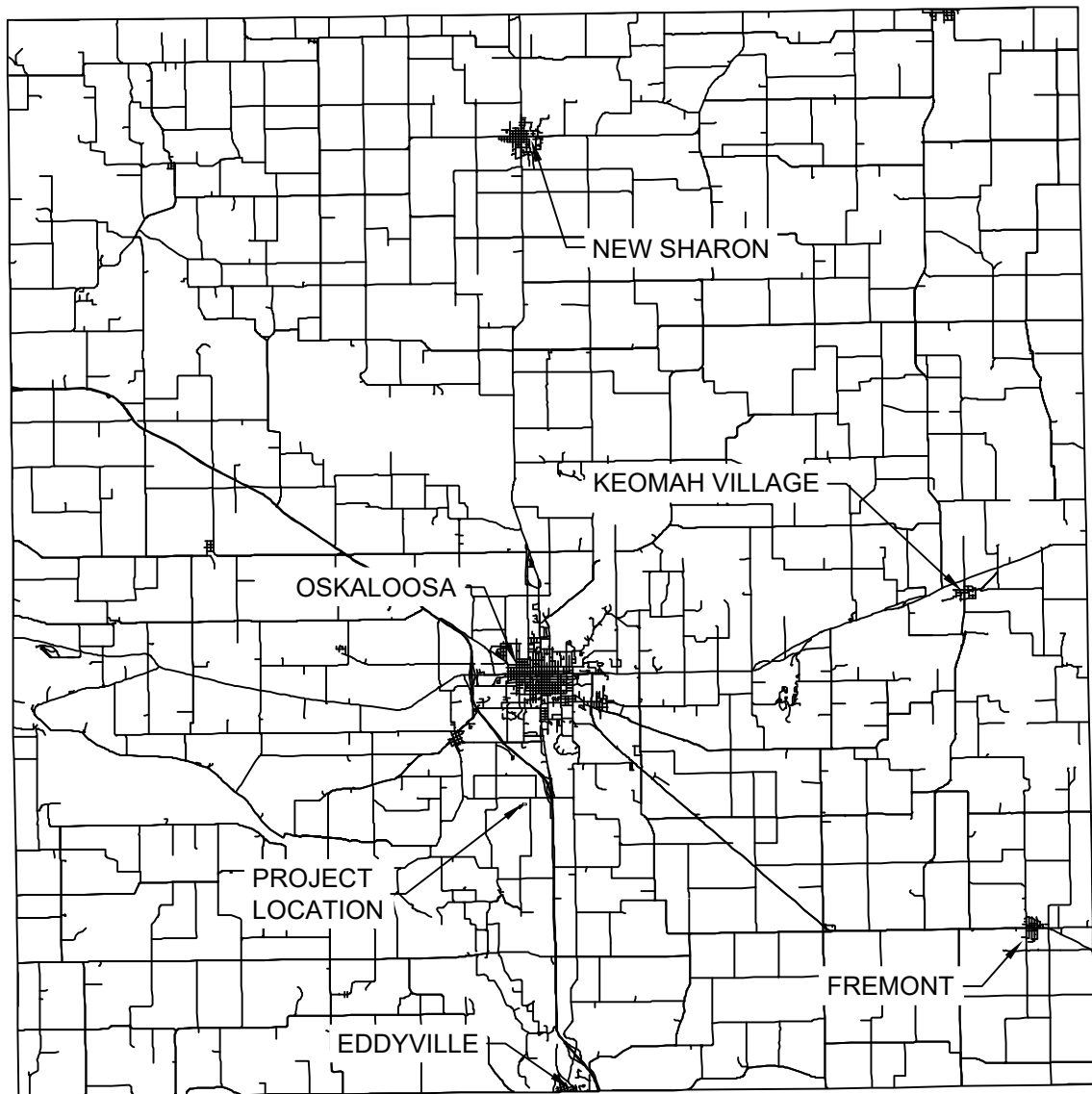
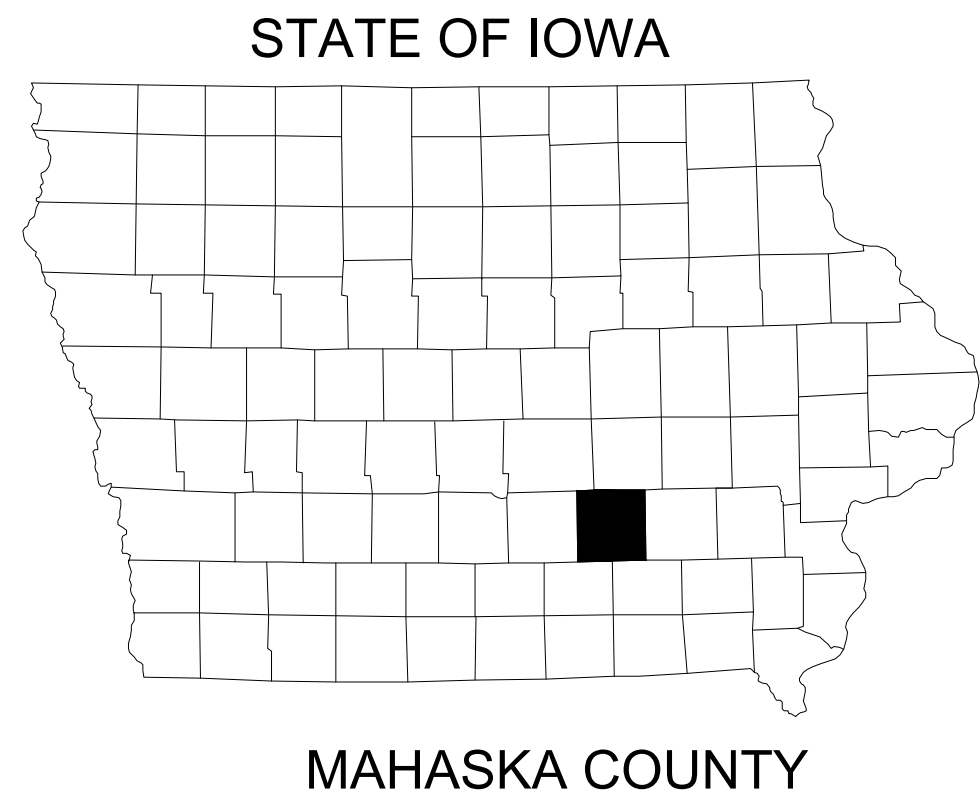


# MAH751636C NUTRIENT REDUCTION WETLAND IDALS

## MAHASKA COUNTY, IA



Sheet List Table	
Sheet Number	Sheet Title
C000	COVER SHEET
C001	PROJECT QUANTITIES & NOTES
CD01	EXISTING CONDITIONS & REMOVALS
C201	GRADING PLAN
C202	CUT-FILL PLAN
C301	EMBANKMENT PLAN & PROFILE
C302	PRINCIPAL SPILLWAY PLAN & PROFILE
C303	TILE PLAN & PROFILE
C304	WETLAND PLAN & PROFILE
C501	CONSTRUCTION DETAILS
C502	CONSTRUCTION DETAILS
C503	CONSTRUCTION DETAILS
C601	SEEDING PLAN

### CONTACT/SITE INFORMATION:

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SITE ADDRESS:  
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
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DES MOINES, IA, 50319  
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PROJECT DRAWING COORDINATE SYSTEM:  
HORIZONTAL: NAD83 IOWA STATE PLANE SOUTH ZONE (1401)  
VERTICAL: NAVD88  
UNITS: U.S. SURVEY FEET

CLIENT ACCEPTANCE

PRINTED NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

ONE-CALL TICKET NUMBER: \_\_\_\_\_



THE ENGINEERING JOB CLASS IS IV

NRCS NEM PART 505 CERTIFICATION  
THE SIGNING PROFESSIONALS HEREBY CERTIFY THAT, TO THE BEST OF THEIR PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THESE PLANS MEET APPLICABLE NRCS STANDARDS.

### 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: *Michael Otten* Date: 6-19-2025

Printed or typed name: MICHAEL M. OTTEN  
License Number: 28012

My License Renewal Date is: DECEMBER 31, 2026

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



MAH751636C WETLAND



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515.223.8104 | www.shive-hattery.com  
Iowa | Illinois | Indiana | Nebraska | Wisconsin

06/19/2025

CONSTRUCTION

PROJECT NO: 2240006320

CLIENT NO: -

C000



C:\Users\mawh\OneDrive\Shive-Hattery - MAH751636C Wetland IDALS - Bureau\MAH751636C Wetland\Project Files\Shive-Hattery\1\_Civil\CD31 - PROJECT QUANTITIES NOTES.dwg  
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1	ESTIMATED QUANTITIES:			ESTIMATE REFERENCE NOTES:			
	#	ITEM DESCRIPTION	QUANTITY	UNITS	ITEM #	SPEC #	DESCRIPTION
	1	SITE STRIPPING & PREPARATION	1	LS	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. TOTAL DEPTH OF VEGETATIVE STRIPPING AND TOPSOIL STRIPPING SHALL EQUAL A COMBINED DEPTH OF 12". WITH THE ESTIMATED AMOUNT OF TOPSOIL REMOVAL BEING 7,489 CUBIC YARDS. THE TOPSOIL REPLACEMENT QUANTITY SHALL BE PAID SEPARATELY. THIS ITEM WILL ALSO INCLUDE ANY TREE AND BRUSH REMOVAL ALONG WITH ANY FENCES.
	2	CROP DAMAGE	0.0	AC	2	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.
	3	STRUCTURE & CHANNEL SEEDING	2.5	AC	3	IA CS-006	STRUCTURE & CHANNEL SEEDING: THIS ITEM INCLUDES SEEDING FOR ALL EMBANKMENT, AUXILIARY SPILLWAY, TERRACE, AND TILE COVER BERM AREAS. INCLUDES SEEDBED PREP, SEEDING, MULCHING, AND FERTILIZER. SEE SEEDING PLAN.
	4	PASTURE SEEDING	4.1	AC	4	IA CS-006	PASTURE SEEDING: THIS ITEM INCLUDES SEEDING FOR ALL AREAS ABOVE NORMAL POOL AND WITHIN EASEMENT BOUNDARY, EXCLUDING THOSE AREAS WHERE STRUCTURE SEEDING IS SPECIFIED AND INCLUDES SEEDBED PREP, SEEDING, MULCHING, AND FERTILIZER. SEE SEEDING PLAN.
	5	MOBILIZATION AND DEMOBILIZATION	1	LS	5	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 ALSO 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.
	6	DRAIN TILE INVESTIGATION AND REMOVAL	467	LF	6	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.
	7	EXCAVATION (GENERAL)	752	CY	7	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 SUITABLE 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.
	8	EARTHFILL, (GENERAL (P))	6,707	CY	8	IA CS-023	EARTHFILL (GENERAL (P)): THIS ITEM INCLUDES THE AMOUNT OF MATERIAL REQUIRED TO CONSTRUCT THE SUBMERGED BERMS, ADDITIONAL FILL TO BE PLACED OVER TILE COVER BERMS, AND FILL PLACED ALONG THE SLOPE ON THE NORTH SIDE OF THE WETLAND POOL. 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 C202 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. COMPACTION SHALL BE NRCS METHOD 1. CONTRACTOR SHALL ASSIST ENGINEER WITH SOIL TESTING PRIOR TO SEEDING/STABILIZATION.
	9	EARTHFILL, (GENERAL DAM (P))	5,442	CY	9	IA CS-023	EARTHFILL (GENERAL DAM (P)): THIS ITEM INCLUDES THE EARTHFILL PLACEMENT AND COMPACTION NECESSARY TO CONSTRUCT 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 C202 FOR LIMITS OF EXCAVATION AND ASSOCIATED FILL. THE REQUIRED FILL INCLUDES A 20% SHRINKAGE FACTOR. REMOVE ALL BRICKS, ROCK FRAGMENTS, AND OTHER DELETERIOUS OBJECTS FROM FILL MATERIALS. FILL MATERIAL SHALL BE PLACED IN COMPACTED IN LIFTS NO MORE THAN 9" THICK. MEASUREMENT AND PAYMENT FOR PLACEMENT AND COMPACTION OF ALL FILL MATERIAL IS INCLUDED IN THIS ITEM AND WILL BE PAID BASED ON PLAN QUANTITY. COMPACTION SHALL BE NRCS METHOD 1.
	10	EARTHFILL, (DAM CORE (P))	2,772	CY	10	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 C202 FOR LIMITS OF EXCAVATION AND ASSOCIATED FILL. THE REQUIRED FILL INCLUDES A 20% SHRINKAGE FACTOR. REMOVE ALL BRICKS, ROCK FRAGMENTS, AND OTHER DELETERIOUS OBJECTS FROM FILL MATERIALS. FILL MATERIAL SHALL BE PLACED IN COMPACTED IN LIFTS NO MORE THAN 9" THICK. MEASUREMENT AND PAYMENT FOR PLACEMENT AND COMPACTION OF ALL FILL MATERIAL IS INCLUDED IN THIS ITEM AND WILL BE PAID BASED ON PLAN QUANTITY. COMPACTION SHALL BE NRCS METHOD 2.
	11	EARTHFILL (18" CLAY LINER, WETLAND BOTTOM, TWO 9" LIFTS (P))	3,045	CY	11	IA CS-023	EARTHFILL (18" CLAY LINER, WETLAND BOTTOM, TWO 9" LIFTS (P)): THIS ITEM INCLUDES SCARIFICATION AND LOOSENING OF AN 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.
	12	EARTHFILL (SCARIFY AND RECOMPACT 9" LAYER OF WETLAND BOTTOM AND EMBANKMENT FOOTPRINT (P))	1,579	CY	12	IA CS-023	EARTHFILL (SCARIFY AND RECOMPACT 9" LAYER OF WETLAND BOTTOM AND EMBANKMENT FOOTPRINT (P)): THIS ITEM INCLUDES SCARIFICATION AND LOOSENING OF A 9 INCH SURFACE LAYER OF SOIL WITHIN THE WETLAND POOL BOTTOM AND EMBANKMENT FOOTPRINT WHERE EXCAVATION DOES NOT OCCUR, MOISTURE CONDITIONING, AND COMPACTION OF THE MATERIAL TO FORM A SEAL AND SOILD EMBANKMENT FOUNDATION. CONTRACTOR SHALL REMOVE ROCKS LARGER THAN 6 INCHES. NOTIFY ENGINEER IMMEDIATELY IF SANDY SOILS ARE ENCOUNTERED. ITEM WILL BE PAID BASED ON PLAN QUANTITY.
	13	TOPSOIL PLACEMENT, 12 INCH	925	CY	13	IA CS-026	TOPSOIL PLACEMENT. 12 INCH: THIS ITEM INCLUDES THE RESPREAD OF 12" TOPSOIL WITHIN EMBANKMENT FOOTPRINT. ITEM WILL BE PAID BASED ON PLAN QUANTITY.
	14	TOPSOIL PLACEMENT, 6 INCH	3,074	CY	14	IA CS-026	TOPSOIL PLACEMENT. 6 INCH: THIS ITEM INCLUDES THE RESPREAD OF 6" TOPSOIL IN ALL OTHER DISTURBED AREAS. ITEM WILL BE PAID BASED ON PLAN QUANTITY.
	15	4" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE	29	LF	15	IA CS-046	4" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE: THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 4" DUAL-WALL PERFORATED HDPE DRAIN TILE. SEE SHEET C201 AND C303 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
	16	6" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE	14	LF	16	IA CS-046	6" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE: THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 6" DUAL-WALL PERFORATED HDPE DRAIN TILE. SEE SHEET C201 AND C303 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
	17	8" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE	24	LF	17	IA CS-046	8" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE: THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 8" DUAL-WALL PERFORATED HDPE DRAIN TILE. SEE SHEET C201 AND C303 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
	18	10" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE	24	LF	18	IA CS-046	10" CORRUGATED PROFILE WALL (DUAL WALL, PERFORATED) POLYETHYLENE PIPE: THIS ITEM INCLUDES THE MATERIAL, EXCAVATION, PLACEMENT, JOINTING, AND BACKFILL OF THE 10" DUAL-WALL PERFORATED HDPE DRAIN TILE. SEE SHEET C201 AND C303 FOR LENGTHS, LOCATIONS AND ELEVATIONS.
	19	12" HICKENBOTTOM RISER	1	EA	19	IA- CS-045	12" HICKENBOTTOM RISER: THIS ITEM INCLUDES COSTS FOR THE MATERIAL AND INSTALLATION OF THE 12" HICKENBOTTOM RISER, TRASH RACK, AND BASE AS DETAILED.
	20	72" X 72" MODIFIED SW-403 WATER CONTROL STRUCTURE	1	EA	20	IA CS-031	72" X 72" MODIFIED SW-403 WATER CONTROL STRUCTURE: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, AND MATERIALS FOR THE PLACEMENT OF THE 72" X 72" REINFORCED CONCRETE BOX STRUCTURE, FOOTING, STOPLOGS, STOPLOG STORAGE STRUCTURE, FABRICATION, PIPE CONNECTIONS, AND TRASH RACK. STRUCTURE SHALL BE IDOT SW-403 OR APPROVED EQUIVALENT.
	21	42" RCPP WETLAND OUTLET PIPE	140	LF	21	IA CS-031	42" RCPP WETLAND OUTLET PIPE: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE EXCAVATION, JOINTING, BACKFILL, AND THE PLACEMENT OF THE 42" REINFORCED CONCRETE PRESSURE PIPE AND GASKETS. THE 42" RCPP FLARED END SECTION IS INCLUDED IN THE REPORTED PIPE LENGTH, AND THE FLARED END SECTION AND ASSOCIATED CONCRETE FOOTING ARE INCIDENTAL TO THIS ITEM.
	22	24" NYLOPLAST DRAWDOWN RISER STRUCTURE	1	EA	22	IA CS-045	24" NYLOPLAST DRAWDOWN RISER STRUCTURE: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, AND MATERIALS FOR THE PLACEMENT OF THE 24" NYLOPLAST RISER STRUCTURE, FOOTING, FABRICATION, PIPE CONNECTIONS, AND TRASH RACK.
	23	18" CORRUGATED PROFILE WALL (DUAL WALL, NON-PERFORATED) POLYETHYLENE PIPE	37	LF	23	IA CS-046	18" CORRUGATED PROFILE WALL (DUAL WALL, NON-PERFORATED) POLYETHYLENE WETLAND DRAWDOWN PIPE: THIS ITEM INCLUDES ALL LABOR, EQUIPMENT, MATERIALS REQUIRED FOR THE EXCAVATION, JOINTING, BACKFILL, AND THE PLACEMENT OF THE 18" HDPE NON-PERFORATED DUAL-WALL PIPE.
	24	6" PVC TILE OUTLETS (20 LF EACH)	2	EA	24	IA- CS-045	6" PVC TILE OUTLETS (20 LF EACH): THIS ITEM INCLUDES THE COSTS FOR MATERIAL, EXCAVATION, PLACEMENT, JOINTING, BEDDING, RODENT GUARDS, AND BACKFILLING OF THE 20 LF 6" PVC END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND. 6" PVC OUTLET SECTIONS ARE FOR 4 INCH TILES.
	25	8" PVC TILE OUTLETS (20 LF EACH)	1	EA	25	IA- CS-045	8" PVC 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" PVC END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND. 8" PVC OUTLET SECTIONS ARE FOR 6 INCH TILES.
	26	10" PVC TILE OUTLETS (20 LF EACH)	1	EA	26	IA- CS-045	10" PVC 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" PVC END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND. 10" PVC OUTLET SECTIONS ARE FOR 8 INCH TILES.
	27	12" PVC TILE OUTLETS (20 LF EACH)	1	EA	27	IA- CS-045	12" PVC TILE OUTLETS (20 LF EACH): THIS ITEM INCLUDES THE COSTS FOR MATERIAL, EXCAVATION, PLACEMENT, JOINTING, BEDDING, RODENT GUARDS, AND BACKFILLING OF THE 20 LF 12" PVC END SECTION FOR THE PROPOSED FIELD TILE OUTLET TO THE WETLAND. 10" PVC OUTLET SECTIONS ARE FOR 10 INCH TILES.
	28	RIPRAP	320	TON	28	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 INCLUDES TILE OUTLETS, FOREBAY ROCK CHECKS, WETLAND OUTLET CHANNEL. GEOTEXTILE FABRIC IS INCIDENTAL TO THIS ITEM. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 105 POUNDS PER CUBIC FOOT. PROVIDE WEIGHT TICKETS TO OWNER'S REPRESENTATIVE.
	29	2" CLEAN STONE	85	TON	29	IA CS-061	2" CLEAN STONE: THIS ITEMS INCLUDES PROCUREMENT, PLACEMENT AND SPREADING OF 2 INCH CLEAN STONE AT THE CONSTRUCTION ENTRANCE AND AS A STONE FILTER UNDERNEATH THE RIP RAP AT THE END OF THE WETLAND OUTLET PIPE.. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 130 POUNDS PER CUBIC FOOT.
	30	EROSION STONE	25	TON	30	IA CS-061	EROSION STONE: THIS ITEMS INCLUDES PROCUREMENT, PLACEMENT AND MOUNDING OF THE EROSION STONE AROUND THE DRAWDOWN INTAKE RISER. QUANTITY DETERMINATION IS BASED ON A UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT.
	31	CONCRETE GROUT	37	CY	31	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 SHALL ONLY BE PLACED IN THE PRESENCE OF THE ENGINEER.
	32	POLLUTION CONTROL, SILT FENCE	1,490	LF	32	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.
33	FIELD FENCE WITH GATE	1,408	LF	33	IA CS-092	FIELD FENCE WITH GATE: THIS ITEM INCLUDES THE MATERIAL AND INSTALLATION OF NEW FIVE-STRAND BARBED WIRE FIELD FENCE AND CATTLE GATE AS SHOWN ON PLANS AND AS DETAILED.	

2	WETLAND DESIGN DATA:			CULTURAL RESOURCES NOTE:		
	PROJECT ID	751636C	-----	1.	IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE.	
	PRELIMINARY OR FINAL DESIGN	FINAL DESIGN	-----			
	DRAINAGE AREA	181.00	ACRES			
	WETLAND POOL AREA	1.99	ACRES			
	DEEP WATER AREA (>3 FT DEEP)	0.45	ACRES			
	NORMAL POOL ELEVATION	746.00	FEET			
	AVERAGE POOL DEPTH	2.53	FEET			
	MAXIMUM POOL DEPTH	10.16	FEET			
	POOL STORAGE	4.84	ACRE-FEET			
	BERM ELEVATION	753.50	FEET			
	BERM STORAGE	27.53	ACRE-FEET			
	LENGTH OF BERM	275.00	FEET			
	AUXILIARY SPILLWAY ELEVATION	751.00	FEET			
	AUXILIARY SPILLWAY WIDTH	30	FEET			
	PRINCIPAL SPILLWAY	72" X 72" RCP BOX RISER & 42" RCPP	-----			
	DRAWDOWN SPILLWAY	24" NYLOPLAST RISER & 18" HDPE	-----			
	HEIGHT OF DAM (BERM ELEVATION - OUTLET LOWEST ELEVATION)	22.5	FEET			
	TIME OF CONCENTRATION	0.51	HOURS			
	WEIGHTED RUNOFF CURVE NUMBER	80	-----			
	10-YEAR STORM DESIGN FLOW	362.40	CFS			
	10-YEAR FLOOD SURF. ELEVATION	750.28	FEET			
	25-YEAR STORM DESIGN FLOW	491.17	CFS			
	25-YEAR FLOOD SURF. ELEVATION	752.45	FEET			
	100-YEAR STORM DESIGN FLOW	711.82	CFS			
	100-YEAR FLOOD SURF. ELEVATION	752.99	FEET			
	ESTIMATED SEDIMENT STORAGE	71	YEARS			
	TOTAL EASEMENT AREA	7.79	ACRES			

4	GENERAL NOTES:			CULTURAL RESOURCES NOTE:		
	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).	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.	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.	13. THE CONTRACTOR SHALL KEEP ALL ROADS OPEN TO THROUGH TRAFFIC AT ALL TIMES.	17. NEITHER SHIVE-HATTERY NOR IDALS GUARANTEE THIS PRACTICE WILL HOLD A PERMANENT POOL OF WATER.	
	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.	6. ALL DEBRIS AND TRASH ENCOUNTERED DURING CONSTRUCTION WITHIN THE PROJECT LIMITS, OR DIRECTED BY THE ENGINEER, SHALL BE PROPERLY DISPOSED OF.	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.	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.		
	3. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.	7. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION DE-WATERING THAT IS REQUIRED AT NO ADDITIONAL COST TO THE DIVISION.	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.	15. SUBMIT MANUFACTURER'S CERTIFICATION AND MATERIAL DATA FOR ALL MATERIALS DELIVERED TO THE PROJECT SITE AS REQUESTED BY THE OWNERS REPRESENTATIVE.		
	4. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE.	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.	12. CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO FINISHED GRADE.	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.		

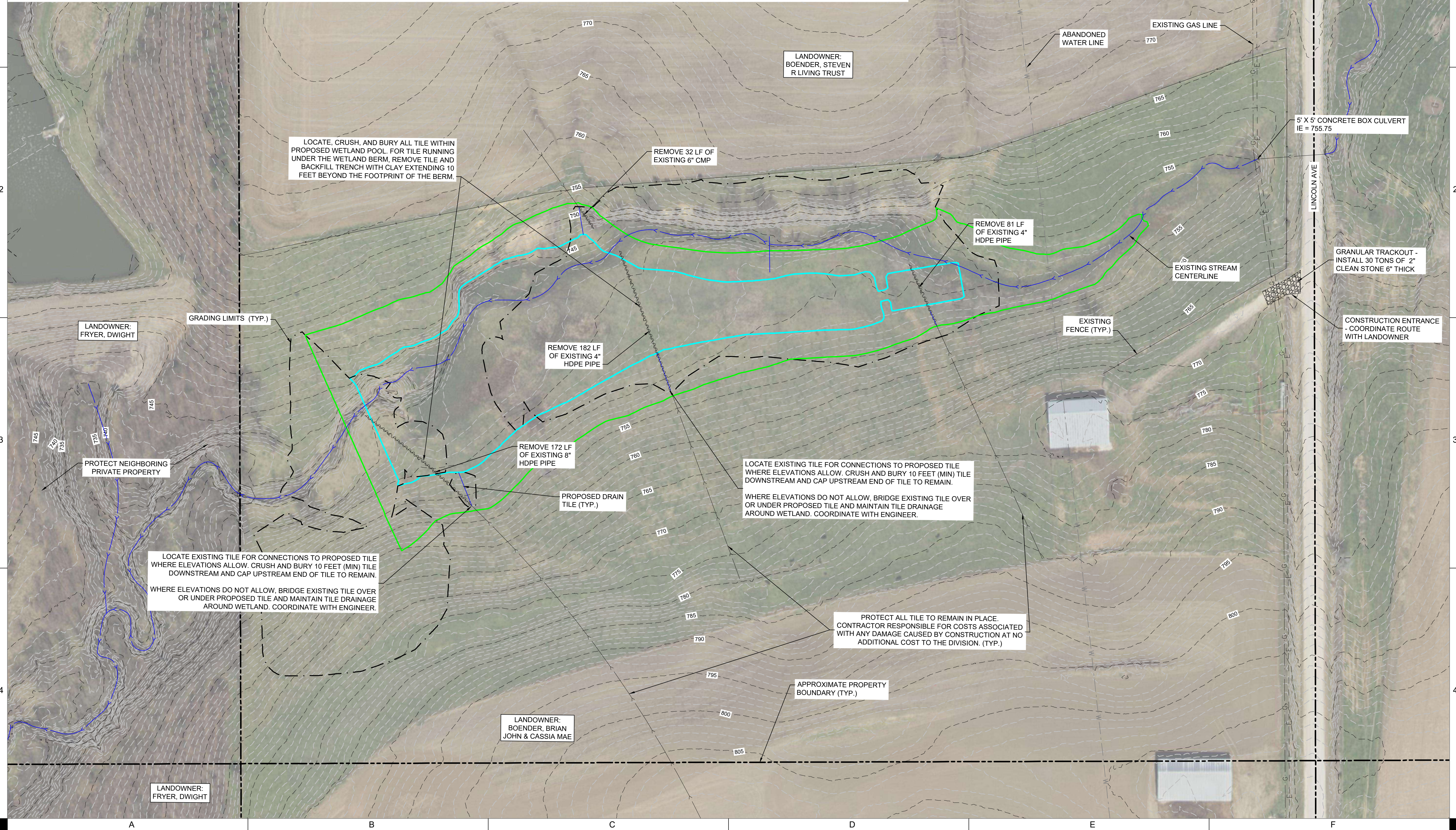
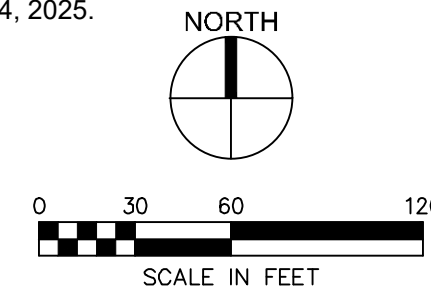
A	B	C	D	E	F
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1. LIMITED TOPOGRAPHIC SURVEY COMPLETED BY SHIVE-HATTERY ON MAY 23, 2024.
2. SUPPLEMENTAL EXISTING SURFACE INFORMATION SHOWN WAS BASED ON LIGHT DETECTION AND RANGING (LIDAR) INFORMATION FROM IOWA DNR (2020).
3. CONTRACTOR SHALL VERIFY CONTROL AND BASE SURFACE PRIOR TO CONSTRUCTION AND COORDINATE WITH ENGINEER.

HORIZONTAL DATUM - NAD83, IOWA STATE PLANE, SOUTH ZONE  
VERTICAL DATUM - NAVD88

1. TOTAL DEPTH OF VEGETATIVE STRIPPING AND TOPSOIL STRIPPING SHALL EQUAL A COMBINED DEPTH OF 12" IN ALL DISTURBED AREAS. RESPREAD 12" WITHIN EMBANKMENT FOOTPRINT AND 6" (MIN) IN ALL OTHER DISTURBED AREAS.
2. SCARIFY AND RE-COMPACT 9 INCHES OF SOIL IN ENTIRE WETLAND AND EMBANKMENT 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.
3. A GEOTECHNICAL REPORT WAS PREPARED BY TERRACON ON MARCH 24, 2025. NORTH



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MAIL 1731030C WFLI LAND

MAHASKA COUNTY, IA

## EXISTING CONDITIONS & REMOVALS

CD01

APPROVED: MMO
ISSUED FOR: CONSTRUCTION
DATE: 06/19/2025
PROJECT NO: 2240006320
FIELD BOOK: --
CLIENT NO: --

**SHIVE-HATTERY**  
ARCHITECTURE+ENGINEERING

4125 Westown Pkwy, Suite 100 | West Des Moines, Iowa 50266  
515.223.8104 | [www.shive-hattery.com](http://www.shive-hattery.com)

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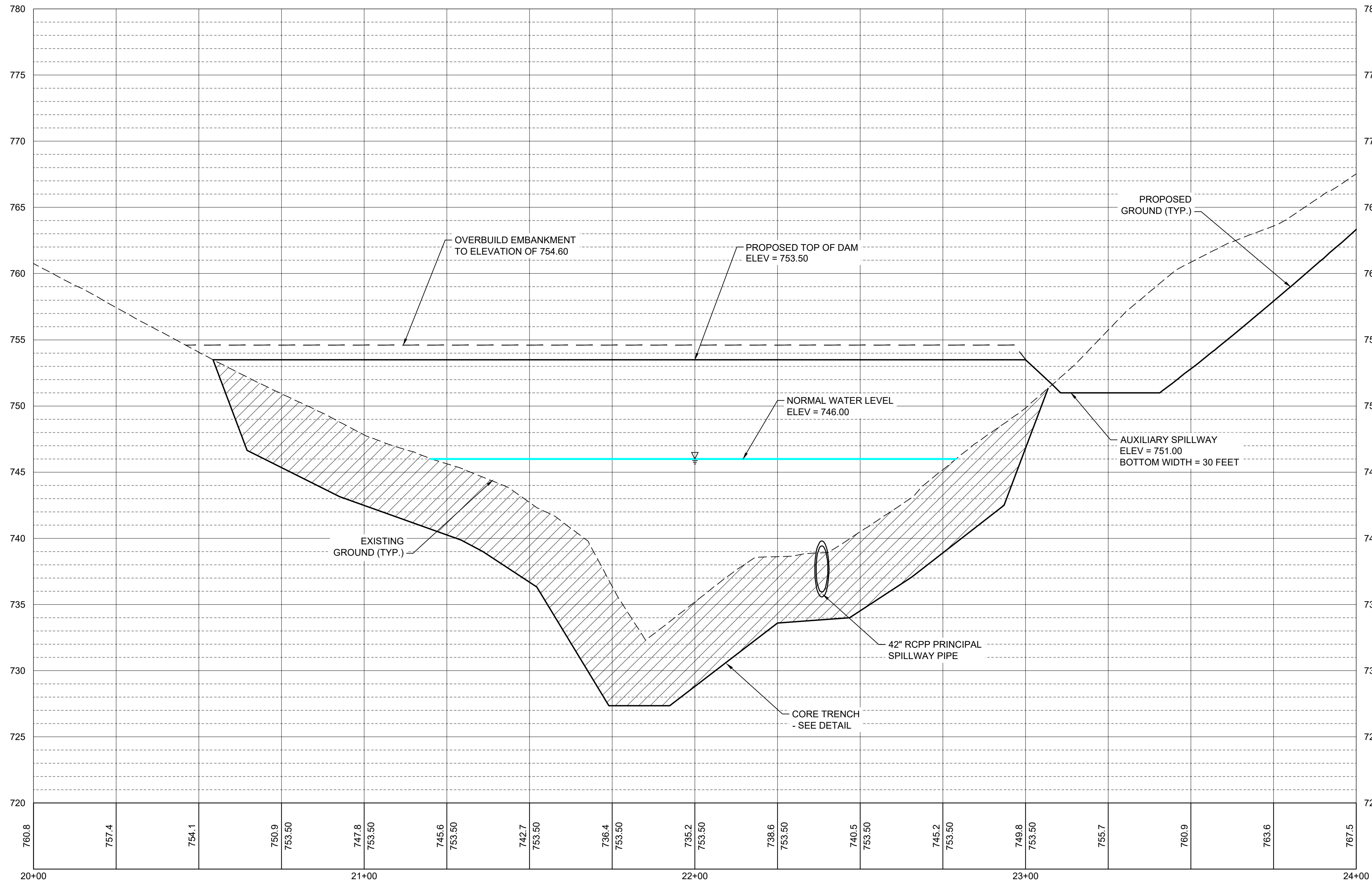
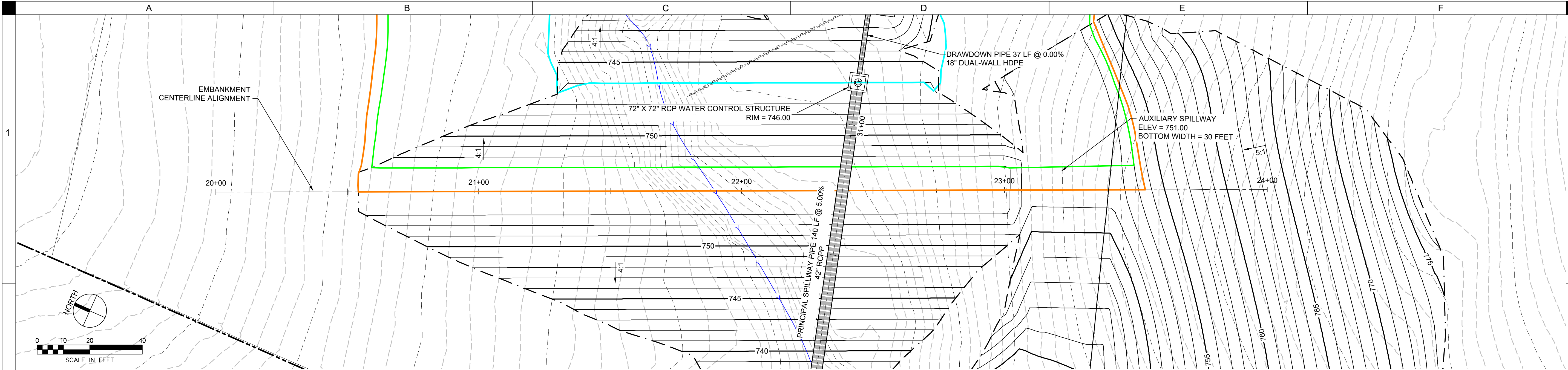








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DRAWN: GHK  
APPROVED: MWO  
ISSUED FOR: CONSTRUCTION  
DATE: 06/19/2025  
PROJECT NO: 2240006320  
FIELD BOOK: ---  
CLIENT NO: ---

EMBANKMENT PLAN  
& PROFILE

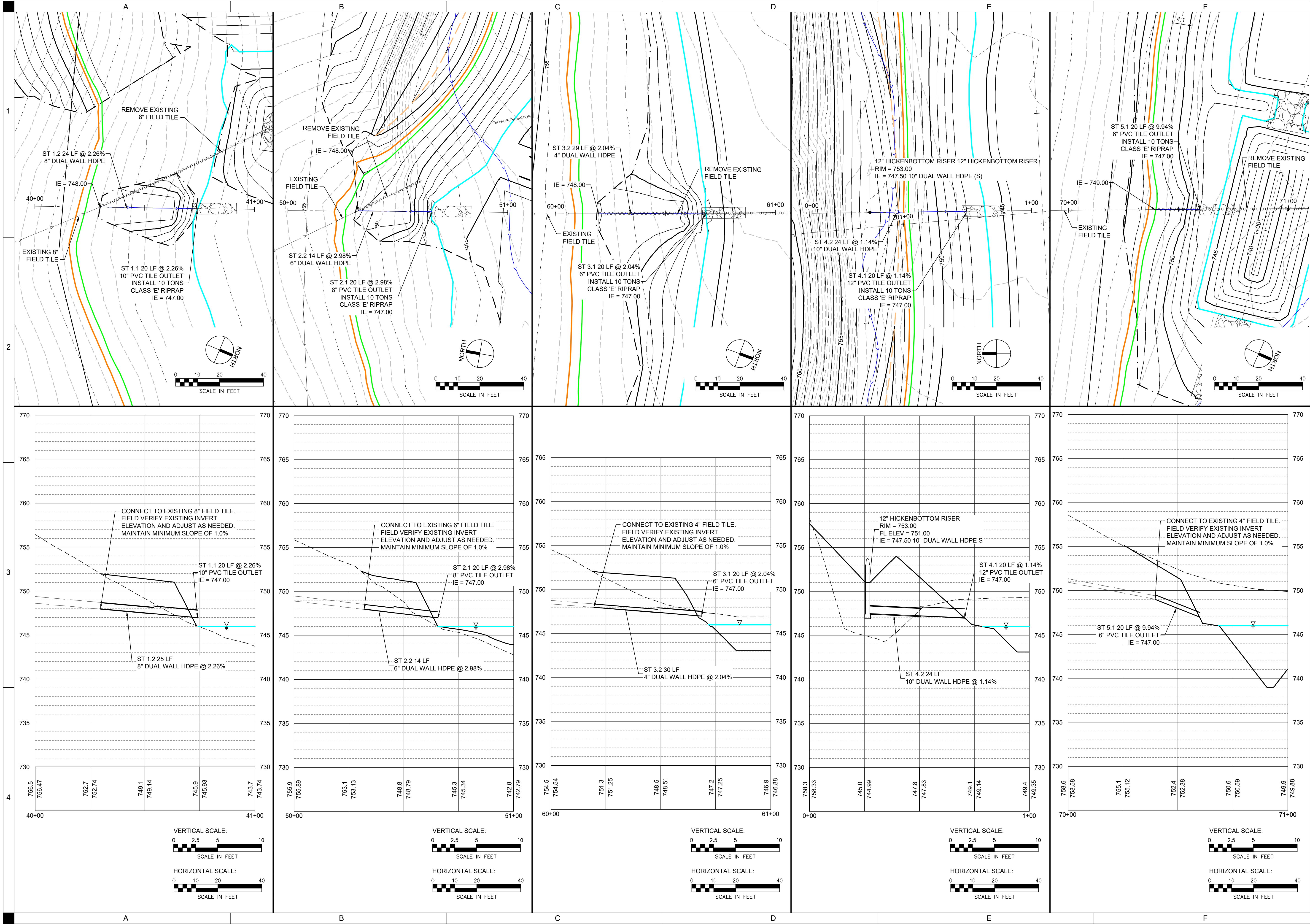
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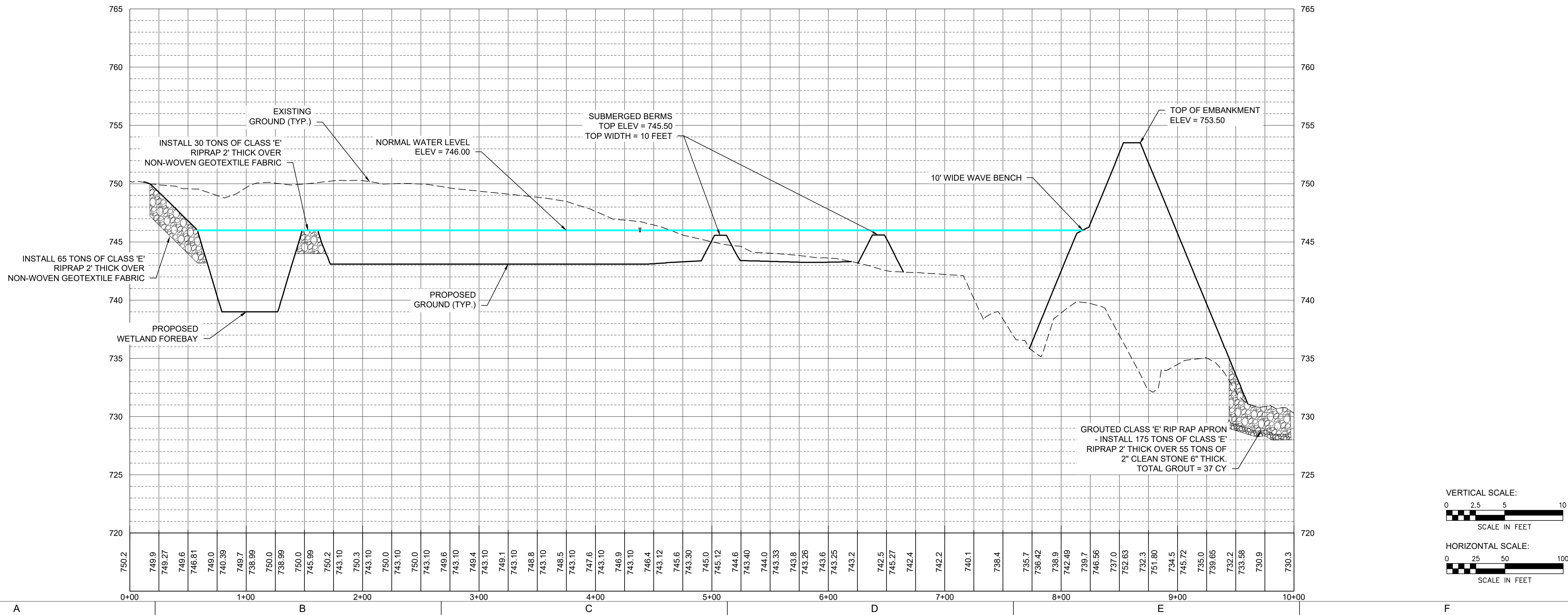
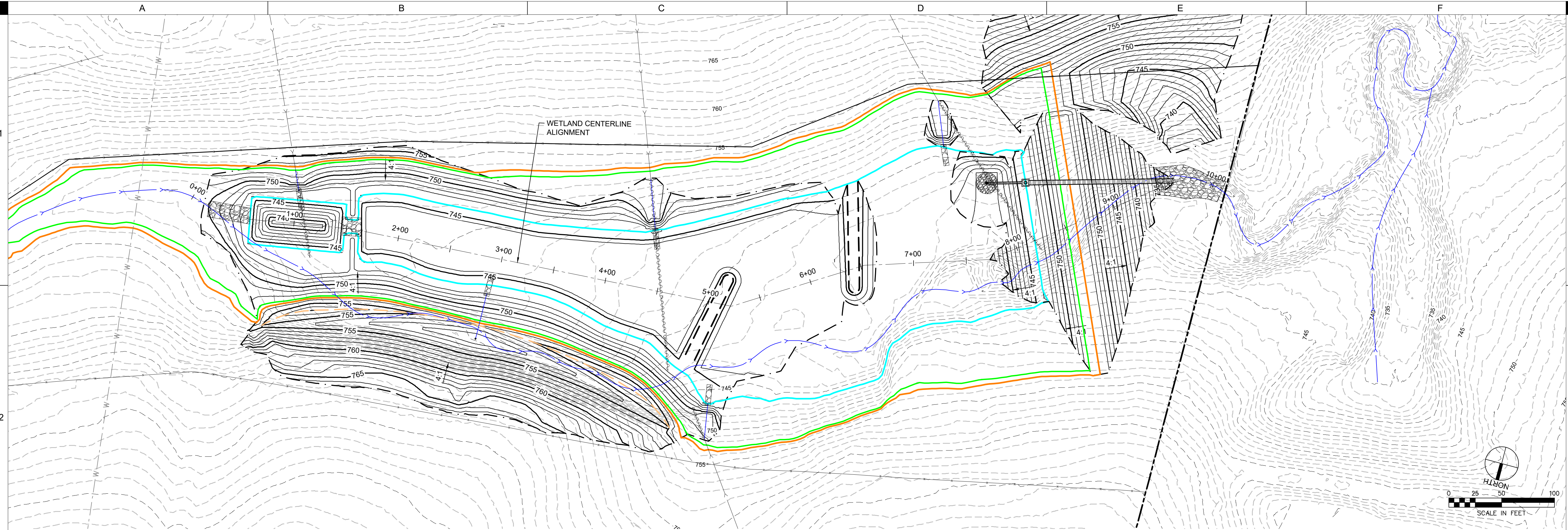


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MAH751636C WETLAND

IDALS  
MAHASKA COUNTY, IA

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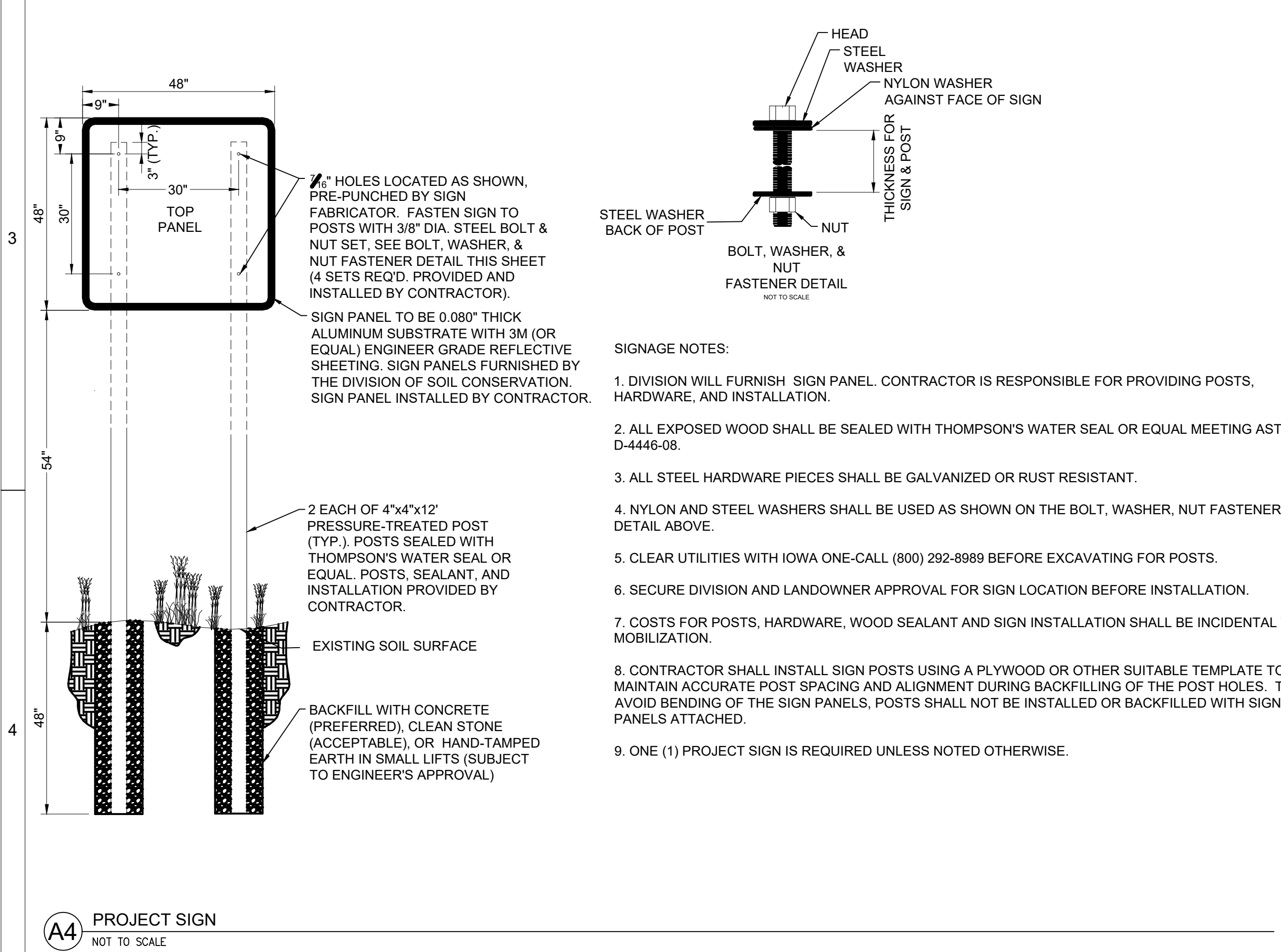
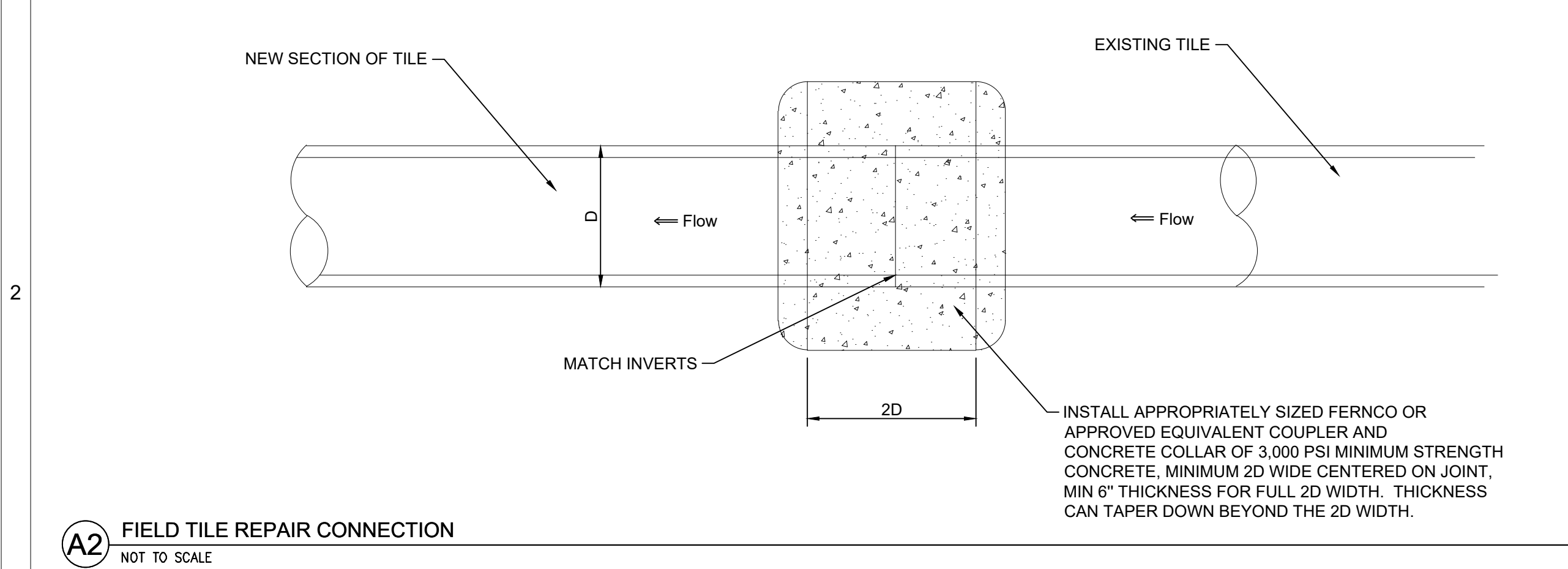
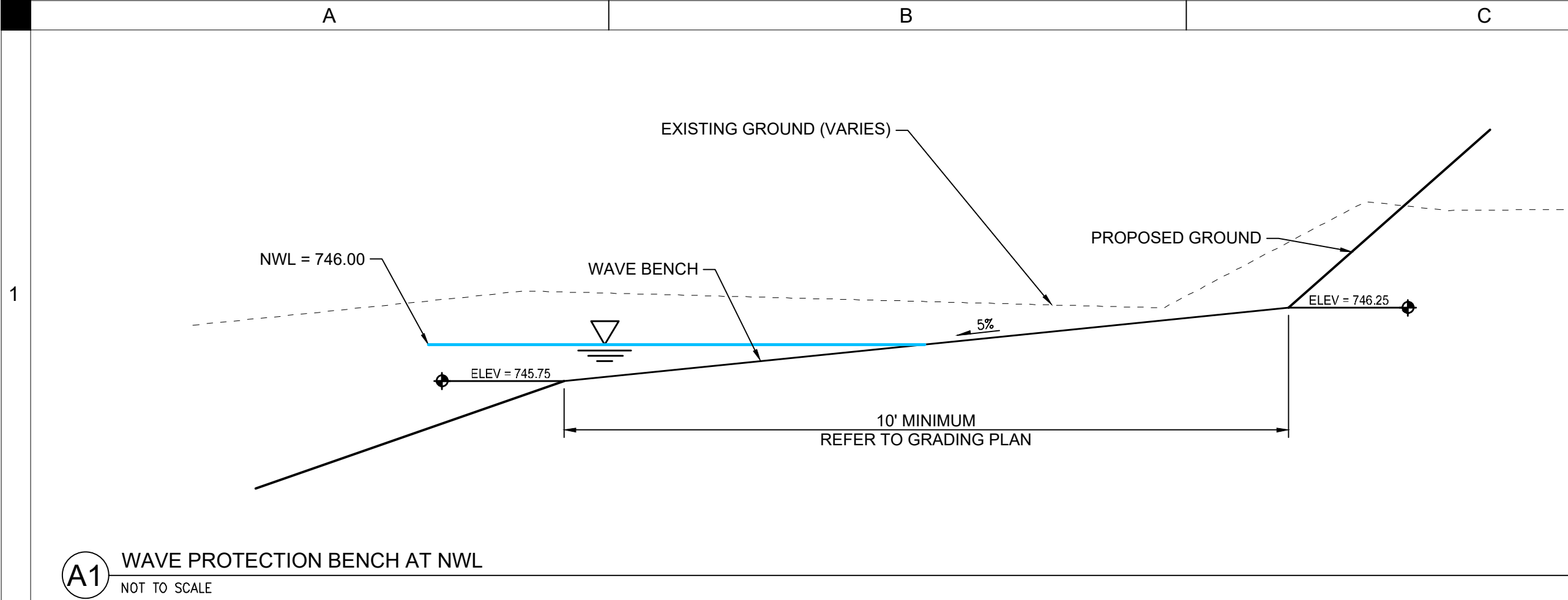
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WETLAND PLAN &  
PROFILE

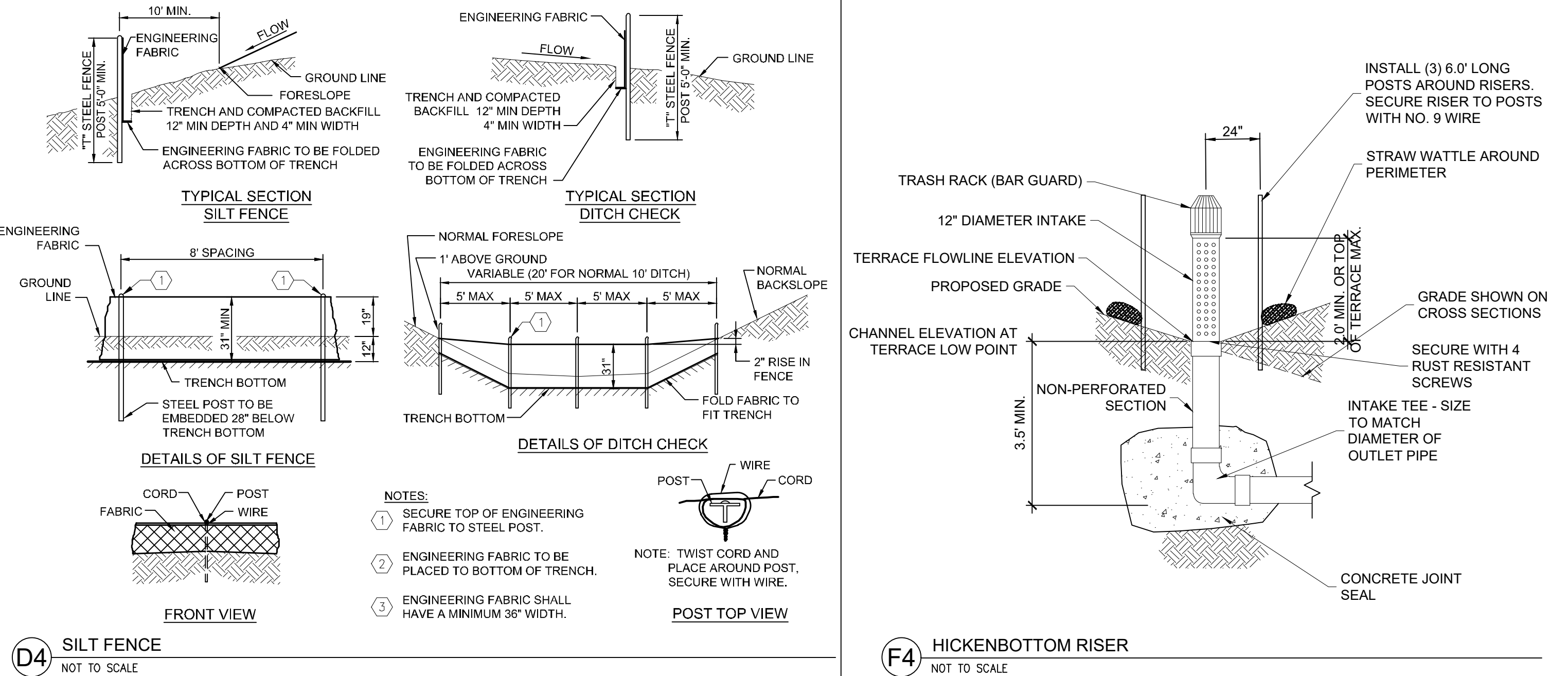
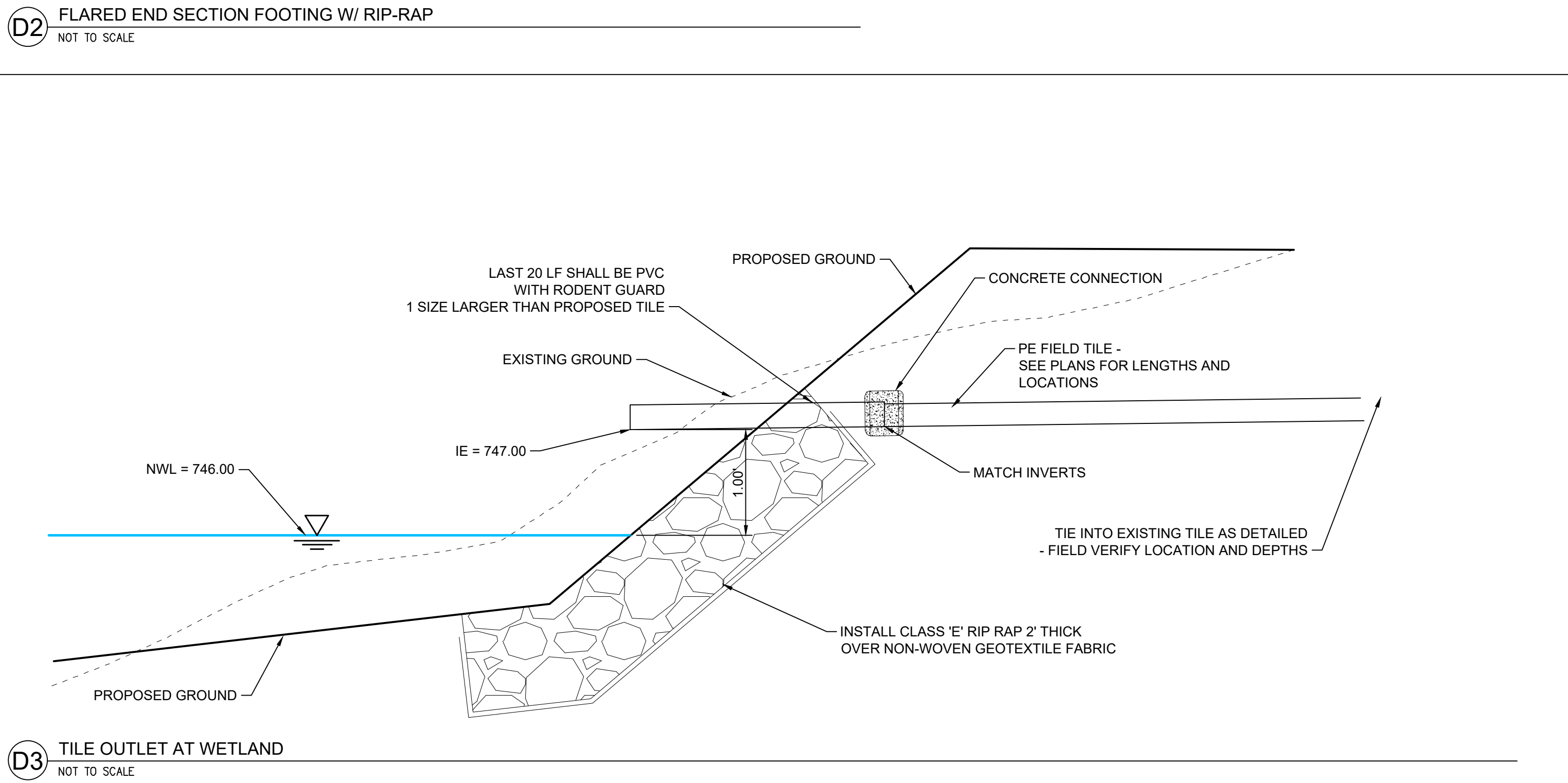
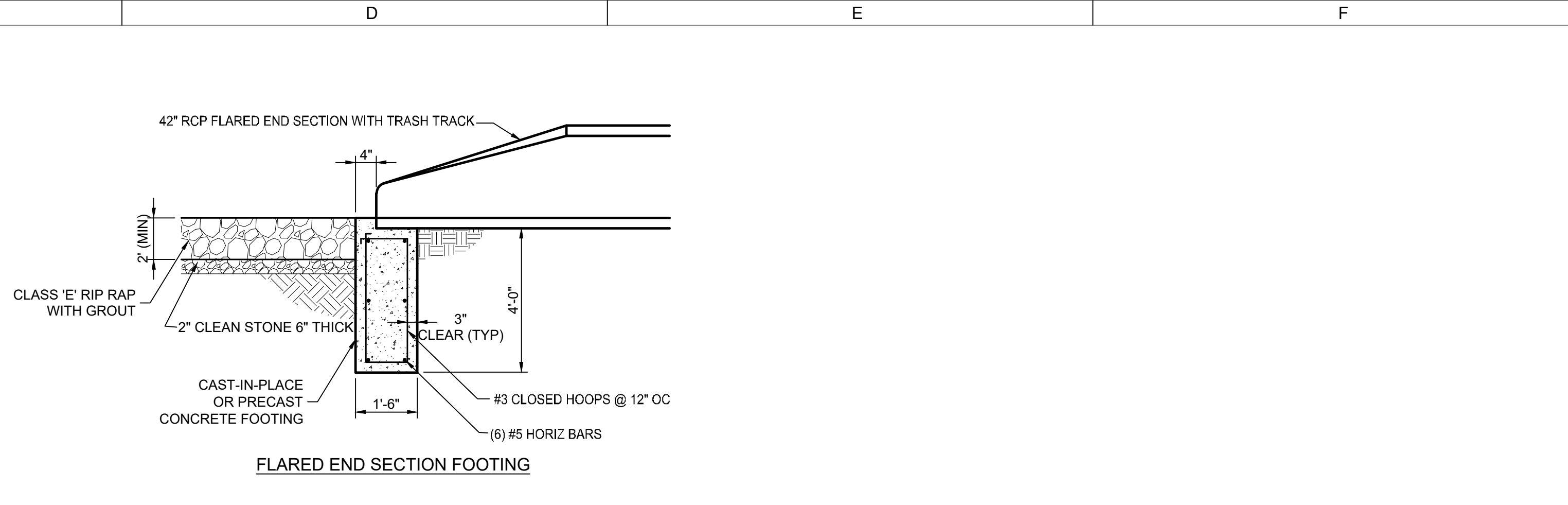
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DRAWN: GHK  
APPROVED: MMO  
ISSUED FOR: CONSTRUCTION  
DATE: 06/19/2025  
PROJECT NO: 2240005320  
FIELD BOOK: ---  
CLIENT NO: ---

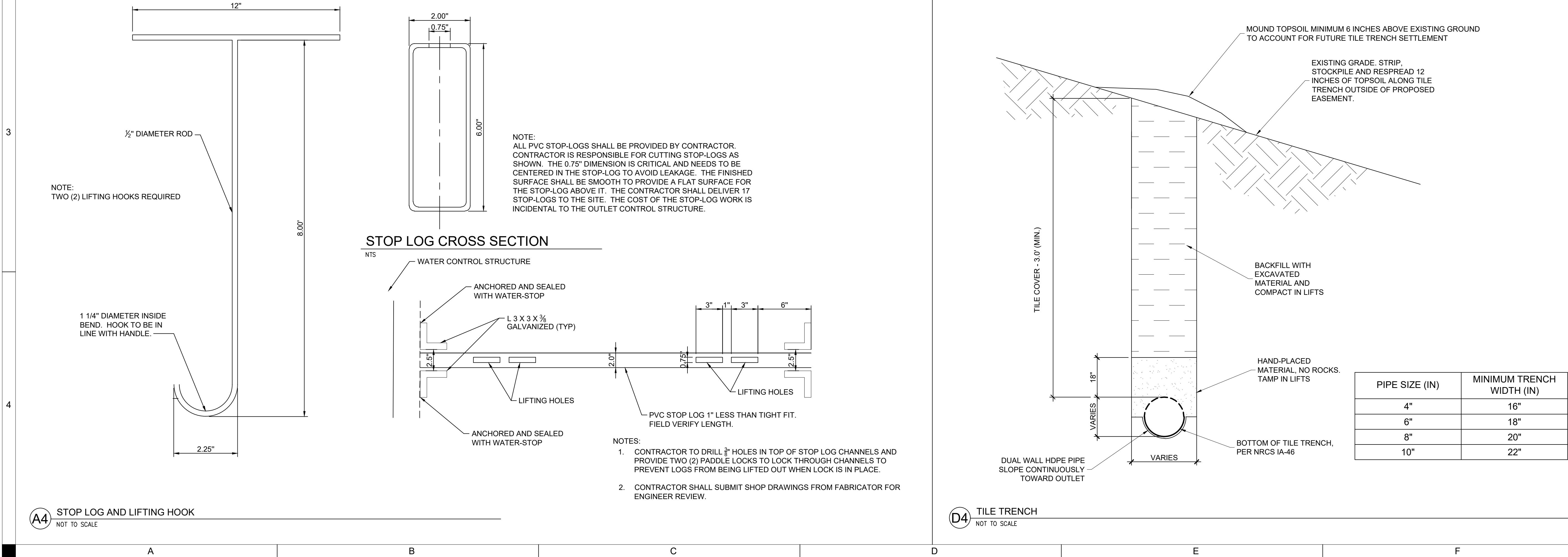
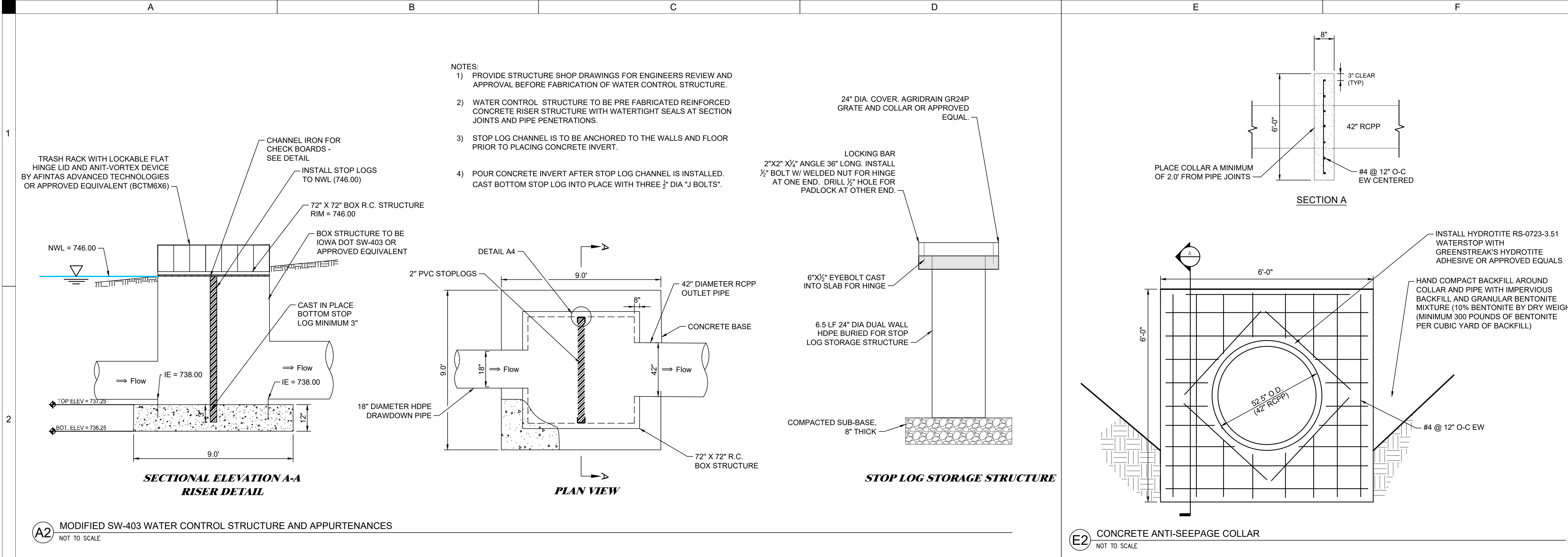




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MAHASKA COUNTY, IA

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PROJECT NO:	2240006320
FIELD BOOK:	---
CLIENT NO:	---

CONSTRUCTION  
DETAILS

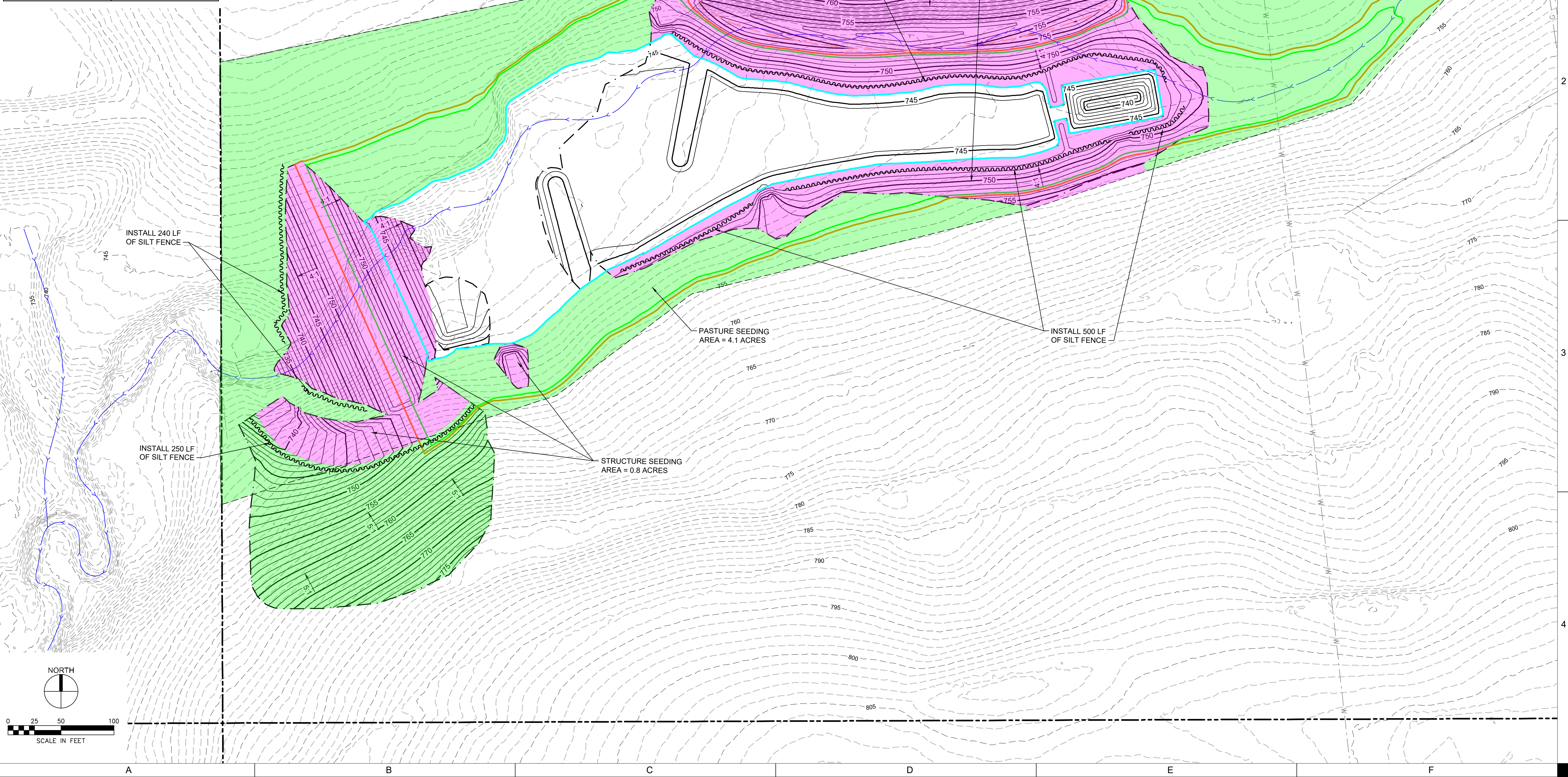
C502







LEGEND	
DESCRIPTION	PROPOSED LINE TYPE
TOP OF DAM ELEVATION	
NORMAL WATER ELEVATION	
MAJOR CONTOUR	
MINOR CONTOUR	
EXISTING CONTOUR - MAJOR	
EXISTING CONTOUR - MINOR	
EXISTING STREAM	
EASEMENT BOUNDARY	
SILT FENCE	
PASTURE SEEDING	
STRUCTURE SEEDING	



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SEEDING PLAN

C601