTIFICATE OF NON-SEGREGATED FACILITIES (*Document G*) - Signed and dated
- e. CERTIFICATION – LOWER TIER TRANSACTIONS (*Document H*) - Signed and dated
- f. CERTIFICATION REGARDING LOBBYING (*Document M*) – Completed
- g. Submit Certificate of Insurance as required in Document N – General Conditions Section 6.01
- h. Complete the Application Violator System Form (OMB1029-0119) (See Section 16)
- i. DAVIS-BACON ACKNOWLEDGMENT FORM (*Document AC*)
- j. BUILD AMERICA BUY AMERICA (BABA) STATEMENT FORM (*Document AD*)
- k. JOB CLASSIFICATIONS AND WAGE RATES FORM (*Document WH347*)

The Notice-of-Award shall be sent to the Contractor by the Division and shall be accompanied by the necessary contract and bond forms listed above. In case of the failure of the bidder to execute the Contract, the Division may at its option consider the bidder in default, in which case the bid security accompanying the proposal shall become the property of the Division.

The Division will review all the Contract Documents received from the Contractor and inform him if there are any missing or improperly completed forms. After the Division receives all the properly completed forms, the Division will execute the Contract within fourteen (14) days and issue the Notice to Proceed. Should the Division not execute the Contract within such period, the Bidder may with written notice withdraw his signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by the Division.

The Notice-to-Proceed shall be issued within five (5) days of the execution of the Contract by the Division. Should there be reason why the Notice-to-Proceed cannot be issued within such period the time may be extended by mutual agreement between the Division and Contractor. If the Notice-to-Proceed has not been issued within a thirty (30) day period or within a greater period mutually agreed upon, the Contractor may terminate the Contract without further liability on the part of either party.

The Contractor must submit a Construction Progress Schedule to the Division and Engineer and schedule a Preconstruction Conference with the Division and Engineer. This Preconstruction Conference must be held within ten (10) days of the receipt of the Notice-to-Proceed. Additionally, the initial Construction Progress Schedule must be submitted to the Engineer and Division within ten (10) days of the receipt of the Notice-to-Proceed. Should there be any reason why either the Preconstruction Conference cannot be held, or the initial Construction Progress Schedule cannot be completed within such a period, the time may be extended by mutual agreement between the Division and Contractor. No work may commence on site prior to the Preconstruction Conference.

The Contractor shall commence work within fourteen (14) days of the date that the Notice-to-Proceed is received. The Contractor shall not commence work on site absent an initial Construction Progress Schedule approved by the Division. Should there be any reason why the construction work on site cannot commence within this period the time may be extended by mutual agreement between the Division and Contractor.

The executed Contract shall be deemed to include the entire agreement between the parties. The Contractor shall not claim any modifications resulting from representation or promise made by representatives of the Division or other persons.

12 DISQUALIFICATION OF BIDDERS

- Attention of bidders is directed to Section 553 of the current Code of Iowa regarding unlawful combination in making public contracts.
- The bidders are also directed to Section 91C.7 of the current Code of Iowa requiring that any Contractor performing construction contracts for the State of Iowa must be registered with the Iowa Division of Labor.
- The bidders are directed to the Iowa Department of Transportation "Standard Specifications for Highway and Bridge Construction" Section 1102.01 COMPETENCY AND QUALIFICATION OF BIDDERS in order to meet the qualification for grading work over One Hundred Thousand Dollars (\$100,000).
- The bidders are directed to *Document H* CERTIFICATION – LOWER TIER TRANSACTIONS.
- The bidders are directed to *Document M* CONGRESSIONAL LOBBYING REPORTING REQUIREMENTS.

- The bidders are required to acknowledge receipt of all addenda by listing such addenda in the PROPOSAL AND SCHEDULE OF PRICES (*Document C*).
- The bidders are directed to 30 CFR Section 874.16. This eligibility requirement will be reviewed by the Division at the Contractor's completion of the APPLICANT VIOLATOR SYSTEM (AVS) Form (OMB 1029-0119). (See B-16).
- The bidders are required to acknowledge DAVIS-BACON and BUILD AMERICA BUY AMERICA (BABA) requirements (*Document AC* and *Document AD*).

13 QUANTITIES

Estimated quantities shown on the proposal form are provided for the Contractor's information and for comparative purposes in awarding a construction Contract. Such quantities are intended to represent the work shown on the Plans, measured as defined in the Construction Specifications. However, said quantities are only estimates and are subject to increases and/or decreases during construction of the project.

14 QUESTIONS AND ADDENDA

If any person contemplating submitting a bid for the proposed work, material or equipment is in doubt as to the true meaning of any part of the Plans, Construction Specifications, or other Contract Documents, that person may request an interpretation thereof. The person submitting the request will be responsible for its prompt delivery.

Questions concerning the Plans and Construction Specifications should be addressed to Luis Leon, P.E., LT Leon Associates, Inc., 1823 Ohio Street Suite 101, Des Moines, Iowa, 50314, 515-422-7016 and lleon@lleon.com. All other questions concerning other Contract Documents should be addressed to Angie Sebastian, Project Coordinator, 515-822-1538. In order to be considered in a final addendum, written questions must be received no later than September 2, 2025.

Any oral interpretation given will be valid only if confirmed by written addendum. Information obtained from an officer, agent, or employee of the Division shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the Contract. All interpretation requests should be addressed in writing and received no later than the date stipulated in the Notice to Bidders so that responses may be included in an Addendum prior to bid opening.

The Division reserves the right to revise or amend the Contract Documents prior to the date set for receipt of bids. Such revisions and amendments, if any, will be announced by an addendum or addenda to the Contract Documents. Copies of such addenda as may be issued will be furnished to all holders of the Contract Documents and Bid Package. **Bidders are required to acknowledge receipt of all addenda by listing such addenda in the Proposal and Schedule of Prices (*Document C*).**

15 PRECONSTRUCTION CONFERENCE

Following the award of Contract, the Contractor and his major subcontractors will be required to attend a preconstruction meeting at a time and place designated by the Engineer.

16 AVS RECOMMENDATION REQUIREMENT

The successful bidder for an AML Contract must be eligible under 30 CFR Section 874.16 at the time of Contract award to receive a permit or conditional permit to conduct surface coal mining operations. Such eligibility must be confirmed by the completion of the automated Applicant Violator System (AVS) form (OMB 1029-0119) or update their existing Organization Family Tree (OFT). Therefore, the successful bidder will be required to contact the AVS Office of OSM (800-643-9748) and update existing registration or submit AVS Recommendation Request to the AVS Office, as required by OSM. The award of any Contract under this solicitation cannot be made until the request has been processed by the OSM-AVS office and reviewed by the Division. Failure on the part of the apparent low bidder to provide a completed AVS form to the Division within fourteen (14) working days of the Notice-of-Award, or if the applicant is listed as a violator on the AVS, may result in the withdrawal of the award, re-awarding to the next lowest bidder, or rebidding the Contract, and forfeiture of all or part of the Bid Bond.

17 SUMMARY OF BID SUBMITTAL REQUIREMENTS

Before submitting a bid, be certain that all documents have been completed properly. Failure to complete and sign all documents and to comply with the requirements listed below can cause the bid not to be read:

A. Bid Security

The bid security must be in the separate No. 10 envelope and attached to the outside of the PROPOSAL AND SCHEDULE OF PRICES envelope. The bid security must be in the minimum amount of ten (10) percent of the total base bid amount (no alternates included). Bid security must be either:

CERTIFIED CHECK OR CASHIER'S CHECK

OR

BID BOND

Drawn on a bank in the State of Iowa or a bank chartered under the laws of the United States

*Executed by a corporation authorized to Contract as surety in the State of Iowa
- Use Document D*

B. Bid Documents

1. The following documents shall be completed, signed and returned in a larger envelope. **THE BID CANNOT BE READ IF ANY OF THESE DOCUMENTS ARE OMITTED FROM THE ENVELOPE OR ARE NOT PROPERLY COMPLETED.**

- a. PROPOSAL AND SCHEDULE OF PRICES (*Document C*) - Complete each of the following parts:
 - Identity of Bidder (name and address);
 - Acknowledgment of addenda, if any have been issued, by listing Addendum No. and Date;
 - Affidavit notarizing signature of the bidder; and
 - Name of bidder, unit prices and extensions with total bid amount noted, and alternates if any.
- b. TARGETED SMALL BUSINESS ENTERPRISE REPORTING FORM (*Document F*) – Completed.

If this document has only the bidder's name and address, thereby indicating no solicited quotes, or if solicitations were made which resulted in a small or zero(0) percent minority participation, the bid will still be read and will be considered just as if the Division's ten (10) percent goal, or more, minority participation had been achieved.
- c. DAVIS-BACON ACKNOWLEDGEMENT FORM (*Document AC*)
 - Signature of bidder acknowledging requirements
- d. BUILD AMERICAN BUY AMERICA (BABA) STATEMENT FORM (*Document AD*)
 - Signature of bidder acknowledging requirements

NOTE: ALL BID DOCUMENTS MUST BE SUBMITTED AS PRINTED. NO ALTERATIONS, ADDITIONS, OR DELETIONS ARE PERMITTED.

END OF DOCUMENT B

STATE OF IOWA
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY

Time and Date of Bid Opening: 3:00 p.m., September 5, 2025
IDALS-DSCWQ
1305 East Walnut Street
Des Moines, Iowa 50319

Project Description and Location: Crozier Family AML Reclamation Project
Southeast 1/4 of Section 16 and the Northeast 1/4 of Section 21, Township 75
North, Range 18 West
Marion County, Iowa

Proposal of: _____
Name of Bidder Company's Registered Name

Located at: _____
Business Address (Street, City, State, Zip Code) Telephone Number

Amount of Proposal Guarantee	Description of Work	Specified Completion Date	Liquidated Damages Per Day
10% of Base Bid	ALL	<u>December 31, 2026</u>	\$250

The undersigned hereby agrees, if awarded the Contract, to execute the proposed Contract and to furnish satisfactory performance bond in an amount not less than one hundred (100) percent of the Contract award within fourteen (14) days after the date of approval of award of the Contract, and to provide all supervision, labor, materials, and equipment required to complete the project designated above, for the prices hereinafter set forth, in strict compliance with the Contract Documents prepared by the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality.

The undersigned agrees, if awarded the Contract, to commence the work after the preconstruction conference and within fourteen (14) calendar days of receipt of the Notice-to-Proceed. The undersigned further agrees to complete the work within the contract period, or to pay liquidated damages in the amount(s) stipulated herein for each calendar day the work remains uncompleted after the expiration of the contract period.

A proposal guarantee in the amount stipulated herein is included with this proposal, to be forfeited to the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality, if the undersigned fails or refuses to execute the Contract and furnish satisfactory performance bond, if awarded the Contract.

The undersigned hereby acknowledges that Davis-Bacon Wage and Build America Buy America (BABA) requirements apply to this project.

By: _____
Signed

Title Date

In executing this proposal, Bidder acknowledges receipt of Addendum Number _____ dated _____

In executing this proposal, Bidder acknowledges receipt of Addendum Number _____ dated _____

In executing this proposal, Bidder acknowledges receipt of Addendum Number _____ dated _____

**THE FOLLOWING AFFIDAVIT MUST BE COMPLETED AND NOTARIZED
OR THIS BID WILL BE REJECTED**

AFFIDAVIT

The signatory, being duly sworn, does depose and say that the undersigned is an authorized representative of:

Name of Firm: _____

Located at: _____

hereinafter referred to as “Bidder” and does hereby affirm to have personal knowledge that said Bidder has thoroughly examined the Contract Documents, carefully prepared the proposal form, and has checked the same in detail before submitting; and that said Bidder, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, participated in any collusion or fraud, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

Signed

Subscribed and sworn to before me this _____ day

of _____, 20__

Notary Signature

My Commission Expires _____, 20__

SCHEDULE OF PRICES

Page 3 of 3

Name of Bidder:*Required on page 3 of Schedule of Prices*

Crozier Family AML Reclamation Project, Bid No. IA-365

Southeast 1/4 of Section 16 and the Northeast 1/4 of Section 21, Township 75 North, Range 18 West, Marion County, Iowa

ITEM NO.	DESCRIPTION	SPEC. SECTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION	02100	1	LS		
2	SITE CLEARING AND PREPARATION	02100	15.7	ACRE		
3	TEMPORARY EARTH DIVERSION BERM	02120	1,465	LF		
4	FILTER SOCK, 12" DIA.	02120	36	LF		
5	TIED CONCRETE BLOCK MAT	02120	2,100	SF		
6	STABILIZED CONSTRUCTION ENTRANCE	02120	33	TON		
7	MACADAM STONE	02120	47	TON		
8	RIPRAP, CLASS 'E'	02120	196	TON		
9	EXCAVATION	02200	124,965	CY		
10	TERRACES	02300	2,950	LF		
11	RISER - TERRACE, 6"	02300	1	EA		
12	RISER - TERRACE, 24"	02300	2	EA		
13	OPEN SIDED AREA INTAKE, 4'X4'	02300	1	EA		
14	DUAL WALL HDPE PIPE, 6"	02300	191	LF		
15	PPHP PIPE, 15"	02300	344	LF		
16	PPHP PIPE, 18"	02300	73	LF		
17	SUBGRADE PREPARATION	02400	15.4	ACRE		
18	DEEP RIPPING, SUBGRADE	02400	1.7	ACRE		
19	AGRICULTURAL LIME (40 TON ECCE/ACRE)	02400	616	TON ECCE		
20	MULCH, SUBGRADE, (5 TONS/ACRE)	02400	15.4	ACRE		
21	WETLAND UNDERCUT AND REPLACEMENT	02400	0.5	ACRE		
22	WETLAND FERTILIZER, NITROGEN (N), (30 LB./ACRE)	02400	15	POUND		
23	FIELD FENCE	02500	1,731	LF		
24	DOUBLE 12' PANEL GATE	02500	1	EA		
25	INSTALL SALVAGED 20' GATE	02500	1	EA		
26	SEEDBED PREPARATION	02700	14.9	ACRE		
27	NITROGEN (N), (50 LB./ACRE)	02700	745	POUND		
28	PHOSPHOROUS (P), (100 LB./ACRE)	02700	1,490	POUND		
29	POTASSIUM (K), (160 LB./ACRE)	02700	2,384	POUND		
30	PASTURE SEEDING	02700	14.7	ACRE		
31	WETLAND FRINGE SEEDING	02700	0.2	ACRE		
32	MULCH, SEEDING (2 TONS/ACRE)	02700	14.9	ACRE		

TOTAL BASE BID \$ _____

END OF DOCUMENT C

STATE OF IOWA
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY

KNOW ALL MEN BY THESE PRESENT:

That we, _____ of _____ as **PRINCIPAL**,
and _____ of _____
as **SURETY(S)**, are hereby held and firmly bound unto the State of Iowa in the penal sum of _____
/100 Dollars (\$ _____) for the payment, whereof,
the said **PRINCIPAL** and **SURETY(S)** bind themselves, their heirs, executors, administrators, successors and assigns,
jointly and severally, firmly by these present.

The conditions of this obligation are such that whereas the **PRINCIPAL** is herewith submitting to the State of Iowa, acting
by and through the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality,
hereinafter called the **DIVISION**, its sealed Contract for the following:

Crozier Family AML Reclamation Project
Southeast 1/4 of Section 16 and the Northeast 1/4 of Section 21, Township 75 North, Range 18 West, Marion
County, Iowa
Bid No. IA-365

NOW THEREFORE, the conditions of this obligation are such that, if said proposal is rejected by the **DIVISION**, or if said
proposal is accepted by the **DIVISION** and the **PRINCIPAL** shall enter into a Contract in the form specified by the
DIVISION in accordance with the terms of the Proposal and Schedule of Prices (*Document C*) and shall furnish a bond for
the faithful performance of said Contract in the form specified by the **DIVISION**, this obligation shall be null and void.
Otherwise, it shall remain in full force and effect.

In the event that the said proposal is accepted by the **DIVISION** and the **PRINCIPAL** shall fail to enter into the Contract as
defined herein or shall fail to furnish the performance bond as noted above, within thirty (30) days of the approval of the
award, the **PRINCIPAL** and **SURETY(S)** agree to forfeit to the **DIVISION** the penal sum herein mentioned, it being
understood that the liability of the **SURETY(S)** shall in no event exceed the penal sum or this obligation.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals
this _____ day of _____, 2025, the name and corporate seal of each party being
hereto affixed and these present duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL

SURETY

BY: _____

Signature

Print Name

BY: _____

Signature

Print Name

BY: _____

Signature

Print Name

If a partnership, all partners must sign.

END OF DOCUMENT D

EQUAL OPPORTUNITY CLAUSE.
41 CFR 60-1.4(b)

During the performance of this Contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
4. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government Contracts or federally assisted construction Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

8. The Contractor will include the portion of the sentence immediately preceding paragraph 1 and the provisions of paragraphs 1 through 8 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Signature of Appropriate Official

Date

Title

END OF DOCUMENT E

STATE OF IOWA
IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY

Bidder Name: _____

Address: _____

Project: Crozier Family AML Reclamation Project
Southeast 1/4 of Section 16 and the Northeast 1/4 of Section 21, Township 75 N,
Range 18 West
Marion County, Iowa

TO BE COMPLETED BY ALL BIDDERS

You are requested to provide the information on this form showing your Targeted Small Business Enterprises contacts made prior to your bid submission. This information is subject to verification and confirmation.

NOTE: The Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality, will not regard your acceptance or use of a low quote or bid from a non-targeted Small Business Enterprise on any subcontract item as evidence itself of any lack of good faith effort to solicit Targeted Small Business Enterprise subcontractors on this project. However, every effort shall be made to solicit quotes or bids on as many subcontractable items as necessary to evidence affirmative action in contracting.

TABLE OF INFORMATION SHOWING BIDDER'S PRE-BID TARGETED SMALL BUSINESS (TSB) ENTERPRISE CONTACTS

Subcontractor	TSB	Date Contacted	QUOTES RECEIVED		QUOTATION USED IN BIDS	
			Yes/ No	Date	Yes/ No	Dollar Amount Proposed to be Subcontracted
1.						
2.						
3.						
4.						
5.						

END OF DOCUMENT F

*STATE OF IOWA
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY*

CERTIFICATE OF NON-SEGREGATED FACILITIES

Applicable to federally assisted construction contracts and related subcontracts exceeding Ten Thousand Dollars (\$10,000) which are not exempt from the Equal Opportunity clause.

The federally assisted construction Contractor certifies that the said Contractor does not maintain or provide for employees any segregated facilities at any of the Contractor's establishments, and that the Contractor does not permit employees to perform their services at any location, under the Contractor's control, where segregated facilities are maintained. The federally assisted construction Contractor certifies further that the said Contractor will not maintain or provide for employees any segregated facilities at any of the Contractor's establishments, and that the Contractor will not permit any employees to perform their services at any location, under the Contractor's control, where segregated facilities are maintained. The federally assisted construction Contractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this Contract. As used in this certification, the term "segregated facilities" mean any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The federally assisted construction Contractor agrees that (except where the Contractor has obtained identical certifications from proposed subcontractors for specific time periods) the Contractor will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding Ten Thousand Dollars (\$10,000) which are not exempt from the provisions of Equal Opportunity clause, and that the Contractor will retain such certifications in the files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Contractor

Signature

Title

Date

END OF DOCUMENT G

U.S. Department of the Interior
Certification Regarding Debarment, Suspension,
and Other Responsibility Matters

Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 43 CFR Part 12, Section 12.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211). Copies of the regulations are included in the proposal package. For further assistance in obtaining a copy of the regulations, contact the U.S. Department of the Interior, Acquisition and Assistance Division, Office of Acquisition and Property Management, 18th and C Streets, N.W., Washington, D.C. 20214

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

- (1) The prospective primary participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Name and Title of Authorized Representative

Signature

Date

Instructions for Certification

1. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transactions," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tiered transaction with a person who is proposed for debarment under [48 CFR part 9](#), subpart 9.4, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or Board with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not proposed for debarment under [48 CFR part 9](#), subpart 9.4, debarred, suspended, ineligible, or voluntarily excluded from covered transactions, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is proposed for debarment under [48 CFR part 9](#), subpart 9.4, suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or Board with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

END OF DOCUMENT H

CONGRESSIONAL LOBBYING REPORTING REQUIREMENTS

Public Law 101-121 (1989 H.R. 2788)

Subchapter III of Chapter 13 of Title 31.

§1352. Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions.

Sec. 319 (a)(1) None of the funds appropriated by any Act may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any Federal action described in paragraph (2) of this subsection.

(2) The prohibition in paragraph (1) of this subsection applies with respect to the following Federal actions:

- (A) The awarding of any Federal contract.
- (B) The making of any Federal grant.
- (C) The making of any Federal loan.
- (D) The entering into of any cooperative agreement.
- (E) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(b)(1) Each person who requests or receives a Federal contract, grant, loan, or cooperative agreement from an agency or request or receives from an agency a commitment providing for the United States to insure or guarantee a loan shall file with that agency, in accordance with paragraph (4) of this subsection --

- (A) a written declaration described in paragraph (2) or (3) of this subsection, as the case may be; and
- (B) copies of all declarations received by such person under paragraph (5).

(2) A declaration filed by a person pursuant to paragraph (1)(A) of this subsection in connection with a Federal contract, grant, loan, or cooperative agreement shall contain --

- (A) A statement setting forth whether such person --
 - (i) has made any payment with respect to that Federal contract, grant, loan, or cooperative agreement, using funds other than appropriated funds, which would be prohibited by subsection (a) of this section if the payment were paid for with appropriated funds; or
 - (ii) has agreed to make any such payment;
- (B) with respect to each such payment (if any) and each such agreement (if any) --
 - (i) the name and address of each person paid, to be paid, or reasonably expected to be paid;
 - (ii) the name and address of each individual performing the services for which such payment is made, to be made, or reasonably expected to be made;
 - (iii) the amount paid, to be paid, or reasonably expected to be paid;
 - (iv) how the person was paid, is to be paid, or is reasonably expected to be paid; and
 - (v) the activity for which the person was paid, is to be paid, or is reasonably expected to be paid; and
- (C) a certification that the person making the declaration has not made, and will not make, any payment prohibited by subsection (a).

(3) A declaration filed by a person pursuant to paragraph (1)(A) of this subsection in connection with a commitment providing for the United States to insure or guarantee a loan shall contain --

- (A) A statement setting forth whether such person --
 - (i) has made any payment to influence or attempt to influence an officer or employer of any agency, a Member of Congress, an officer or employee of Congress, or any employee of a Member of Congress in connection with that loan insurance or guaranty; or
 - (ii) has agreed to make any such payment; and
 - (B) with respect to each such payment (if any) and each such agreement (if any), the information described in paragraph (2)(B) of this subsection.
- (4) A person referred to in paragraph (1)(A) of this subsection shall file declaration referred to in that paragraph
- (A) with each submission by such person that initiates agency consideration of such person for award of a Federal contract, grant, loan, or cooperative agreement, or for grant of a commitment providing for the United States to insure a guarantee a loan;
 - (B) upon receipt by such person of a Federal contract, grant, loan, or cooperative agreement or of a commitment providing for the United States to insure or guarantee a loan, unless such person previously filed a declaration with respect to such contract, grant, loan, cooperative agreement, or commitment pursuant to clause (A); and
 - (C) at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any declaration previously filed by such person in connection with such Federal contract, grant, loan, cooperative agreement, loan insurance commitment, or loan guaranty commitment.
- (5) Any person who requests or receives from a person referred to in paragraph (1) of this subsection a subcontract under a Federal contract, a subgrant or contract under a Federal grant, a contract or subcontract to carry out any purpose for which a particular Federal loan is made, or a contract under a Federal cooperative agreement shall be required to file with the person referred to in such paragraph a written declaration referred to in clause (A) of such paragraph.
- (6) (A) The head of each agency shall collect and compile the information contained, pursuant to paragraphs (2)(B) and (3)(B) of this subsection, in the statements filed under this subsection and, on May 31 and November 30 of each year, submit to the Secretary of the Senate and the Clerk of the House of Representatives a report containing a compilation of the information contained, pursuant to such paragraphs, in the statements received during the six-month period ending on March 31 or September 30, respectively, of that year. The report, including the compilation, shall be available for public inspection 30 days after receipt of the report by the Secretary and the Clerk.
- (B) Notwithstanding subparagraph (A) --
- (i) information referred to in subparagraph (A) that involves intelligence matters shall be reported only to the Select Committee on Intelligence of the Senate, the Permanent Select Committee on Intelligence of the House of Representatives, and the Committees on Appropriations of the Senate and the House of Representatives in accordance with procedures agreed to by such committees;
 - (ii) information referred to in subparagraph (A) that is specifically authorized under criteria established by an Executive Order to be kept secret in the interest of national defense or foreign policy, is classified in accordance with such order, and is available only by special access, shall be reported only to the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives or the Committees on Armed Services of the Senate and the House of Representatives (whichever such committees have jurisdiction of matters involving such information) and to the Committees on Appropriations of the Senate and the House of Representatives in accordance with procedures agreed to by such committees; and
 - (iii) information reported in accordance with this subparagraph shall not be available for public inspection.
- (7) The Director of the Office of Management and Budget, after consulting with the Secretary of the Senate and the Clerk of the House of Representatives, shall issue guidance for agency implementation of, and compliance with, the requirements of this section.

- (c)(1) Any person who makes an expenditure prohibited by subsection (a) of this section shall be subject to a civil penalty of not less than Ten Thousand Dollars \$10,000 and not more than One Hundred Thousand Dollars (\$100,000) for each such expenditure.
- (2)
 - (A) Any person who fails to file or amend a declaration required to be filed or amended under subsection (b) of this section shall be subject to a civil penalty of not less than Ten Thousand Dollars (\$10,000) and not more than One Hundred Thousand Dollars (\$100,000) for each such failure.
 - (B) A filing of a declaration or a declaration amendment on or after the date on which an administrative action for the imposition of a civil penalty under this subsection is commenced does not prevent the imposition of such civil penalty for a failure occurring before that date. For the purposes of this subparagraph, an administrative action is commenced with respect to a failure when and investigating official determines in writing to commence an investigation of an allegation of such failure.
- (3) Section 3803 (except for subsection (c)) 3804, 3805, 3806, 3807, 3808, and 3812 of this title shall be applied, consistent with the requirements of the section, to the imposition and collection of civil penalties under this subsection.
- (4) An imposition of a civil penalty under this subsection does not prevent the United States from seeking any other remedy that the United States may have for the same conduct that is the basis for the imposition of such civil penalty.
- (d)(1) The official of each agency referred to in paragraph (3) of this subsection shall submit to Congress each year an evaluation of the compliance of that agency with, and the effectiveness of, the requirements imposed by this section on the agency, persons requesting or receiving Federal contracts, grants, loans, or cooperative agreements from that agency, and persons requesting or receiving from that agency commitments providing for the United States to insure or guarantee loans. The report shall be submitted at the same time the agency submits its annual budget justifications to Congress.
- (2) The report of an agency under paragraph (1) of this subsection shall include the following:
 - (A) All alleged violations of the requirements of subsections (a) and (b) of this section, relating to the agency's Federal actions referred to in such subsections, during the year covered by the report.
 - (B) The actions taken by the head of the agency in such year with respect to those alleged violations and any alleged violations of subsections (a) and (b) of this section that occurred before such year, including the amounts of civil penalties imposed by the head of such agency in such year, if any.
- (3) The Inspector General of an agency shall prepare and submit the annual report of the agency required by paragraph (1) of this subsection. In the case of an agency that does not have an inspector general, the agency official comparable to an inspector general shall prepare and submit the annual report, or if there is no such comparable official, the head of the agency shall prepare and submit such annual report.
- (e)(1)
 - (A) Subsection (a)(1) of this section does not apply in the case of a payment of a reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract, grant, loan, or cooperative agreement to the extent that the payment is for agency and legislative liaison activities not directly related to a Federal action referred to in subsection (a)(2) of this section.
 - (B) Subsection (a)(1) of this section does not prohibit any reasonable payment to a person in connection with, or any payment of reasonable compensation to an officer or employee of a person requesting or receiving, a Federal contract, grant, loan, or cooperative agreement or an extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract, grant, loan, or cooperative agreement or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract, grant, loan, or cooperative agreement.
 - (C) Nothing in this paragraph shall be construed as permitting the use of appropriated fund for making any payment prohibited in or pursuant to any other provision of law.
- (2) The reporting requirement in subsection (b) of this section shall not apply to any person with respect to:

- (A) Payments of reasonable compensation made to regularly employed officers or employees of a person requesting or receiving a Federal contract, grant, loan, or cooperative agreement or a commitment providing for the United States to insure or guarantee a loan;
 - (B) A request for or receipt of a contract (other than a contract referred to in clause (C)), grant, cooperative agreement, subcontract (other than a subcontract referred to in clause (C)), or subgrant that does not exceed One Hundred Thousand Dollars (\$100,000); and
 - (C) A request for or receipt of a loan, or a commitment providing for the United States to insure or guarantee a loan, that does not exceed One Hundred Fifty Thousand Dollars (\$150,000), including a contract or subcontract to carry out any purpose for which such a loan is made.
- (f) The Secretary of Defense may exempt a Federal action described in subsection (a)(2) from the prohibition in subsection (a)(1) whenever the Secretary determines, in writing, that such an exemption is in the national interest. The Secretary shall transmit a copy of each such written exemption to Congress immediately after making such determination.
- (g) The head of each Federal agency shall take such actions as are necessary to ensure that the provisions of this section are vigorously implemented and enforced in such agency.
- (h) As used in the section:
- (1) The term “recipient”, with respect to funds received in connection with a Federal contract, grant, loan, or cooperative agreement --
- (A) Includes the contractors, subcontractors, or subgrantees (as the case may be) or the recipient; but
 - (B) Does not include an Indian tribe, tribal organization, or any other Indian organization eligible to receive Federal contracts, grants, cooperative agreements, or loans from an agency but only with respect to expenditures that are by such tribe or organization for purposes specified in subsection (a) and are permitted by other Federal law.
- (2) The term “agency” has the same meaning provided for such term in section 552(f) of title 5, and includes a Government corporation, as defined in section 9101(1) of this title.
- (3) The term “person” --
- (A) Includes an individual corporation, company, association, authority, firm partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit; but
 - (B) Does not include an Indian tribe, tribal organization, or any other Indian organization eligible to receive Federal contracts, grants, cooperative agreements, or loans from an agency but only with respect to expenditures by such tribe or organization that are made for purposes specified in subsection (a) and are permitted by other Federal law.
- (4) The term “State” means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-State, regional, or interstate entity having governmental duties and powers.
- (5) The term “local government” means a unit of government in a State and if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, the following entities:
- (A) A local public authority.
 - (B) A special district.
 - (C) An intrastate district.
 - (D) A council of governments.
 - (E) A sponsor group representative organization.
 - (F) Any other instrumentality of a local government.
- (6) (A) The terms “Federal contract”, “Federal grant”, “Federal cooperative agreement” mean, respectively --
- (i) a contract awarded by an agency;
 - (ii) a grant made by an agency or a direct appropriation made by law to any person; and
 - (iii) a cooperative agreement entered into by an agency.

- (B) Such terms do not include --
- (i) direct United States cash assistance to an individual;
 - (ii) a loan;
 - (iii) loan insurance; or
 - (iv) a loan guaranty.
- (7) The term “Federal loan” means a loan made by an agency. Such term does not include loan insurance or a loan guaranty.
- (8) The term “reasonable payment” means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.
- (9) The term “reasonable compensation” means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal government.
- (10) The term “regularly employed”, with respect to an officer or employee of a person requesting or receiving a Federal contract, grant, loan or cooperative agreement or a commitment providing for the United States to insure or guarantee a loan, means an officer or employee who is employed by such person for at least 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract, grant, loan, cooperative agreement, loan insurance commitment, or loan guaranty commitment.
- (11) The terms “Indian tribe” and “tribal organization” have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b).

Speaker of the House of Representatives.

Vice President of the United States and President of the Senate.

U.S. Department of the Interior

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

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

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

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

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

Organization: _____

Street address: _____

City, State, Zip _____

CERTIFIED BY: _____

TITLE: _____

(Signature)

(Date)

Approved by OMB 0348-0046

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
 (See Reverse for public burden disclosure.)

1. Type of Federal Action: a. contract <u>b</u> b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	2. Status of Federal Action: a. bid/offer/application b. initial award <u>c</u> c. post-award	3. Report Type: <u>a</u> a. initial filing b. material change For material change only: Year _____ quarter _____ Date of last report _____
4. Name and Address of Reporting Entity: _____ Prime _____ Subawardee Tier _____, if Known: Congressional District, if known:	5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: Iowa Department of Agriculture and Land Stewardship Division of Soil Conservation and Water Quality 1305 East Walnut Street Des Moines, IA 50319 Congressional District, if known: 3	
6. Federal Department/Agency: Office of Surface Mining and Reclamation Enforcement U.S. Department of Interior	7. Federal Program Name/Description: CFDA Number, if applicable: 15.252	
8. Federal Action Number, if known:	9. Award Amount, if known: \$	
10. a. Name and Address of Lobbying Registrant <i>(if individual, last name, first name, MI):</i>	b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i>	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
Federal Use Only	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)	

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

END OF DOCUMENT M

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SECTION 1 - DEFINITIONS

1-01 GENERAL: In the interpretation and construction of these Contract Documents, or in any documents or instruments dealing with the work governed by these Contract Documents, the following words, terms and abbreviations, or pronouns in place of them, shall each be construed as defined below.

Omissions of words or phrases such as "the Contractor shall," "in conformance with," "shall be," "as noted on the Plans," "according to the Plans," "a," "an," "the," and "all" are intentional, and Contractor must supply omitted words and phrases by inference.

1-02 CONTRACT DOCUMENTS: Those documents listed in the Construction Contract (*Document I*), including all additions, deletions and modifications incorporated therein before the execution of the Contract. These documents are as follows:

- A. Notice to Bidders (*Document A*)
- B. Instructions to Bidders (*Document B*)
- C. Proposal and Schedule of Prices (*Document C*)
- D. Proposal Guarantee Bond (*Document D*)
- E. Equal Opportunity Clause (*Document E*)
- F. Targeted Small Business Enterprise Reporting Form (*Document F*)
- G. Certificate of Non-Segregated Facilities (*Document G*)
- H. Certification - Lower Tier Debarment & Suspension (*Document H*)
- I. Construction Contract (*Document I*)
- J. Performance Bond (*Document J*)
- K. Clean Air and Water Clause (*Document L*)
- L. Congressional Lobbying Reporting Requirements (*Document M*)
- M. General Conditions (*Document N*)
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- P. Approved Change Orders pursuant to Section 4 of the General Conditions (*Document T*)
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- R. Applicant Violator System Form
- S. Davis-Bacon Acknowledgement Form (*Document AC*)
- T. Build America Buy America (BABA) Statement Form (*Document AD*)
- U. Wage Hour Form 347 (WH-347 Form)
- V. Storm Water Pollution Prevention Plan (SWPPP)
- W. All drawings issued in the set of Plans for this project
- X. All Addenda numbers issued for this project
- Y. Notice-of-Award
- Z. Notice-to-Proceed

1-03 DIVISION: Division of Soil Conservation and Water Quality, Iowa Department of Agriculture and Land Stewardship, State of Iowa.

1-04 ENGINEER: As defined in Supplemental Specifications.

1-05 ENGINEER'S DESIGNEE: A competent person appointed by Engineer and under Engineer's direct supervision who is employed by Engineer's company, either directly or by sub-contract.

1-06 WORK OR PROJECT: Work to be done and equipment, supplies, and materials to be furnished under the Contract, General Conditions, Supplemental Specifications, Construction Specifications, Plans, Addenda, and Modifications to these Contract Documents issued subsequent to their initial printing, unless some other meaning is indicated by the context.

1-07 SPECIFICATIONS: The directions and requirements of the detailed Construction Specifications as contained herein, and as modified by the Supplemental Specifications, pertaining to the manner of performing the work or the quantities and quality of materials to be furnished for the specific referenced project.

1-08 PLANS: The official drawings, profiles, typical cross sections and supplemental drawings, or reproductions thereof, approved by Engineer, which show the location, character, dimensions and details of work to be performed. All such

drawings, as listed in the Supplemental Specifications, are to be considered as a part of the Contract Documents whether attached to the Contract Documents or separate therefrom.

1-09 BIDDER: An individual, firm, co-partnership or corporation, or combination thereof, submitting a Proposal for the work contemplated and acting directly or through a duly authorized representative.

1-10 PROPOSAL: The written offer or copy thereof from a Bidder to perform the work described by the Contract Documents. This written offer shall be made out and submitted on the prescribed Proposal and Schedule of Prices (*Document C*), properly signed and guaranteed. A complete Proposal shall contain all of the properly completed and signed documents as described in Article 17 of the Instructions-to-Bidders (*Document B*).

1-11 PROPOSAL GUARANTEE: Bid security accompanying the Proposal submitted by the Bidder, as a guarantee that the Bidder shall enter into Contract with Division for performance of the work and furnish required insurance forms and bond or bonds if the Contract is awarded to the Bidder, in accordance with the Instructions-to-Bidders (*Document B*).

1-12 CONTRACT: The written agreement (*Document I*) covering the performance of the work described in the Contract Documents including all signed Change Orders and Amendments thereto and all general and special provisions pertaining to the work or materials therefor.

1-13 AMENDMENT: The written agreement covering the performance of changed work from the original Contract Documents which meets one or more of the following criteria:

- A. The total cost of the Contract, at the time of Contract award, is increased or decreased by more than twenty (20) percent;
- B. Any one major Contract bid item,^[1] defined below, exclusive of approved sediment or erosion control practices, Nitrogen, Phosphorus, and Potassium bid items, is increased or decreased by more than twenty (20) percent;
- C. The Contract completion date is revised;
- D. Contractor requests full payment when ninety-five (95) percent or more of the total Contract (as modified by signed Amendments and Change Orders) has been completed and approved for final acceptance by Division and the remaining Contract work cannot proceed (due to conditions beyond the control of Contractor) for a period of more than sixty (60) days;
- E. Work outside the original scope of the Contract Documents is added; and
- F. Both parties agree an Amendment is necessary to address material changes to the original scope of the Contract.

^[1] For criteria "B." above, a major item is defined as any bid item, with the exception of those listed exceptions or as designated in the Supplemental Specifications as exceptions, for which Contractor's unit price contained in the Proposal and Schedule of Prices (*Document C*) multiplied by the original bid quantity amounts to ten (10) percent or more of the cost of the original Contract award.

Only Amendments duly signed and executed by both Contractor and Division, with written consent of the Surety, constitute authorized modifications to the Contract.

1-14 CHANGE ORDER: A written order to Contractor, signed by Division, ordering a change which in the work originally shown by the Contract Documents, which has been found necessary by the Division. Only Change Orders duly signed and executed by Division constitute authorized modifications of the Contract.

1-15 CONTRACTOR: The individual, firm, partnership or corporation, and any heirs, executors, administrators, successors or assigns, or the lawful agent of any such individual, firm, partnership, or corporation, or the surety under the contract bond, constituting one of the principals to the Contract and undertaking to perform the work herein specified. Where any pronoun is used as referring to the word "Contractor" it shall mean Contractor as defined above.

1-16 SUBCONTRACTOR: Any person, firm, partnership or corporation who under a direct contract with Contractor acts for or on behalf of Contractor in executing any part of the Contract, but not including one who merely furnishes material.

1-17 PERFORMANCE BOND: The approved form of security furnished by Contractor and Contractor's surety, as required in the Contract Documents (*see Document J*), that shall be conditioned upon Contractor's and Contractor's Surety promise to faithfully perform all provisions of the Contract, and complete the work in accordance with the Contract Documents, including making full payment for labor and materials used in the work.

1-18 SURETY: The person, firm or corporation who executes Contractor's Performance Bond.

1-19 WRITTEN NOTICE: Written notice shall be considered served when delivered in person, sent by registered mail, or by use of electronic mail to the individual, firm, partnership or corporation, or to the last known business address of such individual, firm, partnership, or corporation known to the person who serves the notice. It shall be the duty of each party to advise the other parties to the Contract of any change in business address prior to completion of the Contract.

1-20 GOVERNMENTAL AGENCY: Any governmental unit having jurisdiction.

1-21 ACT OF GOD: Means an earthquake, flood, cyclone or other cataclysmic phenomenon of nature. Rain, wind, flood or any other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God.

1-22 DAYS: Unless otherwise designated, days as used in the Contract Documents shall be understood to mean calendar days.

1-23 WORKING DAYS: Any day weather conditions or other conditions allow Contractor to pursue any major item of work, excluding Sundays and holidays.

1-24 TIME OF COMPLETION: Time of completion of all work involved in this project shall be as specified in the *Document C*. See also Paragraph 3-24.

1-25 ALTERNATES: Alternates are defined as alternate products, materials, equipment, installations or systems for the work, which may, at Division's option and under terms established by the Contract Documents, be selected and recorded in the Contract to either supplement or displace corresponding basic requirements of the Plans and Construction Specifications. Alternates may or may not substantially change the scope and general character of the work, and should not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

1-26 COMMON TERMS: Certain terms are used in the Contract Documents and are defined generally in this Section. Definitions in this Section are not necessarily either complete or exclusive but are general in nature and intended to add clarification where more explicit definitions are not stated in the Construction Specifications.

- A. **Indicated:** The term "indicated" is a cross-reference to details, notes, or schedules on the Plans; to other paragraphs or schedules in the Construction Specifications; and to similar requirements in the Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is the purpose of helping the reader locate cross-reference, and no limitation of location is intended except as specifically noted.
- B. **Directed, Requested, etc.:** Where not otherwise further defined, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by the Division or Engineer", etc. However, no such implied meaning shall be interpreted to extend Division's or Engineer's responsibility to Contractor's responsibility for construction supervision, safety, or means and methods of construction.
- C. **Approve:** Where used in conjunction with Division's or Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved" will be held to limitations of Division's or Engineer's responsibilities and duties as specified in General and Supplemental Specifications. In no event shall "approval" by Division or Engineer be interpreted as releasing Contractor from responsibilities to fulfill requirements of the Contract Documents.
- D. **Furnish:** Except as otherwise or further defined, the term "furnish" shall mean to supply and deliver to a project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
- E. **Install:** Except as otherwise or further defined in greater detail, the term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations, as applicable in each instance.
- F. **Provide:** Except as otherwise or further defined in greater detail, the term "provide" means to furnish and install, complete and ready for intended use, as applicable in each instance.
- G. **Installer:** The entity (person or firm) engaged by Contractor or its Subcontractor or sub-Subcontractor for the performance of a particular unit of work at the project site, including installation, erection, application and similar required operations. Installers shall be experts in operations in which they are engaged to perform.
- H. **Testing Laboratory:** An independent entity engaged to perform specific inspections or tests of the work, either at project site or elsewhere, and to report and (if required) interpret results of those inspections or tests.
- I. **Defective Work:** Portion of project that is rejected by either Division or Engineer within the one year guarantee period, which begins on the date of final acceptance by Division.

- J. **Certification of Substantial Completion:** Written notice from Engineer that occurs when all punch list items have been completed and subsequently approved by Division and Engineer. The Notice of Completion can be published afterward.
- K. **Final Payment:** Payment for all completed work of the Contract less the required retainage.
- L. **Retainage Payment:** Payment to Contractor releasing all retained funds after the date identified in the published Notice of Completion, subject to any claims against the Contract. Refer to 7-13 C below.
- M. **Final Acceptance:** Written documentation provided by Division which is dated on or after the date identified in the published Notice of Completion. The date of Final Acceptance establishes the start date for the one-year guarantee period.

1-27 ABBREVIATIONS: The following abbreviations as referenced in the Contract Documents are defined to mean the associations noted below:

AASHTO	American Association of State Highway & Transportation Officials
AIA	American Institute of Architects
ACI	American Concrete Institute
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
IDOT	Iowa Department of Transportation
IDNR	Iowa Department of Natural Resources
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
OSMRE	Office of Surface Mining Reclamation and Enforcement (U.S. Department of Interior)

1-28 Buy America Build America (BABA) - The Build America Buy America Act, enacted as part of the Infrastructure Investment and Jobs Act on November 15, 2021, established a domestic content procurement preference for all Federal financial assistance obligated for infrastructure projects after May 14, 2022.

1-29 Certified Payroll - Certified payroll is the method of tracking a company's pay practices on Davis Bacon projects to ensure that local, state, and federal laws for prevailing wage requirements are being met. Failure to comply with certified payroll reporting can result in debarment for a contractor. Falsification of payroll certifications may subject the Contractor or Subcontractor to civil or criminal prosecution.

1-30 Davis- Bacon and Related Acts (DBRA) - The Davis-Bacon Act of 1931 is a United States federal law that establishes the requirement for paying the local prevailing wages on public works projects for laborers and mechanics. It applies to contractors and subcontractors performing work on federally-funded or assisted contracts in excess of \$2,000. The Streamlining Claims Processing for Federal Contractor Employees Act of 2013 amended the Davis-Bacon Act by transferring authority from the Government Accountability Office (GAO) to the United States Department of Labor for processing claims for wages due to laborers and mechanics hired by contractors on public works projects. Related acts include, but are not necessarily limited to: the Fair Labor Standards Act (FLSA); the Copeland "Anti-Kickback" Act; and Contract Work Hours and Safety Standards Act (CWHSSA).

SECTION 2 - PLANS, SPECIFICATIONS AND RELATED DATA

2-01 INTENT OF PLANS AND SPECIFICATIONS: The intent of the Contract Documents is that Contractor furnish all supervision, labor, materials, equipment, and transportation necessary for proper execution of the work unless otherwise specifically noted. Contractor shall complete all work shown on the Plans and described in the Contract Documents and all incidental work considered necessary to complete the project in an acceptable manner, or to fully complete the work or improvement, ready for use, occupancy and operation by Division.

Any minor work not specifically mentioned in the Contract Documents or shown on the Plans, but reasonably inferable as necessary for the proper completion of the work, shall be considered as being a part of and included in the Contract and shall be executed in a proper manner. Contractor shall not be entitled to extra or additional compensation for such work.

It is further the intention of the Contract Documents to set forth requirements of performance, type of equipment and structures, and standards of materials and construction, to require new material and equipment unless otherwise indicated, and to require complete performance of the work without specific reference to any minor component part. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class or trade of the Contract Documents be supplied unless expressly so noted. Materials or work described in words, which, as applied, have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

Whenever any article, material, or equipment is defined in the Contract Documents by describing a proprietary product or by using the name of a manufacturer or vendor, the term "or equal," if not inserted shall be implied. The specific article, material, or equipment mentioned shall be understood as indicating the type, function, minimum standard of design,

efficiency, and quality desired and shall not be construed in such manner as to exclude manufacturers' products of comparable quality as approved by Division.

Reference to standard specifications of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification or tentative specification adopted and published at the date of taking bids, unless otherwise specifically provided. Applicable codes and standards referred to in the Contract Documents shall establish minimum requirements for equipment, materials, and construction, and shall be superseded by more stringent requirements of Plans and Construction Specifications when and where they occur. Any conflicts between the Plans and Construction Specifications, and applicable codes and standards, shall be referred to Engineer for resolution.

Where reference is made in the Construction Specifications to "IDOT" or "IDOT Standard Specifications", such reference shall mean the latest edition and revisions of "STANDARD SPECIFICATIONS for Iowa Department of Transportation." Where such references are made, the referenced section, paragraph, sub-paragraph, etc., shall govern as though repeated verbatim herein. However, the reference herein to a specific IDOT Standard Specification Section, paragraph, sub-paragraph or material specification, shall not imply or infer that any other requirements of the IDOT Standard Specifications apply to this Project.

Except as otherwise indicated, graphic symbols used on the Plans are those symbols recognized in the construction industry for the indicated purposes. A legend of project specific symbols and other graphic symbols is shown on the Plans.

2-02 CONFLICT: In the event of conflict between the Plans, Construction Specifications, or other Contract Documents, the level of precedence shall be as provided below. In the event of conflict within a Contract Document, the most stringent provision of that Contract Document is intended and shall control.

- A. Supplemental Specifications over Construction Specifications.
- B. Indicated dimensions over scaled dimensions.
- C. Large scale details over small scale details, Plans, and elevations.
- D. Construction Specifications over Plans.
- E. Addenda over Construction Specifications and Plans.
- F. Approved Change Orders and Contract Amendments over prior Contract Documents to the extent of inconsistency with other Contract Documents.

2-03 DISCREPANCIES IN PLANS: Any discrepancies found between individual Contract Documents and site conditions, or any errors, omissions or ambiguities in the Contract Documents shall be immediately reported to Engineer and Division.

Questions as to meaning of the Contract Documents shall be interpreted by Division in consultation with Engineer. Division's decision shall be final and binding on all parties concerned. See also Paragraph 3-01. Division shall provide Contractor with such information as may be required to show revised or additional details of construction. Contractor shall not be allowed to take advantage of any errors or omissions in the Contract Documents. Division shall provide full information when errors or omissions are discovered. Any work done by Contractor, after Contractor's discovery of such discrepancies, errors, or omissions and prior to a decision by Division, shall be at Contractor's risk.

2-04 ADEQUACY OF PLANS AND SPECIFICATIONS: Responsibility for adequacy of the design and sufficiency of the Contract Documents shall be borne by Division. The complete requirements of the work to be performed under the Contract shall be set forth in the Contract Documents supplied by Division.

2-05 PLANS AND SPECIFICATIONS AT JOB SITE: One (1) complete record set of all Contract Documents shall be maintained by Contractor and shall be available to Division and Engineer upon request. Contractor shall maintain one (1) set of the Plans and shop drawings in a clean, undamaged condition that includes mark-up of actual installation(s) which vary from the work as originally shown. Record documents shall not be used for construction purposes and shall be protected from deterioration. Contractor shall provide access to record documents for Division's and Engineer's reference during all working hours.

Specific requirements for record documents are indicated below. Other requirements are indicated in the Construction Specifications.

- A. **RECORD PLAN**
 - 1. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at corresponding location on working drawings.
 - 2. Mark up new information which is recognized to be of importance to Division, but was for some reason not shown on either contract drawings or shop drawings.

3. Give particular attention to concealed work which would be difficult to measure and record at a later date.
4. Note related change-order numbers where applicable.

B. RECORD CONSTRUCTION SPECIFICATIONS

1. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation.
2. Note related record drawing information and product data, where applicable.

C. RECORD SURVEY NOTES

Maintain a minimum of two (2) copies of all handwritten construction survey notes, when applicable, continuously throughout project completion. One (1) copy of all such notes shall be furnished to Engineer in a timely manner as field construction surveys are completed by Contractor-retained survey personnel. A copy of these notes shall be preserved by Contractor and submitted to Division along with other record document submittals prior to final project acceptance. Electronic survey information shall be sent to the Engineer and Division via e-mail as work is completed.

After award of the Contract, Division shall furnish Contractor up to four (4) sets of Plans and Specifications. The Plans will be provided on 11" x 17" sheets. Additional copies, if requested by Contractor, will be furnished at Engineer's reproduction and delivery cost.

2-06 OWNERSHIP OF PLANS AND SPECIFICATIONS: All original or duplicated Plans and Construction Specifications and other data prepared by Division shall remain the property of Division.

2-07 DIMENSIONS: Use of figured dimensions on the Plans shall be used in preference to scaling the drawings. Where the work of Contractor is affected by finish dimensions or manufacturer's equipment, these shall be determined by Contractor at the site, and Contractor shall assume responsibility therefor.

2-08 MODELS: All models prepared for this work in accordance with the requirements of the Contract Documents shall become the property of Division upon completion of the work.

2-09 SCHEDULE OF ALTERNATES: This Section summarizes the alternate bids required to be submitted with the Bidder's Proposal and Schedule of Prices (*Document C*) and/or a description of alternate work consisting of eliminating or reducing certain bid items using the bid unit prices. Work covered by the alternate bid shall be as specified in the Construction Specifications unless otherwise specified in the Supplemental Specifications. Each alternate bid shall state the sum to be added or deducted from the base bid in the event the alternate is accepted. Alternate bids shall be submitted by completing the alternate sections in the Proposal and Schedule of Prices (*Document C*).

Prior to execution of the Contract, Division shall prepare and distribute to Contractor and Engineer a notification of the status of each alternate, including which alternates have been accepted or rejected. Division in consultation with Engineer will provide a full description of negotiated modifications to alternates, if any.

SECTION 3 - ENGINEER-DIVISION-CONTRACTOR RELATIONS

3-01 ENGINEER'S RESPONSIBILITY AND AUTHORITY: Engineer and the designated Construction Observer shall observe the work on behalf of Division and shall provide general assistance to Division and Contractor during construction insofar as proper interpretation of the requirements of the Contract Documents is concerned. Engineer shall also conduct all project meetings which shall be held to enable orderly review of the progress of the work and to provide for systematic discussions of problems.

Division, in consultation with Engineer, shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, interpretation of the Contract Documents, and all questions as to the acceptable fulfillment of the Contract on the part of Contractor. See also Paragraph 2-03.

Division and Engineer shall not be responsible for the acts or omissions of Contractor's superintendent or other employees.

- A. All materials used, and all work completed by Contractor shall be subject at all times to observation, test, and approval of Division, in consultation with Engineer. Contractor shall furnish such samples of materials for examination and tests, as may be requested by Division or Engineer, and shall furnish any information required concerning the nature or source of any materials or equipment which Contractor proposes to use.
- B. The construction, fabrication, and manufacture of any equipment or materials specified herein may be inspected by Division or Engineer at the plant or factory, and Division or Engineer shall have free access for purposes of making such inspections.

- C. Any materials, equipment, or work which does not satisfactorily meet the requirements of the Contract Documents may be condemned by Division or Engineer by giving written notice to Contractor. All condemned materials, equipment, or work shall be promptly removed and replaced.
- D. Any defective material, equipment, or work may be rejected by Division or Engineer at any time prior to final acceptance by Division even though said defective items may have been previously overlooked.

3-02 - PROJECT MEETINGS: Except as provided below for the Preconstruction Meeting, Progress Meetings shall be held monthly. Additional special project meetings may be held as necessary to address specific problems, issues or questions which cannot be postponed until the next regularly scheduled Progress Meeting. A Progress Meeting shall be held prior to Division's processing of any payment request from Contractor. Engineer shall coordinate with Division and Contractor to establish acceptable schedules for the Preconstruction Meeting, all Progress Meetings, and any necessary special project meetings. All project meetings shall be held on site (in Contractor's field office if one is on site) unless a different location is identified and agreed upon in advance by the parties.

To the maximum extent practicable, Contractor and Division shall advise Engineer at least twenty-four (24) hours in advance of project meetings regarding items to be added to the agenda. The minimum project meeting and preconstruction meeting agenda requirements are detailed below. The Contractor shall also meet the attendance requirements outlined below.

A. MINIMUM AGENDA

- 1. Review, revise as necessary, and approve notes of previous meeting.
- 2. Review progress of the work since last meeting, including status of submittals for approval.
- 3. Identify problems which impede planned progress.
- 4. Develop corrective measures and procedures to regain planned schedule.
- 5. Identify anticipated quantity differences in any pay item, e.g. shortages, overruns, etc.
- 6. Identify and address any landowner concerns made known to Division, Engineer, or Contractor.
- 7. Complete other current business.
- 8. Review monthly pay estimate.

B. ATTENDANCE

- 1. To the maximum extent practicable, the same person or persons shall be assigned to represent Contractor at the project meetings held throughout progress of the work. Contractor's Superintendent shall be present at all meetings. In the Superintendent's absence, Contractor shall provide a representative with the required authority to commit Contractor to any decisions made at the meeting.
- 2. Subcontractors, material suppliers, and others may be invited to attend those project meetings in which their aspect of the work is involved.

C. MEETING NOTES

- 1. Notes of all meetings shall be compiled and distributed by Engineer who shall provide an electronic copy by e-mail to every party in attendance. Recipients of copies may make and distribute other copies as necessary.
- 2. Unless the notes provided by Engineer are clarified prior to or during the next scheduled meeting, they shall be accepted as properly stating the activities and decisions of the meeting. Persons wishing to amend or clarify these notes shall reproduce and distribute copies of the supplemental information to all indicated recipients of the particular set of meeting notes. Clarifications and amendments to meeting notes shall be settled as a priority portion of "old business" at the next regularly scheduled meeting.

D. PRECONSTRUCTION MEETING

A Preconstruction Meeting shall be held within ten (10) days of Division issuance of the Notice-to-Proceed, and prior to commencement of work at the site. The time and place shall be mutually agreed upon by Division, Engineer, and Contractor. Contractor shall assure the attendance of an authorized representative of Contractor, Contractor's Superintendent for the project, major Subcontractors, and if deemed advisable, material suppliers whose performance is considered critical to the success of the project. Division, Engineer, and Construction Observer shall also be in attendance. Engineer shall be responsible for advising other interested parties (e.g. landowners and governmental agencies) and requesting their attendance when their presence is deemed advisable by the Engineer or Division.

The following items, at a minimum, shall be discussed at the Preconstruction Conference:

1. Organizational arrangement of Contractor's forces and personnel, and those of Subcontractors, materials suppliers, and Engineer;
2. Channels and procedures for communication;
3. Construction schedule, including sequence of critical work;
4. Davis-Bacon and Related Acts wage determination and reporting requirements including discussion of certified payroll submittals;
5. Contract Documents, including SWPPP Contractor Certification Statements, Acceptance of Original Ground Lines Document, along with distribution of required copies of original documents and revisions;
6. SWPPP booklet prepared by Engineer to be kept and maintained in electronic format by Division;
7. Processing of Shop Drawings, submittals and other data submitted to Engineer for review;
8. Processing of bulletins, field decisions, Change Orders, Contract Amendments, and Pay Applications;
9. Rules and regulations governing performance of the work, including items to be posted on the project job board;
10. Temporary construction facilities and controls; and
11. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

3-03 SUSPENSION OF WORK BY DIVISION OR ENGINEER: When, in the judgment of Division or Engineer, unfavorable weather or any other condition makes it impractical to secure first-class results in accordance with the Contract Documents, or Contractor fails to carry out the provisions of the Contract Documents or supply materials meeting the requirements of the Contract Documents, Division or Engineer may issue to Contractor a written order to suspend work on all or any part of the work. When conditions are again favorable for prosecution of the work, Division or Engineer shall issue to Contractor a written order to resume the suspended work. Orders to suspend work shall not be written for intermittent shutdowns due to weather condition unless the suspension of work is for an extended period of time. Contractor shall take every precaution to prevent any damage or unreasonable deterioration of the work during the time it is closed down.

Suspension of the work by Engineer shall not furnish any grounds for claims by Contractor for damages or extra compensation. The period of such suspension may be considered in determining the revised date for completion as hereinafter provided. Contractor shall not suspend work under the Contract, except as permitted in Paragraph 3-05, without the written order of Division or Engineer as stated in the preceding paragraph. Contractor shall be required to work a sufficient number of hours per day and days per week in order to complete the project on or before the completion date set forth in the Contract. Questions as to the desirability of discontinuing any portion of the work by reason of unfavorable weather conditions shall be determined by Division or Engineer.

3-04 SUSPENSION OF WORK BY DIVISION: Division may at any time suspend the work, or any part thereof, by giving a written notice to Contractor at least ten (10) days prior to the date of suspension.. The work shall be resumed by Contractor within ten (10) days after the date fixed in the written notice from Division to Contractor to do so.

If the work, or any part thereof, shall be stopped by the notice in writing aforesaid, and if Division does not give notice in writing to Contractor to resume work at a date within one (1) year of the date fixed in the written notice to suspend, then Contractor may abandon that portion of the work so suspended, and Contractor shall be entitled to the estimates and payments for all work done on the portions so abandoned, if any. See also Paragraph 7-09.

If suspension of all or part of the work causes additional expense not due to the fault or negligence of Contractor, Division shall reimburse Contractor for the additional expense incurred due to suspension of the work. Claims for such compensation, with complete substantiating records, shall be filed with Division within ten (10) days after the date of order to resume work in order to receive consideration. This paragraph shall not be construed as entitling Contractor to compensation for delays due to inclement weather, failure to furnish additional surety or sureties specified herein, suspension made at the request of Contractor, or for any other delay provided for in the Contract Documents.

3-05 SUSPENSION OF WORK BY CONTRACTOR: Contractor may suspend work upon a ten (10) day written notice to Division and Engineer, for any of the following reasons:

- A. If an order of any court or other public authority caused the work to be stopped or suspended for a period of ninety (90) days through no act or fault of Contractor or Contractor's employees.

- B. If Engineer fails to act upon any Pay Application, in the manner set forth in Paragraph 7-04, within ten (10) days after it is presented in accordance with the General Conditions.
- C. If Division fails to act upon any Pay Application, in the manner set forth in Paragraph 7-05, within thirty (30) days after the date on which Division receives Engineer approved Pay Application (within sixty (60) days for the initial Pay Application). This provision shall not be a valid reason for Contactor suspending work if Division withholds or delays payment as described in Paragraph 7-05 below.
- D. If Division fails to pay Contractor any sum within thirty (30) days after its award by arbitrators.

3-06 ARBITRATION: In any case where Contractor deems that extra compensation is due for work or material not clearly covered in the Contract Documents and not ordered by Division as extra work added to the Contract by Change Order or by Amendment to the Contract, Contractor shall notify Division and Engineer in writing to make claim for such extra compensation before work begins on which the claim is based.

In all cases, if such notification is not given, or if after such notification is given, Engineer and Division are not afforded facilities for keeping strict account of actual costs as defined for force account construction, Contractor agrees to waive any claim for extra compensation for such work. Such notice by Contractor, and the fact that Engineer and Division have kept account of the cost as aforesaid, shall not be construed as establishing the validity of a claim. The claim, when filed, shall be in writing and in sufficient detail to permit auditing and an intelligent evaluation by Engineer and Division. Claims shall be supported by all available documentary evidence and shall be verified by affidavit of Contractor or other persons having knowledge of the facts. If Contractor desires to present a claim in person, the claim shall be accompanied by a written request for such opportunity. Where Contractor requests an opportunity to present a claim in person, Division, within thirty (30) days of the filing of the claim, shall fix a time and place for a meeting between Contractor and Division. Division shall, within a reasonable time after the filing of a claim or meeting above thereon, whichever occurs later, rule upon the validity of the claim and notify Contractor, in writing, of the ruling together with the reasons therefor. If Division determines the claim is valid, in whole or in part, it shall be allowed and paid to the extent so found.

If a claim by Contractor is disallowed in whole or in part, Contractor may, within ten (10) days from the date of receipt of ruling by Division, make written request to Division that the claim or claims be submitted to a board of arbitration. Any demand for arbitration shall be made in writing and delivered to Division and any adverse party, either by personal delivery or by registered mail addressed to the last known address of party, but in no event after final payment has been made and accepted, subject, however, to any express stipulation to the contrary in the Contract Documents. In the event Division fails to render a decision within thirty (30) days of receipt of the request for arbitration, a demand for arbitration may be made as if Division's decision had been rendered against the party demanding arbitration.

Contractor shall not delay the work because arbitration proceedings are pending unless Contractor receives written permission from Division to do so. In no event shall such delays extend beyond the time necessary for the arbitrators to determine whether the work should continue or be suspended pending decision by the arbitrators of such a dispute.

The arbitrators selected shall be persons experienced and familiar with construction or engineering practices in the general type of work involved in the Contract, but shall not have been a regular employee or an individual retained by either party at the time involved in the controversy, or at the time of arbitration. No one shall be qualified to act as an arbitrator who has, directly or indirectly, any financial interest in the Contract or who has any business or family relationship with Division, Contractor, or Engineer.

Unless otherwise provided by controlling statutes, the parties may agree upon one (1) arbitrator; otherwise there shall be three (3), one named in writing by each party to this Contract, and the third chosen by the two (2) arbitrators. If the named arbitrators fail to select a third arbitrator within fifteen (15) days of the request for arbitration, then the third arbitrator shall be chosen by the presiding officer of the state or county bar association nearest the location of the work. If the party demanding arbitration fails to name an arbitrator within ten (10) days of demand, that party's right to arbitration shall lapse. If the other party fails to choose an arbitrator within the said ten (10) days, then the presiding officer of the state or bar association nearest the location of the work shall appoint such arbitrator.

The arbitrator or the arbitrators shall make their own rules of procedure and shall have authority to examine records kept by Division and Contractor. If records requested by the arbitrators are not produced within ten (10) days of request, the arbitrators shall proceed without them as best they may. In making findings or awards, or both, the majority vote of the arbitrators shall govern. If there is one (1) arbitrator, that arbitrator's decision shall be binding. Written copies of the findings or awards, or both, signed by the arbitrator or the arbitrators, shall be filed with Division or Contractor. A unanimous report or minority report may be filed. Such arbitration findings or awards, or both, shall be a condition precedent to any right of legal action, and wherever permitted by law, may be filed in court to carry them into effect. The arbitrator or arbitrators shall fix the cost of the proceedings, including reasonable compensation to the arbitrator(s) and shall determine how the total cost shall be borne.

The arbitrator or arbitrators shall have jurisdiction to pass upon questions involving compensation to Contractor for work actually performed or materials furnished, and upon claims for extra compensation which have not been allowed by Division. Jurisdiction of the arbitrator or arbitrators shall not extend to determinations regarding quality of work, materials furnished, or an interpretation of the intent of the Contract Documents, except as regards matters of compensation. Jurisdiction of the arbitrator or arbitrators shall not extend to setting aside or modifying the terms or requirements of the Contract.

If acceptable to both parties to the Contract, the findings or awards, or both, of the arbitrator or arbitrators, may become a basis for final payment.

If the findings of the arbitrator or arbitrators are unacceptable to either party to the Contract, said findings may become the basis for further negotiation between the parties. If a solution agreeable to both parties has not been reached through the filing of a claim, through arbitration, or because arbitration has been denied, either party may resort to any and all other lawful and available means for resolving the claim.

To the extent the methods or procedures of this article are inconsistent or in conflict with any other applicable state or federal statute, the applicable state or federal statute shall control, it being the intent of the parties of this document to lay down a principle of action to be followed, leaving its local application to be adapted to the legal requirements of the jurisdiction having authority over the arbitration.

The invalidity of any provisions of this Paragraph 3-06 shall not invalidate the remaining provisions of this Paragraph.

Contractor shall not institute any court action against Division for the adjudication of any claim until said claim has been first presented to Division pursuant to this Paragraph, and either submitted to arbitration or a request for arbitration has been denied pursuant to Paragraph 3-06.

3-07 EXAMINATION OF COMPLETED WORK: At the request of Division or Engineer, Contractor at any time before acceptance of the work shall remove or uncover such portions of the finished work as may be directed. After examination, Contractor shall restore said portions of the work to the standard required by the Contract Documents. In the event work thus exposed or examined proves acceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed, shall be paid for as Extra Work in accordance with requirements of Paragraph 7-03. In the event work so exposed or examined proves unacceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed, shall be at Contractor's expense.

3-08 CONTRACTOR'S SUPERINTENDENCE: Contractor shall retain a qualified Superintendent to provide efficient supervision of the work covered by the Contract Documents, until its completion. The Superintendent shall have full authority to act on behalf of Contractor, and all directions given to the superintendent shall be considered given to Contractor.

3-09 CONTRACTOR'S EMPLOYEES: Incompetent, incorrigible, or otherwise objectionable employees shall be dismissed from the project by Contractor or Contractor's representative at the request of Division or Engineer, and such persons shall not be permitted to return to the project without the written consent of the objecting party.

- A. Neither Contractor nor Subcontractors shall employ any person whose physical or mental condition is such that his or her employment could reasonably be expected to endanger said employee, Contractor, others employees, or any other person on the project.
- B. Contractor ***shall not***:
 - 1. Discharge from employment or refuse to hire any individual because of race, creed, color, sex, national origin, ancestry, religion, economic status, age, disabilities, experience or education, political opinions, or affiliations.
 - 2. Discriminate against any individual in terms, conditions, or privileges of employment because of race, creed, color, sex, national origin, ancestry, religion, economic status, age, disabilities, experience or education, political opinions, or affiliations.

Contractor agrees to include clauses in any subcontracts entered into for work covered by the Contract Documents prohibiting the practices described in Paragraph 3-09 B.1. and B.2.

- C. Compliance with the Law: Non-Discrimination in Employment

The Contractor, its employees, agents, and Subcontractors shall not engage in discriminatory employment practices which are forbidden by federal or state law, executive orders, and rules of the Iowa Department of Administrative Services. The Contractor, its employees, agents, and Subcontractors shall comply with all applicable federal, state, and local laws, rules, ordinances, regulations, orders when performing under the Contract, including without limitation, all laws applicable to the prevention of discrimination in employment (e.g., Iowa Code Chapter 216 and Section 19B.7) and the use of targeted small businesses as Subcontractors and suppliers. Upon the State's written request, the Contractor shall submit to the State a copy of its affirmative action plan, containing goals and time specifications, and accessibility plans and policies as required under Iowa Administrative Code Chapter 11-121.

The Contractor, its employees, agents and Subcontractors shall also comply with all federal, state, and local laws, including any permitting and licensure requirements, in carrying out the work performed under this Contract.

In the event Contractor contracts with third parties for the performance of any of the Contractor obligations under this Contract as set forth in Section 3-20, Contractor shall take such steps as necessary to ensure such third parties are bound by the terms and conditions contained in this Section.

Notwithstanding anything in this Contract to the contrary, Contractor's failure to fulfill any requirement set forth in this Section shall be regarded as a material breach of this Contract and the State may cancel, terminate, or suspend, in whole or in part, this Contract. The State may further declare Contractor ineligible for future state contracts in accordance with authorized procedures or the Contractor may be subject to other sanctions as provided by law or rule.

If all or a portion of the funding used to pay for the Deliverables is being provided through a grant from the Federal Government, Contractor acknowledges and agrees that pursuant to applicable federal laws, regulations, circulars and bulletins, the awarding agency of the Federal Government reserves certain rights including, without limitation a royalty-free, non-exclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government purposes, the Deliverables developed under this Contract and the copyright in and to such Deliverables.

3-10 CONSTRUCTION OBSERVER: Construction Observers may be designated by Engineer or Division to assist in assuring that the work is performed in accordance with the Contract Documents.

Construction Observers shall have authority to condemn and reject defective work and materials, subject to the final decision of Division in consultation with Engineer. The Construction Observer shall not have any authority to suspend work, this right being solely reserved to Division or Engineer. However, Construction Observers shall have authority to request Contractor pause work in identified area(s) until further clarification can be obtained.

Construction Observers shall have no authority to permit deviation from the Contract Documents, and Contractor shall be liable for any deviation made without a written order from Division. Construction Observers shall not act as foremen, safety officers, or perform other duties for Contractor.

See also Paragraphs 3-04 and 3-05.

3-11 DIVISION LAND RIGHTS: Division shall be responsible for obtaining all necessary land rights, including rights-of-way for construction access as specified, with respect to lands upon which work under the Contract is to be performed. Any delay in obtaining land rights by Division shall be deemed proper cause for consideration of adjustment of the Contract amount and/or the time of completion.

3-12 CONTRACTOR LAND RIGHTS: Contractor shall confine equipment, materials, and operations, to those areas described in the Contract Documents. Any additional land rights Contractor deems necessary for temporary construction facilities or for storage of materials shall be provided by Contractor with no liability to Division.

3-13 ENTRY ON PROPERTY: Contractor shall not enter upon public or private property outside of the project boundary and designated travel lanes for any purpose without first obtaining permission from the appropriate landowner or official, and shall be responsible for the preservation of all property along and adjacent to the street and/or right-of way, and shall use every precaution necessary to prevent damage thereto. Contractor shall take suitable precautions to prevent damage to pipes, conduits, and other underground structures, and shall take all reasonable steps to prevent damage and disturbance to monuments and property markers until an authorized agent has witnessed or otherwise referenced their location. Monuments and property markers shall not be removed until Division has been afforded the opportunity to independently observe and note the type and location of the monument or marker and to verify landowner's concurrence for removal.

3-14 REMOVAL OF CONSTRUCTION EQUIPMENT, TOOLS AND SUPPLIES: Upon termination of this Contract, and before final acceptance of the work by Division, Contractor shall remove from the project site all equipment, tools, supplies, excess materials, and wastes generated from the work. In the event Contractor fails to remove such items, Division or its representative shall have the right to remove them. See also Paragraph 7-10.

3-15 DIVISION'S RIGHT TO CORRECT DEFICIENCIES: In the event Contractor neglects to prosecute the work properly, or fails to perform any provision of this Contract, Division, after a ten (10) day written notice to Contractor, may without prejudice to any other remedy Contractor may have, make good such deficiencies and deduct the cost thereof from the payment then or thereafter due Contractor.

See also Paragraph 7-10.

3-16 DIVISION'S RIGHT TO TERMINATE CONTRACT AND COMPLETE THE WORK: Division may, without prejudice to any other right or remedy, and after giving Contractor a seven (7) day written notice, terminate the employment of Contractor and take possession of the premises and all equipment, and materials thereon and finish the work by whatever method deemed expedient in the event of any one or more of the following:

- A. Contractor is adjudged bankrupt; or
- B. Contractor makes a general assignment for the benefit of Contractor's creditors; or

- C. A receiver is appointed on account of insolvency; or
- D. Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials; or
- E. Contractor fails to make prompt payment to Subcontractors or for materials or labor; or
- F. Contractor persistently disregards laws, ordinances, or instructions of Division or Engineer; or
- G. Contractor is otherwise guilty of substantial violations of any provisions of the Contract.

Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price exceeds the cost of finishing the work, including compensation for additional material, administrative services, and engineering fees, such excess shall be paid to Contractor. If the costs exceed the unpaid balance, Contractor shall pay the difference to Division.

See also Paragraph 7-11.

3-17 CONTRACTOR'S RIGHT TO TERMINATE CONTRACT: Contractor may terminate this Contract upon a ten (10) day written notice to Division and Engineer, if an order of any court or other public authority causes the work to be stopped or suspended for a period of ninety (90) days through no act or fault of Contractor or Contractor's employees. See also Paragraph 7-12.

3-18 RIGHTS OF VARIOUS INTERESTS: Wherever work being done by Division or its representatives or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by Division so as to secure the completion of the various portions of the work.

3-19 SEPARATE CONTRACTS: Division may let other contracts in connection with the work of Contractor. Contractor shall cooperate with other contractors with regard to storage of materials and execution of their work. Contractor shall report to Engineer and Division any irregularities which Contractor may detect which will not permit completion of the work in a satisfactory manner. Contractor shall not be responsible for defects which develop due to the work of others after the work is completed. Contractor shall report to Engineer and Division immediately any difference between completed work by others and the Contract Documents.

3-20 SUBCONTRACTS: At the time specified by the Contract Documents or when requested by Division, Contractor shall submit in writing to Division for approval the names of the Subcontractors proposed for the work. Subcontractors may not be changed or substituted without Division approval. Contractor shall be responsible to Division for the acts and omissions of its Subcontractors, and their direct and indirect employees, to the same extent as Contractor is responsible for acts and omissions of its employees. The Contract Documents shall not be construed as creating any contractual relation between any Subcontractor and Division.

Contractor agrees to bind every Subcontractor to the terms of the Contract Documents including Davis-Bacon wages, Davis-Bacon payroll reporting requirements, and Build America Buy America (BABA) provisions.

Contractor shall not assign, sublet, or transfer the whole or any part of the work herein specified without the written consent of Division. No such assignment, sublet, or transfer shall in any way relieve Contractor from any of the responsibilities assumed herein.

3-21 WORK DURING AN EMERGENCY: Contractor shall perform any work, and furnish and install any materials and equipment necessary, during an emergency endangering life or property. In all cases, Contractor shall notify Division of the emergency as soon as practicable, but shall not wait for instructions before proceeding to properly protect both life and property. In cases where Contractor cannot or does not meet the emergency, as determined by Division, Division may take such action as it deems necessary to address the emergency.

3-22 ORAL AGREEMENTS: No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than waiver or modification agreed to in writing, signed by the parties to be bound.

3-23 CONSTRUCTION SCHEDULE: After being awarded the Contract, Contractor shall immediately prepare and submit to Division for acceptance a construction progress schedule which shall provide for completion of the project within the time specified. Adequate equipment and forces shall be made available by Contractor to start work within fourteen (14) days following issuance of the Notice-to-Proceed and to carry out the schedule to completion of the Contract within the time specified herein. The proposed construction progress schedule shall be submitted to Division within a period not to exceed ten (10) days from receipt of the Notice-to-Proceed. No pay requests by Contractor shall be processed until the proposed construction progress schedule has been submitted to and approved by Division.

Contractor shall coordinate all work to be accomplished in completing this project, including preparation and updating of completion schedules, coordination of work of all Subcontractors, and complete control of site utilization, from the beginning of construction activity through the warranty period following final acceptance of the Project by Division. Contractor shall keep Division and Engineer continually advised regarding the scheduling of construction activities.

- A. **CONSTRUCTION PROGRESS SCHEDULE REQUIREMENTS:** Contractor shall include, at a minimum, the following items in each construction progress schedule:
1. The complete sequence of construction by major activity, identifying work of separate stages, and other logically grouped activities.
 2. The time of start and completion of each work component.
 3. All critical dates, including beginning and ending seeding period dates, and required waiting periods, (e.g. lime-mulch reaction time period).
 4. Dates for all submittals required in the Construction Specifications.
 5. All projected product delivery dates.
- B. **SUBMITTAL OF CONSTRUCTION PROGRESS SCHEDULE:** Contractor shall submit the initial construction progress schedule within ten (10) days of the receipt of the Notice-to-Proceed. Contractor shall report on construction progress schedules at each monthly Progress Meeting and with all requests for Progress Payment. This requirement does not apply during approved shutdown periods.

3-24 DELAYS AND EXTENSION OF CONTRACT TIME: Delays caused by injunction or legal actions, "Acts of God" as determined herein, or other causes beyond the control of Contractor, may entitle Contractor to an extension of time within which to complete the work.

All applications for extension of time shall be submitted to Division by Contractor within ten (10) days of the occurrence of such delay and shall state reasons for the request.

No extension of time shall be deemed valid unless included in a duly signed and executed Contract or Amendment.

3-25 SUBMITTALS: Contractor shall deliver all submittals to Engineer prior to performing work under Construction Specifications requiring submittals. Submittals can be provided either electronically or with hard copies. A submittal shall be provided to the Division, the Construction Observer, and the Engineer. Submittals shall be reviewed and resubmitted as required, identifying any changes made since previous submittals, until "NO EXCEPTIONS" review is achieved. If requested, a submittal shall confirm markings against job site conditions and dimensions on resubmittal.

- A. **GENERAL REQUIREMENTS:** Contractor shall meet the following requirements for all submittals:
1. Consecutively number and date all submittals;
 2. Label with the Project name;
 3. Include Contractor's name;
 4. Include all pertinent Subcontractor, and major suppliers' names;
 5. Identify pertinent Plan Sheet and detail numbers;
 6. Include Construction Specification Section number, as appropriate; and
 7. Include Contractor's stamp, initialed or signed, indicating review.
- B. **SPECIAL REQUIREMENTS:** Contractor shall also meet the following submittal specific requirements as described below. In the case of multiple drawings or items, submittals shall be bound into complete sets.
1. **Shop and Installation Drawings:** Contractor shall include the following items in all submittals of shop and installation drawings:
 - a. Any specially prepared technical data for this project;
 - b. Any drawings, diagrams, data sheets, schedules, calculations, measurements, and similar information not in standard printed form for general application to several projects; and
 - c. Clear identification of each drawing.
 2. **Product Data:** Contractor shall include the following items in all product data submittals:
 - a. All standard printed information on materials used in the work; and
 - b. All supplemental manufacturer's standard data which provides information unique to the work.

3. Samples: Contractor shall submit all required samples with such promptness as to ensure no delay in work. All samples shall:
 - a. Be checked and approved by Contractor;
 - b. Be clearly identified as to material, and manufacturer;
 - c. Include any pertinent catalog number(s);
 - d. Include intended use in the work; and
 - e. Include complete identification on each sample.
4. Certified Payroll: Contractor shall complete and submit a weekly certified payroll to the Engineer for review. Use of Certified Payroll Form WH-347 is recommended but not expressly required. The certified payroll shall include a. through h. below (refer to Part 8-04 B):
 - a. General Contractor's or Subcontractor's name and address;
 - b. Project name and project location;
 - c. Name of each Davis-Bacon covered employee including the last four (4) digits of each employee's social security number. (DO NOT include the entire social security number);
 - d. Each employee's work classification including straight and overtime hours worked in each classification;
 - e. Rate of pay, gross wages earned, deductions, and net wages paid for the week;
 - f. The indicated method of payment for fringe benefits;
 - g. Printed name and title of Contractor's signatory responsible for administering payroll; and
 - h. Signature of Contractor's signatory party.
- C. **CERTIFICATES:** Contractor shall submit all certificates of compliance with the requirements of the Contract Documents as referenced in Construction Specifications. All certificates shall be sworn to by Contractor, and, where applicable, by the manufacturer, supplier, Subcontractor, acceptable laboratory or testing authority, etc.
- D. **SUBMITTAL APPROVAL:** At the time of each submission, Contractor shall notify Division and Engineer concerning any deviations in the submittal(s) from the requirements of the Contract Documents.

Engineer and Division shall, with reasonable promptness, review and approve all submittals for conformance with the design concept of the Project, and compliance with the information given in the Contract Documents. Approval of separate items, as such, shall not constitute approval of the assembly in which such items function. Contractor shall make any and all corrections required by Engineer and Division. Contractor shall return the required number of corrected copies of shop drawings to Engineer and resubmit new samples, as necessary, until approved by Engineer and Division. Contractor shall direct specific attention, in writing or on resubmitted shop drawings, to revisions other than the corrections called for by Engineer or Division on previous submissions. Contractor's submittal of any shop drawing or samples shall constitute a representation to Division and Engineer that Contractor has determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, with the requirements of the work and the Contract Documents.

Where a shop drawing or sample submission is required by Construction Specifications, no related work shall be commenced until the submission has been approved by Engineer and Division. A copy of each approved shop drawing and each approved sample shall be kept in good order by Contractor at the site and shall be available to Engineer's and Division.

Engineer and Division's approval of shop drawings or samples shall not relieve Contractor from responsibility for errors or omissions in the shop drawings or any deviations from requirements of the Contract Documents unless Contractor has in writing notified Engineer and Division of such deviation at the time of submission and received Engineer and Division's approval to the specific deviation.

Copies of reviewed submittals shall be distributed, bearing review stamp indicating "NO EXCEPTIONS", to concerned parties. One (1) copy shall be retained by Contractor as a project record document for inclusion in the closeout submittals.

SECTION 4 - SCOPE OF WORK

4-01 ADDITIONAL INSTRUCTIONS: If any Contract Documents are not sufficiently clear to permit Contractor to proceed with the work, Division or Engineer shall, either upon their own initiative or upon the request of Contractor, furnish additional written instructions, together with additional drawings as may be necessary. Requests by Contractor must be made sufficiently far in advance to permit preparation of instructions and drawings by Engineer before commencement of the work.

For purposes of avoiding delays in the preparation of any additional instructions and drawings, Engineer and Contractor shall jointly prepare a schedule showing the time for commencement of the work to be included in them and the time by which Contractor shall furnish the shop drawings necessary for their preparation. No work shall be performed by Contractor without proper drawings or instructions. Contractor shall at Contractor's expense, replace any wrongly executed work.

4-02 INCREASED OR DECREASED QUANTITIES OF BID WORK: Division reserves the right to make such alterations in bid item quantities included in the Proposal and Schedule of Prices (*Document C*) as authorized by law and deemed necessary by Division. Such alterations shall be made by Change Order or Amendment approved by Division, and shall not be deemed a waiver of any conditions of the Contract Documents or an invalidation of any of the provisions thereof; provided, however, that the execution of an Amendment to the Contract acceptable to both parties of the Contract shall be necessary before any alteration is made which meets the definition in Paragraph 1-12 aforementioned.

When an alteration requires the execution of a Contract Amendment, the Amendment shall be fully executed before any work on the alteration is started.

See Paragraph 7-03 for method of payment.

4-03 EXTRA WORK: Any work outside the scope of the original bid item work made necessary by alteration of or additions to the Contract Documents, or by other reasons for which no price is provided in the Contract, shall be performed by Contractor as directed by Division in consultation with Engineer, and Contractor shall be compensated therefor as provided under Paragraph 7-03.

Extra work which by reason of its character or extent is covered by a Contract Amendment between Division and Contractor, shall have the written consent of the surety on the bond, but extra work and change orders not covered by an amendment to the Contract shall not require the consent of the surety.

See also Paragraph 4-02.

4-04 CHANGED CONDITIONS: In the event Contractor encounters subsurface or latent physical conditions at the site differing materially from those indicated in the Contract, or unknown physical conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract, which changed or unusual conditions will be considered by Contractor as the basis for a claim for extra compensation, Contractor shall promptly, and before any such conditions are disturbed, notify Division and Engineer, in writing, of the alleged conditions, including an expected cost and/or time impact to the Contract.

Contractor shall be deemed to have waived any claim or claims for extra compensation in any manner arising out of the changed or unusual conditions in the event Contractor fails to provide Division written notice prior to disturbing the conditions.

Division shall instruct Engineer to investigate and issue decisions on claims within a reasonable time. Engineer's decision, in consultation with Division, shall cover any changes in time, money, or both.

If Division determines conditions justify a claim for additional compensation, Division shall provide for additional payment for the particular phase of work in question by negotiated agreement with Contractor upon existing and/or new unit Contract prices, by cost plus an agreed percentage, or by any other equitable arrangement mutually agreed upon by Division and Contractor, and consented to in writing by the bond Surety. In any event, Contractor shall not be relieved, unless permitted by Division, from the obligation of resuming construction operations pending decision as to the validity of a claim, or pending the execution of a negotiated agreement to cover additional costs, if the claim is recognized under the provisions of this Paragraph of the General Conditions.

4-05 SALVAGE: Unless otherwise indicated in the Contract Documents, all castings, pipe and other material taken from the project site, except fencing, shall be the property of Contractor. Fencing shall be handled as provided in Specification 02100.

4-06 CLEANUP: Contractor shall at Contractor's expense remove and properly dispose of refuse and unused materials of any kind resulting from the work. Upon failure to do so within seventy-two (72) hours after request by Division or Engineer, the work may be done by Division and the cost thereof charged to Contractor and deducted from the final estimate.

See also Paragraph 7-10.

SECTION 5 - MATERIALS AND WORKMANSHIP

5-01 QUALITY OF EQUIPMENT AND MATERIALS: Contractor shall maintain quality control over Subcontractors, suppliers, manufacturers, products, services, site conditions, and workmanship to produce first class work. Contractor shall comply with industry standards, except when the Contract Documents indicate more restrictive tolerances or more rigid standards. All work shall be performed by persons qualified to produce first class workmanship.

In order to establish standards of quality, Division has, in the detailed Construction Specifications, referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where they are fully suitable in design. Whenever a material is specified or described using the name of a proprietary product or the name of a particular manufacturer or vendor, the item specified shall be understood as establishing the type, function, and quality desired. Other manufacturers' products may be accepted provided sufficient information, including any necessary certifications, are submitted to allow Engineer to determine that the products proposed are equivalent to those named. See Paragraph 3-25.

- A. **DEFINITIONS:** The following definitions shall apply with respect to products specified in Construction Specifications:
 - 1. Products specified by Reference Standard: Any product meeting that standard.
 - 2. Products specified by "similar and equal to" preceding a single proprietary name: Any product meeting specified requirements; named product complies with Construction Specifications.
 - 3. Products specified by "Basis of Design" preceding a single proprietary name: "Similar and equal to" is implied unless additional manufacturer's characteristics of named product were used in the design.
 - 4. Products specified by naming products of manufacturers, without qualification: Contractor shall submit request for substitution for product or manufacturer not named.
- B. **SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN:**
 - 1. A specified product or material becomes unavailable or not practical due to no fault of Contractor;
 - 2. The substitution is substantially to Division's advantage (equal product for less life cycle cost or higher quality product at no change in the Contract sum); and
 - 3. Under no circumstances shall a substitution be considered absent a separate written change order request, even when indicated or implied on Shop Drawings or Product Data submittals.
- C. **SUBSTITUTIONS SHALL BE PROCESSED AS FOLLOWS:**
 - 1. Contractor shall document each request for substitution with complete data substantiating compliance of proposed substitution with Contract Documents. Such data must be submitted prior to submittal of first progress payment estimate, and shall at a minimum include:
 - a. Comparison of Qualities of proposed substitution with that specified including all points of difference;
 - b. Samples, drawings, or engineering notes, where required or requested to show specific construction, finishes, etc.;
 - c. Availability of maintenance service and source of replacement parts;
 - d. Changes required in other elements of the work because of the substitution;
 - e. Effect on Construction Schedule; and
 - f. Name and address of similar projects on which product was used and date of installation.
 - 2. Contractor shall abide by Engineer's judgment when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified material or item of equipment in such case. All proposals for substitutions shall be submitted in writing by Contractor and not by individual trades or material suppliers. Division shall approve or disapprove proposed substitutions in writing within a reasonable time. No substitute materials shall be used unless approved in writing.
 - 3. Contractor shall bear all costs for engineering services required to check proposed substitute methods or type of construction and, if accepted, to prepare record drawings. Products include material, equipment, and systems necessary to complete the project. These products shall, at a minimum, comply with Construction Specifications and referenced standards. Product

components required to be supplied in quantity within a Construction Specification shall be identical and interchangeable.

4. Each substitution request shall constitute a representation that Contractor:
 - a. Has investigated the proposed product and determined it meets or exceeds the specified quality and product standards in all respects;
 - b. Shall provide the same warranty for substitution as for specified product;
 - c. Shall coordinate installation and make other changes which may be required to complete work in all respects; or
 - d. Waives claims for additional costs which may subsequently become apparent.

5-02 MATERIALS FURNISHED BY DIVISION: Division shall furnish materials specifically indicated. Division furnishing certain materials is conclusive evidence of its acceptability for the purpose intended, and Contractor may continue to use it until otherwise directed. Contractor shall notify Division if any defects in materials furnished by Division are discovered. Materials furnished by Division, which are not locally available, shall be provided at locations listed in the Contract Documents. Contractor shall be responsible for any and all material loss or damage, including that caused by third parties, after receipt of material.

5-03 MATERIALS FURNISHED BY CONTRACTOR: All materials used in the work shall meet the requirements of the Contract Documents. All materials used in the work whether specified or not shall be furnished by Contractor.

Contractor shall transport products by methods designed to avoid product damage, and shall deliver products to the project site in an undamaged condition and in the manufacturer's unopened containers or packaging. Contractor shall provide adequate equipment and personnel to handle products so as to prevent damage. Contractor shall promptly inspect all product shipments to assure compliance with all requirements, correctness of quantities, and that the products are undamaged. Contractor shall where necessary furnish all shop and installation drawings, product data, and samples, as indicated in Construction Specifications and Paragraph 3-25 of this Document.

5-04 TESTING SERVICES: Required inspection and testing services are intended to assist in determination of compliance of the work with requirements of the Contract, but shall not relieve Contractor of responsibility for completion of all work in accordance with requirements of the Contract Documents. Requirements for specified inspections and tests are not intended to limit Contractor's quality control program, but are instead intended to establish a minimum testing level considered necessary to adequately monitor compliance of construction materials and methods with Contract Documents.

- A. **RESPONSIBILITY FOR TESTING:** Contractor shall retain and pay, at Contractor's expense, a qualified testing agency or laboratory (laboratories) as described below, to conduct materials and construction compliance tests as required by the Contract Documents. Type, number and extent of the materials testing program is described in each respective Section of Construction Specifications. The testing laboratory shall be available throughout the construction period to ensure prompt compliance with these requirements.
- B. **QUALIFICATION OF TESTING AGENCIES:** Except as otherwise indicated, and except where manufacturer's testing facilities are indicated as acceptable, Contractor shall retain recognized testing laboratories specializing in the required services and routinely having provided those services for a continuous period of at least three (3) years prior to execution of the Contract.
- C. **REPORTS:** Test/inspection reports, including analysis of results and recommendations where applicable, shall be submitted in triplicate to Engineer except as otherwise indicated. Where required or requested, copies shall also be submitted directly to governing authorities.
- D. **COORDINATION:** Contractor shall cooperate with laboratory personnel; provide access to work; notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests; furnish labor and facilities to provide access to work for testing purposes; and obtain and handle samples at the site.
- E. **DIVISION'S TESTS:** Division reserves the right to conduct independent tests from time to time as it considers necessary to validate or amplify Contractor tests. Division may engage and pay the costs of an independent testing agency meeting the requirements set forth above when such tests are considered necessary or advisable. Any work found to be in non-compliance with requirements of the Contract Documents shall be corrected by Contractor and retested. Costs of retesting shall be paid by Contractor.
- F. **CODE COMPLIANCE TESTING:** Inspections and tests required by codes, ordinances, or a plan approval authority, and conducted by a legally constituted authority, shall be the responsibility of, and be paid for by, Contractor, unless otherwise provided in the Contract Documents.
- G. **CONTRACTOR'S CONVENIENCE TESTING:** Inspection or testing performed exclusively for Contractor's convenience shall be the sole responsibility of Contractor.

- H. **LABORATORY TEST REPORTS:** Contractor shall submit copies of all laboratory reports describing results of tests on materials, products and workmanship, as such reports are made available by the testing agency. Contractor shall submit copies in triplicate to Engineer.

5-05 STORAGE OF MATERIALS: Materials shall be stored in such manner as to ensure the preservation of their quality and fitness for the work. Contractor shall provide personnel to receive, unload, and store all materials and equipment delivered to the project site. Stored materials shall be located so as to facilitate prompt inspection. Contractor shall maintain the storage yard in a neat and orderly manner. In addition, the following shall apply to storage of materials:

- A. Materials and equipment may be stored inside the project boundary in locations approved by Division. All areas disturbed for equipment and material access or storage must be reclaimed after final use.
- B. Products shall be stored in accordance with the manufacturer's instructions, with labels intact and legible. Sensitive products shall be stored in weather-tight enclosures and maintained within temperature and humidity ranges required by manufacturer's instructions.
- C. Any fabricated products stored outside shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet coverings, with ventilation provided to avoid condensation.
- D. Loose granular materials shall be stored on solid surfaces in well drained areas subject to approval of Division or Engineer to prevent mixing with foreign matter.
- E. Private property outside the project boundary shall not be used for storage purposes without the written permission of Division and the private property owner.

5-06 REJECTED WORK AND MATERIALS: All materials which do not conform to the requirements of the Contract Documents, are not equal to samples approved by Engineer and Division, or are in any way unsatisfactory or unsuited for the purpose for which they are intended, shall be rejected. Any defective work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause shall be removed and the work re-executed by Contractor.

Defective work or material may be condemned by Engineer and Division at any time before final acceptance of the work. Notice of condemnation shall be given in writing by Engineer and Division. Condemned work or material shall be removed or disposed of to the satisfaction of Engineer and Division within ten (10) days after written notice is given by Engineer or Division. In the event Contractor fails to remove rejected work or materials within ten (10) days after written notice to do so, Division may remove and store the materials at Contractor's cost. Failure or neglect on the part of Engineer or Division to condemn unsatisfactory material or reject inferior workmanship shall in no way release Contractor, nor shall it be construed as an acceptance of such work, nor shall the final acceptance bar Division from recovering damages in cases where fraud was practiced, or where defective work results from Contractor's dishonesty. No compensation shall be made for defective work or materials.

Work done contrary to or without regard to the instructions of Engineer and Division, work done without lines, grade and/or cross section stakes and grades shown on the Plans or as given by Engineer and Division, or deviation made from the Contract Documents, without written authority, shall be considered unauthorized and at the expense of Contractor, and shall not be measured or paid for by Division. Any and all work so done may be ordered removed and replaced immediately at Contractor's expense.

See also Paragraph 7-08.

5-07 MANUFACTURER'S DIRECTIONS: Manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer unless herein specified to the contrary. In the event any such instructions conflict with Contract Documents, Contractor shall seek clarification from Engineer or Division before proceeding.

When required by individual sections of Construction Specifications, Contractor shall provide the following:

- A. Manufacturer's printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, as appropriate. One (1) copy shall be maintained by Contractor for inclusion in the project record documents.
- B. Qualified personnel to observe and, as applicable, provide appropriate recommendations regarding field conditions, conditions of surfaces and installation quality workmanship, and startup of equipment.

5-08 CUTTING AND PATCHING: Contractor shall perform all necessary cutting and patching of work required to properly receive the work of the various trades or, as required by the Contract Documents, to complete the work. Contractor shall restore all such cut or patched work as directed by Engineer or Division. No cutting of existing structures that may endanger the work, adjacent property, workers or the public, shall be done unless first approved by Division, and then under Engineer's or Division's directions.

5-09 PATENTS: All fees or royalties for patented inventions, equipment, or arrangements that may in any manner be used in connection with the construction or erection of the work, or any part thereof shall be included in the Contract unit price.

Contractor shall protect and hold harmless Division against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment, or construction furnished by Contractor.

5-10 GUARANTEE: Contractor guarantees all work and material against all defects for the period specified below and in the Performance Bond, or in the Supplemental Specifications. Contractor shall repair or replace any such defective work and/or material to conform to the provisions of the Contract Documents and without expense to Division, within ten (10) days of notification in writing by Division of such defective work or material. If Contractor fails to make the repairs or replacements or fails to make arrangements for the correction thereof within the period specified above, Division may do so and charge the cost to Contractor. Contractor shall perform the work so as to cause Division a minimum of inconvenience and interruption of services.

Neither the final certificate of payment, nor partial use or occupancy of the premises by Division or Landowner, or any provision of the Contract Documents, shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve Contractor or the sureties of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

With the exception of seeding and seedling Planting as further discussed below, Contractor or the Surety shall remedy any defects in the work and pay for any damages to other work resulting therefrom which may appear within a period of one (1) year from the date of final acceptance unless a longer period is otherwise specified in the Supplemental Specifications. Division shall give notice of observed defects with reasonable promptness.

In case of default on the part of Contractor in fulfilling any part of the Contract Documents, Division may correct the work or repair the damage, and the cost and expense incurred in such event shall be paid by or become recoverable from Contractor.

Should Contractor be required to perform tests that, due to climatic conditions, must be delayed, it is understood that such tests shall be accomplished by Contractor at the earliest possible date, with the provision that the General Guarantee period begins upon satisfactory completion of said test. Contractor's responsibility under this Section shall not be relieved, in the event Division elects to initiate final payment.

With respect to seeding work and planting of seedlings as described in Construction Specifications, there shall be no extended guarantee period as described above for the other work items. Contractor shall be responsible for establishing grass areas and planting seedlings as required in Construction Specifications. Division's acceptance of established seeded areas and seedlings planted in accordance with requirements of Construction Specifications, shall conclude Contractor's responsibilities related to seeding. In the event reseeding or reestablishment of such areas or plantings be required following Division's acceptance of seeding or seedlings, such work shall be considered Division's responsibility.

See also Paragraph 7-16.

5-11 UNFAVORABLE WEATHER CONDITIONS: During unfavorable weather, including but not limited to conditions involving wet or frozen ground, or other unsuitable construction conditions, Contractor shall confine operations to work which will not be adversely affected by such conditions, unless special means or precautions, as referenced in Construction Specifications, are taken by Contractor to perform the work in a proper and satisfactory manner.

5-12 BOND: Prior to signing the Contract, Contractor shall furnish a good and sufficient performance bond on the provided form (*Document J*) in the full amount of the Contract.

Bond shall guarantee faithful performance of the provisions of the Contract, including the guarantee of all work and materials against all defects for the period specified in the Performance Bond (*Document J*), and the payment of all bills and obligations arising from said Contract.

The Performance Bond, in the amount of one hundred (100) percent of the Contract amount, shall remain in place for one (1) year following the date of final acceptance by Division of *all* work included in the Contract.

See also Paragraphs 1-17 and 5-10.

SECTION 6 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

6-01 INSURANCE AND RELATED PROVISIONS: Contractor assumes full responsibility for the safekeeping of all materials and equipment and for all unfinished work until final acceptance by Division, and if any of it be damaged or destroyed from any cause, Contractor shall replace it at Contractor's own expense.

Contractor shall be responsible for all areas used by Contractor and all Subcontractors in the performance of the construction activities on site. Contractor shall exert full control over the actions of all employees and other persons with respect to the use and preservation of property, and new and existing facilities.

Contractor shall indemnify and hold harmless Division against any liens filed for nonpayment of bills in connection with the Contract work. Contractor shall furnish Division satisfactory evidence that all persons who have done work or furnished

materials, equipment, or service of any type under this Contract have been fully paid prior to acceptance of the work by Division. See also Paragraph 7-14.

Contractor shall indemnify and hold harmless Division, Division's employees, Engineer, and Engineer's employees from any and all liability, loss, cost, damage, and expense (including reasonable attorney's fees and court costs) resulting from, arising out of, or incurred by reason of any claims, actions, or suits based upon or alleging bodily injury, including death, or property damage arising out of or resulting from Contractor's operations under this Contract, whether such operations be by Contractor or by any Subcontractor or by anyone directly or indirectly employed by either of them. Contractor shall obtain insurance for this purpose, which shall insure the interests of Division and Engineer as the same may appear, and shall file with Division certificates of such insurance.

A. INSURANCE REQUIREMENTS:

1. Contractor shall not commence work under this Contract until all insurance required hereunder has been obtained and such insurance has been approved by Division, nor shall Contractor allow any Subcontractor to commence work on subcontracts until all insurance required of Subcontractor has been so obtained and approved. Insurance required under this article shall remain in effect during the life of the Contract, and for no less than one (1) year thereafter.
2. Contractor shall furnish for filing with Division a Certificate of Insurance, complete in all respects, in favor of Engineer, and the State of Iowa, Department of Agriculture and Land Stewardship, Division of Soil Conservation and Water Quality, showing compliance with requirements of this Section. Any certificate filed with Division which at any time is found to be incomplete or not according to form shall be returned as unsatisfactory.
3. A rejected Certificate of Insurance shall be corrected as necessary and resubmitted until approved.
4. Each and every insurance policy, procured by Contractor, shall contain an endorsement stating that the insurance company shall not, prior to completion of project plus one (1) year thereafter, or any policy expiration date shown on policy and certificate, whichever occurs first, terminate policy or change any coverage therein without first mailing by registered mail written notice of such action at least thirty (30) days prior to termination or change, to Division.
5. Minimum insurance required is as specified below and in the amounts indicated.

KIND OF INSURANCE		LIMITS OF LIABILITY
(a)	Workmen's Comp.	\$////////Statutory Workmen's Comp.
(b)	Employer's Liability	\$100,000/\$100,000/\$100,000 Accident/Aggregate/Disease
(c)	Comprehensive - Gen. Liability	\$1,000,000 Each Occurrence - Premises and Operations \$1,000,000 Each Occurrence - Independent Contractors \$1,000,000 Each Occurrence - Operations and Products \$1,000,000 Each Occurrence - Contractual \$1,000,000 Aggregate - Completed Operations and Products
(d)	Comprehensive - Automobile Liability	
	(i) Bodily injury	\$ 500,000 Each Occurrence
	(ii) Property Damage	\$ 500,000 Each Occurrence
	(iii) Hired and Non-Owned	\$ 500,000
(e)	(Other) Umbrella	\$1,000,000

6. Property damage liability insurance shall provide XC or U coverage.
7. Coverage shall include endorsement for broad-form property damage and broad-form personal injury.
8. Contractor agrees to assist in every possible manner the reporting and investigation of any accident, and upon request, to cooperate with all interested insurance carriers in the handling of any claim by securing and giving evidence and obtaining attendance of witnesses as required for any claim or suit.
9. The required insurance shall be written by a company licensed to do business in Iowa at the time the policy is issued. In addition, the company shall be acceptable to Division.

B. NOTICES AND FEES: Contractor shall procure and pay for all permits, fees, licenses, and bonds necessary for the prosecution of the work.

Contractor shall give all notices, pay all fees, and comply with all Federal, State, County, and municipal laws, ordinances, rules and regulations, and building and construction codes bearing on the conduct of the work. Contractor, as to all matters not particularly referred to and defined herein, shall notwithstanding be subject to the provisions of all pertinent ordinances which are hereby made a part hereof with the same force and effect as if specifically set out herein. Examples of several permit forms and affidavits which are

known to be required in completing this Project and which shall be the responsibility of Contractor are included in the Appendix.

1. Contractor shall notify landowners of adjacent property and utilities when prosecution of the work may affect them. When it is necessary to temporarily deny access by landowners or tenants to their property, or when any utility service connection must be interrupted, Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions as to how to limit their inconvenience.
2. Utilities and other concerned agencies shall be contacted at least forty-eight (48) hours prior to excavation near underground utilities or pole lines. Existing utilities at the construction site may include, but are not limited to, storm sewer, sanitary sewer, water, electric, telephone, gas, pipelines, cables, and tile lines.
3. Contractor shall make all necessary arrangements with utility companies for the preservation of all utility lines and shall at Contractor's expense, replace and/or relocate utility lines as required for construction.

C. SECURITY:

1. Contractor shall be responsible for protecting the site, and all work materials, equipment, and existing facilities thereon, against loss or damage attributable to vandals, livestock, and any unauthorized persons.
2. No claim shall be made against the landowner, tenant, Division, or Engineer by reason of any act of any employee, trespasser, or any Subcontractor or agent of the Contractor, and Contractor shall repair any damage to landowner's property resulting from Contractor's failure to provide security measures as specified above.

6-02 USE OF PREMISES: Contractor shall confine equipment, materials, and work operations to the project boundary, as indicated in both the Contract Documents and any laws, ordinances, permits, or directions of Division, and shall not unreasonably encumber the premises with materials. Contractor shall use care in placing construction tools, equipment, excavated materials, and construction materials and supplies so as to cause the least possible damage to, and interference with, the property surrounding the site. Use of premises outside the Project boundary, indicated in the Contract Documents, shall be at Contractor's sole risk. Contractor shall be responsible to coordinate and obtain written approvals for such use with landowners and appropriate governmental agencies.

6-03 CONFINEMENT OF OPERATIONS ON PROPERTIES SUBJECT TO RIGHTS-OF-WAY AND EASEMENTS: It shall be Contractor's responsibility to confine construction activities within the limits of easements, property lines and limits of construction. Any damage to persons or property resulting from encroachments beyond these limits shall be the sole responsibility of Contractor.

6-04 SAFETY: Contractor shall at all times exercise reasonable precautions to protect persons, employees, and property. The safety provisions of applicable laws and local building and construction codes shall be observed.

Contractor's operations shall meet the requirements of all applicable laws relative to protection of persons, and the guarding against hazards of machinery and equipment.

Contractor shall provide and maintain, at Contractor's expense and on a twenty-four (24) hour basis, all necessary safeguards including, but not limited to, watchmen, warning signs or signals, barricades, and night lights at all unsafe places at or near the work. Special care shall be exercised to prevent vehicles, pedestrians, and livestock from falling into open trenches or being otherwise harmed as a result of the work.

Contractor shall in all cases maintain safe passageways at all road crossings, crosswalks and street intersections, and shall take all other reasonable precautions necessary to prevent accident or loss of any kind.

All work included under this Contract shall be done in accordance with the Occupational Health Act of 1970 (Williams-Steiger Act) as amended and enforced by the governmental authority responsible for the local enforcement of the Act. Enforcement and responsibility for fulfilling this provision of the Contract Documents shall rest solely with Contractor, superintendent, and foremen, and in no way shall rest with Division or Engineer.

Contractor shall comply with OSHA 1926 and Interpretation Document; Iowa Occupational Safety and Health Standards for Construction Industry (IOSH); and other applicable laws which are in effect on the date of issuance of the Notice-to-Bidders.

6-05 FAILURE TO PAY FOR LABOR AND MATERIALS: In addition to any other requirements imposed under Iowa law, if Contractor at any time fails to pay Subcontractors or laborers employed to perform work under the Contract, or fails to pay for the materials used therein, Division may withhold from the money which may be due Contractor under this agreement such amount or amounts as may be necessary for the payment of such Subcontractors, laborers, or for the cost of

materials, and may, acting as agent for Contractor, apply the same to such payments and deduct the same from the final estimate of Contractor.

6-06 MOVING OF PUBLIC AND PRIVATE UTILITIES: Prior to completing any work, Contractor shall notify all affected utilities to move such portions of their installations as would be within the confines of the finished improvement. It shall be Contractor's responsibility to coordinate construction work with the utilities so as to cause the least possible interference and avoid any conflicts with provisions of the Contract Documents.

No utility, private or public, shall be moved to accommodate Contractor's equipment or method of operation when such utility does not conflict with the installation of the improvement under construction, unless Contractor assumes all costs associated with such removal.

6-07 PROTECTION OF PUBLIC AND PRIVATE UTILITIES: Contractor shall support and protect, by timbers or otherwise, all pipes, conduits, poles, wires or other apparatuses which may in any way be affected by the work. If, through Contractor's operations, any of said pipes, conduits, poles, wires, or apparatuses should be damaged, they shall be repaired by the authorities having control of same, and the cost of such repairs shall be borne by Contractor.

Contractor shall be further responsible for any damage to streets or other public property, or any private property, by reason of breaking of any water pipe, sewer or gas pipe, electric conduit, or other utility by or through Contractor's or any Subcontractor's negligence.

6-08 DAMAGE TO EXISTING PUBLIC AND PRIVATE PROPERTIES: Underground utilities of record will be shown on the Contract Documents. These, however, are shown for general information only, and neither Division nor Engineer assumes any responsibility for improper locations of or failure to show utility locations on the Contract Documents.

Contractor shall take all reasonable and necessary precautions to protect lawns, trees and shrubs outside rights-of-way, sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto. Contractor shall at Contractor's expense completely repair any damage thereto caused by Contractor's operations to the satisfaction of Division, except as otherwise provided in other portions of the Contract Documents.

Contractor shall further be responsible for maintaining all existing fences affected by the construction work until completion of the Contract. Fences which interfere with construction operations shall not be removed, relocated, or dismantled until approval is obtained from Division or Engineer. In areas where the existing fences cannot be maintained due to construction operations, Contractor may be required, as deemed appropriate by Division, to provide temporary fences or other means to prevent unauthorized vehicular, pedestrian, or livestock access.

Contractor shall take all reasonable and necessary precautions to prevent dust from becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practical to prevent blowing.

6-09 MAINTENANCE OF TRAFFIC:

- A. **APPORTIONMENT OF RESPONSIBILITY:** Contractor shall be responsible for maintenance, control, and the safeguarding of traffic within and immediately abutting the project as further outlined herein, and as may otherwise be provided in the Supplemental Specifications.
- B. **STREET CLOSURES OR PARTIAL CLOSURES:** Streets may be closed to through traffic but shall not be closed to traffic until such closure has been approved by the appropriate Governmental Agencies. Street closures shall be made in such a manner as to provide for maximum public safety and public convenience. They shall be opened to through traffic at such time as the work has been completed, or as the appropriate Governmental Agencies may direct.
- C. **DETOURS:** Detours within the limits of the project such as side street crossings, temporary bridges over freshly placed concrete, utilization of one or more lanes of the construction area for maintenance of traffic, and such related facilities for the maintenance of traffic shall be the responsibility of Contractor, the costs for which shall be included in the appropriate Contract unit price.
- D. **LOCAL AND EMERGENCY TRAFFIC:** Local traffic shall be provided access to private properties at all times, except during some urgent stages of construction when it is impracticable to carry on the construction and maintain traffic simultaneously, such as for the placing of asphalt concrete pavement, placing and curing of Portland cement concrete pavement, and deep sewer excavations which prohibit safe travel of vehicular traffic.

Emergency traffic such as police, fire, and disaster units shall be provided reasonable access at all times.

- E. **PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC:** Contractor shall take every precaution to protect pedestrian and vehicular traffic. All barricades, signs, lights, and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and where within the county rights-of-way, as required by the authority having jurisdiction thereof. All barricades and obstructions shall be illuminated with warning lights from dusk to dawn.

- F. **PARKING:** Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing service in connection with the project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic. The reclamation of all equipment and private vehicle parking areas shall be required prior to the approval of final payment.

Where parking is a hazard to through traffic or to the construction work, it shall be restricted either entirely or during the time when it creates a hazard. Contractor shall consult appropriate Governmental Agencies as necessary to obtain signs for this purpose. Contractor shall be responsible for and shall maintain the signs if they are used on any street which is directly involved in the construction work. If the parking signs are to be used beyond the confines of the work area, such as another street being used as a detour, the signs will be the responsibility of the Governmental Agency.

- G. **FLAGMEN:** Contractor shall furnish at Contractor's own expense all flagmen who may be needed.
- H. **TEMPORARY PROJECT ACCESS ROADS:** Contractor shall establish and maintain temporary access roads to various parts of the project as required to complete the Contract. Such roads shall be available for the use of all others performing work or furnishing services in connection with the project. All such access roads shall be reclaimed. Reclamation of all roads shall be required prior to approval of final payment.
- I. **PROTECTION OF PUBLIC BRIDGES:** Where existing public bridges need to be crossed to gain access to the site, Contractor shall abide by posted weight limits or seek variances from the owner(s) of bridges to cross them with overweight equipment. Where no weight limit is posted, Contractor shall contact the bridge owner and obtain permission to cross it with any equipment. The same requirements apply to material deliveries for the project.

6-10 TRAFFIC CONTROL WITHIN AND ABUTTING THE PROJECT: Contractor shall place and maintain all signs, barricades and warning lights within the limits of the project on all streets, alleys and driveways entering the project so that approaching traffic will turn right or left on existing undisturbed streets before reaching the warning signs and barriers immediately abutting the project. Contractor shall consult appropriate Governmental Agencies to obtain any and all required warning signs.

Barricades shall be furnished by Contractor. The barricades shall conform to requirements of the Governmental Agency.

6-11 USE OF EXPLOSIVES: Blasting shall not be permitted in any case without specific authority of Division, and then only under such conditions as may be required by the proper authorities.

When the use of explosives is necessary for the prosecution of the work, Contractor shall use the utmost care so as not to endanger life or property, cause slides, or disturb the materials outside the project work limits.

Blasting shall be completed in the vicinity of new structures before construction on such structures is undertaken. All explosives shall be stored in a secure manner and placed in compliance with local laws and ordinances and all such storage places shall be clearly marked "Danger - Explosives." No explosive shall be left in an unprotected manner at any time or location.

6-12 RAILROAD CROSSINGS: Wherever a project is being constructed beneath, at grade, or above railroad tracks, or where access into or across a railroad right-of-way is necessary to accomplish any portion of the work, Division shall obtain all necessary permits for the work. It shall be Contractor's responsibility, however, to contact the railroad company prior to constructing such crossings and to proceed with the construction as directed by the railroad company. Contractor shall comply with all construction and additional insurance requirements of the railroad company. Division's sole financial obligations with railroad requirements is confined to securing the permit(s). All other associated responsibilities and costs, therefore, shall be borne by Contractor. Contractor shall hold Division and Engineer harmless from any and all damages resulting from operations within railroad rights-of-way.

6-13 SANITARY PROVISIONS: Contractor shall provide self-contained chemical toilet units, adequate for use of employees of Contractor, Engineer, Division, and of visitors, and other persons frequenting the site on behalf of the work. Privies will not be permitted. Contractor shall furnish toilet tissue and shall maintain the facility in a clean and sanitary condition. Contractor shall permit no public nuisance.

6-14 USE AND OCCUPANCY PRIOR TO COMPLETION OF CONTRACT: Division shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any portion of the work not completed in accordance with the Contract Documents. Any claims Division may have against Contractor shall not be deemed waived by such occupancy.

If Division's prior use increases the cost, or delays the completion of uncompleted work, or causes refinishing of completed work, Contractor shall be entitled to such extra compensation, or extension of time, or both, as Division in consultation with Engineer determines reasonably necessary.

6-15 PERSONAL LIABILITY: Neither Engineer, Division, their employees, or any employee of the State of Iowa, shall be personally responsible for any liability arising under or growing out of the Contract.

See also Paragraph 6-01.

6-16 NO WAIVER OF LEGAL RIGHTS: Should an error be discovered in or payment of unauthorized work be made by the final estimate, or should dishonesty on the part of Contractor be discovered in the work, Division reserves the right, after final payment has been made, to claim and recover by any lawful means such sums as may be sufficient to correct the error, to recover the overpayment, or to make good the defects in the work resulting from Contractor's dishonesty.

SECTION 7 - MEASUREMENT AND PAYMENT

7-01 MEASUREMENT: The determination of pay quantities for work performed under the Contract shall be made by Engineer based upon the lines, grades, and cross sections given, or measurements made by Engineer or Engineer's assistants. Payment for all items shall be computed in the units stated in the Proposal and Schedule of Prices (*Document C*).

The method to be used in measuring and calculating the payment quantity for each work item set forth in the Proposal and Schedule of Prices (*Document C*) is described in the particular Section of Construction Specifications in which work to be accomplished under that particular work item is described. (Example: See paragraph titled "Measurement and Payment" in SECTION 02200, EARTHWORK, ROUGH GRADING, for description of method to be used to measure and calculate earthwork quantities for payment purposes.)

No representation is made as to the accuracy or completeness of the quantities shown on the Contract Documents.

7-02 SCOPE OF PAYMENT: Contractor shall accept the compensation, as provided in the Contract Documents, in full payment for:

- A. Furnishing all supervision, labor, materials, tools, and equipment necessary to complete the work covered by the Contract Documents;
- B. Loss or damage arising from the nature of the work, the action of the elements, or any unforeseen difficulties encountered during the prosecution of the work until final acceptance by Division,
- C. All risks of every description connected with the prosecution of the work;
- D. All expenses incurred in consequence of the suspension or discontinuance of the work;
- E. Completing the work according to the Contract Documents.

The Contract unit prices for the various bid items of the Contract shall, unless the Contract Documents provide otherwise, constitute full compensation for all labor, materials, supplies, equipment, tools and all things of whatsoever nature required for the complete incorporation of the item into the work, the same as the item were to read "In Place".

Separate payment shall be made based on Contractor's unit bid price and the quantity of construction completed at the time of acceptance by Division only for those items specifically listed in the Proposal and Schedule of Prices (*Document C*). No separate payment shall be made for the work required to complete this project except for those bid items set forth in the Proposal and Schedule of Prices (*Document C*) or such other bid items as may be approved by Change Order or Amendment to the Contract. This compensation shall constitute full payment for Contractor's providing of all labor, materials, equipment, and supervision, necessary to complete the construction as specified in the Contract Documents. All other work is incidental to the project. Payment for materials shall be made only for materials actually incorporated in the work or stored on site. Payment for extra work shall be made in accordance with Paragraph 7-03 of this Section. As specified in the Notice-to-Bidders, payment shall be made on the basis of monthly estimates in amounts equal to ninety-seven (97) percent of the value of the work completed.

Neither the payment of any estimate nor the payment of any retained percentage shall relieve Contractor of any obligation to make good any defective work or material.

7-03 PAYMENT FOR EXTRA WORK: Adjustments, if any, in the amounts to be paid Contractor by reason of any change, or addition, shall be determined by one or more of the following methods:

- A. By an acceptable lump-sum proposal from Contractor;
- B. By Contract unit prices as contained in the Proposal and Schedule of Prices (*Document C*), or by unit prices mutually agreed upon by Contractor and Division;
- C. By payroll cost of labor plus fifteen (15) percent for profit, overhead and small tools, plus the amount of social security tax imposed by law upon Contractor, plus the cost of worker's compensation, public liability insurance and employment security contributions;
- D. By actual cost of materials delivered to the work, including freight and hauling charges as shown by original receipted bills, plus fifteen (15) percent; or

- E. By equipment rental rates for machinery, tools and equipment, except small hand tools, as determined from current publications of recognized equipment dealers.

It shall be Contractor's responsibility to obtain proper authorization from Division before proceeding with any extra work. No charge for extra work or any other change in the Contract shall be allowed unless: (1) the extra work or change has been authorized by a written Change Order or Contract Amendment, signed by Division, and if applicable by the Surety, and (2) the compensation or method thereof is stated in such signed Change Order or Contract Amendment.

See also Paragraphs 4-02, 4-03 and 4-04.

7-04 PROGRESS PAYMENTS/RETAINED PERCENTAGE: Contractor shall be entitled to monthly progress payments corresponding to the stage of the work. The initial progress estimate shall be prepared by Engineer not later than thirty (30) days after commencing work. Subsequent progress estimates shall be prepared at approximately thirty (30) day intervals when work is being performed on the project. Amounts shall be based upon an approximation of quantities of work completed, multiplied by the unit prices established in the Contract, or shall be based upon estimated completed percentages of work listed in Contractor's approved price breakdown for lump sum items.

Cost of materials, properly stored, protected and insured at the site of work shall be paid for as requested by Contractor, and as provided for in the Contract Documents. In preparing monthly estimates, advancements shall be made for ninety-seven (97) percent of the cost of such materials, as evidenced by invoices accompanying each payment request submitted by Contractor, and, if required by Division, after providing proof of insurance for the specified products, materials, or equipment. All materials must conform to the requirements of the Contract Documents; however, advancement for materials shall not constitute acceptance, and any faulty material shall be condemned although advancement may have been made for same in the estimates.

Quantities used for progress Pay Application forms shall be considered only as approximate and provisional, and shall be subject to recalculation, adjustment and correction by Division in subsequent progress Pay Application forms and in the final application form. Inclusion of any quantities in progress estimates, or failure to disapprove the work at the time of progress estimate, shall not be construed as acceptance of the corresponding work or materials.

Processing for payment of the retained percentage shall be withheld for a period of thirty (30) days following final, written acceptance by Division, and shall be processed for payment thereafter, in the event no claims, as provided by law, have been filed against such funds. In the event such claims are filed, Contractor shall be paid, after said funds are released from liens, such retained percentages, less an amount sufficient to pay any such claims as authorized under Iowa law.

Progress payments shall be applied for and shall be processed in accordance with applicable provisions of the Contract Documents.

- A. **PAY APPLICATION FORMS:** Appropriate Pay Application (*Document S*) forms shall be provided by Division (See Appendix). This form shall be accompanied by a revised Construction Progress Schedule (See Paragraph 3-23), except in the case of Final Payment
- B. **INITIAL PAY APPLICATION:** The principal administrative actions and submittals which must precede submittal of first Pay Application request shall include but not necessarily be limited to the following:
1. Listing of subcontractors and principal suppliers and fabricators.
 2. Initial Construction Progress schedule.
 3. Schedule of principal products.
 4. Schedule of unit prices and estimated project quantities. (The Pay Application form (*Document S*) can be used.)
 5. Schedule of submittals.
 6. Copies of acquired permits and similar authorizations and licenses from governing authorities for performance of the work.
 7. Performance and/or payment bonds.
 8. Evidence satisfactory to Division that Contractor's insurance coverages have been secured.
 9. Storm Water Pollution Prevention Plan up to date.
 10. Date established for Acid Water Neutralization and Dewatering meeting if needed for project.
 11. Refer to the Contract Documents and comply with any requirements not herein listed.
- C. **SUBMITTAL OF PAY APPLICATION:** The following procedure shall be used to submit all progress payment requests using the Pay Application (*Document S*) form:

1. Contractor shall provide quantities and any associated back up documentation to Engineer.
2. Engineer shall confirm the quantities and provide draft of Pay Application to Division and Contractor at least two (2) days prior to scheduled progress meeting. A draft copy of any accompanying Change Order shall also be provided for review.
3. Engineer shall bring one (1) unsigned copy of the Pay Application, and one (1) copy of any accompanying Change Order to the progress meeting.
4. Contractor and Engineer shall sign the Pay Application and any accompanying Change Order. The signed copy of the Pay Application and any accompanying Change Order shall be provided to Division for further processing.

D. RETAINED PERCENTAGE:

1. Division may withhold from payments to Contractor, in addition to the retained percentage pursuant to Paragraphs 7-02 and 7-04 of this Section, amounts necessary to cover:
 - a. Payments that may be earned or due for just claims for labor or materials furnished in and about the work, in excess of, or not subject to, the amount retained pursuant to this Section.
 - b. Payments for defective work not remedied.
 - c. Amounts deemed reasonably necessary for completion of the work remaining in an individual bid item, or for the completion of the total work covered by the Contract Documents.
 - d. Payments for extra administrative, engineering, and inspection costs if Contractor has not completed the work within the time specified.
2. Division shall disburse and shall have the right to act as agent for Contractor in disbursing such funds as have been withheld pursuant to this paragraph to the party or parties who are entitled to payment therefrom. Division shall render to Contractor a proper accounting of all such funds disbursed on Contractor's behalf.
3. In the event claims are filed in a timely manner, Division shall withhold from payment to Contractor an amount equal to at least double the amount of such claims. Division shall release such funds to Contractor upon compliance with Iowa Code Section 573.16.
4. In preparing monthly estimates, advancement shall be made for ninety-seven (97) percent of the cost of materials described in the second paragraph of this Section as evidenced by invoices accompanying each payment request submitted by Contractor.

E. RELEASE OF RETAINAGE AT NINETY-FIVE (95) PERCENT PROJECT COMPLETION

Iowa Code Section 573.27 permits full payment for completed work when at least ninety-five (95) percent of the Construction Contract has been completed to the satisfaction of the public contracting authority, and owing to conditions beyond the control of Contractor, the remaining work covered by the Contract Documents cannot proceed for a period of more than sixty (60) days. In that event, Contractor may request payment of the retainage on work completed and accepted and, if approved, a Contract Amendment (*Document U*) shall be prepared. Processing for the release of the retainage shall be subject to a thirty (30) day waiting period. In any event, the performance bond must remain in effect through the entire period of the Contract (see Paragraph 5-12 aforementioned).

F. DELAY OF PAYMENT

Division reserves the right to withhold or delay any approved payment as provided in Paragraph 7-05, 3.

This Section is intended to implement Iowa Code Chapter 573 and shall not be considered a waiver of any provisions of said Chapter. In the event any portion of this Section is held by a court of competent jurisdiction to be inconsistent with Chapter 573, the provisions of Chapter 573 shall control.

7-05 DIVISION'S ACTION ON AN APPROVED PAY APPLICATION: Within thirty (30) days from the date Division receives an Engineer approved Pay Application (sixty (60) days in the case of initial requests for payment), Division shall:

- A. Pay the Pay as approved; or
- B. Pay such other amount as Division deems due and owing Contractor, informing Contractor and Engineer in writing of the reasons for paying the amended amount; or

- C. Inform Contractor and Engineer that payment is withheld or delayed for specific reasons, which include, but not necessarily limited to:
1. Contractor's failure to install Project Sign or the Job Poster Display in a timely manner (see specifications SECTION 02100, Mobilization, Part 3.9;
 2. Contractor's failure to submit a Construction Progress Schedule with updates as necessary (see Paragraph 3-23 above); or
 3. Contractor's failure to: submit complete certified payrolls pursuant to Davis-Bacon requirements (see Paragraph 3-25 above and 8-04 C below).
 4. Contractor's failure to promptly install erosion and/or sediment control practices identified by Engineer or Division.

7-06 INTEREST ON UNPAID PAY APPLICATIONS: The Division is unable to pay Contractor interest for any unpaid balance since the funds are obtained from a federal grant.

7-07 PAYMENT FOR UNCORRECTED WORK: In the event Division or Engineer directs Contractor not to correct work that has been damaged, or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract amount shall be made to compensate Division for the uncorrected work.

7-08 PAYMENT FOR REJECTED WORK AND MATERIALS: The removal of work and materials rejected under Paragraph 5-06, and the re-execution of acceptable work by Contractor, shall be at Contractor's expense, and Contractor shall pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.

Removal of rejected work or materials, and storage of materials by Division in accordance with Paragraph 5-06, shall be paid by Contractor within thirty (30) days of written notice by Division. If Contractor does not pay the expense of such removal within a ten (10) day written notice by Division of the intent to sell the materials, Division may sell the materials at auction or private sale, and shall pay Contractor the net proceeds therefrom after deducting all cost and expense that should have been borne by Contractor.

7-09 PAYMENT FOR WORK SUSPENDED BY DIVISION: If the work or any part thereof shall be suspended by Division and abandoned by Contractor as provided in Paragraph 3-04, Contractor shall be entitled to payment for all work performed on the portions so abandoned, plus fifteen (15) percent of the value of the uncompleted portion of the abandoned work to compensate for overhead, plant expense, and anticipated profit.

7-10 PAYMENT FOR WORK BY DIVISION: The cost of work performed by Division in removing construction equipment, tools and supplies in accordance with Paragraph 3-14, and correcting deficiencies in accordance with Paragraphs 3-15 and 4-06, shall be paid by Contractor.

7-11 PAYMENT FOR WORK BY DIVISION FOLLOWING DIVISION'S TERMINATION OF CONTRACT: Upon termination of the Contract by Division in accordance with Paragraph 3-16, no further payments shall be due Contractor until the work is completed. If the unpaid balance of the Contract amount shall exceed the cost of completing the work, including all overhead costs, the excess shall be paid to Contractor. If the cost of completing the work shall exceed the unpaid balance, Contractor shall pay the difference to Division. The costs and damages incurred by Division through Contractor's default, shall be certified and approved by Division.

7-12 PAYMENT FOR WORK TERMINATED BY CONTRACTOR: Upon termination of the Contract by Contractor in accordance with Paragraph 3-17, Contractor shall recover payment from Division for the work performed, plus loss of plants and materials stored on site, plus established profit and damages, as approved by Division.

7-13 FINAL ACCEPTANCE AND FINAL PAYMENT: Contractor shall notify Division in writing when the work is considered completed and ready for final inspection and tests. Prior to such notice, Contractor shall complete any final punch list items and clean up the site. Site cleanup shall include removal of all construction debris, equipment, excess and waste materials. Final inspection and tests shall be conducted by representatives of Division, Engineer, and Contractor. The inspections and tests shall be conducted at a time convenient to all parties required to be present. Inspections and tests will be subject to the availability of facilities necessary to the conducting of such inspections and tests, if required. Failure of the completed work or any component thereof to pass inspections or tests shall be cause for initial rejection of the work or component. Final acceptance of the entire project shall not be made until any rejected portions are corrected and re-inspected or retested. Subsequent failures of the project or component to pass inspection and tests may, at Division's option, result in final rejection, or in acceptance with assessment of damages for such failure. Following final tests and inspections, Engineer shall notify Division and Contractor if the project is acceptable, in total or in part, and whether it appears to be in compliance with Contract Document requirements.

The administrative actions and submittals which must precede or coincide with submittal of final pay application shall be as follows:

- A. **FINAL ACCEPTANCE REQUIREMENTS :** Prior to requesting Engineer's certification of substantial completion and final payment, as required above, Contractor shall either submit or have already submitted:
1. Final payment request for all completed work less retainage;
 2. Evidence that all Davis-Bacon payroll reporting requirements have been met;
 3. Certificates of insurance for products and completed operations where required;
 4. Record documents (See Paragraphs 2-05 & 7-04);
 5. Updated final work quantities accounting for additional (final) changes to Contract sum;
 6. Final liquidated damages settlements statement acceptable to Division, if applicable; and
 7. Evidence of final, continuing insurance coverage complying with insurance requirements.
- B. **CONDITIONS FOR FINAL ACCEPTANCE AND FINAL PAYMENT:** Division shall not agree to Final Acceptance or make Final Payment until receipt of the following from the Engineer:
1. Checklist that demonstrates Contractor has satisfied the Davis-Bacon submittal requirements of the Contract; and
 2. Written certification declaring the work of Contractor to be complete and in substantial conformance with the Contract Documents.
- C. **PUBLICATION OF NOTICE OF COMPLETION:** Division will publish a Notice of Completion in a newspaper of general circulation of its intention to close out the project and release the retainage after the date identified in the Notice of Completion and if no claims are submitted. If a subcontractor or supplier contacts the Division by the date identified in the Notice of Completion indicating they have not received full payment from Contractor, the retainage payment shall be delayed until such matters are deemed resolved by Division.

Division may issue certification of final acceptance on or after the publication date for the Notice of Completion. Refer to Paragraph 5-10 regarding beginning of the guarantee period.

Final acceptance shall not relieve Contractor of the responsibility to restrict operations so as not to result in damage to accepted work. Any damage to said work caused by subsequent operations of Contractor, Contractor's personnel, or equipment shall be satisfactorily repaired at Contractor's expense.

Final acceptance of completed work shall be evidenced by Division's certification of final acceptance, and payment of retainage. Contractor's acceptance of final payment, or payment offered as final payment, shall constitute a release to Division, Engineer, and every officer and agent thereof from all claims and liabilities of Contractor for anything done or furnished, or relating to the work, or for any act or neglect of Division, Engineer, or of any person relating to or affecting the Contract.

7-14 LIENS: If any liens are filed and remain unsatisfied after all payments are made, Contractor shall refund to Division such amounts as Division may have been compelled to pay in discharging such liens including all costs and reasonable attorneys' fees authorized by Iowa law.

7-15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY: The work covered by the Contract Documents shall be considered complete when all work has been finished, the final inspection has been made by Engineer and Division, and the requirements for final acceptance set forth above have been met as evidenced by Division's certification of final acceptance. Contractor's responsibility shall then cease, except as set forth in the guarantee periods contained in Contractor's Performance Bond (*Document J*).

7-16 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT: Neither the approval of the Final Application and Pay Application by Division, nor the certification of final acceptance by Division, or the making of the final payment by Division to Contractor, shall relieve Contractor of responsibility for faulty materials or workmanship. Division shall promptly give notice of faulty materials or workmanship to Contractor and Contractor shall promptly replace any such defects. Division shall decide all questions arising under this Paragraph; provided, however, that all such decisions shall be subject to arbitration. See also Paragraphs 5-10 & 5-12.

7-17 LIQUIDATED DAMAGES: In the event Contractor fails to complete the work provided for herein within the times specified, Division shall be entitled to liquidated damages to cover all extra administration, engineering, and inspection costs necessitated by the continuance of the work beyond the times herein specified for completion. Such extra costs charged to Contractor in no way constitute a penalty but represent additional expense to Division caused by delayed completion of the work by Contractor.

Liquidated Damages shall be assessed as provided for in *Document C*, taking into account any extensions of time granted by properly executed Contract Amendments. Such sums shall be deducted from the final pay request prior to payment.

SECTION 8 – DAVIS-BACON AND RELATED ACT PROVISIONS

8-01 APPLICABILITY

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects. The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the IDALS-DSCWQ General Conditions format and Iowa AML Program requirements.

8-02 MINIMUM WAGES

A. PAYMENT FREQUENCY AND CONTRIBUTIONS:

1. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.
2. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 8-02 C. 2. of this Section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one (1) classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 8-02 B. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

B. CLASSIFICATION, WAGE DETERMINATION, AND WAGE RATE:

1. The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination, and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - a. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - b. The classification is utilized in the area by the construction industry; and
 - c. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
2. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) days of receipt and so advise the contracting

officer or will notify the contracting officer within the thirty (30) day period that additional time is necessary.

3. In the event the Contractor, the laborers, or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within thirty (30) days of receipt and so advise the contracting officer or will notify the contracting officer within the thirty (30) day period that additional time is necessary.
4. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 8-02 B. 2. or 8-02 B. 3. of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

C. FRINGE BENEFITS:

1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside, in a separate account, assets for the meeting of obligations under the plan or program.

8-03 WITHHOLDING

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract, or any other Federal contract with the same Prime Contractor, or any other federally- assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

8-04 PAYROLLS AND BASIC RECORDS

A. MAINTENANCE OF RECORDS:

Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

B. SUBMITTALS:

1. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall need only include an individually identifying number for each employee (for example, the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at or its successor site. The Prime Contractor is responsible for the submission of copies of payrolls by all Subcontractors. Contractors and Subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the contracting agency for transmission to the OSMRE or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a Prime Contractor to require a Subcontractor to provide addresses and social security numbers to the Prime Contractor for its own records, without weekly submission to the contracting agency.
 2. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or Subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - a. That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR Part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR Part 5, and that such information is correct and complete;
 - b. That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
 - c. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 3. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 8-04 B. 2 of this section.
 4. The falsification of any of the above certifications may subject the Contractor or Subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- C. The Contractor or Subcontractor shall make the records required under paragraph 8-04 A. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, OSMRE, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records or to make them available, the DIVISION may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

8-05 APPRENTICES AND TRAINEES

A. APPRENTICES:

1. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program,

who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

2. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed.
3. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
4. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. TRAINEES:

1. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.
2. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.
3. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.
4. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
5. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

8-06 COMPLIANCE WITH COPELAND ACT REQUIREMENTS

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

8-07 SUBCONTRACTS

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Department of Labor may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for the compliance by any Subcontractor or lower tier Subcontractor with all the contract clauses in 29 CFR 5.5.

8-08 CONTRACT TERMINATION: DEBARMENT

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

8-09 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS

All rulings and interpretations of the Davis- Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

8-10 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

8-11 CERTIFICATION OF ELIGIBILITY

- A. By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- B. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- C. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

END OF DOCUMENT N

Davis Bacon Prevailing Wage Requirement Acknowledgement Form

Funding for The Iowa Department of Agriculture and Land Stewardship's Abandoned Mine Reclamation Program stems from grants received from the Federal Department of Interior, Office of Surface Mine Reclamation and Enforcement. As such, these funds fall under the provisions of the Davis Bacon Act and require that Davis Bacon Prevailing Wage Rates be implemented for this project.

Your signature on this form acknowledges that you have been provided the most recent wage determination rate for this project as issued by the Department of Labor.

Bidder's Signature

Date

Bidder's Printed Name

Bidder's Title

Bidder's Company Name

Bidder's Company Address

END OF DOCUMENT AC

BUILD AMERICA BUY AMERICA (BABA) STATEMENT

As required by Section 70914 of the Bipartisan Infrastructure Law (also known as the Infrastructure Investment and Jobs Act), P.L. 117-58, on or after May 14, 2022, none of the funds under a federal award that are part of Federal financial assistance program for infrastructure may be obligated for a project unless all of the iron, steel, manufactured products, and construction materials used in the project are produced in the United States, unless subject to an approved waiver. The requirements of this section must be included in all subawards, including all contracts and purchase orders for work or products under this program.

Recipients of an award of Federal financial assistance are hereby notified that none of the funds provided under this award may be used for a project for infrastructure unless:

1. all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
2. all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
3. all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

For further information on the Buy America preference, please visit www.doi.gov/grants/BuyAmerica.

Additional information can also be found at the White House Made in America Office website:

www.whitehouse.gov/omb/management/made-in-america/.

Waivers

When necessary, recipients may apply for, and the Department of the Interior (DOI) may grant, a waiver from these requirements, subject to review by the Made in America Office. The DOI may waive the application of the domestic content procurement preference in any case in which it is determined that one of the below circumstances applies:

1. Non-availability Waiver: the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality;
2. Unreasonable Cost Waiver: the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent; or
3. Public Interest Waiver: applying the domestic content procurement preference would be inconsistent with the public interest.

There may be instances where an award qualifies, in whole or in part, for an existing DOI general applicability waiver as described at: www.doi.gov/grants/BuyAmerica/GeneralApplicabilityWaivers. If the specific financial assistance agreement, infrastructure project, or non-domestic materials meets the criteria of an existing general applicability waiver within the limitations defined within the waiver, the recipient is not required to request a separate waiver for non-domestic materials.

If a general applicability waiver does not already apply, and a recipient believes that one of the above circumstances applies to an award, a request to waive the application of the domestic content procurement preference may be submitted to the financial assistance awarding officer in writing. Waiver requests shall include the below information. The waiver shall not include any Privacy Act information, sensitive data, or proprietary information within their waiver request. Waiver requests will be posted to www.doi.gov/grants/buyamerica and are subject to public comment periods of no less than 15 days. Waiver requests will also be reviewed by the Made in America Office.

1. Type of waiver requested (non-availability, unreasonable cost, or public interest).
2. Requesting entity and Unique Entity Identifier (UEI) submitting the request.
3. Department of Interior Bureau or Office who issued the award.
4. Federal financial assistance listing name and number (reference block 2 on DOI Notice of Award)
5. Financial assistance title of project (reference block 8 on DOI Notice of Award).
6. Federal Award Identification Number (FAIN).
7. Federal funding amount (reference block 11.m. on DOI Notice of Award).

8. Total cost of Infrastructure expenditures (includes federal and non-federal funds to the extent known).
9. Infrastructure project description(s) and location(s) (to the extent known).
10. List of iron or steel item(s), manufactured goods, and construction material(s) the recipient seeks to waive from Buy America requirements. Include the name, cost, countries of origin (if known), and relevant **PSC** or **NAICS** code for each.
11. A certification that the recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with the prime contractor.
12. A statement of waiver justification, including a description of efforts made (e.g., market research, industry outreach) by the recipient, in an attempt to avoid the need for a waiver. Such a justification may cite, if applicable, the absence of any Buy America-compliant bids received in response to a solicitation.
13. Anticipated impact if no waiver is issued.

Approved waivers will be posted at www.doi.gov/grants/BuyAmerica/ApprovedWaivers; recipients requesting a waiver will be notified of their waiver request determination by an awarding officer.

Questions pertaining to waivers should be directed to the financial assistance awarding officer.

Definitions

“Construction materials” includes an article, material, or supply that is or consists primarily of:

- non-ferrous metals;
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- glass (including optic glass);
- lumber; or
- drywall.

“Construction Materials” does **not** include cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

“Domestic content procurement preference” means all iron and steel used in the project are produced in the United States; the manufactured products used in the project are produced in the United States; or the construction materials used in the project are produced in the United States.

“Infrastructure” includes, at a minimum, the structures, facilities, and equipment for, in the United States, roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

“Project” means the construction, alteration, maintenance, or repair of infrastructure in the United States

I have reviewed the content of Build America Buy America Statement form and agree to follow the guidance contained within.

Bidder's Signature

Date

Bidder's Printed Name

Bidder's Title

Bidder's Company Name

Bidders Company Address

END OF DOCUMENT AD

CONSTRUCTION SPECIFICATIONS

INDEX

SECTION 02000 - SUBSURFACE INVESTIGATION

PART 1 - GENERAL

- 1.1 DESCRIPTION
- 1.2 REFERENCE SPECIFICATIONS

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

PART 4 – MEASUREMENT AND PAYMENT

Not Applicable

PART 1 - GENERAL

1.1 DESCRIPTION

A. Geotechnical and Hydrological Reports

1. A geotechnical study and/or a hydrological study were prepared for this site as approved by the Division.
2. The results of the field and laboratory tests used for the design are compiled in an appendix. The approximate locations of any test pits, trenches, borings, and soil and water sampling points are shown on the Plans.
3. Complete reports may be reviewed at the office of the Division or the Engineer. Electronic copies are available for the contractor. Any hardcopies may be obtained at the cost of reproduction and handling upon request and payment to the Engineer.

B. Use of Field Data

1. The data presented in the appendix and any other completed reports were obtained and prepared for use during completion of the design and (unless otherwise noted in the supplemental specifications) are NOT considered a part of the Contract Documents. This information is made available for bidder's use but is not a warranty of subsurface or hydrological conditions.
2. The data and report were prepared in accordance with generally accepted soil and water investigation procedures for abandoned mine reclamation project design. Any conclusions and recommendations made by others which are based on data presented in the appendix or other report are the sole responsibility of others.
3. Information included in the appendix and in the complete report presents only the data collected at the specific locations indicated and at the time samples or tests were performed. Variations may occur between testing and sampling locations, during different seasons of the year, or between the time of investigation and the time of construction.

C. Site Visit

1. Bidders should visit the site and acquaint themselves with existing conditions.
2. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but such investigations may be performed only under time schedules and arrangements approved in advance by the Division.

1.2 REFERENCE SPECIFICATIONS

No additional specifications or standards are incorporated into this SECTION

PART 2 – PRODUCTS

No products are required in this SECTION.

PART 3 – EXECUTION

No work applies to this SECTION.

PART 4 – MEASUREMENT AND PAYMENT

Not applicable to this SECTION.

END OF SECTION 02000

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SECTION 02010 - FIELD ENGINEERING

PART 1 - GENERAL

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- 1.3 QUALITY ASSURANCE
- 1.4 SUBMITTALS

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- 3.1 SURFACE CONDITIONS
- 3.2 DIMENSIONS AND ELEVATIONS
- 3.3 POSITION, GRADIENT, AND ALIGNMENT
- 3.4 FINAL PAY QUANTITY SURVEYS
- 3.5 INTERIM PAY QUANTITY SURVEYS
- 3.6 STAKE OUTS
- 3.7 AS-BUILT SURVEY INFORMATION
- 3.8 RECORD SURVEY NOTES

PART 4 - MEASUREMENT AND PAYMENT

- 4.1 UNIT PRICES
- 4.2 SUMMARY—UNITS OF MEASUREMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included

Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete Field Engineering of all work for this project. The work shall include, but is not necessarily limited to, completion of the following:

1. Surveys for acceptance of original ground lines
2. Stake Outs, including location and elevation of all work
3. Interim pay surveys as needed
4. Maintaining record survey notes and record plans (as-built drawings)
5. Final pay quantity surveys, including measurement of all bid items requiring taping or surveys
6. Preservation of the location(s) of land survey monuments, apparent property lines, all existing fencing, and any other features as noted on the plan or in other portions of the specifications

1.2 REFERENCE SPECIFICATIONS

No additional specifications or standards are incorporated into this SECTION

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.
- B. Contractor shall use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with the directives of Engineer and Division.
- D. Survey work and recording of data shall be in accordance with acceptable standards of practice in engineering and land surveying professions. Survey work shall be done with a licensed professional engineer or a licensed land surveyor in responsible charge, in accordance with provisions of Chapter 542B, Code of Iowa. This requirement is waived for that portion of the work that can be and is surveyed by Contractor's own personnel. The Contractor may use other competent persons that are trained in using Global Positioning System (GPS) equipment subject to the approval of the Engineer.

1.4 SUBMITTALS

- A. Record Plans (As Built Drawings): Specific requirements for record plans are indicated in the General Conditions (Document N, Paragraph 2-05 A) and in 3.7 below.
- B. Record Survey Notes: Specific requirements for record survey notes are indicated in the General Conditions (Document N, Paragraph 2-05 C), and in 1.2 D above.

- C. Survey notes of locations of all monuments, benchmarks, existing fences and any other reference points that will be disturbed as part of construction.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

Contractor shall examine the areas and conditions under which work of this SECTION will be performed and correct conditions detrimental to timely and proper completion of the work. Contractor shall not proceed until unsatisfactory conditions are corrected.

3.2 DIMENSIONS AND ELEVATIONS

Contractor shall verify in the field all dimensions and elevations which are required. Elevations indicated and referred to in the Specifications and on the Plans are based on the bench mark datum indicated on the Plans. Horizontal and vertical control reference points shown on the Plans shall be re-established as necessary by Contractor prior to performing any layout of the work. Contractor shall promptly notify Engineer in case of discrepancies.

3.3 POSITION, GRADIENT, AND ALIGNMENT

- A. Competent survey personnel employed and paid by Contractor shall lay out and stake out all control points and reference stakes required for construction of the work. Contractor shall carefully preserve all existing monuments, bench marks, fence locations, and reference points shown on the Plans or encountered during construction. All existing monuments, benchmarks, fence locations and other reference points shall be surveyed prior to commencement of construction in these areas with the survey notes provided to Engineer. When necessary or requested, Contractor shall repair or replace damaged reference points at no cost to Division.
- B. All work performed under this Contract shall conform to the lines, grades and elevations shown on the Plans and with any tolerances which may be set forth in the Construction Specifications.
- C. All work completed without being properly located and established from the control reference points and benchmarks shown on the Plans may be ordered removed and replaced at no cost to Division.
- D. Features such as terrace high points and low points, terrace outlets, ditches, etc., are shown on the Plans. Locate all features by coordinates or dimensions shown on the Plans. If no coordinates or dimension are shown, Contractor shall obtain this information electronically or request coordinates from Engineer.
- E. At the request of the Contractor, Engineer shall provide the site grading plan in a digital format to be used for GPS mounted equipment. The Engineer is not responsible for any misinterpretations or translations of the data that may arise.

3.4 FINAL PAY QUANTITY SURVEYS

- A. Any work item requiring field measurements shall be measured in place by Contractor accompanied by Engineer after said item is complete. Measurements shall be performed as agreed to by both the Engineer and Contractor.
- B. In the event surveying is required for final pay quantity, this work shall be performed and certified by a Contractor-retained licensed professional engineer or licensed land surveyor in responsible charge. In lieu of formal surveys, Contractor may wish to accept plan (bid) quantities for certain items as allowed for in the measurement and payment portion of each section.

3.5 INTERIM PAY QUANTITY SURVEYS

Any item of work which requires field measurements, and which is not being submitted as final for that item, need not be certified.

3.6 STAKE OUTS

- A. The number of earthwork stake outs is open to Contractor. A minimum of two (2) stake outs are required for earthwork when GPS mounted equipment is not used. The first stake out shall be near the beginning of the project to help establish rough grading limits, along with clearing and project limits. A final stakeout is required to establish final grades prior to liming for subgrade preparation. Interim stake outs shall be used at Contractor's discretion. The stake out used to establish final grades shall include stakes that are either set on a one hundred (100) foot grid, follow along contour lines with maximum one-hundred (100) feet spacing along the contour, or as needed to result in final grading consistent with project plans. Additional staking may be required to represent all site features. Engineer may request additional grade stakes to verify site features and/or elevations. Stake outs are not to be confused with required surveys for measurement purposes or as-built surveys.
- B. If the Contractor has equipment mounted with properly functioning GPS, then only a final check of key points or a final survey is required. The locations and frequency of checked locations shall be determined in consultation with the Engineer.

3.7 AS-BUILT SURVEY INFORMATION

- A. The final locations of the items listed below must be surveyed by Contractor. This may be completed during the final stake out listed in 3.6 above or with GPS mounted equipment prior to removal of control points. As-built survey data collected with uncrewed aerial vehicles (UAVs) is preferable. When UAVs are used LiDAR or photogrammetric data is acceptable.
- B. The final as-built survey should include the location and elevations of the following items:
 - 1. All terrace ridges and flow lines
 - 2. All riser intake locations inlet elevations, and pipe outlets
 - 3. Site perimeter of disturbed area
 - 4. Any fence installation locations
 - 5. General location and elevation of final grade with enough frequency that a topographic map of final grading can be developed by the Engineer
 - 6. Any other points requested by Engineer or Division

3.8 RECORD SURVEY NOTES

A copy of all construction survey notes by Contractor's surveyor, whether written or electronic, should be provided to Engineer as data is acquired.

3.9 PRESERVATION OF LAND SURVEY MONUMENTS

- A. Land survey monuments include but are not necessarily limited to: Property pins; Public Land Survey section corners; elevation benchmarks; or geodetic control points.
- B. All known land survey monuments that will be disturbed by construction are noted on the Plans.
- C. Whenever any land survey monument is encountered during construction, Contractor shall notify the Engineer and Division and direct his Surveyor to measure the position of the monument and collect all relevant data necessary to restore or replace the monument after construction is complete.
- D. Land survey monuments shall be restored or replaced pursuant to the requirements stipulated in Iowa Code Chapter 355. A monument preservation certificate **or** a section corner certificate **or** a retracement plat of survey shall accompany each restored or replaced land survey monument.
- E. It shall be the Surveyor's responsibility to determine and develop the appropriate document for each restored monument and record it in the county where the monument is located. The Surveyor shall provide a copy of the recorded document to Contractor, Engineer and Division.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. Field Engineering shall not be a payment item.
- B. Payment for Field Engineering shall be incidental to all items requiring Field Engineering.

4.2 SUMMARY – UNITS OF MEASUREMENT

Not applicable to this SECTION

END OF SECTION 02010

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PART 4 - MEASUREMENT AND PAYMENT

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PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included

Work under this SECTION covers requirements for materials, tools, equipment, and services necessary to complete the site preparation and site cleanup work for this project. The work shall include, but is not necessarily limited to, completion of the following work:

1. Mobilization
2. Establishment of offices and project trailer
3. Installation of project sign
4. Acknowledge location of and help maintain electronic SWPPP documentation
5. Establishment of sanitary facilities
6. Removal and salvage of existing fencing
7. Installation and removal of temporary fencing
8. Protection of existing utilities, vegetation, and facilities to remain undisturbed
9. Site clearing and grubbing
10. Debris removal and disposal
11. Demobilization

1.2 REFERENCE SPECIFICATIONS

A. The following specifications or standards are incorporated by reference into this SECTION:

1. Recommendations for Tree protection during construction. Provided by Iowa State University (ISU) Extension Service. Document available at the following website address: https://naturalresources.extension.iastate.edu/forestry/care_maintenance/construction.html
2. SECTION 02120 – SEDIMENT AND EROSION CONTROL
3. SECTION 02200 – EARTHWORK, ROUGH GRADING
4. SECTION 02700 – PERMANENT SEEDING

B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.
- B. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with the directives of Engineer or Construction Observer and Division.
- C. Trees to remain shall be protected as described in 1.2, A. 1. above.
- D. Contractor shall comply with most current guidelines to protect the Indiana Bat and any other species specified in the Appendix or provided by the Division.

1.4 JOB CONDITIONS

- A. The Plans do not purport to show all objects existing on the site.

- B. The locations of utility mains, structures and service connections shown on the plans are approximate only and were obtained from records made available to Engineer and Division. There may be other existing utilities not known to Engineer and Division and not shown on the Plans. The verification of existence and the exact location determination of utility mains, structures and service connections shall be the responsibility of Contractor.
- C. Contractor shall not perform any work on or cause any damage to existing CRP land, wetlands or any other jurisdictional lands that are indicated on the Plans as not to be disturbed. Division has no permit to disturb these areas. These areas are under the jurisdiction of other authorities and any penalties or damages will become the responsibility of the Contractor. In addition, Contractor will complete all work necessary to restore the damage to these areas to an acceptable condition at no cost to Division.
- D. Contractor shall not perform work under the drip line of trees that are to remain. Contractor may request that certain trees within the Project Limits shown on the Plans remain in place. If permission is granted, Contractor shall protect these tree(s) from damage.
- E. Materials to be handled under this Contract include spoil, gob and coal refuse which may be toxic and/or acidic in nature. Miscellaneous debris, including potentially hazardous materials, are sometimes found on the surface or buried on these sites.
- F. Contractor shall not use explosives without written approval of Engineer.
- G. Unless indicated otherwise in the Contract Documents, removed, salvaged or demolished materials shall be the property of Contractor. Contractor salvaged materials and demolished materials shall be completely removed from the job site or buried on site as approved by Engineer or Construction Observer. Any items indicated in the Contract Documents to be salvaged to the landowner, such as existing fencing, shall be stored on site at a location approved by Engineer or Construction Observer.
- H. Contractor shall conduct all work in a manner which shall minimize, to the greatest practical extent, inconvenience to the public, and which shall result in a final product which leaves the site in an equal or better condition than prior to construction.
- I. No trees shall be cleared between the dates of April 1 to September 30 to comply with the requirements of the Indiana bat habitat without the express permission of the Division.

1.5 SUBMITTALS

- A. Contractor shall provide to Engineer a description and the location of any alternative off-site disposal area to be used other than a licensed landfill.
- B. Contractor shall submit a Construction Progress Schedule as specified in SECTION 3-23 CONSTRUCTION SCHEDULE of the General Conditions (*Document N*).
- C. Contractor shall submit weight tickets or billings for all off-site waste disposal, including trash, metal, appliances, tires, hazardous chemicals, etc., to Engineer or Construction Observer.
- D. Contractor shall provide Engineer or Construction Observer with record survey notes of all existing fence locations within the projects limits and any adjacent fencing to be temporarily removed prior to removing any existing fence. Contractor shall supply Engineer with record survey notes of any other feature to be documented as noted on the Plans or in the Supplemental Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide materials, not specifically described but required for proper completion of the work of this SECTION, as selected by Contractor subject to the approval of Engineer.

PART 3 - EXECUTION

3.1 SITE ACCESS

- A. Contractor shall access the site as designated on the Plans and/or as discussed at the pre-bid and pre-construction meetings. Any damage that occurs outside of the designated access will be repaired and restored at no cost to Division.
- B. Site access may require improvements, which include, but are not necessarily limited to, clearing, excavation, installation of tiling or pipe, and placement of macadam stone, erosion stone, or riprap. Unless noted otherwise in the Supplemental Specifications, work needed to facilitate and maintain access to the site during construction shall be considered incidental to the cost of mobilization. The cost for placement of stabilized construction entrance is included in SECTION 02120 – SEDIMENT AND EROSION CONTROL.
- C. Contractor shall remove the site access improvements that can be removed after the project is completed unless permission has been granted to leave them in place by Engineer and Division.
- D. Prior to project acceptance by Division, Contractor shall restore access routes as discussed in Paragraph 3.10.C. Restoration of access routes may include seed bed preparation and seeding that meet requirements of SECTION 02700 -- SEEDING.

3.2 SURFACE CONDITIONS

- A. In company with Engineer, visit the site and verify the extent and location of clearing and site preparation required. Completely remove items scheduled to be removed, leaving surfaces clean, solid and ready to receive new materials specified elsewhere.
- B. All trees outside the Project Limits shown on the Plans shall remain undisturbed. All trees within the Project Limits, except as noted hereafter, shall be removed. In areas of the site where minimal grading is required, the grading plan should be adjusted slightly in favor of saving well established trees. Cooperate with Engineer to achieve this intent.

3.3 PROTECTION

- A. Contractor shall be responsible for locating and protecting all utilities prior to initiating work. If damage does occur to any existing utilities, Contractor shall restore them in a manner acceptable to the utility provider and Engineer or Construction Observer at no cost to the Division.
- B. Contractor shall protect existing vegetation as discussed below.
 - 1. Protect tops, trunks and roots of existing trees and/or shrubs, indicated or implied to remain, from damage during all operations. Box, fence around, or otherwise protect trees before adjacent work is started. Do not permit heavy equipment or stockpiles within branch spread. Trim or prune to obtain working space in lieu of complete removal whenever possible. Conform to good horticultural practices. Preserve natural shape and character. Refer to ISU Publication as referenced in 1.2.C above.

2. Damaged trees shall be repaired or replaced to the satisfaction of Engineer. Repair may include, but not be limited to, trimming, pruning and application of pruning paint. Repair shall be completed within seventy-two (72) hours of occurrence of damage. Remove existing vegetation when damage occurs and survival is doubtful.
 3. Adjacent areas to the site with established vegetation shall be protected. If access through established vegetation is required, Contractor shall coordinate his access with Engineer or Construction Observer and restore the damaged areas as directed by Engineer.
- C. Contractor shall provide protection for persons and property as discussed below.
1. Barricade open depressions and holes occurring as part of this work.
 2. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, burning of landscape waste, equipment vibration and other hazards created by operations under this SECTION.
- D. Contractor shall use means necessary to prevent dust from becoming a nuisance to the public, to neighbors and to other work being performed on or near the site.
- E. Contractor shall always maintain access to the site.
- F. When requested by Division or Engineer, Contractor shall provide access through the site on an as needed basis to the landowner when access to adjacent lands is restricted.

3.4 OFFICE AND LAY-DOWN AREA

- A. Contractor shall establish, provide and initiate use of temporary facilities described herein within thirty (30) days of the initiation of construction activities and prior to the first Progress and Pay Request Meeting. The offices and lay-down area should be in the designated location shown on plans. If no location is provided, then they can be located anywhere within the Project Limits. Locations outside the Project Limits can only be used if documented permission from landowner on whose property these facilities are to be located is provided.
- B. Contractor's Field Office
- Provide adequate space for field office personnel, suitably furnished, lighted, heated and air conditioned.
- C. Unless specifically indicated elsewhere in the Contract Documents, Contractor shall provide all heat, power, sanitary, and any other utilities or facilities required to perform the work.
- D. Contractor shall terminate use and remove facilities at earliest reasonable time when they are no longer needed. Removal of all temporary facilities is required for final acceptance of the completed project.

3.5 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) DOCUMENT STORAGE

- A. Division shall establish an electronic designated location to store the SWPPP, all associated reports and records of data used to complete the Notice of Intent.

Contractor shall have a mobile device readily available while working on the site that can access the electronic designated location.

3.6 EXISTING FENCES

- A. Any existing fences within the project limits that are indicated to remain shall be protected. If these fences are damaged, the Contractor shall repair them at no cost to Division. Fences outside of the Project Limits which interfere with construction operations shall not be relocated or dismantled until approval is obtained from Engineer or Construction Observer. In areas where existing fences outside of the Project Limits cannot be maintained due to construction operations, Contractor will be required to provide temporary fences or other means to prevent unauthorized vehicular, pedestrian or livestock access, as applicable. After work is completed in this area, a replacement fence of equal or better material type shall be installed at the same location at no additional cost to Division.
- B. Existing fences within the project limits shall be removed. If the plans indicate the fence is to be salvaged to landowner(s), fencing material shall be rolled in neat bundles and secured with salvaged posts stacked neatly and stored at a location on site to be approved by Engineer. If the landowner(s) do not want the fence salvaged to them, the fencing material becomes the property of Contractor and shall be disposed of as discussed in 3.8 below.
- C. Where existing fences are removed and subsequently replaced as a part of the work, field establish such reference points and ties as are necessary to ensure replacement fencing will follow the same alignment as the existing fencing.

3.7 CLEARING AND GRUBBING

- A. Contractor shall perform clearing and grubbing only to the extent necessary to perform excavation, grading, and other required work.
- B. Clearing includes felling and disposal of trees, brush and other vegetation. In cutting of timber growth, cuts shall be made such that all trees are felled into the area to be cleared. Exercise care when clearing near the Project Limits so as not to damage existing trees or vegetation to remain.
- C. Clearing also includes removal of all existing fencing materials as discussed in 3.6 above.
- D. Grubbing includes removal and disposal of tree stumps and roots larger than three (3) inches in diameter. Stumps and roots within three (3) feet of final (proposed) grades shall be grubbed. Backfill all excavated depressions with nearby soil or spoil material, compact to approximate density of adjacent undisturbed areas, and grade entire area to drain.
- E. In areas where the fill depth is greater than five (5) feet, undisturbed stumps and roots extending not more than six (6) inches above the original ground line and surface vegetation do not need to be removed unless they are located within the vicinity of a dam, terrace, or other structural element.

3.8 DEBRIS REMOVAL AND DISPOSAL

- A. Contractor shall remove and dispose of debris, rubbish, landscape waste and all other materials resulting from the site clearing and preparation operations by either recycling, burning, burying, off-site disposal, chipping, creating brush piles or a combination thereof. Specific requirements for various disposal techniques are discussed below.

B. Burning of Landscape Waste

1. State law requires that burning of landscape waste be limited to areas located at least one-quarter (1/4) mile from any inhabited building, unless a variance is obtained from the Iowa Department of Natural Resources or permission is obtained from all impacted residences located within one-quarter (1/4) mile of the proposed burn area.
2. Contractor shall obtain all necessary permits and comply with all regulatory agencies, including the local fire department, governing this work. The local fire department must be notified prior to any on site burning.
3. Only vegetative matter may be burned on site. Oil base materials are not allowed to be burned on site. Rubber tires cannot be used to start or maintain burning of brush.
4. No burning will be allowed on any area of the site containing coal refuse.
5. Large trees and stumps may require two (2) or more burning sequences. Tree trunks and limbs greater than three (3) inches in diameter may be sawn or cut in lengths not greater than forty-eight (48) inches and buried in lieu of burning.
6. Protection of property, trees and vegetation that are to remain, both inside and outside the Project Limits, shall always be maintained.

C. Burying Woody Debris

1. Trees, stumps, brush and the ashes from the burning of landscape waste may be buried within the project limits provided the requirements below are followed.
 - a. No burying of debris shall be completed within areas of the site which contain dams, terraces, any other structures, or where future settlement would be detrimental to the successful reclamation of the site.
 - b. Uncut trees may be placed into the muck at the bottom of dewatered ponds to provide support. The layer of trees shall be placed uniformly over the muck and shall not exceed a total thickness of five (5) feet.
 - c. All woody material to be buried that is not providing support over muck shall be broken or cut to a maximum dimension of forty-eight (48) inches and shall be spaced so normal fill material can be properly placed and compacted thereon. Mass dumping, without spreading and spacing of debris shall be prohibited. Buried woody debris shall not be allowed to accumulate greater than five (5) feet in depth and shall be covered with a minimum of five (5) feet of soil cover per foot of debris.
 - d. The top of the uppermost buried woody debris shall be at least five (5) feet below final grade.
 - e. Burial operations shall be permitted only in the presence of Engineer or Construction Observer.
2. Farm buildings may be buried provided they are emptied of any contents not authorized for burial and laid flat. Burial operations shall be permitted only in the presence of Engineer or Construction Observer.

D. Habitat Brush Piles

1. Brush piles for habitat may be used in some areas if permission is received from the landowner.
2. The location and number of brush piles shall be approved by Engineer or Construction Observer.
3. Brush piles shall not exceed fifty (50) feet in diameter and ten (10) feet in height.

E. Burial of Rocks and/or Coal Refuse: See Earthwork, Rough Grading, SECTION 02200, 3.8

F. Off-site Waste Disposal

1. Any household trash, tires, hazardous materials, etc. present at the site, whether shown on the plans or encountered during construction, shall be removed off-site to a licensed landfill or other location approved by Engineer. Weight tickets or billings are required for payment purposes.
2. Small debris and trash shall be removed by hand or with small equipment to avoid inclusion of excessive amounts of soil with the trash. If Division or Engineer or Construction Observer determines that excessive amounts of soil are included with the trash, additional hand sorting will be required.
3. Metal objects present at the site shall be salvaged where possible or taken to a licensed landfill or other approved location.
4. Special waste disposal items, such as tires, batteries, appliances or other hazardous materials, are handled separately. Contractor shall account for and dispose of these special waste disposal items as discussed in the Supplemental Specifications and/or on Plans, or as negotiated in an approved change order.

3.9 PROJECT SIGN AND JOB POSTER DISPLAY

A. Project Sign

1. The Division and any partners will provide the Contractor with the appropriate sign panels to be installed at the site.
2. Contractor shall provide the posts and necessary hardware to install the sign as shown on the plans. The sign location shall be approved by Engineer or Construction Observer prior to its installation.
3. The Division reserves the right to delay payment of the second application for payment until the project sign is in place.
4. Upon completion of all the work and final acceptance by Division, Contractor shall be responsible to remove the "Hard Hat Area" portion of the sign. This portion of the sign will be returned to the Division.

B. Job Poster Display

1. Upon beginning construction, Contractor shall install a Job Poster Display in a conspicuous location, approved by Division, which is visible to Contractor's employees and representatives of State and Federal agencies. The approved location for the Poster Display may not necessarily be in the same location as the Project Sign.
2. The Job Poster Display shall be securely fastened to a durable object against movement by wind or vandalism, but it will not be considered permanent. It will be removed from the site after completion of construction.
3. The Division shall delay payment of the second application for payment until the Job Poster Display is in place.
4. The display shall be sufficiently sized to accommodate all applicable posters required by the US Department of Labor and State of Iowa. All posters shall be provided to Contractor by Engineer at the pre-construction meeting and all posters shall be securely fastened to the display.
5. At a minimum the 11"x17" Davis-Bacon poster and the current wage determination shall be displayed. Additional posters may be required for display as directed by the Engineer or Division.
6. Weather protection: Contractor shall laminate each poster with clear plastic film or cover the entire display with suitable transparent plastic sheeting. Plexiglas™ (or equal) clear acrylic sheet will be considered preferable. The cover should make the entire display rain tight. The entire display board should be painted or sealed against moisture and deterioration.
7. Contractor shall replace all posters damaged by fading or moisture in timely fashion determined by Engineer or Division.

3.10 CLEANUP AND REPAIRS

- A. Contractor shall remove equipment, project materials and waste such as oil drippings, stones, gravel, packaging containers, etc., from the site and dispose of all waste at an approved off-site location.
- B. Contractor shall repair all areas of rill erosion with a depth greater than three (3) inches and width greater than four (4) inches, or as directed by Engineer or Construction Observer.
- C. All disturbed areas outside the Project Limits, such as access routes and lay down areas, shall be returned to their original condition by Contractor. Restoration of these areas are subject to the approval of the Engineer and/or Division.
- D. The materials, equipment and labor for cleanup and repairs are at no cost to Division.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. The construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below.
- B. The unit price for each of these items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work constructed and measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.

Measurement and payment for each work item in this SECTION shall be in accordance with the following:

- 1. *Mobilization*: Payment for the cost of mobilization and demobilization and other incidental work thereto shall be included in the lump sum price set forth for "Mobilization." The lump sum price set forth in Contractor's Proposal and Schedule of Prices (*Document C*) shall include full compensation for mobilization; for work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to and through the site; for establishment of offices, trailers and other facilities necessary for work on the project; for installing the project sign and removing a portion thereof; for having device on site to access electronic location of SWPPP while working, for demobilization and cleanup and repairs; for all other work or operations which must be performed or costs incurred when beginning or performing work on the project including bonding, insurance, obtaining permits, filing affidavits, paying fees, etc. See General Conditions (*Document N*) Item 6-01 and any permits included in an appendix to the specifications. This bid item also includes any additional work or materials needed to maintain the access route during construction.

The amount which Contractor will receive payment for, in accordance with the following schedule, will be limited to five (5) percent of the total Contract bid. Should the Contractor's bid for this item exceed five percent (5%), the amount over five (5) percent will not be paid until the Contract is finalized.

Basis of Payment: Partial payment of the lump sum amount bid for Mobilization, not exceeding five (5) percent, will be made in accordance with the following schedule:

- a. Upon Contract execution, ten (10) percent of the pay item will be paid.
- b. When five (5) percent or more of the original Contract amount is earned, an additional twenty (20) percent of the pay item will be paid.
- c. When ten (10) percent or more of the original Contract amount is earned, an additional twenty (20) percent of the pay item will be paid.
- d. When fifty (50) percent or more of the original Contract amount is earned, the remaining balance of the pay item will be paid up to a maximum of five (5) percent of the total bid.

Nothing herein shall be construed to limit or preclude partial payments for other items as provided for by the Contract.

2. *Site Clearing & Preparation:* The unit price for this work item, as shown in Contractor's Proposal, shall include full payment to Contractor for all clearing, site preparation, debris removal and disposal, fence removal, collecting and sorting special items like tires, and other work incidental thereto as required to complete the Project in accordance with requirements of the Contract Documents. This work shall be completed within all areas disturbed by construction operations and limited to the total area enclosed by the "Project Limit" lines shown on the Plans. Partial payments will be made based upon the estimated number of acres cleared or the percentage of clearing that is completed at the time of the pay request.
3. *Off-site Waste Disposal:* The unit price for this work item as shown in Contractor's Proposal, shall include full payment to Contractor for all work necessary to collect, load, transport, landfill fees and other work incidental thereto as required to complete the project in accordance with the requirements of the Contract Documents. The waste materials will be measured on the loaded ton as determined from weight tickets. The total estimated quantity for this work item includes only the household trash from the locations noted.

Special waste disposal items such as tires, batteries, appliances, or hazardous waste, will be paid for separately as discussed in the Supplemental Specifications and/or on Plans. If unanticipated special waste disposal items are discovered during construction, they will be addressed with a change order.

4.2 SUMMARY – UNITS OF MEASUREMENT

Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Mobilization	Lump Sum
Site Clearing and Preparation	Acre
Off-site Waste Disposal	Ton
Special Waste Disposal	Per Ticket

END OF SECTION 02100

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SECTION 02120 – SEDIMENT AND EROSION CONTROL

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PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included

Work under this SECTION covers requirements for materials, tools, equipment and services necessary to install sediment and erosion control practices for this project. Practices may be declared permanent or temporary as shown on the plans or as directed by Engineer or Division. The work shall include, but is not necessarily limited to, completion of the following work:

1. Installation of sediment and erosion control practices.
2. Repairs or replacement of said sediment and erosion control practices.
3. Removal of said temporary sediment and erosion control practices not less than ninety (90) days and not later than six (6) months following a documented show of green vegetation on the site.
4. Assistance with SWPPP inspections and documentation upon request of Division

B. Construction sites where one (1) acre or more of land is disturbed or made bare are regulated by the National Pollutant Discharge Elimination System (NPDES) program. The purpose of these regulations is to reduce pollution to the nation's waterways. Coverage under the NPDES program for construction sites is obtained from the Iowa Department of Natural Resources (IDNR) through General Permit No. 2. The Division has submitted the permit application, the Engineer has developed the Storm Water Pollution Prevention Plan (SWPPP), and the Contractor is responsible for implementing the plan.

C. The SWPPP prepared by Engineer is included in the Plans. Contractor shall follow this plan unless modifications are made by Engineer or Division during the course of construction. Contractor shall be responsible for any damages that arise due to failure of Contractor to properly implement the erosion control plan. Division shall maintain the record copy of the SWPPP, including modifications or changes and inspection reports. Portions of the record documents will be provided by Engineer. Contractor shall assist as requested with SWPPP documentation.

1.2 REFERENCE SPECIFICATIONS

A. The following specifications are incorporated by reference:

1. Iowa Department of Transportation (IDOT) Standard Specifications 4130.03, 4130.04 and 4130.05
2. Statewide Urban Design and Specifications (SUDAS)
3. Natural Resource Conservation Service (NRCS) IA-95
4. Erosion Control Technology Council (ECTC) Standards
5. Test Method for the Examination of Composting and Compost (TMECC)
3. SECTION 02400 – SUBGRADE PREPARATION
4. SECTION 02700 – PERMANENT SEEDING

B. Should the above-mentioned sections not appear printed with the Contract Documents, they shall be made available upon request.

1.3 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.

- B. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directives of Engineer and Division. Engineer or Division may request additional control methods to be implemented by Contractor.
- C. The SWPPP design prepared by the Engineer will be implemented by the Contractor. Modifications, repairs or replacement of erosion and sediment control measures and practices will be implemented by the Contractor as soon as practical.
- D. In the event of conflict between the SWPPP and the requirements with water pollution control laws, rules and regulations of other federal, state, and local agencies, the more restrictive laws, rules, or regulations will apply.

1.4 JOB CONDITIONS

- A. Abandoned mine land sites typically do not contain very good if any vegetative cover material and are highly susceptible to erosion. Contractor shall take care while grading the site to reduce the amount of sedimentation.
- B. Wetlands, ponds, and streams are often located within and adjacent to abandoned mine land sites. Extra care shall be exercised to protect these features from sedimentation where these features are to remain in place.
- C. Contractor shall protect all existing underground utilities, including any private tiles.

1.5 SUBMITTALS

- A. Contractor shall be a co-permittee with Division for the IDNR NPDES General Permit No. 2 for this site. The Division is responsible for permit fees, public notice, and permit submittal.
- B. The Contractor and any subcontractors that will perform grading, structural installation, and seeding shall sign the SWPPP Contractor Certification Statements as prepared by the Engineer.
- C. A physical hardcopy of a SWPPP documentation booklet is NOT required on site. An electronic copy of the SWPPP documentation booklet shall be developed by the Engineer and submitted to the Division. Division, with cooperation from Engineer and Contractor, will maintain SWPPP documentation for the duration of the project.
- D. One (1) scanned electronic copy of each signed Contractor certification statement shall be kept with the official SWPPP documentation booklet developed by Engineer. One (1) electronic copy of the SWPPP documentation booklet will be maintained by Division.
- E. Engineer shall submit to Division an electronic copy of a sketch or marked up drawing showing locations of sediment and erosion control practices that satisfy the objectives of the SWPPP. Upon request of the Division, Engineer shall submit electronic copies of updated drawings as necessary that document any changes to practices required by the SWPPP.
- F. Contractor shall provide any necessary information requested by Engineer or Division required for maintenance of the SWPPP documentation.
- G. Weekly SWPPP inspection reports will be developed by Division personnel. Electronic copies will be submitted to the Engineer and Contractor. Dates of observed deficiencies and dates of subsequent corrections to deficiencies shall be noted on the reports.

- H. Contractor shall submit to Engineer and Construction Observer documentation that various materials used for erosion and sediment control practices meet the requirements of the specifications.

1.6 SCHEDULING

- A. Contractor shall sequence his work to minimize erosion of the site and implement the sediment and erosion control measures as outlined in the SWPPP. No grading work will be allowed until the appropriate control measures are in place.
- B. When rain events cause necessary repairs or replacement to sediment and erosion control practices as determined by the inspection completed by Engineer or Division, Contractor shall implement the requested work as soon as practically possible.

PART 2 - PRODUCTS

2.1 QUARRIED STONE MATERIALS

- A. Macadam Stone: Macadam Stone shall conform to IDOT Section 4122, Gradation 13,
- B. Erosion Stone: Erosion stone shall be quarried limestone and shall consist of a nominal six (6) inch mixture by visual examination. Stone shall meet the specifications of IDOT Sections 4130.03, 4130.04 and 4130.05 Erosion Stone gradation.
- C. Riprap:
 - 1. Riprap shall be quarried limestone, sound, durable, and angular or blocky in shape. No more than ten (10) percent of the stone shall have an elongation greater than 3:1. No stone shall have an elongation greater than 4:1. Riprap shall be well-graded material meeting the specifications of IDOT Sections 4130.01 and 4130.02, Class E Revetment for Non-primary projects.
 - 2. The stone shall be free from cracks, seams, or other defects that would tend to increase its deterioration from natural causes. The material shall contain a combined total of not more than five (5) percent by weight of earth, sand, shale, and non-durable rock.
 - 3. Engineer or Division shall inspect the riprap at the quarry prior to initial loading and may do so periodically throughout material delivery. After visual inspection, Engineer may designate material as too fine or too coarse and may require material to be loaded from another area. If material changes occur as the material is delivered to the project site, Engineer has the authority to require removal of the objectionable material and replacement with suitable riprap at no cost to Division.

2.2 EROSION CONTROL MULCH

- A. Conventional Mulch - Materials shall consist of wheat, oats, rye, hay, grass cut from native grasses or other plants approved in writing by Division, that is of air-dry straw that has been properly cured and harvested. Mulch harvested after a killing frost or during dormant periods will not be acceptable. Mulch shall not be rotted, brittle, moldy, caked or otherwise degraded. Mulch shall generally be free of noxious weeds as published by the local County Weed Commissioner.
- B. Other types of mulch, including as hydro-mulch meeting SUDAS 9010, 2.07, may also be used subject to the approval of Engineer.

2.3. COMPOST BLANKETS

- A. Compost used for blankets shall be derived from a well-decomposed source of organic matter, produced using an aerobic composting process meeting Code of Federal Regulations (CFR) 503 for time, temperature and heavy metal concentrations. The compost shall have no visible admixture of refuse or other physical contaminants nor any material toxic to plant growth. The compost shall be certified by the U.S. Composting Council's Seal of Testing Assurance (STA) program and conform to the chemical, physical, and biological parameters of AASHTO MP 10-03, with the following additional requirements:
1. Follow U.S. Composting Council's TMECC guidelines for all testing.
 2. Organic Matter Content: 30% minimum.
 3. pH: between 6.0 and 8.0.
 4. Maturity (growth screening): Minimum 90% emergence for all compost to be vegetated.
 5. Particle size shall follow that shown in Table 02120-01:

Table 02120-01: Particle sizes for Compost Blankets

Sieve Size	Percent Passing*
2"	100
1"	90-100
3/4"	65-100
3/8"	0-75
*6 inch maximum particle length.	

- B. A biodegradable, organic binding agent or polyacrylamide can be mixed or injected into the compost as it is placed, provided it is not detrimental to the establishment of vegetation. The binding agent shall be applied at the rate recommended by the manufacturer.

2.4. SILT FENCES

- A. Fabric used for silt fences shall meet the requirements of IDOT 4196.01.
- B. Posts used for silt fences shall be steel T-posts with a minimum length of four (4) feet weighing at least one one-quarter (1 1/4) pounds per foot, exclusive of the anchor plate. Painted posts are not required.
- C. Wire or plastic ties with a minimum tensile strength of fifty (50) pounds shall be used for fasteners.

2.5. CHECK DAMS

- A. Check dams using silt fence shall comply with details of 2.4 above.
- B. Check dams using Rolled Erosion Control Products (RECP) shall be Type 4 with a minimum four (4) foot width and shall comply with details of 2.8 below.
- C. Triangular foam check dams shall have a height of eight (8) to ten (10) inches with a base width of sixteen (16) to twenty (20) inches and a length of seven (7) feet. The inner support material shall be

urethane foam and the outer cover shall be woven geotextile shaped to fit around the inner support material with the bottom edge extending two (2) to three (3) feet beyond the bottom edge.

- C. Filter fabric used for fabric checks shall consist of non-woven geotextile material and can be either heat-bonded or resin bonded and shall satisfy the material properties shown on Table 02120-02.

Table 02120-02: Properties of Non-Woven Geotextiles for Fabric Check Dams (from NRCS IA-95)

Property	Test Method	Class 1	Class 2	Class 3	Class 4 ³
Tensile strength (Lb.) ¹	ASTM D 4632 grab test	180 minimum	120 minimum	90 minimum	115 minimum
Elongation at failure (%) ¹	ASTM D 4632	> 50	> 50	> 50	> 50
Puncture (Lb.)	ASTM D 4833	80 minimum	60 minimum	40 minimum	40 minimum
Ultraviolet light (% residual tensile strength)	ASTM D 4355 150-hr exposure	70 minimum	70 minimum	70 minimum	70 minimum
Apparent opening size – AOS	ASTM D 4751	As specified max. #40 ²	As specified max. #40 ²	As specified max. #40 ²	As specified max. #40 ²
Permittivity sec ⁻¹	ASTM D 4491	0.70 minimum	0.70 minimum	0.70 minimum	0.10 minimum

¹ Minimum average roll value (weakest principal direction).

² U.S. standard sieve size.

³ Heat-bonded or resin bonded geotextile may be used for classes 3 and 4. They are particularly well suited to class 4. Needle punched geotextiles are required for all other classes.

- D. Rock check dams shall be composed of either Erosion Stone conforming to IDOT 4130, Gradation No. 34 or Riprap (revetment) conforming to IDOT 4130.02. All rock check dams shall be encapsulated in engineering fabric meeting the requirements of IDOT 4196.01C, unless noted otherwise.

2.6. EARTHEN DIVERSION BERMS AND FILTER BERMS

A. Earthen Diversion Berms

- Where specified by Engineer, earthen diversion berms may be used to divert surface runoff and trap eroded sediment. The location and dimensions of these berms shall be as agreed upon by the Engineer and Contractor.
- The earthen berm shall be constructed from on-site material in the immediate vicinity and shall be compacted as needed to provide stability. No benching or undercutting is required for temporary berms, which will be removed after general grading is completed.
- Should an Earthen Diversion Berm be considered permanent, its permanency should be indicated on the plan or its dimensions built directly into the grading plan.

B. Filter Berms

- Materials used for filter berms shall be derived from wood, bark, or other non-toxic vegetative feed stock. The material shall not contain any material that is toxic to plant growth. The target flow rate of the in-place material is ten (10) gallons per minute per linear foot. The material shall meet the particle sizes shown on Table 02120-3

Table 02120-03: Particle Sizes for Filter Sock or Filter Berm Filler

Sieve Size	Percent Passing
2 inch	100
1 inch	90-100
3/8 inch	0-30

2. Where specified by Engineer, filter berms of relatively short length may be constructed from a combination of macadam stone, erosion stone and/or riprap to function as a surface outlet for Earthen diversion berms.

2.7. WATTLES AND FILTER SOCKS

A. Wattles

1. Netting for wattles shall be degradable with an open weave having a nominal diameter of nine (9) inches or as specified.
2. Fill material shall consist of straw, wood excelsior, coir or other natural materials approved by Engineer.
3. Stakes to secure wattles shall be one (1) inch by one (1) inch wooden stakes or stakes of equivalent strength.

B. Filter Socks

1. Materials used for filter socks shall be derived from wood, bark or other non-toxic vegetative feed stock. The material shall not contain any material that is toxic to plant growth. The target flow rate of the in-place material is ten (10) gallons per minute per linear foot. The material shall meet the particle sizes shown on Table 02120-3
2. Where required for slope and sediment control applications, the filter sock shall consist of a continuous, tubular, knitted, mesh netting with three-eighth (3/8) inch openings constructed of five (5) millimeter thickness and photodegradable high-density polyethylene (HDPE).
3. Stakes to secure filter socks shall be by one (1) inch by two (2) inch hard wood stakes or stakes of equivalent strength.

2.8. Temporary Rolled Erosion Control Products (RECP)

Use temporary rolled erosion control products that are classified and have material properties according to the Erosion Control Technology Council's (ECTC) guidelines as follows:

A. RECP Type 1 (Ultra Short-Term): Functional longevity of three (3) months or less and classified as follows:

1. RECP Type 1A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.
2. RECP Type 1B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.

3. RECP Type 1C: Single-net erosion control blankets and open weave textiles, consisting of processed degradable natural and/or polymer fibers, mechanically bound together by a single rapidly-degrading, synthetic or natural fiber netting, or an open weave textile of processed rapidly-degrading natural or polymer yarns or twines woven into a continuous matrix.
 4. RECP Type 1D: Double-net erosion control blankets, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two (2) rapidly-degrading, synthetic or natural fiber nettings.
- B. RECP Type 2 (Short-Term): Functional longevity between three (3) and twelve (12) months and classified as follows:
1. RECP Type 2A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.
 2. RECP Type 2B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.
 3. RECP Type 2C: Single-net erosion control blankets and open weave textiles, consisting of an erosion control blanket composed of processed degradable natural or polymer fibers, mechanically bound together by a single degradable synthetic or natural fiber netting to form a continuous matrix or an open weave textile composed of processed degradable natural or polymer yarns or twines woven into a continuous matrix.
 4. RECP Type 2D: Double-net erosion control blanket, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two degradable synthetic or natural fiber nettings.
- C. RECP Type 3 (Extended Term): Functional longevity between twelve (12) and twenty-four (24) months and classified as follows:
1. RECP Type 3A: Mulch control nets, consisting of a slow-degrading synthetic mesh or woven natural fiber netting.
 2. RECP Type 3B: Erosion control blankets and open weave textiles, consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two (2) slow-degrading synthetic or natural fiber nettings to form a continuous matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.
- D. RECP Type 4 (Long Term): Functional longevity of thirty-six (36) months and classified as follows:
- Erosion control blankets and open weave textiles consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two (2) slow degrading synthetic or natural fiber nettings to form a continuous matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.
- E. Properties and Performance:
- Testing performed according to the ECTC's Testing Procedures for Rolled Erosion Control Products. Verify manufacturer's test results by independent testing. Material properties meeting the Erosion Control Technology Council's (ECTC) Standard Specifications for Rolled Erosion Control Products are shown on Table 02120-04:

Table 02120-04: Properties for Rolled Erosion Control Products

Classification	Slope Application	Channel Application	Min. Tensile Strength
	Max. Grade*	Permissible Shear Stress	
RECP Type 1A	5:1 (H:V)	0.25 lb/ft ²	5 lb/ft
RECP Type 1B	4:1 (H:V)	0.50 lb/ft ²	5 lb/ft
RECP Type 1C	3:1 (H:V)	1.50 lb/ft ²	50 lb/ft
RECP Type 1D	2:1 (H:V)	1.75 lb/ft ²	75 lb/ft
RECP Type 2A	5:1 (H:V)	0.25 lb/ft ²	5 lb/ft
RECP Type 2B	4:1 (H:V)	0.50 lb/ft ²	5 lb/ft
RECP Type 2C	3:1 (H:V)	1.50 lb/ft ²	50 lb/ft
RECP Type 2D	2:1 (H:V)	1.75 lb/ft ²	75 lb/ft
RECP Type 3A	5:1 (H:V)	0.25 lb/ft ²	25 lb/ft
RECP Type 3B	1.5:1 (H:V)	2.00 lb/ft ²	100 lb/ft
RECP Type 4	1:1 (H:V)	2.25 lb/ft ²	125 lb/ft
*Product tested according to ECTC Test Method No. 2 and meeting the ECTC Standard Specifications for "C" factor.			

- F. RECP Anchors shall be non-metallic stakes or staples as recommended by manufacturer, with a minimum length of six (6) inches.

2.9. TURF REINFORCING MATS (TRM)

- A. TRM Type 1: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, or monofilaments fibers that are entangled to form a strong and dimensionally stable mat. Bonding methods include polymer welding, thermal or polymer fusion or the placement of synthetic fibers between two high-strength, biaxially-oriented nets, mechanically bound by parallel stitching with polyolefin thread. Products may contain a degradable component.
- B. TRM Type 2 and 3: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, monofilaments or fibers that are entangled or woven to form a strong and dimensionally stable mat. Non-woven bonding methods include polymer welding, thermal or polymer fusion, or the placement of fibers between two (2) high-strength, biaxially oriented nets, mechanically bound by parallel stitching with polyolefin thread. Use only components that are one hundred (100) percent synthetic and resistant to biological, chemical and ultraviolet degradation.
- C. TRM Type 4: Use a high performance/survivability TRM that is composed of monofilament yarns woven into a resilient uniform configuration. Use a mat that has a matrix that exhibits very high interlock and reinforcement capacities with both soil and root systems and demonstrate a high tensile modulus. TRMs manufactured from discontinuous or loosely held together by stitched or glued, netting, or composites are not allowed in this category. Use only components that are one hundred (100) percent synthetic and resistant to biological, chemical and ultraviolet degradation. Use this category when field conditions exist with high loading and/or high survivability requirements. These requirements consist of maintenance,

structural backfills protecting critical structures, potential traffic areas, abrasion, higher factors of safety and/or general durability concerns.

- D. TRMs shall meet the minimum material and performance requirements contained in the Table 02120-05:

Table 02120-05: Properties for Turf Reinforcing Mats

	Property ¹	Test Method	Type 1	Type 2	Type 3	Type 4
Material	Thickness	ASTM D6525	0.25 in	0.25 in	0.25 in	0.25 in
	Tensile Strength ²	ASTM D6818	125 lb/ft	240 lb/ft	750 lb/ft	3,000 lb/ft
	UV Resistance ³	ASTM D4355	80% @ 500 hrs	80% @ 1,000 hrs	80% @ 1,000 hrs	90% @ 3,000 hrs
Performance	Maximum Shear Stress (Channel Applications) ⁴	ASTM D4640	7 lb/ft ²	10 lb/ft ²	12 lb/ft ²	15 lb/ft ²
	Maximum Slope Gradient (Slope Applications)	N/A	1:1 (H:V) or flatter	1:1 (H:V) or flatter	1:1 (H:V) or greater	1:1 (H:V) or greater

1. For TRMs containing degradable components, all values must be obtained on the non-degradable portion of the matting.
2. Minimum Average Roll Values, machine direction only. Tensile strength from ASTM D5035 may be substituted upon approval.
3. Tensile strength of structural components retained after exposure.
4. Minimum shear stress that fully-vegetated TRM can sustain without physical damage or excess erosion (0.5 in soil loss) during a 30-minute flow event in large scale testing. Acceptable large scale testing protocol includes ASTM D6460 or independent testing conducted by the Texas Transportation Institute, Colorado State University, Utah State University, or other approved testing facility. Bench scale testing is not acceptable.

2.10 TIED CONCRETE BLOCK MAT (TCBM)

- A. Tied concrete block mats shall be manufactured from individual concrete blocks cast into and tied together with a high-strength polypropylene geogrid. Each block shall be tapered, beveled and interlocked. Each block shall incorporate interlocking surfaces or connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.
- B. Physical Properties of Components
1. Polypropylene Geogrid used in the fabrication of the Tied Concrete Block Mat will be selected by the mat manufacturer. The selected geogrid must satisfy the minimum requirements of Table 02120-06, below.

Table 02120-06: Physical Characteristics of Geogrid for Tied Concrete Block Mat

Mass/Unit Area:	ASTM D-5261, 7.0 oz./yd ² (240 g/m ²)
Aperture Size Measured:	1.6 inch x 1.6 inch (40 mm x 40 mm)
Wide Width Tensile Strength:	ASTM D-6637 Machine Direction (MD), 2055 lb/ft (30 kN/m) Cross Machine Direction (CMD), 2055 lb/ft (30 kN/m) Elongation at Break, 6%
Tensile Strength @ 2%	ASTM D-6637 Machine Direction (MD), 822 lb/ft (12 kN/m) Cross Machine Direction (CMD), 822 lb/ft (12 kN/m)

Table 02120-06: Physical Characteristics of Geogrid for Tied Concrete Block Mat (Continued)

Tensile Strength @ 5%	ASTM D-6637 Machine Direction (MD), 1640 lb/ft (24 kN/m) Cross Machine Direction (CMD), 1640 lb/ft (24 kN/m)
Tensile Modulus @ 2%	ASTM D-6637 Machine Direction (MD), 41,100 lb/ft 600 kN/m Cross Machine Direction (CMD), 41,100 lb/ft 600 kN/m
Tensile Modulus @ 5%	ASTM D-6637, Machine Direction (MD), 32900 lb/ft (480 kN/m)

2. Cementitious Materials used to craft the concrete blocks shall conform to the following applicable ASTM specifications:
 - a. Portland Cements – Specification C 150, for Portland Cement
 - b. Blended Cements – Specification C 595, for Blended Hydraulic Cements
 - c. Hydrated Lime Types – Specification C 207, for Hydrated Lime Types
 - d. Pozzolans Specification C 618, for Fly Ash and Raw or Calcined Natural Pozzolans for use in Portland Cement Concrete

3. Aggregates used in the fabrication of the concrete block units shall conform to the following ASTM specifications, except that the aggregate gradation requirements shall not necessarily apply:

Normal Weight – Specification C 33, for Aggregates

4. Concrete block units, as cast, shall satisfy the requirements shown in Table 02120-07.

Table 02120-07: Physical Properties of Concrete Blocks for Tied Concrete Block Mat

	Min. Compressive Strength, psi (mPa)	Max. Water Absorption, lb/ft ³ (kg/m ³)
Individual Block	3500 (24)	12 (192)
Avg. of 3 Blocks	4000 (27.6)	10 (160)

5. Open Area: The Tied Concrete Block Mat shall have a minimum open area of ten (10) percent.
6. Chemical Resistance: The Tied Concrete Block Mat shall exhibit resistance to mild concentrations of acids, alkalis and solvents.
7. Backing: Tied Concrete Block Mat shall be packaged and shipped with a permanent Turf Reinforcement Mat (TRM) that shall provide for simultaneous placement with Tied Concrete Block Mat as it is unrolled. The TRM shall be Type 1 as described in 2.9 of this SECTION. The TRM shall also have a minimum forty (40) percent light penetration and a material density not greater than eight ounces per square yard (8.0 oz/yd²) as measured by ASTM D6566. Thicker or denser TRMs shall not be acceptable. Recyclex® TRM, or approved equal, will be an acceptable product for this application
8. Dimensions:
 - a. Roll Width: To facilitate shipping, Tied Concrete Block Mat should be packaged and shipped in widths specified on the plans. Manufactured widths do not exceed sixteen (16) feet.
 - b. Roll length: The length of rolls for tied block mat is indicated on the plan, but the roll length may be modified to custom lengths subject to engineer approval. Shop drawings shall be provided which illustrate how custom roll lengths will be properly installed to satisfy the requirements shown on the drawings. Cutting and splicing of rolls shall not be allowed except where pre-approved by Engineer. Total roll length

provided should be sufficient to allow for appropriate amounts of overlap at transverse seams, as recommended by the manufacturer.

- C. Stainless Steel Zip Ties: Stainless Steel Zip Ties (*hereafter "ties" for this SECTION*) shall be nominally twenty (20) inches long x five sixteenths (5/16) inch wide. Tie material shall be 304 Stainless Steel. Each tie shall have a minimum tensile strength of two hundred fifty (250) Lb. A sufficient number of ties shall be supplied so that one tie may be installed between every two (2) blocks along the seams of adjoining Tied Concrete Block Mats.
- D. Anchors to Secure the Mat:
1. Rebar "U" Rebar Anchors (*hereinafter "U-Anchors" for this SECTION*) may be used for either longitudinal or transverse seams depending upon the application subject to Engineer approval. Consult plan details or manufacturer's recommendations for acceptable use and spacing. Each U-Anchor shall be bent into the shape of a long slender "U" and made from #3 Grade 40 steel re-bar. The diameter of the bend shall be approximately three (3) inches. Each leg of the rebar staple shall be at least eighteen (18) inches in length exclusive of the bend. Some applications may require rebar staples to be epoxy coated to improve corrosion resistance. Consult Engineer or Supplemental Specifications for coating requirements. U-Anchors shall be installed perpendicular to the flow of water.
 2. Percussion (or duck bill) Earth Anchors: (*hereafter "percussion anchors" for this SECTION*) are used to secure tied block mat to the soil surface. Each anchor shall include a stainless steel cable having minimum dimensions of one-eighth (1/8) inch diameter x thirty (30) inches long. The duckbill fastened to one end of the cable is four three fourths (4 ¾) inches long x one (1) inch diameter made of tinz alloy aluminum alloy that will not corrode or rust. Each anchor shall provide a holding capacity of one thousand one hundred (1,100) lbs. in normal soil. A driving rod is required to drive the anchor assembly vertically into undisturbed soil to the required depth. After the duckbill is driven into the soil, an upward pull on anchor rotates the duckbill into a load-lock position approximately fifteen (15) degrees from horizontal. Further tension causes anchor to plane sideways through undisturbed soil, increasing pullout resistance. Percussion anchors shall require no rods, stakes, pipes, or stems to be left above ground except for a sufficient length of cable for re-tensioning
- E. Visual Inspection: All units shall be sound and free of defects that would interfere with the proper placing of the unit or impair the strength or permanence of the construction. Surface cracks incidental to the usual methods of manufacture, or surface chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.
- F. Sampling and Testing: The purchaser or his authorized representative shall inspect the units upon delivery. Units missing more than four (4) blocks per eighty (80) square feet section shall be deemed grounds for rejection.
- G. Packaging: Tied concrete block mats are packaged in rolls with high strength lifting straps for moving material into place with an excavator. Contractor shall use spreader bars as necessary to adequately support rolls while lifting.
- H. Manufacturer: A manufacturer of the Tied Concrete Block Mat is Motz Enterprise, which markets the product under the name, "Flexamat". The manufacturer's contact information is as follows:
- Motz Enterprise, 11006 Reading Road, Cincinnati, OH 45241
Phone: 513-772-MOTZ (513-772-6689)*
- I. Engineer approved equivalents to the Flexamat product shall be acceptable.

2.11. SEDIMENT BASIN OUTLET STRUCTURES

The base, riser, and outlet pipe shall conform to the details as shown on the plans. The riser shall include an anti-vortex device and the outlet pipe shall include anti-seep collars as shown.

2.12. STABILIZED CONSTRUCTION ENTRANCE

Macadam crushed stone where construction entrance adjoins a publicly used road. Refer to SWPPP for location and dimensions.

PART 3 - EXECUTION

3.1 SWPPP PREPARATION

- A. The Erosion Control Plan for this project prepared by Engineer has been included in the Plans. The completed SWPPP will be provided to Contractor prior to initiation of construction and will be based on the Erosion Control Plan.
- B. Contractor shall be co-permittee with Division on the IDNR NPDES General Permit No. 2 that shall be completed by Division.

3.2 SWPPP MANAGEMENT

- A. Contractor shall maintain access to the site at all times during construction so that SWPPP management and inspections may be conducted.
- B. A SWPPP inspection must be conducted at least once every seven (7) calendar days. Division personnel will conduct the inspections, develop the reports, and distribute electronic copies. Contractor shall be available, upon request of the Division, to assist with the inspections as may be necessary. Inspections and reports are required at the specified interval from initiation of clearing until the Notice of Discontinuation is filed with the Iowa DNR.
- C. During construction, Contractor shall be responsible for implementation of the various sediment and erosion control practices prescribed in the SWPPP. At each progress meeting, the SWPPP practices shall be reviewed for compliance. Deficiencies shall be corrected prior to approval of payment for those measures. Division reserves the right to suspend all payments due to Contractor until deficiencies are corrected.
- D. Contractor shall properly manage all hazardous materials (i.e. fuel, oil, concrete wash out, etc.) brought to the site to conform to the SWPPP all at his own expense.
- E. Contractor may propose alternative measures than those specified by Engineer but shall receive approval from Division or Engineer prior to installation of these alternative measures. All changes and modifications must be documented and kept with the SWPPP documentation.
- F. Division will file the Notice of Discontinuation after final sufficient vegetation is established to provide final stabilization.
- G. Division will maintain SWPPP records for a period of three (3) years after the Notice of Discontinuation is submitted.

3.3 INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES

A. Surface Roughening

1. Directional Tracking: Operate tracked equipment up and down slopes that are less steep than three to one (3:1) horizontal to vertical (H:V) to create ridges that are perpendicular to the slope.
2. Grooving/Furrowing: Use rippers, disks, harrows, chisel plows, or other equipment capable of operating on the slope to create grooves that are about three (3) inches deep and spaced a maximum of fifteen (15) inches apart. Grooves must be made along the contour and perpendicular to the slope. Surface roughening is often accomplished by deep disking associated with subgrade preparation as discussed in SECTION 02400.

B. Erosion Control Mulching

1. Conventional: Uniformly distribute mulch over the required area at a rate of two (2) tons per acre and work the mulch into the soil with a mulch tucker designed to anchor the mulch into soil by means of dull blades or disks.
2. Other types of mulching, if approved by Engineer, will be at the determined rates of application with appropriate equipment.

C. Compost Blankets

1. Loosen the ground to a minimum depth of one (1) inch and evenly apply the compost to the specified depth.
2. All concentrated flows shall be diverted away from the slope.
3. No heavy equipment shall be operated over the compost blanket throughout the required period of protection.

D. Temporary Erosion Control Seeding

1. Till soil to a minimum depth of five (5) inches with a disk, harrow, or field cultivator.
2. Apply Nitrogen (N) fertilizer to all seeded areas at a rate of fifty (50) pounds per acre.
3. On areas accessible to field machinery, sow seed with an end-gate cyclone seeder. Areas that are not accessible shall use hand-operated cyclone seeding methods.
4. Cover the seed and fertilizer lightly by tiling the seeded area with a disk, rigid harrow, spring tooth harrow or field cultivator.

E. Temporary Earth Diversion Structures

1. Construct the temporary earth diversion structure at the location and with the dimensions shown on the plans or as agreed to on site with Engineer. Adequately compact fill to prevent failures and seepage. Failures due to inadequate compaction shall be repaired by Contractor at no cost to Division.
2. Ensure positive drainage along the diversion ditch to the designated outlet area.

3. Apply temporary erosion control seeding if structures are specified to be vegetated.

F. Silt Fences

1. Install silt fences along the specified contour and to the dimension shown on the erosion control plan or as directed by Engineer. The ends of continuous run silt fences shall be turned uphill with a J-hook to prevent runoff from flowing around the end when the water behind the fence ponds to a level even with the top of the fence.
2. Install silt fence fabric with a mechanical soil slicing machine that creates a slit in the ground while simultaneously installing the fabric. The trenching method may be used when the slicing method cannot be used and is subject to approval by Engineer. The silt fence fabric shall be installed such that twelve (12) inches is installed at least six (6) inches below the ground line (folding is allowed). After the fabric is installed, the ground shall be compacted on each side by driving over the area with rubber-tired equipment or by other means as necessary to adequately anchor the material in the ground to prevent pullout and water flow under the fence.
3. Steel post supports shall be placed at a maximum spacing of eight (8) feet or as directed by an Engineer. The steel posts shall be installed with a minimum embedment depth of twenty (20) inches. Fabric shall be tied to the steel posts at least four (4) evenly spaced locations using metal ties or plastic ties that have ultraviolet protection.
4. Non-functioning silt fences that allow flow underneath or that are damaged due to improper installation shall be repaired or replaced by Contractor at no cost to Division.
5. Silt fences shall be cleaned out when the accumulated sediment reaches a level of one-half (1/2) the height of the silt fence or when the silt fence becomes clogged with sediment and no longer allows runoff to flow through. Silt fences shall be replaced when necessary.
6. Silt fences shall be removed after vegetation is established by removing the steel posts, stakes, ties and fabric from the site or burying material in an approved location and manner. The accumulated sediment shall be spread and distributed in surrounding areas and smoothed to match finished grade and to ensure proper drainage.

G. Check Dams

1. Install fabric and silt fence check dams as shown on the plans or as recommended by the manufacturer.
2. Fabric check dams shall be installed so that eighteen (18) inches are placed in a trench on the upstream side of its intended location. Material excavated from trench shall be replaced and compacted to hold the fabric check in place. The remaining eighteen (18) inches shall be placed loosely on the surface facing downstream.
3. Silt Fence check dams shall be installed as described in 3.3 F. above. Use adequate number of posts for support. Care shall be taken so the center of check dam is at least twelve (12) inches lower than the ends.
4. Install rock check dams following details provided on the plans. Use riprap, erosion stone, macadam stone or approved combination thereof. Choke voids with smaller stone or site soils as specified. The center shall be at least twelve (12) inches lower than the ends. The ends of the rock check dams shall be sufficiently keyed into the sides of the drainageway. Depending upon the application, rock check dams may be considered either permanent or temporary.

5. Clean out check dams as directed by Engineer when they become non-functioning by sediment accumulation.
6. Remove any temporary check dams as directed by Engineer after site is stabilized. All accumulated sediment and disturbed areas shall be regraded and spread as needed to match finished grade and ensure proper drainage.

H. Filter Berms

1. Filter berms shall be constructed to the dimensions and along the contour as shown on the plans or as directed by Engineer.
2. The ends of filter berms shall be turned uphill to prevent runoff from flowing around the ends.
3. Apply temporary erosion control evenly to the surface if the berm is specified to be vegetated.
4. Filter berm shall be cleaned out when sediment accumulation reaches one-half of the height of the berm or as directed by Engineer.

I. Filter Socks

1. Filter socks shall be filled with the appropriate filter material pneumatically to the size and length indicated on the plans or as directed by Engineer.
2. Filter socks shall be placed along the contour as indicated on the plans or as directed by Engineer. The ends of each filter sock shall be turned uphill to create a J-hook to prevent runoff from flowing around the ends when water ponds up to a level even with the top of the sock.
3. Filter socks shall be embedded into the soil surface at least one (1) inch and/or additional filter material or soil shall be placed on the uphill side of the filter sock between the filter sock and the ground as directed by Engineer
4. Drive support stakes into the ground on the downhill side of the filter socks at a maximum spacing of six (6) feet. Place additional stakes as needed to secure the sock and prevent movement.
5. Non-functioning filter socks that allow flow underneath or socks that are damaged due to improper installation shall be repaired or replaced by Contractor at no cost to Division.
6. Filter socks shall be cleaned out when the accumulated sediment reaches a level of one-half (1/2) the height of the sock or when the sock becomes clogged with sediment and no longer allows runoff to flow through.
7. Filter socks shall be removed at the appropriate time by slicing the sock longitudinally and removing the mesh and staking materials. The filter material and accumulated sediment shall be spread to match finished grade and ensure proper drainage.

J. Wattles

1. Construct a shallow trench that is two (2) to four (4) inches deep that matches the width and the contour of the wattle. Place the wattle and compact excavated soil against the wattle on the uphill side.

2. Drive stakes through the center of the wattle at a maximum spacing of four (4) feet and as needed to secure the wattle and prevent movement. Extra staking is needed at butted ends to prevent leakage. Do not overlap wattles vertically. Horizontal overlaps may be acceptable with Engineer approval.
3. Non-functioning wattles that allow flow underneath or wattles that are damaged due to improper installation shall be repaired or replaced by Contractor at no cost to Division.
4. Wattles shall be cleaned out when the accumulated sediment reaches a level of one-half (1/2) the height of the wattle or when the wattle becomes clogged with sediment and no longer allows runoff to flow through.
5. Wattles shall be removed at the appropriate time by slicing the wattle and removing the mesh and staking materials. The filler material and accumulated sediment shall be spread to match the finished grade and ensure proper drainage.

K. Temporary Rolled Erosion Control Products (RECPs)

1. Install all RECPs according to the manufacturer's published installation recommendations along with the following minimum requirements.
2. Grade and smooth surface. Remove all rocks, clods, vegetation or other obstructions that will prevent direct contact between the RECP and the soil surface.
3. When specified, prepare seedbed and place seed and fertilizer according to SECTION 02700.
4. Slope Application: Install anchor trench along at the top of the slope. Unroll the RECP down and horizontally across the slope. Place consecutive blankets down the slope end over end, shingle style. Overlap rolls a minimum of three (3) inches and install anchors at a maximum spacing of eighteen (18) inches along all the overlaps. Backfill and compact trench and place additional seed as required.
5. Channel Application: Install RECP As shown on the details shown on the plans.

L. Turf Reinforcement Mats (TRMs)

1. Install TRMs according to the published installation literature for the product specified and for the appropriate application.
2. Depending upon the sequence and timing of construction, it may be necessary to delay installation of TRMs to correspond to dates when permanent seeding can take place in the spring and fall seeding periods.

M. Sediment Basin Outlet Structures

1. Concrete Base: Construct concrete base and anchor riser section as shown on the plans.
2. Dewatering Device: Drill holes in riser section with the number, diameter and configuration as shown on the plans. Wrap the perforated section of the riser pipe with metal hardware cloth.
3. Riser and Barrel: Place the specified corrugated metal pipe and properly backfill as needed with compacted lifts of soil. The anti-vortex and anti-seep collars shall also be properly placed where shown on the plans.

4. Repairs required to the sediment basin or outlet structure due to improper installation shall be repaired by Contractor at no cost to Division.

N. Stabilized Construction Entrance

1. Place macadam stone at entrance to correspond to the dimensions provided in the Plans, the SWPPP or as directed by Engineer. Alternative stone material may be proposed, but must be approved by Engineer.
2. Engineer may require geotextile fabric to be installed under the macadam stone depending upon site conditions. In cases where non-woven geotextile fabric is required, the cost of the non-woven fabric shall be incidental to the cost of the macadam stone.
3. If voids become plugged, replace or regrade as needed.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. The construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. The unit price for each of these items shall include its pro rata share of overhead and profit so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION. The unit price shall include all labor, materials, and equipment necessary for proper installation of the various practices.
1. The unit price shall also include cost for removal of temporary practices at the appropriate time once vegetation is established; unless extenuating circumstances exist as determined by Engineer or DIVISION, vegetation will be considered established ninety (90) days after a documented show of green across the site. If Contractor does not remove temporary practices in a timely manner, Division may delay payment of retainage or seek resolution with Contractor's bonding company.
 2. For certain particular practices identified by Engineer in Supplemental Specifications, where timely removal is critical, Division reserves the right to pay up to one-half (1/2) the unit price for the practice upon installation and the remaining one-half after satisfactory removal.
 3. If erosion and sediment control measures are properly installed by Contractor and storm events cause failure or reduces the effectiveness of these measures, replacement shall be completed as directed by Engineer and will be paid for by Division to Contractor as defined below.
 4. If temporary erosion and pollution control practices are required due to Contractor's negligence, carelessness, or failure to install permanent controls as part of his work as scheduled and are deemed necessary by Engineer or Division, the practices shall be completed by Contractor at no cost to Division.
 5. In case of repeated failures on part of Contractor to control erosion, pollution, and/or siltation, Division reserves the right to employ outside assistance to provide the necessary corrective actions. Such incurred direct costs, plus Engineering costs, will be at Contractor's own expense with the appropriate deduction taken from future pay requests.

B. Measurement and payment for each work item in this SECTION shall be in accordance with the following:

1. *Quarried Stone:* The bid unit price for quarried stone products like Riprap, Erosion Stone, Macadam Stone or similar stone materials shall include all costs to furnish and install the stone as specified in the plans. The unit price shall also include cost for geotextile fabric underlayment where required. Measurement for payment shall be based on the tonnage of stone installed as evidenced from weight tickets, rounded to the nearest one-tenth (0.1) ton. Only material placed in accordance with the Plans and Specifications shall be measured and paid.
2. *Surface Roughening:* Payment for surface roughening performed as directed by Engineer will be measured and paid for by the contract unit price per acre. Areas shall be jointly measured by Engineer and Contractor. Surface roughening shall not be considered a separate pay item when it is accomplished by the work of subgrade preparation.
3. *Erosion Control Mulching:* Payment for mulching will be measured and paid for at the contract unit price per acre. Mulch placed outside designated areas will not be measure for payment. Areas shall be measured jointly by Engineer and Contractor.
4. *Compost Blankets:* Payment for the cost of placing compost blankets will be measured and paid for by the contract unit price of each square foot for each thickness of blanket specified and shall include preparing the subgrade. Compost blankets placed outside specified areas will not be measured for payments. Measurements will be taken jointly by Engineer and Contractor.
5. *Temporary Erosion Control Seeding:* Payment for placement of temporary seeding will be measured and paid for by the acre. The unit contract price shall include preparing the subgrade, placement of fertilizer and seed, and final cultivating. The area for payment will be measured jointly by Engineer and Contractor.
6. *Temporary Earth Diversion Structures:* Payment for installation and removal of temporary earth diversion structures will be measured and paid for by the linear foot for each type and size of diversion structure. Payment will be jointly measured by contractor and Engineer. Full payment for this item will not be made until removal is complete. The unit price shall include all labor and equipment necessary.
7. *Silt Fences:* Payment for installation of silt fence will be measured and paid for at the contract unit price per linear foot of silt fence as measured jointly by the contractor and Engineer. The unit cost shall include all labor, equipment and materials for proper installation. Payment will be made for removal of silt fence, either at the end of the project after seeding is established or if replacement silt fence is required during construction. Payment will be made based on the contractor's unit price and will match the linear feet of silt fence installed. The removal of silt fence shall include removal and disposal of stakes, fabric and ties. Silt fence removal shall also include restoring the disturbed area to finished grade and removal or distribution of the accumulated sediment.
8. *Check Dams:* Payment for temporary check dams not constructed with erosion stone or riprap will be measured and paid for at the contract unit price per linear foot of each size and check dam specified. The length of the check dams will be measured jointly by Engineer and Contractor. .

Check dams made from erosion stone or riprap will be paid for to the nearest one-hundredth (0.01) of ton of material placed provided the dimensions of the check dam are similar to that shown on the plans or as otherwise approved. Filter fabric used beneath the erosion stone or

riprap will not be measured for payment and shall be considered incidental. The unit cost shall include all labor, equipment, and material costs that are necessary. Excavation costs and distribution of the soil materials are considered incidental and shall not be measured separately for payment.

9. *Filter Berms:* Payment for filter berms will be measured and paid for at the contract unit price by the linear foot of each size specified. Measurements will be taken longitudinally along the top of the berm and will be measured jointly by Contractor and Engineer. Filter berms that are needed to replace existing filter berms because of sediment accumulation will also be measured for payment.
10. *Filter Socks:* Payment for filter socks will be measured and paid for at the contract unit price by the linear foot of each diameter specified. Measurements will be taken jointly by Contractor and Engineer. Filter socks that are needed to replace existing filter socks because of sediment accumulation will also be measured for payment. Removal of filter sock will also be paid for at contractor's unit price and shall include removal and disposal of sock and stakes. The removal cost shall also include distribution of the accumulated sediment and filter material.
11. *Wattles:* Payment for wattles will be measured and paid for at the contract unit price per linear foot. Any excavation required for placement and the staking of the wattle shall be considered incidental to the installation costs. A separate contract unit price shall be provided for removal. The length of wattle for payment of installation and removal shall be the same and measured jointly by Engineer and Contractor.
12. *Temporary Rolled Erosion Control Products (RECPs):* Payment for temporary RECPs will be measured and paid for at the contract unit price per square yard of area covered for each type used. Overlaps will not be measured for payment. Staples, anchors, or other products needed for proper installation are considered incidental. Areas shall be jointly measured by Contractor and Engineer.
13. *Turf Reinforcing Mats (TRMs):* Payment for TRMs will be measured and paid for at the contract unit price per square yard of area covered for each type used. Overlaps will not be measured for payment. Staples, anchors, or other products needed for proper installation are considered incidental. Areas shall be jointly measured by Contractor and Engineer.
14. *Tied Concrete Block Mat (TCBM):* Payment for TCBMs will be measured and paid for at the contract unit price per square foot of area covered. Overlaps and lengths of mat used in anchor trenches, up to the amounts specified on the plans, will be measured for payment. Anchors, stainless steel ties and other products needed for proper installation are considered incidental. Areas shall be jointly measured by Contractor and Engineer.
15. *Sediment Basin Outlet Structures:* Measurement and payment will be made for each sediment basin outlet structure installed by size. The contract unit price shall include all materials, labor and equipment required to construct the outlet structure as specified and shown on the plans. The unit price for installation shall include the concrete base, anti-vortex device, outlet pipe and any anti-seep collars required. Earthwork required for construction of the sediment basin will be measured and paid as part of the general excavation quantities.

Measurement and payment will also be made for each sediment basin cleanout required during construction. Contract unit price includes dewatering and removal and disposal of accumulated sediment. The measurement and payment will also be made for each sediment basin outlet structure properly removed. Contract unit price includes dewatering and removal of sediment accumulated at the end of the project, disposal of the outlet structure, concrete base and

emergency spillway. Earthwork required to restore the sediment basin and restoration of the area to finished grade will be measured and paid for separately.

16. *Stabilized Construction Entrance:* The unit price shall include all materials and work required for installation of the stabilized construction entrance in conformance with these Construction Specifications and the Plans, including excavation, removal and disposal of excavated material and furnishing and placing the stone. Measurement for payment shall be based on the tonnage of granular surfacing material actually installed as determined from weight tickets, rounded to the nearest one-tenth (0.1) ton. Only material placed in accordance with the Plans and Specifications shall be measured and paid.

After the project is complete, and, if so directed by Engineer and Division, the granular material placed for the stabilized entrance shall be removed and either transported offsite or stockpiled for benefit of the landowner in an approved location on site. Any minor grading needed to maintain drainage shall also be included with removal at no additional cost to Division.

4.2 SUMMARY – UNITS OF MEASUREMENT

- . Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Quarried Stone (Riprap, Erosion Stone, Macadam Stone or similar)	Ton
Surface Roughening	Acre
Erosion Control Mulching	Acre
Compost Blankets	Square Foot
Temporary Erosion Control Seeding	Acre
Temporary Earth Diversion Structures	Linear Foot
Silt Fences – Installation	Linear Foot
Check Dams – Temporary	Linear Foot
Check Dams – Permanent	Ton
Filter Berms	Linear Foot
Filter Socks – Installation	Linear Foot
Wattles – Installation	Linear Foot
Temporary Rolled Erosion Control Products	Square Yard
Turf Reinforcing Mats	Square Yard
Tied Concrete Block Mat	Square Foot
Sediment Basin Outlet Structures – Installation	Lump Sum
Sediment Basin Outlet Structures – Cleanout	Lump Sum
Stabilized Construction Entrance	Ton

END OF SECTION 02120

INDEX

SECTION 02200 - EARTHWORK, ROUGH GRADING

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PART 1 - GENERAL

1.1 DESCRIPTION

Work under this SECTION covers the requirements for materials, tools, equipment, and services necessary to complete the earthwork to rough grade for this project. The work shall include, but is not necessarily limited to, completion of the following work:

- A. Acceptance of original ground lines or submittal of new survey data.
- B. Excavation.
- C. Implementation of Storm Water Pollution Prevention Plan (SWPPP).
- D. Conveyances, placement, and compaction of excavated materials.
- E. Site grading to elevations shown on the Plans.
- F. Construction of drainage ways and any necessary rechanneling of existing creeks.
- G. Field engineering.

1.2 REFERENCE SPECIFICATIONS

- A. The following specifications or applicable standards are incorporated by reference into this SECTION:
 - 1. SECTION 02010 – FIELD ENGINEERING.
 - 2. SECTION 02100 – MOBILIZATION, SITE CLEARING & PREPARATION.
 - 3. SECTION 02110 – IMPOUNDMENTS.
 - 4. SECTION 02120 – SEDIMENT AND EROSION CONTROL.
 - 5. SECTION 02220 – EARTHWORK, DAMS.
 - 6. Iowa Department of Natural Resources.
 - 7. Iowa Department of Transportation Standard Specifications.
 - 8. National Pollutant Discharge Elimination System (NPDES).
- B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workers who are thoroughly trained and experienced in necessary crafts and who are completely familiar with specified requirements and methods needed for proper performance of work of this SECTION.

- B. Contractor shall use equipment adequate in size, capacity, and numbers to accomplish work in a timely manner.
- C. Contractor shall comply with requirements of governmental agencies having jurisdiction and with directives of Engineer and Division.

1.4 JOB CONDITIONS

A. Definitions

1. "Access Route" shall be understood to mean the route by which Contractor gains access to the site. Access routes do not necessarily include impacts by mass grading operations other than clearing, grubbing and those operations required for maintenance of the access route during construction.
2. "Grading Limits" shall be understood to mean the maximum extent of excavation, earth movement, or other grading operations.
3. "Project Boundary" shall be understood to enclose the total area impacted by the construction including the access route to the site. Exclusive of the access route, the project boundary is usually identical to the grading limits.
4. "Substantial Earthwork" shall be understood to mean mass excavation and movement of soil material beyond what is reasonably required to facilitate Clearing and Site Preparation with the grading limits. The creation of access routes through the site during Clearing and Site Preparation shall not be considered Substantial Earthwork provided Contractor exercises care to minimize excavation.
5. "Large Rocks" or "Large Boulders" shall be understood to mean stones that are typically larger than approximately twelve (12) to eighteen (18) inches which cannot be lifted by hand.
6. "Excessively Large Rocks" shall be understood to mean stones or geologic formations that cannot be easily moved with a Caterpillar D6 bulldozer or equivalent.

B. Nature of Work Site

1. Materials to be handled under this Contract include quantities of spoil, gob, and coal refuse which may be toxic and/or acidic in nature.
2. The Project site is situated in an area where underground coal mining may have been conducted. There is a possibility that mine drifts or shaft openings are present on site. Contractor shall exercise reasonable caution in recognition of this potential hazard, and shall notify Engineer and Division immediately upon discovery of any openings or any signs of instability. Sealing of openings may be incorporated into this Contract through issuance of change orders, at the discretion of Division. Additional specifications will be provided by Division as needed.
3. During excavation in existing spoil piles, Contractor shall recognize the possible existence of cavities or smoldering fires and, if encountered, shall notify Engineer and Division promptly. Contractor shall exercise caution and be prepared to take appropriate actions since accelerated combustion may occur. Burning materials shall be extinguished before being covered or incorporated as fill. Contractor shall notify Division and Engineer if smoldering fires are encountered.

4. During excavation in existing spoil piles, Contractor shall recognize the possible existence of buried waste materials which may include demolition, household, municipal, or other deleterious materials. Contractor shall immediately secure the waste area and notify Engineer and Division who will make determinations of final waste disposals.
5. Spoil material used to construct fills is subject to significant increase in pore water pressure, particularly during rapid construction, with a corresponding decrease in shear strength that reduces the stability of slopes. Contractor shall exercise caution and notify Engineer and Division promptly should signs of slope instability appear.
6. Contractor shall maintain access to adjacent areas to which Landowner(s) require access as needed.

C. Earthwork Balance

1. The grades shown on Plans indicate a balance of earthwork materials when a shrinkage factor as indicated on the Plans or in the Supplemental Specifications is applied. Should a shortage or excess of material exist, final grades will be adjusted in areas as shown on the plans or as directed by Engineer at no additional cost to Division.
2. Changes in placement of fill material within the grading limits that impact the site drainage conditions or are in non-designated adjustment areas, can only be made with specific instructions by Engineer and Division.

D. Original Ground Lines

1. Acceptance of Original Ground Lines per Plans
 - a. Engineer has determined the excavation quantities using the original and proposed final grades indicated on the plans using a computer program. The original (or existing) ground lines are developed from aerial photography or Light Detection and Ranging (LiDAR). Additional site-specific survey information may have been obtained and combined with LiDAR or photogrammetry to develop the original ground lines shown in the plans. The cross sections included with the plans were developed from the original ground lines and are provided for the benefit of Contractor.
 - b. **Before** commencing **any** substantial earthwork activities as defined in 1.3.A, Contractor shall accept in writing the original ground lines provided on the Plans. The purpose for acceptance of ground lines is to establish Excavation as a fixed quantity. Engineer shall prepare a form to be signed by Contractor indicating Contractor's acceptance of original ground lines.
 - c. If Contractor seeks to revise the original ground lines as provided in 1.4.D.2., below, he may request signing the original ground lines acceptance be delayed until after the site is cleared.
 - d. Commencement or evidence of **any** substantial earthwork activities shall be considered presumptive evidence of Contractor's acceptance, whether or not Contractor signs the form.

2. Revision of Original Ground Lines

- a. Contractor may conduct a field survey at his own expense during or after clearing to verify accuracy of original ground data at an interval appropriate to depict actual site conditions. The survey must provide enough information to depict actual site conditions. Contractor may use conventional land survey, RTK GPS, or aerial methods to perform the survey. If an aerial method is selected, sufficient numbers of ground control points shall be used to validate the horizontal and vertical data. If ponds exist on the site, pond bathymetry shall be included. Contractor may perform the bathymetric survey at his expense or request this information from the Engineer.
- b. If Contractor's survey information indicates that the actual ground elevations differ from the original ground elevations included in the Plans, this information shall be forwarded to Engineer and Division immediately. The data shall be in the form of an electronic CAD drawing, compatible with AutoCAD, that will allow Engineer to perform analyses and verify any claims to a change in Excavation quantity. The drawing may contain either a point cloud or contours, and the data shall extend to all extremities of grading limits shown on the Plans.
- c. If Division and Engineer agree that there is a substantial difference between the original ground contours shown on the plans and the more recent survey data, then Division may, upon completion of clearing and grubbing operations, acquire additional survey information at its expense to verify Contractor's survey. This additional information will be used to establish a revised excavation quantity for the contract. Engineer may issue a revised grading plan to Contractor to address revisions to the original ground lines. In this situation, a change order will be developed to reflect the revised excavation quantity regardless of whether the change is in Contractor's favor
- d. Acceptance of the revised ground lines as discussed above, shall be mutually agreed to between Contractor and Division, in writing *prior* to the commencement of *any* substantial earthwork. Engineer shall prepare a form to be signed by Contractor indicating Contractor's acceptance of the revised ground lines. Revisions to the existing ground lines will *not* be considered or allowed after substantial earthwork has commenced.

1.5 PERMITS AND FEES

- A. Contractor shall obtain any permits required and pay any associated fees. If the project includes modifications to structures and/or roads, including providing access, that are under the jurisdiction of the local county, the appropriate permit shall be obtained by Contractor from the County Engineer prior to initiating any work in these areas. Contractor shall be reimbursed for the cost of the permits and extra materials required for work in these areas provided Contractor furnishes all documentation of those expenses to Division.
- B. Division has obtained any necessary permits from the U.S. Army Corps of Engineers for disturbance and mitigation of jurisdictional waters as shown on the plans for this project. The requirements of this permit have been incorporated into the Contract Documents. A copy of this permit can be made available upon request to the Division.

- C. Division has obtained a Storm Water Discharge Permit for this project. Contractor will become a co-permittee with Division on this Storm Water Discharge Permit. A Storm Water Pollution Prevention Plan has been developed by the Engineer for this project and is part of the permit. Contractor is also responsible for the inspections and keeping the SWPPP documentation current. Refer to SECTION 02120.
- D. If the project includes modifications to structures and/or roads, including providing access, that are under the jurisdiction of the local county, the appropriate permit shall be obtained by Contractor from the County Engineer prior to initiating any work in these areas.

1.6 SUBMITTALS

- A. Contractor shall submit the following information to Engineer:
 - 1. SWPPP certification forms developed by the Engineer and signed by Contractor and Subcontractors.
 - 2. Original Ground Lines acceptance or submittal of new topographic information.
 - 3. All Record Survey Notes.

1.7 SITE DISTURBANCES

- A. Contractor shall take precautions to ensure that equipment and vehicles do not unnecessarily disturb or damage areas or other site improvements identified to be outside of the project limits. Contractor shall comply with SECTION 3.10 CLEAN-UP AND REPAIRS.
- B. No work within or damage to any Conservation Reserve Program (CRP) land, existing wetland, or other jurisdictional area shall be permitted if said areas are to remain undisturbed as shown on the Plans. Division has no permit to disturb these areas. These areas are under the jurisdiction of other authorities and there could be fines levied against Contractor for disturbances in these areas.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. General fill material consists of spoil piles, coal refuse materials, gob and all other soil material from required cut operations.
- B. Materials designated on the plans as select borrow, cover materials, or impervious fill shall not be used as general fill.
- C. If apparent good material suitable for use as select borrow, cover material, or impervious fill is encountered during excavation of general fill materials, Contractor shall notify Engineer immediately to evaluate these materials. Contractor shall segregate this good material from general fill as directed by Engineer. Depending upon the location, quantity, and quality of this material, a Change Order may be developed to address this good material located with excavation for general fill as agreed upon between Contractor and Division.

2.2 OTHER MATERIALS

- A. Contractor shall provide other materials, not specifically described but required for a complete and proper installation, as selected by Contractor, subject to the approval of Engineer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Contractor shall examine areas and conditions under which work of this SECTION will be performed and correct any conditions detrimental to timely and proper completion of work. Examples of detrimental conditions and their corresponding acceptable corrections generally include, but are not necessarily limited to that shown in **TABLE 02200-1**:

Table 02200-1: Typical Detrimental Conditions and Commonly Acceptable Corrections

Detrimental Condition	Correction
Excessively wet soil material	Mix with drier material before incorporating into fill, disking, or push off to the side outside of fill areas
Frozen soil material	Remove and/or comply with 3.9 F of this SECTION
Shallow buried vegetative debris	Excavate and bury per SECTION 02100
Rocks or boulders	Comply with 3.8 C of this SECTION
Ponded water on the site	Comply with 3.6 of this SECTION

- B. Do not proceed with grading in unsatisfactory areas until corrections are completed.

3.2 ELEVATIONS AND LINES

- A. In general, the Project Boundary encloses the total area impacted by construction including the access route to the site. The grading limits show the maximum extent of mass grading operations. Both shall be as shown on Plans, approved by Division and Engineer. Contractor, accompanied by Engineer, shall jointly review the clearing and grading limits prior to clearing operations. The project boundary and grading limits shall be staked according to requirements set forth in SECTION 02010, Field Engineering.
- B. Minor refinements to grading limits, within the designed project boundary, as shown on Plans will be implemented by mutual agreement, in interest of the project, based on field conditions, at no additional cost to Division. It is the intent that the areal extent of these refinements, if any, be offsetting so that there is no significant increase or decrease in Project work.
- C. Constructed grades shall be established to be within three-tenths (0.3) feet of design grades as shown on Plans, except that this tolerance shall be adjusted as necessary to ensure positive drainage in all areas and to achieve earthwork balance with approval of Engineer and Division.

3.3 UTILITIES

- A. Contractor shall take all precautions needed to insure that existing utilities to remain, including septic systems and field tile, are adequately protected. If existing utilities become damaged, the service shall be restored as soon as possible and repairs completed at no cost to the Division.
- B. If active utility lines are encountered that were not made known to Contractor, Contractor shall take the necessary steps to protect the utility and maintain service at no additional cost to Division.
- C. If utility lines are found that interfere with the planned grading, Contractor shall immediately notify Engineer and Division.

3.4 PROTECTION OF PERSONS AND PROPERTY

- A. Contractor shall barricade all open holes and depressions that present a safety hazard during the course of his work.
- B. Contractor shall protect structures, utilities, and other facilities from damage caused by settlement, lateral movements, washouts, sedimentation, vibrations, and other hazards created by operations under this SECTION.
- C. Contractor shall use means necessary to prevent dust from becoming a nuisance to the public, neighbors, and to other work being performed on or near the site.
- D. Contractor shall always maintain access to adjacent areas.

3.5 SEDIMENT AND EROSION CONTROL

- A. Contractor shall implement the SWPPP for this project and conduct all earthwork activities to minimize losses due to erosion and sedimentation.
- B. Effective measures shall be initiated where needed to protect areas adjacent to the site prior to the commencement of clearing, grubbing, excavation, or other operations that will disturb the natural protection. Natural vegetation shall be preserved to the greatest extent possible. Contractor shall prevent siltation of existing and newly constructed drainage ways or repair them as necessary at his own expense.
- C. Work shall be scheduled to expose, for the shortest possible time, areas subject to erosion. SWPPP practices shall be implemented as soon as practical. Adequate and timely maintenance of SWPPP practices and other methods shall be Contractor's responsibility, as well as the subsequent removal of any temporary measures.
- D. Modifications to the SWPPP and repairs will likely be required during the course of the project. The Contractor will work in conjunction with the Engineer and Construction Observer to minimize offsite erosion and sediment. Modifications shall be documented and kept with the SWPPP file maintained by the Contractor.

3.6 CARE OF WATER

- A. Contractor shall be responsible for the care and control of all water that enters the site, either through precipitation, seepage, underground utilities, etc. Contractor shall furnish, install, operate, and maintain means and devices with which to properly remove and dispose of water that interferes with completion of the work. Any discharge shall be to approved drains or channels in accordance with NPDES requirements specified in SECTION – 02110 Impoundments.
- B. Contractor shall provide berms, channels, or basins as needed to protect adjacent areas from flooding caused by run off from the site. Contractor shall promptly remove all water collecting in depressions. Water that collects in depressions that cannot be removed by standard drying methods shall be tested, treated as necessary, and discharged in accordance with SECTION – 02110 Impoundments at no cost to Division.
- C. Any drainage facility used by Contractor shall be adequate to prevent damage to completed work at the site, and adjacent properties. Existing drainage channels and conduits shall be cleaned, enlarged, or supplemented as necessary to carry all increased runoff attributable to Contractor's operations.

3.7 GROUND SURFACE PREPARATION PRIOR TO FILL PLACEMENT

- A. Contractor shall remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills.
- B. Contractor shall plow, strip, or break up surfaces steeper than one (1) vertical to four (4) horizontal so that fill material will bond with existing surface.

3.8 EXCAVATION

- A. Contractor shall excavate material encountered within the grading limits to lines, grades, and elevations indicated on Plans and/or as specified herein. All material excavated is not specifically classified but shall be considered similar to Class 13 Excavation, Iowa DOT Item 2102.02.
- B. Contractor shall make every reasonable attempt to salvage the best soil encountered so that it can be placed within the upper twelve (12) inches of final grade since one of the primary goals of the project is to revegetate the site.
- C. Contractor shall inspect the site and form own opinion on the presence and extent of boulder and rock excavation anticipated.
 - 1. Rock and boulder excavation is not a unit price item and shall be considered as incidental in the unit price for excavation.
 - 2. Any large rocks and/or large boulders encountered during grading shall be relocated as necessary to provide a minimum of three (3) feet of fill over the object.
 - 3. Contractor shall promptly notify Engineer or Construction Observer if excessively large boulders are encountered which cannot be removed or excavated by conventional earth moving or ripping equipment and will not have at least three (3) feet of cover.
 - 4. Contractor shall not use explosives
- D. Contractor shall excavate and fill in a manner and sequence that will provide proper drainage at all times and minimizes off site sedimentation.
- E. Contractor shall properly backfill any unauthorized excavation, unless permission is received by Engineer and Division. Unauthorized excavation includes removal of materials beyond indicated elevations or dimensions, or Project Limits without a properly executed Change Order or Contract Amendment authorizing such additional excavation.
- F. Contractor shall be responsible for the safety and maintenance of all excavation sides and slopes until completion of backfilling and shall comply with all OSHA requirements.
- G. If coal seams are encountered during excavation, Contractor shall notify Division and the following shall apply:
 - 1. For coal seams located in "cut" areas above finished grades, the coal shall be excavated and buried in designated fill areas with at least three (3) feet of suitable cover soil. This work shall be performed at no additional cost to the Division.
 - 2. Coal seams encountered at or near finished grade, shall be over excavated a minimum three (3) feet and buried in an area designated by Engineer or Division and covered with at least three (3) feet of suitable soil. The excavation from which the coal seam was

extracted shall be backfilled with a minimum three (3) feet of suitable material. Depending upon the location and extent of the coal seam encountered near finished grade, Division may, negotiate a change order to compensate Contractor for the additional work of handling the coal seam.

3.9 FILL PLACEMENT AND COMPACTION

- A. Contractor shall place general fill materials in lifts not more than twenty- four (24) inches in loose thickness and run all rubber-tired equipment (i.e. scrapers, dump trucks) over the entire lift. If only track equipment is being used, the maximum loose lift thickness shall be limited to twelve (12) inches.
- B. General fill shall be placed in horizontal lifts. To facilitate horizontal placement of general fill, benching into existing slopes shall be required as described in Table 02200-2:

Table 02200-2 Benching Requirements for Placing General Fill On Existing Slopes

Slope	Benching Requirements
slope > 1:1	none: fill operations proceed from base upward in uniform lifts
1:1 ≥ slope ≥ 8:1	2' minimum height benches
8:1 > slope ≥ 10:1	1' minimum height benches
slope < 10:1	none: scarification required to promote bonding with fill material

- C. In areas of existing water impoundments as shown on Plans, and upon completion of dewatering, fill initiation shall be performed in accordance with Item 3.10 "Initiating Fill Placement in Ponds and Wet Areas" below.
- D. Fill placed in structural areas, such as embankments, shall be placed and compacted as discussed in SECTION 02220 – EARTHWORK, DAMS.
- E. Fill placed to construct terraces or roadways, shall be placed in lifts not to exceed twelve (12) inches in thickness and compacted in place with the wheels of rubber-tired equipment. If tracked equipment is used, the lift thickness shall not exceed six (6) inches. Fill material shall consist of cohesive material with a suitable moisture content to achieve compaction.
- F. Contractor shall not place frozen materials within any structural area and can only use frozen material as fill if all of the following conditions are met:
 - 1. Fill shall not be placed on any areas where the frost depth exceeds one (1) inch. Removal of frost materials shall be made at no additional expense to Division.
 - 2. Frozen materials shall be broken up so that no dimension of an individual piece exceeds about six (6) inches. Frozen material shall be well mixed with unfrozen material throughout lift to be compacted.
 - 3. Each lift containing frozen materials shall be covered with at least twenty-four (24) inches of frost-free materials.
- G. Refer to Supplemental Specifications concerning fill areas deeper than fifteen (15) feet.

3.10 INITIATING FILL PLACEMENT IN PONDS AND WET AREAS

- A. Contractor shall place fill in pond and wet areas in a manner that minimizes fill settlement in these areas as much as practical. Prior to placing fill in these areas, Contractor shall discuss his grading plans in these areas with Engineer in the dewatering planning meeting.

- B. Prior to placing fill in these areas, Contractor shall dewater areas with standing or impounded water in accordance with the neutralization and dewatering plan as developed in accordance with SECTION 02110 – Impoundments.
- C. In shallow swampy areas, Contractor may work these areas by pushing out the bottom muck with dry material from one end to the other. Contractor may have to periodically allow the muck time to drain, perhaps as much as several days, during filling operations in these areas. Work can be completed in other areas of the site during this drying time.
- D. In areas where deeper muck is present, Contractor shall initiate filling operations using one or more of following approved methods, or another method selected by Contractor subject to review and approval by Engineer. Individual methods may not be suitable for all applications.
 - 1. Squeeze out muck in bottom by dozing in dry material from one end of pond towards other. Contractor may have to periodically allow muck time to drain, perhaps several days, during which time Contractor may continue work elsewhere prior to resuming mucking operations.
 - 2. Push in dry material and intermix with muck until stable.
 - 3. Use cell method to isolate smaller zones within the area to be filled. The cell method consists of constructing cofferdams of widths no more than required for a dozer to properly construct them. These cofferdams shall be spaced as necessary to complete filling over the muck. The zones created by the cofferdams shall then be worked in accordance with items 1 and/ or 2 above.
 - 4. In areas receiving relatively deep fills (over ten (10) feet), Contractor may place an initial lift of no more than four (4) feet in height to bridge over the muck. Subsequent lifts shall be placed and compacted as outlined in Section 3.9 above. Any of these areas that result in slope instability or excessive settlement in the future shall be corrected as necessary by Contractor at no additional cost to Division.
 - 5. Any other method selected by Contractor and reviewed by Engineer which achieves desired objective, which is to permit stable filling operations to continue.
- E. Contractor shall prevent siltation of existing drainage ways and ponds during mucking operations and placement of fill over muck. Failure of Contractor to protect silt from leaving Project Limits shall be corrected at no cost to Division. Any vegetation disturbed as a result of failure shall be replaced in kind at no cost to Division.

3.11 GRADING

- A. The Contractor shall uniformly grade areas within the Project Limits as shown on the plans and as specified in this SECTION. Contractor shall also grade the transition areas adjacent to the site as needed to complete work and provide a smooth transition.
- B. In areas where a change of slope is required, Contractor shall construct a rolled transition section having a minimum radius of approximately eight (8) feet, unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.
- C. Contractor shall finish grade all areas to drain readily.

3.12 FIELD QUALITY CONTROL

- A. Contractor shall obtain approval from Engineer or Construction Observer based on their inspection and approval of subgrades in fill areas prior to placement of fill.
- B. Contractor shall make changes in placement of fill material within the Project Limits as needed to adjust for inaccuracies inherent with estimating the shrinkage factor. These changes shall be made only after consultation with and direction from Engineer and/or Division.
- C. Contractor shall provide additional compaction of fill as directed by Engineer and Construction Observer if Engineer and Construction Observer determines that fills have been placed that were not properly compacted.
- D. Contractor shall notify Engineer and Construction Observer upon completion of stages of construction and obtain Engineer's approval before commencing with subsequent stages of construction.

3.13 MAINTENANCE

- A. Contractor shall protect all areas of newly graded fill as follows:
 - 1. Protect newly graded areas from traffic and erosion and keep free from trash and weeds.
 - 2. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Contractor shall scarify the surface, reshape, and compact (if necessary) any completed areas that are disturbed by subsequent construction operations or adverse weather, prior to further construction, such as riprap placement or seeding.
- C. Contractor shall maintain new and existing drainage ways free from detrimental quantities of sediment, leaves, sticks, trash, and other debris during execution of the work.
- D. Contractor shall always maintain access to adjacent areas.
- E. Upon request by Engineer or Division, Contractor shall dredge or re-excavate drainage channels if these become silt-filled prior to establishment of vegetation. If the site has not yet been seeded, dredged material may be spread within the Grading Limits. If the site has been seeded, Contractor shall dispose of the dredged material in a manner and location approved by Engineer or Division.
- F. Contractor shall remove accumulated sediment from designed wetland ponds that were used for sediment control during construction.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. Construction cost of work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for work items described below. The unit price for each of these items shall include its pro rata share of overhead so that sum of products obtained by multiplying unit prices so set forth by amount of work constructed and measured as described herein, shall constitute full payment to Contractor for performance of work included in this SECTION.

- B. Measurement and payment for each work item in this SECTION shall be in accordance with following:

1. *Excavation:* Payment for the cost of excavation shall include all of the work necessary to complete grading the site to design grade as shown on the Plans. The preparation and implementation of Erosion Control Plan shall be paid under separate bid items.

Engineer shall determine in cubic yards the total amount of excavation to grade the site to the specified design grades. There will be no measurement and payment for overfill, overexcavation or unauthorized excavation. Assuming Contractor accepts original ground lines and the Engineer and Division agree, payment for this bid item will be based on the plan quantities which have been determined using a computer analysis. The Division reserves the right to require a topographic survey of final grades if they do not appear to be in compliance with the Plans.

If Contractor or Division does not accept the plan quantities, the following steps outlined below will be followed for payment.

- a. Contractor shall provide survey information to Engineer regarding the disputed existing topographic information as stated in Paragraph 1.4.D.2 of this Section.
- b. Contractor shall determine the amount of material excavated by completing a full survey of the site after completion of clearing but before commencement of significant earthwork activities and another full survey after all grading is completed. Contractor shall submit all survey notes and data to Engineer who will determine the amount of excavation based on this information. At a minimum, all survey information shall extend to the extremities of the grading limits shown on the plans.
- c. The grade tolerance established in Paragraph 3.2 above is to permit latitude in achieving final grades. Widespread overexcavation of up to three-tenths (0.3) feet in cut areas, either accidentally or for the sole purpose of increasing pay quantities, shall not be recognized for measurement and payment. In these instances, Division reserves the right to base the paid quantity of cubic yards of excavation upon the design grade contours shown on the plans.
- d. If the final grades do not appear to be in compliance with the plans, Division reserves the right to require a full topographic survey. Contractor shall provide to Engineer, at no cost to Division, electronic survey data for determining the final earthwork quantities using the original ground lines as stated in Paragraph 1.4.D.2 of this Section.

Contractor shall be paid at unit price for "Excavation" for each cubic yard as measured above. Said unit price shall constitute full payment for excavation, dewatering (excepting for discharge required in SECTION 02110), boulder relocation and burial, placing of fill, compaction, grading, and all incidental work pertaining thereto. No separate payment item is included for unauthorized excavation.

Partial pay requests will be made on the estimated percentage complete as agreed to by Contractor and Engineer applied to the contract totals for this bid item. Payment for the full amount of grading will only be made after the final staking is completed and the grading is accepted as completed by the Engineer.

2. *Erosion Control Measures:* Erosion Control Measures shall be implemented and paid for as provided in SECTION 02120 – Sediment and Erosion Control.

4.2 SUMMARY – UNITS OF MEASUREMENT:

Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Excavation	Cu. Yd.

END OF SECTION 02200

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PART 1 - GENERAL

1.1 DESCRIPTION

- A. **Work Included:** Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the drainage systems for this project. The work shall include, but is not necessarily limited to, completion of the following work:
1. Field engineering
 2. Complete installation of all waterways
 3. Terraces construction
 4. Riprap ditches, ditch construction and riprap placement
 5. Pipe outlets
 6. Terrace intakes
 7. Underground outlets
 8. All excavation, backfill, and compaction necessary to complete these drainage systems

1.2 REFERENCE SPECIFICATIONS

- A. The following specifications or standards are incorporated by reference into this SECTION:
1. SECTION 02120— SEDIMENT AND EROSION CONTROL
- B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this SECTION.
- B. Contractor shall use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. In addition to complying with the requirements of governmental agencies having jurisdiction, Contractor shall comply with the directions of Engineer and Division.

1.4 SUBMITTALS

- A. Submit material certification, including material type and gradation, for all riprap and porous backfill.
- B. Submit manufacturer's certification and material data for all material delivered to the project site for the work of this section.
- C. Submit weight tickets and/or shipping tickets for all materials delivered to the Project site for the work of this SECTION.

PART 2 - PRODUCTS

2.1 SPOIL MATERIALS

- A. Drainage way subgrades and backfill for pipe, tiling and risers shall be constructed of spoil materials from the required excavation. Backfill material shall be sorted as needed to become free of debris and rocks larger than one and one-half (1-1/2) inches adjacent to the tiling, and four (4) inches thereafter to the surface.

2.2 QUARRIED STONE MATERIALS

- A. Porous Backfill for subdrain shall be non-calcareous material meeting IDOT Item 4131, Gradation No. 29. Limestone porous backfill will not be allowed unless its use is specifically directed by Engineer.
- B. Pipe bedding used for support and backfill around pipe shall be crushed angular stone generally known as "one (1) inch clean stone". Pipe bedding shall meet the requirements of Class I bedding material as specified in SUDAS Section 3010, 2.02, A. Table 02300-01 specifies the gradation of pipe bedding.

Table 02300-01: Pipe Bedding Material Gradation

Sieve	Percent Passing
1.5"	100
1"	95 to 100
0.5"	25 to 60
No. 4	0 to 10
No. 8	0 to 5

- C. Macadam stone: Refer to SECTION 02120, PART 2
- D. Erosion stone: Refer to SECTION 02120, PART 2
- E. Riprap: Refer to SECTION 02120, PART

2.3 DRAINAGE CONDUITS

- A. Various material types and sizes are specified for drainage conduits as noted on the Plans or in the Supplemental Specifications. The conduit material used shall meet the minimum requirements as specified below. All drainage conduit used at the site shall be non-perforated unless specified otherwise.
- B. "Tiling" shall be understood to mean single wall or dual wall, corrugated plastic drainage conduit that is shipped to the project site in continuous rolls or coils. Rolls or coils of tiling are usually installed by a tiling machine that mechanically places the conduit in a relatively narrow trench immediately following a trenching wheel, chain, or plow.
- C. "Pipe" shall be understood to mean drainage conduit that is shipped to the site in straight lengths from the manufacturer to be installed in a trench created by an excavator bucket.
- D. The following nomenclature for various drainage conduits are noted in the plans and defined below.
1. Single Wall Corrugated Polyethylene, Tiling (SWPE): SWPE conduit and fittings shall be non-perforated, corrugated polyethylene tubing equal to IDOT Section 4143.01-B. Fittings may be made from polyethylene resin meeting this specification or polyvinylchloride (PVC) meeting Schedule 40 or SDR-26 thickness.
 2. Dual Wall High Density Polyethylene Pipe (DWPE): DWPE pipe shall be non-perforated, high density, high molecular weight, polyethylene dual-wall pipe meeting the requirements of AASHTO M 294, Type S

corrugated exterior and smooth interior. The pipe shall conform to ASTM D3350 with a minimum cell classification value of 345420C and the minimum pipe stiffness at five percent five (5) percent deflection per ASTM D2412. The fittings supplied shall be made from polyethylene resin which meets this same specification.

3. Polyvinyl Chloride Pipe (PVC): PVC pipe shall be non-perforated, plastic PVC – ASTM D3034-SDR26 Type 1, Grade 1. Joints shall meet ASTM D3033/D3034 Standards.
4. Dual Wall Polypropylene High Performance Pipe (PPHP): PPHP shall have a smooth interior and annular exterior corrugations meeting ASTM F2736 for diameters up to thirty (30) inches and meeting ASTM F2881 for diameters of thirty-six (36) through sixty (60) inches. Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2736 – Section 4, ASTM F-2881 – Section 5, and AASHTO M330 – Section 6.1 for the respective diameters. Table 02300-03 specifies the minimum pipe stiffness based on diameter when tested in accordance with ASTM D2412.

Table 02300-03

Nominal Pipe (I.D) (inches)	12	15	18	24	30	36	42	48	60
Min. Pipe Stiffness @ 5% Deflection (#/in/in)	75	60	56	50	46	40	35	35	30

PPHP sections shall be joined with gasketed, integral, bell & spigot joints that conform to ASTM F2736 and ASTM F2881 for the respective diameters. The joints can be either spun-on, welded, or an integral bell and spigot. Pipe bells shall be reinforced with a polymer composite band installed by the manufacturer. Each spigot shall have two gaskets meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gaskets are free from debris. These joints shall meet the watertight joint performance requirements of ASTM D3212.

- E. Dam and/or Wetland Pipes – See SECTION 02310 – Drainage Systems, Dams and Structures

2.4 OUTLETS FOR TILING OR PIPE

- A. The last 20 (twenty) lineal feet, minimum, of a run of SWPE or DWPE conduit to daylight shall be solid PVC pipe, Schedule 40 or SDR-26, sized to match the incoming conduit. Where a specified diameter of PVC pipe is not available in a single twenty (20) foot length, up to two (2) shorter lengths of PVC pipe may be used to construct an installed length exceeding twenty (20) lineal feet. The excess PVC need not be removed; the incoming conduit may be trimmed to accommodate the excess PVC.
- B. The PVC pipe shall be furnished with no more than one joint. The joint shall be solvent-welded or mechanically fastened with at least four one-fourth (4 ¼) inch dia. self-tapping stainless-steel screws. The minimum length of the fasteners shall be at least twice the thickness of the PVC pipe being joined.
- C. Outlet Tees, where required, shall be solid PVC, Schedule 40, or SDR-26 sized to match the incoming PVC outlet pipe. Outlet Tees shall be fastened with at least four one-fourth (4 ¼) inch dia. self-tapping stainless-steel screws. The minimum length of the fasteners shall be at least twice the thickness of the PVC pipe being joined.
- D. Non-perforated DWPE pipe may be substituted for PVC pipe if approved by Engineer, except where the pipe daylights into a stream or channel.

- E. A PVC Outlet for the last twenty (20) lineal feet of a run of PPHP to daylight is not required unless otherwise specified.

2.5 TERRACE RISERS AND OPEN SIDED AREA INTAKES

A. Terrace Risers

1. Risers shall be made from high density polyethylene as manufactured by Hickenbottom, Precision or approved equal. Sizes shall be as shown on the Plans.
2. The top three (3) feet shall be perforated with at least forty (40), one (1) inch diameter holes and at least thirty (30) open square inches per foot of riser.
3. Below grade, the riser shall be non-perforated. If perforations are below grade, then the openings shall be completely sealed with three (3) wraps of polyethylene tape or other suitable tape.
4. The riser shall connect onto the drainage conduit with a manufactured tee of a size to match the outgoing conduit diameter. Tees that constrict flows shall not be used.

B. Open Sided Area Intakes

1. Area intakes shall meet the specifications of SUDAS Specification Section 6010 and shall follow details for 'SW-513 Open-Sided Area Intake' and can be either pre-cast or cast-in place.
2. The locations, quantity, and dimensions shall be as indicated on the plan sheets.

C. Dam and/or Wetland Intakes – See SECTION 02310 – Drainage Systems, Dams and Structures.

2.6 EROSION CONTROL MAT

- A. Erosion control mats, where indicated on plans, shall be placed on slopes, channels, and spillways in conjunction with completion of the drainage system outlets to reduce sediment loss and erosion.
- B. Refer to SECTION 02120 2.1 H for further information regarding erosion control mat. Erosion Control Mat shall be considered synonymous with Temporary Rolled Erosion Control Products (RECP).

2.7 FILTER FABRIC

- A. Filter fabric shall meet the requirements of IDOT Section 4196.01-C, Engineering Fabric - Embankment Erosion Control.

2.8 CONCRETE

- A. All connections in piping where a change in pipe size or type occurs, and every joint where there is a sudden change in pipe direction, shall be sealed with tile tape and buttressed with concrete. Concrete can be ready-mix, hand-mix, or packaged gravel-mix concrete and should extend a minimum of three (3) inches all around the perimeter of the joint. Packaged concrete mix shall be hydrated before placement. Areas where concrete is known to be needed include:
 1. PE tubing to PVC outlets, all sizes
 2. Riser connections, all sizes
 3. Tiling to main line tiling at wye or tee, all sizes
 4. Any other locations shown on plans
- B. Concrete used for open-sided intakes shall meet the requirements of SUDAS 6010.

2.9 GROUT

- A. Grout shall be composed of ten (10) sacks or nine-hundred forty (940) pounds of Type I or II Portland cement with approximately two thousand two hundred (2,200) pounds of fine aggregate material conforming to IDOT 4110.01, Gradation No. 2 for each cubic yard. Potable water shall be added to provide a thick creamy consistency and should not exceed forty-seven (47) gallons per cubic yard. Air entraining admixtures conforming to ASTM C 260 shall be added to provide an entrained air content between six (6) to ten (10) percent.
- B. Flyash can also be substituted for Portland cement in the grout mixture provided the flyash used meets the requirements of IDOT Section 4108 and does not exceed twenty (20) percent of the Portland cement.

2.10 RODENT GUARDS

- A. Electroplated zinc-coated rodent guards for the appropriate size of piping, shall be as distributed by Agri Drain Corp. or approved equal. Rodent guards shall be hinged to allow debris to exit the drainage conduit when flows are present.

2.11 TRASH RACKS/BAR GUARDS

- A. Bar Guard Intakes: Trash racks shall be Bar Guard Intakes as distributed by Agri Drain Corp. or approved equal. Sizes shall be as shown on the Plans.
- B. Other Trash Racks or Guards shall be as specified in the Plans or the Supplement Specifications.

2.12 PIPE STRAPS

- A. Pipe straps used to restrain bell and spigot joints of DWPE and/or PPHP shall be Agri-Drain Pipe Straps or approved equal.
- B. Pipe straps shall be constructed with flat, woven, high-strength nylon fabric with welded stainless steel "D" rings. The loops at the ends of each strap shall be double sewn. Each sewn loop shall contain two (2) "D" rings.
- C. Pipe straps may be used in lieu of concrete collar subject to engineer approval.
- D. Pipe straps shall not be used with single wall corrugated tubing.

2.13 TILE TAPE

- A. Tile tape shall be provided to seal subsurface joints in tiling, riser, wye, and tee connections.
- B. Tile tape shall be as distributed by Agri-Drain Inc. or approved equal
- C. Tile tape shall be made from PVC material having the following properties:
 - 1. Tensile strength: 20 psi, minimum
 - 2. Elongation: 230%
 - 3. Dielectric capacity: 8800 volts

2.15 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by Contractor, subject to the approval of Engineer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Contractor shall examine the areas and conditions under which work of this SECTION will be performed and shall correct conditions detrimental to timely and proper completion of the work. Contractor shall not proceed until unsatisfactory conditions are corrected.
- B. Known tile that will be impacted by this project are noted and addressed as needed on the Plans. Any additional tile found during construction shall be brought to the attention of Engineer immediately.

3.2 PROTECTION

- A. Contractor shall use means necessary to prevent dust from becoming a nuisance to the public, to neighbors and to other work being performed on or near the site.
- B. Contractor shall always maintain access to adjacent areas as needed.
- C. Contractor shall protect previous construction from damage while constructing drainage systems.
- D. Contractor shall protect drainage systems from damage during subsequent construction in the areas.
- E. Contractor shall follow all guidelines for trench safety provided by OSHA.

3.3 CARE OF WATER

- A. Contractor shall furnish and operate sufficient pumps and/or provide other means including materials, labor, and equipment to prevent interference to any work by water, ice or snow. No structure or pipe shall be laid in water, and no water shall be allowed to run into or over any work or pipe until the installation can accept water without damage or deterioration. Damage of any kind resulting from insufficient pumping facilities or similar lack of proper conduct of the work shall be corrected by Contractor at no cost to Division.

3.4 FLOW LINES AND GRADES

- A. Construct drainage systems precisely to lines and grades as shown on the Plans or as required for proper functioning.
- B. Pipe runs shall be installed straight with a uniform slope to meet entrance and exit conditions at both ends of the pipe run. Slopes shall be uniform in so far as practical. Piping shall be installed with a minimum of two (2) percent slopes unless conditions indicate flatter slopes are required.
- C. Match flow lines and provide smooth transitions between intersecting riprap ditches, between terrace tile outlets and riprap ditches, between subdrain outlet and grassed swale, and between terrace tile outlets and grassed swales.

3.5 TERRACES

- A. Terraces shall be installed after rough grading is completed. The flow line grades of the terraces must be adjusted as needed if terraces are constructed after placement of tile and risers.

- B. Terraces shall be constructed in conformance with details and dimensions shown on the Plans. Fill placement and compaction shall be as specified in Section 02200 EARTHWORK - ROUGH GRADING, Item 3.9 *Fill Placement and Compaction*.

3.6 TILING AND PIPE

A. Tiling

1. Install tiling in strict accordance with these Specifications, manufacturer's recommendations and the Plans. In case of discrepancy, the most stringent requirements shall apply. Install drainage conduit after completion of rough grading in affected areas.
2. Excavate trenches to a minimum depth of three one-half (3 1/2) feet below finish grades where grades permit. Rocks or other objects larger than one one-half (1 1/2) inches shall be removed from bottom of excavation where present. Additional excavation may be necessary to remove and replace soft, unstable material.
3. When a backhoe or excavator is used to place the tile, the trench width shall extend at least eight (8) inches and no more than fifteen (15) inches beyond each side of the spring line of the pipe to allow for compaction of material. The bottom of the trench should include a V-groove or semicircular trough sized to accept the diameter of the tiling without excess movement.
4. Smaller trench widths are allowed when tiling is installed with a tiling machine equipped with a cutting edge that creates a ninety (90) degree V-groove, or a semi-circular trough of a size that accepts the tiling without excess movement.
5. After excavation, lay tiling in bottom of trench. All joints shall be placed with the bell or female end facing upslope. Any unsuitable material, such as larger rocks or sticks or frozen material, shall be separated from excavated material to be used as backfill. If excavated material is unsuitable, then Contractor shall provide an alternate source of suitable backfill from on site. Carefully place and compact backfill using handheld equipment within the area around and to within six (6) inches above the tile to ensure that backfill is placed under the pipe haunches and that the tiling is properly and fully supported. Care shall be taken to not collapse or displace the tile during backfilling procedures. Backfill placed within the remainder of trench shall be placed in lifts of no more than one (1) foot in structural areas and no more than two (2) feet in non-structural areas. Mass dumping of backfill shall not be allowed. Each lift shall be compacted with either the bucket of an excavator or the wheel of construction equipment. Reshape and/or compact adjacent ground surface as required.
6. When specified for deep installations, provide granular bedding and backfill around the tiling as shown on the plans.
7. The last twenty (20) feet, minimum, tiling which daylights shall be rigid PVC pipe as provided in 2.3 of this SECTION. Connect the outlet pipe to the corrugated PE tubing with a Fernco or approved equal coupler. Seal the connection with tile tape and place a concrete collar around the joint. Install a rodent guard within six (6) inches of the daylight end of all PVC piping.
8. Where outlet tees are required on t outlet pipes, install the rodent guard in the pipe ahead of the outlet tee. Fasten outlet tee to pipe using fasteners as provided in 2.3 of this SECTION.
9. If any tiling collapses due to improper installation or from routing of construction equipment over the trench, or it becomes clogged for whatever reason, correct the malfunction at no cost to Division. Correction of any malfunction shall also be required during the one (1) year guarantee period and shall be repaired at no cost to Division.

B. PIPES

1. Pipes shall be installed in strict accordance with these Specifications, manufacturer's recommendations and the Plans. In case of discrepancy, the most stringent requirements shall apply. Install pipes after completion of rough grading in affected areas.
2. Excavate trenches to the minimum depth as shown on the Plans and to widths to allow for twelve (12) inches of clearance on each side of the pipe. The trench shall have vertical side walls to the crown of the pipe with the remainder of the excavations sloped as needed for stability and to satisfy OSHA requirements.
3. Lay the pipe in the center of the trench with female joints facing upstream. Place joint sealant as required as each piece is placed. All gaskets shall be protected during installation, and each joint shall be completely pushed together.
4. Install pipe straps at every joint if required by the plans or Supplemental Specifications.
5. Backfill with suitable material in lifts not exceeding eight (8) inches and compacted by hand-operated mechanical tampers to a height at least twelve (12) inches above the pipe. Exercise care not to cause the pipe to shift and/or to uplift while placing and compacting material up to the top of the pipe. Continue backfilling with compacted lifts to the surface. Mass dumping of the backfill will not be allowed. Settled areas shall be corrected by Contractor at no cost to Division.
6. When specified for deep installations, provide granular bedding and backfill around the tiling as shown on the plans. Furnish and encase the granular bedding in filter fabric
7. The last twenty (20) lineal feet, minimum, which daylights shall be rigid PVC pipe as provided in 2.3 of this SECTION. Connect the PVC outlet pipe to the corrugated PE tubing with a Fernco or approved equal coupler. Seal the transition joint with three (3) wraps of tile tape and install a concrete collar around the wrapped joint. Pipe straps may be used in lieu of a concrete collar if the pipe strap can be prevented from slipping off the PVC outlet pipe.
8. Where indicated in the Supplemental Specifications or where approved by the Engineer, pipe straps may be used in lieu of a concrete collar. When using pipe straps on a smooth PVC pipe without a bell, install two (2) ¼" dia. stainless steel thru bolts with washers into the PVC at the 3 o'clock and 9 o'clock positions to prevent slippage of the pipe strap. Bolts shall not puncture the pipe straps.
9. Install rodent guard within six (6) inches of the daylight end of all PVC outlets.
10. If any pipe collapses due to improper installation or from routing of construction equipment over the trench, or it becomes clogged for whatever reason, correct the malfunction at no cost to Division. Correction of any malfunction shall also be required during the one (1) year guarantee period and shall be repaired at no cost to Division.

3.7 RISERS AND OPEN SIDED INTAKES

A. Risers

1. Install terrace risers in strict accordance with these Specifications, manufacturer's recommendation and the Plans. In case of discrepancy, the most stringent requirements shall apply. Provide a tee for every riser. Depending on location, use an in-line tee or a blind tee with cap, as recommended by manufacturer. Fasten riser sections using stainless steel sheet metal screws. All riser tubing should be connected to the main run of tiling or pipe with a wye or a tee.
2. Seal all below-grade riser joints with three (3) wraps of tile tape or other suitable tape as provided in 2.3 of this SECTION and then cover joints with concrete collar that extends at least three (3) inches in each direction as shown on the Plans.

3. Backfill excavation with compacted lifts using excavated material unless this material is unsuitable. Provide suitable backfill material if necessary. Reshape and/or compact adjacent ground surface as required.
4. Contractor shall install two (2) steel fence posts on opposite sides of each riser and bind them together with No. 9 wire. Three (3) steel fence posts shall be used for risers that are ten (10) inches in diameter or greater.

B. Open-Sided Intakes

1. Open-sided intakes shall be placed to the specific elevations and dimensions indicated on the plans.
2. Pipe connecting to the intakes shall be placed as shown on the Plans and in accordance with SUDAS 6010.
3. If precast open-sided intakes are used provide a granular leveling course of one (1) inch clean, angular limestone four (4) to six (6) inches thick at the bottom of the structure and around the pipe connection adjacent to the structure.
4. Backfill material shall only be placed after adequate strength is acquired for the structure. Backfill shall consist of excavated material. Backfill material shall exclude rocks four (4) inches in diameter or larger. The backfill shall be placed in lifts of no more than six (6) inches and compacted using hand equipment.

3.8 FILTER FABRIC

- A. Filter fabric shall be delivered to the job site in such a manner as to facilitate handling and incorporation into the work without damage. Material shall be stored in such a manner as to prevent exposure to direct sunlight and damage by other construction activities.
- B. Prior to the installation of the fabric, the application surface shall be cleared of debris, sharp objects and trees. Tree stumps shall be removed to a depth of at least two (2) feet below the ground surface. In the case of subgrades, all wheel tracks or ruts more than three (3) inches in depth shall be graded smooth or otherwise filled with soil to provide a reasonably smooth surface.
- C. Fabric may be installed on the application surface either by hand or by mechanical methods, provided that the fabric is not torn or the surface rutted. Fabric of insufficient width or length to fully cover the specified area shall be lapped a minimum of twenty-four (24) inches or sewn. If sewn, the minimum lap shall be four (4) inches, and the seam strength shall be greater than or equal to the minimum grab tensile strength of the fabric when wet tested.
- D. Placement of material on the fabric shall be accomplished by spreading dumped material with a bulldozer blade or end-loader, in such a manner as to prevent tearing or shoving of the cloth. Dumping material directly on the fabric will only be permitted to establish an initial working platform. No vehicles or construction equipment shall be allowed on the fabric prior to placement of the granular blanket.
- E. Fabric which is damaged during installation or subsequent placement of riprap, due to failure of Contractor to comply with these provisions, shall be repaired or replaced at his expense, including costs of removal and replacement of the riprap. Torn fabric may be patched in-place by cutting and placing a piece of the same fabric over the tear. The dimensions of the patch shall provide for at least two (2) feet of overlap in every direction, and it shall be weighted or otherwise secured to prevent the granular material from causing lap separation.

3.9 RIPRAP DITCHES & OTHER RIPRAP WORK

- A. When rough grades have been achieved, excavate the area to receive riprap or erosion stone to permit placement of riprap or stone the full depth as shown on the Plans. Dispose of excavated material by incorporating it into general grading of the site. Care shall be taken to prevent placement of acidic spoil material on top of treated subgrade or cover material.
- B. Unless otherwise specified in plan details, riprap or erosion stone shall be placed over a six (6) inch thick filter layer of macadam stone, where required, in areas shown on the Plans and in a manner which shall produce a reasonably well-graded mass of stone with the minimum practical percentage of voids. All material shall be placed and distributed such that there shall be no objectionable accumulations of either the larger or smaller sizes of stone, and such that the entire mass of stone shall be in accordance with the lines, grades and thickness as shown on the Plans.
- C. Filter fabric may be used as an underlayment below the riprap in level plunge pools or stilling basins, but it shall not be used as an underlayment in drainage ditches lined with riprap or erosion stone. When filter fabric is specified, Contractor shall place the riprap or erosion stone to avoid tearing, puncturing, or shifting the filter fabric. Riprap or stone shall not be dropped more than two (2) feet when being placed on filter fabric. Tears or rips in the fabric shall be repaired in accordance with manufacturer's recommendations.
- D. It is the intent of this Specification to produce a compact riprap or stone protection in which all sizes of stone material are placed in their proper proportions. Placing or rearranging individual stones by hand or mechanical equipment should be anticipated and may be required to the extent necessary to secure the specified results.
- E. Contractor shall complete the following in riprap ditches requiring grout:
 - 1. Larger spaces between stones shall be filled with smaller pieces of riprap. The stones shall be compacted to give them firm bearing and stability.
 - 2. After stone surface has been inspected and approved, the spaces between the stones shall be filled with grout. The grout shall be brushed or broomed into the spaces to ensure proper filling.
 - 3. Grout placement and curing shall meet the requirements of IDOT Section 2507.03 E, Grouting.

3.10 EROSION CONTROL MAT

- A. Careful installation of erosion control mat is critical for its immediate and long-term performance. Contractor shall install per details shown on the Plans and in strict accordance with manufacturer's recommendations. Where details on the Plans show more stringent requirements, drawing details shall apply. Staking patterns shall be based on the design discharge rates as determined by the Engineer. The upper most portion of the mat shall be installed in an anchor trench in per the manufacturer's recommendations.
- B. Contractor shall fine grade the surface as uniformly as possible and remove any rocks, roots and other deleterious substances. The success of the mat relies heavily on its placement such that it is uniformly in contact with the ground. Proceed with seeding operations in Section 02700 –SEEDING, including soil testing, seedbed preparation, liming, fertilizing, seeding and mulching.
- C. After seeding and mulching has been performed in accordance with Section 02700, Contractor shall install erosion control mat as and where shown on the Plans.
- D. Contractor shall reseed all disturbed areas by hand. A light overseeding by hand of the overall mat area may be beneficial but is not mandatory.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. The construction cost of all work included in this Section of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. The unit price for each of these items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work constructed and measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.
- B. Measurement and payment for each work item in this SECTION shall be in accordance with the following:
1. *Terrace*: The unit price for terraces in this SECTION shall include materials, equipment and work required to construct (grade) the terraces in conformance with details and dimensions shown on the Plans. The length of installed terraces shall be measured along the center of the ridge to the nearest one (1) foot jointly by Contractor and Engineer.
 2. *Riser - Terraces*: Unit prices shall include all materials and work required for installation of risers in conformance with details and dimensions shown on the Plans, these Construction Specifications, and as may be required by the manufacturer. Unit prices shall include furnishing and installing risers, fittings, tape, concrete, excavation, backfill, metal stakes, and all other incidental construction including furnishing and installing silt fencing around the riser, cleaning of sediment, maintenance and repairs. Measurement for payment of risers shall be based on the number and size of specified risers, properly installed and maintained.
 3. *Open-Sided Intakes*: Unit price shall include all materials and work required for installation of open-sided intakes in conformance with details and dimensions shown on the Plans and these Specifications. Unit prices shall include furnishing and installing the intake, connecting pipes, concrete, excavation, backfill, and all other incidental construction including cleaning of sediment, maintenance and repairs. Measurement and payment of intake shall be based on the number of each type and size of riser properly installed and maintained.
 4. *Tiling*: The unit prices shall include all materials and work required for installation of the tile and fittings (SWPE and PVC as applicable) in conformance with details and dimensions shown on the Plans. The unit prices shall include furnishing and installing the pipe, fittings, trenching, removal and disposal of excess trench material, dewatering, backfill, compaction, and all other work items incidental thereto, including tape and concrete for sealing below-grade connections. Tees required on the ends of tiling shall also be incidental to this work item. Measurement for payment shall be based on the length of tiling for a specified diameter installed as determined from field measurements and rounded to the nearest foot. The measured length of tiling shall not include the length of Pipe Outlet conduit.
 5. *Pipes*: The unit prices shall include all materials and work required for installation of the various pipes and fittings in conformance with details and dimensions shown on the Plans. The unit prices shall include furnishing and installing the pipe, fittings, excavating, removal and disposal of excess trench material, dewatering, backfill, compaction, and all other work items incidental thereto, including sealing of below-grade connections. Measurement for payment shall be based on the length of various pipes for each specified diameter installed as determined from field measurements and rounded to the nearest foot.
 6. *Outlet Pipe*: The unit price for PVC outlets at the end of tile sections shall include all materials, equipment, and work required to install the outlets as shown on the plans including rodent guards, concrete, joint adapters, or pipe straps. Measurement and payment shall be based on the number of each type and size of outlet properly installed.
 7. *Filter Fabric*: Filter fabric used on the project, in accordance with the Plans and/or approved by Engineer, shall be measured and paid in this Item. The quantity of in-place fabric shall be measured to the nearest square yard jointly by Contractor and Engineer. Laps and waste shall not be measured.

Only material placed in accordance with the Plans and these Construction Specifications shall be measured and paid. *Note: Plans and Supplemental Specifications may indicate that Filter Fabric is incidental to associated work items.*

8. *Grout*: This unit price shall include all materials and work required for installation of grout (riprap channels, stilling basins, etc.) in conformance with these Construction Specifications and the Plans. Measurement for payment shall be based on cubic yards of grout installed as determined from delivery tickets, rounded to the nearest one (1) cubic yard. Only material placed in accordance with the Plans and these Construction Specifications or otherwise approved by Engineer or Division shall be measured and paid.
9. *Erosion Control Mat*: Erosion control mat will be paid as indicated in Specification SECTION 02120 – SEDIMENT AND EROSION CONTROL provided it is not considered incidental to other work items.

4.2 SUMMARY – UNITS OF MEASUREMENT

Proposal Bid Items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Terrace	Lineal Foot
Riser - Terrace	Each
Open Sided Intakes	Each
Tiling - (size)	Lineal Foot
Pipes - (size)	Lineal Foot
Outlet Pipe– (size)	Each
Filter Fabric	Square Yard
Grout	Cubic Yard

END OF SECTION 02300

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SECTION 02400 - SUBGRADE PREPARATION

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PART 1 - GENERAL

1.1 DESCRIPTION

A. Applicability

This SECTION provides for the common situations where cover material is not available and for those rare situations where cover material is available.

B. Work Included

Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the subgrade preparation for this project. The work shall include, but is not necessarily limited to, completion of the following work:

1. Field engineering.
2. Soil testing.
3. Wetland undercut and subgrade preparation.
4. Lime-mulch application.
5. Incorporation of the applied lime and mulch materials.

1.2 REFERENCE SPECIFICATIONS

A. The following specifications or standards are incorporated by reference into this SECTION:

1. Iowa Agricultural Liming Material Act.
2. SECTION 02250 EARTHWORK, SELECT BORROW
3. SECTION 02700, PERMANENT SEEDING
4. Trees to remain shall be protected as described by Iowa State University (ISU) Extension Service at https://naturalresources.extension.iastate.edu/forestry/care_maintenance/construction.html

B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and methods needed for proper performance of work of this SECTION.**
- B. Contractor shall use equipment adequate in size, capacity and numbers to accomplish work in a timely manner.**
- C. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with directives of Engineer and Division.**

1.4 DELIVERY, HANDLING AND STORAGE

- A. Storage of materials on job site must be approved in writing by Engineer.
- B. Materials approved for storage on site which are being degraded due to storage must be removed and replaced at no additional cost to Division.
- C. Deliver packaged materials to the site in the supplier's original unopened containers; each container to bear certification as specified.
- D. Store packaged materials off ground and protected from moisture.

1.5 SUBMITTALS

- A. Agricultural Lime
 - 1. Contractor shall submit vendor's certified analysis for ECCE (Effective Calcium Carbonate Equivalent) in minimum pounds of ECCE per ton of material, fineness of agricultural lime, and supplier's name and location.
 - 2. Contractor shall submit results of recent moisture tests for the agriculture lime.
- B. Weight Tickets

Contractor shall submit weight tickets and/or shipping tickets of all materials delivered to the site for the work in this SECTION to Engineer for payment purposes.
- C. Soil Tests

Soil tests to determine the applicable liming rate shall be taken by the Engineer with assistance from Construction Observer and Contractor. Test results will be submitted to the Contractor and Division when received by Engineer. Payment for these tests will be made by Engineer.

1.6 SITE DISTURBANCES

Contractor shall take precautions to ensure that equipment and vehicles do not unnecessarily disturb or damage existing grading or other site improvements. Any areas identified by Engineer or Division as becoming excessively disturbed shall be repaired at Contractor's own expense.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIME

- A. Agricultural lime shall be ground calcitic limestone conforming to the current requirements of the Iowa Agricultural Liming Material Act. The liming material shall contain calcium in the carbonate, oxide or hydroxide form, or a combination thereof. The lime shall have a minimum fineness of fifty-five (55) percent and shall contain at least one thousand (1,000) pounds ECCE per ton of lime to be applied.
- B. If agricultural lime with at least one thousand (1,000) pounds ECCE per ton is not locally available, Contractor may submit a proposal for use of equivalent material based upon the minimum pounds required of ECCE per acre.

- C. Lime sludge salvaged from water treatment plants or other industrial operations can be used for agricultural lime if it can be uniformly distributed over the site. Moisture content and ECCE tests results shall be provided to Engineer and Division to determine application rates. Moisture tests will be taken by Engineer during placement and application rates will be adjusted as appropriate.

2.2 MULCH – NON-WETLAND AREAS

- A. Conventional mulch shall be air-dry and shall consist of straw, harvested from oats, rye or wheat, corn stover (stalks), hay or grass forage cut from native grasses or other plants approved in writing by the Division.
- B. Conventional mulch shall have been properly cured, harvested and baled. Mulch harvested after a killing frost or during dormant periods will not be acceptable.
- C. All mulch shall be free of noxious weeds as published by the local County Weed Commissioner and other weeds deemed undesirable by Engineer, such as foxtail, etc.
- D. Each load of mulch shall be subject to inspection and acceptance by Engineer or Construction Observer prior to unloading.
- E. Alternatives to conventional mulch material like wood chips or composted organic materials, may be considered but are subject to approval by Engineer and Division. Mulch substitutions shall be tested for moisture content. The bulk weight of alternative mulch furnished and applied must be adjusted to provide an amount of dry mass equivalent to that provided by conventional mulch, which contains an assumed air-dry moisture content of twenty (20) percent. Based upon moisture tests, Engineer shall determine the adjusted bulk application rate for the substitute mulch.
 - 1. Wood Chips – This substituted material can either be processed on site or delivered to the site.
 - a. All material must be able to pass through a one-half (1/2) inch screen and shall not have excessive amounts of leaves or soil.
 - b. All material shall be able to decompose within a sixty (60) day to ninety (90) day period.
 - c. Additional nitrogen must be applied prior to disking to provide better decomposition.
 - i. The amount of active nitrogen required is approximately one (1) percent of the dry weight of the wood chips, subject to adjustment by Engineer.
 - ii. This additional nitrogen will not be measured for payment and is considered incidental to allow for the use of wood chips as a substitute for mulch.
 - 2. Composted Organic Materials
 - a. Compost can be derived from processed wood chips, food waste or other non-hazardous organic waste, subject to approval by Engineer.
 - b. Compost shall be able to pass through a one-half (1/2) inch screen.

- c. Compost shall be aged at least twelve (12) months and from an approved supplier.

2.3 MULCH – WETLAND AREAS

- A. Mulch material, condition and quality shall conform to the provisions of 2.2 A through C above.
- B. Each load of mulch shall be subject to inspection and acceptance by Engineer or Construction Observer prior to unloading.
- C. No alternatives to conventional mulch shall be considered for use in wetland areas.

2.4 WETLAND FERTILIZER

- A. Fertilizer shall be a standard commercial product which, when applied at the proper rate, will supply the quantity of total active nitrogen (N) at a rate of thirty (30) pounds per acre for the lower portion of the subgrade treated in wetland areas.
- B. Fertilizer shall be uniform in composition, liquid or dry, and shall be free flowing. Fertilizer may be delivered in bulk from the supplier or in its original unopened containers. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

2.5 COVER MATERIAL

- A. Cover material soil shall be subject to approval of the Engineer and Division. It shall exhibit suitable soil pH, texture and structure appropriate for supporting grass vegetation. Evaluation of soil properties may include visual, tactile and/or laboratory tests.
- B. Should soil exhibit sub-optimal pH but possess suitable soil texture and structure, it may be considered suitable for cover material, if a neutralization period is implemented.

Cover material may include, but is not necessarily limited to:

- 1. Dark brown to black topsoil of appropriate texture typically encountered in the A horizon of a soil profile.
- 2. Light to dark yellowish brown, lean, sandy or silty clay loam to silty or sandy clay with redoximorphic features typically encountered in the B horizon of a soil profile.
- C. Gray to black soil materials typically encountered below the B horizon in a soil profile are generally not considered suitable for use as cover material without detailed testing.
- D. Platy shale, shale-like coal slag or spoily materials shall NOT be considered suitable for cover material.

PART 3 - EXECUTION

3.1 TIMING – WITHOUT COVER MATERIAL -- NEUTRALIZATION PERIOD REQUIRED

- A. When cover material is NOT available, both time and moisture are required for lime to neutralize acidic spoil material and for mulch to decompose. A delay period is required to enhance the benefit between the lime/mulch treatment and seeding operations. The length of the delay is dependent on many factors including lime and mulch properties, soil properties, and weather conditions.
- B. Contractor shall coordinate his work to achieve maximum delay time, perhaps as much as several months or over-winter, at no additional expense to Division. Contractor shall request approval of Division for when the seeding operations can begin.

3.2 TIMING – WITH COVER MATERIAL

- A. Prior to application of ag lime, Engineer and Division shall approve the final grades of areas to receive cover material.
- B. No cover material shall be placed over untreated spoil material. All agriculture lime application and incorporation shall be completed in areas designated to receive cover material.
- C. No cover material shall be placed in constructed wetland areas until the agricultural lime, fertilizer and mulch have been placed and properly incorporated. If cover material is placed inadvertently prior to placement of agriculture lime to neutralize the soils, Contractor shall remove and replace the cover material as needed at his own cost to allow for the lime to be placed and incorporated.
- D. When cover material is available, it shall be applied as a uniform thickness on top of treated spoil material per the requirements of SECTION 02250 EARTHWORK, SELECT BORROW. The minimum thickness of cover material placed shall be nine (9) inches unless a greater thickness is determined by Engineer based upon the volume of cover material available.
- E. When approved cover material is properly placed over treated spoil material, a neutralization period is not required unless additional time is required to improve sub-optimal soil pH as directed by the Engineer or Division.
- F. If Engineer or Division determines that the addition of mulch will improve the soil tilth of cover material, mulch shall be applied and incorporated into the cover material the rate specified in 3.7 A. below. Contractor shall limit the depth of incorporation so that spoil material below the cover is not brought up to the finished surface. Mulch so incorporated shall be allowed at least thirty (30) days to decompose prior to seeding.

3.3 SOIL TESTING

- A. WITHOUT Cover Material: As the Contractor is nearing final grade in portions of the site to prepare for seeding, the Contractor shall contact and schedule soil sampling with the Engineer.
- B. WITH Cover Material: As the Contractor is nearing final subgrade in portion(s) of the site to prepare for placement of select borrow (cover) material, the Contractor shall contact and schedule soil sampling with the Engineer. The Engineer is to collect the samples, assisted by the Construction Observer and Contractor, and submit them for testing.

- C. The Engineer is to collect the samples, assisted by the Construction Observer and Contractor, and submit them for testing.
 - 1. Engineer and Contractor shall collect composite samples of not less than ten (10) well-distributed individual soil cores from any contiguous area of ten (10) acres or less. Soil cores shall be three-quarter (3/4) inch to one (1) inch diameter to a depth of about twelve (12) inches. Areas having observable differences in material types or surface conditions (soil types) shall be handled as different samples, even if less than (10) ten acres.
 - 2. Engineer shall combine soil cores to form composite samples for each (10) ten acres of contiguous area and/or observable different soil types by mixing well and placing in sample bag to be sent to laboratory. (e.g. If total area is 30 acres and has two (2) distinctly different soil types of fifteen (15) acres each, then there should be four (4) composite samples containing ten (10) soil cores each – two (2) composite samples from each soil type.)
- D. Engineer shall take responsibility to have each composite soil sample delivered to an approved soil testing laboratory. Each sample should be tested for the properties listed below. It should be noted by Contractor that test results for Item #3 below can often take four (4) weeks or longer to receive. The Engineer cannot be held responsible for delays in schedule due to Contractor scheduling of sampling or the time it takes for the laboratory to complete the tests.
 - 1. pH.
 - 2. Buffer pH.
 - 3. Acid/Base Accounting based on pyritic sulfur with total sulfur
- E. Engineer shall obtain liming recommendations to achieve a pH of at least 6.5 for spoil from the laboratory and submit the results to Division. The cost of all services required from the testing laboratory for initial liming recommendations shall be the responsibility of Engineer.
- F. Soil test results and laboratory recommendations shall be used by Engineer and Division in determining the amount of ag lime to be applied. The final rate determined by Division and Engineer shall be applied by Contractor and this rate may be more or less than that recommended by the laboratory.

3.4 WETLAND AREAS – WITHOUT COVER MATERIAL

- A. Subgrade Preparation
 - 1. Engineer and Division shall approve the final grades in the wetland areas prior to incorporation of mulch and fertilizer materials by Contractor.
 - 2. After final grade acceptance, Contractor shall excavate at least nine (9) inches of material below final grade in the constructed wetland areas as shown on the plans. This material shall be set aside to be replaced after this exposed layer has been treated.

B. Application for Undercut Area

1. Agricultural Lime (tons ECCE per acre) shall be applied at the same rate as that determined from the soil tests taken for the rest of the site.
2. Fertilizer – Nitrogen (N) shall be applied at a rate of thirty (30) pounds per acre.
3. Mulch – Mulch shall be applied at a rate of five (5) tons per acre.

C. Incorporation for Undercut Area

1. Contractor shall apply and incorporate the lime, fertilizer and mulch into the exposed undercut area over the entire wetland areas as designated in the plans. The depth of incorporation shall extend at least nine (9) inches into the spoil material beneath the undercut level and shall be completed with an acceptable method as approved by the Engineer.
2. Application will not be permitted during adverse conditions, such as high winds, surface frost to a depth of greater than one (1) inch, excessive moisture in the surface to be treated, or if rain is predicted within the time Contractor estimates will be required for application and incorporation of the mulch and fertilizer within the approved wetland area(s).

D. Replacement of Undercut Material

After application and incorporation of lime, fertilizer, and mulch is complete in the undercut subgrade, Contractor shall replace the excavated material.

E. Application for Replaced Undercut Material

1. Agricultural Lime –Agricultural lime (tons ECCE per acre) shall be applied at the same rate as that determined from the soil tests taken for the rest of the site.
2. Fertilizer – Nitrogen (N) shall be applied at a rate of thirty (30) pounds per acre.
3. Mulch – Mulch shall be applied at a rate of five (5) tons per acre.

F. Incorporation for Replaced Undercut Material

Contractor shall apply and incorporate ag lime, fertilizer, and mulch into the replaced material from undercut area over the entire wetland areas as designated on the plans. The depth of incorporation shall extend at least nine (9) inches into the spoil material beneath the undercut level and shall be completed with an acceptable method as approved by the Engineer.

3.5 WETLAND AREAS – WITH COVER MATERIAL

A. Subgrade Preparation

Contractor shall establish the final grade, less the depth of cover, in the areas where constructed wetlands are shown on the plans. The Engineer and Division shall approve the final grades in the wetland areas prior to incorporation of lime materials by Contractor as described in *3.6 Lime-mulch Application* above.

B. Application Rates – Prior to Cover Placement

1. Agricultural Lime –Agricultural lime (tons ECCE per acre) shall be applied at the same rate as that determined from the soil tests taken for the rest of the site prior to placement of cover material.
2. Fertilizer – Nitrogen (N) shall be applied at a rate of thirty (30) pounds per acre prior to placement of cover material or as otherwise indicated in the Supplemental Specifications.
3. Mulch – Mulch shall be applied at a rate of five (5) tons per acre prior to placement of cover material or as otherwise indicated in the Supplemental Specifications.

C. Incorporation – Prior to Cover Placement

1. After final grade acceptance and before placement of cover material, Contractor shall apply and incorporate the lime, fertilizer and mulch over the entire wetland areas as designated on the plans. The depth of incorporation shall extend at least into the upper nine (9) inches of spoil material and shall be completed with an acceptable method as approved by the Engineer. Cover material can then be placed over the wetland treated subgrade as shown on the plans.
2. Application will not be permitted during adverse conditions, such as high winds, surface frost to a depth of greater than one (1) inch, excessive moisture in the surface to be treated, or if rain is predicted within the time Contractor estimates will be required for application and incorporation of the mulch and fertilizer within the approved wetland area(s).

D. Application Rates and Incorporation – After Cover Placement

1. After placement of cover material, areas within the wetland areas will receive additional lime and fertilizer, as established in SECTION 02700- SEEDING. Additional mulch shall also be applied at a rate of two (2) tons per acre on the cover material within the wetland areas shown on the plans. These materials shall be incorporated into the cover material as soon as conditions allow and prior to the impoundment of water. Care shall be taken not to mix the spoil material into the cover material during this disking.

3.6 LIME-MULCH APPLICATION – WITHOUT COVER MATERIAL

A. Application Rates

1. Agricultural Lime - Contractor shall plan to apply lime (tons ECCE per acre) at the rate as shown on the plans or listed in the Supplemental Specifications unless a different rate is specified based on the results of soil tests as described in 3.3.D. which are taken after rough grading is completed. The application rate provided in these documents is based on limited information available and is for bidding purposes. Actual application rate will vary depending upon soil test results.
2. Mulch, Subgrade - Contractor shall apply mulch at a rate of five (5) tons per acre or as otherwise indicated in the Supplemental Specifications.
3. Weight Tickets - Weight tickets shall be provided to the Engineer to determine that the appropriate amount of lime and mulch was applied prior to incorporation.

B. Incorporation

1. Contractor shall demonstrate to Engineer and Division on a small plot of one-tenth (1/10) acre or more in size, the method and equipment which will be used to thoroughly mix the lime-mulch materials into the upper twelve (12) inches of spoil. When an acceptable method is agreed to by Engineer and Division, that method shall be used throughout the Project. Engineer and Division reserve the right to reject the method of incorporation as it progresses if the previously approved procedure stops obtaining the desired results.
2. Prior to the application and incorporation of the lime and mulch materials, Engineer and Division shall approve the final grades and the lime application rates based on the spoil test results. Contractor shall request approval to initiate the lime-mulch application on areas of at least five (5) acres in size.
3. Contractor will obtain Engineer and Division's approval of site conditions prior to application of lime or mulch. Application will not be permitted during adverse conditions such as high winds, surface frost to a depth greater than one (1) inch, excessive moisture in the surface to be treated, or if rain is predicted within the time Contractor estimates will be required for application and incorporation of the lime-mulch within the approved area.
4. After receiving approval from Engineer and/or Division, Contractor shall evenly apply agricultural lime and mulch directly on the surface to be treated. Contractor shall incorporate the lime/mulch into the upper twelve (12) inches of material the same day the lime and mulch are applied, using the agreed upon method per 3.6.B.1 above. Incorporation shall be done along the contour, and compaction shall be kept to a minimum. This may require multiple passes to thoroughly mix both the lime and mulch through the upper twelve (12) inches.

C. Contractor shall use means necessary to prevent dust from becoming a nuisance to public, to neighbors and to other work being performed on or near site.

D. No lime or mulch shall be applied on site if that load of lime or mulch is not accompanied by an appropriate weight ticket. All lime and mulch weight tickets for material applied on site shall be submitted to the construction observer or engineer upon arrival of the material on site. If Contractor applies lime or mulch prior to construction observer or engineer receiving appropriate weight ticket for that material, or in the absence of the construction observer or engineer, Division may require additional lime and/or mulch be applied to the site at Contractor's expense to assure that Contract specified amounts are met.

3.7 LIME-MULCH APPLICATION – WITH COVER MATERIAL

A. Application Rates

1. Agricultural Lime – If required by Engineer or Division, Contractor shall plan to apply ag lime (tons ECCE per acre) at the rate determined by engineer based on the results of soil tests as described in 3.3.D. which are sampled from stockpiles of cover material. The soil tests of cover material should not include acid-base accounting unless it is recommended by Engineer in consultation with Division. This application of agricultural lime may, be in addition to agricultural lime applied immediately prior to seeding.

2. Mulch, Subgrade – If required by Engineer or Division, Contractor shall apply mulch at a rate of five (5) tons per acre to improve soil tilth of the cover material. This application of mulch shall not be considered equivalent to *Mulch, Seeding* described in SECTION 02700.
- B. Incorporation of the additional agricultural lime and/or mulch shall proceed as described in 3.6 B. above except the depth of incorporation shall not exceed the thickness of the cover material.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. Construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in Proposal and Schedule of Prices (*Document C*) for work items described below. Unit price for each of these several items shall include its pro rata share of overhead so that sum of products obtained by multiplying unit prices so set forth by amount of work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of work included in this SECTION.
- B. Measurement and payment for each work item in this SECTION shall be in accordance with following:

1. *Subgrade Preparation:* Contractor's unit price for Subgrade Preparation shall constitute full payment for Incorporation of agricultural lime and mulch into wetland and non-wetland areas. At Contractor's option, it may also include compensation for rock picking and removal.

The Subgrade Preparation area will be based upon the grading footprint as shown on the plans, rounded to the nearest one-tenth (1/10) acre. Any field adjustments made will be measured jointly by Contractor and Engineer. The total area for payment shall only be counted **once** EXCEPT in the case for those measured areas where cover material is placed **and** where that cover material requires additional incorporation of agricultural lime and mulch as determined by the Engineer.

2. *Agricultural Lime:* Contractor's unit price for agricultural limestone used in subgrade preparation work shall represent full payment for furnishing, delivery, and application of the lime in accordance with the specifications. The unit price for *Agricultural Lime* required in this SECTION shall be considered equal to the unit price for *Agricultural Lime* required in SECTION 02700, PERMANENT SEEDING. Submittals required under Item 1.5 *Submittals* of this SECTION shall accompany each shipment of agricultural limestone for payment. Actual application rate will vary, pending recommendations of soil tests conducted in accordance with Item 3.3 *Soil Testing*, of this SECTION. This pay item will also include lime placed on both the undercut and replaced material within the wetland areas.

Measurement for payment purposes shall be actual number of tons of ECCE, based upon a dry unit weight, applied by Contractor in complying with requirements of this SECTION.

3. *Mulch, Subgrade:* Contractor's unit price for Mulch, Subgrade shall represent full payment for furnishing approved mulch materials, including freight, delivery and application. This pay item shall also include mulch placed into both the undercut and the replaced material within the wetland areas. No additional adjustment in unit price

will be made if substitute materials are used. No additional payment will be made if additional nitrogen is required with use of approved substituted mulch material.

Engineer will determine in acres, to the nearest one-tenth (1/10) acre, the actual area in which the mulch application was performed. Contractor shall provide field measurements as required to show the limits of the area mulched. Delivery receipts showing certified weight prior to placement will be used to confirm that sufficient mulch required tons per acre incorporation of mulch.

4. *Wetland Fertilizer:* Payment for fertilizer, Nitrogen (N), furnished, delivered, and applied into wetland areas, per requirements of this SECTION, shall be made in accordance with Contractor's unit prices for wetland fertilizer. Bulk weight tickets must accompany each shipment of fertilizer and shall form the basis for measurement and payment. Measurement for payment purposes shall be the actual weight to the nearest one pound (1.0 Lb.) of active ingredient for the nutrient.
5. *Wetland Undercut and Replacement:* Contractor's unit price for wetland undercut and replacement shall constitute full payment for excavation of undercut material, stockpiling the material nearby, and replacement of the undercut material after the initial incorporation is complete and all other incidental work including the incorporation of the fertilizer, mulch, and agricultural lime.

The wetland undercut and replacement area will be based upon the wetland areas as shown on the plans rounded to the nearest one-tenth (1/10) acre. Any field adjustments made will be measured jointly by Contractor and Engineer. The total area for payment is only counted once.

4.2 SUMMARY – UNITS OF MEASUREMENT

Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Subgrade Preparation	Acre
Agricultural Lime	Ton (ECCE)
Mulch, Subgrade	Acre
Wetland Fertilizer	Pound (active ingredient)
Wetland Undercut and Replacement	Acre

END OF SECTION 02400

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PART 1- GENERAL

1.1 DESCRIPTION

Work Included

Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete installation of fence for this project. The work shall include, but is not necessarily limited to, completion of the following work:

- A. Field engineering.
- B. Removal and salvage to landowners of existing fence.
- C. Installation of field fence.
- D. Installation of field gates.

1.2 REFERENCE SPECIFICATIONS

- A. The following specifications or applicable standards are incorporated by reference into this SECTION:
 - 1. SECTION 02100 – MOBILIZATION, SITE CLEARING & PREPARATION.
 - 2. SECTION 02700 – PERMANENT SEEDING.
 - 3. American Society for Testing and Materials (ASTM).
 - a. A 116: Zinc-Coated (Galvanized) Steel Woven Wire Fence and Brace Wire.
 - b. A 121: Zinc-Coated (Galvanized) Steel Barbed Wire.
 - 4. Iowa Department of Transportation (IDOT).
- B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Contractor shall use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this Section.
- B. Contractor shall use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, Contractor shall comply with the directives of Engineer and Division.

1.4 JOB CONDITIONS

- A. Where existing fences are to be removed and subsequently replaced as a part of the work, Contractor shall field establish such reference points and ties as are necessary to ensure replacement fencing will follow the same alignment as existing fencing. If it is noted to salvage the fence to the landowner, then the existing fencing shall be carefully removed where noted on the Plans and salvaged as described in SECTION 02100 MOBILIZATION, SITE CLEARING, AND PREPARATION, Part 3.4. Also refer to paragraph 4-05 in the General Conditions (*Document N*) for other requirements regarding existing and new fencing.
- B. Where new fencing is located along property lines, all affected landowners and/or public agencies shall mutually agree on location of the new fencing. In the event the location of the new fencing cannot be agreed upon by all parties, the affected portion in contention shall not be installed.
- C. In the event fencing is installed during or after seeding work in SECTION 02700 – PERMANENT SEEDING, Contractor shall exercise care not to damage the seedbed or seeded area. In the event of damage, re-dress, re-seed, re-plant and re-mulch as applicable.
- D. Installation of some fencing may be impacted by the location of existing buried utilities or those placed as part of the project. Contractor shall have all the utilities properly marked prior to installation of the fence and is responsible for any damage that may occur as a result of this work.
- E. Areas where the fence line crosses a stream, channel or other structure will require the use of special fencing. These areas are addressed in the Supplemental Specifications.

1.5 SUBMITTALS

Contractor shall submit the suppliers' certifications to Engineer that fencing, posts, gates and hardware meet the indicated specifications.

1.6 DELIVERY, STORAGE AND HANDLING

Contractor shall store and handle materials in accordance with applicable requirements of the General and Special Conditions and in accordance with the supplier's requirements.

PART 2 - PRODUCTS

2.1 GENERAL

Materials that are considered "standard products" of a manufacturer may be used when such products conform to the Specifications.

2.2 POSTS AND BRACING

- A. Posts
 - 1. Wood posts shall meet the requirements of IDOT Section 4154.07. Metal posts as shown on IDOT Standard Road Plan, MI-103, Sheet 2 are not allowed, except at water crossings.

2. All posts shall be pressure treated for ground contact; creosote treated posts are acceptable.

B. Steel Braces

Steel braces shall meet the requirements of IDOT Section 4154.08.

C. Brace Wires

Brace wires shall be two double strands of No. 9 wire twisted tight with a short stick or board which shall be left in place for future tightening. Bracing wire shall meet the requirements of IDOT Section 4154.05.

2.3 FENCING

A. Woven Wire

Woven wire fencing shall meet the requirements of IDOT Section 4154.02, and shall conform to ASTM A-116, Class 3 zinc coating. It shall be forty-seven (47) inches high with a fabric design meeting ASTM Design Number 1047-6-11.

B. Barbed Wire

1. Barbed wire shall be galvanized steel with a four (4) point pattern of round barbs spaced five (5) inches on center that meets the requirements of IDOT Section 4154.04.
2. When woven wire fence is used, note that only a single top strand of barb wire is required. The bottom strand as shown on IDOT Standard Road Plan, MI-103, Sheet 2, is not to be installed
3. When barbed wire fence is used, five (5) stands shall be used and evenly placed.

C. Staples

Staples shall be hot-dipped galvanized and shall consist of either screw shank type (or equivalent) with a minimum length of one one-quarter inches (1 1/4") or No. 9 plain wire with a minimum length of one three-quarter inches (1 3/4"). All staples used shall meet the requirements of IDOT Section 4154.06.

2.4 GATES AND HARDWARE

A. Gates shall be installed as indicated on the Plans or Supplemental Specifications.

1. All gate panels shall be fabricated from two (2) inch diameter rolled steel tubing with 16 ga. wall thickness and shall be shop painted. Each gate panel shall be fifty (50) inches in height.
2. Single gates shall be comprised of one (1) gate panel having installed width as shown on the plans. Minimum single gate panel width shall be twelve (12) feet. Maximum single gate panel width shall be sixteen (16) feet.

3. Double gates shall be comprised of two (2) equal-width gate panels. The default double gate panel width shall be twelve (12) feet but longer gate panels may be specified where an overlap is desired when gates are closed or where a wider opening is required.
- B. Mounting hardware, including hinges and latches, shall be as recommended by the gate manufacturer for the particular site installation. Contractor shall provide case hardened chain of suitable length to secure gate if not provided by gate manufacturer.

PART 3 - EXECUTION

3.1 PERFORMANCE

- A. Contractor shall install fencing in accordance with these Construction Specifications and Plans.
- B. All six (6) inch wood posts shall be set a minimum of forty-two (42) inches below grade. All four (4) inch posts shall be set a minimum of thirty (30) inches below grade. If post holes are bored, backfill around wood posts with tamped material from excavation or with concrete. Posts may be driven into the ground in lieu of boring post holes.
- C. Wood posts shall be placed at a maximum spacing of twelve (12) feet except for braces, where the maximum spacing shall be eight (8) feet.
- D. Contractor shall provide brace assemblies consisting of with steel braces and diagonal bracing wires to brace the wood posts at the following locations:
 1. Points of connection to existing fence.
 2. End posts.
 3. Points of deflection in horizontal alignment exceeding ten (10) degrees.
 4. Points of deflection in vertical alignment exceeding thirty (30) degrees.
 5. On in-line sections exceeding five hundred (500) feet, evenly spaced so as not to exceed five hundred (500) feet.
- E. Contractor shall stretch the woven wire fabric and barbed wire on outward face of posts at corners and along curves.
- F. Contractor shall attach woven wire fabric and barbed wire to each wood post with at least four (4) staples.
- G. Contractor shall cut and tie off the woven wire fabric and barbed wire at all end posts and brace posts adjacent to corner and angle posts.
- H. Contractor shall hand tension the woven wire fabric and barbed wire at all corner post assemblies from the brace post around the corner post.
- I. All materials and installation procedures shall be similar to IDOT Standard Road Plan MI-103 which is included in the Appendix for reference. Differences are noted in Items 2.2A and 2.3B of this SECTION.

- J. Where gates will be installed:
1. Contractor shall provide sufficient clear opening between gate posts to accommodate the specified width of gate panel(s) with their hinges.
 2. Both ends of the clear opening shall be a brace assembly.
 3. If an overlap is required for double gates adjust clear opening to provide a minimum twelve (12) inches to a maximum twenty-four (24) inches overlap when gates are closed.
 4. Contractor shall install the gates and hardware in accordance with manufacturer's recommendations and secure with a chain unless another device is provided by manufacturer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 UNIT PRICES

- A. Construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. Unit price for each of these items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work actually constructed, measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION of the Construction Specifications or on the Plans, including field engineering.
- B. Measurement and payment for each work item in this SECTION shall be in accordance with the following:
1. *Field Fence:* New fencing shall be paid for at the unit price per linear foot, rounded to the nearest foot, for fencing furnished and installed according to the Plans and as specified herein. Only new fencing as shown on the Plans shall be measured for payment. Any existing fencing otherwise removed and replaced by Contractor, whether replaced with salvaged fencing or with new fencing, shall not be measured for payment. The length of fence approved for payment will be jointly measured in the field by Contractor and Engineer.
 2. *Single Gate:* Single gate and all gate hardware shall be paid for at the unit price for each single gate furnished and installed in accordance with this SECTION.
 3. *Double Gate:* A double gate, consisting of two (2) gate panels, and all gate hardware shall be considered one (1) unit and paid for at the unit price for each double gate furnished and installed in accordance with this SECTION.

4.2 SUMMARY – UNITS OF MEASUREMENT:

Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Field Fence	Lineal Foot
Single Gate (1 gate panel)	Each
Double Gate (2 gate panels)	Each

END OF SECTION 02500

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PART 1 - GENERAL

1.1 DESCRIPTION

- A. Work under this SECTION covers requirements for materials, tools, equipment and services necessary to complete the herbaceous seeding of all areas disturbed during construction of this project. The work shall include, but is not necessarily limited to, completion of the following work:
 - 1. Preparation of seedbed.
 - 2. Testing surface materials for lime and fertilizer application rates.
 - 3. Applying lime, fertilizer, and seed.
 - 4. Applying mulch.
 - 5. Applying erosion control mat, if specified.
 - 6. Temporary fencing if required.
 - 7. Field engineering.

1.2 REFERENCE SPECIFICATIONS

- A. The following specifications or applicable standards are incorporated by reference into this SECTION:
 - 1. SECTION 02400 – SUBGRADE PREPARATION.
 - 2. U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and Iowa State laws.
 - 3. Iowa Agricultural Liming Material Act.
- B. Above-mentioned references, which do not appear printed with the Contract Documents, can be provided to Contractor upon request.

1.3 QUALITY ASSURANCE

- A. Qualifications of Workers: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this SECTION.
- B. All seed shall meet or exceed requirements contained in specifications of this SECTION and Federal, State and County laws requiring inspection for plant disease and insect control and shall be labeled and certified in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and Iowa State laws. All seed must be dated for test and be from the last season prior to date of delivery.
- C. Lime Materials shall be a Standard Ground Agricultural Limestone which meets current requirements of the Iowa Agricultural Liming Material Act.

- D. Fertilizer shall be a commercial grade fertilizer and shall meet standards for grade and quality as per the requirements of the Iowa Department of Agriculture and Land Stewardship.
- E. Mulch shall meet the requirements of PART 2 PRODUCTS of this SECTION. Contractor shall identify to Engineer the locations from which the straw mulch was obtained and prove weight.
- F. Engineer reserves the right, at any time, to sample all materials for testing to determine compliance with the requirements of this SECTION.
- G. Contractor (or his designated subcontractor) shall notify Engineer when subgrade preparation, liming and fertilizer, seeding, and mulching is planned to occur. Any work completed without notifying Engineer will be subject to withheld payment until work can be verified.

1.4 JOB CONDITIONS

- A. Areas to be seeded include all project areas disturbed by excavation, grading and other construction procedures required for the completion of this contract.
- B. Seeding shall be performed only during the seasons specified. The planting operation shall not be performed during times of drought, excessive moisture, or other unfavorable climatic conditions.
- C. Prior to the work of this SECTION, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- D. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- E. Prior to permanent seeding, the waiting period as determined by Division will be required after the lime and mulch has been applied to sites where no cover material is available. This waiting period is necessary to allow the lime-spoil reaction and mulch decomposition to occur, providing a suitable environment for vegetation. The waiting period typically requires ninety (90) days. This waiting period is not needed for areas where non-acidic cover material is placed over lime treated spoils.

1.5 SUBMITTALS

- A. Certificates and Receipts
 - 1. Certification shall be submitted to Engineer that all seed to be used is in compliance with the following:
 - a. The Federal Seed Act.
 - b. Iowa Department of Agriculture & Land Stewardship regulations.
 - c. Species type and pounds of pure live seed (PLS) certification.
 - d. Date and results at germination and purity tests.
 - e. Test date to determine the percentages of germination and purity have been completed within a nine (9) month period, exclusive of the calendar month in which the test was completed.

- f. The seed analysis on the label shall be mechanically printed.
 - 2. Suppliers certification of Effective Calcium Carbonate Equivalent (ECCE) content per ton of material must be submitted to and approved by Engineer prior to initial applications and subsequently as requested by Engineer. Necessary information shall include:
 - a. Name and location of supplier.
 - b. Name and address of agency and/or laboratory making ECCE determination.
 - c. Clear identification of stockpile from which limestone is obtained.
 - d. Date of last ECCE test and those for the previous four (4) tests on which ECCE is based.
 - e. Receipts stating weight of material on each truck which arrives on site.
 - 3. Fertilizer delivered in bulk shall be accompanied by the suppliers' certification of analysis and weight for each shipment made to the job site. Fertilizer delivered in individual containers shall be sealed and clearly marked for analysis and weight.
 - 4. Contractor shall supply verification of the weight of mulch delivered to the job site in a method satisfactory to Engineer.
- B. Testing
- 1. Contractor shall select a soil testing laboratory for use on the seeding work and submit the name, address and telephone number for approval by Engineer at least thirty (30) calendar days prior to sampling time.
 - 2. Contractor shall submit to Engineer and Division the results of all tests for specified lime and fertilizer recommendations prior to application as specified in Item 3.2 in this SECTION. Payment for these tests will be made by Contractor.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle materials in accordance with the General Conditions and the Supplemental Specifications.
- B. Storage of all materials on the job site must be approved in writing in advance by Engineer.
- C. Any materials approved for storage on site which, in the opinion of Engineer or Division, are being degraded due to storage must be removed and replaced at no additional cost to Division.
- D. Use all means necessary to protect materials from the elements during delivery, handling and storage.
- E. Deliver packaged materials (seed, etc.) to site in supplier's original unopened containers; each container to bear certification as specified. Pure live seed (PLS) certification shall be attached to all seed containers and shall not be removed except by Engineer.
- F. Store packaged materials off ground and protect from moisture. Moisture damaged materials are unacceptable. Wet, moldy or otherwise damaged seed is unacceptable.

1.7 SITE DISTURBANCES

- A. Take precautions to insure that equipment and vehicles do not unnecessarily disturb or damage existing grading, other site improvements, or adjacent areas to the work.
- B. Repair any damage and return site and adjacent areas disturbed by Contractor's operations to original condition at no cost to Division.

PART 2 - PRODUCTS

2.1 AGRICULTURAL LIME

- A. Agricultural lime shall be ground calcitic limestone conforming to the current requirements of the Iowa Agricultural Liming Material Act. The lime shall have a minimum fineness of fifty-five (55) percent and shall contain not less than one thousand (1,000) pounds ECCE per ton of lime to be applied.
- B. If lime containing not less than one thousand (1,000) pounds ECCE per ton is not locally available, Contractor may submit a proposal for use of equivalent material based upon the minimum pounds required of ECCE per acre.
- C. Lime sludge salvaged from water treatment plants or other industrial operations shall not be approved as a substitute for agricultural lime for permanent seeding.

2.2 FERTILIZER

- A. Inorganic fertilizer shall be a standard commercial product which, when applied at the proper rate, shall supply the quantity of total nitrogen (N), available phosphoric acid (P), and soluble potassium (K) as specified herein.
- B. Inorganic fertilizer shall be a commercial balanced fertilizer, uniform in composition, liquid or dry and free flowing. Fertilizer may be delivered bulk from the supplier or in its original unopened containers. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

2.3 MULCH

- A. Mulch materials shall consist of wheat, oats, rye, hay, grass cut from native grasses or other plants approved in writing by Division. Corn stubble is not an acceptable type of mulch for this application.
- B. Mulch shall be of air dry straw that has been properly cured and harvested. Mulch harvested after a killing frost or during dormant periods will not be acceptable. Mulch shall not be rotted, brittle, moldy, caked or otherwise degraded.
- C. Mulch shall be free of noxious weeds as published by the local County Weed Commissioner and other weeds deemed undesirable by Engineer, such as foxtail, etc.
- D. Each load of mulch shall be subject to inspection and acceptance by Engineer prior to unloading.
- E. At least fifty (50) percent of the salvage weight of each mulch bale shall contain mulch with a length of ten (10) inches or greater. This requirement shall apply to all mulch intended for crimping into the sown seedbed.

2.4 SEED

- A. All seed delivered to the job site shall be labeled according to the U.S. Department of Agriculture Federal Seed Act and shall be furnished in containers with tags showing seed mixture, purity, germination, weed content, name of seller, and date on which seed was tested.
- B. Moldy seed or seed which has been damaged in storage shall not be used.
- C. Seed that is more than one growing season in age shall not be used unless acceptable cold storage can be proven. If adequate cold storage is documented, seed may only be used if a twelve-month germination and viability test is performed.
- D. Seed Mixture: Seed mixtures shall consist of the number of varieties and proportions of pure live seed (PLS) thereof as specified in the Supplemental Specifications. The percentage of pure live seed and the bulk application rate of seed mixture shall be determined using equations 1 and 2 as follows:

Equation 1:

$$\text{Percent Pure Live Seed (\%PLS)} = \left\{ \frac{\% \text{ purity}}{100} \times \left(\frac{\% \text{ germination (a)}}{100} + \frac{\% \text{ hard seed}}{100} \right) \right\} \times 100$$

Equation 2:

$$\text{Actual Bulk Seed Applied per Acre} \left(\frac{\text{Bulk Lb.}}{\text{Acre}} \right) = \frac{\text{Req'd Lb. PLS per acre}}{\left(\frac{\% \text{ PLS}}{100} \right)}$$

- (a) TZ tests may be used instead of a germination test provided TZ tests report the percentage of viable seeds observed in a representative sample

E. Species Substitution

Substitutions of select plant species may be made subject to approval of the Division as discussed below.

1. The Contractor shall provide documentation that a particular species was sought from a variety of suppliers before concluding that a species is unavailable.
2. If after an exhaustive search was performed, and a particular species is determined to be unavailable, a substitution that exhibits a bloom period similar to the species it replaces shall be proposed. A legume should be substituted for a legume, a forb for a forb and a grass for a grass. Obligate (OBL) species should be substituted for obligate species, and facultative (FAC) for facultative. Preference shall be given to species native to Iowa and/or the upper Midwest of the United States.
3. The seed application rate of the proposed substitution(s) shall provide seed coverage at least equal to the seed coverage provided with the specified rate of the species it replaces.
4. The list of possible substitutions may be extensive, and availability may vary over time; therefore, any substitutions should be proposed and approved no sooner than sixty (60) days prior to the anticipated seeding date.

PART 3 - EXECUTION

3.1 INITIAL PREPARATION

- A. Except in the case of temporary seeding, the required lime/mulch treatment specified in Section 02400 - SUBGRADE PREPARATION shall have been performed and completed prior to initiating work of this SECTION in any area.
- B. Areas of the site that do not have cover material shall also have had the neutralization period completed as determined by Division.
- C. Any wetland or pond areas with pooled water levels above the specified seeding elevations for wetland seeding shall be lowered as needed at no additional cost to Division.

3.2 TESTING – SOIL FERTILITY

- A. Contractor shall collect samples of finish grades as specified below for testing provided all of the initial preparations are completed. Engineer **must** be present when samples are collected to prepare a sampling location plan. The samples shall be submitted to laboratory to determine lime and fertilizer recommendations. Payment for these soil tests will be the responsibility of Contractor.
 - 1. Engineer and Contractor shall collect composite samples of not less than ten (10) well-distributed individual soil cores from any contiguous area of ten (10) acres or less. Cores shall be three-quarter (3/4) inch to one (1) inch diameter to a depth of approximately six (6) to eight (8) inches. Areas having observable differences in material types or surface conditions (soil types) shall be handled as different composite samples, even if less than (10) ten acres.
 - 2. Contractor shall combine soil cores to form composite samples for each (10) ten acres of contiguous area and/or observable different soil types by mixing well and placing in sample bag(s) to be sent to laboratory. (e.g. If total area is 30 acres and has two distinctly different soil types of 15 acres each, then there should be four (4) composite samples containing ten (10) soil cores each – two (2) composite samples from each soil type.)
- B. Deliver each composite soil sample to the approved soil testing laboratory. Deliver samples for testing six (6) to eight (8) weeks prior to the beginning of the specified planting period. A shorter lead time may be possible depending on the laboratory. Test each composite sample for:
 - 1. pH.
 - 2. Buffer pH (Buffer Index).
 - 3. CEC (Cation Exchange Capacity).
 - 4. Phosphorus - Bray I (P₁ weak Bray) with recommendations.
 - 5. Exchangeable Potassium with recommendations.
 - 6. Nitrate Nitrogen with recommendations.

- C. Recommendations from the lab shall include rates for applying lime, nitrogen, phosphorus, and potassium for the appropriate grass mix (pasture land) for each area.
- D. Submit test results and laboratory recommendation to Engineer and Division for review at least one (1) week prior to scheduled date for application of lime and/or fertilizer.
- E. Soil test results and laboratory recommendations shall be used by Engineer and Division to determine the amounts of lime and fertilizer to be applied for various areas. Engineer's and Division's final rates shall govern and these rates may be more or less than those recommended by the laboratory.
- F. Cost of all services required from the testing laboratory for fertility shall be the responsibility of Contractor.

3.3 SEEDBED PREPARATION

- A. Dispose of any growth, rocks, or other obstructions which might interfere with tilling, seeding, or later maintenance operations. Break up clods, and dispose of rocks, woody debris and other objects which are six (6) inches or greater in diameter. These obstructions may become exposed during any of the disking operations described below and shall be removed.
- B. **FIRST DISKING:** Till all areas to be seeded by disking or other approved method to thoroughly loosen and pulverize the soil to a depth of six (6) inches. This may require multiple passes of the disk or other approved equipment. Lime and fertilizer shall not be incorporated during this first disking operation. If cover material has been placed over lime-treated spoil, care shall be taken to disk in manner and depth to prevent the acid material from mixing into the cover material.
- C. **SECOND DISKING:** Following the first disking operation apply ag lime and fertilizer (see Item 3.4 *Liming and Fertilizing* below) then re-disk the site to a depth of three (3) inches. Multiple passes may be required to complete this second disking.
- D. **THIRD DISKING:** Following the second disking harrow the site with an approved field cultivator or other approved tillage equipment, until the condition of the seedbed is suitable for seeding. The harrow shall be set to achieve the desired result. This may require manually resetting the teeth to a greater depth, weighting the harrow, removing extension arms on either side of the main frame, a combination of the above, or other modifications. In lieu of harrowing, or if the harrow is not producing the desired result, re-disk the area until the condition of the seedbed is suitable for seeding.
- E. After the third disking operation, and prior to seed application, firm the seedbed with an approved cultipacker or similar piece of equipment. Cultipacking shall continue until such time as a finely pulverized and firmly compacted seedbed is obtained and accepted by Engineer. The seedbed shall be cultipacked again following completion of seeding to ensure adequate seed-soil contact.
- F. Maintain the seedbed until seeded and mulched to provide a smooth area with no rills or eroded areas. Repair and restore prepared seedbed if it becomes eroded or otherwise disturbed.
- G. Throughout seedbed preparation activities, disking, harrowing and other operations may expose rocks, boulders, rubbish, debris, etc. During and/or upon completion of each disking and harrowing operation, and prior to continuing with the next operation, pick up all debris, rubbish, etc., remove or bury all boulders, and pick up all rocks that hinder seedbed preparation or will impede seeding the site or mechanical mowing of the reclaimed site. Dispose of rocks and

boulders in locations as approved by Engineer. Dispose of debris, rubbish, etc. by burying on site or hauling to an approved landfill.

- H. Contractor shall not perform seedbed preparation when ground conditions are unsuitable due to excessive moisture, snow, frost, or frozen ground, as determined by Engineer or Division.

3.4 LIMING AND FERTILIZING

- A. Agricultural lime, nitrogen (N), phosphorus (P), and potassium (K) shall be applied to all areas to be seeded, and shall be incorporated by disking into the top three (3) inches of the prepared seedbed.
- B. Lime and fertilizer shall be incorporated separately or simultaneously, depending upon the timing of product delivery and application.
1. **Lime:** The lime shall be applied and incorporated no less than one (1) week prior to seeding. Once applied, it shall be incorporated within a period of time which will avoid losses due to wind or rain.
 2. **Fertilizer:** The fertilizer must be applied and incorporated no more than one (1) week prior to seeding. Once applied, it too shall be incorporated within a period of time which will avoid losses due to wind or rain.
 3. If lime and/or fertilizer is applied but not yet incorporated, and Engineer or Division believes significant loss of lime and/or fertilizer has occurred due to bad weather, Engineer or Division may then require Contractor to reapply lime, fertilizer, or both, as applicable, at the rates and in the areas of the site so directed by Engineer and Division, at no additional cost to Division.
 4. Incorporation of lime and fertilizer, whether done separately or simultaneously, shall be considered the second disking operation (see Item 3.3 SEEDBED PREPARATION, D above). Once the lime and fertilizer have both been applied and incorporated, continue seedbed preparation as described in 3.3 SEEDBED PREPARATION.
- C. The application rate of agricultural limestone shall be based upon results of soil tests conducted in Item 3.2 TESTING – SOIL FERTILITY in this SECTION. For bidding purposes, it is estimated that the rate provided on the plans or in the Supplemental Specification shall be applied.
- D. Nitrogen (N), Phosphorus (P) and Potassium (K) fertilizer shall be applied to permanent cover seeding at a rate determined by the results of the soil testing in Item 3.2 TESTING - FERTILITY, in this SECTION. For bidding purposes, the rates provided on the plans or in the Supplemental Specification shall be applied.

3.5 SEEDING

- A. All seeding shall be completed within the seeding season dates shown below. Temporary seeding shall be completed at any time where weather and soil conditions will promote vegetation growth. Determine seeding season in consultation with Engineer and Division.

Spring	April 1 - May 30
Fall	August 15 - September 15 (1)*
Dormant	November 15 – hard frost (2)**

(1)* Native species shall NOT be seeded during the Fall season

*(2)**Dormant seeding for the permanent seeding mix may begin once observed soil temperatures are below 50 degrees Fahrenheit (50°F) for at least five (5) consecutive days*

- B. If Contractor foresees that seeding cannot be completed within the specified seeding seasons, he shall submit a written request for a seeding date extension to Division. All seeding completed outside of approved seeding dates is at Contractor's risk. Any repairs and reseeding that becomes necessary as a result of work completed outside the approved dates shall be completed by Contractor at no cost to Division.
- C. General Requirements:
1. As weather and site conditions permit, within the specified seeding season, seed site areas as shown on the Plans and all other disturbed areas.
 2. When conditions are such that less than satisfactory results are likely to be obtained by reason of drought, excessive moisture, snow, or frozen soil, seeding work shall be halted and resumed only when conditions are favorable or when approved alternative or corrective measures and procedures have been affected.
 3. Proceed with seeding work as rapidly as portions of the site become available within seasonal limitations. In any event, seeding shall be accomplished before the prepared seedbed becomes eroded, crusted over, or dried out and shall not be conducted when the ground is frozen or snow covered. Should seeding not be accomplished prior to the prepared seedbed becoming eroded, crusted over, or dried out, or the ground becomes snow covered or frozen, Engineer or Division shall require Contractor to rework the seedbed as necessary prior to seeding at no cost to Division.
 4. Schedule permanent seeding such that mulching of seeded areas takes place no later than forty-eight (48) hours after seeding partial areas. The time period between seeding and mulching shall be shortened if it appears adverse weather conditions could either cause damage to the seeded area or delay the timely application of mulch. If, prior to mulching, the seeded area is damaged by adverse weather, or success of the seeding is in doubt due to Contractor's failure to apply mulch in a timely manner, the seedbed for the area so affected shall be re-prepared and re-seeded, all at no additional compensation. Re-application of ag lime, fertilizer, or both may also be required depending on Engineer's or Division's opinion of the severity of damage due to weather or, in the case of fertilizer, on the time lapse between the initial fertilizer application and reseeding. Reapplication of lime and/or fertilizer, if required by Engineer or Division, shall also be done at no cost to Division.
- D. Seed Placement:
1. **Non-Native Seed Mixes – PRIOR to application of Seeding mulch:**
 - a. Seed all areas to be seeded with the appropriate seed mix as shown on the Supplemental Specifications. Seed species shall be applied at the rates provided in the Supplemental Specifications. Sow seed along the contour using a grassland or rangeland drill set for the specified seeding rates. The drill shall be equipped with double coulter furrow openers. The drill shall be subject to acceptance by Engineer. Drill seeding shall be accomplished with rows set no more than eight (8) inches apart. Overlap each successive seeding passes at least one (1) row width to ensure complete coverage. Upon a show of green, non-acidic bare areas will be reseeded at no additional cost to Division.

- b. Embed the seed at a depth recommended for the species.
- c. Broadcasting by centrifugal-type or hydroseeder broadcasters, or by hand shall also be allowed in areas not accessible to drills or other equipment, and may be allowed for correction or bare spots. Once broadcast, the seed must be covered with soil to a depth recommended for the species.
- d. Upon completion of the seeding operation, cultipack the seedbed to provide a positive seed-soil contact. If the drill seeder is equipped with an approved cultipacker or press wheels, separate operations shall not be necessary. The type of cultipacker/seeder to be used shall be subject to acceptance by Engineer.

2. **Native Seed Mixes – AFTER placement of Seeding mulch:**

- a. Seed all areas to be seeded with the appropriate seed mix as shown on the Supplemental Specifications. Seed species shall be applied at the rates provided in the Supplemental Specifications. Sow seed along the contour using a grassland or rangeland drill especially manufactured for planting native seed species. The machine shall be set to distribute seed at the specified seeding rates. The drill shall be equipped with a depth band which limits the maximum depth of seed placement. Native seeding drills with double disc openers are preferable, but other configurations may be acceptable. The native seeding drill should NOT include no-till coulters. The drill shall be subject to inspection and acceptance by Engineer or Division. Drill seeding shall be accomplished with rows set no more than eight (8) inches apart. Overlap each successive seeding pass at least one (1) row width to ensure complete coverage. Upon a show of green, non-acidic bare areas will be reseeded at no additional cost to Division.
- b. Embed the seed at a depth recommended for the species. **Native seeding mixes shall be planted NO DEEPER than one-fourth (1/4) of one inch.**
- c. Broadcasting by centrifugal-type or hydro-seeder broadcasters, or by hand shall also be allowed in areas not accessible to drills or other equipment and may be allowed for the correction of bare spots. Once broadcast, the seed must be covered with soil to a depth recommended for the species.
- d. Upon completion of the seeding operation, cultipack the seedbed to provide a positive seed-soil contact. If the drill seeder is equipped with an approved cultipacker or press wheels, separate operations shall not be necessary. The type of cultipacker/seeder to be used shall be subject to acceptance by Engineer.

E. Seed Mix Verification:

- 1. Each bag or package of seed mix shall include a tag or label affixed to it which or indicates the seed mix or species contained within it. Adhesive labels, where available, are preferable. If tags or labels are sewn onto the bags, the seam SHALL NOT obscure the printing. Information on the tag or label shall conform to the requirements of 1.4 A of this SECTION.
- 2. Neatly remove the tag or label from each bag. Care shall be taken to avoid mutilating the tag or label during removal. Tags or labels shall not be “ripped” or torn from the bag

or package. Tags or labels that become torn into shall be taped by contractor. Mutilated tags or labels shall not be acceptable.

3. Provide all tags or labels to the Engineer for verification that the specified seed mix with any approved substitutions was applied at the approved rates.
4. In the event Contractor cannot provide tags or labels in acceptable condition to the Engineer, Contractor shall provide a complete master mix tag from his supplier, which demonstrates the appropriate amount of pure live seed was shipped to the site. The master tag shall indicate the project name and show the information on it must conform to the requirement of 1.5 A of this SECTION.
5. Engineer shall perform the verification using the germination and purity information shown on the tags, labels or master tag provided by Contractor. After the applied seed mix is verified, Engineer shall provide all seed tags or labels to the Division.

3.6 MULCHING

- A. Areas receiving erosion control mat do not require mulch after being seeded, but those areas may be mulched if it facilitates the Contractors operations
- B. Timing
 1. **Non-native seed mixes:** for areas sown with non-native seed mixes, mulch shall be applied, but it may be performed either before or after planting at Contractor's option.
 2. **Native seed mixes:** areas to be sown with native seed mixes SHALL have the mulch applied and tucked BEFORE the native seed mix is planted.
 3. Hydromulch, where specified, shall be applied at the specified rate after non-native or native seed mixes are planted.,.
- C. Mulch shall be uniformly applied at the rate of two (2) tons per acre. The mulch may be spread either by hand or by mechanical spreader. When spread by hand, it shall be torn from the bale, "fluffed up" and spread uniformly over the area. When spread by mechanical spreader, the machine shall be adjusted to prevent cutting the mulch into pieces shorter than six (6) inches and to provide uniform distribution of the mulch over the area. The mulch, when applied, shall provide a uniform cover.
- D. After application, the mulch shall be anchored into the soil by crimping into the soil with a mulch tiller to a minimum depth of two (2) inches. Anchoring shall be accomplished by using a mulch tiller with rolling coulter type disk which shall be sufficiently dull on the cutting edge to prevent cutting the mulch. The disk must be of sufficient diameter to prevent the frame of the mulch tiller from dragging the mulch. The number of passes over the mulch shall not exceed two (2).
- E. The mulch shall not be covered with excessive amounts of soil. The rows or furrows made by the straw mulch crimping equipment (mulch tiller) shall be spaced not more than nine (9) inches apart.
- F. All straw mulching operations shall be done on the contour. The spreading and anchoring will be so scheduled and performed progressively so that wind damage will be held to a minimum as approved by Engineer.

3.7 MAINTENANCE

- A. Protection of Seeding:
 - 1. Vehicular traffic on areas seeded with temporary or permanent seeding, shall be restricted to travel necessary to establish seeding and other travel approved by Engineer.
 - 2. Protect seeded areas from damage due to operations of other contractors and trades, and trespassers. Maintenance shall commence immediately following seeding operations and shall continue until Division has issued final acceptance of the project. Repair or replace damaged areas.
- B. Reconditioning Existing Areas:
 - 1. Contractors equipment, project materials, and wastes such as oil drippings, stones, gravel, packaging containers, etc., shall be removed from the site or disposed of in a manner approved by Engineer and Division.
 - 2. All disturbed areas including areas outside grading limits, such as entrance and haul roads, shall be reconditioned and planted to the satisfaction of the Division.
- C. Repairs:
 - 1. Repair all areas of rill erosion with a depth of greater than three (3) inches and width greater than four (4) inches.
 - 2. Repair defects in vegetation having individual bare areas greater than one (1) square foot or total bare areas exceeding two (2) percent of the entire vegetated area.
 - 3. The costs of materials and labor for repairs shall be performed at no additional cost to Division.

3.8 MINIMUM REQUIREMENTS FOR ACCEPTANCE

- A. Ninety (90) days following evidence of plant growth or green-up, Division, Engineer, and Contractor shall inspect and evaluate the seeded areas for acceptance based on the criteria listed below.
- B. The plant growth shall provide a minimum of seventy-five (75) percent cover over the seeded area. Areas failing to meet this cover density shall be interseeded or reseeded and mulched as required by Engineer and Division, at no cost to Division.
- C. A majority of native plants species included in the seed mixture should be present in the vegetation stand growing on site. Division acknowledges that some native species will not be observed for two (2) to three (3) growing seasons.
- D. Areas of suspected hot spots shall be soil tested by Engineer or Division to determine if the failure of the seeding to meet acceptance criteria is due to low pH conditions. Engineer and/or Division may require Contractor to lime, fertilize, seed, and mulch these areas. Any additional work required in confirmed hot spot areas shall be paid for by Division at the appropriate bid item cost for each work item.

- E. Following repair of defects, unaccepted areas, and reseeding of hot spot areas, the repaired areas will again be inspected ninety (90) days after evidence of plant growth or greenup. These areas shall be evaluated using the criteria listed in this Section.
- F. In the event that in either the original seeding, repair seeding, or reseeding of hot spots it is found that the work, materials, or seedbed preparation failed to meet the quality or application rates specified, additional work shall be required at no cost to Division.

3.9 CONTRACT CLOSE OUT PROCEDURES

- A. Closeout procedures and Final Acceptance Requirements are outlined in paragraph 7-13 of the General Conditions (Document N).
- B. Refer to General Conditions Paragraph 5-10 related to Seeding and Seedling Plantings and the start of the Guarantee Period.
- C. The Final Pay Application and Retainage Payment Application shall be prepared by Division and signed by all parties after completion of the punch list and final inspection.
- D. Final Project Acceptance may be provided in writing by Division on or after the date of publication of the Notice of Completion in the newspaper.
- E. The Contractor and Division shall jointly perform a site greenup inspection as outlined in Paragraph 3.8 above. If additional work is required based on this greenup inspection, Contractor shall complete this work as soon as possible. A follow up greenup inspection shall occur as jointly agreed up by Division and Contractor after all additional required work is completed. If Contractor refuses to complete any requested work at any time prior to Division's acceptance of established vegetation, Division will seek resolution with Contractor's Bonding Company.
- F. Contractor shall re-seed areas where established vegetation is absent or limited and it is evident there has been a mechanical failure, inadequate overlap, missed areas, incorrect seed mix, missing species, or other items noted by Engineer and/or Division. Contractor shall not be held responsible for poor performance of the seed when acidic soils or adverse climate conditions are determined to be responsible for the poor performance.

PART 4 --MEASUREMENT AND PAYMENT

4.1 UNIT PRICES AND PAYMENT CALCULATION

- A. Construction cost of all work included in this SECTION of the Construction Specifications shall be included in Contractor's unit prices set forth in the Proposal and Schedule of Prices (*Document C*) for the work items described below. Unit price for each of these several items shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the unit prices so set forth by the amount of the work constructed and measured as described herein, shall constitute full payment to Contractor for performance of the work included in this SECTION.
- B. Measurement and payment for each work item in this SECTION shall be in accordance with the following:
 - 1. *Seedbed preparation*: Contractor's unit prices for Seedbed preparation shall represent full payment for the preparation of areas for seeding in accordance with requirements of this SECTION. Said unit price shall include all costs for multiple passes of tillage required including the pickup and disposal of rocks.

Measurement for payment purposes shall be the area properly prepared in acres, rounded to the nearest one-tenth (1/10) acre. Contractor shall provide field measurements as required to show the limits of the seeding. Engineer will determine in acres, to the nearest one-tenth (1/10) acre, the actual area that seeding has been performed, based on Contractor's field measurements. In lieu of field measurements, Contractor may request acceptance of plan (bid) quantity in accordance with 7-01 MEASUREMENT (Document N). Measurement and payment for seedbed preparation shall be made once without regard to the number of tillage passes required.

2. *Agricultural Limestone:* Contractor's unit price for agricultural limestone used for permanent seeding work shall represent full payment for the furnishing, delivery and application per these specifications.

The unit price for agricultural limestone applied to satisfy requirements of this SECTION shall be identical to the unit price for agricultural limestone used to satisfy requirements of SECTION 02400. The estimated quantity of agricultural limestone required for work in this SECTION shall be included with the estimated quantity of agricultural limestone required for work in SECTION 02400

The actual application rate shall be determined by the Engineer based upon the results of soil tests conducted in Item 3.1 TESTING--SOIL FERTILITY in this SECTION. Costs for incorporation agricultural limestone in this SECTION shall be included in *Seedbed Preparation*.

Measurement for payment purposes shall be the actual number of tons of effective calcium carbonate equivalence (ECCE) applied by Contractor in complying with requirements of this SECTION. Weight tickets must accompany each shipment of agricultural lime and shall form the basis for measurement and payment.

3. *Nitrogen (N), Phosphorous (P), and Potassium (K):* Payment for all fertilizer furnished, delivered, and applied into seedbeds, per requirements of this SECTION, shall be made in accordance with Contractor's unit prices. The actual application rates for Phosphorous (P) and Potassium (K) will vary from the bid quantity depending upon results of soil tests conducted in Item 3.2 TESTING – SOIL FERTILITY in this SECTION. The cost of soil testing for Nitrogen, Phosphorus and Potassium application rates shall be incidental to the work of this SECTION. At Engineer's option, the cost of nitrogen for temporary seeding may be measured and paid as part of the cost of implementing the Storm Water Pollution Prevention Plan in SECTION 02120. Also at Engineer's option, the cost of nitrogen for wetland fertilizer may be measured and paid for in SECTION 02400.

Measurement for payment purposes shall be the actual weight of active ingredient, to the nearest pound, for each of the fertilizer nutrients specified. Fertilizer suppliers may refer to active ingredients as "units" of nutrient.

4. *Seeding:* Contractor's unit prices for Seeding shall represent full payment for the planting of all seeded areas in accordance with requirements of this SECTION. Said unit price shall include the furnishing of all seed materials for the specified seed mix, planting of seeds, and culti-packing including all required equipment, labor and any required reseeding to complete all permanent seeding as specified herein.

Measurement for payment purposes shall be the area seeded in acres, rounded to the nearest one-tenth (1/10) acre. Contractor shall provide field measurements as required to show the limits of the seeding. Engineer will determine in acres, to the nearest one-tenth (1/10) acre, the actual area that seeding has been performed, based on

Contractor's field measurements. In lieu of field measurements, Contractor may request acceptance of plan (bid) quantity in accordance with 7-01 MEASUREMENT (Document N). Payment for seeding shall be made only after all submittals have been approved as required under this SECTION. Seeding for areas outside the specified seeding area will not be measured for payment. No separate measurement and payment apply to over-seeding; the cost of over-seeding shall be subsidiary to seeding.

In the event that the Contractor's cost of seed material increases ten percent (10%) or more from the time Contractor submitted the bid to the time the seed is purchased, the Division agrees to reimburse Contractor for the additional cost of the seed material provided Contractor requests the cost adjustment and demonstrates the cost difference. Differences in the seed cost shall be demonstrated as follows:

- a. Contractor shall submit a request for a seed cost adjustment in writing on his company letterhead summarizing the cost difference, and
- b. Contractor shall furnish a price quote from his seed supplier that is dated on or prior to the date Contractor's bid was received and opened by Division, and
- c. Contractor shall furnish a current price quote from his seed supplier that is dated no more than seven days prior to Contractor's written request for a seed price adjustment, and
- d. Both price quotes shall be mechanically printed and provided on seed supplier's letterhead, and
- e. No text on either price quote shall show evidence of mutilation, smearing, overwriting, or other forms of tampering. In no event shall quotes with handwritten markings that affect price information be considered acceptable or valid.

If seeding is performed by Contractor's subcontractor, price quotes shall be provided by the subcontractor's seed supplier.

If Contractor requests a seed cost adjustment but is unable to provide the appropriate documentation as specified above, Division shall deny the seed cost adjustment request, and the Contractor's original unit price for seeding shall apply.

5. *Mulch, Seeding:* Contractor's unit price for mulch shall represent full payment for mulching in accordance with requirements of this SECTION 02700 – SEEDING. Said unit price shall include the furnishing and application of all straw mulch, including all required equipment and labor to complete the work as specified herein. Payment for mulch shall be made only after all submittals have been approved as required under this SECTION 02700 - SEEDING. Payment will not be made on total site acreage if not substantiated by adequate weight tickets.

Measurement for payment purposes shall be by the acre which shall be identical to the area as measured and approved for upland seeding and wetland fringe seeding.

4.2 SUMMARY—UNITS OF MEASUREMENT

Units of measurement for bid items applicable to work covered by this SECTION are as follows:

<u>Description</u>	<u>Unit</u>
Seedbed Preparation	Acre
Agricultural Limestone	Ton (ECCE)
Nitrogen (N)	Pound (active ingredient)
Phosphorus (P)	Pound (active ingredient)
Potassium (K)	Pound (active ingredient)
Upland Seeding	Acre
Mulch, Seeding	Acre
Wetland Fringe Seeding	Acre

END OF SECTION 02700

SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS

**SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS
CROZIER FAMILY AML RECLAMATION PROJECT**

EXPLANATION

- A. The purpose of this Section of the Specifications is to provide supplemental information which is required to complete the Standard Construction Specifications and to set forth supplemental requirements, modifications and/or deletions which are required to make the whole of the Construction Specifications project specific.
- B. References to Section, Paragraph and Sub-paragraph numbers used in these Supplemental Construction Specifications are intended to coincide with reference numbers for corresponding Sections, Paragraphs and Sub-paragraphs in the Standard Construction Specification.
- C. Where there is any variance between the Standard Construction Specifications and these Supplemental Construction Specifications, the Supplemental Construction Specifications shall take precedence.
- D. Where any section of the Standard Construction Specifications is modified or any Paragraph, Sub-paragraph or Clause thereof is changed or deleted by these Supplemental Construction Specifications, the unaltered provisions of that Section, Paragraph, Sub-paragraph or Clause in the Standard Construction Specifications shall remain in effect. Unless these Supplemental Construction Specifications make specific reference to the modification or deletion of a Paragraph, Sub-paragraph or Clause in the Standard Construction Specifications, no changes are intended and the paragraphs contained in these Supplemental Construction Specifications intended only to supplement, amplify, or clarify said Standard Construction Specifications.
- E. The following set of standard specifications (updated July/August 2025), is used for this project:

02000	SUBSURFACE INVESTIGATION
02010	FIELD ENGINEERING
02100	MOBILIZATION, SITE CLEARING & PREPARATION
02120	SEDIMENT AND EROSION CONTROL
02200	EARTHWORK, ROUGH GRADING
02300	DRAINAGE SYSTEMS, GENERAL
02400	SUBGRADE PREPARATION
02500	FENCING
02700	PERMANENT SEEDING

SECTION 02010 – FIELD ENGINEERING

1.3 QUALITY ASSURANCE

- E. *(New Paragraph)* Surveys at the project site and used by the Engineer in preparing the Plans and Specifications are available for review through the Engineer.

3.2 DIMENSIONS AND ELEVATIONS

- B. *(New Paragraph)* Horizontal measurements are in U.S. feet and are based upon the NAD83 Iowa State Plane Coordinate System, South Zone.
- C. *(New Paragraph)* Elevation measurements are based upon the NAVD 1988 and are in U.S. feet.
- D. *(New Paragraph)* Existing topography shown on this drawing was developed from LiDAR information by engineer and supplemental topographic survey data. LiDAR data was collected on 03-27-2024.

3.3 POSITION, GRADIENT, AND ALIGNMENT

- F. *(New Paragraph)* Should there exist significant differences between the LiDAR elevations shown on the drawings and those reported by the surveying equipment, the Contractor shall direct his surveyor to calibrate the GPS instruments to the LiDAR elevations shown.

3.6 STAKE OUTS

- C. *(New Paragraph)* The construction staking requirements stipulated in Paragraph “A” is further clarified as follow; required construction staking shall include the following with applicable elevation information for proper construction:
1. Project boundary and access route
 2. Wetland Pool
 3. All channels
 4. Main ridges

If GPS guided Machine Control is used, Items 2, 3, and 4 may be waived.

SECTION 02100 – MOBILIZATION, SITE CLEARING & PREPARATION

1.3 QUALITY ASSURANCE

- D. *(Additional Language)* Additional guidelines and information regarding the endangered Indiana Bat and Northern Long Eared Bat can be found at the following links:
<http://www.fws.gov/midwest/endangered/mammals/inba/>
<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

1.4 JOB CONDITIONS

- J. *(New Paragraph)* The access route and staging area shall be clearly staked per requirements stated in SECTION 02010. Once construction is complete, the staging area must be seeded using Pasture Seed Mix as specified in SECTION 02700 of these Supplemental Specifications.

3.3 PROTECTION

- E. *(Revised)* Contractor shall maintain access to the site at all times.
1. Designated access roads shown on the Plans and used by the Contractor shall be maintained to allow reasonable access for four wheel drive vehicles. Secondary access or haul roads not indicated on the Plans shall be approved by the Engineer and reclaimed after use in accordance with Section 02400 and 02700. Contractor shall repair any damage to access or haul roads at no cost to the Division. Access road and haul road construction and maintenance shall be considered subsidiary to Mobilization/Demobilization.
 2. All traffic control devices and operations dealing with public traffic and roadways shall be in accordance with applicable Iowa laws and the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). Traffic control devices shall be installed prior to initiating grading activities.
 3. The Contractor shall be responsible for the safe movement of mobile equipment.
 4. The Contractor shall be responsible to reimburse the landowner for livestock or other property injured or damaged by Contractor's traffic on access roads.
 5. The Contractor shall be responsible for protecting existing underground utilities within project limits and access route.

3.4 OFFICE AND LAYDOWN AREA

- B. *(Revised)* Contractor's field office is not required for this project. The Contractor shall make certain that his representative on site has an operating cellular phone that can be used for communication with Engineer and Division.
- C. *(Revised)* Amenities required with the offices outlined in this section are not required except that sanitary facilities shall be provided.

3.10 CLEAN-UP AND REPAIRS

- C. *(Additional Language)* Removal of granular surfacing and ripping and restoring the surface at the site access shall be incidental to Mobilization. Restoring of the surface at the site access to conditions prior to construction shall include rototilling compacted areas, repairing gravel drive, and application of seed, fertilizer, and mulch.

SECTION 02120 – SEDIMENT AND EROSION CONTROL

1.1 DESCRIPTION

- C. *(Additional Language)* The Contractor must comply with the SWPPP and advise the Division and the Engineer if any sediment or erosion control measures will be required to protect the area or work from imminent inclement weather. With approval and direction from the Division and the Engineer, the Contractor shall install additional Best Management Practices (BMPs) where necessary.

3.3 INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES

- O. *(New Paragraph)* Tied Concrete Block Mat
 1. Prior to placing the tied concrete block mats, prepare the subgrade as outlined in SECTION 02400 and as detailed on the plans. All subgrade surfaces prepared for placement of mats shall be firm, smooth, and free of all rock, stones, sticks, roots, other protrusions, or debris of any kind. Prepared subgrade elevation prior to placing the mat shall be the design elevation shown on the plans.
 2. The prepared surface shall provide a firm unyielding foundation for the mats with no sharp or abrupt changes or breaks in the grade.
 3. Apply seed and fertilizer directly to the prepared soil beneath the mat location prior to installation of the Tied Concrete Block Mat. Apply seed and fertilizer per project specifications.
 4. Install Tied Concrete Block Mats to the line and grade shown on the plans and according to the manufacturer's installation guidelines. Be certain to provide anchor trenches at the locations and depths specified.
 5. When creating longitudinal seams, install each edge of mat in tight contact with the other. Place geogrid extension of the one mat under the other; tie mats together with stainless steel zip ties. Install at least one (1) tie between every two (2) blocks.
 6. Fasten the Tied Concrete Block Mat to the soil surface with epoxy coated rebar U-anchors per manufacturer recommendations.

7. Engineer or Construction Observer shall be present when installing the mat. In addition, the manufacturer or his representative shall be available to provide technical assistance during the slope preparation and installation of the tied concrete block mats as needed.

4.1 UNIT PRICES AND PAYMENT CALCULATION

B. Measurement and Payment

8. *Check Dams: (Revised Language)* Temporary rock check dams shall be considered incidental to the cost of riprap. Filter fabric used beneath the riprap will not be measured for payment and shall be considered incidental. Excavation costs and distribution of the soil materials are considered incidental and shall not be measured separately for payment.
15. *Sediment Basin Outlet Structures: (Revised Language)* Earthwork required for construction of the sediment basin will be incidental to excavation. Earthwork required to restore the basin to final design grade of the permanent wetland, as indicated on the Plans, will be incidental to excavation.

4.2 SUMMARY – UNITS OF MEASUREMENT

<u>Description</u>	<u>Unit</u>
Quarried Stone (Riprap, Erosion Stone, Macadam Stone or similar	Ton
Surface Roughing	Acre
Erosion Control Mulching	Acre
Compost Blankets	Square Foot
Temporary Erosion Control Seeding	Acre
Temporary Earth Diversion Structures	Linear Foot
Silt Fence Installation	Linear Foot
Check Dams Temporary	Linear Foot
Check Dams Permanent	Ton
Filter Berms	Linear Foot
Filter Sock – Installation	Linear Foot
Wattles Installation	Linear Foot
Temporary Rolled Erosion Control Products	Square Yard
Turf Reinforcing Mats	Square Yard
Tied Concrete Block Mat	Square Foot
Sediment Basin Outlet Structures Installation	Lump Sum
Sediment Basin Outlet Structures Cleanout	Lump Sum
Stabilized Construction Entrance	Ton

SECTION 02200 – EARTHWORK, ROUGH GRADING

1.3 QUALITY ASSURANCE

D. (New Paragraph) GPS Machine Mounted Grade Control Equipment

1. The Contractor's attention is specifically called to the recommendation for the Contractor to provide GPS Machine Mounted Grade Control Equipment for finishing of the final design surface.
2. If GPS Machine Mounted Grade Control Equipment is used, the Contractor should provide

competent, task-trained personnel to operate and maintain the GPS equipment. If used, the Contractor shall supply the GPS equipment ready to use including all base stations, radios, repeaters, receivers, and machine mount units necessary to perform the work.

3. If GPS Machine Mounted Grade Control Equipment is used, the Engineer will provide survey control points to the Contractor, and will provide Digital Terrain Model (DTM) files in an electronic format compatible with the Contractor's GPS equipment.

1.4 JOB CONDITIONS

C. Earthwork Balance

1. *(Additional Language)* The shrinkage factor is presumed to be 15% for mass balance. Mass balance adjustment areas, if required, will be determined in the field.

3.9 FILL PLACEMENT AND COMPACTION

G. *(Additional Paragraph)* Deep Fill Zones

1. Zones requiring placement of fill deeper than fifteen feet (15') shall require extra time to allow for settlement of the soil. Once each increment of 15' of fill is achieved at least thirty (30) days shall be allowed to elapse before performing additional fill operations in that zone. The waiting period may be reduced to no less than fifteen (15) days provided Contractor documents with detailed daily survey measurements that the majority of the settlement has occurred within the first 15-day waiting period. Establishment of benchmark locations for the survey measurement shall be subject to Engineer's approval.

SECTION 02300 – DRAINAGE SYSTEMS, GENERAL

1.1 DESCRIPTION

- A.3. *(Revised)* Terraces shall be installed during rough grading. The earthwork volume to construct the terraces is included in the overall excavation balance for the project.

3.5. TERRACES

- A. *(Revised Language)* After placement and approval of controlled general fill areas, terraces shall be installed during and as a part of rough grading. The earthwork volume to construct the terraces is included in the overall excavation earthwork balance for the project.

4.1 UNIT PRICES

A. Measurement and payment

1. Terrace: *(Revised Language)* The cost for rough terrace construction and compaction shall be considered incidental to and included in the unit price for *Excavation* as referenced in SECTION 02200. The unit price for terraces in this SECTION shall include material, equipment, and work required to finish grade the terraces in conformance with details and dimensions shown on the plans. Finish grading the terraces includes overbuilding the terrace where specified. The length shall be measured along the centerline of the terrace. The maximum payable length for installed terraces shall be the bid plan quantity.
7. Filter Fabric: *(Revised Language)*: When used as underlayment for macadam, riprap, or erosion stone the cost of the filter fabric shall be considered incidental to and included in the price of said stone.

4.2. SUMMARY – UNITS OF MEASUREMENT

<u>Description</u>	<u>Unit</u>
Terraces	Lineal Foot
Riser - Terrace	Each
Open Sided Intakes	Each
Tiling (size)	Lineal Foot
Pipes – (size)	Lineal Foot
Outlet Pipe (size)	Each
Filter Fabric	Square Yard
Grout	Cubic Yard

SECTION 02400 – SUBGRADE PREPARATION, WITHOUT COVER MATERIAL

3.4 WETLAND AREAS – WITHOUT COVER MATERIAL

G. (New Paragraph) Final Grading of Wetland Bottoms

1. Following undercut, replacement, and incorporation of agricultural lime and mulch, strike off or blade wetland bottoms with tracked equipment to leave a smoothed, firm surface prior to introducing water into the wetland area.
2. Cost for final grading of wetland bottoms is incidental to excavation.

H. (New Paragraph) Removal of Accumulated Water and Sediment in Wetland Bottoms

1. If water and sediment has been allowed to accumulate in the bottoms of wetland areas prior to undercut, replacement, and final grading operations, the water and sediment shall be removed to facilitate the required work.
2. Methods used to remove accumulated water include pumping and diversionary channels. Other methods shall be subject to approval by Engineer or Construction Observer.
3. Accumulated sediment shall be removed with appropriate equipment using methods approved by the Engineer or Construction Observer.
4. Costs for the removal of water and sediment shall be considered incidental to the project.

3.6 LIME-MULCH APPLICATION – WITHOUT COVER MATERIAL

A. Application Rates

1. (Additional Language) Contractor shall use an “Agricultural Lime” application rate of 40 tons ECCE per acre for bidding purposes.

3.8 (New Section) DEEP RIPPING

- A. (New Paragraph) Portions of the site are planned for future tree plantings by others. De-compaction of the soils in these areas will improve sapling survival rates and growth potential. These zones are shown on the plans. These zones will require deep ripping to a minimum depth of 24” prior to subgrade lime and mulch application. Deep ripping shall be achieved by use of a ripper implement on bulldozer or by other approved equipment. The shank(s) of the ripper shall

penetrate a minimum of 24" into the soil measured from the soil surface. The maximum spacing of rips created by the shank shall be 24". Ripping will only require one pass in one direction if full depth can be achieved. Multiple passes or cross ripping may be completed to loosen soil so that 24" deep shank penetration can be achieved. Contractor shall demonstrate to Engineer and Division the method and equipment which will be used to achieve a minimum depth of 24" for deep ripping. When an acceptable method is agreed to by the Engineer and Division, that method shall be used in the designated zones throughout the project.

4.1 UNIT PRICES

B. Measurement and payment

6. *(New Paragraph) Deep Ripping:* Contractor's unit price for deep ripping shall constitute full payment, equipment, and labor to provide deep ripping in the zones identified on the plans. Payment for the deep ripping area will be based upon the areas as shown on the plans rounded to the nearest tenth (0.1) acre. Any approved field adjustments made will be measured jointly by Contractor and Engineer. The total area for payment is only counted once.

4.2. SUMMARY – UNITS OF MEASUREMENT

<u>Description</u>	<u>Unit</u>
Subgrade Preparation	Acre
Agricultural Lime	Ton (ECCE)
Mulch, Subgrade	Acre
Wetland Fertilizer	Pound (active ingredient)
Wetland Undercut and Replacement	Acre
Deep Ripping, Subgrade (New)	Acre

SECTION 02500 – FENCING

2.2 POSTS AND BRACING

A. Posts

1. *(Revised Language):* All posts shall be creosote treated for ground contact.

SECTION 02700 – PERMANENT SEEDING

2.4 SEED

D. *(Additional Language)* Seed Mixture:

1. The pasture seed mixture shall be as shown on **Table 02700-1**. Seed the appropriate cover crop species with the pasture seed mixture dependent upon the season in which the seed mix is sown. Choose one (1) cover crop option from **Table 02700-2** in consultation with Engineer and Division.
2. The wetland fringe seed mixture shall be as shown on **Table 02700-3**. This mix shall be applied in the specific area around the wetlands shown on the plans. To the extent practicable, the wetland mix shall be sown so that the specified bandwidth of the seeded area straddles the contour at the normal pool elevation. Lower wetland pool elevation if necessary prior to seeding the wetland fringe mix. Seeding the wetland Fringe mix may require substantial work with small power equipment and/or hand tools.

Table 02700-1. Pasture Seeding Mix

Common Name	Scientific Name	Seed Rate (Lb. PLS/ac)
Alfalfa	<i>medicago sativa</i>	4.0
Alsike clover	<i>trifolium hybridum</i>	2.5
Big Bluestem	<i>Andropogon gerardi</i>	6.5
Birdsfoot Trefoil	<i>Lotus corniculatus</i>	5.5
Illinois bundleflower	<i>Desmonthus illinoienis</i>	4.0
Indian grass	<i>Sorghastrum nuntans</i>	7.0
Little bluestem	<i>Schizachyrium scoparium</i>	5.5
Orchard grass	<i>Dactylis glomerata</i>	6.5
Red top	<i>Agrostis gigantea</i>	4.0
Smooth brome	<i>Bromus inermis</i>	5.5
Timothy	<i>phleum pratense</i>	2.5
Virginia wild rye	<i>Elymus virginicus</i>	5.5
Total		59.0

Table 02700-2. Cover Crop Options

Select one (1) in consultation with Engineer or Division

Season	Common Name	Scientific Name	Seed Rate Lb. (PLS/ac)
Spring	Oats	<i>avena sativa</i>	32
Dormant	Winter wheat	<i>triticum aestivum</i>	45
Dual-Season	Oats + Winter Wheat	<i>(each of above)</i>	16 (Oats) + 30 (Wheat)

Table 02700-3. Wetland Fringe Seed Mix

Common Name	Scientific Name	Seed Rate Lb. (PLS/ac)
Virginia wild rye	<i>elymus virginicus</i>	10.60
Fowl manna grass	<i>glyceria striata</i>	0.70
Bluejoint grass	<i>calamagrostis canadensis</i>	0.70
Prairie cordgrass	<i>spartina pectinata</i>	4.00
Fox sedge	<i>carex vulpinoden</i>	0.03
Bebb's sedge	<i>carex bebbii</i>	0.04
Spike rush	<i>eleocharis palustris</i>	0.05
Rice cut grass	<i>leersia oryzoides</i>	0.04
Shortawn foxtail	<i>alopercurus acqualis</i>	10.60
Cup plant	<i>silphium prefoliatum</i>	0.70
Total		27.46

3.4 LIMING AND FERTILIZING

- D. *(Additional Language)*: For bidding purposes, assume the application rate of Nitrogen is fifty (50) pounds per acre, Phosphorous is one hundred (100) pounds per acre, and Potassium is one hundred sixty (160) pounds per acre.

END OF SUPPLEMENTAL SPECIFICATION

CROZIER FAMILY AML RECLAMATION PROJECT

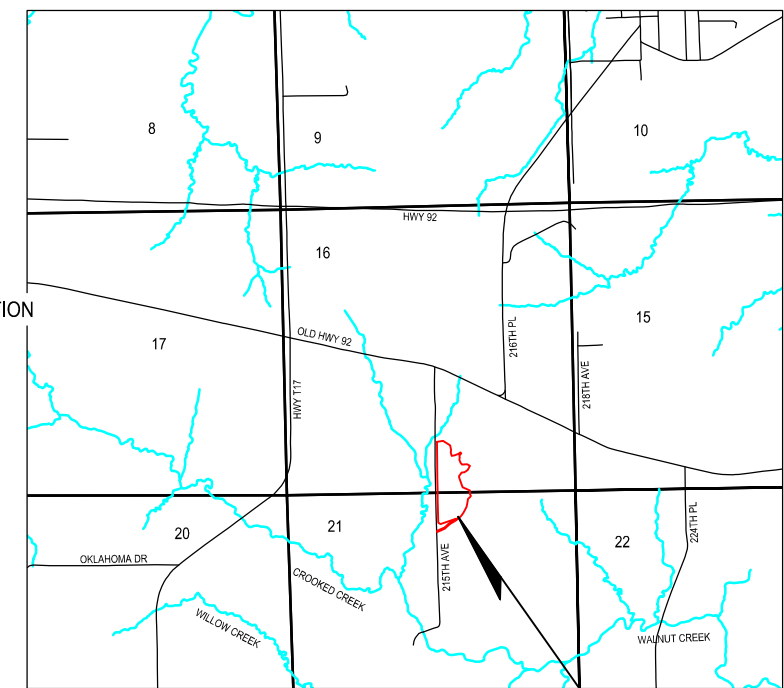
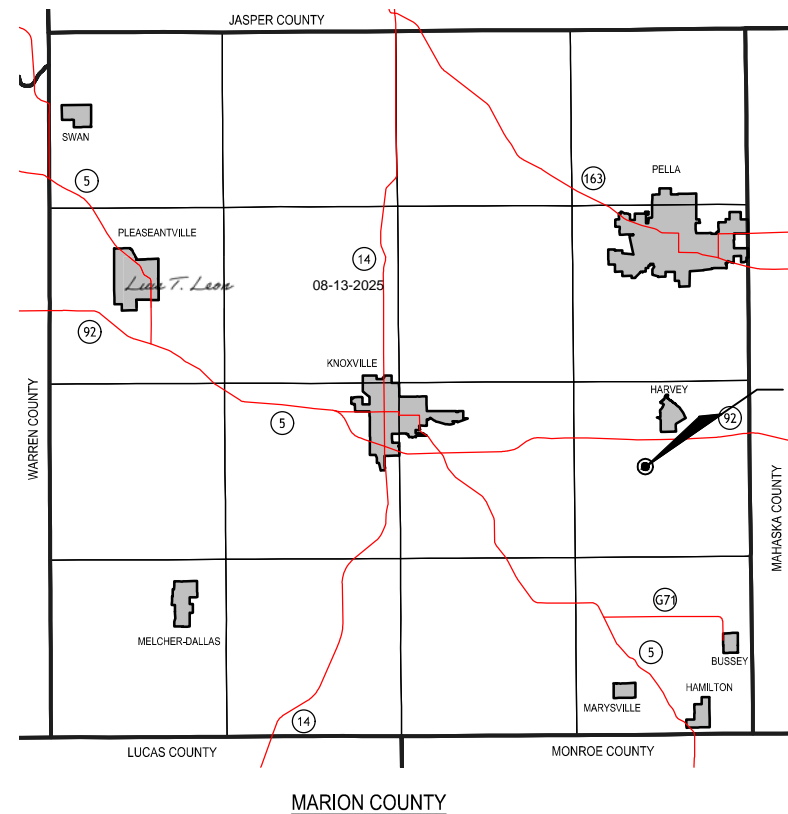
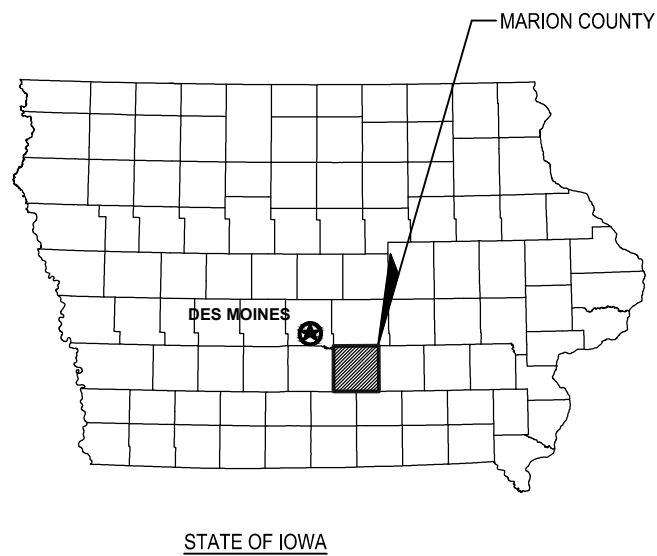
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

DIVISION OF SOIL CONSERVATION AND WATER QUALITY

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PREPARED FOR:
IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY
HOOVER STATE OFFICE BUILDING
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(515) 281-4246

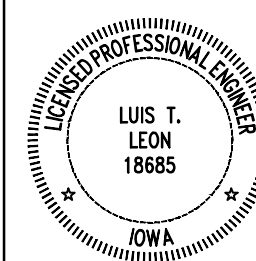
ENGINEER:
LT LEON ASSOCIATES, INC.
1823 OHIO STREET, SUITE 101
DES MOINES, IOWA 50314
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I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature: Luis T. Leon Date: 08-13-2025

Name (printed or typed): LUIS T. LEON, P.E.

License Number: 18685

My license renewal date is: DECEMBER 31, 2025

Pages or sheets covered by this seal: ALL SHEETS

FILE: 049.013

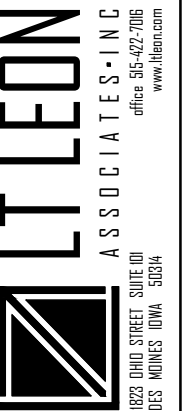
REVISED:

ISSUED: 08-05-2025

CHKD. BY: LTL

DRAWN BY: SMH

DESIGN BY: SMH



IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
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CROZIER FAMILY (IA-365)
AML RECLAMATION PROJECT

TITLE SHEET

SHEET
1 OF 18

GENERAL NOTES:

1. REFERENCES TO "DIVISION" SHALL MEAN "DIVISION OF SOIL CONSERVATION AND WATER QUALITY".
2. ALL IMPROVEMENTS SHOWN ON THESE PLANS SHALL COMPLY WITH THE GENERAL CONDITIONS, STANDARDS, AND SPECIFICATIONS SET FORTH IN PROJECT DOCUMENTS. THESE INCLUDE STANDARD CONSTRUCTION SPECIFICATIONS SET FORTH BY THE DIVISION OF SOIL CONSERVATION AND WATER QUALITY AS WELL AS THE SUPPLEMENTAL SPECIFICATIONS ESTABLISHED BY THE ENGINEER. SPECIFICATIONS OR STANDARDS INCORPORATED BY REFERENCE SHALL ALSO BE FOLLOWED.
3. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE DIVISION'S STANDARD SPECIFICATIONS AND THE ENGINEER'S SUPPLEMENTAL SPECIFICATIONS.
4. OWNERSHIP: THIS DOCUMENT, AND THE IDEAS AND DESIGN CONTAINED IN THIS DOCUMENT, ARE AN INSTRUMENT OF PROFESSIONAL SERVICE, AND MAY NOT BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE DIVISION OF SOIL CONSERVATION AND WATER QUALITY.
5. REFERENCES TO PARTICULAR PRODUCTS, TRADENAMES, OR MANUFACTURERS IS INTENDED FOR CLARITY ONLY AND DO NOT REPRESENT EXCLUSION OR ENDORSEMENT BY THE STATE OF IOWA. EQUIVALENT PRODUCTS OR MATERIALS MAY BE SUITABLE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
6. CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE ENGINEER AND DIVISION PRIOR TO COMMENCING CONSTRUCTION.
7. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
8. ANY WORK REQUIRED TO COMPLETE THE SCOPE OF THIS PROJECT BUT NOT SPECIFICALLY CALLED OUT, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THE COMPLETION OF THIS WORK.
9. ALL DEBRIS AND TRASH ENCOUNTERED DURING CONSTRUCTION WITHIN THE PROJECT LIMITS, OR DIRECTED BY THE ENGINEER, SHALL BE PROPERLY DISPOSED OF ACCORDING TO THE PROJECT REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBSERVE EXISTING SITE CONDITIONS AND IDENTIFY ALL DEBRIS TO BE REMOVED.
10. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION DE-WATERING THAT IS REQUIRED,
11. REPAIR OR REPLACE DAMAGE TO EXISTING FACILITIES (TILE, UTILITIES, FENCES, ETC.) DESIGNATED TO REMAIN AT NO ADDITIONAL EXPENSE TO THE DIVISION.
12. THE CONTRACTOR SHALL KEEP ALL ROADS OPEN TO THROUGH TRAFFIC AT ALL TIMES.
13. NO TREES SHALL BE CLEARED BETWEEN THE DATES OF APRIL 1 TO SEPTEMBER 30.
14. SUBMIT MANUFACTURER'S CERTIFICATION AND MATERIAL DATA FOR ALL MATERIALS DELIVERED TO THE PROJECT SITE AS REQUIRED BY THE OWNER'S REPRESENTATIVE.

UTILITY NOTES:

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES AND PUBLIC ROADWAYS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PAVED STREETS CAUSED BY TRENCHING AND GRADING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.
2. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, PUBLIC RECORDS, AND FIELD INVESTIGATION. THEIR LOCATIONS SHALL BE CONSIDERED TO BE APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT IOWA ONE-CALL AND/OR EACH UTILITY COMPANY FOR THE FIELD LOCATION(S) OF EXISTING UTILITY LINES IN OR NEARBY THE CONSTRUCTION AREA PRIOR TO BEGINNING ANY CONSTRUCTION.
3. THERE MAY BE ADDITIONAL PRIVATE OR OTHER UNDERGROUND UTILITIES NOT SHOWN OR KNOWN AT THE TIME OF THE PUBLICATION OF THIS DRAWING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND LOCATION OF ANY ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN ON THIS DRAWING IN ORDER TO AVOID DAMAGE THERETO.
4. ALL OPEN UTILITY TRENCH EXCAVATION SHALL BE PROTECTED.

CONSTRUCTION SURVEY NOTES:

1. HORIZONTAL MEASUREMENTS ARE IN U.S. FEET. THIS DRAWING IS SET TO THE NAD 1983 IOWA STATE PLANE, SOUTH ZONE COORDINATE SYSTEM.
2. ELEVATION MEASUREMENTS ARE BASED UPON THE NAVD 1988 AND ARE IN U.S. FEET.
3. EXISTING TOPOGRAPHY SHOWN ON THIS DRAWING WAS DEVELOPED FROM LIDAR INFORMATION BY ENGINEER AND SUPPLEMENTAL TOPOGRAPHIC SURVEY DATA. LIDAR DATA WAS COLLECTED ON 2024-03-27. LOCAL CONTROL POINTS HAVE BEEN ESTABLISHED FOR THIS PROJECT. SEE SHEET 3. CONTRACTOR SHALL VERIFY SURVEY CONTROL AND EXISTING SURFACE PRIOR TO CONSTRUCTION. REFER TO SPECIFICATIONS.
4. SHOULD THERE EXIST SIGNIFICANT DIFFERENCES BETWEEN THE EXISTING ELEVATIONS SHOWN ON THE DRAWINGS AND THOSE REPORTED BY THE SURVEYING EQUIPMENT, THE CONTRACTOR SHALL DIRECT THEIR SURVEYOR TO CALIBRATE THE GPS INSTRUMENTS TO THE EXISTING ELEVATIONS SHOWN.
5. REPLACE ANY PROPERTY MONUMENTS REMOVED OR DESTROYED BY CONSTRUCTION. MONUMENTS SHALL BE SET BY A LAND SURVEYOR REGISTERED TO PRACTICE IN THE STATE OF IOWA.
- PROJECT CONSTRUCTION NOTES:
1. QUANTITIES OF FERTILIZER AND LIME ARE ESTIMATED FOR BIDDING PURPOSES. ACTUAL QUANTITIES APPLIED WILL BE DETERMINED BY SOIL TESTS.
2. CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY LAYOUT AND CONTROL REQUIRED TO COMPLETE ALL WORK.
3. A SHRINKAGE FACTOR OF 15% WAS ESTIMATED FOR THIS PROJECT. THE CONTRACTOR SHALL MAKE CHANGES IN EARTHWORK AS NEEDED TO ADJUST FOR INACCURACIES INHERENT WITH ESTIMATING THE SHRINKAGE FACTOR. THESE CHANGES SHALL ONLY BE MADE AFTER CONSULTATION AND APPROVAL BY THE ENGINEER AND DIVISION. NO ADDITIONAL COMPENSATION SHALL BE GIVEN FOR ANY GRADE ADJUSTMENTS DUE TO DEVIATIONS OF SHRINKAGE FACTOR.
4. THE CONTRACTOR IS REQUIRED TO CONSTRUCT THE RECLAMATION SURFACE AS DEPICTED ON THE PLANS. SITE GRADING SHALL BE COMPLETED TO ± 0.3 FEET OF DESIGN ELEVATIONS. THE CONTRACTOR SHALL PROVIDE A GRADE CHECKER FOR SLOPE STAKING AND OFFSETS. THE USE OF GPS MACHINE MOUNTED GRADE CONTROL EQUIPMENT FOR FINISH GRADING IS RECOMMENDED. CONTOURS AND SPOT ELEVATIONS SHOWN ARE FINISHED GRADE.
5. BEYOND THE PROJECT LIMITS, NO WORK SHALL BE PERFORMED WITHOUT PRIOR AUTHORIZATION FROM THE DIVISION.
6. ACCESS TO THE SITE SHOULD BE LIMITED TO ONE ACCESS OFF OF 215TH AVE AS SHOWN ON THE PLANS. BEFORE THE CLOSE OF THE PROJECT, THE CONTRACTOR SHALL REPAIR THE ACCESS ROAD TO ITS EXISTING CONDITION AND SEED THE AREA. QUANTITIES OF THE PERMANENT SEEDING ARE ESTIMATED FOR BIDDING PURPOSES AND INCLUDE THE SITE ACCESS AS SHOWN ON THE PLANS. IF THE CONTRACTOR REQUIRES ADDITIONAL SITE ACCESS, APPROVAL FROM THE ENGINEER AND DIVISION IS REQUIRED.

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	SPEC. SECTION	QUANTITY	UNIT
1	MOBILIZATION	02100	1	LS
2	SITE CLEARING AND PREPARATION	02100	15.7	ACRE
3	TEMPORARY EARTH DIVERSION BERM	02120	1,465	LF
4	FILTER SOCK, 12" DIA.	02120	36	LF
5	TIED CONCRETE BLOCK MAT	02120	2,100	SF
6	STABILIZED CONSTRUCTION ENTRANCE	02120	33	TON
7	MACADAM STONE	02120	47	TON
8	RIPRAP, CLASS 'E'	02120	196	TON
9	EXCAVATION	02200	124,965	CY
10	TERRACES	02300	2,950	LF
11	RISER - TERRACE, 6"	02300	1	EA
12	RISER - TERRACE, 24"	02300	2	EA
13	OPEN SIDED AREA INTAKE, 4'X4'	02300	1	EA
14	DUAL WALL HDPE PIPE, 6"	02300	191	LF
15	PPHP PIPE, 15"	02300	344	LF
16	PPHP PIPE, 18"	02300	73	LF
17	SUBGRADE PREPARATION	02400	15.4	ACRE
18	DEEP RIPPING, SUBGRADE	02400	1.7	ACRE
19	AGRICULTURAL LIME (40 TON ECCE/ACRE)	02400	616	TON ECCE
20	MULCH, SUBGRADE, (5 TONS/ACRE)	02400	15.4	ACRE
21	WETLAND UNDERCUT AND REPLACEMENT	02400	0.5	ACRE
22	WETLAND FERTILIZER, NITROGEN (N), (30 LB./ACRE)	02400	15	POUND
23	FIELD FENCE	02500	1,731	LF
24	DOUBLE 12' PANEL GATE	02500	1	EA
25	INSTALL SALVAGED 20' GATE	02500	1	EA
26	SEEDBED PREPARATION	02700	14.9	ACRE
27	NITROGEN (N), (50 LB./ACRE)	02700	745	POUND
28	PHOSPHOROUS (P), (100 LB./ACRE)	02700	1,490	POUND
29	POTASSIUM (K), (160 LB./ACRE)	02700	2,384	POUND
30	PASTURE SEEDING	02700	14.7	ACRE
31	WETLAND FRINGE SEEDING	02700	0.2	ACRE
32	MULCH, SEEDING (2 TONS/ACRE)	02700	14.9	ACRE

SURVEY LEGEND

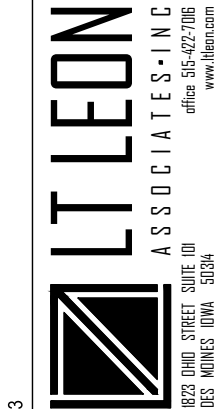
- 810 --- EXISTING CONTOUR
- x - - - EXISTING FENCE
- OHE — EXISTING OVERHEAD ELECTRIC LINE
- — — — — SIS — EXISTING STORM SEWER/EXISTING CULVERT
- - - - - T - EXISTING TELECOM LINE
- - - - - W - EXISTING WATER LINE
- - - — — PROPERTY LINE
- — — — — EDGE OF ROAD
- — — — — ROAD CENTERLINE
- NO — BURN — 1/4 MILE BURN RADIUS LIMIT LINE
- Ø EXISTING POWER POLE
- EXISTING FENCE POST
- ⊕ SURVEY CONTROL POINT
- FOUND SURVEY MONUMENT

PROPOSED LEGEND

- 810 — PROPOSED CONTOUR
- ~~~~~ DEMO ITEM
- [] — TEMPORARY EARTH DIVERSION BERM
- — — — — PROJECT LIMITS
- < > — PROPOSED TERRACE RIDGE
- · PST · — PROPOSED STORM SEWER
- x — PROPOSED FIELD FENCE
- PROPOSED TERRACE RISER
- 12" DIA. FILTER SOCK
- RIPRAP OR MACADAM STONE
- TIED CONCRETE BLOCK MAT
- CONSTRUCTED WETLAND
- STAGING AREA
- WETLAND FRINGE MIX SEEDING
- PASTURE MIX SEEDING

UTILITY CONTACTS

- ONE CALL
1-800-292-8989
- INTERNET, CABLE, TELEPHONE: ELECTRIC:
WINDSTREAM COMMUNICATIONS MIDAMERICAN
3540 SW 61ST STREET 2411 N MARKET STREET
DES MOINES, IA 50321 OSKALOOSA, IA 52577
(800)289-1901 (515)281-2989
- GAS:
KINDER MORGAN
1616 165TH AVE
KNOXVILLE, IA 50138
(641)842-5091
- WATER:
MARION COUNTY RURAL WATER DISTRICT
1921 W BELL AVE
KNOXVILLE, IA 50138
(641)842-3304



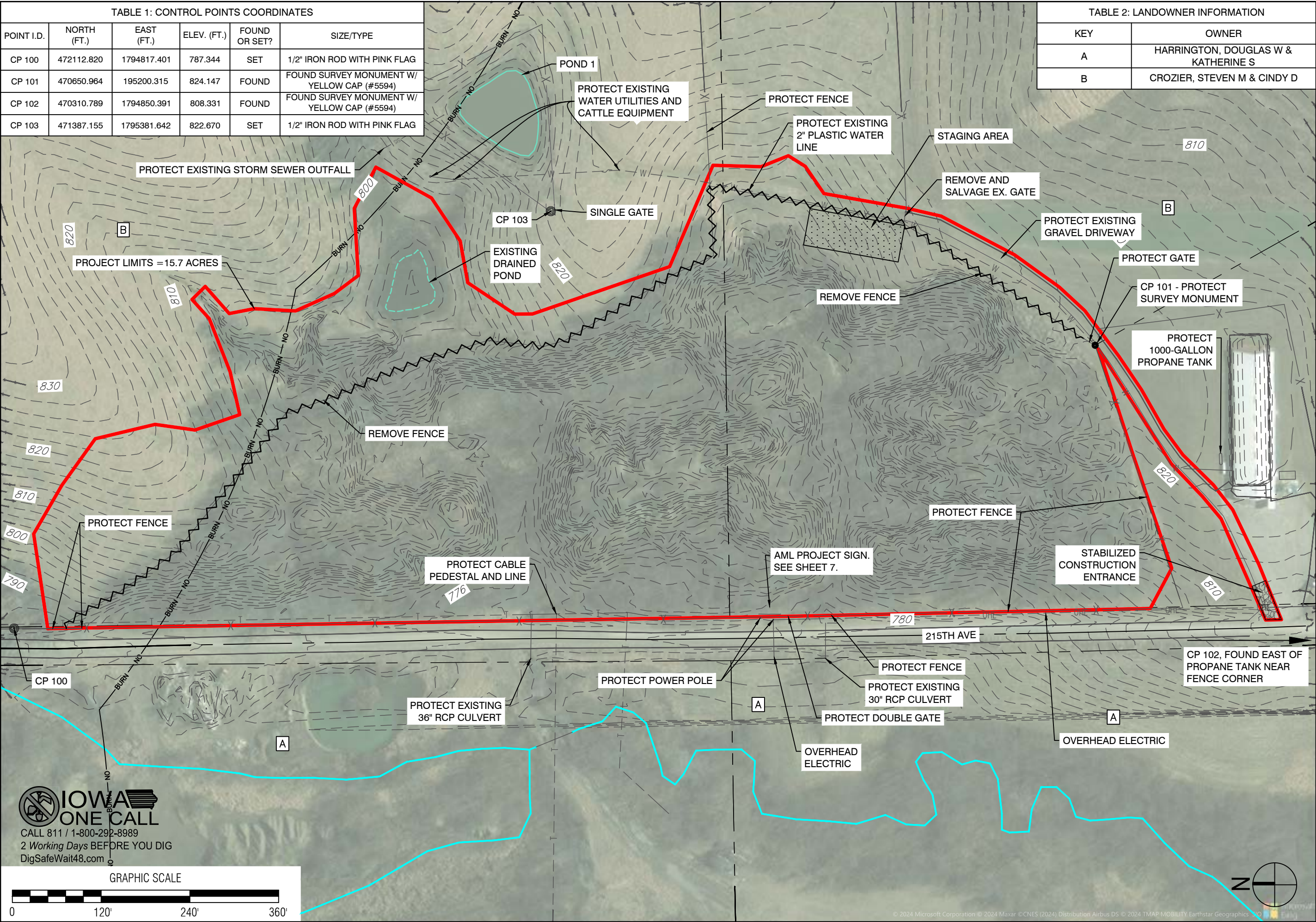
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
HOOVER STATE OFFICE BUILDING
1306 E. WALNUT STREET, DES MOINES, IOWA 50319
(515)281-4246



CROZIER FAMILY (IA-365)
AML RECLAMATION PROJECT
PROJECT NOTES, QUANTITIES AND
LEGEND

TABLE 1: CONTROL POINTS COORDINATES					
POINT I.D.	NORTH (FT.)	EAST (FT.)	ELEV. (FT.)	FOUND OR SET?	SIZE/TYPE
CP 100	472112.820	1794817.401	787.344	SET	1/2" IRON ROD WITH PINK FLAG
CP 101	470650.964	195200.315	824.147	FOUND	FOUND SURVEY MONUMENT W/ YELLOW CAP (#5594)
CP 102	470310.789	1794850.391	808.331	FOUND	FOUND SURVEY MONUMENT W/ YELLOW CAP (#5594)
CP 103	471387.155	1795381.642	822.670	SET	1/2" IRON ROD WITH PINK FLAG

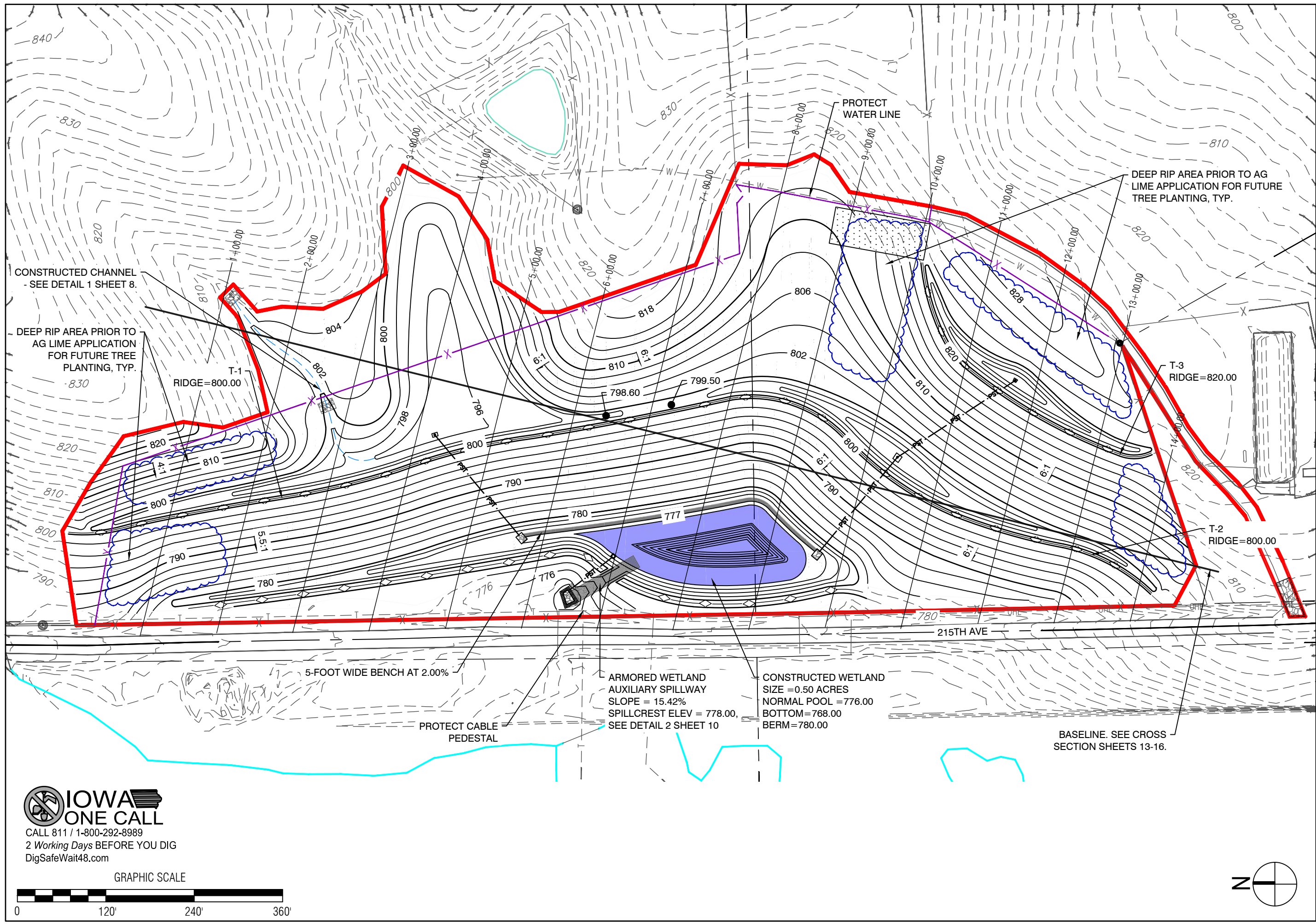
TABLE 2: LANDOWNER INFORMATION	
KEY	OWNER
A	HARRINGTON, DOUGLAS W & KATHERINE S
B	CROZIER, STEVEN M & CINDY D



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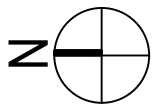


CROZIER FAMILY (IA-365)
AML RECLAMATION PROJECT
SITUATION PLAN - CLEARING AND
SITE PREPARATION

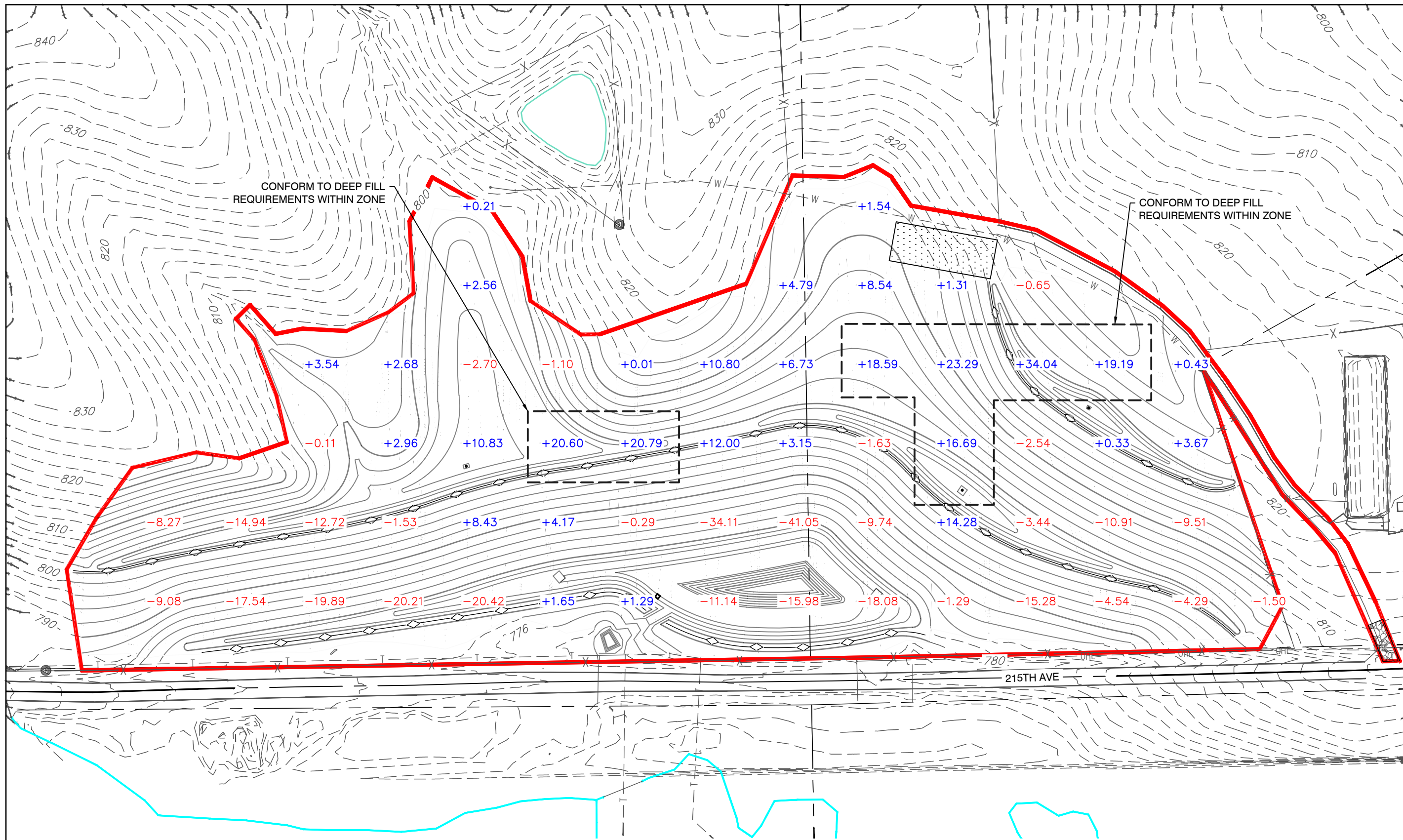


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2 Working Days BEFORE YOU DIG
DigSafeWait48.com

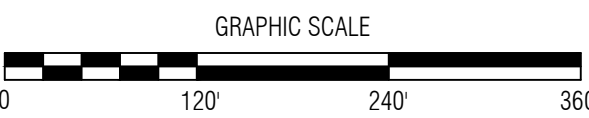
GRAPHIC SCALE



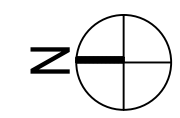
DESIGN BY: SMH		DRAWN BY: SMH	CHKD. BY: LTL	ISSUED: 08-05-2025	REVISED:	FILE: 049.013
<div><div><p>IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP DIVISION OF SOIL CONSERVATION AND WATER QUALITY 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515)281-4246</p></div><div><p>LT LEON ASSOCIATES-INC 1823 OHIO STREET, SUITE 101 DES MOINES, IOWA 50314 office 515-422-7065 www.ltleon.com</p></div></div>						
CROZIER FAMILY (IA-365) AML RECLAMATION PROJECT						
GRADING PLAN						
SHEET 4 OF 18						



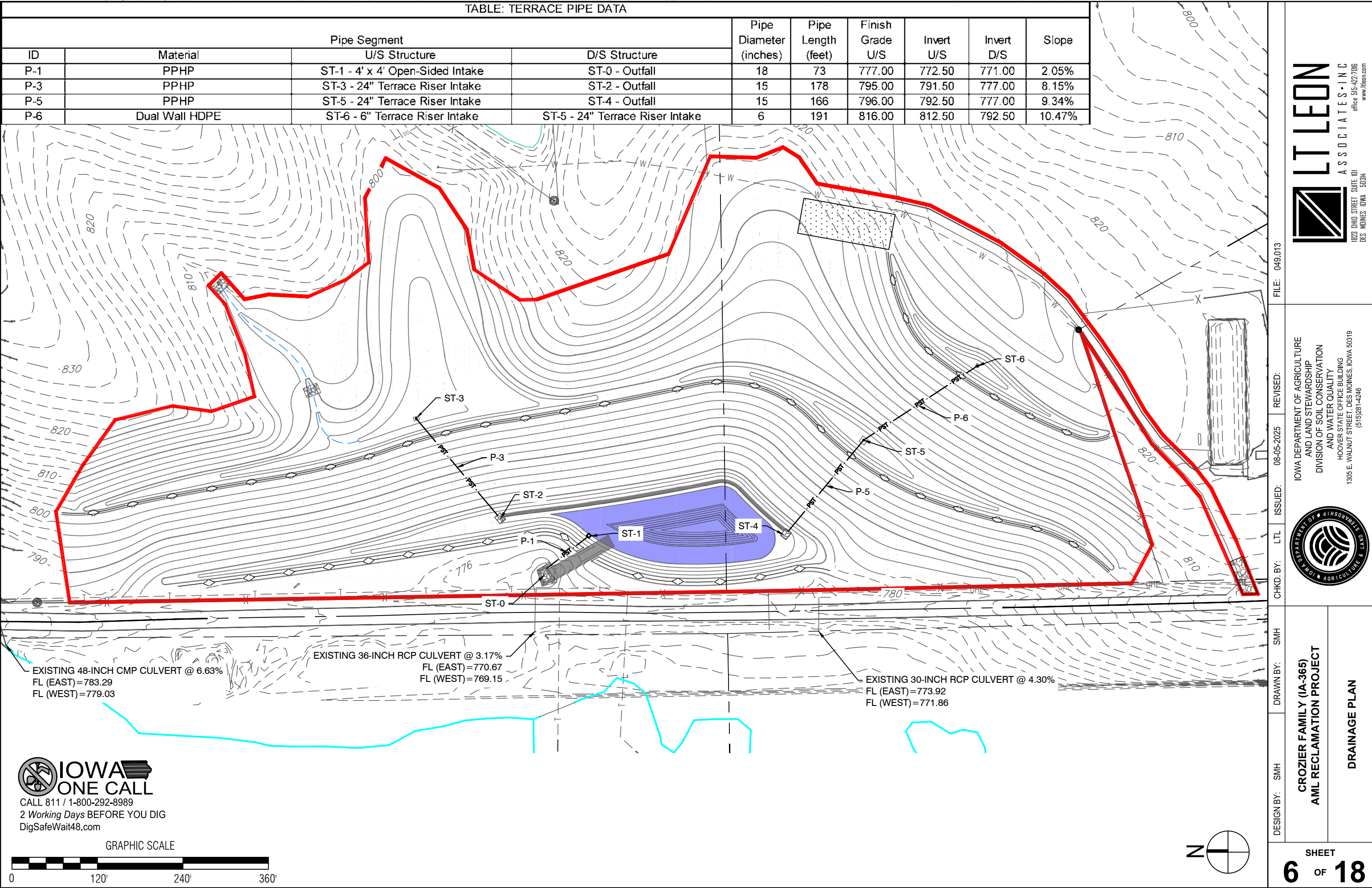
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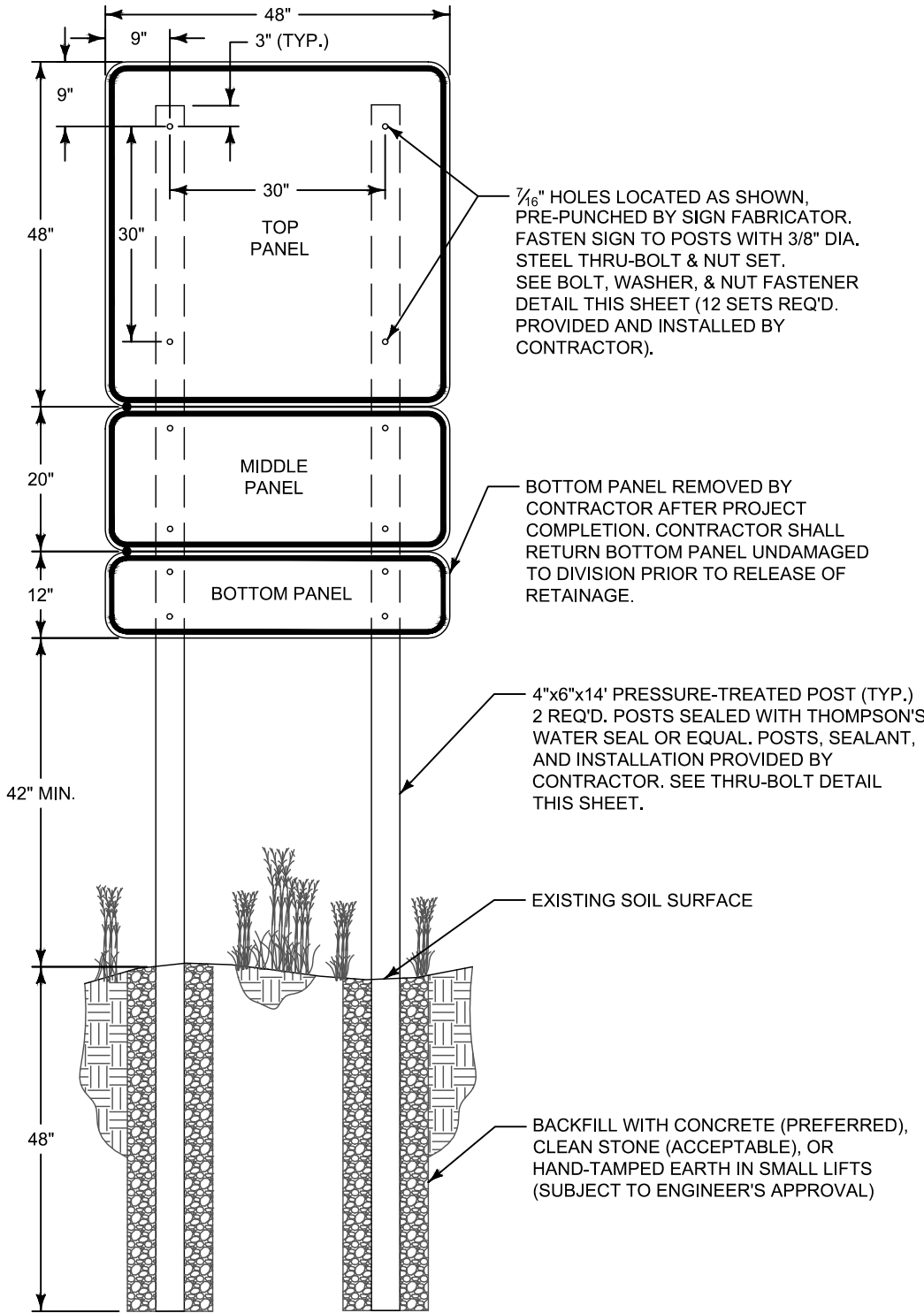


- NOTES:**
1. NEGATIVE (-) VALUES INDICATE AREAS OF CUT.
 2. POSITIVE (+) VALUES INDICATE AREAS OF FILL.
 3. ALL VALUES SHOWN ARE IN FEET.
 4. ALL CONTOURS SHOWN ARE TO FINISHED GRADE.
 5. PROPOSED CONTOURS ARE SHOWN AT 2' INTERVALS, UNLESS NOTED OTHERWISE. EXISTING CONTOURS ARE SHOWN AT 2' INTERVALS.



DESIGN BY: SMH	DRAWN BY: SMH	CHKD. BY: LTL	ISSUED: 08-05-2025	REVISED:	FILE: 049.013	 LT LEON ASSOCIATES INC. 1823 OHIO STREET, SUITE 101 DES MOINES, IOWA 50314 office 515-422-7065 www.ltleon.com
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP DIVISION OF SOIL CONSERVATION AND WATER QUALITY HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515)281-4246						
CROZIER FAMILY (IA-365) AML RECLAMATION PROJECT						
CUT AND FILL PLAN						
SHEET 5 OF 18						





TOP PANEL (4' x 4') 0.080" ALUMINUM SUBSTRATE



MIDDLE PANEL (1'-8" x 4') 0.080" ALUMINUM SUBSTRATE



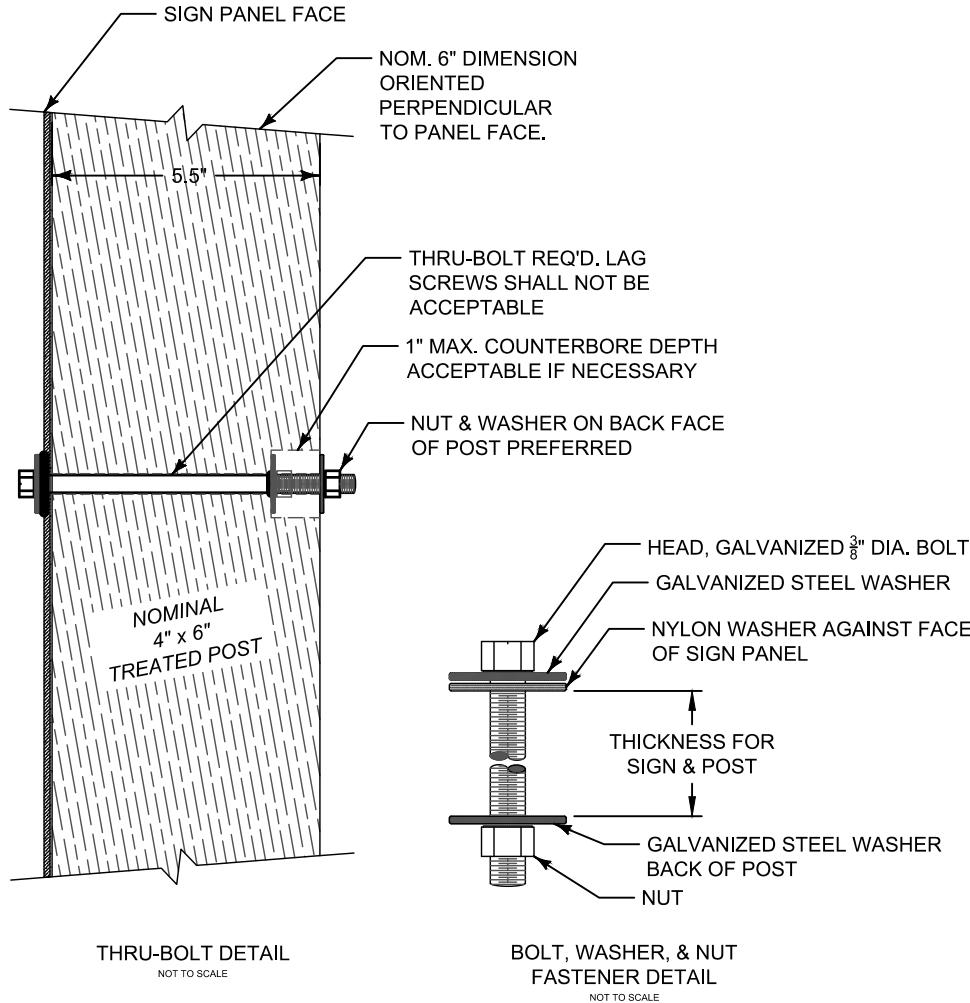
BOTTOM PANEL (1' x 4') 0.080" ALUMINUM SUBSTRATE



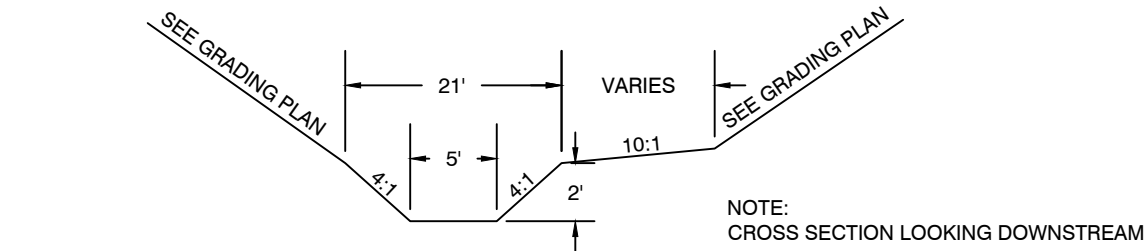
** LETTER WIDTH = 75% OF THE LETTER HEIGHT

SIGNAGE NOTES:

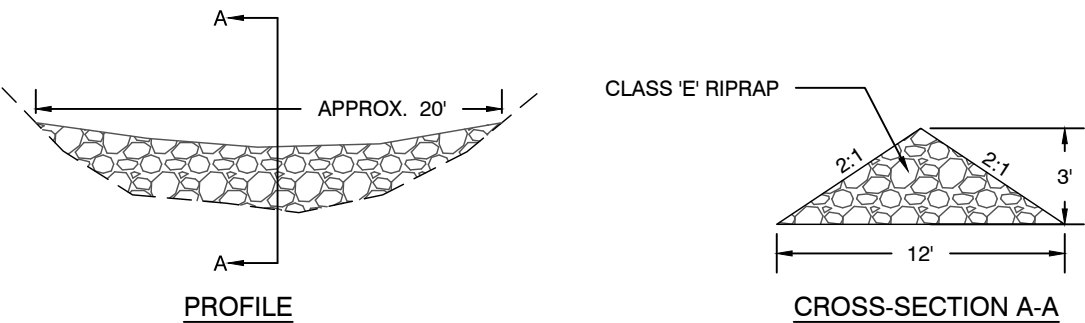
1. DIVISION WILL FURNISH TOP AND BOTTOM SIGN PANELS. MIDDLE PANEL PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSTS, HARDWARE, AND INSTALLATION FOR ALL PANELS.
2. ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSON'S WATER SEAL OR EQUAL MEETING ASTM D-4446-08.
3. ALL STEEL HARDWARE PIECES SHALL BE GALVANIZED.
4. NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.
5. CLEAR UTILITIES WITH IOWA ONE-CALL (800) 292-8989 BEFORE EXCAVATING FOR POSTS.
6. SECURE APPROVAL OF DIVISION AND ENGINEER FOR SIGN LOCATION BEFORE INSTALLATION.
7. COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.
8. CONTRACTOR SHALL INSTALL SIGN POSTS USING A PLYWOOD OR OTHER SUITABLE TEMPLATE TO MAINTAIN ACCURATE POST SPACING AND ALIGNMENT DURING BACKFILLING OF THE POST HOLES. TO AVOID BENDING OF THE SIGN PANELS, POSTS SHALL NOT BE INSTALLED OR BACKFILLED WITH SIGN PANELS ATTACHED.
9. ONE (1) PROJECT SIGN IS REQUIRED, LOCATED AS SHOWN ON PLANS.



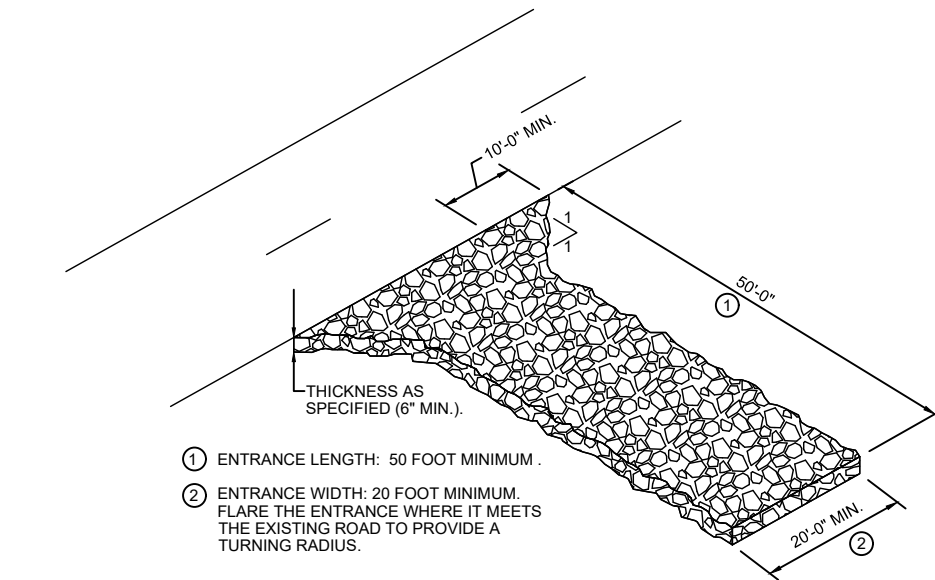
VERSION DATE: 03-27-2025



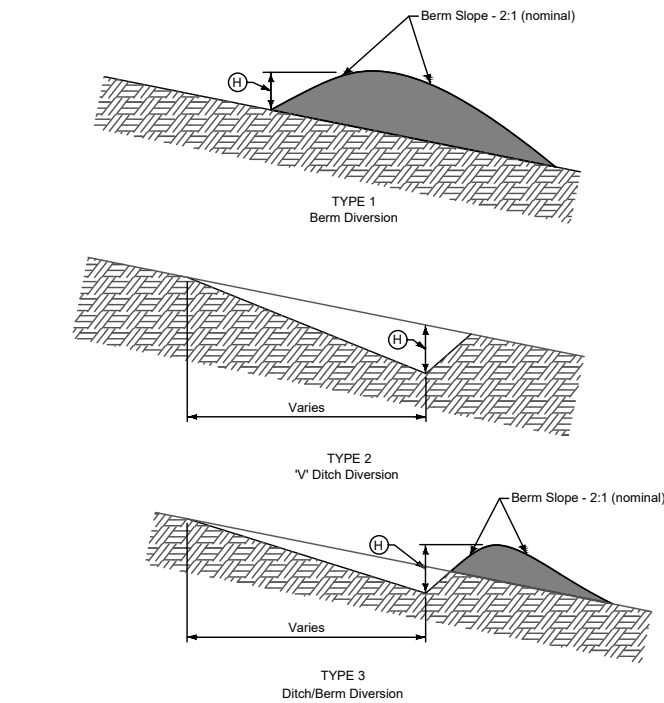
1 CONSTRUCTED CHANNEL DETAIL
NOT TO SCALE



3 TEMPORARY ROCK CHECK DAM
NOT TO SCALE

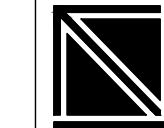


2 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



4 TEMPORARY EARTH DIVERSION STRUCTURE DETAIL
NOT TO SCALE

Diversion Types 1, 2, and 3 may be used interchangeably unless otherwise specified in the contract documents.
Alternate configurations may be used upon approval from the Engineer.
H Total height of diversion (swale and berm); 18 inch minimum or as specified.



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CROZIER FAMILY (IA-365)
AML RECLAMATION PROJECT
TYPICAL DETAILS