6-13-08 Letting, Item 105

INDEX OF SHEETS

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420401-06	BRIDGE APPROACH PAVEMENT
515001-02	NAME PLATE FOR BRIDGES
542401	METAL END SECTION FOR PIPE CULVERTS
601101	CONCRETE HEADWALL FOR PIPE DRAIN
630001-07	STEEL PLATE BEAM GUARDRAIL
630301-04	SHOULDER WIDENING FOR GUARDRAIL TYPE I (SPECIAL) GUARDRAIL TERMINALS
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635011-01	REFLECTOR MARKER AND MOUNTING DETAILS
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BLR-22-5	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

NAME AND ADDRESS OF UTILITIES	TYPE
AmerenCILCO Attn: Deborah Dann (309) 693-4762	ELECTRIC
VERIZON NORTH, INC. Attn: Jonna Fricke (309) 663-3422	TELEPHONE

HIGHWAY CLASSIFICATION: MAJOR COLLECTOR (NON-URBAN)
DESIGN SPEED: 40 MPH
ADT = 250
3R GUIDELINES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

LOCAL AGENCY IMPROVEMENT

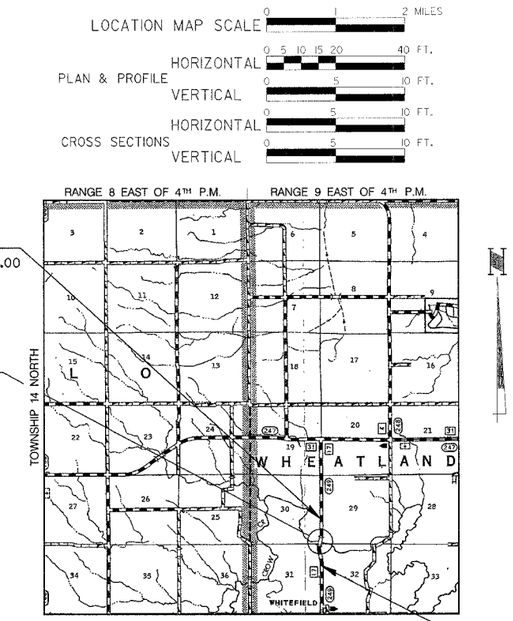
FEDERAL-AID HBP PROJECT
HIGHWAY BRIDGE PROGRAM
FAS 249
SECTION 03-00190-00-BR/ BUREAU COUNTY
PROJECT BRS-249(104)
JOB NO. C-93-092-08
CONTRACT NO. 87365
2008

NET LENGTH 635 FT. = 0.12 MILES

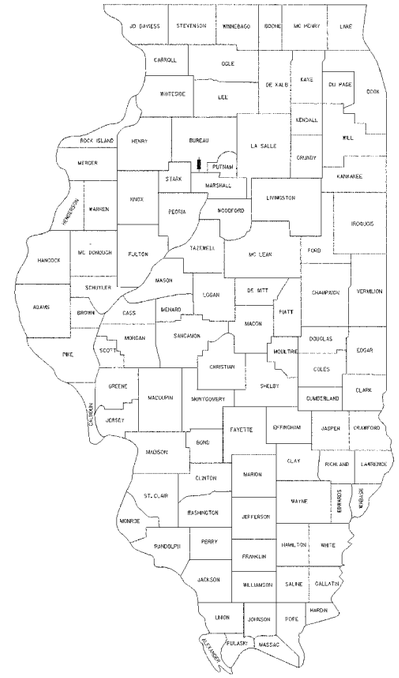
LOCATION MAP SCALE 0 1 2 MILES

PLAN & PROFILE
HORIZONTAL 0 5 10 15 20 40 FT.
VERTICAL 0 5 10 FT.

CROSS SECTIONS
HORIZONTAL 0 5 10 FT.
VERTICAL 0 5 10 FT.



LOCATION MAP



LOCATION OF SECTION INDICATED THUS:

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	
APPROVED	04/04/08 2008 COUNTY ENGINEER
PASSED	04-08 2008 DISTRICT 3 ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	04-08 2008 DEPUTY DIRECTOR OF HIGHWAYS, REGION 2 ENGINEER

CALL J.U.L.I.E. TOLL FREE 800-892-0123

ATTENTION CONTRACTORS

THE ILLINOIS DEPARTMENT OF TRANSPORTATION BUREAU OF MATERIALS AND PHYSICAL RESEARCH, "PROJECT PROCEDURES GUIDE" IS APPLICABLE TO THIS PROJECT.

BRIAN K. CONVERSE 062-048141 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

Brian K. Converse
DATE: APRIL 4, 2008
EXPIRES 11/30/09

Plans Prepared By:

WILLETT, HOFMANN & ASSOCIATES, INC.
CONSULTING ENGINEERS
Land Surveying - Transportation - Structural
Environmental - Architecture
809 East Second Street Dixon, Illinois 61021
Phone 815.284.3381 Fax 815.284.3385
Design Firm #184-000918
www.willetthofmann.com

WHA # 1119D05

CONTRACT NO. 87365

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	2
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

Contract No. 87365

SUMMARY OF QUANTITIES

CONSTRUCTION TYPE CODE: XO71-2A

PAY CODE	QUANTITY	UNIT	ITEM
20100500	0.71	Acre	Tree Removal, Acres
20200100	1,011	Cu. Yd.	Earth Excavation
20300100	1,244	Cu. Yd.	Channel Excavation
*20700400	156	Cu. Yd.	Porous Granular Embankment, Special
21001000	1,192	Sq. Yd.	Geotechnical Fabric for Ground Stabilization
*25001100	1.44	Acre	Seeding, Class 3 (Special)
25100630	6,973	Sq. Yd.	Erosion Control Blanket
28000250	1,200	Pound	Temporary Erosion Control Seeding
*28000300	12	Each	Temporary Ditch Checks
*28000400	503	Foot	Perimeter Erosion Barrier
*28100109	801	Sq. Yd.	Stone Riprap, Class A5
*31101000	544	Ton	Sub-Base Granular Material, Type B
*35100100	273	Ton	Aggregate Base Course, Type A
40200800	67	Ton	Aggregate Surface Course, Type B
40603100	230	Ton	Hot-Mix Asphalt Binder Course, IL 19.0L, N30
40603305	99	Ton	Hot-Mix Asphalt Surface Course, Mix "C", N30
40800010	410	Gallon	Bituminous Materials (Prime Coat)
42001165	200	Sq. Yd.	Bridge Approach Pavement
48101200	154	Ton	Aggregate Shoulders, Type B
*50100100	1	Each	Removal of Existing Structures
*50300225	30.5	Cu. Yd.	Concrete Structures
50300255	140.3	Cu. Yd.	Concrete Superstructure
50300260	400	Sq. Yd.	Bridge Deck Grooving
50300300	427	Sq. Yd.	Protective Coat
50500105	1	L. Sum	Furnishing & Erecting Structural Steel
50500505	1,920	Each	Stud Shear Connectors
50800205	29,320	Pound	Reinforcement Bars, Epoxy Coated
50800515	62	Each	Bar Splicers
50901050	256	Foot	Steel Railing, Type SM
51200958	450	Foot	Furnishing Metal Shell Piles 14" x 0.250"
51202305	450	Foot	Driving Piles
51203200	2	Each	Test Pile Metal Shells
51500100	1	Each	Name Plates
52100520	20	Each	Anchor Bolts, 1"
54200649	32	Foot	Pipe Culverts, Type 1, Corrugated Steel or Aluminum Culvert Pipe 24"
54200661	24	Foot	Pipe Culverts, Type 1, Corrugated Steel or Aluminum Culvert Pipe 36"
54213879	2	Each	Steel End Sections 24"
54213891	2	Each	Steel End Sections 36"
59100100	65	Sq. Yd.	Geocomposite Wall Drain
*60107700	900	Foot	Pipe Underdrains 6"
*60109580	143	Foot	Pipe Underdrains for Structures 4"
Δ*63000000	100	Foot	Steel Plate Beam Guard Rail, Type A
Δ*63100087	4	Each	Traffic Barrier Terminal, Type 6A
Δ*63100167	4	Each	Traffic Barrier Terminal, Type 1 (Special) Tangent
67100100	1	L. Sum	Mobilization
*70101700	1	L. Sum	Traffic Control & Protection
Δ*78001110	1,430	Foot	Paint Pavement Marking - Line 4"
Δ*78200410	24	Each	Guardrail Markers, Type A
Z0013798	1	L. Sum	Construction Layout

* See Special Provisions
Δ Specialty Items

SUMMARY OF QUANTITIES
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	3
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT: BRS-249(104)		

Contract No. 87365

GENERAL NOTES

Existing Structures (Including Foundations, Walls, Cisterns, Wells Or Other Underground Structures) Within The Right Of Way Shall Be Removed In Accordance With Article 501.02 And 501.03 Of The Standard Specifications, Without Additional Compensation, Unless Otherwise Noted In The Plans Or Special Provisions.

The Contractor Shall Seed All Disturbed Areas Within The Project Limits.

No Overhaul Has Been Computed And None Shall Be Paid For From Any Source.

The Final Top Four Inches Of Soil In Any Right-Of-Way Area Disturbed By The Contractor Must Be A Cohesive Soil Capable Of Supporting Vegetation.

The Contractor Shall Be Responsible For Protecting Utility Property During Construction Operations As Outlined In Article 107.31 Of The Standard Specifications.

The Utilities Located Within The Project Limits Or Immediately Adjacent To The Project Construction Limits Include:

VERIZON NORTH, INC.
Attn: Jonna Fricka
(309) 663-3422

AmerenCILCO
Attn: Deborah Dann
(309) 693-4762

A Minimum Of 48 Hours Advance Notice Is Required For Non-Emergency Work.

A Nationwide 14 Permit Has Been Issued For This Project And The Conditions Of That Permit Must Be Adhered To.

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 Markers, Monuments And Right-Of-Way Pins Until The Owner, An Authorized Surveyor, Or Agent Has Witnessed Or Otherwise Referenced Their Location.

Existing Mail Boxes, Street Signs And Traffic Signs That Are Within The Construction Limits Shall Be Removed And Reset By The Contractor. Cost Of Removing And Resetting To Be Included In The Contract Unit Price Bid Per Cubic Yard For Earth Excavation.

SCHEDULE OF QUANTITIES

TREE REMOVAL, ACRES:

LOCATION	ACRE	REMARKS
RT. STA. 51+91-51+64	0.04	
RT. STA. 51+72-55+15	0.33	
RT. STA. 55+13-58+26	0.34	
TOTAL	0.71 ACRE	

GEOTECHNICAL FABRIC FOR GROUND STABILIZATION:

LOCATION	SQ. YD.	REMARKS
STA. 51+91-54+07.04	576	SEE SPECIAL PROVISION
STA. 55+95.06-58+26	616	" "
TOTAL	1,192 SQ. YD.	

SEEDING, CLASS 3 (SPECIAL):

LOCATION	ACRE	REMARKS
RT. STA. 51+91-52+64	0.06	
RT. STA. 52+72-55+15	0.30	
RT. STA. 55+13-58+26	0.33	
LT. STA. 51+91-53+06	0.11	
LT. STA. 53+19-54+88	0.21	
LT. STA. 54+89-58+26	0.43	
TOTAL	1.44 ACRE	

EROSION CONTROL BLANKET:

LOCATION	SQ. YD.	REMARKS
RT. STA. 51+91-52+64	291	
RT. STA. 52+72-55+15	1,452	
RT. STA. 55+13-58+26	1,598	
LT. STA. 51+91-53+06	533	
LT. STA. 53+19-54+88	1,017	
LT. STA. 54+89-58+26	2,082	
TOTAL	6,973 SQ. YD.	

TEMPORARY EROSION CONTROL SEEDING

LOCATION	POUND	REMARKS
RT. STA. 51+91-52+64	50	
RT. STA. 52+72-55+15	250	
RT. STA. 55+13-58+26	275	
LT. STA. 51+91-53+06	92	
LT. STA. 53+19-54+88	175	
LT. STA. 54+89-58+26	358	
TOTAL	1,200 POUND	

TEMPORARY DITCH CHECKS:

LOCATION	EACH	REMARKS
STA. 52+00	2	
LT. STA. 52+75	1	
RT. STA. 53+00	1	
STA.. 54+00	2	
STA. 56+00	2	
STA. 57+00	2	
STA. 58+00	2	
TOTAL	12 EACH	

PERIMETER EROSION BARRIER:

LOCATION	FOOT	REMARKS
RT. STA. 54+73-55+15	135	ALONG TOP OF BANK
RT. STA. 55+13-55+48	118	ALONG TOP OF BANK
LT. STA. 54+61-54+88	110	ALONG TOP OF BANK
LT. STA. 54+89-55+17	140	ALONG TOP OF BANK
TOTAL	503 FOOT	

SUB-BASE GRANULAR MATERIAL, TYPE B:

LOCATION	TON	REMARKS
STA. 51+91-54+07.04	263	8" COMPACTED
STA. 55+95.06-58+26	281	8" COMPACTED
TOTAL	544 TON	

AGGREGATE BASE COURSE, TYPE A:

LOCATION	TON	REMARKS
STA. 51+91-54+07.04	132	4" COMPACTED
STA. 55+95.06-58+26	141	4" COMPACTED
TOTAL	273 TON	

AGGREGATE SURFACE COURSE, TYPE B:

LOCATION	TON	REMARKS
F.E.R. 52+72	31	
F.E.L. 53+09	36	
TOTAL	67 TON	

HOT-MIX ASPHALT BINDER COURSE, IL-19.0L, N30:

LOCATION	TON	REMARKS
STA. 51+91-54+07.04	111	3 1/2" (1 LIFT)
STA. 55+95.06-58+26	119	3 1/2" (1 LIFT)
TOTAL	230 TON	

HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N30:

LOCATION	TON	REMARKS
STA. 51+91-54+07.04	48	1 1/2" (1 LIFT)
STA. 55+95.06-58+26	51	1 1/2" (1 LIFT)
TOTAL	99 TON	

BITUMINOUS MATERIALS (PRIME COAT):

LOCATION	GALLON	REMARKS
STA. 51+91-54+07.04	198	0.375 gal./sq. yd.
STA. 55+95.06-58+26	212	0.375 gal./sq. yd.
TOTAL	410 GALLON	

BRIDGE APPROACH PAVEMENT:

LOCATION	SQ. YD.	REMARKS
STA. 54+07-54+37	100	
STA. 55+65-55+95	100	
TOTAL	200 SQ. YD.	

AGGREGATE SHOULDERS, TYPE B:

LOCATION	TON	REMARKS
RT. STA. 52+80-52+90	2	TAPER, 6" COMPACTED
RT. STA. 52+90-53+26	11	BUMPOUT, 6" COMPACTED
RT. STA. 53+26-54+21	27	6" COMPACTED
RT. STA. 54+21-54+37	2	TAPER, 6" COMPACTED
RT. STA. 55+65-55+82	2	TAPER, 6" COMPACTED
RT. STA. 55+82-56+31	13	6" COMPACTED
RT. STA. 56+31-56+68	11	BUMPOUT, 6" COMPACTED
RT. STA. 56+68-56+92	6	TAPER, 6" COMPACTED
LT. STA. 53+23-53+33	3	TAPER, 6" COMPACTED
LT. STA. 53+33-53+70	11	BUMPOUT, 6" COMPACTED
LT. STA. 53+70-54+20	13	6" COMPACTED
LT. STA. 54+20-54+37	2	TAPER, 6" COMPACTED
LT. STA. 55+65-55+79	2	TAPER, 6" COMPACTED
LT. STA. 55+79-56+82	30	6" COMPACTED
LT. STA. 56+82-57+19	12	BUMPOUT, 6" COMPACTED
LT. STA. 57+19-57+45	7	TAPER, 6" COMPACTED
TOTAL	154 TON	

PIPE CULVERTS, TYPE 1, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 24":

LOCATION	FOOT	REMARKS
F.E.L. 53+09	32	
TOTAL	32 FOOT	

PIPE CULVERTS, TYPE 1, CORRUGATED STEEL OR ALUMINUM CULVERT PIPE 36":

LOCATION	FOOT	REMARKS
F.E.R. 52+72	24	
TOTAL	24 FOOT	

STEEL END SECTIONS 24":

LOCATION	EACH	REMARKS
F.E.L. 53+09	2	
TOTAL	2 EACH	

STEEL END SECTIONS 36":

LOCATION	EACH	REMARKS
F.E.R. 52+72	2	
TOTAL	2 EACH	

PIPE UNDERDRAINS 6":

LOCATION	FOOT	REMARKS
RT. STA. 51+91-58+26	450	SEE SPECIAL PROVISION
LT. STA. 51+91-58+26	450	" "
TOTAL	900 FOOT	

STEEL PLATE BEAM GUARDRAIL, TYPE A:

LOCATION	FOOT	REMARKS
SOUTHEAST QUADRANT	50	
NORTHWEST QUADRANT	50	
TOTAL	100 FOOT	

TRAFFIC BARRIER TERMINAL, TYPE 6A:

LOCATION	EACH	REMARKS
SOUTHEAST QUADRANT	1	
NORTHEAST QUADRANT	1	
SOUTHWEST QUADRANT	1	
NORTHWEST QUADRANT	1	
TOTAL	4 EACH	

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT:

LOCATION	EACH	REMARKS
SOUTHEAST QUADRANT	1	
NORTHEAST QUADRANT	1	
SOUTHWEST QUADRANT	1	
NORTHWEST QUADRANT	1	
TOTAL	4 EACH	

GAURDRAIL REMOVAL:

LOCATION	FOOT	REMARKS
SOUTHEAST QUADRANT	40	SEE SPECIAL PROVISION
NORTHEAST QUADRANT	40	" "
SOUTHWEST QUADRANT	40	" "
NORTHWEST QUADRANT	40	" "
TOTAL	160 FOOT	

PAINT PAVEMENT MARKING - LINE 4":

LOCATION	FOOT	REMARKS
RT. STA. 51+91-58+26	635	WHITE EDGE LINE
STA. 51+91-58+26	160	YELLOW (10'-30' SP)
LT. STA. 51+91-58+26	635	WHITE EDGE LINE
TOTAL	1,430 FOOT	

GUARDRAIL MARKERS, TYPE A:

LOCATION	EACH	REMARKS
RT. STA. 53+50-56+08	12	
LT. STA. 53+93-56+59	12	
TOTAL	24 EACH	

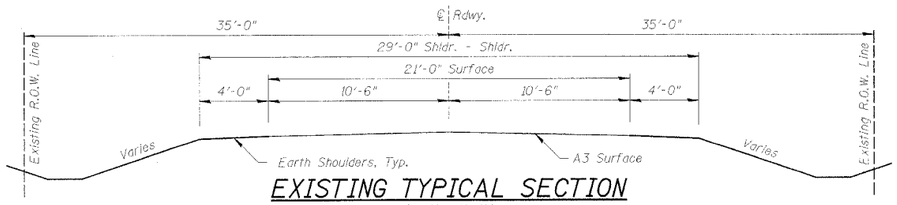
TERMINAL MARKER - DIRECT APPLIED:

LOCATION	EACH	REMARKS
SOUTHEAST QUADRANT	1	SEE SPECIAL PROVISION
NORTHEAST QUADRANT	1	" "
SOUTHWEST QUADRANT	1	" "
NORTHWEST QUADRANT	1	" "
TOTAL	4 EACH	

GENERAL NOTES AND SCHEDULES
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)
WHA # 1119D05

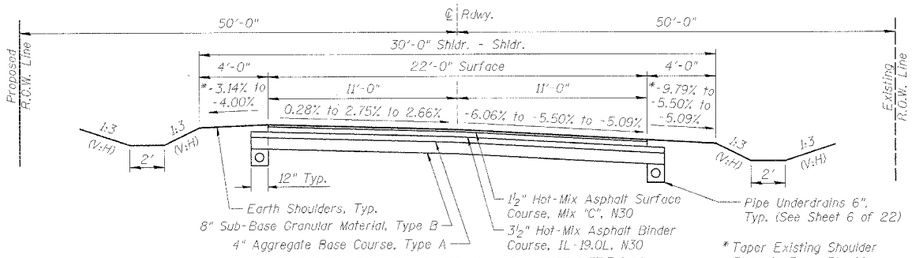
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	4
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

Contract No. 87365



EXISTING TYPICAL SECTION

(Looking North)

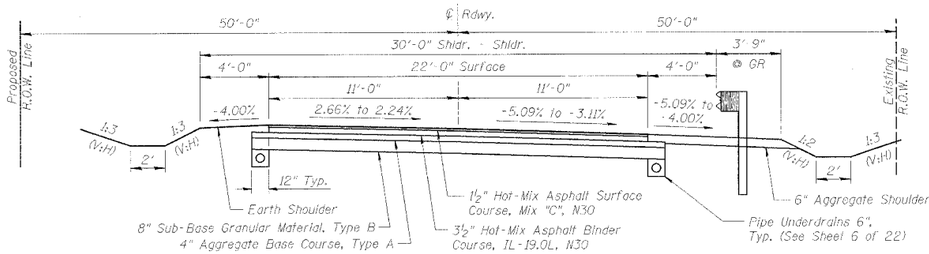


* Taper Existing Shoulder Slope to Prop. Shoulder Slope by Sta. 52+00.00

PROPOSED TYPICAL SECTION

(Looking North)

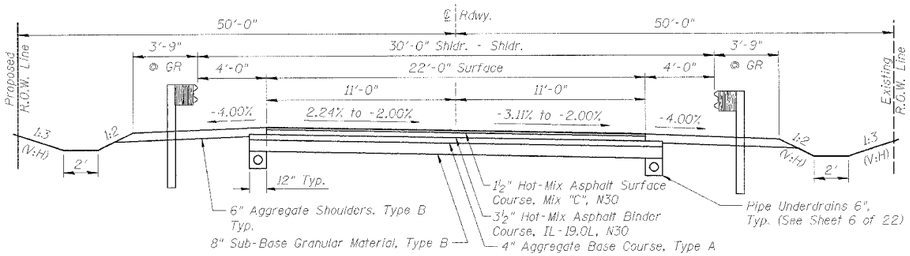
Sta. 51+91.00 to Sta. 52+80.00



PROPOSED TYPICAL SECTION

(Looking North)

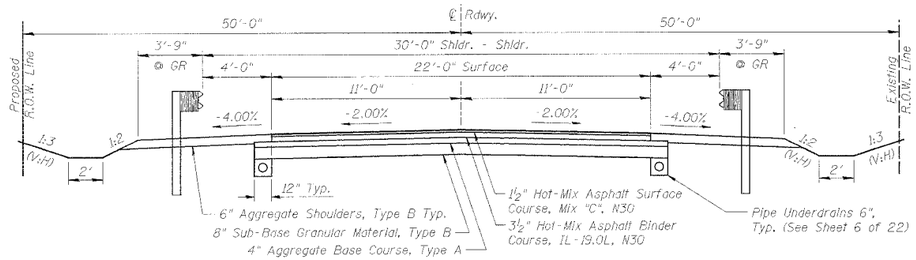
Sta. 52+80.00 to Sta. 53+23.00



PROPOSED TYPICAL SECTION

(Looking North)

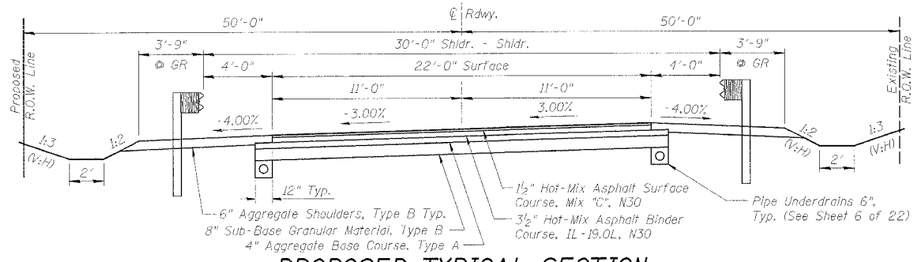
Sta. 53+23.00 to Sta. 54+03.01



PROPOSED TYPICAL SECTION

(Looking North)

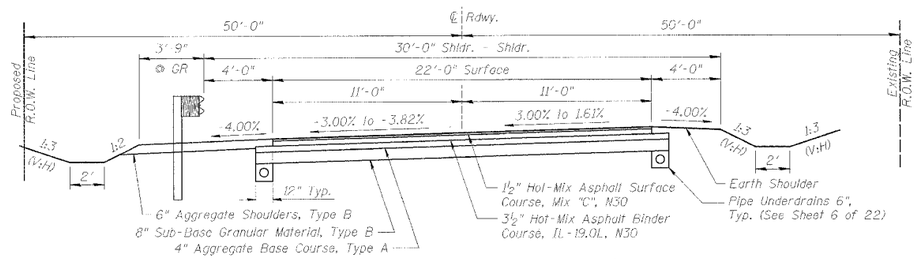
Sta. 54+03.01 to Sta. 54+97.04



PROPOSED TYPICAL SECTION

(Looking North)

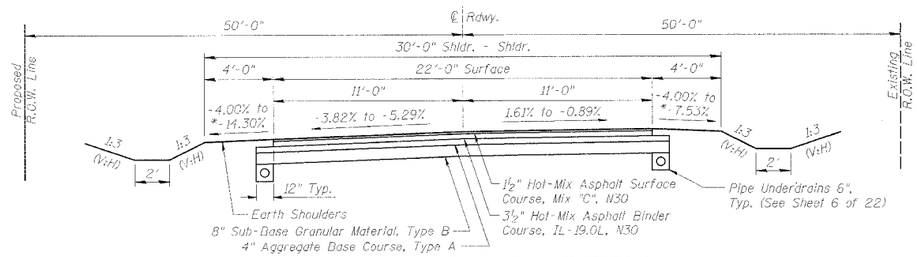
Sta. 55+95.06 to Sta. 56+92.00



PROPOSED TYPICAL SECTION

(Looking North)

Sta. 56+92.00 to Sta. 57+45.00



* Start Tapering Prop. Shoulder Slope to Existing Shoulder Slope at Sta. 58+00.00

PROPOSED TYPICAL SECTION

(Looking North)

Sta. 57+45.00 to Sta. 58+26.00

TYPICAL SECTIONS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
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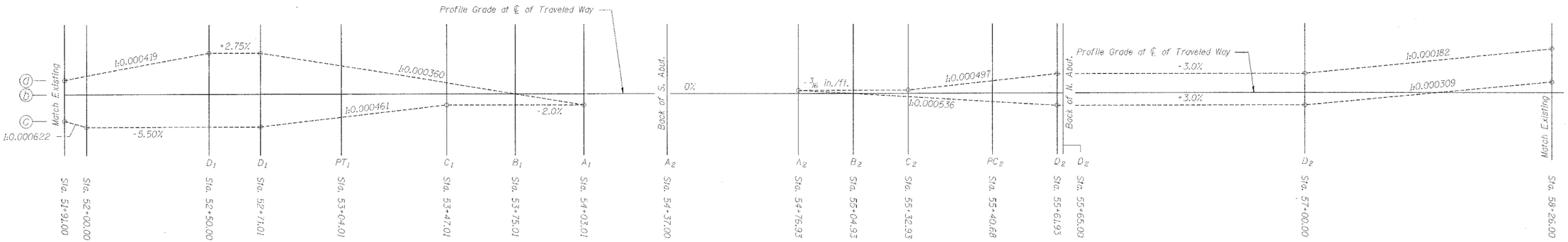
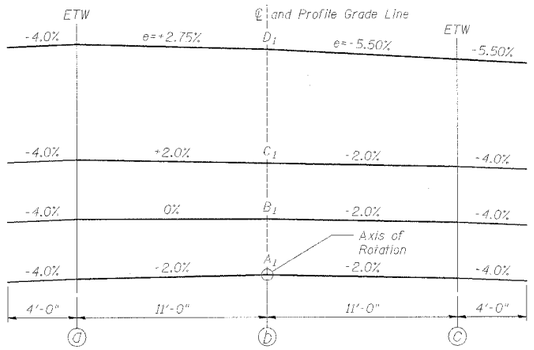
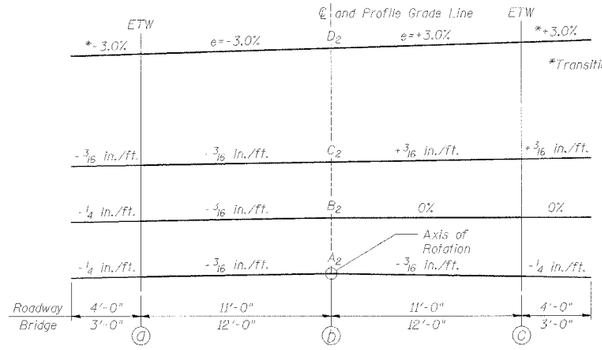
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED.AID PROJECT- BRS-249(104)		

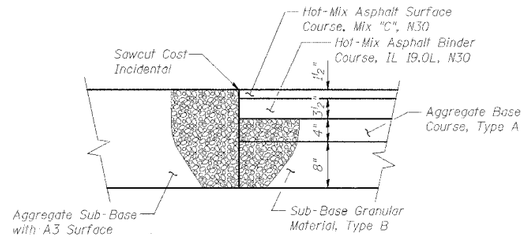
Contract No. 87365



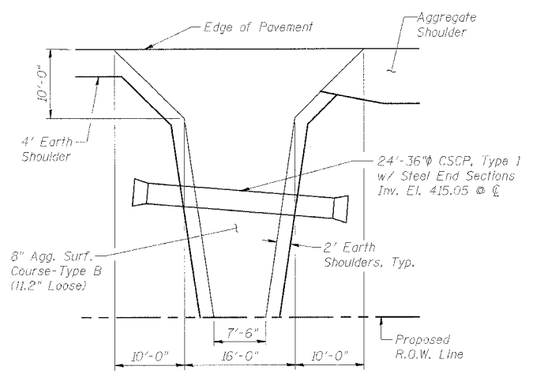




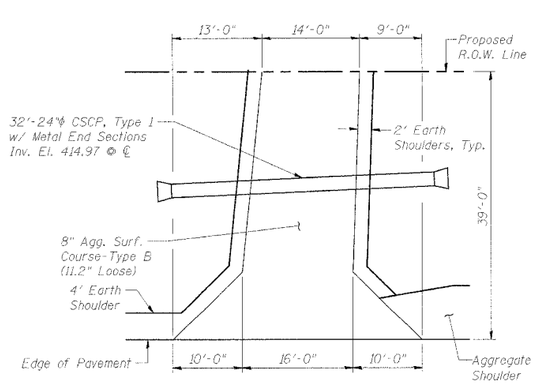
*Transition shoulders to -4% within Approach Pavement limits.



CORE JOINT DETAIL



F.E.R. STA. 52+72



F.E.L. STA. 53+09

PAVEMENT STRUCTURAL DESIGN (CONVENTIONAL FLEXIBLE)
FAS 249 (C.H.17 – YANKEE LANE)

STRUCTURAL DESIGN TRAFFIC (S.D.T.) = YEAR 2018

CLASS III STREET

80,000 TRUCK DESIGN

P.V. 265
S.U. 50
M.U. 35
] 350 ADT

ASSUME ERI = 3 ksi
TF = 0.19
HMA MIX TEMP. 74° F
HMA E_{AC} = 600 ksi
HMA DESIGN STRAIN 235 microstrain

USE
1.5" HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N30
3.5" HOT-MIX ASPHALT BINDER COURSE, IL 19.0L, N30
4" AGGREGATE BASE COURSE, TYPE A
8" SUB-BASE GRANULAR MATERIAL, TYPE B

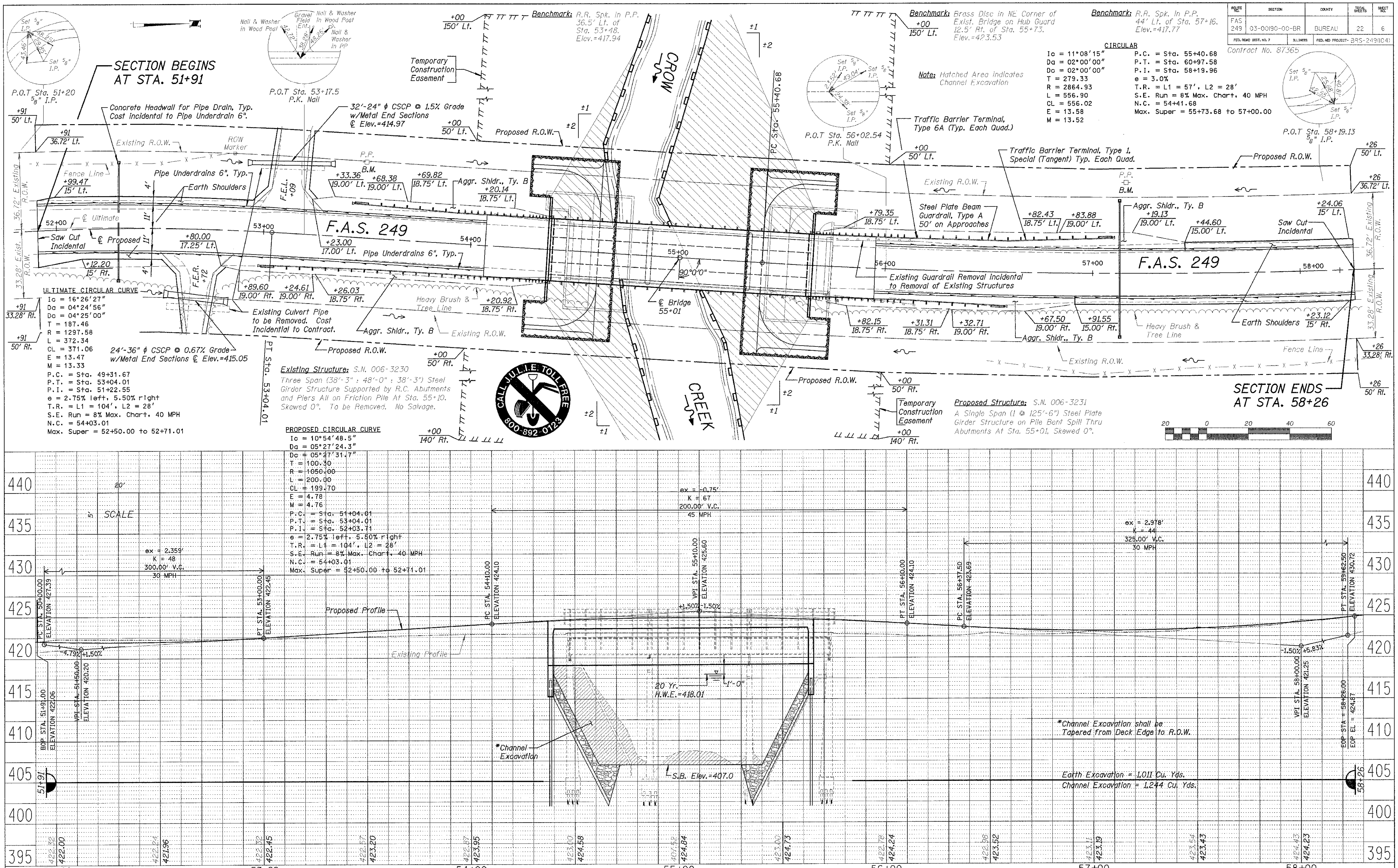
PAVEMENT MIXTURE REQUIREMENTS

RECONSTRUCTION

MIXTURE USE:	SURFACE	BINDER
PG:	PG 58-28	PG 58-28
RAP %: (MAX)	15	10
DESIGN AIR VOIDS	4.0 @ N30	4.0 @ N30
MIXTURE COMPOSITION (GRADATION MIXTURE)	IL 9.5 or IL 12.5	IL 19.0L
FRICTION AGGREGATE	C	N/A

ENTRANCE DETAILS & SUPERELEVATION DIAGRAMS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

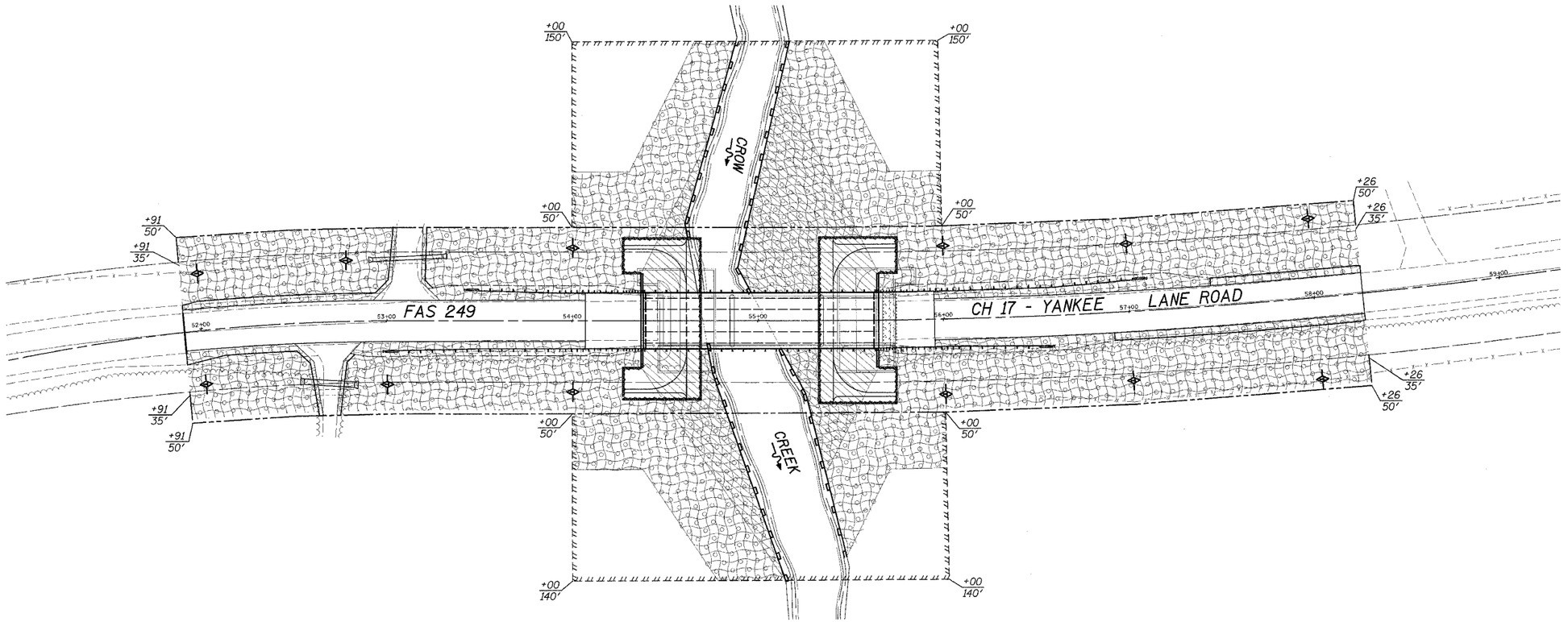
WHA # 1119005



ROUTE FAS 249
SECTION 03-00190-00-BR
COUNTY BUREAU
TOTAL SHEETS 22
SHEET NO. 6
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT BRS-249(104)
Contract No. 87365
SECTION BEGINS AT STA. 51+91
SECTION ENDS AT STA. 58+26
F.A.S. 249
P.O.T Sta. 51+20 5/8" I.P.
P.O.T Sta. 53+17.5 P.K. Nail
P.O.T Sta. 56+02.54 P.K. Nail
P.O.T Sta. 58+19.13 5/8" I.P.
Benchmark: R.R. Spk. in P.P. 36.5' Lt. of Sta. 53+48. Elev.=417.94
Benchmark: Brass Disc in NE Corner of Exist. Bridge on Hub Guard 12.5' Rt. of Sta. 55+73. Elev.=423.53
Benchmark: R.R. Spk. in P.P. 44' Lt. of Sta. 57+16. Elev.=417.77
Note: Hatched Area indicates Channel Excavation
CIRCULAR
Ic = 11°08'15"
Da = 02°00'00"
Dc = 02°00'00"
T = 279.33
R = 2864.93
L = 556.90
CL = 556.02
E = 13.58
M = 13.52
P.C. = Sta. 55+40.68
P.T. = Sta. 60+97.58
P.I. = Sta. 58+19.96
e = 3.0%
T.R. = L1 = 57', L2 = 28'
S.E. Run = 8% Max. Chart, 40 MPH
N.C. = 54+41.68
Max. Super = 55+73.68 to 57+00.00
ULTIMATE CIRCULAR CURVE
Ic = 16°26'27"
Da = 04°24'56"
Dc = 04°25'00"
T = 187.46
R = 1297.58
L = 372.34
CL = 371.06
E = 13.47
M = 13.33
P.C. = Sta. 49+31.67
P.T. = Sta. 53+04.01
P.I. = Sta. 51+22.55
e = 2.75% left, 5.50% right
T.R. = L1 = 104', L2 = 28'
S.E. Run = 8% Max. Chart, 40 MPH
N.C. = 54+03.01
Max. Super = 52+50.00 to 52+71.01
PROPOSED CIRCULAR CURVE
Ic = 10°54'48.5"
Da = 05°27'24.3"
Dc = 05°27'31.7"
T = 100.30
R = 1050.00
L = 200.00
CL = 199.70
E = 4.78
M = 4.76
P.C. = Sta. 51+04.01
P.T. = Sta. 53+04.01
P.I. = Sta. 52+03.71
e = 2.75% left, 5.50% right
T.R. = L1 = 104', L2 = 28'
S.E. Run = 8% Max. Chart, 40 MPH
N.C. = 54+03.01
Max. Super = 52+50.00 to 52+71.01
Concrete Headwall for Pipe Drain, Typ. Cost Incidental to Pipe Underdrain 6".
32'-24" ϕ CSCP @ 1.5% Grade w/Metal End Sections ℄ Elev.=414.97
24'-36" ϕ CSCP @ 0.67% Grade w/Metal End Sections ℄ Elev.=415.05
Existing Culvert Pipe to be Removed. Cost Incidental to Contract.
Temporary Construction Easement
Pipe Underdrains 6", Typ.
Earth Shoulders
Aggr. Shldr., Ty. B
Saw Cut Incidental
Proposed R.O.W.
Existing R.O.W.
Fence Line
Heavy Brush & Tree Line
Traffic Barrier Terminal, Type 6A (Typ. Each Quad.)
Traffic Barrier Terminal, Type 1, Special (Tangent) Typ. Each Quad.
Steel Plate Beam Guardrail, Type A 50' on Approaches
Existing Guardrail Removal Incidental to Removal of Existing Structures
℄ Bridge 55+01
CROW CREEK
PC Sta. 55+40.68
PT Sta. 53+04.01
Existing Structure: S.N. 006-3230 Three Span (38'-3" ; 48'-0" ; 38'-3") Steel Girder Structure Supported by R.C. Abutments and Piers All on Friction Pile At Sta. 55+10. Skewed 0°. To be Removed. No Salvage.
Proposed Structure: S.N. 006-3231 A Single Span (1 @ 125'-6") Steel Plate Girder Structure on Pile Bent Spill Thru Abutments At Sta. 55+01. Skewed 0°.
CALL J.U.L.I.E. TOLL FREE 800-892-0123
Proposed Profile
Existing Profile
ex = 2.359' K = 48 300.00' V.C. 30 MPH
ex = -0.75' K = 67 200.00' V.C. 45 MPH
ex = 2.978' K = 44 325.00' V.C. 30 MPH
BOP STA. 51+91.00 ELEVATION 422.06
PC STA. 50+00.00 ELEVATION 427.39
VPI STA. 51+50.00 ELEVATION 420.20
PT STA. 53+00.00 ELEVATION 422.45
PC STA. 54+10.00 ELEVATION 424.10
VPI STA. 55+10.00 ELEVATION 425.60
PT STA. 56+10.00 ELEVATION 424.10
PC STA. 56+37.50 ELEVATION 423.69
VPI STA. 58+00.00 ELEVATION 421.25
PT STA. 59+62.50 ELEVATION 430.12
EOP STA. 58+26.00 EOP EL. = 424.87
-4.79% +1.50%
+1.50% -1.50%
-1.50% +5.83%
20 Yr. H.W.E.=418.01
S.B. Elev.=407.0
*Channel Excavation
*Channel Excavation shall be Tapered from Deck Edge to R.O.W.
Earth Excavation = 1,011 Cu. Yds.
Channel Excavation = 1,244 Cu. Yds.
SCALE

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

Contract No. 87365



CALL J.U.L.I.E. TOLL FREE 800-892-0123

30 0 30 60 90

LEGEND

- Seeding, Class 3 (Special)
- Erosion Control Blanket
- Temporary Ditch Checks
- Perimeter Erosion Barrier

EROSION CONTROL NOTES

The Soil Erosion And Sediment Control Practices Will Be Inspected Weekly And After ½" Of Rain Or More By The Individual On Site In Charge Of Soil Erosion And Sediment Control During The Construction Of The Project.

Perimeter Erosion Barrier Shall Comply With Section 280 Of The Standard Specifications And Shall Be Placed As Shown On The Erosion Control Plan And In Accordance With Stations Shown On The Schedule Of Quantities Sheet Or As Directed By The Engineer.

Silt Fence Shall Be Installed Following The Completion And Stabilization Of All Areas Adjacent To The On-Site Drainages. The Silt Fence Will Remain In Place Until The Contributing Area Is Stabilized.

For Seeding, Class 3 (Special) See Special Provisions.

Mulch Shall Be Placed Over The Entire Seeded Region.

Erosion Control Blanket Shall Be Placed In Ditches And To All Disturbed Areas As Shown On This Erosion Control Plan Sheet And In Accordance With Section 251 Of The Standard Specifications For Road And Bridge Construction.

The Use Of Green Dye In The Erosion Control Blanket Is Not Acceptable.

The Use Of Asphalt As A Binder Is Not Acceptable.

Temporary Ditch Checks Shall Comply With Section 280 Of The Standard Specifications For Road And Bridge Construction And Standard 280001-04 Located In The Specifications. Temporary Ditch Checks Shall Be Rolled Excelsior.

Temporary Ditch Checks Shall Be Placed At 100' Maximum Centers And Shall Be Placed At Stations Called Out In The Schedule Of Quantities Or As Directed By The Engineer.

Stockpiles Of Soil And Other Building Materials To Remain In Place More Than Three (3) Days Shall Be Furnished With Erosion And Sediment Control Measures (I.E. Perimeter Silt Fence). Stockpiles To Remain In Place For 30 Days Or More Shall Receive Temporary Seeding.

All Adjacent Streets Must Be Kept Clear Of Debris. Inspected Daily And Cleaned When Necessary.

BILL OF MATERIAL

Item	Unit	Quantity
Seeding, Class 3 (Special)	Acre	1.44
Erosion Control Blanket	Sq. Yd.	6,973
Temporary Erosion Control Seeding	Pound	1,200
Temporary Ditch Checks	Each	12
Perimeter Erosion Barrier	Foot	503

EROSION CONTROL PLAN
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA # 1119D05

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	8
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-2491(04)		

Contract No. 87365

STORM WATER POLLUTION PREVENTION PLAN

The Following Plan is Established and Incorporated in the Project to Direct the Contractor in the Placement of Temporary Erosion Control Systems and to Provide a Storm Sewer Water Pollution Prevention Plan for Compliance Under NPDES.

The Purpose of this Plan is to Minimize Erosion Within the Construction Site and to Limit Sediments From Leaving the Construction Site by Utilizing Proper Temporary Erosion Control Systems and Providing Ground Cover Within a Reasonable Amount of Time.

Certain Erosion Control Facilities shall be Installed by the Contractor at the Beginning of Construction. Other Items shall be Installed by the Contractor as Directed by the Engineer on a Case by Case Situation Depending on the Contractor's Sequence of Activities, Time of Year, and Expected Weather Conditions.

The Contractor shall Install Permanent Erosion Control Systems and Seeding Within a Time Frame Specified Herein and as Directed by the Engineer. Therefore Minimizing the Amount of Area Susceptible to Erosion and Reducing the Amount of Temporary Seeding. The Engineer will Determine if any Temporary Erosion Control Systems Shown in the Plan can be Deleted and if any Additional Temporary Erosion Control Systems, Which are not Included in this Plan, shall be Added. The Contractor shall Perform All Work as Directed by the Engineer and as Shown in Standard 280001-04 of the Specifications.

Section 280, Temporary Erosion Control, of the Standard Specifications Additionally Supplements This Plan.

SITE DESCRIPTION
DESCRIPTION OF CONSTRUCTION ACTIVITY:

1. The Project Consists of Bridge Replacement on FAS 249 (C.H. 17 - Yankee Lane) over Crow Creek & Approach Roadway work thereto.
2. Construction Includes Pavement Removal, Earth Excavation, Entrances, Channel Excavation, Various Pavement Items, Bridge Items and Other Miscellaneous Items of Construction.

DESCRIPTION OF INTENDED SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES WHICH WILL DISTURB SOILS FOR MAJOR PORTIONS OF THE CONSTRUCTION SITE:

1. Pavement Removal and Earth Excavation
2. Channel Excavation
3. Aggregate Base, Bituminous Surface and Related Appurtenances
4. Placement of Permanent Erosion Control, Including Seeding

AREA OF CONSTRUCTION SITE:

The Total Area of the Construction Site is Estimated to be 2.33 Acres of Which 1.80 Acres will be Disturbed by Excavation, Grading, and Other Activities.

OTHER REPORTS, STUDIES AND PLANS WHICH AID IN THE DEVELOPMENT OF THE STORM WATER POLLUTION PREVENTION PLAN AS REFERENCED DOCUMENTS:

1. Information of the Soils and Terrain Within the Site was Obtained From Soil Borings that were Utilized for the Development of the Proposed Temporary Erosion Control Systems.
2. Project Plan Documents, Specifications and Special Provisions, and Plan Drawings Indicating Drainage Patterns and Approximate Slopes Anticipated After Grading Activities were Utilized for the Proposed Placement of the Temporary Erosion Control Systems.

CONTROLS - EROSION CONTROLS AND SEDIMENT CONTROL
DESCRIPTION OF STABILIZATION PRACTICES AT THE BEGINNING OF CONSTRUCTION.

1. The Drawings, Specifications and Special Provisions will Ensure That Existing Vegetation is Preserved Where Attainable and Disturbed Portions of the Site will be Stabilized. Stabilization Practices Include: Temporary Seeding, Permanent Seeding, Mulching, Perimeter Erosion Barrier, and Other Appropriate Measures as Directed by the Engineer. Stabilization Measures shall be Initiated as Soon as Practicable in Portions of the Site Where Construction Activities have Temporarily or Permanently Ceased, but in No Case More Than 7 Days After the Construction Activity in That Portion of the Site has Temporarily or Permanently Ceased.
   (a) Areas of Existing Vegetation (Wood and Grasslands) Outside the Proposed Construction Limits shall be Identified by the Engineer for Preserving and shall be Protected From Construction Activities.
   (b) Dead, Diseased, or Unsuitable Vegetation Within the Site shall be Removed as Directed by the Engineer, Along with Required Tree Removal.
   (c) As Soon as Reasonable Access is Available to All Locations Where Water Drains Away From the Project, Temporary Ditch Checks and Perimeter Erosion Barrier shall be Installed as Called Out in this Plan and Directed by the Engineer.
   (d) Bare and Sparsely Vegetated Ground in Highly Erodible Areas as Determined by the Engineer shall be Temporarily Seeded at the Beginning of Construction Where No Construction Activities are Expected Within Seven Days.
   (e) At Locations Where a Significant Amount of Water Drains Into the Construction Zone From Outside Areas (Adjacent Landowners), Temporary Ditch Checks will be Utilized to Locally Divert Water, Reduce Flow Rates, and Collect Outside Siltation Inside the Right-of-Way Line.
2. Establishment of These Temporary Erosion Control Measures will have Additional Benefits to the Project. Desirable Grass Seed will Become Established in These Areas and Will Spread Seeds onto the Construction Site Until Permanent Seeding/Mowing and Overseeding can be Completed.

DESCRIPTION OF STABILIZATION PRACTICES DURING CONSTRUCTION:

1. During Construction, Areas Outside the Construction Limits as Outlined Previously Herein shall be Protected. The Contractor shall not Use This Area for Staging (Except as Described on the Plans and Directed by the Engineer), Parking of Vehicles or Construction Equipment, Storage of Materials, or Other Construction Related Activities.
   (a) Within the Construction Limits, Areas Which may be Susceptible to Erosion as Determined by the Engineer shall Remain Undisturbed Until Full Scale Construction is Underway to Prevent Unnecessary Soil Erosion.
   (b) Earth Stockpiles shall be Temporarily Seeded if They are to Remain Unused for More Than Fourteen Days.
   (c) As Construction Proceeds, the Contractor shall Institute the Following as Directed by the Engineer:
      I. Place Temporary Erosion Control Facilities at Locations Shown on the Plans.
      II. Temporarily Seed Erodable Bare Earth on a Weekly Basis to Minimize the Amount of Erodable Surface Area Within the Contract Limits.
   (d) Excavated Areas and Embankment shall be Permanently Seeded Immediately After Final Grading. If not, they shall be Temporarily Seeded if no Construction Activity in the Area is Planned for 7 Days.
   (e) Construction Equipment shall be Stored and Fueled Only at Designated Locations. All Necessary Measures shall be Taken to Contain any Fuel or Other Pollutant in Accordance With EPA Water Quality Regulations. Leaking Equipment or Supplies shall be Immediately Repaired or Removed From the Site.
   (f) The Resident Engineer shall Inspect the Project Daily During Construction Activities. Inspection shall Also be Done Weekly and After Rains of ½ Inch or Greater or Equivalent Snowfall and During the Winter Shutdown Period. The Project shall Additionally be Inspected by the Construction Field Engineer on a Bi-Weekly Basis to Determine That Erosion Control Efforts are in Place and Effective and if Other Erosion Control Work is Necessary.
   (g) Sediment Collected During Construction of the Various Temporary Erosion Control Systems shall be Disposed of on The Site on a Regular Basis as Directed by the Engineer. The Cost of This Maintenance shall be Included in the Unit Price Per Cubic Yard for Earth Excavation and shall not be Paid for Seperately.
   (h) The Temporary Erosion Control Systems shall be Removed as Directed by the Engineer After Use is No Longer Needed or No Longer Functioning. The Cost of This Removal shall be Included in the Unit Price Per Cubic Yard for Earth Excavation and shall not be Paid Seperately.

DESCRIPTION OF STRUCTURAL PRACTICES AFTER FINAL GRADING:

1. Temporary Erosion Control Systems shall be Left in Place With Proper Maintenance Until Permanent Erosion Control is in Place and Working Properly and All Proposed Turf Areas Seeded and Established.
2. Once Permanent Erosion Control Systems as Proposed in the Plans are Functional and Established, Temporary Items shall be Removed, Cleaned Up, and Disturbed Turf Reseeded.

MAINTENANCE AFTER CONSTRUCTION:

1. Construction is Complete After Acceptance by Bureau County Final Inspection. Maintenance Up to This Date Will be by the Contractor.

MISCELLANEOUS:

1. Temporary Erosion Control Seeding shall be Applied at a Rate of 100 Lbs./Acres.
2. Ditch Checks shall be Comprised of Rolled Excelsior, Urethane Foam/Geotextile (Silt Sedges), and/or Any Other Material Approved by the Erosion and Sediment Control Coordinator.
3. Sediment Collected During Construction by the Various Temporary Erosion Control Systems shall be Disposed of on the Site on a Regular Basis, as Directed by the Engineer. The Cost of This Maintenance shall be Paid for at the Contract Unit Price per Cubic Yard for Earth Excavation and shall not be Paid for Seperately.
4. All Erosion Control Products Furnished shall be Specifically Recommended by the Manufacturer for the Use Specified in the Erosion Control Plan. Prior to the Approval and Use of the Product, the Contractor shall Submit to the Engineer a Notarized Certification by the Producer Stating the Intended Use of the Product and That the Physical Properties Required for This Application are Met or Exceeded. The Contractor shall Provide Manufacturer Installation Procedures to Facilitate the Engineer in Construction Inspection.

This Plan has been Prepared to Comply With the Provisions of the NPDES Permit Number ILR10, Issued by the Illinois Environmental Protection Agency for Storm Water Discharges From Construction Site Activities.

I Certify Under Penalty of Law That This Document and All Attachments were Prepared Under My Direction or Supervision in Accordance with a System Designed to Assure That Qualified Personnel Properly Gathered and Evaluated the Information Submitted. Based on My Inquiry of the Person or Persons who Manage the System, or Those Persons Directly Responsible for Gathering the Information, the Information Submitted is, to the Best of My Knowledge and Belief, True, Accurate and Complete. I am Aware that There are Significant Penalties for Submitting False Information, Including the Possibility of Fine and Imprisonment for Knowing Violations.

BUREAU COUNTY ENGINEER — DATE 04/04/08

EROSION CONTROL PLAN
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA # 1119D05

EXISTING STRUCTURE: S.N. 006-3230
Three Span (38'-3" : 48'-0" : 38'-3") Steel Girder Structure Supported by R.C. Abutments and Piers All on Friction Pile At Sta. 55+10. Skewed 0°. To be Removed. No Salvage.

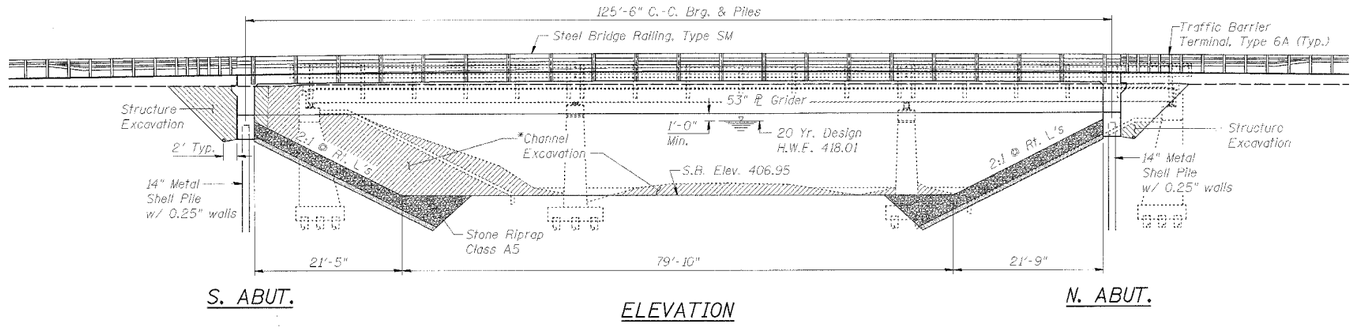
Bench Mark: Railroad Spike in Power Pole. 36.5' Lt. of Sta. 53+48: Elev. 417.94

Bench Mark: Brass Disc in NE Corner of Exist. Bridge on Hub Guard, 12.5' Rt. of Sta. 55+73. Elev. 423.53

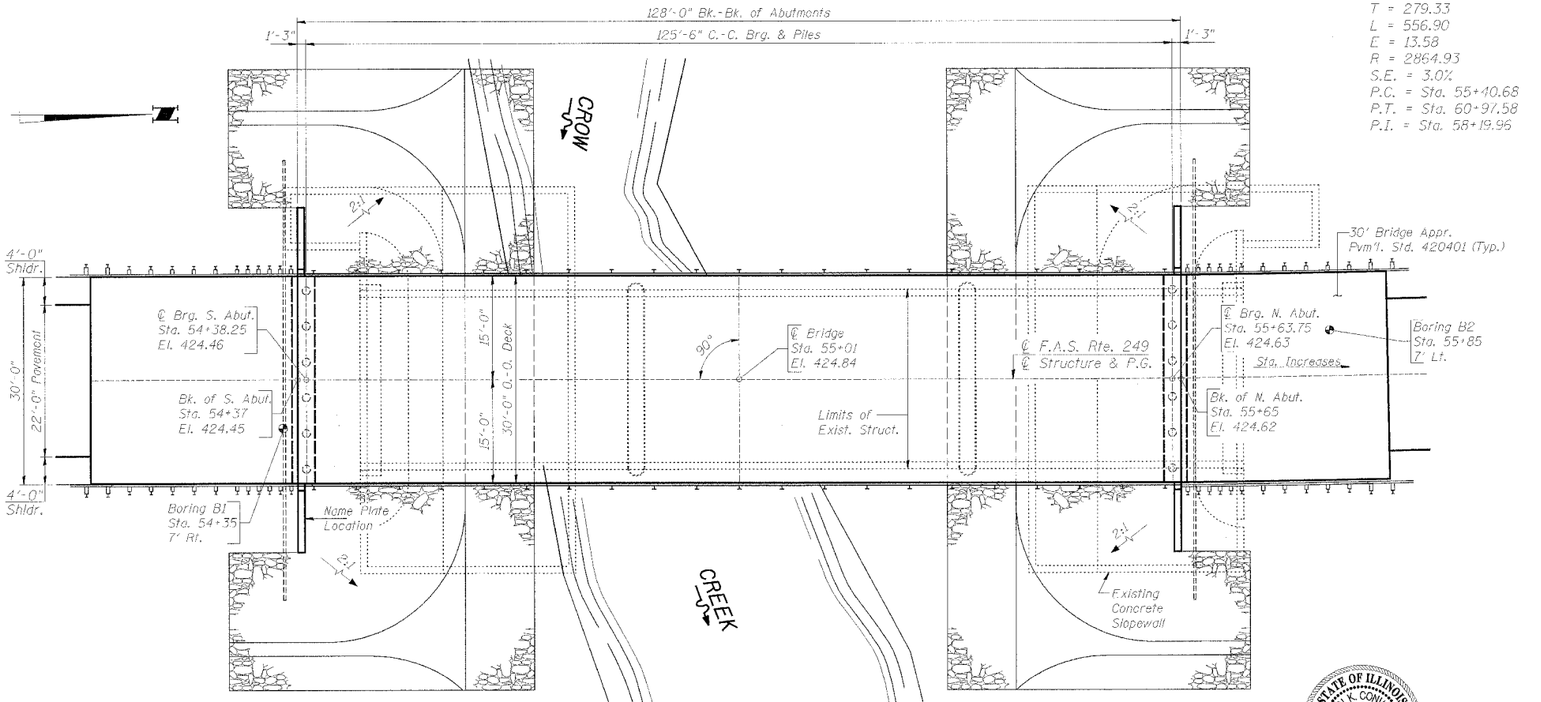
Bench Mark: Railroad Spike in Power Pole. 44' Lt. of Sta. 57+16: Elev. 417.77

SHEET NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

Contract No. 87365
Structural Sheet 1 of 12



S. ABUT. ELEVATION N. ABUT.



PLAN VIEW

CURVE DATA

Δ = 11°08'15"
D = N. 01°57'13" W
T = 279.33
L = 556.90
E = 13.58
R = 2864.93
S.E. = 3.0%
P.C. = Sta. 55+40.68
P.T. = Sta. 60+97.58
P.I. = Sta. 58+19.96

BILL OF MATERIAL - BRIDGE

	ITEM	UNIT	SUB	SUPER	TOTAL
	Porous Granular Embankment, Special	Cu. Yd.	156	———	156
	Stone Riprap, Class A5	Sq. Yd.	801	———	801
	Removal of Existing Structures	Each	———	1	1
	Concrete Structures	Cu. Yd.	30.5	———	30.5
	Concrete Superstructure	Cu. Yd.	———	140.3	140.3
	Bridge Deck Grooving	Sq. Yd.	———	400	400
**	Protective Coat	Sq. Yd.	———	427	427
	Furnishing & Erecting Structural Steel	L. Sum	———	1	1
	Stud Shear Connectors	Each	———	1,920	1,920
	Reinforcement Bars, Epoxy Coated	Pound	4,780	24,540	29,320
	Bar Splicers	Each	———	62	62
	Steel Railing, Type SM	Foot	———	256	256
	Furnishing Metal Pile Shells 14" x 0.250"	Foot	450	———	450
	Driving Piles	Foot	450	———	450
	Test Pile Metal Shells	Each	2	———	2
	Name Plates	Each	1	———	1
	Anchor Bolts, 1"	Each	———	20	20
	Geocomposite Wall Drain	Sq. Yd.	65	———	65
	Pipe Underdrains for Structures 4"	Foot	143	———	143

GENERAL NOTES:

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $\frac{3}{4}$" ϕ, holes $\frac{15}{16}$" ϕ, unless otherwise noted.

Calculated weight of Structural Steel = 157,195 lbs.

All structural steel shall be AASHTO M 270 Grade 50.

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions

Reinforcement bars designated (E) shall be epoxy coated.

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be reddish brown, Munsell No. 2.5 Yr. 3/4. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be reddish brown, Munsell No. 2.5 Yr. 3/4. See Special Provision for "Cleaning and Painting New Metal Structures".

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.

*Channel shall be transitioned from edge of deck to Temporary Construction Easement line.

**Quantity is for Reinforced Concrete Deck.

P.I. Sta. 55+10
P.I. Elev. = 425.60
v.c. = 200'
x = -0.75'
k = 67

VERTICAL CURVE

WATERWAY INFORMATION

DRAINAGE AREA	42.9 SQ. MI.
DESIGN DISCHARGE (20 YR.)	6,000 CFS
EXISTING OPENING	829 SQ. FT.
REQUIRED OPENING	1,094 SQ. FT.
PROPOSED OPENING	1,094 SQ. FT.
CREATED HEAD (20 YR.)	<0.5 FT.
100 YR. DISCHARGE	8,816 CFS
CREATED HEAD (100 YR.)	<1.0 FT.
HIGH WATER ELEV. (100 YR.)	419.15 FT.

CROW CREEK
BUILT 2008 BY
BUREAU COUNTY
SECTION 03-00190-00-BR
F.A.S. RT. 249 STATION 55+01
STR. NO. 006-3231 LOADING HL-93

NAME PLATE LETTERING

DESIGN SPECIFICATIONS

2004 AASHTO LRFD Bridge Design Specifications with 2005 and 2006 Interims

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

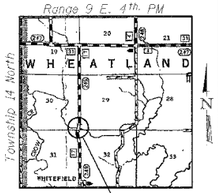
SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Bedrock Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.0

STATE OF ILLINOIS · BRIAN K. CONVERSE · 081-005213 · DIXON, IL · LICENSED STRUCTURAL ENGINEER

Brian K. Converse
DATE: APRIL 4th, 2008
EXPIRES 11/30/09

"I certify that to the best of my knowledge, information and belief, this bridge 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 Standard Specifications for Highway Bridges"."



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
FAS 249 (C.H. 17-YANKEE LANE)
OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY

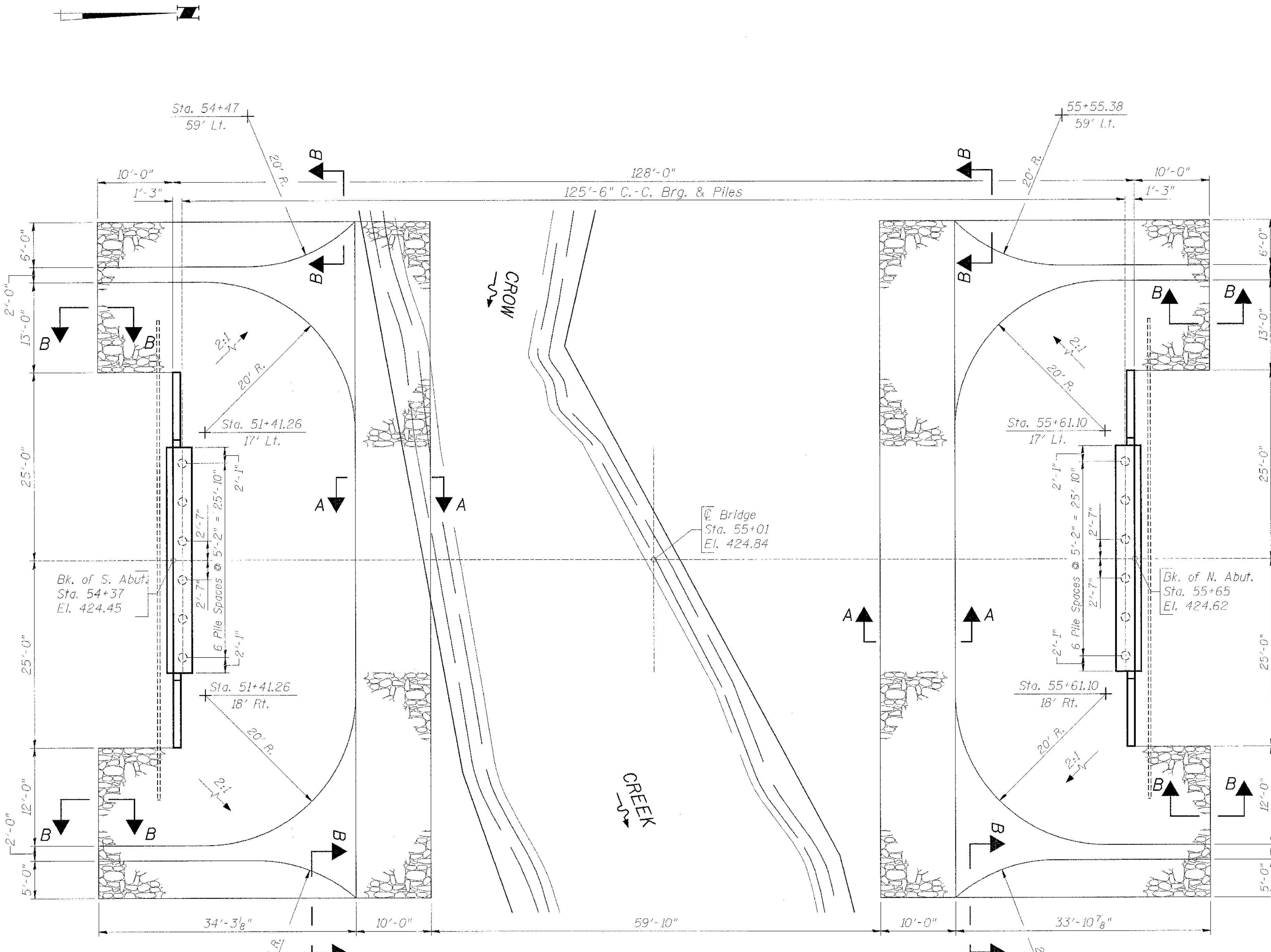
WILLETT, HOFMANN & ASSOCIATES, INC.
CONSULTING ENGINEERS
Land Surveying - Transportation - Structural
Environmental - Architecture
809 East Second Street Dixon, Illinois 61021
Phone 815.284.3381 Fax 815.284.3386
Design Firm #184-000918
www.willetthofmann.com

WHA # 1119D05

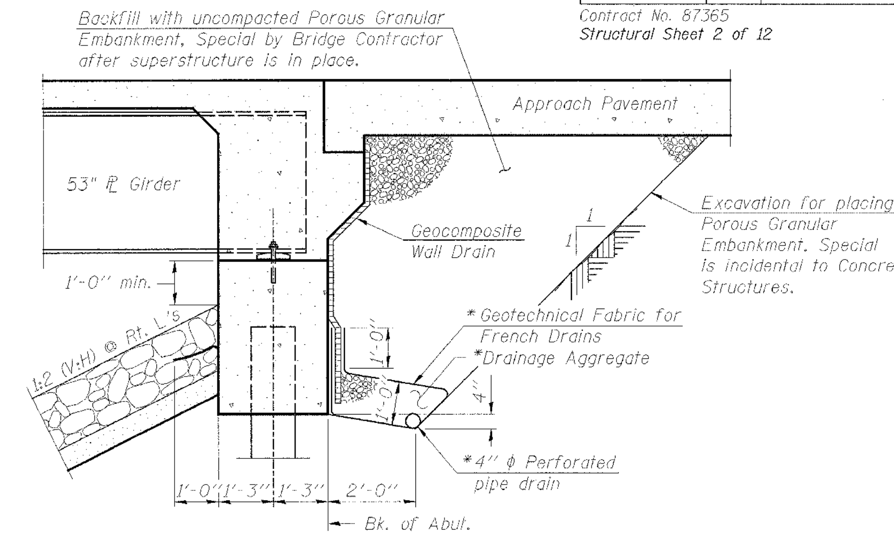
Designed By: B. K. Converse Date: 02/2008
Checked By: M. A. Small Date: 02/2008
Drawn By: F. D. Lachat Date: 02/2008

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. F.A.S. 249	03-00190-00-BR	BUREAU	22	10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

Contract No. 87365
Structural Sheet 2 of 12



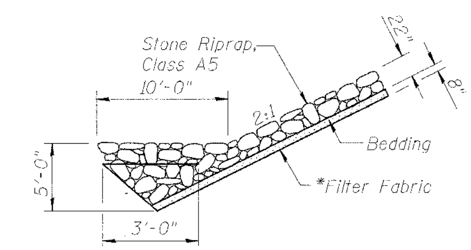
PLAN VIEW



SECTION THRU INTEGRAL ABUTMENT

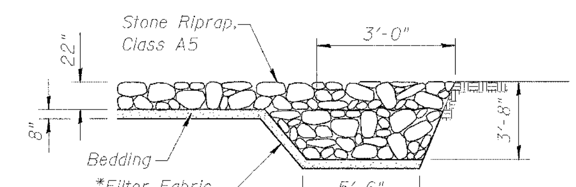
* Included in the cost of Pipe Underdrains for Structures.

Note:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).



SEC A-A

* Included in the cost of Stone Riprap, Class A5



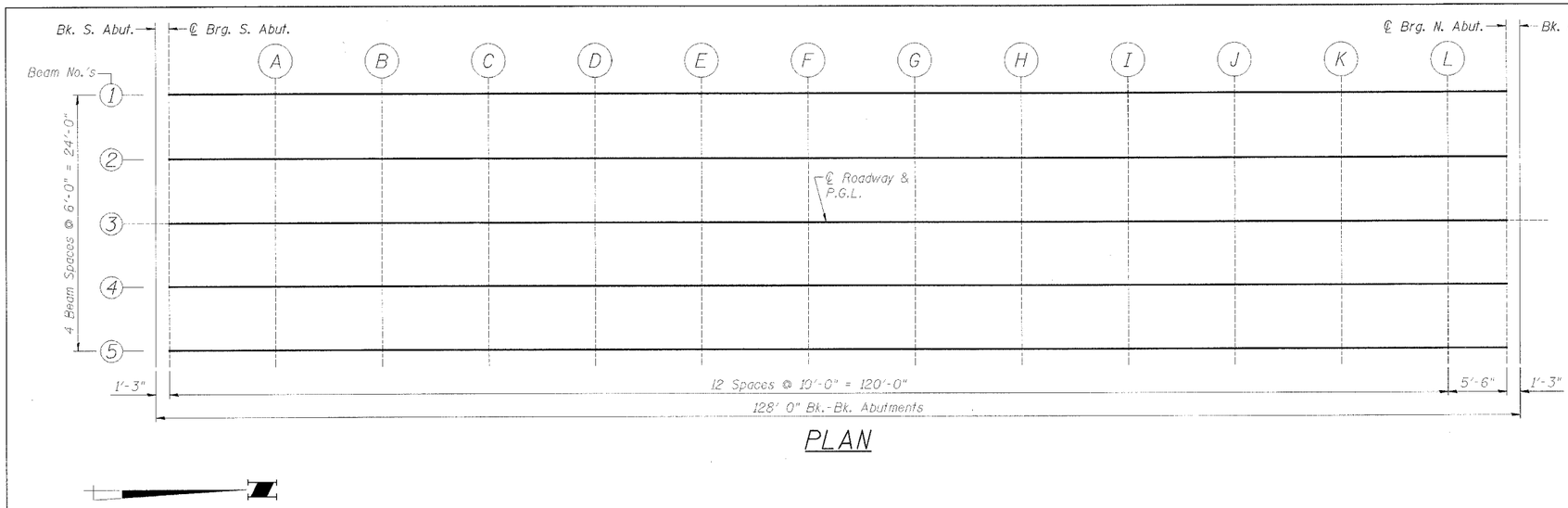
SEC B-B

* Included in the cost of Stone Riprap, Class A5

BILL OF MATERIAL

Item	Unit	Quantity
Stone Riprap, Class A5	Sq. Yd.	801

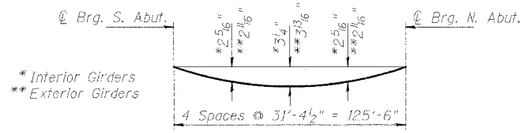
RIPRAP AND PILE LAYOUT
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)
WHA #1119D05



PLAN

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT: BRS-249(104)		

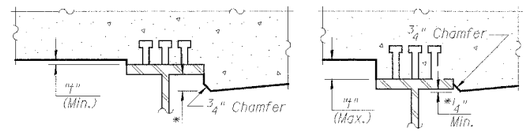
Contract No. 87365
Structural Sheet 3 of 12



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete slab only)

Note: The above deflections are not to be used in the field if the Engineer is working from the grade elevations adjusted for dead load deflections, as shown below.



At Minimum Fillet — At Maximum Fillet

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

*Variable (not less than 1/4")

LEFT FACE OF RAIL

Location	Station	Offset Lt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	15.000	424.200	424.200
℄ Brg. S. Abut.	54+38.250	15.000	424.213	424.213
A	54+48.250	15.000	424.314	424.393
B	54+58.250	15.000	424.399	424.552
C	54+68.250	15.000	424.469	424.686
D	54+78.250	15.000	424.524	424.791
E	54+88.250	15.000	424.564	424.864
F	54+98.250	15.000	424.589	424.904
G	55+08.250	15.000	424.601	424.912
H	55+18.250	15.000	424.602	424.889
I	55+28.250	15.000	424.588	424.834
J	55+38.250	15.000	424.516	424.706
K	55+48.250	15.000	424.391	424.513
L	55+58.250	15.000	424.252	424.296
℄ Brg. N. Abut.	55+63.750	15.000	424.183	424.183
Bk. of N. Abut.	55+65.000	15.000	424.173	424.173

BEAM 1

Location	Station	Offset Lt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	12.000	424.262	424.262
℄ Brg. S. Abut.	54+38.250	12.000	424.276	424.276
A	54+48.250	12.000	424.376	424.455
B	54+58.250	12.000	424.461	424.615
C	54+68.250	12.000	424.531	424.748
D	54+78.250	12.000	424.586	424.853
E	54+88.250	12.000	424.627	424.927
F	54+98.250	12.000	424.652	424.967
G	55+08.250	12.000	424.662	424.972
H	55+18.250	12.000	424.657	424.944
I	55+28.250	12.000	424.637	424.883
J	55+38.250	12.000	424.571	424.760
K	55+48.250	12.000	424.461	424.582
L	55+58.250	12.000	424.337	424.381
℄ Brg. N. Abut.	55+63.750	12.000	424.273	424.273
Bk. of N. Abut.	55+65.000	12.000	424.263	424.263

BEAM 2

Location	Station	Offset Lt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	6.000	424.356	424.356
℄ Brg. S. Abut.	54+38.250	6.000	424.370	424.370
A	54+48.250	6.000	424.470	424.538
B	54+58.250	6.000	424.555	424.686
C	54+68.250	6.000	424.625	424.810
D	54+78.250	6.000	424.680	424.907
E	54+88.250	6.000	424.720	424.975
F	54+98.250	6.000	424.745	425.013
G	55+08.250	6.000	424.756	425.020
H	55+18.250	6.000	424.751	424.995
I	55+28.250	6.000	424.731	424.940
J	55+38.250	6.000	424.680	424.842
K	55+48.250	6.000	424.600	424.704
L	55+58.250	6.000	424.506	424.544
℄ Brg. N. Abut.	55+63.750	6.000	424.453	424.453
Bk. of N. Abut.	55+65.000	6.000	424.443	424.443

BEAM 3

Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	0.000	424.450	424.450
℄ Brg. S. Abut.	54+38.250	0.000	424.463	424.463
A	54+48.250	0.000	424.564	424.631
B	54+58.250	0.000	424.649	424.779
C	54+68.250	0.000	424.719	424.904
D	54+78.250	0.000	424.774	425.001
E	54+88.250	0.000	424.814	425.069
F	54+98.250	0.000	424.839	425.107
G	55+08.250	0.000	424.849	425.113
H	55+18.250	0.000	424.844	425.089
I	55+28.250	0.000	424.825	425.034
J	55+38.250	0.000	424.790	424.951
K	55+48.250	0.000	424.740	424.843
L	55+58.250	0.000	424.675	424.713
℄ Brg. N. Abut.	55+63.750	0.000	424.633	424.633
Bk. of N. Abut.	55+65.000	0.000	424.623	424.623

BEAM 4

Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	6.000	424.356	424.356
℄ Brg. S. Abut.	54+38.250	6.000	424.370	424.370
A	54+48.250	6.000	424.470	424.538
B	54+58.250	6.000	424.555	424.686
C	54+68.250	6.000	424.625	424.810
D	54+78.250	6.000	424.685	424.912
E	54+88.250	6.000	424.758	425.013
F	54+98.250	6.000	424.817	425.085
G	55+08.250	6.000	424.860	425.124
H	55+18.250	6.000	424.889	425.133
I	55+28.250	6.000	424.903	425.112
J	55+38.250	6.000	424.899	425.061
K	55+48.250	6.000	424.879	424.982
L	55+58.250	6.000	424.844	424.882
℄ Brg. N. Abut.	55+63.750	6.000	424.813	424.813
Bk. of N. Abut.	55+65.000	6.000	424.803	424.803

BEAM 5

Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	12.000	424.262	424.262
℄ Brg. S. Abut.	54+38.250	12.000	424.276	424.276
A	54+48.250	12.000	424.376	424.455
B	54+58.250	12.000	424.461	424.615
C	54+68.250	12.000	424.531	424.748
D	54+78.250	12.000	424.595	424.862
E	54+88.250	12.000	424.702	425.002
F	54+98.250	12.000	424.794	425.109
G	55+08.250	12.000	424.872	425.182
H	55+18.250	12.000	424.934	425.221
I	55+28.250	12.000	424.981	425.227
J	55+38.250	12.000	425.009	425.199
K	55+48.250	12.000	425.018	425.140
L	55+58.250	12.000	425.013	425.057
℄ Brg. N. Abut.	55+63.750	12.000	424.993	424.993
Bk. of N. Abut.	55+65.000	12.000	424.983	424.983

RIGHT FACE OF RAIL

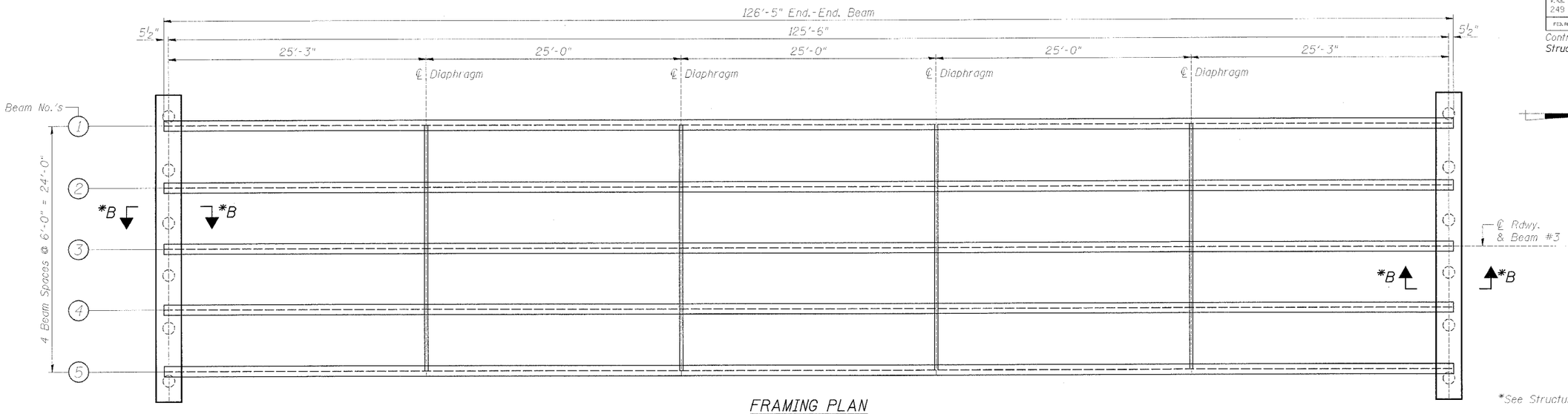
Location	Station	Offset Rt.	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of S. Abut.	54+37.000	15.000	424.200	424.200
℄ Brg. S. Abut.	54+38.250	15.000	424.213	424.213
A	54+48.250	15.000	424.314	424.393
B	54+58.250	15.000	424.399	424.552
C	54+68.250	15.000	424.469	424.686
D	54+78.250	15.000	424.536	424.803
F	54+88.250	15.000	424.665	424.965
F	54+98.250	15.000	424.780	425.094
G	55+08.250	15.000	424.877	425.188
H	55+18.250	15.000	424.956	425.243
I	55+28.250	15.000	425.020	425.266
J	55+38.250	15.000	425.064	425.254
K	55+48.250	15.000	425.088	425.209
L	55+58.250	15.000	425.098	425.142
℄ Brg. N. Abut.	55+63.750	15.000	425.083	425.083
Bk. of N. Abut.	55+65.000	15.000	425.073	425.073

TOP OF SLAB ELEVATIONS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA #1119005

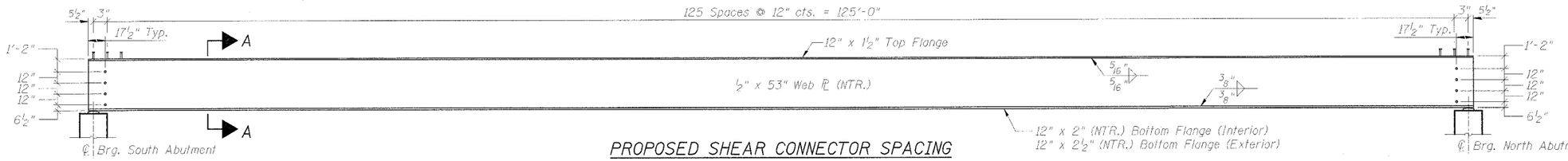
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	12
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(04)		

Contract No. 87365
Structural Sheet 4 of 12

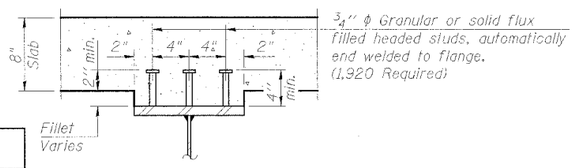


*See Structural Sheet 6 of 12 for Details

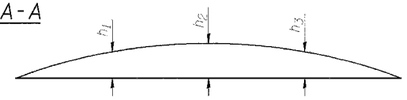
FRAMING PLAN



PROPOSED SHEAR CONNECTOR SPACING



SECTION A-A

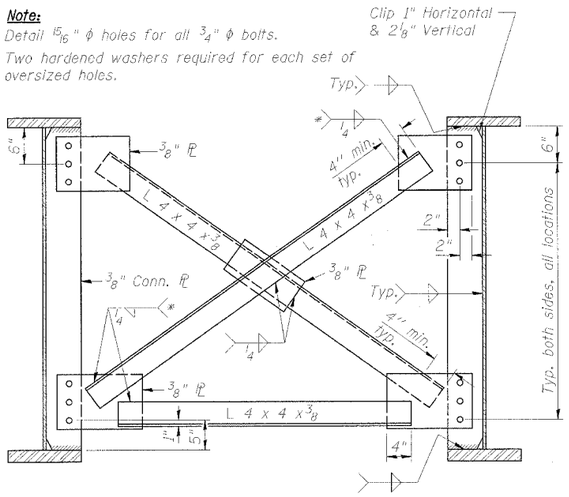


CAMBER DIAGRAM

(See Table for h_1, h_2 & h_3 heights)

Girder	(Inches) h_1	(Inches) h_2	(Inches) h_3
Girder 1	7.425	10.578	8.460
Girder 2	6.791	9.561	7.309
Girder 3	6.532	9.043	6.532
Girder 4	5.711	8.368	6.296
Girder 5	5.265	8.193	6.435

Note:
Detail $^{15}/_{16}$" ϕ holes for all ¾" ϕ bolts.
Two hardened washers required for each set of oversized holes.



TYPICAL INTERIOR CROSS FRAME

*Fillet weld angles along 3 sides on one face of gusset plate.

INTERIOR & EXTERIOR GIRDER MOMENT TABLE			
		Interior Center of Span	Exterior Center of Span
I_s	(in^4)	37,311	41,120
$I_c(n)$	(in^4)	76,976	87,554
$I_c(3n)$	(in^4)	56,758	63,438
S_s	(in^3)	1,434	1,685
$S_c(n)$	(in^3)	1,804	2,119
$S_c(3n)$	(in^3)	1,659	1,949
Z	(in^3)		
$DC1$	('k/')	0.905	1.114
M_{DC1}	('k)	1,782	2,194
$DC2$	('k/')	0.024	0.024
M_{DC2}	('k)	48	48
DW	('k/')	0.30	0.30
M_{DW}	('k)	591	591
$M_{℄ + Imp}$	('k)	1,931	2,324
M_u(Strength I)	('k)	6,553	7,756
$\phi_f M_n$, $\phi_f M_{nc}$	('k)	8,627	9,661
f_s DC1	(ksi)	14.91	15.62
f_s DC2	(ksi)	0.35	0.30
f_s DW	(ksi)	4.27	3.64
f_s 1.3(℄+I)	(ksi)	16.69	17.11
f_s (Service II)	(ksi)	36.22	36.57
f_s (Total)(Strength I)	(ksi)	47.95	48.39
V_f	(k)	42.1	56.1

INTERIOR & EXTERIOR GIRDER REACTION TABLE HL93 Loading			
		Interior at Abutment	Exterior at Abutment
R_{DC1}	(k)	56.8	69.9
R_{DC2}	(k)	1.5	1.5
R_{DW}	(k)	18.6	18.8
$R_{℄ + Imp}$	(k)	86.0	77.4
R_{Total}	(k)	163.1	167.6

TOP OF WEB ELEVATIONS (FOR FABRICATORS USE ONLY)					
BEAM NUMBER	℄ Brg. South Abutment	0.25 Pt.	0.50 Pt.	0.75 Pt.	℄ Brg. North Abutment
1	423.422	424.040	424.302	424.124	423.419
2	423.515	424.102	424.354	424.187	423.599
3	423.609	424.196	424.448	424.281	423.779
4	423.515	424.102	424.434	424.373	423.959
5	423.422	424.040	424.463	424.496	424.139

NOTES:

All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

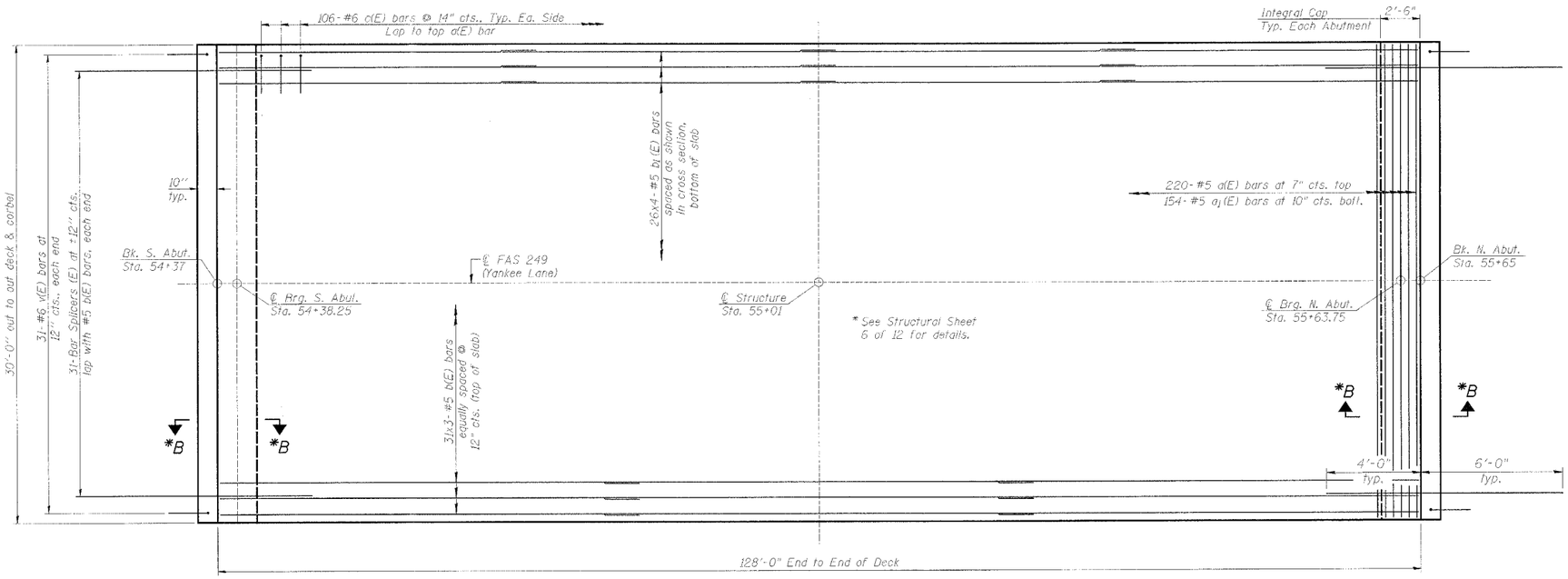
Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

FRAMING PLAN
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)
WHA #1119005

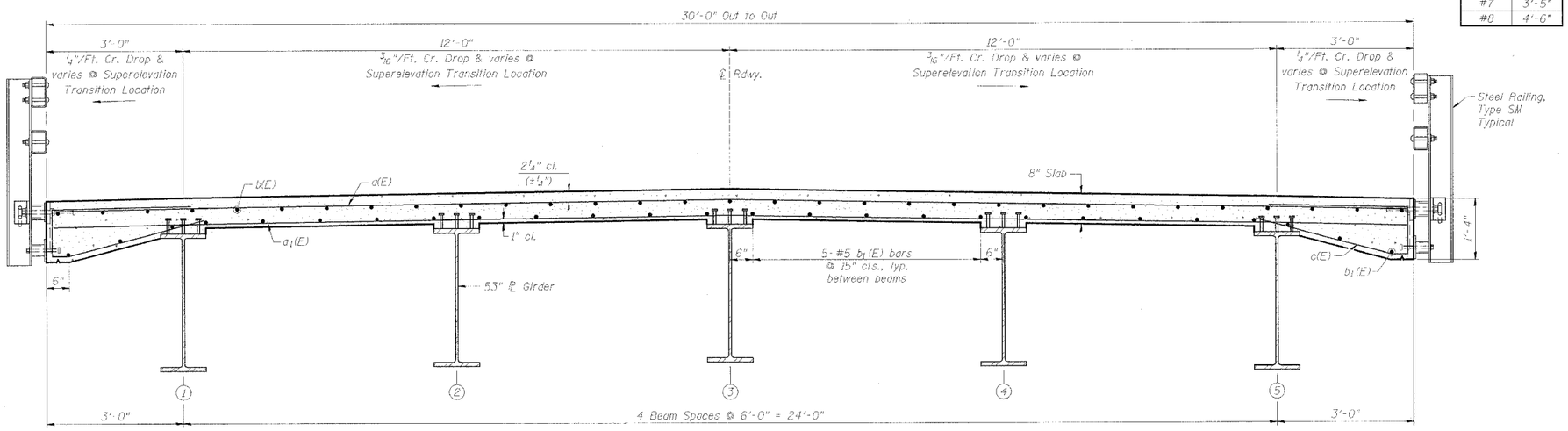
SHEET NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
DIST. NO. 249	03-00190-00-BR	BUREAU	22	13
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT - BRS-249(104)		

Contract No. 87365

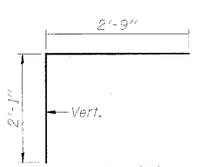
Structural Sheet 5 of 12



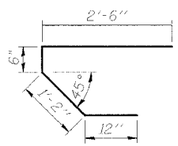
PLAN



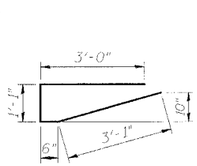
CROSS SECTION



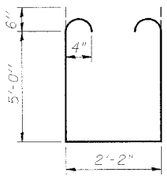
BAR v(E)



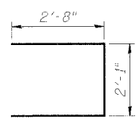
BAR s(E)



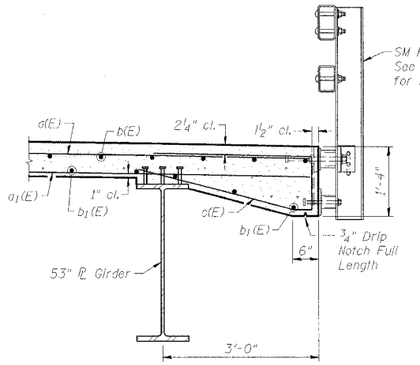
BAR c(E)



BAR s1(E)



BAR u(E)



SECTION THRU EDGE OF DECK

Reinforcement bars in the top of the deck may be placed with a 1½" minimum clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

MIN. BAR LAPS	
BAR	LAP
#4	1'-8"
#5	2'-2"
#6	2'-7"
#7	3'-5"
#8	4'-6"

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d(E)	220	#5	29'-8"	
a1(E)	154	#5	29'-8"	
b(E)	93	#5	44'-0"	
b1(E)	104	#5	33'-6"	
c(E)	212	#6	7'-8"	
m(E)	10	#6	29'-8"	
m1(E)	50	#6	8'-2"	
m2(E)	8	#6	5'-8"	
m3(E)	4	#6	2'-8"	
s(E)	60	#5	5'-2"	
s1(E)	60	#4	13'-2"	
u(E)	16	#6	7'-5"	
v(E)	62	#6	4'-10"	
Concrete Superstructure			Cu. Yd.	140.3
Bridge Deck Grooving			Sq. Yd.	400
Protective Coat			Sq. Yd.	427
Furnishing & Erecting Structural Steel			L. Sum	1
Stud Shear Connectors			Each	1,920
Reinforcement Bars, Epoxy Coated			Pound	24,540
Anchor Bolts, 1"			Each	20

NOTES:

Reinforcement bars designated (E) shall be epoxy coated.

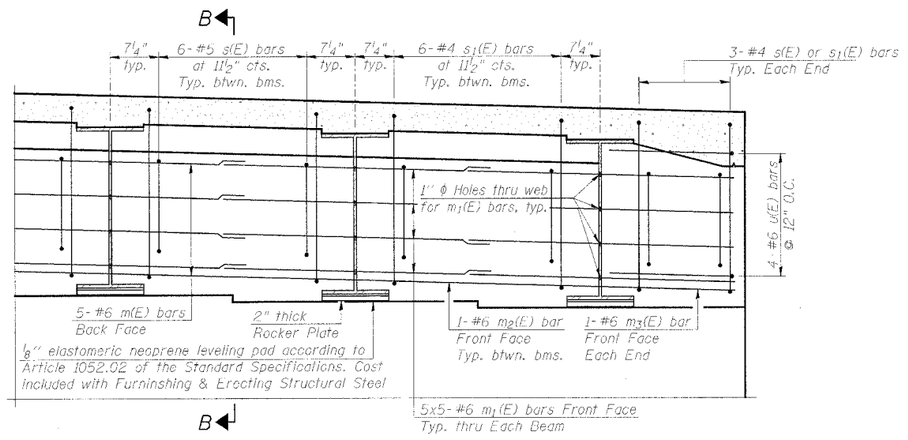
Bars indicated thus 26x3-#5 etc. indicates 26 lines of bars with 3 lengths per line.

SUPERSTRUCTURE
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

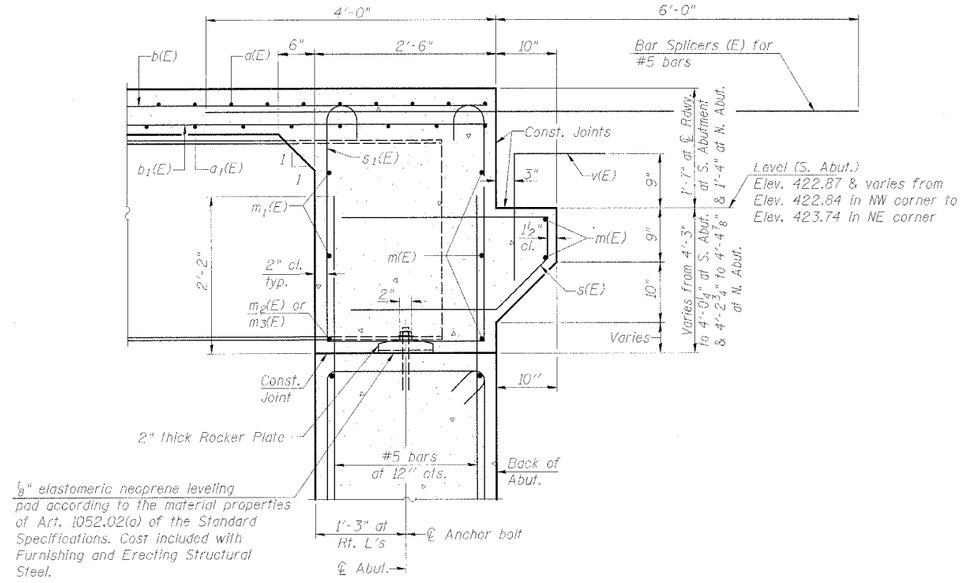
WHA #1119D05

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	14
FED.ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(104)		

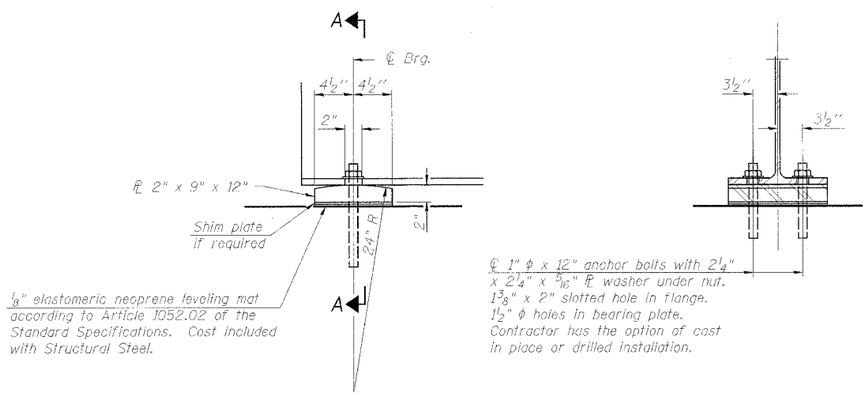
Contract No. 87365
Structural Sheet 6 of 12



DIAPHRAGM ELEVATION AT ABUTMENT



SECTION B-B



ELEVATION AT ABUTMENT

SECTION A-A

FIXED BEARING

MIN. BAR LAPS	
BAR	LAP
#4	1'-8"
#5	2'-2"
#6	2'-7"
#7	3'-5"
#8	4'-6"

NOTES:

Reinforcement bars in diaphragm are billed with superstructure on Structural Sheet 5 of 12.

Concrete in diaphragm is included with Concrete Superstructure on Structural Sheet 5 of 12.

For details of bar s(E) & s_1(E) see Structural Sheet 5 of 12.

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36 ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

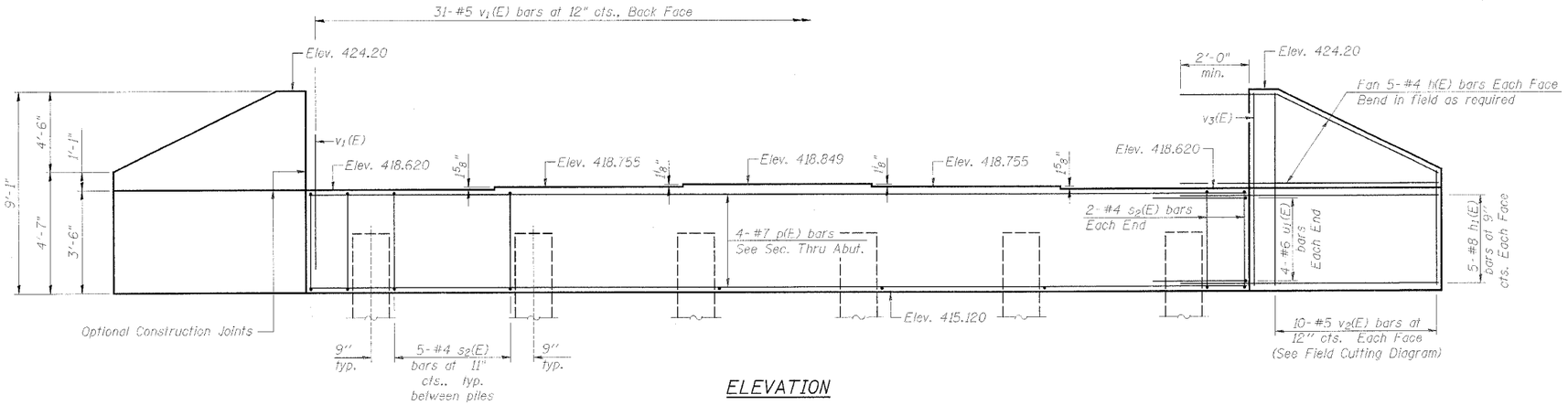
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

DIAPHRAGM DETAILS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

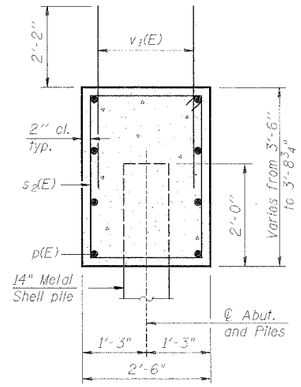
WHA #1119005

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	15
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT: BRS-249(104)		

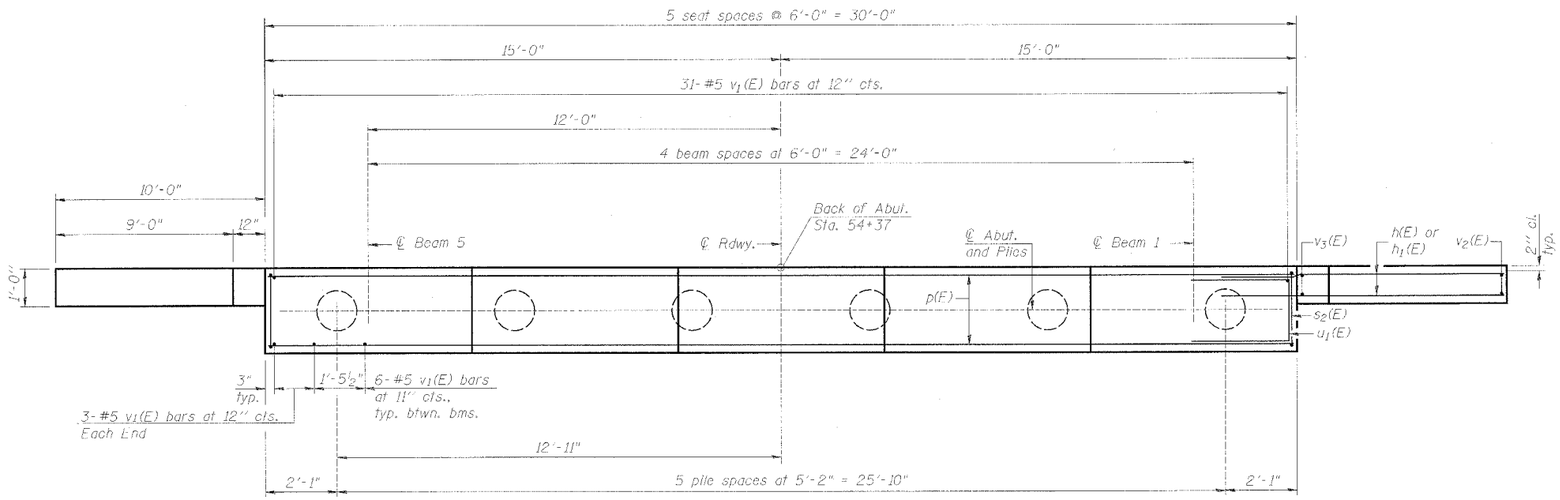
Contract No. 87365
Structural Sheet 7 of 12



ELEVATION



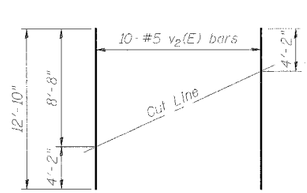
SEC. THRU ABUT.



PLAN

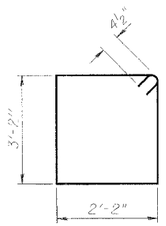
PILE DATA

Type: 14 in. Dia. x 0.25" Walls
Nominal Required Bearing: 416 kips
Allowable Resistance Available: 207 kips
Est. Length: 45'
No. Production Piles: 5
No. Test Piles: 1

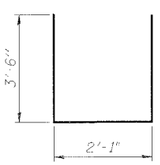


FIELD CUTTING DIAGRAM

Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



BAR s2(E)



BAR u1(E)

BILL OF MATERIAL - S. ABUT.

Bar	No.	Size	Length	Shape
h(E)	20	#4	12'-0"	
h1(E)	20	#8	14'-6"	
p(E)	8	#7	29'-8"	
s2(E)	29	#4	11'-5"	
u1(E)	8	#6	9'-1"	
v1(E)	61	#5	4'-4"	
v2(E)	20	#5	12'-10"	
v3(E)	4	#5	8'-8"	
Porous Granular Embankment, Special		Cu. Yd.	76	
Concrete Structures		Cu. Yd.	14.7	
Reinforcement Bars, Epoxy Coated		Pound	2,330	
Furnishing Metal Shell Piles 14"x 0.250"		Foot	225	
Driving Piles		Foot	225	
Test Pile Metal Shells		Each	1	
Geocomposite Wall Drain		Sq. Yd.	32	
Pipe Underdrains for Structures 4"		Foot	71	

NOTES:

All Exposed Edges Shall Have Standard ¾" Chamfers, Except as Noted.

Space Reinforcement In Cap To Miss Anchor Bolts.

Pour Steps Monolithically With Cap.

Reinforcement Bars Designated (E) shall be epoxy coated.

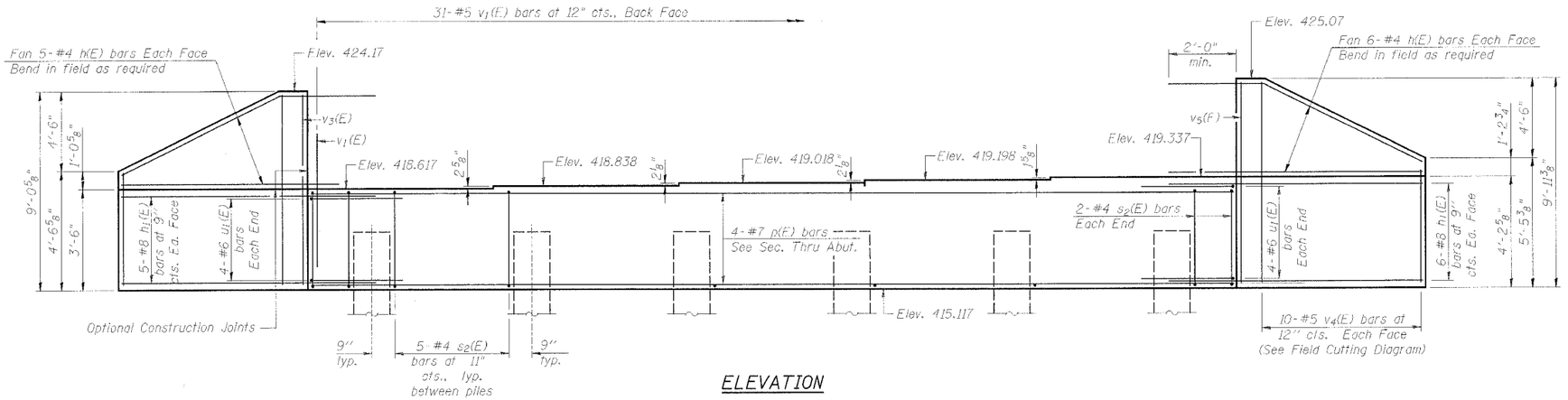
For pile detail see Structural Sheet 11 of 12.

SOUTH ABUTMENT DETAILS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

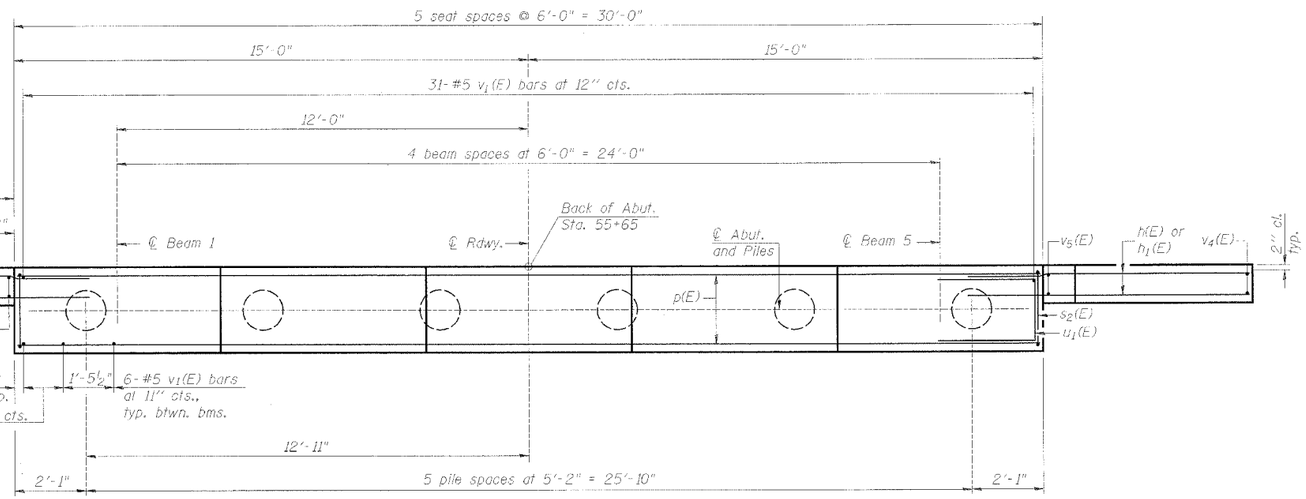
WHA #1119005

ROUTE	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR		BUREAU	22	16
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	BRS-249(104)	

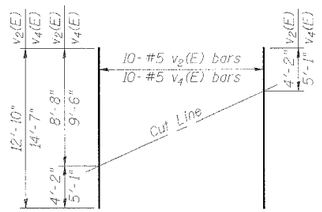
Contract No. 87365
Structural Sheet 8 of 12



ELEVATION

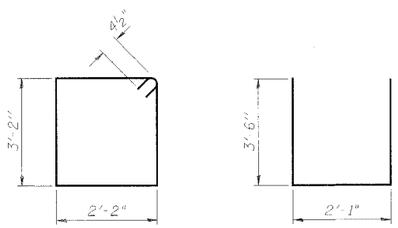


PLAN

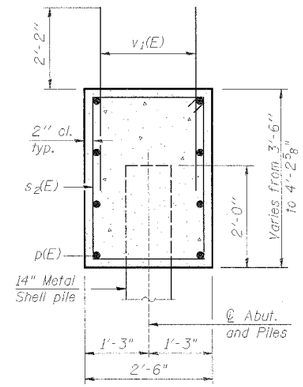


FIELD CUTTING DIAGRAM

Order $v_2(E)$ & $v_4(E)$ full length. Cut as shown and use remainder of bars in opposite face.



BAR $s_2(E)$ BAR $u_1(E)$



SEC. THRU ABUT.

PILE DATA

Type: 14 in. Dia. x 0.25" Walls
Nominal Required Bearing: 416 kips
Allowable Resistance Available: 207 kips
Est. Length: 45'
No. Production Piles: 5
No. Test Piles: 1

BILL OF MATERIAL - N. ABUT.

Bar	No.	Size	Length	Shape
h(E)	22	#4	12'-0"	——
$h_1(E)$	22	#8	14'-6"	——
p(E)	8	#7	29'-8"	——
$s_2(E)$	29	#4	11'-5"	□
$u_1(E)$	8	#6	9'-1"	▭
$v_1(E)$	61	#5	4'-4"	——
$v_2(E)$	10	#5	12'-10"	——
$v_3(E)$	2	#5	8'-8"	——
$v_4(E)$	10	#5	14'-7"	——
$v_5(E)$	2	#5	9'-6"	——
Porous Granular Embankment, Special		Cu. Yd.		80
Concrete Structures		Cu. Yd.		15.8
Reinforcement Bars, Epoxy Coated		Pound		2,450
Furnishing Metal Shell Piles 14"x 0.250"		Foot		225
Driving Piles		Foot		225
Test Pile Metal Shells		Each		1
Geocomposite Wall Drain		Sq. Yd.		33
Pipe Underdrains for Structures 4"		Foot		72

NOTES:

All Exposed Edges Shall Have Standard ¾" Chamfers, Except as Noted.

Space Reinforcement In Cap To Miss Anchor Bolts.

Pour Steps Monolithically With Cap.

Reinforcement Bars Designated (E) shall be epoxy coated.

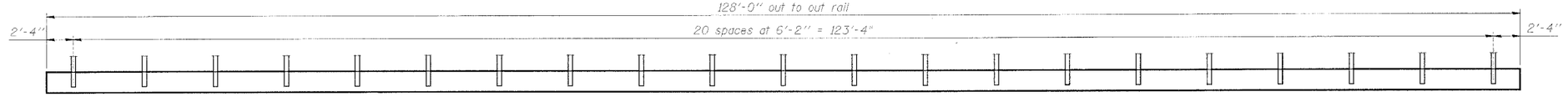
For pile detail see Structural Sheet 11 of 12.

NORTH ABUTMENT DETAILS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

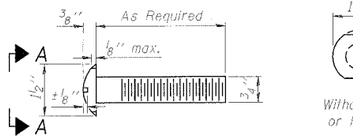
WHA #1119D05

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(004)		

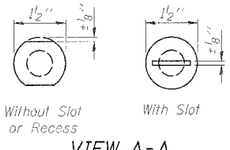
Contract No. 87365
Structural Sheet 9 of 12



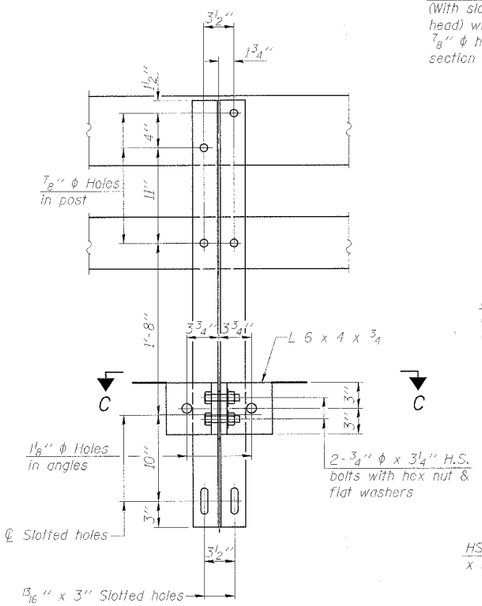
ELEVATION VIEW



DETAIL OF 3/4" ϕ ROUND HEAD BOLT

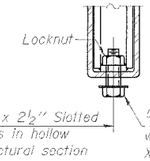


VIEW A-A

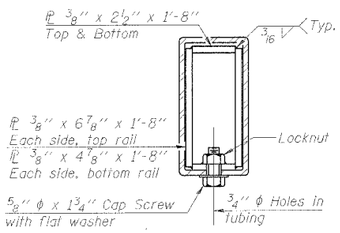


SECTION B-B

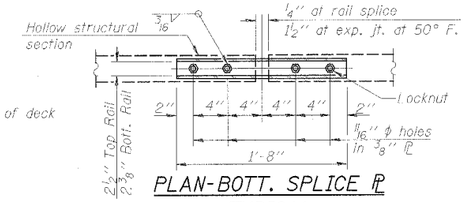
SECTION AT RAIL POST



RAIL SPLICE CONNECTION AT EXPANSION JT.

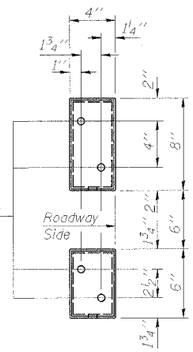


SECTION AT RAIL SPLICE

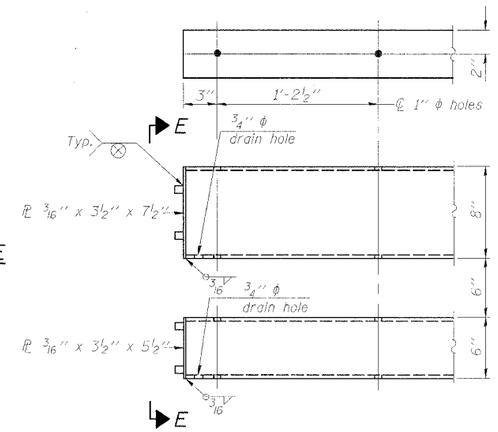


PLAN-BOTT. SPLICE ℄ TYPICAL

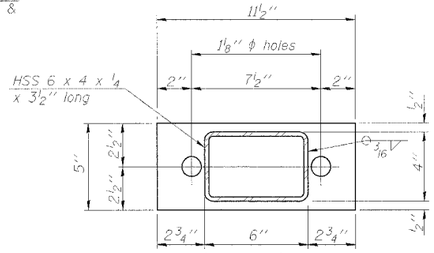
℄ 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



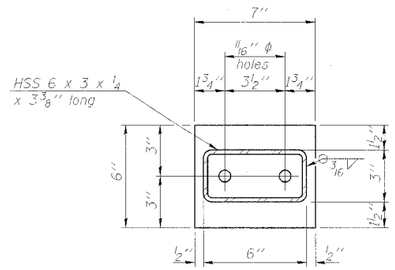
VIEW E-E



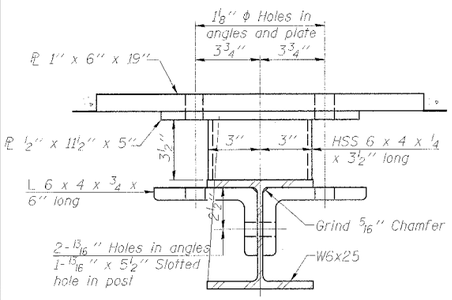
END OF RAIL DETAILS



℄ 1/2" x 11 1/2" x 5"

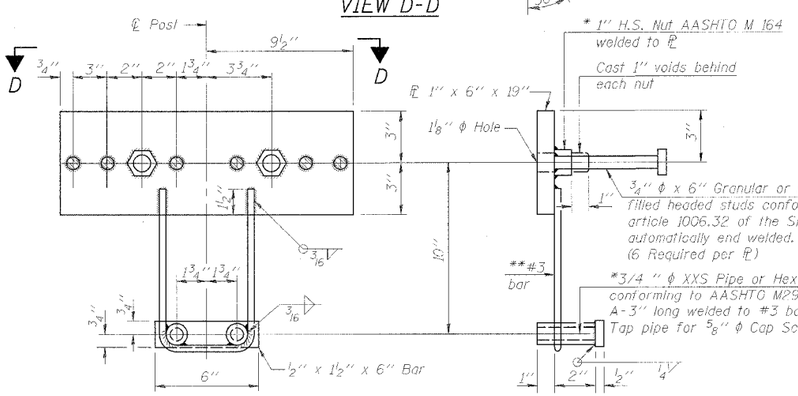


℄ 1/2" x 7" x 6"



SECTION C-C

(6" 3" Maximum Post Spacing)



ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

**Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
***The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

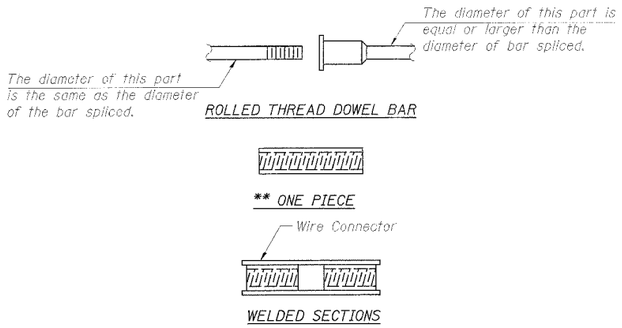
Item	Unit	Quantity
Steel Railing, Type SM	Foot	256

STEEL RAILING, TYPE SM
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA #1119005

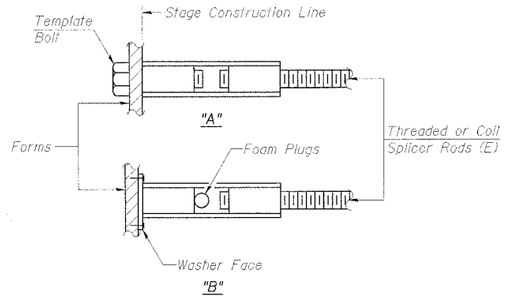
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	18
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT:	BRS-249(104)	

Contract No. 87365
Structural Sheet 10 of 12



BAR SPLICER ASSEMBLY ALTERNATIVES

**Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.

All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

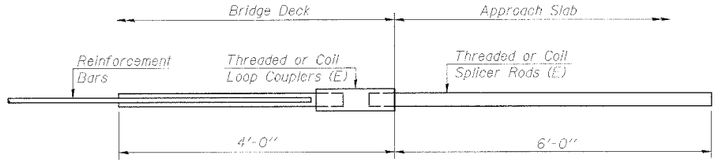
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

① Minimum Capacity (Tension in kips) = $1.25 \times f_y \times A_t$

② Minimum *Pull-out Strength (Tension in kips) = $0.66 \times f_y \times A_t$

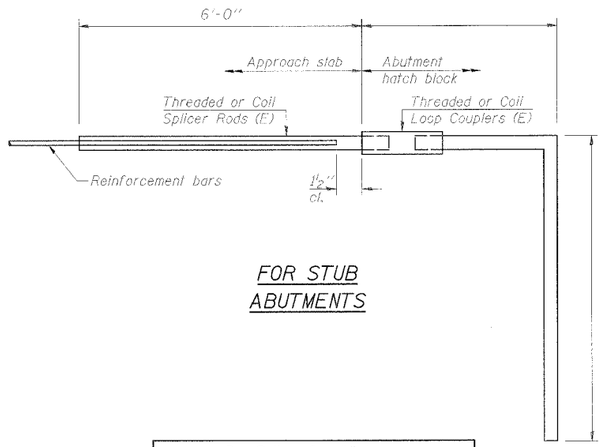
Where f_y = Yield strength of lapped reinforcement bars in ksi.
A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-0"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0	50.3
#11	9'-0"	117.4	61.8



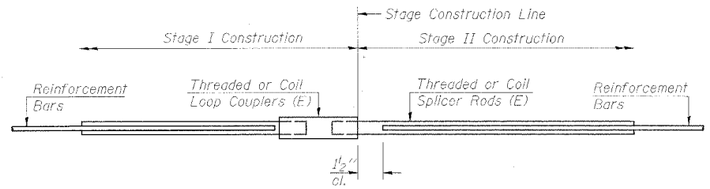
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required = 62



FOR STUB ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required -



STANDARD

Bar Size	No. Assemblies Required	Location

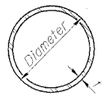
BAR SPLICER ASSEMBLY DETAILS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA #1119D05

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	19
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	BRS-249(104)	

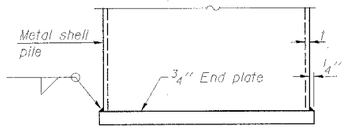
Contract No. 87365

Structural Sheet 11 of 12

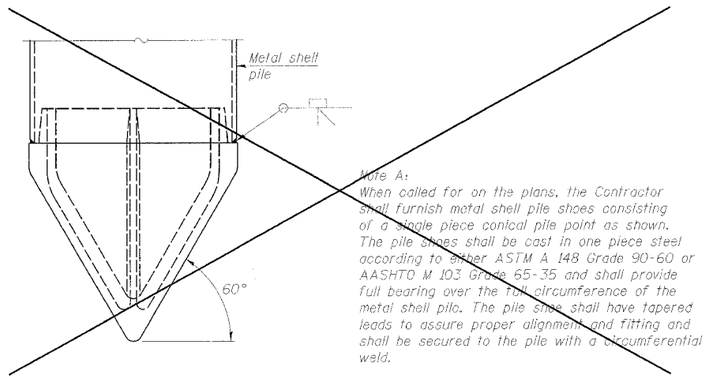


METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume ($yd.^3$/ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



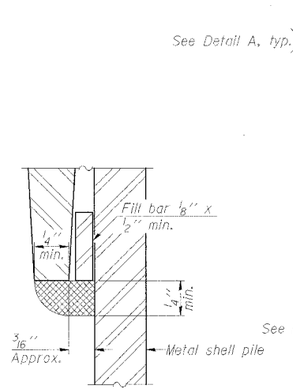
END PLATE ATTACHMENT



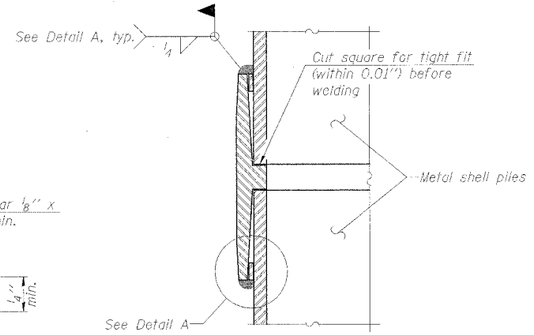
Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

METAL SHELL PILE SHOE ATTACHMENT

(See Note A)

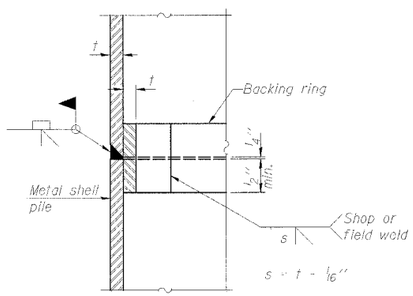


DETAIL A



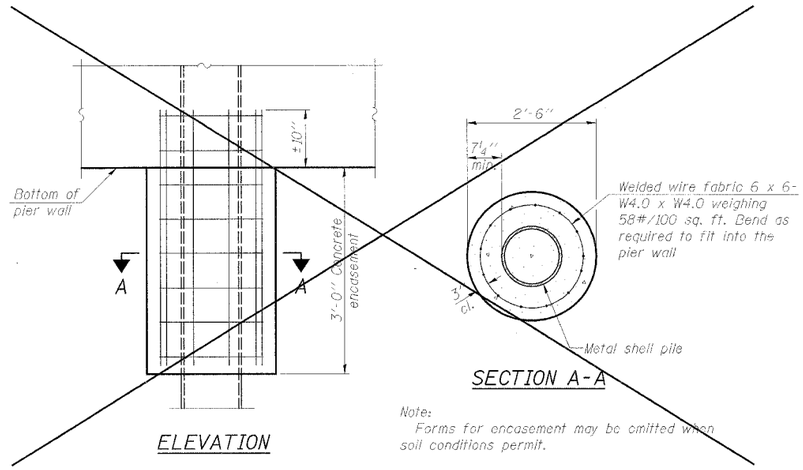
Notes:
The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE



COMPLETE PENETRATION WELD SPLICE

Backing ring made from pile shell. Remove segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

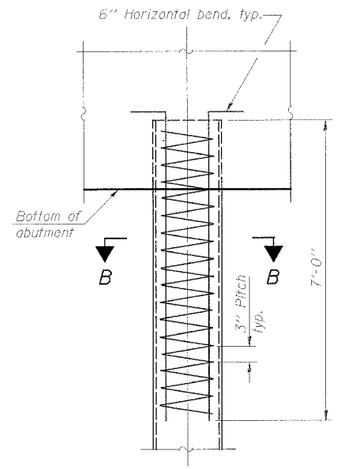


ELEVATION

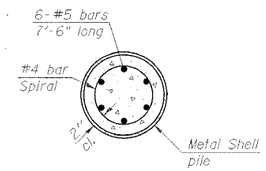
SECTION A-A

Note:
Forms for encasement may be omitted when soil conditions permit.

CONCRETE ENCASEMENT AT PIERS



ELEVATION



SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS

Note:
The metal shell piles shall be according to ASTM A 252 Grade 3.

METAL SHELL PILE DETAILS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA #1119005

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 249	03-00190-00-BR	BUREAU	22	20
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	BRS-249(104)	

Contract No. 87365

Structural Sheet 12 of 12

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354

Phone: 815-223-6696
Fax: 815-223-6659
E-Mail: Midwest @ TheRamp.net

BORING LOG Sheet 1 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-1
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Rt. Station 54 + 35

SAMPLES — DRILLED BY: Randy Safranski; Diedrich D-120

(DEPTH) *ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
422.80										
421.80	Medium To Stiff Black And Brown Silty Clay To Sandy Clay (Fill)	1								
420.80		2								
419.80		3	1	SS	0.9	7	B	25		
418.80		4								
417.80		5	2	SS	1.1	8	B	22		
416.80		6								
415.80		7								
414.80		8	3	SS	1.4	11	B	22		
413.80		9								
412.80		10								
411.80		11	4	SS	1.3	9	B	23		
410.80	Stiff Black Silty Clay	12								
409.80		13	5	SS	1.2	8	B	20		
408.80		14								
407.80	Loose Gray Fine Sand	15	6	SS	—	7	—	—		
406.80		16								
405.80		17								
404.80	Hard Brownish Gray Silty Clay Till	18	7	SS	5.7	23	B	11		
403.80		19								
402.80		20	8	SS	5.4	24	B	11		

Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

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BORING LOG Sheet 2 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-1
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Rt. Station 54 + 35

SAMPLES — DRILLED BY: Randy Safranski; Diedrich D - 120

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
401.80		22								
400.80		23	9	SS	4.7	20	B	12		
399.80		24								
398.80		25								
397.80		26	10	SS	4.7	22	S	12		
396.80		27								
395.80		28	11	SS	4.6	23	B	11		
394.80		29								
393.80		30								
392.80		31	12	SS	4.4	25	B	11		
391.80	Hard Brownish Gray Silty Clay Till	32								
390.80		33	13	SS	5.3	24	B	10		
389.80		34								
388.80		35								
387.80		36	14	SS	6.1	27	B	10		
386.80		37								
385.80		38	15	SS	5.6	24	B	11		
384.80		39								
383.80		40								
382.80		41	16	SS	5.3	28	B	11		
381.80										

Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

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BORING LOG Sheet 3 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-1
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Rt. Station 54 + 35

SAMPLES — DRILLED BY: Randy Safranski; Diedrich D - 120

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
380.80		43	17	SS	5.0	25	B	10		
379.80		44								
378.80		45								
377.80		46	18	SS	5.8	30	B	10		
376.80		47								
375.80		48	19	SS	5.1	27	B	11		
374.80		49								
373.80		50	20	SS	6.6	33	S	11		
372.80	Hard Brownish Gray Silty Clay Till	51								
371.80		52	21	SS	6.0	28	S	10		
370.80		53								
369.80		54								
368.80		55								
367.80		56	22	SS	7.2	46	S	9		
366.80	Bottom of Boring	57								
365.80		58								
364.80		59								
363.80		60								
362.80		61								
361.80		62								
360.80										

Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

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BORING LOG Sheet 1 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-2
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Lt. Station 55 + 85

SAMPLES — DRILLED BY: Randy Safranski; Diedrich D - 120

(DEPTH) *ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
422.80										
421.80	Stiff To Medium Black And Brown Sandy Clay (Fill)	1								
420.80		2								
419.80		3	1	SS	1.8	12	B	21		
418.80		4								
417.80		5	2	SS	0.7	6	B	25		
416.80		6								
415.80		7								
414.80		8	3	SS	1.5	11	B	22		
413.80		9								
412.80		10								
411.80		11	4	SS	1.6	12	B	22		
410.80	Stiff Black Silty Clay	12								
409.80		13	5	SS	1.4	10	B	23		
408.80		14								
407.80	Loose Gray Fine Sand	15	6	SS	—	4	—	—		
406.80		16								
405.80		17								
404.80	Hard Brownish Gray Silty Clay Till	18	7	SS	4.6	17	B	14		
403.80		19								
402.80		20	8	SS	6.3	24	B	12		

Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

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BORING LOG Sheet 2 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-2
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Lt. Station 55 + 85

SAMPLES — DRILLED BY: Randy Safranski; Diedrich D - 120

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
401.80		22								
400.80		23	9	SS	5.1	26	B	12		
399.80		24								
398.80		25								
397.80		26	10	SS	4.4	22	B	13		
396.80		27								
395.80		28	11	SS	4.4	20	B	13		
394.80		29								
393.80		30								
392.80		31	12	SS	5.5	28	B	11		
391.80	Hard Brownish Gray Silty Clay Till	32								
390.80		33	13	SS	5.1	24	B	12		
389.80		34								
388.80		35								
387.80		36	14	SS	4.8	25	B	11		
386.80		37								
385.80		38	15	SS	5.1	27	B	11		
384.80		39								
383.80		40								
382.80		41	16	SS	4.7	22	B	12		
381.80										

Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

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BORING LOG Sheet 3 of 3

Client: Bureau County Highway Department
Project Name: Section 03-00190-00-BR
Project Site: Wheatland Township, Bureau County, Illinois

Boring No. B-2
Surface Elev. 422.80
Auger Depth 56' Rotary Depth NA
Start Date 02/23/04 Finish Date 02/23/04

Location: 7' Lt. Station 55 + 85

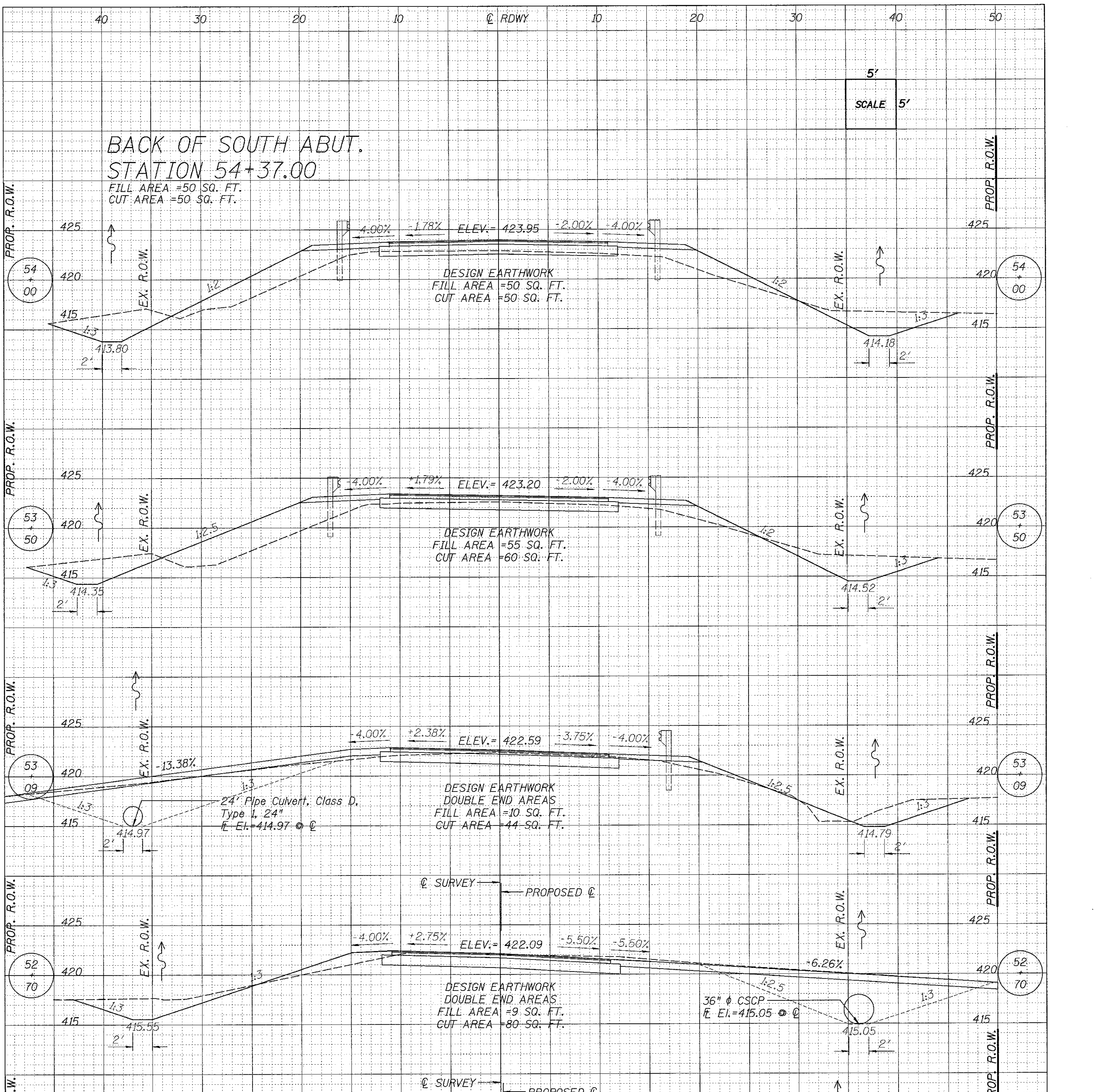
SAMPLES — DRILLED BY: Randy Safranski; Diedrich D - 120

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Depth in Feet	Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bridge / Shear	Moisture (%)	Dry Density (PCF)	REMARKS
380.80		43	17	SS	5.0	28	B	12		
379.80		44								
378.80		45								
377.80		46	18	SS	6.3	32	B	10		
376.80		47								
375.80		48	19	SS	5.7	29	B	12		
374.80		49								
373.80		50	20	SS	5.7	28	B	11		
372.80	Hard Brownish Gray Silty Clay Till	51								
371.80		52	21	SS	6.7	37	S	10		
370.80		53								
369.80		54								
368.80		55								
367.80		56	22	SS	6.6	42	S	10		
366.80	Bottom Of Boring	57								
365.80		58								
364.80		59								
363.80		60								
362.80		61								
361.80		62								
360.80										

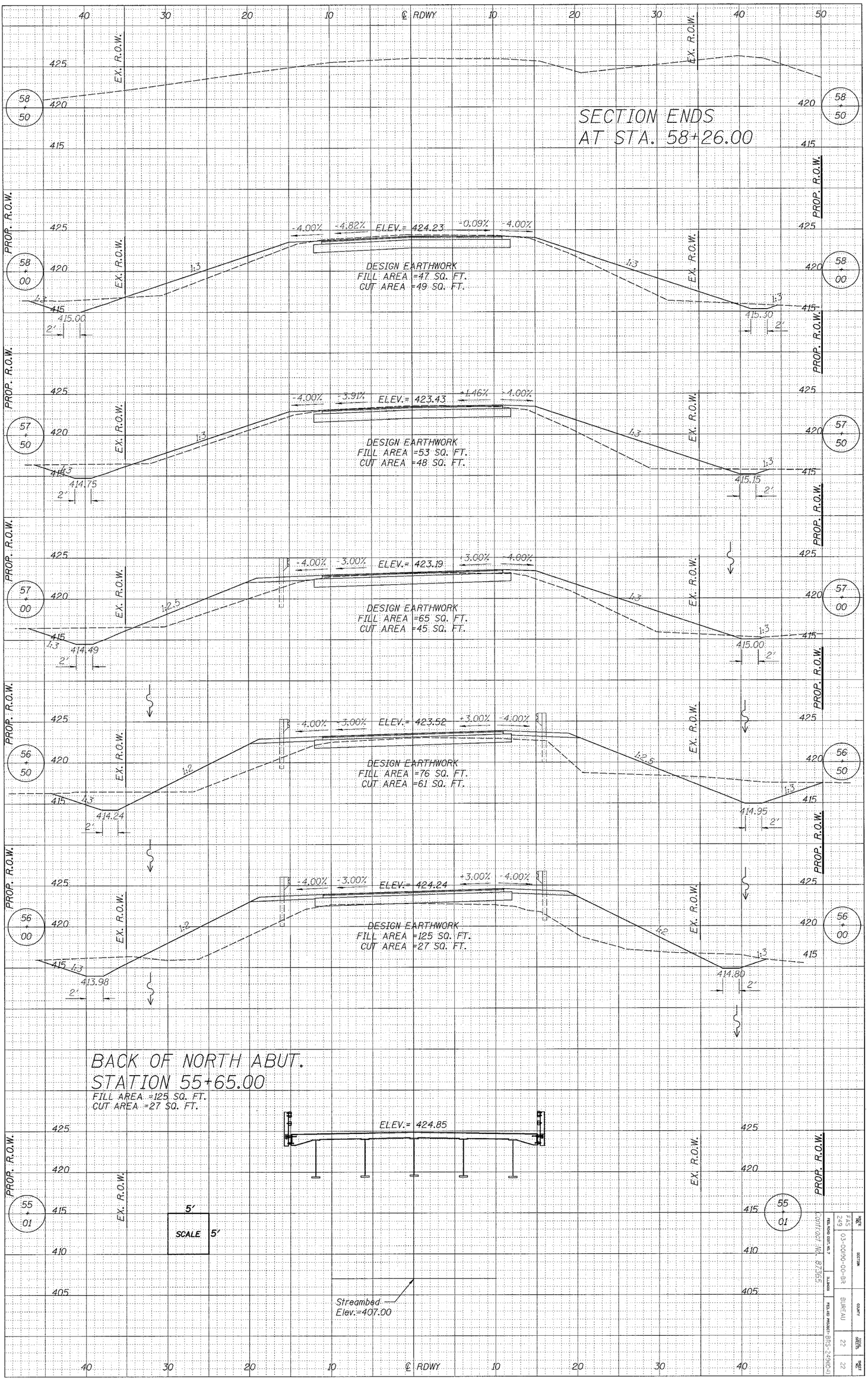
Groundwater Data: Static water level after auger removalelevation 404.5
Comments:

BORING LOGS
FAS 249 (C.H. 17 - YANKEE LANE) OVER CROW CREEK
SECTION 03-00190-00-BR
STA. 55+01 (S.N. 006-3231)
BUREAU COUNTY
PROJECT NO. BRS-249(104)

WHA #1119D05


BACK OF SOUTH ABUT.
STATION 54+37.00
FILL AREA =50 SQ. FT.
CUT AREA =50 SQ. FT.
SCALE 5' 5'
54+00
ELEV.= 423.95
4.00% 1.78% 2.00% 4.00%
DESIGN EARTHWORK
FILL AREA =50 SQ. FT.
CUT AREA =50 SQ. FT.
413.80
414.18
53+50
ELEV.= 423.20
4.00% +1.79% 2.00% 4.00%
DESIGN EARTHWORK
FILL AREA =55 SQ. FT.
CUT AREA =60 SQ. FT.
414.35
414.52
53+09
ELEV.= 422.59
-4.00% +2.38% -3.75% -4.00% -13.38%
24" Pipe Culvert, Class D,
Type 1, 24"
℄ El.=414.97 @ ℄
DESIGN EARTHWORK
DOUBLE END AREAS
FILL AREA =10 SQ. FT.
CUT AREA =44 SQ. FT.
414.97
414.79
52+70
℄ SURVEY
PROPOSED ℄
ELEV.= 422.09
-4.00% +2.75% -5.50% -5.50% -6.26%
DESIGN EARTHWORK
DOUBLE END AREAS
FILL AREA =9 SQ. FT.
CUT AREA =80 SQ. FT.
36" ϕ CSCP
℄ El.=415.05 @ ℄
415.55
415.05
52+50
ELEV.= 421.96
-4.00% +2.75% -5.50% -5.50%
DESIGN EARTHWORK
FILL AREA =14 SQ. FT.
CUT AREA =98 SQ. FT.
416.15
415.62
52+00
ELEV. = 422.00
-4.00% +0.66% -5.50% -5.50%
DESIGN EARTHWORK
FILL AREA =1 SQ. FT.
CUT AREA =80 SQ. FT.
417.10
417.05
SECTION BEGINS
AT STA. 51+91.00
51+50
PROP. R.O.W.
EX. R.O.W.
℄ RDWY
Contract No. 87365

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 249	03-00190-00-BR	BUREAU	22	21
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT- BRS-249(04)		


SECTION ENDS
AT STA. 58+26.00
-4.00%
-4.82%
ELEV.= 424.23
-0.09%
4.00%
DESIGN EARTHWORK
FILL AREA =47 SQ. FT.
CUT AREA =49 SQ. FT.
415.00
415.30
-4.00%
-3.91%
ELEV.= 423.43
-1.46%
-4.00%
DESIGN EARTHWORK
FILL AREA =53 SQ. FT.
CUT AREA =48 SQ. FT.
414.75
415.15
-4.00%
-3.00%
ELEV.= 423.19
+3.00%
-4.00%
DESIGN EARTHWORK
FILL AREA =65 SQ. FT.
CUT AREA =45 SQ. FT.
414.49
415.00
-4.00%
-3.00%
ELEV.= 423.52
+3.00%
-4.00%
DESIGN EARTHWORK
FILL AREA =76 SQ. FT.
CUT AREA =61 SQ. FT.
414.24
414.95
-4.00%
-3.00%
ELEV.= 424.24
+3.00%
-4.00%
DESIGN EARTHWORK
FILL AREA =125 SQ. FT.
CUT AREA =27 SQ. FT.
413.98
414.80
BACK OF NORTH ABUT.
STATION 55+65.00
FILL AREA =125 SQ. FT.
CUT AREA =27 SQ. FT.
ELEV.= 424.85
SCALE 5'
5'
Streambed
Elev.=407.00
EX. R.O.W.
PROP. R.O.W.
℄ RDWY