$PRFNAME$
U:\41-0660.0X - IH-39 Dane Partners General Bridge Information\B-13-731 - 139_NB over Off Ramp\brid

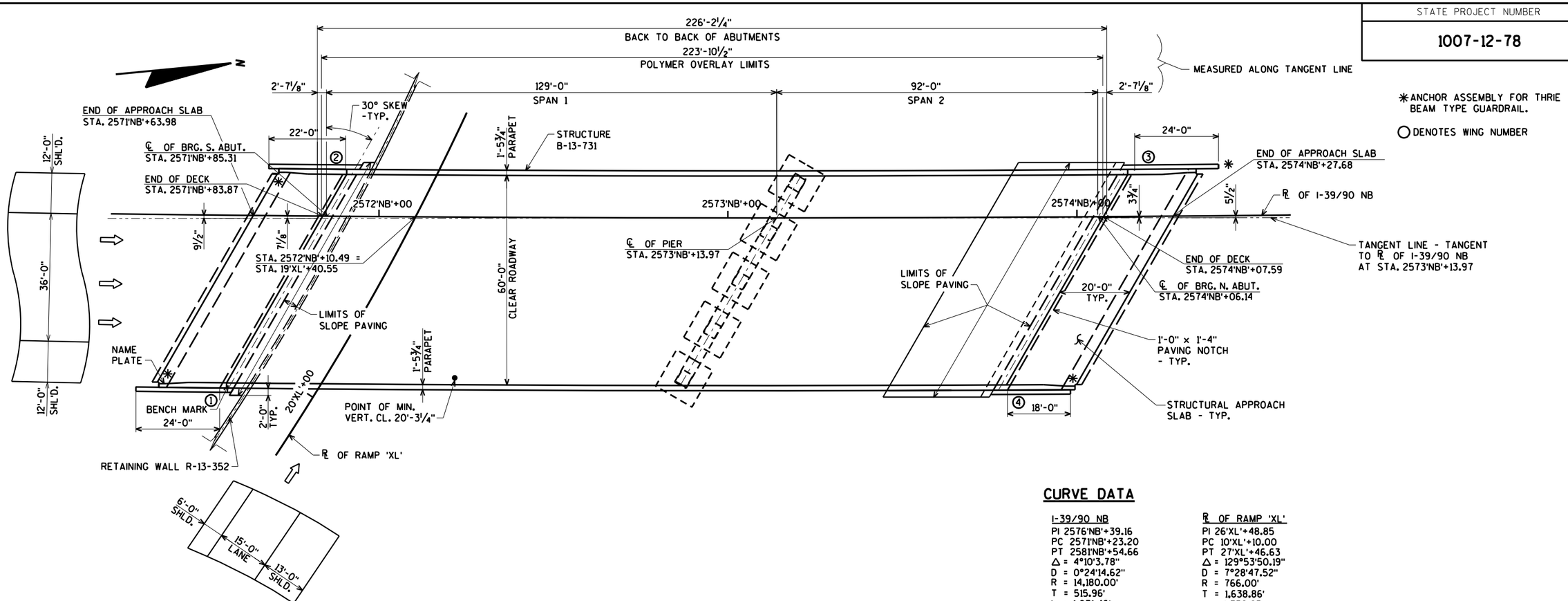
DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

8

STATE PROJECT NUMBER

1007-12-78



✱ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

○ DENOTES WING NUMBER

CURVE DATA

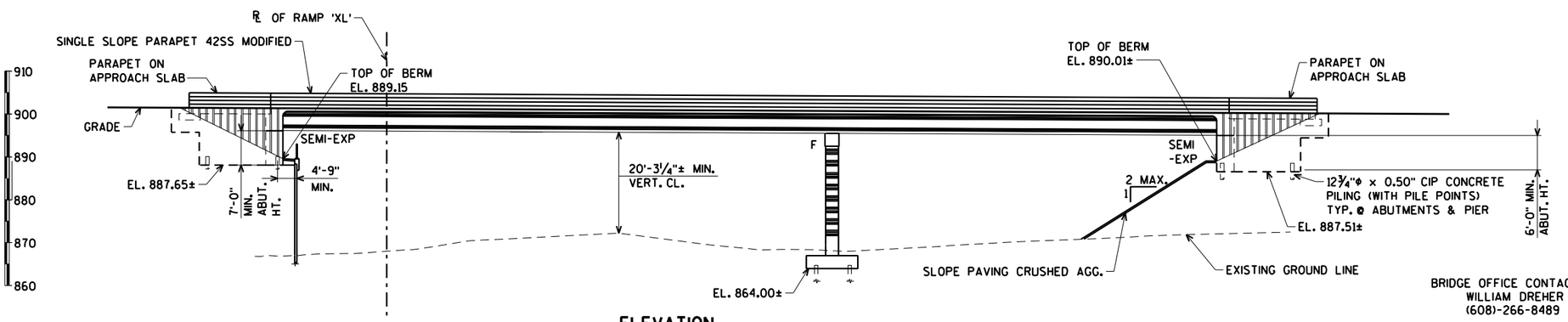
℄ I-39/90 NB	℄ OF RAMP 'XL'
PI 2576'NB'+39.16	PI 26'XL'+48.85
PC 2571'NB'+23.20	PC 10'XL'+10.00
PT 2581'NB'+54.66	PT 27'XL'+46.63
Δ = 4°10'3.78"	Δ = 129°53'50.19"
D = 0°24'14.62"	D = 7°28'47.52"
R = 14,180.00'	R = 766.00'
T = 515.96'	T = 1,638.86'
L = 1,031.46'	L = 1,736.63'
SE = NORMAL CROWN	SE = 8%

PLAN

TWO SPAN - 54W" PRESTRESSED CONCRETE GIRDER BRIDGE

LIST OF DRAWINGS

FOR TYPICAL SECTIONS,
SEE SHEET 2
FOR DESIGN DATA,
SEE SHEET 3



ELEVATION

(NORMAL TO ℞ OF OFF-RAMP TO USH 12/18 WB)

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY

AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-13-731

I-39/90 NB OVER RAMP TO USH-12/18 WB

COUNTY	TOWN/~~CITY/VILLAGE~~
DANE	BLOOMING GROVE

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CBM		JLB/CLS	

PRELIMINARY PLAN

SHEET 1 OF 5

8

5/24/2019

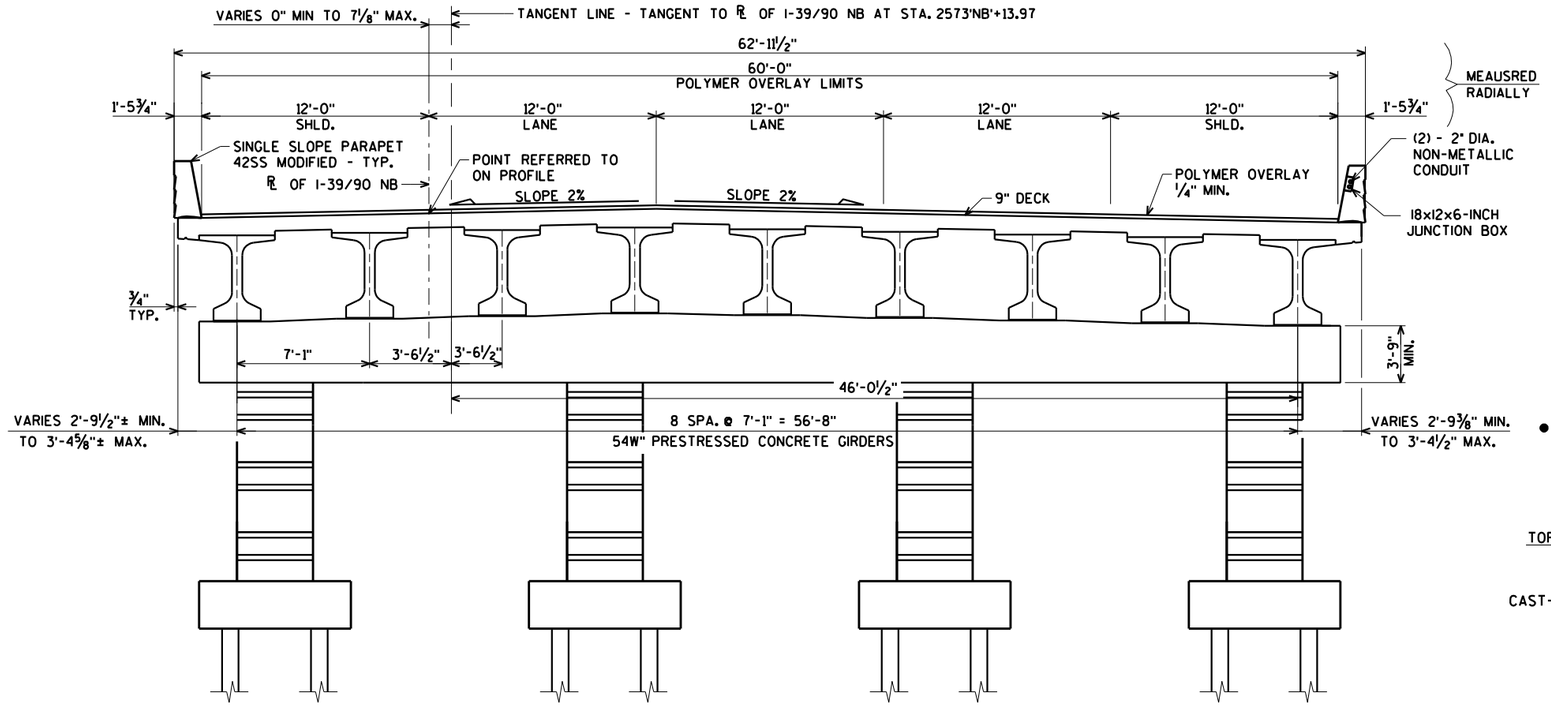
PENTABLE:BReau_shd_util.tbl

I.D.

DATE:

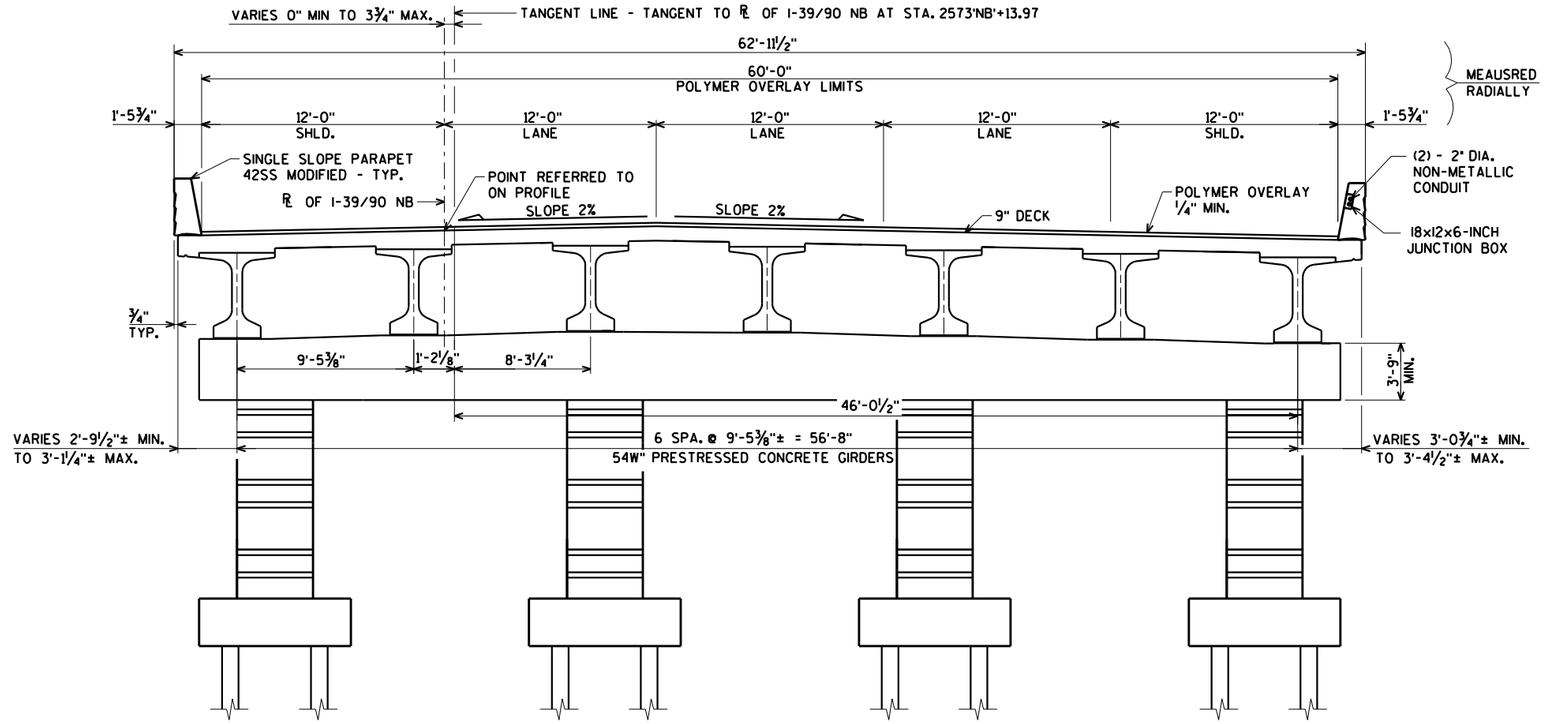
STATE PROJECT NUMBER

1007-12-78



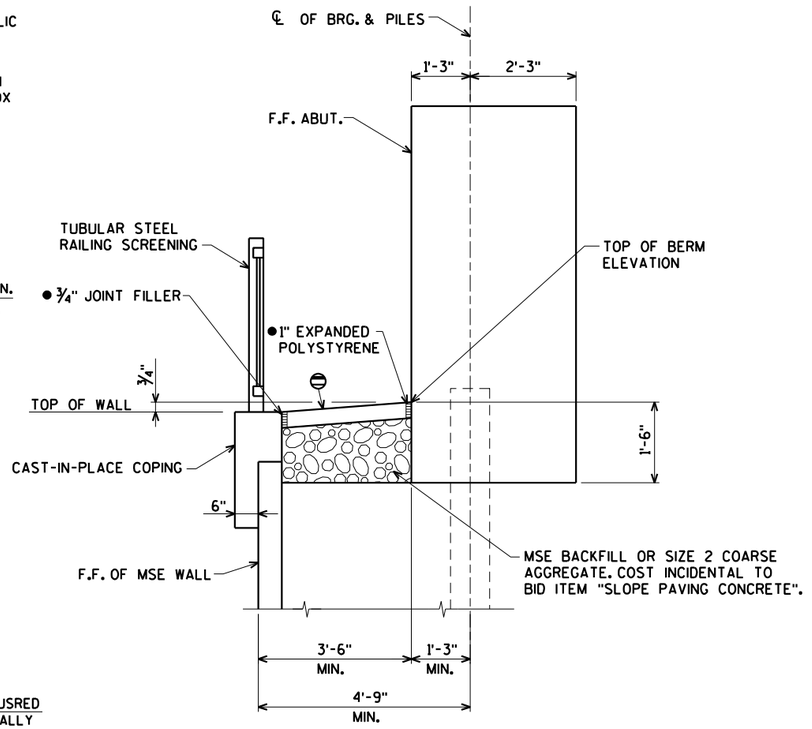
TYPICAL SECTION THRU BRIDGE (SPAN 1)

(LOOKING NORTH)



TYPICAL SECTION THRU BRIDGE (SPAN 2)

(LOOKING NORTH)



CROSS SECTION THRU SOUTH ABUTMENT AT MSE WALL

(NORMAL TO ABUTMENT AND WALL)

⊖ 4" SLOPE PAVING CONCRETE

● SEAL ALL EXPOSED HORIZONTAL AN VERTICAL SURFACES OF FILLER AND EXPANDED POLYSTYRENE WITH NON-STAINING GREY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE).

F.F. DENOTES FRONT FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-731

DRAWN BY JLB | PLANS CK'D.

TYPICAL SECTIONS

SHEET 2 OF 5

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

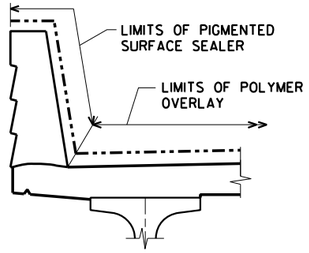
1007-12-78

TOTAL ESTIMATED QUANTITIES

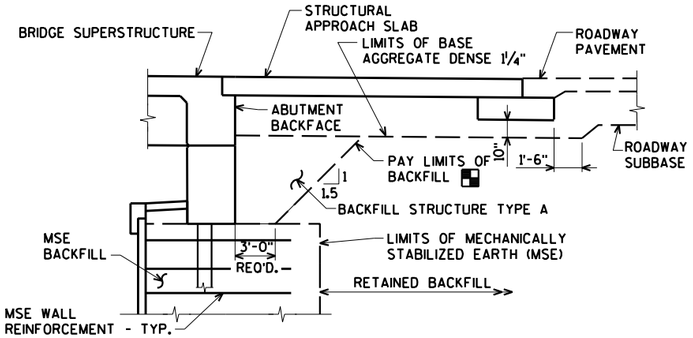
BID ITEM NUMBER	BID ITEMS	UNIT	S. STR. APR. SLAB	S. ABUT.	PIER	N. ABUT.	N. STR. APR. SLAB	SUPER.	TOTAL
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-13-731	LS	-----	-----	-----	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-----		-----		-----	-----	
305.0120	BASE AGGREGATE DENSE 1¼-INCH	TON		-----	-----	-----		-----	
501.1000.S	ICE HOT WEATHER CONCRETING	LB							
502.0100	CONCRETE MASONRY BRIDGES	CY						-----	
502.3200	PROTECTIVE SURFACE TREATMENT	SY		-----	-----	-----		-----	
502.3210	PIGMENTED SURFACE SEALER	SY		-----	-----	-----			
503.0154	PRESTRESSED GIRDER TYPE I 54W-INCH	LF	-----	-----	-----	-----	-----		
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-----				-----	-----	
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB							
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB		-----	-----	-----		-----	
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-----				-----	-----	
506.4000	STEEL DIAPHRAGMS B-13-731	EACH	-----	-----	-----	-----	-----		
509.5100.S	POLYMER OVERLAY	SY	-----	-----	-----	-----	-----		
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----		-----		-----	-----	
517.1010.S	CONCRETE STAINING B-13-731	SF							
550.0500	PILE POINTS	EACH	-----				-----	-----	
● 550.2128	PILING CIP CONCRETE 12¾ X 0.50-INCH	LF	-----				-----	-----	
604.0400	SLOPE PAVING CONCRETE	SY	-----		-----	-----	-----	-----	
604.0500	SLOPE PAVING CRUSHED AGGREGATE	SY	-----	-----	-----		-----	-----	
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-----	-----	-----		-----	-----	
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH		-----	-----	-----		-----	
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-----	-----	-----		-----	-----	
652.0125	CONDUIT RIGID METALLIC 2-INCH	LF		-----	-----	-----			
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF		-----	-----	-----			
653.0222	JUNCTION BOXES 18 X 12 X 6-INCH	EACH	-----	-----	-----	-----	-----		
◈ SPV.0035.700	HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES	CY		-----	-----	-----			
SPV.0165.700	LONGITUDINAL GROOVING BRIDGE DECK	SY		-----	-----			-----	
	NON-BID ITEMS	SIZE	-----	-----	-----	-----	-----	-----	½" & ¾"
	FILLER								

◈ HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES SHALL INCLUDE ALL SUPERSTRUCTURE CONCRETE AND ALL STRUCTURAL APPROACH SLAB CONCRETE, EXCEPT THE STRUCTURAL APPROACH SLAB FOOTING CONCRETE.

● PILING TO BE ASTM A252 (GRADE 3) WITH A f_y = 45,000 p.s.i.

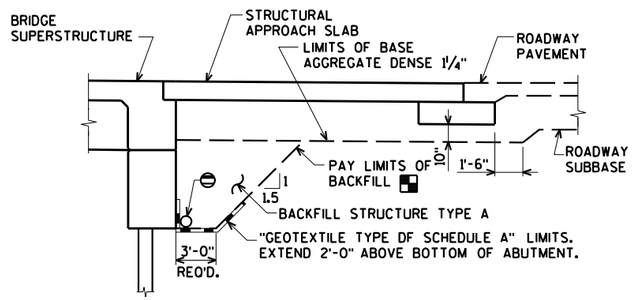


POLYMER OVERLAY AND PIGMENTED SURFACE SEALER DETAILS



BACKFILL STRUCTURE LIMITS SOUTH ABUTMENT

▪ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED WITH EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.



BACKFILL STRUCTURE LIMITS NORTH ABUTMENT

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET x.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR:
OPERATING RATING FACTOR:
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 #/S.F.

RATING BASED ON PLACEMENT OF 5 p.s.f. POLYMER OVERLAY UNDER THIS CONTRACT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
- SUPERSTRUCTURE (HPC DECK, PARAPET, DIAPHRAGM, APPROACH SLAB) ——— f'_c = 4,000 p.s.i.
- ALL OTHER (INCL. APPROACH SLAB FOOTING) ——— f'_c = 3,500 p.s.i.

HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ——— f_y = 60,000 p.s.i.
STRUCTURAL CARBON STEEL ASTM A709 (GRADE 36) ——— f_y = 36,000 p.s.i.

54W" PRESTRESSED GIRDER
CONCRETE MASONRY ——— f'_c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

STEEL PILING SHELLS ASTM A252 (GRADE 3) ——— f_y = 45,000 p.s.i.

FOUNDATION DATA:

SOUTH ABUTMENT TO BE SUPPORTED ON 12¾" ϕ x 0.50" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 90'-0".

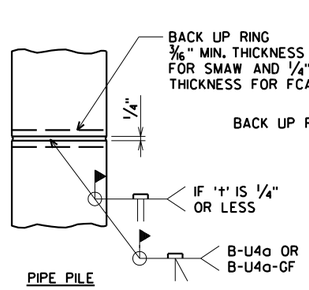
NORTH ABUTMENT TO BE SUPPORTED ON 12¾" ϕ x 0.50" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 100'-0".

PIER TO BE SUPPORTED ON 12¾" ϕ x 0.50" CIP CONCRETE PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 80'-0".

*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

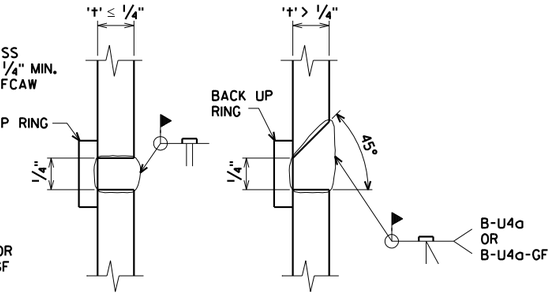
TRAFFIC DATA:

I-39/90 NB	EXISTING OFF-RAMP TO USH-12/18 WB
A.A.D.T. = 60,400 (2020)	A.A.D.T. = 10,000 (2020)
A.A.D.T. = 72,000 (2040)	A.A.D.T. = 11,100 (2040)
R.D.S. = 70 M.P.H.	R.D.S. = 50 M.P.H.

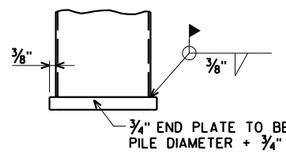


PILE SPLICE DETAIL

CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



CIP PILE WELD DETAIL



END PLATE DETAIL FOR CIP PILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-731

DRAWN BY JLB | PLANS CK'D.

DESIGN DATA AND QUANTITIES

SHEET 3 OF 5

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

STATE PROJECT NUMBER

1007-12-78

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE FIRST DIGIT OF A THREE DIGIT BAR NO. OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II, OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-13-731".

AT THE BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

POLYMER OVERLAY AND PIGMENTED SURFACE SEALER IS TO BE APPLIED AS SHOWN IN DETAIL ON SHEET 3.

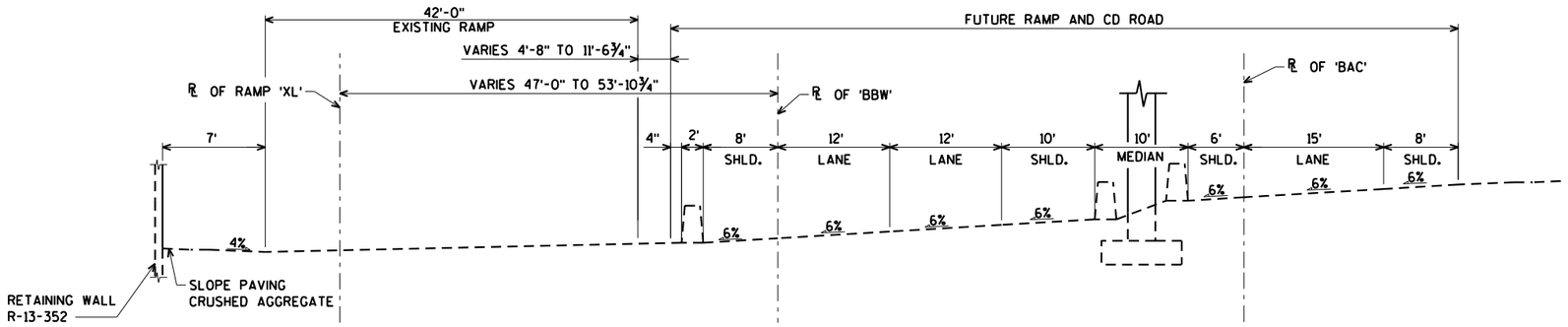
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE RUSTICATIONS IN THE ABUTMENTS AND PIER ARE INCLUDED IN THE BID ITEM "CONCRETE MASONRY BRIDGES".

THE RUSTICATIONS AT THE BACK FACE OF THE PARAPETS ARE INCLUDED IN THE BID ITEM "HIGH PERFORMANCE CONCRETE (HPC) MASONRY STRUCTURES"

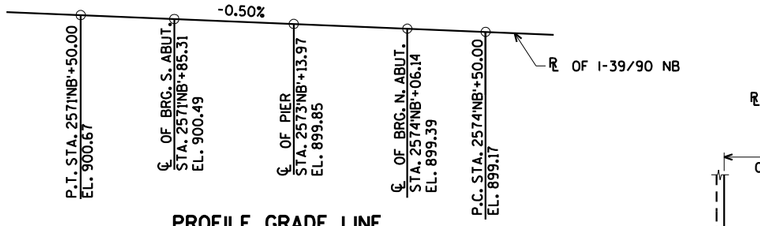
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".



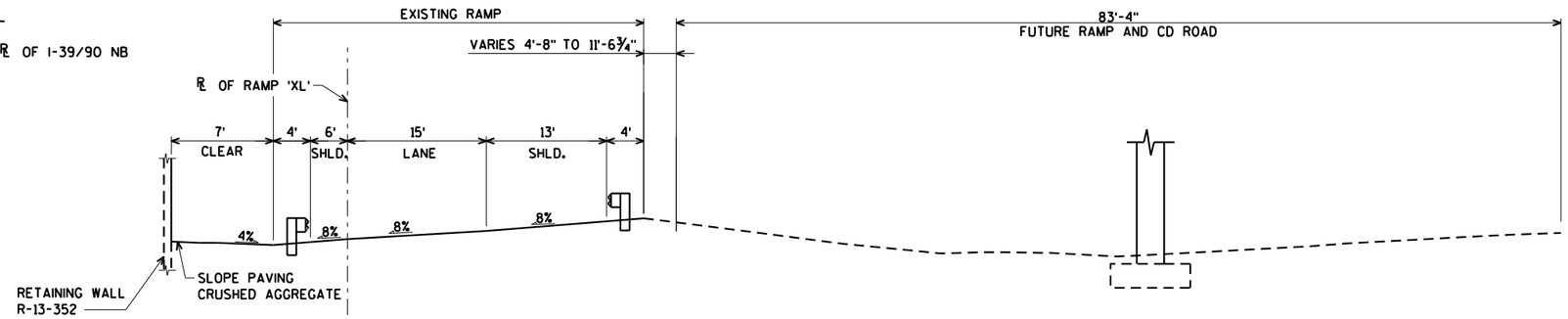
POTENTIAL FINISHED TYPICAL SECTION OF OFF-RAMP TO USH 12/18 WB AND CD ROAD

(LOOKING WEST)



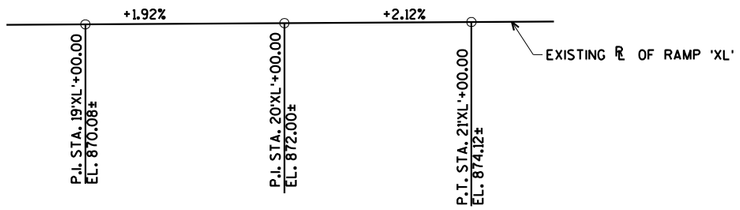
PROFILE GRADE LINE

(PROPOSED RL OF I-39/90 NB)



TYPICAL EXISTING FINISHED SECTION OF OFF-RAMP TO USH 12/18 WB

(LOOKING WEST)



PROFILE GRADE LINE

(℄ OF RAMP 'XL')

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-731

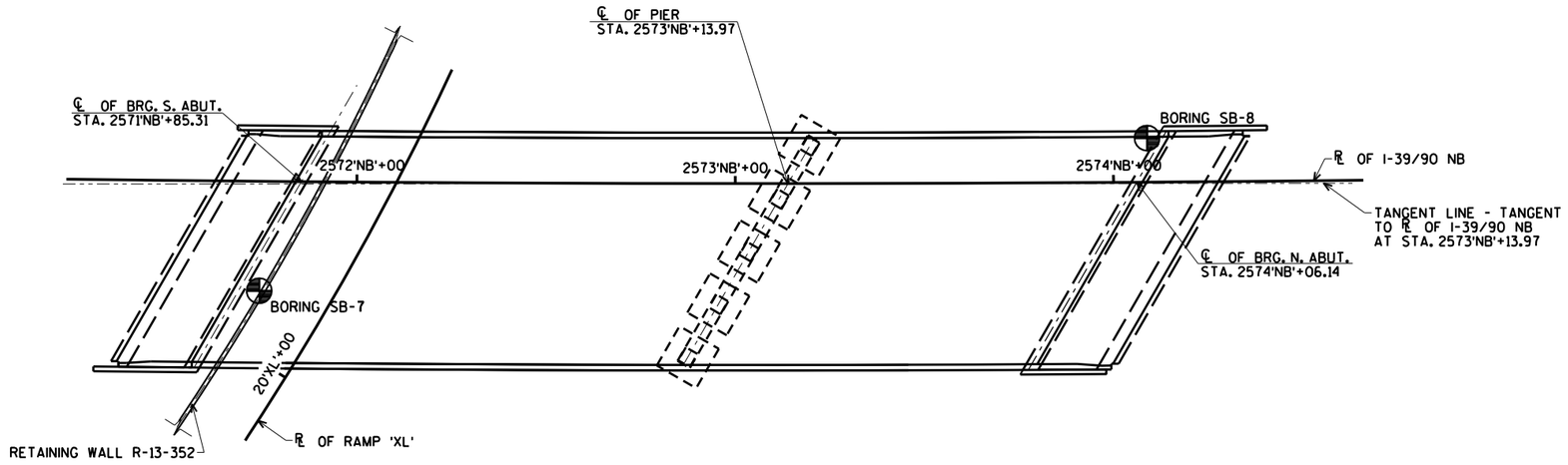
DRAWN BY JLB | PLANS CK'D.

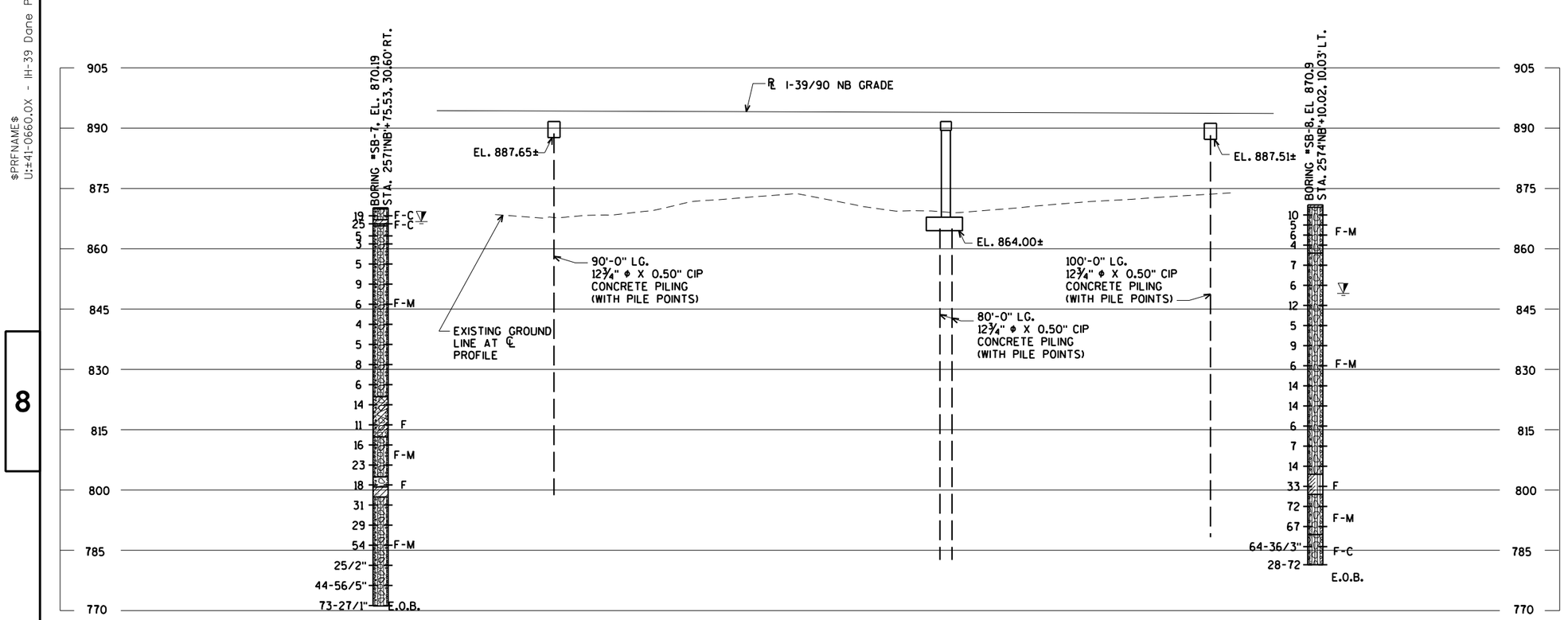
GENERAL NOTES AND PROFILES

SHEET 4 OF 5

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
SB-7	JANUARY 10, 2019	473463.30	849766.54
SB-8	JANUARY 9, 2019	473700.32	849743.38
BORINGS COMPLETED BY: SOILS & ENGINEERING SERVICES, INC.			
REPORT COMPLETED BY: SOILS & ENGINEERING SERVICE, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) DANE COUNTY			





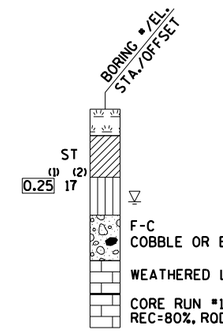
STATE PROJECT NUMBER

1007-12-78

MATERIAL SYMBOLS

ASPHALT, TOPSOIL, PEAT, CONCRETE, FILL, GRAVEL, SAND, CLAY, SILT, BOULDERS OR COBBLES, LIMESTONE, BEDROCK (UNKNOWN), SHALE, SANDSTONE, IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-13-731

DRAWN BY CJM/JLB | PLANS CK'D.

SUBSURFACE EXPLORATION

SHEET 5 OF 5

8

8

$PRFNAME$
U:±41-0660.0X - IH-39 Dane Partners General Bridge Information±B-13-731 - 139_NB over Off Ramp±bridge±preliminary±B-13-731

5/24/2019

PENTABLE:BReau_shd_util.tbl