REQUEST FOR BIDS

Upper Iowa River Flood Reduction Project

UI-BID-008

Winneshiek County, IA

Due:

2:00 PM

August 26, 2021

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UI-BID-008

WINNESHIEK COUNTY, IOWA

PUBLIC NOTICE: ADVERTISEMENT FOR BIDS
Winneshiek County, Iowa

The County of Winneshiek is seeking bids for the following project:

Construction of flood reduction projects in the Upper Iowa River Watershed, UI-BID-008

Project Location:
This project consists of 2 flood reduction structures within the Upper Iowa River Watershed in Winneshiek County.

Project Information:
The project involves the construction of 2 flood reduction structures.

Plans and Specifications Will be Available August 12 at 2:00 PM at/from the Offices of:
Winneshiek Soil and Water Conservation District
2296 Oil Well Rd
Decorah, IA, 52101

Electronic copies of the bid packet are available at Isqft.com and at upperiowariver.org

Questions regarding the bid packet can be sent to Paul Berland at pberland@northeastiowarcd.org or by phone at 563-864-7112.

Pre-Bid Meeting:
A Pre-Bid Meeting will be held August 18 @ 10:00 AM at the Winneshiek Soil and Water Conservation District Office, 2296 Oil Well Road, Decorah , IA 52101. Engineer will be in attendance and site visits will occur dependent upon weather conditions.

Time and Place for Filing Sealed Proposals:
Sealed bids will be received from qualified contractors at the Northeast Iowa RC&D office, 101 E. Greene St., PO Box 916 Postville, IA 52162 until **August 26, 2021 at 2:00 PM.**

Time and Place Sealed Proposals Will be Opened and Considered:
Bids will be opened and tabulated at Northeast Iowa RC&D office at 2:00 PM on August 26, 2021 for consideration by the Winneshiek County Board of Supervisors at its meeting on August 30, 2021.

Section 3 Requirements
A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

<u>Section 3 Businesses are encouraged to respond to this proposal.</u> A Section 3 business is a business that is:

51% owned by Section 3 residents*

Whose permanent, full-time staff is comprised of at least 30% Section 3 residents*

Has committed 25% of the dollar amount of its subcontracts to Section 3 businesses

*A Section 3 resident is defined as a public housing resident or someone with a household income that is less than 80% of the area median income.
Businesses that believe they meet the Section 3 criteria are encouraged to register as a Section 3 Business through HUD's website:
https://portalapps.hud.gov/Sec3BusReg/BRegistry/RegisterBusiness

BID INSTRUCTIONS & AWARD PROCEDURE

Please complete all documents properly. Failure to complete and sign all documents with respect to the requirements listed below may cause your bid not to be read.

BID BOND

i. The bid security in the amount of five percent (5%) of the total bid price shall be in the form of a cashier's check, a certified check, or a bank money order drawn on a FDIC insured bank in Iowa or drawn on a FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the County of Winneshiek, hereinafter called the "Jurisdiction".

ii. The bid bond must be submitted using the Bid Bond Form. All signatures on the bid bond must be original signatures in ink; facsimile (fax) of any signature on the bid bond is not acceptable.

PROPOSAL SUBMISSION

i. The proposal shall be submitted in a sealed envelope properly identified as the Proposal with the project title and the name and address of the bidder. Proposals shall be delivered to Northeast Iowa RC&D, 101 E. Greene Street, P.O. Box 916, Postville, IA 52162 at or before 2:00 P.M., local time on August 26, 2021. It is the sole responsibility of the bidder to see that its proposal is delivered prior to the time for opening bids, along with the appropriate bid security sealed in the separate envelope identified as Bid Security or Bid Bond. Proposals received after the bid receipt deadline will be returned to the bidder unopened and will not be considered.

ii. The following documents shall be completed, signed and returned in the Proposal envelope. The bid cannot be read if these documents are omitted from the Proposal envelope.

   a. **UI-BID-008 BID FORM:** Signatures must be in original ink

   b. **UI-BID-008 BID SCHEDULE (consisting of 3 pages):** the Bidder must provide the Unit Price, the Amount, the Division Subtotals and the Grand Total Bid. In case of discrepancy, the Unit Price governs. The quantities shown on the Proposal are approximate only, but are considered sufficiently adequate for the purpose of comparing bids. The Jurisdiction shall only use the Grand Total Bid for comparison of the bids.

   c. **Intent to Comply with Section 3 Requirements**

SPECIAL NOTE ON BID INSTRUCTIONS

i. The bidder should be sure to read and understand all required federal provisions, wage rate determinations, bonding requirements, contract requirements, labor standards and bid packet materials prior to submitting a bid.

ii. The project consists of two (2) separate flood control structures at 2 locations. Bids should reflect the total cost to construct both of the structures. The Jurisdiction will enter into one (1) contract for the construction of all structures and will not sub-divide the projects and offer multiple contracts. The contractor awarded the contract may elect to hire sub-contractors, but will do so at their own desire and will be required to fulfill requirements and provisions related to sub-contracting.

AWARD PROCEDURE

i. The Jurisdiction reserves the right to reject any bids, and to accept in whole or in part the bid which in the judgment of the bid evaluators is the lowest, most responsive and responsible bid. The Jurisdiction, reserves the right to reject any and all bids, to waive technicalities or irregularities and to enter into such contract as it shall deem to be in the best interests of the County.

UI-BID-008 BID FORM

Submitting Firm: _____

Address: _____

City: _____ State: _____ Zip: _____

Authorized Representative (print):_____

Authorized Representative Signature:_____

Date: _____ Email:_____

Phone: _____

Our/My bid, as shown in the Grand Bid Total from the Bid Schedule submitted is

$ _____.

The correct summation of actual bid tabulation figures will supersede any amounts shown on this page.

CERTIFICATIONS: By signing this form, the bidder certifies that they have read and understand all bid packet items related to this solicitation, including, but not limited to, contract language, bonding requirements, federal provisions, wage rate determination, labor standards, reporting and records maintenance and construction specifications.

FIRM PRICING. Offered prices shall remain firm for a minimum of 30 days after the due date of this solicitation unless indicated otherwise. Accepted prices shall remain firm for the duration of the contract.

ADDENDA (It is the Bidder's responsibility to check for issuance of any addenda). The authorized representative herby acknowledges receipt of the following addenda:

Addenda Number _____ Date _____ Addenda Number _____ Date _____

Addenda Number _____ Date _____ Addenda Number _____ Date _____

UI-BID-008 BID SCHEDULE

UPPER IOWA RIVER WATERSHED

SITE:UI-018-Lyons-Ferring
IOWA

BID SCHEDULE

ITEM NO.	WORK OR MATERIAL	SPEC. NO.	QTY	UNIT	UNIT PRICE	AMOUNT
1	SITE CLEARING, PREPARATION, & WASTE DISPOSAL	1	1	LS	$ _____	$ _____
2	EROSION CONTROL, RECP 12' WIDTH	5	1,231	SY	$ _____	$ _____
3	STRUCTURE SEEDING - HYDRO-SEEDING	6	1.2	AC	$ _____	$ _____
4	PASTURE SEEDING	6	2.3	AC	$ _____	$ _____
5	MOBILIZATION & DEMOBILIZATION	8	1	LS	$ _____	$ _____
6	TRAFFIC CONTROL	8	1	LS	$ _____	$ _____
7	EXCAVATION, CORE TRENCH EXCAVATION	21	640	CY	$ _____	$ _____
8	EARTHFILL, EMBANKMENT AND CORE TRENCH FILL (ONSITE MATERIAL)	23	12,030	CY	$ _____	$ _____
9	EARTHFILL, EMBANKMENT FILL (IMPORT)	24	764	CY	$ _____	$ _____
10	SUBGRADE PREPARATION	23	1,906	SY	$ _____	$ _____
11	TOPSOIL, STRIP, SALVAGE, AND RESPREAD	26	2,907	CY	$ _____	$ _____
12	CMP, 24"	51	24	LF	$ _____	$ _____
13	CMP, 42"	51	123	LF	$ _____	$ _____
14	48" CMP RISER WITH TRASH RACK	51	1	LS	$ _____	$ _____
15	RIP RAP, CLASS 'E' WITH GEOTEXTILE FABRIC	61&95	131	TON	$ _____	$ _____
16	GRANULAR SURFACING	61&95	672	TON	$ _____	$ _____
17	FENCING, 5-STRANDS OF BARBED WIRE	92	1,035	LF	$ _____	$ _____

TOTAL BID-UI-018-Lyons-Ferring …..... $ _____

UPPER IOWA RIVER WATERSHED

SITE:UI-051-Timp
IOWA

BID SCHEDULE

ITEM NO.	WORK OR MATERIAL	SPEC. NO.	QTY	UNIT	UNIT PRICE	AMOUNT
1	EROSION BLANKET	5	210	SY	$ _____	$ _____
2	EXCAVATION (P) (CORE TRENCH CUT)	21	860	CY	$ _____	$ _____
3	EARTHFILL (P) Embankment & Core Trench Fill	23	5,360	CY	$ _____	$ _____
4	TOPSOILING (P) (Strip, Salvage, Respread)	26	1,870	CY	$ _____	$ _____
5	RISER STRUCTURE	51	1	LS	$ _____	$ _____
6	8" CORRUGATED METAL PIPE	51	20	LF	$ _____	$ _____
7	24" CORRUGATED METAL PIPE	51	102	LF	$ _____	$ _____
8	24" CMP APRON	51	1	EA	$ _____	$ _____
9	FILTER DIAPHRAGM	51	1	LS	$ _____	$ _____
10	ROCK RIPRAP - CLASS C	61	180	TON	$ _____	$ _____
11	ROCK RIPRAP - CLASS E	61	45	TON	$ _____	$ _____
12	BUFFER SEEDING	6	2.5	AC	$ _____	$ _____
13	STRUCTURE & CHANNEL SEEDING	6	1.0	AC	$ _____	$ _____
14	MOBILIZATION	8	1	LS	$ _____	$ _____
15	SITE PREPARATION	1	1	LS	$ _____	$ _____

TOTAL BID-UI-051-Timp ..... $ _____

UI-BID-008 BID SCHEDULE

UPPER IOWA RIVER WATERSHED

SUMMATION OF BIDS :

TOTAL BID, UI-018-LYONS-FERRING..... $ _____

TOTAL BID, UI-051-TIMP ..... $ _____

SUMMATION OF BIDS

UI-BID-008 GRAND TOTAL BID ….. $ _____

Firm: _____

Signature: _____

BID BOND

KNOW ALL BY THESE PRESENTS:
That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto Winneshiek County, Iowa, as Obligee, (hereinafter referred to as "the Jurisdiction"), in the penal sum of five percent (5%) of the total bid price $_____, lawful money of the United States, for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

WHEREAS, the Principal is submitting a sealed proposal to the Jurisdiction for the purpose of entering into a contract for the following project;

Upper Iowa River Flood Reduction Project: UI-BID-008

NOW, THEREFORE, if said proposal by the Principal be accepted, and the Principal shall enter into a contract with Jurisdiction in accordance with the terms of such proposal, including the provision of insurance and of a bond as may be specified in the contract documents, with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void; otherwise, the Principal shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____day of _____, 2021.

SURETY:	PRINCIPAL:
_____	_____
Surety Company	Bidder
By_____	By_____
Authorized Surety Representative	Signature
_____	_____
Name (Print/Type)	Name (Print/Type)
_____	_____
Address, City, State, Zip	Address, City, State, Zip

INTENT TO COMPLY WITH SECTION 3 REQUIREMENTS

(To be provided with procurement documents and returned with all submitted bids)

Section 3 of the Housing and Urban Development Act of 1968 [12 U.S.C. 1701u and 24 CFR Part 135] is HUD's legislative directive for providing preference to low-income residents of the local community (regardless of race or gender), and the businesses that substantially employ these persons, for new employment, training and contracting opportunities resulting from HUD-funded projects. The regulations seek to ensure that low- and very low- income persons, and the businesses that employ these individuals, are notified about the expenditure of HUD funds in their community and encouraged to seek opportunities, if created.

A Section 3 resident is defined as a public housing resident or someone with a household income that is less than 80% of the area median income.

A Section 3 business is defined as a business that is:

51% owned by Section 3 residents

Whose permanent, full-time staff is comprised of at least 30% Section 3 residents**

Has committed 25% of the dollar amount of its subcontracts to Section 3 businesses

Note: If your business meets the definition of a Section 3 business, you may register as a Section 3 Business through HUD's website here:
https://portalapps.hud.gov/Sec3BusReg/BRegistry/RegisterBusiness

Businesses who self-certify that they meet one of the regulatory definitions of a Section 3 business will be included in a searchable online database. The database can be used by agencies that receive HUD funds, developers, contractors, and others to facilitate the award of covered construction and non-construction contracts to Section 3 businesses.

Please complete the following:

1. If awarded a contract for this CDBG funded project, do you anticipate hiring new employees to complete the project? (Hiring would be specific to this project)

   ☐ Yes ☐ No If yes, please estimate the number of employees to be hired:_____

2. Is your business a Section 3 Business? ☐ Yes ☐ No

3. Is the bidder willing to consider hiring Section 3 residents for future employment opportunities that are a direct result of this CDBG funded project?

   ☐ Yes ☐ No

4. Is the bidder willing to consider subcontracting with Section 3 Businesses for this project?

   ☐ Yes ☐ No

I understand that this contracting opportunity is subject to HUD Section 3 requirements (24 CFR Part 135). I have read and understand the Section 3 requirements as generally described above and presented in the Section 3 contract language included in the procurement documents for this project. If awarded a contract, the business commits to following Section 3 requirements, as they apply to this project. If awarded a contract for this project, the business agrees to provide reports to (insert City/County) on Section 3 efforts and accomplishments.

Name of Contractor/Subcontractor	Address
Print Name	Title
Signature	Date

"General Decision Number: IA20210028 01/01/2021

Superseded General Decision Number: IA20200028

State: Iowa

Construction Types: Heavy and Highway

Counties: Adair, Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clarke, Clay, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Delaware, Des Moines, Dickinson, Dubuque, Emmet, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Howard, Humboldt, Ida, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Kossuth, Lee, Linn, Louisa, Lucas, Lyon, Madison, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Monroe, Montgomery, Muscatine, O'Brien, Osceola, Page, Palo Alto, Plymouth, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Sac, Shelby, Sioux, Story, Tama, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne, Webster, Winnebago, Winneshiek, Woodbury, Worth and Wright Counties in Iowa.

EXCLUDES SCOTT COUNTY

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021

SUIA2020-001 10/18/2017

	Rates	Fringes
Carpenter & Piledrivermen		

ZONE 1	$ 28.52	14.08
ZONE 2	$ 26.73	14.08
ZONE 3	$ 26.73	14.08
ZONE 4	$ 26.25	11.50
ZONE 5**	$ 25.15	9.90
CONCRETE FINISHER		
ZONE 1	$ 28.10	7.40
ZONE 2	$ 28.10	7.40
ZONE 3	$ 28.10	7.40
ZONE 4	$ 25.45	6.40
ZONE 5	$ 24.40	6.40
ELECTRICIAN (STREET AND HIGHWAY LIGHTING AND TRAFFIC SIGNALS)		
ZONE 1, 2, AND 3	$ 25.05	6.80
ZONE 4	$ 23.75	6.80
ZONE 5	$ 21.60	6.80
IRONWORKER (SETTING OF STRUCTURAL STEEL)		
ZONE 1	$ 31.50	10.90
ZONE 2	$ 29.41	10.90
ZONE 3	$ 29.41	11.20
ZONE 4	$ 27.35	9.90
ZONE 5**	$ 25.50	9.45
LABORER		
ZONE 1, 2 AND 3		
GROUP A	$ 23.75	9.68
GROUP AA	$ 26.13	9.68
GROUP B	$ 21.90	9.68
GROUP C	$ 18.82	9.68
ZONE 4		
GROUP A	$ 21.27	9.08
GROUP B	$ 19.95	9.08
GROUP C	$ 17.07	9.08
ZONE 5		
GROUP A	$ 21.77	7.63
GROUP B	$ 19.27	7.63
GROUP C	$ 18.42	7.63
POWER EQUIPMENT OPERATOR		
ZONE 1		
GROUP A	$ 32.55	14.90
GROUP B	$ 31.00	14.90
GROUP C	$ 28.50	14.90
GROUP D	$ 28.50	14.90
ZONE 2		
GROUP A	$ 31.85	14.90
GROUP B	$ 30.25	14.90
GROUP C	$ 27.70	14.90
GROUP D	$ 27.70	14.90
ZONE 3		
GROUP A	$ 29.70	24.65
GROUP B	$ 27.90	24.65
GROUP C	$ 26.90	24.65
GROUP D	$ 26.90	24.65
ZONE 4		
GROUP A	$ 31.05	12.50
GROUP B	$ 29.91	12.50
GROUP C	$ 27.83	12.50
GROUP D	$ 27.83	12.50
ZONE 5		

GROUP A.....$ 28.02 10.70
GROUP B.....$ 26.98 10.70
GROUP C.....$ 25.25 10.70
GROUP D.....$ 24.25 10.70

TRUCK DRIVER (AND PAVEMENT MARKING DRIVER/SWITCHPERSON)
ZONE 1.....$ 24.45 11.15
ZONE 2
.....$ 24.45 11.15
ZONE 3.....$ 24.45 11.15
ZONE 4.....$ 24.45 6.95
ZONE 5
.....$ 22.50 6.95

ZONE DEFINITIONS
ZONE 1 The Counties of Polk, Warren, and Dallas for all Crafts, and Linn County Carpenters only.
ZONE 2 The Counties of Dubuque for all Crafts and Linn County for all Crafts except Carpenters.
ZONE 3 The Cities of Burlington, Clinton, Fort Madison, Keokuk, and Muscatine (and abutting municipalities of any such cities).
ZONE 4 Story, Black Hawk, Cedar, Jasper, Jones, Jackson, Louisa, Madison, and Marion Counties; Clinton County (except the City of Clinton), Johnson County, Muscatine County (except the City of Muscatine), the City of Council Bluffs, Lee County and Des Moines County.
ZONE 5 All areas of the state not listed above.

LABORER CLASSIFICATIONS - ALL ZONES
GROUP AA - {Skilled pipelayer (sewer, water and conduits) and tunnel laborers; asbestos abatement worker} (Zones 1, 2 and 3).

GROUP A - Carpenter tender on bridges and box culverts; curb machine (without a seat); deck hand; diamond & core drills; drill operator on air tracs, wagon drills and similar drills; form setter/stringman on paving work; gunnite nozzleman; joint sealer kettleman; laser operator; powderman tender; powderman/blaster; saw operator; {pipelayer (sewer, water, and conduits); sign erector*; tunnel laborer; asbestos abatement worker (Zones 4 and 5)}, sign erector.

GROUP B - Air, gas, electric tool operator; barco hammer; carpenter tender; caulker; chain sawman; compressor (under 400 cfm); concrete finisher tender; concrete processing materials and monitors; cutting torch on demolition; drill tender; dumpmen; electric drills; fence erectors; form line expansion joint assembler; form tamper; general laborer; grade checker; handling and placing metal mesh, dowel bars, reinforcing bars and chairs; hot asphalt laborer; installing temporary traffic control devices; jackhammerman; mechanical grouter; painter (all except stripers); paving breaker; planting trees, shrubs and flowers; power broom (not self-propelled); power buggyman; rakers; rodman (tying reinforcing steel); sandblaster; seeding and mulching; sewer utility topman/bottom man; spaders; stressor or stretcherman on pre or post tensioned concrete; stringman on re/surfacing/no grade control; swinging stage, tagline, or block and tackle; tampers; timberman; tool room men and checkers; tree climber; tree groundman; underpinning and shoring caissons over twelve feet deep; vibrators; walk behind trencher; walk behind

paint stripers; walk behind vibrating compactor; water pumps (under three inch); work from bosun chair.

GROUP C - Scale weigh person; traffic control/flagger, surveillance or monitor; water carrier.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS - ALL ZONES

GROUP A - All terrain (off road) forklift; asphalt breakdown roller (vibratory); asphalt laydown machine; asphalt plant; asphalt screed; bulldozer (finish); central mix plant; concrete pump; crane; crawler tractor pulling scraper; directional drill (60,000 (lbs) pullback and above); dragline and power shovel; dredge engineer; excavator (over cu. yd.); front end loader (4 cy and over); horizontal boring machine; master mechanic; milling machine (over 350 hp); motor grader (finish); push cat; rubber tired backhoe (over cu. yd.); scraper (12 cu. yd. and over or finish); Self-propelled rotary mixer/road reclaimer; sidebroom tractor; slipform portland concrete paver; tow or push boat; trenching machine (Cleveland 80 or similar)

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GROUP B - Articulated off road hauler, asphalt heater/planer; asphalt material transfer vehicle; asphalt roller; belt loader or similar loader; bulldozer (rough); churn or rotary drill; concrete curb machine; crawler tractor pulling ripper, disk or roller; deck hand/oiler; directional drill (less than 60,000 (lbs) pullback); distributor; excavator (1/2 cu. yd. and under); form riding concrete paver; front end loader (2 to less than 4 cu. yd.); group equipment greaser; mechanic; milling machine (350 hp. and less); paving breaker; portland concrete dry batch plant; rubber tired backhoe (1/2 cu. yd. and under); scraper (under 12 cu. yd.); screening, washing and crushing plant (mobile, portable or stationary); shoulder machine; skid loader (l cu. yd. and over); subgrader or trimmer; trenching machine; water wagon on compaction.

GROUP C - Boom & winch truck; concrete spreader/belt placer; deep wells for dewatering; farm type tractor (over 75 hp.) pulling disc or roller; forklift; front end loader (under 2 cu. yd.); motor grader (rough); pile hammer power unit; pump (greater than three inch diameter); pumps on well points; safety boat; self-propelled roller (other than asphalt); self-propelled sand blaster or shot blaster, water blaster or striping grinder/remover; skid loader (under 1 cu. yd.); truck mounted post driver.

GROUP D - Boiler; compressor; cure and texture machine; dow box; farm type or utility tractor (under 75 hp.) pulling disk, roller or other attachments; group greaser tender; light plants; mechanic tender; mechanical broom; mechanical heaters; oiler; pumps (under three inch diameter); tree chipping machine; truck crane driver/oiler.

** CARPENTERS AND PILEDRIVERMEN, or IRONWORKERS (ZONE 5)

Setting of structural steel; any welding incidental to bridge or culvert construction; setting concrete beams.

* ADDED CRAFT - SIGN ERECTOR

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all

rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request

review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION
"

PERFORMANCE AND PAYMENT BOND

KNOW ALL BY THESE PRESENTS:

That we,_____ as Principal (hereinafter the “Contractor” or “Principal” and _____, as Surety are held and firmly bound unto the County of Winneshiek, Iowa (hereinafter referred to as “the Jurisdiction”) and to all persons who may be injured by any breach of any of the conditions of this Bond in the penal sum of_____Dollars($_____) lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly or severally, firmly by these presents.

The conditions of the above obligations are such that whereas said Contractor entered into a contract with the Jurisdiction, bearing date the day of __, 202_, (hereinafter the “Contract”) wherein said Contractor undertakes and agrees to construct the following described improvements: Upper Iowa River Flood Reduction Project – Bid Packet 008, UI-BID-008 unless modified herein, and to faithfully perform all the terms and requirements of said Contract within the time therein specified, in a good and workmanlike manner, and in accordance with the Contract Documents.

It is expressly understood and agreed by the Contractor and Surety in this bond that the following provisions are a part of this Bond and are binding upon said Contractor and Surety, to-wit:

1. PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill and abide by each and every covenant, condition and part of said Contract and Contract Documents, by reference made a part hereof, for the above referenced improvements, and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor’s default of failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.

2. PAYMENT: The Contractor and the Surety on this Bond are hereby agreed to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract on account of which this Bond is given, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price which the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portion of the contract price shall have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Chapter 573, Code of Iowa, which by this reference is made a part hereof as though fully set out herein.

3. GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

A. To consent without notice to any extension of time to the Contractor in which to perform the Contract;

B. To consent without notice to any change in the Contract or Contract Documents, which thereby increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than twenty percent of the total contract price, and that this bond shall then be released as to such excess increase; and

C. To consent without notice that this Bond shall remain in full force and effect until the Contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and the liquidated damage penalty is being charged against the Contractor.

The Contractor and every Surety on the bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:

D. That no provision of this Bond or of any other contract shall be valid which limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.

E. That as used herein, the phrase “all outlay and expense” is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead where applicable. Accordingly, “all outlay and expense” would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorney’s fees (including overhead expenses of the Jurisdiction’s staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor’s failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required. In the event the Jurisdiction incurs any “outlay and expense” in defending itself with respect to any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety’s obligation under this bond shall not exceed 125% of the penal sum of this bond.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Howard County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation incurring to the benefit of the Jurisdiction, the Contractor and the Surety agree, jointly and

severally, to pay the Jurisdiction all outlay and expense incurred therefore by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to Surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether Contractor is joined in any such action or actions or not.

NOW THEREFORE, the condition of this obligation is such that if said Principal shall faithfully perform all the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a word, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.

Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Witness our hands this day of _____, 2021.

SURETY:	PRINCIPAL:
_____	_____
Surety Company	Bidder
By_____	By_____
Authorized Surety Attorney in Fact Officer	Signature
_____	_____
Name (Print/Type)	Name (Print/Type)
_____	_____
Address, City, State, Zip	Address, City, State, Zip

NOTE: All signatures on this performance and payment bond must be original signatures in ink; copies or facsimile of any signature will not be accepted. This bond must be sealed with the Surety's raised, embossing seal. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into this ____ day of _____, 2021, by and between the County of Winneshiek, Iowa (hereinafter referred to as the **COUNTY**) and _____. (hereinafter referred to as the **CONTRACTOR**) WITNESSES THAT:

WHEREAS, the COUNTY and the CONTRACTOR are desirous of entering into a contract to formalize their relationship, and

WHEREAS, pursuant to Title I of the Housing and Community Development Act of 1974, as amended, the Iowa Economic Development Authority (IEDA) is authorized by the federal Department of Housing and Urban Development (HUD) to provide State Community Development Block Grant Program funds (hereinafter referred to as CDBG funds) to units of local government selected to undertake and carry out certain programs and projects in compliance with all applicable local, state, and federal laws, regulations and policies, and

WHEREAS, IEDA submitted an application for funds from HUD under the Disaster Relief Appropriations Act, 2013, Public Law 113-2, for the Community Development Block Grant National Disaster Resilience (CDBG-NDR) competition on behalf of the Recipient and the Recipient
agreed to abide by the application terms and conditions; and

WHEREAS, IEDA received funds under the Disaster Relief Appropriations Act, 2013. (Public Law 113-2) under the CDBG-NDR program; and

WHEREAS, Winneshiek County has been awarded a contract (13-NDRI-009) through IEDA for a grant of federal funds from HUD under the Disaster Relief Appropriations Act, 2013, Public Law 113-2; and

WHEREAS, CONTRACTOR submitted a bid for construction and has been selected to provide construction services for the project(s) identified in the bid packet,

WHEREAS, the Scope of Work included in this contract is authorized as part of the COUNTY's approved CDBG project, and

WHEREAS, it would be beneficial to the COUNTY to utilize the CONTRACTOR as an independent entity to accomplish the Scope of Work as set forth herein and such endeavor would tend to best accomplish the objectives of the local CDBG project;

WITNESSETH: That for and in consideration of the mutual covenants herein contained, the parties hereto agree with each other as follows:

CONTRACT AMOUNT: As outlined in the CONTRACTOR'S bid submitted _____ (herein as Attachment), the cost of services shall not exceed $ _____

I. GENERAL CONDITIONS

1. Time of Performance:

   Time is of the essence in this project. The COUNTY is obligated to issue a written Proceed Order within ten (10) days from the acceptance of the CONTRACTOR'S Proposal. If the Proceed Order is not received by the CONTRACTOR, the CONTRACTOR has the option of withdrawing his or her Quote and Proposal.

The CONTRACTOR shall commence work in a timely manner upon issuance of the Proceed Order and only after a pre-construction meeting where the engineer and labor standards officer are present.

The CONTRACTOR shall achieve substantial completion by December 31, 2021.

Prior to, or at Contract execution, CONTRACTOR must provide: a) performance bond on the part of the CONTRACTOR for 100 percent of the contract price. A ‘‘performance bond’ is one executed in connection with a contract to secure fulfillment of all the CONTRACTOR’S obligations under such contract; and b) payment bond on the part of the CONTRACTOR for 100 percent of the contract price. A ‘‘payment bond’ is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract

2. Contract:

The Contract consists of the:

a. COUNTY’S Request for Bids (Attachment A)

b. Written bid response submitted by CONTRACTOR (Attachment B)

c. CONTRACTOR’S Payment and Performance Bond in the amount of $ _____

d. County Board of Supervisor Approval of the Contract

e. Notice to Proceed

3. Services:

The CONTRACTOR shall provide the work as outlined in the COUNTY’s Request for Bids as outlined in the CONTRACTOR’S proposal.

4. Payment:

Payment under this Contract shall be progress payments and shall be made based on the work completed and invoiced. Payments will generally be made within 45 days of receipt of the invoice upon approval by the COUNTY Board of Supervisors. Invoices shall be directed to the Project Administrator:

Paul Berland
Northeast Iowa RC&D
101 E. GREENE ST., P.O. Box 916 Postville, IA 52162

5. Access and Maintenance of Records:

The contractor must maintain all required records for five years after final payments are made and all other pending matters are closed.
At any time during normal business hours and as frequently as is deemed necessary, the contractor shall make available to the Iowa Economic Development Authority, the State Auditor, the General Accounting Office, and the Department of Housing and Urban Development, for their examination, all of its records pertaining to all matters covered by this contract and permit these agencies to audit, examine, make excerpts or transcripts from such records, contract, invoices, payrolls, personnel records, conditions of employment, and all other matters covered by this contract..

6. Relationship:

The relationship of the CONTRACTOR to the COUNTY shall be that of an independent CONTRACTOR rendering professional services. The CONTRACTOR shall have no authority to

execute contracts or to make commitments on behalf of the COUNTY and nothing contained herein shall be deemed to create the relationship of employer and employee or principal and agent between the COUNTY and the CONTRACTOR.

7. Suspension, Termination, and Close Out:

If the CONTRACTOR fails to comply with the terms and conditions of this contract, the COUNTY may pursue such remedies as are legally available, including but not limited to, the suspension or termination of this contract in the manner specified herein:

a. Suspension - If the CONTRACTOR fails to comply with the terms and conditions of this contract, or whenever the CONTRACTOR is unable to substantiate full compliance with provisions of this contract, the COUNTY may suspend the contract pending corrective actions or investigation, effective not less than seven (7) days following written notification to the CONTRACTOR or its authorized representative. The suspension will remain in full force and effect until the CONTRACTOR has taken corrective action to the satisfaction of the COUNTY and is able to substantiate its full compliance with the terms and conditions of this contract. No obligations incurred by the CONTRACTOR or its authorized representative during the period of suspension will be allowable under the contract except:

(1) Reasonable, proper and otherwise allowable costs which the CONTRACTOR could not avoid during the period of suspension;

(2) If upon investigation, the CONTRACTOR is able to substantiate complete compliance with the terms and conditions of this contract, otherwise allowable costs incurred during the period of suspension will be allowed; and

(3) In the event all or any portion of the work prepared or partially prepared by the CONTRACTOR is suspended, abandoned or otherwise terminated, the COUNTY shall pay the CONTRACTOR for work performed to the satisfaction of the COUNTY, in accordance with the percentage of the work completed.

b. Termination for Cause – If the CONTRACTOR fails to comply with the terms and conditions of this contract and any of the following conditions exists:

(1) The lack of compliance with the provisions of this contract were of such scope and nature that the COUNTY deems continuation of the contract to be substantially detrimental to the interests of the COUNTY;

(2) The CONTRACTOR has failed to take satisfactory action as directed by the COUNTY or its authorized representative within the time period specified by same;

(3) The CONTRACTOR has failed within the time specified by the COUNTY or its authorized representative to satisfactorily substantiate its compliance with the terms and conditions of this contract; then,

The COUNTY may terminate this contract in whole or in part, and thereupon shall notify the CONTRACTOR of termination, the reasons therefore, and the effective date, provided such effective date shall not be prior to notification of the CONTRACTOR. Notification will be by certified letter and may be in effect immediately. After this effective date, no charges incurred under any terminated portions of the Scope of Work are allowable.

c. Termination for Other Grounds – This contract may also be terminated in whole or in part:

(1) By the COUNTY, with the consent of the CONTRACTOR, or by the CONTRACTOR with the consent of the COUNTY conditions of termination, including effective date and in case of termination in part, that portion to be terminated;

(2) The COUNTY may terminate this contract at any time giving at least ten (10) days notice in writing to the CONTRACTOR. If the contract is terminated for convenience of the COUNTY as provided herein, the CONTRACTOR will be paid for time provided and expenses incurred up to the termination date.

8. Changes, Amendments, Modifications:

The COUNTY may, from time to time, require changes or modifications in the Scope of Work to be performed. Such changes, including any decrease or increase in the amount of compensation, which are mutually agreed upon by the COUNTY and the CONTRACTOR shall be incorporated in written amendments to this contract.

9. Personnel:

The CONTRACTOR represents that he/she has, or will secure at his/her own expense, all personnel and/or sub-contractors required in order to perform under this contract. Such personnel or sub-contractors shall not be employees of, or have any contractual relationship to, the COUNTY.

All services required hereunder will be performed by the CONTRACTOR, or under his/her supervision and all personnel, whether employee or sub-contractor, engaged in the work shall be fully qualified and shall be authorized or permitted under federal, state and local law to perform such services.

10. Assignability:

The CONTRACTOR shall not assign any interest on this contract, and shall not transfer any interest on this contract (whether by assignment or notation), without prior written consent of the COUNTY thereto; provided, however, that claims for money by the CONTRACTOR from the COUNTY under this contract may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be furnished promptly to the COUNTY by the CONTRACTOR.

11. Reports and Information:

The CONTRACTOR, at such times and in such forms as the COUNTY may require, shall furnish the COUNTY such periodic reports as it may request pertaining to the work or services undertaken pursuant to this contract, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this contract.

12. Copyright:

No report, maps or other documents produced in whole or in part under this contract shall be subject of an application for copyright by or on behalf of the CONTRACTOR.

13. Compliance with Local Laws:

The CONTRACTOR shall comply with all applicable laws, ordinances and codes of the state and local government and the CONTRACTOR shall save the COUNTY harmless with respect to any damages arising from any tort done in performing any of the work embraced by this contract.

II. CIVIL RIGHTS:

1. CONTRACTOR agrees to comply with the following laws and regulations:

   a. Title VI of the Civil Rights Act of 1964 (P.L. 88-352)

      States that no person may be excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, or national origin.

   b. Title VIII of the Civil Rights Act of 1968 (Fair Housing Act), as amended

   c. Iowa Civil Rights Act of 1965 (Iowa Code Chapter 216 and Iowa Code Chapter 19B.7)

      This Act mirrors the Federal Civil Rights Act.

   d. Section 109 of Title I of the Housing and Community Development Act of 1974, as amended (42 U.S.C. 5309)

      Provides that no person shall be excluded from participation in, denied the benefits of, or subjected to discrimination on the basis of race, color, national origin, sex, age, or handicap under any program or activity funded in part or in whole under Title I of the Act.

   e. The Age Discrimination Act of 1975, as amended (42 U.S.C. 1601 et seq.)

      Provides that no person on the basis of age, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving Federal financial assistance.

   f. Section 504 of the Rehabilitation Act of 1973, as amended (P.L. 93-112, 29 U.S.C. 794)

      Provides that no otherwise qualified individual shall solely by reason of his/her handicap be excluded from participation in, be denied the benefits of, or be discriminated against under any program or activity receiving Federal financial assistance.

   g. Americans with Disabilities Act (P.L. 101-336, 42 U.S.C. 12101-12213)

      Provides comprehensive civil rights to individuals with disabilities in the areas of employment, public accommodations, state and local government services, and telecommunications.

   h. Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u)

      The purpose of section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) (section 3) is to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

   i. Federal Executive Order 11063, as amended by Executive Order 12259.

III. Federal Executive Order 11246, as amended, by Federal Executive Order 11357

Provides that no one be discriminated in employment.

During the performance of this contract, CONTRACTOR agrees as follows:

a. CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. 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. CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

b. CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

c. CONTRACTOR will send to each labor union or representative of workers with which they has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of CONTRACTOR's commitments under Section 202 of the Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. CONTRACTOR will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. CONTRACTOR will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of CONTRACTOR's non-compliance with the nondiscrimination clause of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and CONTRACTOR may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

g. CONTRACTOR will include 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 No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. CONTRACTOR will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance. **Provided, however**, that in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency; CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

IV. HOUSING AND URBAN DEVELOPMENT ACT OF 1968 (Section 3)

1. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701 u. Section 3 requires that to the greatest extent feasible, opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

   a. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR Section 3, and all applicable rules and orders of the Department issued there under prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability that would prevent them from complying with these requirements.

b. CONTRACTOR will send to each labor organization or representative of workers with which they has a collective bargaining agreement or other contract or understanding if any, a notice advising said labor organization or workers' representative of their commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

c. CONTRACTOR will include this Section 3 clause in every subcontract; for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the Subcontract upon finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Section 3. CONTRACTOR will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Section 3 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

d. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Section 3, and all applicable rules and orders of the Department issued there under prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provide, and to such sanctions as are specified by 24 CFR Section 135.135.

e. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

f. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

g. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

V. CERTIFICATION REGARDING GOVERNMENT-WIDE RESTRICTION ON LOBBYING:

1. CONTRACTOR certifies, to the best of their knowledge and belief that:

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

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, CONTRACTOR shall complete and submit

Standard Form-LLL, “Disclosure Form to Report Federal Lobbying” in accordance with its instruction.

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

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

V. CLEAN AIR AND WATER ACTS COMPLIANCE: (APPLIES TO CONTRACTS ABOVE $100,000)

In addition to the preceding provisions, contracts in excess of $100,000 shall require compliance with the following laws and regulations:
Section 306 of the Clean Air Acts (42 U.S.C. 1857(h)).
Section 508 of the Clean Water Act (33 U.S.C. 1368).
Executive Order 11738. *Providing administration of the Clean Air and Water Acts*

Clean Air and Water Acts - required clauses:

This clause is required in all third-party contracts involving projects subject to the Clean Air Act (42 U.S.C. 1857 et seq.), the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), and the regulations of the Environmental Protection Agency with respect to 40 CFR Part 15, as amended. It should also be mentioned in the bid document.

During the performance of this contract, the CONTRACTOR agrees as follows:

1. CONTRACTOR will certify that any facility to be utilized in the performance of any nonexempt contract or subcontract is not listed on the Excluded Party Listing System pursuant to 40 CFR 32.

2. CONTRACTOR agrees to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 U.S.C. 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

3. CONTRACTOR agrees that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that a facility utilized or to be utilized for the contract is under consideration to be listed on the Excluded Party Listing System.

4. CONTRACTOR agrees that it will include or cause to be included the criteria and requirements in Paragraph (1) through (4) of this section in every nonexempt subcontract and require every subcontractor to take such action as the Government may direct as a means of enforcing such provisions.

VI. STANDARDS AND POLICIES RELATING TO ENERGY EFFICIENCY

Pub. L. 94-163, 89 Stat. 871

Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

VII. NOTICE OF AWARDING AGENCY REQUIREMENTS AND REGULATIONS PERTAINING TO REPORTING

The Contractor must provide information as necessary and as requested by the Iowa Economic Development Authority for the purpose of fulfilling all reporting requirements related to the CDBG program.

VIII. COMPREHENSIVE PROCUREMENT GUIDELINE: RECOVERED MATERIALS

The CONTRACTOR agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

IX. FEDERAL LABOR STANDARDS PROVISIONS

U.S. Department of Housing And Urban Development Office of Labor Relations

Applicability
The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

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

(ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)
2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.
3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)
(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)
(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is
correct and complete;
(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;
(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).
(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

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

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

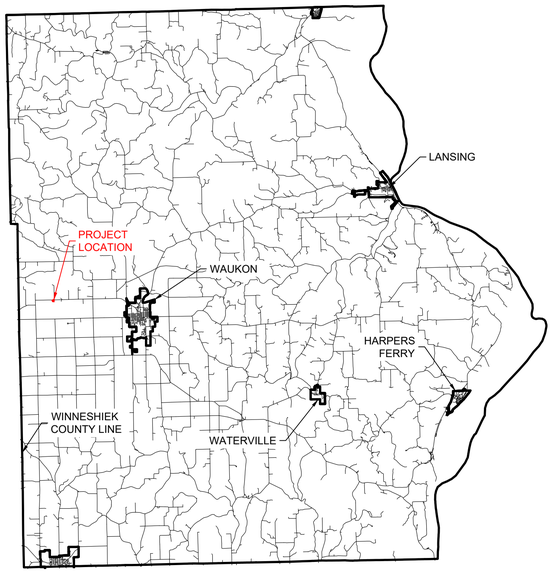
10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.
(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of... influencing in any way the action of such Administration... makes, utters or publishes any statement knowing the same to be false... shall be fined not more than $5,000 or imprisoned not more than two years, or both."
11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.
B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.
(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.
(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.
C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds $100,000.
(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.
(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions

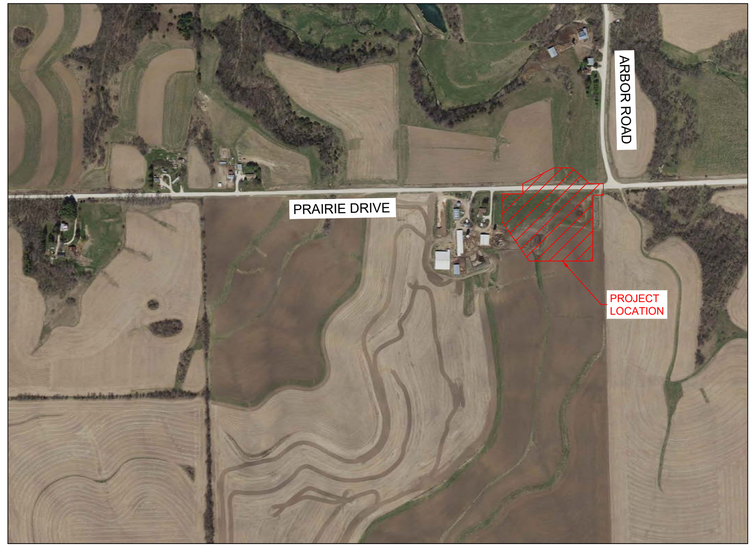
X: IN WITNESS WHEREOF, the COUNTY and the CONTRACTOR have executed this contract agreement as of the date and year last written below.

COUNTY OF WINNESHIEK	CONTRACTOR
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Date: _____

IOWA RIVER WMA
- LYONS-FERRING
E COUNTY, IOWA



ALLAMAKEE COUNTY



PROJECT INFORMATION:

LOCATION: SECTION 20 & 29 T98N R6W UNION PRAIRIE TOWNSHIP ON PRAIRIE DRIVE
DESCRIPTION: ON-ROAD STORMWATER DETENTION
TRAFFIC: 2017 AADT = 40 VPD

CONTACT INFORMATION:

ENGINEER
SHIVE-HATTERY, INC
ATTN: ANTHONY HARBAUGH
4125 WESTOWN PARKWAY, SUITE 100
WEST DES MOINES, IOWA 50266
PH: (515) 223-8104
FX: (515) 223-0622

WATERSHED COORDINATOR
MATT FRANA
2296 OIL WELL ROAD
DECORAH IOWA, 52101
PH: (563) 382-4352

LANDOWNERS
DANIEL LYONS
279 PRAIRIE DRIVE
WAUKON, IA 52172
PHONE:

WILLIAM FERRING
1010 2ND STREET SW
WAUKON, IA 52172
PHONE:

Sheet List Table

Upper Iowa River Watershed Management Authority

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

CIVIL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: Date

Printed or typed name: ANTHONY HARBAUGH
License Number: 26394
My License Renewal Date is: DECEMBER 31, 2021

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
ALL SHEETS

SHIVEHATTERY
ARCHITECTURE+ENGINEERING
4125 Westown Pkwy, Suite 100 | West Des Moines, Iowa 50266
515.223.8104 | www.shive-hattery.com
Iowa | Illinois | Indiana

UPPER IOWA RIVER WMA
UI - 018 - LYONS-FERRING
ALLAMAKEE COUNTY, IOWA

DRAWN: MMO
APPROVED: AJH
ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ---

COVER SHEET

C000

ES:

	SPEC. NO.	UNIT	BID QUANTITY	AS-BUILT QUANTITY
SPOSAL	IA-1	LS	1	
	IA-5	SY	1,231	
	IA-6	AC	1.2	
	IA-6	AC	2.3	
	IA-8	LS	1	
	IA-8	LS	1	
	IA-21	CY	640	
CH FILL	IA-23	CY	12,030	
	IA-24	CY	764	
	IA-23	SY	1,906	
	IA-26	CY	2,907	
	IA-51	LF	24	
	IA-51	LF	123	
	IA-51	LS	1	
IC	IA-61 & IA-95	TON	131	
	IA-61 & IA-96	TON	672	
	IA-92	LF	1,035	

QUANTITY	UNITS
128.8	ACRES
1,180.00	FEET
0	ACRE-FEET
24.5	ACRE-FEET
219.6	CFS
112.9	CFS
48.6	%
1,174.75	FEET
407.1	CFS
139.3	CFS
65.8	%
1,177.95	FEET

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8. REPAIR OR REPLACE DAMAGE TO EXISTING FACILITIES (TILE, UTILITIES, FENCES, ETC.) DESIGNATED TO REMAIN, AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL AREAS DISTURBED BY CONSTRUCTION, INCLUDING STAGING AREAS AND HAUL ROUTES, ARE TO BE REWORKED TO THEIR EXISTING CONDITIONS AND SEEDED AT NO ADDITIONAL COST TO THE WMA IF OUTSIDE OF PROJECT LIMITS AND NOT APPROVED BY ENGINEER.

9. WORK WHICH DOES NOT CONFORM TO THE REQUIREMENTS OF THE CONTRACT WILL BE CONSIDERED UNACCEPTABLE. UNACCEPTABLE WORK, WHETHER THE RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE MATERIALS, DAMAGE THROUGH CARELESSNESS OR ANY OTHER CAUSE, FOUND TO EXIST PRIOR TO THE FINAL ACCEPTANCE OF THE WORK, SHALL BE REMOVED AND REPLACED IN AN ACCEPTABLE MANNER, AS REQUIRED BY THE OWNER AT THE CONTRACTOR'S EXPENSE.

10. WORK DONE CONTRARY TO THE INSTRUCTIONS OF THE OWNERS REPRESENTATIVE, WORK DONE BEYOND THE LINES SHOWN ON THE PLANS OR ANY EXTRA WORK DONE WITHOUT AUTHORITY WILL NOT BE PAID FOR.

11. A SHRINKAGE FACTOR OF 30% WAS ESTIMATED FOR THIS PROJECT. THE CONTRACTOR SHALL MAKE CHANGES IN EARTHWORK AS NEEDED TO ADJUST FOR INACCURACIES INHERENT WITH ESTIMATING THE SHRINKAGE FACTOR. THESE CHANGES SHALL ONLY BE MADE AFTER CONSULTATION AND APPROVAL BY THE ENGINEER.

12. CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO FINISHED GRADE.

13. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL BE COORDINATED WITH THE GOVERNING AUTHORITY AND SHALL BE DONE IN ACCORDANCE WITH THEIR STANDARDS. COORDINATE CONSTRUCTION AND ROAD CLOSURES WITH THE ALLAMAKEE COUNTY ENGINEER.

14. SUBMIT MANUFACTURER'S CERTIFICATION AND MATERIAL DATA FOR ALL MATERIALS DELIVERED TO THE PROJECT SITE AS REQUESTED BY THE OWNERS REPRESENTATIVE.

15. CONSTRUCTION SURVEY STAKING WILL BE PAID FOR BY THE OWNER AND PROVIDED BY THE ENGINEER. CONTROL POINTS WILL BE SET FOR USE WITH GPS CONTROLLED GRADING, IF DESIRED. CONTRACTOR SHALL PRESERVE STAKES TO THE EXTENT FEASIBLE. ANY RE-STAKING COSTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

16. ALL WORK SHALL BE PER PER NRCS SPECIFICATIONS UNLESS STATED OTHERWISE IN THE PROJECT SPECIFICATIONS.

17. CONTRACTOR SHALL VISIT AND INSPECT THE PROJECT AREA AND THOROUGHLY FAMILIARIZE THEMSELVES WITH THE ACTUAL JOB CONDITIONS PRIOR TO THE START OF WORK. FAILURE TO VISIT THE SITE DOES NOT RELIEVE THE CONTRACTOR FROM PERFORMING THE WORK IN ACCORDANCE TO THE PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND CONTRACT.

18. ALL WORK SHALL CONFORM TO AND BE CONDUCTED IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.

19. SITE ACCESS ROUTES AND PARKING SHALL BE DETERMINED/APPROVED BY THE LANDOWNERS.

20. IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, CONTRACTORS SHALL IMMEDIATELY HALT ALL WORK AND NOTIFY SHIVE-HATTERY. WORK MAY NOT RECOMMENCE UNTIL THE SITE IS CLEARED BY THE STATE HISTORIC PRESERVATION OFFICE.

21. CONTRACTOR SHALL MANAGE AND REPAIR EROSION AND SEDIMENT CONTROL THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL HAVE MATERIALS EQUIPMENT AND LABOR AVAILABLE ON A DAILY BASIS TO INSTALL AND MAINTAIN EROSION CONTROL FEATURES IN ORDER TO COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATION. THIS SHALL BE INCIDENTAL TO THE PROJECT.

22. PROJECT COORDINATES AND ELEVATIONS ARE NAD83, NAVD88, IOWA NORTH STATE PLANE COORDINATES (1401), US SURVEY FEET.

23. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

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UPPER IOWA RIVER WMA

UI - 018 - LYONS-FERRING
ALLAMAKEE COUNTY, IOWA

DRAWN: MMO
APPROVED: AJH
ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ---

PROJECT QUANTITIES & NOTES

C001

ALL BE IN ACCORDANCE
IC CONTROL DEVICES
RANSPORTATION

52 SHALL BE USED FOR

INTAIN TEMPORARY
S THROUGHOUT THE

ART OF CONSTRUCTION
RUCTION IS COMPLETE.

E SHALL BE LIMITED TO 45
SION IS APPROVED BY

SIGNING NOTES

1. COMPLY WITH IOWA DOT STANDARD SPECIFICATIONS SECTION 2524 FOR TYPE A SIGN MATERIALS, FABRICATION, AND INSTALLATION. COORDINATE ANY DEVIATIONS FROM STANDARD SPECIFICATIONS WITH FIELD ENGINEER.

NORTH

0 300 600 1200
SCALE IN FEET

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ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ---

TRAFFIC CONTROL PLAN

C002

LANDOWNER:
FERRING, WILLIAM
FERRING, KAREN

ARBOR RD

PRAIRIE DR

PROTECT VEGETATION OUTSIDE OF GRADING LIMITS (TYP)

CLEAR VEGETATION AND STRIP TOPSOIL WITHIN GRADING LIMITS
A = 3.8 ACRES

PROTECT EXISTING BARBWIRE FENCE

PROTECT EXISTING POWER POLES AND OVERHEAD ELECTRIC LINE (TYP). COORDINATE RELOCATION WITH WMA AND UTILITY COMPANY IF NECESSARY.

QUANTITIES FOR "BID ITEM 16: GRANULAR SURFACING" ARE BASED ON THE PROJECT LIMITS SHOWN IN THE PLANS. IF THE ROAD IS DISTURBED OUTSIDE OF THE PROJECT LIMITS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPENSES ASSOCIATED WITH ADDITIONAL SURFACING OR RESTORATION.

REMOVE AND DISPOSE OF 460 LF OF BARBWIRE FENCE

T EXISTING
IRE FENCE

PROTECT EXISTING UTILITY

PROTECT EXISTING GRAVEL ROAD

PROTECT EXISTING BARBWIRE FENCE. DO NOT REMOVE BEYOND LYONS' PROPERTY LINE.

REMOVE AND DISPOSE OF 550 LF OF BARBWIRE FENCE

REMOVE AND DISPOSE OF 61 LF 48" CMP CULVERT AND HEADWALLS. OVER-EXCAVATE AND REMOVE ANY BEDDING OR BACKFILL MATERIAL ENCOUNTERED DURING CULVERT REMOVAL.

GRADING LIMITS (TYP)

PROTECT EXISTING SILAGE

PROTECT VEGETATION OUTSIDE OF GRADING LIMITS (TYP)

APPROXIMATE PROPERTY LINE

LANDOWNER:
LYONS, DANIEL

SALVAGE EXISTING RIP RAP. SEE SHEET C301 FOR PLACEMENT LOCATION.

REMOVE AND DISPOSE OF EXISTING PIPE

CONTRACTOR TO DEWATER POND PRIOR TO EXCAVATION OF MATERIAL WITHIN EXISTING POOL LIMITS. SOIL EXCAVATED FROM EXISTING POND FOOTPRINT IS LIKELY TO HAVE HIGH MOISTURE CONTENT AND MAY REQUIRE CONDITIONING PRIOR TO USE AS EMBANKMENT FILL MATERIAL. COORDINATE WITH ENGINEER PRIOR TO PLACEMENT IN STRUCTURAL AREAS.

LEGEND

DESCRIPTION	EXISTING LINE TYPE
PROPERTY LINE	
GRADING LIMITS	
MAJOR CONTOUR	1170
MINOR CONTOUR	1171
OVERHEAD ELECTRIC	OE
EXISTING FENCE	x
EXISTING CULVERT	
FENCE DEMO	x
SITE ACCESS	

REMOVAL NOTES:
1. CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ALL PREVIOUSLY UNKNOWN TILE LINES WITHIN THE PROJECT AREA. DISCOVERED TILE LINES SHALL REMAIN UNCOVERED FOR FURTHER EVALUATION.

NORTH

0 20 40 80
SCALE IN FEET

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UPPER IOWA RIVER WMA

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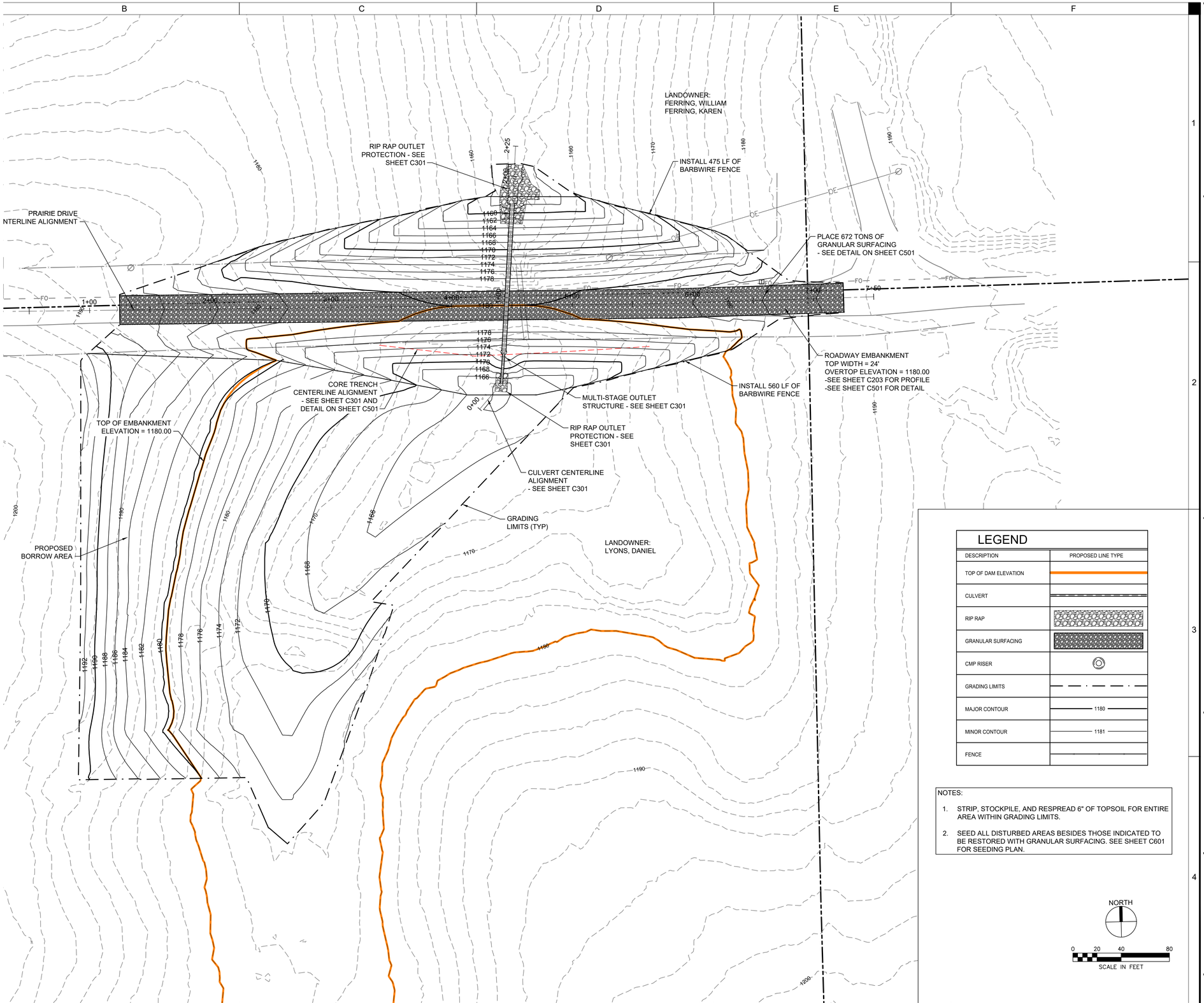
ALLAMAKEE COUNTY, IOWA

DRAWN: AJH
APPROVED: LTM
ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO.4185190
FIELD BOOK: ---
CLIENT NO: ---

EXISTING CONDITIONS AND REMOVALS PLAN

CD01



LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM ELEVATION	
CULVERT	
RIP RAP	
GRANULAR SURFACING	
CMP RISER	
GRADING LIMITS	
MAJOR CONTOUR	1180
MINOR CONTOUR	1181
FENCE	

NOTES:

1. STRIP, STOCKPILE, AND RESPREAD 6" OF TOPSOIL FOR ENTIRE AREA WITHIN GRADING LIMITS.
2. SEED ALL DISTURBED AREAS BESIDES THOSE INDICATED TO BE RESTORED WITH GRANULAR SURFACING. SEE SHEET C601 FOR SEEDING PLAN.

NORTH

0 20 40 80
SCALE IN FEET

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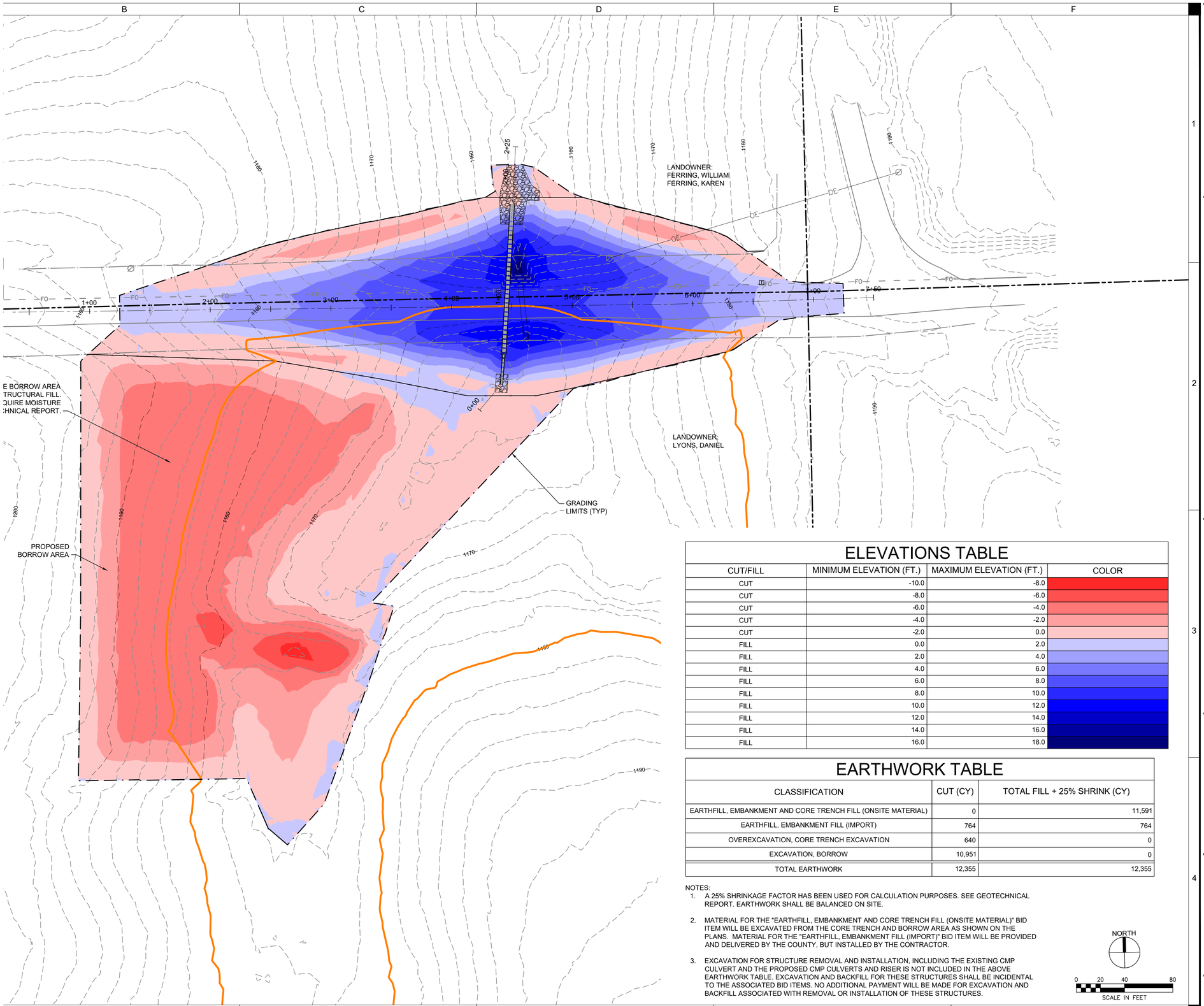
FIELD BOOK: ---
CLIENT NO: ---

GRADING PLAN

C201



ELEVATIONS TABLE

CUT/FILL	MINIMUM ELEVATION (FT.)	MAXIMUM ELEVATION (FT.)	COLOR
CUT	-10.0	-8.0	
CUT	-8.0	-6.0	
CUT	-6.0	-4.0	
CUT	-4.0	-2.0	
CUT	-2.0	0.0	
FILL	0.0	2.0	
FILL	2.0	4.0	
FILL	4.0	6.0	
FILL	6.0	8.0	
FILL	8.0	10.0	
FILL	10.0	12.0	
FILL	12.0	14.0	
FILL	14.0	16.0	
FILL	16.0	18.0	

EARTHWORK TABLE

CLASSIFICATION	CUT (CY)	TOTAL FILL + 25% SHRINK (CY)
EARTHFILL, EMBANKMENT AND CORE TRENCH FILL (ONSITE MATERIAL)	0	11,591
EARTHFILL, EMBANKMENT FILL (IMPORT)	764	764
OVEREXCAVATION, CORE TRENCH EXCAVATION	640	0
EXCAVATION, BORROW	10,951	0
TOTAL EARTHWORK	12,355	12,355

NOTES:

1. A 25% SHRINKAGE FACTOR HAS BEEN USED FOR CALCULATION PURPOSES. SEE GEOTECHNICAL REPORT. EARTHWORK SHALL BE BALANCED ON SITE.
2. MATERIAL FOR THE "EARTHFILL, EMBANKMENT AND CORE TRENCH FILL (ONSITE MATERIAL)" BID ITEM WILL BE EXCAVATED FROM THE CORE TRENCH AND BORROW AREA AS SHOWN ON THE PLANS. MATERIAL FOR THE "EARTHFILL, EMBANKMENT FILL (IMPORT)" BID ITEM WILL BE PROVIDED AND DELIVERED BY THE COUNTY, BUT INSTALLED BY THE CONTRACTOR.
3. EXCAVATION FOR STRUCTURE REMOVAL AND INSTALLATION, INCLUDING THE EXISTING CMP CULVERT AND THE PROPOSED CMP CULVERTS AND RISER IS NOT INCLUDED IN THE ABOVE EARTHWORK TABLE. EXCAVATION AND BACKFILL FOR THESE STRUCTURES SHALL BE INCIDENTAL TO THE ASSOCIATED BID ITEMS. NO ADDITIONAL PAYMENT WILL BE MADE FOR EXCAVATION AND BACKFILL ASSOCIATED WITH REMOVAL OR INSTALLATION OF THESE STRUCTURES.

NORTH

0 20 40 80
SCALE IN FEET

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ALLAMAKEE COUNTY, IOWA

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APPROVED: AJH
ISSUED FOR: BIDDING
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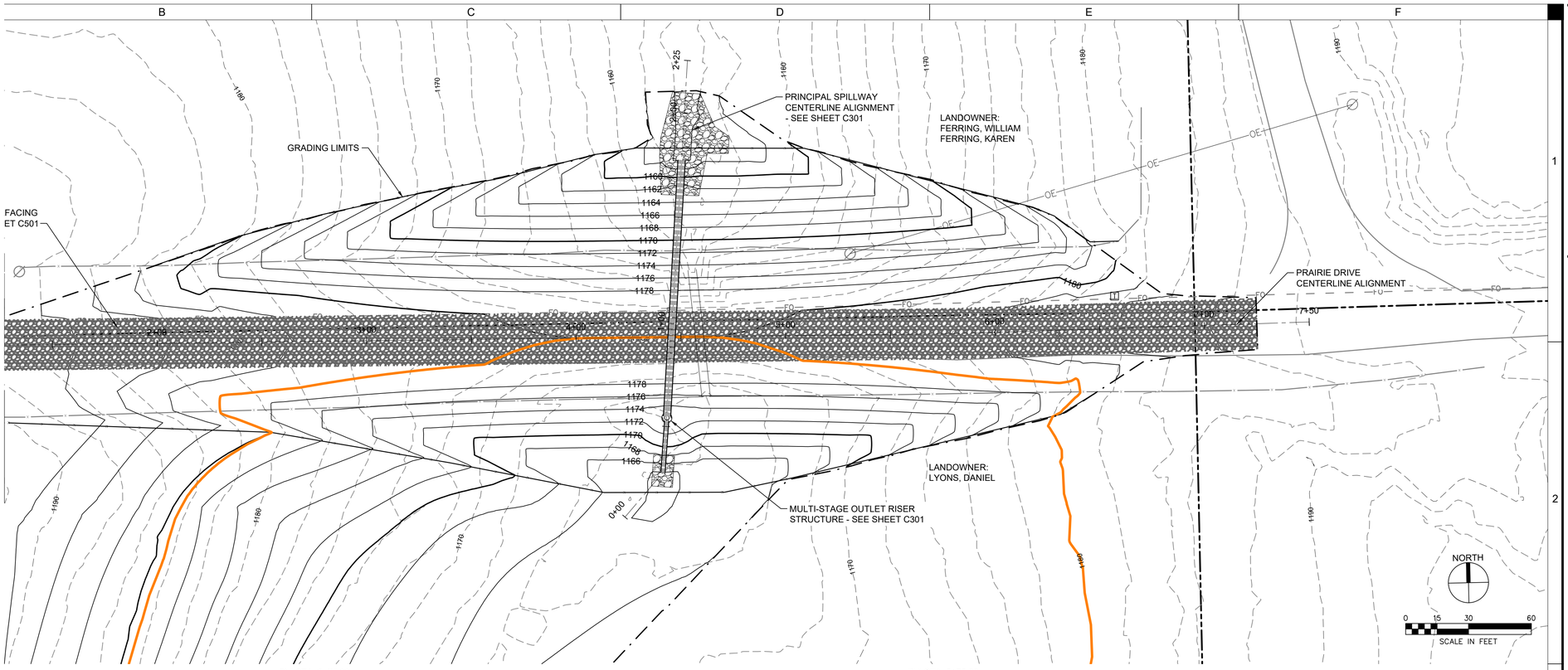
PROJECT NO.4185190
FIELD BOOK: ---
CLIENT NO: ---

CUT-FILL PLAN

C202



EMBANKMENT GRADING NOTES:

1. ROAD EMBANKMENT TO BE OVERBUILT BY A MINIMUM OF 6 INCHES TO ACCOUNT FOR SETTLING.

   EMBANKMENT FILL HEIGHT = 10 FEET
   FINAL CONSTRUCTION GRADE = 1180.50
   PROPOSED GRADE = 1180.00

2. EMBANKMENT FILL SHALL BE PLACED AND COMPACTED IN 6" LIFTS, MAXIMUM.

HORIZONTAL SCALE:
0 15 30 60
SCALE IN FEET

VERTICAL SCALE:
0 3.75 7.5 15
SCALE IN FEET

EMBANKMENT PLAN AND PROFILE

UPPER IOWA RIVER WMA

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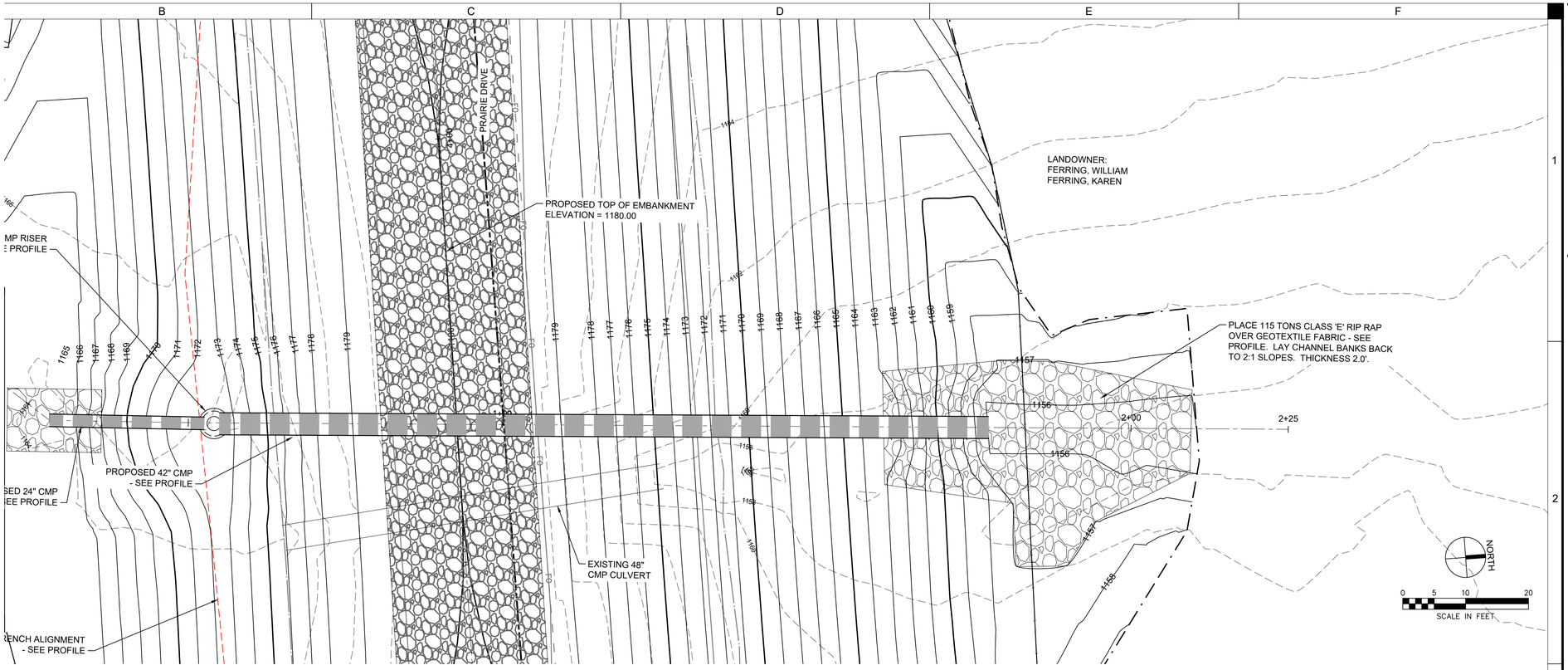
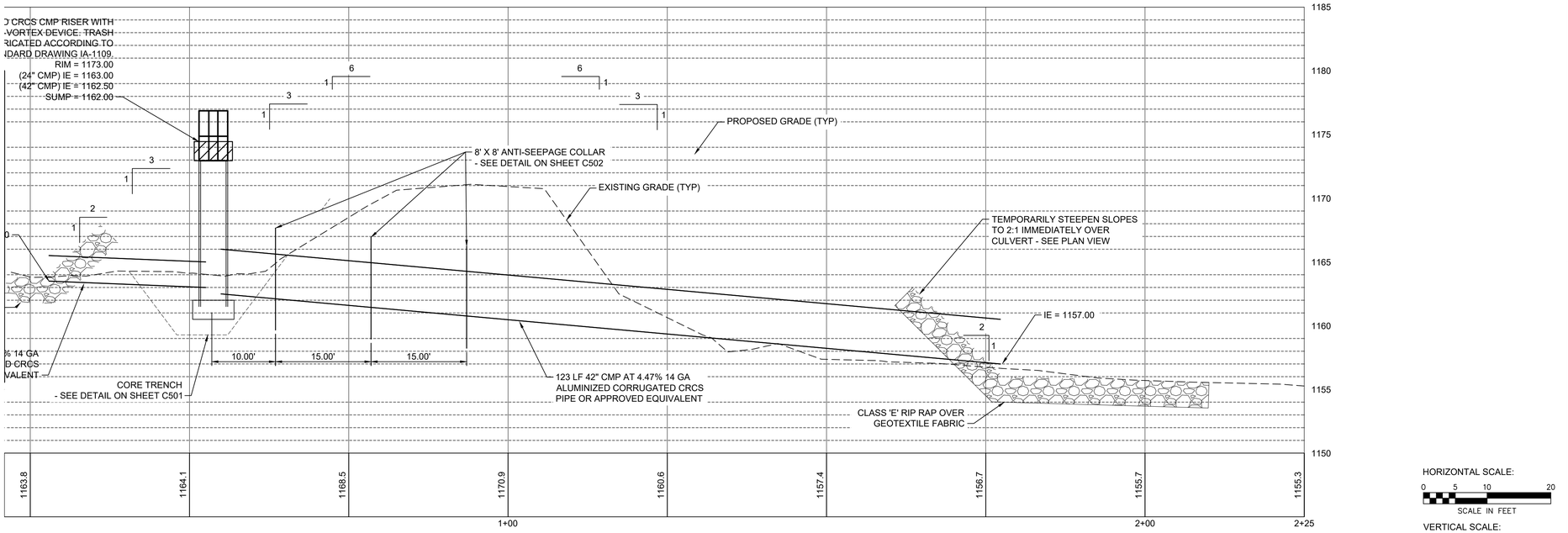
FIELD BOOK: ---
CLIENT NO: ---

C203





HORIZONTAL SCALE:
0 5 10 20
SCALE IN FEET

VERTICAL SCALE:
0 2.5 5 10
SCALE IN FEET

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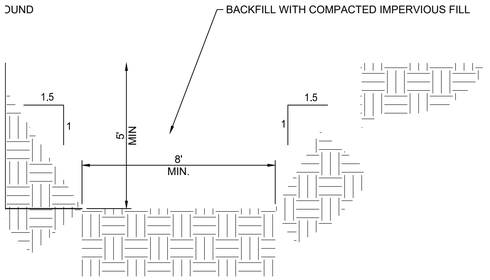
DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ---

CULVERT PLAN AND PROFILE

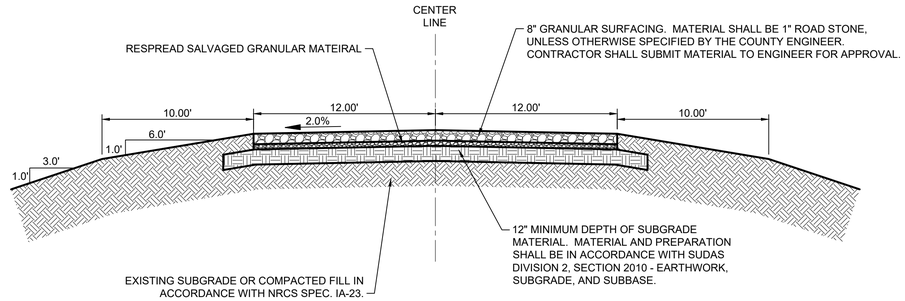
C301



OUND

TRENCH
DRAIN TILES IN
NTPRINT

NGINEER TO
TERMINATES



2 PROPOSED ROAD CROSS-SECTION
NOT TO SCALE

for 18" to 48" corrugated metal pipe to be
1/2" diameter rods with tank lugs.

for 8" to 15" corrugated metal pipe to be
ies riveted or spot welded to band and
ts.

quirements
on Specification 51A or IA 51 and the following:
shall conform to the requirements specified for

for the spillway pipe.
thickness. They may be the next thickness
er than nominal 16 gage nor heavier than

ular halves with either rivets or resistance spot
this drawing.
drawing. Bands with annular corrugations shall
al corrugations shall be corrugated as specified

for coupling bands except,
minus 1".

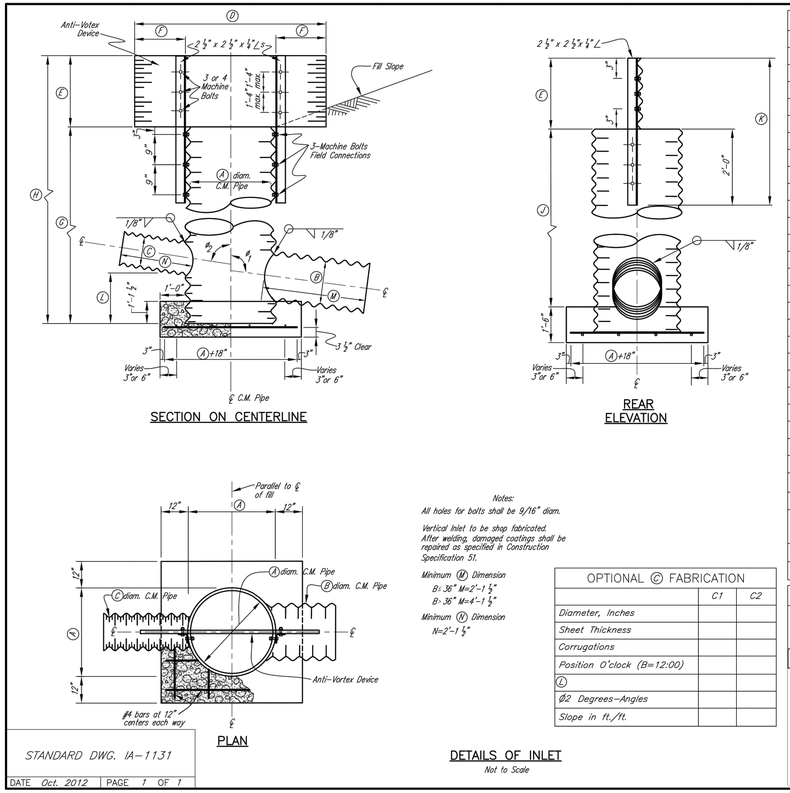
on 6", 8", 10" and 12" diameter helical pipe

his drawing. The rods shall be made from
be standard tank type or other commercial type.
band as shown on this drawing. All welds shall

drawing for connecting together with 3/8"
nection bolts and shall be galvanized or

gasket between anti-seep collar halves to
between the connecting band and pipe to

FOR 6" TO 48" DIA. C. M. PIPE



STANDARD DWG. IA-1131
DATE Oct. 2012 | PAGE 1 OF 1

Notes:
All holes for bolts shall be 9/16" diam.
Vertical Inlet to be shop fabricated.
After welding, damaged coatings shall be repaired as specified in Construction Specification 51.
Minimum M Dimension
B-36" M=2'-1 5/8"
B-36" M=4'-1 5/8"
Minimum N Dimension
N=2'-1 5/8"

DETAILS OF INLET
Not to Scale

OPTIONAL C FABRICATION		
	C1	C2
Diameter, Inches		
Sheet Thickness		
Corrugations		
Position O'clock (B=12:00)		
L		
Ø2 Degrees—Angles		
Slope in ft./ft.		

TABLE—DIMENSIONS AND MATERIAL	
	Dimensions
A	48"
B	42"
C	24"
D	7' - 0"
E	1' - 6"
F	1' - 6"
G	11' - 8"
H	13' - 2"
J	10' - 6"
K	3' - 6"
L	1' - 8"
M	4' - 1 1/2"
N	2' - 1 5/8"
Sheet Thickness for A diam.	
Corrugations for A diam.	
Sheet Thickness for B diam.	
Corrugations for B diam.	
Sheet Thickness for C diam.	
Corrugations for C diam.	
Sheet Thickness for Anti-Vortex Device	
Corrugations for Anti-Vortex	
MATERIAL ITEMS	QUANTITY REQUIRED
2 1/2" x 2 1/2" x 1/4" Ls x K Galv.	2
D x E Corr. Metal Sheets Galv.	1
1/2" x 1 1/4" Steel Cadmium Plated Mach. Bolts	
1/2" Steel Split Lockwashers	
1/2" Steel Cadmium Plated Nuts	
Ø Degrees—Angles Ø1	
Ø2	
Slope of B diam. pipe in ft./ft.	
Slope of C diam. pipe in ft./ft.	

VERTICAL INLET BASE QUANTITIES				
Dimension (in.) A	Concrete Cu. Yd.	Steel Reinforcement #4 Bar		
		Length Each Bar	Number of Bars	Total Weight Pounds
48"	2.00	5'-6"	12	44.1

1 ANTI-VORTEX DEVICE
NOT TO SCALE

Usda

Designed
Drawn
Checked
Approved

DETAILS OF CORRUGATED METAL PIPE VERTICAL INLET WITH ANTI-VORTEX DEVICE

United States Department of Agriculture
Natural Resources Conservation Service

File No.
Drawing No.
Sheet of

DRAWN: MMO
APPROVED: AJH
ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO: 4185190
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CLIENT NO: ---

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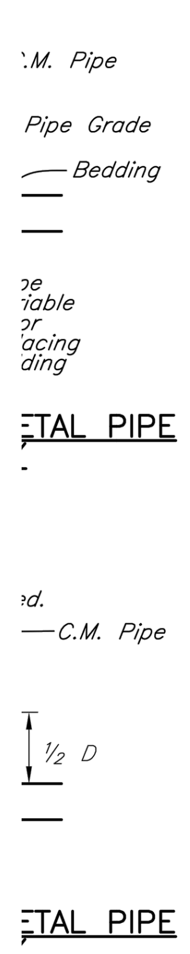
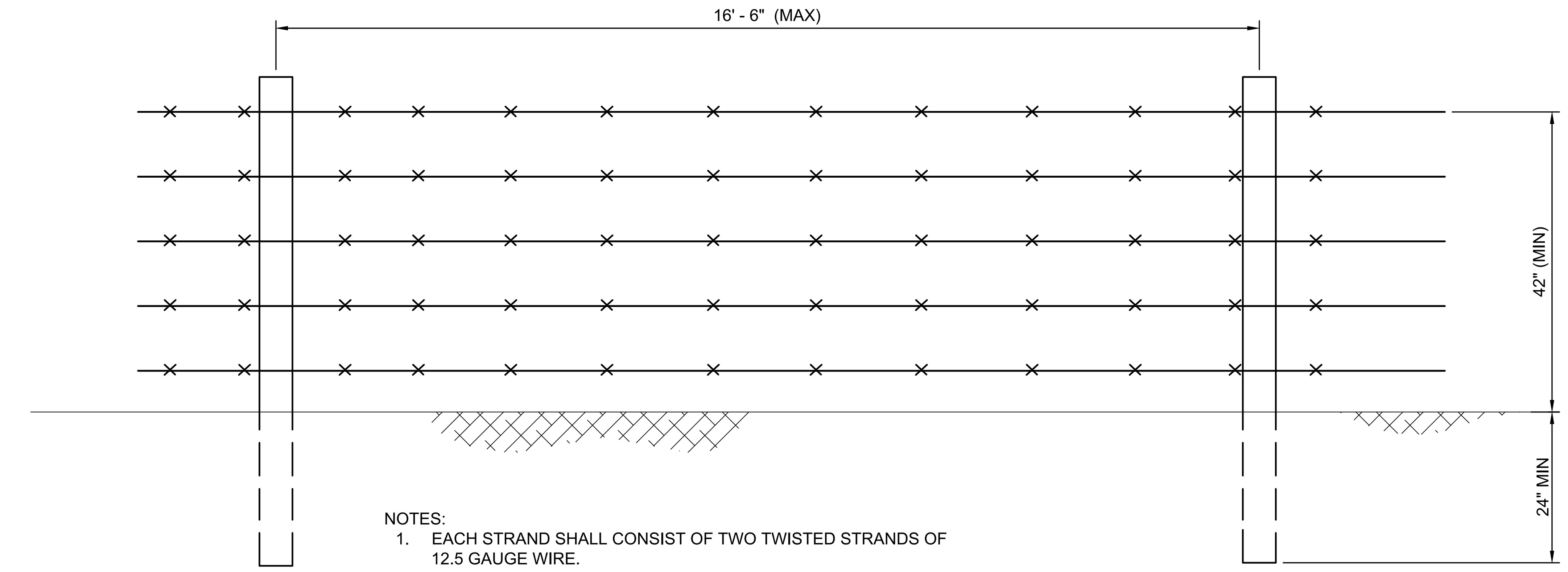
UPPER IOWA RIVER WMA

UI - 018 - LYONS-FERRING
ALLAMAKEE COUNTY, IOWA

CONSTRUCTION DETAILS

C501

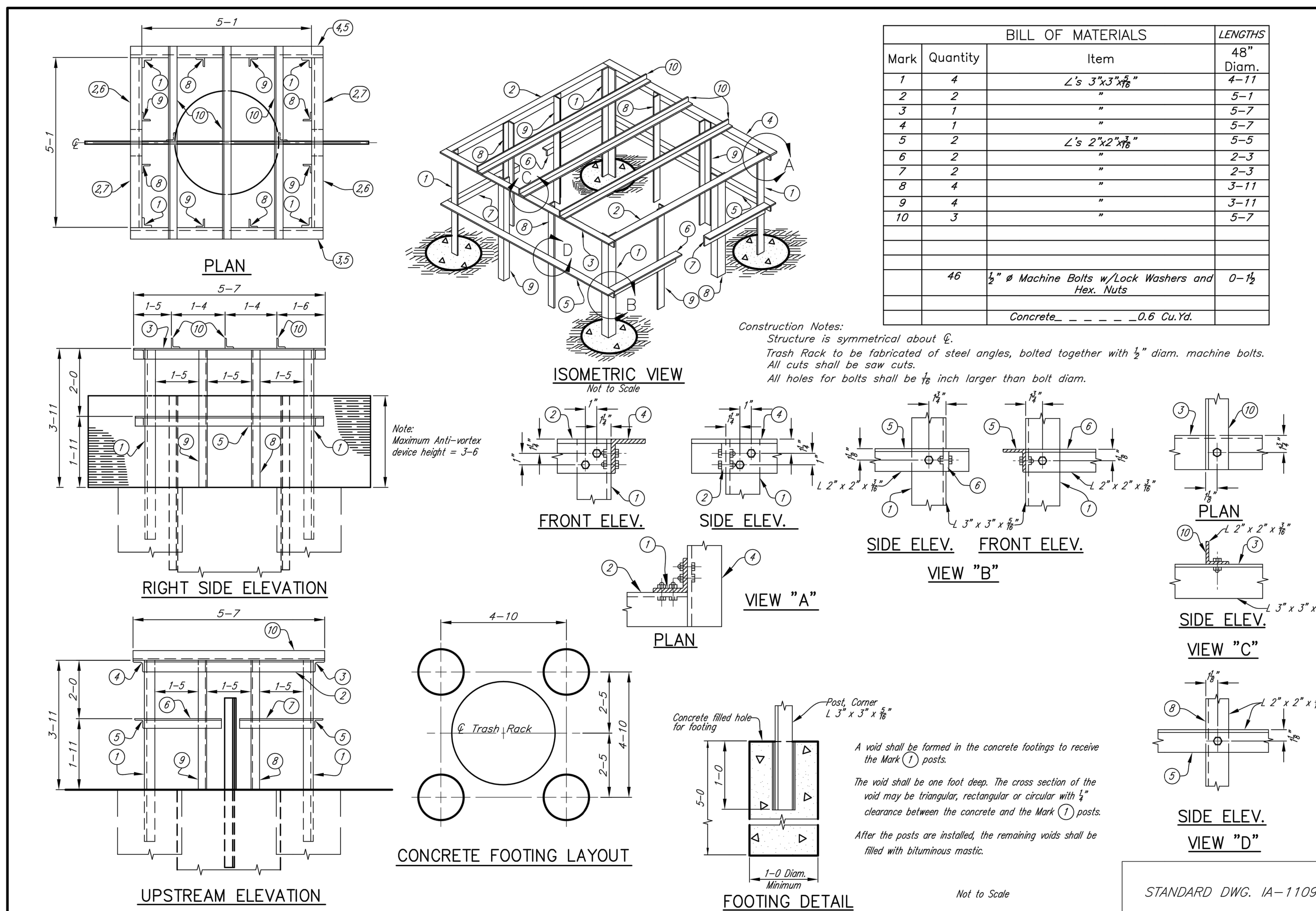




NOTES:

1. EACH STRAND SHALL CONSIST OF TWO TWISTED STRANDS OF 12.5 GAUGE WIRE.
2. BARBS SHALL BE TWO POINT AND SPACED EVENING AT 4" ON CENTER INTERVALS.
3. ALL WODEN POSTS SHALL BE TREATED PER IA-92.
4. FENCING MATERIALS, DIMENSIONS, AND SPECIFICATIONS SHALL CONFORM TO NRCS STANDARD 382 AND NRCS SPECIFICATION IA-92.

2 STANDARD BARBED WIRE FENCE, 5-STRAND
NOT TO SCALE



BILL OF MATERIALS			LENGTHS
Mark	Quantity	Item	48" Diam.
1	4	∠'s 3"x3"x5/16"	4–11
2	2	"	5–1
3	1	"	5–7
4	1	"	5–7
5	2	∠'s 2"x2"x3/16"	5–5
6	2	"	2–3
7	2	"	2–3
8	4	"	3–11
9	4	"	3–11
10	3	"	5–7
	46	1/2" ø Machine Bolts w/Lock Washers and Hex. Nuts	0–1½
		Concrete_ _ _ _ _ _0.6 Cu.Yd.	

Construction Notes:
Structure is symmetrical about ℄.
Trash Rack to be fabricated of steel angles, bolted together with 1/2" diam. machine bolts.
All cuts shall be saw cuts.
All holes for bolts shall be 1/16 inch larger than bolt diam.

A void shall be formed in the concrete footings to receive the Mark (1) posts.

The void shall be one foot deep. The cross section of the void may be triangular, rectangular or circular with 1/4" clearance between the concrete and the Mark (1) posts.

After the posts are installed, the remaining voids shall be filled with bituminous mastic.

Not to Scale

STANDARD DWG. IA–1109
DATE Oct. 2012 PAGE 1 OF 1

DETAILS OF TRASH RACK FOR 48" C.M. PIPE VERTICAL INLET

USDA United States Department of Agriculture
Natural Resources Conservation Service

Designed ____ Drawn ____ Checked ____ Approved ____ Date
File No. Drawing No. Sheet of

1 TRASH RACK
NOT TO SCALE

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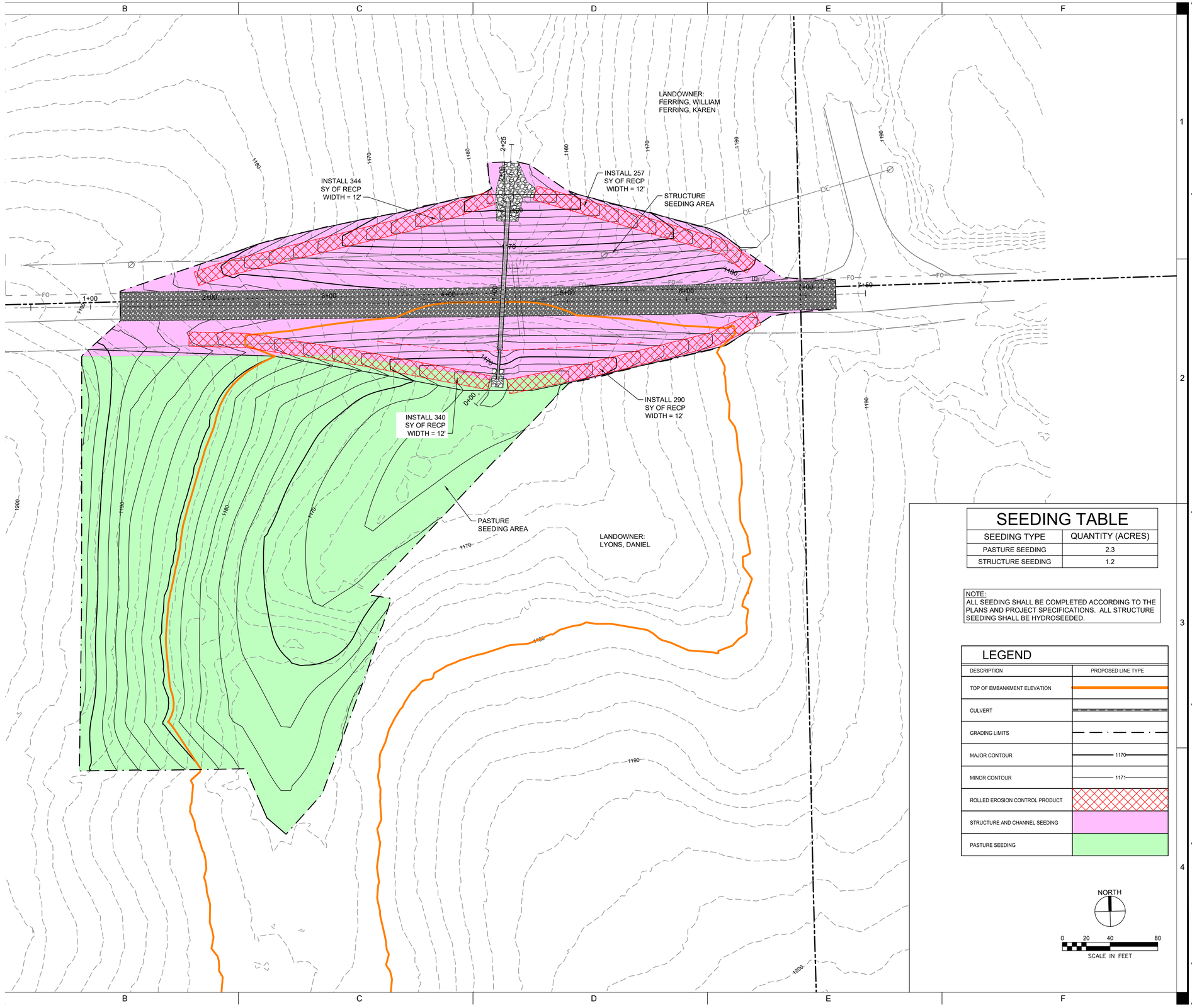
UPPER IOWA RIVER WMA

UI - 018 - LYONS-FERRING
ALLAMAKEE COUNTY, IOWA

DRAWN: MMO
APPROVED: AJH
ISSUED FOR: BIDDING
DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ----

CONSTRUCTION DETAILS

C502



SEEDING TABLE

SEEDING TYPE	QUANTITY (ACRES)
PASTURE SEEDING	2.3
STRUCTURE SEEDING	1.2

NOTE:
ALL SEEDING SHALL BE COMPLETED ACCORDING TO THE PLANS AND PROJECT SPECIFICATIONS. ALL STRUCTURE SEEDING SHALL BE HYDROSEEDED.

LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF EMBANKMENT ELEVATION	━━━
CULVERT	═══
GRADING LIMITS	— · — · —
MAJOR CONTOUR	—1170—
MINOR CONTOUR	—1171—
ROLLED EROSION CONTROL PRODUCT	▨
STRUCTURE AND CHANNEL SEEDING	🟪
PASTURE SEEDING	🟩

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UPPER IOWA RIVER WMA

UI - 018 - LYONS-FERRING
ALLAMAKEE COUNTY, IOWA

DRAWN: MMO
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DATE: 08/06/2021
PROJECT NO: 4185190
FIELD BOOK: ---
CLIENT NO: ----

SEEDING PLAN

C601

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

PROJECT #: 4185190
DATE: AUGUST 6, 2021

UPPER IOWA WATERSHED IMPROVEMENTS
FINAL CONSTRUCTION COST OPINION - UI - 018 - LYONS-FERRING

#	ITEM DESCRIPTION	QUANTITY	UNITS		UNIT COST		TOTAL COST
Construction Costs							
1	Site Clearing, Preparation, & Waste Disposal	1	LS	*	$5,000.00	=	$5,000.00
2	Erosion Control, Recp 12' Width	1,231	SY	*	$1.75	=	$2,154.25
3	Structure Seeding - Hydro-Seeding	1.2	AC	*	$2,500.00	=	$3,000.00
4	Pasture Seeding	2.3	AC	*	$1,000.00	=	$2,300.00
5	Mobilization & Demobilization	1	LS	*	$10,000.00	=	$10,000.00
6	Traffic Control	1	LS	*	$5,000.00	=	$5,000.00
7	Excavation, Core Trench Excavation	640	CY	*	$3.00	=	$1,920.00
8	Earthfill, Embankment And Core Trench Fill (Onsite Material)	12,030	CY	*	$3.00	=	$36,090.00
9	Earthfill, Embankment Fill (Import)	764	CY	*	$3.00	=	$2,292.00
10	Subgrade Preparation	1,906	SY	*	$3.00	=	$5,718.00
11	Topsoil, Strip, Salvage, And Respread	2,907	CY	*	$3.00	=	$8,721.00
12	Cmp, 24"	24	LF	*	$80.00	=	$1,920.00
13	Cmp, 42"	123	LF	*	$140.00	=	$17,220.00
14	48" Cmp Riser With Trash Rack	1	LS	*	$20,000.00	=	$20,000.00
15	Rip Rap, Class 'E' With Geotextile Fabric	131	TON	*	$25.00	=	$3,275.00
16	Granular Surfacing	672	TON		$25.00	=	$16,800.00
17	Fencing, 5-Strands Of Barbed Wire	1,035	LF	*	$4.50	=	$4,657.50
					Subtotal		**$146,067.75**
					Contingency (10%)		$14,606.78
					Project Total		**$160,674.53**

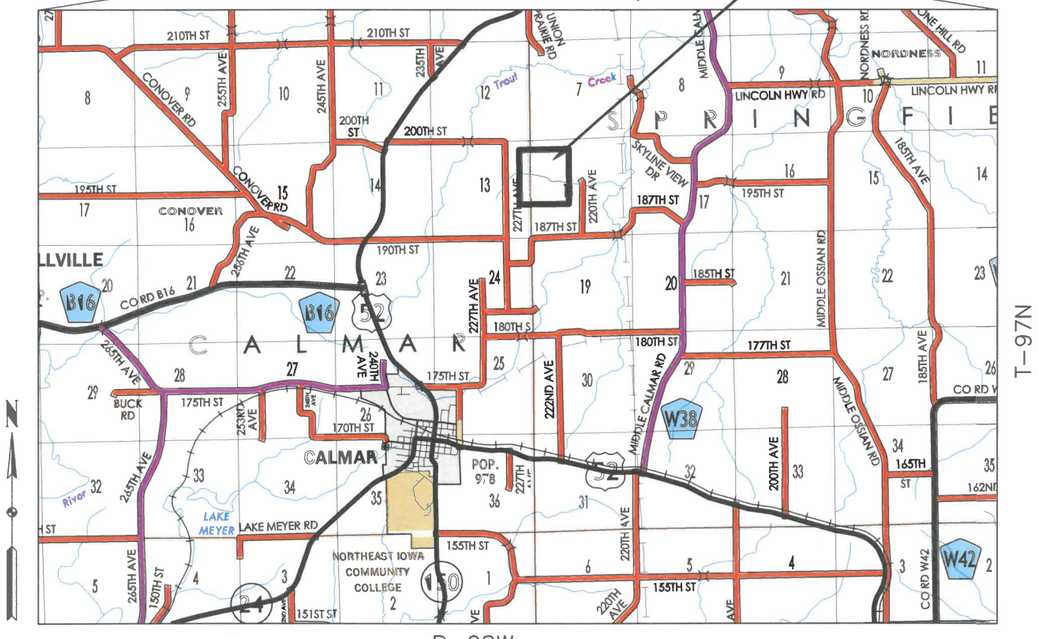
**TOTAL PROJECT COSTS AND CONSTRUCTION COSTS PROVIDED HEREIN ARE MADE ON THE BASIS OF ENGINEER'S EXPERIENCE AND QUALIFICATIONS AND REPRESENT THE ENGINEER'S BEST JUDGMENT. HOWEVER, THE ENGINEER CANNOT AND DOES NOT GUARANTEE THAT BIDS OR ACTUAL TOTAL PROJECT OR CONSTRUCTION COSTS WILL NOT VARY FROM THE ESTIMATE OF PROBABLE CONSTRUCTION COST. THIS ESTIMATE IS INTENDED TO ASSIST IN BUDGETARY ASSESSMENT AND DOES NOT GUARANTEE THAT ACTUAL PROJECT COSTS WILL NOT EXCEED OR BE LOWER THAN THE AMOUNTS STATED IN THIS ESTIMATE.

UPPER IOWA WATERSHED MANAGEMENT AUTHORITY TIMP SITE

IOWA

PROJECT LOCATION

WINNESHIEK COUNTY, IOWA



PROJECT LOCATION

LATITUDE: 43.219460

LONGITUDE: -91.839574

GENERAL NOTES

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF THESE UTILITIES BY CALLING IOWA ONE CALL (1-800-292-8989) AT LEAST 48 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS AND SURVEYS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811

SHEET INDEX

BENCHMARK/DATUM

HORIZONTAL DATUM: IOWA STATE PLANE NORTH - NAD83

VERTICAL DATUM: NAVD88

WATERSHED COORDINATOR: MATT FRANA

COUNTY: WINNESHIEK

LAND OWNER: GARY TIMP

PROJECT NUMBERS: UI-051-TIMP

Upper Iowa River
WATERSHED MANAGEMENT AUTHORITY

IOWA WATERSHED APPROACH

whks
engineers + planners + land surveyors

REVISIONS

NO.	DATE	DESCRIPTION
1	7/1/21	ISSUED FOR PERMITTING
2	8/5/21	ISSUED FOR BID

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Louis H. Wehrspann
License Number 26154
My license renewal date is December 31, 2021
Pages or sheets covered by this seal:

8/5/21

PROFESSIONAL ENGINEER
LOUIS H. WEHRSPANN
26154
IOWA
LICENSED

TITLE SHEET
UPPER IOWA
RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET A-1

GENERAL PROJECT INFORMATION

DRAINAGE AREA	68.2	ACRE
TIME OF CONCENTRATION	0.28	HR
WEIGHTED RUNOFF CURVE NUMBER	71	-----
LENGTH OF BERM	253	FT
POOL AREA	0.9	ACRE
NORMAL POOL ELEVATION	1119	FT
BERM ELEVATION	1128	FT
EMBANKMENT HEIGHT	18	FT
MAXIMUM POOL DEPTH	6	FT
POOL STORAGE	1.9	ACRE-FT
BERM STORAGE	13.8	ACRE-FT
PRIMARY SPILLWAY 24-HR	50	YR
50-YR STORM DISCHARGE	289.9	CFS
50-YR STORM ROUTED DISCHARGE	43.7	CFS

IOWA ADMINISTRATIVE CODE 567–51.2: NO PERMIT REQUIRED
IOWA ADMINISTRATIVE CODE 567–71.3: NO PERMIT REQUIRED

ESTIMATED QUANTITIES OF WORK

ITEM	DESCRIPTION	QUANTITY	UNIT
1	MOBILIZATION	1	LS
2	SITE PREPARATION	1	LS
3	EROSION CONTROL BLANKET	210	SY
4	EXCAVATION (P) - *CORE TRENCH CUT*	860	CY
5	EARTHFILL (P) - *EMBANKMENT FILL*	5,360	CY
6	TOPSOILING (P) - *STRIP, SALVAGE & RESPREAD*	1,870	CY
7	RISER STRUCTURE	1	LS
8	8" CORRUGATED METAL PIPE	20	LF
9	24" CORRUGATED METAL PIPE	102	LF
10	24" CMP APRON	1	EA
11	FILTER DIAPHRAGM	1	LS
12	ROCK RIPRAP - CLASS C	180	TON
13	ROCK RIPRAP- CLASS E	45	TON
14	BUFFER SEEDING	2.5	AC
15	STRUCTURE & CHANNEL SEEDING	0.5	AC

EARTHWORK SUMMARY

ITEM	CUBIC YARDS	COMMENT
UNADJUSTED EMBANKMENT	4870	CORE+BERM
SHRINKAGE FACTOR	1.1	ASSUMED
ADJUSTED EMBANKMENT	5360	UNADJUSTED x 1.1
UNADJUSTED EXCAVATION	6780	CORE+POOL
TOPSOIL	930	ASSUMED 18" THICK
BALANCE	490	BORROW REQUIRED

whks engineers + planners + land surveyors

REVISIONS

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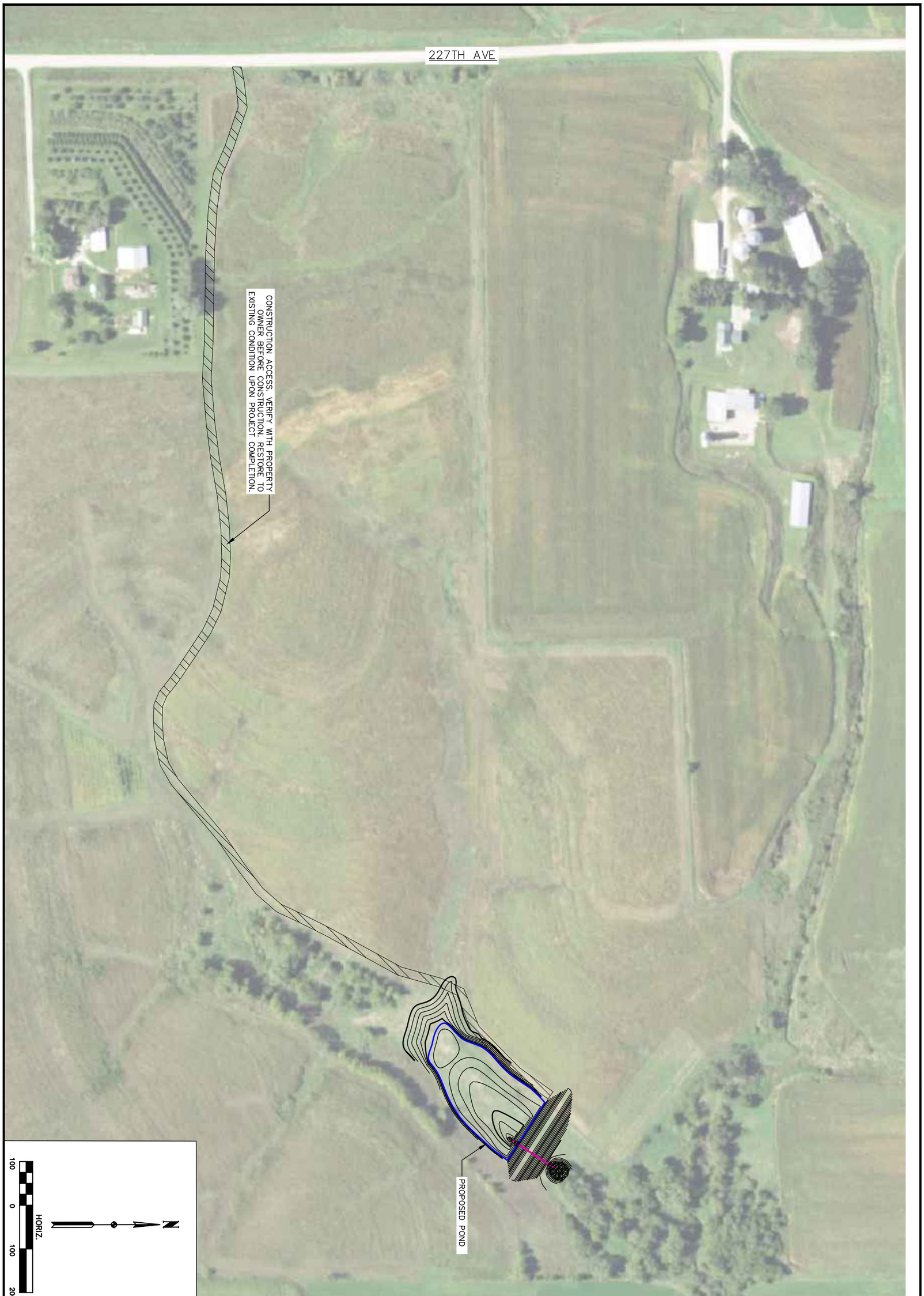
PROJECT INFORMATION & QUANTITIES
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET A–2



PROJECT LOCATION
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET O-1

REVISIONS		
NO.	DATE	DESCRIPTION
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GENERAL NOTES:

1. CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ALL PREVIOUSLY UNKNOWN TILE LINES WITHIN THE PROJECT AREA. DISCOVERED TILE LINES SHALL REMAIN UNCOVERED FOR FURTHER EVALUATION.
2. ALL DRAIN TILE FOUND DURING THE EXCAVATION OF CORE TRENCH SHALL BE REMOVED EXTENDING 10 FEET BEYOND THE EMBANKMENT FOOTPRINT.
3. TOPSOIL SHALL NOT BE PLACED BACK IN CORE TRENCH.
4. THE CORE TRENCH SHALL BE PLACED & COMPACTED IN 6" LIFTS MAXIMUM.

CULTURAL RESOURCES NOTE:

1. IF A CULTURAL RESOURCE IS FOUND DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY THE LOCAL NRCS OFFICE.

0+00

TIMP1

1+00

TIMP2

2+00

TIMP3

STRIP TOPSOIL & EXCAVATE 6' DEEP (MINIMUM) CORE TRENCH AS PART WITH 8' WIDE BOTTOM WIDTH. CENTER OF TRENCH ℄ LOCATED AT EMBANKMENT ℄.

CLEAR & GRUB LIMITS

TIMP4

3+00

TIMP5

PROTECT VEGETATION OUTSIDE OF GRADING AND REMOVAL LIMITS

N

HORIZ.

20 0 20 40

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engineers + planners + landsurveyors

REVISIONS

NO.	DATE	DESCRIPTION
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EXISTING CONDITIONS & REMOVALS
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET R-1

MASS GRADING NOTES

1. BORROW MATERIAL TO BE TAKEN FROM POOL GRADING AREA. THIS SHALL BE CONSIDERED PRIMARY BORROW SITE.
2. TOPSOIL WITHIN THE DISTURBED BORROW AREA SHALL BE STRIPPED, STOCKPILED, AND PLACED TO SPECIFIED THICKNESS ACCORDING TO PLANS.
3. EXTRA TOPSOIL FROM GRADED AREA TO BE SPREAD IN ADJACENT FIELDS IN AREAS SPECIFIED BY THE LANDOWNER.
4. IF ADDITIONAL BORROW REQUIRED, TAKE FROM AREA WITHIN PRIMARY BORROW SITE.

SEEDING NOTES

1. SEED MISCELLANEOUS DISTURBED AREAS INSIDE OF SEEDING EXTENTS AND ABOVE EL. 1119.0 WITH BUFFER SEED MIX. INCLUDE NON-CHANNEL DISTURBED AREAS DOWNSTREAM OF EMBANKMENT AND ANY EXISTING CRP AREAS.
2. EMBANKMENT TO BE SEEDED WITH STRUCTURE & CHANNEL SEED MIX.

PROPOSED EMBANKMENT
SEE SHEET C-2.

PRIMARY SPILLWAY.
SEE SHEET C-3.

25' BUFFER SEEDING EXTENTS

APPROXIMATE 50-YR
FLOOD EL.: 1125.5

APPROXIMATE
POOL EL.: 1119.0

OVER EXCAVATE AND PLACE 4" TOPSOIL OVER POOL AREA TO BRING TO FINAL GRADE.

HORIZ.
20 0 20 40

REVISIONS

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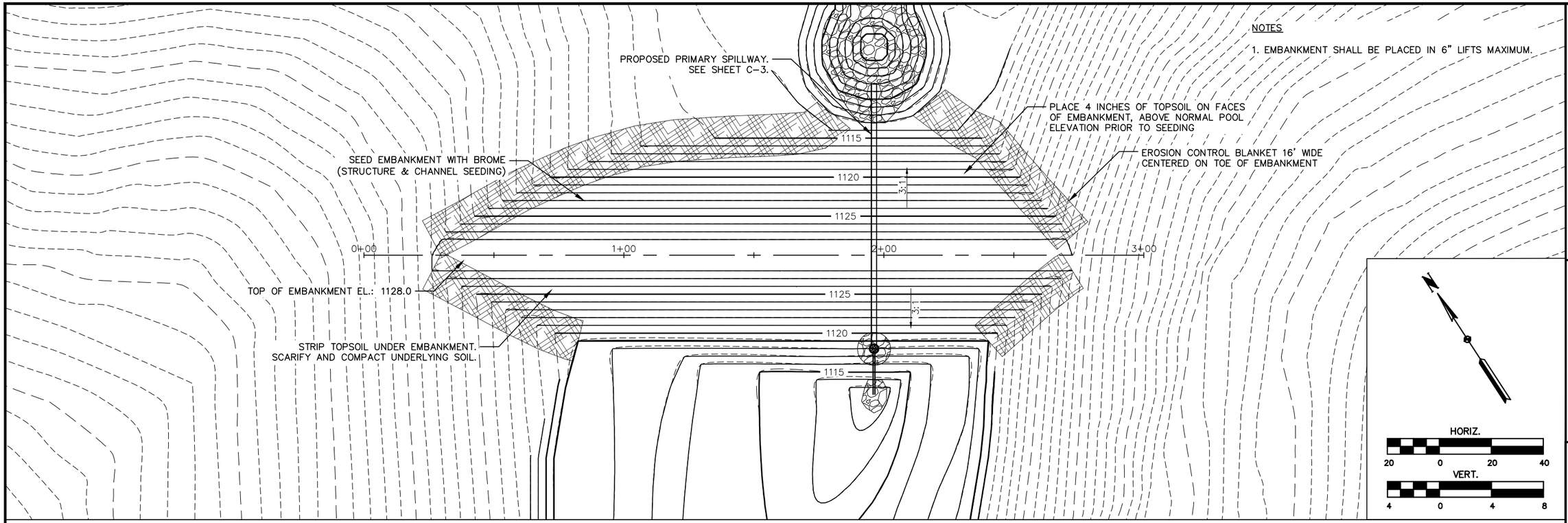
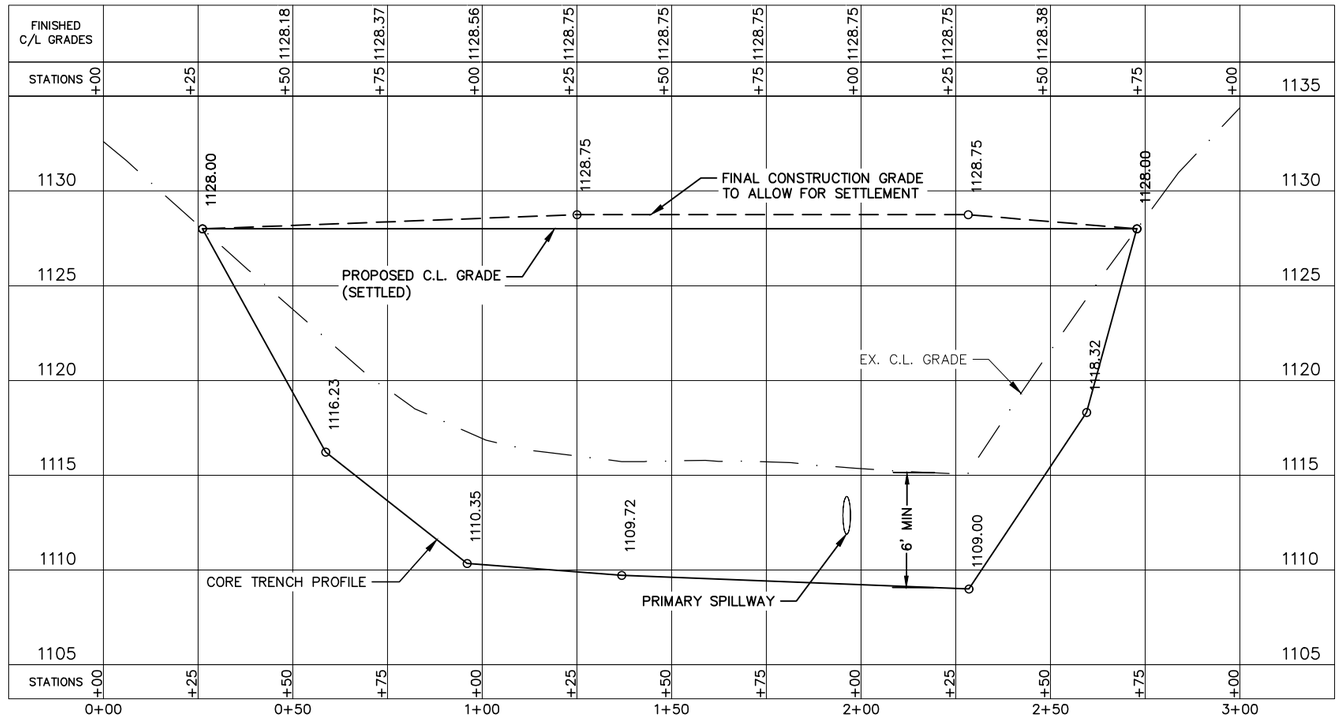
PROJECT OVERVIEW
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET C-1





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REVISIONS

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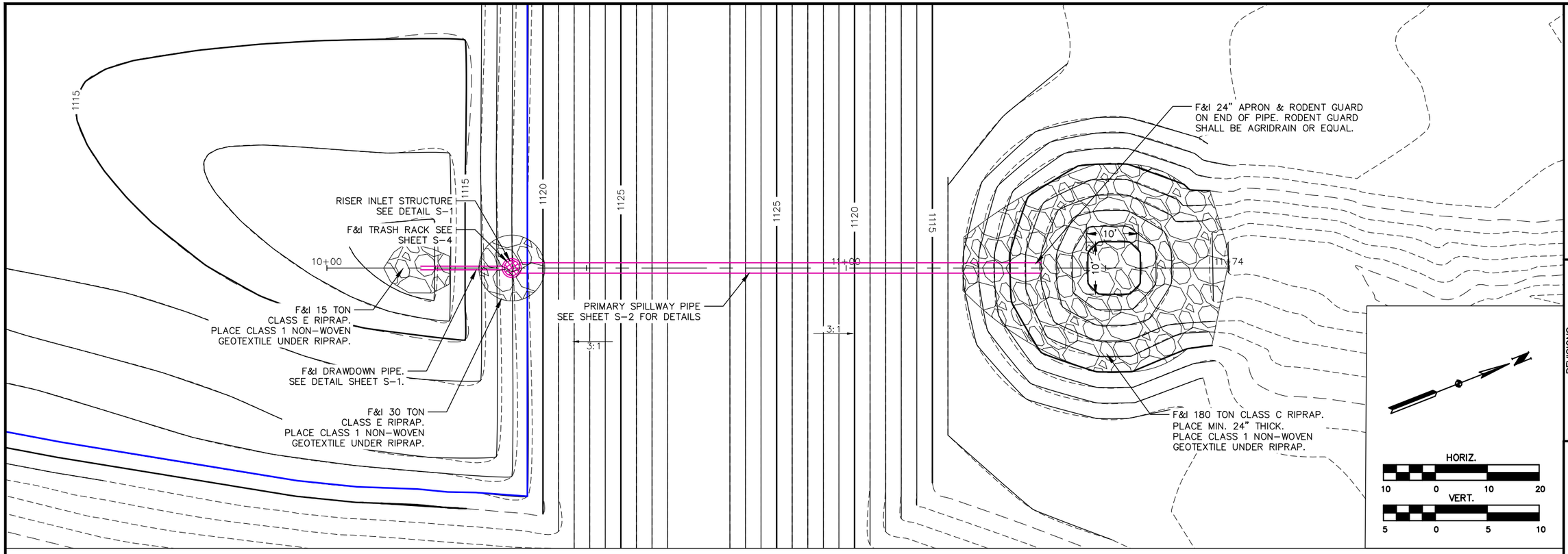
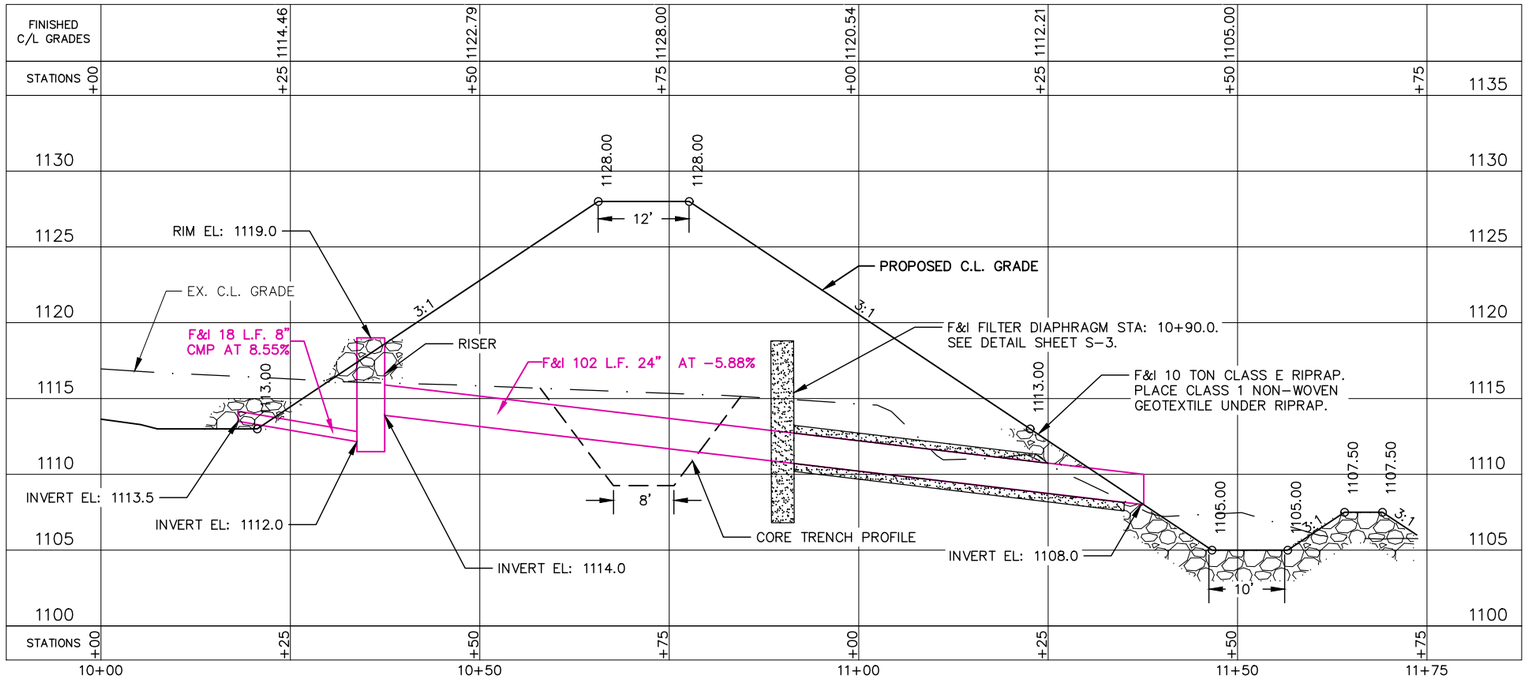
EMBANKMENT PLAN & PROFILE
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET C-2



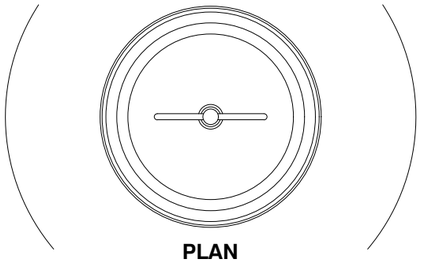


REVISIONS

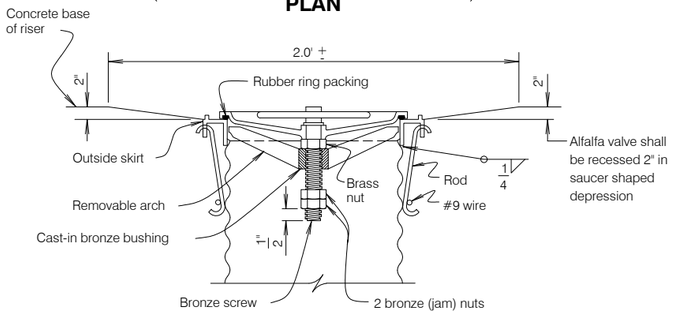
NO.	DATE	DESCRIPTION
1	7/1/21	ISSUED FOR PERMITTING
2	8/5/21	ISSUED FOR BID

PRIMARY SPILLWAY PLAN & PROFILE
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET C-3

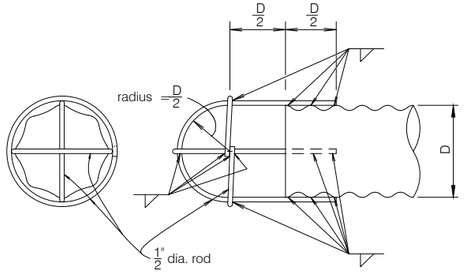


PLAN



ALFALFA VALVE

DRAWDOWN PIPE TRASH RACK DETAIL



PIPE DIA. INCHES	* ROD LENGTH INCHES	* * CIRCULAR ROD LENGTH-INCHES
8	30	35
10	37	41
12	44	47
15	54	57

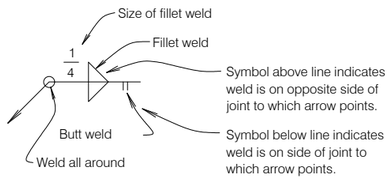
* 2 RODS REQUIRED.

* * APPROXIMATE 2" LAP.

RODS TO BE ZINC COATED OR PAINTED ACCORDING TO PAINT SYSTEM C.

1/2" DIA. ROD = 0.668 LB./FT.

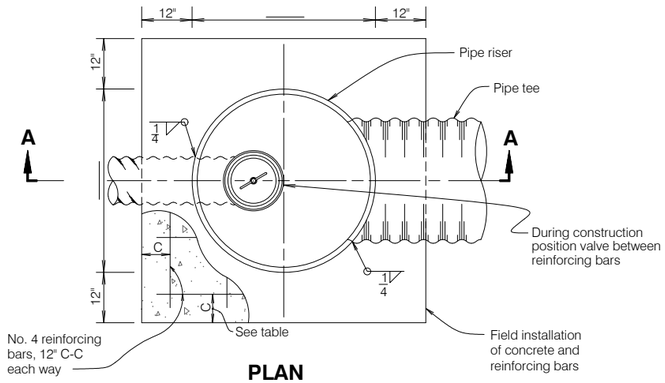
WELD SYMBOLS



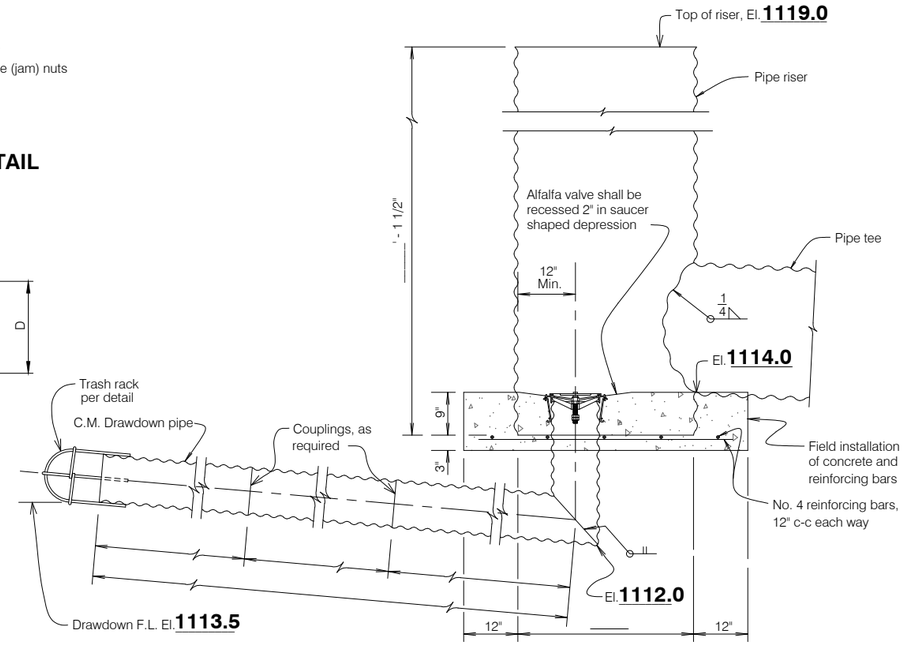
NOTE:

ALL WELDS AND HEAT AFFECTED AREAS TO BE TREATED IN ACCORDANCE WITH SPECIFICATIONS.

MATERIALS NOT COATED OR GALVANIZED SHALL BE PAINTED ACCORDING TO PAINT SYSTEM "C" OF PAINT SPECIFICATIONS.



PLAN



SECTIONAL ELEVATION A-A
RISER DETAIL

TABLE OF QUANTITIES FOR CONCRETE RISER BASE

DIA. OF RISER IN INCHES	30	36	42	48	54	60	66	72
CONCRETE, CU.YDS.	0.75	0.93	1.12	1.33	1.56	1.81	2.08	2.37
NO. 4 REINFORCING BAR, LIN.FT.	40	45	60	66	84	91	112	120
LENGTH OF EACH BAR, FT.-IN.	4-0	4-6	5-0	5-6	6-0	6-6	7-0	7-6
TOTAL NUMBER OF BARS	10	10	12	12	14	14	16	16
TOTAL WEIGHT - NO. 4 BARS, LBS.	26.7	30.0	40.1	44.1	56.1	60.8	74.8	80.2

TABLE FOR DIMENSION C

DIA. OF RISER IN INCHES	30	36	42	48	54	60	66	72
C SPACING IN INCHES	3	6	3	6	3	6	3	6

NO. 4 REINFORCING BAR = 1/2 IN. DIA. = 0.668 LBS./LIN.FT.

NOTE:

THE FOLLOWING DESIGNATIONS FOR PIPE CLASSIFICATIONS, CORRUGATIONS AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE WITH CURRENT ASTM'S:

A760 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS

A761 STANDARD SPECIFICATION FOR CORRUGATED STEEL STRUCTURAL PLATE, ZINC-COATED, FOR FIELD-BATTED PIPE, PIPE-ARCHES AND ARCHES

A762 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, POLYMER PRECOATED FOR SEWERS AND DRAINS.

A849 STANDARD SPECIFICATION FOR POST-APPLIED COATINGS, PAVINGS AND LININGS FOR CORRUGATED STEEL SEWER AND DRAINAGE PIPE

REQUIREMENT TABLE

X IN BOX INDICATES THE REQUIREMENTS THAT APPLY TO STRUCTURE — ▨ INDICATES - NOT APPLICABLE

CONCRETE: CLASS ☐ 3000 ☐ 3000M ☒ 4000 _____CU.YD.

REINFORCING STEEL:_____LB.

RISER:

CORRUGATED METAL PIPE, ZINC COATED STEEL, **36** "DIA., **12** GA., **5.75** FT., NOMINAL LENGTH WITH A **24** " DIA., **14** GA. PIPE TEE, **4** FT. NOMINAL LENGTH WELDED TO IT 9" FROM THE LOWER END.

DRAWDOWN:

CORRUGATED METAL PIPE, ZINC COATED STEEL, **8** " DIA., WITH COUPLING(S), ELBOW(S), AND WITH **8** " DIA. ALFALFA VALVE, AND TRASH RACK, PER DETAILS.
TOTAL LIN.FT. = **20**

*PIPE CLASSIFICATION	RISER	PIPE TEE	DRAWDOWN
TYPE I FULL CIRCULAR CROSS-SECTION FABRICATED WITH:			
☒ ANNULAR CORRUGATIONS, CLOSE RIVETED	☐	☐	▨
☒ HELICAL CORRUGATIONS	☐	☐	☐
*NOTE: EITHER ANNULAR OR HELICAL PIPE MAY BE USED			
CORRUGATION REQUIREMENTS			
NOMINAL SIZE (INCH)			
☒ 1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE)	☐	☐	☒
☒ 2 2/3 x 1/2	☒	☒	☐
☐ 3 x 1	☐	☐	▨
☐ 5 x 1	☐	☐	▨
COATINGS AND FABRICATION			
SEE COUPLING BAND AND METAL PIPE REQUIREMENTS SHEET			

FABRICATION AND INSTALLATION NOTES:

1. THE ALFALFA VALVE SHALL HAVE A CONCAVE COVER, SOLID IRON FRAME SIMILAR TO WATERMAN'S TYPE 3 WITH A REMOVABLE THREE ARMED ARCH AND 2 BRONZE (JAM) NUTS TIGHTENED AGAINST EACH OTHER 1/2" FROM THE LOWER END OF THE BRASS SCREW.
2. FOR 15" DIA. C.M. PIPE, USE 16" DIA. VALVE WITH A DOUBLE-RINGED IRON FRAME WITH RIBS SIMILAR TO WATERMAN'S TYPE 1.
3. THE SOLID IRON FRAME SHALL BE WELDED TO THE PIPE AND HAVE HOLES DRILLED IN THE OUTSIDE SKIRT FOR PLACEMENT OF THE FOUR 3/8" DIA. GALV. RODS 8" LONG AND BENT AT BOTH ENDS AS SHOWN.
4. RODS SHALL BE SECURED AGAINST PIPE WITH #9 WIRE TO INSURE THAT RODS STAY IN PLACE DURING PLACEMENT OF CONCRETE.
5. ALL WELDS AND ALL HEAT AFFECTED AREAS ON ZINC-COATED METAL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH SPECIFICATIONS.
6. FOR FABRICATION OF RISERS ON HELICAL PIPE A FILLER STRIP MAY BE USED TO INSURE A WATERTIGHT SEAL BETWEEN THE RISER AND TEE.
7. WHEN MORE THAN ONE COATING IS CHECKED IN THE COLUMN BOXES EACH TYPE IS ACCEPTABLE BUT ONLY ONE TYPE OF COATING SHALL BE USED IN EACH INSTALLATION.
8. BACKFILL, AROUND DRAWDOWN PIPE UNDER RISER, TO BE MECHANICALLY COMPACTED IN ACCORDANCE WITH SPECIFICATION. COMPLETE CONCRETE ENCASEMENT OF PIPE IN LIEU OF BACKFILL IS PERMITTED FOR DRAWDOWN PIPE UNDER RISER BASE.

CONCRETE BASE METAL PIPE RISER AND ALFALFA VALVE DRAWDOWN FACILITY

whks engineers + planners + landscapers

REVISIONS

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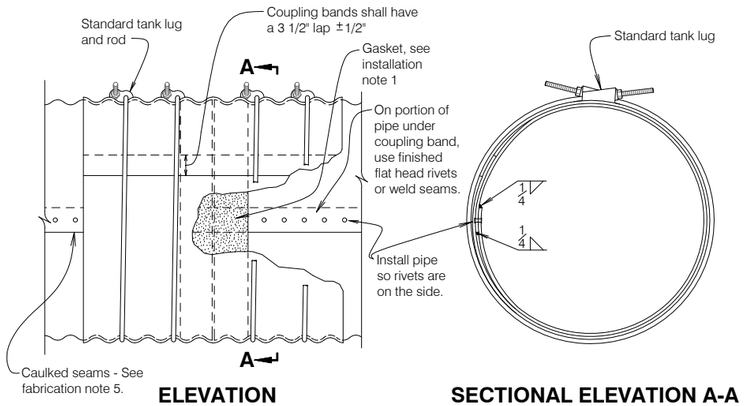
RISER STRUCTURE DETAILS
UPPER IOWA RIVER WATERSHED
TIMP SITE

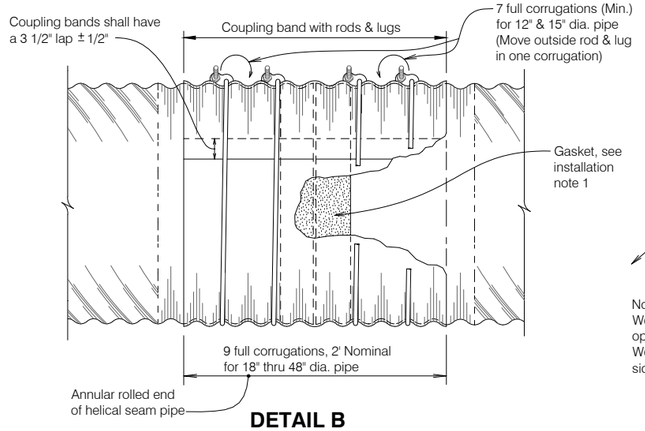
SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET S–1



ELEVATION DETAIL A

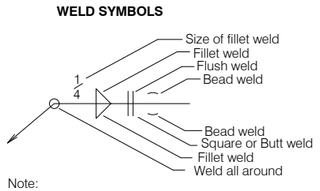
SECTIONAL ELEVATION A-A

WATER TIGHT COUPLING BAND FOR ANNULAR PIPE

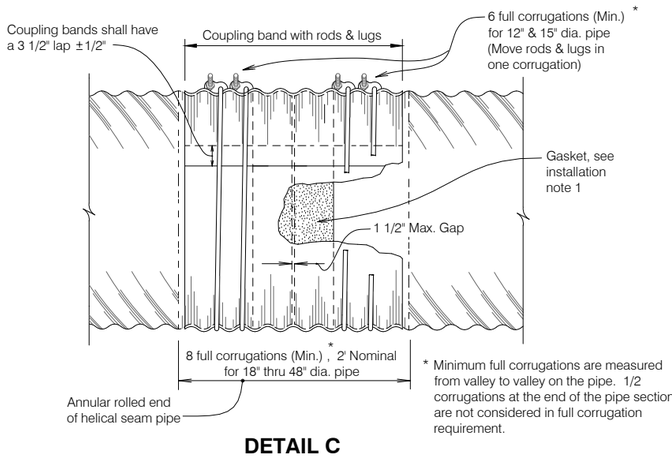


DETAIL B
WATER TIGHT COUPLING BAND FOR HELICAL PIPE
(Re-rolled pipe ends at corrugation peak)

WELD SYMBOLS

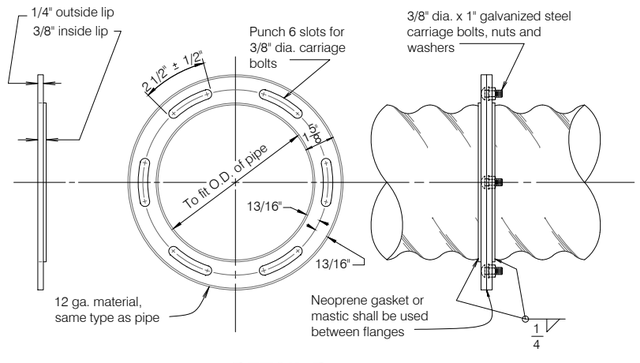


Note:
Weld symbol above line indicates weld is on opposite side of joint to which arrow points. Weld symbol below line indicates weld is on side of joint to which arrow points.

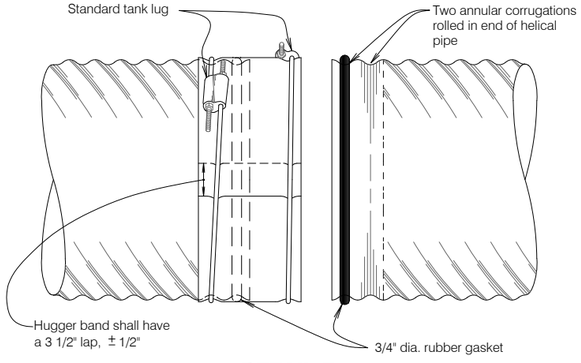


* Minimum full corrugations are measured from valley to valley on the pipe. 1/2 corrugations at the end of the pipe section are not considered in full corrugation requirement.

DETAIL C
WATER TIGHT COUPLING BAND FOR HELICAL PIPE
(Re-rolled pipe ends at corrugation valley)



DETAIL D
FLANGE COUPLING FOR 8" & 10" DIA. PIPE



DETAIL E
WATER TIGHT HUGGER TYPE COUPLING BAND

FABRICATION NOTES

1. WHEN SEVERAL DIFFERENT COATINGS OR CORRUGATIONS ARE CHECKED IN THE COLUMN BOXES, EACH TYPE IS ACCEPTABLE, BUT ONLY ONE TYPE SHALL BE USED IN EACH INSTALLATION.
2. COUPLING BANDS PER DETAILS "A", "B" AND "C" SHALL HAVE THE SAME CORRUGATION REQUIREMENT AND THE SAME COATING AS THE DESIGNATED PIPE.
3. ALL WELDS AND ALL HEAT AFFECTED AREAS ON COATED STEEL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH ASTM'S.
4. ROD SIZE FOR 8" THRU 15" DIAMETER PIPE SHALL BE 3/8" DIAMETER. FOR PIPE LARGER THAN 15" DIAMETER THE ROD SHALL BE 1/2" DIAMETER. DIAMETER OF HOLES IN THE LUGS SHALL BE 1/8" LARGER THAN THE DIAMETER OF THE ROD USED.
5. DURING FABRICATION, WHEN ASPHALT COATING IS NOT USED, RIVETED SEAMS SHALL BE CAULKED WITH AN ASPHALT OR TAR BASED MATERIAL MEETING ASTM A849 TO PROVIDE A WATERTIGHT SEAM. ALL CIRCUMFERENTIAL AND LONGITUDINAL SEAMS SHALL BE CAULKED BEFORE RIVETING. THIS SHALL BE ACCOMPLISHED BY APPLYING A UNIFORM BEAD OF THE ASPHALT OR TAR BASED COMPOUND TO THE INNER LAP SURFACE BEFORE RIVETING SUCH THAT WHEN THE RIVETS ARE IN PLACE, ALL VOIDS ARE FILLED.
6. CLOSE RIVETED PIPE SHALL BE FABRICATED SO THAT THE RIVET SPACING IN THE CIRCUMFERENTIAL SEAMS SHALL NOT EXCEED 3 INCHES, EXCEPT THAT 12 RIVETS SHALL BE SUFFICIENT ON 12" DIA. PIPE.

INSTALLATION NOTES

1. THE SLEEVE TYPE NEOPRENE GASKET SIZE SHALL BE 3/8" THICK WITH A MINIMUM WIDTH OF 7" CENTERED ON THE PIPE JOINT AND FASTENED AT ENDS TO FORM A FULL CIRCLE. IN LIEU OF A NEOPRENE GASKET, ASPHALT OR TAR BASED MASTIC MAY BE USED FOR DETAIL "A", "B" AND "C". (SEE NOTE 5)
2. IN CONNECTING THE PIPE SECTIONS, THE COUPLING BANDS WILL BE CENTERED ON THE PIPE JOINT AND ALIGNED FOR COMPLETE AND TIGHT NESTING OF CORRUGATIONS BETWEEN COUPLING BAND AND EACH PIPE SECTION. THE GAP BETWEEN THE PIPE SECTIONS, PER DETAIL "A", "B" AND "C" SHALL NOT EXCEED 1 1/2". RODS AND LUGS ON COUPLING BANDS WILL BE INSTALLED ACCORDING TO THE DRAWINGS. THE LUGS FOR DETAIL "C" WILL BE LOCATED IN THE PIPE CORRUGATIONS SO THEY DO NOT INTERFERE WITH EACH OTHER WHEN TIGHTENED. THE NUTS ON THE RODS WILL BE TIGHTENED WITHOUT OVER STRESS AND WILL BE RETIGHTENED AT LEAST TWICE AFTER INITIAL INSTALLATION, AT INTERVALS OF APPROXIMATELY 1/2 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.
3. BEFORE COUPLING BANDS ARE INSTALLED ON RIVETED PIPE, THE PIPE SECTIONS THAT ARE TO BE CONNECTED SHALL BE ROTATED SO RIVETS OF PIPE ARE ON THE SIDE OF THE PIPE (SEE DETAIL "A") AND THE INSIDE LAPS ARE POINTED DOWNSTREAM.
4. ON BITUMINOUS COATED PIPE, REMOVE EXCESS BITUMINOUS COATING FROM CORRUGATIONS WHERE BANDS AND PIPE JOIN.
5. THE ENDS OF THE TWO PIPE SECTIONS AND LAP SEAM WILL BE COATED WITH 1/4" OF ASPHALT OR TAR BASED MASTIC (ASTM A849, TROWEL GRADE) FOR DETAIL "A" AND "B" COUPLING BANDS. THE MASTIC COATED AREAS SHOULD BE KEPT FREE OF ALL DIRT, GRAVEL, AND OTHER FOREIGN MATERIAL UNTIL BANDS ARE IN PLACE AND TIGHTENED. WHEN AIR TEMPERATURE IS 50° F, OR LOWER, HEAT WILL BE APPLIED TO SOFTEN, BUT NOT BURN OR MELT, THE MASTIC.
6. FLANGE COUPLING BANDS SHALL BE ALIGNED WITH MATCHING SLOTS, AND NUTS ON THE BOLTS TIGHTENED SECURELY. NEOPRENE GASKET OR MASTIC SHALL BE USED BETWEEN FLANGES, AND NUTS WILL BE RETIGHTENED AFTER COMPLETE ASSEMBLY.
7. COUPLING BANDS, PER DETAIL "B" AND "C" SHALL NOT EXTEND PAST THE RE-ROLLED END OF THE PIPE SECTION ONTO THE HELICAL CORRUGATIONS.

METAL PIPE REQUIREMENTS

NOTE:

THE FOLLOWING DESIGNATIONS FOR PIPE CLASSIFICATIONS, COORUGATIONS AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE WITH CURRENT ASTM'S:

A760 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS.

A761 STANDARD SPECIFICATION FOR CORRUGATED STEEL STRUCTURAL PLATE, ZINC-COATED, FOR FIELD BOLTED PIPE, PIPE ARCHES, AND ARCHES.

A762 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, POLYMER PRECOATED FOR SEWERS AND DRAINS.

A849 STANDARD SPECIFICATION FOR POST-APPLIED COATINGS, PAVINGS, AND LININGS FOR CORRUGATED STEEL SEWER AND DRAINAGE PIPE.

PIPE CLASSIFICATION

- ☒ TYPE I FULL CIRCULAR CROSS-SECTION
- ☐ TYPE II, THIS IS TYPE I PIPE WHICH HAS BEEN REFORMED INTO A PIPE ARCH HAVING APPROXIMATELY A FLAT BOTTOM

CORRUGATION REQUIREMENTS FOR TYPE I AND II PIPE

NOMINAL SIZE (INCH)

- ☐ 1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE)
- ☒ 2 2/3 x 1/2 (STANDARD CORRUGATIONS)
- ☐ 3 x 1

COATINGS - SEE FABRICATION NOTE NO. 1

- ☐ ALUMINUM COATED STEEL - SEE FABRICATION NOTE NO. 5
- ☐ ZINC COATED STEEL - SEE FABRICATION NOTE NO. 5
- ☒ POLYMER PRECOATED - SEE FABRICATION NOTE NO. 5
- ☐ ARAMID FIBER COMPOSITE, BITUMINOUS COATED
- ☐ FULLY BITUMINOUS COATED

*CORRUGATION TYPES - SEE FABRICATION NOTE NO. 1

- ☒ ANNULAR, CLOSE RIVETED
- ☒ HELICAL

*NOTE: EITHER ANNULAR OR HELICAL CORRUGATION MAY BE USED

COUPLING BAND REQUIREMENTS

GAGE	BAND TYPE AND NUMBER OF RODS REQUIRED	NUMBER BANDS REQUIRED	SEE DETAIL
14	☒ 2 FT. WITH 4 RODS FOR 24 " DIA. PIPE		☒ A ☒ B ☒ C
	☐ 4 FT. WITH 6 RODS FOR _____ " DIA. PIPE		☐ A ☐ B ☐ C
16	☒ FLANGE FOR 8" AND 10" PIPE 8 " DIA. PIPE		☒ D
	☐ HUGGER WITH 2 RODS FOR _____ " DIA. PIPE		☐ E

REVISIONS

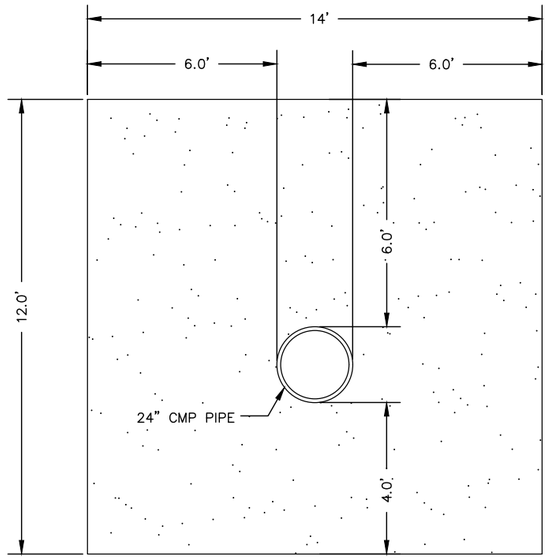
NO.	DATE	DESCRIPTION
1	7/1/21	ISSUED FOR PERMITTING
2	8/5/21	ISSUED FOR BID

METAL PIPE REQUIREMENTS
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW

METAL PIPE REQUIREMENTS AND COUPLING BANDS

SHEET S-2

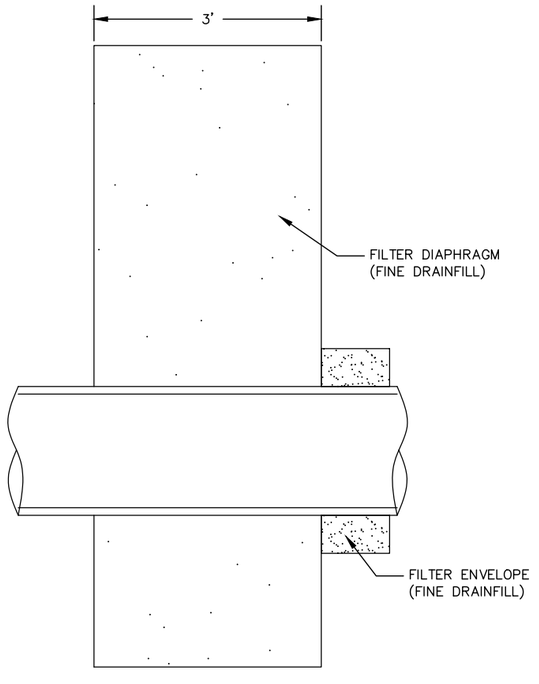


FILTER DIAPHRAGM & FILTER ENVELOP DETAIL

NOT TO SCALE

NOTES

1. VARIOUS CONSTRUCTION METHODS ARE POSSIBLE. IF CONDUIT IS PLACED AFTER EMBANKMENT CONSTRUCTION, EMBED MIN. 2' BEYOND CUT.
2. TO AVOID EXCESS FILTER LENGTH, LIMIT ANY TRENCH CUT TO 3 TIMES THE DIAMETER OF PIPE.
3. FILTER DIAPHRAGM AND FILTER OUTLET MATERIAL SHALL BE FINE DRAINFILL.
4. FILTER MATERIAL SHALL BE PLACED IN 8" LIFTS MAXIMUM.

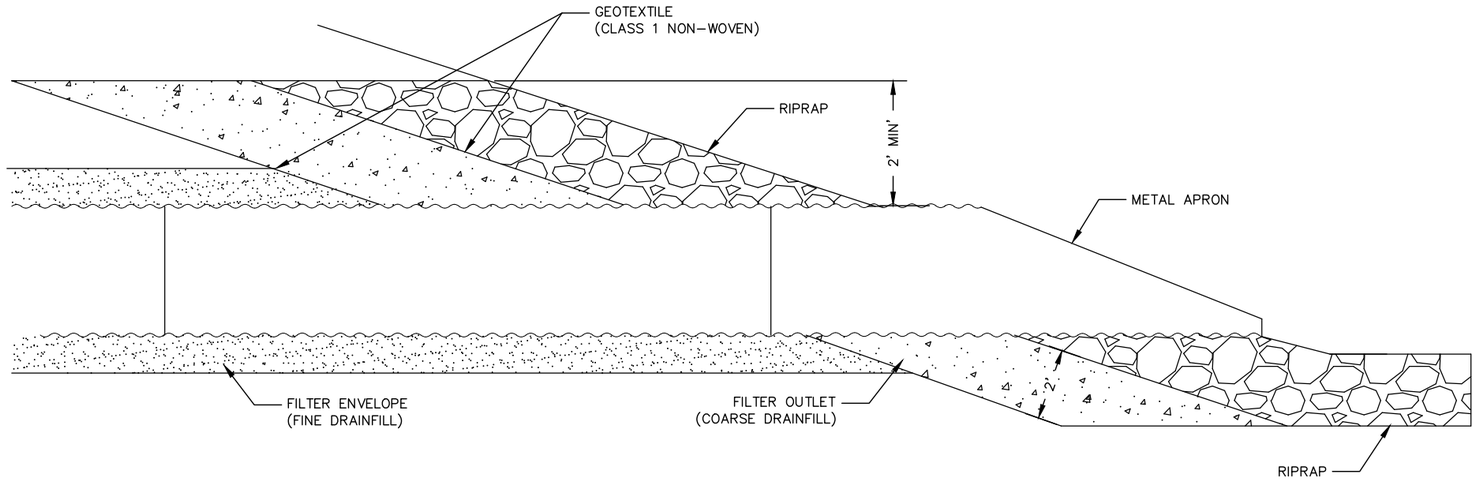


FILTER OUTLET DETAIL

NOT TO SCALE

NOTES

1. THE FILTER ENVELOPE SHALL FULLY SURROUND THE OUTLET PIPE FROM THE FILTER DIAPHRAGM TO OUTLET.
2. EXTEND GRAVEL LAYER 1' BEYOND FILTER FACE IN ALL DIRECTIONS.



whks
engineers + planners + landsurveyors

REVISIONS

NO.	DATE	DESCRIPTION
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FILTER DIAPHRAGM DETAILS
UPPER IOWA RIVER WATERSHED
TIMP SITE

SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET S-3

CONICAL TRASH RACK TABLE OF DIMENSIONS AND QUANTITIES

ⓐ BARS 5/8" DIA.							ANTI-VORTEX PLATE - 12 GA.						ⓑ BARS 5/8" DIA.			ⓒ BARS 5/8" DIA.			ⓓ BARS 5/8" DIA.			ⓔ BARS 1/2" DIA.			TOP PLATE 1/4" THICK
H (INCHES)	R (INCHES)	X (INCHES)	Y (INCHES)	S (INCHES)	O (INCHES)	TOTAL LENGTH	NO. REQ'D.	N (INCHES)	L (FT.IN.)	P (INCHES)	F (INCHES)	V (INCHES)	NO. REQ'D.	r	LENGTH (INCHES)	NO. REQ'D.	r (INCHES)	LENGTH (INCHES)	NO. REQ'D.	r (INCHES)	LENGTH (INCHES)	NO. REQ'D.	r (INCHES)	LENGTH (INCHES)	DIA. (INCHES)
12" DIAMETER C.M. PIPE RISER W/12" DIA. C.M. PIPE BARREL																									
9	11 1/8	6	11 1/8	1	15 5/8	3'-7 5/8"	10	9 1/8	2'-6"	18	5	5	2	11 5/16	36 1/2	1	6	39 3/4	1	11 5/16	73	1	7 3/16	53	4
15" DIAMETER C.M. PIPE RISER W/12" DIA. C.M. PIPE BARREL																									
9	12 5/8	6	12 5/8	1	17 3/4	3'-9 3/4"	10	10 1/4	2'-9"	18	6	6	2	12 13/16	41 1/4	1	7 1/2	49	1	12 13/16	82 1/2	1	8 11/16	63	4
18" DIA. DIAMETER C.M. PIPE RISER W/15" DIA. C.M. PIPE BARREL																									
9	14 1/8	6	14 1/8	1	20	4'-0"	10	11 7/16	3'-0"	21	8	8	2	14 5/16	46	1	9	58 1/2	1	14 5/16	92	1	10 1/4	73	4
21" DIAMETER C.M. PIPE RISER W/18" DIA. C.M. PIPE BARREL																									
12	9 1/4	9	18 1/2	2	20 5/8	4'-6 5/8"	12	12 3/8	4'-0"	18	12	6	2	18 13/16	60	1	10 1/2	68	1	18 13/16	120	1	11 3/4	82 1/2	4
24" DIAMETER C.M. PIPE RISER W/18" DIA. OR 21" DIA. C.M. PIPE BARREL																									
15	11 3/8	12	22 3/4	2	25 3/8	5'-5 3/8"	12	14 13/16	4'-6"	24	18	9	2	23 5/16	74	1	12	77 1/2	1	23 5/16	148	1	13 1/4	91 1/2	4
30" DIAMETER C.M. PIPE RISER W/12" AND 15" DIA. C.M. PIPE BARREL																									
12	9 1/2	15	28 1/2	3	30	5'-10"	18	11 11/16	6'-0"	20	21	7	2	29 5/16	93	1	15	96	1	29 5/16	186	1	16 1/4	111	4
30" DIAMETER C.M. PIPE RISER W/18", 21", 24" DIA. C.M. PIPE BARREL																									
18	9 1/2	15	28 1/2	3	30	6'-4"	14	15 13/16	6'-0"	24	21	7	2	29 5/16	93	1	15	96	1	29 5/16	186	1	16 1/4	111	4
36" DIAMETER C.M. PIPE RISER W/24" & 30" DIA. C.M. PIPE BARREL																									
21	12 1/2	21	37 5/8	3	39 1/2	7'-10 1/2"	16	17 5/16	7'-6"	30	30	10	2	38 3/8	121 1/2	1	18	115	1	38 3/8	243	1	19 1/4	129	4

REQUIREMENT TABLE

CONICAL TRASH RACK, STEEL, FOR **36** " DIA. RISER, **24** " DIA. BARREL, WITH MODIFIED ⓐ BAR AS PER DETAIL

FABRICATION NOTES:

1. WELD 4 ⓐ BARS TO VORTEX PLATE AND TO TOP PLATE. WELD ⓒ AND ⓓ BARS TO 4 ⓐ BARS. WELD ⓑ BAR TO ⓐ BARS AND VORTEX PLATE. WELD REMAINING ⓐ BARS TO ⓑ ⓒ AND ⓓ BARS AND TOP PLATE.

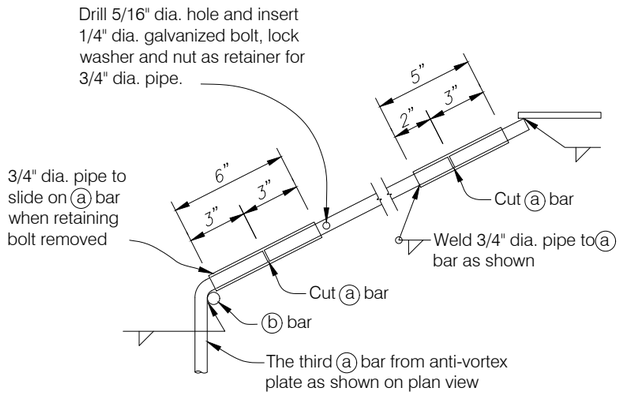
2. THE TRASH RACK AND ANTI-VORTEX PLATE MAY BE FABRICATED AS A UNIT, OR TRASH RACK MAY BE FABRICATED IN IDENTICAL HALVES AND ATTACHED TO VORTEX PLATE WITH 1/2" DIA. U BOLTS SPACED APPROX. 12" c-c ALONG THE VERTICAL AND INCLINED SECTIONS OF THE ⓐ BARS NEXT TO THE PLATE.

3. ALL BARS ARE SMOOTH ROUND STEEL BARS.

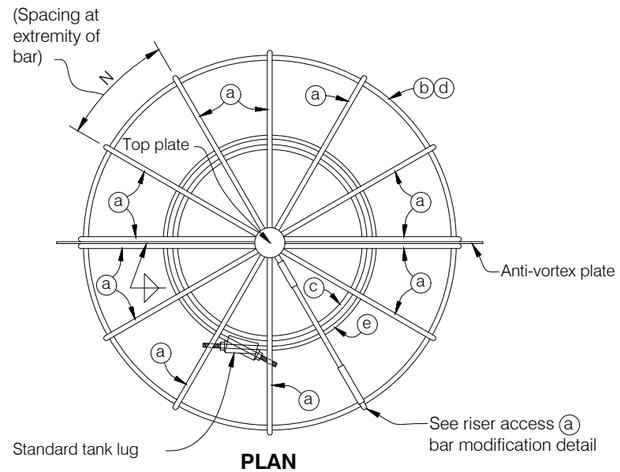
4. ALL WELDS AND HEAT AFFECTED AREAS, ON GALVANIZED METAL, SHALL BE TREATED IN ACCORDANCE WITH CONSTRUCTION SPECIFICATIONS.

INSTALLATION NOTES:

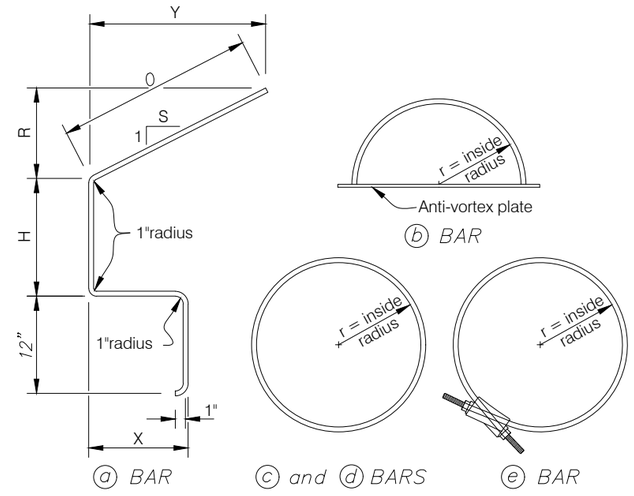
1. PAINT ACCORDING TO PAINT SYSTEM "C" OF PAINT SPECIFICATIONS. PAINT IS NOT REQUIRED IF MATERIAL IS GALVANIZED.



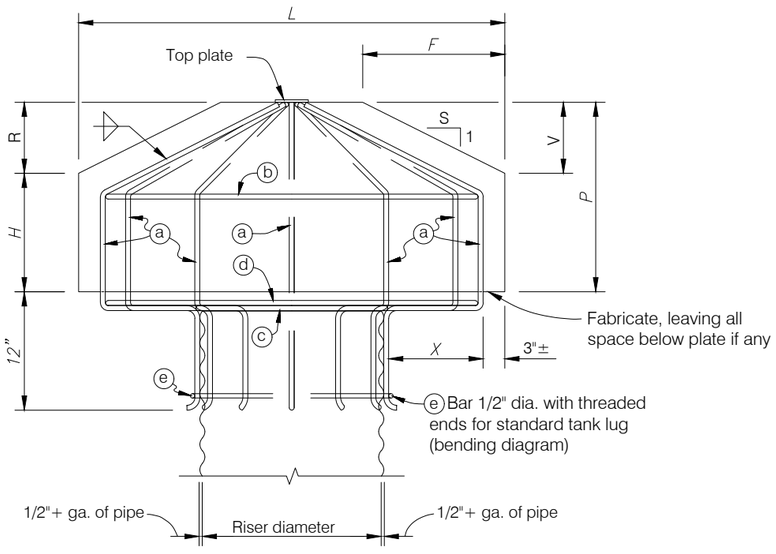
DETAIL FOR RISER ACCESS ⓐ BAR MODIFICATION



PLAN

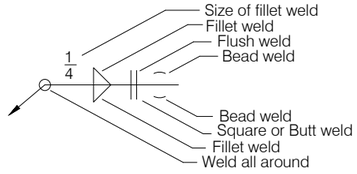


BENDING DIAGRAMS



CONICAL TRASH RACK DETAIL H

WELD SYMBOLS



Note:
Weld symbol above line indicates weld is on opposite side of joint to which arrow points.
Weld symbol below line indicates weld is on side of joint to which arrow points.

CONICAL TRASH RACK WEIGHTS

RISER DIA. (INCHES)	BARREL DIA. (INCHES)	WEIGHT (POUNDS) (STEEL)
12	12	74
15	12	80
18	15	89
21	18	114
24	18-21	142
30	12-15	198
30	18-21-24	182
36	24-30	267

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REVISIONS

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TRASH RACK DETAILS
UPPER IOWA RIVER WATERSHED
TIMP SITE

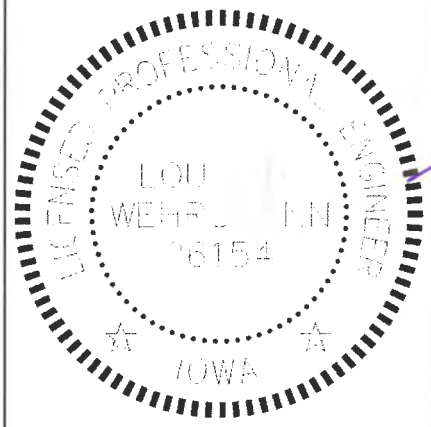
SCALE: AS SHOWN
PROJECT NO. 9062
DRAWN BY: AMZ
CHECKED BY: LHW
SHEET S-4

CONICAL TRASH RACK

SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS FOR THE UPPER IOWA WMA

UI-051-TIMP

WINNESHIEK COUNTY, IOWA



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Louis H. Wehrspann, P.E. Date 8/6/21

License number 26154

My license renewal date is December 31, 2021.

Pages or sheets covered by this seal:
All

SPECIAL PROVISIONS
UPPER IOWA WMA
TIMP SITE
UI-051-TIMP
WINNESHEICK COUNTY, IOWA

DIVISION II – TECHNICAL

1. Mobilization

   A. Mobilization shall be according to IA-8 except as supplemented in this section.

   B. Any work that is necessary to provide access to the site including, but not limited to, grading, temporary culverts, rock installation and removal, and clearing will be included in this item. When construction is completed access areas will be restored, as close as practical, to its original condition.

   C. Portable toilets shall be provided at the construction site and used for the sanitary facilities.

   D. A Bid item has been provided for Mobilization. Measurement and payment for Mobilization shall be on a lump sum basis and shall include the preparatory work and operations for all items under the contract, including, but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site.

2. Site Preparation

   A. Site Preparation shall be according to IA-1 except as supplemented in this section.

   B. A Bid item has been provided for Site Preparation. Measurement and Payment for Site Preparation shall be on a lump sum basis, which shall be compensation in full for all labors, materials, and equipment necessary to complete the work as specified.

3. Erosion Control Blanket

   A. Erosion Control Blanket shall be according to IDOT 4169 except as supplemented in this section.

   B. Erosion Control Blanket for Slope Protection shall be Wood Excelsior Mats.

   C. Unit price includes, but is not limited to, excavation, staples, anchoring devices, and material for anchoring slots.

   D. The overlapped portion of the Erosion Control Blanket shall not be included in the measurement for payment.

E. The Contractor shall provide construction material submittals to the Engineer.

F. A bid item has been added Erosion Control Blanket. Measurement and payment for Erosion Control Matting shall be on a per square yard basis, rounded to the nearest square yard.

4. Excavation

A. Excavation shall be according to IA-21 except as supplemented in this section.

B. Excavation required to install structures shall be considered incidental.

C. This bid item does not include the excavation and/or removal of topsoil.

D. Over excavation, separation and segregation of borrow material shall be considered incidental.

E. Borrow from any areas not designated in the plans will not be allowed unless directed and/or approved by the Engineer.

F. A bid Item has been provided for Excavation. Measurement and payment for Excavation shall be on a plan “P” cubic yard basis. Plan basis, designated with a “P” in the proposal, means that the plan quantity listed in the proposal will be used to measure and pay for the bid item regardless of the actual quantity. The Bid Unit Price, as a planned quantity, shall be compensation in full for all materials, labor, equipment and costs to complete the work as specified.

5. Earthfill

A. Earthfill shall be according to IA-23 except as supplemented in this section.

B. This bid item shall consist of excavating, placing, and compacting the earthfill necessary to construct the embankment and adjacent areas as shown on the plans.

C. This bid item also consists of replacing and compacting material for the excavated core trench.

D. Earthfill for embankments shall be placed in 6-inch lifts, maximum.

E. Compaction shall be according to Method 2 unless otherwise specified in the plans.

F. Rocks larger than 6-inches in diameter shall be removed prior to compaction of the fill.

G. The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this

requirement, and material that is too dry shall have water added and mixed until the requirement is met. The moisture content of the fill material shall be such that a ball formed with the hands does not crack or separate when struck sharply with a pencil and will easily ribbon out between the thumb and finger. The application of water to the fill materials shall be accomplished at the borrow areas insofar as possible.

H. Compaction for trench bottoms and structures shall be considered incidental.

I. A Bid item has been provided for Earthfill. Measurement and payment for Embankment shall be on a plan "P" cubic yard basis. Plan basis, designated with a "P" in the proposal, means that the plan quantity listed in the proposal will be used to measure and pay for the bid item regardless of the actual quantity. The Bid Unit Price, as a planned quantity, shall be compensation in full for all materials, labor, equipment and costs to complete the work as specified.

6. Topsoiling

A. Topsoiling shall be according to IA-26 except as supplemented in this section.

B. This item will consist of stripping, salvaging, stockpiling and spreading salvaged (stockpiled) topsoil as the surface layer of all excavations and earthfills that will be seeded or later plated with agricultural crops.

C. Areas to receive a minimum four (4) inch layer of topsoil include: structural seeding surfaces (the embankment and the spillway) and areas directed on the plans.

D. Areas to receive a minimum six (6) inch layer of topsoil include: all other disturbed areas except areas three (3) feet below normal pool levels.

E. Quantities reflected in proposal do not include topsoiling of borrow areas. Additional topsoiling of borrow areas shall be considered incidental.

F. Spoil shall be spread evenly in areas designated on the plans or as specified by the landowner.

G. A Bid item has been provided for Topsoiling. Measurement and payment for Topsoiling shall be on a plan "P" cubic yard basis. Plan basis, designated with a "P" in the proposal, means that the plan quantity listed in the proposal will be used to measure and pay for the bid item regardless of the actual quantity. The Bid Unit Price, as a planned quantity, shall be compensation in full for all materials, labor, equipment and costs to complete the work as specified.

7. Riser Structure

A. The Riser Structure shall be constructed of Corrugated Metal Pipe according to the plans and specification IA-51.

B. The trash rack shall be constructed according to IA-81.

C. Contractor shall provide shop drawings of riser inlet structure prior to construction.

D. A Bid item has been provided for Riser Structure for various types and sizes of various depths. Measurement will be by each structure furnished and installed. Payment at the Bid Unit Price shall be compensation in full for furnishing all materials including base, trash rack, alfalfa valve, equipment, tools and labor necessary to construct these items.

8. Corrugated Metal Pipe

A. Corrugated Metal Pipe shall be according to IA-51 except as supplemented in this section.

B. The corrugated metal pipe shall be closed riveted caulk seam (CRCS) round pipe with 2-2/3" x 1/2" annular corrugations and shall conform to ASTM A760.

C. The coupling band and rodent guard shall be considered incidental.

D. A Bid item has been provided for Corrugated Metal Pipe per size. Measurement will be by the linear foot of pipe along the axis of the pipe with no regards to fittings. Payment at the Bid Unit Price shall be compensation in full for all equipment, labor, fittings and material including, but not limited to, bedding, backfill, compaction, connections, caps and costs to complete the work as specified.

E. A Bid item has been provided for CMP Aprons by size. Measurement will be by each CMP apron per size installed. Payment at the Bid Unit Price shall be compensation in full for all costs of furnishing and installing the CMP apron and any required ties, trenching in earth, bedding materials, backfilling with granular material, backfilling of trenches, compaction, rodent guards and costs needed to complete the work as specified.

9. Filter Diaphragm

A. This item will consist of constructing the filter diaphragm and filter outlet as shown in the plans. Filter Diaphragm shall be according to IA-24 except as supplemented in this section.

B. Filter diaphragm sand shall be placed uniformly in layers not to exceed 8 inches thick before compaction. Each layer shall be thoroughly wetted (flooded) immediately prior to compaction.

C. Each layer of sand shall be compacted by a minimum of two passes of a vibratory plate compactor weighing at least 160 pounds. The compactor shall have a minimum centrifugal force of 2,450 pounds at a vibrating frequency of no less than 5,000 cycles per minute (or by a minimum of two passes of a vibratory smooth wheeled roller weighing at least 325 pounds with a

centrifugal force of 2,250 pounds at a vibrating frequency of no less than 4,500 cycles per minute).

D. The sand shall be placed to avoid segregation of particle sizes and to ensure the continuity and integrity of all zones. No foreign material shall be allowed to become intermixed with or otherwise contaminate the drainfill.

E. Traffic shall not be permitted to crossover filter zones at random. Equipment crossovers shall be maintained, and the number and location of such crossovers shall be established and approved before the beginning of diaphragm placement. Each crossover shall be cleaned of all contaminating material and shall be inspected and approved by the engineer before the placement of additional drain fill material.

F. Any damage to the foundation surface or the trench sides or bottom occurring during placement of sand filter shall be repaired before the sand filter zone placement is continued.

G. The upper surface of the sand filter zone constructed concurrently with adjacent zones of earthfill shall be maintained at a minimum elevation of 1 foot above the upper surface of adjacent earthfill.

H. A Bid item has been provided for Filter Diaphragm. Measurement will be on a lump sum basis. Payment at the Unit Bid Price shall be compensation in full for all labor, material, filter diaphragm, filter envelope, filter outlet, geotextile fabric and costs needed to complete the work as specified.

10. Rock Riprap

A. Rock Riprap shall be according to IA-61 except as supplemented in this section.

B. Class I non-woven Geotextile Fabric shall be according to IA-95.

C. A Bid item has been provided for Rock Riprap – Class E. Measurement will be to the nearest ton. Payment at the Unit Bid Price shall be compensation in full for all labor (including excavation of existing material), Geotextile Fabric, materials and costs to complete the work as specified.

D. A Bid item has been provided for Rock Riprap – Class C. Measurement will be to the nearest ton. Payment at the Unit Bid Price shall be compensation in full for all labor (including excavation of existing material), Geotextile Fabric, materials and costs to complete the work as specified.

11. Seeding and Mulching for Protective Cover

A. Seeding shall be according to IA-6 except as supplemented in this section.

B. Contractor shall ensure that a minimum of 6” of topsoil is placed for the seed bed prior to seeding of Buffer Seeding areas. Topsoil shall be stripped and salvaged where existing grass exists.

C. Contractor shall ensure that a minimum of 4” of topsoil is placed for the seed bed prior to seeding of Structure & Channel Seeding. Topsoil shall be stripped and salvaged where existing grass exists.

D. A Bid item has been provided for Buffer Seeding. Measurement will be to the nearest 0.1 acre. Payment at the Unit Bid Price shall be compensation in full for all labor, final grading, erosion control, temporary seeding, fertilizer, re-seeding, materials and costs to complete the work as specified.

E. A Bid item has been provided for Structure & Channel Seeding. Measurement will be to the nearest 0.1 acre. Payment at the Unit Bid Price shall be compensation in full for all labor, final grading, erosion control, temporary seeding, fertilizer, re-seeding, materials and costs to complete the work as specified.

TECHNICAL SPECIFICATIONS

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NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-1 SITE PREPARATION

1. SCOPE

Site preparation work shall consist of clearing, grubbing, stripping, refuse removal, bank sloping and structure removal on the site as necessary to rid the site of all undesirable materials on or near the surface and prepare the site for the structure. All woody growth within the construction area shall be cleared and all stumps and roots one inch in diameter or larger shall be grubbed from the site. In addition, all areas within 25 feet of the footprint of the structure shall be cleared and grubbed except as directed by the Engineer. The work shall also consist of the removal and disposal of structures (including fences) that must be removed to perform other items of work.

2. FOUNDATION PREPARATION

The construction areas shall be stripped a minimum of 6 inches to remove all unsuitable materials such as organic matter, grasses, weeds, sod, debris, and stones larger than 6 inches in diameter.

In an earth embankment foundation area, all channel banks and sharp breaks shall be sloped to no steeper than 1.5 horizontal to 1 vertical.

The foundation area shall be thoroughly scarified before placement of fill material. The surface shall have moisture added or shall be compacted if necessary so that the first layer of fill material can be compacted and bonded to the foundation.

3. STRIPPED MATERIAL DISPOSAL

Stripped materials shall be buried, removed from the site, or disposed of as directed by the owner or Engineer. Whenever possible, material shall not be disposed of in the pool area created by the structure.

Stockpiled materials around a construction site should be placed so as not to hinder subsequent construction operations.

4. DISPOSAL OF REFUSE MATERIALS

Waste materials from clearing and structure removal shall be burned or buried at locations approved by the owner. Buried materials shall be covered with a minimum of 2 feet of earthfill. Whenever possible, material shall not be disposed of in any pool area created by the structure.

All refuse shall be disposed of in a manner which complies with all local and state regulations.

5. SALVAGE

Items to be salvaged shall be as shown on the drawings. Structures and fencing materials that are designated to be salvaged shall be carefully removed and neatly placed in the specified storage areas.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-5 POLLUTION CONTROL

1. SCOPE

The work shall consist of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air during construction operations.

2. MATERIALS

All materials furnished shall meet the requirements shown on the drawings or in the specifications.

3. EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

The measures and works shall include, but are not limited to, the following:

Staging of Earthwork Activities: The excavation and moving of soil materials shall be scheduled so that areas unprotected from erosion will be minimized. These areas will be unprotected for the shortest time feasible.

Seeding: Structures and disturbed areas shall be seeded as soon as possible after construction is completed.

Temporary seedings may be used as an alternative to other stabilization measures as approved by the Engineer.

Mulching: Construction areas that have been disturbed but have no construction activity scheduled for 21 days or more shall have erosion protection measures applied by the 14th day. This erosion protection may be mulching or other approved temporary measures. Construction areas left open during a winter shutdown period shall be protected by mulching.

All seeding and mulching shall be completed in accordance with the seeding plan and Iowa Construction Specification IA-6, Seeding and Mulching for Protective Cover.

The following works may be temporary. If they are installed as a temporary measure, they shall be removed and the area restored to its original state when they are no longer needed or when permanent measures are installed.

Diversions: Diversions may be required to divert clean runoff water away from work areas and to collect runoff from work areas for treatment and safe disposition.

Stream Crossings: Culverts or bridges may be required where construction equipment must cross streams.

Sediment Basins: Sediment basins may be required to settle and filter out sediment from eroding areas to protect properties and streams below the construction site.

Sediment Filters: Straw bale filters, geotextile sediment fences, or other equivalent methods may be used to trap sediment from areas of limited runoff. Sediment filters shall be properly anchored to prevent erosion under them.

Waterways: Waterways may be required for the safe removal of runoff from fields, diversions, and other structures or measures.

4. CHEMICAL POLLUTION

The Contractor shall provide watertight tanks or barrels or construct a sump sealed with plastic sheets to be used to dispose of chemical pollutants, such as drained lubricating or transmission oils, greases, soaps, concrete mixer wash water, asphalt, etc., produced as a by-product of the construction work. At the completion of the construction work, sumps shall be removed and the area restored without causing pollution.

Sanitary facilities such as chemical toilets or septic tanks shall not be placed adjacent to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water sources. At the completion of construction work, facilities shall be disposed of without causing pollution.

5. AIR POLLUTION

The burning of brush or trash or disposal of other materials shall adhere to local and state regulations.

Fire prevention measures shall be taken to prevent the start or the spreading of wild fires, which result from project work. Fire breaks or guards shall be constructed at locations shown on the drawings.

All public access or haul roads used by the contractor during construction of the project shall be sprinkled or otherwise treated to fully suppress dust. All dust control methods shall insure safe operations at all times. If chemical dust suppressants are used, the material shall be a commercially available product specifically designed for dust suppression and the application shall follow manufacturer's requirements and recommendations. A copy of the product data sheet and manufacturer's recommended application procedures shall be provided to the Engineer five working days before use.

6. MAINTENANCE, REMOVAL, AND RESTORATION

All pollution control measures and works shall be adequately maintained in a functional condition as long as needed during the construction operation. All temporary measures shall be removed and the site restored to as near original conditions as practical.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-6 SEEDING AND MULCHING FOR PROTECTIVE COVER

1. SCOPE

The work shall consist of seeding, mulching, and fertilizing all disturbed areas and other areas as indicated on the drawings or otherwise designated.

2. SEEDBED PREPARATION AND APPLICATION

The entire area to be seeded shall be reasonably smooth and all washes and gullies shall be filled to conform to the desired cross-section before actual seedbed preparation is begun. At this stage of the operation, where required fertilizer shall be applied uniformly and incorporated into the top 3 inches of the soil with suitable tillage equipment. The seedbed preparation operation shall be suspended when the soil is too wet or too dry. The seedbed shall be loosened to a depth of at least three inches.

On side slopes steeper than 2-1/2 horizontal to 1 vertical, the 3 inch minimum depth of seedbed preparation is not required, but the soil shall be worked enough to insure sufficient loose soil to provide adequate seed cover.

Unless otherwise specified, the seeding operation shall be performed immediately after preparation of the seedbed. Conventional seeding shall be drilled by equipment that will insure uniform distribution of the seed.

3. MATERIALS

A. Seed

Provide fresh, clean, new crop, certified seed complying with tolerance for germination and purity and free of poa annua, bent grass, and noxious weed seed. Furnish all seeds, including grass, legume, forbs, and cereal crop seeds, from an established seed dealer or certified seed grower. All materials and suppliers are to follow Iowa Seed Law and Iowa Department of Agriculture and Land Stewardship regulations and be labeled accordingly. Provide native grass and forbs that are source-identified as G0-Iowa certified "yellow tag," when available. If G0-Iowa certified "yellow tag" sourced seed is unavailable, or is only available from a single source, a substitution may be approved by the Engineer

Ensure the seed provided meets or exceeds the minimum requirements of purity and germination stated on an independent certificate of seed analysis document according to the Association of Official Seed Analysis (AOSA) rules. The seed certification tag and seed analysis document provided must be from the same lot number as shown on the seed tag. Ensure the date of test results is no greater than 9 months from the seed application date. Approval of all seed for use will be based on the accumulated total of Pure Live Seed (PLS) for each phase of work. PLS is obtained by multiplying purity times germination. PLS shall not be less than the accumulated total of the PLS specified.

B. Mulch for Conventional Seeding

Material used as mulch may consist of the following:

a. Dry cereal straw (oats, wheat, barley, or rye)
b. Prairie hay
c. Wood excelsior composed of wood fibers, at least 8 inches long, based on an average of 100 fibers, and approximately 0.024 inch thick and 0.031 inch wide. The fibers must be cut from green wood and be reasonably free of seeds or other viable plant material.

Do not use other hay (bromegrass, timothy, orchard grass, alfalfa, or clover). All material used as mulch must be free from all noxious weed, seed-bearing stalks, or roots and will be inspected and approved by the Engineer prior to its use.

C. Mulch for Hydraulic Seeding

Wood cellulose mulch meeting the following requirements.

a. Use material that is a natural or cooked cellulose fiber processed from whole wood chips, or a combination of up to 50% of cellulose fiber produced from whole wood chips, recycled fiber from sawdust, or recycled paper (by volume).
b. Product contains a colloidal polysaccharide tackifier adhered to the fiber to prevent separation during shipment and avoid chemical co-agglomeration during mixing.
c. Form a homogeneous slurry of material, tackifier, and water.
d. Use a slurry that can be applied with standard hydraulic mulching equipment.
e. Dye the slurry green to facilitate visual metering during application.
f. Do not use materials that have growth or germination-inhibiting factors or any toxic effect on plant or animal life when combined with seed or fertilizer

In lieu of wood cellulose mulch, bonded fiber matrix mulch, and mechanically bonded fiber matrix mulch may be used. If these types of mulch are used they shall meet the requirements of Iowa DOT specification 9010.

D. Hydraulic Tackifier for Hydraulic Seeding

Provide the following types of natural tackifiers with an erosion control performance no greater than 3 months

a. Water soluble natural proteins
b. Vegetable gums
c. Guar gums; at least 95 percent guar gum by weight and the remaining weight consisting of dispersing and cross-link additives
d. Starch; non-ionic, cold-water soluble, pre-gelatinized granular cornstarch
e. Psyllium; finely ground muciloid coating of plantago seeds applied as a dry powder or a wet slurry to the surface of the soil
f. Pitch; non ionic emulsion with a solids content of at least 48 percent
g. Rosin types blended with gelling and hardening agents; consisting of at least 26 percent of the total solids content

h. Water soluble blends of hydrophilic polymers, viscosifiers, sticking aids, and other gums.

Use non-corrosive, water-diluted emulsion soil stabilizer capable of curing to water-insoluble binding and cementing agent upon application.

Synthetic tackifiers and polyacrylamide tackifiers may be used if approved by the engineer.

4. CONVENTIONAL MULCH APPLICATION

The required mulching shall be performed on the same day that the seed is sown. The mulch shall be applied uniformly over the area. The type and rate shall be 1.5 tons per acres or as specified. When mulching is required, all areas seeded during any one day shall be mulched within 24 hours. The mulch may be spread by any means that results in a uniform cover. The mulch shall be anchored. Anchoring of the mulch may be performed by a mulch anchoring tool or regular farm disk weighted and set nearly straight, by installation of mulch netting, or by other methods approved by Engineer.

5. STRUCTURE & CHANNEL SEEDING

A. Structural seeding consists of seeding structural embankments, spillways, outlet channels, side slopes and any other disturbed areas noted on the plans or as determined by engineer.
B. Seeding shall include a cover crop at 1.0-1.5 bushels per acre. Oats shall be used prior to June 30 and cereal rye shall be used after July 1
C. Seeding rates are expressed in bulk pounds per acre. Seed quality shall not drop below 70% Pure Live Seed (PLS) where PLS = (percent germination plus percent dormant seed) times percent purity.
D. Seeding rates (mixes) are as follows:

Structures, Spillways, Slopes

Seed Mix	Application Rate (lb/ac)
Smooth Brome	28
Perennial Ryegrass	10
Red Clover	2

E. Structural seeding shall be applied with a hydraulic seeder and include hydraulic mulch and tackifier.
F. Fertilizer shall be applied on the entire seeding area at the following rate:
   Nitrogen (N) 30 pound/acre
   Phosphorus (P_2O_5) 30 pounds/acre
   Potassium (K_2O) 40 pounds/acre
G. Structural and Waterway seeding shall occur during the following seeding periods:
   Spring March 1 to May 15
   Summer August 1 to September 15
   Fall November 15 to Freeze-up
H. If construction is completed during any other time of the year, the seeding shall be performed at the next seeding period.
I. If seeding is completed during the spring seeding period, a companion crop of oats shall be seeded at a rate of 1-1/2 bushels per acre at no additional cost.

6. BUFFER SEEDING

A. This item will consist of seeding the areas designated on the plans as buffer seeding and include borrow areas, disturbed areas not seeded as part of structural seeding, and other areas within the easement. Buffer seeding is not required in area below normal pool elevation established.
B. Buffer seeding shall be done via conventional seeding with conventional mulch.
C. Seeding rates are expressed in pounds of pure live seed per acre. All seed must be yellow-tagged Iowa ecotype.
D. Seeding shall include a cover crop at 1.0-1.5 bushels per acre. Oats shall be used prior to June 30 and cereal rye shall be used after July 1st.
E. Seeding mixture requirements shall be as follows:

USDA NRCS
Natural Resources Conservation Service

IA - CPA - 4 REV.
April 2020
(File Code 180-12-12)

Seeding Plan

Name **UI-51-TIMP** Date **8/6/2021**
Prepared by Tract No.
Field No.
Program: Acres: 2.50 Contract No.

Seeding Mix Summary

Grasses	Scientific Name	Common Name	Seeds/Ft^2	PLS Lbs/Acre	PLS Lbs Total
1	*Andropogon gerardii*	Big Bluestem	3.673	1.000	2.50
2	*Sorghastrum nutans*	Indiangrass	5.510	1.250	3.13
3	*Bouteloua curtipendula*	Sideoats Grama	2.204	1.000	2.50
4	*Panicum virgatum*	Switchgrass	1.543	0.300	0.75
5	*Elymus canadensis*	Canada Wildrye	0.764	0.400	1.00
6	*Elymus virginicus*	Virginia Wildrye	0.617	0.400	1.00
7	*Schizachyrium scoparium*	Little Bluestem	13.774	2.500	6.25
8	*Sporobolus clandestinus*	Rough Dropseed	1.102	0.100	0.25
9	*Sporobolus heterolepis*	Prairie Dropseed	0.059	0.010	0.025
10	*Koeleria macrantha*	Prairie Junegrass	0.735	0.010	0.025
11	*Carex vulpinoidea*	Fox Sedge	0.367	0.010	0.025
		SUBTOTAL GRASSES	**30.347**	**6.980**	**17.450**

Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft^2	PLS Lbs/Acre	PLS Lbs Total
1	*Rudbeckia hirta*	Black-eyed Susan	2.129	0.063	0.16
2	*Chamaecrista fasciculata*	Partridge Pea	0.093	0.094	0.24
3	*Ratibida pinnata*	Gray-headed Coneflower	0.694	0.063	0.16
4	*Monarda fistulosa*	Wild Bergamot	0.797	0.031	0.078
5	*Ludwigia alternifolia*	Seedbox	2.865	0.006	0.015
6	*Heuchera richardsonii*	Alumroot	0.771	0.003	0.0075
7	*Potentilla arguta*	Prairie Cinquefoil	0.084	0.001	0.0025
8	*Veronicastrum virginicum*	Culver's Root	1.763	0.006	0.015
9	*Oligoneuron rigidum*	Stiff Goldenrod	0.286	0.019	0.048
10	*Zizia aurea*	Golden Alexander's	0.101	0.025	0.063
11	*Dalea purpurea*	Purple Prairie Clover	0.126	0.019	0.048
12	*Dalea candida*	White Prairie Clover	0.133	0.019	0.048
13	*Echinacea pallida*	Pale Coneflower	0.025	0.013	0.033
14	*Symphyotrichum laeve*	Smooth Blue Aster	0.121	0.006	0.015
15	*Solidago speciosa*	Showy Goldenrod	0.105	0.003	0.0075
16	*Eryngium yuccifolium*	Rattlesnake Master	0.017	0.006	0.015
17	*Artemisia ludoviciana*	White Sagebrush	0.275	0.003	0.0075
18	*Asclepias tuberosa*	Butterfly Milkweed	0.021	0.013	0.033
19	*Symphyotrichum novae-angliae*	New England Aster	0.073	0.003	0.0075
20	*Desmanthus illinoensis*	Prairie Mimosa	0.048	0.031	0.078
21	*Oenothera biennis*	Common Evening Primrose	0.628	0.019	0.048
22	*Astragalus canadensis*	Canadian Milkvetch	0.081	0.013	0.033
		SUBTOTAL FORBS	**11.236**	**0.459**	**1.148**
		TOTAL	**41.583**	**7.439**	**18.598**

Number of seeds will be based on Iowa Conservation Practice 327 “Native Species for Wildlife”. Contractor’s proposed seed mix shall be submitted to Engineer and local NRCS office for approval at least 2 weeks before seed is to be applied.

F. Seeding shall be completed during the following seeding periods:

Spring	April 15 to June 30
Fall	November 15 to Freeze-up

G. The seed bed shall be properly prepared prior to seeding:
    a. Any weed control measures shall be completed prior to seeding. If spraying is used, then a span of two weeks shall be allowed between spraying and seeding.
    b. If the land was in soybeans, no additional tillage is required. If the land was in corn or other vegetation, areas to be seeded shall be disked to thoroughly loosen and pulverize the soil to a depth of 3 inches. This may require multiple passes of equipment. If the land was used for pasture and has a smooth surface, the preparation in non-disturbed areas to be seeded shall include mowing any vegetation taller than 12 inches and applying an appropriate herbicide at the labeled rates to emergent growth 2 to 4 weeks after mowing. After the vegetation has died, the area shall be disked thoroughly loosen and pulverize the soil depth of 3 inches. If emergent growth occurs prior to seeding, the areas shall receive a second application of herbicide. Seeding shall not occur until the existing vegetation has died (about 1 week).
    c. If deeper disking is used at the site, a lighter disk or spring harrow shall be used to remove deep furrows.
    d. After disking operations and prior to seed application, the seedbed shall be firmed with a cultipacker or similar piece of equipment.

H. Sow seed with contour using a grassland or rangeland drill set for the specified seeding rates. The drill shall be equipped with double coulter furrow openers. The drill shall be subject to acceptance by Engineer. Overlap each successive seeding pass to ensure complete coverage.

I. Plant seed not more than 1/4 inch deep; some seed may be seen on the surface after seeding.

J. Broadcasting by centrifugal-type or hydroseeder broadcasters, or by hand shall be allowed in areas not accessible to drills or other equipment. Once broadcast, the seed must be covered with soil to a depth no greater than 1/4 inch by means of hand rakes or other approved methods.

K. Upon completion of the seeding operation, cultipack the seedbed to provide a positive seed-soil contact. If the drill seeder is equipped with an approved cultipacker or press wheels, separate operations shall not be necessary. The type of cultipacker/seeder to be used shall be subject to acceptance by Engineer.

L. Do not apply lime or fertilizer to areas of buffer seeding.

8. WEED CONTROL

A. Weed control may be needed on some sites and/or portions of sites depending upon the start date of the contract, the initiation of grading, and the specified seeding dates.

B. Weed control shall be required if visibly germinated weeds are visible prior to seeding.

C. Weed control shall be the responsibility of the contractor and shall be incidental to seeding.

D. Weed control may include placement of a cover crop such as oats or rye, spraying with appropriate chemicals, or disking. If thistles are present, only spraying is allowed for weed control and shall include appropriate chemicals designed to control thistles.

9. TEMPORARY SEEDING

A. Temporary seeding shall be needed in disturbed areas which have gone unseeded for a maximum of 14 days.
B. Seeding rates (mix) are as follows:

Common Name	Application lb/acre
March 1 - October 31	
Canada wildrye	5 PLS/acre
Grain rye	50
Oats	50
November 1 - February 28 (or 29)	
Canada wildrye	7 PLS/acre
Grain rye	62
Oats	62

C. Temporary seeding shall meet the requirements of Iowa DOT Specification 9010.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-8 MOBILIZATION

1. SCOPE

This work shall consist of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the work required under the contract.

The work shall not include mobilization and demobilization for specific items of work for which payment is provided elsewhere in the contract.

Mobilization will not be considered as work in fulfilling the contract requirement for commencement of work.

2. EQUIPMENT AND MATERIALS

Mobilization shall include all activities and costs for transportation of personnel, equipment, and operating supplies to the site; establishment of offices, building, and other necessary facilities for Contractor's operations at the site; premiums paid for performance and payment bonds, including coinsurance and reinsurance agreements as applicable; and other items specified in Section 3.

Demobilization shall include all activities and costs for transportation of personnel, equipment, and supplies not included in the contract from the site; including the disassembly, removal and site cleanup of offices, buildings, and other facilities assembled for this contract.

The work includes mobilization and demobilization activities required by the contract at the time of award. If additional mobilization and demobilization activities and costs are required during the performance of the contract as a result of changed, deleted or added items of work for which the contractor is entitled to an adjustment in contract price, compensation of such costs will be included in the price adjustment for the item or items of work changed or added.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-21 EXCAVATION

1. SCOPE

The work shall consist of the excavation required by the drawings and specifications and disposal of the excavated materials. The cutoff trench and any other required excavations shall be dug to the lines and grades shown on the drawings or as staked in the field. Structure or trench excavations will conform to all safety requirements of OSHA.

2. USE OF EXCAVATED MATERIALS

Suitable materials from the specified excavations shall be used in the construction of required permanent earth fill. The suitability of materials for specific purposes shall be determined by the Engineer.

3. DISPOSAL OF WASTE MATERIAL

All surplus or waste material shall be disposed of in areas shown on the drawings or as approved by the Engineer. The waste material shall be smoothed and sloped to provide drainage.

4. STRUCTURE AND TRENCH EXCAVATION

Structure or trench excavations will conform to all safety requirements of OSHA.

5. BORROW EXCAVATION

When the quantities of suitable materials obtained from specified excavations are insufficient to construct the specified fills, additional materials shall be obtained from the designated borrow areas as shown on the drawings or as approved by the Engineer and the landowner. On wetland projects, borrow shall not be taken from the wetland area within 10 feet of the embankment or as shown on the drawings.

Borrow areas shall be excavated and grading completed in a manner to eliminate steep or unstable side slopes or hazardous or unsightly conditions.

6. OVER-EXCAVATION

Excavation beyond the specified lines and grades shall be corrected by filling the resulting voids with compacted earthfill, except that if the earth is to become the subgrade for riprap, sand or gravel bedding or drainfill, the voids shall be filled with material conforming to the specifications for the riprap, bedding or drainfill, as appropriate.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-23 EARTHFILL

1. SCOPE

The work shall consist of the construction of earth fills required by the drawings and specifications. The completed work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

2. MATERIALS

All fill materials shall be obtained from required excavations and designated borrow areas. Fill materials shall contain no sod, brush, roots or other bio-degradable materials. Rocks larger than 6 inches in diameter shall be removed prior to compaction of the fill.

3. FOUNDATION PREPARATION

Foundations for earthfill shall be stripped a minimum of 6 inches to remove vegetation and other unsuitable materials. Foundation surfaces shall be scarified to a minimum depth of 2 inches prior to placing fill material.

Foundation and abutment surfaces shall not be sloped steeper than 1.5 horizontal to 1 vertical unless otherwise shown on the drawings.

4. PLACEMENT

Fill shall not be placed until the required excavation and foundation preparation have been completed and the foundation has been inspected and approved by the Engineer. Fill shall not be placed upon a frozen surface, nor shall snow, ice, or frozen material be incorporated in the fill.

Adjacent to structures or pipes, fill shall be placed in a manner which will prevent damage. The height of the fill adjacent to structures or pipes shall be increased at approximately the same rate on all sides.

The materials used throughout the earth fill shall be essentially uniform. Selective placement shall be as shown on the drawings or approved by the Engineer.

If the surface of any layer becomes too hard and smooth for proper bond with the succeeding layer, it shall be scarified to a minimum depth of 2 inches before the next layer is placed.

The top surfaces of embankments shall be maintained approximately level during construction, except that a cross-slope of approximately 2% shall be maintained to ensure effective drainage.

When moving fill material from the borrow area(s) to the embankment by use of bulldozers only, the following steps shall be followed:

- Immediately after the borrow material is pushed to the embankment, it shall be spread in horizontal lifts placed parallel to the centerline of the embankment.
- Compactive effort will then be applied by operating equipment parallel to the centerline of the fill or embankment.
- Lift thicknesses shall be in strict compliance with Clause 6, below.

5. CONTROL OF MOISTURE CONTENT

The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met.

The moisture content of the fill material shall be such that a ball formed with the hands does not crack or separate when struck sharply with a pencil and will easily ribbon out between the thumb and finger.

Earth foundations under and adjacent to concrete structures shall be prevented from drying and cracking before concrete and backfill are placed.

The application of water to the fill materials shall be accomplished at the borrow areas insofar as possible.

6. COMPACTION

Earth fill shall be compacted by one of the following methods as specified on the plans. If no method is specified, compaction will be in accordance with Method 2.

- Method 1 - Earthfill shall be placed so that the wheels or tracks of the loaded hauling equipment, traveling in a direction parallel to the centerline of fill, pass over the entire surface of each layer being placed.

- Method 2 - At a minimum Two (2) complete passes of a vibratory sheepsfoot roller will be made over each layer. The roller shall be capable of exerting a minimum of one hundred (100) pounds per square inch. Continue compacting until there is no evidence of consolidation during compacting with no:

    - Pumping – vertical displacement of the top surface of the compacted layer, not directly under the vehicle tire
    - Reaction – a movement back to a former or less advanced condition.
    - Yielding – giving under pressure (flexible)
    - Cracking – cracking of material on visible surface
    - Lateral movement – sideways movement of the top surface

- Method 3 – Compaction shall be completed using a vibratory sheepsfoot roller capable of exerting a minimum of one hundred (100) pounds per square inch. Minimum density shall be 95% of the maximum density as determined by ASTM D 698 or as shown on the plans.

The maximum thickness of a lift of fill before compaction shall be 6 inches, unless otherwise indicated on the drawings.

Fill adjacent to structures, pipe conduits, and anti-seep collars shall be placed in layers not more than 4 inches thick and compacted to a density equivalent to that of the surrounding fill by hand tamping, manually directed power tampers, or plate vibrators. Care should be taken so that compaction around the spillway pipe does not cause uplift of the pipe resulting in a void beneath the pipe. Hand tamping only shall be used to compact the earthfill under the bottom half of circular pipes. Equipment shall not be operated within 2 feet of any structure or pipe.

Compacting of fill adjacent to concrete structures shall not be started until the concrete is 7 days old.

7. ISLANDS MOUNDS, AND LOAFING AREAS ON WETLAND RESTORATION, ENHANCEMENT, OR CREATION PROJECTS

Islands shall be randomly located within the wetland area at locations shown on the drawings or as staked in the field. The orientation of island shorelines shall be random with attention given to prevailing winds to limit wave damage. In general, the side of the island with the longest dimension shall be parallel to the prevailing wind direction. Side slopes of islands shall be as shown on the drawings, but in no case shall be steeper than 6 horizontal to 1 vertical. Island shapes shall be irregular.

Loafing areas shall be constructed in the areas shown on the drawings or as staked in the field and shall be graded to drain runoff water. The elevation of at least one loafing area should be above the maximum water level whenever possible.

Excavated material not suitable for embankments, wetland dikes, or islands can be used to create mounds or blended into surrounding topography to create a natural appearance. Spoil material shall not be spread on existing wetland areas.

Organic soils shall not be used to construct islands, loafing areas, dikes, or embankments.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-24 DRAINFILL

1. SCOPE

The work shall consist of furnishing and placing drainfill required in the construction of structure drainage systems and filter diaphragms around conduits.

2. MATERIALS

Drainfill shall be sand, gravel, or crushed stone. It shall be composed of clean, hard, durable mineral particles free from organic matter, clay balls, soft particles, or other substances that would interfere with their free-draining properties. Aggregates of crushed limestone may be used only for coarse drainfill but shall be thoroughly washed and screened so that not more than 3 percent by weight is finer than a No. 4 sieve.

Coarse drainfill shall be graded as follows:

U.S. Sieve Designation	Percent Passing Sieve
1 1/2	100
3/4	75-100
1/2	25-80
3/8	20-60
No. 4	0-10
No. 8	0-5
No. 100	0-3

Fine drainfill shall be graded as follows:

U.S. Sieve Designation	Percent Passing Sieve
3/8	100
No. 4	95-100
No. 8	75-95
No. 16	50-70
No. 30	25-50
No. 50	10-20
No. 100	0-6
No.200	0-3

3. BASE PREPARATION

Foundation surfaces and trenches shall be free of organic matter, loose soil, foreign substances, and standing water when the drainfill is placed.

4. PLACEMENT

Drainfill shall not be placed until the trench excavation has been inspected and approved by NRCS. Installation of the drainage conduit shall be inspected and approved by NRCS before covering it with drainfill. No foreign materials shall be allowed to become intermixed with or otherwise contaminate the drainfill. Drainfill material shall be placed in a manner to avoid segregation of particles by size.

5. COMPACTION

A. Foundation Trench Drain

(1) No compaction will be required beyond that resulting from the placing and spreading operations.

B. Filter Diaphragm

(1) Each layer of sand material shall be flooded with clean water prior to compaction.

(2) Compaction shall be accomplished while the material is wet from step (1) above.

(3) Each layer shall be compacted by a minimum of 2 passes of a hand directed vibratory plate compactor over the entire layer surface.

(4) Layer thickness shall not exceed 12 inches after compaction.

C. Filter Envelope & Filter Outlet

(1) Filter Envelope material shall be placed so the layer thickness does not exceed 6 inches after compaction.

(2) Each layer shall be compacted by a minimum of 2 passes of a hand directed vibratory plate compactor over the entire layer surface.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-26 TOPSOILING

1. SCOPE

The work shall consist of salvaging topsoil from borrow areas or required excavations and spreading it on the exposed disturbed areas.

2. QUALITY OF TOPSOIL

Topsoil shall consist of friable surface soil reasonably free of grass, roots, weeds, sticks, stones, or other foreign materials.

3. EXCAVATION

After the site has been stripped, cleared, and grubbed, and the topsoil shall be removed from borrow areas and required excavation areas to the depth as shown on the drawings. Topsoil shall be stockpiled at locations approved by the Engineer.

4. SPREADING

Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Surfaces designated to be covered shall be lightly scarified just prior to the spreading operation. Where compacted fills are designated to be covered by topsoil, the topsoil shall be placed concurrently with the fill and shall be bonded to the compacted fill with the equipment.

Topsoil shall be placed to the minimum depth shown on the drawings. After the spreading operation is completed, the surface shall be finished to a reasonably smooth surface.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-31 CONCRETE

1. SCOPE

The work shall consist of furnishing, forming, placing, finishing, and curing Portland cement concrete including steel reinforcement.

2. MATERIALS

Portland Cement shall conform to ASTM C 150 and shall be Type I or Type II.

Fine Aggregates shall conform to ASTM C 33 and shall be composed of clean, uncoated grains of material.

Coarse Aggregates shall be gravel or crushed stone conforming to ASTM C 33 and shall be clean, hard, durable and free from clay or coating of any character. The maximum size of coarse aggregate shall be 1 1/2 inches or as shown on the drawings.

Water shall be clean and free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.

Air entraining agent shall conform to ASTM C 260.

Fly ash may be used as a partial substitution for Portland cement and shall be in strict compliance with ASTM C 618, Class F or C. The loss by ignition shall not exceed 4.0 percent.

Blast-furnace slag may be used as a partial substitution for Portland cement and shall be in conformance with ASTM C 989 for ground granulated blast-furnace slag (GGBF slag).

Water-reducing admixtures shall conform to ASTM C 494 and may be the following types:

1. Type A - Water-reducing admixture
2. Type D - Water-reducing and retarding admixture
3. Type F - Water-reducing, high range admixture (superplasticizer).
4. Type G - water-reducing, high range, and retarding admixture (superplasticizer).

   Type D or G admixture may be used when the air temperature is over 80 degrees F. at the time of mixing and/or placement.

Calcium Chloride or other antifreeze compounds or accelerators will not be allowed.

Preformed expansion joint filler shall be a commercially available product made of bituminous, sponge rubber or closed cell foam materials with a minimum thickness of 1/2 inch.

Reinforcing steel shall be free from loose rust, oil, grease, paint, or other deleterious matter. Reinforcing steel shall conform to one or more of the following:

1. Reinforcing Bars - ASTM A 615 or A 996, Grade 40 or greater, deformed.

2. Welded Wire Fabric - ASTM A 185 or A 497.

Waterstops shall be either metallic or nonmetallic. Metallic waterstops shall be fabricated from sheets of copper or galvanized steel. Nonmetallic waterstops shall be made of natural or synthetic rubber or vinyl chloride polymer or copolymer. Rubber, polymer and copolymer waterstops shall have ribbed or bulb-type anchor flanges and a hollow tubular center bulb, unless otherwise shown on the drawings. All waterstops shall be of the sizes shown on the drawings.

Curing compound shall be a liquid membrane-forming compound suitable for spraying on the concrete surface. The curing compound shall meet the requirements of ASTM C 309 Type 2 (white pigmented).

3. CONCRETE DESIGN MIX

The contractor will be responsible for the determining the design mix proportions in accordance with the requirements included in this paragraph and shall provide a copy of the mix to the NRCS Engineer at least 3 days prior to placing any concrete. The concrete mix shall be of such proportions as to provide a minimum strength of 4000 p.s.i. in 28 days, unless otherwise shown on the drawings. The air content shall be 4 to 8 percent of the volume of the concrete at the time of placement. The slump shall be 2 to 5 inches except when superplasticizer is used. The slump shall be 3 inches or less prior to the addition of superplasticizer admixture and shall not exceed 7 1/2 inches following addition and mixing. The fine aggregate shall be 30-50 percent of the total combined aggregate based on oven dry weights. The contractor shall provide tests to verify that the design mix meets the requirements. In lieu of this, one of the following mix proportions per cubic yard may be used:

Mix Number	Minimum Cement, Pounds	Fly Ash, Pounds	GGBF Slag, Pound	Maximum ** Water, Gallons
1	564	0	0	33
2	470	45-90	0	31-34
3	517	129	0	31 *
4	366	114	91	31 *
5	259	103	155	31 *

** Total of available aggregate moisture, mixing water added at the plant and mixing water added at the job site (one gallon equals 8.33 pounds).

* Requires water reducing admixture.

4. MIXTURES AND MIXING

Ready-mixed concrete shall be batched, mixed and transported in accordance with ASTM C 94. Concrete shall be uniform and thoroughly mixed when delivered to the forms. No mixing water in excess of the amount shown for the design mix or in an amount that would cause the maximum slump to be exceeded shall be added to the concrete during mixing, hauling or after arrival at the point of delivery. The concrete shall be batched and mixed so that the temperature of the concrete at the time of placing shall be between 50 and 90 degrees F.

5. BATCH TICKET

The contractor shall obtain from the supplier a delivery ticket for each batch of concrete before unloading at the site. The following information shall be included on the ticket: name

of concrete supplier, job name or location, date, truck number, amount of concrete, time loaded or time of first mixing cement, aggregate, and mixing water added at the plant, type and amount of cement, type and amount of admixtures, oven dry weights of fine and coarse aggregate, and moisture content(%) or weight of water contained in the aggregates.

The following information shall be added to the batch ticket on site: mixing water added on site, time concrete arrived on site and time concrete was unloaded.

Upon completion of the concrete placement, copies of all batch tickets shall be provided to NRCS.

6. REINFORCING STEEL

Before reinforcement is placed, the surfaces of the bars or mesh shall be cleaned to remove any loose, flaky rust, mill scale, oil, grease, or other foreign substances. After placement, the reinforcement shall be maintained in a clean condition until it is completely embedded in the concrete.

Reinforcing bars shall be cut and bent according to ACI Standard 315.

Tack welding of bars shall not be permitted. Reinforcement shall be accurately placed as shown on the drawings and secured in position in a manner that will prevent its displacement during placement of concrete. Metal chairs, metal hangers, metal spacers or concrete chairs shall be used to support reinforcement. Precast concrete chairs shall be manufactured from concrete equal in quality to the concrete being placed. Precast concrete chairs shall be moist at the time concrete is placed

Splices of reinforcing bars shall be made only at the locations shown on the drawings, unless otherwise approved by the NRCS Engineer. All reinforcing splices and placement shall be in accordance with ACI 350 and shown on the drawings.

After placement of the reinforcement, concrete shall not be placed until the reinforcement has been inspected and approved by NRCS.

7. PREPARATION OF FORMS AND SUBGRADE

Prior to placement of concrete, the forms and subgrade shall be free of woodchips, sawdust, debris, water, ice, snow, extraneous oil, mortar, or other harmful substances or coatings. Any oil on the reinforcing steel or other surfaces required to be bonded to the concrete shall be removed. All surfaces shall be firm and damp prior to placing concrete. Placement of concrete on mud, dried earth, uncompacted fill, or frozen subgrade will not be permitted.

The forms and associated false-work shall be substantial and unyielding and shall be constructed so that the finished concrete will conform to the specified dimensions and elevations. Forms will be mortar tight. Forms with torn surfaces, worn edges, dents or other defects will not be used. Forms shall be coated with a nonstaining form release agent before being set into place. Excess form coating material shall not stand in puddles in the forms or come in contact with the steel reinforcement or hardened concrete against which fresh concrete is to be placed.

Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, shall be of a commercially manufactured type. Non fabricated wire shall not be used. Form ties shall be constructed so that the ends or end fasteners can be removed without causing spalling at the surface of the concrete.

Metal form ties used within the forms on structures with a total volume of concrete exceeding fifteen cubic yards shall be equipped with cones or other devices that permit their removal to a depth of at least one inch without damage to the concrete. The holes resulting from cones and other devices shall be patched in accordance with Section 9.

Form ties except those specifically covered by the preceding paragraph shall be broken off flush with the formed surface. Any surface areas which have been spalled or otherwise damaged shall be repaired in accordance with Section 9.

Steel tying and form construction adjacent to new concrete shall not be started until concrete has cured at least 12 hours.

Concrete joints shall be of the type and at the locations shown on the drawings.

Splices in metal waterstops shall be brazed, welded or overlapped and bolted. Splices in nonmetallic waterstops shall be cemented or joined as recommended by the manufacturer.

8. PLACING CONCRETE

Concrete shall not be placed until the subgrade, forms, and steel reinforcement have been inspected and approved by the NRCS Inspector. Any deficiencies are to be corrected before the concrete is delivered for placement.

Concrete shall be delivered to the site and discharged into the forms within 1 1/2 hours after the introduction of the cement to the aggregates. When a superplasticizer is used, the concrete shall be discharged within the manufacturer's recommended time limit for discharge after addition of the admixture. In hot weather or under conditions contributing to quick setup of the concrete, discharge of the concrete shall be accomplished in 45 minutes unless a set-retarding admixture is used, in which case the manufacturer's recommended time limit will apply.

Addition of water at the job site may be done at the beginning of placement of each load of concrete in order to obtain allowable slump, provided that the maximum water content and water/cement ratio in the design mix is not exceeded. Addition of water will not be permitted after placement of the load has started.

The concrete shall be deposited as closely as possible to its final position in the forms and shall be worked into corners and around reinforcement and other embedded items in a manner which prevents segregation. Formed concrete shall be deposited in layers 24 inches or less in depth and shall be continuously deposited so that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of "cold joints". Concrete containing superplasticizer shall be placed in lifts not exceeding 5 feet in depth. If the surface layer of concrete sets during placement to the degree that it will not flow and merge with the succeeding layer when tamped or vibrated, the contractor shall discontinue placing concrete and install a construction joint. Construction joints shall be completed as shown on the drawings or by one of the following methods:

1. The joint shall be constructed using a 6 inch wide by 1/4 inch steel plate. The surfaces of the construction joint shall be prepared by washing and scrubbing with a wire brush or wire broom to expose coarse aggregate. The steel plate shall be embedded 3" in the concrete.

2. The joint surface shall be cleaned to expose coarse aggregate by sandblasting or air-

water cutting after the concrete has gained sufficient strength to prevent displacement of the coarse aggregate or cement fines. The surface of the concrete shall not be cut so deep as to undercut the coarse aggregate. The joint shall be washed to remove all loose material after cutting.

The surfaces of all construction joints shall be kept continuously moist for at least 1 hour prior to placement of the new concrete. The new concrete shall be placed directly on the cleaned and washed surface. New concrete shall not be placed until the hardened concrete has cured at least 12 hours.

Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation. Concrete containing superplasticizer shall not be dropped more than 12 feet vertically.

Immediately after the concrete is placed in the forms, it shall be consolidated by vibration, spading or hand tamping as necessary to insure smooth surfaces and dense concrete. Care should be taken not to over-vibrate concrete containing superplasticizer. Vibration shall not be supplied directly to the reinforcing steel, the forms or concrete which has hardened to the degree that it does not insure a monolithic bond with the preceding layer. The use of vibrators to transport concrete in the forms or conveying equipment will not be permitted.

9. FORM REMOVAL AND FINISHING

Forms shall be left in place for at least 24 hours after placing concrete. Forms shall be removed in such a way as to prevent damage to the concrete. Supports shall be removed in a manner that will permit concrete to take the stresses due to its own weight uniformly and gradually.

Immediately after removal of the forms, concrete which is honey combed, damaged or otherwise defective shall be repaired or replaced. All cavities or depressions resulting from form tie removal shall be patched with a non-shrink grout, mortar mix or epoxy-type sealer. Non-shrink grout consists of 1 part cement and 2-1/2 parts sand that will pass a No. 16 sieve. Only enough water shall be added to produce a filling which is at the point of becoming rubbery when the material is solidly packed.

All repaired and patched areas shall be cured as required in Section 10.

10. CURING

Concrete shall be cured for a period of not less than 7 consecutive days by one of the following approved methods:

A. Membrane Curing: Concrete shall be cured with white pigmented curing compound. The compound shall be sprayed on moist concrete as soon as free water has disappeared, but shall not be applied to any surface until patching, repairs and finishing of that surface are completed. Curing compound shall not be applied to surfaces requiring bond to subsequently placed concrete, such as construction joints, shear plates, reinforcing steel, and other embedded items. Surfaces subjected to heavy rainfall or running water within 3 hours after curing compound has been applied or surfaces damaged by subsequent construction operations during the curing period, shall be reapplied in the same manner as the original application.

B. Moist Curing: Concrete shall be cured by maintaining all surfaces continuously wet for the entire curing period.

C. Cover: Adequately cover an exposed structure with burlap mats, or other material and continually soak with water.

11. BACKFILLING

Backfilling may begin when the curing period has ended. Backfill against the structure will be placed in no more than 4-inch layers and compacted by hand tamping or with manually directed power tampers or plate vibrators. Layers compacted in this manner shall extend not less than 2 feet from any part of the concrete structure.

12. HOT AND COLD WEATHER CONCRETING

When the atmospheric temperature may be expected to drop below 40^{o} F. at the time concrete is delivered to the work site, during placement, or at any time during curing period, concrete shall be mixed, placed and protected in accordance with ACI Standard 306, "Recommended Practice for Cold Weather Concreting."

When climatic or other conditions are such that the temperature of the concrete may reasonably be expected to exceed 90^{o} F. at the time of delivery to the work site, during placement or during the first 24 hours after placement, concrete shall be mixed, placed and protected in accordance with ACI Standard 305, "Recommended Practice for Hot Weather Concreting."

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-51 CORRUGATED METAL PIPE CONDUITS

1. SCOPE

The work shall consist of furnishing and placing circular, arched or elliptical corrugated metal pipe and the necessary fittings.

2. MATERIALS

Metallic-coated steel corrugated pipe and fittings shall be zinc-coated or aluminized, Type 2, and shall conform to the requirements of ASTM A 760 and A 929 for the specified type and size of pipe. Aluminum corrugated pipe shall conform to the requirements of ASTM B 745 for the specified type and size of pipe. All pipe is subject to the following additional requirements:

A. When polymer coating is specified, pipe, coupling bands and anti-seep collars shall be coated in accordance with ASTM A 762. All riveted joints shall be caulked as described in paragraph B.

B. Pipe with annular corrugations shall be furnished with caulked seams. Riveted pipe joints shall be caulked with a bituminous mastic material during fabrication to provide a watertight joint. All circumferential and longitudinal seams shall be caulked before riveting. This shall be accomplished by applying a uniform bead of the mastic compound to the inner lap surface before riveting such that when the rivets are in place, all voids are filled and a coating of mastic is between the lap surfaces. The inner surface of coupling bands shall be asphalt coated in the field prior to installation. A neoprene gasket having a minimum thickness of 3/8 inch and a minimum width of 7 inches may be used in lieu of mastic coated coupling bands.

C. Welded or lock seams in helical corrugated pipe are considered to be watertight.

D. When close riveted pipe is specified: (1) the pipe shall be fabricated so that the rivet spacing in the circumferential seams shall not exceed 3 inches, except that 12 rivets will be sufficient to secure the circumferential seams in 12-inch pipe, and (2) in those portions of the longitudinal seams that will be covered by the coupling bands, the rivets shall have finished flat heads or the rivets and holes shall be omitted and the seams shall be connected by welding to provide a minimum of obstruction to the seating off the coupling bands.

E. Double riveting or double spot welding of pipe less than 42 inches in diameter may be required. If specified, the riveting or welding shall be done in the manner specified for pipe 42 inches or greater in diameter.

3. COUPLING BANDS

Coupling bands shall meet the requirements of the table below or have detailed drawings submitted for approval by the Engineer. Coupling bands shall be of the same minimum thickness (gage) as the pipe being connected.

Description of Coupling Band	Maximum Fill Height, Ft.	Maximum Pipe Diam., In.
24-inch wide coupling band with four 1/2-inch Diam. galvanized rods with tank lugs for annular or helical corrugated metal pipe. Bands shall have a minimum lap of 3 inches.	All	All
Hugger band for helical corrugated metal pipe with reformed ends; and for annular corrugated pipe. Bands include O-ring gaskets and two 1/2-inch Diam. galvanized rods and lugs.1/	35	48
Hugger band without rods and lugs but including O-ring gaskets.1/	20	24
Angles riveted or welded to a coupling band and drawn tight with bolts. Bands shall be a minimum of 7 corrugations wide and have a minimum lap of 2 inches.	35	15
Flanged couplings for helical corrugated pipe welded to the ends of the pipe and field assembled by a minimum of 3/8-inch Diam. bolts. A joint sealer shall be placed between the flanges to ensure water tightness.	25	12

1/ Use is limited to sites where soft foundation and conduit elongation is not anticipated.

4. FABRICATION

Fabrication of all appurtenances shall be done as shown on the drawings. All appurtenances shall be made of metallic-coated steel when corrugated steel pipe is used and aluminum when used with aluminum pipe. Dissimilar metals shall not be installed in contact with each other.

5. REPAIR OF DAMAGED COATINGS

The Contractor shall place the pipe without damaging the pipe or coatings. The pipe shall be transported and handled in a manner to prevent damage to the pipe or coating.

Breaks, scuffs, or other damage to the various coatings shall be repaired as follows:

A. Metallic Coating - by thoroughly wire brushing the damaged area and cleaning with solvent, and then painting two coats of one of the following paints:

(1) Zinc Dust - Zinc Oxide Primer conforming to ASTM D 79 and D 520.
(2) Single package, moisture cured urethane prime in silver metallic color.

(3) Zinc-rich cold galvanized compound, brush, or aerosol applications.

B. Polymer Coating - apply two coats of polymer material similar to and compatible with the durability, adhesion and appearance of the original polymer coating. The repair coating shall be a minimum thickness of 0.010 (10 mils) after drying and shall bond securely to the pipe.

6. LAYING AND BEDDING THE PIPE

The pipe shall be laid to the line and grade shown on the drawings and shall be firmly and uniformly bedded throughout its entire length. Details of the bedding are as shown in the drawings.

The pipe shall be laid with the outside laps of circumferential joints pointing upstream and with longitudinal laps on the sides at approximately the vertical mid-height of the pipe. Field welding of corrugated galvanized steel pipe will not be permitted. The pipe sections shall be joined with coupling bands.

7. BACKFILLING

Special care shall be taken during backfill operations not to disturb the grade and alignment.

The pipe shall be tied down or loaded sufficiently during backfilling around the sides to prevent its being lifted from the bedding.

Backfill material shall have sufficient moisture so that optimum compaction can be obtained. Backfill around the pipe shall be placed in layers not more than 4 inches thick before compaction.

Each layer of backfill shall be compacted with power tampers, hand tampers, or plate vibrators to the same density requirements as specified for the adjacent embankment. Backfill over and around the pipe shall be brought up uniformly on all sides. The passage of earth moving equipment will not be allowed over the pipe until backfill has been placed above the top of the pipe surface to a depth of two (2) feet.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-61 ROCK RIPRAP

1. SCOPE

The work shall consist of the construction of loose rock riprap revetments, structures and blankets, including filter layers or bedding where specified.

2. MATERIALS

Rock for loose rock riprap, filter layers or bedding shall come from sources approved by the Engineer. The rock shall be excavated, selected and handled as necessary to meet the quality and grading requirements of this specification and the construction drawings.

Individual rock fragments shall be dense, sound and free from cracks, seams and other defects conducive to accelerated weathering. The rock fragments shall be angular to sub rounded in shape. The least dimension of an individual rock fragment shall be not less than 1/3 the greatest dimension of the fragment unless otherwise specified on the construction drawings.

Gradations for Rock Riprap shall correspond to IDOT 4130 or as shown in the plans.

IDOT 4130 gradations are listed below for reference:

1. **Class A Revetment.**
   - Nominal top size of 400 pounds.
   - At least 75% of the stones are to weigh more than 75 pounds.
   - None less than 50 pounds.
   - Stones are to have at least one flat face with one dimension at least 15 inches.

2. **Class B Revetment.**
   - Nominal top size of 650 pounds.
   - At least 20% of the stones are to weigh more than 500 pounds.
   - At least 50% of the stones are to weigh more than 275 pounds.
   - At least 90% of the stones are to weigh more than 25 pounds.

3. **Class C Revetment.**
   - Nominal top size of 450 pounds.
   - At least 50% of the stones weighing more than 275 pounds.
   - At least 90% of the stones weighing more than 75 pounds.

4. **Class D and Class E Revetment.**
   - Nominal top size of 250 pounds.
   - At least 50% of the stones are to weigh more than 90 pounds.
   - At least 90% of the stones are to weigh more than 5 pounds.
   - The Engineer may approve using revetment containing material larger than 250 pounds

   Additional processing is not required for Class D material. Mechanically process Class E material to remove material 3 inches and less

5. **EROSION STONE GRADATION.**
   - Nominal 6 inch size.
   - 100% passing the 9 inch screen.
   - 100% retained on the 3 inch screen

Size, *in**	Approximate Percent of Total Weight Smaller than Given Weight					
	Class of Riprap					
	Crushed St.	Erosion St.	A	B	C	D/E
24						
21				100		
20				80	100	
18			100		95	
16				50	50	
15						100
12						50
10			25		10	
9			0			
7.5				10		
6		100				
4						10
3	100	0				
¾	0					

3. SUBGRADE PREPARATION

The subgrade surfaces on which the riprap or bedding course is to be placed shall be cut or filled and graded to the lines and grades shown on the drawings. When fill to subgrade lines is required, it shall consist of approved materials and shall be compacted to a density equal to the adjacent existing soil material.

Rock materials shall not be placed until the foundation preparation is completed and the subgrade surfaces have been inspected and approved by the Engineer.

4. EQUIPMENT-PLACED ROCK RIPRAP

Rock shall be placed by equipment on the surfaces and to the depths specified. The riprap shall be constructed to the full thickness in one operation and in such a manner as to avoid serious displacement of the underlying materials. The rock shall be delivered and placed in a manner that will insure that the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact, one to another with the smaller rocks and spalls filling the voids between the larger rocks.

Riprap shall be placed in a manner to prevent damage to structures. Hand placing will be required to the extent necessary to prevent damage to adjacent structures.

5. HAND-PLACED RIPRAP

Rock shall be placed by hand on the surfaces and to the depths specified. It shall be securely bedded with the larger rocks firmly in contact, one to another. Spaces between the larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on edge unless otherwise specified.

6. FILTER LAYERS OR BEDDING

When the drawings specify filter layers or bedding beneath riprap, the filter or bedding material shall be spread uniformly on the prepared subgrade surfaces to the depth specified. Compaction of filter layers or bedding will not be required, but the surface of such layers shall be finished reasonably free of mounds, dips or windrows.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-81 METAL FABRICATION AND INSTALLATION

1. SCOPE

The work shall consist of furnishing, fabricating, and installing metalwork including metal parts of composite structures.

2. MATERIALS

Steel shall be of structural quality. Finished surfaces shall be smooth and true to assure proper fit. Bolts, nuts, washers, rods, rivets, etc., shall be of a material equal to the steel being fastened.

3. PROTECTIVE COATINGS

Protective coatings will consist of either galvanizing or painting and shall be applied by the fabricator.

Galvanizing shall consist of a zinc coating by the hot dip process, except that bolts, nuts, and washers may have a electrodeposited zinc coating.

Paint System for this specification shall consist of the application of one coat of Epoxy Polyamide Primer (lead and chromate free) and one or more coats of Epoxy Polyamide (intermediate or finish), lead free. When finished, it will have a minimum dry film thickness of 8.0 mils.

4. FABRICATION

Materials shall be carefully fabricated as shown on the drawings. The fabrication shall be smooth and true to assure proper fit. Galvanized items shall not be cut, welded, or drilled after the zinc coating is applied.

5. ERECTION

The metal shall be erected true and plumb, closely conforming to the drawings.

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

IA-95 GEOTEXTILE

1. SCOPE

This work shall consist of furnishing all materials, equipment, and labor necessary for the installation of geotextile.

2. MATERIAL QUALITY

Geotextile shall be manufactured from synthetic long chain or continuous polymeric filaments or yarns, having a composition of at least 95 percent, by weight, of polypropylene, polyester or polyvinylidene-chloride. The geotextile shall be formed into a stable network of filaments or yarns that retain their relative position to each other, are inert to commonly encountered chemicals and are resistant to ultraviolet light, heat, hydrocarbons, mildew, rodents and insects. Unless otherwise specified, the class and type of geotextile shall be as shown on the drawings and shall meet the requirements for materials that follow:

a. Woven Geotextile shall conform to the physical properties listed in Table 1. The woven geotextile shall be manufactured from monofilament yarns that are woven into a uniform pattern with distinct and measurable openings. The geotextile shall be manufactured so that the yarns will retain their relative position with regard to each other. The yarns shall contain stabilizers and/or inhibitors to enhance their resistance to ultraviolet light or heat exposure. The edges of the material shall be salvaged or otherwise finished to prevent the outer yarn from unraveling.

b. Nonwoven Geotextile shall conform to the physical properties listed in Table 2. Nonwoven geotextile shall be manufactured from randomly oriented fibers that have been mechanically bonded together by the needle-punched process. In addition, one side may be slightly heat bonded. Thermally bonded, nonwoven geotextile, in addition to mechanically bonded, nonwoven geotextile, may be used for Road Stabilization. The filaments shall contain stabilizers and/or inhibitors to enhance their resistance to ultraviolet light or heat exposure.

c. The geotextile shall be shipped in rolls wrapped with a protective covering to keep out mud, dirt, dust, debris and direct sunlight. Each roll of geotextile shall be clearly marked to identify the brand, type and production run.

3. STORAGE

Prior to use, the geotextile shall be stored in a clean dry place, out of direct sunlight, not subject to extremes of either hot or cold, and with the manufacturer's protective cover in place. Receiving, storage, and handling at the job site shall be in accordance with the requirements in ASTM D 4873.

4. SURFACE PREPARATION

The surface on which the geotextile is to be placed shall be graded to the neat lines and grades as shown on the drawings. The surface shall be reasonably smooth and free of loose rock and clods, holes, depressions, projections, muddy conditions and standing or flowing water (unless otherwise shown on the drawings).

5. PLACEMENT

Prior to placement of the geotextile, the soil surface will be inspected for quality assurance of design and construction. The geotextile shall be placed on the approved prepared surface

at the locations and in accordance with the details shown on the drawings. The geotextile shall be unrolled along the placement area and loosely laid (not stretched) in such a manner that it will conform to the surface irregularities when material is placed on or against it. The geotextile may be folded and overlapped to permit proper placement in the designated area.

The geotextile shall be joined by overlapping a minimum of 18 inches (unless otherwise specified), and secured against the underlying foundation material. Securing pins, approved and provided by the geotextile manufacturer, shall be placed along the edge of the panel or roll material to adequately hold it in place during installation. 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 provided on all but the "U" shaped pins. The upstream or up-slope geotextile shall overlap the abutting down-slope geotextile. At vertical laps, securing pins shall be inserted through both layers along a line through approximately the 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 edge of the of the placed geotextile at intervals not to exceed 12 feet unless otherwise specified. Additional pins shall be installed as necessary and where appropriate, to prevent any undue slippage or movement of the geotextile. The use of securing pins will be held to the minimum necessary. Pins are to be left in place unless otherwise specified.

Should the geotextile be torn or punctured, or the overlaps disturbed, as evidenced by visible geotextile damage, subgrade pumping, intrusion, or grade distortion, the backfill around the damaged or displaced area shall be removed and restored to the original approved condition. The repair shall consist of a patch of the same type of geotextile being used, overlaying the existing geotextile. The patch shall extend a minimum of 2 feet from the edge of any damaged area.

The geotextile shall not be placed until it can be anchored and protected with the specified covering within 48 hours or protected from exposure to ultraviolet light. In no case shall material be dropped on uncovered geotextile from a height greater than 3 feet.

TABLE 1. REQUIREMENTS FOR WOVEN GEOTEXTILES

Property	Test Method	Class I	Class II & III	Class IV
Tensile strength (pounds) [1/]	ASTM D 4632 grab test	200 minimum in any principal direction	120 minimum in any principal direction	180 minimum in any principal direction
Elongation at failure (percent) [1/]	ASTM D 4632 grab test	< 50	< 50	< 50
Puncture (pounds) [1/]	ASTM D 4833	90 minimum	60 minimum	60 minimum
Ultraviolet light (% residual tensile strength)	ASTM D 4355 150-hr exposure	70 minimum	70 minimum	70 minimum
Apparent opening size – AOS	ASTM D 4751	As specified, but no smaller than 0.212 mm (#70)[2/]	As specified, but no smaller than 0.212 mm (#70)[2/]	As specified, but non smaller than 0.212 mm (#70)[2/]
Percent open area (percent)	CWO-02215-86	4.0 minimum	4.0 minimum	1.0 minimum
Permittivity sec^{-1}	ASTM D 4491	0.10 minimum	0.10 minimum	0.10 minimum

1/ Minimum average roll value (weakest principal direction).
2/ U.S. standard sieve size
Note: CWO is a USACE reference.

TABLE 2. REQUIREMENTS FOR NONWOVEN GEOTEXTILES

Property	Test Method	Class I	Class II	Class III	Class IV [3/]
Tensile strength (pounds) [1/]	ASTM D 4632 grab test	180 minimum	120 minimum	90 minimum	115 minimum
Elongation at failure (%) [1/]	ASTM D 4632	$\geq$ 50	$\geq$ 50	$\geq$ 50	> 50
Puncture (pounds)	ASTM D 4833	80 minimum	60 minimum	40 minimum	40 minimum
Ultraviolet light (% residual tensile strength)	ASTM D 4355 150-hr exposure	70 minimum	70 minimum	70 minimum	70 minimum
Apparent opening size – AOS	ASTM D 4751	As specified max. # 40 [2/]	As specified max. # 40 [2/]	As specified max. # 40 [2/]	As specified max. # 40 [2/]
Permittivity sec^{-1}	ASTM D 4491	0.70 minimum	0.70 minimum	0.70 minimum	0.10 minimum

1/ Minimum average roll value (weakest principal direction).

2/ U.S. standard sieve size

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

Material Specification 523—Rock for Riprap

1. Scope

This specification covers the quality of rock to be used in the construction of rock riprap.

2. Quality

Individual rock fragments shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. Except as otherwise specified, the rock fragments shall be angular to subrounded. The least dimension of an individual rock fragment shall be not less than one-third the greatest dimension of the fragment. ASTM D 4992 provides guidance on selecting rock from a source.

Except as otherwise provided, the rock shall be tested and shall have the following properties:

Rock type 1

- ***Bulk specific gravity (saturated surface-dry basis)***—Not less than 2.5 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption***—Not more than 2 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness***—The weight loss in 5 cycles shall not be more than 10 percent when sodium sulfate is used or more than 15 percent when magnesium sulfate is used.

Rock type 2

- ***Bulk specific gravity (saturated surface-dry basis)***—Not less that 2.5 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption***—Not more than 2 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness***—The weight loss in 5 cycles shall be not more than 20 percent when sodium sulfate is used or more than 25 percent when magnesium sulfate is used.

Rock type 3

- ***Bulk specific gravity (saturated surface-dry basis)***—Not less than 2.3 when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Absorption***—Not more than 4 percent when tested in accordance with ASTM C 127 on samples prepared as described for soundness testing.
- ***Soundness***—The weight loss in 5 cycles shall be not more than 20 percent when sodium sulfate is used or more than 25 percent when magnesium sulfate is used.

3. Methods of soundness testing

Rock cube soundness—The sodium or magnesium sulfate soundness test for all rock types (1, 2, or 3) shall be performed on a test sample of 5,000 ± 300 grams of rock fragments, reasonably uniform in size and cubical in shape, and weighing, after sampling, about 100 grams each. They shall be obtained from rock samples that are representative of the total rock mass, as noted in ASTM D 4992, and that have been sawed into slabs as described in ASTM D 5121. The samples shall further be reduced in size by sawing the slabs into cubical blocks. The thickness of the slabs and the size of the sawed fragments shall be determined by the size of the available test apparatus and as necessary to provide, after sawing, the approximate 100-gram samples. The cubes shall undergo five cycles of soundness testing in accordance with ASTM C 88.

Internal defects may cause some of the cubes to break during the sawing process or during the initial soaking period. Do not test any of the cubes that break during this preparatory process. Such breakage, including an approximation of the percentage of cubes that break, shall be noted in the test report.

Material Specification 523 Rock for Riprap (continued)

After the sample has been dried following completion of the final test cycle and washed to remove the sodium sulfate or magnesium sulfate, the loss of weight shall be determined by subtracting from the original weight of the sample the final weight of all fragments that have not broken into three or more fragments.

The test report shall show the percentage loss of the weight and the results of the qualitative examination.

Rock slab soundness—When specified, the rock shall also be tested in accordance with ASTM D 5240. Deterioration of more than 25 percent of the number of blocks shall be cause for rejection of rock from this source. Rock shall also meet the requirements for average percent weight loss stated below.

- For projects located north of the Number 20 Freeze-Thaw Severity Index Isoline (fig. 523–1). Unless otherwise specified, the average percent weight loss for Rock Type 1 shall not exceed 20 percent when sodium sulfate is used or 25 percent when magnesium sulfate is used. For Rock Types 2 and 3, the average percent weight loss shall not exceed 25 percent for sodium sulfate soundness or 30 percent for magnesium sulfate soundness.
- For projects located south of the Number 20 Freeze-Thaw Severity Index Isoline, unless otherwise specified, the average percent weight loss for Rock Type 1 shall not exceed 30 per-

Figure 523–1 Number 20 freeze-thaw severity index isoline (map approximates the map in ASTM D 5312)

cent when sodium sulfate is used or 38 percent when magnesium sulfate is used. For Rock Types 2 and 3, the average percent weight loss shall not exceed 38 percent for sodium sulfate soundness or 45 percent for magnesium sulfate soundness.

4. Field durability inspection

Rock that fails to meet the material requirements stated above (if specified), may be accepted only if similar rock from the same source has been demonstrated to be sound after 5 years or more of service under conditions of weather, wetting and drying, and erosive forces similar to those anticipated for the rock to be installed under this specification.

A rock source may be rejected if the rock from that source deteriorates in 3 to 5 years under similar use and exposure conditions expected for the rock to be installed under this specification, even though it meets the testing requirements stated above.

Deterioration is defined as the loss of more than one-quarter of the original rock volume, or severe cracking that would cause a block to split. Measurements of deterioration are taken from linear or surface area particle counts to determine the percentage of deteriorated blocks. Deterioration of more than 25 percent of the pieces shall be cause for rejection of rock from the source.

5. Grading

The rock shall conform to the specified grading limits after it has been placed within the matrix of the rock riprap. Grading tests shall be performed, as necessary, according to ASTM D 5519, Method A, B, or C, as applicable.

Material Specification 582—Galvanizing

1. Scope

This specification covers the quality of zinc coatings applied to iron and steel productions.

2. Quality

Zinc coatings shall conform to the requirements of ASTM A 123 for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products or as otherwise specified in the items of work and construction details of the Construction Specification.

ASTM A 123 covers both fabricated and nonfabricated products; e.g., assembled steel products, structural steel fabrications, large tubes already bent or welded before galvanizing, and wire work fabricated from noncoated steel wire. It also covers steel forgings and iron castings incorporated into pieces fabricated before galvanizing or which are too large to be centrifuged (or otherwise handled to remove excess galvanizing bath metal).

Items to be centrifuged or otherwise handled to remove excess zinc shall meet the requirements of ASTM A 153, except bolts, screws, and other fasteners 0.5 inch or less in diameter may be coated with electro-deposited zinc or cadmium coating conforming to the requirements of ASTM B 766, coating thickness Class 5, Type III, or ASTM B 633, Service Condition SC-3, unless otherwise specified.

Material Specification 592—Geotextile

1. Scope

This specification covers the quality of geotextiles.

2. General requirements

Fibers (threads and yarns) used in the manufacture of geotextile shall consist of synthetic polymers composed of a minimum of 85 percent by weight polypropylenes, polyesters, polyamides, polyethylene, polyolefins, or polyvinylidene-chlorides. They shall be formed into a stable network of filaments or yarns retaining dimensional stability relative to each other. The geo-textile shall be free of defects and conform to the physical requirements in tables 592–1 and 592–2. The geotextile shall be free of any chemical treatment or coating that significantly reduces its porosity. Fibers shall contain stabilizers and/or inhibitors to enhance resistance to ultraviolet light.

Thread used for factory or field sewing shall be of contrasting color to the fabric and made of high strength polypropylene, polyester, or polyamide thread. Thread shall be as resistant to ultraviolet light as the geotextile being sewn.

3. Classification

Geotextiles shall be classified based on the method used to place the threads or yarns forming the fabric. The geotextiles will be grouped into woven and nonwoven types.

Woven—Fabrics formed by the uniform and regular interweaving of the threads or yarns in two directions. Woven fabrics shall be manufactured from monofilament yarn formed into a uniform pattern with distinct and measurable openings, retaining their position relative to each other. The edges of fabric shall be selvedged or otherwise finished to prevent the outer yarn from unraveling.

Nonwoven—Fabrics formed by a random placement of threads in a mat and bonded by heat-bonding, resin-bonding, or needle punching. Nonwoven fabrics shall be manufactured from individual fibers formed into a random pattern with distinct, but variable small openings, retaining their position relative to each other when bonded by needle punching, heat, or resin bonding. The use of nonwovens other than the needle punched geotextiles is somewhat restricted (see note 3 of table 592–2).

4. Sampling and testing

The geotextile shall meet the specified requirements (table 592–1 or 592–2) for the product style shown on the label. Product properties as listed in the latest edition of the "Specifiers Guide," Geosynthetics, (Industrial Fabrics Association International, 1801 County Road B, West Roseville, MN 55113-4061 or at *http://www.geosindex.com*) and that represent minimum average roll values, are acceptable documentation that the product style meets the requirements of these specifications.

For products that do not appear in the above directory or do not have minimum average roll values listed, typical test data from the identified production run of the geotextile will be required for each of the specified tests (tables 592–1 or 592–2) as covered under clause AGAR 452.236-76.

5. Shipping and storage

The geotextile shall be shipped/transported in rolls wrapped with a cover for protection from moisture, dust, dirt, debris, and ultraviolet light. The cover shall be maintained undisturbed to the maximum extend possible before placement.

Each roll of geotextile shall be labeled or tagged to clearly identify the brand, class, and the individual production run in accordance with ASTM D 4873.

Material Specification 592 Geotextile (continued)

Table 592–1 Requirements for woven geotextiles

Property	Test method	Class I	Class II & III	Class IV
Tensile strength (pounds) 1/	ASTM D 4632 grab test	200 minimum in any principal direction	120 minimum in any principal direction	180 minimum in any principal direction
Elongation at failure (percent) 1/	ASTM D 4632 grab test	<50	<50	<50
Puncture (pounds) 1/	ASTM D 4833	90 minimum	60 minimum	60 minimum
Ultraviolet light (% residual tensile strength)	ASTM D 4355 150-hr exposure	70 minimum	70 minimum	70 minimum
Apparent opening size (AOS)	ASTM D 4751	As specified, but no smaller than 0.212 mm (#70) 2/	As specified, but no smaller than 0.212 mm (#70) 2/	As specified, but no smaller than 0.212 mm (#70) 2/
Percent open area (percent)	CWO-02215-86	4.0 minimum	4.0 minimum	1.0 minimum
Permitivity sec^{-1}	ASTM D 4491	0.10 minimum	0.10 minimum	0.10 minimum

1/ Minimum average roll value (weakest principal direction).
2/ U.S. standard sieve size.
Note: CWO is a USACE reference.

Material Specification 592 Geotextile (continued)

Table 592–2 Requirements for woven geotextiles

Property	Test method	Class I	Class II	Class III	Class IV [3/]
Tensile strength (lb) [1/]	ASTM D 4632 grab test	180 minumum	120 minumum	90 minumum	115 minumum
Elongation at failure(%) [1/]	ASTM D 4632	≥ 50	≥ 50	≥ 50	≥ 50
Puncture (pounds)	ASTM D 4833	80 minumum	60 minumum	40 minumum	40 minumum
Ultraviolet light (% residual tensile strength)	ASTM D 4355 150-hr exposure	70 minumum	70 minumum	70 minumum	70 minumum
Apparent opening size (AOS)	ASTM D 4751	As specified max. #40 [2/]	As specified max. #40 [2/]	As specified max. #40 [2/]	As specified max. #40 [2/]
Permittivity sec^{-1}	ASTM D 4491	0.70 minumum	0.70 minumum	0.70 minumum	0.10 minumum

1/ Minimum average roll value (weakest principal direction).
2/ U.S. standard sieve size.
3/ Heat-bonded or resin-bonded geotextile may be used for classes III and IV. They are particularly well suited to class IV. Needle-punched geotextiles are required for all other classes.

Chosen Valley Testing, Inc.

Factual Geotechnical Report:

Proposed Upper Iowa WMA – Timp Wetland
SW ¼ Sec. 18-T97N-R8W
Springfield Twp., Winneshiek Co., Iowa
CVT# 17271.20.IAM

Prepared for:

Upper Iowa WMA
c/o: WHKS & Co.
Attn: Mr. Lou Wehrspann, PE

Certification:

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

January 13, 2021

(signature) (date)

Printed or typed name: Matthew J. Reisdorfer, PE.
License number: 22234.
My license renewal date is December 31, 2021.
Pages or sheets covered by this seal:

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Chosen Valley Testing, Inc.

Geotechnical Engineering and Testing • 421 North Georgia Avenue • Mason City, IA 50401 • Telephone (641) 201-1050 • masoncity@cvtesting.com

Upper Iowa WMA
c/o: WHKS & Co
Attn: Mr. Lou Wehrspann, PE
1412 6th Street SW
Mason City, Iowa 50401
lwehrspann@whks.com

January 13, 2021

Re: Proposal for Factual Geotechnical Evaluation
Upper Iowa WMA – Timp Wetland
SW ¼ Sec. 18-T97N-R8W
Springfield Twp., Winneshiek Co., Iowa
CVT Project Number: 17271.20.IAM

Dear Mr. Wehrspann:

This factual report was prepared to assist planning for the proposed Timp Wetland in Springfield Township, Winneshiek County, Iowa. Our services were authorized by Mr. Lou Wehrspann, PE of WHKS & Co., on behalf of the Upper Iowa WMA.

A. Introduction

The intent of this report is to present our results to the client in the same logical sequence that led us to arrive at the opinions and recommendations expressed. Since our services must often be completed before the design, assumptions are sometimes needed to prepare a proper evaluation and to analyze the data. A complete and thorough review of this entire document, including the assumptions and the appendices, should be undertaken immediately upon receipt.

A.1. Purpose

This factual report was prepared to assist planning for the proposed Timp Wetland in Springfield Township, Winneshiek County, Iowa. Our services were authorized by Mr. Lou Wehrspann, PE of WHKS & Co., on behalf of the Upper Iowa WMA.

A.2. Scope

To obtain data for analysis, our services included a total of 6 penetration test borings. The borings were drilled to depths of about 10 ½ to 16 feet below the surface. Our engineering scope consisted of providing a factual discussion of the soils and materials encountered during our exploration.

A.3. Boring Locations and Elevation

The desired borings locations were indicated to Chosen Valley Testing on site plans provided by the client. The Boring Location Sketch in the Appendix shows the approximate locations drilled. Elevations were estimated using LiDAR from the Iowa DNR. These elevations should be considered approximate.

A.4. Geologic Background

A geotechnical report is based on subsurface data collected for the specific structure or problem. Available geologic data from the region can help interpretation of the data and is briefly summarized in this section.

Area geologic maps indicate that the natural upper soils are primarily loess (wind-deposited) and alluvial (river-deposited) clays and silts. Bedrock is expected to be within 50 feet of the surface and consist of dolomite of the Wapsipinicon Group and Maquoketa Formation

B. Subsurface Data

Methods: All of the borings were performed using penetration test procedures (Method of Test D1586 of the American Society for Testing and Materials). This procedure allows for the extraction of intact soil specimen from deep in the ground. With this method, a hollow-stem auger is drilled to the desired sampling depth. A 2-inch OD sampling tube is then screwed onto the end of a sampling rod, inserted through the hole in the auger's tip, and then driven into the soil with a 140-pound hammer dropped repeatedly from a height of 30 inches above the sampling rod. The sampler is driven 18-inches into the soil, unless the material is too hard. The samples are generally taken at 2½ to 5-foot intervals. The core of soil obtained is classified and logged by the driller and a representative portion is then sealed in a jar and delivered to the soils engineer for review.

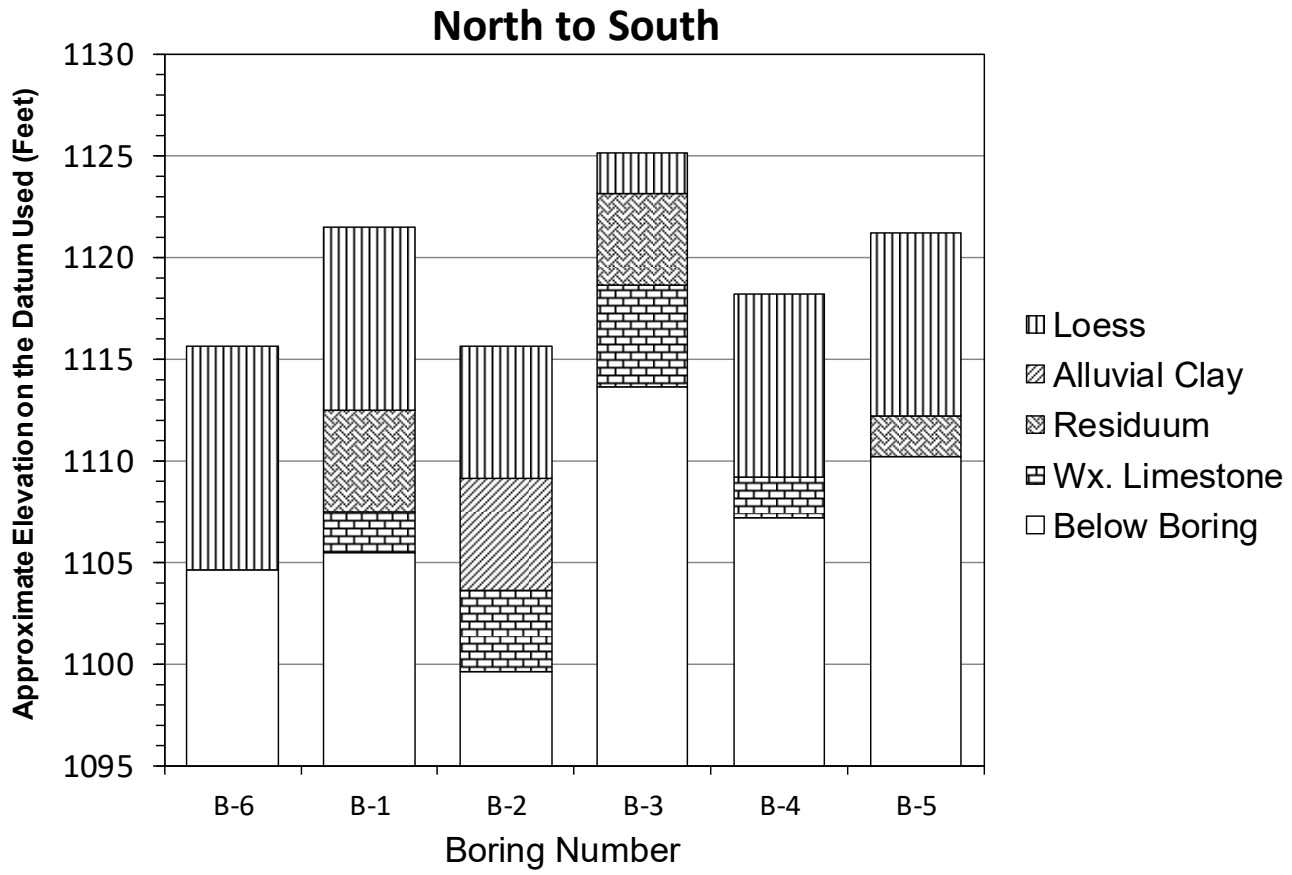
B.1. Stratification

At the surface, the borings encountered about 2 to 11 feet of loessial deposited clays and sandy silts. The northwest boring (Boring B-6) terminated in loessial sandy silt at a depth of about 11 feet below the surface.

Alluvial lean clay was met below the loessial sandy silt in Boring B-2, to a depth of about 12 feet. Residuum consisting of lean clay, lean-to-fat clay and clayey sand was met below the loess layers in the remaining borings, to depths of about 6 ½ to 14 feet. The southern borings (Borings B-4 and B-5) terminated in residuum clays at depths of about 11 feet below the surface.

Weathered limestone was encountered below the residuum clay in Borings B-1 through B-3. Auger refusal, presumably upon bedrock was met in Boring B-3, at a depth of about 10 ½ feet below the surface, while the remaining borings terminated in weathered limestone at a depth of about 16 feet below the surface.

The following simplified cross-section summarizes the boring data. For more detailed information, please refer to the Log of Boring sheets in the Appendix.



B.2. Penetration and Laboratory Test Data

The number of blows needed for the hammer to advance the penetration test sampler is an indicator of soil characteristics. The number of blows to advance the sampler 1 foot is called the penetration resistance or "N"-value. The results tend to be more meaningful for natural mineral soils, than for fill soils. In fill soils, compaction tests are more meaningful.

Penetrations resistance values ("N" Values) of 3 to 5 blows per foot (BPF) were recorded in loessial clays and silt and alluvial clays, indicating they were rather soft. The residuum returned penetration values of 5 to 16 BPF, indicating it was rather soft to stiff. Penetration values of 24 BPF to 50 blows for 4 inches of sampler advancement were recorded in the weathered limestone, indicating it was medium dense to very dense.

A key to the descriptors used to qualify the relative density of soil (such as *soft, stiff, loose,* and *dense,*) can be found on the Legend to Soil Description in the Appendix.

A pocket penetrometer was used to provide additional data on the compressive strength of cohesive soils. The loess and alluvium returned values of less than ¼ to 1 ¾ tons per square foot (tsf). The clay residuum returned values of 1 to greater than 4 ½ tsf.

B.3. Groundwater Data

During the drilling operation, the drillers may note the presence of moisture on the sampling instrument, in the cuttings, or within the borehole. These observations are recorded on the boring logs. The water level may vary with weather; time of year and other factors and the presence or absence of water during the drilling is subject to interpretation and is not always conclusive.

Water was not encountered during drilling, however elevated moisture contents were recorded in several of the clay and silt samples. Groundwater levels at the site are expected to fluctuate seasonally with nearby creeks and rivers, as well as with local weather patterns.

C. Level of Care

The services provided for this project have been conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area, under similar budget and time constraints. This is our professional responsibility. No other warranty, expressed or implied, is made.

Appendix

Soil Boring Location Sketch

Log of Boring 1-6

Legend to Soil Description

C V T

Chosen Valley Testing, Inc.

Soil Boring Location Sketch

Proposed Upper Iowa WMA – Timp Wetland
SW ¼ Sec. 18-T97N-R8W
Springfield Twp., Winneshiek Co., Iowa
17271.20.IAM

Legend

Boring Locations

N

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-01** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1121.5	0.0	CL	**LEAN CLAY** brown, wet, rather soft. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
				5		PP = 1.25 tsf MC = 28.4%
				5		PP = 1.25 tsf
1115.0	6.5	CL ML	**SILTY CLAY** brown, very wet, rather soft. (Loess)			
				3		PP < 0.25 tsf MC = 29.1%
1112.5	9.0	SC CL	**CLAYEY SAND to LEAN CLAY** mostly medium grained, trace of gravel, brown, wet, loose. (Residuum)			
				8		
1110.0	11.5	CL	**LEAN CLAY with GRAVEL** brown, wet, stiff. (Residuum)			
				16		Auger grinding at about 12 feet. PP = 3.5 tsf MC = 12.2%
1107.5	14.0	GM	**SILTY GRAVEL** trace of clay, brown, moist, medium dense. (Weathered Limestone)			
				24		
1105.5	16.0		End of boring. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-02** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1115.6	0.0	ML	**SANDY SILT** brown, wet, rather soft. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
				3		PP = 1.0 tsf
				3		PP = 1.0 tsf MC = 26.6%
1109.1	6.5	CL	**LEAN CLAY** dark brown to black, wet, soft to rather soft. (Alluvium)			
				2		PP = 0.5 tsf
				4		PP = 1.25 tsf MC = 27.2%
1103.6	12.0	GM	**SILTY GRAVEL** brown, moist, medium dense. (Weathered Limestone)			Auger grinding at about 12 feet.
				25		
			Trace of clay.	30		
1099.6	16.0		End of boring. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-03** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1124.1	0.0	CL	**LEAN CLAY** brown, wet. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
1122.1	2.0	CL	**LEAN CLAY with GRAVEL** brown, wet, medium to rather stiff. (Residuum)	7		PP = 1.25 tsf MC = 21.1%
				12		PP > 4.5 tsf MC = 13.3%
1117.6	6.5	GM	**SILTY GRAVEL** brown, moist, medium dense to very dense. (Weathered Limestone)	32		PP > 4.5 tsf
1113.6	10.5			*		* 10 / 25 / 50 = 4" (set)
			Auger refusal at about 10 1/2 feet, presumably upon limestone bedrock. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-04** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1118.2	0.0	ML	**SANDY SILT** brown, wet, rather stiff. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
				5		PP = 0.5 tsf MC = 24.1%
1114.2	4.0	CL ML	**SILTY CLAY** dark brown to brown, wet, rather soft. (Loess)			
				4		PP = 1.25 tsf MC = 26.8%
				4		PP = 0.75 tsf
1109.2	9.0	CL CH	**LEAN to FAT CLAY** trace of gravel, brown, wet, rather soft. (Residuum)			
				5		PP = 1.0 tsf MC = 24.8%
1107.2	11.0		End of boring. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-05** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1121.2	0.0	ML	**SANDY SILT** brown, wet, rather soft. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
				4		PP = 0.75 tsf MC = 25.4%
1117.2	4.0	CL	**LEAN CLAY** brown, wet, rather soft. (Loess)			
				4		PP = 0.5 tsf MC = 26.8%
				5		PP = 1.0 tsf
1112.2	9.0	CL	**LEAN CLAY with SAND** brown, wet, rather soft. (Residuum)			
				5		PP = 1.0 tsf MC = 26.7%
1110.2	11.0		End of boring. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

LOG OF BORING

CHOSEN VALLEY TESTING

Chosen Valley Testing, Inc.

PROJECT: 17271.20.IAM Factual Geotechnical Evaluation Upper Iowa WMA - Timp Site 227th Avenue Calmar, Iowa	BORING: **B-06** LOCATION: See attached sketch DATE: 1/8/2021 SCALE: 1" = 2'

Elev.	Depth	USCS Symbol	Description of Materials (ASTM D 2487/2488)	BPF	WL	Tests and Notes
1115.6	0.0	ML	**SANDY SILT** brown, wet, rather soft. (Loess)			Elevations estimated using LiDAR from Iowa DNR.
				3		PP = 1.75 tsf
				4		PP = 0.75 tsf MC = 22.8%
				4		PP = 0.75 tsf
				5		PP = 0.5 tsf MC = 25.3%
1104.6	11.0		End of boring. Boring sealed upon completion.			

CVT STANDARD 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ LOG A GNNN06.GDT 1/13/21

UNIFIED SOIL CLASSIFICATION (ASTM D-2487/2488)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

Relative Proportions of Sand and Gravel

TERM	PERCENT
Trace	< 15
With	15 - 29
Modifier	> 30

Relative Proportions of Fines

TERM	PERCENT
Trace	< 5
With	5 - 12
Modifier	> 12

Grain Size Terminology

TERM	SIZE
Boulder	< 12 in.
Cobble	3 in. - 12 in.
Gravel	#4 sieve to 3 in.
Sand	#200 sieve to #4 sieve
Silt or Clay	Passing #200 sieve

SAMPLE TYPES

Hollow Stem

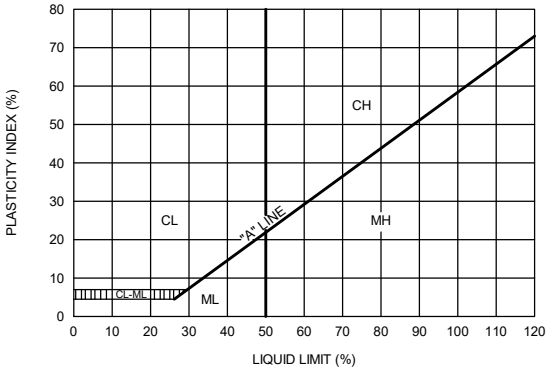
Standard Penetration Test

TEST SYMBOLS

MC	-	MOISTURE CONTENT	LL	-	LIQUID LIMIT
OC	-	ORGANIC CONTENT	PI	-	PLASTISITY INDEX
CN	-	CONSOLIDATION	SW	-	SWELL TEST
DD	-	DRY DENSITY	UU		Unconsolidated Undrained triaxial
PP	-	POCKET PENETROMETER			
RV	-	R-VALUE			
SA	-	SIEVE ANALYSIS			
P200	-	% PASSING #200 SIEVE			

\- WATER LEVEL (WITH TIME OF) MEASUREMENT

PLASTICITY CHART



PENETRATION RESISTANCE
(RECORDED AS BLOWS / 0.5 FT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	COMPRESSIVE STRENGTH (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 1	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 3	0.25 - 0.50
MEDIUM DENSE	10 - 30	RATHER SOFT	4 - 5	0.50 - 1.0
DENSE	30 - 50	MEDIUM	6 - 8	
VERY DENSE	OVER 50	RATHER STIFF	9 - 12	1.0 - 2.0
		STIFF	13 - 16	
		VERY STIFF	17 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

Chosen Valley Testing

Job No. 17271.20.IAM

LEGEND TO SOIL DESCRIPTIONS

CVT

Chosen Valley Testing, Inc.

CVT 17271.20.IAM (UPPER IOWA WMA - TIMP SITE).GPJ 1/11/21

UI-051-TIMP

ENGINEER'S OPINION OF PROBABLE COST

ITEM	DESCRIPTION	UNIT QUANTITY	UNIT	UNIT PRICE	TOTAL
1	EROSION BLANKET	210	SY	$2.10	$441.00
2	EXCAVATION (P) (Core Trench Cut)	860	CY	$3.50	$3,010.00
3	EARTHFILL (P) (Embankment & Core Trench Fill)	5,360	CY	$3.50	$18,760.00
4	TOPSOILING (P) (Strip, Salvage, & Respread)	1,870	CY	$3.00	$5,610.00
5	RISER STRUCTURE	1	LS	$15,000.00	$15,000.00
6	8" CORRUGATED METAL PIPE	20	LF	$45.00	$900.00
7	24" CORRUGATED METAL PIPE	102	LF	$95.00	$9,690.00
8	24" CMP APRON	1	EA	$650.00	$650.00
9	FILTER DIAPHRAGM	1	LS	$6,000.00	$6,000.00
10	ROCK RIPRAP - CLASS C	180	TON	$30.00	$5,400.00
11	ROCK RIPRAP - CLASS E	45	TON	$25.00	$1,125.00
12	BUFFER SEEDING	2.5	AC	$1,000.00	$2,500.00
13	STRUCTURE & CHANNEL SEEDING	1.0	AC	$1,000.00	$1,000.00
				Subtotal:	**$70,086.00**
14	MOBILIZATION	1	LS	$5,000.00	$5,000.00
15	SITE PREPARATION	1	LS	$4,500.00	$4,500.00
				Subtotal:	**$9,500.00**
				10% Contigency:	$7,958.60
				Total:	**$87,544.60**