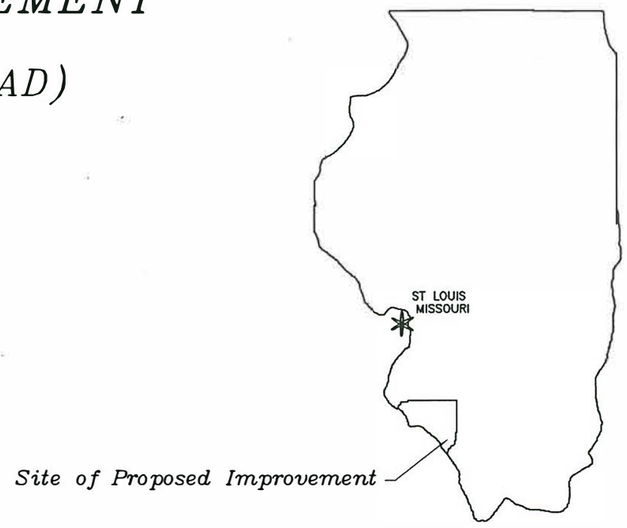
06-12-2020 LETTING ITEM 187

ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	1/15
CONTRACT NO. 97732			

FEDERAL AID PROJECT

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR
PROPOSED LOCAL AGENCY IMPROVEMENT
RANDOLPH COUNTY
FAS ROUTE 863 (CH 5) (ROCKWOOD ROAD)
SECTION 19-00045-07-BR
PROJECT NO. PHZU(145)
JOB NO. C-98-023-23
STPBR PROGRAM



Site of Proposed Improvement

INDEX OF SHEETS

HIGHWAY STANDARDS

BLR 21-9, BLR 27-1, 000001-07, 515001-04, 630001-12, 630301-09, 631011-10, & 701901-08

UTILITIES

Egyptian Telephone
1-888-774-1638

Egyptian Electric
1-800-606-1505

J.U.L.I.E. 1-800-892-0123

SCALES

Plan 1" = 50'
Profile Horiz. 1" = 50'
Profile Vert. 1" = 10'

50' 0 50' 100' Feet

10' 0 10' 20' Feet

DESIGN INFORMATION

Rural Minor Collector
Class III Roadway
Design Speed 30 Mph
Current ADT (2020) - 250
Design Year (2030) - 250

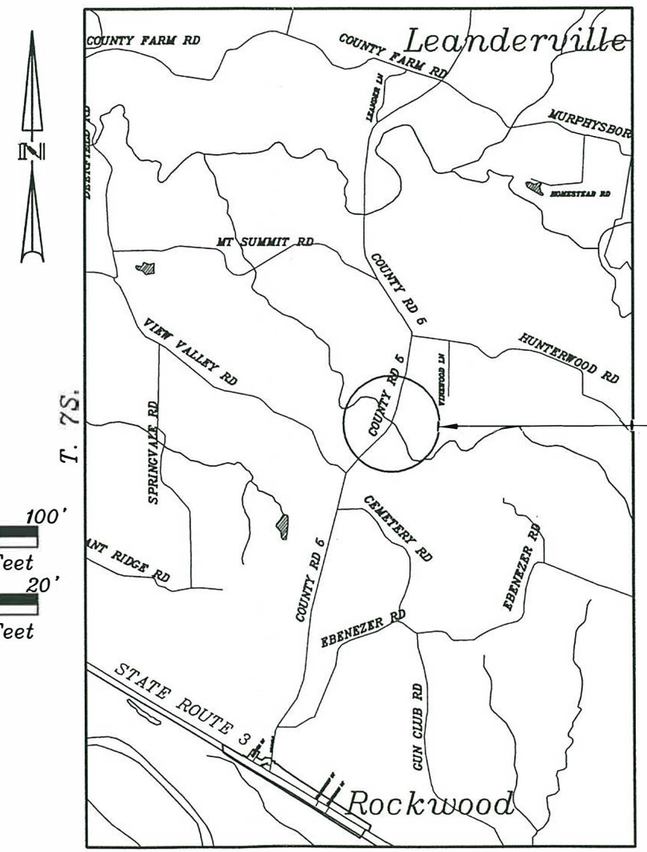
PAVEMENT DESIGN INFORMATION

Structural Design Traffic: 250 (Year 2030)

PV 220
SU 18
MU 12

Minimum Soil Support IBR=3
Pavement Structural Materials: HMA Surface Course, Il-9.5, Mix "C", N50

R. 5W.



T. 7S.

3RD P.M.

Proposed Improvement
Beginning Sta. 165+00
Ending Sta. 169+00
Existing Bridge No. 079-3052
Proposed Bridge No. 079-3053

1 MILE

Gross & Net Length of Improvement
400 Feet = 0.0758 Miles

These plans were prepared by me or a member of my staff working under my personal supervision.

03/13/2020
COUNTY ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER
MICHAEL RIEBELING
062-044650
ILLINOIS

11/30/2021
Expiration Date

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

ILLINOIS DEPARTMENT OF TRANSPORTATION

Approved March 13 2020
Randolph County, County Engineer

Passed April 9 2020
District 8 Engineer of Local Roads & Streets

Releasing for Bid Based on Limited Review April 9, 2020
Region 5 Engineer

ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	2/15
CONTRACT NO. 97732			

SUMMARY OF QUANTITIES

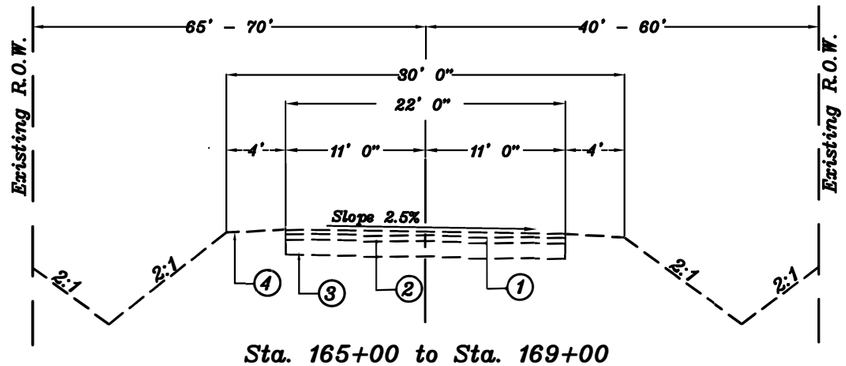
PAY ITEM	ITEM	UNIT	QUANTITY
20100500	Tree Removal, Acres	Acre	0.25
20300100	Channel Excavation	Cu Yd	384
20700110	Porous Granular Embankment	Ton	78
25000200	Seeding, Class 2	Acre	0.25
25000400	Nitrogen Fertilizer Nutrient	Pound	22.5
25000500	Phosphorus Fertilizer Nutrient	Pound	22.5
25000600	Potassium Fertilizer Nutrient	Pound	22.5
25000700	Agricultural Ground Limestone	Ton	0.50
25100115	Mulch, Method 2	Acre	0.25
35100100	Aggregate Base Course, Type A	Ton	28
40600290	Bituminous Materials (Tack Coat)	Pound	133
40600982	Hot-Mix Asphalt Surface Removal - Butt Joint	Sq Yd	137.1
40604050	Hot-Mix Asphalt Surface Course, IL-9.5, Mix "C", N50	Ton	55
50100100	Removal of Existing Structures	Each	1
50200100	Structure Excavation	Cu Yd	118
50300225	Concrete Structures	Cu Yd	31.7
50300280	Concrete Encasement	Cu Yd	2.8
50400605	Precast Prestressed Concrete Deck Beams (33" Depth)	Sq Ft	2,044
50800205	Reinforcement Bars, Epoxy Coated	Pound	5,560
△50900205	Steel Railing, Type S1	Foot	150
51201600	Furnishing Steel Piles HP12X53	Foot	240
51202305	Driving Piles	Foot	240
51203600	Test Pile Steel HP12X53	Each	2
51204650	Pile Shoes	Each	8

SUMMARY OF QUANTITIES

PAY ITEM	ITEM	UNIT	QUANTITY
51500100	Name Plates	Each	1
58100200	Waterproofing Membrane System	Sq Yd	227
58300100	Portland Cement Mortar Fairing Course	Foot	438
△63000001	Steel Plate Beam Guardrail, Type A, 6 Foot Posts	Foot	125
△63100075	Traffic Barrier Terminal, Type 5A	Each	4
△63100167	Traffic Barrier Terminal, Type 1 (Special) Tangent	Each	1
63200310	Guardrail Removal	Foot	197
67100100	Mobilization	L Sum	1
△72501000	Terminal Marker - Direct Applied	Each	1
△78001110	Paint Pavement Marking - Line 4"	Foot	1,600
X2810808	Stone Dumped Rip Rap, Class A4 (Special)	Ton	1,193
△X6330103	Remove and Re-Erect Traffic Barrier Terminal, Type 1 Special, Tangent	Each	1
X7010216	Traffic Control and Protection, (Special)	L Sum	1

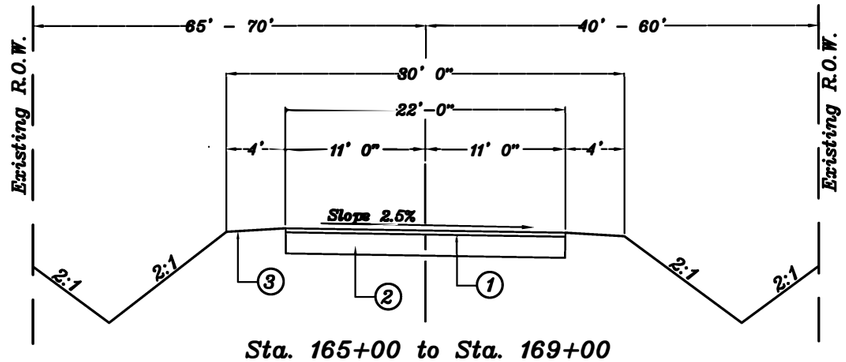
△ SPECIALTY ITEMS

ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	3/15
CONTRACT NO. 97732			



Sta. 165+00 to Sta. 169+00

1. Existing Bituminous Concrete Surface Course – 1 1/2"
2. Existing Bituminous Base Course – 6"
3. Existing Aggregate Base Course – 6"–12"
4. Existing Turf Shoulder



Sta. 165+00 to Sta. 169+00

1. Proposed Hot–Mix Asphalt Surface Course, IL–9.5, Mix "C", N50 – 1 1/2"
2. Proposed Aggregate Base Course, Type A – 12"
3. Proposed Earth Shoulder

GENERAL NOTES:

1. All Construction Signs shall be 48 inch Fluorescent Orange.
2. Proposed Pavement Markings shall match Existing Pavement Markings.
3. Application rate for Tack Coat on Milled Surface shall be 0.05 Lb/Sq. Ft.
   Application rate for Tack Coat on Bridge Deck shall be 0.025 Lb/Sq. Ft.

QUANTITIES USED FOR ESTIMATING

Mulch Method 2	2 Ton/Acre
Nitrogen Fertilizer Nutrients	90 Lbs/Acre
Potassium Fertilizer Nutrients	90 Lbs/Acre
Phosphorus Fertilizer Nutrients	90 Lbs/Acre
Agricultural Ground Limestone	2 Ton/Acre

COMMITMENTS:

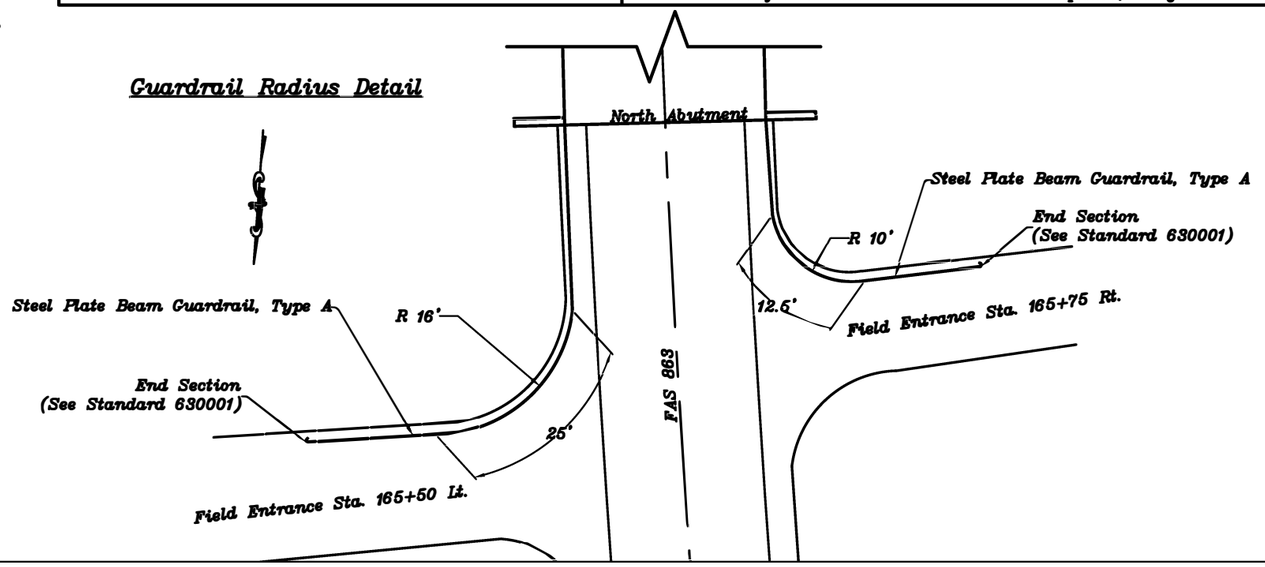
None.

HOT–MIX ASPHALT MIXTURE REQUIREMENTS	
MIXTURE USE	SURFACE
PG	PG 64–22
RAP %(MAX)	See Special Provisions
DESIGN AIR VOIDS	4.0% @ Ndes=50
MIX COMPOSITION (GRADATION MIXTURE)	IL 9.5
FRICTION AGG	Mixture C
MIXTURE WEIGHT	112 Lb/Sy/In

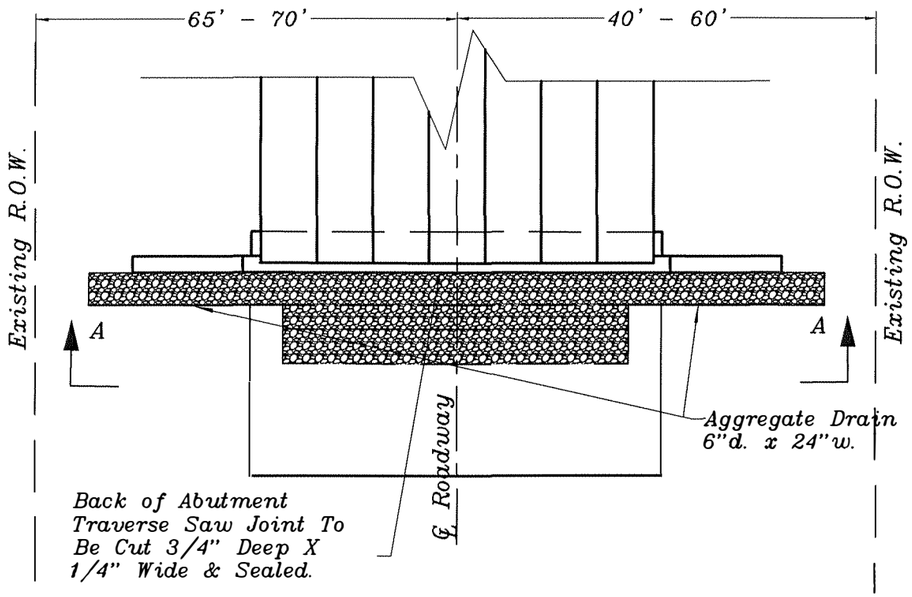
GUARDRAIL SCHEDULE

EXISTING GUARDRAIL TO BE REMOVED			PROPOSED GUARDRAIL		
Station	Description	Total	Station	Description	Total
Sta. 165+66.77 To 165+91.77 Left	TBT TY 1	25 Foot	Sta. 165+37.25 To 165+49.75 Left	SPBGR TY A	12.5 Foot
Sta. 165+91.77 To 166+04.27 Left	SPBGR TY A	13 Foot	Sta. 165+49.75 To 165+74.75 Left	SPBGR TY A – 16' Radius	25 Foot
Sta. 166+04.27 To 166+17.52 Left	TBT TY 5A	13.25 Foot	Sta. 165+74.75 To 165+87.25 Left	SPBGR TY A	12.5 Foot
			Sta. 165+87.25 To 166+00.50 Left	TBT TY 5A	1 Each
Sta. 165+79.27 To 166+04.27 Right	TBT TY 1	25 Foot	Sta. 165+58.75 To 165+71.25 Right	SPBGR TY A	12.5 Foot
Sta. 166+04.27 To 166+17.52 Right	TBT TY 5A	13.25 Foot	Sta. 165+71.25 To 165+87.25 Right	SPBGR TY A – 10' Radius	12.5 Foot
			Sta. 165+87.25 To 166+00.50 Right	TBT TY 5A	1 Each
Sta. 166+57.52 To 166+70.77 Left	TBT TY 5A	13.25 Foot	Sta. 166+75.50 To 166+88.75 Left	TBT TY 5A	1 Each
Sta. 166+70.77 To 166+95.77 Left	SPBGR TY A	25 Foot	Sta. 166+88.75 To 167+13.75 Left	SPBGR TY A	25 Foot
Sta. 166+95.77 To 167+45.77 Left	* TBT TY 1 (Sp) Tangent – Remove & Re–Erect @ Sta. 167+13.75 To Sta. 167+63.75 Left				1 Each
Sta. 166+57.52 To 166+70.77 Right	TBT TY 5A	13.25 Foot	Sta. 166+75.50 To 166+88.75 Right	TBT TY 5A	1 Each
Sta. 166+70.77 To 167+01.77 Right	SPBGR TY A	31 Foot	Sta. 166+88.75 To 167+13.75 Right	SPBGR TY A	25 Foot
Sta. 167+01.77 To 167+26.77 Right	TBT TY 1	25 Foot	Sta. 167+13.75 To 167+63.75 Right	TBT TY 1 (Sp) Tang.	1 Each
Total for all Guardrail Removal = 197 Foot			Total for all SPBGR, Type A, 6 Foot Posts = 125 Foot		
			Total for all TBT, Type 5A = 4 Each		
			Total for all TBT, Type 1 (Special) Tangent = 1 Each		
			Total for all Rem & Re–Erect TBT T1 Special, Tangent = 1 Each		

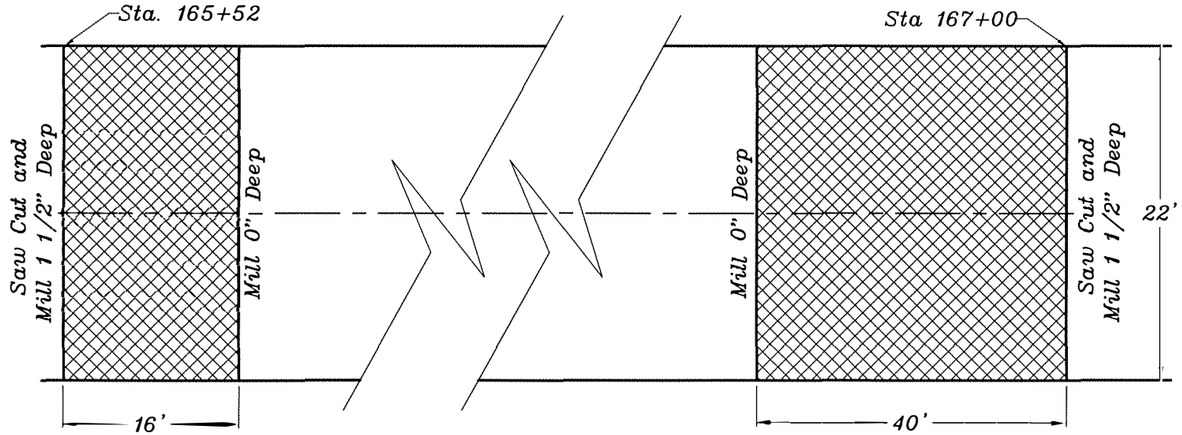
Guardrail Radius Detail



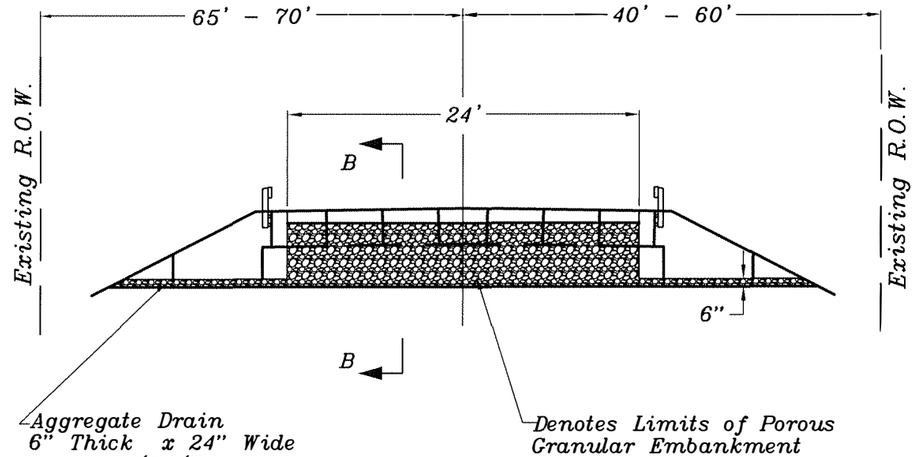
ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	4/15
CONTRACT NO. 97732			



PLAN VIEW OF POROUS GRANULAR EMBANKMENT

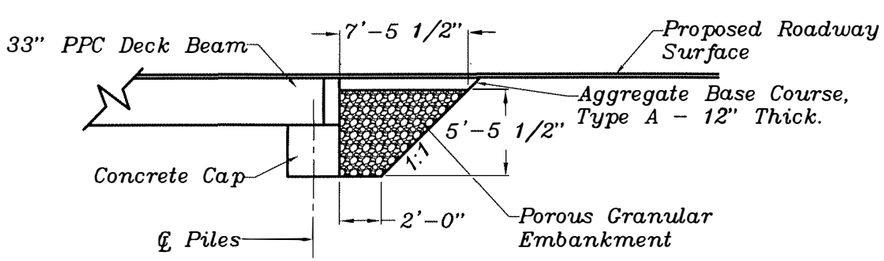


HMA SURFACE REMOVAL - BUTT JOINT DETAIL



(SECTION A-A)

TYPICAL SECTION THRU
POROUS GRANULAR EMBANKMENT



SECTION B-B

PAINT PAVEMENT MARKING SCHEDULE

Location	Limits	Length
No Passing Zones		
Left	Sta. 165+00 to 169+00	400 Foot
Right	Sta. 165+00 to 169+00	400 Foot
	Total No Passing Zones	800 Foot
	Total Yellow Line	800 Foot
Edge Line		
Left & Right	Sta. 165+00 to 169+00	800 Foot
	Total Paint Pavement Marking Line - 4"	1,600 Foot

STONE DUMPED RIP RAP SCHEDULE

Location	Distance out from ℄	Total
Sta. 165+65 to Sta. 166+00.50 Lt.	44' to R.O.W.	50 Ton
Sta. 166+00.50 to Sta. 166+75.50 Lt. & Rt. (Area @ Bridge and through Stream)	℄ to R.O.W.	757 Ton
Sta. 166+75.50 to Sta. 168+42 Lt.	32' to R.O.W.	386 Ton
	Total =	1,193 Ton

ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	5/15
CONTRACT NO. 97732			

EARTHWORK SCHEDULE

Location	Channel Excav. Cu. Yd.	**Structure Excav. Cu. Yd.	Total Excav. Cu. Yd.	Total Excav. Adjusted for 25% Shrinkage Cu. Yd.	*Embankment Cu. Yd.	Earthwork Balance Cu. Yd.
Sta. 165+92.05 to Sta. 166+83.95	384	118	502	377	377	0
Totals	384	118	502	377	377	0

* Above Embankment Quantity to be place on the Shoulders and Roadway slopes from Sta. 165+00 Lt. & Rt. to Sta. 168+42 Lt. & Sta. 168+18 Rt. to the satisfactory of the Engineer.

** The Limits of the Structure Excavation are from the stream side face of each Abutment to a point 2 feet beyond the back of each Abutment plus the excavation necessary to accommodate the Porous Granular Embankment. All other excavated material between the stream side faces of the Abutments is included in the quantity for Channel Excavation.

SEEDING, CLASS 2 SCHEDULE

Sta. 165+00 to Sta. 166+00.50 Lt.	0.03 Acre
Sta. 165+00 to Sta. 166+00.50 Rt.	0.05 Acre
Sta. 166+75.50 to Sta. 168+42 Lt.	0.09 Acre
Sta. 166+75.50 to Sta. 168+18 Rt.	0.08 Acre
Total =	0.25 Acre

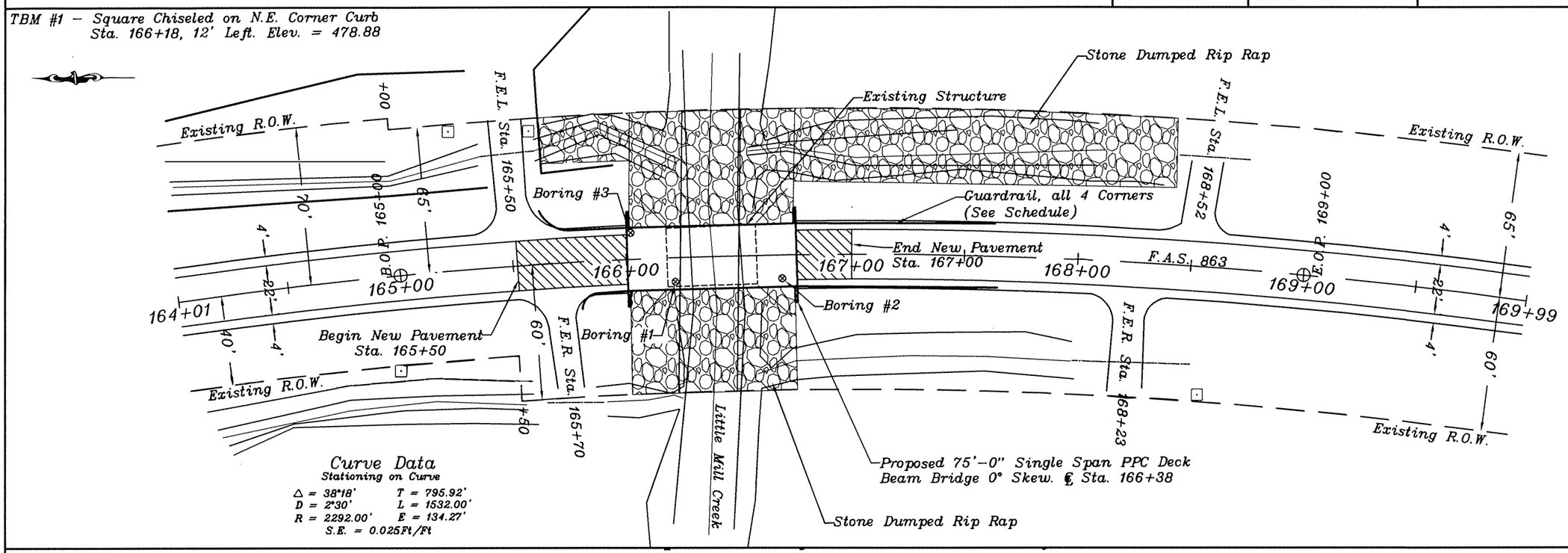
TREE REMOVAL ACRES SCHEDULE

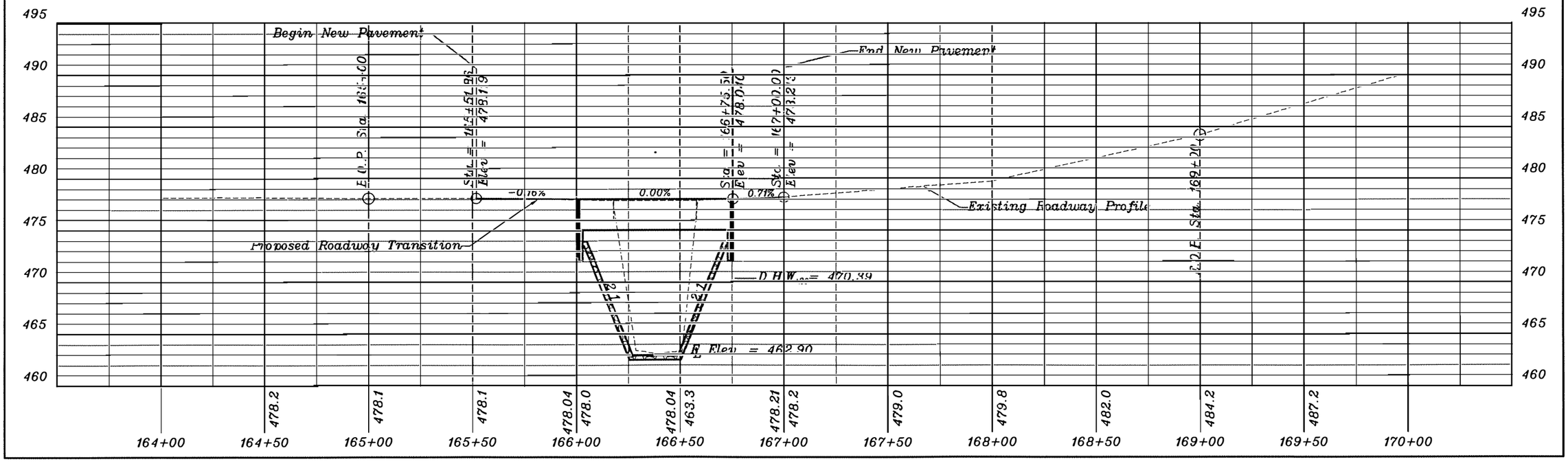
Station	Location from ℄	Acres
Sta. 165+65 to Sta. 166+18 Lt.	44' to R.O.W.	0.05
Sta. 166+58 to Sta. 168+42 Lt.	32' to R.O.W.	0.20
	Total =	0.25

Contract # 97732

FAS 863 Rockwood Road

ROUTE	COUNTY	SECTION	SHEET/OF
FAS 863	RANDOLPH	19-00045-07-BR	6/15



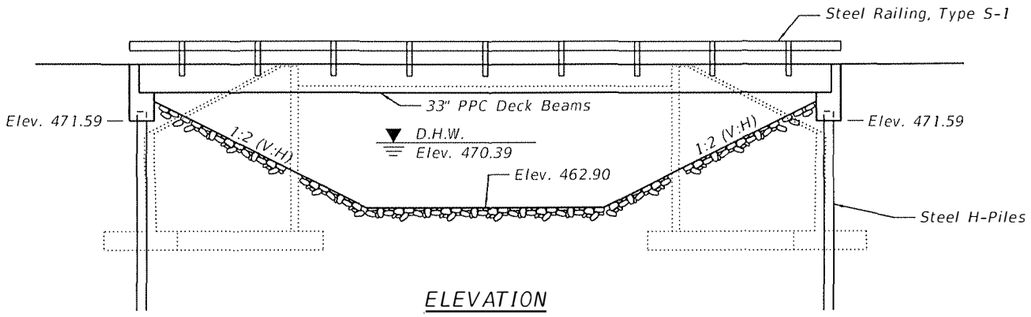


PLAN & PROFILE STA. 164+00 TO STA. 170+00

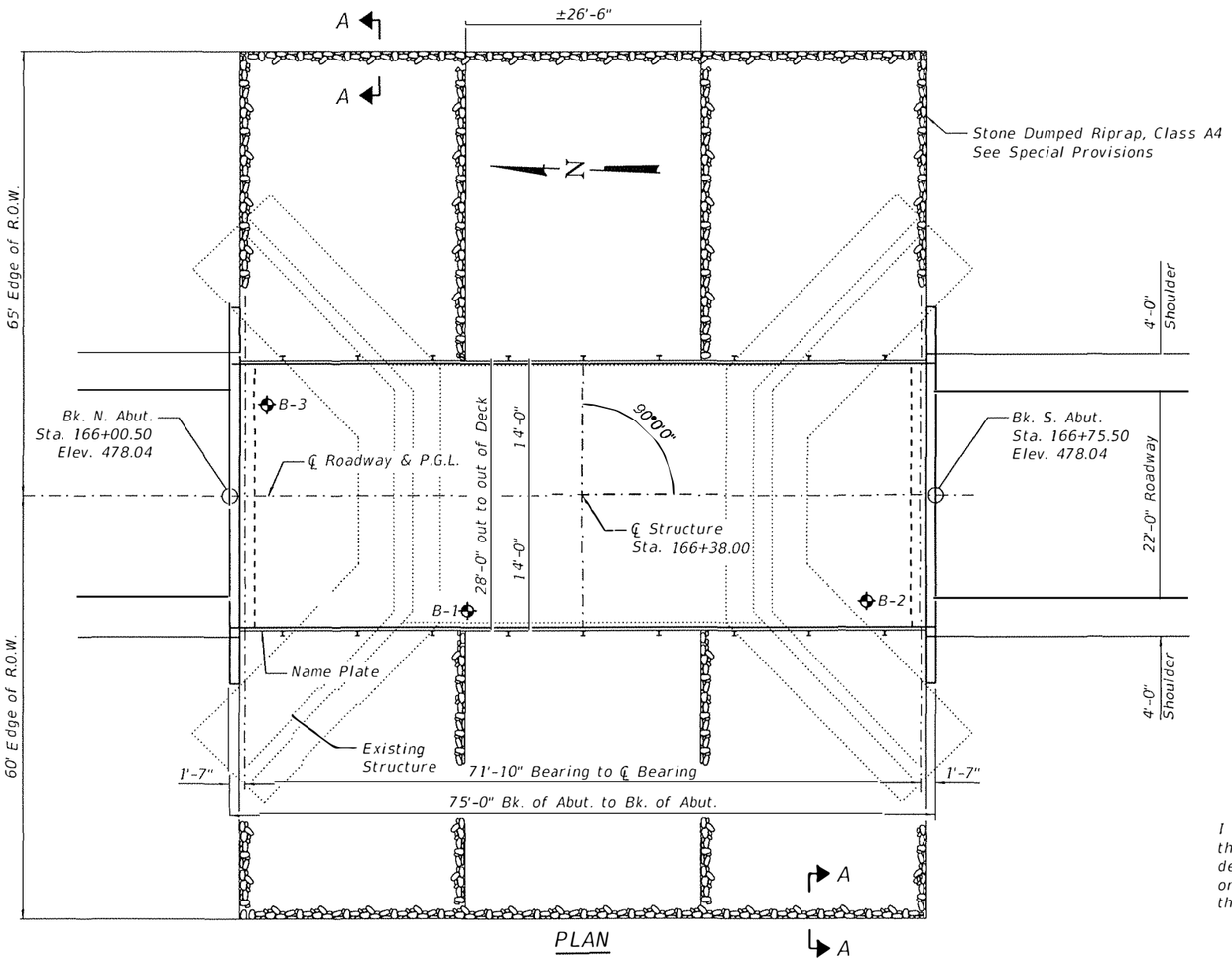
Benchmark: Chiseled X on top of curb, Northeast corner of Structure No. 079-3052. Elev. 478.88

Existing Structure:
Structure No. 079-3052 was built in 1960 as F.A.S. 863, section 45G at Sta. 166+38.00. The structure consists of a simple span precast concrete bridge slab. The substructure consists of closed abutments on timber piles. The structure is 40'-11½" from back to back of abutments and 26'-3" from out to out of deck.

Traffic Control:
Road closures will be utilized for traffic control.



ELEVATION



PLAN

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)		
	North - Abut.	South - Abut.	Item 113
Q100	471.76	471.76	8
Q200	471.76	471.76	8
Design	471.76	471.76	8
Check	471.76	471.76	8

WATERWAY INFORMATION

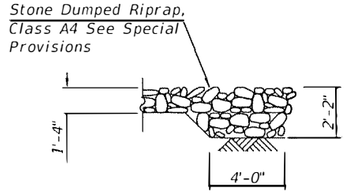
Existing Low Grade Elev. 477.08 @ Sta. 166+38.00
Drainage Area = 3.7 Sq. Mi. Proposed Low Grade Elev. 478.04 @ Sta. 166+38.00

Flood	Freq. Yr.	Q C.F.S.	Opening Ft² Exist.	Opening Ft² Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	20	1700	238	280	470.39	.63	.45	471.02	470.84
Base	100	2540	291	359	471.80	1.32	.90	473.12	472.70

LITTLE MILL CREEK
BUILT 20 BY
RANDOLPH COUNTY
SEC. 19-00045-07-BR
F.A.S. RT. 863
STA. 166+38.00
STR. NO. 079-3053 LOADING HL-93

NAME PLATE

See Std. 515001



SECTION A-A

BRANDON W POTTER
081-006327
LICENSED
STRUCTURAL
ENGINEER
OF
ILLINOIS
Brandon W. Potter
3/25/2020

EXPIRES 11/30/2020
SHEETS 7 THROUGH 15

I certify that to the best of knowledge, information and belief, this bridge/box 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 Bridge Design Specifications.

LOADING HL-93

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

DESIGN SPECIFICATIONS

2017 AASHTO LRFD Bridge Design Specifications, 8th Edition

SEISMIC DATA

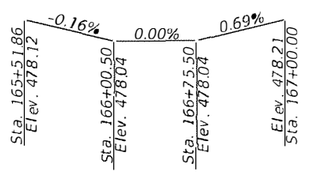
Seismic Performance Zone (SPZ) = 3
Design Spectral Acceleration at 1.0 sec. (SD1) = .317 g
Design Spectral Acceleration at 0.2 sec. (SDS) = .736 g
Soil Site Class = D

DESIGN STRESSES

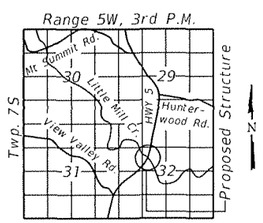
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (low-lax strands)

INDEX OF SHEETS



PROFILE GRADE
Along ℄ of Roadway



LOCATION SKETCH

GENERAL PLAN & ELEVATION
F.A.S 863 (C.H.5) OVER LITTLE MILL CREEK
SECTION 19-00045-07-BR
RANDOLPH COUNTY
STATION 166+38.00
STRUCTURE NO. 079-3053

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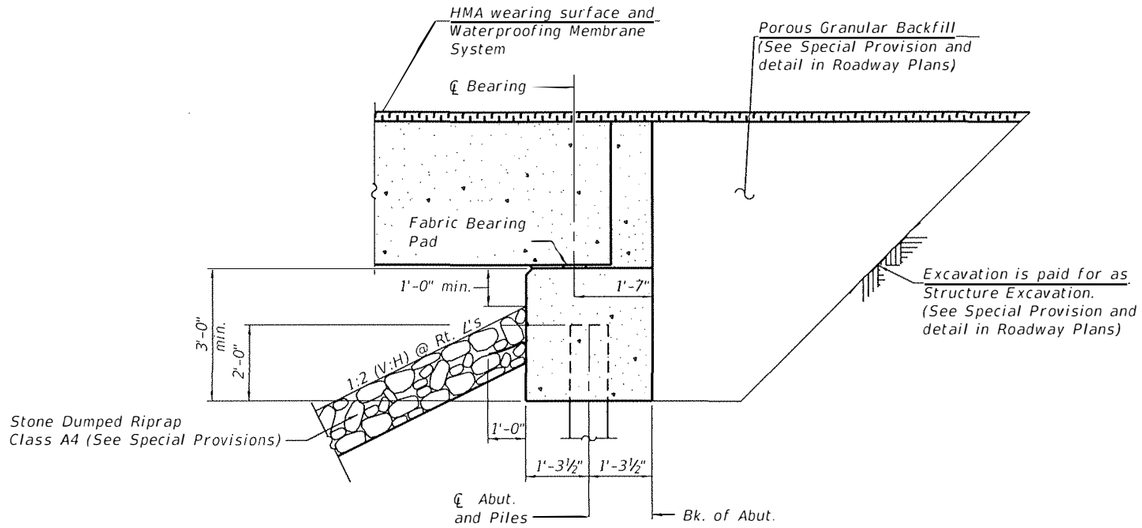
3/25/2020 8:18:11 AM

TWM, INC. www.TWM-INC.COM ENGINEERING GEOSPATIAL SERVICES IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = bpotter PLOT SCALE = PLOT DATE = 3/25/2020	DESIGNED - DRA CHECKED - BWP DRAWN - DRA CHECKED - BWP	REVISED - REVISED - REVISED - REVISED -	RANDOPLH COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN AND ELEVATION STRUCTURE NO. 079-3053 SHEET NO. 1 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	7
		CONTRACT NO. 97732		
		ILLINOIS FED. AID PROJECT		



SECTION THRU ABUTMENT

(Horiz. dim. @ Rt. ∠'s)
See Roadway Plans for quantities of
Porous Granular Backfill and Structure Excavation

GENERAL NOTES

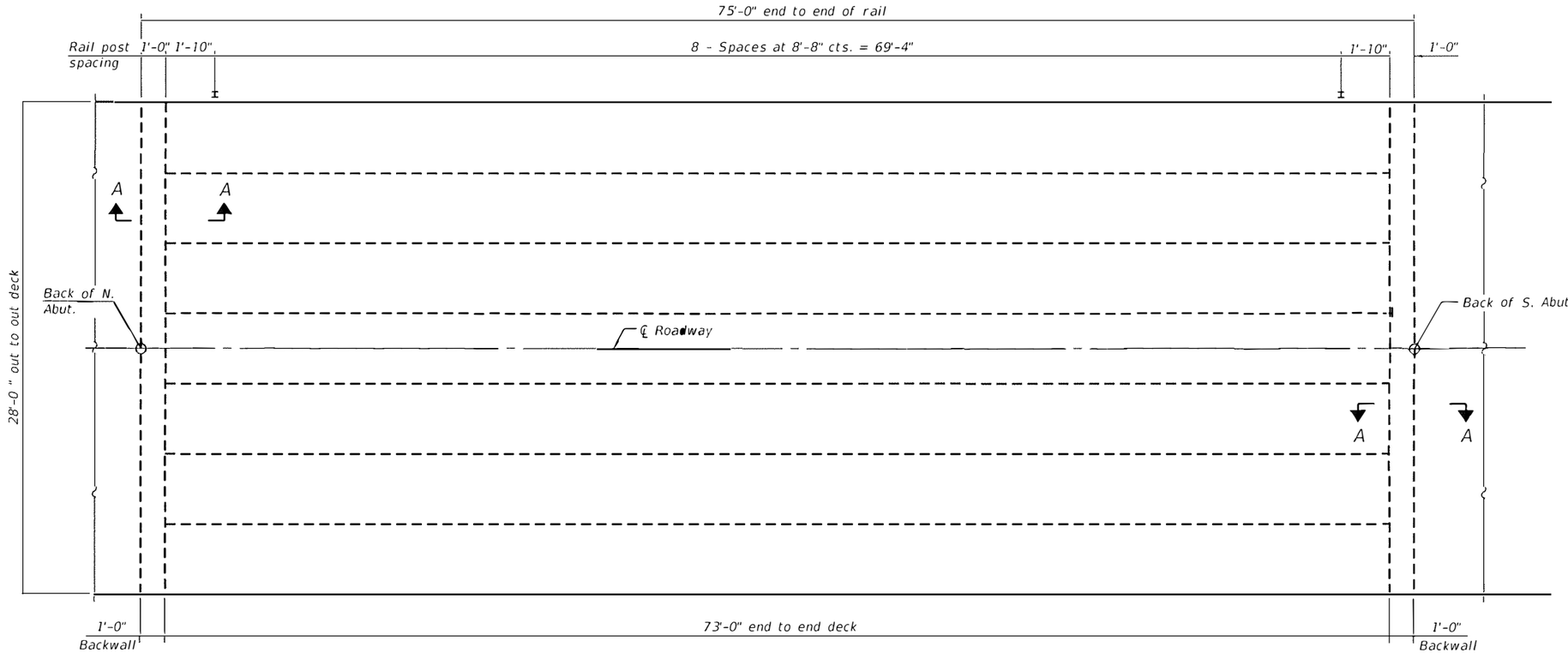
Reinforcement bars designated (E) shall be epoxy coated.

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

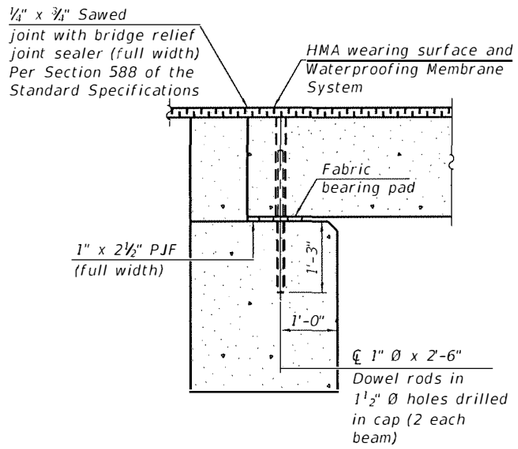
Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each			1
Stone Dumped Riprap, Class A4	Tons		757	757
Hot-Mix Asphalt Surface Course, Mix "C", N50	Tons	32		32
Concrete Structures	Cu. Yd.		31.7	31.7
Concrete Encasement	Cu. Yd.		2.8	2.8
Precast Prestressed Concrete Deck Beams (33") Depth	Sq. ft.	2044		2044
Reinforcement Bars, Epoxy Coated	Pound		5560	5560
Steel Railing, Type S-1	Foot	150		150
Furnishing Steel Piles HP12x53	Foot		240	240
Driving Piles	Foot		240	240
Test Pile Steel HP12x53	Each		2	2
Pile Shoes	Each		8	8
Name Plates	Each	1		1
Waterproofing Membrane System	Sq. Yd.	227		227
Portland Cement Mortar Fairing Course	Foot	438		438

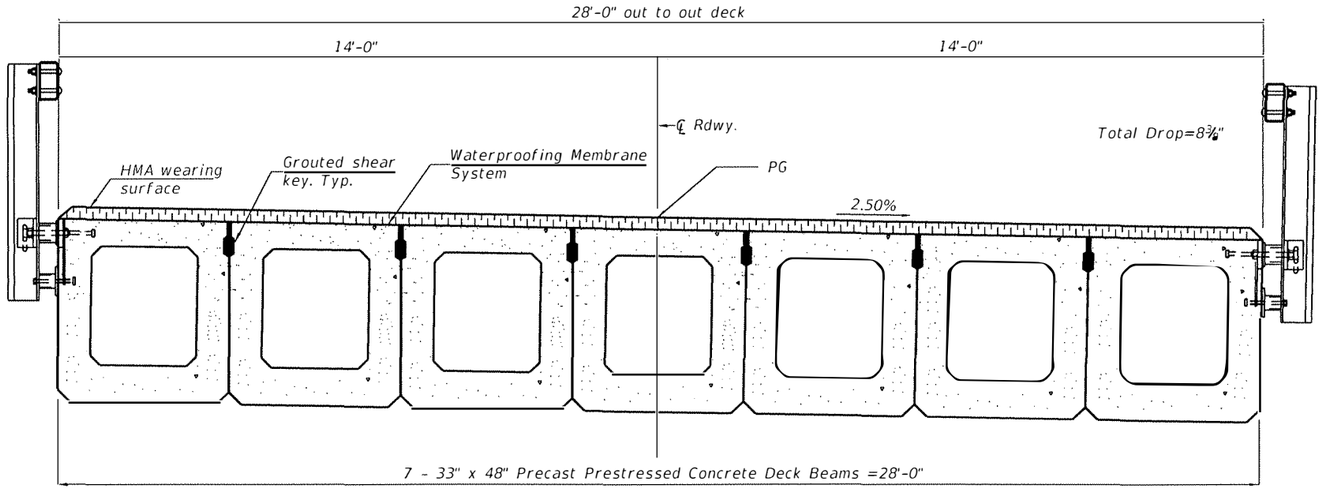


PLAN



SECTION A-A

See sheet 6 of 9 for fabric bearing pad details.



CROSS SECTION

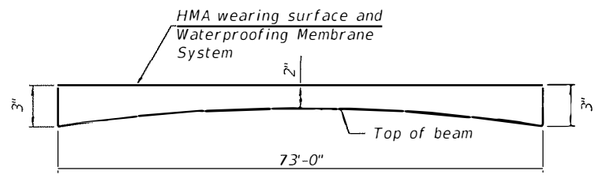
(Looking South)

Notes:

See sheets 5 and 6 of 9 for Superstructure Details and Bill of Material.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Hot-Mix Asphalt Surface Course, Mix "C", N50	Tons	32
Waterproofing Membrane System	Sq. Yd.	227
Portland Cement Mortar Fairing Course	Foot	438



ANTICIPATED HMA WEARING SURFACE PROFILE

(For information only)

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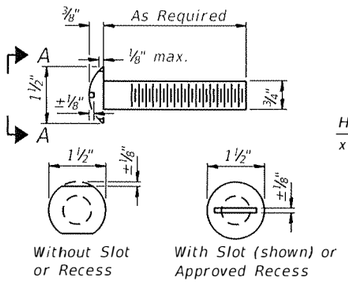
3/25/2020 8:18:13 AM

TWM, INC. WWW.TWM-INC.COM ENGINEERING GEOSPATIAL SERVICES	IL DESIGN FIRM LICENSE NO. 184-001220	USER NAME = bpoller	DESIGNED - DRA	REVISED -	RANDOLPH COUNTY HIGHWAY DEPARTMENT
			CHECKED - BWP	REVISED -	
		PLOT SCALE =	DRAWN - DRA	REVISED -	
		PLOT DATE = 3/25/2020	CHECKED - BWP	REVISED -	

SUPERSTRUCTURE
STRUCTURE NO. 079-3053
SHEET NO. 3 OF 9 SHEETS

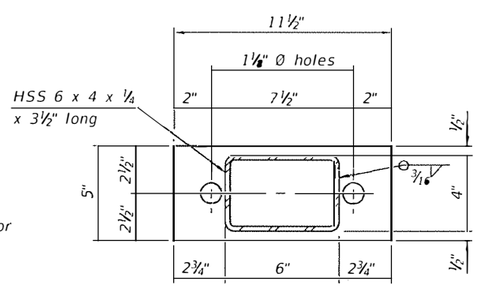
F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
883	[illegible]	RANDOLPH	15	3

CONTRACT NO.
ILLINOIS FED. AID PROJECT

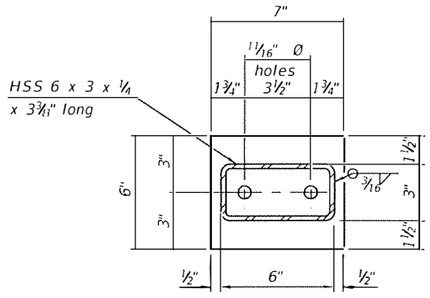


VIEW A-A

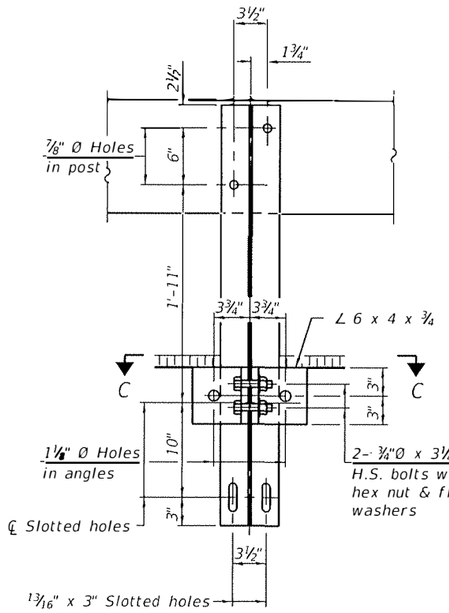
ROUND HEAD BOLT



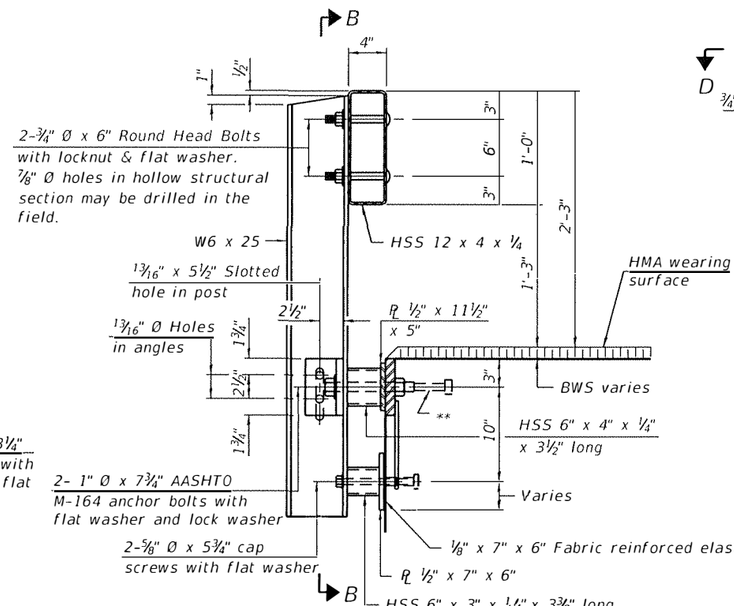
PL 1/2" x 11 1/2" x 5"



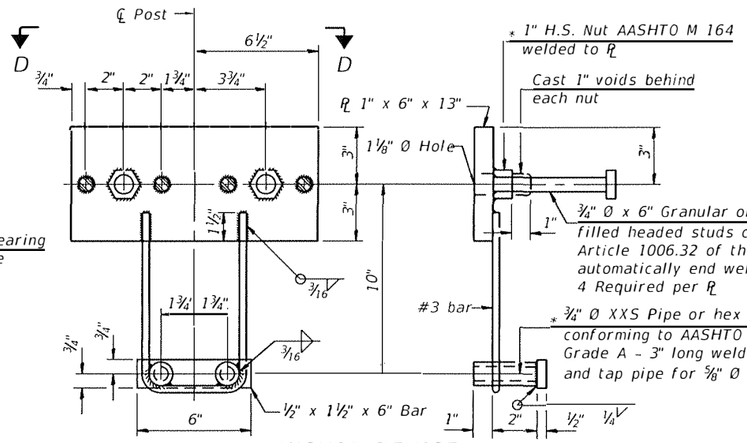
PL 1/2" x 7" x 6"



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

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

SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	——

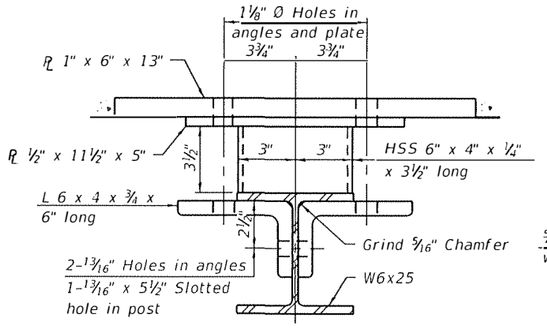
T = Total movement at expansion joint as shown on the design plans.

Notes:

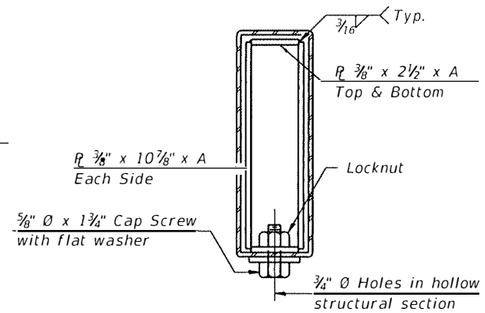
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

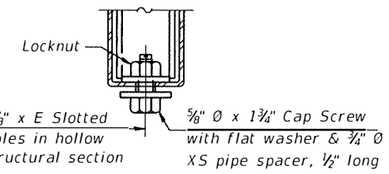
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.



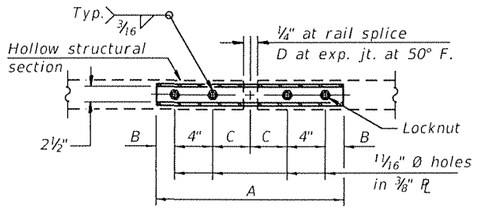
SECTION C-C



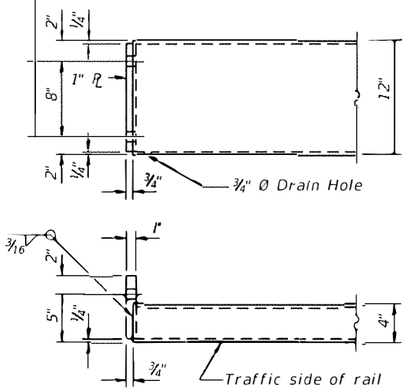
SECTIONS AT RAIL SPLICE



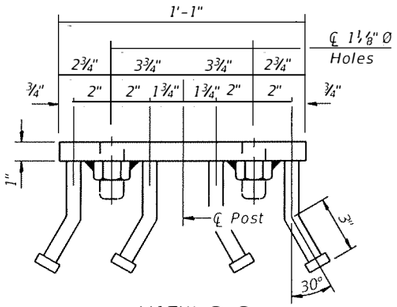
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE PL TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	150

R-23A

2-17-2017 (10'-9" Maximum Post Spacing)

TWM, INC. WWW.TWM-INC.COM
ENGINEERING GEOSPATIAL SERVICES
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME - bpalter		DESIGNED - DRA		REVISED -	
		CHECKED - BWP		REVISED -	
PLOT SCALE =		DRAWN - DRA		REVISED -	
PLOT DATE =	3/25/2020	CHECKED - BWP		REVISED -	

RANDOPLH COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1
STRUCTURE NO. 079-3053
SHEET NO. 4 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	10

CONTRACT NO. 97732
ILLINOIS FED. AID PROJECT

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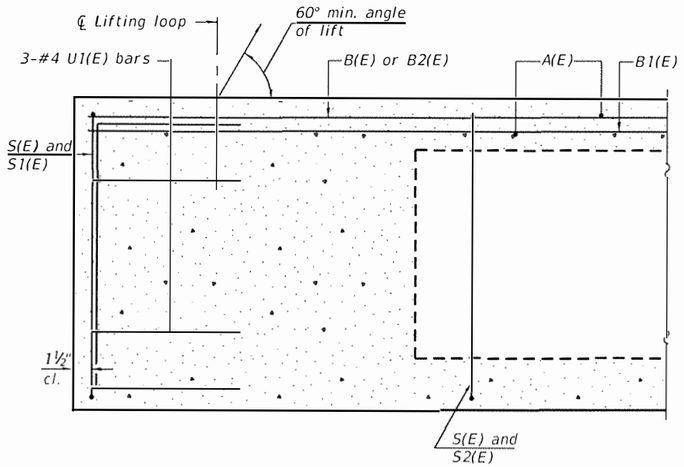
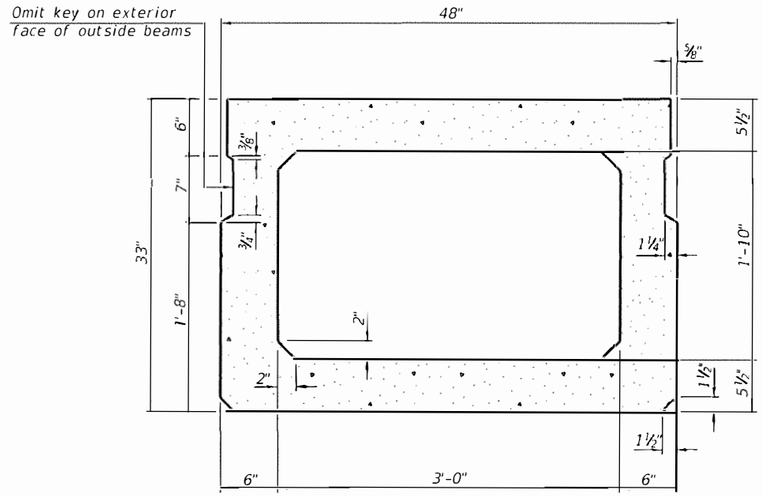
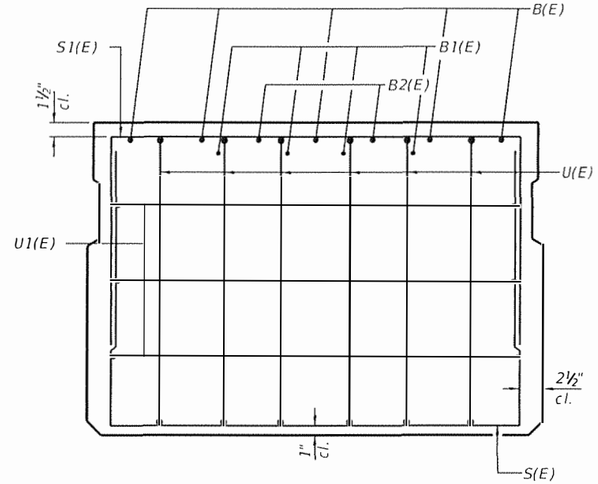


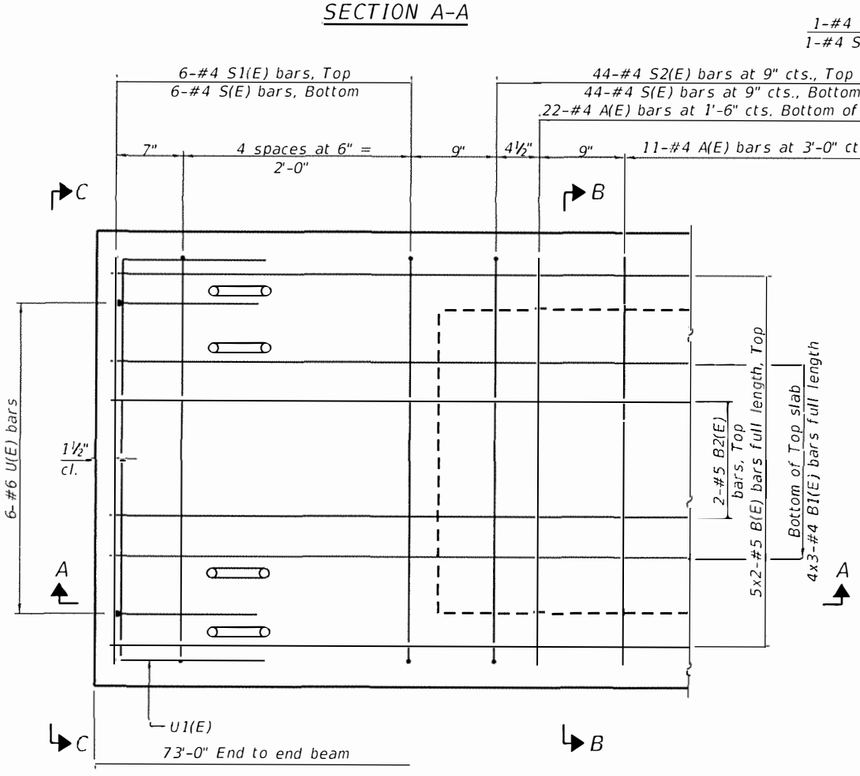
SECTION A-A



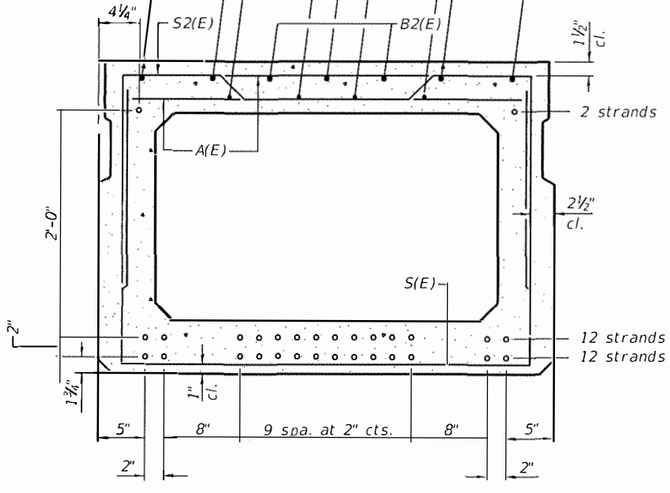
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	68	#4	3'-7"	—
B(E)	10	#5	37'-8"	—
B1(E)	12	#4	25'-7"	—
B2(E)	4	#5	10'-0"	—
S(E)	102	#4	8'-8"	⊔
S1(E)	12	#4	7'-5"	⊓
S2(E)	90	#4	7'-8"	⊓
U(E)	12	#6	5'-0"	⊔
U1(E)	6	#4	6'-0"	⊓

Note:
See sheet 6 of 9 for additional details and Bill of Material.

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.
Bars indicated thus 5x2 - #5 etc. indicates 5 lines of bars with 2 lengths per line.

MINIMUM BAR LAP
#4 bar = 1'-11"
#5 bar = 2'-6"

PD-3348-0 2-17-2017

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TWM, INC. www.TWM-INC.COM
ENGINEERING GEOSPATIAL SERVICES
IL DESIGN FIRM LICENSE NO: 184-001220

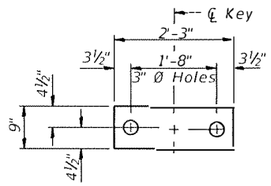
USER NAME = bpotter
PLOT SCALE =
PLOT DATE = 3/25/2020

DESIGNED - DRA | REVISED -
CHECKED - BWP | REVISED -
DRAWN - DRA | REVISED -
CHECKED - BWP | REVISED -

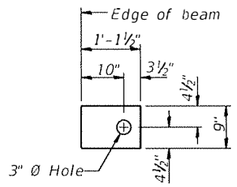
RANDOLPH COUNTY HIGHWAY DEPARTMENT

33" x 48" PPC DECK BEAM
STRUCTURE NO. 079-3053
SHEET NO. 5 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045- 00BR	RANDOLPH	15	11
		CONTRACT NO. 97732		
	ILLINOIS FED. AID PROJECT			



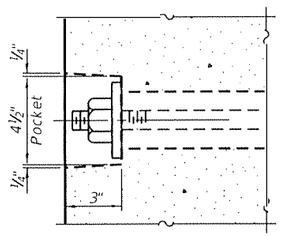
FABRIC BEARING PAD
(Interior)



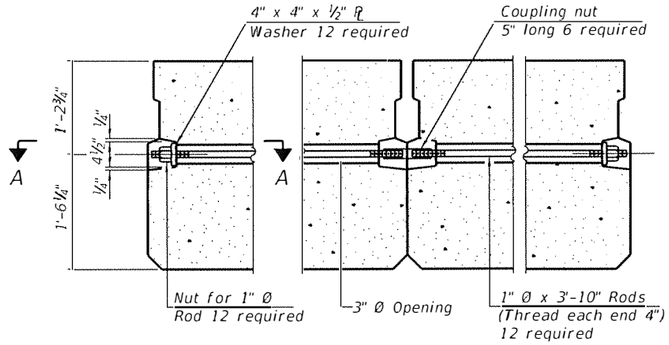
FABRIC BEARING PAD
(Exterior)

FIXED

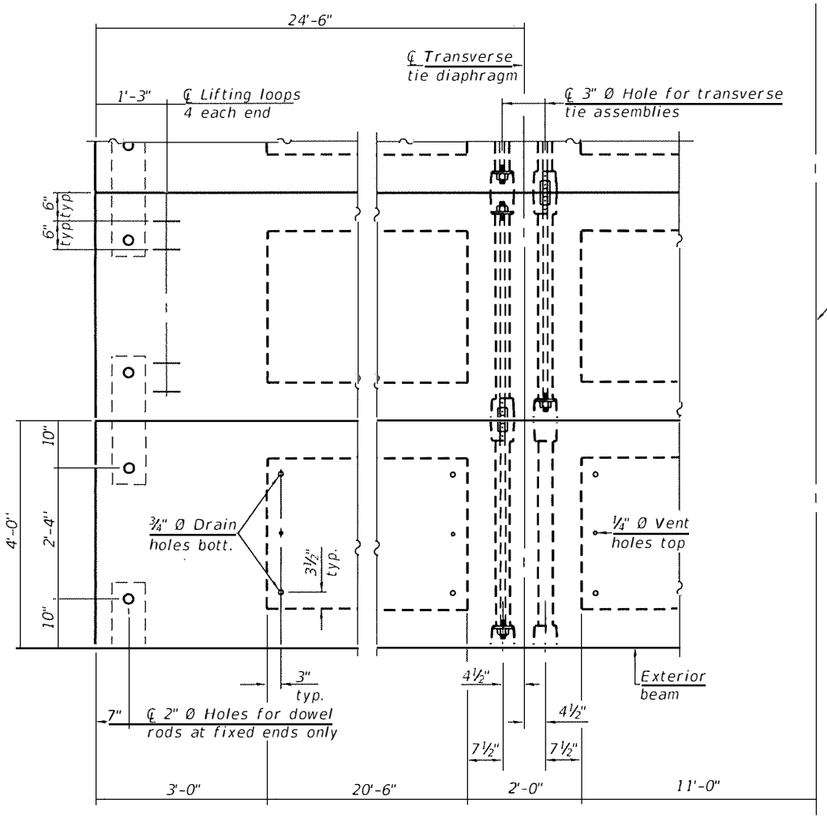
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



SECTION A-A



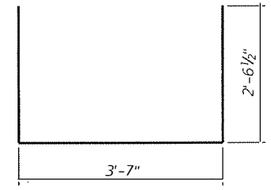
TYPICAL TRANSVERSE TIE ASSEMBLY



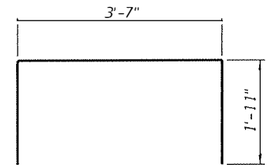
PLAN VIEW

Symmetrical About Centerline

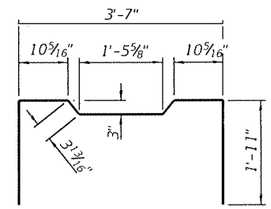
Note: Connect beams in pairs with the transverse tie configuration shown.



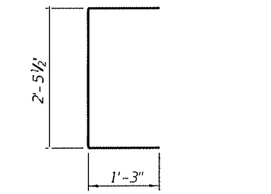
BAR S(E)



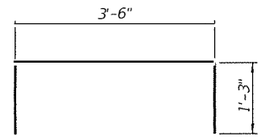
BAR S1(E)



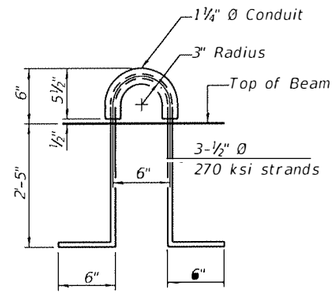
BAR S2(E)



BAR U(E)



BAR U1(E)



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	2044

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" Ø rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" Ø lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

PD-3348-0D 2-17-2017

TWM, INC. www.TWM-INC.com
ENGINEERING GEOSPATIAL SERVICES
IL DESIGN FIRM LICENSE NO 184-001220

USER NAME = bpoitner	DESIGNED - DRA	REVISED -	
	CHECKED - BWP	REVISED -	
PLOT SCALE =	DRAWN - DRA	REVISED -	
PLOT DATE = 3/25/2020	CHECKED - BWP	REVISED -	

RANDOPLH COUNTY HIGHWAY DEPARTMENT

33" x 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 079-3053
SHEET NO. 6 OF 9 SHEETS

F.A.S. RTE	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	12
	ILLINOIS FED. AID PROJECT		CONTRACT NO. 97732	

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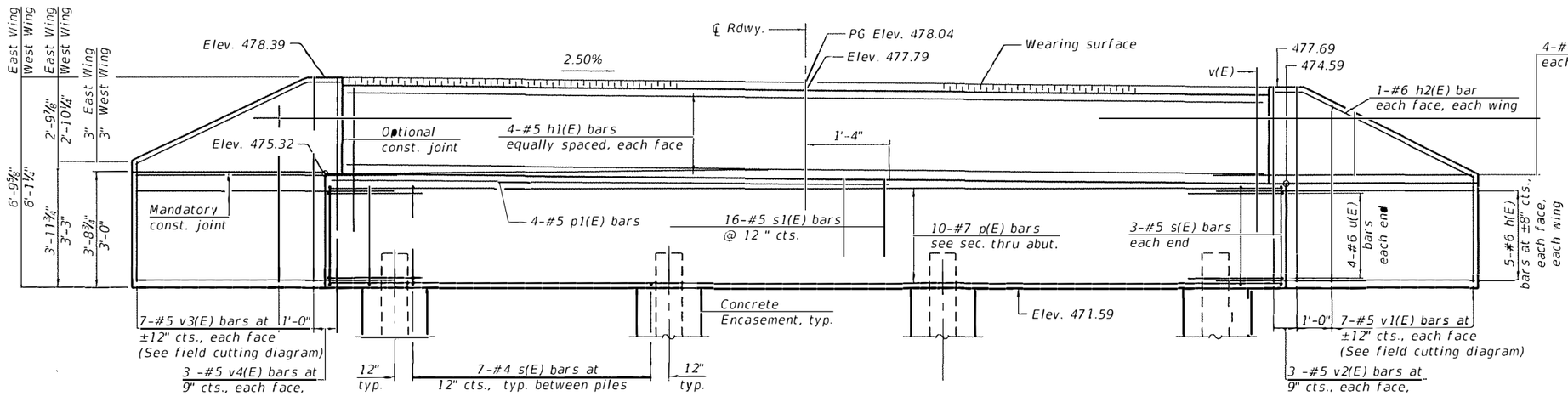
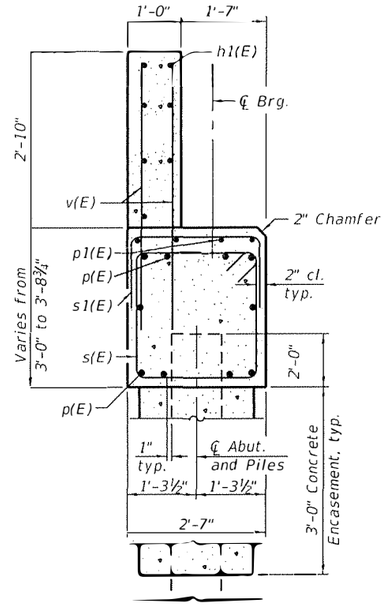
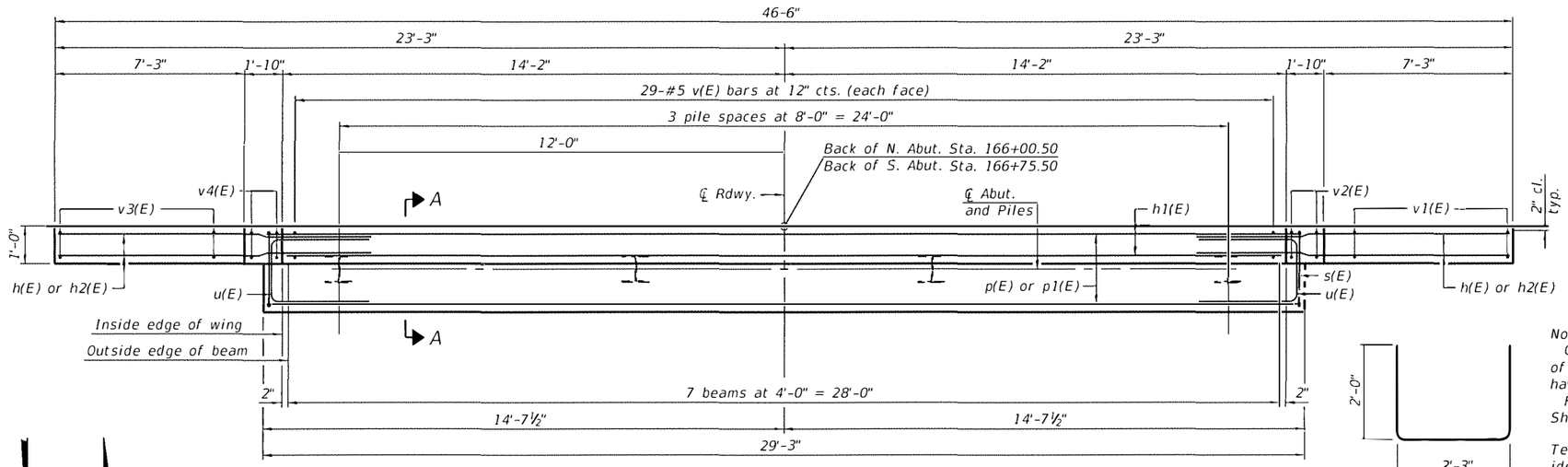


ELEVATION

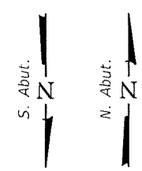
(South Abutment shown, North Abutment similar by mirror image)



SECTION A-A

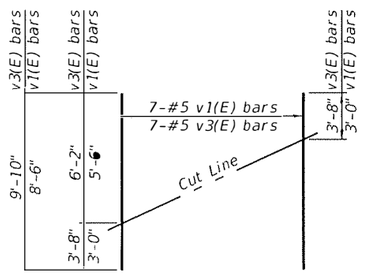


PLAN



PILE DATA

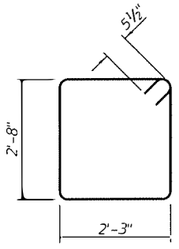
Type: HP 12x53 with pile shoes
Nominal Required Bearing: 419 kips
Factored Resistance Available: 230 kips
Est. Length: 40'
No. Production Piles: 6
Test Piles:
1 at West end of North Abutment
1 at East end of South Abutment



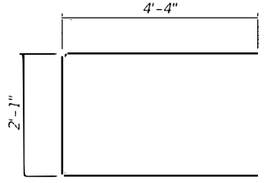
FIELD CUTTING DIAGRAM

Order v1(E) and v3(E) bars full length. Cut as shown and use remainder of bars in opposite face.

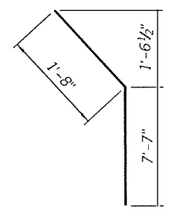
BARS s1(E)



BAR s(E)



BARS u(E)



BARS h2(E)

Notes:
Cast backwall and tops of wingwalls after beams have been erected.
For Details of piles see Sheet 8 of 9

Test bars shall be identical to and delivered with the bars of the same mark listed on the bridge sheets. One bar of each with these marks will be selected by the Engineer to be used as a test sample. This chart assumes that all bars of the same size on the job have different heat numbers. Then the contractor shall supply additional bars from other heat numbers for sampling by the Engineer at no additional cost.

The weight of these extra bars has been included in the Summary of Quantities for the project.

TWO ABUTMENTS BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	72	#6	12'-3"	——
h1(E)	16	#5	28'-0"	——
h2(E)	8	#6	9'-3"	——
p(E)	20	#7	28'-11"	——
p1(E)	8	#5	15'-9"	——
s(E)	54	#5	10'-9"	□
s1(E)	32	#5	6'-3"	⊓
u(E)	16	#6	10'-9"	⊐
v(E)	116	#5	6'-0"	——
v1(E)	14	#5	8'-6"	——
v2(E)	12	#5	5'-9"	——
v3(E)	14	#5	9'-10"	——
v4(E)	12	#5	6'-6"	——
Concrete Structures		Cu Yd		31.7
Reinforcement Bars, Epoxy Coated		Pound		5440
Furnishing Steel Piles, HP12x53		Foot		240
Driving Piles		Foot		240
Test Pile, Steel HP12x53		Each		2
Pile Shoes		Each		8
Concrete Encasement		Cu. Yd.		2.8

EXTRA BARS FOR TEST SAMPLES

Bar	No.	Size	Length	Shape
h(E)	1	#5	28'-0"	——
p(E)	1	#7	28'-11"	——
s(E)	1	#5	10'-9"	□
u(E)	1	#6	10'-9"	⊓
Reinforcement Bars Epoxy Coated		Pound		120

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3/25/2020 8:18:16 AM

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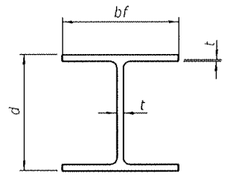
USER NAME = bpeiler	DESIGNED - DRA	REVISED -	
	CHECKED - BWP	REVISED -	
PLOT SCALE =	DRAWN - DRA	REVISED -	
PLOT DATE = 3/25/2020	CHECKED - BWP	REVISED -	

RANDOPLH COUNTY HIGHWAY DEPARTMENT

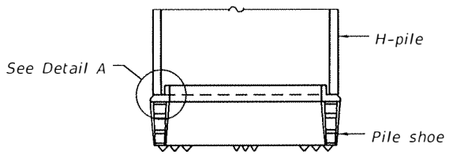
ABUTMENTS
STRUCTURE NO. 079-3053
SHEET NO. 7 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	13
		CONTRACT NO. 97732		
		ILLINOIS	FED. AID PROJECT	

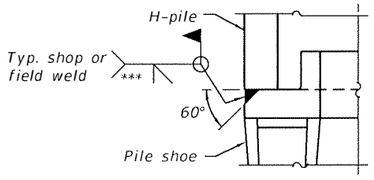


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



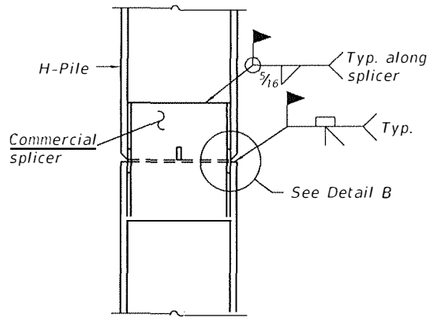
ELEVATION



DETAIL A

SHOE ATTACHMENT

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.



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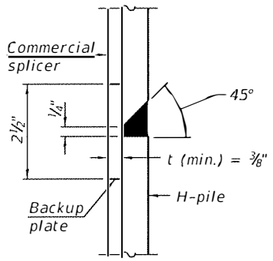
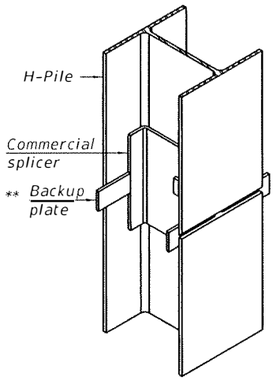
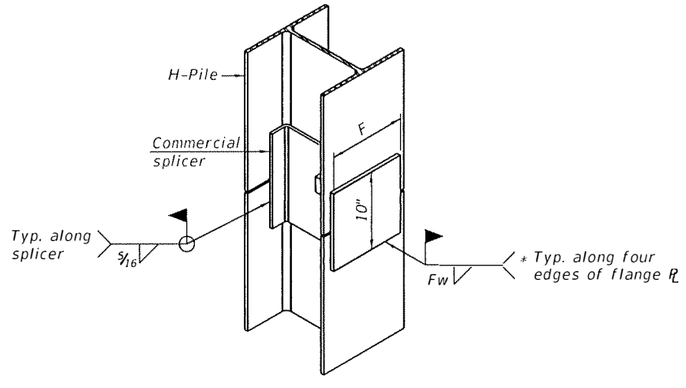


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



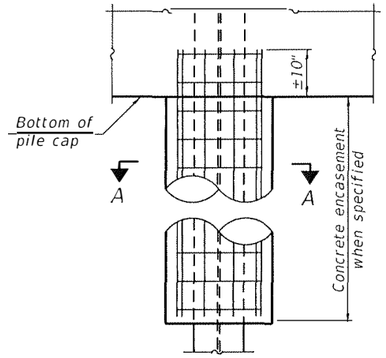
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

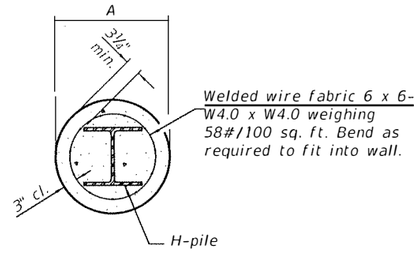
* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



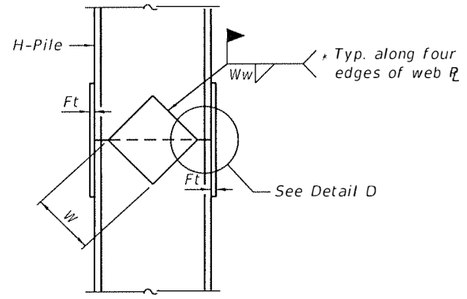
ELEVATION



SECTION A-A

INDIVIDUAL PILE CONCRETE ENCASEMENT

(Forms for encasement may be omitted when soil conditions permit).



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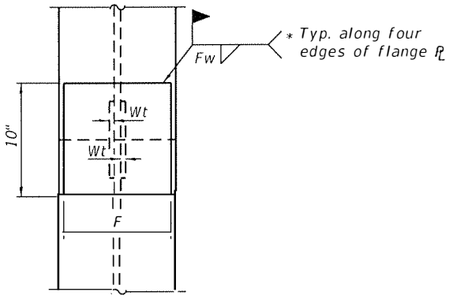
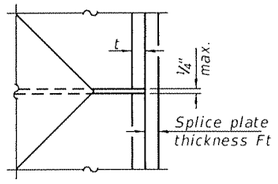


END VIEW



DETAIL D

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

F-HP 8-11-2017

TWM, INC. WWW.TWM-INC.COM
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USER NAME = bpeltier
PLOT SCALE =
PLOT DATE = 3/25/2020

DESIGNED - DRA | CHECKED - BWP | DRAWN - DRA | CHECKED - BWP
REVISED - | REVISED - | REVISED - | REVISED -

RANDOPLH COUNTY HIGHWAY DEPARTMENT

HP PILE DETAILS
STRUCTURE NO. 079-3053
SHEET NO. 8 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	14

CONTRACT NO. 97732
ILLINOIS | FED. AID PROJECT

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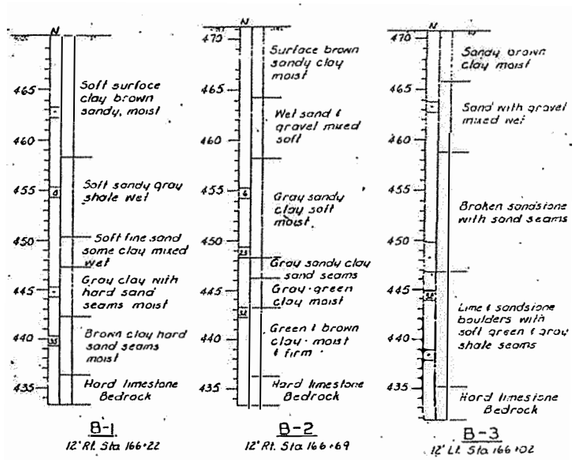

Note: N = Number of blows required to drive a 2" I.D. split tube 12" with a 30" stroke of a 140 lb. drop hammer.

MODEL: Default
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3/25/2020 8:18:18 AM

TWM, INC. WWW.TWM-INC.COM
ENGINEERING GEOSPATIAL SERVICES
IL DESIGN FIRM LICENSE NO. 184-001220

USER NAME = bpoiler	DESIGNED - DRA	REVISED -	
	CHECKED - BWP	REVISED -	
PLOT SCALE =	DRAWN - DRA	REVISED -	
PLOT DATE = 3/25/2020	CHECKED - BWP	REVISED -	

RANDOPLH COUNTY HIGHWAY DEPARTMENT

BORING LOGS
STRUCTURE NO. 079-3053
SHEET NO. 9 OF 9 SHEETS

F.A.S. RTE.	PROJECT	COUNTY	TOTAL SHEETS	SHEET NO.
863	19-00045-07-BR	RANDOLPH	15	15

CONTRACT NO. 97732
ILLINOIS FED. AID PROJECT