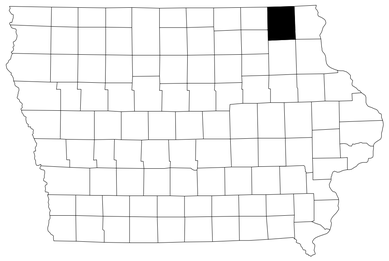
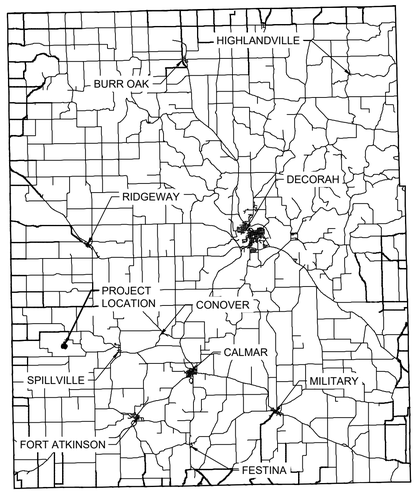
WINN971022B NUTRIENT REDUCTION WETLAND (SHATEK) - IDALS

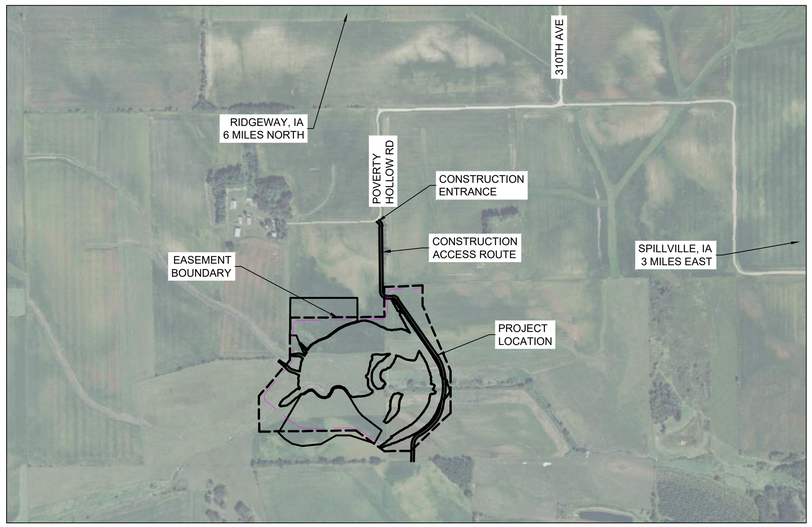
WINNESHIEK COUNTY, IA

STATE OF IOWA



WINNESHIEK COUNTY





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CONTACT/SITE INFORMATION:

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WEST DES MOINES, IOWA 50266
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LANDOWNERS
ROGER SHATEK
PH: (563) 422-2967

SITE ADDRESS:
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CALMAR, IA 52132

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PROJECT DRAWING COORDINATE SYSTEM:
HORIZONTAL: NAD83 IOWA STATE PLANE NORTH ZONE (1401)
VERTICAL: NAVD88
UNITS: U.S. SURVEY FEET

STRUCTURAL 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: CHRIS R. MARVIN
License Number: 27417
My License Renewal Date is: DECEMBER 31, 2025

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL:
C401

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 J. HARBAUGH
License Number: 26394
My License Renewal Date is: DECEMBER 31, 2025

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ALL SHEETS EXCLUDING C401

THE ENGINEERING JOB CLASS IS IV

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THE SIGNING PROFESSIONALS HEREBY CERTIFY THAT, TO THE BEST OF THEIR PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THESE PLANS MEET APPLICABLE NRCS STANDARDS.

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ARCHITECTURE + ENGINEERING
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Iowa | Illinois | Indiana | Nebraska | Wisconsin

WINN971022B WETLAND (SHATEK)
IDALS
WINNESHIEK COUNTY, IA

07-09-2026
FINAL DESIGN
PROJECT NO: 2240006350
CLIENT NO: --

C000

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ESTIMATED QUANTITIES:

#	ITEM DESCRIPTION	QUANTITY	UNITS
1	SITE STRIPPING & PREPARATION	1	LS
2	SITE STRIPPING & PREPARATION, BORROW AREA	1	LS
3	CROP DAMAGE	0	AC
4	STRUCTURE & CHANNEL SEEDING	1.8	AC
5	BUFFER SEEDING	16.6	AC
6	MOBILIZATION AND DEMOBILIZATION	1	LS
7	DRAIN TILE INVESTIGATION AND REMOVAL	8,385	LF
8	STEEL SHEET PILING	2,344	SF
9	EXCAVATION (GENERAL (P))	4,070	CY
10	EXCAVATION (WASTE)	14,456	CY
11	EARTHFILL (GENERAL (P))	1,861	CY
12	EARTHFILL (GENERAL DAM (P))	8,536	CY
13	EARTHFILL (DAM CORE (P))	6,228	CY
14	EARTHFILL (SCARIFY AND RECOMPACT 18" LAYER OF WETLAND BOTTOM, TWO 9" LIFTS (P))	14,806	CY
15	EARTHFILL (SCARIFY AND RECOMPACT 9" LAYER OF WETLAND BOTTOM (P))	7,249	CY
16	EARTHFILL (REMOVAL OF 9" OF MATERIAL, DISPOSAL, REPLACEMENT WITH SUITABLE FILL, AND COMPACTION)	7,403	CY
17	TOPSOIL PLACEMENT (P)	22,801	CY
18	4" CORRUGATED PROFILE WALL (SINGLE WALL, NON-PERFORATED) POLYETHYLENE PIPE	7,385	LF
19	4" CORRUGATED PROFILE WALL (DUAL WALL, NON-PERFORATED) POLYETHYLENE PIPE	4,275	LF
20	6" CORRUGATED PROFILE WALL (DUAL WALL, NON-PERFORATED) POLYETHYLENE PIPE	2,960	LF
21	TOE DRAIN - 6" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE	1,222	LF
22	8" CORRUGATED PROFILE WALL (DUAL WALL, NON-PERFORATED) POLYETHYLENE PIPE	387	LF
23	24" ALUMINIZED CMP DRAWDOWN RISER, 12 GA	1	EA
24	48" CMP WATER CONTROL STRUCTURE	1	EA
25	18" ALUMINIZED CMP WETLAND DRAWDOWN PIPE, 14GA	100	LF
26	18" ALUMINIZED CMP FLARED END SECITON	1	EA
27	8" CMP TILE OUTLETS (20 LF EACH)	4	EA
28	10" CMP TILE OUTLETS (20 LF EACH)	2	EA
29	RIP RAP	1475	TON
30	EROSION STONE	80	TON
31	2" CLEAN STONE	95	TON
32	CONCRETE GROUT	188	CY
33	POLLUTION CONTROL, SILT FENCE	3350	LF
34	BARB-WIRED FENCE REMOVAL	2140	LF
35	BARB-WIRED FENCE WITH GATES INSTALLATION	4780	LF

WETLAND DESIGN DATA:

PROJECT ID	WINN970905B	-----
LANDOWNER(S)	ROGER SHATEK	-----
PRELIMINARY OR FINAL DESIGN	FINAL DESIGN	-----
DRAINAGE AREA	588.1	ACRES
WETLAND POOL AREA	12.24	ACRES
DEEP WATER AREA (>3 FT DEEP)	1.41	ACRES
NORMAL POOL ELEVATION / PRIMARY SPILLWAY ELEVATION	1115.00	FEET
AVERAGE POOL DEPTH	1.48	FEET
MAXIMUM POOL DEPTH	7.64	FEET
WETLAND STORAGE	18.12	ACRE-FEET
BERM ELEVATION	1119.00	FEET
BERM STORAGE	81.25	ACRE-FEET
LENGTH OF BERM	1418	FEET
AUXILIARY SPILLWAY ELEVATION	1117.00	FEET
AUXILIARY SPILLWAY WIDTH	20	FEET
WEIR WIDTH	60	FEET
DROP HEIGHT (PRIMARY SPILLWAY ELEVATION – STILLING BASIN LOWEST ELEVATION)	8.5	FEET
HEIGHT OF DAM (BERM ELEVATION – STILLING BASIN LOWEST ELEVATION)	12.5	FEET
STILLING BASIN LENGTH	93	FEET
TIME OF CONCENTRATION	2.6	HOURS
WEIGHTED RUNOFF CURVE NUMBER	80	-----
25-YEAR STORM DESIGN FLOW	546.72	CFS
25-YEAR FLOOD SURF. ELEVATION	1116.88	FEET
50-YEAR STORM DESIGN FLOW	682.14	CFS
50-YEAR FLOOD SURF. ELEVATION	1117.17	FEET
100-YEAR STORM DESIGN FLOW	831.31	CFS
100-YEAR FLOOD SURF. ELEVATION	1117.45	FEET
ESTIMATED SEDIMENT STORAGE	112	YEARS
TOTAL EASEMENT AREA	27.55	ACRES

ESTIMATE REFERENCE NOTES:

ITEM #	SPEC #	DESCRIPTION
1	IA CS-001	SITE STRIPPING & PREPARATION : THIS ITEM WILL CONSIST OF WORK TO REMOVE AND DISPOSE OF EXISTING MATERIAL TO REMOVE VEGETATION ON AREAS TO BE EXCAVATED OR FILLED OUTSIDE OF BORROW AREA FOOTPRINT. TOTAL DEPTH OF VEGETATIVE STRIPPING AND TOPSOIL STRIPPING SHALL EQUAL A COMBINED DEPTH OF 12", WITH THE ESTIMATED AMOUNT OF TOPSOIL REMOVAL BEING 16,378 CUBIC YARDS AND AN ESTIMATED AREA OF 10.2 ACRES. THE TOPSOIL REPLACEMENT QUANTITY SHALL BE PAID SEPARATELY. THIS ITEM WILL ALSO INCLUDE ANY TREE AND BRUSH REMOVAL ALONG WITH ANY FENCES.
2	IA CS-001	SITE STRIPPING & PREPARATION, BORROW AREA: THIS ITEM WILL CONSIST OF WORK TO REMOVE AND DISPOSE OF EXISTING MATERIAL TO REMOVE VEGETATION WITHIN DESIGNATED BORROW AREA. TOTAL DEPTH OF VEGETATIVE STRIPPING AND TOPSOIL STRIPPING SHALL EQUAL A COMBINED DEPTH OF 6", WITH THE ESTIMATED AMOUNT OF TOPSOIL REMOVAL BEING 6,423 CUBIC YARDS AND AN ESTIMATED AREA OF 8.0 ACRES. THE TOPSOIL REPLACEMENT QUANTITY SHALL BE PAID SEPARATELY. THIS ITEM WILL ALSO INCLUDE ANY TREE AND BRUSH REMOVAL ALONG WITH ANY FENCES. BORROW AREAS SHOULD BE STRIPPED ON AN AS-NEEDED BASIS, COORDINATE WITH ENGINEER.
3	IA CS-001	CROP DAMAGE: THIS ITEM CONSISTS OF CROP DAMAGE THAT RESULTS FROM CONSTRUCTION ACTIVITIES. IT IS RECOMMENDED CONTRACTOR REMOVE CORN RESIDUE RATHER THAN KNOCK IT DOWN. PAYMENT FOR CROP DAMAGE WILL BE MADE TO THE NEAREST 0.1 ACRE AS MEASURED BY THE ENGINEER OR THEIR REPRESENTATIVE. THE UNIT RATE FOR CROP DAMAGE WILL BE DETERMINED BY THE DIVISION NEAR THE COMPLETION OF CONSTRUCTION AND ADDED TO THE CONTRACT WITH A CHANGE ORDER. PAYMENT WILL BE MADE TO CONTRACTOR WHO WILL PAY LANDOWNER.
4	IA CS-006	STRUCTURE & CHANNEL SEEDING: THIS ITEM INCLUDES SEEDING FOR ALL EMBANKMENT AND TILE COVER BERM AREAS AND INCLUDES SEEDBED PREP, SEEDING, MULCHING, AND FERTILIZER.
5	IA CS-006	BUFFER SEEDING: THIS ITEM INCLUDES SEEDING FOR ALL AREAS ABOVE NORMAL POOL AND WITHIN EASEMENT BOUNDARY, EXCLUDING THOSE AREAS WHERE STRUCTURE SEEDING IS SPECIFIED. SEE SEEDING PLAN. NO MULCH OR FERTILIZER SHALL BE APPLIED.
6	CS-008	MOBILIZATION AND DEMOBILIZATION: THIS ITEM SHALL BE CONSIDERED FULL COMPENSATION TO MOBILIZE AND DEMOBILIZE THE CONTRACTOR'S FORCES AND EQUIPMENT FOR THE PROJECT. ALL OTHER WORK NECESSARY TO COMPLETE THE PROJECT AS REPRESENTED HEREIN BUT NOT INCLUDED IN THE ITEMS LISTED BELOW SHALL BE INCIDENTAL TO THIS ITEM. THIS ITEM SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND IOWA ONE CALL NOTIFICATIONS TO INSTALL SIGN PROVIDED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP, AS SHOWN ON THE PLANS OR ON NEXT PAGE.
7	IA CS-009	DRAIN TILE INVESTIGATION AND REMOVAL: THIS ITEM INCLUDES THE EXPLORATORY EXCAVATIONS REQUIRED TO LOCATE AND REMOVE TILES SHOWN ON THE PLANS. THIS IS FULL COMPENSATION FOR EXCAVATION, BACKFILLING, AND REMOVAL OF THE TILE TRENCHES.
8	IA CS-013	STEEL SHEET PILING: THIS ITEM INCLUDES PROCUREMENT AND INSTALLATION OF THE SHEET PILING AS DETAILED ON SHEET C401 INCLUDING FIELD WELDING, CUTTING, TRIMMING, WALER, BOLTS, NUTS, AND OTHER APPURTENANCES.
9	IA CS-021	EXCAVATION (GENERAL): THIS ITEM INCLUDES THE EXCAVATION OF MATERIAL REQUIRED TO CONSTRUCT THE CORE TRENCH BELOW THE EXISTING GROUND LEVEL, AS DETAILED, ALONG THE CENTERLINE OF PROPOSED DAM EMBANKMENT. TERMINATE CORE TRENCH IN SUITBALE IMPERVIOUS SOILS. CORE TRENCHES SHALL BE LEFT OPEN FOR INSPECTION BY THE ENGINEER. THIS ITEM ALSO INCLUDE REMOVAL OF ANY TILE LOCATE WITHIN THE CORE TRENCH EXTENDING 10 FEET BEYOND THE EMBANKMENT FOOTPRINT. TILE SHALL BE TRACED UPSTREAM AND DAYLIGHTED TO PROPOSED POOLS WHERE POSSIBLE. COORDINATE WITH THE ENGINEER IF ADDITIONAL TILE WORK IS REQUIRED.
10	IA CS-021	EXCAVATION (WASTE): THIS ITEM INCLUDES EXCAVATION, HAULING, AND PLACEMENT OF ALL UNSUITABLE MATERIAL FOUND WITHIN THE WETLAND POOL GRADING LIMITS AS REQUIRED TO REACH "FINISH GRADE". EXCAVATION OF MATERIAL WITHIN THE POOL GRADING LIMITS THAT IS SUITABLE FOR GENERAL, GENERAL DAM, DAM CORE, OR LINER EARTHFILL SHALL BE USED FOR THOSE PURPOSES AND SHALL BE CONSIDERED INCIDENTAL TO THOSE ITEMS. OVER-EXCAVATION OF UNSUITABLE MATERIALS TO IMPLEMENT A LINER SHALL BE INCIDENTAL TO LINER ITEM(S). NOTIFY THE ENGINEER IF SAND SEAMS OR OTHER UNFAVORABLE SUBSURFACE CONDITIONS ARE ENCOUNTERED. EXCESS OR UNSUITABLE MATERIAL SHALL BE PLACED TO RESTORE BORROW AREAS TO EXISTING GRADES--ESPECIALLY IF OUTSIDE OF THE EASEMENT--AND AS DIRECTED BY THE ENGINEER.
11	IA CS-023	EARTHFILL (GENERAL (P)): THIS ITEM INCLUDES THE AMOUNT OF MATERIAL REQUIRED TO CONSTRUCT THE SUBMERGED BERMS AND ADDITIONAL FILL TO BE PLACED OVER TILE COVER BERMS. COHESIVE MATERIAL FOUND DURING GENERAL GRADING AND COMPACTED LINER REMOVAL CAN BE USED FOR THESE AREAS. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR THIS EARTHFILL. SEE SHEET C201 AND C203 FOR LIMITS OF EXCAVATION AND ASSOCIATED FILL. THE REQUIRED FILL INCLUDES A 20% SHRINKAGE FACTOR. MEASUREMENT AND PAYMENT FOR PLACEMENT AND COMPACTION OF ALL FILL MATERIAL IS INCLUDED IN THIS ITEM AND WILL BE PAID BASED ON PLAN QUANTITY.
12	IA CS-023	EARTHFILL (GENERAL DAM (P)): THIS ITEM INCLUDES THE EARTHFILL PLACEMENT AND COMPACTION NECESSARY TO CONSTRUCTION THE PORTION OF THE EMBANKMENT THAT IS NOT THE EMBANKMENT CORE. COHESIVE MATERIAL FOUND DURING GENERAL GRADING AND COMPACTED LINER CAN BE USED FOR THIS AREA. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR FILL IN THESE AREAS. SEE SHEET C201 AND C203 FOR LIMITS OF EXCAVATION AND ASSOCIATED FILL. THE REQUIRED FILL INCLUDES A 20% SHRINKAGE FACTOR. MEASUREMENT AND PAYMENT FOR PLACEMENT AND COMPACTION OF ALL FILL MATERIAL IS INCLUDED IN THIS ITEM AND WILL BE PAID BASED ON PLAN QUANTITY.
13	IA CS-023	EARTHFILL (DAM CORE (P)): THIS ITEM INCLUDES THE EARTHFILL PLACEMENT AND COMPACTION NECESSARY TO CONSTRUCT THE EMBANKMENT CORE WITHIN THE EMBANKMENT. COHESIVE MATERIAL TAKEN FROM DESIGNATED BORROW AREA SHOULD BE USED FOR THIS AREA. SAND AND GRAVEL SHALL NOT BE USED FOR THIS AREA. SEE SHEET C201 AND C203 FOR LIMITS OF EXCAVATION AND ASSOCIATED FILL. THE REQUIRED FILL INCLUDES A 20% SHRINKAGE FACTOR. MEASUREMENT AND PAYMENT FOR PLACEMENT AND COMPACTION OF ALL FILL MATERIAL IS INCLUDED IN THIS ITEM AND WILL BE PAID BASED ON PLAN QUANTITY.
14	IA CS-023	EARTHFILL (SCARIFY AND RECOMPACT 18" LAYER OF WETLAND BOTTOM, TWO 9" LIFTS (P)): THIS ITEM INCLUDES SCARIFICATION AND LOOSENING OF A 18" LINER IN TWO LIFTS IN ALL EXCAVATED AREAS WITHIN THE WETLAND POOL. REMOVE AN ADDITIONAL 9" OF SOIL, SCARIFY AND RE-COMPACT 9" BELOW, REPLACE 9" AND RECOMPACT, MOISTURE CONDITIONING, AND COMPACTION OF THE WETLAND BOTTOM TO FORM A SEAL. CONTRACTOR SHALL REMOVE ROCKS LARGER THAN 6 INCHES. NOTIFY ENGINEER IMMEDIATELY IF SANDY SOILS ARE ENCOUNTERED. ITEM WILL BE PAID BASED ON PLAN QUANTITY.
15	IA CS-023	EARTHFILL (SCARIFY AND RECOMPACT 9" LAYER OF WETLAND BOTTOM (P)): THIS ITEM INCLUDES SCARIFICATION AND LOOSENING OF A 9 INCH SURFACE LAYER OF SOIL ON THE WETLAND POOL BOTTOM OUTSIDE OF THE PROPOSED GRADING LIMITS, MOISTURE CONDITIONING, AND COMPACTION OF THE WETLAND BOTTOM TO FORM A SEAL. CONTRACTOR SHALL REMOVE ROCKS LARGER THAN 6 INCHES. NOTIFY ENGINEER IMMEDIATELY IF SANDY SOILS ARE ENCOUNTERED. ITEM WILL BE PAID BASED ON PLAN QUANTITY.
16	IA CS-023	EARTHFILL (REMOVAL OF 9" OF MATERIAL, DISPOSAL, REPLACEMENT WITH SUITABLE FILL, AND COMPACTION): THIS ITEM INCLUDES THE REMOVAL OF A 9" LAYER OF UNSUITABLE MATERIAL FROM THE WETLAND BOTTOM, DISPOSAL OF THE UNSUITABLE MATERIAL, AND REPLACEMENT 9" OF SUITABLE MATERIAL ON THE WETLAND BOTTOM. COMPACT THE SUITABLE MATERIAL ON THE WETLAND BOTTOM TO FORM A SEAL. THIS ITEM IS TO ONLY BE USED AS DIRECTED BY THE ENGINEER.
17	IA CS-026	TOPSOIL PLACEMENT (P): THIS ITEM WILL CONSIST OF SPREADING SALVAGED AND STOCKPILED TOPSOIL AS THE SURFACE LAYER OF ALL DISTURBED AREAS. TOPSOIL SHALL BE PLACED AS FINAL LIFT. THE EMBANKMENT FOOTPRINT SHALL RECEIVE A MINIMUM OF 12 INCHES OF TOPSOIL. ALL OTHER DISTURBED AREAS SHALL RECEIVE A MINIMUM OF 6 INCHES OF TOPSOIL. ALL SALVAGED TOPSOIL SHALL BE RESPREAD ON-SITE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MEASUREMENT AND PAYMENT FOR TOPSOILING SHALL BE ON A PLAN QUANTITY. PLAN QUANTITY LISTED IN THE PROPOSAL WILL BE USED TO MEASURE AND PAY FOR THE BID.
18	IA CS-046	4" CORRUGATED POLYETHYLENE PIPE (SINGLE WALL, NON-PERFORATED): THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 4" SINGLE-WALL NON-PERFORATED HDPE DRAIN TILE. SEE SHEET C202 & C304 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
19	IA CS-046	4" CORRUGATED POLYETHYLENE PIPE (DUAL WALL, NON-PERFORATED): THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 4" DUAL-WALL NON-PERFORATED HDPE DRAIN TILE. SEE SHEET C202 & C304 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
20	IA CS-046	6" CORRUGATED POLYETHYLENE PIPE (DUAL WALL, NON-PERFORATED): THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 6" DUAL-WALL NON-PERFORATED HDPE DRAIN TILE. SEE SHEET C202 & C304 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
21	IA CS-046 & CS-061	TOE DRAIN - 6" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE: THIS ITEM INCLUDES THE MATERIAL AND INSTALLATION OF THE 6" PERFORATED DUAL WALL HDPE PIPE WITHIN THE EMBANKMENT FOOTPRINT. THIS ITEM INCLUDES THE TRENCH EXCAVATION AND 1" CLEAN STONE POROROUS GRANULAR BACKFILL. SEE DETAIL ON SHEET C504.
22	IA CS-046	8" CORRUGATED POLYETHYLENE PIPE (DUAL WALL, NON-PERFORATED): THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 8" DUAL-WALL NON-PERFORATED HDPE DRAIN TILE. SEE SHEET C202 & C304 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
23	IA CS-051	24" ALUMINIZED CMP DRAWDOWN RISER, 12 GA: THIS ITEM INCLUDES COSTS FOR THE MATERIAL AND INSTALLATION OF 24 INCH ALUMINIZED CMP DRAWDOWN STRUCTURE RISER PIPE, TRASH RACK, AND BASE A DETAILED.
24	IA CS-051	48" CMP WATER CONTROL STRUCTURE : THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, AND MATERIALS FOR THE PLACEMENT OF THE 48" CMP RISER STRUCTURE, FOOTING, STEEL, FABRICATION, PIPE CONNECTIONS, AND TRASH RACK.
25	IA CS-051	18" CMP DRAWDOWN WETLAND OUTLET PIPE, 14 GA: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE EXCAVATION, AND THE PLACEMENT OF THE CORRUGATE METAL PIPE.
26	IA CS-051	18" ALUMINIZED CMP FLARED END SECITON: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE EXCAVATION, AND THE PLACEMENT OF THE FLARED END SECTION AND REINFORCED CONRETE FES FOOTING.
27	IA CS-051	8" CMP TILE OUTLETS (20 LF EACH): THIS ITEM INCLUDES THE COSTS FOR MATERIAL, EXCAVATION, PLACEMENT, JOINTING, BEDDING, RODENT GUARDS, AND BACKFILLING OF THE 20 LF 8" CMP END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND AND TOE DRAIN OUTLET INTO GROUTED RIPRAP PLUNGE POOL. 8" CMP OUTLET SECTIONS ARE FOR 6 INCH TILES.
28	IA CS-051	10" CMP TILE OUTLETS (20 LF EACH): THIS ITEM INCLUDES THE COSTS FOR MATERIAL, EXCAVATION, PLACEMENT, JOINTING, BEDDING, RODENT GUARDS, AND BACKFILLING OF THE 20 LF 10" CMP END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND. 10" CMP OUTLET SECTIONS ARE FOR 8 INCH TILES.
29	IA CS-061	RIP RAP: THIS ITEM INCLUDES THE EXCAVATION AND PLACEMENT OF CLASS 'E' REVETMENT OVER GEOTEXTILE FABRIC AT THE LOCATIONS SHOWN ON THE PLANS. THIS ITEM INCLUES TILE OUTLETS, FOREBAY ROCK CHECKS, SHEET PILE OUTLET CHANNEL, LOW WATER CROSSING, AND STREAM CROSSING. GEOTEXTILE FABRIC IS INCIDENTAL TO THIS ITEM. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 110 POUNDS PER CUBIC FOOT. PROVIDE WEIGHT TICKETS TO OWNER'S REPRESENTATIVE.
30	IA CS-061	EROSION STONE: THIS ITEM INCLUDES PLACEMENT OF EROSION STONE AT THE LOCATIONS SHOWN ON THE PLANS. THIS ITEM INCLUES THE STREAM CROSSING. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT. PROVIDE WEIGHT TICKETS TO OWNER'S REPRESENTATIVE.
31	IA CS-061	2" CLEAN STONE: THIS ITEMS INCLUDES PROCUREMENT, PLACEMENT AND SPREADING OF 2 INCH CLEAN STONE AT THE CONSTRUCTION ENTRANCE, LOW WATER CROSISNG, AND STREAM CROSSING. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 130 POUNDS PER CUBIC FOOT.
32	IA CS-062	CONCRETE GROUT: GROUT MIX SHALL BE AS SPECIFIED AND SHALL BE PLACED USING A CONCRETE PUMPER. GROUT SHALL FULLY ENCASE THE BOTTOM OF THE RIP RAP BUT NOT FULL TO THE TOP OF THE RIP RAP SO AS TO REDUCE THE ENERGY DISSIPATION CAPABILITIES. GROUT UPSTREAM OF THE WEIR SHALL BE SMOOTH FINISHED 1" BELOW THE CREST. GROUT SHALL ONLY BE PLACED IN THE PRESENCE OF THE ENGINEER.
33	IA CS-005	POLLUTION CONTROL, SILT FENCE: THIS ITEM INCLUDES PROCUREMENT AND INSTALLATION OF SILT FENCE DITCH CHECKS AS SHOWN ON THE PLANS AND AS DETAILED.
34	IA-382	BARB-WIRED FENCE REMOVAL: THIS ITEM INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR THE PROPER REMOVAL OF 5-STRAND BARBED WIRE FENCE AT THE LOCATIONS INDICATED IN THE PLANS.
35	IA-382	BARB-WIRED FENCE WITH GATES INSTALLATION: THIS ITEM INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR THE PROPER INSTALLATION OF 5-STRAND BARBED WIRE FENCE WITH TOP WIRE HOT/ELECTRIC AND TWO 16' PIPE GATES AT THE LOCATIONS INDICATED IN THE PLANS.

GENERAL NOTES:

1. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION OF EXISTENCE OF, AND THE DETERMINATION OF THE EXACT LOCATION OF, UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).
2. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
3. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
4. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.
5. REPLACE ANY PROPERTY MONUMENTS REMOVED OR DESTROYED BY CONSTRUCTION. MONUMENTS SHALL BE SET BY A LAND SURVEYOR REGISTERED TO PRACTICE IN THE STATE OF IOWA.
6. ALL DEBRIS AND TRASH ENCOUNTERED DURING CONSTRUCTION WITHIN THE PROJECT LIMITS, OR DIRECTED BY THE ENGINEER, SHALL BE PROPERLY DISPOSED OF.
7. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION DE-WATERING THAT IS REQUIRED AT NO ADDITIONAL COST TO THE DIVISION.
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 DIVISION 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 OWNER'S 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 20% WAS ESTIMATED FOR THIS PROJECT. THE CONTRACTOR SHALL MAKE CHANGES IN EARTHWORK AS NEEDED TO ADJUST FOR INACCURACIES INHERENT WITH ESTIMATING THE SHRINKAGE FACTOR. THESE CHANGES SHALL ONLY BE MADE AFTER CONSULTATION AND APPROVAL BY THE ENGINEER AND DIVISION.
12. CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO FINISHED GRADE.
13. THE CONTRACTOR SHALL KEEP ALL ROADS OPEN TO THROUGH TRAFFIC AT ALL TIMES.
14. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL BE COORDINATED WITH THE GOVERNING AUTHORITY AND SHALL BE DONE IN ACCORDANCE WITH THEIR STANDARDS.
15. SUBMIT MANUFACTURER'S CERTIFICATION AND MATERIAL DATA FOR ALL MATERIALS DELIVERED TO THE PROJECT SITE AS REQUESTED BY THE OWNER'S REPRESENTATIVE.
16. 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.
17. NEITHER SHIVE-HATTERY NOR IDALS GUARANTEE THIS PRACTICE WILL HOLD A PERMANENT POOL OF WATER.

CULTURAL RESOURCES NOTE:

1. IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE.

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IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

WINN971022B WETLAND (SHATEK)

IDALS WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: AJH
ISSUED FOR: FINAL DESIGN
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CLIENT NO: ---

PROJECT QUANTITIES & NOTES

C001

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SURVEY NOTES:

1. LIMITED TOPOGRAPHIC SURVEY COMPLETED BY ERDMAN ENGINEERING ON JULY 15TH, 2024.
2. SUPPLEMENTAL EXISTING SURFACE INFORMATION SHOWN WAS BASED ON LIGHT DETECTION AND RANGING (LIDAR) INFORMATION FROM IOWA DNR (2020).
3. CONTRACTOR SHALL VERIFY CONTROL AND BASE SURFACE PRIOR TO CONSTRUCTION AND COORDINATE WITH ENGINEER.

COORDINATE SYSTEM AND DATUM:

HORIZONTAL DATUM - NAD83, IOWA STATE PLANE, NORTH ZONE

VERTICAL DATUM - NAVD88

SOILS NOTES:

1. STRIP AND STOCKPILE 12 INCHES OF TOPSOIL IN ALL AREAS OUTSIDE OF DESIGNATED BORROW AREA. STRIP 6 INCHES OF TOPSOIL IN BORROW AREA AS NEEDED, COORDINATE WITH ENGINEER. RESPREAD ALL TOPSOIL IN DISTURBED AREAS PRIOR TO SEED BED PREPARATION AND SEEDING IN STRIPPED AREAS. EMBANKMENT FOOTPRINT SHALL RECEIVE 12-INCH MINIMUM OF TOPSOIL, ALL OTHER DISTURBED AREAS SHALL RECEIVE 6-INCH MINIMUM OF TOPSOIL.
2. SCARIFY AND RE-COMPACT 9 INCHES OF SOIL IN ENTIRE WETLAND FOOTPRINT. ADDITIONALLY, IN EXCAVATED AREAS WITHIN THE POOL, AN ADDITIONAL 9 INCHES OF SOIL. SCARIFY AND RE-COMPACT 9 INCHES BELOW, REPLACE 9 INCHES, AND RE-COMPACT (18 INCH LINER IN TWO LIFTS). RESPREAD TOPSOIL AFTER COMPLETION.

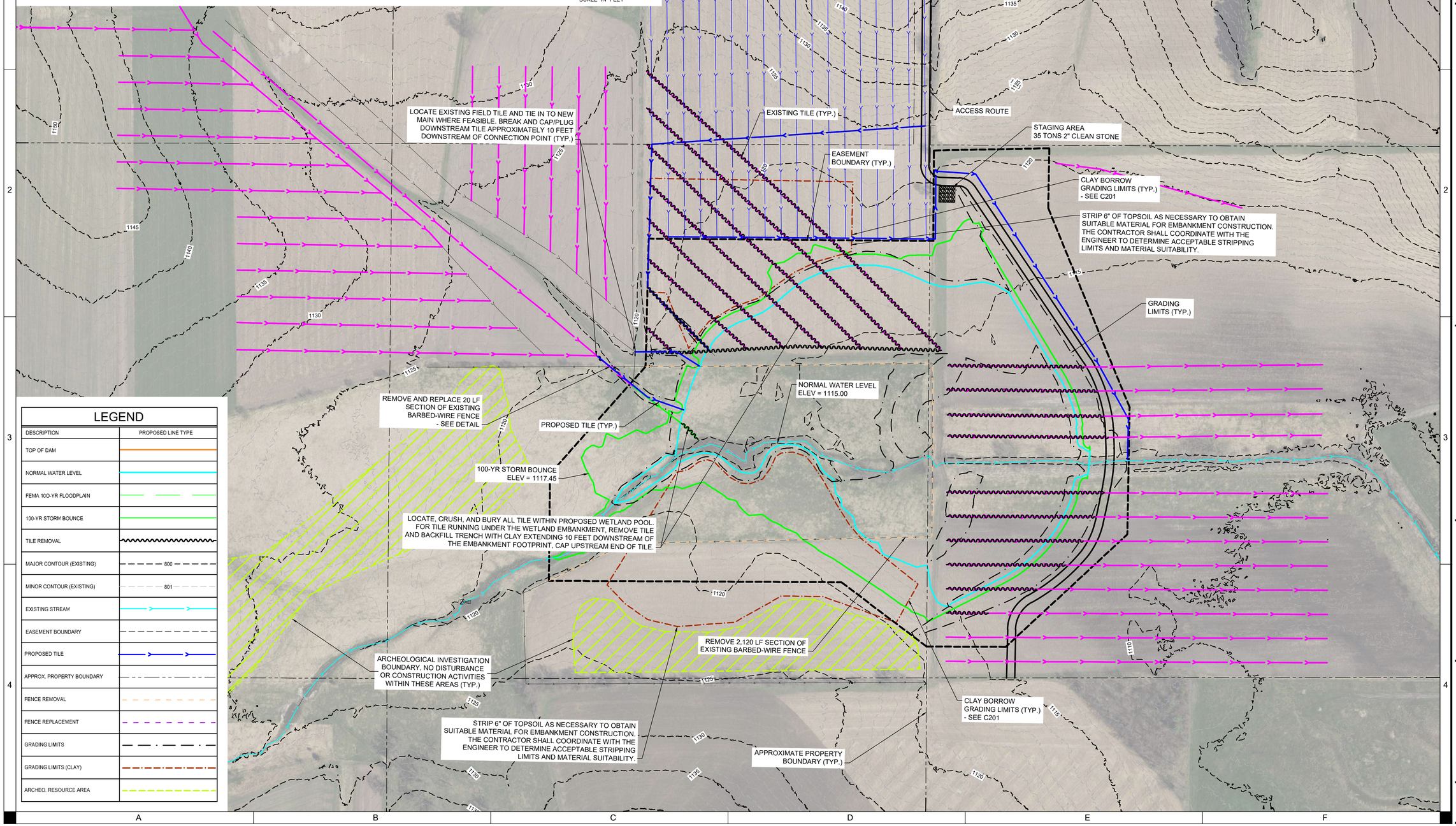
TILE INFORMATION

SEE SHEET CD02 FOR TILE INFORMATION AT SELECT LOCATIONS.

NORTH

0 60 120 240

SCALE IN FEET



LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM	
NORMAL WATER LEVEL	
FEMA 100-YR FLOODPLAIN	
100-YR STORM BOUNCE	
TILE REMOVAL	
MAJOR CONTOUR (EXISTING)	800
MINOR CONTOUR (EXISTING)	801
EXISTING STREAM	
EASEMENT BOUNDARY	
PROPOSED TILE	
APPROX. PROPERTY BOUNDARY	
FENCE REMOVAL	
FENCE REPLACEMENT	
GRADING LIMITS	
GRADING LIMITS (CLAY)	
ARCHEO. RESOURCE AREA	

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IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

WINN971022B WETLAND (SHATEK)

IDALS

WINNESHIEK COUNTY, IA

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EXISTING CONDITIONS & REMOVALS

CD01

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TILE INFORMATION

LIMITED TILE INVESTIGATION WAS COMPLETED BY SHIVE-HATTERY ON MARCH 27TH, 2025. LOCATED TILE INFORMATION IS INCLUDED ON THIS SHEET AT SELECT LOCATIONS. ALL OTHER TILE INFORMATION IS APPROXIMATE AND WAS PROVIDED BY THE LANDOWNER.

NOTES:

1. AVERAGE DEPTH TO TILE INVERT = 3.94 FT
2. AVERAGE DEPTH OF TILE COVER = 3.57 FT

NORTH

0 60 120 240

SCALE IN FEET

4" HDPE LATERAL
GROUND ELEV = 1122.27 FT
IE = 1118.38 FT
DEPTH TO INVERT = 3.89 FT

4" HDPE LATERAL
GROUND ELEV = 1122.16 FT
IE = 1118.67 FT
DEPTH TO INVERT = 3.49 FT

5" HDPE
GROUND ELEV = 1124.82 FT
IE = 1119.96 FT
DEPTH TO INVERT = 4.86 FT

4" HDPE LATERAL
GROUND ELEV = 1123.08 FT
IE = 1118.94 FT
DEPTH TO INVERT = 4.14 FT

5" HDPE
GROUND ELEV = 1124.24 FT
IE = 1120.47 FT
DEPTH TO INVERT = 3.77 FT

4" HDPE LATERAL
GROUND ELEV = 1123.48 FT
IE = 1119.55 FT
DEPTH TO INVERT = 3.93 FT

5" HDPE
GROUND ELEV = 1120.93 FT
IE = 1116.87 FT
DEPTH TO INVERT = 4.06 FT

4" HDPE
GROUND ELEV = 1127.03 FT
IE = 1121.82 FT
DEPTH TO INVERT = 5.21 FT

4" HDPE
GROUND ELEV = 1123.89 FT
IE = 1119.82 FT
DEPTH TO INVERT = 4.07 FT

4" HDPE
GROUND ELEV = 1121.52 FT
IE = 1117.56 FT
DEPTH TO INVERT = 3.96 FT

4" HDPE LATERAL
GROUND ELEV = 1124.95 FT
IE = 1120.42 FT
DEPTH TO INVERT = 4.53 FT

4" HDPE LATERAL
GROUND ELEV = 1123.34 FT
IE = 1119.07 FT
DEPTH TO INVERT = 4.47 FT

4" HDPE LATERAL
GROUND ELEV = 1123.46 FT
IE = 1119.24 FT
DEPTH TO INVERT = 4.22 FT

5" HDPE
GROUND ELEV = 1121.94 FT
IE = 1117.78 FT
DEPTH TO INVERT = 4.16 FT

5" HDPE
GROUND ELEV = 1121.12 FT
IE = 1116.96 FT
DEPTH TO INVERT = 4.16 FT

4" HDPE LATERAL
GROUND ELEV = 1120.24 FT
IE = 1116.17 FT
DEPTH TO INVERT = 4.07 FT

4" HDPE LATERAL
GROUND ELEV = 1119.30 FT
IE = 1115.29 FT
DEPTH TO INVERT = 4.01 FT

4" HDPE LATERAL
GROUND ELEV = 1119.10 FT
IE = 1115.52 FT
DEPTH TO INVERT = 3.58 FT

4" HDPE LATERAL
GROUND ELEV = 1119.38 FT
IE = 1115.55 FT
DEPTH TO INVERT = 3.83 FT

4" HDPE LATERAL
GROUND ELEV = 1119.36 FT
IE = 1115.33 FT
DEPTH TO INVERT = 4.03 FT

4" HDPE LATERAL
GROUND ELEV = 1119.49 FT
IE = 1115.82 FT
DEPTH TO INVERT = 3.67 FT

4" HDPE LATERAL
GROUND ELEV = 1119.67 FT
IE = 1115.74 FT
DEPTH TO INVERT = 3.93 FT

5" HDPE
GROUND ELEV = 1118.49 FT
IE = 1114.26 FT
DEPTH TO INVERT = 4.23 FT

5" HDPE
GROUND ELEV = 1120.26 FT
IE = 1116.58 FT
DEPTH TO INVERT = 3.68 FT

4" HDPE
GROUND ELEV = 1121.27 FT
IE = 1117.34 FT
DEPTH TO INVERT = 3.93 FT

6" HDPE
GROUND ELEV = 1118.95 FT
IE = 1115.27 FT
DEPTH TO INVERT = 3.68 FT

4" HDPE LATERALS
AVERAGE DEPTH TO INVERT = 3.20 FT

POVERTY HOLLOW RD

TILE LEGEND

DESCRIPTION	PROPOSED LINE TYPE
4" TILE	
5" TILE	
6" TILE	
PROPOSED TILE	
TILE REMOVAL	

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IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

WINN971022B WETLAND
(SHATEK)

IDALS
WINNESHIEK COUNTY, IA

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EXISTING TILE

CD02

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LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM ELEVATION	
NORMAL WATER ELEVATION	
100-YR STORM BOUNCE	
MAJOR CONTOUR	800
MINOR CONTOUR	801
EXISTING CONTOUR - MAJOR	800
EXISTING CONTOUR - MINOR	801
EXISTING STREAM	
EASEMENT BOUNDARY	
GRADING LIMITS	
APPROX. CLAY BORROW LIMITS	
PROPOSED FENCE	
ARCHEO. RESOURCE AREA	
LANDOWNER ACCESS LANE	

MOWED LANDOWNER MAINTENANCE ACCESS LANE (TYP.)

SUITABLE EXCAVATED MATERIAL SHALL BE USED FOR EMBANKMENT CONSTRUCTION, EXCESS OR UNSUITABLE MATERIAL SHALL BE REPLACED WITHIN BORROW AREA. COORDINATE WITH ENGINEER

TILE CONNECTION - SEE SHEET CD01, C202, AND C304

16' WIDE PIPE GATE - COORDINATE LOCATION WITH LANDOWNER - SEE DETAIL

REMOVE AND REPLACE 20 LF SECTION OF BARBED-WIRE FENCE - SEE DETAIL

WETLAND FOREBAY LENGTH = 200 FEET BOTTOM WIDTH = 4 FEET - SEE SHEET C306

PROJECT EASEMENT (TYP.)

UPSTREAM FOREBAY RIPRAP PROTECTION

STREAM CROSSING 88 TONS CLASS 'E' RIPRAP 2' THICK 80 TONS EROSION STONE 1.5' THICK 30 TONS 2" CLEAN STONE 6" THICK - SEE DETAIL

ARCHEOLOGICAL INVESTIGATION BOUNDARY, NO DISTURBANCE OR CONSTRUCTION ACTIVITIES WITHIN THESE AREAS (TYP.)

16' WIDE PIPE GATE - COORDINATE LOCATION WITH LANDOWNER - SEE DETAIL

CUT IN SHALLOW CHANNEL TO PROVIDE POSITIVE DRAINAGE THROUGHOUT WETLAND TO OUTLET

10' WIDE WAVE BENCH - SEE DETAIL

DOWNSTREAM FOREBAY RIPRAP PROTECTION

SUBMERGED BERMS TOP WIDTH = 20 FEET SIDE SLOPES = 20:1 ELEV = 1114.50

NORMAL WATER LEVEL ELEVATION = 1115.00 AREA = 12.2 ACRES

TOP OF DAM ELEVATION = 1119.00 AREA = 22.1 ACRES

INSTALL 4,780 LF OF FIVE-STRAND BARBED WIRE FENCE AND ACCESS GATES ALONG EASEMENT BOUNDARY, TOP WIRE TO BE HOT/ELECTRIC - COORDINATE WITH LANDOWNER - SEE DETAIL

100-YR STORM BOUNCE ELEVATION = 1117.45 AREA = 16.5 ACRES

APPROXIMATE PROPERTY BOUNDARY (TYP.)

TOE DRAIN START IE = 1116.00

PROPOSED ESTIMATED BORROW AREA BASED ON APPROXIMATELY 12"-24" OF SUITABLE MATERIAL FOR EMBANKMENT CONSTRUCTION. AREA TO BE OUTSIDE OF NORMAL POOL AREA. AVOID ARCHEOLOGICAL INVESTIGATION AREA.

ESTIMATED QUANTITY OF COHESIVE MATERIAL NEEDED TO CONSTRUCT EMBANKMENT AND DAM CORE = 14,989 CY

ON AN AS-NEEDED BASIS, STRIP AND STOCKPILE TOPSOIL 6", REMOVE BORROW MATERIAL, REPLACE WITH EXCESS SOIL EXCAVATED FROM WETLAND POOL AREA AND RE-SPREAD TOPSOIL. RESTORE AREA TO ORIGINAL GRADES. COORDINATE WITH ENGINEER.

AUXILIARY SPILLWAY CREST ELEV = 1117.00 BOTTOM WIDTH = 20 FEET

TOE DRAIN START IE = 1116.00

NORTH EMBANKMENT TOE DRAIN LENGTH = 622 LF (DOES NOT INCLUDE 20 LF 8" CMP OUTLET SECTION) - MINIMUM SLOPE TO BE 0.5% - MINIMUM COVER TO BE 3 FEET - SEE DETAIL

EMBANKMENT FOOTPRINT AREA = 1.9 ACRES

ACCESS ROUTE

SHEET PILE STRUCTURE - SEE SHEETS C301, C302, AND C401

TOE DRAIN END IE = 1109.00 END SECTION TO BE 20 LF 8" CMP OUTLET

LOW WATER CROSSING - SEE C305

TOE DRAIN END IE = 1109.00 END SECTION TO BE 20 LF 8" CMP OUTLET

GROUTED RIPRAP STILLING BASIN - SEE C302

DRAWDOWN STRUCTURE - SEE SHEET C303

10' WIDE WAVE BENCH - SEE DETAIL

SOUTH EMBANKMENT TOE DRAIN LENGTH = 640 LF (DOES NOT INCLUDE 20 LF 8" CMP OUTLET SECTION) - MINIMUM SLOPE TO BE 0.5% - MINIMUM COVER TO BE 3 FEET - SEE DETAIL

TOP OF DAM ELEV = 1119.00 TOP WIDTH = 12 FEET - SEE C301

PROPOSED ESTIMATED BORROW AREA BASED ON APPROXIMATELY 12"-24" OF SUITABLE MATERIAL FOR EMBANKMENT CONSTRUCTION. AREA TO BE OUTSIDE OF NORMAL POOL AREA. AVOID ARCHEOLOGICAL INVESTIGATION AREA.

ESTIMATED QUANTITY OF COHESIVE MATERIAL NEEDED TO CONSTRUCT EMBANKMENT AND DAM CORE = 14,989 CY

ON AN AS-NEEDED BASIS, STRIP AND STOCKPILE TOPSOIL 6", REMOVE BORROW MATERIAL, REPLACE WITH EXCESS SOIL EXCAVATED FROM WETLAND POOL AREA AND RE-SPREAD TOPSOIL. RESTORE AREA TO ORIGINAL GRADES. COORDINATE WITH ENGINEER.

WETLAND PARAMETERS

DRAINAGE AREA = 588.1 ACRES
NORMAL POOL AREA = 12.24 ACRES
SA/DA RATIO = 2.08%

WETLAND HYDRAULIC PARAMETERS

TOP OF BERM ELEVATION = 1119.00
100-YEAR STORM ELEVATION = 1117.45
NORMAL WATER ELEVATION = 1115.00
STORAGE AT NWL = 17.28 ACRE-FEET
STORAGE AT TOP OF DAM = 81.25 ACRE-FEET

NORTH

0 40 80 160
SCALE IN FEET

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IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

WINN971022B WETLAND (SHATEK)

IDALS

WINNESHIEK COUNTY, IA

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WETLAND GRADING PLAN

C201

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LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM ELEVATION	
NORMAL WATER ELEVATION	
100-YR STORM BOUNCE	
MAJOR CONTOUR	800
MINOR CONTOUR	801
EXISTING CONTOUR - MAJOR	800
EXISTING CONTOUR - MINOR	801
EXISTING STREAM	
EASEMENT BOUNDARY	
GRADING LIMITS	
APPROX. CLAY BORROW LIMITS	
PROPOSED FENCE	
ARCHEO. RESOURCE AREA	

TILE LEGEND

DESCRIPTION	PROPOSED LINE TYPE
4" TILE	
5" TILE	
6" TILE	
PROPOSED TILE	
TILE REMOVAL	

POVERTY HOLLOW RD

INSTALL 7,385 LF OF 4" DUAL-WALL HDPE NON-PERFORATED PATTERN TILE OUTLET TO WETLAND SPACING = 40 FEET MINIMUM SLOPE TO BE 0.3% MINIMUM COVER TO BE 3 FOOT

INSTALL 4,275 LF OF 4" DUAL-WALL HDPE NON-PERFORATED PATTERN TILE OUTLET TO CREEK DOWNSTREAM OF WETLAND SPACING = 40 FEET MINIMUM SLOPE TO BE 0.3% MINIMUM COVER TO BE 3 FOOT

TILE 3.4 - 681 LF
6" HDPE @ 0.3%
START IE = 1119.8
END IE = 1117.7

TILE 3.3 - 356 LF
6" HDPE @ 0.3%
START IE = 1117.7
END IE = 1116.6

TILE 4.5 - 99 LF
6" HDPE @ 0.5%
START IE = 1112.7
END IE = 1112.3

TILE 4.4 - 542 LF
6" HDPE @ 0.5%
START IE = 1112.3
END IE = 1109.7

TILE 4.7 - 663 LF
6" HDPE @ 0.5%
START IE = 1116.7
END IE = 1113.5

TILE 4.6 - 168 LF
6" HDPE @ 0.5%
START IE = 1113.5
END IE = 1112.7

TILE 3.2 - 195 LF
6" HDPE @ 0.3%
START IE = 1116.6
END IE = 1116.1

TILE 2.3 - 103 LF
8" HDPE @ 0.3%
START IE = 1116.5
END IE = 1116.2

TILE 2.2 - 47 LF
8" HDPE @ 0.3%
START IE = 1116.2
END IE = 1116.1

TILE 3.1 - 20 LF
8" CMP TILE OUTLET @ 0.3%
START IE = 1116.1
END IE = 1116.0
PLACE 5 TONS CLASS 'E' RIPRAP

TILE 1.3 - 162 LF
8" HDPE @ 0.3%
START IE = 1116.8
END IE = 1116.3

TILE 2.1 - 20 LF
10" CMP TILE OUTLET @ 0.3%
START IE = 1116.1
END IE = 1116.0
PLACE 5 TONS CLASS 'E' RIPRAP

TILE 1.2 - 75 LF
8" HDPE @ 0.3%
START IE = 1116.3
END IE = 1116.1

TILE 1.1 - 20 LF
10" CMP TILE OUTLET @ 0.3%
START IE = 1116.1
END IE = 1116.0
PLACE 5 TONS CLASS 'E' RIPRAP

TILE 4.3 - 176 LF
6" HDPE @ 0.5%
START IE = 1109.7
END IE = 1108.9

TILE 4.2 - 80 LF
6" HDPE @ 0.5%
START IE = 1108.9
END IE = 1108.5

TILE 4.1 - 20 LF
8" CMP TILE OUTLET @ 0.5%
START IE = 1108.5
END IE = 1108.4
PLACE 5 TONS CLASS 'E' RIPRAP

TILE NOTES

1. THE INVERT ELEVATIONS AND SLOPES FOR PROPOSED DRAIN TILES ON THIS PLAN ARE BASED ON ASSUMED DEPTHS OF EXISTING DRAIN TILES. CONTRACTOR TO LOCATE AND CONNECT PROPOSED DRAIN TILES TO EXISTING TILES WHERE FEASIBLE. COORDINATE WITH ENGINEER.
2. INTERCEPT ALL CROSSING TILES AND CAP DOWNSTREAM ENDS.
3. MAINTAIN A MINIMUM OF 3' OF COVER OVER TOP OF PROPOSED TILES AND A MINIMUM SLOPE OF 0.30%.

NORTH

0 35 70 140
SCALE IN FEET

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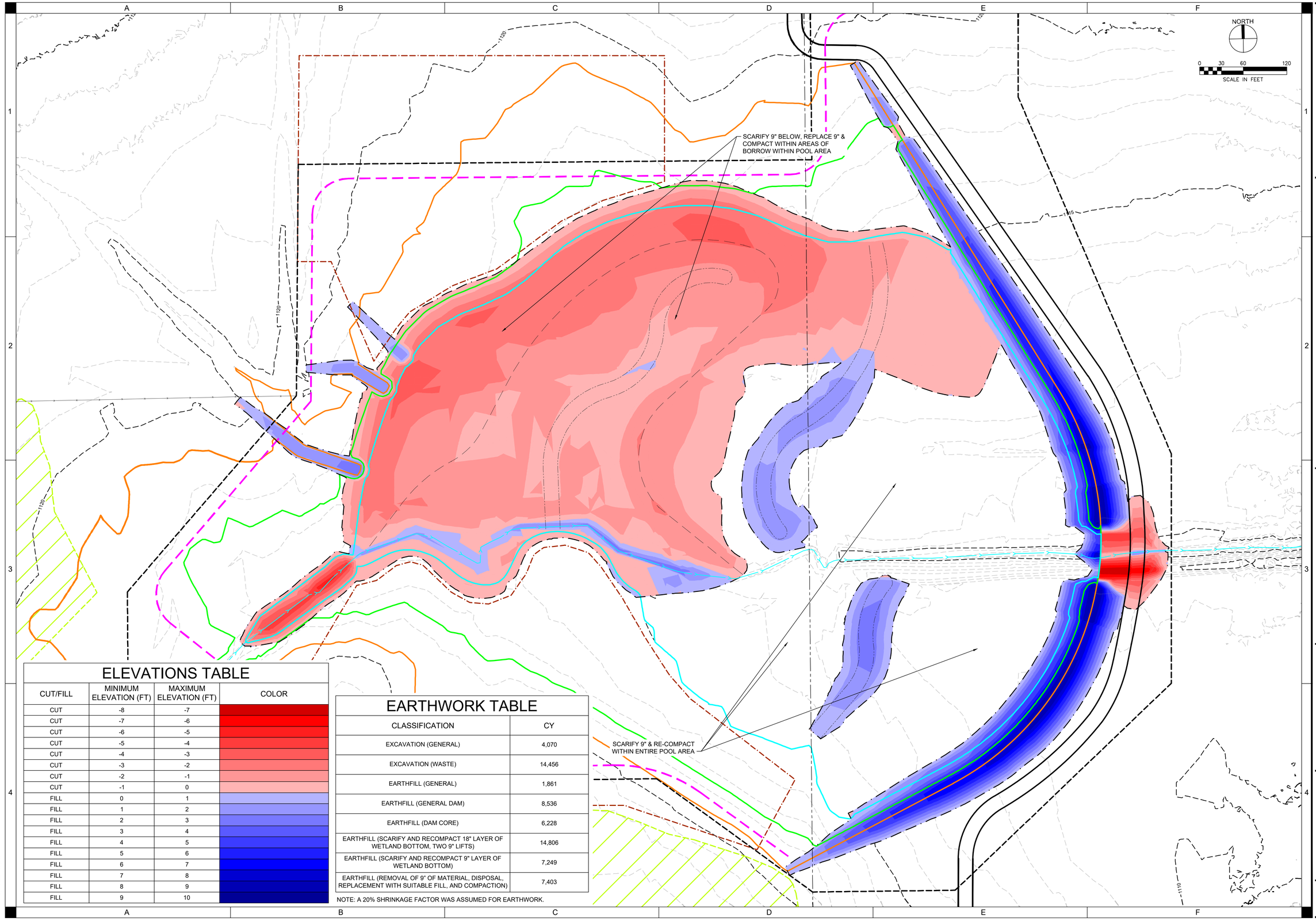
IDALS
WINNESHIEK COUNTY, IA

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PROPOSED TILE PLAN

C202

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ELEVATIONS TABLE

CUT/FILL	MINIMUM ELEVATION (FT)	MAXIMUM ELEVATION (FT)	COLOR
CUT	-8	-7	
CUT	-7	-6	
CUT	-6	-5	
CUT	-5	-4	
CUT	-4	-3	
CUT	-3	-2	
CUT	-2	-1	
CUT	-1	0	
FILL	0	1	
FILL	1	2	
FILL	2	3	
FILL	3	4	
FILL	4	5	
FILL	5	6	
FILL	6	7	
FILL	7	8	
FILL	8	9	
FILL	9	10	

EARTHWORK TABLE

CLASSIFICATION	CY
EXCAVATION (GENERAL)	4,070
EXCAVATION (WASTE)	14,456
EARTHFILL (GENERAL)	1,861
EARTHFILL (GENERAL DAM)	8,536
EARTHFILL (DAM CORE)	6,228
EARTHFILL (SCARIFY AND RECOMPACT 18" LAYER OF WETLAND BOTTOM, TWO 9" LIFTS)	14,806
EARTHFILL (SCARIFY AND RECOMPACT 9" LAYER OF WETLAND BOTTOM)	7,249
EARTHFILL (REMOVAL OF 9" OF MATERIAL, DISPOSAL, REPLACEMENT WITH SUITABLE FILL, AND COMPACTION)	7,403

NOTE: A 20% SHRINKAGE FACTOR WAS ASSUMED FOR EARTHWORK.

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CUT-FILL PLAN

C203

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EMBANKMENT
CENTERLINE ALIGNMENT

DRAWDOWN STRUCTURE
- SEE C303

SHEET PILE STRUCTURE
- SEE C302 AND C401

LOW WATER CROSSING
- SEE SHEET C305

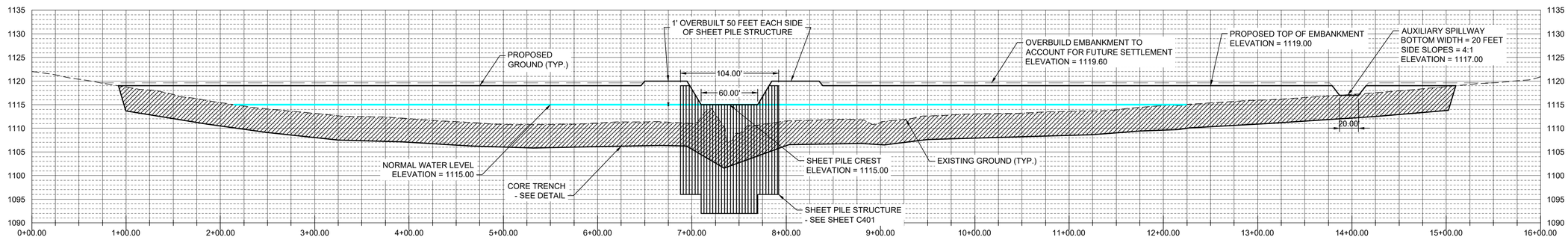
AUXILIARY SPILLWAY
ELEV = 1117.00
BOTTOM WIDTH = 20 FEET

TOP OF DAM
ELEV = 1119.00
TOP WIDTH = 12 FEET

3.4 - 6" HDPE
681 LF @ 0.30
START IE = 111
END IE = 1117.

NORTH

0 30 60 120
SCALE IN FEET



VERTICAL SCALE:
0 6 12 24
SCALE IN FEET

HORIZONTAL SCALE:
0 30 60 120
SCALE IN FEET

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IOWA DEPARTMENT OF STEWARDSHIP, AGRICULTURE & LAND

WINN971022B WETLAND (SHATEK)

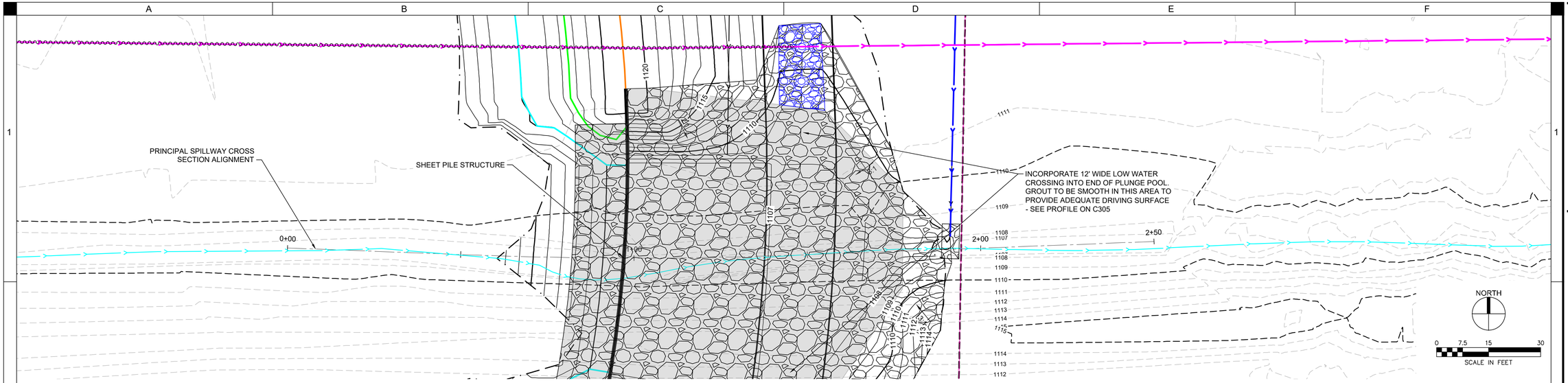
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WINNESHIEK COUNTY, IA

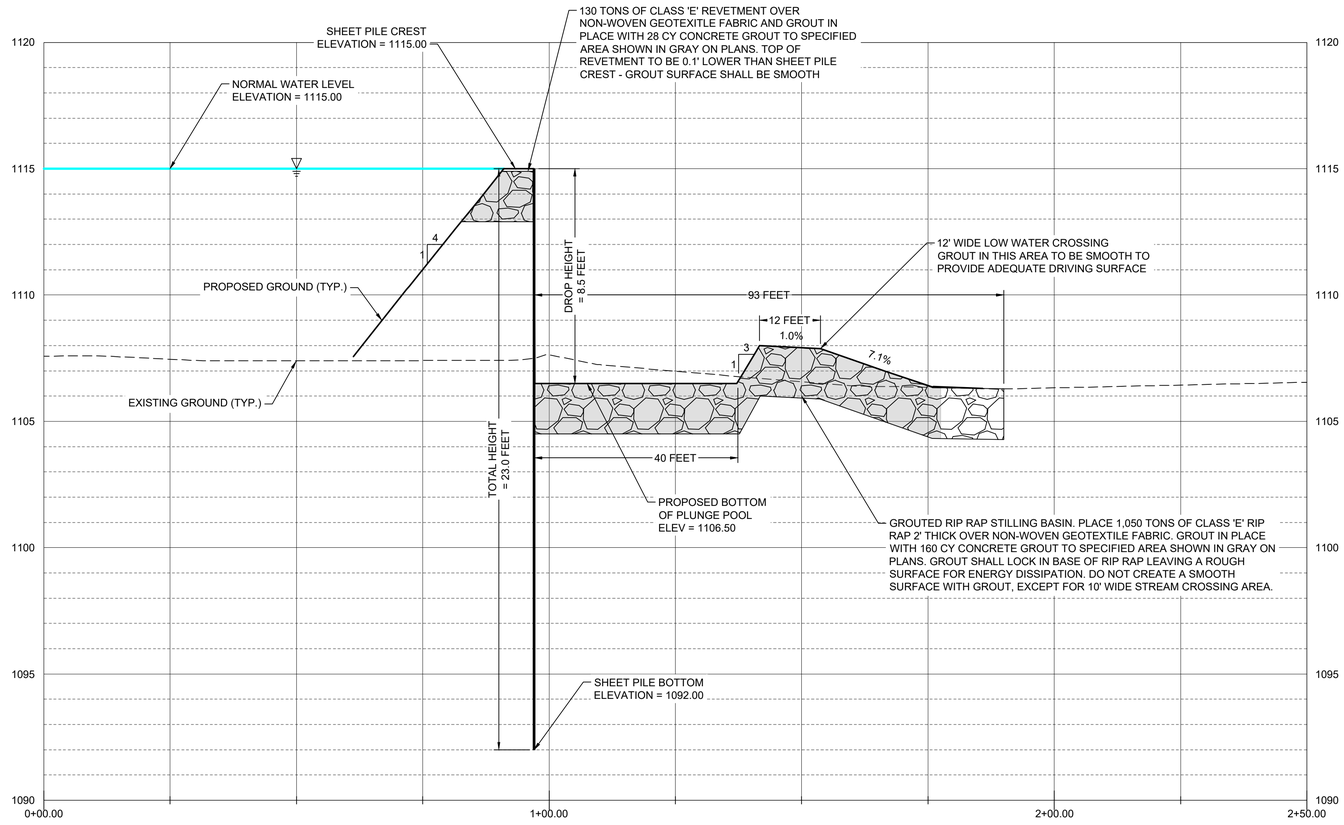
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APPROVED: AJH
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 2240006350
FIELD BOOK: ---
CLIENT NO.: ---

EMBANKMENT PLAN & PROFILE

C301

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VERTICAL SCALE:
0 1.5 3 6
SCALE IN FEET

HORIZONTAL SCALE:
0 7.5 15 30
SCALE IN FEET

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WINN971022B WETLAND (SHATEK)

IDALS

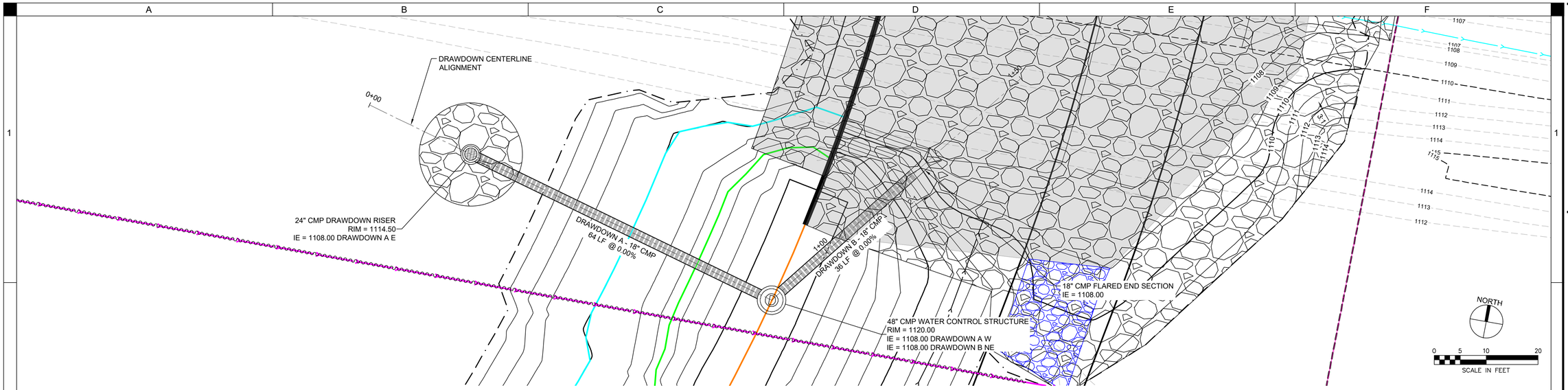
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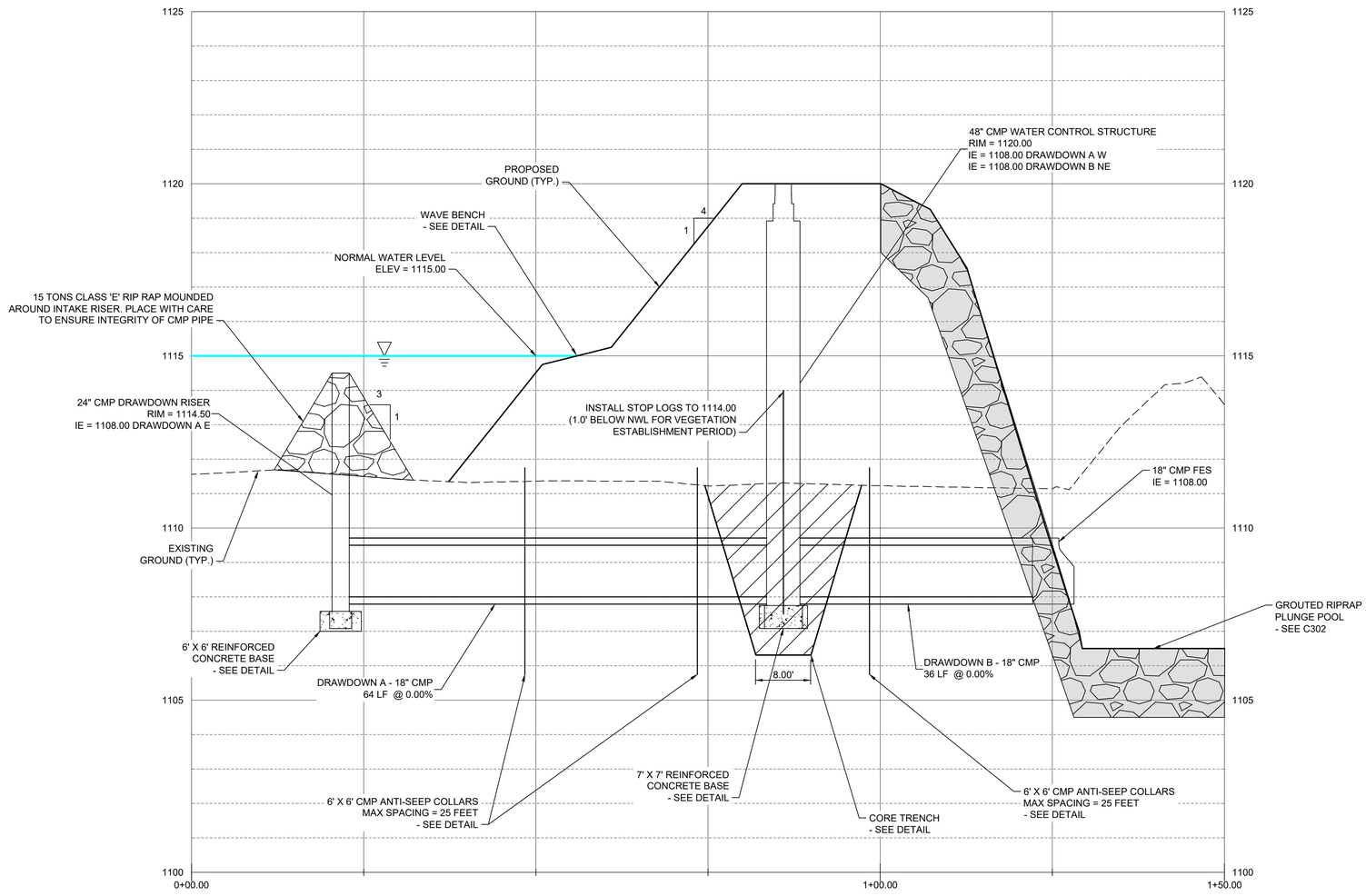
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ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 2240006350
FIELD BOOK: ---
CLIENT NO: ---

PRINCIPAL SPILLWAY PLAN & PROFILE

C302

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VERTICAL SCALE:
0 1 2 4
SCALE IN FEET

HORIZONTAL SCALE:
0 5 10 20
SCALE IN FEET

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WINN971022B WETLAND (SHATEK)

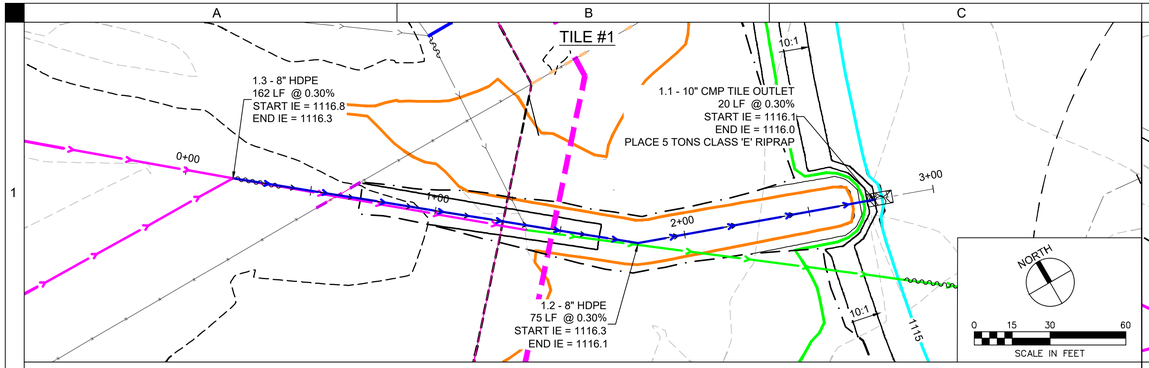
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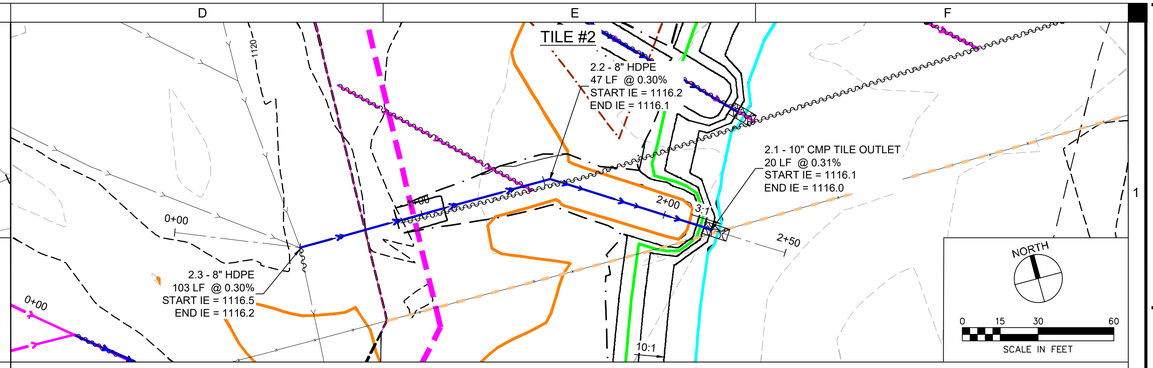
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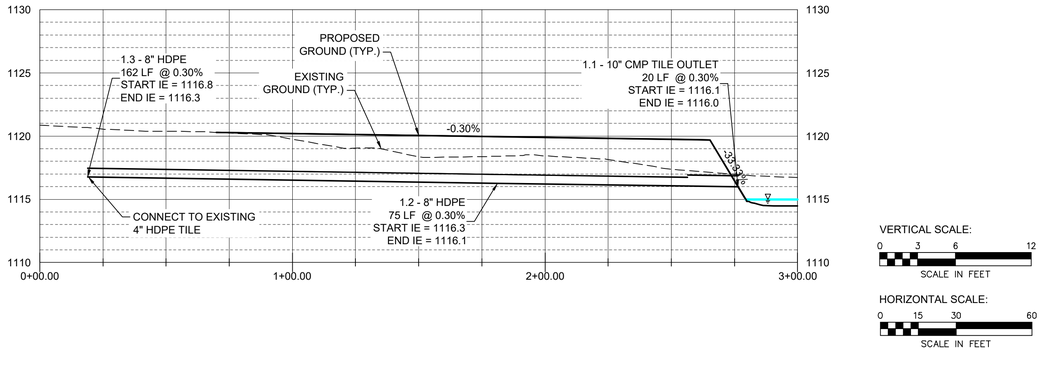
DRAWDOWN PLAN & PROFILE

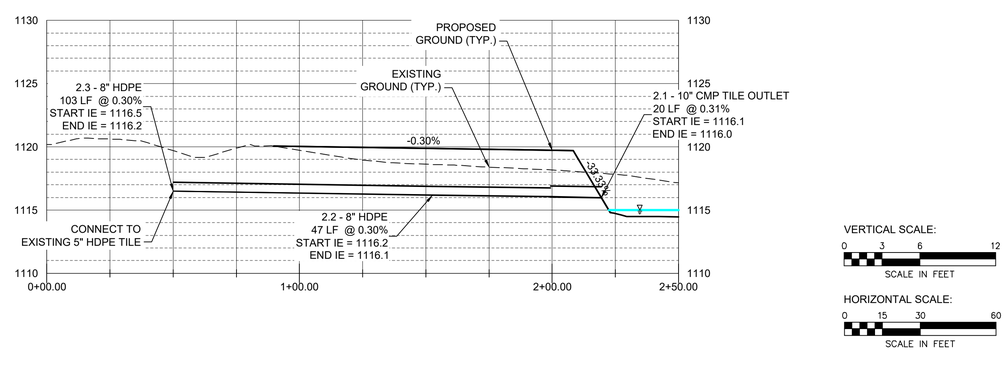
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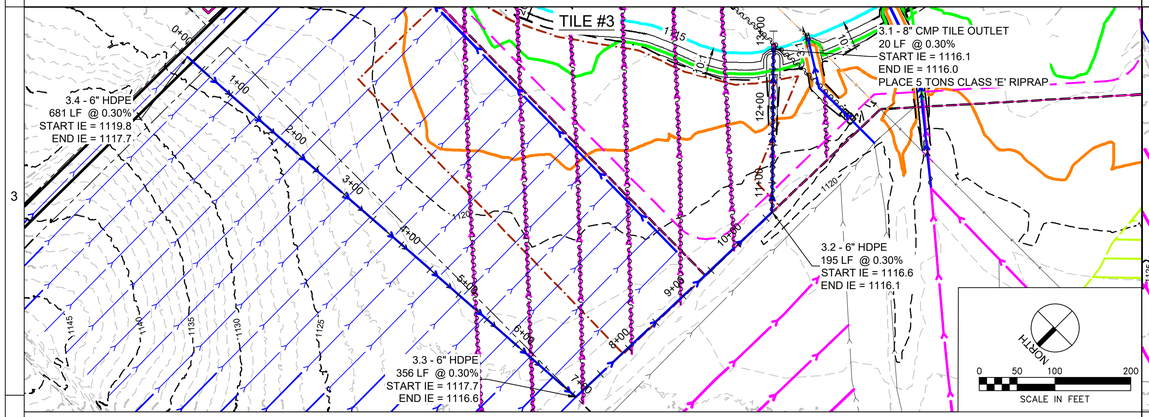
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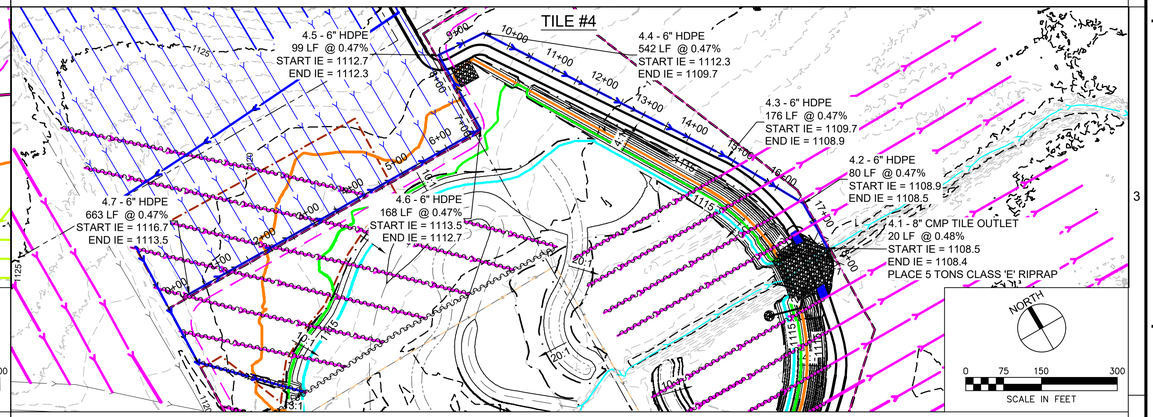


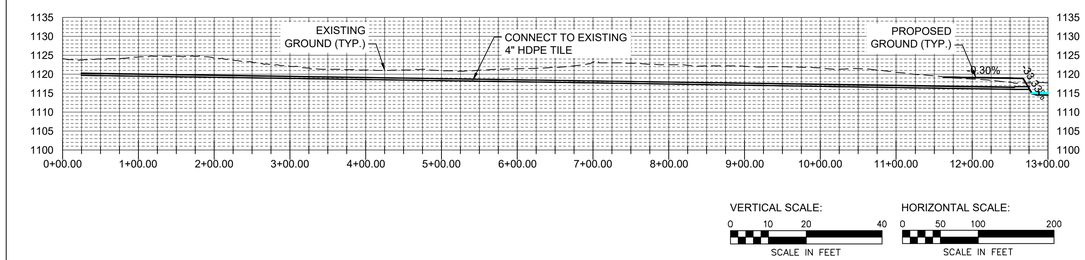


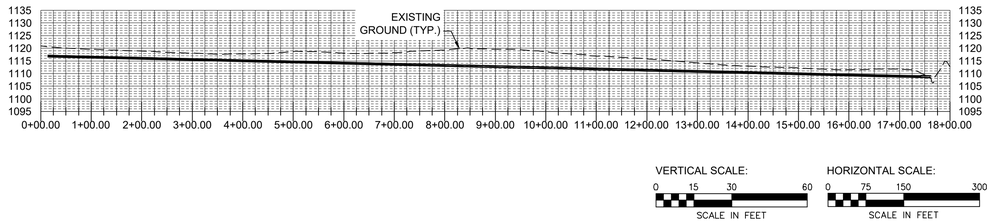












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WINN971022B WETLAND (SHATEK)

IDALS

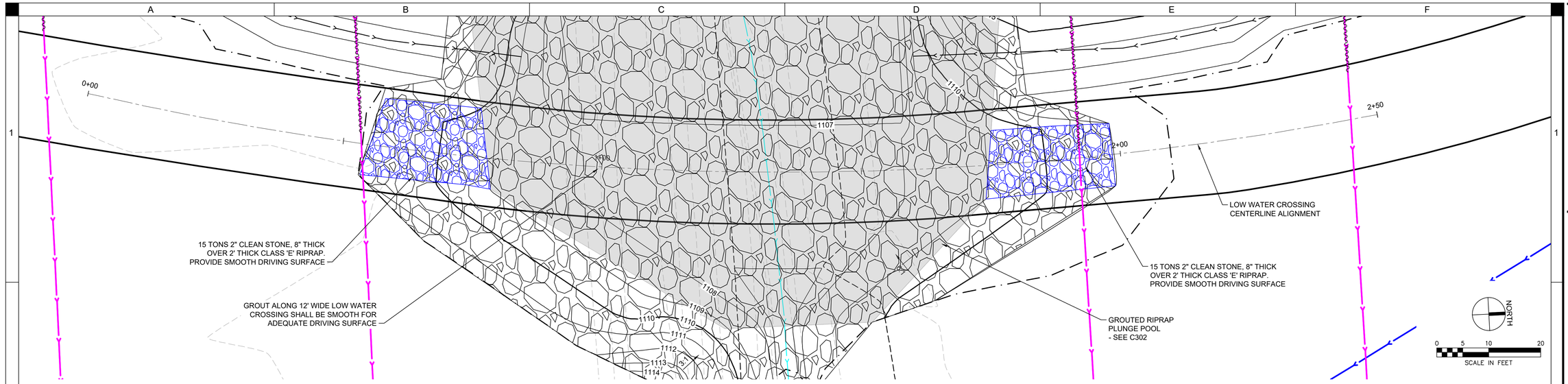
WINNESHIEK COUNTY, IA

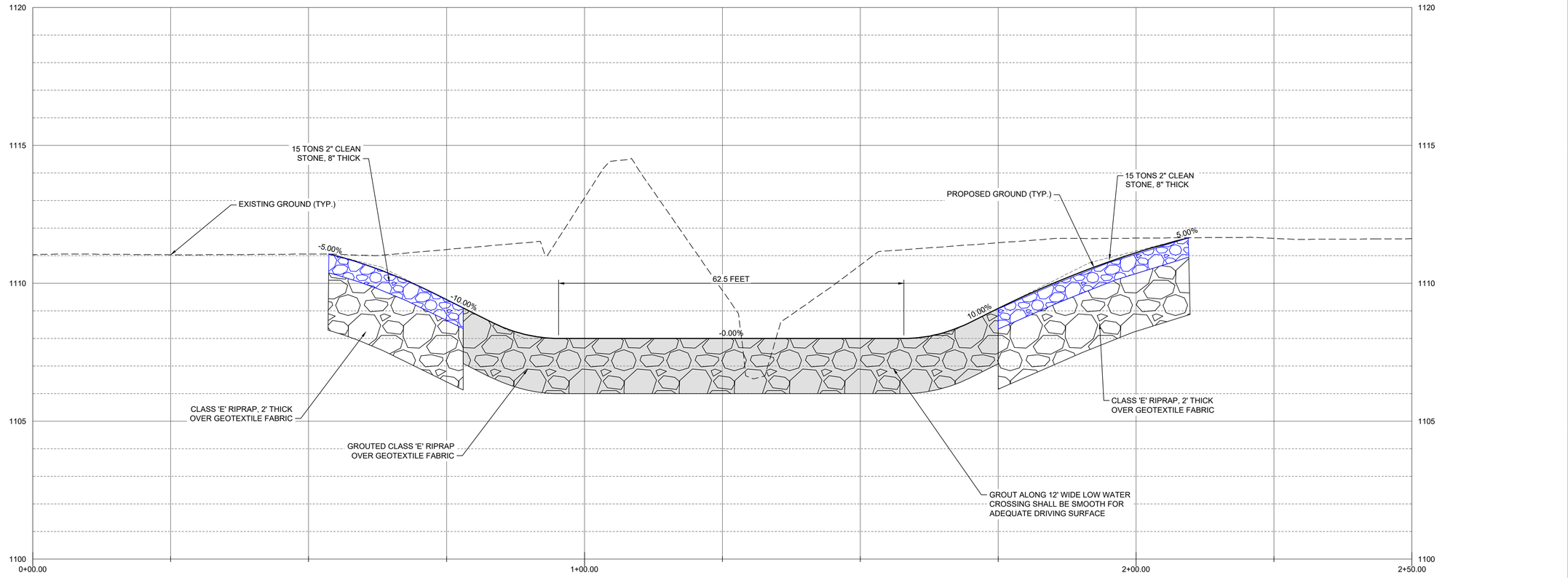
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APPROVED: AJH
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 22400060350
FIELD BOOK: ---
CLIENT NO: ---

TILE PLAN & PROFILES

C304

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VERTICAL SCALE:
0 1 2 4
SCALE IN FEET

HORIZONTAL SCALE:
0 5 10 20
SCALE IN FEET

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WINN971022B WETLAND (SHATEK)

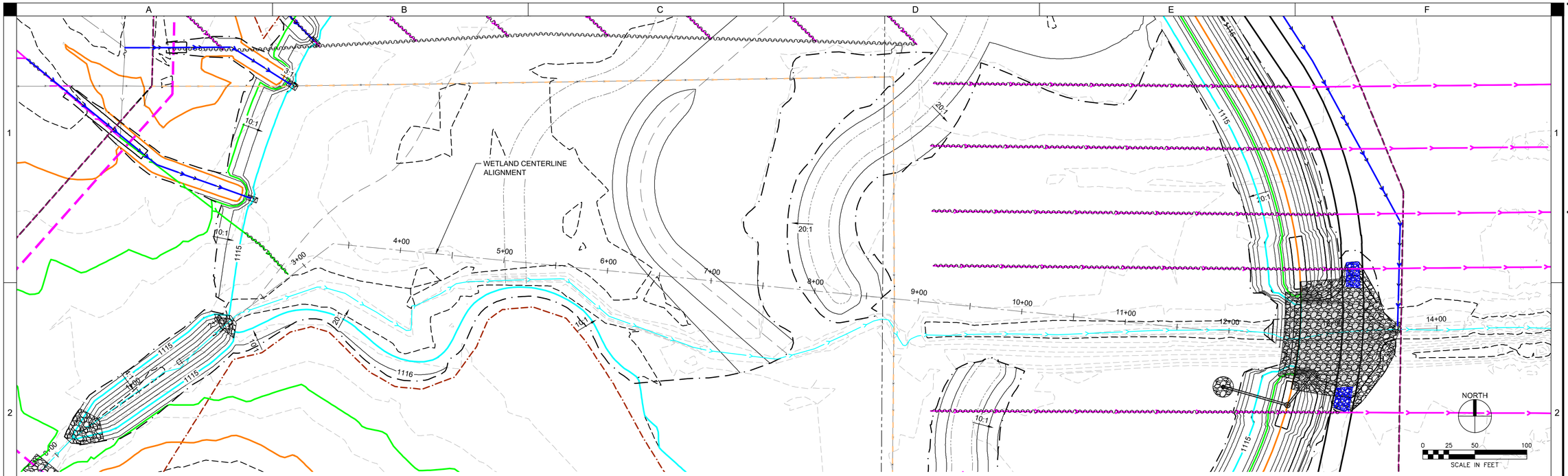
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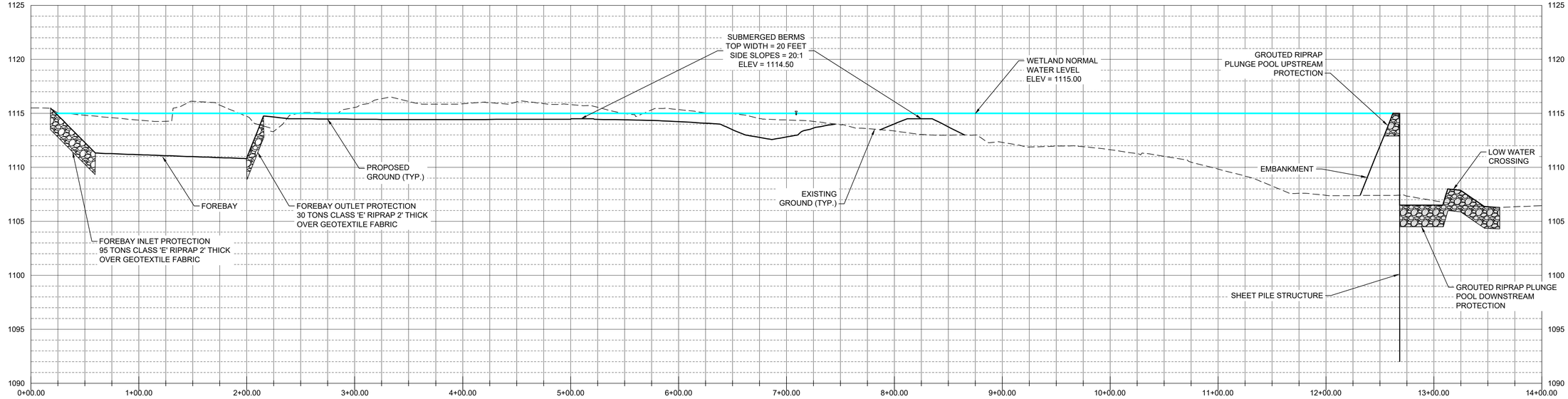
DRAWN: GHK
APPROVED: AJH
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 224000350
FIELD BOOK: ---
CLIENT NO: ---

LOW WATER CROSSING PLAN & PROFILE

C305

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WINN971022B WETLAND (SHATEK)

IDALS

WINNESHIEK COUNTY, IA

DRAWN:	GHK
APPROVED:	AJH
ISSUED FOR:	FINAL DESIGN
DATE:	07-09-2026
PROJECT NO:	224000635O
FIELD BOOK:	---
CLIENT NO:	---

WETLAND PLAN & PROFILE

C306

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SHEET PILE GENERAL NOTES:

1. DESIGN SHEET PILE AREA IS 2,344 SF AFTER TRIMMING

2. SHEET PILING REQUIREMENTS DESIGN BASIS - SKYLINE STEEL/NUCOR SCZ 20 OR ENGINEER APPROVED EQUAL
   - 2.1. MINIMUM SECTION MODULUS OF 31.69 IN^3 PER FOOT OF WALL.
   - 2.2. MINIMUM GRADE OF STEEL IS 50 KSI
   - 2.3. MINIMUM MOMENT OF INERTIA OF 253.51 IN^4 PER FOOT OF WALL.
   - 2.4. MINIMUM THICKNESS OF 0.315"
   - 2.5. ALL SHEET PILING SHALL MEET ASTM A-572 GR50.
   - 2.6. ALL BOLTS SHALL MEET ASTM A307 GRADE A.
   - 2.7. ALL WASHERS SHALL MEET ASTM F436.
   - 2.8. ALL NUTS SHALL MEET ASTM A563.

3. CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS OF PROPOSED SHEET PILE SYSTEM FOR APPROVAL BY ENGINEER.

4. SHEET PILE ATTACHMENT TO WALER:
   - 4.1. SHEET PILE WALER/PILE CAP MAY BE BOLTED OR WELDED. SEE DETAILS FOR OPTIONS.
   - 4.2. BOLTED WALER OPTION
     - 4.2.1. ALL BOLTS WILL BE 1" DIAMETER WITH 2 WASHERS. BOLT SHALL BE EXTENDED AT A MINIMUM OF $\frac{3}{8}$ " BEYOND THE NUT.
     - 4.2.2. ALL HOLES SHALL BE FIELD DRILLED TO $1\frac{1}{16}$" DIAMETER. TORCH, PLASMA CUTTING, OR OTHER METHODS RESULTING IN AN IMPERFECT HOLE WILL NOT BE PERMITTED.
     - 4.2.3. THE WALER SHALL BE PLACED ON THE DOWNSTREAM SIDE OF THE WEIR.
   - 4.3. WELDED PILE CAP OPTION
     - 4.3.1. AT THE CONTRACTORS OPTION, A WELDED PILE CAP MAY BE INSTALLED IN LIEU OF THE BOLTED WALER. SEE PILE CAP OPTION DETAIL.
     - 4.3.2. WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE, AWS D1.1, LATEST EDITION, AND SHALL BE PERFORMED BY CERTIFIED WELDERS ONLY USING E70XX ELECTRODES.

5. ANY HOLES LEFT IN SHEET PILE SHALL BE CLOSED OFF.

6. AFTER SHEETING AND WALER INSTALLATION, ALL SHEETING IS TO BE CUT TO CONFORM WITH THE 3:1 SIDE SLOPE OF THE WEIR, MEET DESIGN ELEVATIONS, AND TO REMOVE ANY DAMAGE CAUSED BY DRIVING.

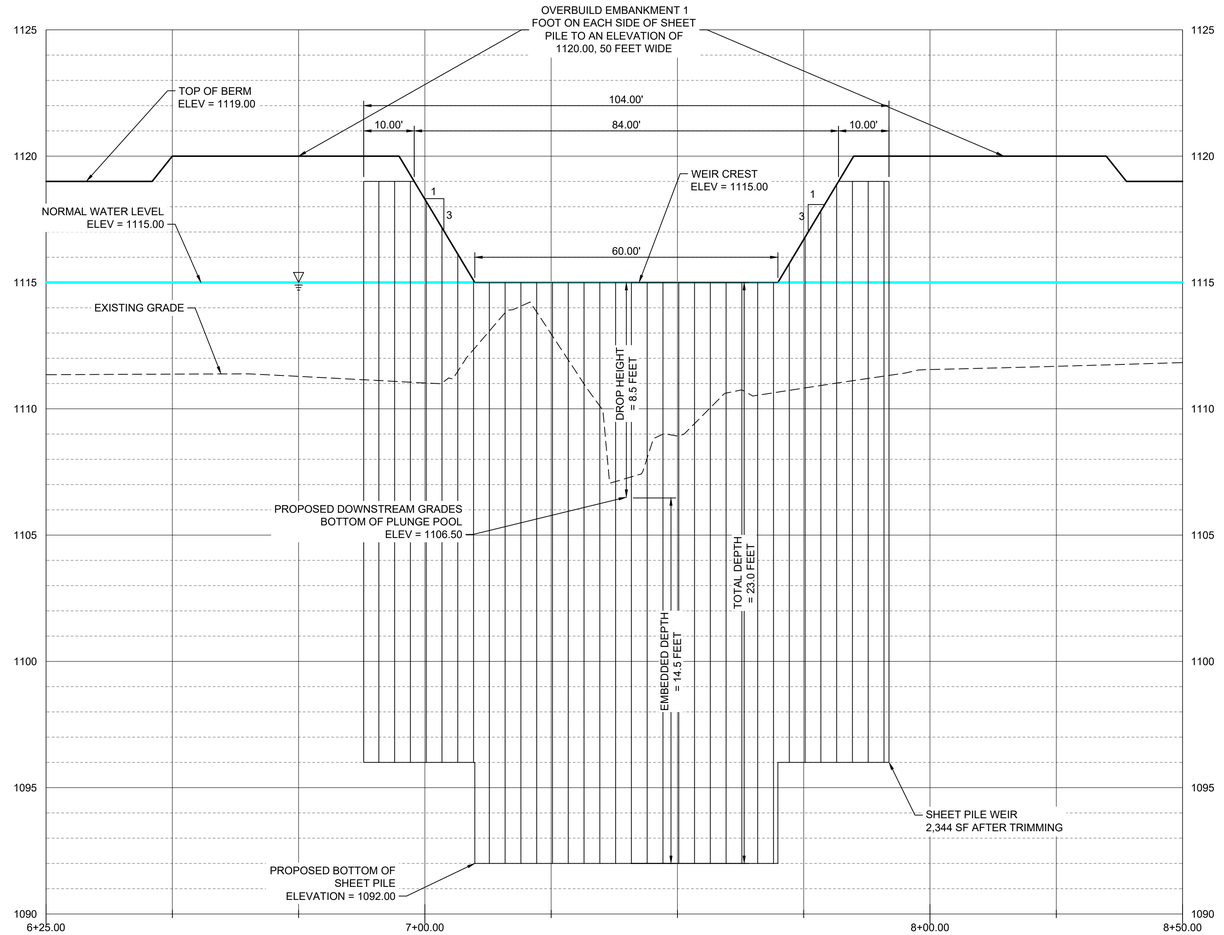
7. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATION OF AISC. FABRICATOR SHALL SUBMIT SHOP DRAWINGS AND FABRICATE AFTER ENGINEER'S REVIEW AND APPROVAL.

8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LIVE LOADS.

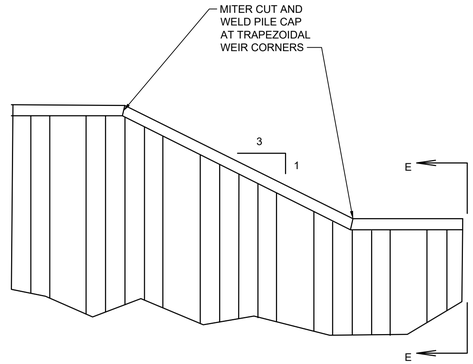
9. PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING, OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACED DURING CONSTRUCTION.

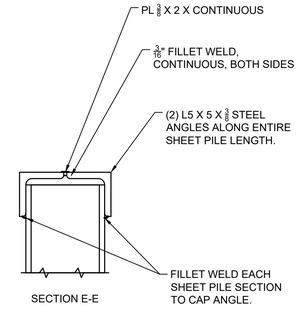
10. A TEMPORARY BERM TO HOLD / GUIDE SHEETPILE DURING CONSTRUCTION IS RECOMMENDED.

11. NOTIFY ENGINEER IMMEDIATELY IF BEDROCK IS ENCOUNTERED PRIOR TO INSTALLATION OF SHEET PILE TO DESIGN DEPTHS.

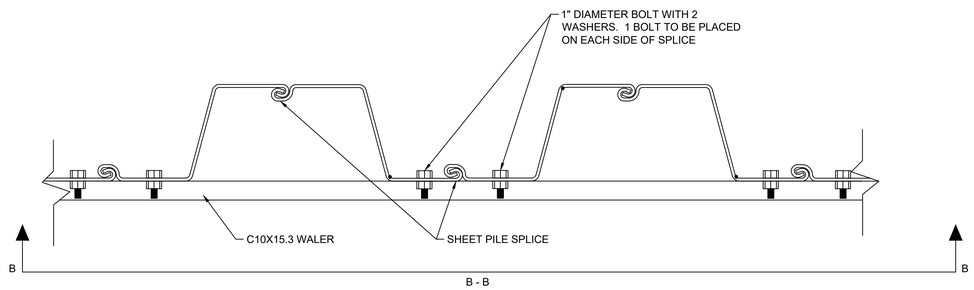


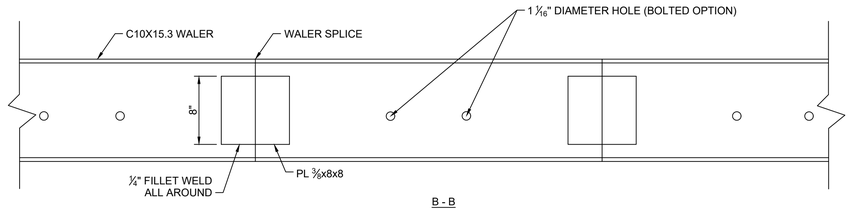
SHEET PILE CENTERLINE PROFILE





A C401 NTS
WELDED PILE CAP OPTION DETAIL





*NOTE: SHEET PILE BEYOND NOT SHOWN.

B C401 NTS
BOLTED WALER OPTION DETAIL

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WINN971022B WETLAND (SHATEK)

IDALS

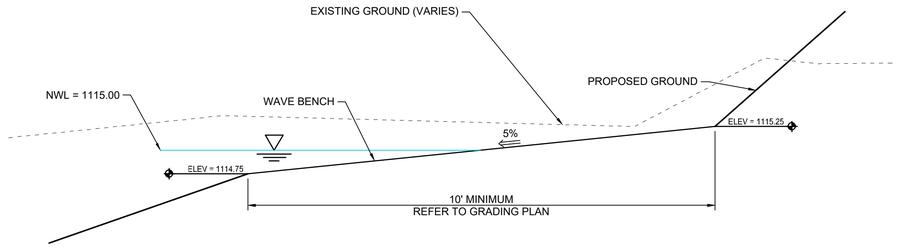
WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: CRM
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 2240006350
FIELD BOOK: ---
CLIENT NO: ---

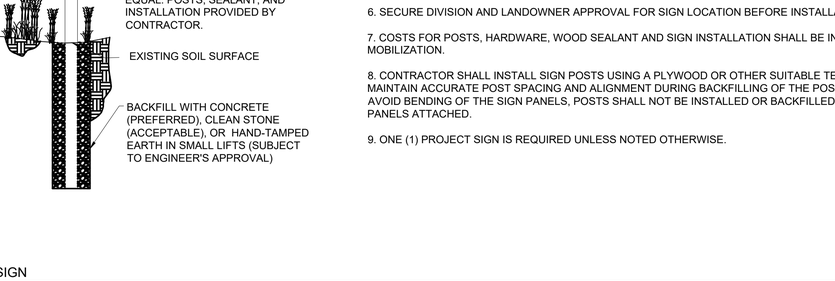
SHEET PILE DESIGN

C401

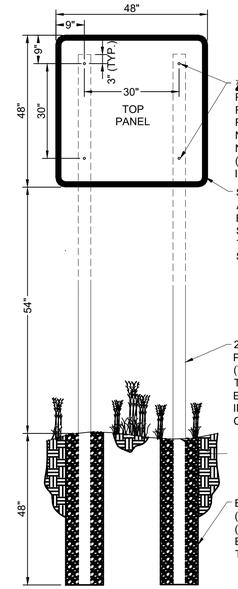
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A1 WAVE PROTECTION BENCH AT NWL
NOT TO SCALE



A2 FIELD TILE REPAIR CONNECTION
NOT TO SCALE



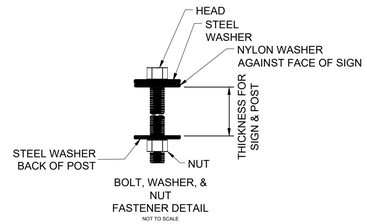
3/8" HOLES LOCATED AS SHOWN, PRE-PUNCHED BY SIGN FABRICATOR. FASTEN SIGN TO POSTS WITH 3/8" DIA. STEEL BOLT & NUT SET, SEE BOLT, WASHER, & NUT FASTENER DETAIL THIS SHEET (4 SETS REQ'D. PROVIDED AND INSTALLED BY CONTRACTOR).

SIGN PANEL TO BE 0.080" THICK ALUMINUM SUBSTRATE WITH 3M (OR EQUAL) ENGINEER GRADE REFLECTIVE SHEETING. SIGN PANELS FURNISHED BY THE DIVISION OF SOIL CONSERVATION. SIGN PANEL INSTALLED BY CONTRACTOR.

2 EACH OF 4"x4"x12' PRESSURE-TREATED POST (TYP.). POSTS SEALED WITH THOMPSON'S WATER SEAL OR EQUAL. POSTS, SEALANT, AND INSTALLATION PROVIDED BY CONTRACTOR.

EXISTING SOIL SURFACE

BACKFILL WITH CONCRETE (PREFERRED), CLEAN STONE (ACCEPTABLE), OR HAND-TAMPED EARTH IN SMALL LIFTS (SUBJECT TO ENGINEER'S APPROVAL)



SIGNAGE NOTES:

1. DIVISION WILL FURNISH SIGN PANEL. CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSTS, HARDWARE, AND INSTALLATION.

2. ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSON'S WATER SEAL OR EQUAL MEETING ASTM D-4446-08.

3. ALL STEEL HARDWARE PIECES SHALL BE GALVANIZED OR RUST RESISTANT.

4. NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.

5. CLEAR UTILITIES WITH IOWA ONE-CALL (800) 292-8989 BEFORE EXCAVATING FOR POSTS.

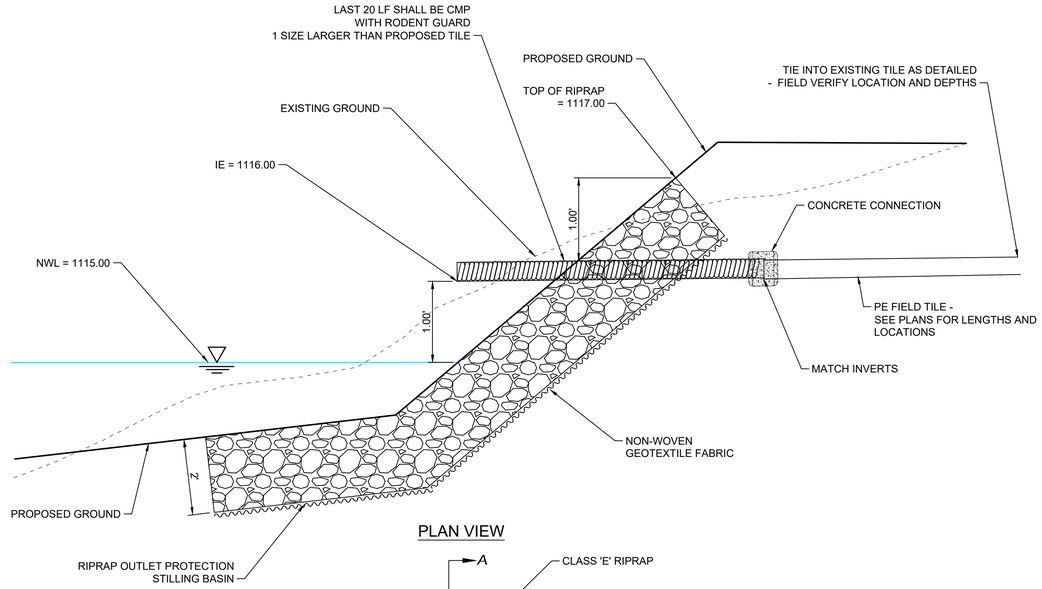
6. SECURE DIVISION AND LANDOWNER APPROVAL FOR SIGN LOCATION BEFORE INSTALLATION.

7. COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.

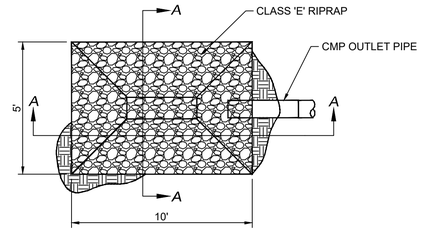
8. CONTRACTOR SHALL INSTALL SIGN POSTS USING A PLYWOOD OR OTHER SUITABLE TEMPLATE TO MAINTAIN ACCURATE POST SPACING AND ALIGNMENT DURING BACKFILLING OF THE POST HOLES. TO AVOID BENDING OF THE SIGN PANELS, POSTS SHALL NOT BE INSTALLED OR BACKFILLED WITH SIGN PANELS ATTACHED.

9. ONE (1) PROJECT SIGN IS REQUIRED UNLESS NOTED OTHERWISE.

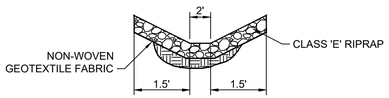
A4 PROJECT SIGN
NOT TO SCALE



PLAN VIEW



SECTION "A"



D2 TILE OUTLET AT WETLAND
NOT TO SCALE

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WINN971022B WETLAND (SHATEK)

IDALS

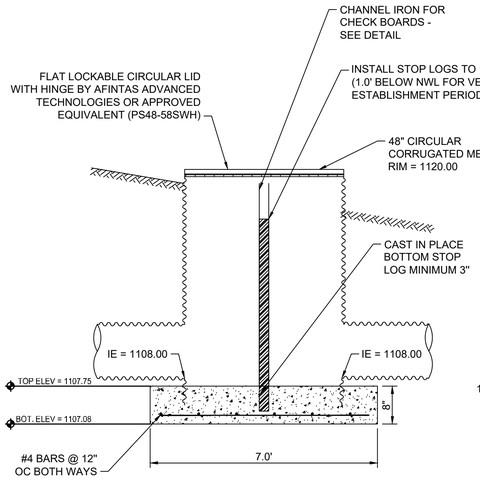
WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: DJJ
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 2240006350
FIELD BOOK: ---
CLIENT NO: ---

CONSTRUCTION DETAILS

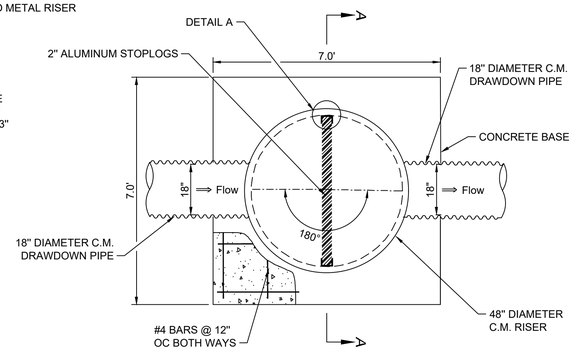
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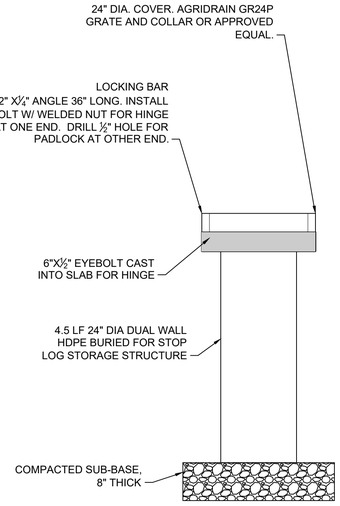


SECTIONAL ELEVATION A-A
RISER DETAIL

NOTES:
1) PROVIDE STRUCTURE SHOP DRAWINGS FOR ENGINEERS REVIEW AND APPROVAL BEFORE FABRICATION OF WATER CONTROL STRUCTURE.
2) WATER CONTROL STRUCTURE TO BE PRE FABRICATED CORRUGATED METAL RISER STRUCTURE WITH WATERTIGHT SEALS AT SECTION JOINTS AND PIPE PENETRATIONS.
3) STOP LOG CHANNEL IS TO BE ANCHORED TO THE WALLS AND FLOOR PRIOR TO PLACING CONCRETE INVERT.
4) POUR CONCRETE INVERT AFTER STOP LOG CHANNEL IS INSTALLED. CAST BOTTOM STOP LOG INTO PLACE WITH THREE ¾" DIA "J BOLTS".
5) PROVIDE MATCHING PADLOCKS FOR ALL LOCKING STRUCTURES. PROVIDE OWNER WITH FOUR KEYS.

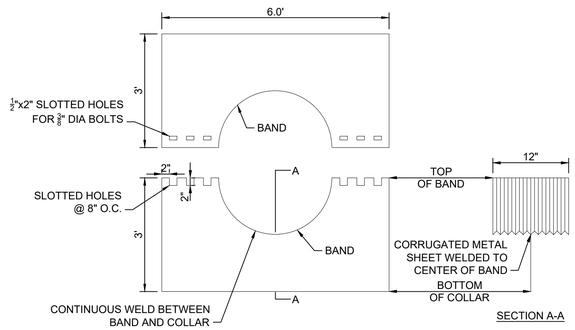


PLAN VIEW



STOP LOG STORAGE STRUCTURE

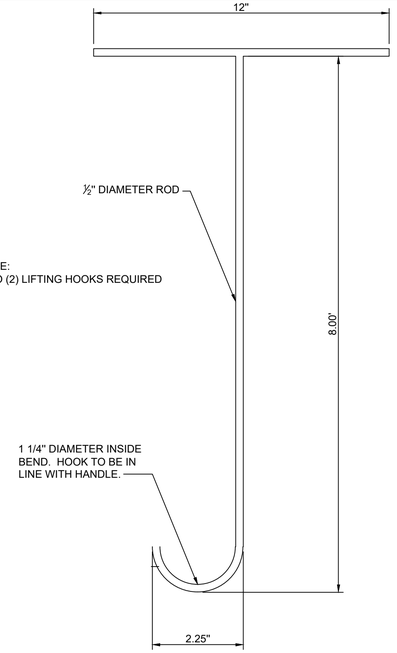
A2 WATER CONTROL STRUCTURE AND APPURTENANCES
NOT TO SCALE

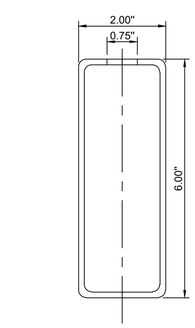


NOTE:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FROM FABRICATOR FOR ENGINEER REVIEW.

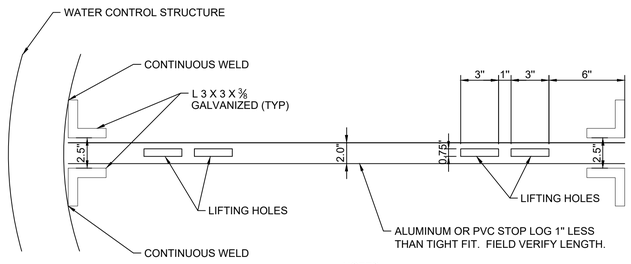
E2 CMP ANTI-SEEPAGE COLLAR
NOT TO SCALE





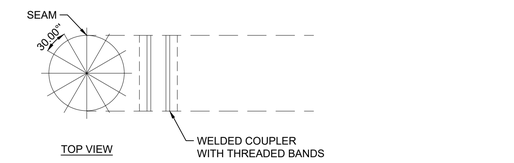
NOTE:
ALL ALUMINUM OR PVC STOP-LOGS SHALL BE PROVIDED BY CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR CUTTING STOP-LOGS AS SHOWN. THE 0.75" DIMENSION IS CRITICAL AND NEEDS TO BE CENTERED IN THE STOP-LOG TO AVOID LEAKAGE. THE FINISHED SURFACE SHALL BE SMOOTH TO PROVIDE A FLAT SURFACE FOR THE STOP-LOG ABOVE IT. THE CONTRACTOR SHALL DELIVER 15 STOP-LOGS TO THE SITE. THE COST OF THE STOP-LOG WORK IS INCIDENTAL TO THE OUTLET CONTROL STRUCTURE.

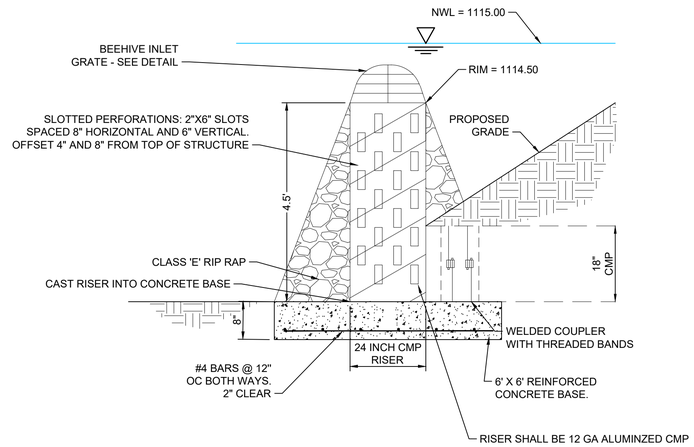
STOP LOG CROSS SECTION
NTS



NOTES:
1. CONTRACTOR TO DRILL ¾" HOLES IN TOP OF STOP LOG CHANNELS AND PROVIDE TWO (2) PADDLE LOCKS TO LOCK THROUGH CHANNELS TO PREVENT LOGS FROM BEING LIFTED OUT WHEN LOCK IS IN PLACE.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FROM FABRICATOR FOR ENGINEER REVIEW.

A4 STOP LOG AND LIFTING HOOK
NOT TO SCALE





E4 CORRUGATED METAL RISER
NOT TO SCALE

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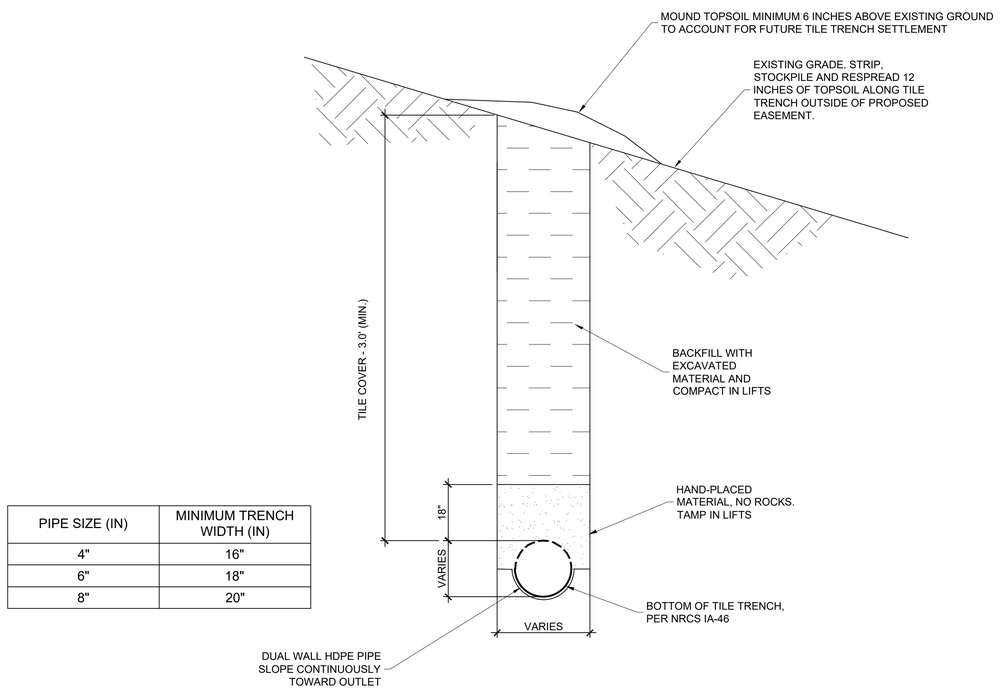
WINN971022B WETLAND (SHATEK)
IDALS
WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: AJH
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 2240006380
FIELD BOOK: ---
CLIENT NO: ---

CONSTRUCTION DETAILS

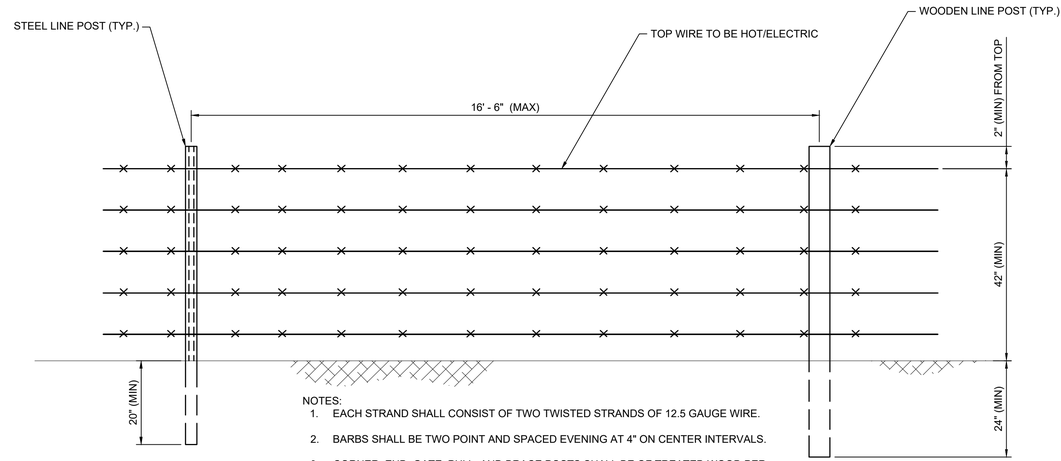
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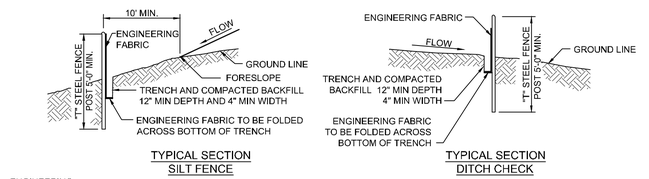
PIPE SIZE (IN)	MINIMUM TRENCH WIDTH (IN)
4"	16"
6"	18"
8"	20"

A2 TILE TRENCH
NOT TO SCALE



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. CORNER, END, GATE, PULL, AND BRACE POSTS SHALL BE OF TREATED WOOD PER IA-382-PS OF SUFFICIENT LENGTH TO PERMIT SETTING THE POSTS AT A DEPTH OF 36".
4. LINE POSTS SHALL BE EITHER TREATED WOOD POSTS OR STEEL "T", "U", OR "Y" POSTS PER IA-382-PS. WOODEN POSTS SHALL BE USED AT A MINIMUM RECURRING INTERVAL OF EVERY FOURTH POST.
5. FENCING MATERIALS, DIMENSIONS, AND SPECIFICATIONS SHALL CONFORM TO NRCS PRACTICE SPECIFICATION IA-382-PS.
6. TOP WIRE SHALL BE HOT/ELECTRIC.

D2 STANDARD BARBED WIRE FENCE, 5-STRAND
NOT TO SCALE

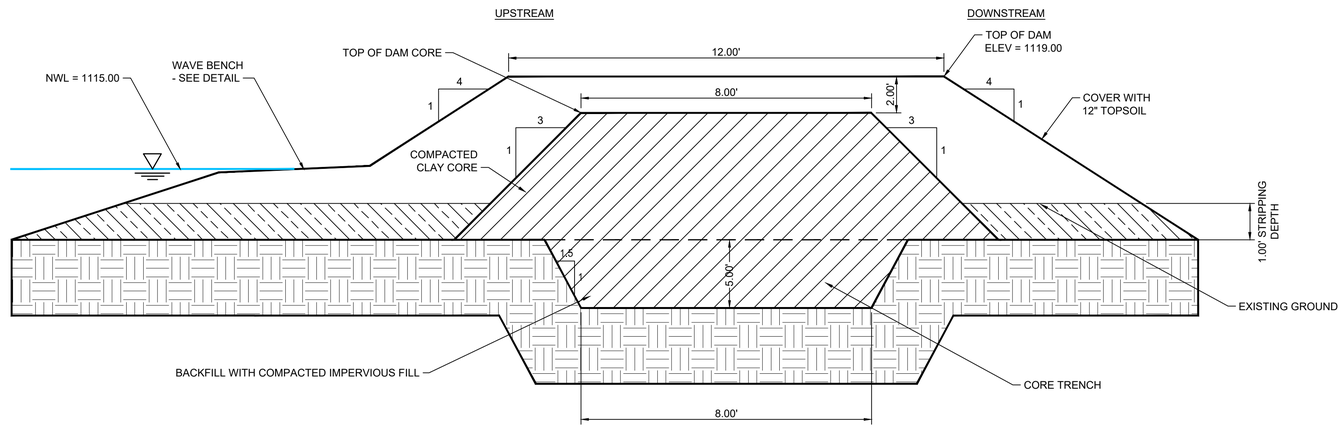


NOTES:
1. SECURE TOP OF ENGINEERING FABRIC TO STEEL POST.
2. ENGINEERING FABRIC TO BE PLACED TO BOTTOM OF TRENCH.
3. ENGINEERING FABRIC SHALL HAVE A MINIMUM 36" WIDTH.

A4 SILT FENCE
NOT TO SCALE

NOTE:
ALL DRAIN TILE IDENTIFIED DURING CORE TRENCH EXCAVATION TO BE RECORDED. REMOVE DRAIN TILES IN THEIR ENTIRETY EXTENDING 10' BEYOND EMBANKMENT FOOTPRINT

NOTE:
PROJECT ENGINEER TO VERIFY THAT CORE TRENCH EXCAVATION TERMINATES IN SUITABLE SOILS PRIOR TO BACKFILLING.



C3 TYPICAL EMBANKMENT CROSS SECTION
NOT TO SCALE

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WINN971022B WETLAND (SHATEK)

IDALS

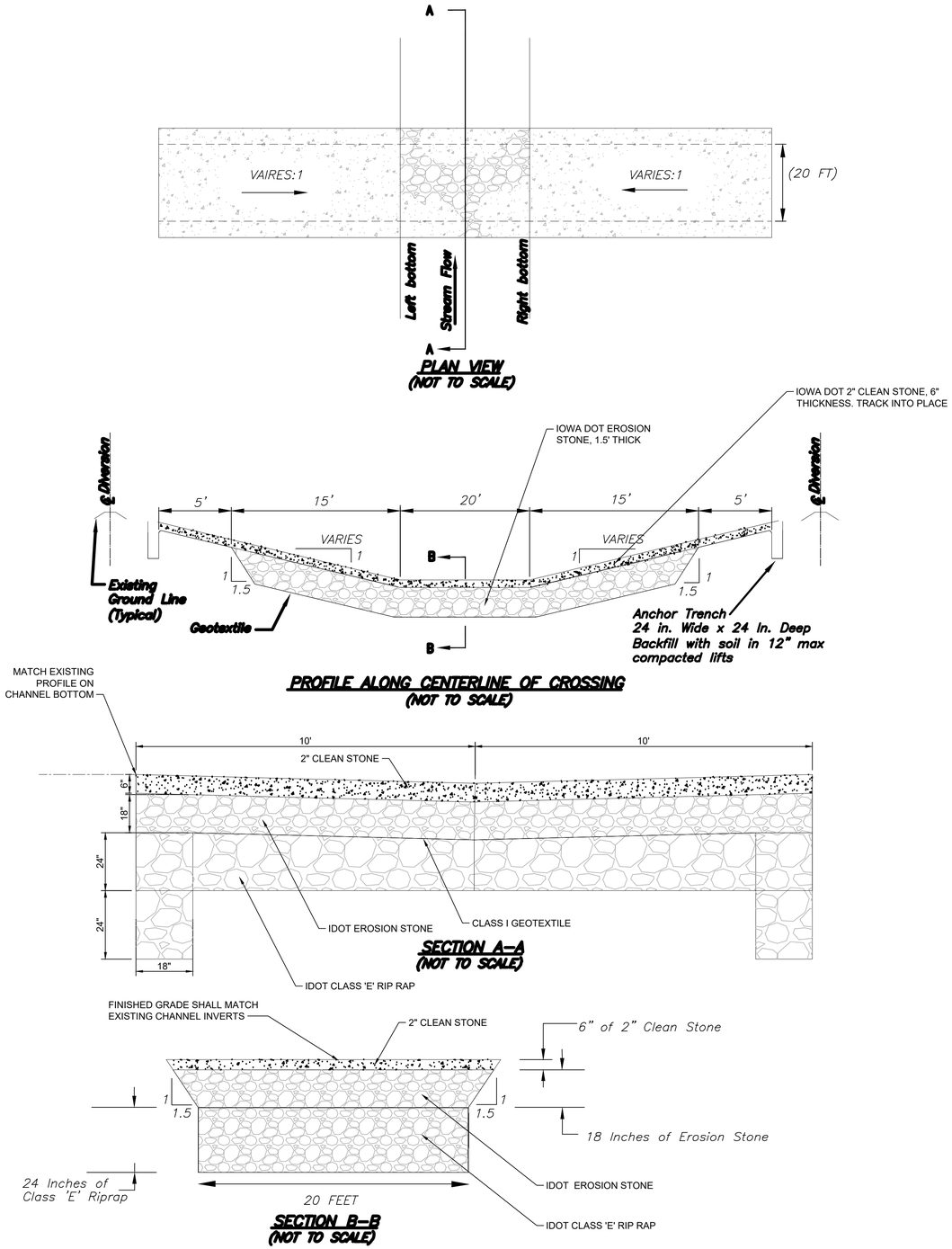
WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: DJJ
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 224006350
FIELD BOOK: ---
CLIENT NO: ---

CONSTRUCTION DETAILS

C503

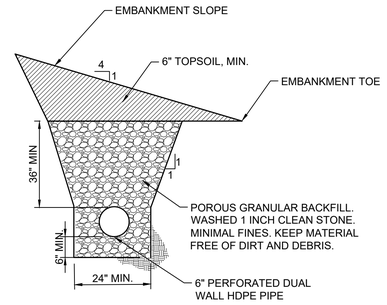
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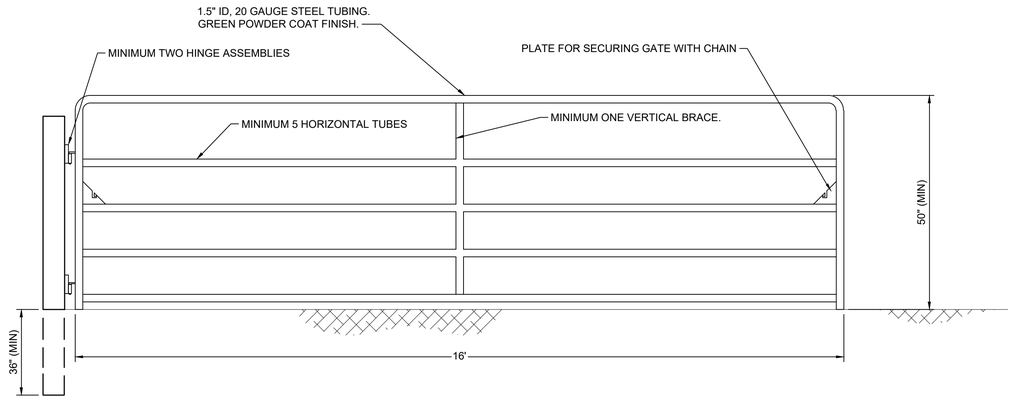
A4 STREAM CROSSING
NOT TO SCALE

NOTES:

1. ALL FITTINGS SHALL BE MANUFACTURED FOR DUAL WALL HDPE.
2. PIPE WITHIN TRENCH TO BE PERFORATED.
3. PIPE OUTSIDE OF EMBANKMENT FOOTPRINT TO BE NON-PERFORATED.
4. TILE OUTLET SECTIONS SHALL BE 20 LF OF 8" CMP. OUTLET SECTIONS SHALL BE BACKFILLED WITH COMPACTED COHESIVE FILL.
5. SLOPE ALL TILE TO DRAIN @ 0.50% MINIMUM.
6. DEPTH OF TRENCH TO VARY WITH PIPE SLOPE.



D2 EMBANKMENT TOE DRAIN DETAIL
NOT TO SCALE



NOTES:
1. GATE END BRACING SHALL SINGLE H BRACE BE IN ACCORDANCE WITH NRCS PRACTICE SPECIFICATION IA-382-PS AND SHALL BE INSTALLED AT EACH SIDE OF THE GATE.

D4 STANDARD FENCE CATTLE GATE
NOT TO SCALE

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WINN971022B WETLAND (SHATEK)
IDALS
WINNESHIEK COUNTY, IA

DRAWN: GHK
APPROVED: AJH
ISSUED FOR: FINAL DESIGN
DATE: 07-09-2026
PROJECT NO: 224000635O
FIELD BOOK: ---
CLIENT NO: ---

CONSTRUCTION DETAILS

C504

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POVERTY HOLLOW RD

EASEMENT BOUNDARY

INSTALL 2,020 LF SILT FENCE AROUND WETLAND PERIMETER - SEE DETAIL

NORMAL WATER LEVEL

GRADING LIMITS

BUFFER SEEDING
SEED ALL AREAS OUTSIDE OF NORMAL WATER LEVEL TO EASEMENT BOUNDARY (EXPECT FOR AREAS SHOWN)
AREA = 16.6 ACRES

INSTALL 1,330 LF SILT FENCE - SEE DETAIL

STRUCTURE SEEDING
SEED EMBANKMENT FOOTPRINT
AREA = 1.8 ACRES

LEGEND

DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM ELEVATION	
NORMAL WATER ELEVATION	
100-YR STORM BOUNCE	
MAJOR CONTOUR	800
MINOR CONTOUR	801
EXISTING CONTOUR - MAJOR	800
EXISTING CONTOUR - MINOR	801
EXISTING STREAM	
EASEMENT BOUNDARY	
BUFFER SEEDING	
STRUCTURE SEEDING	
SILT FENCE	

NORTH

0 50 100 200
SCALE IN FEET

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WINN971022B WETLAND (SHATEK)

IDALS

WINNESHIEK COUNTY, IA

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ISSUED FOR: FINAL DESIGN
DATE: 07-09-2025
PROJECT NO: 224000635O
FIELD BOOK: ---
CLIENT NO: ---

SEEDING PLAN

C601

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