

IOWA DEPARTMENT OF NATURAL RESOURCES
PROJECT MANUAL



CENTER LAKE
FISH BARRIER SYSTEM AND
SHORELINE RESTORATION
DICKINSON COUNTY, IOWA

FINAL

PREPARED BY

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC
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LINCOLN, NE 68528

PREPARED FOR

IOWA DEPARTMENT OF NATURAL RESOURCES
LAND AND WATERS BUREAU
502 E. 9TH STREET, WALLACE STATE OFFICE BUILDING
DES MOINES, IOWA 50319-0034

PROJECT NO. 15-01-30-05

Obtain complete sets of contract documents including Drawings, Specification, bid documents, bidders' list in electronic format at: www.beelineandblue.com

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CENTER LAKE
FISH BARRIER SYSTEM AND SHORELINE RESTORATION
DICKINSON COUNTY, IOWA
PROJECT NO. 15-01-30-05

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END OF SECTION

Notice to Bidders - Iowa Department of Natural Resources

Sealed bids will be received by the Iowa Department of Natural Resources, Engineering Bureau, at the Wallace State Office Building, 502 East 9th Street, Des Moines, Iowa 50319-0034 until **11:00 A.M., August 18, 2016** for the public improvement projects listed below, at which time they will be opened publicly. No bids shall be accepted by FAX. After the bid opening, information concerning bid results may be obtained by visiting the Department's website at www.iowadnr.gov.

Note: The United States Postal Service (USPS) does not deliver mail or packages directly to the address provided above but rather to the Capitol Complex Mail Room. Extra time should be allotted for proposals sent by the USPS. The Iowa Department of Natural Resources shall not consider bids if they are not received by the Department of Natural Resources, either at its mail room or at its Fourth Floor Reception Desk, by the time and date described in this Notice to Bidders, regardless of whether the bid was mailed prior to that time and date or whether the bid was received at the Capitol Complex Mail Room or other state government location prior to that time and date.

Project documents, including drawings, specifications, proposal forms and addenda items for the project are available at Beeline and Blue, at 2507 Ingersoll Ave., Des Moines, Iowa 50312.

Please visit www.beelineandblue.com or contact (515) 244-1611 for more information.

Alternatively, Bid Documents can be viewed or printed online at

<https://programs.iowadnr.gov/engreal/projectlist.asp>

The Department shall comply with all public improvement procurement laws, as outlined in the plans and specifications and including but not limited to: Iowa Code chapter 26 related to public construction bidding; Iowa Code chapter 73 related to preferences; Iowa Code chapter 573 related to labor and materials on public improvements; rules promulgated by the Department of Administrative Services – General Services Enterprise as they may apply; rules promulgated by the Department of Natural Resources and the Natural Resources Commission, as they may apply; and any federal statutes, rules and/or executive orders that may be associated depending on funding sources. Bidders shall comply with these laws to be considered and are encouraged to be familiar with public improvement procurement requirements and the bidding documents before submitting a bid.

Each bidder shall accompany the bid with a bid security as defined in Iowa code section 26.8. The bid security must be in an amount set forth in the bidding documents and made payable to the Iowa Department of Natural Resources. Failure to execute a contract for the proposed work and file an acceptable Performance Bond in an amount equal to 100% of the contract price and a certificate of liability insurance within thirty (30) days of the date of the award of the contract will be just and sufficient cause for the rescinding of the award and the forfeiture of the bid security.

SPECIAL NOTICE TO CONTRACTORS

CONTRACTOR IS RESPONSIBLE FOR CONTACTING STATE STORMWATER PROGRAM COORDINATOR (515-281-7017) FOR INFORMATION RELATING TO STORM WATER PERMIT THAT IS NECESSARY IF CONSTRUCTION ACTIVITIES DISTURB ONE ACRE OR MORE.

A non-mandatory pre-bid meeting will be held at the Project Site, near Wetland 2 and 165th Avenue, at 1 PM on August 9, 2016.

Direct questions concerning the Project Design, Drawings and Specifications to:

Jeff Felts
Engineering, District 1
Phone: (515) 250-3712
Email: jeff.felts@dnr.iowa.gov

Direct questions concerning Site Review and Project Inspection to:

Jeff Felts
Engineering, District 1
Phone: (515) 250-3712
Email: jeff.felts@dnr.iowa.gov

Direct questions concerning Bidding and Contract Procedures to:

Kim Alliss, DNR Procurement
Wallace State Office Building
502 E. 9th St.
Des Moines, Iowa 50319-0034
Phone: (515) 725-0733

In accordance with House File 2622 implemented by Iowa Code Sections 442.42 (15) & (16) and 422.47.47(5), Contractors may purchase qualifying items for work on this contract exempt from sales tax. The DEPARTMENT will issue an authorization letter and exemption certificate to the prime contractor and each approved subcontractor." *Complete information on qualifying materials and supplies can be found at www.state.ia.us/tax, the Iowa Department of Revenue and Finance (IDRF) Web site. Links are found in the Business Taxes and Local Government categories. 701 IAC 19.1-20 is found in Tax Research/Tax Research Library.*

Recorded bid results can be accessed at <https://programs.iowadnr.gov/engreal/projectlist.asp>. Printed bid tabs will not be available for 3 working days after the Letting date.

Time and Date of Letting 11:00 AM, August 18, 2016

PROPOSAL

Project No. 15-01-30-05

Project Description and Location

**CENTER LAKE FISH BARRIER SYSTEM AND SHORELINE RESTORATION
DICKINSON COUNTY, IOWA**

Proposal of:

(Name of Bidder)

Located at:

_____ ()

(Address) (Area) (Telephone)

Amount of Proposal Guarantee	Specified completion date or Number of Working Days	Approx. or Specified Starting Date or Number of Working Days	Liquidated Damages Per Day
\$20,000.00	November 15, 2017	N/A	\$400.00

The undersigned hereby agrees, if awarded the contract, to execute the proposed contract and to furnish an approved performance bond in a amount not less than 100 percent of the contract award within 30 days after the date of approval of award of the contract, and to provide all labor, materials, and equipment required to complete the project designated above, for the price hereinafter set forth, in strict compliance with the contract documents prepared by the Iowa Department of Natural Resources.

The undersigned agrees, if awarded the contract, to commence the work within a reasonable time after the preconstruction conference or by the specific starting date, if so specified, and to complete the work within the contract period, or to pay liquidated damages in the amount stipulated herein for each calendar day the work remains uncompleted after the expiration of the contract period or any authorized reduction thereof.

A proposal guarantee in the amount stipulated herein is included with this proposal, to be forfeited to the Iowa Department of Natural Resources if the undersigned fails to execute the contract and furnish an approved performance bond, if awarded the contract.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the state of Iowa, and also, a resident bidder shall be allowed a preference against a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country on projects in which there are no federal funds involved.

(Iowa Contractor Registration No.)

(Signed) (Date)

(FID/EIN/SSN)

(Phone Number) (Fax Number)

(Email Address)

**THE FOLLOWING AFFIDAVIT MUST BE COMPLETED AND NOTORIZED 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 examined the drawings and specifications, 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)

_____ Day of _____, 20 _____

(Signed Notary)

My Commission Expires _____, 20 _____

SCHEDULE OF PRICES

Project Description and Location

CENTER LAKE FISH BARRIER SYSTEM AND SHORELINE RESTORATION

DICKINSON COUNTY, IOWA

Name of Bidder

THE "UNIT PRICE" AND "AMOUNT" COLUMNS MUST BE FILLED IN FOR THIS PROPOSAL TO BE CONSIDERED COMPLETE. IF THERE IS A DISCREPANCY BETWEEN UNIT BID PRICES, EXTENSIONS, OR TOTAL AMOUNTS OF BID, THE UNIT PRICES SHALL GOVERN.

Item No.	Description	Estimated Quantity	Unit Price	Amount
1	Mobilization/Demobilization	1 LS		
2	NPDES Permitting and PPP	1 LS		
3	Riprap Toe - West Shoreline	650 TON		
4	Riprap Bedding	150 TON		
5	Field Stone	583 TON		
6	Shoreline Field Stone	880 TON		
7	Granular Subbase	70 TON		
8	Geogrid	390 SY		
9	Filter Fabric	2,130 SY		
10	Turf Reinforcement Mat	1,040 SY		
11	High Performance Turf Reinforcement Mat	340 SY		
12	Wetland Dike Earth Fill	2,730 CY		
13	Shoreline Earth Fill	1,010 CY		
14	Topsoil for Shoreline	80 CY		
15	Excavation	7,480 CY		
16	Shoreline Over Excavation	390 CY		
17	Road Gravel	31 TON		
18	Box Culvert	1 LS		
19	Wetland 1 Outlet Structure	1 LS		
20	Access Path Culvert	48 LF		
21	Fish Exclusion Animal Guard	1 EA		

22	Clearing and Grubbing	1.7 AC		
23	Large Tree (12"+) Removal	30 EA		
24	Floating Sediment Curtain	1 LS		
25	Silt Fence	550 LF		
26	Wood Fiber Log	210 LF		
27	Straw Wattle	2,060 LF		
28	Tree Protection	10 EA		
29	Native Grass Seeding	0.7 AC		
30	Seeding Disturbed Areas	3.1 AC		
31	Temporary Rolled Erosion Control Product	2,970 SY		
32	Vegetation Establishment Period	1 LS		
33	Shoreline Access	1 LS		
		TOTAL		

Bidder Acknowledges Receipt of Any Issued Addenda Below (Number and Date)

PROPOSAL GUARANTEE BOND

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

KNOW ALL MEN BY THESE PRESENTS:

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:

_____ 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 presents.

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 Natural Resources, hereinafter called the DEPARTMENT, its sealed proposal for a contract for the _____

at _____ in _____ County, Iowa.

NOW THEREFORE,

the conditions of this obligation are such that, if said proposal is rejected by the DEPARTMENT, or if said proposal is accepted by the DEPARTMENT and the PRINCIPAL shall enter into a contract in the form specified by the DEPARTMENT in accordance with the terms of the proposal and shall furnish a bond for the faithful performance of said contract in the form specified by the DEPARTMENT, 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 DEPARTMENT 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 DEPARTMENT the penal sum herein mentioned, it being understood that the liability of the SURETY(S) shall in no event exceed the penal sum of this obligation.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this _____ day of _____, 20_____, the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:

SURETY::

By _____

By _____

If a partnership all partners must sign.

PGB-1

**CENTER LAKE
FISH BARRIER SYSTEM AND SHORELINE RESTORATION
PROJECT NO. 15-01-30-05
DICKINSON COUNTY, IOWA**

THIS AGREEMENT, made this _____ day of, _____ 20____ by and between the state of Iowa acting through the Department of Natural Resources hereinafter called the **DEPARTMENT** and:

located at

hereinafter called the **CONTRACTOR**

WITNESSETH: That the **DEPARTMENT** agrees to pay the **CONTRACTOR** the contract price provided herein for the fulfillment of the work and the performance of the covenants set forth herein, and the **CONTRACTOR** agrees with the **DEPARTMENT** to commence and complete the project described as follows:

CONSTRUCTION OF A FISH BARRIER, OTHER WETLAND IMPROVEMENTS DOWNSTREAM OF CENTER LAKE, AND RESTORATION OF TWO SECTIONS OF THE NORTH SHORELINE OF CENTER LAKE.

For the Sum of:

Dollars (\$)

and all extra work in connection therewith, all in accordance with the terms and conditions herein contained: and to furnish at the **CONTRACTOR'S** own proper cost and expense, all material, equipment, labor, insurance, and other accessories and services necessary to construct and complete, in a workmanlike manner, ready for continuous operation, the above mentioned project. The work shall be performed in accordance with the requirements and provisions of the following documents, all of which are made a part hereof and collectively evidence and constitute the contract:

- 1. Notice to Bidders.
- 2. Instructions to bidders.
- 3. IDNR Standard Specifications and Current Supplemental Specifications
- 4. Project Specifications Including Addenda Number _____ Through _____
- 5. Drawings, Sheet Number _____ 1 _____ Through _____ 10 _____ Inclusive
- 6. Contractor's Proposal.
- 7. Proposal Guarantee Bond.
- 8. Performance Bond.
- 9. This Instrument.
- 10. Modifications or Change Orders pursuant to IDNR Standard Specifications
- 11. Resident Bidder Preference Certification on Non-Federal-Aid Projects

The parties to this contract understand that time of completion of the work under this contract is the essence to the contract. The **CONTRACTOR** hereby agrees to commence work under this contract in accordance with Section 1108 of the IDNR Standard Specifications and to complete all the work by

November 15, 2017

The **CONTRACTOR** hereby agrees that liquidated damages in the amount of _____ Dollars \$ FOUR HUNDRED 400.00

shall be retained or assessed against the **CONTRACTOR** for each day and every day the completion of the work is delayed beyond the time specified herein, not as a penalty, but as a mutually agreed to, predetermined amount to reimburse the **DEPARTMENT** for salaries of engineers and reviewers, clerk hire, interest charged during the period for delays and loss of use.

It is understood that the **CONTRACTOR** consents to the jurisdiction of the courts of Iowa, to hear, determine and render judgment as to any controversy arising hereunder, and that this contract shall be governed by, and construed according to, the laws of the state of Iowa.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, in the day and year first above mentioned.

FOR THE DEPARTMENT:

Deputy Director

This contract was approved by the **NATURAL RESOURCES COMMISSION** at its meeting held on

(Date)

FOR THE CONTRACTOR:

(Signature and Title)

(Firm)

(Address and Zip Code)

Seal if by a Corporation:

Identification Number _____

Soc. Sec. No. _____

Or Fed. I. D. No. _____

PERFORMANCE BOND

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

KNOW ALL MEN BY THESE PRESENTS:

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:

_____ 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 presents.

The conditions of this obligation are such that whereas the PRINCIPAL entered a certain contract, hereto attached, and made part hereof to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT, dated _____ for the _____
at _____ in _____ County, Iowa.

NOW THEREFORE,

the conditions of this obligation are such that, if the DEPARTMENT, shall faithfully perform the contract in accordance with the plans, specifications and contract documents, and shall fully indemnify and save harmless the state of Iowa from all cost and damage which the state of Iowa may suffer by reason of the PRINCIPAL's default or failure to do so and shall fully reimburse and repay the state of Iowa all outlay and expenses which the state of Iowa may incur in making good any such default, then this obligation shall be null and void, otherwise it shall remain in force and effect.

In the event that the PRINCIPAL is in default under this contract as defined herein, the DEPARTMENT shall by written notice inform the PRINCIPAL that this contract is in default. And may, at its option, without process or action at law:

1. Take over all or any portion of the work and complete it either by day labor or reletting the work. The DEPARTMENT may retain all material, equipment and tools on the work, at a rental which it considers reasonable, until the work has been completed.
2. Allow the surety to take over the work within fifteen (15) days and assume completion of said contract and become entitled to the balance of the contract price.
3. Allow the PRINCIPAL to complete the contract.

As required by Chapter of the Code of Iowa.

1. The PRINCIPAL SURETY(S) on this bond hereby agree to pay all persons, firms or corporations having contracts directly with the PRINCIPAL or with subcontractors, all just claims due them for labor performed or material furnished, in the performance of the contract on account of which this bond is given, when the same are not satisfied out of the portion of the contract price shall have been established as provided by law.
2. Every Surety on this bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notices:
 - a. To any extension of time to the contractor in which to perform the contract.
 - b. To any change in the plans, specifications, or contract, when such changes does not involve an increase of more than 20 percent of the total contract price, and then only as to such excess increase.
 - c. That no provision of this bond or any other contract shall be valid which limits less than one year from the time of the acceptance of the work, the right to sue on this bond for defect in workmanship or material not discovered or known to the DEPARTMENT at the time such work was accepted.

No provision of this bond or any other contract shall be valid which limits to less than five years after the acceptance of the work, the right to sue on this bond for defects in workmanship or material in connection with paving or concrete work.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this _____ day of _____, 20_____, the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:

SURETY:

By _____

By _____

If a partnership all partners must sign.

This bond approved by the Iowa Department of Natural Resources this _____ day of _____, 20 _____

By _____
Director

**IOWA DEPARTMENT OF NATURAL RESOURCES
GENERAL COVENANTS AND PROVISIONS
SECTION NO. 00700
JANUARY 1993 (Revised 11/06/12)**

This section consists of the general provisions applying to all types of construction and maintenance as set forth in the following sections

- Part 1100. Definitions
- Part 1101. Instructions to Bidders
- Part 1102. Bidder Qualifications
- Part 1103. Award and Execution of Contract
- Part 1104. Scope of Work
- Part 1105. Control of Work
- Part 1106. Control of Materials
- Part 1107. Legal Relations and Responsibilities to the Public
- Part 1108. Prosecution and Progress
- Part 1109. Measurement and Payment

PART 1100. DEFINITIONS

1100.01 GENERAL

- A. Whenever in these specifications or in other contract documents, the following definitions, or terms or both, or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:
- B. In order to avoid cumbersome and confusing repetition of expressions in these specifications, it is provided that whenever anything is, or is to be done, if, as, or, when, or where "contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable , unacceptable, suitable, accepted, satisfactory , unsatisfactory, sufficient, insufficient, rejected, or condemned," it shall be understood as if the expression were followed by the words "by the Engineer" or "to the Engineer."
- C. The titles or headings of the sections and articles herein, or referred to on the plans, are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.
- D. Working titles and pronouns used for any person referred to in these specifications may be used with a masculine gender for the sake of brevity and are intended to refer to persons of either sex.

1100.02 DEFINITIONS OF ABBREVIATIONS

- A. Whenever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as the respective expressions represented.

AAN - American Association of Nurserymen
AAR - Association of American Railroads
AASHTO (or AASHO) - American Association of State Highway and Transportation Officials
ACI - American Concrete Institute
AIA - American Institute of Architects
ANSI - American National Standards Institute
APWA - American Public Works Association
ARA - American Railway Association
AREA - American Railway Engineering Association
ASCE - American Society of Civil Engineers
ASLA - American Society of Landscape Architects
ASTM - American Society of Testing and Materials
AWPA - American Wood Preservers Association
AWS - American Welding Society
AWWA - American Water Works Association
CFR - Code of Federal Regulations

DNR - Iowa Department of Natural Resources
DOT - Iowa Department of Transportation
EEI - Edison Electric Institute
EPA - Environmental Protection Agency
FHWA - Federal Highway Administration
FSS - Federal Specifications and Standards
IEES - Institute of Electrical and Electronics Engineers
IES - Illuminating Engineering Society
ICEA (or IPCEA) - Insulated Cable Engineers Association
MUTCD - Manual on Uniform Traffic Control Devices
NEC - National Electrical Code
NECA - National Electrical Contractors Association
NEMA - National Electrical Manufacturers Association
NFPA - National Fire Protection Association
NRC - Natural Resource Commission
SBC - State Building Code
UBC - Uniform Building Code
UL - Underwriters Laboratories, Incorporated
UMC - Uniform Mechanical Code
UPC - Uniform Plumbing Code
US - United States
USC - United State Code

B. Abbreviations may be used for materials and classes of work:

AC - Asphalt cement
ACC - Asphalt cement concrete
ATB - Asphalt treated base
BSC - Bituminous seal coat
BTA - Bituminous treated aggregate
CTG - Cement treated granular
PCC - Portland cement concrete
SAS - Soil-aggregate subbase
SLS - Soil-lime subbase

1100.03 DEFINITIONS OF TERMS

1. Acceptable Work - Work in reasonably close conformance with the contract requirements.
2. Addendum or Addenda - Changes, revisions, or clarifications of the specifications of contract documents which have been issued to prospective bidders, prior to the time of receiving bids.
3. Advertisement - The public announcements, publications, or solicitations as required by the Contracting Authority, inviting bids for work to be performed.
4. Approval of Award - The acceptance by the Contracting Authority of a bid.
5. Approximate Starting Date - A calendar day shown on the proposal on which it is anticipated, at the time of the letting, that conditions will be such as to permit the Contractor to commence work.
6. Assignment of Contract -The written agreement whereby the Contractor sells, assigns, or transfers his rights in the contract to any person, firm, or corporation.
7. Award - The execution of the contract.
8. Bidder - An individual, firm, corporation, or joint venture submitting a bid for the advertised work.
9. Calendar Day - Every day shown on the calendar.

10. Change Order - A written order to the Contractor, signed by the Engineer, ordering a change which has been found necessary in the work from that originally shown by the plans and specifications. Change orders duly signed and executed by the Contractor constitute authorized modifications of the contract.
11. Channel - A natural or artificial water course.
12. Chief Engineer - An engineer appointed by the Iowa Department of Natural Resources as the head of the Construction Service Bureau.
13. Classes of Work - The divisions made for the purpose of measuring and paying for labor to be performed or materials to be furnished according to the methods of construction involved, as indicated by the items for which bids have been received for each specific contract.
14. Commencement of Work - Work will be considered commenced when the Contractor's operations are started on items of work covered by the contract documents and which require inspection, or when the Contractor notifies the Engineer, and the Engineer agrees, that the Contractor's equipment and personnel are available at the site, but his operations are prevented by weather or soil conditions.
15. Commission - The state Natural Resources Commission as constituted under the laws of the state of Iowa (which is the party of the first part in the contract, let in behalf of the State, of which these specifications are a part).
16. Commissioner - A member of the state Natural Resources Commission.
17. Contract (Also Contract Document) - The written agreement between the Contracting Authority and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment. The contract includes the notice to bidders, proposal, contract form, and contract bonds specifications, supplemental specifications, special provisions, all items covered on the table of contents, plans, notice to proceed, and any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.
18. Contract Item (Pay Item) - A specifically described unit of work for which a price is provided in the contract.
19. Contract Period (Also Contract Time) - The number of working days or calendar days allowed for completion of the contract, including authorized time extensions. In case a calendar date of completion is shown in the proposal, in lieu of or in addition to the working days, the contract shall be completed by that date.
20. Contract Sum - The aggregate sum obtained by totaling the amounts arrived at by multiplying the number of units of each class of work, as shown in the contracts by the unit price specified in the contract for that class of work.
21. Contracting Authority - The governmental body, board, commission, or officer having authority to award a contract.
22. Contractor - The individual, firm, corporation, or joint venture contracting with the Contracting Authority for performance of prescribed work.
23. Contractor Registration - The registration number issued by the Division of Labor Service, in accordance with Chapter 91C of the Code of Iowa.
24. Deficient Work - Work not in reasonably close conformance with the contract requirements, or otherwise inferior, but in the opinion of the Engineer, reasonably acceptable for its intended use and allowed to remain in place.
25. Department of Economic Development - As defined in Chapter 15, Code of Iowa.
26. Department of Labor Services - As defined in Chapter 91, Code of Iowa.

27. Department of Natural Resources (Department)- The Department of Natural Resources, as defined in Chapter 455A, Code of Iowa.
28. Department of Revenue and Finance - As defined in Chapter 421, Code of Iowa.
29. Department of Transportation -The Department of Transportation, as defined in Chapter 307, Code of Iowa.
30. Director - The duly appointed executive officer for the Department of Natural Resources.
31. Drainage Ditch -An artificially constructed, open depression, other than a road ditch, which is constructed for the purpose of carrying surface water runoff .
32. Drawings (or Plans) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
33. Employee - Any person working on the project, mentioned in the contract of which these specifications are a party, and who is under the direction or control, or receives compensation from, the Contractor or subcontractor.
34. Engineer - The Chief Engineer, or other Engineer of the Contracting Authority, acting directly or through a duly authorized representative, such representative acting within the scope of the particular duties assigned, or of the authority given.
35. Equipment - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of the work.
36. Extra Work - Work not provided for in the contract, as awarded, but deemed essential to the satisfactory completion of the contract within its intended scope and authorized by the Engineer. Extra work shall not include additional materials, equipment, and labor used due to natural variations in the surface and subsurface conditions, except as specifically provided for elsewhere in the contract documents.
37. Extra Work Order - A change order concerning the performance of work or furnishing of materials involving additional work. Such additional work may be performed at agreed prices, or on a force-account basis, as provided elsewhere in these contract documents.
38. Independent Contractor - Any persons firms or corporation who contracts with the Contractor to perform a service for which the basis of payment is in terms of units of service rather than salary or wages.
39. Inspector - An employee of the Contracting Authority and who is the authorized representative of the Engineer, assigned to make detailed inspections of any or all portions of the work, or materials included in the work.
40. Instruction to Bidders - The clauses setting forth in detail the information relative to the proposed work and requirements for the submission of proposals.
41. Invitation for Bids - See Notice to Bidders.
42. Item -See Contract Item.
43. Joint Venture - Two or more individuals, firms or corporations combining any equipment, personnel or finances for the purpose of submitting a single bid.
44. Laboratory - The testing laboratory of the Contracting Authority, or any other testing laboratory which may be designated or approved by the Engineer.
45. Lands Acquired for the Work - The land area, reserved or secured by the Contracting Authority, upon which to construct the work, or where to obtain material therefrom.

46. Major Item of Work - Any contract item (Pay item) for which the original contract amount plus authorized additions is more than 10% of the total original contract sum or \$50,000 whichever is less.
47. Materials - Any substances specified for use in the construction of the project and its appurtenances.
48. Notice to Bidders - That portion of the contract documents, prepared and furnished by the Contracting Authority for the information of bidders submitting proposals, which notice specifies provisions, requirements, and instructions pertaining to the method, manner, and time of submitting bids.
49. Notice to Proceed - Written notice to the Contractor to proceed with the contract work including, when applicable, the date of beginning of contract time.
50. Official Publications - The official publications are the formal resolutions and notices relative to the proposed improvement that are required by law to be published in a prescribed manner and that have been published in accordance with the statutes relating to them. Official publications area by statutes vested with all of the force and effect of contract obligations.
51. Owner - The state of Iowa, acting through the Iowa Department of Natural Resources as constituted under the laws of the state of Iowa.
52. Performance Bond - The bond executed by the Contractor and its surety in favor of the owner, guaranteeing the faithful performance of the contract and the payment of all debts pertaining to the work.
53. Plans (or Drawings) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
54. Project - One or more correlated improvements which constitute the complete improvement of a designated park, recreational reserve, state monument, lake, reserve, game area, fish hatchery, parkway, or other area under jurisdiction of the Department of Natural Resources.
55. Project Engineer - The representative of the Department of Natural Resources, regardless of actual title, directly in charge of the work.
56. Proposal - The formal offer of a bidders on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.
57. Proposal Form - The approved form on which the Contracting Authority requires formal bids to be prepared and submitted for the work.
58. Proposal Guarantee - The security furnished by the bidder with his/her proposal for a projects as guarantee he/she will execute the contract for the work if the proposal is accepted.
59. Reasonably Close Conformity - Reasonably close conformity means compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances. Without detracting from the complete and absolute discretion of the Engineer to insist upon such working tolerances as establishing reasonably close conformity, the Engineer may accept variations beyond such tolerances, as reasonably close conformity, where they will not materially affect value or utility of the work and the interest of the State.
60. Right-of-Way - The land area, the right to possession of which is secured or reserved by the Contracting Authority for road purposes.
61. Road - A general term denoting a public way for vehicular travel, including the entire area within the right-of-way.
62. Shop drawings - See "working drawings".
63. Special Provisions - Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project, method and manner.

64. Specifications - The requirements contained herein and in any supplemental specifications, or special provisions applying to the contract, and pertaining to the method and manner of performing the work, or to the quantity and quality of the materials to be furnished under the contract.
65. Specified Completion Date - The date specified in the proposal for completion of the work. After work has commenced or if the completion date is not specified, the last day of the contract period shall be the completion date.
66. Specified Starting Date - A calendar day shown on the proposal on which date commencement of the work is expected.
67. State - The State of Iowa acting through its authorized representative.
68. Station - One hundred lineal feet.
69. Subcontractor - Any individual, firm, or corporation to whom the Contractor, with the written consent of the Contracting Authority, sublets any part of the contract.
70. Superintendent - The Contractor's authorized representative in responsible charge of the work.
71. Supplemental Agreement - Written agreement between the Contractor and the Contracting Authority, modifying the original contract.
72. Surety - The corporation, partnership, or individual, other than the Contractor, executing a bond furnished by the Contractor.
73. Targeted Small Business - Any enterprise, located in the state of Iowa, which is operated for profits under a single management, and which is 51 percent owned, operated, and actively managed by one or more women or minority persons, and has been certified by the Iowa Department of Economic Development.
74. Unacceptable Work - Work not in reasonably close conformance with the contract requirements and ordered to be removed and replaced.
75. Unauthorized Work - Work neither contemplated by the contract documents nor authorized by the Engineer, and work done contrary to the instructions of the Engineer.
76. Work - Work shall mean the furnishing of all labor, materials, equipment, and other incidentals, as detailed in the plans, specifications, and by the Engineer, necessary or convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the contract.
77. Work Order - A written order, signed by the Engineer, of contractual status, requiring performance by the Contractor without negotiation of any sort, and which may involve starting, resuming, or the suspension of work. (Not to be confused with extra work order.)
78. Working Day - Prior to commencement of work, beginning on the date designated in the notice to proceed or beginning on the specified starting date, or as soon thereafter as provided in the specifications, a day other than Saturday, Sunday, or another recognized legal holiday. Any weekdays exclusive of Saturdays, Sundays, or a recognized legal holidays on which weather or other conditions not under control of the Contractor, will permit construction operations to proceed for not less than 3/4 of a normal workday in the performance of a controlling item of work. If such conditions permit operations to proceed for at least 1/2 but less than 3/4 of the normal working hours, 1/2 of a working day will be counted. The days counted will exclude Saturdays, Sundays, and recognized legal holidays the Contractor does not work, but will include Saturdays, Sundays, and recognized legal holidays the Contractor does work. Nonproductive work that does not require inspection may be done on Saturdays with no time charged. Working days will not be charged for the day before or after a holiday when the contract documents specifically prohibit work and the Contractor does not work. Working days will not be counted during periods of suspension of work ordered by the Engineer, except when the suspension is a result of a violation of terms of the contract.

79. Working Drawings - Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer for approval. Also referred to as "shop drawings". After approval by the Engineer the working drawings became a part of the plans.

PART 1101. INSTRUCTIONS TO BIDDERS

1101.01 GENERAL

- A. These instructions are intended to serve as a guide to the requirements with which the bidder must comply prior to and in submitting a proposal, including various "conditions" affecting the award of the contract. They do not in themselves inform the bidder of all the requirements that must be complied with under the contract.
- B. The time for bid openings shall be the prevailing Central Standard or Daylight Savings time in force at Des Moines, Iowa on the date set forth in the Notice to Bidders.
- C. Before submitting a bid, the bidder shall examine all the drawings and specifications enumerated in the table of contents of this project manual. The successful bidder will be required to do all the work that is shown on the drawings, mentioned in the specifications, or reasonably implied as necessary to complete this contract.
- D. The bidder shall visit and examine the site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.
- E. Failure to visit the site or failure to examine any and all contract documents will not relieve the successful bidder from the necessity of furnishing any materials or equipment, or performing any work that may be required to complete the work, in accordance with the drawings and specifications. Neglect of the above requirements will not be accepted as reason for delay in the work or additional compensation.

1101.02 DRAWINGS AND SPECIFICATIONS

- A. The drawing and specifications, which are part of this contract, are enumerated in the table of contents of this project manual.
- B. It is the responsibility of the bidder to examine the plans, proposal form, specifications, supplemental specifications, special provisions, the site of the works and the state of the work of other contractors on the project to assure that all requirements of the contract and the plans are fully understood. It is the bidder's responsibility to satisfy herself/himself as to the nature of the work and all reasonably ascertainable conditions that may affect his/her performance under the contract.

1101.03 INTERPRETATION

- A. Nonverbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring all inadequacies, omissions, or conflicts to the Engineer's attention, at least ten days before the date set for the bidding. Prompt clarification will be supplied to all bidders of record by addendum.
- B. Neither the Department of Natural Resources nor the Engineer will be responsible for verbal instructions.
- C. Failure to request clarification or interpretation of the drawings and specifications will not relieve the successful bidder of responsibility. Signing of the contract will be considered as an implicit indication that the Contractor has thorough understanding of the scope of the work and comprehension of the contract documents.

1101.04 CONTENTS OF PROPOSAL FORMS

- A. Bidders will be furnished with proposal forms stating the location and description of the proposed work, the approximate quantities of work to be performed or materials to be furnished, the form and amount of the required proposal guarantee, and the contract period.
- B. The statement, "By virtue of statutory authority, preference will be given to products, provisions grown and coal produced within the state of Iowa where applicable," which is on the face of the proposal form shall not be applicable to contracts involving Federal-aid participation in construction.
- C. The following bidding and letting regulations shall apply to all construction projects for which the Department receives bids.
 - 1. Contracts will be recommended for approval for award on the basis of the greatest total savings in the public interest. The determination of which projects are to be awarded will be based on the approval by the appropriate Commission or other contracting agency.
 - 2. Contractors shall not be permitted to tie projects or to designate on the bidding proposal the limit of the amount they will accept.

1101.05 PREPARATION OF PROPOSALS

- A. Only signed proposals, submitted on forms furnished by the Contracting Authority, will be considered, and the bidder will be assumed to have familiarized himself with the requirements of all applicable contract documents. To insure consideration, the bidder shall specify a unit price in figures for each pay item for which a quantity is given and shall also show the products for the respective unit prices and quantities, written in figures in the column provided for the purposes and the total amount of the proposal obtained by adding the amounts of the several items. All the unit price figures shall be in ink or typed. If there is a discrepancy between unit bid prices, extensions, or total amounts of bid, the unit bid prices shall govern.
- B. If the proposal is made by a partnership or corporations the name of the partnership or corporations its agents and its principal place of business shall be shown. The proposal shall be signed by an authorized agent of the partnership or corporation.
- C. If the proposal is made on the basis of a joint bid, the proposal shall be signed by each of the joint bidders, or in the case of a firms' partnerships or corporations by an authorized agent for such firms' partnerships or corporations and the principal place of business for each shall be shown.
- D. For work let by the DNR, the sworn affidavit on the proposal shall be executed by the bidder of an agent thereof, on behalf of each person, firm, association, partnership, or corporation submitting a proposals certifying that such person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreements participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contracts and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures.
- E. The attention of the bidders for the work covered by a proposal and referred to as this work, is directed to the fact that contracts for work other than the work covered in this proposal may have been awarded, are being advertised for letting on the same date as this work, or may be awarded in the future.
- F. Completion of work covered by this proposal may be contingent upon certain work covered by other contracts being performed on the project in advance of this work, likewise, completion of work covered by other contracts may be dependent upon completion of work covered by this proposal.
- G. The contract documents will list types of work involving other contracts anticipated to be let on the same letting date or same time within the contract period anticipated for this work. The contract documents will also list other governmental agencies, railroads, utilities, or other parties who will have work with which it is known that this work must be coordinated.
- H. The bidder is expected to be familiar with work already in progress or previously let on this project, the contract periods, the progress being made, and any other conditions regarding that work which may affect his/her bid or his/her performance under this contract.

- I. Cooperation and coordination of all contractors and other agencies authorized to do work on the project will be required.
- J. The bidder for this work acknowledges these facts and agrees that it is in the public interest to have the work of certain contracts and agencies performed concurrently rather than consecutively. The bidder further agrees to cooperate and coordinate his work with that of other contractors or agencies to the mutual interest of all parties doing work on the project, whether by contract with the State, County, or City or necessary work being done by governmental agency or utility force.
- K. By the submission of a bid on this works the bidder acknowledges and agrees that an investigation and inquiry has been made regarding the contracts for work with which this work must be coordinated.
- L. In the event disputes arise between contractors or other agencies, or both, doing work on the project as to their mutual rights or obligations, the Contracting Authority or its authorized representative will, when requested to do so or upon his own motion, act as referee and define the rights of all interested parties with regard to the conduct of the work, which decision shall be final as provided in 1105.01.
- M. If a prospective bidder, for a project for which the Department is the Contracting Authority, is in doubt as to the true meaning of any part of the contract documents, he may submit to the Contracting Authority a request for additional information, explanations, or interpretations. Interpretations may be in the form of an addendum to the proposal. The Contracting Authority will not be responsible for any information, explanation, or interpretation from any other source.

1101.06 IRREGULAR PROPOSALS

- A. Proposals will be considered irregular and may be rejected for any unauthorized changes in the proposal form or for any of the following reasons:
 - 1. If on a form other than that furnished by the Contracting Authority, or if the form is altered or any part thereof is detached.
 - 2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
 - 3. If the bidder adds any provisions reserving the right to accept or reject an award because he is low bidder on another project in the same letting,
 - 4. If the bidder adds any provisions reserving the right to accept or reject an award or to enter into contract pursuant to an award.
 - 5. If a bid on one project is tied to a bid on any other project, except as specifically authorized on the proposal form by the Contracting Authority,
 - 6. If the proposal does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

1101.07 ESTIMATE OF QUANTITIES

- A. For all work let on a unit price basis, the Engineer's estimate of quantities, as shown in the notice to bidders and the proposals is understood to be approximate only, and will be used only for comparing bids except as otherwise provided in the basis of payment for the various classes of work.

1101.08 SUBMISSION OF PROPOSALS

- A. All proposals shall be submitted on the standard proposal form prepared specifically for this projects an example of which is bound in this specification volume. One separate, unbound copy of the standard proposal forms which has been specifically prepared for this projects is supplied by the Department of Natural Resources with the contract documents. Only proposals which are submitted on this form will be considered.
- B. One copy of the proposal shall be submitted.
- C. No proposal for any subdivision or any subclassification of the work, except as indicated, will be accepted. Any conditional bid, amendment to the proposal form, or the inclusion of any correspondence, written or printed matter, or details of any essential provision of the contract documents, or required consideration of unsolicited material or data in determining the award of the contracts will disqualify the proposal.
- D. The bid amounts shall be inserted in the spaces provided on the proposal form, setting forth clearly and concisely, all designations and prices. Erasures or other changes on the proposal form must be explained or noted over the signature of the bidder.
- E. Addenda issued during the time of bidding shall become part of the contract documents. Bidders shall acknowledge receipt of each addendum in the appropriate space provided on the proposal form. If no addenda are issued, the word "none" is to be entered in the space provided.
- F. When samples are required, they must be submitted by the bidder so as to arrive at the designated office prior to the hour set for opening the proposals. Samples shall be furnished free of expense to the Department of Natural Resources, properly marked by identifications and accompanied by a list when there is more than one sample. The Department of Natural Resources reserves the right to mutilate or destroy any samples submitted whenever it may be considered necessary to do so for the purpose of testing. Samples not so mutilated or destroyed, when no longer required to be retained in connection with the award or delivery of supplies, will be returned at the bidder's expense, if such return is requested in the proposal.
- G. All proposals must have the affidavit portion of the proposal completed and notarized affirming that the bidder is not guilty of collusion or fraud in connection with his proposal.
- H. All proposals must state the full business address of the bidder and be signed with the bidders usual signature. Proposals by partnerships must state the full names of all partners and must state the name of the partnership followed by the signature and designation of one of the members of the partnership or an authorized representative. Proposals by corporations must state the legal name of the corporation and the name of the state of incorporation followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation to the proposal. Contractors are required to include the Iowa Contractors registration number assigned to them by the Iowa Division of Labor Services. The name of each person signing the proposal shall be typed or printed below the signature.
 - 1. A proposal by a person who affixes to their signature the word "president", "secretary", "agent", or any other designation without disclosing their principals may be held to be the proposal of the individual whose name is signed thereon. When requested by the Department of Natural Resources, satisfactory evidence of the authority of the officers signing in behalf of the corporation shall be furnished.
- I. The proposal, with the proposal guarantee, must be securely sealed in an envelope plainly marked as to its contents on the outside of the envelope. Sample envelope forms can be viewed and downloaded on the DNR website https://programs.iowadnr.gov/engreal/bid_envelope.doc. The bidder shall be responsible for the sealed envelope being delivered to the place designated for the bid opening on or before the date and time specified in the notice to bidders. The officer whose duty it is to open the proposal will decide when the specified time has arrived. Proposals received thereafter will not be considered and will be returned unopened.
- J. No bidder shall submit more than one proposal for identical work for the same project.

1101.09 WITHDRAWAL OF PROPOSALS

- A. Proposals may be withdrawn by written or telegraphic request received from the bidder or authorized representative prior to the time fixed for opening of bids, without prejudice to the right of the bidder to file a new proposal. No proposals may be withdrawn by telephone request. Withdrawn proposals will be returned unopened. Negligence on the part of the bidder in preparing the proposal confers no right for withdrawal of the proposal after it has been opened.

1101.10 TAXES

- A. The bidder shall include in the proposal all applicable federal and state taxes required by law. See Sales Tax Exemption below.
- B. For the purposes of retail sales tax and use tax, general construction contractors, special construction contractors, and construction subcontractors are regarded as consumers or users of all tangible personal property which they purchaser acquire, or manufacture for use in complying their respective construction contracts.
- C. Iowa retailers making sales, within the state of Iowa, of tangible personal property to a construction contractor for such use, are making sales at retail, the receipts of which are subject to retail sales tax. This means that a construction contractor should pay retail sales tax to his Iowa suppliers when purchases of tangible property are made within the state of Iowa. If a Contractor uses tangible personal property in completing the constructions which the Contractor has manufactured or fabricated, the tax will be 5% of the cost of manufacture.
- D. This likewise means that any construction contractor purchasing, acquiring, or manufacturing tangible personal property outside the state of Iowa, for such use in Iowa, owes use tax on such out-of-state purchases, measured at the rate of 5% of the purchase prices or in the case of a product manufactured by the Contractor, the Contractor owes 5% of the cost of manufacture.
- E. The use tax is to be paid by the Contractor directly to the Iowa Department of Revenue and Finance, using the retailers sales and use tax return, unless the out-of-state vendor from whom purchased is registered with the Use Tax Section of the Iowa Department of Revenue and does bill and collect the Iowa Use Tax for the state.
- F. In accordance with Iowa Code Section 442.42 (15) & (16) and 422.47 (5), the DEPARTMENT will issue a Sales Tax Exemption Certificate to CONTRACTOR and each approved contractor which will permit the material suppliers to sell material which will becomes an integral part of the structure exempt from Iowa sales tax and some applicable local option taxes and school infrastructure local option sales taxes.
- G. The CONTRACTOR is responsible for keeping records identifying the materials and supplies purchase and verifying they were used as an integral part of the structure governed by this Contract. Any material purchased tax free and not used on this project are subject to taxes payable within the same quarter as the project completion date.
- H. The Sales Tax Exemption Certificate must not be used to claim exemption for tax items not used on this project or that do not qualify for exemption under the provisions of the Iowa Code Sections listed above. Such misuse will result in civil or criminal penalties.
- I. Bidders should anticipate that the sale and use tax could increase the cost of non-exempted services and material by at least 5% and make the necessary allowance before submitting a bid.
- J. The Department will reclaim sales taxes, after receiving a Contractor's Statement of Sales Tax for those projects for which a Tax Exemption Certificate was not issued.

1101.11 WORK BY THE DEPARTMENT OF NATURAL RESOURCES

- A. Unless specifically provided in the contracts the Department of Natural Resources will not furnish any labor, materials, or supplies necessary to complete the work under this contract.

1101.12 PREFERENCE FOR LABOR AND MATERIALS

- A. 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. When a project is federally funded it is indicated in the notice to bidders.

1101.13 PROPOSAL GUARANTEE

- A. All proposals submitted by bidders must be accompanied by a proposal guarantee in the form of a certified check, cashier's check, or a proposal guarantee bond prepared on the standard proposal guarantee bond form furnished to the bidder by the Department of Natural Resources, an example of which is bound in this specification volume.
 - 1. The proposal guarantee shall be made payable to the Department of Natural Resources in the amount specified in the notice to bidders and on the proposal form.
 - 2. If the bond form is utilized in lieu of certified check or cashier's checks it must be executed by a surety company authorized by the Commissioner of Insurance for the state of Iowa to do business in Iowa and which has filed its certificate of authority with the Clerk of Court. One copy of the proposal guarantee bond form is furnished by the Department of Natural Resources with the contract documents. Only one executed copy must be submitted with the bid proposal.
- B. Any bid which is not accompanied by a proposal guarantee will be considered no bid and will not be read at the bid opening.
- C. All proposal guarantees submitted by unsuccessful bidders will be returned as stated in Section 1103.03 of the General Covenants and Provisions.

1101.14 AWARD OF THE CONTRACT

- A. It is the intent of the Owner to award a contract to the lowest responsible Bidder provided the Bid has been submitted in accord with the requirements of the Bidding Documents, is judged reasonable, and does not exceed the funds available. Award of this contract will be at the place and at the time of the first regularly scheduled meeting of the appropriate commission of the Department of Natural Resources following the opening of the proposals, except for reasonable delays as provided in Section 1103.02 of the General Covenants and Provisions.
- B. The Department of Natural Resources reserves the right to reject all bids or any proposal or to waive informalities in any proposal or to accept any proposal which will best serve the interests of the state of Iowa.
- C. If, at the time this contract is to be awarded, the lowest proposal submitted by a qualified responsible bidder is in the best interest of the state of Iowa, the contract will be awarded, and the bidder to whom the award is made will be promptly notified after the Department of Natural Resources meeting.
- D. The Owner shall have the right to accept Alternates in any order or combination and to determine the low bidder on the sum of the Base Bid and the Alternates accepted.

1101.15 EXECUTION OF THE CONTRACT

- A. The successful bidder shall, within thirty calendar days after the date of the award of the contract, enter into a written contract with the Department of Natural Resources on the forms furnished by the Department for the performance of the awarded work.

1101.16 PERFORMANCE GUARANTEE BOND

- A. Simultaneously with delivery of the signed contracts, the Contractor shall furnish a performance guarantee bond prepared on the standard performance guarantee bond form furnished to the Contractor by the Department of Natural Resources, an example of which is bound in the specification volume.
 - 1. The bond must be executed by a surety company authorized by the Commissioner of Insurance of the State of Iowa to do business in Iowa and which has filed its Certificate of Authority with the Clerk of Court.
 - 2. A copy of the performance guarantee bond form will be attached to a copy of the contract furnished by the Department of Natural Resources to the Contractor after award of the contract. One executed copy of the bond must be returned to the Department of Natural Resources with the signed contract, one copy of the bond may be retained by the surety company for its own records.

1101.17 CERTIFICATE OF INSURANCE

- A. On or before execution of the contracts the Contractor shall furnish to the Department of Natural Resources a certificate of liability and property damage insurance.
 - 1. The bidder is directed to examine the insurance coverage limits section of this specification volume to determine the coverage limits which apply to this project. Insurance certificates furnished to the Department of Natural Resources showing inadequate limits of coverage will be rejected, thus delaying final execution of the contract. See Sections 1103.04, 1107.02, and 1107.03 of the General Covenants and Provisions.

1101.18 COMMENCEMENT AND COMPLETION

- A. The Contractor shall not commence work before the preconstruction meeting to be held after execution of the contract by all parties. The Contractor will be responsible for contacting the project Inspector to set up a time for the preconstruction meeting at the project site.
- B. The Contractor must agree to complete the work by the date specified, or within the number of working days indicated if so specified in the contract. Should it be found impossible to complete the work on or before the time specified for completion, a written request may be submitted for a time extension, setting forth the reasons believed to justify the granting of such requests.

1101.19 APPEAL OF CONTRACT AWARD

- A. If a Contractor who submitted a timely proposal disagrees with an award decision, it may appeal that decision by submitting a written appeal to department's director or the director's designee detailing the factual and legal basis for the challenge within five calendar days of the Notice of Intent to Award. The Issuing Officer may submit a written response to the Contractor's written appeal within five business days after receipt of the appeal. The department's director or designee will issue a written decision within seven business days of receipt of the Issuing Officer's written response.

PART 1102. BIDDER QUALIFICATIONS

1102.01 COMPETENCY AND OF BIDDERS

- A. Bidders submitting proposals must be recognized contractors, engaged in the class of work provided for in the plans and specifications, and must possess sufficient resources to complete the work. Before the contract is awarded, the bidder may be required to furnish evidence to the satisfaction of the Contracting Authority of the ability to perform and complete the contract.

1102.02 QUALIFICATIONS OF THE BIDDER

- A. Before award of the contract can be approved, the Department of Natural Resources shall be satisfied that the bidder involved:
 - 1. Maintains a permanent place of business.
 - 2. Has adequate equipment to do the work properly and expeditiously.
 - 3. Has suitable financial status to meet the obligations incident to the work.
 - 4. Has appropriate technical experience.
 - 5. Has satisfactorily completed past projects.
 - 6. Is not ineligible due to discrimination in employment.
- B. The Engineer will make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Engineer all such information and data for this purpose as the Engineer may request.
 - 1. The Department of Natural Resources reserves the right to reject a bid if the evidence submitted by, or an investigation of, such bidder fails to satisfy the Department of Natural Resources that the bidder is responsible and qualified to carry out the obligations of the contract and to complete the work contemplated therein.
- C. Targeted small business set-aside projects.
 - 1. All contractors submitting proposals for set-aside projects shall meet the "Targeted Small Business" definitions and be capable of being certified by the Department of Economic Development within thirty (30) days after the bid letting date. Failure of the low bidder to become certified within this time will be just and sufficient cause for the denial of the award.
 - 2. Contractors eligible for "Targeted Small Business" designation but not currently certified as such by the Department of Inspections and Appeals, should do so immediately by contacting the Targeted Small Business Officer, Lucas State Office Building, Des Moines, Iowa 50319 -0083.

1102.03 REDUCTIONS IN BIDDER QUALIFICATIONS RESTRICTIONS

- A. The requirements and conditions for bidder qualifications may be reduced by the Contracting Authority either for contractors who have well established performance records in other fields or for contractors having adequate financial responsibility and experienced supervisory personnel available for the work that is under consideration or for both the above reasons.
- B. Likewise, the requirements may be modified by the Contracting Authority for newly formed or reorganized firms or corporations whose basic organization is composed of individuals who are veterans of the construction industry, with proven records of satisfactory performance in the field in which they have elected to bid, provided, however, that they have adequate financial responsibility, equipment, and available experienced supervisory personnel.

1102.04 IMPOSITION OF INCREASE IN BIDDER QUALIFICATION REQUIREMENTS, SUSPENSIONS AND DISQUALIFICATION

- A. The requirements and conditions for bidder qualification in 1102.01 may be imposed or re-imposed or increased, or a contractor may be suspended or disqualified.
- B. The requirements and conditions for qualifications of a contractor may be imposed or re-imposed or increased if or when:
 - 1. The Contractor seriously delays commencement or completion of any work within the contract period or any extension thereof under circumstances that would normally give rise to a right of the Contracting Authority for liquidated damages or declaration of defaults or;
 - 2. The Contractor does any act or omits doing or performing any act which, in the judgment of the Contracting Authority, evidences a material change in the contractor's financial responsibility or work capability where, in the judgment of the Contracting Authority, the same will materially prejudice the contractor's ability to successfully prosecute such public improvement contracts, or he knowingly submits false information concerning prequalification, or;

3. The Contractor takes or fails to take any action which the Contracting Authority deems to warrant an imposition of increase in bidder qualification requirements.
- C. A contractor may be suspended from bidder qualification if or when:
1. The Contractor continually fails or refuses to remove and replace materials or work found by the Engineer not to be in reasonably close conformity with the contract documents or to correct such material or work so as to cause such materials or finished product to be reasonably acceptable work, or;
 2. The Contractor continually and, in the judgment of the Engineer, without good cause therefor, fails to carry on the work in an acceptable manner, or refuses to comply with a written order of the Engineer within a reasonable time, or;
 3. The Contractor fails to perform with his own organization the work as required in 1108.01, or otherwise assigns or disposes of work or the contract or any part thereof without approval of the Contracting Authority, or;
 4. The Contractor forfeits a proposal guaranty and fails to enter into the contract upon an offer of award by the guarantee Contracting Authority in response to a prior advertisement for bids for the same project for which award is currently being considered, or;
 5. The Contractor fails to comply with nondiscrimination requirements of the Standard Specifications or special provisions, or;
 6. The Contracting Authority deems a suspension is appropriate for reasons stated in Paragraph A, above.
 7. The Contractor is debarred from doing work for the federal government.
 8. The Contractor knowingly submitted false or misleading information concerning qualifications.
- D. A suspension is intended to be for an indefinite period of time or, in the case of Paragraph C4, for a specific project. A suspension shall continue until the contractor resolves, to the satisfaction of the Contracting Authority the problem for which the suspension was made.
- E. A contractor may be disqualified from bidder qualification if or when:
1. Currently debarred by some other state or Federal agency, or;
 2. Subcontracts, employs, or otherwise uses services, for work of the Contracting Authority, of one who is debarred by the Contracting Authority or disqualified according to Paragraph 1, except to fulfill agreements for work on existing contracts, or;
 3. Is convicted of or pleads guilty or nolo contendere to a charge of engaging in any conspiracy, combination, or other unlawful act in restraint of trade or of similar charges in any Federal court or a court of this or any other state, or;
 4. Has offered or given gifts or gratuities to employees of the Contracting Authority in violation of State law or has had as his employee a person who was at that time also an employee of the Contracting Authority, or
 5. The Contracting Authority deems a disqualification is appropriate for reasons stated in Paragraph C. above.
- F. A disqualification is intended to be for a specified time. A disqualification shall not exceed 36 months. The Contracting Authority will issue a written notice of any intent to disqualify or suspend a contractors except when suspended for a specific project according to Paragraph C4.
- G. Should the Contractor believe that the increase in bidder qualification requirements, intended suspensions or intended disqualification is based on false, biased, or incomplete information or that the increase or intended action is severe or unwarranted, the Contractor may make a written request to the Contracting Authority for an opportunity to be heard in a contested case pursuant to Chapter 17A, Code of Iowa.

1. If notice is given, the written request for a hearing must be filed with the Contracting Authority within 10 days of receipt of the notice of intended agency action.
 2. If the basis of the intended disqualification is a criminal violation which is reasonably related to bidding and contracting procedures, the intended disqualification may be applied to the organization, including a person, firm, association, partnership, or corporation, to an affiliated officer, representative, or employee thereof, and to any other such organization in which the organization or affiliate or the officer, representative, or employee has an interest as either officer or owner.
- H. When a notice is given or when any action is contested, the Contracting Authority will issue a notice of the final action taken.

1102.05 FOREIGN CORPORATIONS

- A. Before entering into a contract involving construction or maintenance work, corporations organized under the laws of any other state shall file with the Contracting Authority a certificate from the Secretary of State of the State of Iowa showing that they have complied with all of the provisions of Chapter 404 Code of Iowa, governing foreign corporations. For contracts involving only the furnishing of materials, the foregoing requirement does not apply.
- B. When a contract not involving federal-aid participation for a public improvement is to be awarded to the lowest responsible bidder, a resident bidder shall be allowed a preference over a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country. The preference is equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident.
- C. If another state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable to bidders from that state or foreign country.
- D. Any joint venture that includes a nonresident bidder will be considered nonresident, and the preference rule will be used.

1102.06 INCOME TAX DEDUCTION ON NON-RESIDENT CONTRACTORS

- A. Each nonresident person or firm doing business as an individual and each nonresident co-partnership will be required, as precedent to receiving an award, to file a certificate issued by the State Tax Commissions as provided in Section 422.17, Code of Iowa, releasing the Contracting Authority from withholding any and all sums required by the provisions of Section 422.17, Code of Iowa.

PART 1103. APPROVAL FOR AWARD AND AWARD OF THE CONTRACT

1103.01 CONSIDERATION OF BIDS

- A. The Contracting Authority reserves the right to waive technicalities and to reject any or all proposals. Bidders may be denied a contract award for any one of the following reasons:
 1. For failure to meet the Contracting Authority's requirements for qualification of bidders, as set forth in Section 1102.02 and in the special provisions for the project.
 2. For failure to maintain satisfactory progress on work already under contract.
 3. For failure to meet promptly financial obligations undertaken in connection with other work under contract.
 4. For filing more than one proposal at any letting for the same work under the same or different names.
 5. For an unsatisfactory record of performance and cooperation on previous contracts.
 6. For submitting an obviously unbalanced bid.
 7. For having sublet or otherwise assigned work without the approval of the Contracting Authority.

8. For forfeiture of a proposal guarantee and failure to enter into contract upon an offer of an award by the Contracting Authority in response to a prior advertisement for bids for the same project or any combination of projects involving the project for which award is currently being considered.
9. For failure to file and maintain with the Contracting Authority a current Certificate of Insurance meeting the requirements of 1107.02.
10. For failure to provide a current Iowa contractor's registration number according to the provisions of Chapter 91C of the Code of Iowa.

1103.02 APPROVAL FOR AWARD

- A. In the approval for award of contracts consideration will be given not only to prices bid but also to the mechanical and other equipment available to the bidders the financial responsibility of the bidders and his ability and experience in performance of like or similar contracts.
- B. Approvals for award will be made as promptly as practical after bids have been opened and read. The Contracting Authority reserves the right to delay the approval for award for such time as is needed for consideration of bids and for receipt of concurrence in recommended approvals for award from other governmental agencies whose concurrence may be required.

1103.03 RETURN OF PROPOSAL GUARANTEE

- A. Proposal guaranties will be returned to the unsuccessful bidder by mail promptly after the approval for award has been made. Return to the successful bidder will be made promptly after the filing of the contract documents.

1103.04 CERTIFICATE OF INSURANCE

- A. The Contractor's certificate of liability and property damage insurance described in 1107.02 shall be filed with the Contracting Authority on or before the execution of the contract and shall be maintained throughout the prosecution of the work and until final acceptance and completion of the contract. A separate verification shall be required for contracts awarded on the basis of joint bids.

1103.05 REQUIREMENT OF CONTRACT BOND

- B. In compliance with Section 573 of the Code of Iowa, the Contractor shall, at the request of the Contracting Authority, on all contracts amounting to five thousand (\$5,000.00) dollars or more, file an acceptable bond in an amount not less than 100 percent of the contract sum with the Contracting Authority.
 1. The bond shall be executed in on the standard form of the Contracting Authority, contractor shall provide one (1) original. This bond shall be held to cover all work included in the contracts whether performed by the Contractor or under a subcontract or assignment. The bond shall be executed by the Contractor and by a surety company authorized to do business in the state of Iowa.
 2. The Contractor shall not begin work on any contract before he is notified, in writing, that the required bond has been approved and accepted, or until the signed contract is returned to him.
- C. Prime contractors that are certified through Iowa Department of Economic Development as a targeted small business may request a performance bond waiver.
 1. The waiver shall be applied only to a prime contract where the project does not exceed \$50,000.00, not withstanding Section 573.2 of the Iowa Code.
 2. The waiver shall only apply to those contractors which are able to demonstrate the inability of securing a bond because of a lack of experience.
 3. A waiver shall not apply to business with a record of repeated failure of substantial performance or material breach of contract in prior circumstances. The granting of a waiver shall in no way relieve the business from its contractual obligations and shall not preclude the Contracting Authority from pursuing any remedies under the law upon default or breach of contract.

1103.06 EXECUTION OF CONTRACT

- A. The bidder to whom a contract is being awarded shall execute and file four copies of such contract with the Contracting Authority.

1103.07 FAILURE TO EXECUTE CONTRACT

- A. Unless the time limit is modified by special provisions failure to execute a contract and file an acceptable bond within 30 days of the date of the approval for awards herein provided, will be just and sufficient cause for annulment of the approval for award and for forfeiture of the proposal guarantee to the Contracting Authority.

1103.08 SUBCONTRACTORS

- A. The bidder to whom a contract is being awarded shall file a list of subcontractors and a copy of each subcontract with the Contracting Authority within 30 days of the date of the approval for award. All subcontracts must comply with the provisions of 1106.01.

1103.09 MATERIAL SUBSTITUTION

- A. The bidder to whom a contract is being awarded shall file all requests for materials substitutions within 30 days of the approval of award of the contract.

PART 1104. SCOPE OF WORK

1104.1 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the plans and specifications is to provide for the construction and completion of every detail of the work described therein. It shall be understood that the Contractor shall furnish all labor, material, tools, transportation, and supplies required for all or any part of the work to make each item complete in accordance with the spirit of the contract. It is understood that the apparent silence of the specifications as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.
- B. For the purpose of design and the preparation of the Engineer's estimate, the Contracting Authority or its representatives may perform a reasonable amount of exploratory work to gain information relative to surface and subsurface conditions relating to types of soils moisture content, and types and extent of rock strata.
 - 1. This information, when shown on the plans, represents a summary of conditions as of the date the survey was made, it is only an approximate estimation of the site conditions made merely to be suggestive to the Contracting Authority of construction conditions and quantities and classes of work. This information may be used as the bidder sees fit. The appearance of this information on the plans or specifications will not constitute a guarantee that conditions other than those indicated will not be encountered at the time of construction.
 - 2. The bidder is advised that all information concerning the project, compiled by the Contracting Authority preceding the design, is available for examination at the Contracting Authority's headquarters. The prospective bidder shall conduct an examination as provided in 1102.06 to satisfy himself as to the character of the work to be done, the probable construction conditions, and any other reasonably ascertainable conditions and the potential effect these could have on the performance of work under the contracts which shall be the basis for the bid to be prepared.
- C. Any bidder interested in the work is authorized to make whatever additional investigation he consider advisable. In making such additional investigation, the bidder is directed to the Engineer for information relating to available right-of-way. If there are, at that time, any parcels of land over which the Contracting Authority does not have jurisdiction, right of entry must be secured by the prospective bidder from those authorized to grant such permission.

1. All such additional investigation work shall be performed without costing or obligating the Contracting Authority in any way.

1104.02 SPECIAL WORK

- A. Any conditions not covered by these standard specifications are stated in the special provisions.

1104.03 INCREASED OR DECREASED QUANTITIES

- A. The Contracting Authority reserves the right to make such increase or decrease in the quantities of the work shown on the plans as may be considered necessary to complete fully and satisfactorily the construction included in the contract. The compensation to the Contractor for such changes will be as provided in 1109.04.
- B. Except as provided in 1109.05, no significant change in quantities, as defined in 1109.17, shall be made by increasing or decreasing the project area to be improved as shown on the plans and described in the proposal forms unless the Contractor gives written consent to such increase or decrease. However, such consent will not be required for maintenance or restoration work ordered by the Engineer.
 1. For the purpose of this article a material change shall be defined as an increase or decrease of more than 20 percent in the measured quantity of any item in the contract.

1104.04 EXTRA WORK

- A. The Contracting Authority reserves the right to order, in writing, the performance of work of a class not contemplated in the proposal but which may be considered necessary to complete satisfactorily the work included in the contract. Such extra work will be paid for as provided in 1109.04B.

1104.05 MAINTENANCE OF DETOURS

- A. Unless so required by the plans or the special provisions, the Contractor will not be required to assume any responsibility in connection with the maintenance or marking of suitable detours.

1104.06 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

- A. The contractor for bridge and culvert work shall remove any existing structure, or part of structure, that in any way interferes with the new construction. If specific payment for such work has not been provided in the contract, it will be paid for as extra work.
- B. The contractor for road work shall remove any materials or structures found on the right-of-way which are not designated to remain in place or which have not been designated for use in the new construction.
 1. The removal and disposal of pipe culverts will not be paid for directly but shall be considered as incidental works and the cost of such removal and disposal shall be considered to be included in the contract price for other items. Pipe culverts designated for salvage shall be removed by methods that will cause a minimum of damage to the pipe culverts.
 2. The removal and disposal of bridges or other masonry or monolithic concrete construction will be paid for. If the contract does not contain an item for such work, it will be paid for as extra work.

1104.07 RIGHTS IN AND USE OF MATERIALS FOUND ON THE RIGHT-OF-WAY

- A. Unless stated to the contrary in the contract documents, all materials, such as stone, gravel, sand, timber, and structures or parts of structures, found on the right-of-way or on land acquired for the work, are the property of the Contracting Authority or the owner of the fee title to the land.
 - 1. If such materials are to be removed but use or salvage is not designated on the plans, they shall become the property of the Contractor, and shall be disposed of by the Contractor.
 - 2. When the Contractor is permitted to use materials found on the right-of-way, any excavations that are made below the grade elevations shall be backfilled with other suitable materials so that the finished road conforms to the grade shown on the plans. No extra compensation will be allowed for such backfilling.

1104.08 FINAL CLEANING UP

- A. Before final acceptance of the work, the Contractor shall remove all unused material and rubbish from the site of the work, remedy any objectionable conditions the Contractor may have created on private property, and leave the project site in a neat and presentable condition. The Contractor shall make no agreement which allows salvaged or unused material to remain on private property within view of the project except when consistent with previous land use.
- B. All ground occupied by the Contractor in connection with the work, which is within view of or adjacent to a road, shall be restored. Restoration shall include appropriate smoothing to its original condition and may include making the area suitable for cultivation and, where vegetation has been disturbed, seeding of the area.
 - 1. Unless otherwise provided for, the Contractor shall be responsible for securing waste privileges on private property. The general Contractor shall be responsible for cleanup of subcontractors at the completion of all work.
- C. This article is not intended to restrict burning in accord with applicable regulations.
- D. Final clean up shall be subject to approval of the Engineer.

1104.09 RIGHT-OF-WAYS OR LANDS ACQUIRED FOR THE WORK

- A. Access to the construction site will be over designated routes of travel, on land owned or made available by the Contracting Authority for the specific use of the Contractor.
- B. Right-of-way or lands will be provided without cost to the Contractor, and it is contemplated that all of the needed right-of-way or lands will have been acquired for the work placed under contract.
 - 1. Whenever it is necessary to secure additional right-of-way or land, performance of the work affected thereby is contingent upon the securing of such right-of-way or land. No claims will be allowed for loss or damage occasioned by delays in securing right-of-way or lands.

1104.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES

- A. Whenever the work involves construction with which federal, state, or local governmental agencies are concerned, the performance of the work is contingent on arrangements and/or permits with those concerned agencies.
 - 1. The Contracting Authority shall secure all necessary permits, certificates, and licenses required to prosecute the work, except specifically designated permits, local building permits, and any cost for inspections required by local authorities, which shall be paid for and secured by the Contractor.
 - 2. No additional compensation will be allowed for any delays, inconvenience, or damages sustained by the Contractor due to actions of those concerned agencies with respect to any arrangements or permits they may require.

1104.11 RAILROAD CROSSINGS

- A. Whenever the work involves construction with which railroad companies are concerned, the performance of the work is contingent upon arrangements with the railroad companies for the proposed construction.
 - 1. The performance of the work shall be in accord with arrangements established by the Contracting Authority. The Contractor may make additional arrangements.
 - 2. No claim will be allowed for loss or damage caused by failure of the railroad to comply with provisions of the agreement with the Contracting Authority. Upon notice given, the Contracting Authority will institute necessary legal action to enforce the conditions of its agreement with the railroad company.

1104.12 PUBLIC UTILITIES

- A. The Contracting Authority will notify all utility companies, all pipeline owners, or other parties affected, and will endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practicable.
- B. The Contractor shall be responsible for notification concerning work near pipelines, required by Section 479.47, Code of Iowa, and for conducting his work as required therein.
- C. Waterlines, gaslines, wirelines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, except as otherwise provided for in the special provisions or as noted on the plans.
- D. It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utility appurtenances in their present or relocated positions as shown on the plans and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him/her due to any interference from the utility appurtenances or their operation or relocation.

1104.13 DRAWINGS AND SPECIFICATIONS

- A. Unless otherwise provided in the contract documents the Contracting Authority shall furnish to the Contractor, awarded the contract, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work.

1104.14 THE CONTRACTING AUTHORITY'S RIGHT TO OCCUPY

- A. The Contracting Authority shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do such other work providing that such storage or work will not interfere with the completion of the Contractor's work. Such occupancy by the Contracting Authority shall in no way imply final acceptance of any portion of the Contractor's work.

1104.15 CONTRACTOR'S UNDERSTANDING

- A. It is understood and agreed that the Contractor has, by careful examination, satisfied him/herself as to the nature, character and location of the work, conformation of the ground, character, quality and quantity of the materials to be encountered, character of the equipment and facilities needed, preliminary to and during the prosecution of the work, general and local conditions and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agency, or employee of the Contracting Authority, either before or after the execution of the contracts shall affect or modify any of the terms or obligations herein contained.

1104.16 HISTORICAL AND ARCHEOLOGICAL

- A. If during the course of construction evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Iowa Department of Natural Resources and the state Historic Preservation Officer. No further disturbance of the deposits shall occur until the contractor has been notified by the agency that he/she may proceed. The agency will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Iowa Department of Natural Resources.

- B. Compensation to the contractor, if any, for lost time or changes in construction to avoid the finds shall be determined in accordance with changed conditions or change order provisions of the specifications.

PART 1105. CONTROL OF WORK

1105.01 AUTHORITY OF ENGINEER

- A. The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work, all disputed and mutual rights between contractors, all plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor. Except as provided in Section 1109, the Engineer's decisions will be final.
- B. For authority to temporarily suspend work see 1105.08 and 1108.06.

1105.02 PLANS

- A. The official plans, profiles, and cross sections, on file in the office of the Contracting Authority, show the location, typical construction details, and dimensions of the work contemplated. The work shall be performed in conformity therewith, except in case of error or unforeseen contingency.
- B. The plans are made from careful surveys and represent the foreseen construction requirements. Any appreciable deviation from the plans made necessary to expedite construction, or because of errors shall be called to the attention of the other party, in writing, by the party discovering such conditions. If necessary, revised plans will be provided.

1105.03 WORKING DRAWINGS

- A. The plans will be supplemented by such working drawings as are necessary to adequately control the work. Working drawings shall be furnished by the Contractor, as required by the specifications or the plans.
 - 1. When certification by a professional structural or civil engineer registered in Iowa is required, it will be so designated on the plans or in other contract documents.
 - 2. Working drawings may include shop drawings of fabricated materials, erection plans, falsework plans, cofferdam plans, or other supplemental plans or data. Contractor submitted shop drawings for steel structures shall show fully detailed dimensions and sizes of all component parts of the structure, descriptions of drains, etc.
 - a. Prior to review of working drawings, any work done or material ordered shall be at the Contractor's risk.
 - 3. The Contractor shall expressly understand that the Contracting Authority's review of working drawings submitted by the Contractor covers only requirements for strength and arrangement of component parts.
 - 4. The Contracting Authority assumes no responsibility for errors in dimensions and assumes the Contractor will use material complying with requirements of the contract documents, or, where not specified, those of sound and reasonable quality, and will erect the subjects of such working drawings in accord with recognized standards of first-quality workmanship or, when specified, in accordance with standards of the contract documents.
 - 5. If unanticipated and either unusual or complex construction procedures or site conditions occur, the Engineer may require the Contractor to submit such working drawings as, in the judgment of the Engineer, are necessary to satisfactorily complete the proposed construction.

1105.04 ALTERATION OF PLANS OR CHARACTER OF WORK

- A. The Engineer will have the right to make alterations in plans or character of work as may be considered necessary or desirable during the progress of the work to satisfactorily complete the proposed construction. Such alteration will neither waive any conditions of the contract nor invalidate any of the provisions thereof.

1105.05 CONFORMITY WITH AND COORDINATION OF SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS

- A. Discrepancies within contract documents:
 - 1. In case of any discrepancy between the drawings on the plans and the figures written thereon, the figures, unless obviously incorrect, are to govern.
 - 2. In case of any discrepancy between the plans, including plan notes, and the general or supplemental specifications, the plans are to govern.
 - 3. In case of a discrepancy between the general specifications and supplemental specifications, the supplemental specifications are to govern.
 - 4. In case of any discrepancy between the general or supplemental specifications and the special provisions or between the plans and the special provisions, the special provisions shall govern.
- B. The Contractor shall not take advantage of any apparent error or omission in the plans, specifications, or of any discrepancy between the plans or specifications. The Engineer shall be permitted to make such correction in interpretation as may be deemed necessary for the fulfillment of the intent of the plans and specifications, subject to compensation as provided in 1109.03, 1109.05, and 1109.06.
- C. The plans shall not be so changed as to materially affect the cost or the difficulty of performing any item or work for which the contract amount is more than 20 percent of the total contract sum, except with the consent of the Contractor.
- D. All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans or indicated in the specifications.
- E. If the Engineer finds the material, or the finished product in which the material, is used is not within reasonably close conformity with the plans and specifications, but that reasonably acceptable work has been produced, the Engineer shall determine, based on engineering judgment, if the work shall be accepted and remain in place.
 - 1. In this events the Engineer will document the basis of acceptance and supplement it by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as deemed necessary to conform to the Engineer's determination.
- F. If the Engineer finds the material, the finished product in which the material is used, or the work performed is not in reasonably close conformity with the plans and specifications and has resulted in an inferior or unsatisfactory product, the work or material shall be considered unacceptable and shall be removed and replaced, or otherwise corrected, as acceptable to the Engineer, by and at the expense of the Contractor.

1105.06 SUPERVISION BY CONTRACTOR

- A. The Contractor, when absent from the construction site, shall have on site at all times, as its agent, a competent superintendent, capable of reading and thoroughly understanding the plans, specifications, and other contract documents and who shall be thoroughly experienced in the type of work being performed.
 - 1. The superintendent shall supervise, direct, and control the Contractor's operations, personnel, work, and subcontractor's operations. The superintendent shall have full authority to execute orders or directions of the Engineer, without delays, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required.
 - 2. The Contractor shall give the Engineer written notification of the name of the superintendent. The superintendent shall not be replaced, except with the consent of the Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in the Contractors employ.

1105.07 CONSTRUCTION STAKES AND BENCH MARKS

- A. The Contractor shall be responsible for all labor, equipment and material necessary to complete the work covered by this contract. The cost of this work shall be considered incidental to other items of work and will not be paid for separately.
- B. The Contractor shall be held responsible for the preservation of stakes and marks. If, in the opinion of the Engineer, any of the survey stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them shall be charged against the Contractor.
- C. The Contractor shall provide and keep constantly upon the work site, first-class instruments for use in establishing the various lines, levels and grades for the construction and shall have a superintendent on the work who is thoroughly familiar with their use. The Contractor shall provide and maintain a permanent bench mark at the construction site for the use of mechanics and other subcontractors.

1105.08 AUTHORITY AND DUTIES OF INSPECTOR

- A. The Contracting Authority may appoint inspectors to represent the Engineer in the inspection of all materials used in and all work done under the Contract. Such inspection may extend to any part of the work and to preparation or manufacture of materials to be used.
 - 1. The inspector will not be permitted to modify in any way the provisions of the contract documents or to delay the work by failing to inspect materials and work with reasonable promptness. An inspector is placed on the work to keep the Engineer informed as to its progress and the manner in which it is being performed. The inspector will not be authorized to approve or accept any portion of the work.
 - 2. Results of inspection tests and examinations will be available to the Contractor on an informational basis. Absence or presence of representative test data does not alter the Contractor's responsibility for plan and specification compliance in accordance with 1104.01.
 - 3. The inspector will not act as foreman or perform other duties for the Contractors nor improperly interfere with management of the work.
 - 4. In case of dispute between the Contractor and inspector as to quality of materials or manner of performing the works the inspector will have authority to reject materials or suspend the work until the question at issue can be decided by the Engineer. Written notice of suspension of work will be given to the Engineer and Contractor by the inspector.

1105.09 INSPECTION OF WORK

- A. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in conformance with the contract documents. At any time before acceptance of the works upon request of the Engineer, the Contractor shall remove or uncover such portions of finished work as the Engineer may direct. After examination has been made, the Contractor shall restore such portions of the work to the standard required by the contract documents.
 - 1. If work thus exposed or examined proves acceptable, the uncovering or removing and replacing of coverings or the restoring of parts removed, shall be paid for as extra work, except that no payment will be made for work involved in checking smoothness of concrete surfaces.
 - 2. If work thus exposed and examined proves unacceptable, the Contractor shall replace the defective work in accordance with the specifications.
 - 3. If work thus exposed and examined proves either unacceptable or deficient, the Contractor will be paid only for work as finally accepted.
 - 4. Work done without the Engineer having been afforded ample opportunity to provide suitable inspection, or unauthorized work, may be ordered removed and replaced at the Contractor's expenses or may be excluded from the quantities measured for payment.
- B. If the specifications, Engineer's instructions, laws, ordinances, or any public authority require any work and/or materials to be specially tested or approved, the Contractor shall give the Engineer timely notice of readiness for review. If the review is to be made by authority other than the Engineer, the Contractor shall

notify the Engineer of the date fixed for review. Reviews by the Engineer will be promptly made and, where practicable, at the source of supply.

1105.10 REMOVAL OF DEFECTIVE WORK

- A. Any defective work shall be removed and replaced at the Contractor's expense.
- B. Should the Contractor fail or refuse to remove defective work when so ordered by the Engineer, the Engineer shall have authority to order the Contractor to suspend further operations, and may withhold payment on estimates until such defective work has been removed and replaced in accordance with the plans and specifications.
 - 1. Continued failure or refusal on the part of the Contractor to correct defective work promptly shall be sufficient cause for the Contracting Authority to declare the contract in default and to complete the work in accordance with 1108.11.

1105.11 UNAUTHORIZED WORK

- A. Unauthorized work and work done in excess of that provided by the lines and grades shown on the plans or as given by the Engineer, or any work done without the authority of the Engineers will be considered as unauthorized and will not be paid for.
 - 1. Unauthorized work may be ordered removed and replaced at the Contractors expense.

1105.12 OTHER CONTRACTS

- A. The Contracting Authority reserves the right to do, or to contract for other work adjacent to, or in the vicinity of, the work herein described.
- B. The Contractor agrees to permit such other work to progress and to arrange for joint occupation of the site under such provision as the Engineer determines necessary. If in the judgment of the Engineer, such joint occupation of the site impedes progress on the work herein described, the Contracting Authority will proportionally extend the time for completion of the work.
 - 1. The Contractor hereby waives any claim for damages or extra compensation by reason of such interference with his work.

1105.13 FINAL INSPECTION

- A. Upon notification, by the Contractor or his authorized representative, that the work is completed, the Engineer shall make prompt final inspection of each item of work included in the contract. If the work is found not to be in accordance with the contract documents, the Contractor will be advised as to the particular defects to be remedied before final acceptance can be made.

1105.14 RESTRICTIONS ON MOVING AND USE OF HEAVY EQUIPMENT

- A. The following restrictions shall apply to the moving and use of heavy equipment:
 - 1. Movement of equipment to and from the project shall be in compliance with the laws governing the operation of vehicles on the highways of Iowa. Movement and operation of equipment over completed portions of pavements, bituminous surfaces, base courses, and structures which are a part of the project shall be with legal axle loads, except as modified in this article.
 - 2. In the case of earthwork and shouldering to be done in connection with either rigid or flexible pavement, or pavement widening and resurfacing, no tractor-drawn, earth-moving equipment shall be operated, or driven on or across the pavements, except at designated crossovers, as authorized by the Engineer.
 - a. When crossovers are specifically permitted, the Contractor will designate, before use, the location and number of crossovers to be used. The Engineer will not approve crossovers in areas of limited sight distance, near structures, railroad crossings, or at any other location which will place safety

- of the traveling public in jeopardy. At these crossovers, equipment having axle loads greater than the maximum permitted by law may be used.
- b. Crossovers shall be 30 feet in length measured along the centerline and shall not be closer than 300 feet to each other.
 - c. For each crossover used, the Contractor shall, at the Engineer's option, either replace the pavement or pay the Contracting Authority at the rate of five thousand (\$5,000.00) dollars on the basis of a two-lane pavement.
 - d. In lieu of the surface crossover, approved hauling bridges may be used. The hauling bridge shall accommodate two lanes of public traffic, and it shall be removed from the roadway at the close of each day's operations. When a hauling bridge is used, no payment will be required.
 - e. The provisions of the Supplemental Specification for Traffic Controls in effect on the contract letting date, shall apply.
3. No dragline, cranes or power shovel shall be operated with any part of the machine resting upon a pavement, bituminous surface, base course, or structure except with approval of the Engineer and in accord with restrictions in that approval.
 4. Under no conditions shall machines equipped with metal lugs or similar projections on the treads be operated on the surface of a pavement, bituminous surface or base course.
 5. For building shoulders, on completed pavements of any type, the maximum axle load used for equipment operating on pavement shall not exceed the legal axle load, as defined herein.
 6. Crawler-type tractors shall not be moved on or off a pavement or base course except at places where the compacted earth adjacent to slab is at least 2 inches higher than the surface of the pavement or base course. Whenever heavy, crawler-type equipment, such as a crane or mixers is moved on or off the edge of a pavement or base course, a substantial timber approach shall be built, at the edge of slab, to prevent overloading or otherwise injuring the edge of the slab.
 7. Compacting equipment having axle loads greater than 20,000 pounds may be used on the work under the following provisions:
 - a. The equipment shall be transported to and from the work and across the bridges on the work in compliance with laws of the State of Iowa.
 - b. For compaction of subbase, the weight of equipment used shall not be greater than that of compaction equipment used in correction of the roadbed for grade and cross section.
 - c. For compaction of base course, the weight of equipment used shall not be greater than the weight of equipment used in compaction of the subbase on which the base is placed.
 - d. For compaction of surface courses, the weight of equipment shall not be greater than that of equipment used in compaction of the base on which the surface course is placed.
 8. For grading or any other type of work, no rollers or other equipment, having an axle load greater than 50,000 pounds or a total weight in excess of 60,000 pounds shall be operated over a culvert, except as may be authorized by the Engineer, and then, in strict compliance with prescribed precautionary measures.

1105.15 PLACEMENT OF FILL MATERIAL IN STREAMS AND WATERBODIES

- A. The placement of fill material in streams is regulated by Federal law. The intent of this specification is to require contractor operations in streams and other waterbodies and adjacent swamps, marshes, bogs, or similar areas, to be in compliance with Federal regulations.
- B. Fill material shall mean; any material used for the primary purpose of replacing an aquatic area with dry land, or of changing the bottom elevation of a waterbody.

- C. Fill material shall consist of clean, suitable, naturally occurring material, free from toxic pollutants in other than trace quantities.
- D. Temporary stream crossings shall be bridged or culverted so as not to restrict expected high flows or disrupt the movement of aquatic life native to the stream or waterbodies. Expected high flows are those flows, which the Contractor expects to experience during the period of time that the crossing is in place.
 - 1. Temporary stream crossings shall:
 - a. Not extend over 100 feet into any swampy, boggy, marshy, or similar area that is adjacent to the stream or waterbody.
 - b. Be maintained to prevent unnecessary erosion and other nonpoint sources of pollution.
 - c. Be removed after they are no longer needed.

1105.16 COST REDUCTION INCENTIVE

- A. The Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications, or other contract requirements for the sole purpose of reducing the total cost of construction.
 - 1. The proposals shall not impair, in any manner, essential functions or characteristics of the projects, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.
- B. Proposals shall contain the following changes:
 - 1. Existing requirements and proposed changes,
 - 2. Contract requirements that must be changed if the proposal is adopted,
 - 3. A detailed cost estimate of performing the work as stipulated and as proposed,
 - 4. The time within which the Engineer must make a decision thereon,
 - 5. The items of work affected by the proposed changes, including any quantity variation attributable thereto.
- C. The provisions of this article shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted hereunder.
 - 1. Proposed changes in basic design of a bridge or pavement type will not be considered an acceptable proposal.
 - 2. The Contracting Authority will not be liable to the Contractor for failure to accept, or act upon, any proposal submitted pursuant to this article, or for any delays to the work attributable to any such proposal.
 - 3. If a proposal is similar to a change in plans or specifications under consideration by the Contracting Authority for the project at the time said proposal is submitted, or if such a proposal is based on, or similar to, standard specifications, special provisions, or plans adopted by the Contracting Authority after the advertisement for the contract, the Engineer will not accept such proposals and the Contracting Authority reserves the right to make such changes without compensation to the Contractor under provisions of this article.
- D. The Contractor shall continue to perform the work in accordance with contract requirements until a change order, incorporating the cost reduction proposal, has been issued. If a change order has not been issued by the date on which the Contractor's cost reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such proposal shall be deemed rejected.

- E. The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from adopting all, or any part of, such proposal. In determining the estimated net savings, the right is reserved to disregard the contract bid prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of work to be performed or to be deleted.
- F. The Contracting Authority reserves the right, where it deems such action appropriate, to require the Contractor to share in the Contracting Authority's costs of investigating a cost reduction proposal. Where such a condition is imposed, the Contractor shall indicate his acceptance thereof in writing, and such acceptance shall constitute full authority to deduct amounts, payable to the Contracting Authority from any money due, or that may become due, to the Contractor under the contract.
- G. If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by change order, which shall specifically state that it is executed pursuant to this article. Such a change order shall incorporate the changes in the plans and specifications which are necessary to permit the proposal, or such part of it as has been accepted, to be put into effects and shall include any conditions upon which the Contracting Authority's approval is based, if the approval is conditional.
 - 1. The change order shall also set forth the estimated net savings in the cost of performing the work attributable to the proposal effectuated by the change order, and shall further provide that the Contractor be paid 50 percent of said estimated net savings amount.
- H. Acceptance of the cost reduction proposal and performance of the work thereunder shall not extend the time of completion of the contract, unless specifically provided for in the change order authorizing use of the proposal.
- I. The amount specified to be paid to the Contractor in the change order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the proposal and performance of the work thereof pursuant to the said change order.
- J. The Contracting Authority expressly reserves the right to adopt a cost reduction proposal, for general use on contracts administered by the Contracting Authority, when it determines that said proposal is suitable for application to other contracts.
 - 1. When an accepted proposal is adopted for general use, only the contractor who first submitted such proposal will be eligible for compensation pursuant to this article, and in that case, only to those contracts awarded to him/her prior to submission of the accepted proposal and as to which such proposal is also submitted and accepted.
 - 2. Cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under provisions of this article, if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by the Contracting Authority.
 - 3. Subject to the provisions contained herein, the State or any other public agency shall have the right to use all, or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.

PART 1106. CONTROL OF MATERIAL

1106.01 QUALITY OF MATERIALS

- A. It is the intent of the specifications that first-class materials shall be used throughout the work, and that these first-class materials shall be incorporated in such a manner as to produce completed construction which is acceptable in every detail. Only materials conforming to the requirements of these specifications, approved by the Contracting Authority, shall be incorporated into the work
- B. When more than one kind of manufacture of a material is specified, the option will be with the Contractor, but the choice shall be confined to the materials mentioned.
- C. Whenever in any of the contract documents, an item of material or equipment is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the terms "or equivalent", or "or equal", if not inserted, shall be implied. This specific item of material or equipment mentioned shall be understood as establishing a standard of type, function, efficiency, minimum basis of design, and quality desired. Other manufacturer's products of comparable quality, design and efficiency, and suitable for the service intended will be considered, but no change will be made without written approval of the Contracting Authority.
- D. Requests for materials substitutions must be submitted in duplicate, or in the quantities required elsewhere in the specifications, and meet the requirements of 1103.09

E. 1106.02 SOURCE OF MATERIALS

- A. At the option of the Engineer, the source of supply of each material shall be approved by the Contracting Authority before the delivery is stated.
 - 1. If requested by the Contracting Authority, representative preliminary samples, of prescribed character and quality, tested in accordance with the methods referred to under samples and tests, shall be submitted by the contractor or producer for examination.
 - 2. All materials proposed to be used may be inspected or tested at anytime during their preparation and use.
 - 3. If, after trial, it is found that sources of supply which have been approved do not furnish a uniform product or if products from any source do not meet the specifications, at any time, the Contractor shall furnish approved material from other approved sources. No material which, after approval has in any way become unfit for use, shall be used in the work.

1106.03 SAMPLES AND TESTS

- A. Each consignment of materials required by the Engineer, shall be tested or inspected before being incorporated into the work and approved by the same Engineer before it is used.
 - 1. The contractor shall afford facilities for collecting and forwarding samples as the Engineer may require.
 - 2. Unless otherwise designated in the standard, supplemental specifications, or instructional memorandums, the inspection, sampling, testing, and basis of acceptance of materials shall be in accordance with the current AASHTO "Standard Specifications for Sampling and Testing of Transportation Materials" including published interim standards.

1106.04 STORAGE OF MATERIALS

- A. The Contractor shall be responsible for care and storage of materials delivered for the work or purchased for use thereon. Material which has been delivered and has become damaged before actual incorporation in the work may be rejected by the Engineer even though it may have been previously acceptable. Stored materials shall be located to facilitate thorough inspections.

1106.05 UNACCEPTABLE MATERIALS

- A. All materials not conforming to requirements of the specifications at the time they are to be used shall be considered unacceptable, and all such materials will be rejected and shall be removed immediately from the work site, unless otherwise instructed by the Engineer. No rejected materials the defects of which have been corrected shall be used until approval has been received.

PART 1107. LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

1107.01 LAWS TO BE OBSERVED

- A. The Contractor is presumed to be familiar with all laws, ordinances, and regulations that may, in any manner, affect those engaged or employed by the Contractor, the materials or equipment used, or which may in any way, affect the conduct of the Contractor's work. The Contractor shall conduct his work to avoid conflict with any such laws, ordinances, or regulations, and shall save harmless the Contracting Authority and its representatives against any claim arising from violation thereof.
- B. The Contractor shall give preference to Iowa domestic labor, in accordance with the provisions of Chapter 73 of the Code of Iowa, and this provision is hereby specifically made a part of any contract of which these contract documents are a part. A person shall be deemed a domestic laborer of this state if he/she is a citizen and has resided in this state for more than six months.
- C. The provisions of Chapter 73 of the Code of Iowa concerning preferences for Iowa products and labor shall not apply to contracts involving work financed wholly, or in part, by the federal government.
- D. The Contractor and all subcontractors shall have on file with the Contracting Authority, a valid state of Iowa contractors registration number, issued by the Iowa Department of Labor Services, in accordance with Chapter 91C of the Code of Iowa.

1107.02 LIABILITY INSURANCE

- A. It shall be the Contractor's responsibility to have liability insurance covering all of the construction operations incident to completion of this contract. The Contractor must have on file, with the Contracting Authority, a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the following: insurance company firm name and address, contractor firm names policy period, type of policy, limits of coverage, and scope of work covered, (single project or statewide).
 - 1. This requirement shall apply with equal forces whether the work is performed by -- (1) persons employed directly by the Contractors (2) by a subcontractor or his employees, or (3) by an independent contractor.
- B. In addition to the above, the Contracting Authority shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Contracting Authority as an insured party.
- C. The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall not be less than required by Chapter 327, Code of Iowa, for truck operators or contract carriers as defined therein. For all other contractors, subcontractors, and independent contractors, the minimum coverage by such insurance shall be as follows:

Public Liability Insurance
Per person - \$100,000.00
Each occurrence - \$300,000.00
Property Damage Insurance
Each occurrence - \$50,000.00
- D. Failure on the part of the Contractor to comply with the requirements of this article will be considered sufficient cause to suspend the work, withhold estimates, and to deny the Contractor from receiving further contract awards, as provided in 1103.01.

1107.03 PATENTS AND ROYALTIES

- A. The Contractor shall be responsible for all claims for infringement of patents, or for royalties on tools, machinery, appliances, devices, or materials used in construction and completion of the work, except as are specifically required by the contract documents.
 - 1. The Contractor agrees that the Department may retain out of the money that is or may become due the Contractor an amount to cover all such claims and to retain the same, until all such claims are paid or adjusted.
- B. The Contracting Authority assumes responsibility for payment of claims for damages from patent or copyright infringement or for royalties on material processes, specifications, or types of construction that are required by the contract documents.

1107.04 RESTORATION OF CONSTRUCTION WORK OPENED BY PERMIT

- A. Prior to final acceptance, if any repairs to the work constructed hereunder are made necessary by construction or repair of drains or sewers, laying or repairing of pipes or conduits for telegraphy, telephone or electric wires, or from any other disturbance of said work under permission issued by the Contracting Authority, the Contractor shall, upon notification by the Engineer, immediately make necessary repairs in conformity with the specifications.
 - 1. Such repairs shall be paid for as extra work, however, no compensation will be allowed when such repairs are made necessary by the Contractor's negligence or carelessness.
- B. The Contractor shall not authorize any person or persons to make alterations or additions to the construction work unless a permit duly authorized by the Contracting Authority is presented.

1107.05 FEDERAL PARTICIPATION

- A. The attention of the Contractor is called to the provisions of the Acts of Congress known as the "Land and Water Conservation Fund Act", the "Federal Aid in Wildlife Restoration Act", the "Federal Aid in Fish Restoration Act", the "Boating Safety Act", the "Superfund Amendments and Reauthorization Act", the "Clean Water Act" and amendments thereto, and any other acts of congress providing for fish and wildlife of conservation improvements.
 - 1. When the United States Government is to pay for all or any portion of the cost of an improvement or project, the construction work, although it is under the direct supervision of the Contracting Authority and subject to the laws of the State of Iowa, is also subject to the above mentioned Acts of Congress and all rules, regulations, and reimbursements that may be imposed by the federal authority thereunder. Such construction work will, therefore, be subject to inspection by the duly authorized agents of the federal government, but such inspections will not make the federal government a party to the contract.
- B. On all contracts involving Federal aid, all steel products incorporated into the work must have been manufactured in the United States. The Engineer may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1 percent of the contract sum or \$2,500 whichever is greater.

1107.06 SAFETY, HEALTH, POLLUTION AND SANITATION

- A. In the performance of his contract, the Contractor shall comply with all applicable laws, rules, regulations, and ordinances governing safety, health, pollution, sanitation, noise control, and disposal of waste materials, and shall make available such additional safeguards, safety devices, protective equipment, and take such actions as are reasonably necessary to protect life and health of employees and the public.
 - 1. The Engineer will not act as an enforcement agent for compliance of rules and regulations governing industrial safety. However, violations of properly promulgated laws, rules, regulations, and ordinances reported to the Engineer by responsible agencies may result in the issuance of a suspension order until such time as the violation is corrected.
- B. The Contractor shall make adequate provisions satisfactory to the Engineer for safety of inspectors, particularly at sampling locations. Provisions shall include guards for moving belts, pulleys, and wheels

near the sampling point and a stable platform to be used when sampling is to be done from an elevated location.

- C. There shall be suitable retention dams, in areas where approved liquid asphaltic material, or asphalt cement are stored and used, to minimize pollution of nearby areas from effect of normal rains. The Contractor shall take other necessary precautions to prevent pollution of streams, lakes, ponds, reservoirs, and other areas with fuels, oily bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.
- D. The disposal by open burning of landscape waste originating on the construction site shall be permitted unless prohibited by local ordinances or regulations. However, the burning of landscape waste produced in clearing, grubbing, and construction operations shall be limited to areas located at least one-fourth mile from any inhabited buildings. Rubber tires will not be used to ignite landscape waste.
- E. The Contractor shall be specifically responsible for adhering to all local burning ordinances or regulations, and to ascertain what the local burning restrictions consist of in addition to the regulation stated above and to see that all subcontractors comply with those restrictions.
- F. All internal combustion engines, used for any purpose on the job, or related to the job, should be equipped with a muffler of the type recommended by the manufacturer. No internal combustion engine will be operated without a muffler. Faulty or damaged mufflers must be replaced. Machinery must be properly maintained at all times in order to limit engine noise, as well as other extraneous noise.
- G. When directed by the Engineer, the Contractor shall apply moisture to the construction area and haul routes, as necessary, to prevent the spread of dust, at no expense to the Contracting Authority.

1107.07 PUBLIC CONVENIENCE AND SAFETY

- A. The Contractor shall conduct the work as to assure the least possible obstruction to access by the residents along the project. The Contractor should schedule and conduct the work in such a way as to provide for their safety and convenience.
 - 1. Work and materials required by the Engineer for public convenience and safety in excess of that provided for in the contract, shall be considered as provided for in 1109.03.

1107.08 BARRICADES AND WARNING SIGNS

- A. The Contractor shall take every reasonable precaution to prevent the public from interfering with the work, and to prevent the work from interfering with the public, for providing for safety of the general public traveling to, through, within, along, and across the project, and shall take such precautions, measures, or acts as are required herein and as specifically required by the contract documents or by the Engineer. In additions the Contractor shall provide such additional safeguards as deemed necessary to protect equipment, the work, and the public at the Contractors own expense.
- B. The Contractor shall erect and maintain suitable barriers, and at night, such lights, as will prevent accidents to persons or property in and around the area of work.
- C. The Contractor shall provides at his own expense, such security guards as are necessary to protect equipment and to maintain proper lighting. Security guards that may be necessary for the protection of the public shall be provided by the contractor on written order from the Engineer.
- D. Whenever the work is under the Contractor's control, the Contractor shall be held responsible for any damage to the newly completed portions of the work resulting from public misuse.

1107.09 USE OF EXPLOSIVES

- A. When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property. The Contractor shall be responsible for all damage resulting from use of explosives.
- B. All explosives shall be stored in a secure manner in compliance with all laws and ordinances and in quantities maintained at a practical minimum. Storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided, satisfactory to the Engineer and, in general, not closer than 1,000 feet from the road or from any building, camping area , or place of human occupancy.
- C. The Contractor shall notify each public utility company, having structures in proximity to the site of the work, of the intent to use explosives. Such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury.

1107.10 PROTECTION AND RESTORATION OF PROPERTY

- A. The Contractor shall replace or renew fences, sidewalks, or other property damage by reason of the work or the negligence of the Contractors employees. The Contractor shall take suitable precautions to prevent damage to telephone, telegraphy, and electric transmission lines along the highway and to pipes, conduits, and other underground structures. The Contractor shall carefully protect from disturbance all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their locations and shall not remove them until so directed.
 - 1. The Contractor shall be responsible for damage or injury to property resulting from the prosecution of his work, however, responsibility shall not extend to damage to fences, telephones, telegraph, or electric lines occupying the right-of-way unlawfully, provided due caution has been used in removing them. The Contractor's responsibility shall not be released until the work under the contract is completed and accepted.

1107.12 RESPONSIBILITY FOR DAMAGE CLAIMS

- A. The Contractor shall indemnify and save harmless the state of Iowa, the Contracting Authority and other agencies which have concurred in the award of contract, their officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property because of any act, omissions or neglect in safeguarding or performing the work, or through use of unacceptable materials in constructing the work, and so much of the money due the said Contractor, under and by virtue of the contract, as may be considered reasonable and necessary by the Contracting Authority for such purpose, may be retained for the use of the State, or in case no money is due, the surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages, as aforesaid, shall have been settled and suitable evidence to that effect furnished to the Contracting Authority, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence of adequate protection by public liability and property damage insurance.
 - 1. Notwithstanding the above, it is specifically agreed between the parties executing this contract that it is not intended by any of the provisions of any part of the contract documents to create in the public or member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms of provisions of this contract.
 - 2. The duties, obligations, and responsibilities of the parties to this contract with respect to third parties shall remain as imposed by law. It being the intention of the parties that indemnity herein provided shall not extend to acts of omission, of negligence for which the Contracting Authority is solely responsible. But indemnity shall extend to all claims in which the Contractor and the Contracting Authority are found to be either jointly or concurrently negligent.
- B. Responsibility of the Contractor for providing warning devices, required by 1107.08 to avoid damages or injuries on any portion of the work covered by the contract, shall not cease until the work on such portion has been released by the Engineer.

1. A release shall be construed to mean a written statement by the Engineer to the effect that the Contractor may cease to maintain barriers and lights, that the work may be opened to the public and that the Contractor is relieved of further maintenance of that portion of the work. Such release shall not constitute an acceptance of the work.
- C. The Contractor's responsibility for maintenance of lights on any individual structure shall cease upon final acceptance of such structure, or when specifically released in writing by the Engineer.

1107.13 OPENING OF SECTION OF CONSTRUCTED WORK TO THE PUBLIC

- A. When any substantial portion, part, or feature of a contract is completed to the extent that its stability and integrity is not dependent upon completion of the other item, or work required in the contract, that portion, part, or feature may be released by the Engineers after conferring with the Contractor, and opened to traffic or received for public usage prior to final approval and acceptance of all work involved in the contract.
1. The Contractor will not be responsible for damages due to the elements or the ordinary use of the public to those portions, parts, or features of the work which have been released by the Engineer.
 2. The Contractor will be responsible for any damages which may be caused by defective work or failure to comply with the contract documents.
- B. The above provisions relating to a release by the Engineer will be applicable only to those portions, parts, or features of the contract for which the Engineer has furnished to the Contractor a written release.

1107.14 CONTRACTOR'S RESPONSIBILITY FOR WORK

- A. The Contractor shall be responsible for the care and maintenance of partially completed and furnished work on any portion of the project until released by the Engineer from such responsibility. It will be the Contractor's responsibility to adjust the Contractor's operation or method of operation to prevent any damage of any nature to any portion of the partially completed or completed work. Repair work shall be done promptly upon being so ordered by the Engineer.

1107.15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES

- A. At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience. Work shall not be commenced until all arrangements necessary for the protection thereof have been made.
- B. The Contractor shall cooperate with owners of underground or overhead utility lines in their removal and rearrangement operations, in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.
- C. In the event of interruption to water or utility services, as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with said authority in restoration of service.
1. If water service is interrupted, repair work shall be continuous until service is restored.
 2. No work shall be undertaken around fire hydrants until provision for continued service has been approved by the local fire authority.

1107.16 PERSONAL LIABILITY OF PUBLIC OFFICIALS

- A. In carrying out any of the provisions of the contract, or in exercising any power or authority granted to any agency or representative of the Contracting Authority thereby, there shall be no liability upon such agent or representatives including the Engineer or authorized agents, either personally or as an official of the Contracting Authority, it being understood that in such matters the agent acts as the agency and representative of the Contracting Authority.

1107.17 NO WAIVER OF LEGAL RIGHTS

- A. The Contracting Authority shall not be precluded or stopped by any measurement, estimate, or certificate made, either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate, or certificate is untrue or incorrectly made, or that the work or materials do not, in fact, conform to the contract.
- B. The Contracting Authority shall not be precluded or stopped, notwithstanding any such measurement, estimate, or certificate, and payment in accordance therewith, from recovering from the Contractor and the Contractor's sureties such damages as it may sustain by reason of the Contractor's failure to comply with the terms of his contract.
- C. Neither acceptance by the Contracting Authority, or any representative of the Contracting Authority, nor any payment for or acceptance of the whole or part of the work, nor any extension of time, nor any possession taken by the Contracting Authority, shall operate as a waiver of any portion of the contract, or for any power herein reserved, or any right to damages herein provided. A waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach.

PART 1108. PROSECUTION OF PROGRESS

1108.01 SUBLETTING OF CONTRACT

- A. The Contractor shall perform, with his/her own organization, work amounting to not less than 30% of the total contract cost, however, any items designated in the contract as "specialty items" may be performed by subcontracts and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his/her own organization.
- B. Any items that have been selected as "specialty items" for the contract are listed as such in the special provisions found elsewhere in the contract documents.
- C. At the time specified by the contract documents or when requested by the Engineer, the Contractor shall submit, in writing to the Contracting Authority, for approval the names of the subcontractors proposed for the work. Subcontractors may not be changed except at the request of and with the approval of the Contracting Authority.
 - 1. The Contractor is responsible to the Contracting Authority for the acts and omissions of the subcontractors, and of their direct and indirect employees, to the same extent as the Contractor is responsible for the acts and omissions of its own employees.
 - 2. The contract documents shall not be construed as creating any contractual relation between the subcontractor and the Contracting Authority.
- D. The Contractor shall bind every subcontractor and every subcontractor agrees to be bound by the terms of the contract, the contract documents, the plans, the general conditions of the contract, the supplementary general conditions, the special conditions, and the specifications as far as applicable to the subcontractors work.
- E. The subcontractor shall be bound to the Contractor by the terms of the contract, the contract documents, the plans, the general conditions, and specifications, and to assume toward the Contractor all the obligations and responsibilities that the Contractor, by those documents, assumes towards the Contracting Authority.
 - 1. The Contractor agrees to be bound to the subcontractor by all the same obligations that the Contracting Authority assumes to the Contractor under the terms of said documents, and by all the provisions thereof affording remedies and redress to the Contractor from the Contracting Authority.
- F. The Contractor shall not assign, sublet, or transfer in whole or part any of the work herein specified without the written consent of the Contracting Authority. Any such assignment, subletting, or transfer shall not in any manner relieve the Contractor from any of the responsibilities assumed herein.

- G. For convenience of reference and to facilitate the letting of contracts and subcontracts, the specifications are separated into title sections. Such separations shall not, however, operate to make the Engineer an arbitrator to establish limits to the contracts between Contractor and subcontractors.
- H. This article shall further be applicable to contracts involving Federal-aid participation in construction insofar as they are consistent with the required provisions for Federal-aid contracts attached to the contracts, and shall be additional specifications insofar as they cover matters not covered by the required provisions for Federal-aid contracts.

1108.02 PROSECUTION OF WORK

- A. The proposal form may designate the contract period by either completion date, approximate starting date, of specified starting date.
- B. Intermediate contract periods may be designated for completion of certain portions of the contract. The contract period for each portion and the liquidated damages, if any, will be listed in the special provisions.
- C. The return of the signed and executed contract to the Contractor shall serve as notice to the Contractor that the contract bond is acceptable, that the contract is in force, and that the Contractor may complete arrangements for materials and other work in accordance with the contract documents.
- D. Should delay become apparent before or after the work is started, the Engineer will immediately notify the Contractor, in writing, that work on the contract will be delayed and, if possible, the approximate duration of such delay. For delays exceeding 2 weeks, new construction dates may be established by the Engineer after consulting with the Contractor.
 - 1. Specified Starting Date: When a starting date is specified, working days will be charged to the Contractor starting on the specified starting date or 10 days after execution of the contract, whichever is later. Starting work prior to the specified date will be considered upon request, and working days will be charged when work starts.
 - 2. Approximate Starting Date:
 - a. Site available immediately, as determined by the Engineer: Anytime after execution of the contract and on or after the approximate starting date, the Contractor may work, weather and specifications permitting. Working days will be charged any time the Contractor is working on/or after the approximate starting date. Starting work prior to the approximate starting date will be considered upon request. If allowed, working days will be charged.
 - b. Site Availability Date Unknown, as determined by the Engineer: It is expected the site will be available by the approximate starting date. If it appears the site will not be available by the approximate starting date, the Engineer will inform the Contractor of the delay and if possible the duration of the delay. The Contractor may commence work, weather and specifications permitting, any time after execution of the contract and on or after the approximate starting date provided the site has become available. If work is started under these conditions, working days will be charged. Starting work before the approximate starting date and before the site is available, will be considered only after the Contractor has submitted a signed waiver of any right to claim extra compensation for damages due to delays from any cause related to the early commencement. If approved, working days will not be charged when working prior to the date of site availability. If the Contractor is working on the project when the site becomes available, working days will be first charged on the following day.
 - 3. Specified Completion Date: The Contractor may commence work any time after execution of the contract, weather and specifications permitting.
 - a. Working days will begin to be charged whenever the Contractor starts work.
 - 4. Winter Work: The proposal may require winter work on all or portions of the project, and working days will be counted as indicated therein. When not so specified, the Contractor may work, unless advised to the contrary by the Engineers between November 15 and April 1 with no working time

charged. If the best interest of the Contracting Authority so dictates, the Engineer may require the Contractor to continue work after November 15.

- a. Working days will not be charged if working time remains on November 15, and working days may be charged for days worked if no working time remains on November 15.
5. Notice to Proceed: A notice to proceed will be issued when, in the opinion of the Engineer, considering the approximate starting date, site availability, and working days allowed, failure of the Contractor to commence work places the timely completion of the project in jeopardy. The starting date in the notice to proceed will not be less than 15 calendar days after the date of the issuance of the notice. Working days will be charged beginning with the starting date established by the notice or when the Contractor starts work if prior thereto. A notice to proceed will be issued, except:
 - a. It will be assumed when a specified starting date is used.
 - b. It will be assumed when a specified completion date is used, the number of working days allowed will be counted back from the specified completion date, exclusive of Saturdays, Sundays, and holidays, to determine the first day working days will be charged.
 - c. It may be included as an agreed starting date at a preconstruction conference for projects with an approximate starting date.
 - d. It will be assumed when the Contractor is working at the time for issuance of the notice.
 - e. It will be assumed, if an early work waiver is approved, as having been issued at the time of site availability, as documented in the project records.
 6. Weekly Report of Working Days: Whenever the Contractor is subject to being charged with working days, the Engineer will furnish the Contractor a weekly statement indicating the working days to be charged against the Contractor for that period. Should the Contractor believe the statement to be inaccurate, a statement should be submitted to the Engineer, in writing, stating the objection and reasons, within 10 calendar days after receipt of the statement. If the Contractor fails to submit an objection within that time, the original statement may be considered as accurate and final.
 7. Work Progress: The progress of the work shall be at a rate sufficient to complete the contract within the time allowed. If it appears that the rate of progress is such that the contract will not be completed within the time allowed, or if the work is not being executed in a satisfactory and workmanlike manner, the Engineer may order the Contractor to take such steps as necessary to complete the contract within the period of time specified or to prosecute the work in a satisfactory manner.
 - a. If the Contractor fails to comply with such order within 2 weeks after receipt of the order, the Contractor may be disqualified from receiving any additional bidding proposals, and the Contracting Authority shall have the right to declare the contract in default and to complete the work in accordance with 1108.11.
 - b. Failure of the Contracting Authority to issue such order shall not alter the Contractor's responsibility under the contract.
 - c. The Contractor's sequence of operations shall be such as to cause as little inconvenience to the general public as possible.
 8. Schedule of Staging: On any project, or part of a project, on an existing road where the work may prohibit or restrict public or private access that has been previously available, the Contractor may be required to submit a schedule of staging for the Engineer's approval before work is started.
 - a. Preliminary work may be required in stage construction, even though the work involved in these operations is similar, in order to minimize the inconvenience to the public and those to whom access has been previously available. This requirement will apply equally to work that is subcontracted.

9. Accelerated Work Schedule: An accelerated work schedule may be required by a note on the proposal. When required, the Contractor shall marshal the necessary forces, including but not limited to: extra crews, subcontractors, extra work hours, or other acceptable methods to insure completion of the projects or various stages of the projects within the contract period and in compliance with the specifications.
 - a. A work plan shall be submitted to the Engineer for review prior to commencement of work. Work will be permitted on a 24-hour-day basis and on Sundays and holidays when traffic interference exists, though work may be restricted during peak traffic periods. No credit will be allowed for delayed or slow delivery of materials. The special provisions may include other requirements or modifications for the accelerated work schedule.
10. Preconstruction Conference: The Engineer shall schedule and conduct a preconstruction conference. The Contractor and intended subcontractors shall participate in this conference. The Engineer will invite utilities and others having responsibilities or interest in the work.

1108.03 LIMITATIONS OF OPERATIONS

- A. The Contractor shall conduct the work so as to create a minimum amount of inconvenience to the public. At anytime, when in the judgment of the Engineer, the Contractor has obstructed, closed, or is conducting his/her operations on a greater portion of the project vicinity than is necessary for the proper prosecution of the work, the Engineer may require the Contractor to finish the section on which work is in progress before work is started on any additional sections.
- B. Whenever work which is being done by other contractors or subcontractors is contiguous to, or a part of the work included in this contract, the Engineer shall in case of dispute, determine and define the respective rights of the various interests involved, in order to secure the completion of all parts of the work in general harmony and with satisfactory results.
- C. Except when an accelerated work schedule is required, no work will be permitted on Sundays, holidays observed by the Department of Natural Resources or within the time frame of dusk until dawn (as observed by current Farmer's Almanac) unless explicit permission from the Engineer has been obtained.
 1. The Contractor should request a determination of the holidays to be observed at the beginning of each calendar year.

1108.04 METHODS AND EQUIPMENT

- A. The methods, equipment, and appliances used shall produce a satisfactory quality of work and shall be adequate to maintain the schedule of progress specified. Equipment used on any portion of the project shall be such and its use so regulated that no serious or irreparable damage to the adjacent property, or highways will result from its use. If damage does occur to the highways suitable repairs shall be made.
- B. When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the contract work in conformity with the requirements of the contract, as demonstrated to the satisfaction of the Engineer.
- C. When the contract specifies that the construction be performed by use of certain methods and equipment, such methods and equipment shall be used, unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, he/she may request approval from the Engineer to do so.
 1. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing construction work in conformity with contract requirements.
 2. If after trial use of the substituted methods or equipment the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue use of the substitute

method or equipment and shall complete the remaining construction with the specified method and equipment.

3. The Contractor shall remove the defective work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved or in contract time as a result of authorizing a change in methods or equipment under these provisions.

1108.05 CHARACTER OF WORKERS

- A. Any employee of the Contractor who is careless, incompetent, or disorderly, or who refuses or neglects to perform work in accordance with the specifications, or who shall commit trespass upon any public or private property in the vicinity of the work, shall be discharged upon the written request of the Engineer and shall not be reemployed on any of the work unless written permission is given by the Engineer.

1108.06 TEMPORARY SUSPENSION OF WORK

- A. Work shall be suspended, wholly or in part when, in the opinion of the Engineer, weather or other conditions are unfavorable to its satisfactory prosecution.
 1. Work shall also be suspended at the direction of the Engineer pending settlement of disputes arising of failure of the Contractor to comply with provisions of the contract. Written notice of suspension of work shall be given by the Engineer.
 2. When the conditions causing suspension no longer exists, written notice to resume work will be given to the Contractor by the Engineer. Promptly after such written notices the Contractor shall resume prosecution of the work as provided in 1106.02.
- B. The start of work may be delayed or work may be suspended upon request of the Contractor and with approval of the Engineer. The Engineer may require the request to be in writing and also may require the Contractor to include with the request a schedule for satisfactory completion of the work.

1108.07 EXTENSION OF CONTRACT PERIOD

- A. An extension of the contract period will be granted by the Engineer for additional work requiring additional construction time and may result from a modification of the plans or extra work.
 1. If any delay is caused by active interference by the Contracting Authority, the Contracting Authority will grant such an extension of time for completion of the contract as will, in the opinion of the Engineer, compensate for such delay. An extension of the contract period will be granted by the Contracting Authority for:
 - a. Additional work resulting from a modification of the plans for the project, or
 - b. Other reasons beyond the control of the Contractor which, in the Contracting Authority's judgment would justify such extension.
- A. All claims for extension of the contract period shall be made in writing to the Engineer no more than thirty days after the occurrence of the delays otherwise they shall be waived. In the case of continuing cause of delays only one claim is necessary.

1108.08 LIQUIDATED DAMAGES

- A. Time is an essential element of the contract and it is important that the work be pressed vigorously to completion.
- B. For each calendar day that any work shall remain uncompleted after the end of the contract period, number of working days allowed, or any extension granted under 1108.07, the amount per calendar day specified in the proposal form will be assessed, not as a penalty, but as predetermined and agreed liquidated damages.
 1. The Contracting Authority will prepare and forward to the Contractor an invoice for such liquidated damages.

2. The final payment will be withheld until payment shall have been made on this invoice.
- C. Assessment of liquidated damages will be based only on the number of working days required to complete the work in excess of the specified working days allowed, plus authorized extensions thereto.
- D. This provision for the assessment of liquidated damages for failure to complete work within the contract period does not constitute a waiver of the Contracting Authority's right to collect any additional damages other than time delays which the Contracting Authority may sustain by failure of the Contractor to carry out the terms of the contract.

1108.09 FAILURE TO COMPLETE WORK WITHIN CONTRACT PERIOD

- A. If the Contractor fails to complete his work within the contract periods or any extension thereof, as provided in 1108.07, upon written notice to the Contractor and surety, said contract shall be in default. The Contracting Authority may, at its option, permit the Contractor or the Contractor's surety to complete the work included in the contracts or may proceed to complete the work in accordance with 1106.11. In either event, the Contractor or the Contractor's surety shall be responsible for all costs incident to the completion of the work, and also for the liquidated damages stipulated in the proposal form. The Contracting Authority may waive such portion of the liquidated damages as may accrue after the work is in condition for safe and convenient use by the public.

1108.10 CONTRACTS IN DEFAULT

- A. The Contracting Authority may declare a contract in default for any one of the following reasons:
 1. Failure to complete the work within the contract period or any extension thereof,
 2. Failure or refusal to comply with an order of the Engineer within a reasonable time,
 3. Failure or refusal to remove rejected materials,
 4. Failure or refusal to correct any defective or unacceptable work,
 5. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors,
 6. Failure to carry on the work in an acceptable manner.

1108.11 COMPLETION OF CONTRACTS IN DEFAULT

- A. If for any reason a contract is declared in default, the Contracting Authority shall have the right, without process or action at law, to take over all or any portion of the work and complete it, at its option, either by day labor or by reletting the work.
 1. Written notice shall be given the Contractor by the Contracting Authority that the contract has been declared in default, and upon receiving such notices the Contractor shall peaceably relinquish possession of the said work or the parts thereof specified in the notice.
- B. The Contracting Authority may, at its option and, at a rental which it considers reasonable, retain all material, equipment, and tools on the work until the work has been completed.
- C. Neither the Contracting Authority nor any member or employee thereof shall be in any way liable or accountable to the Contractor or the Contractor's surety for the method by which the completion of said work, or any portion thereof, may be accomplished, or for the price paid therefor.
 1. Should the cost of completing work be in excess of the original contract prices the Contractor and the Contractor's surety shall be held responsible for such excess cost.
 2. Should the cost of such completion, including all proper charges, be less than the original contract price, the amount so saved shall be paid to the Contractor.

3. Neither by taking over the work nor by declaring the contract in default shall the Contracting Authority forfeit the right to recover damages from the Contractor or the Contractor's surety for failure to complete the entire contract.

1108.12 REMOVAL OF EQUIPMENT

- A. In the case of cancellation of this contract before completion from any cause whatsoever, the Contractor, if notified to do so by the Contracting Authority, shall promptly remove any part or all of his equipment and supplies from the property of the Contracting Authority. In the event of failure of the Contractor to remove such equipment and supplies within thirty days after the issuance of the notification for removal, the Contracting Authority shall have the right to remove such equipment and supplies at the expense of the Contractor.

1108.13 ORDER OF COMPLETION AND USE OF COMPLETED PORTIONS OF THE WORK

- A. The Contractor shall complete any portion or portions of the work in such order of time as the Engineer may require. The Contracting Authority shall have the right to take possession of, and use any completed or partially completed portion of the work at anytime, but such taking possession and use shall not be deemed as acceptance of the work so taken or used or any part thereof. If such prior use increases the cost or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both, as determined by the Engineer.

1108.14 METHOD OF SERVING NOTICES

- A. Any notice to be given by the Contracting Authority to the Contractor under this contract shall be deemed to be served if delivered to any office used by the Contractor, or foreman, or agent, at or near the work, or deposited in the post office, postpaid, addressed to the Contractor at the last known place of business.

1108.15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY

- A. The contract shall be considered completed when the work has been accepted in writing by the Contracting Authority.
 1. Such acceptance shall release the Contractor from all further obligation with respect thereto, except as to conditions and requirements set forth in the performance bond, and if, within one year after the final acceptance or a longer period of time, as may be prescribed by law or by the terms of any applicable guarantee required by the contract documents, any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of a written notice from the Contracting Authority to do so unless the Contracting Authority has previously given the Contractor a written acceptance of such conditions specifically stating the condition that is accepted.
 2. The Contracting Authority shall give such notice promptly after discovery of the condition. All such defective or non conforming work shall be removed from the site if necessary, and the work shall be corrected to comply with the contract documents without cost to the Contracting Authority.
- B. The Contractor shall bear the cost of making good, all work destroyed or damaged by such removal or correction of separate contractors.

PART 1109. MEASUREMENT AND PAYMENT

1109.01 MEASUREMENT OF QUANTITIES

- A. The work completed under the contract shall be measured according to United States standard measures. Payment will be based on the actual quantity of work performed under the various work classifications in the contract, unless otherwise provided below, or by the method of measurement for the various classes of work.
- B. By written agreement between the Contractor and the Engineer, final settlement may be made on the basis of contract quantities without final field measurements. Such an agreement may be made before work is started or after work has been completed, if no material deviation from the original plans is involved.
 - 1. Except for those items for which quantities cannot be accurately predetermined, the contract quantities have been accurately and properly estimated, but adjustments will be made for obvious errors or authorized changes.
 - 2. The Engineer shall exercise such controls and make such measurements, as are necessary, to assure that each item of work is done in substantial compliance with the contract documents. The use of this agreement for payment shall not be considered as a change in the contract.

1109.02 SCOPE OF PAYMENT

- A. The Contractor shall accept the compensation herein provided as full payment for furnishing all materials labor, tools, and equipment for performing all work under the contract or any extension thereof allowed under 1108.07, also, for all costs arising from the action of the elements or other natural causes, agreements, and performance, nonperformance, or delays involving other contractors and third parties, or injunctions or lawsuits resulting therefrom, or from any unforeseen difficulties not otherwise provided for in the specifications and which may be encountered during prosecution of the work and up to the time of acceptance thereof, except damage to the work due to acts of war. Nothing herein shall in itself be construed to prejudice or deny any claim filed under provisions 1109.12.
- B. The contract price for any item shall be full compensation for acceptable work and for materials, equipment, tools, and labor for performance of all work necessary to complete the item in accordance with the plans and specifications, except as specifically exempt in the clauses covering the basis of payment for the item.

1109.03 ADJUSTMENT IN CONTRACT PRICE

- A. When the measured quantity of any item varies by more than 20% from the estimated quantity specified in the contracts an adjustment in price may be made for such item of work, and the adjustment will be made on the full variance from the contract quantity. Such adjustment may be requested by either party to the Contract.
 - 1. If the contract sum for an item is less than five thousand (\$5,000.00) dollars, the price of that item will not be subject to adjustment.
- B. If the increase or decrease in quantity is due to an alteration in plans, any price adjustment shall be requested and agreed upon before the work is done. If the increase or decrease in quantity is not the result of an alteration in plans, but results from errors in original estimates, or unforeseen conditions, price adjustments may be requested after the work is completed.
- C. In making price adjustments, consideration shall be given to the portion of the cost of the work that can be classified as fixed costs, independent of the exact quantity of work performed, such as transportation and installation costs on equipment, overhead costs, etc. Any price adjustment shall be arrived at from the standpoint that neither party to the contract shall be penalized by the increase or decrease in quantities which occasioned the price adjustment.
- D. If changes or alterations, as outlined in 1105.04, result in a substantial increase or decrease in cost or difficulty of the work, appropriate modifications will be made in the contract by extra work order, regardless of the quantity.

- E. All price adjustments shall be agreed to by the Engineer and the Contractor and shall be subject to the approval of the Contracting Authority.

1109.04 PAYMENT FOR WORK PERFORMED

- A. All contract price adjustments approved by the Engineer shall be subject to the concurrence of the Contracting Authority.
- B. The Contractor will receive and accept payment for work performed under his contract as follows:
 - 1. Items or Work Performed Which Are Covered by Definite Prices Stipulated in the Contract: For all items of acceptable work performed which are covered by definite unit prices or lump-sum amounts specified in the contract, the Contractor shall receive and accept compensation at the rate specified in the contract, except as provided in 1109.03 and for items identified as that of "significant change" as provided in 1109.17.
 - 2. Extra Work: Extra work ordered by the Engineer, of a quality or class not covered by the contract, will be paid for, either at an agreed price or on a force-account basis.
 - 3. Agreed-Price Basis: For extra work ordered by the Engineer and performed on an agreed-price basis, the Engineer and the Contractor shall enter into a written agreement before such work is undertaken. This written agreement shall describe the extra work that is to be done and shall specify the agreed price or prices.
 - 4. Force-Account Basis: Extra work performed on a force-account basis will be paid for in the following manner:
 - a. For laborers, timekeepers, foremen, and superintendents, the Contractor shall receive the rate of wage shown on previous payrolls for the time they are actually engaged in the extra work, to which shall be added an amount negotiated up to 15% thereof, plus the amount of social security tax imposed by law upon the Contractor because of such force-account work, plus the cost of worker's compensation, public liability insurance, and employment security contributions. The percentage shall cover compensation for furnishing of necessary small tools for the work together with all other overhead expense items.
 - b. The wage of the superintendent, timekeeper, or foreman who is employed partly on force-account work and partly on other work shall be prorated between the two classes of work according to the number of persons shown by the payroll, as employed on each class of work.
 - c. For materials used on force-account work, the Contractor shall receive the actual cost of materials delivered on the work, including the freight and handling charges as shown by original receipted bills, to which cost shall be added an amount negotiated to 15% thereof.
 - d. For machinery, tools, or equipment, fuel and lubricants therefor, except small hand tools which may be used, the Engineer shall allow the Contractor a reasonable rental rate to be agreed upon in writing before such work is begun. No profit percentage shall be added to the rate.
 - e. Compensation, as herein provided, shall be accepted by the Contractor as payment in full for extra work done on a force-account basis. It will be assumed that such payment includes the use of tools and equipment for which no rate is allowed, overheads and profit.
 - f. At the end of each day, the Contractor shall prepare payrolls in duplicate for labor furnished on a force-account basis, using the Contracting Authority's standard force-account forms. Both copies shall be signed by the inspector and Contractor's representative. One copy shall be furnished to the Engineer and one to the contractor.
 - g. Claims for extra work performed on a force-account basis shall be submitted to the Engineer in triplicate. To the claims shall be attached such receipt or statements as the Engineer may require in support of such claims. Such claims shall be filed not later than the tenth day of the month following that in which the work was actually performed, and shall include all labor charges,

rental charges on machinery, tools, and equipment, and all material charges insofar as they are available.

5. Deficient Work: Payment for work judged by the Engineer to be deficient work shall be made at the reduced rate specified in the contract documents or, if no such rate is specified, at a modification of the contract prices as determined by the Engineer.

1109.05 CANCELLED WORK

- A. The Contracting Authority shall have the right to cancel any or all items from the contract when unforeseen circumstances, failure to secure permits, approvals, loss of funding, unanticipated design changes, or other reasons beyond the control of the Contractor prevent or unreasonably delay completion of the contract, or of certain items of the contract, or when the Contracting Authority determines that cancellation is in the public or national interest.
- B. The Contractor may be prevented from starting work on a contract, or an identified phase of a contract, as a result of a delay caused by the Contracting Authority or others.
- C. When the contract period is defined by approximate starting date and the delay prevents the Contractor's starting work on the contract or an identified phase of the contract for 30 days beyond the date which, by notice to the Engineer, the Contractor proposed to start work, the Contractor may request cancellation by written notice to the Engineers stating the reasons.
- D. In either case, within 30 days from the date of the request, the Engineer will eliminate or minimize, if possible, the cause for the delay and issue a notice to proceed, redefine the basis on which the work is to proceed, or cancel the contract or phase of the contract.
- E. The Contractor shall not use delays that occur prior to starting work or an identified phase of the work as a basis of a claim against the Contracting Authority except for an extension of contract period.
- F. Notices described in this article should be transmitted by certified mail.
- G. For finished portions of items canceled, the Contractor will be paid at the contract unit prices, in accordance with the provisions of 1109.04. For finished portions of major items canceled, the Contractor will be paid as provided in 1109.17. For all items, materials ordered and delivered for the unfinished portion of such canceled, or omitted items, the Contracting Authority will pay cost plus 10 percent as an overhead charge. The Contractor's expense for work of handling or transporting such material shall be included in computing the cost.
- H. The Contracting Authority will also pay any actual expenses sustained by the Contractor by reason of such cancellation or omission and not represented by work completed or material delivered. In computation of material cost or expenses sustained, no anticipated profit will be included.
 1. Material paid for shall become the property of the Contracting Authority and shall be disposed of as directed by the Engineer.

1109.06 PARTIAL PAYMENTS

- A. If the work extends over a period of more than one month, the Engineer may, upon request from the Contractor, prepare monthly estimates based on the amount of work completed in an acceptable manner.
 1. On contracts for which the contract sum is \$10,000.00 or more, monthly estimates may be allowed, based on 90% of invoiced value of processed or fabricated materials which have been delivered on the project site, provided the materials are of acceptable quality and the manner of storage is satisfactory to the Engineer.
 2. The Engineer's monthly estimates shall be partial payments on the contract, and the allowance of a monthly estimate by the Contracting Authority does not constitute final acceptance of the work upon which the estimates are based. Each estimate shall be filed by the Contractor in the form of a claim against the Contracting Authority and certified to by the Engineer on a payment request form supplied by the Contracting Authority.

- B. Five percent (5%) of each progress estimate shall be deducted and held as a suspended payment. Payments may be made on the remainder of the progress estimate, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.
 - 1. The retained percentage will not be due and payable for a period of at least 30 days after the date of final acceptance of the entire contract or following the release or adjudication of claims that may have been filed, or until the Contractor has filed the sworn final estimate and sales and use tax statement with the Contracting Authority.
 - 2. Should a reasonable doubt arise as to the integrity of any part of the completed work, the estimate for that portion shall not be allowed until the cause for such doubt has been removed.
 - 3. The progress estimates and payments are approximate only, and shall be subject to correction in the final estimate and payment.
- C. Failure to make partial payment within 30 days after receipt and approval of the monthly estimate by the Engineer, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein.

1109.07 SUPPLEMENTAL CONTRACT FOR WORK INTERRUPTED

- A. After ninety-five (95%) of the work has been performed to the satisfaction of the Contracting Authority, including consideration of the contract period, and it is apparent that conditions beyond the control of the Contractor will delay the completion of the contract for more than 60 days, the Contractor may request a supplemental contract for the uncompleted portion of work on the same terms as those of the original contract.
 - 1. If the Contracting Authority agrees, and the surety for the Contractors consents to the extension of the bond for the time required to complete the supplemental contract, the supplemental contract will be issued. After the contract has been entered into, full payment will be made for the work completed, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.
- B. The unpaid money, held by the Contracting Authority as a retainer of the original contract price, will be due and payable to the Contractor 30 days after the date of the Contracting Authority's approval of the supplemental contract, except as provided for the release and adjudication of claims in 1109.06.

1109.08 CERTIFIED STATEMENT OF SALES TAX AND USE TAX PAID

- A. Unless the Contracting Authority has issue an authorization letter and a Sales Tax Exemption Certificate for this project, before final payment can be made on a contract, the Contractor and subcontractors shall file a certified statement on forms provided by the Contracting Authority, showing the amount of Iowa sales tax and use tax paid by them on all materials which have become a component part of the finished, completed contract and on such supplies for this construction as were actually consumed on this work.
- B. These statements shall be submitted in duplicate to the Contracting Authority at the completion of the contract.

1109.09 ASSIGNMENT OF MONIES

- A. The Contractor shall not assign, by power of attorney or otherwise, any of the monies to become due and payable under this agreement unless the Contractor has received written consent of the Contracting Authority.

1109.10 SUBMITTALS REQUIRED BEFORE FINAL PAYMENT

- A. Before final payment can be made on this contract, the Contractor shall submit to the Engineer the following:
 - 1. A request for prefinal and final payment.
 - 2. One copy of any guarantees for products incorporated into the work.

3. Two copies of the operating instructions on each piece of equipment incorporated into the work.
4. Statements of Sales Tax from the Contractor and subcontractors, unless in receipt of an authorization letter and a Sales tax Exemption Certificate issued by the Contracting Authority fo this project.

1109.11 FINAL ACCEPTANCE AND PAYMENT

- A. Final acceptance is stipulated to mean a written acceptance by the Contracting Authority. The Contracting Authority shall make final acceptance promptly upon the satisfactory completion of the work. Final payment shall be made as soon as possible following the expiration of statutory time for filing claims, or following adjudication or release of claims against the amount withheld.
- B. Failure to make final payment within 70 days after completion of the work, and if all requirements of the contract are completed, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein, however, this provision shall not apply when final payment includes a supplemental contract for work interrupted, as provided for in 1109.07.
- C. Completion of the work will be considered as the date of approval and work acceptance by the Contracting Authority. When interest is to be paid, the date from which interest is to be calculated will be the thirty-first day after all required materials, certifications, and other documentation required to be submitted by the Contractor are received by the Engineer, however, the Contractor will be paid no interest if final payment is made within 70 days from the date of approval and work acceptance. The signed final payment request is not required documentation, but if not returned to the Engineer within 30 days, it will be considered required documentation.
- D. Signing of the final payment request or acceptance of payment based thereon, shall not waive any rights of either party in the resolution of any claim filed in accordance with 1109.12.
- E. The Contracting Authority shall satisfy itself as to the faithful completion of each part of the work, and may reject any portion found to be inconsistent with the terms of the contract.

1109.12 DISPUTED CLAIMS FOR EXTRA COMPENSATION

- A. In any case where the Contractor deems that extra compensation is due for work or material not clearly covered in the contract and not ordered by the Engineer as extra work as defined herein, the Contractor shall notify the Engineer in writing of the intention to make a claim for extra compensation before beginning the work on which the claim is based.
- B. The Contracting Authority shall be responsible for damages attributable to the performance, nonperformance, or delay of any other contractor, governmental agency, utility, firm, corporation, or individual authorized to do work on the project, only when such damage is a result from negligence on the part of the Contracting Authority, Engineer, or any of its officers or employees.
 - 1. In any case where the Contractor deems that extra compensation is due from the Contracting Authority as damages resulting from such performances, nonperformances, or delays, the Contractor shall notify the Engineer in writing at the time the delay occurs.
- C. In either cases if such notification is not given, or if after such notification is given, the Engineer is not afforded facilities for keeping strict account of actual cost, as defined for force-account construction, the Contractor thereby agrees to waive the claim for extra compensation for such work. Such notice by the Contractors and the fact that the Engineer has kept account of the cost as aforesaid, shall not be construed as establishing the validity of the claim.
 - 1. The claims when filed, shall be in writing and in sufficient detail to permit auditing and evaluation by the Contracting Authority. Claims shall be supported by such documentary evidence as the claimant has available and shall be verified by affidavit of the claimant or other persons having knowledge of the facts.
 - 2. In the event the claimant wishes an opportunity to present the claim in person, then the claim shall be accompanied by a written request to do so.
 - 3. Where the claimant asks an opportunity to present the claim in person, the Contracting Authority, within a reasonable period of time after the filing of the claim, shall fix a time and place for a meeting between the claimant and the Contracting Authority or its designated representatives.

- a. The Contracting Authority shall, within a reasonable time from filing of the claim or the meeting above referred to, whichever is later, rule upon the validity of the claim and notify the claimant in writing, of its ruling together with the reasons therefor. In case the claim is found to be just, in whole or in part, it shall be allowed and paid to the extent so found.
- E. The Contractor shall not institute any court action against the Contracting Authority for the adjudication of any claims until such claim has first been presented to Contracting Authority pursuant to this articles and submitted to arbitration or a request for arbitration is denied pursuant to 1109.13.

1109.13 ARBITRATION

- A. If a Contractor's claim, as outlined in 1109.12, has been disallowed, in whole or in part, then the Contractor may, within 30 days from the date the ruling of the Engineer is mailed to the Contractor, make a written request to the Engineer that the claim or claims be submitted to a board of arbitration.
1. The Engineer shall decide whether the matter is one which is subject to arbitration and shall, within 30 days of the receipt of the request for arbitration, grant or deny the request.
 2. The Engineer's decisions shall be final.
- B. Said board of arbitration shall consist of three persons, one to be chosen by the Engineer, one by the Contractor, and the third by the two arbitrators.
- C. 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.
- D. The board of arbitration shall make its own rules of procedure and shall have authority to examine records kept by the Engineer and the Contractor.
1. If the desired records are not produced within 10 days after they are requested, the board of arbitration shall proceed without them as best it may.
 2. In determining the findings, or awards, or both, the majority vote of the board shall govern. Copies of the findings or awards or both, signed by the arbitrators shall be filed with the Engineer and the Contractor.
 3. A majority report or minority report may be filed. The board of arbitration shall fix the cost of the proceedings, including a reasonable compensation to the arbitrators, and shall determine how the total cost shall be borne.
- E. The board of arbitration shall have jurisdiction to pass upon questions involving compensation to the Contractor for work actually performed or materials furnished and upon claims for extra compensation which have not been allowed by the Engineer. Jurisdiction of the board shall not extend to:
1. A determination of quality of workmanship, or materials furnished, or to an interpretation of the intent of the plans and specifications, except as to matters of compensation.
 2. Setting aside or modifying the terms or requirements of the contract.
- F. The findings or awards or both, of the arbitration board, if acceptable to both parties to the contract, may become a basis for final payment.
- G. If the findings of the arbitration board are unacceptable to either party to the contract, said findings may become the basis for further negotiations between the parties. If a solution agreeable to both parties has not been reached through the filing of a claims through arbitration, or if arbitration has been denied, either party may resort to whatever other methods for resolving the claim are available.

1109.14 CLAIMS AGAINST CONTRACTOR

- A. The Contractor guarantees the payment of all just claims against him/her or any subcontractor, in connection with the work. If another contractor on the project submits a claim for alleged damages caused by delay due to the Contractor not having completed its work in a timely manner, the Contractor's bond shall remain in effect until payment of such claim is made, or until litigation is started, at which time the bond will be released.

1109.15 TIME LIMITS FOR FINAL ADJUSTMENT

- A. The Contractor shall understand that the Contracting Authority will not be bound to consider applications for correction of estimates and payments after the Contractor has signed the final estimate, or after 30 days from the date when the final estimate is submitted to the Contractor for approval. Should an error be discovered as a result of the Contractor's annual audit, an application for corrections promptly made will be considered.

1109.16 NATIONAL EMERGENCY PROVISIONS

- A. The Contracting Authority may, with written notice, terminate the contract, or a portion thereof, when the Contractor is prevented from proceeding with the construction contract as a direct result of an executive order of the President with respect to the prosecution of war, or in the interest of national defenses as provided in Chapter 573A of the Code of Iowa.
- B. When contracts, or any portion thereof, are terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract unit prices or as mutually agreed for items of work partially completed or not started. No claim for loss of anticipated profits shall be considered.
 - 1. Reimbursement for organization of work (when not included in the contract) and moving equipment to and from the job will be considered where the volume of work completed is too small to compensate the contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.
- C. Acceptable materials, obtained by the Contractor for the work, which have been inspected, tested, and accepted by the Engineer, and which are not incorporated into the work, shall be purchased from the Contractor at actual cost, as shown by receipted bills and actual cost records, at such points of delivery as may be designated by the Engineer.
- D. Termination of a contract, or a portion thereof, shall not relieve the Contractor of its responsibilities for the completed work, nor shall it relieve the Contractor's surety of its obligation for and concerning any just claims arising out of the work performed.

1109.17 STANDARD CONTRACT CLAUSES

- A. Differing site conditions.
 - 1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party, in writing, of the specific differing conditions before they are disturbed and before the affected work is performed.
 - 2. Upon written notification, the Engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly.
 - a. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.

3. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.
4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

B. Suspension of work ordered by the Engineer.

1. If the performance of all or any portion of the work is suspended or delayed by the Engineer, in writing, for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer, in writing, a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
2. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment, excluding profit, and modify the contract in writing accordingly.
 - a. The Engineer will notify the Contractor of his/her determination, whether or not an adjustment of the contract is warranted.
3. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

C. Significant changes in the character of work.

1. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work, as are necessary to satisfactorily complete the project.
 - a. Such changes in quantities and alternations shall not invalidate the contract nor release the Surety, and the Contractor agrees to perform the work as altered.
2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any anticipated profits, adjustments will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If such a basis cannot be agreed upon, an adjustment will be made either for or against the Contractor in such amount as the engineer may determine to be fair and equitable.
3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contracts the altered work will be paid for as provided elsewhere in the contract.
4. The term "significant change" shall be construed to apply only to the following circumstances:
 - a. When the character of the work as altered, differs materially in kind or nature from that involved or included in the original proposed construction or;
 - b. When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity, any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work.

1109.18 INTEREST PAYMENTS

A. Interest on monthly payment estimates.

1. Interests shall be paid to the Contractor on any progress payment approved by the Chief Engineer under paragraph A of paragraph 1109.06 of these General Covenants and Provisions, which remains unpaid after thirty (30) days of the receipt by the Contracting Authority.
 - a. Receipt by the Contracting Authority shall be defined as the date the Contracting Authority's central office mail staff receives the progress payment request and stamp it. All progress payment requests which are delivered directly to the central office by the Contractor or the Inspector of the Contracting Authority shall have a date of receipt entered by the mail room staff.
 - b. Interest shall accrue on the 31st day after receipt by the Contracting Authority, if approved by the Chief Engineer, and shall end on the date the warrant is issued by the Iowa Department of Revenue. The rate of interest shall be the same as the rate of interest in effect under 453.6 of the Iowa Code, as the date interest begin to accrue.

B. Interest on retainage.

1. Interest shall be paid on any retained funds held under paragraph B of section 1109.06 of these General Covenants and Provisions. Interest shall be paid as outlined in Iowa Administrative Code section 561, Chapter 8.7.

END OF SECTION 00700

SECTION 00710

(Revised 9/8/95)

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES

Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity (Executive Order 11246 as amended) and Iowa Executive Orders 15 and 34. This includes employment goals for minorities and women in construction.

60-1.4 EQUAL OPPORTUNITY CLAUSE.

A. Federally assisted construction contracts.

- 1.** Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause.

B. The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loans insurance, or guarantee, the following equal opportunity clause:

C. During the performance of this contracts the Contractor agrees as follows:

- 1.** The Contractor will not discriminate against any employee, or applicant for employment because of race, colors, religion, sex, national origin, or disability.
 - a.** 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, 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.
 - b.** 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 considerations for employment without regard to race, color, religion, sex, national origin, or disability.
- 3.** 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.
- 4.** 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.
- 5.** 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.
- 6.** 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, or by rule, regulation, or order of the Secretary of Labor or as otherwise provided by law.

7. The Contractor will include the portion of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1. through 7. 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.
 - a. 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.
 - b. 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.

I. DEFINITIONS.

A. Definitions as used in these specifications:

1. **Covered Area** means the entire State of Iowa, however, those areas of a Hometown Plan approved by the U.S. Department of Labor will be considered separately.
2. **Director** means Director, Office of Federal Contract Compliance Program, United States Department of Labor or any person to whom the Director delegates authority.
3. **Employer Identification Number** means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Returns U.S. Treasury Department Form 941.
4. **Designated Geographical Areas.**
 - a. **Standard Metropolitan Statistical Area (SMSA).** These areas represent a reasoned judgement as to how metropolitan areas are defined statistically in a uniform manner, using data items that are:
 - (1) widely recognized as indicative of metropolitan character, (population, urban character, nonagricultural employment, population, density, and commuting ties), and
 - (2) available from a body of Federal statistics which has been uniformly and simultaneously collected in all parts of the country, and processed and tabulated according to consistent standards. Thus, if a project is located within an SMSA, it can be concluded that a reasonable commuting area exists within the SMSA, and that goals based on SMSA statistics are accurate.
 - b. **Economic Area (EA).** These areas are viewed as centers of commerce, and they generally cover areas which include the places of work and residence for most workers. There are 183 such areas, defined along county lines, covering the entire country. Counties were assigned to these economic areas in accordance with commuting patterns based primarily on data gathered by the Bureau of the Census.
5. **Minority** includes:
 - a. **Black** (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - b. **Hispanic** (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race),

- c. **Asian and Pacific Islander** (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands), and
- d. **American Indian or Alaskan Native** (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(Note: Minority women from the above referenced groups shall be counted as satisfying both the minority and female employment goals in each geographic area.)

II. GENERAL.

- A. Equal Employment Opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375. The requirements set forth in this specification shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.

III. EQUAL OPPORTUNITY POLICY.

- A. The Contractor will accept as his/her operating policy the following statement which is designed to farther the provision of equal employment opportunity to all persons without regard to their age, race, color, religion, sex, national origin, or disability, and to promote the full realization of equal employment opportunity through a positive, continuing program.

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their age, race, religion, sex, color, national origin, or disability. Such action shall include: employment, upgrading, demotion, and transfer, recruitment and recruitment advertising, layoff, and termination, rates of pay and other forms of compensation, and selection of training, including apprenticeship, preapprenticeship, and/or on-the-job training."

IV. GOALS.

- A. Specific goals for female and minority participation have been established.
- B. The goals for female participation, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, is 6.9 percent, with no timetable. This goal applies nationwide.
 - 1. Goals for minority participation in Iowa, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, are shown on the map of Iowa that follows. The goals shown apply to each designated geographical area, as shown on the map.
- C. These goals are applicable to all the Contractor's construction work (whether or not it is non-Federal or Federally assisted) performed in the designated area. For each contract and/or subcontract in excess of \$10,000, the goals for minority participation will apply for all work to be performed in geographical areas designated by the Director pursuant to 41 CFR 60-4.6, and the goal for female participation will apply nationwide.
 - 1. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on his/her implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and his/her efforts to meet the goals established for minority participation for the geographical area where the work is to be performed, or nationwide goal for female participation.

2. The hours of minority and female employment and training must be substantially uniform throughout the time period for the work of the contracts and within each trade, and the Contractor shall make a good-faith effort to employ minorities and women evenly on each of his/her projects.
 3. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Orders and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
- D.** The Contractor shall provide written notification to the Department of Natural Resources (on behalf of the Director of the Office of Federal Contract Compliance Programs) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under this contract.
1. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontracts and the geographical area in which the contract work is to be performed.

E. Application of Minority Participation Goals.

1. **Minority Participation.** A single minority participation goal is established for each SMSA and EA. Timetables for the achievement of minority goals are not provided. A separate goal is established for each SMSA and for each EA. When a contract or subcontract to which this specification applies is for work located within a SMSA, the goal for that SMSA applies. When a contract or subcontract to which this specification applies is for work located outside an SMSA, the goal for that EA applies.
 - a. The applicable goal for the Contractor or subcontractors is the goal for each geographical area where the work is being performed, and all the work of the Federal or Federally assisted construction contractor or subcontractor is covered, whether the work is being performed for a contract to which the specification applies or not. Therefore, a contractor with work in SMSA "X" would apply the goal for SMSA "X" for that work. The same contractors however, would apply the SMSA "Y" goal to all his/her work in SMSA "Y", even though the Contractor's work in SMSA "Y" is neither Federal nor Federally assisted.
2. **Participation of Minority Women.** The Contractor and required subcontractors will be permitted to count minority women belonging to one of the recognized minority groups listed in Article I of this specification as satisfying both the minority goal for each designated geographic area and the overall female goals. Conversely, nonminority women will only count toward satisfying the overall female goal.

V. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246).

- A.** Whenever the Contractors or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, he/she shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation set forth herein.
- B.** If the Contractor is participating (pursuant to 41 CFR 60-4.5) In a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, his/her affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.
1. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with his/her obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which he/she has employees.

2. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.
- C. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p. Article V, of these specifications. The goals set forth in the specifications are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which he/she has employees in the covered area. The Contractor is expected to make substantially uniform progress toward his/her goals in each craft during the period specified.
 - D. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
 - E. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training program, approved by U.S. Department of Labor.
 - F. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluations of the Contractor's compliance with these specifications shall be based upon his/her effort to achieve maximum results from his/her actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 1. Endure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project.
 - a. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of, and carry out, the Contractor's obligations to maintain such a working environments with specific attention to minority or female individuals working at such sites or such facilities.
 2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization, and of what action was taken with respect to each such individual.
 - a. If such individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 4. Provide immediate written notification to the Director, when the union or unions with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his/her obligations.
 5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by

the Department of Labor. Training programs may be specifically required elsewhere in the contract documents. The Contractor's responsibility for training opportunities is not necessarily limited to training programs that are specifically required. The Contractor shall provide notice of these programs to the sources compiled under 6b above.

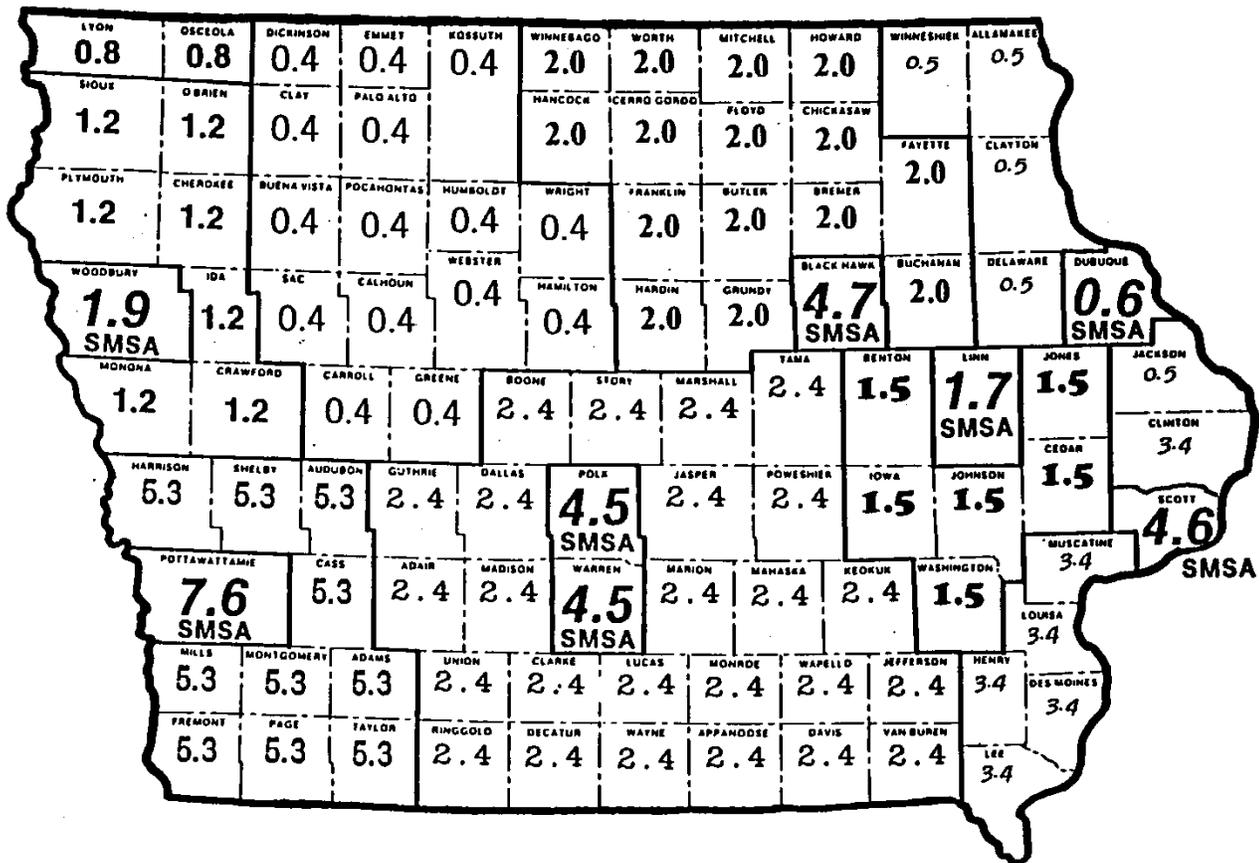
6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his/her EEO obligations, by including it in any policy manual and collective bargaining agreement, by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees, at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items with on-site supervisory personnel, such as superintendents, general foremen, etc. , prior to the initiation of construction work at any job site. A written record shall be made and maintained, identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to, and discussion the Contractor's EEO policy, with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
9. Direct the Contractor's recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after schools summer, and vacation employment to minority and female youths both on the site and in other areas of the Contractor's workforce.
11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
12. Conduct, at least annually, an inventory and evaluation, of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect, by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
14. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractor and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
16. Conduct a reviews at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

- G.** Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a through p).
- 1.** The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of the obligations under 6a through p of these specifications, provided the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet his/her individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor.
 - 2.** The obligation to comply, however, is the Contractor's, and failure of such group to fulfill an obligation shall not be a defense for the Contractor's noncompliance
- H.** A single overall goal for women and goals for minorities in each designated area are included in Article IV of these specifications. The Contractor is required to provide equal opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved the goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group or women are underutilized).
- I.** The Contractor shall not use the goal, or affirmative action standards to discriminate against any person because of age, race, color, religion, sex, national origin, or disability.
- J.** The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts, pursuant to Executive Order 11246.
- K.** The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- L.** The Contractors in fulfilling his/her obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph G of these specifications, so as to achieve maximum results from his/her efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- M.** The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records.
- 1.** Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed.
 - 2.** Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractor shall not be required to maintain separate records.
- N.** Nothing herein provided shall be construed as a limitation upon the application of other Iowa laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

VI. SUPPLEMENTAL REPORTING REQUIREMENTS.

- A. The Contractor and subcontractors are required to make available upon request its Affirmative Action Program containing goals and time specifications. These contractual provisions shall be fully enforced. Any breach of the provisions shall be regarded as a material breach of contract.
- B. The Contractor will keep such records as are necessary to determine compliance with equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate the number of minority and nonminority group members and women employed in each work classification on the project. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department of Natural Resources and any Federal Agency funding any part of this project.

"Minority employment goals are expressed as a percentage (%) of total hours worked for each craft and/or trade in each county."



SECTION 00 08 11

SUPPLEMENTARY COVENANT AND PROVISIONS

PART 1100 - GENERAL

1100.00 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1100.01 GENERAL:

- A. The general conditions of the contract are the General Covenants and Provisions bound within.
 - 1. These General Covenants and Provisions are herein modified or supplemented by this Supplementary Covenant and Provisions.
 - 2. Articles of the General Covenant and Provision not directly affected by this section remains in full force as written unless exceeded in requirement herein or elsewhere in the Specifications.

1100.03 DEFINITION OF TERMS:

- A. Article 1101.03 "Definition of Terms" is supplemented and modified as follows:
 - 1. General Explanation: A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to the extent not stated more explicitly in another provision of Contract Documents.
 - 2. Imperative Language: Used generally in Specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.
 - 3. Chief Engineer: This term will apply to the Chief of the Engineering Bureau of the Department of Natural Resources.
 - 4. Engineer: The Engineer will be the reviewing and approving authority for all equipment, material or systems to be used in the construction as specified herein. Unless otherwise specified, no material, equipment or systems or components of systems will be used or installed on this project without written approval. The Engineer will be the individual, regardless of the title actually used, listed in the special notice to bidders as the contact for questions concerning design, plans and specifications.

6. Procurement Supervisor: The Procurement Supervisor will answer all questions regarding Bidding and Contract Procedures.
7. General Requirements: The provisions of requirements of Division-1 sections. General requirements apply to entire work of Contract and, where so indicated, to other elements which are included in project.
8. Indicated: The term "indicated" is a cross-reference to details, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for the purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
9. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "directed by Project Engineer," "requested by the Project Engineer," etc. However, no such implied meaning will be interpreted to extend Project Engineer's responsibility into Contractor's area of construction supervision.
10. Approve: Where used in conjunction with Project Engineer's or Project Inspector's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved," will be held to limitations of responsibilities and duties as specified in General Covenants and Provisions and Supplementary Covenants and Provisions. In no case will "approval" be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.
11. Project Site: The space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on Drawings, and may or may not be identical with description of land upon which project is to be built.
12. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
13. Install: Except as otherwise defined in greater detail, 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.
14. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
15. Installer: The entity (person or firm) engaged by Contractor or its subcontractor or sub-subcontractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in portions of the work they are to accomplish.

PART 1101 - INSTRUCTIONS TO BIDDERS

1101.02 DRAWINGS AND SPECIFICATIONS:

- A. Article 1101.02 "Drawings and Specifications" is supplemented and modified as follows:
 - 1. The Drawings and Specifications, which are enumerated in the Index of Drawings and Table of Contents of this project manual, are part of this contract.

PART 1104 - SCOPE OF WORK

1104.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES:

- A. Article 1104.10 "Permits and Arrangements with Other Governmental Agencies" is supplemented and modified as follows:
 - 1. Contractor shall take out and pay for any building or construction permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and shall arrange for and pay for all inspections required by local authorities.
 - 2. Contractor is to apply and pay for NPDES Stormwater Discharge Permit for Construction Operations, as required by EPA regulations for work performed after March 10, 2003, for any land-disturbing activity which will disturb an area of one or more acres.
 - a. Permits are available from IDNR Stormwater Coordinator, Wallace State Office Building, Des Moines, Iowa 50319. (Tel. 515/281-7017)
 - b. Copies of Permit Application and Permit issued are to be furnished to the Engineer prior to any construction operations.

1104.13 DRAWINGS AND SPECIFICATIONS:

- A. Article 1104.13 "Drawings and Specifications" is supplemented and modified as follows:
 - 1. Contractor shall be responsible for distributing to all involved in this project, Drawings and Specifications in quantities reasonably necessary for the completion of the portion of work they are responsible for. No additional payment will be made for shortcomings resulting from misunderstanding of Contract Documents due to any shortage of information between General Contractor, subcontractors, and Material Suppliers.

PART 1105 - CONTROL OF WORK

1105.02 PLANS:

- A. Article 1105.02 "Plans" is supplemented or modified as follows:
 - 1. Plans for this project may be referred to as "Drawings, Project Drawings or Plans, Profiles and Cross Sections."

PART 1106 - CONTROL OF MATERIALS

1106.03 SAMPLES AND TESTS:

A. Article 1106.03 "Samples and Tests" is supplemented and modified as follows:

1. All testing required by the contract documents or the Engineer shall be considered a part of the Contract and shall be paid for by the Contractor.

PART 1109 - MEASUREMENT AND PAYMENTS

1109.10 SUBMITTAL REQUIRED BEFORE FINAL PAYMENT:

A. Article 1109.10 "Submittals Required Before Final Payment" is supplemented and modified as follows:

1. Submit to the Engineer all submittals required in Section 00 13 00 before final payment can be made, unless otherwise specified.
2. Other submittals may be required in other sections.

END OF SECTION

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract Description
- B. Definitions
- C. Access Control
- D. Coordination
- E. Control of Work
- F. Legal Notification
- G. Special Site Consideration
- H. Work Sequence
- I. Site Security
- J. Site Safety
- K. Specification Conventions

1.2 CONTRACT DESCRIPTION

- A. This Specification section provides a general description of the work. The Contractor shall refer to the appropriate detailed Specifications section for project specifics.
- B. Iowa Department of Natural Resources (IDNR) is accepting bids for fish barrier system construction and shoreline restoration at Center Lake.
- C. Center Lake and Downstream Wetlands
 - 1. Center Lake is a natural lake located in the Iowa Great Lakes region in Dickinson County, one mile southwest of the City of Spirit Lake. The surface area is 250 acres and the average depth is 12 feet. The lake receives runoff from urban industrial, residential, and agricultural land. The east and south shorelines are fully developed with single-family houses and the west and north shorelines border the Center Lake Wildlife Refuge. Part of the north shoreline creates a peninsula and divides a small bay from the rest of Center Lake. Center Lake, and the entire Iowa Great Lakes system, suffers from water quality issues. Shoreline erosion, urban runoff, and algal growth are the main contributors to water quality degradation in Center Lake.
 - 2. A stop log-controlled outlet structure and box culvert directs flows from Center Lake through a series of manmade wetlands created by impoundment dikes and road embankments. Some dikes contain Wisconsin Tubes to control water levels and also

prevent fish migration upstream. In two places the wetlands and Wisconsin Tubes are bypassed and flows go around the control structures and fish can swim freely upstream. There are three distinct wetland ponds in the restoration area labeled Wetland 1, Wetland 2, and Wetland 3.

D. Proposed Work

1. Work at Center Lake includes, but is not limited to: Shoreline restoration on the north shoreline of Center Lake, construction of a permeable rock fish barrier, and other wetland improvements.
2. Shoreline restoration is divided into the east and west shoreline repair areas.
 - a. The west repair area is approximately 925 linear feet along the shoreline. It has a tall, steep, and wooded bank with vertical eroded faces and fallen trees due to loss of soil around their roots. The work will include clearing trees and woody debris from the lower part of the shoreline and constructing a riprap toe and apron to protect against further erosion. Installed above the toe will be synthetic turf reinforcement mat (TRM), straw wattles, terraced tree protection, and turf seeding.
 - b. The east repair area is approximately 210 linear feet along the shoreline on a shorter and less steep bank which also experiences vertical faces and tree instability. The work includes flattening the slope, installing high performance TRM, and using high density excelsior logs at the water line for toe protection and straw wattles above that level. Native field stone will be used to construct an apron below the water line.
3. A permeable rock barrier will be built across the spillway of Wetland 3 adjacent to the primary wetland outlet, which is a stop log-controlled Wisconsin Tube labeled Culvert D on the Drawings. The spillway subgrade will be graded flat and native field stone cobbles will be placed on top to allow water to flow through the barrier but prevent fish migration. A dual-layer geosynthetic fabric system will support the barrier on the subgrade and an apron will extend downstream from the barrier. Culvert D will have an animal guard installed over the outlet end of the pipe to prevent fish migration through the pipe.
4. The dikes that impound Wetlands 1-3 will be filled and compacted to a constant elevation to prevent overtopping on each one. Wetlands 1 and 2 will be hydraulically connected through excavation of a Connection Ditch between them. Wetland 1 will be excavated to increase the storage volume and reduce the growth of invasive Reed Canary Grass. Any excess spoil material from the excavations that cannot be used in other areas of the project will be placed in the upland spoil area between Wetlands 1 and 2.
5. The outlet of Wetland 1, labeled Culvert B, will be removed and replaced with two parallel outlet structures which will be constructed of CMP and reinforced concrete and contain timber stop logs. An overflow spillway will be constructed next to the outlet structures over the Wetland 1 dike. The spillway will be reinforced with geosynthetic fabric.
6. The Wetland Bypass Channel near Wetland 2 will be filled to complete the dike there. A permanent access path will cross the roadside ditch near Wetland 2 and 220th Avenue to allow access to the outlet structures for Wetland 1.
7. Culvert C will be removed and replaced with a box culvert. 165th Avenue will be temporarily re-paved with gravel.

- E. Certain items shown in the Drawings are to be completed by others and refer to work that is not related to this contract but is necessary to show on the Drawings as it directly related to the work being completed as part of this project.

- F. All work items are to be conducted according to the design specifications included with these Contract Drawings and Bid Documents.
- G. The work shall be planned, scheduled, and performed in stages to complete the work within the requirements of this Contract Document. Work shall be scheduled to be of as little inconvenience to the Owner as possible and shall be conducted in such a manner so as to have as little impact on existing land use as possible.

1.3 DEFINITIONS

- A. Definitions of contractual or associated parties, referenced herein on the drawings and in the specifications, are listed below:
 - 1. Owner—Iowa Department of Natural Resources (IDNR).
 - 2. Engineer—EA Engineering, Science, and Technology, Inc., PBC
 - 3. Contractor—A person, company or organization who has contracted with Engineer and is directly responsible for performance of the Work referenced in the specifications, drawings or as included herein.
 - 4. Subcontractor—A person, company or organization who has contracted with the Contractor for the purpose of supplying services, materials, assemblies or other items as required to perform the Work referenced in the specifications, drawings or as included herein.
 - 5. Others—A person, company or organization who has contracted with Engineer for the purpose of supplying services, materials, or other items of work independent of those services, materials, or other items of work supplied by the Contractor.

1.4 ACCESS CONTROL

- A. Center Lake and Center Lake Wildlife Refuge are open to the public. Equipment and trailers must be locked when not in use.

1.5 COORDINATION

- A. Project Coordination
 - 1. Take out and pay for any building permit which may be required, secure and pay for all permits, certificates, and licenses required to prosecute the work and arrange and pay for all inspections required by local authorities.
 - 2. Visit the site, compare the Drawings and Specifications with any work in place, and verify all conditions, including other work, if any, being performed. Failure to visit the site will in no way relieve the Contractor from the necessity of furnishing any materials or performing any work that may be required in accordance with the Drawings and Specifications.
- B. Job Site Administration
 - 1. Take complete charge of work performed under this contract. Coordinate the work of all trades and phases of general, structural, electrical, and mechanical work.

1.6 CONTROL OF WORK

- A. Survey controls are available onsite as indicated on the Drawings. Contractor shall verify with the Engineer locations of site reference and survey control points prior to starting work. All control points shall be carefully preserved, and if destroyed or removed without Engineer approval, shall be reset by the Contractor's independent surveyor at the expense of the Contractor. Contractor shall notify Engineer of discrepancies.
- B. Control datum for survey is that shown on Drawings.
- C. Confirm drawing dimensions and elevations.
- D. Engineer will provide electronic AutoCAD (.dwg) files in AutoCAD Civil 3D 2014 format.
- E. Maintain complete and accurate log of control and survey work as Work progresses.

1.7 LEGAL NOTIFICATION

- A. The Contractor shall give all notices and comply with all laws, ordinances, codes, permits, rules, and regulations bearing on the conduct of the work as drawn and specified. If the Contractor performs any work contrary to such laws, ordinances, codes, permits, rules, and regulations, contractor shall bear all costs arising therefrom. It is the responsibility of the Contractor to identify and secure any and all permits to be maintained during the course of the project as required to execute this Contract.
- B. Engineer will provide the following documents/permits:
 - 1. Joint Permit for Floodplain Development
 - a. U.S. Army Corps of Engineers
 - b. DNR flood plain development program
 - c. DNR sovereign lands program

1.8 SPECIAL SITE CONSIDERATION

- A. The Contractor is responsible for control of odor, emissions, and dust and shall provide all equipment necessary to accomplish these tasks. The Contractor is responsible for obtaining any required water and the cost shall be considered incidental to other items within the Contract.
- B. The Contractor shall control storm water in accordance with Section 01 50 00 – Temporary Facilities and Controls.
- C. Contractor shall use ultra-low sulfur #2 diesel fuel in all diesel construction equipment used during the project.

1.9 WORK SEQUENCE

- A. The following is a general sequence of construction developed for execution of construction, to aid bidders in understanding the contract requirements. However, the Contractor is responsible for developing and sequencing of work as required complying with all the requirements of the Contract Documents. An alternate sequence may be approved by the Engineer.

1. Preparation and approval of required submittals
2. Locate utilities
3. Prepare staging areas and erosion control measures
4. Coordinate with Owner to temporarily lower water level of Center Lake during construction.
5. Complete the following work in phases. Phase 1: Shoreline Restoration; Phase 2: Wetland 1,2 and 3 Enhancements; Phase 3: Permeable Rock Barrier
6. Phase 1
 - a. Prepare Shoreline Access
 - b. Install floating sediment curtain
 - c. Clear brush and trees at shoreline as directed by Owner
 - d. Install tree protection as directed by Owner
 - e. Excavate shoreline
 - f. Fill and compact on slope in keyed lifts
 - g. Place filter fabric, riprap bedding, and riprap revetment at shoreline toe
 - h. Place and compact topsoil on slopes, seed, and install TRM
 - i. Place field stone apron and cover riprap layer
 - j. Cover toe area with additional topsoil and seed
 - k. Remove floating silt curtain and temporary erosion control measures
7. Phase 2
 - a. Excavate Wetland 1 Expansion and Wetland Connection Ditch
 - b. Remove existing Culvert B from Wetland 1 Dike
 - c. Install Wetland 1 Outlet Structure
 - d. Fill Wetland 1 and 2 Dikes to design elevations
 - e. Install High Performance TRM at Overflow Spillway
 - f. Construct Wetland Access Path and culvert
 - g. Seed disturbed upland areas around wetland perimeter
8. Phase 3
 - a. Remove stop logs in Wisconsin Tube at Wetland 3
 - b. Excavate Permeable Rock Barrier and Apron to design grade
 - c. Over excavate and install bedding and geosynthetics, as necessary
 - d. Place field stone to design elevations and dimensions
 - e. Fill Wetland 3 Dike to design elevation
9. Restore staging areas and access roads
10. Complete vegetation establishment
11. Demobilization
12. Remove any remaining temporary erosion control measures
13. Record Documents

1.10 SITE SECURITY

- A. Security will not be provided by Engineer or the Owner. The Contractor shall, at all times, take reasonable precautions in conducting all operations under this contract in a manner to avoid the risk of loss, theft or damage to the equipment and supplies. Engineer or the Owner will not be responsible for the loss, theft, or damage of the Contractor's equipment.
- B. The Contractor shall be responsible for providing barricades, signs, flags, caution tape, and other means, as necessary, to prevent unauthorized access to the site and protect the work, materials and equipment stored onsite.

1.11 SITE SAFETY

- A. Health and Safety. The Contractor shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29, C.F.R. Copies of these regulations may be obtained from Labor Building, 14th and Constitution Avenue N.W., Washington, DC 20013, or at the following web address: www.osha.gov. The Contractor shall also comply with the provisions of the Federal Occupational Safety and Health Act, as amended.
- B. Provide at least one non-freezing-type fire extinguisher in each workshop and shed used for storage of materials on the premises. Place in readily accessible location.
- C. Provide and maintain a basic first aid kit.
 - 1. Provide first aid supply commensurate with size of project with items necessary for first aid treatment of all injuries.
 - 2. Advise workers of the location of first aid supplies.
 - 3. Post telephone numbers of nearest hospital or ambulance service and fire station in conspicuous location. Advise all workers of location of telephone numbers.

1.12 SPECIFICATION CONVENTIONS

- A. Some of these specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 QUALITY CONTROL

- A. During performance of the Work, the Contractor shall document and control quality of the Work in accordance with the referenced specifications and Sections 01 33 00 – Submittal Procedures, 01 40 00 – Quality Requirements, and 01 70 00 – Execution and Closeout Requirements.
- B. Quality control includes, but is not limited to, geotechnical testing, analytical testing, and surveying.

3.2 PRE-CONSTRUCTION MEETING

- A. Contractor shall attend a pre-construction meeting conducted by Engineer before performance of any Work. The pre-construction meeting shall be held no sooner than three days after award of the contract and no less than one week before mobilization to the site.

- B. Attendance
 - 1. Owner's Representatives.
 - 2. Engineer representatives.
 - 3. Contractor's construction supervisor and project manager.
 - 4. Major Subcontractor representatives (if any).

- C. Meeting Agenda
 - 1. The meeting agenda will include the following:
 - a. Introduction of Contractor.
 - b. Designation of personnel representing parties in Contract.
 - c. Discussion of construction schedule.
 - d. Distribution of contract documents.
 - e. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - f. Clarification of specification questions.
 - g. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - h. Procedures for maintaining record documents.
 - i. Use of project premises.
 - j. Submission and processing of monthly application for payment forms and associated requirements.
 - k. Requirements for emergency response and health and safety.

3.3 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.

- B. Progress meetings may be done by conference call at the discretion of the Engineer.

- C. Contractor shall make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.

- D. Attendance Required: Job superintendent, major Subcontractors and suppliers, and Engineer, Owner, as appropriate to agenda topics for each meeting.

- E. Minimum Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittal schedule and status of submittals.
 - 6. Review of off-Site fabrication and delivery schedules.
 - 7. Maintenance of Progress Schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on Progress Schedule and coordination.
 - 13. Other business relating to Work.

- F. Contractor: Record minutes and distribute copies to participants within two days after meeting, to Engineer, Owner, and those affected by decisions made.

3.4 WORK HOURS

- A. Work shall be performed during periods in which adequate light levels are available to provide a safe working environment. Night work shall not be allowed for performance of the Work without written prior approval from Engineer.

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description
- B. Submittals
- C. Measurement
- D. Payment
- E. Scope
- F. Estimated Quantities
- G. Change Procedures
- H. Measurement and Payment

1.2 DESCRIPTION

- A. The items listed in this section refer to and are the same pay items listed on the Bid Form. They constitute all of the pay items for the completion of the Work. Compensation for all such services and materials shall be included in the prices stipulated for the lump sum and unit price pay items listed herein. Items of Work not specifically included in this Section for measurement and payment as described herein will not be measured for payment, but will be considered subsidiary to the cost of the related work items. Minor items and incidentals necessary to complete the work in a workman-like manner and provide complete, serviceable facilities shall be included in the sum of the work items and furnished even if not specifically called for in the Drawings and Specifications.

1.3 SUBMITTALS

- A. The Contractor shall submit to the Engineer a completed Bid Form including unit prices for each bid item. This Bid Form shall be used as the basis for the Contractor's Applications for Periodic Payments.

1.4 MEASUREMENT

- A. Measurement shall be in accordance with the Bid Form items as described in this Section. The contractor is responsible for constructing the project to the final lines and grades shown. Owner will measure construction units only to ensure that at least minimum quantities have been properly installed. The quantities listed in the Bid Form shall not be exceeded unless pre-approved by the engineer and supported with detailed documentation.
 - 1. Lump Sum Price Items

- a. Measurement of lump sum priced items will be based on percent complete for the item.
- 2. Unit Price Items
 - a. Measurement of unit price items will be based on percent complete of quantities listed in the Bid Form.
- B. Measurement of Quantities:
 - 1. Weigh Scales: Inspected, tested, and certified by applicable State weights and measures department within past year.
 - 2. Measurement by Volume: Measured by cubic dimension using survey data and a computer-aided design software package.
 - 3. Measurement by Area: Measured by square dimension using survey data and a computer-aided design software package.
 - 4. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 - 5. Lump Sum: Measured by percent complete of work completed.
 - 6. Daily or Hourly: Measured by onsite time, of work conducted in accordance with Contract Documents, documented by Contractor and verified by Engineer
 - 7. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the work.

1.5 PAYMENT

- A. Payment for Unit Price items will be made at the Contract Unit Price given in the Bid Form.
- B. Payment for Lump Sum items will be made at the Contract Lump Sum Price given in the Bid Form.
- C. Progress payments to the Contractor will be made for the actual percentage of Work completed.
- D. No payment shall be made for work performed by the Contractor to replace defective work, work which is not required by the Contract Documents, work outside the limits of the contract and additional work necessary due to actions of the Contractor, unless ordered by the Engineer in writing.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and incidentals; erection, application, or installation of item of the Work; overhead; and profit.
- F. Items of Work not specifically included in this Section for measurement and payment as described herein will not be measured for payment, but will be considered subsidiary to the cost of the related work items. Minor items and incidentals necessary to complete the work in a workman-like manner and provide complete, serviceable facilities shall be included in the sum of the work items and furnished even if not specifically called for in the Drawings and Specifications.
- G. Final payment for work governed by unit prices will be made on basis of actual measurements and quantities accepted by Owner multiplied by unit sum/price for work incorporated in or made necessary by the work.

1.6 SCOPE

- A. Each item in the Bidder's Proposal Schedule of Prices will be paid at the unit or lump sum price. The price for each item shall be considered full compensation for furnishing superintendence, overhead, testing, and profit necessary to complete the construction of the item of the project listed in the Bidder's Proposal.
- B. It is not the intent of the Bidder's Proposal Schedule of Prices to itemize each and every item and system required. Items required for project completion and not specifically mentioned in the Bidder's Proposal shall be included with items which they would be considered subsidiary.

1.7 ESTIMATED QUANTITIES

- A. Various estimated quantities are furnished within the Contract Documents to assist the Contractor in reviewing the Project prior to bidding. The estimated quantities are not intended to be used by the Contractor as the sole basis for determining the scope and volume of the work. The Contractor is responsible for verifying all quantities necessary to submit bids for the construction of a proper and complete project.

1.8 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
 - 1. Use Engineer approved form for requesting interpretations.
 - 2. Engineer may respond with a direct answer on the Request for Interpretation form.
- D. The Engineer may issue a Change Order to the Contractor, including a detailed description of proposed change with supplementary or revised quantities, Drawings, and specifications, and a change in Contract Time for executing the change. Contractor will prepare and submit estimate within 15 days. Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- E. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation.
- F. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Prices and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by the change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.9 MEASUREMENT AND PAYMENT

- A. Bid Item 1: Mobilization/Demobilization
 - 1. Basis of Measurement: On a lump sum basis
 - 2. Basis of Payment: Includes all bonds, insurance, materials, labor, and equipment to complete work activities for mobilization and demobilization. The Work shall include, but not be limited to, obtaining of all permits, moving onto the site of all equipment, transportation to and from the site, providing site security, preparing plan and shop drawings, completing submittals, holding progress meetings, constructing temporary access routes, buildings, and field offices (if any), obtaining operating supplies, coordinating construction staking with Engineer, final as-built surveying, cleaning staging area, creating record documents, taking construction photographs, and coordinating for the Contractor to provide and maintain a construction force at the project site complete and be ready to perform all work required under the Contract.

- B. Bid Item 2: NPDES Permitting and PPP
 - 1. Basis of Measurement: On a lump sum basis
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining an NPDES general permit, completing a storm water pollution prevention plan (PPP), and implementing the PPP as detailed in the Drawings and Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings. Work for this item shall include diversion of storm water flows around the work site and diverting surface water to dewater the site for excavation.

- C. Bid Item 3: Riprap Toe – West Shoreline
 - 1. Basis of Measurement: By ton
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing rock riprap on a prepared subgrade at the locations and to the lines, grades, and thickness indicated on the Drawings, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.

- D. Bid Item 4: Riprap Bedding
 - 1. Basis of Measurement: By ton
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing riprap bedding on a prepared subgrade and geotextile fabric at the locations and to the lines, grades, and thickness indicated on the Drawings, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.

- E. Bid Item 5: Field Stone
 - 1. Basis of Measurement: By ton.
 - 2. Basis of Payment: Work under this item includes obtaining, loading, hauling and placing field stone for the Permeable Rock Barrier and Apron, and culvert aprons, on a prepared subgrade at the locations and to the lines, grades, and thickness indicated on the Drawings, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.

- F. Bid Item 6: Shoreline Field Stone
1. Basis of Measurement: By ton.
 2. Basis of Payment: Work under this item includes amending existing glacial rock deposits, by obtaining, loading, hauling and placing field stone for Field Stone Apron and obtaining, loading, hauling and placing field stone for riprap cover at the locations and to the lines, grades, and thickness indicated on the Drawings, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.
- G. Bid Item 7: Granular Subbase
1. Basis of Measurement: By ton.
 2. Basis of Payment: Work under this item includes obtaining, loading, hauling and placing granular subbase on a prepared subgrade at the locations and to the lines, grades, and thickness indicated on the Drawings, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.
- H. Bid Item 8: Geogrid
1. Basis of Measurement: By square yard
 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing geogrid fabric at required locations, including the preparation of the subgrade for the placement of the fabric, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.
- I. Bid Item 9: Filter Fabric
1. Basis of Measurement: By square yard
 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing geotextile filter fabric at required locations, including the preparation of the subgrade for the placement of the fabric, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.
- J. Bid Item 10: Turf Reinforcement Mat
1. Basis of Measurement: By square yard
 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing turf reinforcement matting at required locations, including the preparation of the subgrade for the placement of the matting, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.
- K. Bid Item 11: High Performance Turf Reinforcement Mat
1. Basis of Measurement: By square yard
 2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing high performance turf reinforcement matting at required locations, including the preparation of the subgrade for the placement of the matting, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.

- L. Bid Item 12: Wetland Dike Earth Fill
 - 1. Basis of Measurement: By cubic yard.
 - 2. Basis of Payment: Work shall include, but not be limited to, stripping and stockpiling topsoil, placing and compacting onsite materials, and replacing topsoil to lines and grades as detailed in the Drawings and Technical Specifications. Borrow, loading, and hauling material will be paid under a separate bid item. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- M. Bid Item 13: Shoreline Earth Fill
 - 1. Basis of Measurement: By cubic yard
 - 2. Basis of Payment: Work shall include, but not be limited to, stripping and stockpiling topsoil, borrow and loading from onsite borrow areas, hauling, placing, compacting onsite materials, and replacing topsoil for Shoreline Restoration work to lines and grades as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- N. Bid Item 14: Topsoil for Shoreline
 - 1. Basis of Measurement: By cubic yard
 - 2. Basis of Payment: Work shall include, but not be limited to, borrow and loading from onsite stockpiles, hauling, placing, and grading topsoil cover on field stone for Shoreline Restoration work as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- O. Bid Item 15: Excavation
 - 1. Basis of Measurement: By cubic yard
 - 2. Basis of Payment: Work shall include, but not be limited to, stripping and stockpiling topsoil, excavating to required elevations and loading, hauling, replacing topsoil, and spoiling materials in a spoil area as detailed in the Drawings and Technical Specifications. Work under this item shall also include loading and hauling material to onsite fill areas. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- P. Bid Item 16: Shoreline Over Excavation
 - 1. Basis of Measurement: By cubic yard.
 - 2. Basis of Payment: Work shall include, but not be limited to, over excavating sloughed banks for keying of backfill, and loading, hauling, placing, and compacting materials in a borrow area as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- Q. Bid Item 17: Road Gravel
 - 1. Basis of Measurement: By ton
 - 2. Basis of Payment: Work shall include, but not be limited to, loading and hauling road gravel from a quarry, preparing the subgrade, and placing road gravel for construction entrances, and to the lines, grades, and thickness as indicated on the Drawings and Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- R. Bid Item 18: Box Culvert
1. Basis of Measurement: On a lump sum basis
 2. Basis of Payment: Work shall include, but not be limited to, cutting existing roadway, excavating to required elevations, removing and disposing of existing culvert, preparing the subgrade and bedding, placing precast concrete box culvert, placing end sections, and sealing, tying, and wrapping box culvert joints, backfilling the box culvert, installing sand road subgrade, installing temporary gravel road surface, and installing riprap on slopes, as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.
 3. Funding Source: Payment for this item shall be provided by Dickinson County through a 28E Intergovernmental Agreement.
- S. Bid Item 19: Wetland 1 Outlet Structure
1. Basis of Measurement: On a lump sum basis
 2. Basis of Payment: Work shall include, but not be limited to, excavating, removing and disposing of existing pipe, loading, hauling, placing parallel CMP culverts, anti-seep collars, cabled anchors, animal guards, concrete, reinforcing bars, parallel risers, stop logs, and filling and compacting as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.
- T. Bid Item 20: Access Path Culvert
1. Basis of Measurement: By linear foot
 2. Basis of Payment: Work shall include, but not be limited to, excavating to required elevations and loading, hauling, placing pipe, and filling and compacting fill material as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.
- U. Bid Item 21: Fish Exclusion Animal Guard
1. Basis of Measurement: By each
 2. Basis of Payment: Work shall include, but not be limited to, obtaining materials, submitting shop drawings, preparing pipe, and installing equipment as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.
- V. Bid Item 22: Clearing and Grubbing
1. Basis of Measurement: By acre
 2. Basis of Payment: Work shall include, but not be limited to, removal and disposal of trees up to 12" in diameter, clearing vegetation from areas where earthwork will take place, and selective clearing, except for large tree removal, as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.
- W. Bid Item 23: Large Tree (12"+) Removal
1. Basis of Measurement: By each
 2. Basis of Payment: Work shall include, but not be limited to, removal and disposal of trees larger than 12" in diameter as detailed in the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- X. Bid Item 24: Floating Sediment Curtain
 - 1. Basis of Measurement: On a lump sum basis
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining, installing, maintaining, and relocating the floating silt curtain, and other materials and incidental items necessary to install the floating silt curtain as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- Y. Bid Item 25: Silt Fence
 - 1. Basis of Measurement: By linear foot
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining materials, trenching, maintenance, removal, and other materials and incidental items necessary to install silt fence as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- Z. Bid Item 26: Wood Fiber Log
 - 1. Basis of Measurement: By linear foot
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining materials, trenching, maintenance, removal, and other materials and incidental items necessary to install wood fiber log as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- AA. Bid Item 27: Straw Wattle
 - 1. Basis of Measurement: By linear foot
 - 2. Basis of Payment: Work shall include, but not be limited to, obtaining materials, trenching, maintenance, removal, and other materials and incidental items necessary to install straw wattle as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- BB. Bid Item 28: Tree Protection
 - 1. Basis of Measurement: By each
 - 2. Basis of Payment: Work shall include, but not be limited to, terrace material (tree trunk) preparation, grading, backfill and compaction, topsoil, mulch, and other materials and incidental items necessary to complete tree protection as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

- CC. Bid Item 29: Native Grass Seeding
 - 1. Basis of Measurement: By acre
 - 2. Basis of Payment: Work shall include, but not be limited to, seed bed preparation, seed, and other materials and incidental items necessary to seed shoreline restoration and selective clearing areas as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

DD. Bid Item 30: Seeding Disturbed Areas

1. Basis of Measurement: By acre
2. Basis of Payment: Work shall include, but not be limited to, seed bed preparation, seed, and other materials and incidental items necessary to seed all disturbed areas as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated on the Drawings.

EE. Bid Item 31: Temporary Rolled Erosion Control Product

1. Basis of Measurement: By square yard
2. Basis of Payment: Work shall include, but not be limited to, obtaining, loading, hauling and placing temporary rolled erosion control product at required locations, including the preparation of the subgrade for the placement of the product, and materials, tools, equipment, labor, and other items necessary to complete the work as indicated on the Drawings and Technical Specifications.

FF. Bid Item 32: Vegetation Establishment Period

1. Basis of Measurement: On a lump sum basis
2. Basis of Payment: Work shall include, but not be limited to, watering, re-planting vegetation, and control of weeds and invasive species and other materials and incidental items necessary to seed all disturbed areas as defined on the Drawings and Technical Specifications. This item includes all materials, labor, and other items necessary to complete the work as indicated in the Technical Specifications.

GG. Bid Item 33: Shoreline Access

1. Basis of Measurement: On a lump sum basis
2. Basis of Payment: Work shall include materials, labor, and equipment necessary to access the Shoreline repair areas, as defined on the Drawings and Technical Specifications, and may include construction benching, temporary field stone construction bench, coordination with owner to control water level of Center Lake, barges, and any other means and methods selected by the Contractor. This item includes all materials, labor, and other items necessary to complete the work as indicated in the Drawings and Technical Specifications.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal Procedures
- B. Construction Progress Schedules
- C. Price Breakdown
- D. Product Data
- E. Application for Payment
- F. Test Reports
- G. Shop Drawings and Manufacturer's Literature
- H. Samples
- I. Manufacturer Installation Instructions
- J. Quality Assurance
- K. Certificates
- L. Approval Process
- M. Contractor Responsibilities

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with an Engineer accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Engineer's office. Coordinate submission of related items.

- F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- H. When revised for resubmission, identify changes made since previous submission.
- I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial construction schedules within 10 days after Notice to Proceed. After review, resubmit required revised data within 10 days.
- B. Submit schedule revisions monthly, identifying changes since previous version.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Prepare an approved, reproducible form and include the following:
 - 1. Breakdown of work activities in categories so approved and segmented as necessary to allow close monitoring of progress of the work during construction.
 - 2. Order of the work necessary to meet time for completion.
 - 3. Breakdown of the work schedule of all subcontractors scheduled in cooperation with Contractor's work.
 - 4. Anticipated monthly value for work completed.
 - 5. Space for the additional display of actual performance on the schedule.
- F. Payment will be withheld until progress schedule in an acceptable form has been received by the Engineer.

1.4 PRICE BREAKDOWN

- A. Within 30 days of the contract award, but not later than the contract start date, submit to the Engineer for approval a price breakdown of major lump sum bid items into smaller components for the purpose of determining monthly progress payments.
- B. Include profit and overhead prices in each item.
- C. Payment will be withheld until receipt of price breakdown.

1.5 PRODUCT DATA

- A. Product Data: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus two copies Engineer will retain. Alternatively, Contractor may provide submittals in pdf format via email.

- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. After review, produce copies and distribute in accordance with Submittal Procedures and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.6 APPLICATION FOR PAYMENT

- A. Each Application for Payment submitted by the Contractor shall be accompanied by appropriate documentation to verify that the work has been completed and the products and materials have been delivered and installed.
- B. Submit progress reports and survey records with Applications for Payment, signed by the Contractor's project manager.

1.7 TEST REPORTS

- A. Submit for Engineer's records.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.8 SHOP DRAWINGS AND MANUFACTURER'S LITERATURE

- A. Prior to installation of any item specified as requiring submittal, submit two (2) copies for Owner's use plus the number required for the return to the Contractor, of manufacturer's literature containing detailed specifications and performance data, or shop drawings fully describing the items showing fabrication, layout, setting, or erection details, including erection plan and details as required.
- B. Do not construe the approval of shop drawings to be a complete check. This approval will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the Contractor of the responsibility to comply with all terms and conditions of the plans and specifications. The Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.9 SAMPLES

- A. Provide samples of sufficient size to permit an accurate appraisal of color, texture, finish, workmanship, and other appropriate characteristics.
- B. Submit samples with shop drawings when both are required.
- C. Field Samples and Mock-ups:
 - 1. Erect Mock-ups at location acceptable to the Engineer at project site.
 - 2. Construct each sample or mock-up complete to the dimension indicated, including work of all crafts required in finish work.

1.10 MANUFACTURER INSTALLATION INSTRUCTIONS

- A. Submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing to Engineer.
- B. Indicate special procedures, conditions requiring special attention, and special criteria required for application or installation.

1.11 QUALITY ASSURANCE

- A. Coordination of Submittals:
 - 1. Prior to submitting required materials, carefully review and coordinate all aspects of each item being submitted.
 - 2. Verify that each item and its submittal conform in all respects with the specified requirements.
 - 3. Prior to sending submittals to Engineer, stamp and sign each submittal, certifying that they conform in all respects with the specified requirements.

1.12 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.13 APPROVAL PROCESS

- A. Allow 15 calendar days for checking and appropriate action by the Engineer. Contractor's drawings will be returned stamped with one of the following classifications:
 - 1. CODE A (APPROVED) – No corrections, no marks.
 - 2. CODE B (APPROVED AS NOTED) – A few minor corrections or notes to Contractor. Contractor shall complete work in accordance with corrections or notes. All items may be fabricated as marked without further resubmission.
 - 3. CODE C (REVISE AND RESUBMIT) – Minor corrections. Items not noted to be revised and corrected may be fabricated. Resubmit drawings as per original submissions with corrections noted. Allow 15 calendar days for rechecking and appropriate action by the Engineer.
 - 4. CODE X (NOT APPROVED) – Requires corrections or is otherwise not in accordance with the Contract Documents. No items shall be fabricated.

1.14 CONTRACTOR RESPONSIBILITIES

- A. Review shop drawings, product data, and samples prior to submission to the next level of control.
- B. Verify field dimension, field construction criteria, and catalog numbers and similar data.

- C. Coordinate each submittal with requirements of the work, contract documents, and the work of other contractors.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by the Engineer's review of submittals.
- E. Notify Engineer, in writing, of proposed deviations in submittals from contract requirements, prior to or at the time of submission.
- F. Contractor's responsibility for deviations in submittals from contract document requirements is not relieved the Engineer's review of submittals.
- G. Do not begin any work which requires submittals without having the Engineer's stamp and initials or signature indicating approval.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality Control and Control of Installation
- B. Tolerances
- C. References
- D. Labeling
- E. Examination
- F. Testing and Inspection Services

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Before ordering any fabricated material or doing any work, verify all measurements at the project site. No additional compensation will be allowed because of differences between actual dimensions and the measurements indicated on the drawings. Report any discrepancy immediately to the Engineer for instructions before proceeding with the work.
- C. Comply with manufacturers' instructions, including each step in sequence.
- D. When manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- F. Work shall be performed by persons qualified to produce required and specified quality.
- G. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- H. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trades, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither contractual relationships, duties, nor responsibilities of parties in Contract shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 LABELING

- A. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number
 - 2. Serial number
 - 3. Performance characteristics

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions are acceptable for subsequent Work. Beginning new work means acceptance of existing conditions.
- B. Examine and verify specific conditions described in individual specification sections.

3.2 TESTING AND INSPECTION SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency, and analytical laboratory to perform specified testing. The independent testing agency shall perform tests, inspections and other services specified in individual specification sections.
- B. The cost for all testing services required shall be included in lump sum bid. No separate payments will be made for testing. Include all associated costs in the appropriate bid items. Engineer will direct all tests. The contractor shall pay the testing firm.
- C. Testing, inspections and source quality control may occur on or off project site.
- D. Conduct tests in accordance with the requirements of the designated specifications or, where not specified, the latest appropriate standard of the American Society for Testing and Materials.
- E. Contractor Shall:
 - 1. Make available, at no cost, all material to be tested.
 - 2. Provide labor necessary to supply samples and assist in making tests.
 - 3. Advise laboratory of the identity of material sources and instruct suppliers to allow inspections by laboratory.
- F. After each test, Contractor shall submit report to Engineer indicating observations and results of testing and indicate compliance or non-compliance with Contract Documents. Contractor's independent geotechnical engineer shall provide interpretation of testing and shall include the following:
 - 1. Date issued
 - 2. Project title and number
 - 3. Name of inspector
 - 4. Date and time of sampling or inspection
 - 5. Identification of product and specifications section
 - 6. Location of test
 - 7. Type of inspection or test
 - 8. Date of test
 - 9. Results of tests
- G. Promptly notify Engineer of irregularities or deficiencies of work which are observed during performance of testing services.
- H. Testing and employment of testing agency shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- I. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by independent firm at no additional cost to Owner.
- J. Limits On Testing Agency:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency is not authorized to perform any duties of the Contractor.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities
- B. Vehicular Access
- C. Parking
- D. Progress Cleaning and Waste Removal
- E. Staging Areas
- F. Access Roads
- G. Dust Control

1.2 TEMPORARY UTILITIES

- A. Establish and initiate use of each temporary facility at time first reasonably required for proper performance of work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have replaced the need.
- B. The Contractor shall be responsible for supplying all temporary utilities required including water (both potable and construction use) and electricity. Where possible and reasonable, connect to existing franchised utilities for required services; comply with service companies' recommendations on materials and methods, or engage service companies to install services.
- C. Pay the cost of all electrical energy used on this part of the project until completion of the contract. If partial occupancy by the Owner occurs prior to completion, the Owner will pay proportional share of electrical energy used.
- D. Provide light bulbs required for all temporary construction lighting and replace when necessary.
- E. Sanitary Utilities
 - 1. When such or permanent facilities do not exist, provide and maintain toilet facilities and enclosures in accordance with requirements of applicable local and state health authorities and OSHA. Provide facilities from the time of project mobilization, until demobilization. Keep toilet facilities clean and supplied with toilet paper at all times.
- F. Contractor is responsible for locating and verifying all existing utilities.

1.3 VEHICULAR ACCESS

- A. Construct temporary construction access routes from public thoroughfares to serve construction area, of width and load bearing capacity to accommodate unimpeded traffic for construction purposes. The Contractor shall provide the equipment necessary to access each site and perform the work as described in the Drawings and Technical Specifications.
- B. Temporary access routes shall be restored to their existing condition, except minimal wheel tracks may be left in place, upon completion of the project.
- C. Provide unimpeded access for emergency vehicles. Maintain 20 feet wide driveways with turning space between and around combustible materials.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. The Contractor shall maintain 1 lane of traffic or provide signs and barricades to establish a detour route for all public roads affected by work at the site, unless approved by the Owner.
- F. Work near public roadways should be performed in a safe manner and utilize signage to alert drivers of construction activities. Work near roadways must conform to all requirements set forth in the Manual on Uniform Traffic Control Devices (MUTCD) and conform to local, state, and federal regulations.

1.4 PARKING

- A. Make necessary provisions for parking of all employees on the project within the site limits. Include necessary access roads and maintenance of all roads and parking areas during construction period. Park vehicles to avoid interference with normal construction activities and to avoid interference with Owner's operations.
- B. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
- C. Repair: Repair existing facilities damaged by use, to original condition.

1.5 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.
- C. All materials spilled, dropped, washed, or tracked from vehicles onto roadways shall be removed immediately.

1.6 STAGING AREAS

- A. Utilize staging areas within limits of disturbance. Allow for access, orderly provision for maintenance, and for inspection of products.

- B. The Contractor shall limit onsite operations to the portion of the site designated as “limits of disturbance” as shown on the Drawings and shall minimize the use of the site area for storage. If limits of disturbance are not shown, limits of disturbance shall extend 10 feet from proposed work. Storage and laydown areas are to be agreed upon and approved by the Engineer.
- C. The Contractor shall assume full responsibility for the protection and safekeeping of products under this contract that are stored onsite during the construction activities.
- D. Do not enter on or occupy with personnel, tools, equipment, or material any ground outside the Owner’s property without the written consent of the owner of such ground.
- E. Other contractors and employees or agents of the Owner may for all necessary purposes enter upon the work area and premises used by the Contractor, and the Contractor shall conduct work so as not to impede unnecessarily any work being done by others on or adjacent to the site.
- F. The Contractor shall move, without additional compensation, any material or equipment that interferes with the operations of the Owner or any separate contractor or utility company.
- G. The Contractor shall be responsible for all additional costs for the use of additional storage or work areas needed for operations to execute the work.

1.7 ACCESS ROADS

- A. Observe all laws and regulations of the local, county, and state authorities in the use of all public roads and highways for the transportation of materials and equipment in connections with work on the project. Observe all overhead construction, bridges, cables, and the like. Repair damage to roads, highways, overhead construction and similar off-site items, resulting from operations in connection with this project.

1.8 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 57 19

TEMPORARY POLLUTION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. The work consists of furnishing all labor, material and equipment for the control and prevention of environmental pollution and damage as the result of construction operations under the Contract and for those measures described herein, as indicated on the Drawings, specified herein, and as required for the construction of all work of this Contract.
 - 1. Scope: The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants.
 - 2. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract.
 - 3. Confine activities to areas defined by the Drawings and Specifications.
- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenant and Provisions and General Requirements.

1.2 REFERENCES

- A. Provide protection of Air Resources in accordance with the following state and local codes and rules.
 - 1. Iowa Department of Environmental Quality Act, Oh. 455B of the 1977 Code of Iowa
 - 2. Iowa Department of Roads, 1973 I.D.R. 267 et seq.

1.3 DEFINITIONS

- A. Environmental pollution and damage –The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes.

1.4 QUALITY ASSURANCE

- A. Quality Control
 - 1. Establish and maintain quality control for environmental protection of all items set forth.
 - 2. Record on daily reports any problems in complying with laws, regulations, and ordinances and any corrective actions taken.
 - 3. Assure compliance of subcontractors with this section.
- B. Regulatory Requirements
 - 1. The Engineer will notify the Contractor in writing of any observed noncompliance with the aforementioned federal, state, or local laws, regulations, permits, and other elements of the Contractor's environmental plan.
 - 2. After receipt of such notice, inform the Engineer of proposed corrective action and take such action as may be approved.

3. If the Contractor fails to comply promptly, the Engineer may issue an order to stop all or part of the work until satisfactory corrective action has been taken.
 - a. No time extension shall be granted under such suspension.
- C. National Pollutant Discharge Elimination System (NPDES)
 1. Contractor shall provide a Notice of Intent (Form 1415) for application of a General Permit for Storm Water Discharge, file all necessary form a drawings with the applicable bureau of the Iowa Department of Natural Resources, and pay necessary application fees.
 - a. For Storm Water General Permit assistance, contact (515)-281-7017 or (515)-281-8693.
- D. Pollution Control Training
 1. Train personnel in all phases of environmental protection.
 2. Include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to ensure adequate and continuous environmental pollution control.

1.5 PROJECT/SITE CONDITIONS

- A. Protection of Land Resources
 1. Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.

1.6 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. The excavation, grading, and moving of soil materials shall be scheduled to minimize to the extent practical, the size of areas that will be unprotected from erosion. Disturbed areas shall be restored according to the Specifications and Plans, as soon as is feasible.
- C. Carry on construction work in a manner that will direct surface water away from the structures and away from adjoining property.
- D. Provide own means of pumping, well pointing, or otherwise maintaining excavations free from ground water encountered. Provide means of properly conveying such water off the construction site.
- E. Create and implement storm water pollution prevention plan (SWPPP) and follow all stormwater best management practices.
- F. Silt fences or other erosion control devices shall be installed as necessary to minimize and control erosion during and subsequent to construction. Erosion controls shall remain in place during the entire construction period or as otherwise specified. The Contractor shall:
 1. Protect the work from erosion. Erosion of embankments, cuts, and natural slopes that occurs during construction of the project shall be repaired by the Contractor at his expense.
 2. Protect downstream and adjacent properties, drainage channels, and streams from damage due to erosion resulting from project construction operations.

- 3. Implement controls that minimize the amount of waterborne silt entering the stream channel. Erosion controls shall remain in place during the entire construction period or as otherwise specified.
- G. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

- A. Maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

PART 2 PRODUCTS

2.1 SILT FENCES

- A. Provide woven fabric that meets the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (percent)		30 percent max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.2 MATERIAL AND EQUIPMENT

- A. Provide and maintain material and equipment necessary to perform the specified work.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Silt Fences:
 - 1. Provide silt fences and SWPPP as a temporary structural practice to minimize erosion and sediment runoff.
 - 2. Install silt fences to retain sediment prior to initiating each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading).
 - 3. Place silt fence parallel with grading contour.
 - 4. The ends of the fence shall be extended up slope to prevent water from flowing around ends of the fence.

3.2 MAINTENANCE

- A. Maintain the erosion and sediment control measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, and repair of

erosion and sediment control measures. Use the following procedures to maintain the protective measures.

1. Silt Fence Maintenance
 - a. Inspect the silt fences in accordance with the paragraph titled "Inspections," of this section. Any required repairs shall be made promptly. Pay close attention to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective when the barrier is still necessary, replace the fabric promptly. Remove sediment deposits when deposits reach one-third of the height of the barrier.
2. Straw Mulch Maintenance
 - a. Inspect the straw mulch in accordance with the paragraph titled "Inspections," of this section. Any required repairs shall be made promptly. If bare spots greater than 3 foot in diameter appear in the mulch, additional mulch shall be applied and mechanically anchored into the soil as required in the Technical Specifications.

3.3 EXAMINATION

- A. Verification of Conditions
 1. Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.
- B. Limits of Work Area
 1. Mark the areas that are not required to accomplish work to be performed under this contract.
 2. Mark or fence any isolated areas within the general work area which are to be saved and protected.
- C. Observe erosion and sediment control measures identified in the SWPPP to ensure that they are operating correctly. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Inspect locations where vehicles exit the site for evidence of offsite sediment tracking.

3.4 INSPECTIONS

- A. General
 1. Inspect disturbed areas of the construction site; areas that have not been finally stabilized; areas used for storage of materials; areas exposed to precipitation, stabilization practices, structural practices, other controls; and areas where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Once disturbed areas have been stabilized, the inspection schedule may be relaxed to once every month with the Engineer's approval.
- B. Inspections Details
 1. Inspect disturbed areas and areas used for material storage that are exposed to precipitation for evidence of, or the potential for, sediment entering the drainage system. Observe erosion and sediment control measures identified in the PPP to ensure that they are operating correctly. Inspect discharge locations or points to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Inspect locations where vehicles exit the site for evidence of offsite sediment tracking.

C. Inspection Reports

1. For each inspection conducted, prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the PPP, maintenance performed, and actions taken. A copy of the inspection report shall be maintained on the job site and furnished to Engineer upon request.

3.5 PROTECTION OF LAND RESOURCES

- A. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Owner. Do not fasten nor attach ropes, cables, or guys to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, provide effective protection for land and vegetation resources at all times.

3.6 PROTECTION OF MONUMENTS AND MARKERS

- A. Protect monuments and markers before and during construction operations. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to his personnel the purpose of marking and/or protecting all necessary objects.

3.7 PROTECTION OF LANDSCAPE

- A. Clearly identify trees, shrubs, vines, grasses, land form, and other landscape features to be preserved by marking, fencing, wrapping with boards, or any other technique approved by the Engineer.

3.8 LOCATION OF FIELD OFFICES, STORAGE, AND OTHER CONTRACTOR FACILITIES

- A. Place field offices, staging areas, stockpile storage, and temporary buildings in areas approved by the Engineer.
- B. Do not temporarily move or relocate Contractor facilities unless approved by the Engineer.

3.9 DISPOSAL OF SOLID WASTES

- A. Place solid wastes in containers to be emptied on a regular schedule. Contractor shall conduct handling and disposal of solid wastes so as to prevent contamination of the environment.
- B. Transport all solid waste off Owner property and dispose of in compliance with federal, state, and local requirements.

3.10 DISPOSAL OF CHEMICAL WASTES

- A. Store chemical waste in corrosion resistant containers and remove from the work and dispose of in accordance with federal, state, and local laws and regulations.

3.11 DISPOSAL OF DISCARDED MATERIALS

- A. Handle discarded materials, other than those which can be included in the solid waste category, as directed by the Owner.

3.12 PRESERVATION AND RECOVERY OF HISTORICAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

- A. Existing historical, archeological, and cultural resources within the Contractor's work area will be so designated by the Owner and precautions shall be taken by the Contractor to preserve all such resources as they existed at the time they were made known to the Contractor. Contractor shall install protection and assume responsibility for the preservation of these resources.
- B. Report any unusual items that might have historical or archeological value that are found or observed during construction activities as soon as practical to the Engineer.

3.13 PROTECTION OF WATER RESOURCES

- A. Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Implement applicable management techniques to control water pollution in accordance with the listed construction activities which are included in this contract.
- B. The cost of installation, maintenance, and removal of water pollution control methods and materials shall be incidental to other items of work, unless a specific Bid Item for Erosion Control exists. Comply with detailed plans for temporary erosion control procedures to be performed on this project.

3.14 PROTECTION OF FISH AND WILDLIFE RESOURCES

- A. Keep construction activities under surveillance, management, and control to minimize interference, disturbance, and damage to fish and wildlife.
- B. List species that require specific attention along with measures for the protection prior to the beginning of construction operations.

3.15 PROTECTION OF AIR RESOURCES

- A. Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Perform or operate activities, equipment, processes, and work to accomplish the specified construction in strict accordance with federal, state, and local emission and performance laws and regulations.
- B. Implement special management techniques as set out below to control air pollution by construction activities
 - 1. Control of particulates
 - a. Control dust particles, aerosols, and gaseous by-products from all construction activities at all times, including when work is not in progress.
 - b. Maintain all work areas within or outside the project boundaries free from particulates which would cause the applicable air pollution standards to be exceeded or which would cause a hazard or nuisance.
 - c. Sprinkling, chemical treatment, bituminous treatment, baghouse, scrubbers, electrostatic precipitators, or other methods may be permitted to control particulates in the work area, subject to approval.
 - d. Perform control of particulates as the work proceeds and whenever a particulate nuisance or hazard occurs.

2. Control hydrocarbon and carbon monoxide emissions from equipment in accordance with federal, state, and local regulations at all times.
3. Control odors at all times for all construction activities.
4. Assume responsibility for monitoring of air quality throughout the entire area affected by construction activities.

3.16 PROTECTION OF SOUND INTRUSIONS

- A. Keep construction activities under surveillance and control to minimize damage to the environment by noise pollution.

3.17 MOSQUITO CONTROL

- A. During dredging and work in large areas of shallow water, mosquito breeding must be controlled. Deposit dredged material to minimize stagnant water pools. Conduct non-aerial spraying, or other methods of application of EPA-approved chemicals, to control mosquito breeding.

3.18 REMOVAL OF MATERIALS

- A. Following completion of the project, all materials shall be removed from the Site. The removal of any erosion and sediment control measure shall only be performed upon receiving permission from the Engineer. All upstream contributing drainage areas to the individual controls shall have vegetative stabilization controls installed and healthy and vigorous turf shall be present as described in 32 92 19 – Seeding.

3.19 CLEANING

- A. Clean up all areas used for construction.
- B. Restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas to pre-construction conditions or better.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SCOPE

This Section specifies general requirements for transportation, handling, storage, and protection of products, materials, and equipment. Specific requirements are also contained in individual specification sections. This section is to be used with the requirements contained within other related sections. The Contractor shall provide all labor, materials, equipment, and incidentals required to complete the work specified in this section.

1.2 PRODUCTS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. To assure ready availability of materials, parts, or components for repair, replacement, or future expansion purposes, all materials, equipment, and components must be obtained from sources which maintain a regular, domestic stock.
- B. All materials, equipment, and other items incorporated in the work of this project must be new, and both materials and workmanship of best grade of their respective kinds.
- C. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- D. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 TRANSPORTATION AND HANDLING

- A. Provide against damage for all materials during transport and handling, in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that materials comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle materials by methods to prevent soiling, disfigurement, or damage.
- D. Replace or repair to the Engineer's satisfaction all items damaged because of the Contractor's failure to properly protect during transportation and handling, when on or off the project site, at no cost to the Owner.

1.4 STORAGE AND PROTECTION

- A. Store and protect materials, work, and equipment against damage at all times, in accordance with the manufacturer's instructions.
- B. Store with seals and labels intact and legible.

- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

1.5 PRODUCT OPTIONS

- A. Products used in completing the work shall adhere to the following:
 - 1. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
 - 2. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.
 - 3. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.
- B. Throughout all sections of these specifications, provide other material not specifically described but required to provide Owner with a complete and proper installation of all phases of the work of this contract. Select these materials subject to the approval of the Engineer.

1.6 SUBSTITUTIONS

- A. Engineer will consider requests for Substitutions only within 15 days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that Bidder and/or Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 - 2. Will provide same warranty for Substitution as for specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner and Engineer for review or redesign services associated with re-approval by authorities having jurisdiction.

- E. Where the phrases “or equal” or “or equal as approved by the Engineer” occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Engineer.
- F. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.
- G. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 - 3. Engineer will notify Contractor in writing of decision to accept or reject request.
- H. The Engineer’s decision shall be final.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals
- B. Construction Photographs
- C. Closeout procedures
- D. Final cleaning
- E. Restoration
- F. Disposal of waste materials
- G. Project record documents
- H. As-built survey
- I. Final walkthrough

1.2 SUBMITTALS

- A. Construction photographs
- B. Record Documents: Contractor shall submit Record Documents including As-built Survey data, and Record Drawings.

1.3 CONSTRUCTION PHOTOGRAPHS

- A. Provide photographs of site and construction throughout progress of work produced by an experienced photographer acceptable to Owner.
- B. Each month submit photographs with Application for Payment.
- C. Take photographs as evidence of existing project conditions prior to initiating on-site work. Particular attention shall be given to existing roads.
- D. Progress Photographs. Digital color photographs shall be used to document progress of the work. A minimum of four views of the site showing the location, entrance/exit road, and any other notable site conditions shall be taken before work begins. After work has been started, activities at each work location shall be photographically recorded monthly indicating relative progress of work.

- E. Digital Images: Deliver complete set of digital image electronic files on CD-ROM to Owner with Project record documents. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as sensor, uncropped.
 - 1. Digital Images: Uncompressed JPEG format, produced by digital camera with minimum resolution size of 6.0 megapixels.
 - 2. Date and Time: Include date and time in filename for each image.

1.4 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.5 FINAL CLEANING

- A. Keep premises free of accumulation of surplus materials and rubbish from contractor and subcontractor operations.
- B. Remove from the site all debris and unused materials and, upon completion of the work, restore the site as nearly as possible to its original condition, including the replacement, at the Contractor's expense, of any facility or landscaping which has been altered or damaged.
- C. Prior to final inspection, the exposed surfaces of the following materials shall be cleaned as listed herein as necessary:
 - 1. Gravel roads – Remove mud, dirt, and redress
 - 2. Other surfaces – Remove all blemishes. Leave clean, uniform, and dust free
 - 3. Premises and site – Remove all trash, debris, and surplus excavated material.
- D. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.6 RESTORATION

- A. Prior to final acceptance of the project, the site shall be restored to its original condition prior to construction, unless otherwise indicated in the Specification and Drawings. This shall include, but not be limited to, staging and stockpiling areas, construction strips, access routes and all areas within the limits of disturbance.
- B. Final restoration shall include seeding and acceptance by the Engineer. Disassemble and remove all temporary construction facilities constructed by the Contractor and leave the site in an orderly and restored condition.
- C. Preserve signs, markers, guard rails, bollards, survey control points, and fences in their existing locations and conditions unless written permission is obtained from the Engineer for their removal and restoration or their replacement. Upon approval from the Engineer, remove such facilities as conflict with the design when grading operations begin and store them to keep them clean and in their existing condition. Restore them to their previous locations or new locations as directed. Repair or replace damaged items as directed by the Engineer, at no additional cost to Engineer.

- D. Repair or otherwise return to its original condition any parts of the existing facilities which have been damaged during construction.
- E. Gravel surfaces shall be restored to original condition.
- F. All turfed areas disturbed during construction shall be re-seeded in accordance with Section 32 92 19 - Seeding, unless otherwise specified or directed by the Engineer.
- G. Temporary berms, roads, and other temporary facilities shall be removed prior to final acceptance of the work, unless otherwise specified or directed by the Engineer.
- H. Asphalt or concrete streets, parking lots, sidewalks, or hiker/biker trails shall be returned to preconstruction conditions.
- I. Any fencing, gates, auto-gates, or posts removed during construction shall be replaced to its original condition.

1.7 DISPOSAL OF WASTE AND EXCESS MATERIALS

- A. Construction waste and excess construction materials shall be disposed of offsite in accordance with all laws and regulations or as directed by the Engineer. Contaminated excavated material will be disposed by the Engineer.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other modifications to the Contract
 - 5. Reviewed Shop Drawings, Product Data, and Samples
 - 6. Manufacturer's instruction for assembly, installation, and adjusting
- B. Ensure entries are complete and accurate, enabling future reference by Engineer.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly. No work shall be concealed or covered in a manner that would prevent inspection until required information is recorded and approved by the Engineer.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number
 - 2. Product substitutions or alternates utilized
 - 3. Changes made by Addenda and modifications
- F. Record Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Field changes of dimension and detail
 3. Details not on original Contract drawings
- G. As-Built Survey: An As-Built Survey of the finished grades shall be performed by an independent licensed surveyor, and the Contractor shall submit a CAD file and/or point file data of finished grades.
- H. Submit documents to Engineer with or before final Application for Payment.
- I. Final payment will be withheld until a set of corrected prints of the record drawings has been received by the Engineer.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 AS-BUILT SURVEY

- A. Contractor shall employ and pay for services of an independent surveyor licensed in the State of Iowa.
- B. Contractor shall provide all materials as required to properly perform the surveys, including, but not limited to, instruments, tapes, rods, measures, mounts and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else required. All material shall be of sound professional quality.
- C. All lasers, transits, and other instruments shall be calibrated and maintained in accurate calibration throughout the execution of the work.
- D. Surveys shall be conducted to verify as-built construction to the lines and grades indicated on the Drawings. All surveys for elevation shall be to the nearest 0.1 feet plus or minus 0.05 feet and for horizontal distances shall be to plus or minus 0.1 feet.
- E. After each survey, Contractor shall submit a report to the Engineer indicating observations and results of the survey. Contractor's independent surveyor shall provide interpretation of survey and shall include the following:
1. Date issued.
 2. Project title and number.
 3. Names of field personnel.
 4. Date and time of survey.
 5. Identification of product and specifications section.
 6. Location at the site.
 7. Description of survey (excavation, final grade, etc.).
 8. Electronic survey data in .csv format.
 9. 3 dimensional lines of slope/grade changes, (AutoCAD).
- F. Surveying and employment of surveyor shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

- G. Re-surveying required because of non-conformance to specified requirements shall be performed by independent surveyor at the expense of the Contractor.
- H. Locate and protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- I. Control datum for survey is shown on Drawings.
- J. Maintain complete and accurate log of control and survey work as work progresses.

3.2 FINAL WALKTHROUGH

- A. After completion of restoration and cleanup activities, and upon receiving the Contractor's written request for a substantial completion inspection, the Engineer will perform a (pre-final) walk-through of the site area with the Contractor's representative(s). The Engineer shall identify and document, via a punch list, the additional construction and submittal items required before the Engineer will declare "substantial completion" of the Contract. If, in the opinion of the Engineer, the work has been performed and site restored in accordance with the drawings and specifications, a "Certificate of Substantial Completion" shall be issued. If, in the opinion of the Engineer, the work is not completed in accordance with the drawings and specifications, no "Certificate of Substantial Completion" will be issued and another walk-through will be scheduled. All punch list items identified during the walk-through(s) shall be addressed to the satisfaction of the Engineer. Final payment will not be made until all of the punch list items are resolved to the satisfaction of the Engineer during a final walk through.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Clearing and Grubbing
 - 2. Topsoil
 - 3. Removing existing culverts
 - 4. Selective Clearing and Tree Removal

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify existing plant life designated to remain is tagged or identified.
- C. Identify waste area for placing removed materials.

3.2 PROTECTION

- A. Locate, identify, and protect utilities from damage unless drawings indicate otherwise or Engineer approves their removal.
- B. Protect bench marks, survey control points, and existing structures from damage or displacement.

3.3 CLEARING AND GRUBBING

- A. Clear vegetation, trees, and stumps less than 12 inches in diameter as required for access to site and execution of Work and where shown on Drawings to the existing ground surface as directed by Engineer. Do not clear trees greater than 12 inch diameter without Engineer approval.
- B. Roots 2 inch diameter or greater shall be removed to a depth of at least 12" below ground.
- C. Cleared vegetation shall be removed from the site and disposed of at an appropriate off-site location.
- D. Mow grass to a maximum height of 6".

3.4 TOPSOIL

- A. Section 31 23 23 – Fill.
- B. Prior to all earthwork activities, but after clearing as defined above, remove topsoil and store in a separate stockpile for reuse and final dressing of finished earthwork.
- C. Topsoil containing sod and plant matter shall be thoroughly mixed, until homogeneous, before final reuse.

3.5 REMOVAL

- A. Remove and dispose the existing culverts at the outlet to Wetland 1, described as Culvert B, and under 165th Avenue, described as Culvert C on the Drawings.
- B. Do not burn or bury materials on site, unless specifically stated otherwise. Dispose of all existing material offsite. Leave site in clean condition.
- C. Removed items shall become the property of the Contractor and shall be disposed of by the Contractor according to state and local regulations.

3.6 SELECTIVE CLEARING AND TREE REMOVAL

- A. Perform selective clearing in the areas called out on the Drawings.
 - 1. All areas above the top of shoreline erosion and below the top of bank, or as shown on the Drawings.
 - 2. Top of bank is defined as the highest part of the shoreline where the slope is greater than 3:1 (H:V).
- B. Selective clearing shall include:
 - 1. Trees 12 inches in diameter or greater measured 24 inches above the ground and marked by the Engineer shall be removed from the site together with their stumps and roots 2 inches in diameter or greater. Existing stumps and stumps resulting from tree removal, together with roots 2 inches in diameter or greater shall be removed to a depth of at least 12 inches below natural ground, subgrade or finished grade.
 - 2. Removal of brush, roots, shrubs, trash, etc. over 6” in height.
 - 3. Removal of forest litter that is not living vegetation and would impede new vegetation from growing in the cleared area.
 - 4. Filling any remaining holes with suitable onsite material, compacting, and dressing with topsoil.
 - 5. Disposal of removed debris at an appropriate off-site location. No burning will be allowed at the project site.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. Excavation
- B. Spoiling

PART 2 PRODUCTS - Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Identify utilities and perform clearing in accordance with Section 31 10 00 Site Clearing.
- B. Identify required lines, levels, contours, and datum.
- C. Protect utilities indicated to remain from damage.
- D. Protect plant life, and other features remaining as portion of final grading.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. It is the Contractor's responsibility to minimize disturbance of wet to saturated soils and dewater the area as necessary to complete the work. The Contractor shall be prepared to dewater and transport saturated soil in a manner that prevents discharge or spillage of soils or water onto adjacent properties or roads.

3.2 EXCAVATION

- A. Excavate to the lines and grades as shown on the Drawings.
- B. Notify Engineer of unexpected subsurface conditions.
- C. Slope banks with machine to angle of repose or less until shored.
- D. Underpin adjacent structures which may be damaged by excavation work.
- E. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- F. Trim excavation. Remove loose matter.
- G. Repair or replace items indicated to remain if they are damaged by excavation.

- H. When excavating for Box Culvert installation, ensure that the subgrade is excavated to a depth that will allow Crushed Rock Base to be filled to at least 3 inches and allows for the culvert floor thickness to be installed at the specified flow elevation.

3.3 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

3.4 SPOILING

- A. Spoil excess excavated material in designated upland areas on site or remove excavated material from the site. Primary permanent spoil location shall be located between Wetlands 1 and 2. Do not place permanent spoil in permanent location if it will interfere with ongoing work. Spoil shall be applied to beneficial reuse where possible.
- B. If Primary or Secondary Borrow Areas are established near the Shoreline Restoration work, then excavated material shall be used to fill the borrow area to its original elevation.
- C. Coordinate with the Owner and Engineer for placement of spoil. Contractor shall stake perimeter of spoil sites for Owner and Engineer approval prior to placing fill.
- D. Blend spoil to existing ground at no steeper than a 6:1 (H:V) slope.
- E. Spoil thickness shall be no greater than 3.0 feet.
- F. Prevent erosion and migration of spoiled material by use of best management practices.
- G. Compact spoil with a minimum of 1 pass with dozer or fully loaded scraper, or equivalent. Maximum thickness of a layer or lift prior to compaction shall be 18 inches.
- H. Maintain terraces, existing drainage patterns, and any other site structures/features in spoil areas.
- I. Seed and Mulch the spoil area in accordance with Section 32 92 19 – Seeding. Do not seed portion of spoil area within the existing agricultural crop land.
- J. Spoil excavated material in spoil areas shown on the Drawings.

END OF SECTION

SECTION 31 23 23

FILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Site Grading
 - 2. Topsoil
 - 3. On Site Fill
 - 4. On Site Borrow Areas
 - 5. Road Gravel
 - 6. Granular Sub Base
 - 7. Stockpiling

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 6. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 7. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Samples: Submit, in air-tight containers, 10 lb. sample of each fill material to the testing laboratory for material classifications. See section 3.14 Field Quality Control for testing requirements.
- C. Geotechnical Testing: The contractor shall submit results of geotechnical testing. See section 3.14 Field Quality Control for testing requirements.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Contractor shall provide fill materials.
- B. Material shall not be transported until Engineer has approved geotechnical test results.
- C. On Site Fill:
1. Shall be selected from on-site excavation. See Section 31 23 16 Excavation.
 2. Clean, inorganic material with liquid limit less than 45 and a plasticity index less than 20.
 3. Should be free of foreign material larger than 3 inches.
 4. Should not contain an appreciable amount of roots, rock or debris.
 5. Moisture content sufficient to obtain compaction: between -3% and +4% of optimum.
- D. Topsoil shall be material capable of sustaining vegetative growth that is typical of the area. Topsoil shall be reasonably free from underlying subsoil, clay lumps, weeds, litter, brush, matted roots, toxic substances, or any material that may be harmful to plant growth or be a hindrance to grading, planting, or maintenance operations. Topsoil shall not contain more than 5 percent by volume of stones, stumps, or other objects larger than 1 inch in diameter.
- E. Road Gravel:
1. Gravel for road surfacing shall consist of durable particles of stone and sand.
 2. Material shall conform to Iowa DOT aggregate specification Section 4120.04 for Class-A Crushed Stone.
 3. Gravel aggregates for surfacing within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
¾ inch	95-100
½ inch	70-90
No. 4	30-55
No. 8	15-40
No. 200	6-16
 4. Soundness: The fraction of gravel contained on the No. 16 sieve shall have a soundness loss not to exceed ten percent (10%) at the end of five (5) cycles. Soundness shall be determined in accordance with AASHTO Method T-104, using sodium sulfate (Na₂SO₄), except that the soundness loss shall be determined and reported only on the fraction of the aggregate that is retained on the No. 16 sieve.
 5. Sampling of the material shall be done in accordance with AASHTO Method T-2.
- F. Granular Subbase:
1. Granular Subbase shall consist of clean, well graded, hard particles of crushed limestone, quartzite or dolomite. Sources shall be approved by the Engineer.
 2. Material shall conform to Iowa DOT aggregate specification Section 4121 for Crushed Gravel.
 3. Gradation: Granular Subbase shall conform to Iowa DOT Gradation No. 12B:

<u>Sieve Size</u>	<u>Percent Passing</u>
1.5 inch	100
½ inch	50-80
No. 8	10-30

No. 50	5-15
No. 200	3-7

4. Soundness: Base shall have a percent loss of not more than 30 at the end of 16 cycles of freezing and thawing in accordance with AASHTO Method T-103.
5. Abrasion: Base, when tested for abrasion by AASHTO Method T-96, Grade B, shall have a percentage of wear of not more than 50 percent.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 013000 - Administrative Requirements: Coordination and project conditions.
- B. Comply with all local, state and federal regulations.
- C. Verify structural ability of unsupported walls to support loads imposed by fill.
- D. Verify fill materials have been tested and approved by Engineer prior to transporting fill material.
- E. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

- A. Remove topsoil to a depth of 6 inches below areas to receive fill and stockpile topsoil in designated areas. Topsoil will be replaced to complete final grading.
- B. Scarify subgrade surface to depth of 3 inch.
- C. Dewater subgrade as required to meet specified requirements for subsequent fill.
- D. Protect existing structures, fences and utilities.
- E. Compact subgrade to density requirements for subsequent backfill materials.
- F. Cut out soft areas of subgrade not capable of compaction in place. Backfill with clean fill material and compact to density equal to or greater than requirements for subsequent fill material.
- G. When material varies from optimum moisture content, it shall be treated in the following manner. When a deficiency in moisture content exists, the material shall be watered and thoroughly mixed until optimum moisture content is attained. When an excess in moisture content exists, the material shall be worked and aerated until optimum moisture content is attained.
- H. Any large rocks encountered during the subgrade preparation process which constitute as a hazard, due to size or protrusion from the finished subgrade, shall be removed and disposed of as directed by the Owner.

- I. The finished subgrade surface shall be firm and uniform, true to grade and cross-section, and shall be approved by the Owner before placing subsequent material thereon. Subgrade that does not conform to the requirements as to grade, cross section, moisture content or density shall be reworked until such requirements are met.

3.3 FILL

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Employ placement method that does not disturb or damage other work.
- D. Topsoil shall be replaced to meet final grades as indicated in the Drawings.
- E. Place material in continuous layers as follows:
 - 1. Maximum 6 inches loose depth mechanically compacted to a minimum of 95% of the maximum dry density (ASTM D698).
- F. Make gradual grade changes. Blend slope into level areas.
- G. Backfill of Culverts and Water Level Control Structures
 - 1. On Site Fill shall be used to backfill around the sides and above the structures to bring surface to proposed grade as shown on the Drawings.
 - 2. Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the culvert spring line (center of culvert). In the second stage, it is placed to 6 inches above the top of the culvert.
 - 3. Ensure no gaps or voids exist in the backfilled area.
 - 4. Ensure no damage is sustained by the Culvert or Water Level Control Structure by compacting equipment.
- H. Place any excess Fill in designated permanent spoil locations or as directed by the Engineer.

3.4 ON SITE BORROW AREAS

- A. On site fill shall consist of material excavated from the Wetland Connection Ditch and Wetland 1 Expansion area.
- B. On site fill used in the Shoreline Restoration may come from the Primary Borrow Area shown on the Drawings. If the Primary Borrow Area is deemed to be inaccessible, inundated, or otherwise unacceptable by the Engineer, the Contractor may use the Secondary Borrow Area shown on the Drawings.
- C. On site fill taken from borrow areas shall be free from organic material and meet the requirements set forth in Section 31 23 23 Fill.

3.5 GRANULAR SUBBASE

- A. Granular Subbase shall be placed and compacted at the locations shown on the Drawings.

- B. Where required, place Granular Subbase over geogrid, as defined in Section 31 34 19 Geosynthetic Soil Reinforcement, and as shown in the Drawings.

3.6 ROAD GRAVEL

- A. Install to the lines and grades as shown on the Drawings.

3.7 COMPACTION

- A. Contractor shall compact Fill to a minimum of 95% of the maximum dry density in accordance with ASTM D698. Material that is shown to be less than 95% of the maximum dry density shall be reworked by the Contractor and retested until the material meets the compaction requirement at no additional cost to the Engineer.

3.8 STOCKPILING

- A. Stockpile materials within staging areas shown on the Drawings or in areas approved by Owner.
- B. Stockpile materials in upland areas.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Prevent intermixing of soil types or contamination.
- E. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.9 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.10 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Fill: Plus or minus 0.1 feet.

3.11 FIELD QUALITY CONTROL

- A. Section 01 40 00 – Quality Requirements.
- B. Contractor’s independent Geotechnical Engineer shall test fill materials in accordance with the following:
 1. Material Classification: ASTM D 2487, 1 per fill site, 1 per 500 CY.
 2. Moisture Tests: ASTM D3017, 1 per borrow site, 1 per fill site, 1 per 500 CY.
 3. Density Tests: ASTM D698, Method A, 4 per fill site, 1 per 500 CY.
- C. When tests indicate Work does not meet specified requirements, continue compactive effort and retest.

3.12 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Prohibit construction traffic over finished fill.
- C. Reshape and re-compact fills subjected to vehicular traffic.
- D. Seed finished areas within 7 days in accordance with Section 32 92 19 – Seeding to prevent erosion and dust. Contractor shall apply water to suppress dust until seeded. Contractor shall restore any eroded areas to existing contours and elevations prior to seeding.

END OF SECTION

SECTION 31 34 19

GEOSYNTHETIC SOIL REINFORCEMENT

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Section Includes:
 - 1. Filter Fabric
 - 2. Geogrid
 - 3. Turf Reinforcement Mat (TRM)
 - 4. High Performance Turf Reinforcement Mat (HP TRM)
 - 5. Wood Fiber Log
 - 6. Straw Wattle

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: The Contractor shall submit copies of manufacturer's literature discussing physical characteristics, application, and installation instructions for geotextile and geogrid material.
- C. Submit Manufacturer's installation instructions and Contractor's plan for installation of materials.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM D3786 - Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics-Diaphragm Bursting Tester Method
 - 2. ASTM D4354 - Sampling of Geosynthetics for Testing
 - 3. ASTM D4355 - Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
 - 4. ASTM D4491 - Water Permeability of Geotextiles by Permittivity
 - 5. ASTM D4632 - Grab Breaking Load and Elongation of Geotextiles
 - 6. ASTM D4751 - Determining Apparent Opening Size of a Geotextile
 - 7. ASTM D4833 - Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
 - 8. ASTM D4873 - Identification, Storage, and Handling of Geotextiles

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Geosynthetics
 - 1. Geotextile, geogrid, turf reinforcement mat, and filter fabric (collectively, geosynthetics) shall be labeled, handled, and stored in accordance with ASTM D 4873 and as specified herein. Each roll shall be wrapped in an opaque and waterproof layer of plastic during shipment and storage. The plastic wrapping shall not be removed until deployment. Each roll shall be labeled with the manufacturer's name, geosynthetic type, lot number,

roll number, and roll dimensions (length, width, gross weight). Geosynthetic or plastic wrapping damaged as a result of storage or handling shall be repaired or replaced, as directed. Geosynthetic shall not be exposed to temperatures in excess of 140 degrees F (or less if recommended by the manufacturer).

2. No hooks, tongs, or other sharp instruments shall be used for handling geosynthetics. Rolls shall not be lifted by use of cables or chains in contact with the geosynthetic. Geosynthetic shall not be dragged along the ground.

B. Wood Fiber Logs and Straw Wattles

1. Shall be furnished on pallets or master packs.
2. Logs and wattles may be compressed and disfigured when packaged. Product will return to shape when wetted.
3. Logs and wattles shall be of consistent density with fibers evenly distributed over the entire length of the product.
4. Products shall be free of defects and voids that would interfere with proper installation or performance.
5. Store logs and wattles in a manner that protects them from damage during construction.

PART 2 PRODUCTS

2.1 FILTER FABRIC

A. Manufacturer

TenCate Geosynthetics (Mirafi)
365 South Holland Drive
Pendergrass, Georgia 30567
706-693-2226
www.tencate.com

B. General Requirements

1. The filter fabric shall be a non-woven, pervious sheet of polymeric material that is chemically resistant to the conditions it will be exposed to. Fibers used in the manufacture of geotextile material shall consist of long-chain synthetic polymers composed of at least 85 percent by weight polypropylenes, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a stable network such that the filaments or yarns retain dimensional stability relative to each other, including the selvages. The geotextile shall be free of defects.
2. The heavy weight material is to be used below the proposed riprap aprons at the outlet of each new and existing culvert, as shown in the Drawings.
3. The light weight material is to be used above the proposed concrete footing subgrade, as well as in combination with the geogrid material below the proposed fish barriers, as shown in the Drawings.
4. Filter fabric shall be Mirafi N-series Model 1100N or Engineer-approved equivalent, and shall meet or exceed the minimum average roll values below when measured in the weakest principal direction:

<u>Fabric Properties</u>	<u>Requirements</u>	<u>Test Method</u>
Grab tensile strength, lbs.	250 (min.)	ASTM D 4632
Elongation @ Failure, %	50 (min.)	ASTM D 4632
CBR puncture strength, lbs.	700 (min.)	ASTM D 6241
Apparent opening size (US Sieve)	100	ASTM D 4751
Permittivity, sec-1	0.8	ASTM D 4491
Ultraviolet radiation stability, %	70 (min.)	ASTM D 4355

5. Prior to use, geotextile shall be stored out of direct sunlight and in a clean, dry place. It should not be subject to extreme temperatures of either hot or cold and be stored with manufacturer's protective cover in place.

C. Sampling and Testing

1. Provide manufacturer's certificate of compliance signed by an authorized official of the manufacturer attesting that the geotextile(s) meet the requirements of these specifications. The certificate shall also state the length and width of fabric on each roll.

2.2 GEOGRID

A. Manufacturer

TenCate Geosynthetics (Mirafi)
 365 South Holland Drive
 Pendergrass, Georgia 30567
 706-693-2226
www.tencate.com

Or Engineer Approved Equivalent

B. General Requirements

1. Geogrid fabric shall be Tensar BX1200 Geogrid or Engineer-approved equivalent. The geogrid shall be manufactured of chemical and weather resistant polymeric material. The geogrid shall be of new, non-recycled material and be free of defects. The material shall meet or exceed the minimum average roll values:

<u>Fabric Properties</u>	<u>Requirements</u>	<u>Test Method</u>
Aperture Dimensions, in.	1.0	(Nominal Dimensions)
Junction Efficiency, %	93 (min.)	ASTM D 7737
Tensile Strength @ 5% strain, lb/ft	810 (min.)	ASTM D 6637
Ultraviolet radiation stability, %	100 (min.)	ASTM D 4355

2. Prior to use, geogrid shall be stored in a clean, dry place, out of direct sunlight, not subject to extremes of either hot or cold, and with manufacturer's protective cover in place.

C. Sampling and Testing

1. Provide manufacturer's certificate of compliance signed by an authorized official of the manufacturer attesting that the geogrid meets the requirements of these specifications. The certificate shall also state the length and width of geogrid material on each roll.

2.3 TURF REINFORCEMENT MAT

A. Manufacturer

North American Green
14649 Highway 41 North
Evansville, Indiana 47711
800-772-2040
www.nagreen.com

Or Engineer Approved Equivalent

B. General Requirements

1. Geosynthetic fabric shall be SC250, as manufactured by North American Green, for all specified areas.
2. A 70% straw/30% coconut matrix shall be evenly distributed across the entire width of the blanket and stitch bonded between a heavy duty UV stabilized nettings with 0.5 x 0.5 inch openings, an ultra-heavy UV stabilized, corrugated intermediate netting with 0.5 x 0.5 inch openings, and covered by a heavy duty UV stabilized netting with 0.5 x 0.5 inch openings. The three nettings shall be stitched together on 1.50 inch centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting.
3. Equivalent products are acceptable with Engineer's approval.
4. The geosynthetic fabric shall meet the following properties:

<u>Property</u>	<u>Requirements</u>	<u>Test Method</u>
Thickness	0.62 in	ASTM D6525
Resiliency	95.2 %	ECTC Guidelines
Density	0.891 g/cm ³	ASTM D792
Mass/Unit Area	16.13 oz/yd ² (548 g/m ²)	ASTM 6475
Porosity	99%	ECTC Guidelines
UV Stability	100%	ASTM D4355/1000hr
Stiffness	222.65 oz-in	ASTM D1388
Light Penetration	4.1%	ECTC Guidelines
Tensile Strength –MD	709 lbs/ft (10.5 kN/m)	ASTM D6818
Elongation – MD	24%	ASTM D6818
Tensile Strength – TD	712 lbs/ft (10.6 kN/m)	ASTM D6818
Elongation – TD	37%	ASTM D6818

C. Sampling and Testing

1. Provide manufacturer's certificate of compliance signed by an authorized official of the manufacturer attesting that the geotextile(s) meet the requirements if these specifications. The certificate shall also state the length and width of fabric supplied on each roll.

2.4 HIGH PERFORMANCE TURF REINFORCEMENT MAT

A. Manufacturer

Propex Geosolutions
1110 Market Street, Suite 300

Chattanooga, Tennessee 37402
800-621-1273
www.propexglobal.com

Or Engineer Approved Equivalent

B. General Requirements

1. Geosynthetic fabric shall be Pyramat, as manufactured by Propex Geosolutions, for all specified areas.
2. A three-dimensional, lofty, woven polypropylene geosynthetic fabric specially designed for erosion control applications on steep slopes. The matrix shall be composed of polypropylene monofilament yarns woven into a uniform configuration of resilient pyramid-like projections. The material shall exhibit very high interlock and reinforcement capacity with soil and root systems, demonstrate superior UV resistance, and enhance seedling emergence.
3. Equivalent products are acceptable with Engineer's approval.
4. The turf reinforcement mat shall meet the following properties:

<u>Property</u>	<u>Requirements</u>	<u>Test Method</u>
Thickness	0.4 in	ASTM D6525
Resiliency	80 %	ECTC Guidelines
Mass/Unit Area	13.5 oz/yd ² (458 g/m ²)	ASTM 6566
UV Stability	85%	ASTM D4355/10,000hr
Light Penetration	15% max.	ASTM 6567
Tensile Strength	3000 lbs/ft (10.5 kN/m)	ASTM D6818
Elongation	35%	ASTM D6818

C. Sampling and Testing

1. Provide manufacturer's certificate of compliance signed by an authorized official of the manufacturer attesting that the geotextile(s) meet the requirements if these specifications. The certificate shall also state the length and width of fabric supplied on each roll.

2.5 WOOD FIBER LOG

A. Manufacturer

American Excelsior Company
850 Avenue H East
Arlington, Texas 76011
800-777-7645
www.americanexcelsior.com

Or Engineer Approved Equivalent

B. General Requirements

1. Wood Fiber Log shall consist of a specific cut of seed free Great Lakes Aspen wood with 80% of the fiber greater than or equal to 6 inches in length inside a durable, flexible tubular netting with knotted ends. Wood Fiber Log is designed to provide intimate contact with the soil, which prevents blowouts and undermining. Water shall be allowed

to flow through the matrix, minimizing overtopping, slowing high flow water velocities, and intercepting and stopping silt movement.

2. The wood fiber log mat shall meet the following properties:

<u>Property</u>	<u>Requirements</u>
Minimum Diameter	11 in.
Dry Density	2.54 lb/ft ³
Log Dimensions	12 in. x 10 ft.

2.6 STRAW WATTLE

A. Manufacturer

American Excelsior Company
850 Avenue H East
Arlington, Texas 76011
800-777-7645
www.americanexcelsior.com

Or Engineer Approved Equivalent

B. General Requirements

1. Straw wattle shall consist of certified seed free agricultural straw inside a flexible and durable tubular netting with metal clips or knotted ends. It shall be designed to provide intimate contact with the soil, which prevents blowouts and undermining.
2. The straw wattle shall have the following nominal characteristics:

<u>Property</u>	<u>Requirements</u>
Minimum Diameter	8.5 in.
Dry Density	4.53 lb/ft ³
Log Dimensions	9 in. x 25 ft.

2.7 SECURING PINS/STAKES

A. Geosynthetics

1. Securing pins used to secure geosynthetic shall be of the size and type recommended by the manufacturer unless otherwise specified.
2. If used, wooden stakes shall be cut from standard 2x4 lumber, to length as recommended by geosynthetic manufacturer's instructions. Stakes shall be cut diagonally across the board flats to produce a triangular configuration.
3. Unless otherwise recommended by the manufacturer, securing pins shall be steel or fiberglass formed as a "U", "L", or "T" shape or contain "ears" to prevent total penetration. Steel washers shall be used on all but the "U" shaped pins.

B. Logs and Wattles

1. Wooden staked shall be 1-1/8 in. wide x 1-1/8 in. thick by a minimum of 30 in. long.

PART 3 EXECUTION

3.1 PREPARATION OF SURFACE/SUBGRADE

- A. Complete clearing, grubbing, and excavation or fill to finished grades. Slopes shall be trimmed to uniform grades as shown in the Drawings. All depressions shall be filled with suitable dry material which shall be thoroughly tamped or otherwise compacted to insure stability. Soft, unstable materials shall be removed and replaced with suitable material which shall be thoroughly tamped or otherwise compacted to insure stability. This work shall be executed carefully so that the finished earth surface will conform to the grades and slopes of the neat lines of the bottom surface of the riprap as shown on the Drawings. No raised places, bumps, or depressions will be permitted. Work shall be in accordance with Section 31 23 23 Fill.
- B. Erosion features such as rills and gullies must be graded out of the surface before fabric deployment. Ensure the blanket, wood fiber log, or straw wattle can make immediate contact with the soil.
- C. Cut anchor trenches at top of slope, and termination trenches at bottom of slope as shown on the Drawings.

3.2 GEOSYNTHETIC INSTALLATION

- A. Surface/Subgrade Preparation
 - 1. Surfaces on which filter fabric and geogrid is to be placed shall be compacted and graded to the lines and grades as specified in Section 31 23 23 Fill, and as indicated on the Drawings. Remove all sharp or protruding objects from subgrade surface. The soil surface shall be graded reasonably smooth (no depressed, void, soft, or uncompacted areas) and free of loose rock and clods, holes, depressions, projections, or other foreign matter.
 - 2. The prepared soil surface shall be examined by the Engineer prior to placement of the geotextile.
- B. Placement
 - 1. Install on the approved surface at the locations and in accordance with the details specified and indicated in the Drawings.
 - 2. Install in accordance with manufacturers recommendations.
 - 3. Unroll geosynthetic fabric along the installation area on prepared subgrade and secure to prevent slippage, folding, wrinkling, or other movement. Loosely lay (do not stretch) material in such a manner that it will conform to surface irregularities when material is placed against it.
 - 4. Geosynthetic may be folded and overlapped to permit proper placement in the designated area.
 - 5. Geosynthetic shall be joined by overlapping a minimum of 18 inches unless otherwise specified, and secured against the underlying foundation material. The up-slope geosynthetic shall overlap the abutting downstream or down-slope geotextile.
 - 6. Securing pins, approved and provided by the geosynthetic manufacturer, shall be placed along the edge of the panel or the material shall be rolled in such a manner to adequately hold it in place during installation.
 - 7. At vertical laps, securing pins shall be inserted through both layers along a line through the approximate midpoint of the overlap. At horizontal laps and across slope laps,

securing pins shall be inserted through the bottom layer only. Securing pins shall be placed along a line approximately 2 inches in from the edge of the placed geosynthetic at intervals not to exceed 12 feet unless otherwise specified. Additional pins shall be installed as necessary and where appropriate, to prevent slippage or movement of the geotextile. The use of securing pins shall be held to the minimum necessary. Pins are to be left in place unless otherwise specified.

8. In no case shall material be dropped on uncovered geosynthetic from a height greater than 2 feet.

C. Repair

1. Should the geosynthetic be torn or punctured or otherwise damaged, or the overlaps disturbed or displaced, Contractor shall repair damage and correct disturbances. Repairs shall consist of a patch placed over the damaged area. Patches shall be of the same type of geotextile as that being patched. Patches shall extend a minimum of 18 inches beyond the damaged area, in all directions.
2. If damage to the geotextile results in damage to the subgrade, as evidenced by subgrade pumping, intrusion, or grade distortion, the subgrade around the damage or displaced area shall be removed and restored to the original approved condition.

3.3 TURF REINFORCEMENT MAT INSTALLATION

- A. Install to the lines and grades as shown on the Drawings.
- B. Care shall be taken during installation to avoid damage occurring to the blanket as a result of the installation process. Should the blanket be damaged during installation, a blanket patch shall be placed over the damaged area extending 3 ft beyond the perimeter of the damage.
- C. Construct top anchor trench 1-3 feet beyond crest of slope or top of shoreline repair, or as illustrated in Drawings or shown in manufacturers recommended installation guidelines. Position blanket roll at crest of slope with sufficient material to line the entire anchor trench plus enough material left over to cover the trench. Position adjacent rolls to facilitate 6-inch overlaps. Anchor blanket in trench with appropriate pins/staples at 1' centers. Once several rolls are anchored in trench, begin to backfill and compact trench to original elevation. The preferred method of deploying roll down slope is to stand in front of the roll and pin it as it rolls out down the slope, minimizing foot traffic on the blanket, which will eliminate depressions under the blanket. Always allow the blanket to drape over the soil, never pulling it taut, to minimize tenting. Place additional pins into any apparent depressions to maintain contact with the soil.
- D. Consult blanket manufacturer's technical representative or local distributor for installation assistance.

3.4 PROTECTION OF BLANKETED AREAS

- A. After installation of all geosynthetic fabric products, the area shall be protected against traffic or other use that might damage the material.

3.5 WOOD FIBER LOG INSTALLATION

- A. Install according to manufacturer's installation guidelines, staking pattern guide, and CAD details. The extent and location of installation is shown on the Drawings.

- B. Wood fiber log shall be installed at the elevation shown on the Drawings and conform to the surface contour for the entire length of installation.
- C. Do not create a trench prior to wood fiber log installation.
- D. Secure with wooden stakes every two lineal feet across the length of the log. The stakes shall be intertwined with the outer mesh of the log only, and be driven into the ground a minimum of 16 inches deep on the downstream side of the log.
- E. Sediment logs shall remain in place through the completion of the project and allowed to degrade in place.

3.6 STRAW WATTLE INSTALLATION

- A. Install according to manufacturer's installation guidelines, staking pattern guide, and CAD details. The extent and location of installation is shown on the Drawings.
- B. Straw wattles shall be installed at the elevation shown on the Drawings and conform to the surface contour for the entire length of installation.
- C. Dig a 2 inch deep anchor trench prior to Turf Reinforcement Mat installation where the straw wattle will be installed. Straw wattle shall sit flush with the surface, on top of the TRM, inside the trench.
- D. Secure with wooden stakes every four lineal feet across the length of the wattle. The stakes shall be driven through the center of the wattle, and be driven into the ground a minimum of 24 inches deep, with less than 2 inches projecting from the top of the wattle. A stake shall be placed no more than 2 feet from the end of the wattle.
- E. When joining two wattles, tightly abut both ends, or overlap wattles approximately 6 inches. If abutted, tie the ends together using heavy twine or plastic locking ties.
- F. Straw wattles shall remain in place through the completion of the project and allowed to degrade in place.

3.7 MAINTENANCE SERVICE

- A. Section 01 70 00 - Execution and Closeout Requirements: Final Walkthrough.
- B. The Engineer will conduct an inspection 60 days after installation to determine if the geosynthetic fabrics are functioning. The fabrics will be considered functioning if the following conditions is true:
 1. No tears in the fabric longer than 3 feet.
 2. Not more than 5 percent of total area with tenting between the soil and fabric.
 3. No staples or anchors pulled up from edges of fabric.
- C. If an area of geosynthetic is inadequate as determined by the Engineer, the Contractor shall follow up with a single visit, within 2 weeks, to make repairs or reinstall in accordance with the specifications.

3.8 EXCESS MATERIAL DISPOSAL

- A. Contractor shall dispose of all excess material and material not suitable for use onsite, at an appropriate offsite disposal facility, unless directed by the Engineer.

END OF SECTION

SECTION 31 37 00

RIPRAP

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Riprap
 - 2. Riprap Bedding
 - 3. Native Field Stone

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Contractor shall submit material and gradation data for Riprap and Field Stone
- C. Source of Native Field Stone

PART 2 PRODUCTS

2.1 MATERIALS

- A. Riprap
 - 1. The rock shall be limestone or other approved hard stone of good quality that will not disintegrate under action of air and water. It shall be clean and free from earth, clay, or refuse.
 - 2. The rock shall have a density that is not less than 140 pounds per cubic foot.
 - 3. Determine the bulk specific gravity and absorption in accordance with ASTM D 6473. Ensure the bulk specific gravity is at least 2.25, and the maximum absorption is 6.0 percent. Ensure the loss of soundness after 20 cycles is no greater than 15 percent when tested in accordance with the U.S. Army Corps of Engineers test method CRD-C 144. Provide riprap pieces with a width and thickness at least one-third the length.
 - 4. Each load of rock shall be reasonably well graded from the largest to the smallest size specified. The rock shall be angular in shape to permit interlocking between the various rock sizes.
 - 5. Control of gradation shall be by visual inspection to verify that the rock is reasonably well graded and does conform to the maximum, mean and minimum weights as specified.

Iowa DOT Standard Revetment Gradation		
	Size of Rock (Pounds)	Percent of Stones Larger than the Given Size (%)
Class E	250	0
	90	50
	5	90
	2	100

B. Riprap Bedding:

1. The rock shall be limestone or other approved hard stone of good quality that will not disintegrate under action of air and water. It shall be clean and free from earth, clay, or refuse.
2. Control of size shall be by visual inspection to verify that the rock conforms to the maximum, mean and minimum weights as specified.
3. Crushed rock for riprap bedding shall conform to Iowa DOT Gradation No. 13:

<u>Sieve Size</u>	<u>Percent Passing</u>
3 inch	100
1.5 inch	50
¾ inch	0

4. Soundness: Bedding shall have a percent loss of not more than 30 at the end of 16 cycles of freezing and thawing in accordance with AASHTO Method T-103.
5. Abrasion: Bedding, when tested for abrasion by AASHTO Method T-96, Grade B, shall have a percentage of wear of not more than 45 percent.

C. Native Field Stone

1. Native Field stone shall consist of clean, round, hard particles of natural, locally-sourced material of good quality that will not disintegrate under action of air and water. It shall be clean and free from earth, clay, or refuse.
2. The stone shall be uncut native stone, with the color and appearance approximating that occurring locally. Stone shall consist of field stone or quarry stone with angular or round faces, weighing not less than 140 pounds per solid cubic foot.
3. Native Field Stone shall be obtained from an Engineer approved source and shall consist of sandstone, limestone, or other hard and durable stone that will be resistant to the action of air and water.
4. Control of size shall be by visual inspection to verify that the rock is poorly graded and does conform to the sizes as specified.
5. Gradation: All particles shall have an average diameter between 6 inch and 18 inch, with even representation throughout this range. Individual particles that fall outside this range may be removed from the stockpile before final placement, or the material may be rejected by the Engineer.

PART 3 EXECUTION

3.1 INSPECTION

- A. Prior to placement, verify that materials to be installed meet Specifications.
- B. Verify foundation and subgrade preparation has been completed as specified and approved by the Engineer.

3.2 PREPARATION OF SURFACE/SUBGRADE

- A. Slopes shall be trimmed to uniform grades as shown in the Drawings. All depressions shall be filled with suitable material (soil) at optimum moisture content which shall be thoroughly tamped or otherwise compacted to insure stability. Soft, unstable materials shall be removed and replaced with suitable material which shall be thoroughly tamped or otherwise compacted to insure stability. This work shall be executed carefully so that the finished earth surface will

conform to the grades and slopes of the neat lines of the bottom surface of the riprap as shown on the Drawings. No raised places, bumps, or depressions will be permitted. Work shall be in accordance with Section 31 23 23 Fill.

3.3 PLACEMENT OF RIPRAP

- A. Place geosynthetic materials over substrate where shown on the Drawings and in accordance with Section 31 34 19 Geosynthetic Soil Reinforcement.
- B. Riprap is to be placed over the Riprap Bedding where shown on the Drawings.
- C. Approved material shall be dumped or otherwise placed in a manner as to produce a reasonable solid mass of material within the limits indicated on the Drawings or specified by the Engineer. All material shall be placed and distributed so that there are no large accumulations of either the larger or smaller sizes of rock.
- D. Material should not be dropped onto geotextile from a height of greater than 2 feet.
- E. Any appreciable variation from the specified thickness of the riprap shall be corrected by redistributing the material.
- F. Installed Thickness: As indicated on Drawings.

3.4 PLACEMENT OF RIPRAP BEDDING

- A. Place geosynthetic materials over substrate where shown on the Drawings and in accordance with Section 31 34 19 Geosynthetic Soil Reinforcement.
- B. Place Riprap Bedding where indicated on the Drawings and to the dimensions shown.
- C. Approved material shall be dumped or otherwise placed in a manner as to produce a reasonable solid mass of material within the limits indicated on the Drawings or specified by the Engineer. All material shall be placed and distributed so that there are no large accumulations of either the larger or smaller sizes of rock.
- D. Any appreciable variation from the specified dimensions of the riprap to what is measured in the field shall be corrected by redistributing the material.

3.5 PLACEMENT OF NATIVE FIELD STONE

- A. Native Field Stone shall be placed to the thickness, grade, and dimensions shown on the Drawings.
- B. Native Field Stone is naturally present at the toe of the eroded shoreline. Imported field stone shall be mixed with the existing material to create an apron of consistent thickness.
- C. Native Field Stone shall be used to dress the imported riprap. To the greatest extent possible, cover all non-native riprap materials with Native Field Stone to the dimensions indicated.

3.6 TOLERANCES

- A. A finished subgrade shall be provided that is reasonably smooth, compacted as specified, and free from irregular surface changes.
- B. Finished surfaces shall conform to slope specified and be reasonably uniform and level. Finished surfaces shall match surrounding surfaces to the extent practical. The thickness of the finished surface shall be as indicated on the Drawings. Any appreciable variation from the specified thicknesses or the specified finished elevations shall be corrected by the Contractor.

3.7 EXCESS MATERIAL DISPOSAL

- A. Contractor shall dispose of all excess material and material not suitable for use onsite, at an appropriate offsite disposal facility, unless directed by the Engineer.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Seeding
 - 2. Mulch
 - 3. Temporary Rolled Erosion Control Product (RECP)
 - 4. Vegetation Establishment Period

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Contractor shall submit Product Data for seed mixes, mulch and temporary rolled erosion control product.

1.3 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Materials shall be stored in areas that provide protection from damage. Seed shall be stored in a cool, dry location away from contaminants.
- C. Except for bulk deliverables, materials shall not be dropped or dumped from vehicles. Materials shall be handled so as to prevent damage.

PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Only native, local ecotype seeds shall be used.
- B. Seed Mix
 - 1. Seed mix to be used on all shoreline restoration and selective clearing areas requiring seeding, as shown on Drawings, shall conform to Iowa DOT specifications Article 2601.03 for Native Grass Seeding.
 - 2. Seed mix to be used on all other disturbed areas that are sloped at 10:1 or greater shall be:
 - a. Smooth Brome Grass at 12.5 pounds per acre
 - b. Annual Rye Grass at 40 pounds per acre

2.2 MULCH

- A. Mulch shall be straw or hay mulch suitable for its intended use. Mulch shall be free from weeds, mold, or other deleterious materials. The straw or hay shall be contained in a Type 2 single-net rolled erosion control blanket.
 - 1. Native grass hay (certified noxious weed free) with viable seed; 4,000 lb/acre
 - 2. Native or introduced grass hay (certified noxious weed free); 4,000 lb/acre
 - 3. Legume hay (certified noxious weed free); 4,000 lb/acre
 - 4. Straw (certified noxious weed free); 4,000 lb/acre
- B. Mulch is required on all areas with 10:1 or greater slopes, except where turf reinforcement mat or other erosion control blankets are specified on the Drawings.

2.3 TEMPORARY ROLLED EROSION CONTROL PRODUCT

- A. RECP Type 2.C in accordance with Statewide Urban Design and Specifications (SUDAS) Division 9 – Site Work and Landscaping Section 9040 – Erosion and Sediment Control.
- B. Install at locations shown on Drawings and as directed by Engineer.
- C. 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.

2.4 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and Inspection Services.

2.5 FERTILIZER

- A. No fertilizer shall be applied any seeded or restored areas as part of this project.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify prepared soil base is ready to receive the Work of this section.
- B. Prepare seeding surface to a smooth and equipment- track-free surface.
- C. Complete seeding prior to installation of geosynthetic fabrics in accordance with Section 31 34 19 Geosynthetic Soil Reinforcement.
- D. Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed times shall be submitted to and approved by the Engineer.

3.2 SEEDING

- A. Date of application:
 - 1. Spring: April 1 – May 15
 - 2. Fall: September 15 – October 31
- B. Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rain, traffic, or other cause, shall be reworked to restore the ground condition previously specified. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.
- C. Seed shall be uniformly drilled to an average depth of 1/2 inch and at the rates specified using equipment having drills not more than 6-1/2 inches apart. Row markers shall be used with the drill seeder.
- D. Do not seed areas in excess of that which can be mulched on same day.
- E. Do not seed immediately following rain, when ground is too dry, or when winds are over 12 mph.
- F. Immediately following seeding, apply rolled mulch product except where geosynthetic fabrics are specified or shown in the Drawings.

3.3 CRITICAL AREA SEEDING

- A. Critical areas are all areas with a slope greater than 6:1.
- B. Critical areas shall be seeded and mulched within 48 hours of final grading.

3.4 MULCH

- A. The mulch shall be fixed in place with mechanical anchoring by a V-type-wheel land packer, a scalloped-disk land packer designed to force mulch into the soil surface, or other suitable equipment.
- B. Do not mulch areas that will receive geosynthetic fabric installation as shown in the Drawings.
- C. Straw or hay mulch shall be spread uniformly at the rate of 2 tons per acre. Mulch shall be spread by hand, blower-type mulch spreader or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of a steep slope and continued uniformly until the area is covered. The mulch shall not be bunched. All seeded areas shall be mulched on the same day as the seeding.

3.1 VEGETATION ESTABLISHMENT PERIOD

- A. Seeded and planted areas shall be watered at a minimum as follows:
 - 1. Water twice a day (to apply a minimum of 1/4 inch per watering event) for 7 days to promote seed germination, then
 - 2. Water once a day (to apply a minimum of 1/4 inch per watering event) for 7 days, then
 - 3. Water three times a week to apply a minimum of 1 inch per week for an additional 28 days.

4. Skip the next watering event if a rain event occurs that is greater than the amount to be applied during that water event.
- B. Areas compacted from equipment during watering events shall be repaired and soil density shall be reduced to approximate surrounding soil density.
- C. Control growth of weeds. Apply herbicides to turf grass seeded areas. Remedy damage resulting from improper use of herbicides. Manually or mechanically remove weeds from seeded areas or complete weed removal by other methods in these areas as approved by Owner.
- D. Control pests that may hinder vegetation establishment.
- E. Immediately reseed and water areas showing bare spots.
- F. Repair washouts or gullies.
- G. Vegetation Establishment Period execution shall continue until:
 1. Minimum watering events have been completed.
 2. Vegetative cover is established over 80 percent of seeded areas.
 3. Not more than 10 percent of areas with bare spots larger than 1 square foot.
 4. Less than 10 percent invasive species are present at areas vegetated by Contractor.
 5. Written approval by Owner.

END OF SECTION

SECTION 33 42 13

CULVERTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Corrugated Steel Pipe Culvert
 - 2. Concrete Box Culvert
 - 3. Bedding and Cover
 - 4. Fish Exclusion Animal Guard
 - 5. Animal Guard
 - 6. Anti-Seep Collar
 - 7. Cabled Pipe Anchor
 - 8. Cabled Log Anchor

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM A929/A929M - Standard Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 4. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
 - 5. ASTM C1433 – Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
 - 6. ASTM C1577 - Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers According to AASHTO LRFD
- B. ANSI Standard:
 - 1. MBG 531-09 - National Association of Architectural Metal Manufacturers (NAAMM) Metal Bar Grating Manual

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified.
- C. Pipe Product Data: Submit data on pipe, fittings and accessories.
- D. Culvert Product Data: Submit data on box culvert, fittings and accessories.
- E. Bedding Product Data and supplier information

- F. Fish Exclusion Animal Guard Shop Drawings, Product Data, and Installation Instructions
- G. Animal Guard Product Data and Installation Instructions
- H. Anti-seep collar Product Data and Installation Instructions
- I. Cabled Pipe Anchor Product Data and Installation Instructions
- J. Cabled Log Anchor Product Data and Installation Instructions

1.4 HANDLING AND STORAGE

- A. Culvert materials shall be delivered to the job site and handled by means that provide adequate support to the pipe and do not subject it to undue stresses or damage. When handling and placing culvert materials, care shall be taken to prevent impact blows, abrasion damage, and gouging or cutting (by metal edges and/or surface or rocks). The manufacturer's special handling requirements shall be strictly observed. Special care shall be taken to avoid impact when the pipe must be handled at a temperature of 40 degrees Fahrenheit or less.
- B. Culvert materials shall be stored on a relatively flat surface so that the barrels are evenly supported. Unless the culvert is specifically manufactured to withstand exposure to ultraviolet radiation, it shall be covered with an opaque material when stored outdoors for 15 days or longer.
- C. Equipment shall be delivered and stored according to the manufacturer's recommendations.

PART 2 PRODUCTS

2.1 CORRUGATED STEEL PIPE CULVERT

- A. Manufacturer:
 - 1. Contech Construction Products Inc., www.contech-cpi.com
 - 2. Pacific Corrugated Pipe
 - 3. Or equal
- B. Corrugated Steel Pipe: ASTM A929/A929M, galvanized:
 - 1. Shape: Circular with nominal diameter as shown on Drawings.
 - 2. Gage: 12 gage for 24 inch diameter, 10 gage for 36 inch diameter
- C. Accessories: Compatible with Corrugated Steel Pipe and water control structures as specified in Section 33 43 00 Water Control Structures.
 - 1. Water tight coupling band
 - a. Standard tank lug and ½ inch diameter rod
 - b. The same corrugation requirements and the same coating as the designated pipe

2.2 CONCRETE BOX CULVERT

- A. Manufacturer:
 - 1. Hancock Concrete Products Inc., www.hancockconcrete.com
 - 2. Or Engineer-approved equivalent.

B. General Requirements

1. Precast, reinforced Class I concrete box sections conforming the interior dimensions shown in the Drawings.
2. The box culvert shall be designed in accordance with Iowa DOT Box Culvert Standards for 0 ft overfill depth with HL-93 live load.
3. End sections shall be from the same supplier that supplies the box sections. The leading edges of the end sections shall be beveled or rounded.
4. The box culvert shall comply with current AASHTO LRFD Bridge Design Specifications.
5. Joints shall be tongue and groove type
6. Concrete Strength: 5,000 PSI

C. Accessories

1. Seal: 1" diameter rubber rope gasket
2. Ties: 1" diameter adjustable bars or 1" diameter U-ties
3. Joint wrap: Polyolefin Backed Exterior Joint Wrap, ConSeal CS-212 or Engineer approved equivalent.

2.3 BEDDING AND COVER

- A. Bedding: Granular Subbase, as specified in Section 31 23 23 Fill.
- B. Cover: Onsite material, as specified in Section 31 23 23 Fill.

2.4 FISH EXCLUSION ANIMAL GUARD

- A. Band-type, fastened to end of culvert at location shown on Drawings. Screen and all accessories shall be aluminum.
- B. The screen shall be constructed of round bars having a maximum clear space of 1.25" between adjacent bars.
- C. The round bars shall be reinforced with perpendicular 3/4" flat bars that are welded on both sides to prevent spreading or deformation of the round bars.
- D. A hinge located at the top of the screen shall allow the screen to swing open and allow passage of debris from upstream to downstream.
- E. The screen shall extend at least 1" beyond all edges of the pipe to prevent swinging backwards and open space that might allow fish passage.

2.5 ANIMAL GUARD

- A. Manufacturer:
 1. Agri-Drain Corporation, www.agridrain.com
 - a. Rat Guard, Mild Steel
 - b. Sized to match the pipe where installed
 2. or equal
- B. General Requirements
 1. Fastened to end of culvert at location shown on Drawings. Zinc dichromate plating or stainless steel on all materials and accessories.

2.6 ANTI-SEEP COLLAR

- A. Corrugated metal or flat steel diaphragm with pipe band designed to prevent migration of water parallel to and against the pipe. Two halves shall be marked to identify matching pairs.
- B. Pipe band shall be furnished with two rods and nuts and two standard tank lugs for securing the diaphragm to the pipe. The rods shall be ½” diameter.
- C. Diaphragms shall have the same coating as specified for the pipe on which it is installed. Bands shall be the same material as the pipe.
- D. Fabrication of diaphragm on helical pipe may require a filler strip to be used to ensure a water tight seal between the band and metal sheet.
- E. Two halves of diaphragm shall be overlapped and riveted, or welded along the entire seam on the upstream side and spot welded at a maximum spacing of 3 inches on the downstream side of the diaphragm.
- F. Riveted seams shall be caulked with an asphalt mastic material meeting the requirements of ASTM A 849 to provide a watertight seam. Apply a uniform beam of the compound to the inner lap surface before riveting so that when rivets are completed the water tight seal is complete.

2.7 CABLED PIPE ANCHOR

- A. Manufacturer:
 - 1. Platipus Anchors, Inc.
 - 2. Or equal
- B. Platipus 2-Ton Pipe Anchoring System
 - 1. Anchor: S06 Aluminum Alloy
 - 2. Lower Termination: Stainless Steel Soft Eye Loop including Copper Ferrule
 - 3. Wire Tendon: 6mm diameter Grade 316 Stainless Steel Wire Tendon, 0.5m (1.64') long
 - 4. Top Accessory: Stainless Steel Soft Eye Loop including Copper Ferrule
 - 5. Top Termination: Delta Link (D-ring)
 - 6. Webbing: 38mm (1.50") wide UV-Stabilized Nylon Webbing (length to match pipe diameter)
 - 7. Tensioner: 38mm (1.50") Ladder Buckle

2.8 CABLED LOG ANCHOR

- A. Manufacturer:
 - 1. Platipus Anchors, Inc.
 - 2. Or equal
- B. Platipus S6 Percussion Driven Earth Anchor System
 - 1. Anchor: S06 Aluminum Alloy
 - 2. Lower Termination: Stainless Steel Soft Eye Loop including Copper Ferrule
 - 3. Wire Tendon: 6mm diameter Grade 316 Stainless Steel Wire Tendon, 3.0m (9.8') long
 - 4. Top Accessory: None
 - 5. Top Termination: 6mm Stainless Steel Wedge Grip

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify site is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Maintain and protect above and below grade utilities indicated to remain.
- C. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.3 EXCAVATION AND BEDDING

- A. Excavate pipe trench to 6 inches below pipe invert, in accordance with Section 31 23 16 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 8 inches compacted depth, compact in accordance with Section 31 23 23.
- C. During installation, the culvert shall be firmly and uniformly bedded throughout its entire length, to the depth and in the manner as shown on the Drawings. Blocking or mounding beneath the pipe to bring the pipe to final grade is not permitted.
- D. The pipe shall be firmly and uniformly placed on compacted bedding or an onsite material bedding of ample bearing strength to support the pipe without noticeable settlement. The earth material on which the pipe is placed shall be of uniform density to prevent differential settlement.
- E. Bedding shall be compacted to a density not less than adjacent undisturbed onsite material. Onsite material used for compacted earth bedding shall be free of rocks or stones greater than 1 inch in diameter and earth clods greater than 2 inches in diameter. The pipe shall be loaded sufficiently during the compaction of bedding under the haunches and around the sides of the pipe to prevent displacement from its final approved placement.
- F. When sand, gravel, or crushed rock bedding is specified, the pipe shall be firmly and uniformly placed on the bedding material. Material for bedding shall not exceed 1 inch in diameter. Unless otherwise specified or shown on the Drawings, the bedding material shall be carefully placed and compacted to a depth equal to or greater than 0.5 of the diameter of the pipe above the bottom of the pipe. The pipe shall be loaded sufficiently during backfilling and compaction around the sides to prevent displacement of the pipe from its final approved placement.
- G. Maintain optimum moisture content of bedding material to attain required compaction density.

3.4 INSTALLATION

A. Pipe Culverts

1. Lay pipes to lines and grades indicated on Drawings.
2. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.
3. The pipe shall be installed so that there is no reversal of grade between joints unless otherwise shown on the drawings.
4. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
5. Just before placement, each pipe section shall be inspected to ensure that all foreign material is removed from inside the pipe. The pipe ends shall be free of foreign material when assembled.
6. Install cover at sides and over top of pipe. Install top cover to minimum compacted thickness of 12 inches in accordance with Section 31 23 23.
7. Maintain moisture content of bedding material to attain required compaction density in accordance with Section 31 23 23.
8. Pipe bands shall be centered on the pipe joint and aligned for complete and tight nesting of corrugations between coupling band and each pipe section. Rods and lugs on coupling bands shall be installed with 2 on each pipe. The nuts on the rods shall be tightened without over stress and shall be retightened at least twice after initial installation, at intervals approximately ½ hour. The final tension on the rods shall be determined by the Engineer. Backfilling around the pipe, except at coupling bands, may proceed during the intervals required for tightening bands.
9. ¼ inch of asphalt or tar based mastic, (ASTM A849, trowel grade) shall be applied to the pipe under the coupling band with a minimum width of 7 inches centered on the pipe joint. The mastic coated areas shall be kept free of all dirt, gravel, and other foreign material until bands are in place and tightened. When air temperature is 50 degrees Fahrenheit, or lower, heat will be applied to soften, but not burn or melt, the mastic.

B. Box Culverts

1. Lay concrete box sections to lines and elevations indicated on Drawings
2. Place rope gasket on bottom and at least 2' up each side of the joints between box sections. Use gasket on all joints between barrel sections and end sections. Install according to culvert manufacturer's recommendations.
3. Install box culvert sections from downstream to upstream. Lift box culvert sections into place. Do not drop or drag over prepared bedding except during final installation.
4. During connection of culvert sections, a small trench shall be made along the joint to collect bedding material that would otherwise be pulled into the joint, as shown in the Drawings.
5. After box sections are connected, the inside joint shall be filled with non-shrink grout. The grout shall be flush with the culvert floor/wall.
6. Fill lifting holes with concrete plug after the box sections are in place.
7. The interior of the finished culverts shall produce a continuous line sections with a smooth interior, virtually free of irregularities within acceptable tolerances.
8. Wrap exterior of joints in polyolefin backed exterior joint wrap.
9. Fasten culvert sections together using ties, in accordance with manufacturer's recommendations. Use two ties on each side where barrel sections connect to end sections.

C. Fish Exclusion Animal Guard

1. Excavate around the end of the pipe to allow band to pass around the pipe.
2. Tighten band to prevent slippage and test to ensure free swinging operation.
3. Backfill and blend fill into existing grade and flowline.

D. Animal Guard

1. According to manufacturer's installation instructions.

E. Anti-Seep Collar

1. Remove excess bituminous coating from corrugations where diaphragm sheets will joining and where bands and pipe will join.
2. The bands of the diaphragm shall be coated with ¼" of asphalt mastic material meeting the requirements of ASTM A849. After application of the asphalt mastic material, prevent dirt or foreign material from depositing on the coating until the bands are in place and tightened. When the ambient air temperature is 50°F or colder, heat shall be applied to soften, but not burn or melt, the asphalt mastic material.
3. A neoprene gasket may be used in lieu of asphalt mastic material. The gasket shall be 3/8" thick with a minimum width of 7" centered on the diaphragm location and fastened at ends to form a full circle and water tight seal.
4. The diaphragm sections will be centered on the diaphragm location and the corrugations aligned for complete and tight nesting of corrugation. The nuts on the rods will be tightened without overstress and will be retightened at least twice after initial installation at intervals of approximately 30 minutes. Backfilling around the pipe, except at diaphragm bands, may proceed during the interval required for tightening the bands.

F. Cabled Pipe Anchor

1. Feed the webbing through the delta link and drive an anchor on one side of the pipe to a minimum anchor depth of 3.0' using the manufacturer's recommended installation tools. Remove drive rod by hand after anchor depth is reached.
2. Run the webbing over the pipe and feed it through the delta link on the other anchor and repeat step 1. The webbing shall be at least 2.5' from the end of the pipe.
3. Load lock anchors into full working position using the manufacturer's installation tools.
4. Proof test installed anchors using suitable lifting equipment and a load measurement device to ensure the holding capacity of the specified anchors is met.
5. Feed the webbing through the ladder buckle and pull slack tight and use manufacturer's recommended tensioning tools to tighten the webbing.
6. Trim excess webbing and materials after final acceptance by the Engineer.

G. Cabled Log Anchor

1. Drive anchors perpendicular to the finished grade and the log that is being anchored.
2. Use at least two anchors for each tree protection installation. Space the anchors evenly.
3. Drill through the center of the log to enable the tendon to be fed through the log.
4. Load lock anchors into full working position using the manufacturer's installation tools.
5. Fasten the cables to the anchor plate and tighten.
6. The anchor plate shall cover the entire hole and sit flush with the surface that is being anchored.

3.5 BACKFILL

- A. Initial backfill: Unless otherwise specified, initial backfill to 6 inches above the top of the conduit is required. Initial backfill material shall consist of soil material that is free of rocks, stones, or hard clods more than 1 inch in diameter. Coarse backfill material shall be the specified sand, gravel, or crushed rock.

- B. Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6 inches above the top of the pipe.
- C. The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The haunching backfill material shall be placed in layers that have a maximum thickness of 6 inches and compacted in accordance with Section 31 23 23. During compaction operations, care shall be taken to ensure that the tamping or vibratory equipment does not come in contact with the pipe and the pipe is not deformed or displaced.
- D. Final backfill: Final backfill shall consist of placing the remaining material required to complete the backfill from the top of the initial backfill to the ground surface, including mounding at the top of the trench. Final backfill material within 2 feet of the top of the pipe shall be free of debris or rocks larger than 3 inches nominal diameter. Coarse backfill material shall be the specified sand, gravel, or crushed rock. Final backfill shall be placed in approximately uniform, compacted layers and in accordance with Section 31 23 23.
- E. Vehicles or construction equipment shall not be allowed to cross the pipe until a minimum of 2 feet of earth cover and required density has been obtained.

3.6 ERECTION TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Lay pipe to alignment and slope gradients noted on Drawings; with maximum variation from indicated slope of 1/8 inch in 10 feet.
- C. Maximum Variation From Intended Elevation of Culvert Invert: 1/2 inch.
- D. Maximum Offset of Pipe From Indicated Alignment: 5 feet.
- E. Maximum Variation in Profile of Structure From Intended Position: 1 percent.

3.7 FIELD QUALITY CONTROL

- A. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017000 - Execution Requirements: Protecting installed construction.
- B. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 43 00

WATER CONTROL STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water Level Control Structure

1.2 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Water Level Control Structure: Submit shop drawings and data on the design of the water control structure including size, weight, material, and stop log seal details. Information regarding the manufacturer shall also be provided. Submit data not less than five (5) days prior to the scheduled start of fabrication
- C. Manufacturer's Installation Instructions: Submit procedures required to install products specified.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Ship all manufactured materials with suitable packaging to protect products from damage. After delivery, protect from damage with proper storage.

PART 2 PRODUCTS

2.1 WATER LEVEL CONTROL STRUCTURE

- A. Manufacturer:
 - 1. Contech Engineered Solutions, www.conteches.com
 - 2. or equal
- B. Water Level Control Structure
 - 1. Inlet Pipe
 - a. Size: 36"
 - b. Material: Corrugated Metal Pipe (CMP), zinc coated, 16 gage, 2-2/3" x 1/2" corrugation
 - 2. Riser
 - a. Size: 60"
 - b. Material: CMP, zinc coated, 16 gage, 3" x 1" annular corrugation
 - c. Height: 7.5'
 - 3. Cover
 - a. Medium duty, hinged, lockable
 - b. Galvanized Expanded Metal Mesh, 1" maximum spacing
 - 4. Pipe tee stubs to allow coupling band fasteners to attach to inlet and outlet pipes

5. Stop Log Channel
 - a. 3.5" wide x 2.5" deep steel channel
 - b. 3/16" minimum steel thickness
 - c. Fully welded and sealed against CMP riser to prevent leakage around stop logs
 6. Outlet Pipe
 - a. Size: 36"
 - b. Material: Corrugated Metal Pipe (CMP), zinc coated, 16 gage, 2-2/3" x 1/2" corrugation
- C. Stop Logs
1. Material: Douglas Fir
 2. Length: Field fit inside riser structure
 3. Width: 4" nominal
 4. Height: 4" nominal
 5. Total Height: 2.8'
 6. Quantity: 10 per structure (20 total)
- D. Concrete Base
1. 12" thick, square base, 4000 psi concrete.
 2. Embed reinforcing bars in concrete, spaced 3" from the bottom of the Concrete Base. Rebar shall be No. 4 and spaced 12" O.C. each way. Insulate the rebar from the riser pipe.
 3. Embed bottom of riser and stop log channels in concrete base to the dimensions shown in the Drawings.
 4. Base shall extend 12" horizontally beyond the riser on all sides

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify site is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Maintain and protect above and below grade utilities indicated to remain.

3.3 INSTALLATION

- A. Water Level Control Structure
 1. Install at location indicated on Drawings.
 2. Thoroughly clean and remove all shipping materials prior to setting.
 3. Install Water Level Control Structure according to Manufacturer's recommendations.
 4. The Contractor shall coordinate with the Water Level Control Structure manufacturer to ensure that proper dimensioning is obtained. The Contractor shall be responsible for all final measurements necessary to ensure proper fit.

5. Water Level Control Structure must be installed such that stop logs may be easily installed and removed by one operator.
6. Testing
 - a. All stop logs shall be put in place and tested for leakage prior to acceptance of the work. Leakage shall not exceed the manufacturer's guaranteed level. If the testing procedure indicates that leakage rates are in excess of allowable standards, the Contractor shall take all necessary steps to correct the situation and reduce leakage to acceptable levels.
 - b. Test and verify functioning of stop log lifting device.

3.4 FIELD QUALITY CONTROL

- A. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION