

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 1327	21-00143-00-BR	FORD	21	1
FED. ROAD DIST. NO. 3		ILLINOIS	CONTRACT NO. 87819	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
**PLANS FOR PROPOSED
BRIDGE REPLACEMENT**
LOCAL BRIDGE FORMULA PROGRAM

**F.A.S. 337 / C.H. 21 / THAWVILLE ROAD
PROPOSED STRUCTURE NO. 027-3468
SECTION 21-00143-00-BR
PROJECT W7U0(661)
FORD COUNTY
C-93-006-24**

INDEX OF SHEETS

SHEET NO. DESCRIPTION

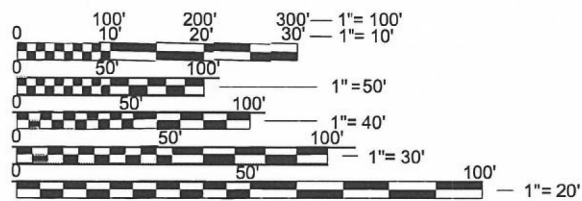
- 1. COVER SHEET
- 2. SUMMARY OF QUANTITIES AND GENERAL NOTES
- 3. SCHEDULE OF QUANTITIES
- 4. TYPICAL CROSS SECTIONS
- 5. PLAN AND PROFILE
- 6-12. CULVERT PLANS
- 13-21. STATION CROSS SECTIONS

HIGHWAY STANDARDS:

- 515001-04 NAME PLATE FOR BRIDGES
- 630301-09 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
- 631032-10 TRAFFIC BARRIER TERMINAL, TYPE 6A
- 701901-09 TRAFFIC CONTROL DEVICES
- 725001-01 OBJECT AND TERMINAL MARKERS
- 782006-01 GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 22-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

UTILITIES

EASTERN ILLINI ELECTRIC COOP
330 OTTAWA ROAD
PAXTON, IL 60957



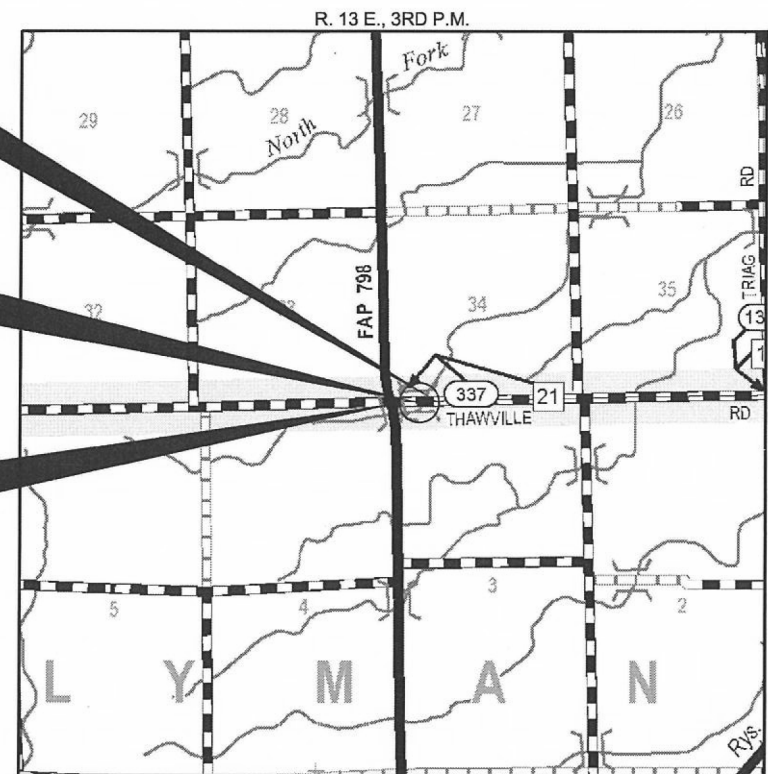
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR
DESIGN SPEED: 40 MPH
DESIGN TRAFFIC: 75 ADT
3R DESIGN GUIDELINES ARE USED

IMPROVEMENT ENDS
STATION 9+00

STA. 7+60
REINFORCED CONCRETE BOX CULVERT
18'-0" SPAN X 11'-0" RISE
LENGTH = 33'-0" SKEW 35°
EXISTING STRUCTURE NO. 027-3008
PROPOSED STRUCTURE NO. 027-3468

IMPROVEMENT BEGINS
STATION 6+50



LOCATION MAP

APPROXIMATE SCALE: 0 1/2 MILE
NET LENGTH OF SECTION = 250 FEET = 0.047 MILES



WARNING

CALL JULIE TOLL FREE
1-800-892-0123

**CALL 811
BEFORE YOU DIG**

DIG NO: A231502262

APPROVED APRIL 13 2024
Tracy Paul
COUNTY ENGINEER

PASSED APRIL 12 2024
Trisha Thompson
DISTRICT THREE ENGINEER OF
LOCAL ROADS & STREETS
Releasing For
Bid Based on
Limited Review
APRIL 12 2024
Trisha Thompson
REGION TWO ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DATE: 04/05/2024

STEVEN W. EGGENSTEN
662-5005
STATE OF ILLINOIS

EXPIRES: 11/30/2025

HAMPTON, LENZINI AND RENWICK, INC.
CIVIL ENGINEERS • STRUCTURAL ENGINEERS • LAND SURVEYORS
3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hirengineering.com

HLR
184.000959
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

PROJECT NUMBER: 23.0366.130
DATE: 04/05/2024

SUMMARY OF QUANTITIES

CODE NO.	ITEM	CONSTRUCTION TYPE CODE 0010	
		UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	139
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	119
31101900	SUBBASE GRANULAR MATERIAL, TYPE C	TON	84
35100100	AGGREGATE BASE COURSE, TYPE A	TON	456
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	1,383
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	138
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	147
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	65
40604050	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50	TON	51
48101200	AGGREGATE SHOULDERS, TYPE B	TON	104
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	41,360
* 50900207	STEEL RAILING, TYPE CO-10	FOOT	48
51500100	NAME PLATES	EACH	1
54003000	CONCRETE BOX CULVERTS	CU YD	151.7
542D0223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	284
* 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	540
67100100	MOBILIZATION	L SUM	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
* 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	8
X2070302	POROUS GRANULAR EMBANKMENT (SPECIAL)	TON	460
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
X5810103	MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES	SQ YD	100
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1

* SPECIALTY ITEMS

GENERAL NOTES

- 1) ALL CLEARING, GRUBBING, FENCE REMOVAL, PAVEMENT REMOVAL, AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. ALL AGGREGATE AND BITUMINOUS PAVEMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. REMOVAL AND DISPOSAL OF PAVEMENT SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 2) WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- 3) ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED TO BE THE LATEST STANDARD OF THE DEPARTMENT AT THE TIME OF LETTING.
- 4) THE LOCATION ON THE PLANS OF EXISTING DRAINAGE STRUCTURES, TELEPHONE LINES, ELECTRIC LINES, WATER SERVICE LINES, GAS MAINS, AND OTHER UTILITY FACILITIES AS SHOWN ON THE PLANS ARE BASED ON FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
- 5) THE CONTRACTOR SHALL CONSULT THE ENGINEER IN REGARD TO THE EXACT LENGTH OF PIPE CULVERTS AND PIPE DRAINS BEFORE ORDERING THESE ITEMS.
- 6) THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES

AGGREGATE BASE COURSE	2.05 TON/CU YD
POROUS GRANULAR EMBANKMENT	2.00 TON/CU YD
BITUMINOUS MATERIALS (TACK COAT)	0.025 LB/SQ FT
BITUMINOUS MATERIALS (PRIME COAT)	0.25 LB/SQ FT
HOT-MIX ASPHALT SURFACE COURSE	112 LB/SQ IN
- 7) THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER.

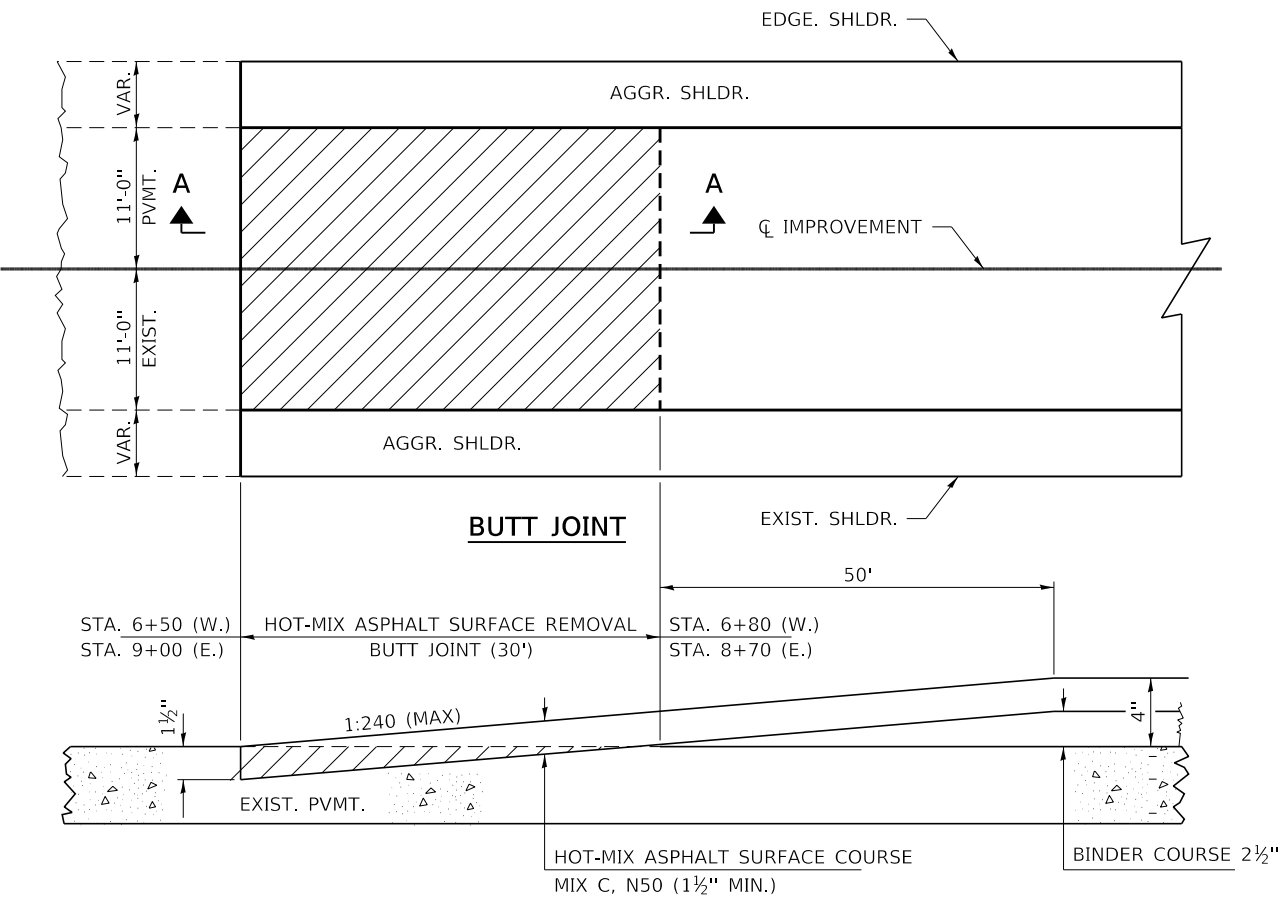
SEEDING, CLASS 2 (SPECIAL) =	0.3 ACRES
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- 8) ONLY SUITABLE MATERIAL FROM EXCAVATIONS MAY BE USED IN THE EMBANKMENT. EXCESS AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR. SAID DISPOSAL SHALL BE INCLUDED IN THE COST OF CONCRETE BOX CULVERTS AND POROUS GRANULAR EMBANKMENT. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 9) EXISTING GUARDRAIL SHALL BE SALVAGED AND DELIVERED TO THE FORD COUNTY HIGHWAY DEPARTMENT.
- 10) THE CONTRACTOR SHALL NOT INSTALL POROUS GRANULAR BACKFILL BEHIND THE CULVERT AND WINGWALLS UNTIL THE SLAB FORMS ARE REMOVED
- 11) COMMITMENTS:
 - 1) NONE

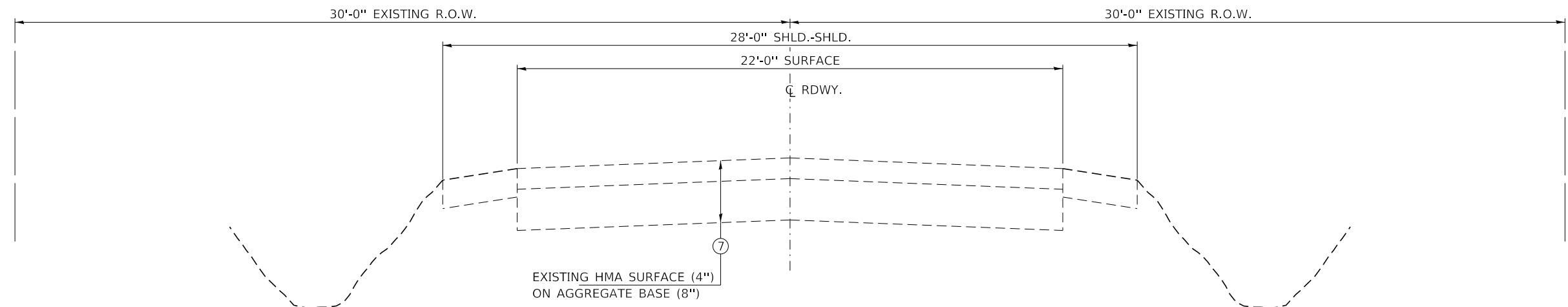
ROADWAY SCHEDULE							
LOCATION	AGGREGATE BASE COURSE, TYPE A	BITUMINOUS MATERIALS (PRIME COAT)	BITUMINOUS MATERIALS (TACK COAT)	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50	AGGREGATE SHOULDERS, TYPE B
	TON	POUND	POUND	SQ YD	TON	TON	TON
THAWVILLE ROAD / CH 21							
STA. 6+50.00 TO STA. 9+00.00	456	1383	138	147	66	51	104
TOTAL	456	1383	138	147	65	51	104

EARTHWORK SCHEDULE							
LOCATION	EARTH EXCAVATION	*MISC. EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	CU.YD.
F.A.S. 337 / C.H. 21							
STA. 6+50.00 TO STA. 7+48.10	60		25.00%	100.00%	45	122	-77
STA. 7+48.10 TO STA. 7+71.90			25.00%	70.00%	0		0
STA. 7+71.90 TO STA. 9+00.00	78		25.00%	100.00%	59	197	-138
*EXCAVATION FOR CULVERT/BACKFILL		400	25.00%	100.00%	300		300
TOTAL	139	400			404	319	85
USE	139	400					85

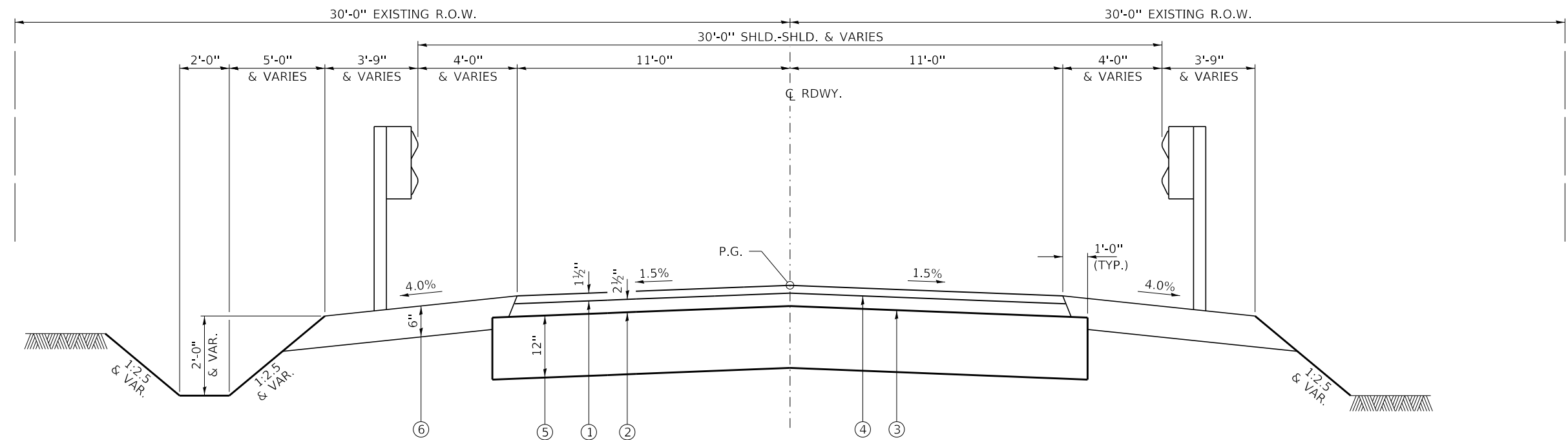
*INCLUDES THE EXCAVATION FOR THE CONCRETE BOX CULVERT. COST OF EXCAVATION IS INCLUDED IN THE POROUS GRANULAR EMBANKMENT AND CONCRETE BOX CULVERTS. WASTE 85 CU YDS

HOT-MIX ASPHALT MIXTURE REQUIREMENTS		
LOCATIONS(S)	F.A.S. 337 / C.H. 21	F.A.S. 337 / C.H. 21
MIXTURE USE(S):	HOT-MIX ASPHALT SURFACE COURSE	HOT MIX ASPHALT BINDER COURSE
PG:	PG 64-22	PG 64-22
DESIGN AIR VOIDS:	4% @ 50 Gyr.	4% @ 50 Gyr.
MIXTURE COMPOSITION: (MIXTURE GRADATION)	IL 9.5	IL 19.0
FRICITION AGGREGATE:	MIXTURE C	NONE
MIXTURE WEIGHT:	112 LBS \ SY \ INCH THICKNESS	112 LBS \ SY \ INCH THICKNESS
QUALITY MANAGEMENT PROGRAM	QC/QA	QC/QA
SUBLOT SIZE	NA	NA
DENSITY TEST METHOD	NUCLEAR	NUCLEAR
MATERIAL TRANSFER DEVICE	NO	NO





EXISTING TYPICAL CROSS SECTION
STA. 6+50 TO STA. 9+00



PROPOSED TYPICAL CROSS SECTION
STA. 6+50.00 TO STA. 9+00

SEE BUTT JOINT DETAIL
AGGREGATE BASE SHALL BE CONSTRUCTED AT FULL WIDTH
FOR THE LENGTH OF THE IMPROVEMENT

LEGEND

- ① HMA SURFACE COURSE, IL-9.5, MIX C, N50 (1½" THICKNESS)
- ② HMA BINDER COURSE, IL-19.0, N50 (2½" THICKNESS)
- ③ BITUMINOUS MATERIALS (PRIME COAT)
- ④ BITUMINOUS MATERIALS (TACK COAT)
- ⑤ AGGREGATE BASE COURSE, TYPE A (12")
- ⑥ AGGREGATE SHOULDERS, TYPE B (6")
- ⑦ EXISTING HMA SURFACE (4") ON AGGREGATE BASE (8")

SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

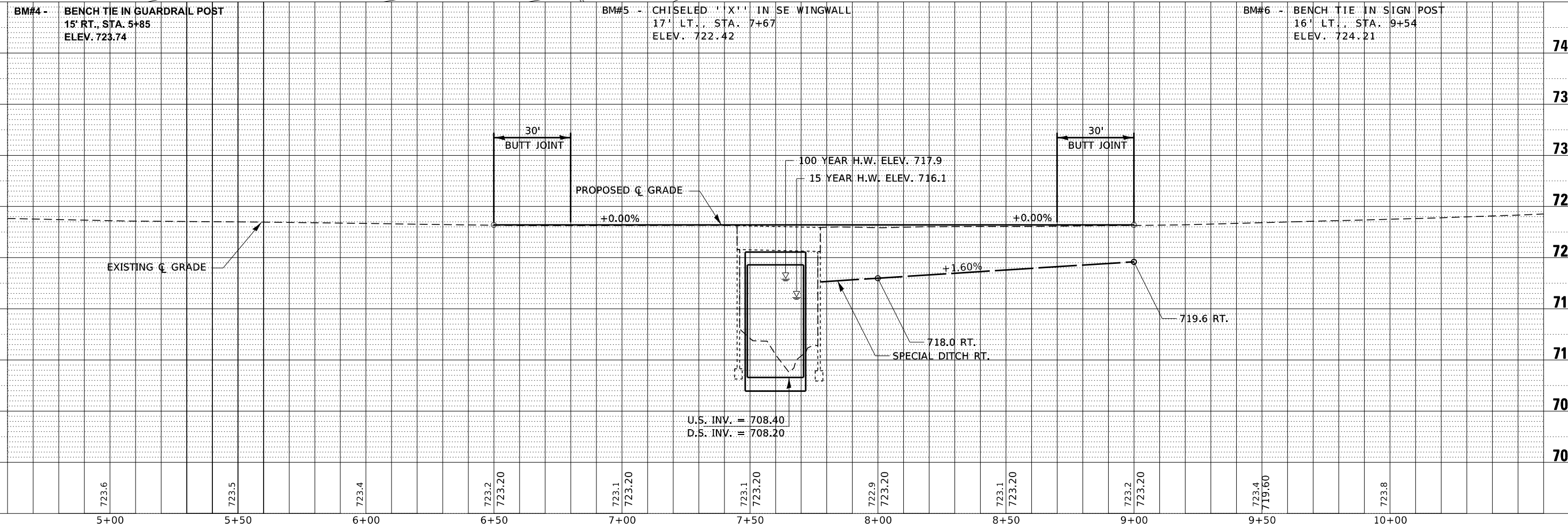
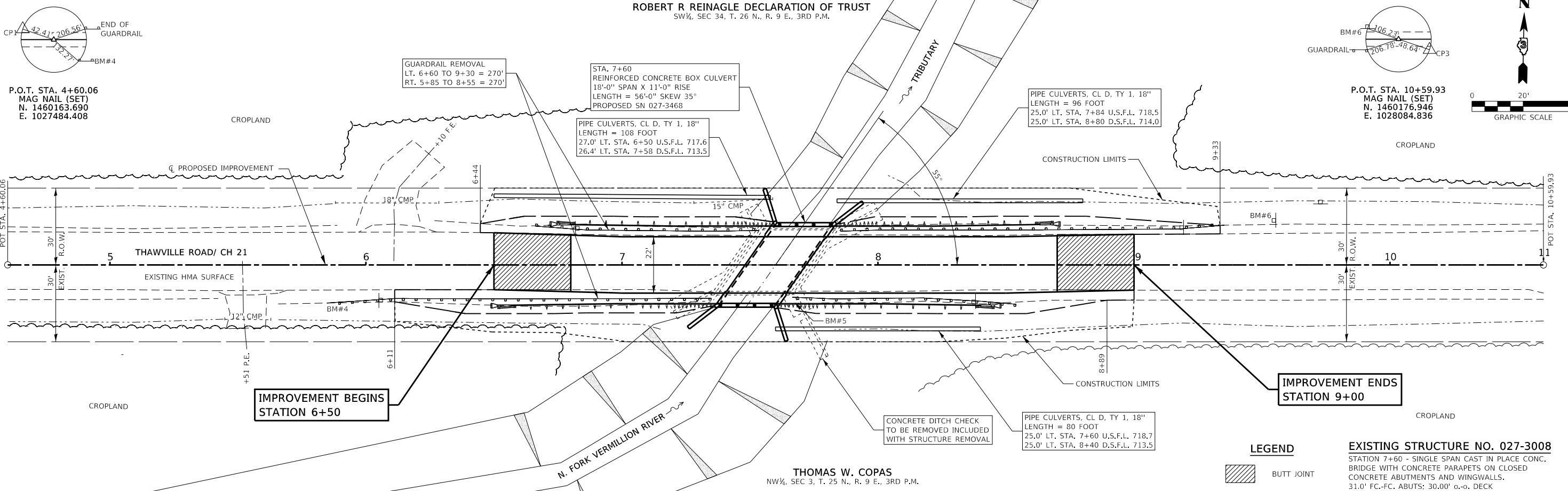
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HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	DRAWN - D.M.F.	REVISED -		337	21-00143-00-BR	FORD	21	4		
PLOT DATE = 4/11/2024	DATE = 04/05/2024	CHECKED - X.X.X.	REVISED -		THAWVILLE ROAD / C.H. 21		CONTRACT NO. 87819				
		DATE = 04/05/2024	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA. 6+50 TO STA. 9+00	C-93-006-24	ILLINOIS FED. AID PROJECT W7U0(661)		

DATE	
BY	
REVIEWED	
PLANNED	
NOTED	
NO.	

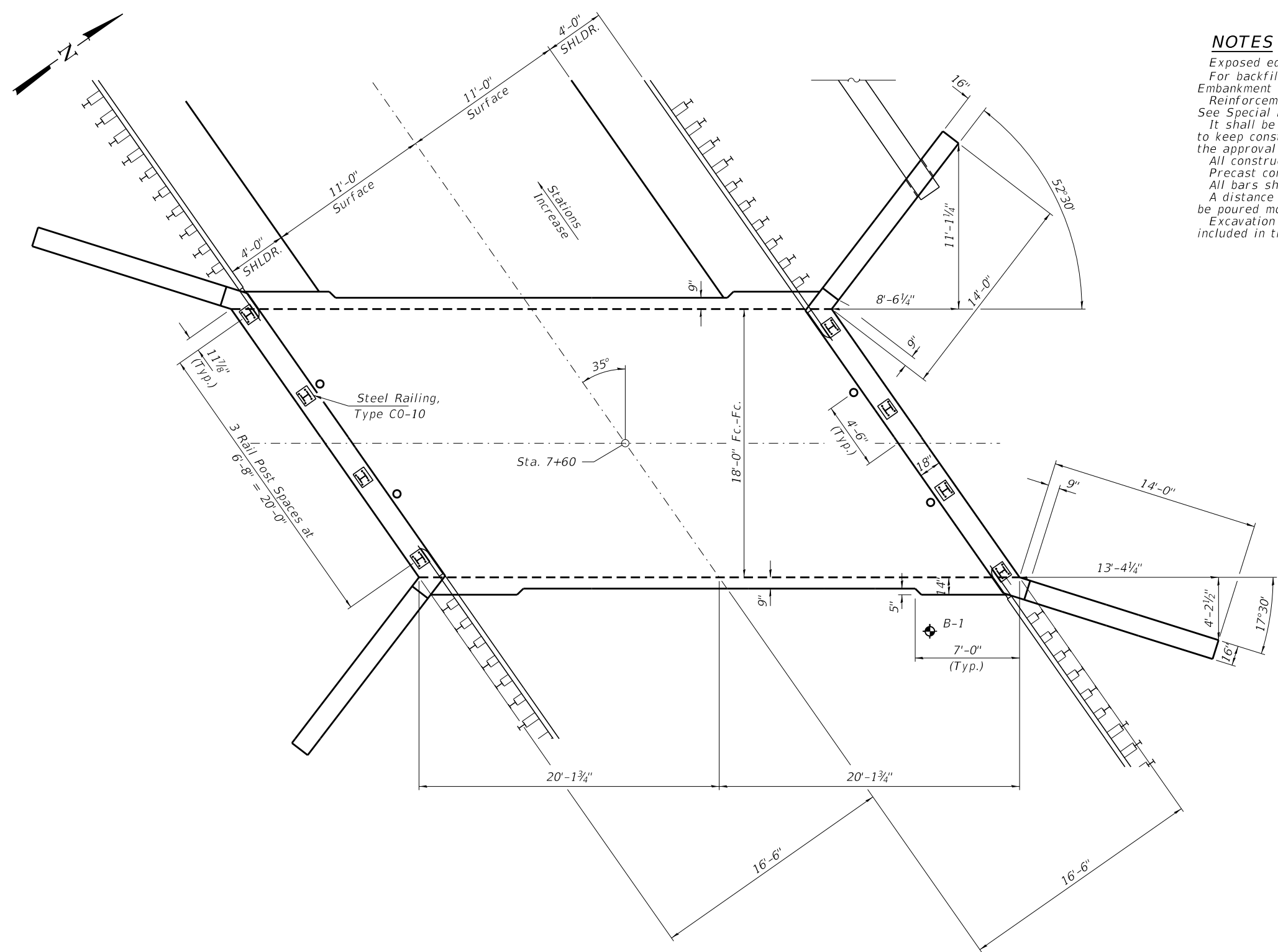
DATE	
BY	
REVIEWED	
PLANNED	
NOTED	
NO.	

ROBERT R REINAGLE DECLARATION OF TRUST
SW 1/4, SEC 34, T. 26 N., R. 9 E., 3RD P.M.

THOMAS W. COPAS
NW 1/4, SEC 3, T. 25 N., R. 9 E., 3RD P.M.



FILE NAME = 230366-sht-plnprf.dgn	USER NAME = dfoley	DESIGNED - S.A.A.	REVISIONS -	SCALE: 5V:20H	SHEET NO. 1 OF 1 SHEETS	STA. 4+60.06 TO STA. 10+59.93	F.A.S. 337	SECTION 21-00143-00-BR	COUNTY FORD	TOTAL SHEETS 21	SHEET NO. 5
HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / SE CORP. 184.000959		DRAWN - J.B.L. CHECKED - J.W.F. DATE - 04/05/2024	REVISIONS - REVISIONS - REVISIONS - REVISIONS -	STATE OF ILLINOIS FORD COUNTY HIGHWAY DEPARTMENT			PLAN & PROFILE THAWVILLE ROAD	CONTRACT NO. 87819 ILLINOIS FED. AID PROJECT W7U0(661)			



NOTES

Exposed edges shall be beveled 3/4".
 For backfilling and embankment, see Standard Specifications, except that Porous Granular Embankment shall be placed as shown in backfill detail for the full length of the culvert.
 Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60. See Special Provisions.
 It shall be the responsibility of the Contractor to divert flow during construction in order to keep construction areas free of water. The method of water diversion shall be subject to the approval of the Engineer and shall be included in the cost of Concrete Box Culverts.
 All construction joints shall be bonded.
 Precast concrete box culverts shall not be allowed.
 All bars shall be epoxy coated.
 A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
 Excavation required to construct the Concrete Box Culvert and backfill material shall be included in these items. Additional compensation will not be allowed.

INDEX OF STRUCTURE SHEETS

- 1-5. Culvert Details
- 6. Steel Railing, Type C0-10
- 7. Borings

BUILT 202 BY
 FORD COUNTY
 SEC. 21-00143-00-BR
 STR. NO. 027-3468
 LOADING HL-93
 F.A.S. 337 / CH 21

NAME PLATE

See Std. 515001

MIN. BAR LAP

#5 = 2'-7"

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition with all interims.

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

f_y = 60,000 psi (Reinforcement)
 f_c = 3,500 psi

WATERWAY INFORMATION

Drainage Area = 1.4 Sq. Mi.		Existing Low Grade Elev. 722.9 @ Sta. 8+00 Proposed Low Grade Elev. 723.2 @ Sta. 8+00							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Nat. H.W.E.	Head - Ft. Exist.	Prop.	Headwater El. Exist.	Prop.
Ten-Year	10	586	110	120	715.7	0.2	0.0	715.9	715.7
Design	15	680	120	130	716.1	0.2	0.0	716.3	716.1
Base	100	1170	160	160	717.9	0.5	0.3	718.4	718.2
Scour Check	200	1360	170	170	718.4	0.7	0.5	719.1	718.9
Max. Calc.	500	1620	190	180	719.1	0.9	0.9	720.0	720.0

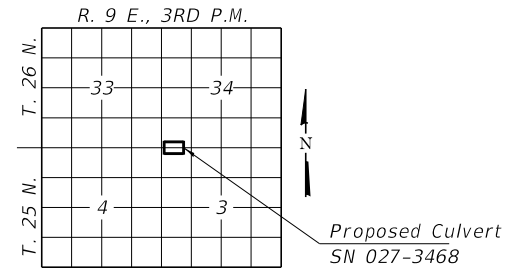
10 Year Velocity Through Existing Bridge = 5.3 fps 10 Year Velocity Through Proposed Bridge = 4.8 fps

I certify that to the best of my knowledge, information and belief, this culvert design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

Steven W. Megginson 04/05/2024
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2024



LOCATION SKETCH

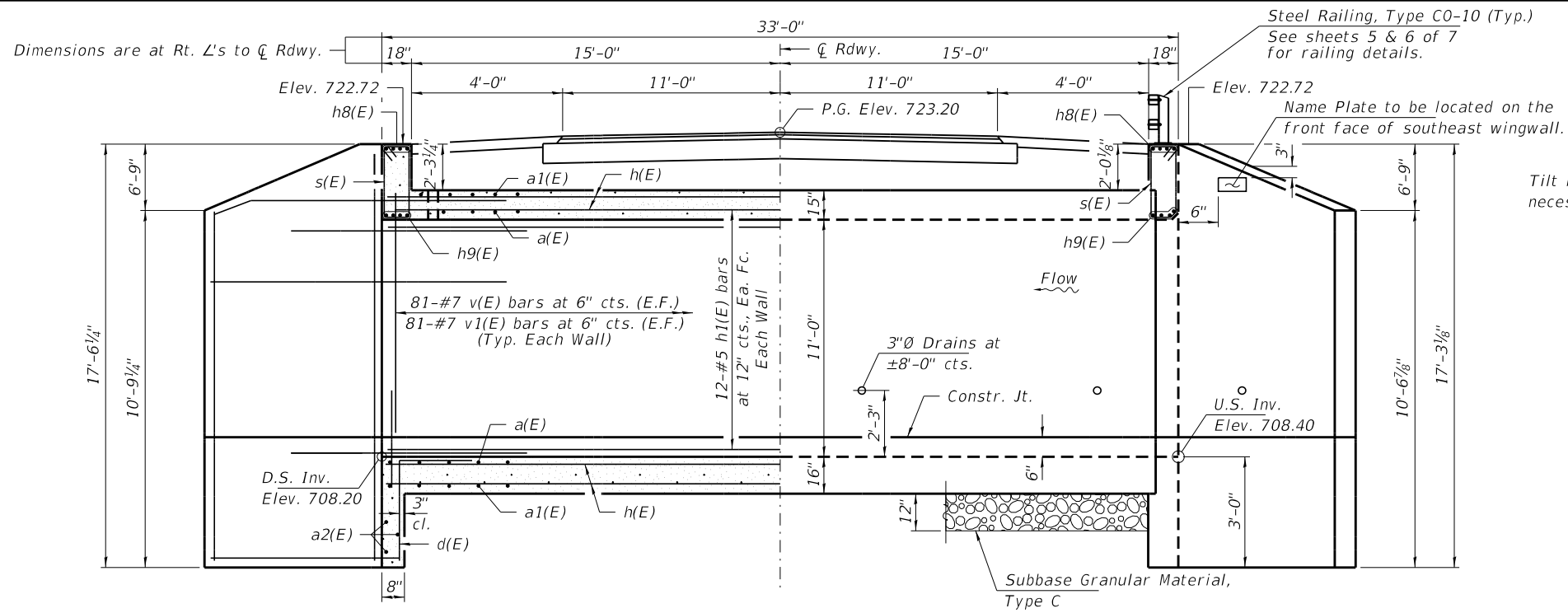
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PLOT DATE = 4/11/2024		DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

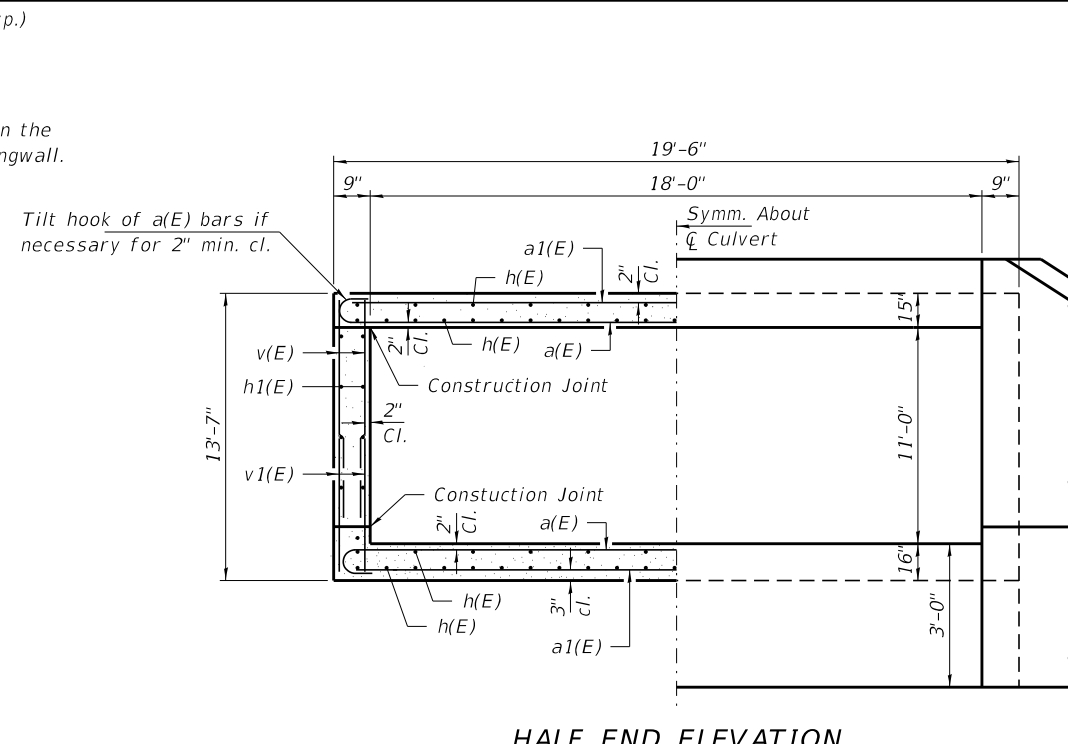
CULVERT DETAILS
 STRUCTURE NO. 027-3468

SHEET NO. 1 OF 7 SHEETS

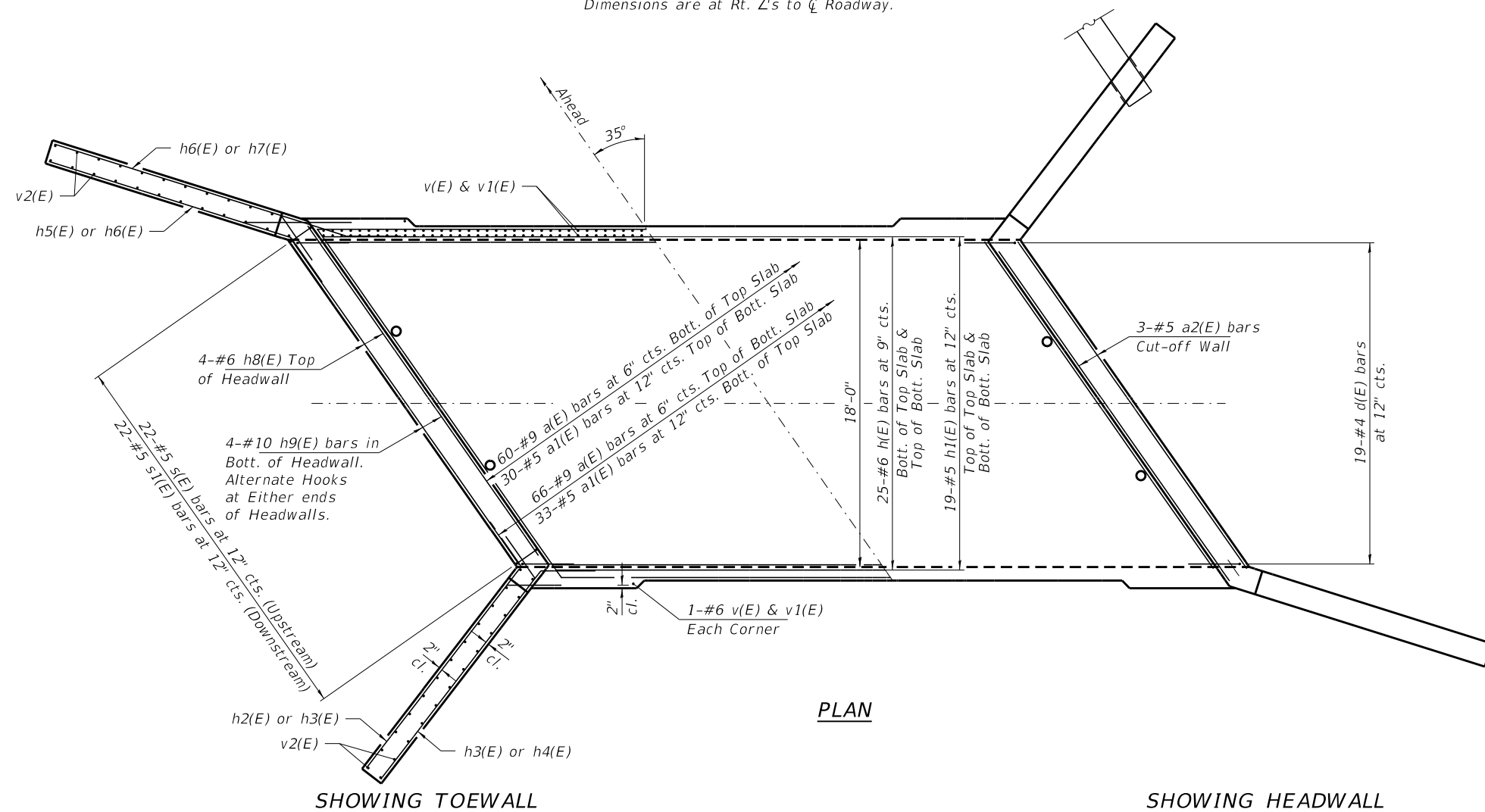
F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
337	21-00143-00-BR	FORD	21	6
THAWVILLE ROAD / CH 21		CONTRACT NO. 87819		
C-93-006-24	ILLINOIS FED. AID PROJECT W7U0(661)			



HALF LONG SECTION Showing Reinforcement
HALF ELEVATION Showing Outlines
 Dimensions are at Rt. L's to C Roadway.



HALF END ELEVATION
 Showing Outlines



SHOWING TOEWALL **SHOWING HEADWALL**
PLAN

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	126	#9	25'-10"	
a1(E)	63	#5	23'-4"	
a2(E)	6	#4	23'-4"	
d(E)	38	#4	4'-5"	
h(E)	50	#6	39'-11"	
h1(E)	86	#5	39'-11"	
h2(E)	44	#7	15'-9"	
h3(E)	24	#7	16'-11"	
h4(E)	50	#7	17'-5"	
h5(E)	44	#7	17'-2"	
h6(E)	24	#7	16'-0"	
h7(E)	50	#7	19'-10"	
h8(E)	8	#6	21'-11"	
h9(E)	8	#10	23'-4"	
h10(E)	32	#4	3'-7"	
s(E)	22	#5	9'-11"	
s1(E)	22	#5	9'-3"	
v(E)	328	#7	10'-7"	
v1(E)	328	#7	5'-10"	
v2(E)	96	#4	15'-8"	
Subbase Granular Material, Type C			Ton	84
Stone Dumped Riprap, Class A4			Sq. Yd.	119
Removal of Existing Structures			Each	1
Reinf. Bars, Epoxy Coated			Pound	41,360
Name Plates			Each	1
Concrete Box Culverts			Cu. Yd.	151.7
Porous Granular Embankment, Special			Ton	460
Membrane Waterproofing System For Buried Structures			Sq. Yd.	100

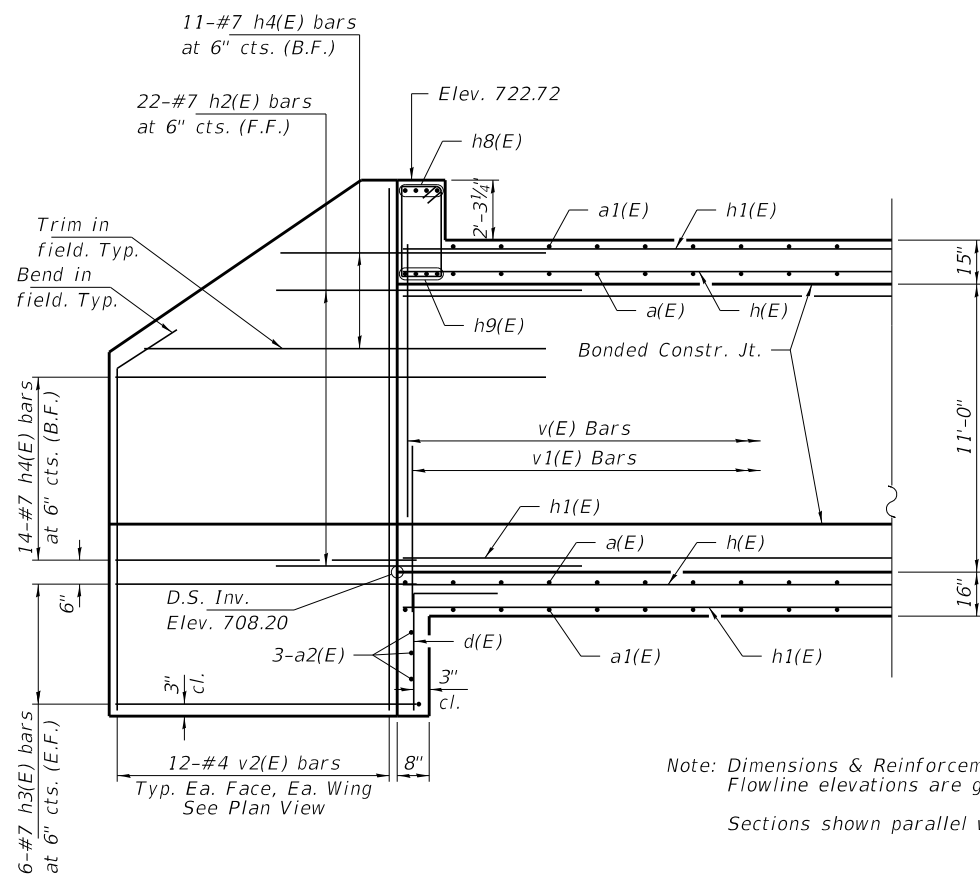
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 DRAWN - R.D.H.
 CHECKED - S.W.M.
 PLOT SCALE =
 PLOT DATE = 4/11/2024

DESIGNED - J.W.F.
 CHECKED - S.W.M.
 DRAWN - R.D.H.
 CHECKED - S.W.M.
 PLOT SCALE =
 PLOT DATE = 4/11/2024

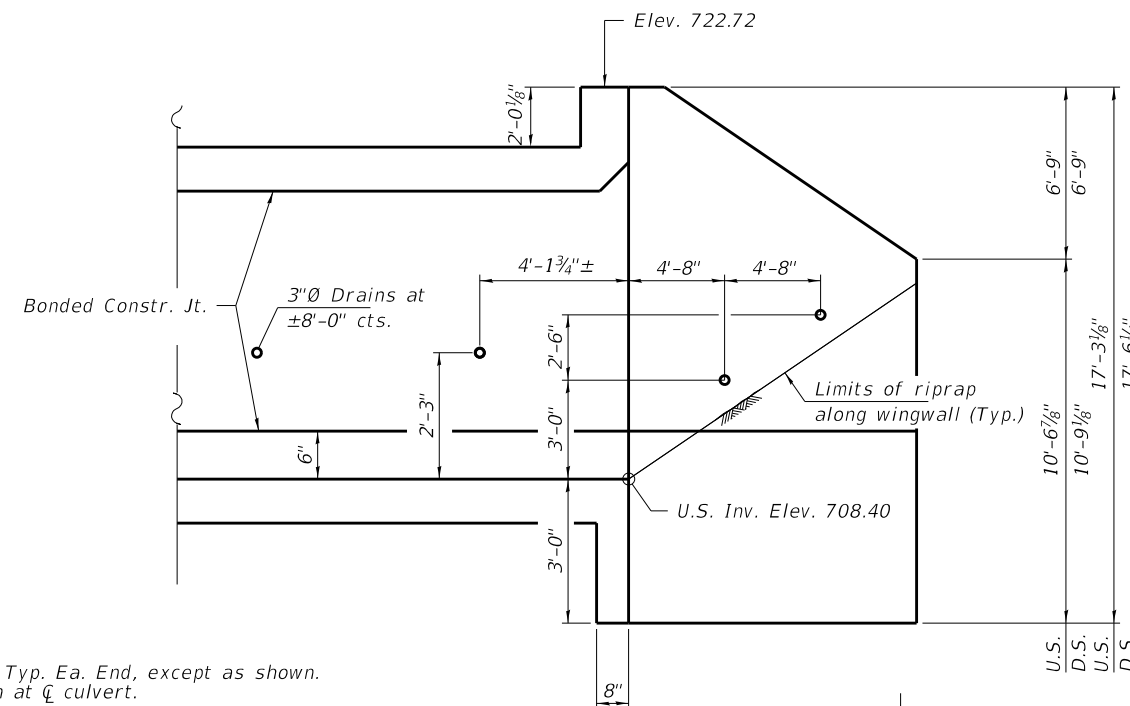
STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

CULVERT DETAILS
 STRUCTURE NO. 027-3468
 SHEET NO. 2 OF 7 SHEETS

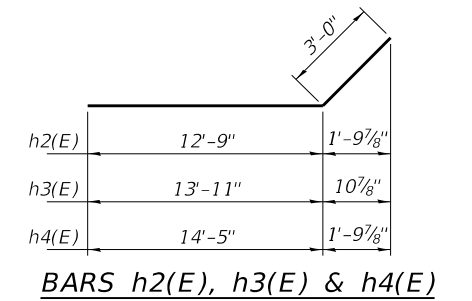
F.A.S. SECTION COUNTY TOTAL SHEETS SHEET NO.
 337 21-00143-00-BR FORD 21 7
 THAWVILLE ROAD / CH 21 CONTRACT NO. 87819
 C-93-006-24 ILLINOIS FED. AID PROJECT W7U0(661)



**WINGWALL ELEVATION - SHOWING REINFORCEMENT
NORTHWEST & SOUTHEAST WINGWALLS**



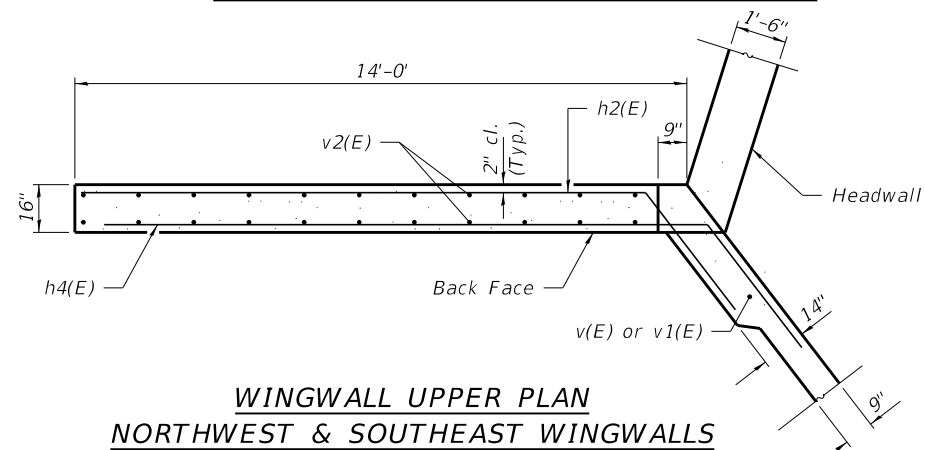
WINGWALL ELEVATION



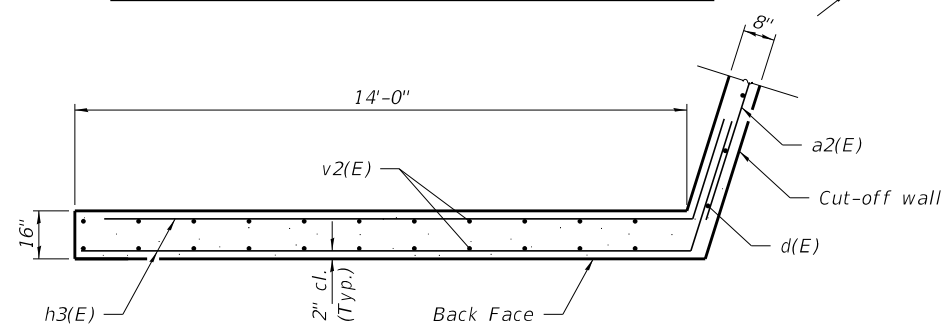
Note: Dimensions & Reinforcement Typ. Ea. End, except as shown.
Flowline elevations are given at ϕ culvert.
Sections shown parallel with ϕ culverts.

NOTES

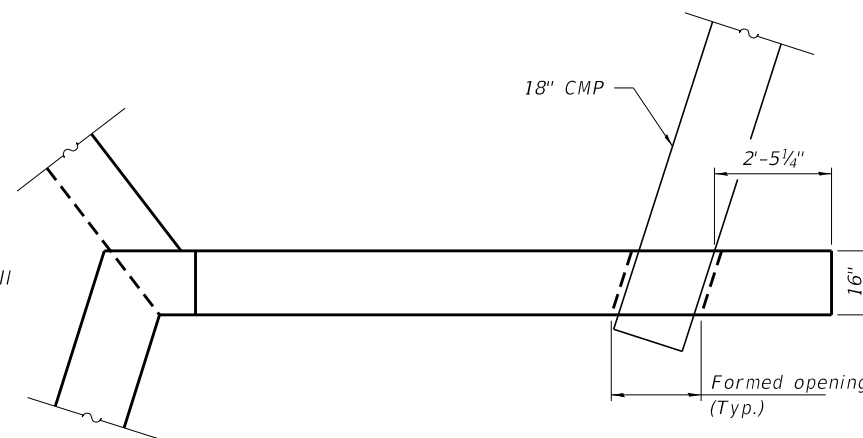
1. For Bill of Material and reinforcement bars summary see sheet 1 of 7.
2. B.F. denotes Back Face, F.F. denotes Front Face and E.F. denotes Each Face.



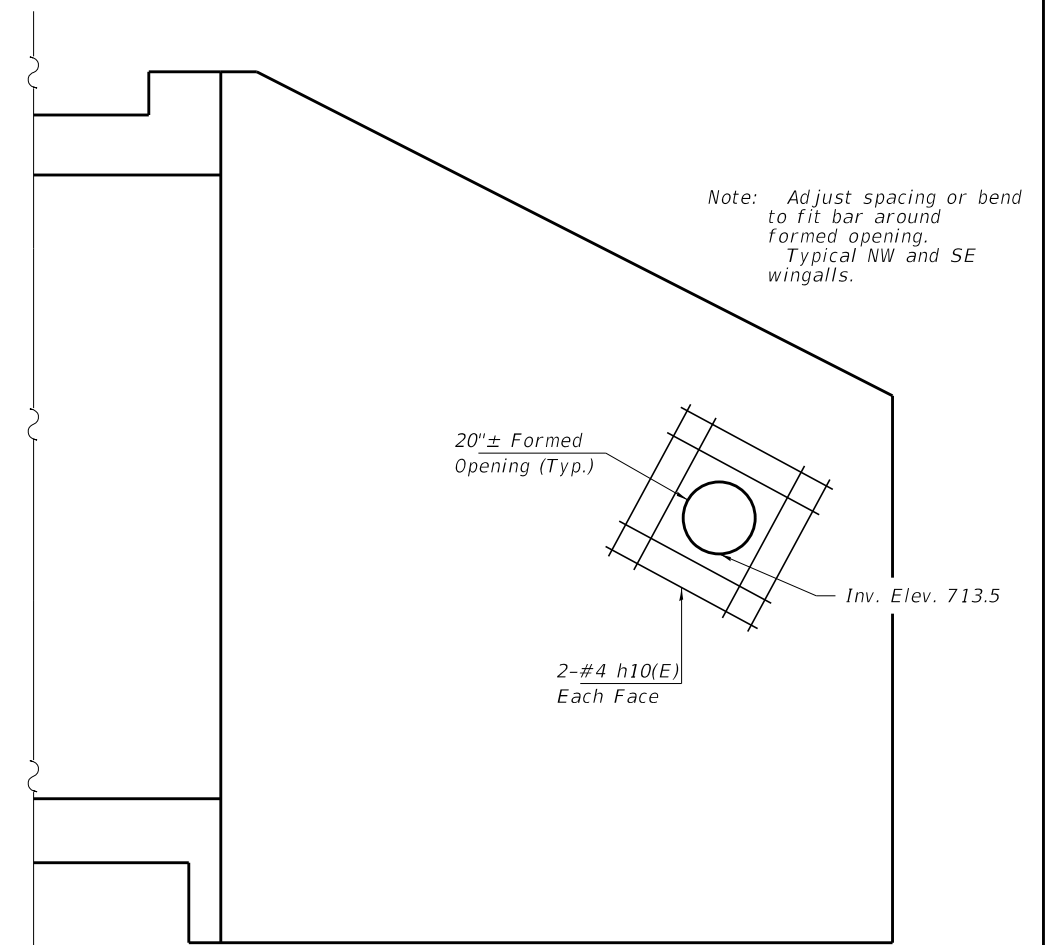
**WINGWALL UPPER PLAN
NORTHWEST & SOUTHEAST WINGWALLS**



**WINGWALL LOWER PLAN
NORTHWEST & SOUTHEAST WINGWALLS**

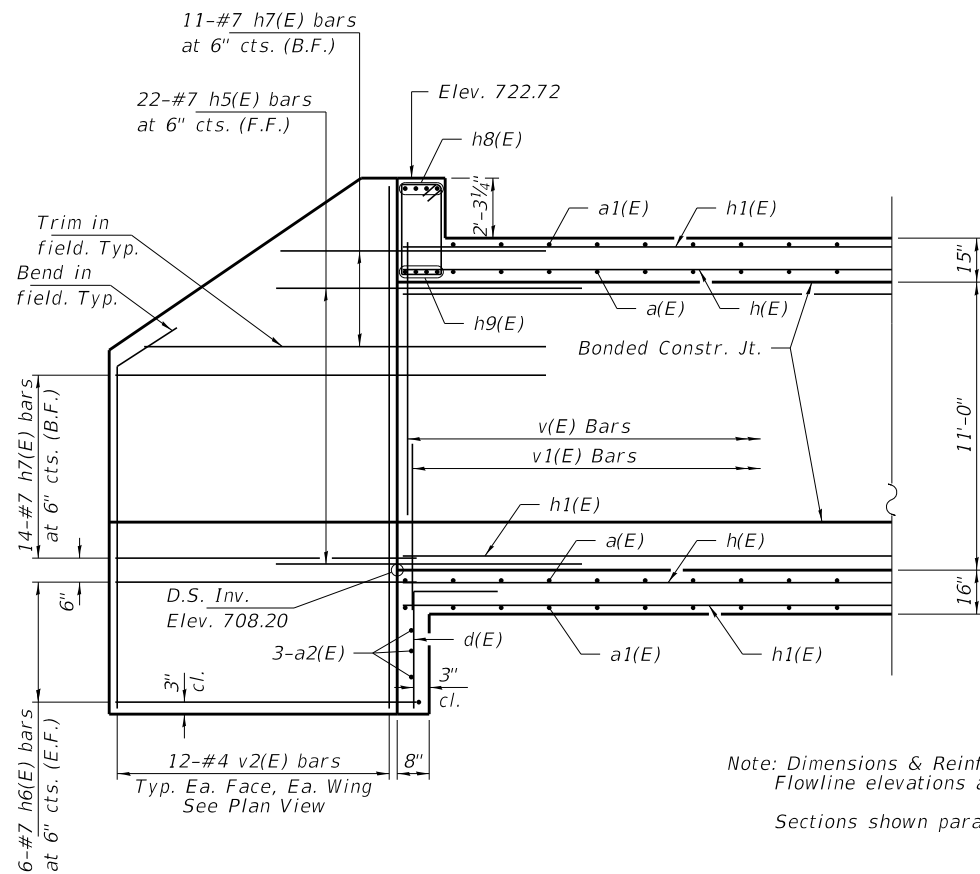


NORTHWEST WINGWALL PLAN

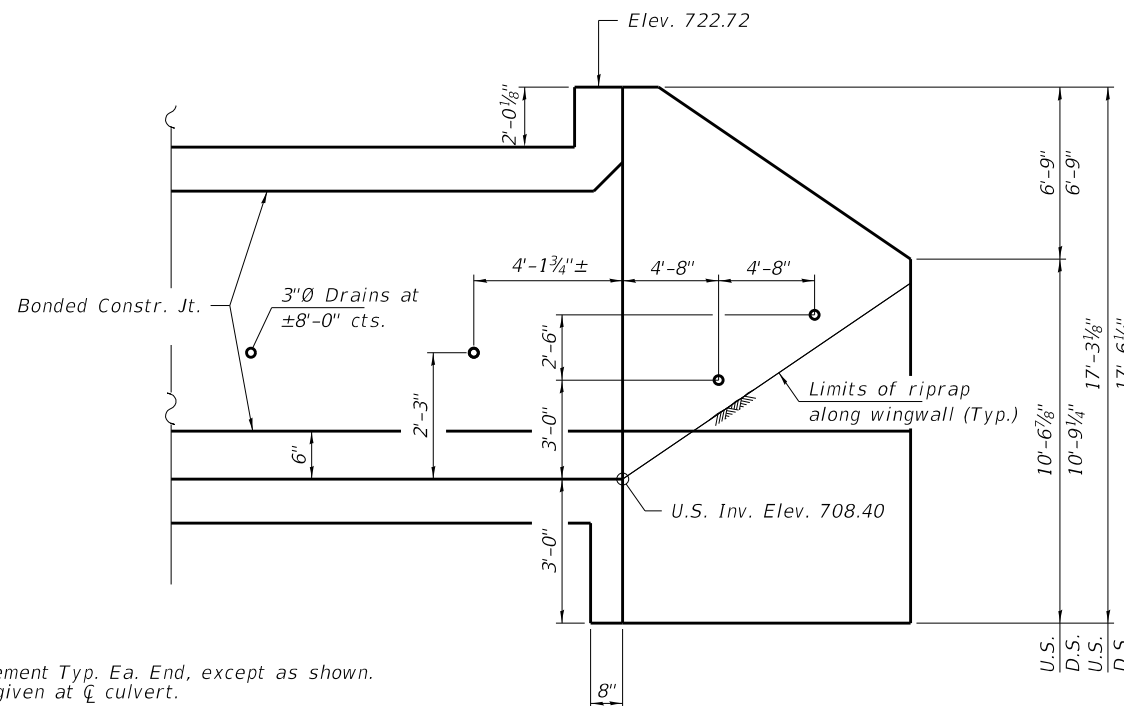


NORTHWEST WINGWALL ELEVATION

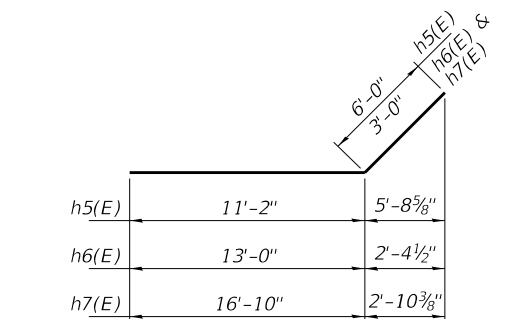
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HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			337	21-00143-00-BR	FORD	21	8	
	PLOT DATE = 4/11/2024	DRAWN - R.D.H.	REVISED -			THAWVILLE ROAD / CH 21 CONTRACT NO. 87819					
		CHECKED - S.W.M.	REVISED -			C-93-006-24 ILLINOIS FED. AID PROJECT W7U0(661)					



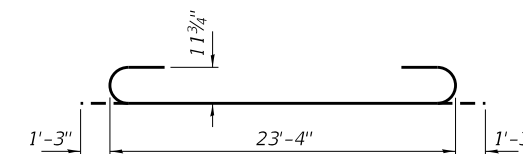
**WINGWALL ELEVATION - SHOWING REINFORCEMENT
NORTHEAST & SOUTHWEST WINGWALLS**



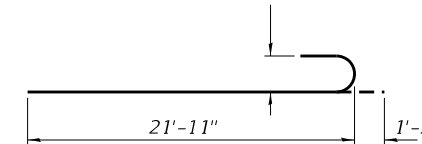
WINGWALL ELEVATION



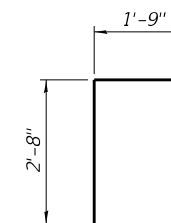
BARS h5(E), h6(E) & h7(E)



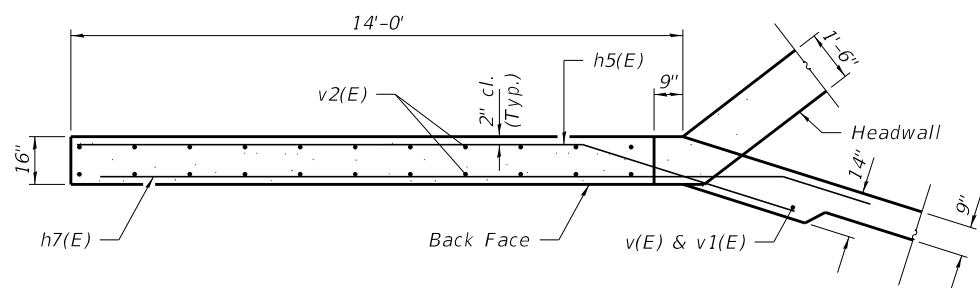
BAR a(E)



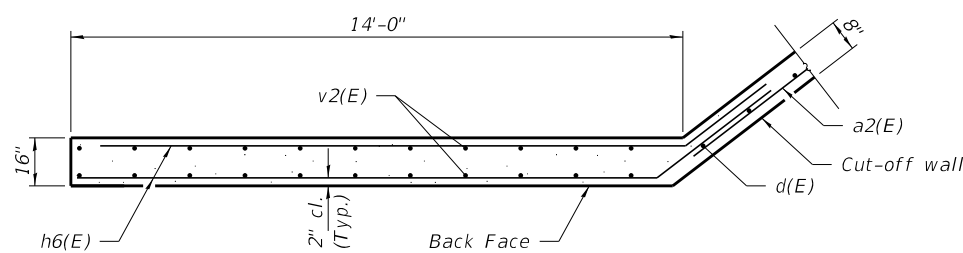
BAR h9(E)



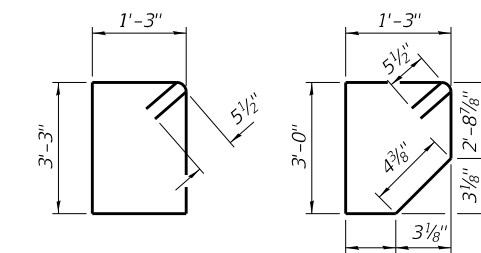
BAR d(E)



**WINGWALL UPPER PLAN
NORTHEAST & SOUTHWEST WINGWALLS**



**WINGWALL LOWER PLAN
NORTHEAST & SOUTHWEST WINGWALLS**



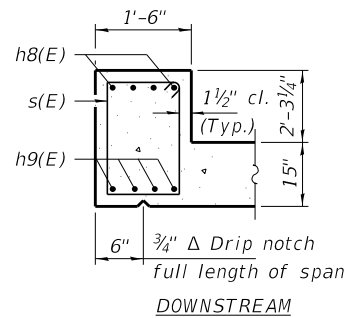
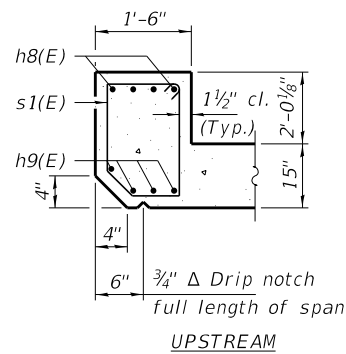
BAR s(E)

BAR s1(E)

NOTES

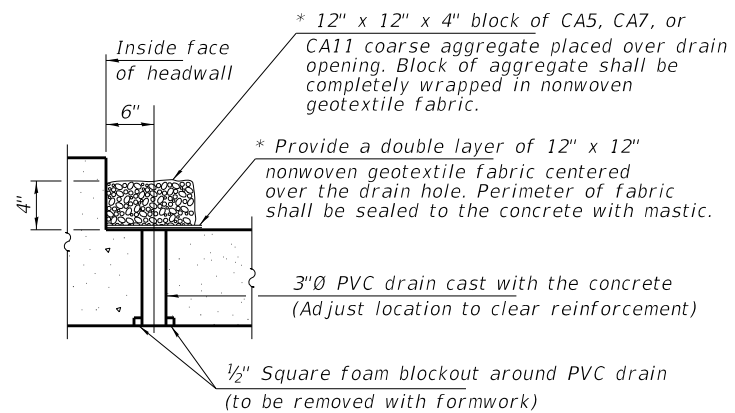
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2. B.F. denotes Back Face, F.F. denotes Front Face and E.F. denotes Each Face.

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HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			337	21-00143-00-BR	FORD	21	9	
	PLOT DATE = 4/11/2024	DRAWN - R.D.H.	REVISED -			THAWVILLE ROAD / CH 21 CONTRACT NO. 87819					
		CHECKED - S.W.M.	REVISED -			C-93-006-24 ILLINOIS FED. AID PROJECT W7U0(661)					



SECTION THRU HEADWALL

* Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.

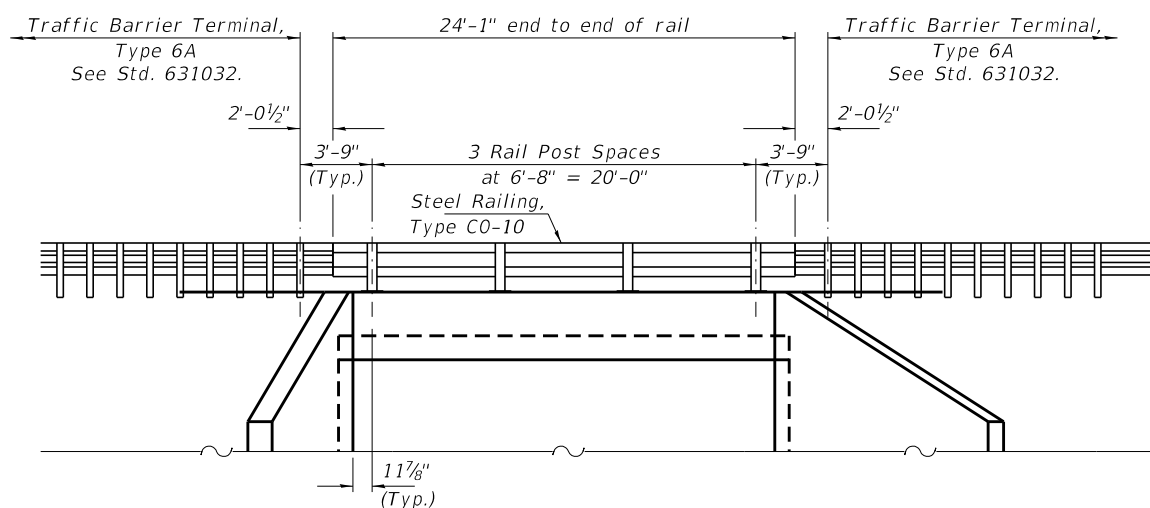
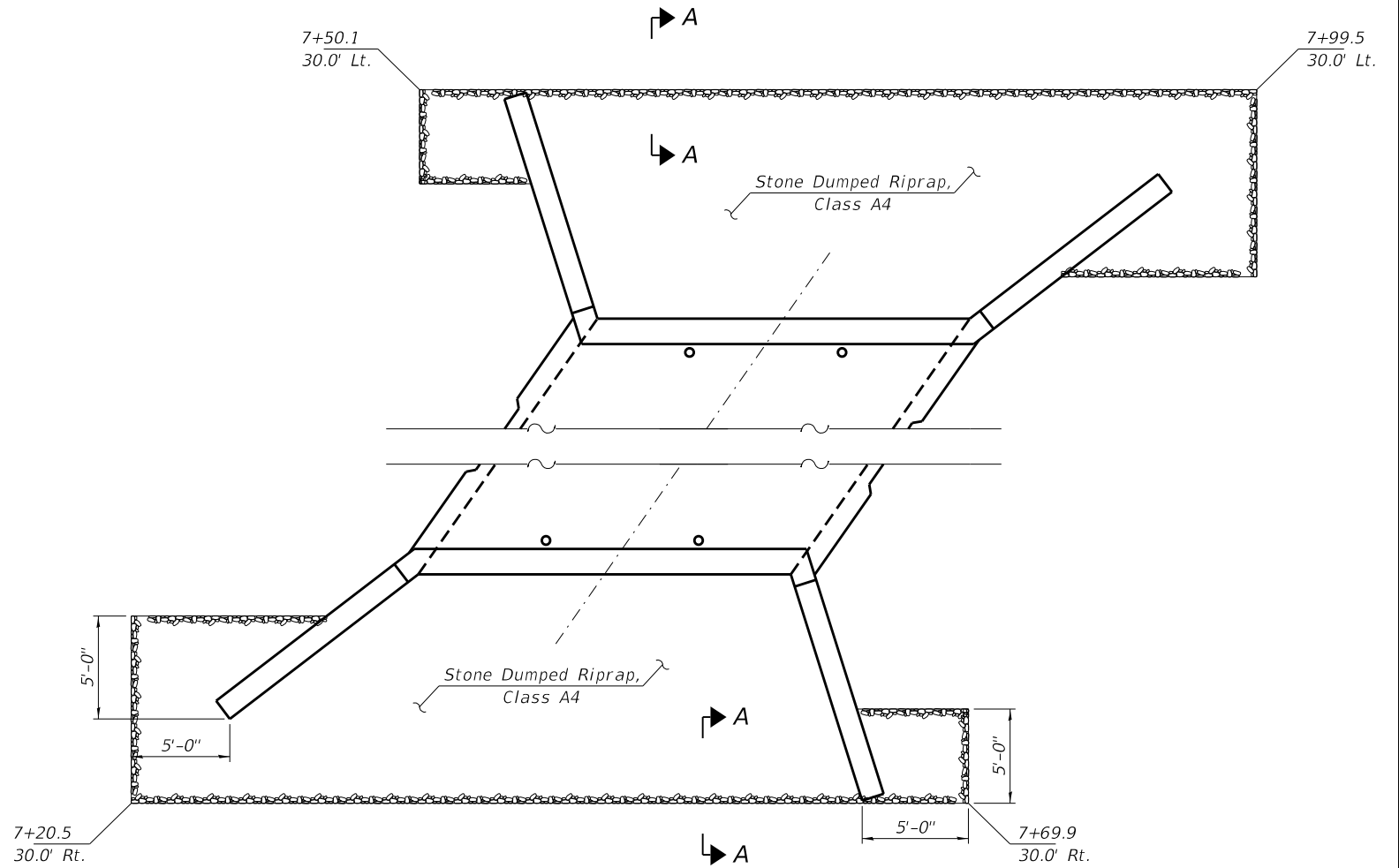


DRAIN DETAIL

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for Concrete Box Culverts.)

Drains shall be installed in each span near head walls. See Plan view

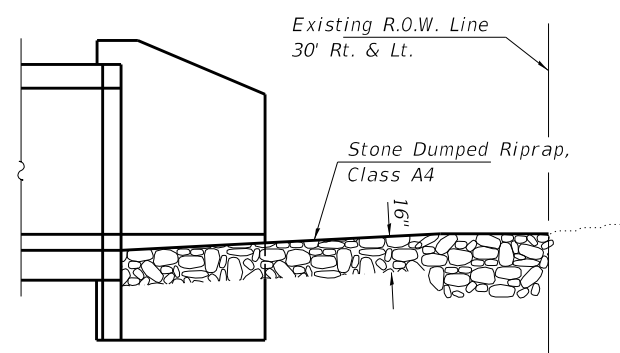
Membrane waterproofing shall be omitted for the fabric, drain and aggregate block.



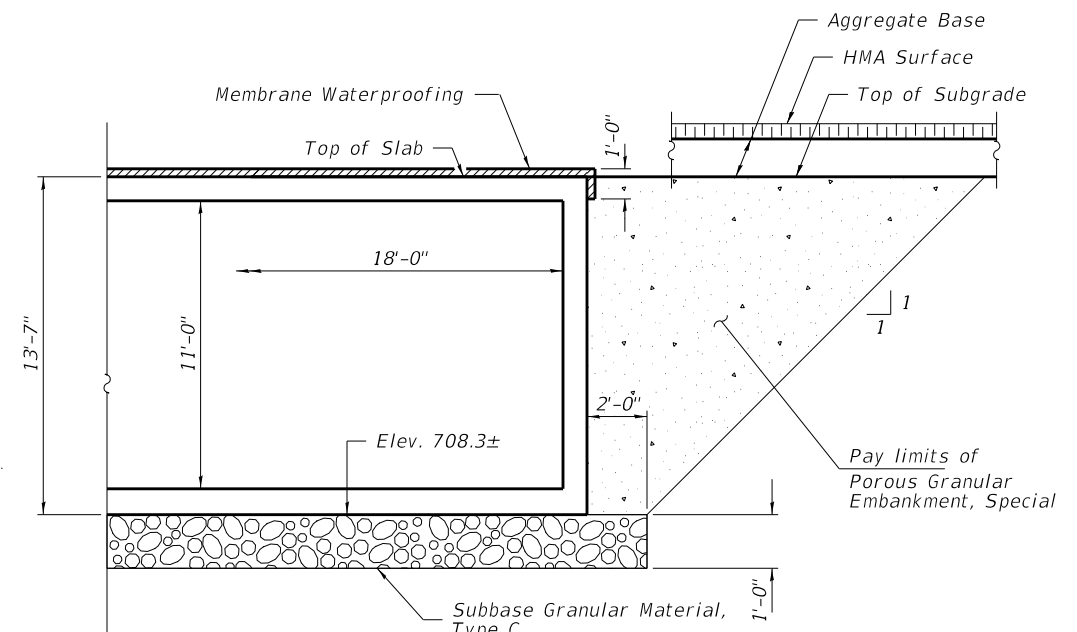
ELEVATION

Showing Rail Post Spaces

See sheet 6 of 7 for Railing Details.



SECTION A-A



BACKFILL DETAIL

Note: Porous Granular Embankment to extend o.-o. headwalls and taper along wingwalls. 18" clay cap shall be placed behind wingwalls to seal PGE.

FILE NAME = 230366-shl-culvert.dgn	USER NAME = cfoley	DESIGNED - J.W.F.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 4/11/2024	DRAWN - R.D.H.	REVISED -
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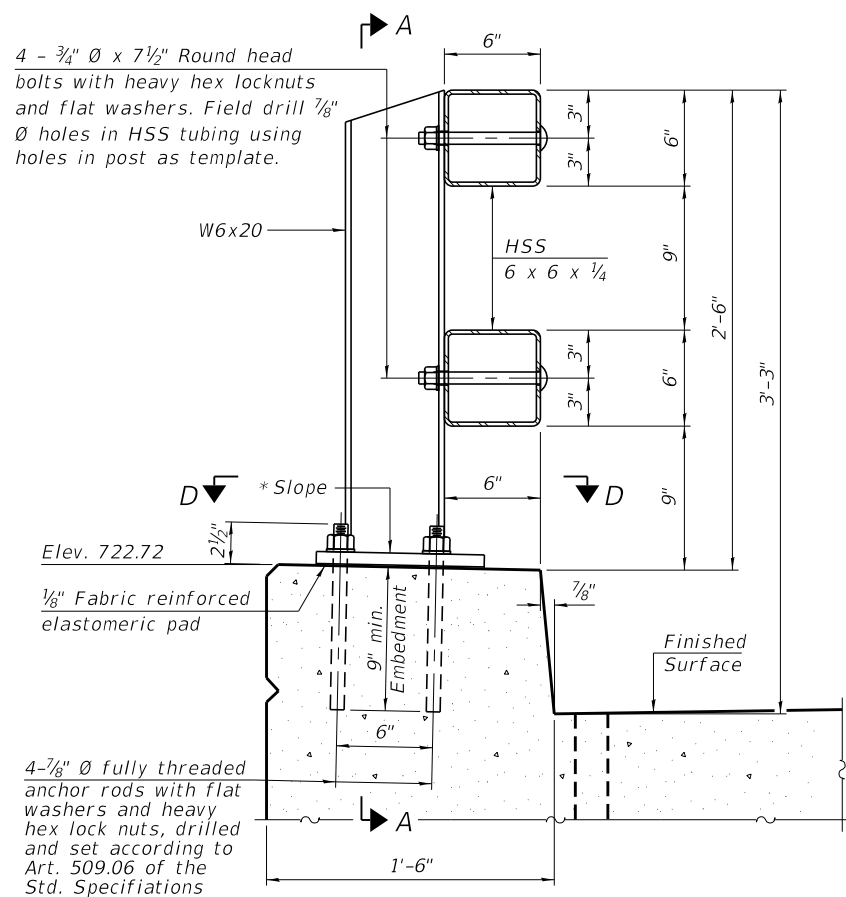
**STATE OF ILLINOIS
FORD COUNTY HIGHWAY DEPARTMENT**

**CULVERT DETAILS
STRUCTURE NO. 027-3468**

SHEET NO. 5 OF 7 SHEETS

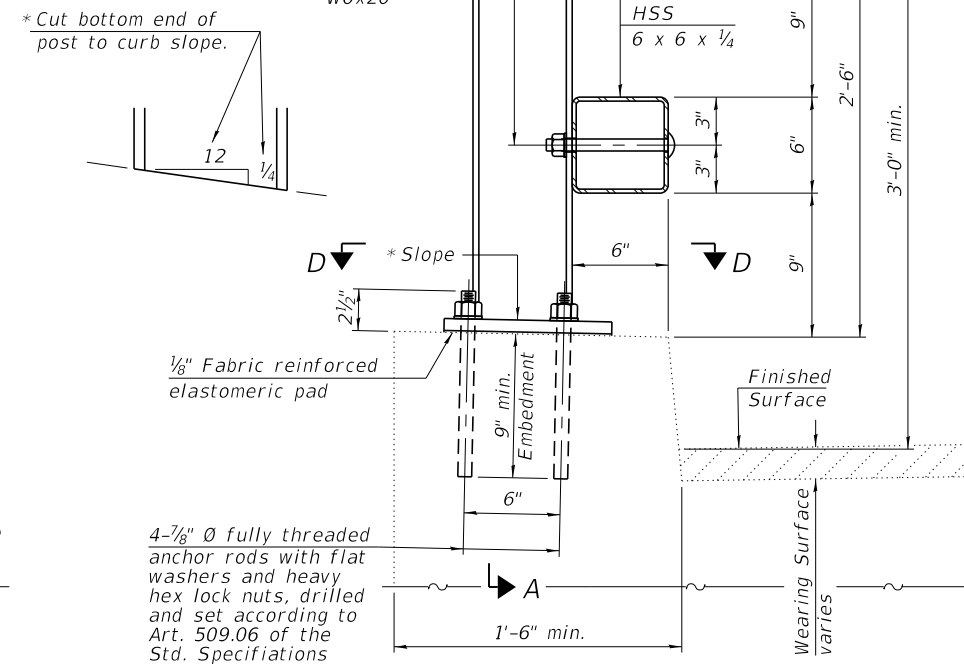
F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
337	21-00143-00-BR	FORD	21	10
THAWVILLE ROAD / CH 21		CONTRACT NO. 87819		
C-93-006-24	ILLINOIS FED. AID PROJECT W7U0(661)			

4 - 3/4" Ø x 7 1/2" Round head bolts with heavy hex locknuts and flat washers. Field drill 7/8" Ø holes in HSS tubing using holes in post as template.

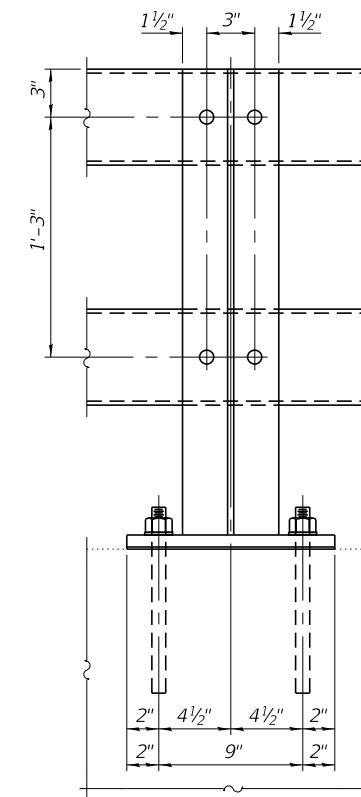


SECTION AT RAIL POST
(New construction)

4 - 3/4" Ø x 7 1/2" Round head bolts with heavy hex locknuts and flat washers. Field drill 7/8" Ø holes in HSS tubing using holes in post as template.

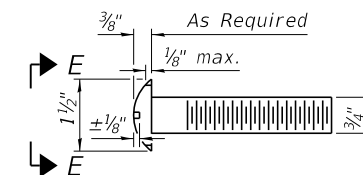


SECTION AT RAIL POST
(Retrofit construction)

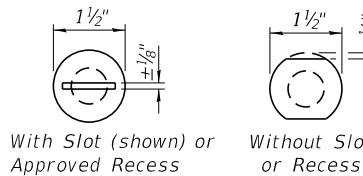


SECTION A-A

Notes:
 All HSS tubing shall be ASTM A500 grade C.
 All plates shall be AASHTO M270 grade 50.
 All heavy hex nuts shall be according to ASTM A563 grade DH.
 All fully threaded anchor rods shall be ASTM F1554 grade 105.
 The post base plate shall be fastened to the curb snug tight and given an additional 1/8" turn.
 Posts shall not be located closer than 2'-6" to a bridge expansion joint.
 Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 All HSS tubing shall be CVN tested according to Article 1006.34(b) of the Standard Specifications.
 Rail splice inserts may be built out of 2 - 3/8" bent plates in lieu of the 4 plate rail splice inserts shown, provided the outside dimensions are matched.
 All round head bolts shall be ASTM A449.
 The centerline of rail splices shall be placed between 1'-8" to 2'-6" from the centerline of the posts. The free end of the splice tube shall be oriented away from the closest post.

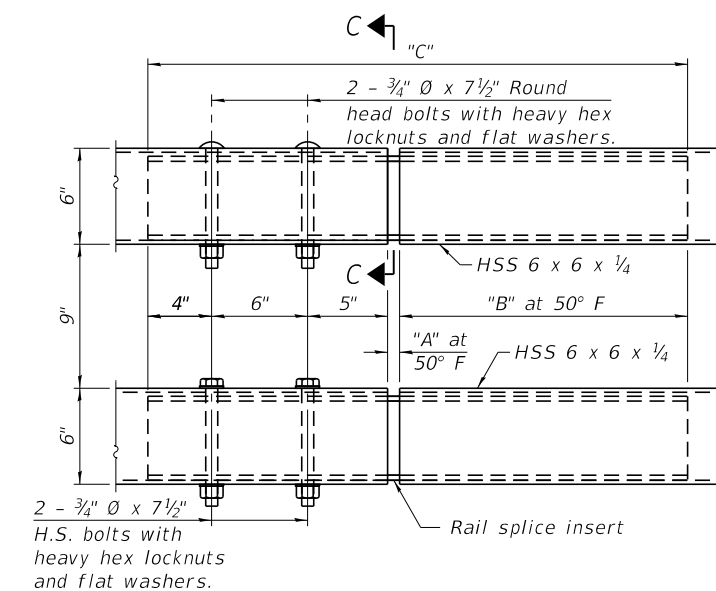


ROUND HEAD BOLT DETAIL

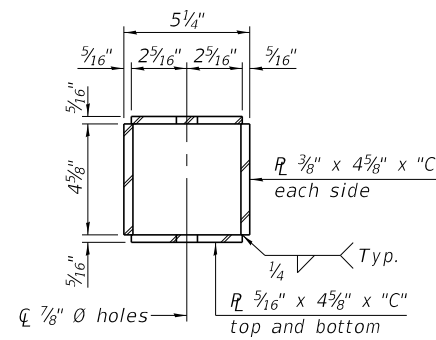


VIEW E-E

4 - 7/8" Ø fully threaded anchor rods with flat washers and heavy hex lock nuts, drilled and set according to Art. 509.06 of the Std. Specifications



TOP AND BOTTOM RAIL SPLICE ELEVATION

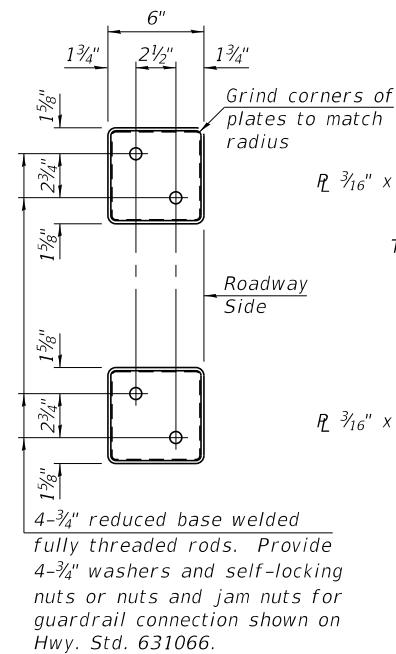


SECTION C-C

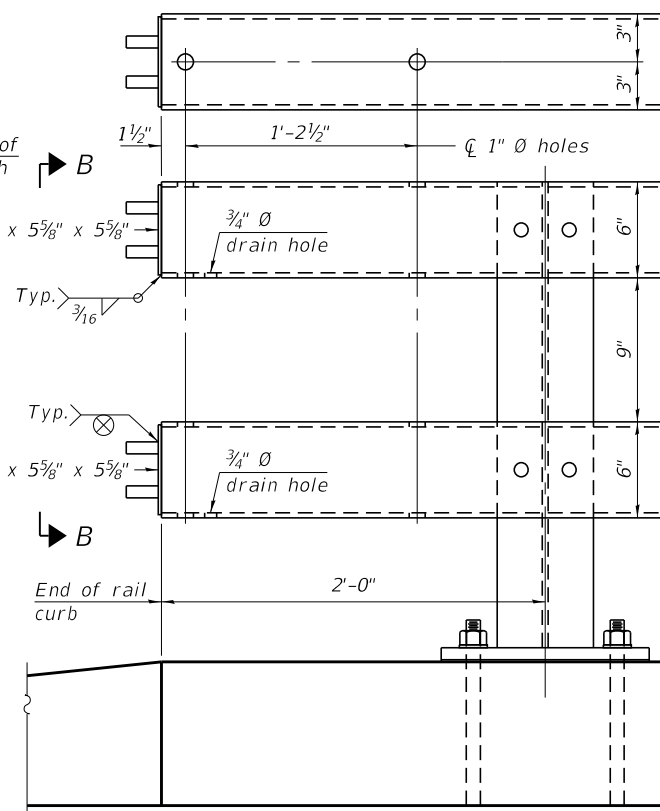
SPLICE DIMENSIONS

Location	T	A	B	C
All locs. not over exp. jts.	0	1/2"	1'-6"	2'-9 1/2"
Over Strip Seal Jt.	≤ 4"	2 1/2"	1'-8"	3'-1 1/2"
Over Finger or Modular Jt.	≤ 9 1/2"	5 1/2"	1'-10 3/4"	3'-7 1/4"
Over Finger or Modular Jt.	≤ 15"	8 1/4"	2'-1 1/2"	4'-0 3/4"

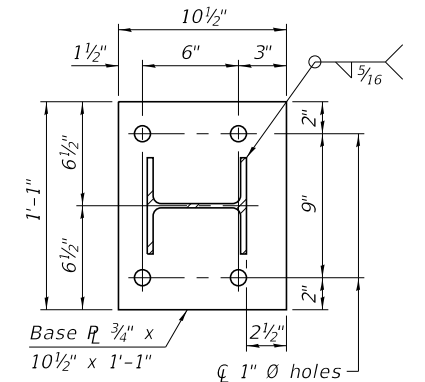
T = ; total movement along centerline of roadway at expansion joint.



VIEW B-B



END OF RAIL DETAILS



SECTION D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type C0-10	Foot	48

RAILING CRITERIA

MASH 2016 Test Level	4
Railing Weight (plf)	75
Min F'c (psi)	4,500
Post Spacing Range	6'-8" - 10'-0"

R-42 5-15-2023

FILE NAME = 230366-shi-culvert.dgn
 DESIGNED - J.W.F.
 CHECKED - S.W.M.
 DRAWN - R.D.H.
 CHECKED - S.W.M.

USER NAME = dfoley
 PLOT SCALE =
 PLOT DATE = 4/11/2024

DESIGNED - J.W.F.
 CHECKED - S.W.M.
 DRAWN - R.D.H.
 CHECKED - S.W.M.

REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE C0-10
 STRUCTURE NO. 027-3468

SHEET NO. 6 OF 7 SHEETS

F.A.S.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
337	21-00143-00-BR	FORD	21	11
THAWVILLE ROAD / CH 21		CONTRACT NO. 87819		
C-93-006-24		ILLINOIS FED. AID PROJECT W7U0(661)		

BRIDGE FOUNDATION SOIL BORING LOG

MET Midwest Engineering and Testing, Inc.

Route: Thawville Road
 Section: 21-00143-00-BR
 County: Ford
 Structure No. 027-3008
 Station: 21 ft. west of bridge center
 Offset: 8 ft. south of bridge center

Boring: B-1
 Page: Page 1 of 2
 Date of Boring: September 15, 2023
 Drilled By: Dusty Crump
 Checked By: Daniel E. Tappendorf, P.E.
 MET Project No: B33123

Ground Water Elevation: when drilling: 54.8 ft. at completion: 56.8 ft.	DEPTH (ft.)	BLOW S (6")	Q _u (tsf)	MC (%)	Assumed Center of Bridge @ CL Elevation 100.0 ft. 723.1	DEPTH (ft.)	BLOW S (6")	Q _u (tsf)	MC (%)
Ground Surface Elevation: 99.8 ft.									
8" Asphalt over 10" brown sand and gravel	721.6	30 18 24	4.5P	19					
		3 2 2	2.5P	25	Gray silty CLAY (CL)	693.6	3 4 5	1.0P	22
Black silty CLAY (OH)	716.1	1 2 2	1.5P	32	Gray clayey SILT (ML)	630.1	4 6 3	-	15
Gray silty CLAY (CL)	713.6	1 1 2	1.8P	27					
Brown and gray silty CLAY (CL) with sand and small gravel - Till	708.6	1 2 3	3.5P	23	Gray silty CLAY (CL) with sand and small gravel - Till	675.1	5 8 10	8.4S	12
Gray silty CLAY (CL) with sand and small gravel - Till	703.6	5 9 12	4.5+P	15					
		3 5 7	3.6B	20					
Gray silty CLAY (CL)		2 4 4	2.2B	23					
		2 4 3	1.5B	27	Gray silty CLAY (CL)		3 3 3	0.5B	22
		2 4 4	1.6B	26	Continued Next Page				

N - Standard Penetration Test (SPT) = Sum of last two blow values in sample
 MC- Moisture Content - Percent of dry weight
 Qu- Unconfined Compressive Strength- tons per square foot (tsf)
 Type Failure Qu test
 B-Bulge S-Shear P-Penetrometer

BRIDGE FOUNDATION SOIL BORING LOG

MET Midwest Engineering and Testing, Inc.

Route: Thawville Road
 Section: 21-00143-00-BR
 County: Ford
 Structure No. 027-3008
 Station: 21 ft. west of bridge center
 Offset: 8 ft. south of bridge center

Boring: B-1
 Page: Page 2 of 2
 Date of Boring: September 15, 2023
 Drilled By: Dusty Crump
 Checked By: Daniel E. Tappendorf, P.E.
 MET Project No: B33123

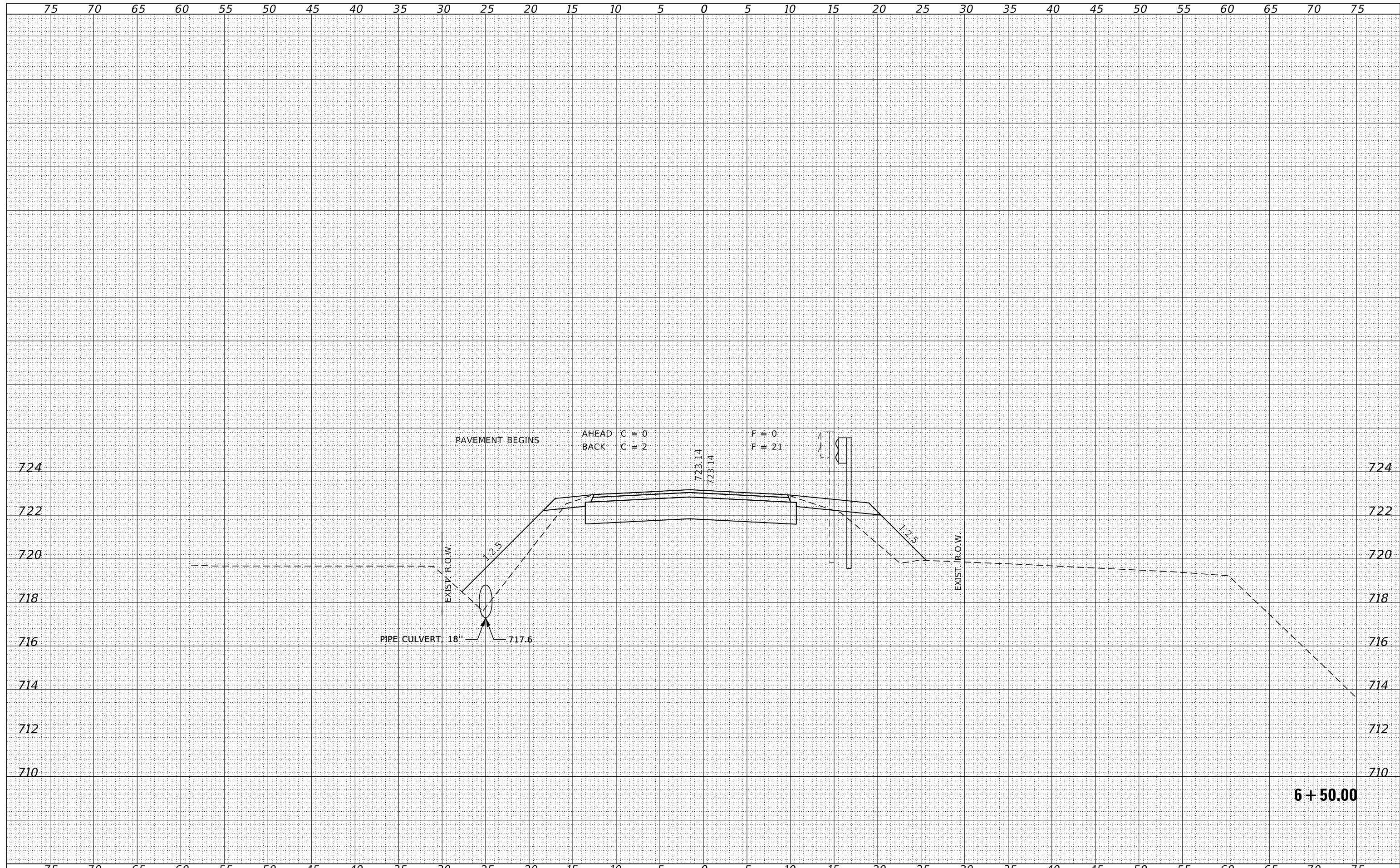
Ground Water Elevation: when drilling: 54.8 ft. at completion: 56.8 ft.	DEPTH (ft.)	BLOW S (6")	Q _u (tsf)	MC (%)	Assumed Center of Bridge @ CL Elevation 100.0 ft. 723.1	DEPTH (ft.)	BLOW S (6")	Q _u (tsf)	MC (%)
Gray silty CLAY (CL)	669.1								
		55							
Gray fine SAND (SP) wet		3 5 9	-	22					
		60							
END OF BORING AT 61.5 FT.	661.6	4 7 8	-	20					
		65							

N - Standard Penetration Test (SPT) = Sum of last two blow values in sample
 MC- Moisture Content - Percent of dry weight
 Qu- Unconfined Compressive Strength- tons per square foot (tsf)
 Type Failure Qu test
 B-Bulge S-Shear P-Penetrometer

BORING 1

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

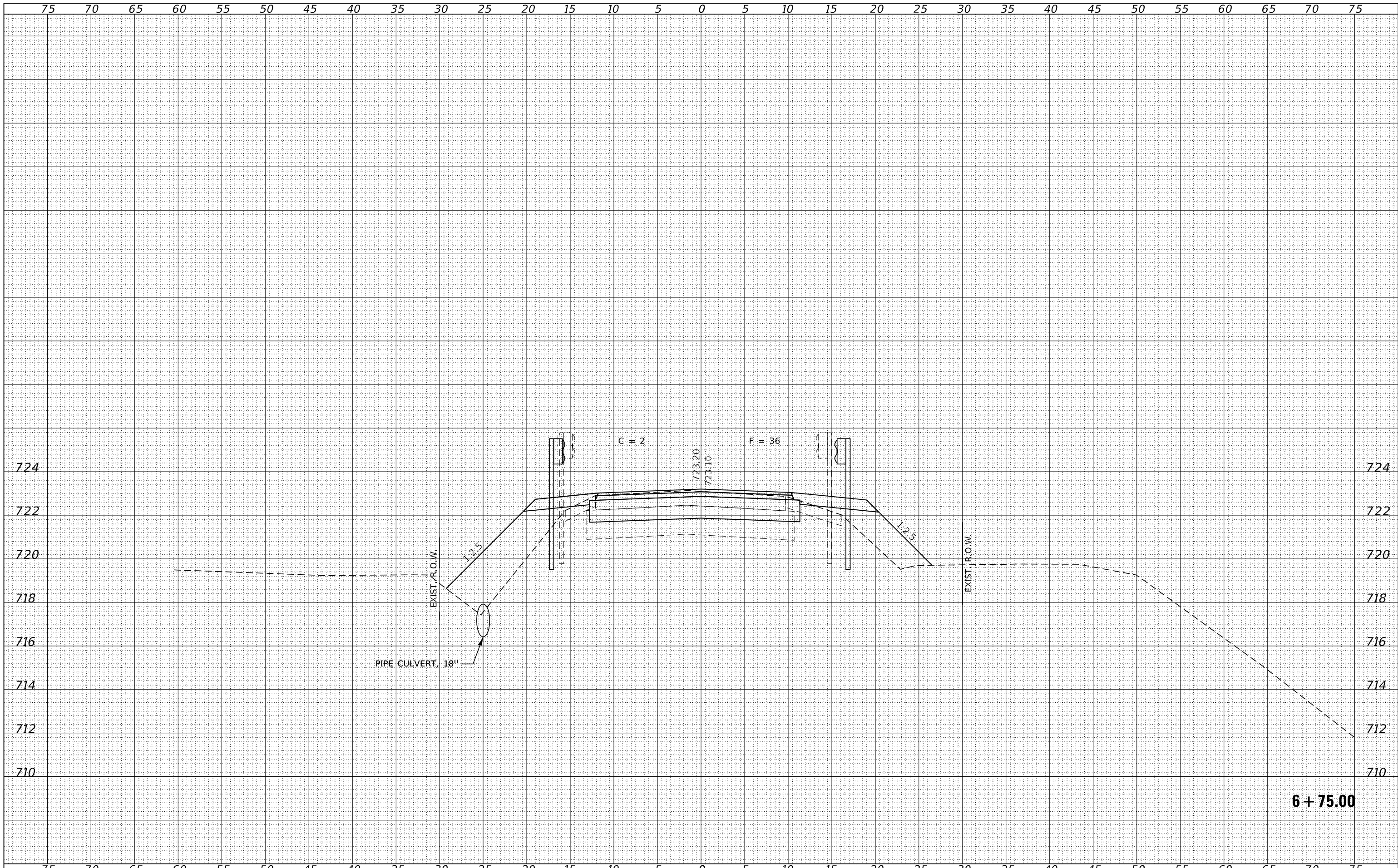
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HAMPTON, LENZINI AND RENWICK, INC. 3885 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM L.S. / P.E. / S.E. CORP. 184.000958	PLOT SCALE = \$SCALES	DRAWN - T.W.K.	REVISED -		21	21-00143-00-BR	FORD	21	14			
PLOT DATE = 4/11/2024	DATE - 04/05/2024	CHECKED - J.W.F.	REVISED -		THAWVILLE ROAD / C.H. 21				CONTRACT NO. 87819			
		REVISOR -	REVISED -		SCALE: 5V:20H	SHEET NO. 2 OF 9 SHEETS	STA. 6+50.00 TO STA. 6+50.00	ILLINOIS FED. AID PROJECT W7U(661)				

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
FINAL SURVEY	
NOTE BOOK	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
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ORIGINAL SURVEY	
NOTE BOOK	
NO.	



FILE NAME = 230366-xssheets.dgn
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 CHECKED - J.W.F.
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 PLOT DATE = 4/11/2024

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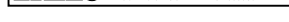
STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

SCALE: 5V:20H SHEET NO. 3 OF 9 SHEETS STA. 6+75.00 TO STA. 6+75.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
21	21-00143-00-BR	FORD	21	15
THAWVILLE ROAD / C.H. 21		CONTRACT NO. 87819		
C-93-006-24		ILLINOIS FED. AID PROJECT W7U(661)		

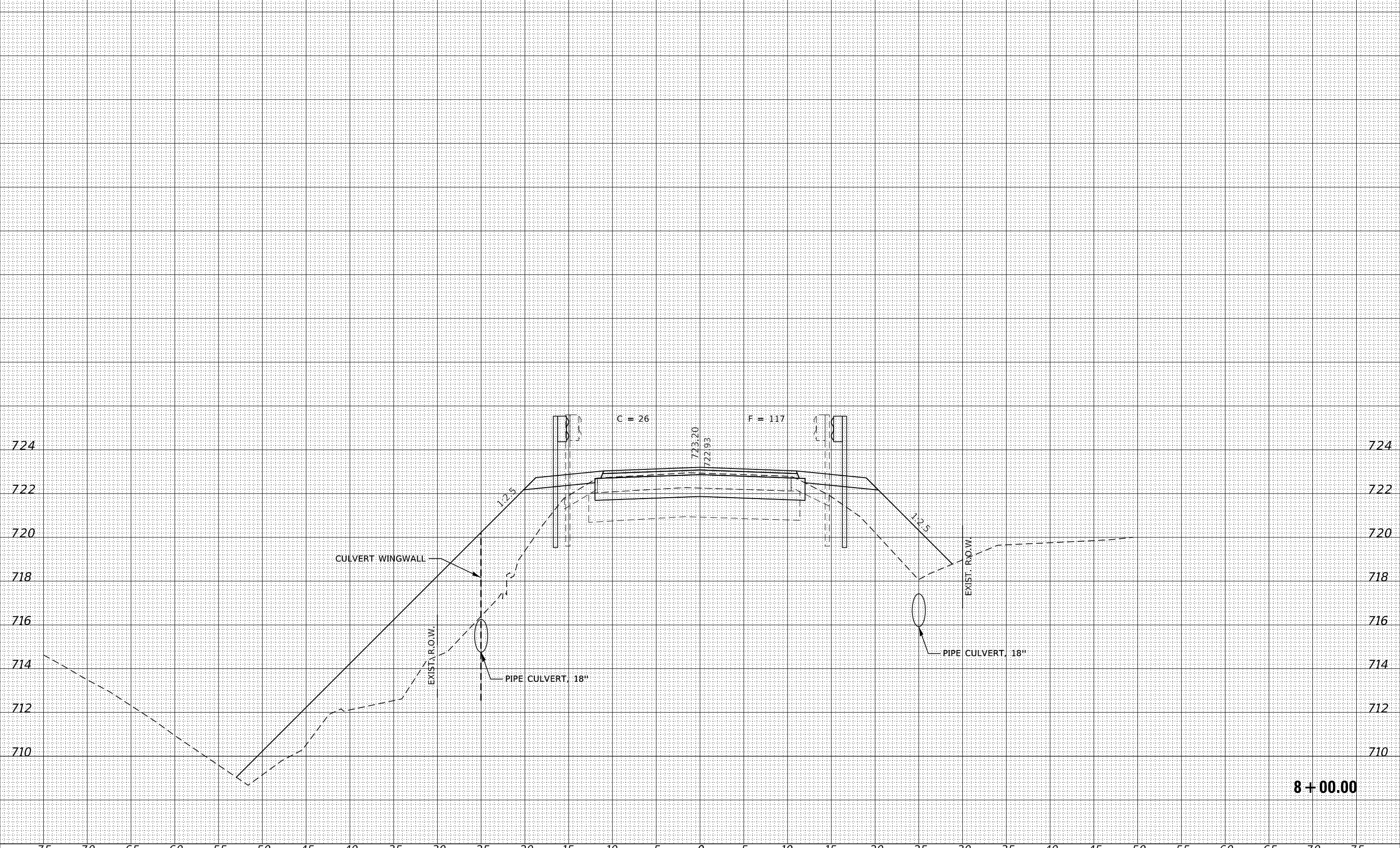
6+75.00



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NOTE BOOK	PLOTTED	
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	AREAS CHECKED	
	AREAS CHECKED	

ORIGINAL SURVEY NO.	SURVEYED	DATE
	PLOTTED	
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8 + 00.00

FILE NAME = 230366-x3-sheets.dgn
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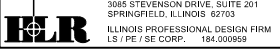
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STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

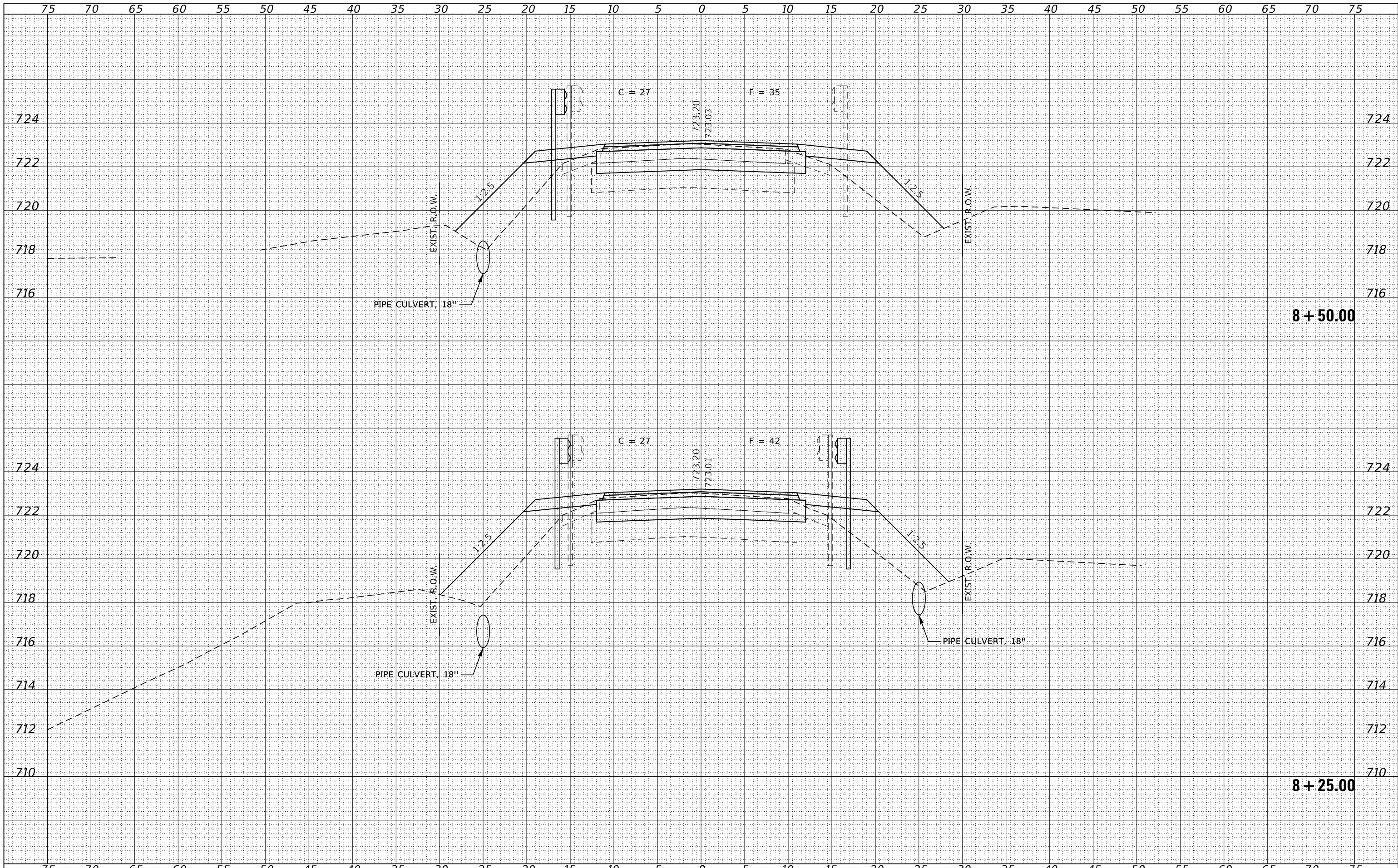
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C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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THAWVILLE ROAD / C.H. 21			CONTRACT NO. 87819	
C-93-006-24		ILLINOIS FED. AID PROJECT W7U(661)		



DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS
	CHECKED

DATE	
BY	
ORIGINAL SURVEY	SURVEYED
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NO.	TEMPLATE
	AREAS
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FILE NAME = 230366-x3-sheets.dgn
 HAMPTON, LENZINI AND RENWICK, INC.
 3885 STEVENSON DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62703
 ILLINOIS PROFESSIONAL DESIGN FIRM
 LS / PE / SE CORP. 184.009958

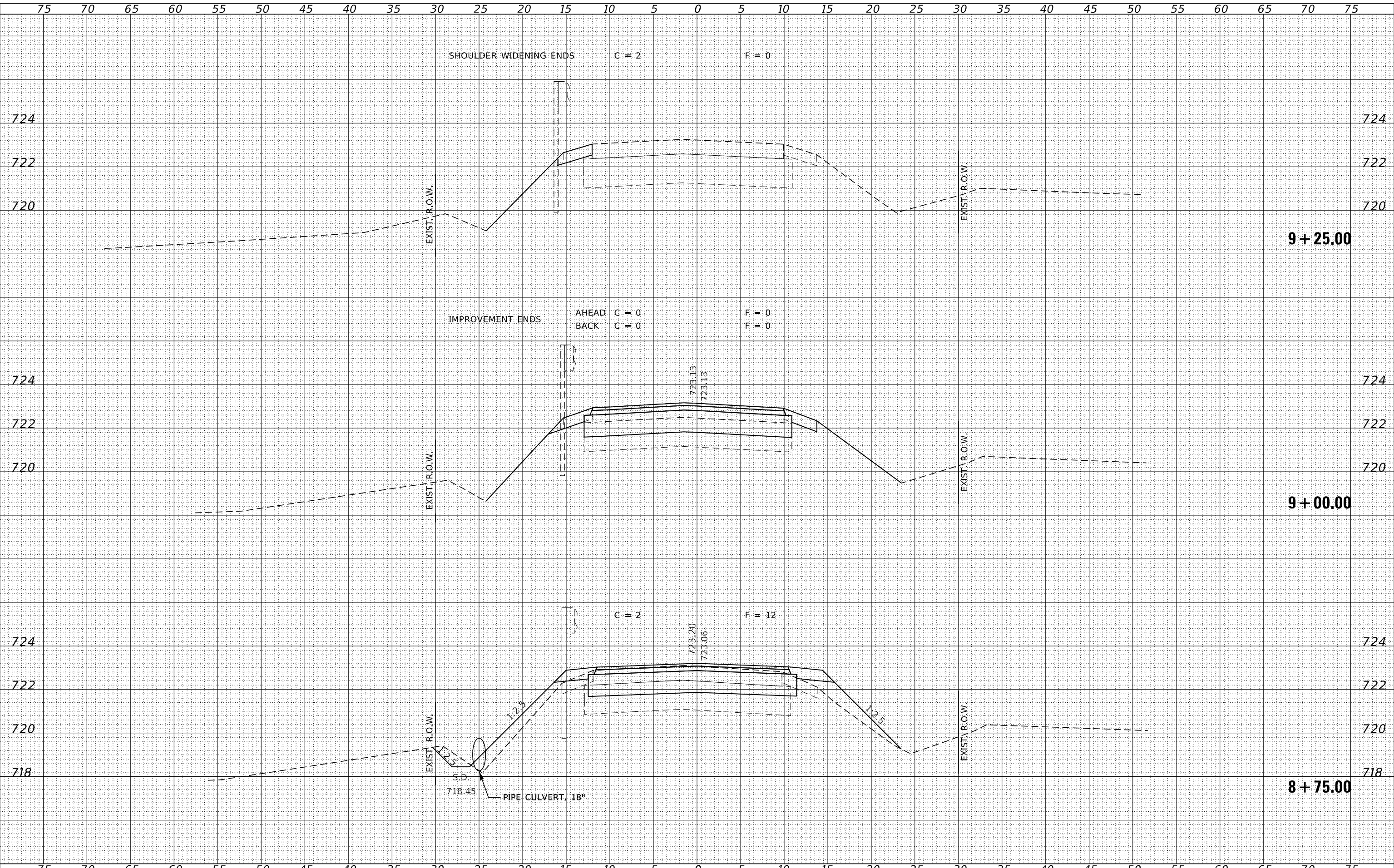
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 DESIGNED - S.A.A.
 DRAWN - T.W.K.
 CHECKED - J.W.F.
 DATE - 04/05/2024
 PLOT SCALE = \$S\$CALES
 PLOT DATE = 4/11/2024

REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 FORD COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS
 SCALE: 5V:20H
 SHEET NO. 8 OF 9 SHEETS
 STA. 8+25.00 TO STA. 8+50.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
21	21-00143-00-BR	FORD	21	20
THAWVILLE ROAD / C.H. 21			CONTRACT NO. 87819	
C-93-006-24		ILLINOIS FED. AID PROJECT W7U(661)		



BY	DATE
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED

BY	DATE
ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED

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 DRAWN - T.W.K.
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 DATE - 04/05/2024

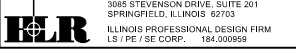
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STATE OF ILLINOIS
FORD COUNTY HIGHWAY DEPARTMENT

STATION CROSS SECTIONS

SCALE: 5V:20H
 SHEET NO. 9 OF 9 SHEETS
 STA. 8+75.00 TO STA. 9+25.00

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
21	21-00143-00-BR	FORD	21	21
THAWVILLE ROAD / C.H. 21			CONTRACT NO. 87819	
ILLINOIS			FED. AID PROJECT W7U(661)	



PLOT SCALE = \$SCALE\$
 PLOT DATE = 4/11/2024

DATE - 04/05/2024