STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

BRS-789(1)

OHIO	1 / 19
FHWA REGION 5	
BRS-789(1)	FEDERAL PROJECT

UNI-37-12.23

UNI-37-12.23
VILLAGE OF MAGNETIC SPRINGS

UNION COUNTY

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (existing) — (proposed)
Center Line
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light

Limited Access (only) — LA
Right of Way (only) — RW
Limited Access & Right of Way — LA & RW
Existing Right of Way
Property Line — (in existing fence)
Railroad or
Guardrail (existing) — (proposed)

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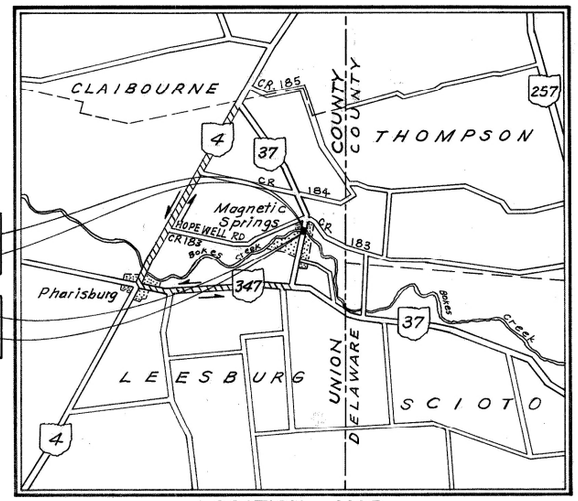


LOCATION MAP

SCALE IN MILES
0 .5 1 2 3 4

LEGEND
Detour

Portion to be improved
State & Federal Routes
Other Roads

LINE DATA

Begin Project	Sta. 645+96	
End Project	Sta. 648+50	
	254	Lin. Ft. or 0.048 Mile
Begin Work	Sta. 645+00	
End Work	Sta. 648+75	
	375	Lin. Ft. or 0.071 Mile

SCALES

Plan 0' 20' 40'
Profile: Horizontal 0' 20' 40' Vertical 0' 2 4'
Cross Section: Horizontal 0' 5' 10' Vertical 0' 5' 10'

1981 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

Approved Delbert Leistner
Date 8/13/81 District Deputy Director of Transportation

Approved Robert B. Pfeifer
Date 3-8-82 Engineer, Bureau of Bridges and Structural Design

Approved Howard E. Nolan
Date 3-8-82 Chief Engineer, Planning and Design

Approved David S. Wier
Date 3-8-82 Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS		
1001	1-3-77	

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS						
BP-5	7-16-81	CB-3A	5-1-79			
BP-7	12-6-76					
GR-1	2-5-82					
GR-2B	2-5-82	AS-1-72	6-30-72			
GR-3	2-5-82	DBR-2-73	4-1073			
GR-4	2-5-82	PSBD-1-71	9-1-71			
MC-1	6-13-69					
MC-3	6-1-73					
MC-4	7-26-76					
MC-11	8-1-78					

Plan Prepared By:
District 6
Location & Design

SEAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: UNI-37-12.23
Date of Letting 19, Contract No.

LD0300 Rev. 11-21-73

Design Designation
Current ADT 1981 = 1587 V.P.D.
Design Year (2001) = 2778 V.P.D.
D.H.V. (15% of Design Year ADT) = 417 V.P.H.
D. (Directional Distribution) = 60% ~ 40%
T. (Percent B+C Trucks) = 6%
V. (Design Speed) = 45 M.P.H.

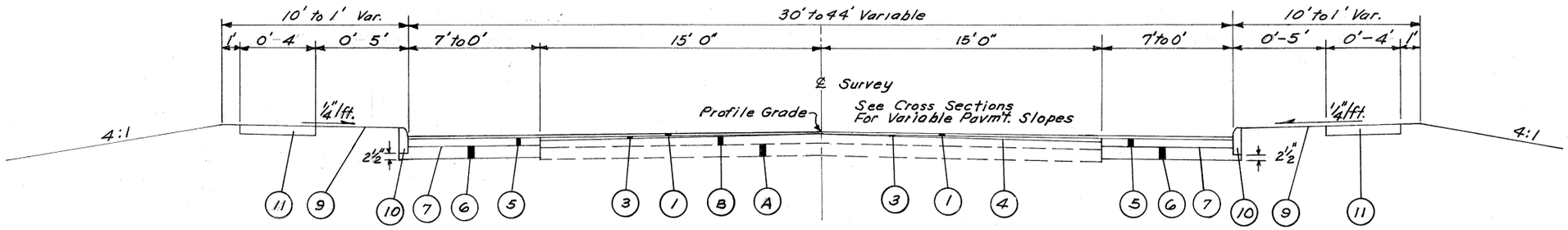
TYPICAL SECTION

FHWA REGION	STATE	PROJECT	
5	OHIO		

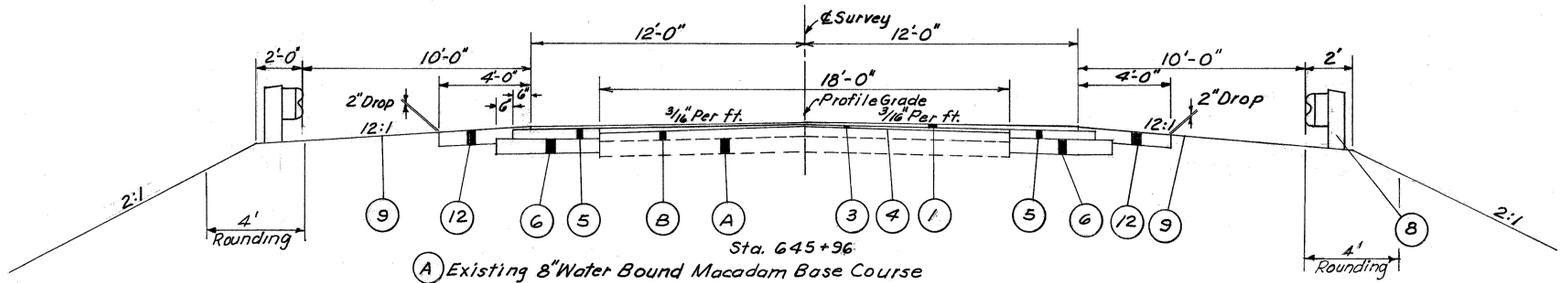
2/19

UNI-37-12.23

TYPE 404



Sta. 647+97.16 to Sta. 648+50 = 52.84'



(A) Existing 8" Water Bound Macadam Base Course
(B) Existing 5" Bituminous Surface Course

(1) Item 404 1½" Asphalt Concrete Ac-20
(3) Item 404 0" Min. Asphalt Concrete Ac-20
(4) Item 407 Tack Coat
Applied at the Rate of 0.10 Gal./Sq. Yd. Using Cover Aggregate 703.06
(5) Item 301 5" Bituminous Aggregate Base; , Ac-20, or Rt-11 or Rt-12
(6) Item 310 8" Subbase, Type 1
(7) Item 408 Bituminous Prime Coat
(8) Item 606 Guard Rail, Type 5
(9) Item 659 Seeding & Mulching (See General Notes)
(10) Item 609 Std. Conc. Curb, Type 6
(11) Item 608 4" Conc. Sidewalk
(12) Item 304 8" Aggregate Base

GENERAL NOTES

UNI-37-12.23

FED RD DIVISION	STATE	PROJECT		
5	OHIO			

TRAFFIC NOTE

THE CONTRACTOR SHALL, BEFORE WORK BEGINS ON THIS PROJECT, SUBMIT IN WRITING TO THE DIRECTOR FOR APPROVAL, A SCHEDULE OF OPERATIONS.

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON THE PROJECT BY USING THE EXISTING PAVEMENT OR THE PROPOSED PAVEMENT EXCEPT WHEN DETOUR IS IN USE.

THE DETOUR SHOWN ON SHEET NO. 1 SHALL NOT BE PLACED INTO EFFECT PRIOR TO JULY 15, 1982 UNLESS OTHERWISE APPROVED BY THE DIRECTOR.

THE LIMITS AND DURATION OF USE OF THE DETOUR SHALL BE HELD TO AN ABSOLUTE MINIMUM AND SHALL NOT EXCEED 3 MONTHS IN DURATION. IN ALL CASES THE DETOUR SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER, AFTER CONFERRING WITH THE DESIGN & PLANNING ENGINEER.

DETOUR LIMITATION

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT A PERIOD NOT TO EXCEED (A COMBINED TOTAL OF) 90 CONSECUTIVE CALENDAR DAYS, THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 1.

ALTERNATE METHODS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR.

MOBILIZATION, AS PER PLAN

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE WHICH SHALL BE IN ACCORDANCE WITH 619.01 AND 619.02. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 624 MOBILIZATION, AS PER PLAN.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

ESTIMATED QUANTITIES

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. ESTIMATED QUANTITIES OF MATERIALS SHALL NOT BE ORDERED FOR DELIVERY TO THE PROJECT UNLESS AUTHORIZED BY THE ENGINEER.

REMOVAL OF EXISTING PIPE

THE REMOVAL OF ALL EXISTING PIPE DRAINS WHICH WOULD NORMALLY BE REMOVED IN VARIOUS EXCAVATION ITEMS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

SIZES	NO. TREES	NO. STUMPS
18"	16	
30"	3	

THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING.

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD DRAWING MC-1. FOR LOCATIONS, SEE SHEET NO. 18.

LOCATIONS OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL AS SHOWN IN THESE PLANS ARE SUBJECT TO ADJUSTMENT TO ASSURE THE PLANNED INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE RIGHT-OF-WAY LINE IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR EROSION CONTROL MEASURES:

207	TEMPORARY SEEDING AND MULCHING	223 SQ. YD.
207	WATER	1 M GAL.
207	TEMPORARY SLOPE DRAINS	40 LIN. FT.
207	TEMPORARY BENCHES, DITCHES, DAMS AND SEDIMENT BASINS	40 CU. YD.
659	COMMERICIAL FERTILIZER	.02 TON
659	REPAIR SEEDING AND MULCHING	56 SQ. YD.

EROSION CONTROL

ITEMS 601 IS PROVIDED IN THE PLANS FOR EROSION. CONTROL. ROCK OR TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

UTILITIES

OHIO EDISON COMPANY
23 NORTH FRANKLIN STREET
RICHWOOD, OHIO 43344

UNITED TELEPHONE COMPANY
127 NORTH MAIN STREET
BELLEFONTAINE, OHIO 43311

COLUMBIA GAS COMPANY
843 EAST 5TH. STREET
MARYSVILLE, OHIO 43040

SEEDING FORMULA

THE SEEDING FORMULA FOR URBAN MIX SHALL BE USED THROUGHOUT THE PROJECT AS SPECIFIED IN 659.09

DUST CONTROL

A QUANTITY OF CALCIUM CHLORIDE AND WATER ARE PROVIDED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER

ITEM 616 WATER 50 M GAL.
ITEM 616 CALCIUM CHLORIDE 1 TON

ITEM SPECIAL-EQUIPMENT ACCESS DRIVE

ALL EARTHWORK, PAVEMENT AND EROSION CONTROL ITEMS, AS DETAILED ON SHEET 11, SHALL BE PAID FOR AS A LUMP SUM PRICE BID FOR ITEM SPECIAL-EQUIPMENT ACCESS DRIVE.

SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY EXISTING OR NEW DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM WHEN SUCH DRAINS CARRY UNTREATED FLOW FROM ANY PLUMBING FIXTURES INCLUDING FLOOR DRAINS AND SINK DRAINS, OR DRAINS FROM LIVESTOCK LOTS OR BARNS.

EXISTING PIPE CARRYING FLOW WHICH COMES WITHIN THE CATEGORY OUTLINED ABOVE, SHALL BE PLUGGED WITH CLASS C CONCRETE IN THE RIGHT-OF-WAY LINE. PAYMENT FOR SAID PLUGGINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION (OR THE PERTINENT 202 ITEM).

HOUSE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS OR YARD DRAINS DISTURBED BY THE PROPOSED WORK SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING TO A STORM SEWER, MANHOLE, CATCH BASIN, THROUGH THE BACKSLOPE OF ROADWAY DITCHES, OR THROUGH THE CURB.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603 100'-4" CONDUIT TYPE E, 711.29
ITEM 603 100'-4" CONDUIT TYPE E, 706.01 OR 706.08
ITEM 603 100'-6" CONDUIT TYPE F

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

GENERAL SUMMARY

CALC: W.R.H. 7/29/81
CHK: R.T.S. 7/29/81

CALC. BY ____ DATE ____
CHKD. BY ____ DATE ____

OHIO
FHWA REGION 5

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UNI-37-12.23

ITEM	SHEET NUMBER 18	11	10	9	6	5	3	ITEM	QUANT.	UNIT	DESCRIPTION
											ROADWAY
							Lump	201	Lump		Clearing and Grubbing
					944			202	944	Sq.Ft.	Walk Removed
					248			202	248	Lin.Ft.	Guardrail Removed
					236			202	236	Lin.Ft.	Curb Removed
					2			202	2	Each	Inlet Removed
					166			203	166	Cu.Yd.	Excavation not including Embankment Construction
					643			203	643	Cu.Yd.	Embankment
					245			203	245	Sq.Yd.	Subgrade Compaction
	4							604	4	Each	Monument Assembly
					247.68			606	247.68	Lin.Ft.	Guardrail — Type 5
					4			606	4	Each	Anchor Assembly, Standard type A
					4			606	4	Each	Bridge Terminal Assembly, Standard type B
					600			608	600	Sq.Ft.	4" Concrete Walk
							1	616	1	Ton	Calcium Chloride
							50	616	50	M.Gal.	Water
		Lump						Spec.	Lump		Equipment Access Drive
											PAVEMENT
			7	3				301	10	Cu.Yd.	Bituminous Aggregate Base: AC-20, RT-11 or RT-12
						17		304	17	Cu.Yd.	Aggregate Base
			3	15				310	18	Cu.Yd.	Subbase, Type 1
						6		408	6	Gals.	Bituminous Prime Coat:
			9	27				404	36	Cu.Yd.	Asphalt Concrete, AC-20
			20	38				407	58	Gal.	Tack Coat,
			.7	1.3				407	2	Tons	Cover Aggregate
					162			609	162	Lin.Ft.	Curb Standard, Type 6
					245			611	245	Sq.Yd.	Reinforced Concrete Approach Slabs (T-15)
											DRAINAGE
					40			603	40	Lin.Ft.	12" Conduit, Type F
					126			603	126	Lin.Ft.	12" Conduit, Type B
							100	603	100	Lin.Ft.	4" Conduit, Type E, 711.29
					2			604	2	Each	Catch Basin Standard No. 3-A
							100	603	100	Lin.Ft.	4" Conduit, Type E, 706.01 or 706.08
							100	603	100	Lin.Ft.	6" Conduit, Type F
											EROSION CONTROL
							1	207	1	M.Gal.	Water
							223	207	223	Sq.Yd.	Temporary Seeding and Mulching
						125		207	125	Each	Straw or Hay Bales
							40	207	40	Lin.Ft.	Temporary Slope Drains
							40	207	40	Cu.Yd.	Temporary Benches, Dikes, Dams and Sediment Basins
					92	2		601	94	Cu.Yd.	Rock Channel Protection, Type C Without Bedding
							56	659	56	Sq.Yd.	Repair Seeding and Mulching
						0.10	0.02	659	0.12	Ton	Commercial Fertilizer
						1113		659	1113	Sq.Yd.	Seeding and Mulching
							Lump	624	Lump		Mobilization, As Per Plan
							Lump	614	Lump		Maintaining Traffic
								623	Lump		Construction Layout Stakes
											STRUCTURE OVER 20' SPAN
											Structure No. UNI-37-12.24 (For Estimated Quantities, see Sheet No. 13)

FHWA REGION	STATE	PROJECT	
5	OHIO		

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UNI-37-12.23

CALC: W.R.H. 5-5-81
CHK: R.T.S. 7-21-81

CALCULATIONS

Item 659 Seeding and Mulching

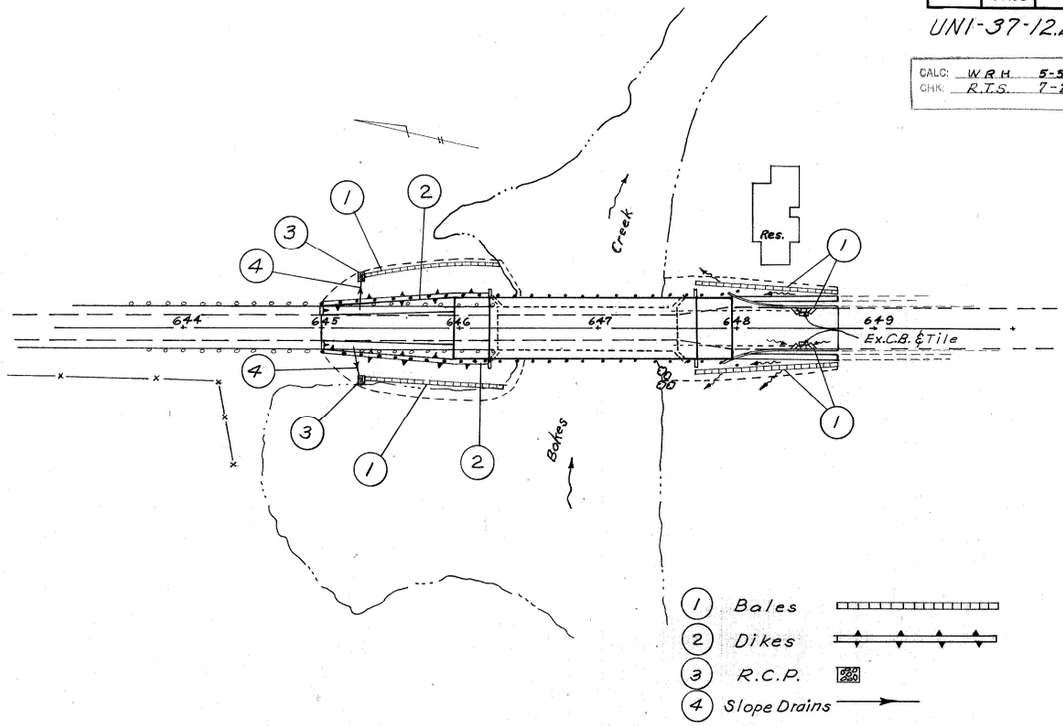
From Line Sheet No. 6
Total Area 1136 Sq.Yds. - Less R.C.P. 23 Sq.Yds. = 1113 Sq. Yds.

Item 659 Commercial Fertilizer

Total Area From Line Sheet No. 6 = 1113 Sq.Yds.
1113 x 9 = 10017 Sq.ft.
20 lbs./1000 Sq. Ft. 10017 ÷ 1000 = 10.017 x 20 Lbs. = 200.34 lbs ÷ 2000 = 0.10 Tons

Item 304 Aggregate Base
Length Sta. 645+00 to Sta. 645+96 = 96'
96' x 2 (2 Sides) x 2.33 Sq. Ft. (Berm Area) ÷ 27 = 17 Cu. Yds.

Item 408 Bituminous Prime Coat
Fillet Areas Rt. & Lt. From Sta. 647+97.16 To Sta. 648+25.29 = 128 Sq. Ft.
128 Sq. Ft. ÷ 9 x 0.4 Gal/Sq.Yd. = 6. Gals.
Quantities Carried to General Summary



The Schematic Detail is Intended to Show Examples of Applications of Erosion Control Methods as Shown on Std. Dwg. MC-11 and as Per Item 207 Specifications.

All Dimensions and Locations of Temporary Soil Erosion and Water Pollution Control Devices Shall be Subject to Adjustments as Required or as Directed by the Engineer. The Contractor May, With Approval of the Engineer, Modify the Following Details and/or Materials Providing the Intent of These Notes and Details are Accomplished.

When the Temporary Soil Erosion And Water Pollution Control Devices Are No Longer Required for the Intended Purpose in the Opinion of the Engineer, They May Be Removed.

As an Erodible Earth Material is Exposed, Straw or Hay Erosion Checks Shall be Placed Between The Exposed Surface and the Ditch, Forming A Continuous Filter.

Erosion & Sedimentation Control Measures Provided For in This Plan Are to be Controlled by the Use of the O.D.O.T. Construction and Material Specification Manual Special Attention is to be Paid to Sections 107.01 and 107.02 of The O.D.O.T. Construction and Material Specification Which Clearly Define the Responsibility of the Contractor to Keep Fully Informed of all Federal, State, and Local Laws, Ordinances and Regulations.

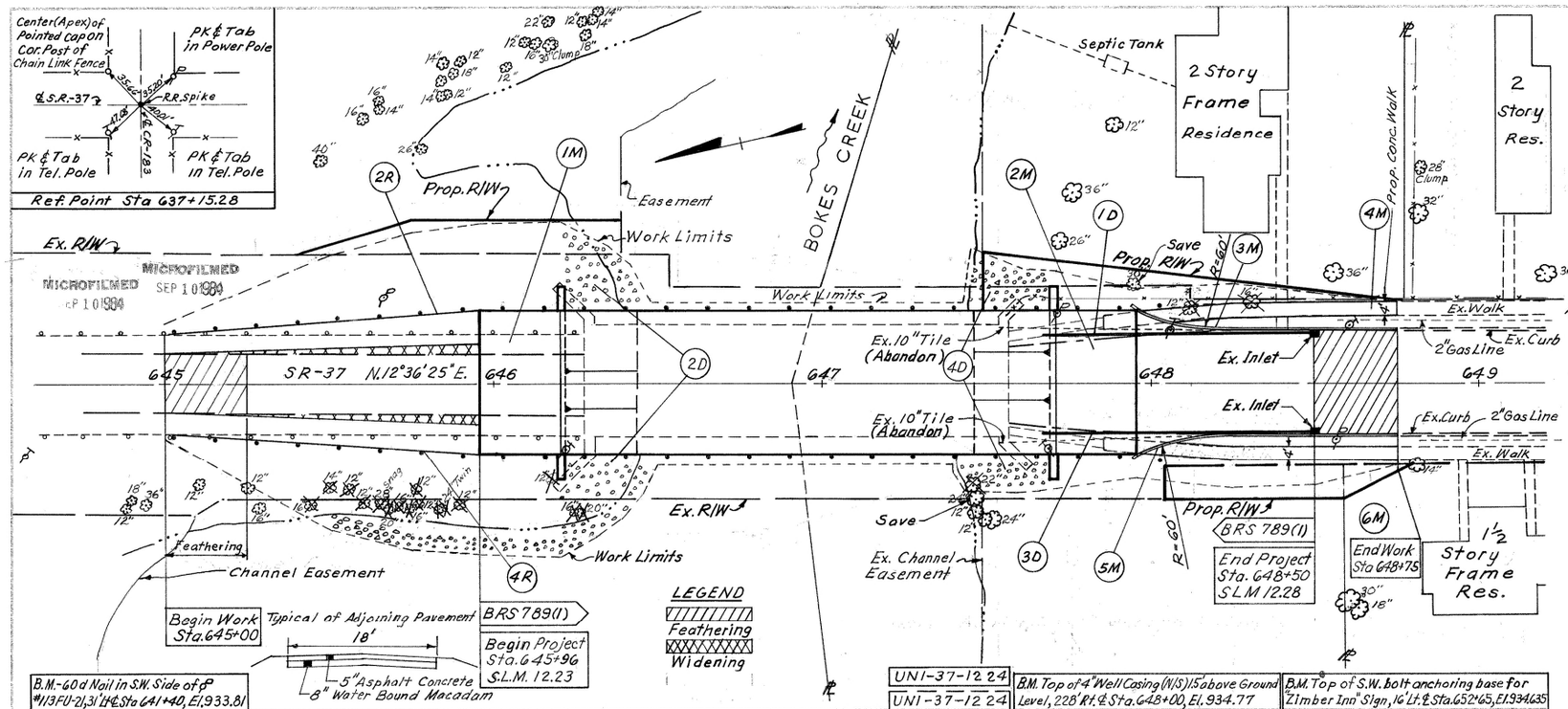
The following Estimated Quantities are to be Used as Directed By The Engineer for Erosion and Siltation Control Measures.

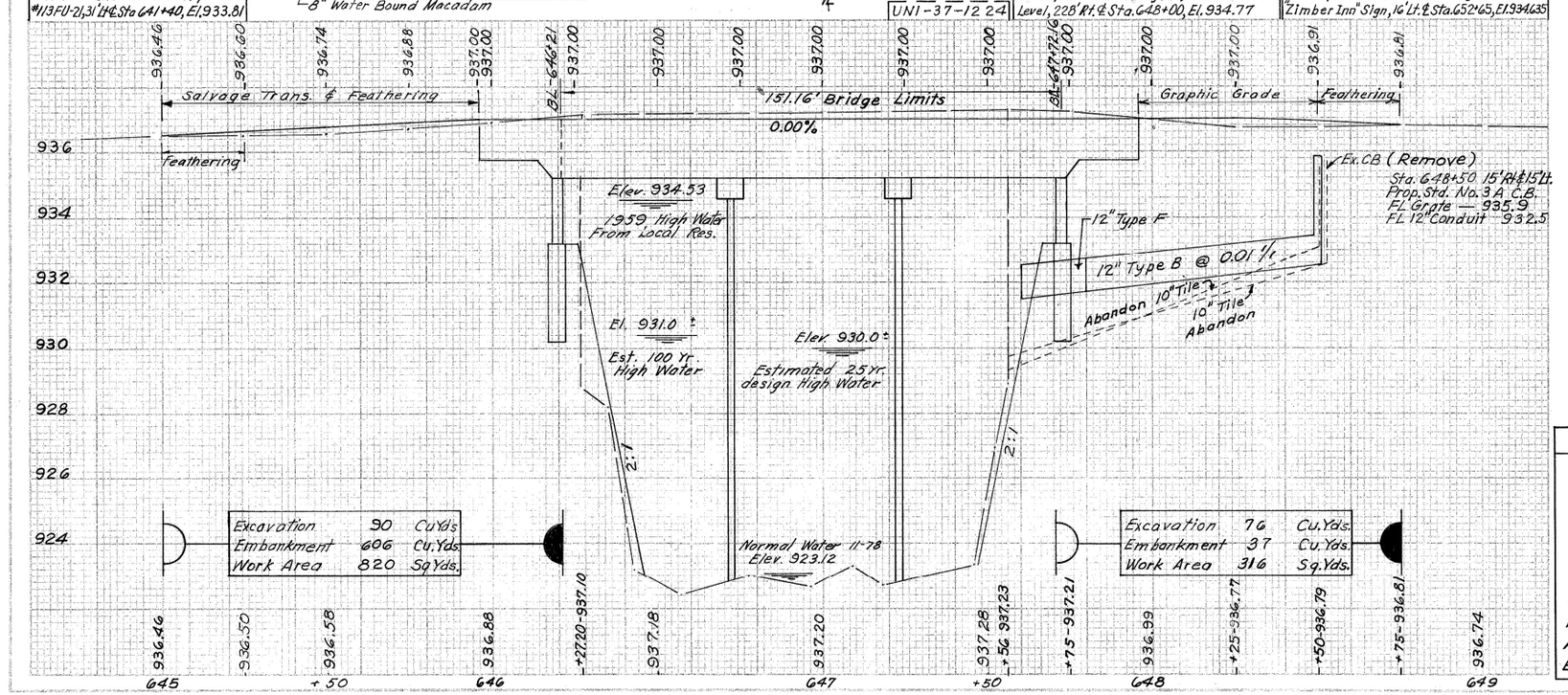
Item 207 Straw or Hay Bales 125 Each

Item 601 R.C.P. Without Bedding 2 C.Y.

Quantities Carried to General Summary

Calculations and Temporary Soil Erosion and Sediment Control Detail





CALC: W.R.H 5/5/81
CHK: R.T.S 6/12/81

FHWA REGION	STATE	PROJECT	
5	OHIO		

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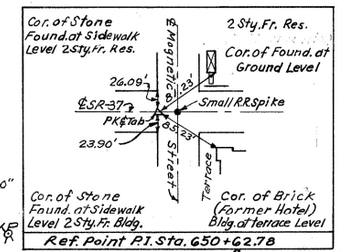

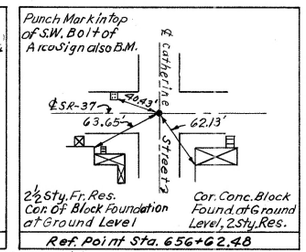

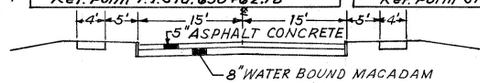

TYPICAL OF ADJOINING PAVEMENT

DRAINAGE "D" and MISCELLANEOUS "M"

REF. No.	STATION FROM	STATION TO	SIDE	603 Conduit 12" TYPE B	603 Conduit 12" TYPE F	604 Catch Basin Type 3-A	203 Sub-grade Compaction	202 Walk Removed	202 Curb Removed	202 Reinf. conc. Approach Slab 15" Thick	611 R.C.P. Without Bedding Type C	601 Curb Type 6	609 Inlet Removed	608 Conc. Walk 4" Thick
				L.F.	L.F.	Each	Sq.Yds.	S.F.	L.F.	Sq.Yds.	Cu.Yds.	L.F.	Each	Sq.Ft.
1D	647+67	648+50	Lt.	63	20	1							1	
2D	645+50	646+50	Lt.&Rt.								70			
3D	647+67	648+50	Rt.	63	20	1							1	
4D	647+90	647+70	Rt.&Lt.								22			
1M	645+96	646+21	℄				122.2			122.2				
2M	647+72.16	647+97.16	℄				122.2			122.2				
3M	647+97.16	648+75	Lt.					118				81		
4M	647+97.16	648+75	Lt.					472						300
5M	647+97.16	648+75	Rt.						118			81		
6M	647+97.16	648+75	Rt.					472						300
		Totals		126	40	2	245	944	236	245	92	162	2	600

GUARD RAIL "R"

REF. No.	STATION FROM	STATION TO	SIDE	606 GUARD RAIL Type 5	606 BRIDGE TERMINAL ASSEMBLY TYPE B	606 ANCHOR ASS. TYPE-A
				Lin. Ft.	Each	Each
2R	645+00	648+13	Lt.	123.84	2	2
4R	645+12.5	648+13	Rt.	123.84	2	2
		Totals		247.68	4	4

EXISTING BRIDGE DATA	PROPOSED BRIDGE DATA
TYPE: STEEL BEAM (Not Continuous)	TYPE: PRESTRESSED CONCRETE BOX BEAMS WITH CAPPED PILE SUBSTRUCTURES
SPAN: 3-39' SPANS	SPANS: [illegible]3 @ 49'-0" (49'-3" - 50'-6" - 49'-5⅜")
WIDTH: 24' CURB TO CURB	49'-9" ℄ SUBSTRUCTURES
WIDTH: 32'-4" OUT TO OUT	ROADWAY: 44' ℄ f/ GUARDRAIL
STRENGTH: H-15	LOADING: HS20-44 & ALTERNATE MILITARY LOADING
CONDITION: POOR	SKEW: 0°
SKEW: TANGENT 0°	WEARING SURFACE: 2½" ASPHALT CONCRETE
HEIGHT: 17'	APPROACH SLABS: AS-1-72 (25' LONG) 15" THICK
APPROACH SLAB: NONE	ALIGNMENT: TANGENT
BUILT: 1932	

ALIGN. Sta. 645+00 to Sta. 649+00

CALC: WRH 5/5/81
CHK: R.T.S. 7/21/81

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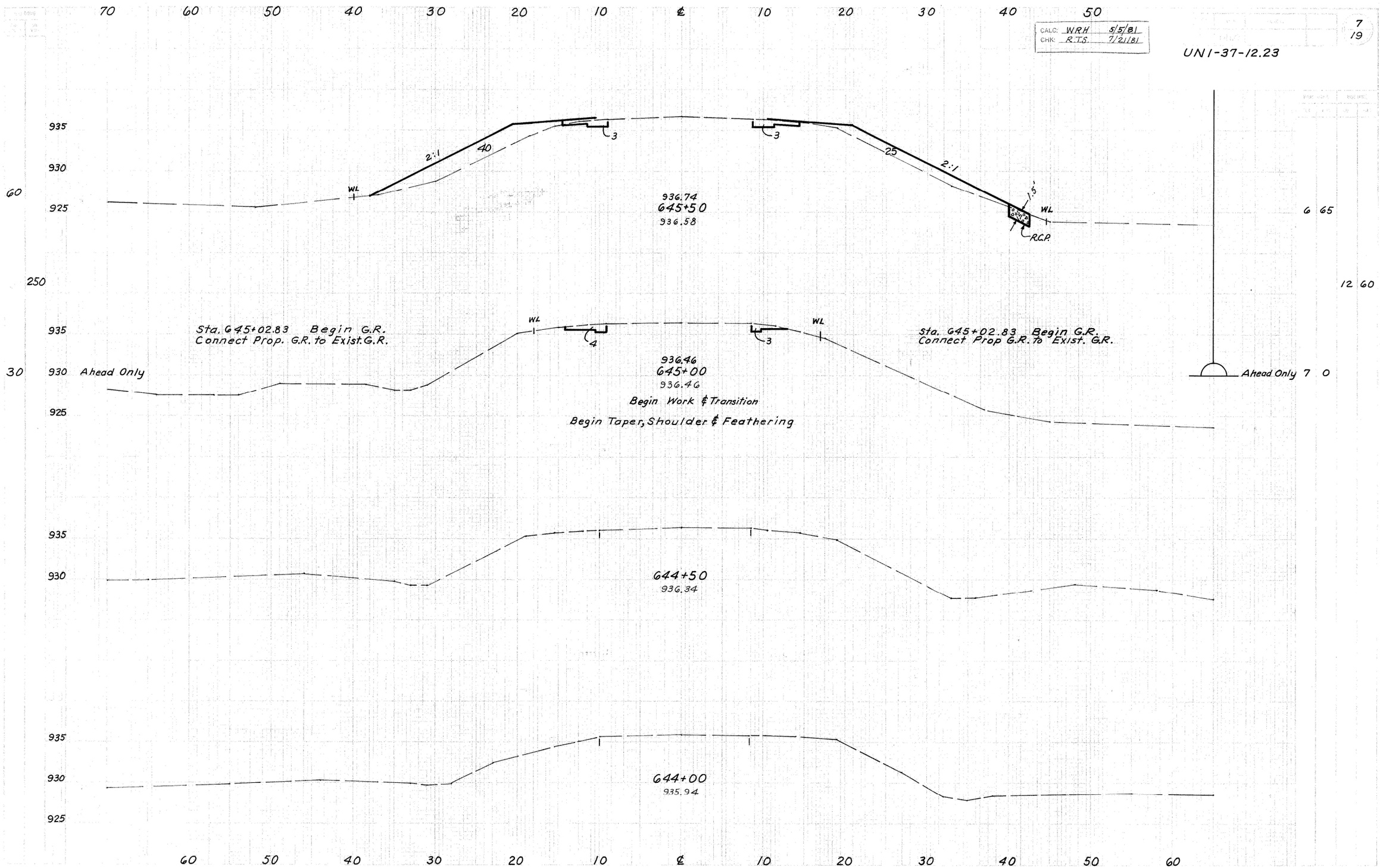


STA. 644+00 to STA. 645+50

CALC: WRH 5/5/81
CHK: R.T.S. 7/21/81

UNI-37-12.23

70 60 50 40 30 20 10 ℄ 10 20 30 40 50

Add For Spillthrough

935
930
70

81 Back
114
2:1
144
1.5'
2:1
RCP

937.00
646+21
937.10
Back Only

646+21 Back Only 81 258

193
930
69
81
925 Ahead Back

2 67 2
Begin Approach Slab +96
101 Back
94 Ahead
104 Back
96 Ahead
1.5'

937.00
645+96
936.88

Excavation 90 cu. Yd.
Embankment 606 Cu. Yd.
Work Area 820 Sq. Yd.

Ahead+96 67 190
Back +96 4 205

185
930
78
925
192

2
4
2:1
80
85
2:1
1.5'
R.C.P.

936.88
645+75
936.71

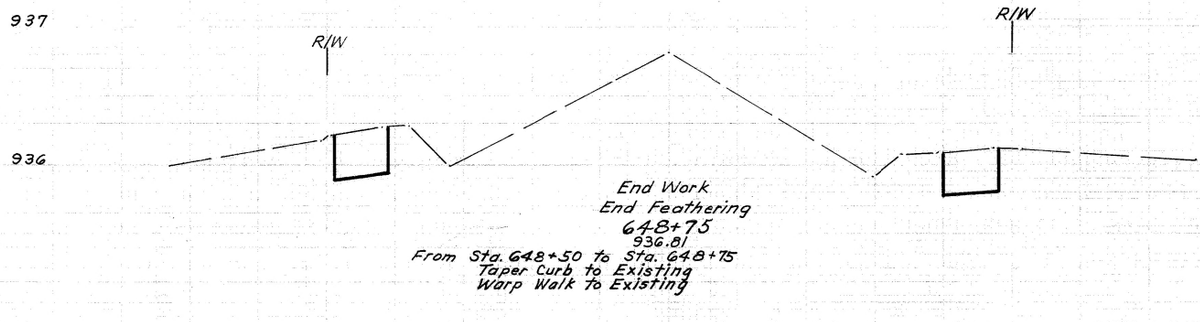
60 Sta. 645+50

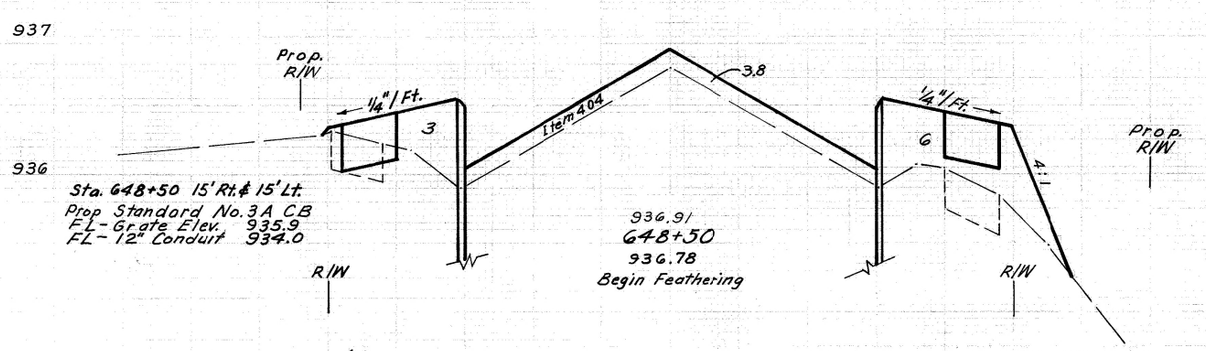
60 50 40 30 20 10 ℄ 10 20 30 40 50 60

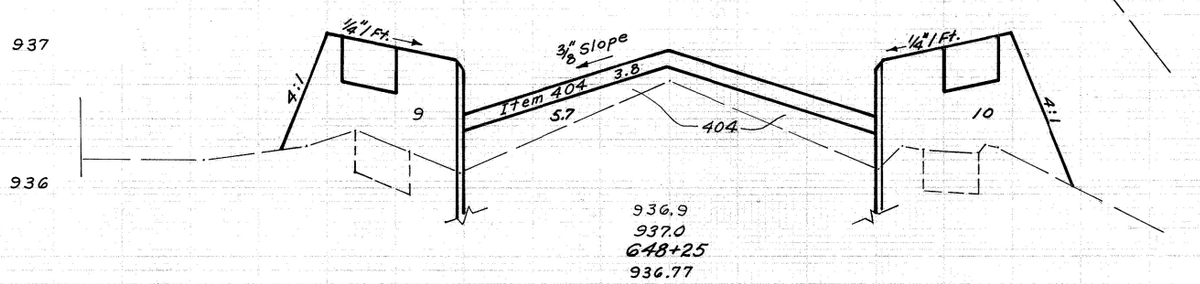
Sta. 645+50 6 65

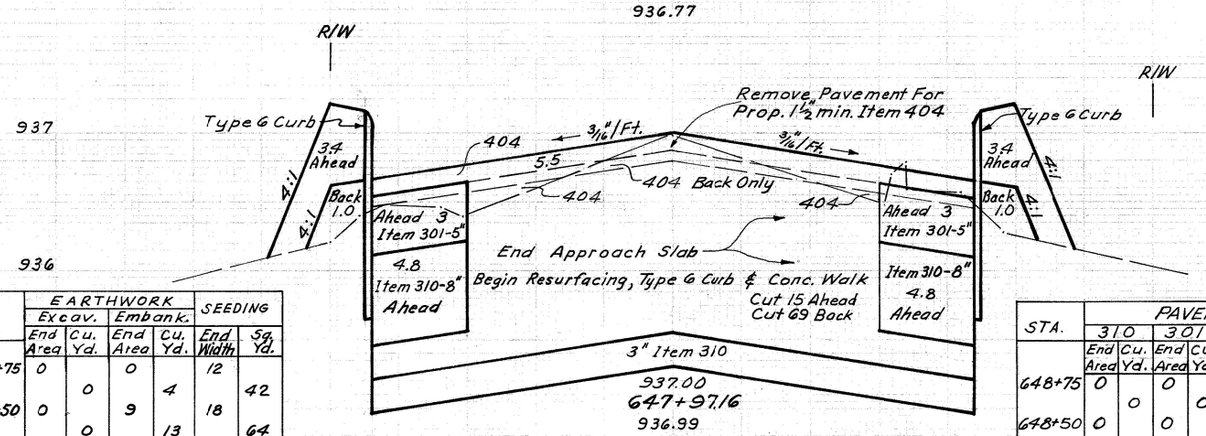
0 87
69 208
4 144
5 165
5 107

Sta. 645+75 to Sta. 646+21







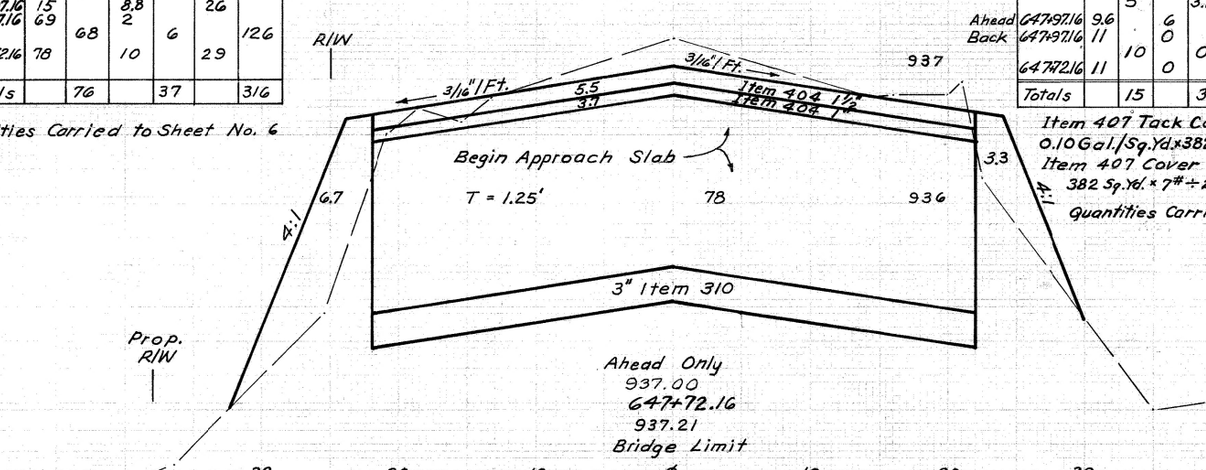


STA.	EARTHWORK Excav. End Area	Excav. Cu. Yd.	Embank. End Area	Embank. Cu. Yd.	SEEDING End Width	SEEDING Sq. Yd.
648+75	0	0	0	4	12	42
648+50	0	0	9	13	18	64
648+25	0	8	19	14	28	84
Ahead 647+97.16	15	8.8			26	
Back 647+97.16	69	2				
		68		6		126
647+72.16	78		10		29	
Totals		76		37		316

Quantities Carried to Sheet No. 6

STA.	PAVEMENT 310 End Area	310 Cu. Yd.	301 End Area	301 Cu. Yd.	404 End Area	404 Cu. Yd.	404 End Area	404 Cu. Yd.
648+75	0		0		0		0	
		0		0		1.8		0
648+50	0		0		3.8		0	
		0		0		4		2.7
648+25	0		0		3.8		5.7	
		5		3.1		5		4.8
Ahead 647+97.16	9.6		6		5.5		1.3	
Back 647+97.16	11		0		5.5		3.7	
		10		0		5		3.4
647+72.16	11		0		5.5		3.7	
Totals		15		3		16		11

Item 407 Tack Coat
0.10 Gal./Sq.Yd. x 382 Sq.Yd. = 38 Gal.
Item 407 Cover Aggregate
382 Sq.Yd. x 7# ÷ 2000 = 1.3 Tons.
Quantities Carried to Gen. Summary



Cross Sections Sta 647+72.16 to Sta 648+75

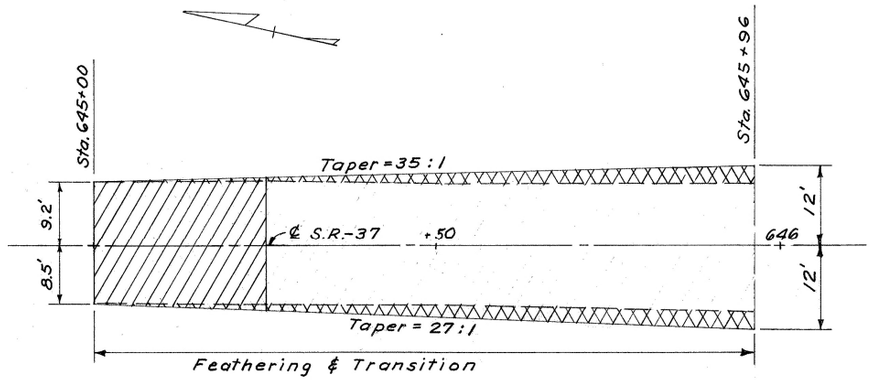
CALC. W.R.H. 5/5/81
CHK. R.T.S. 7/21/81

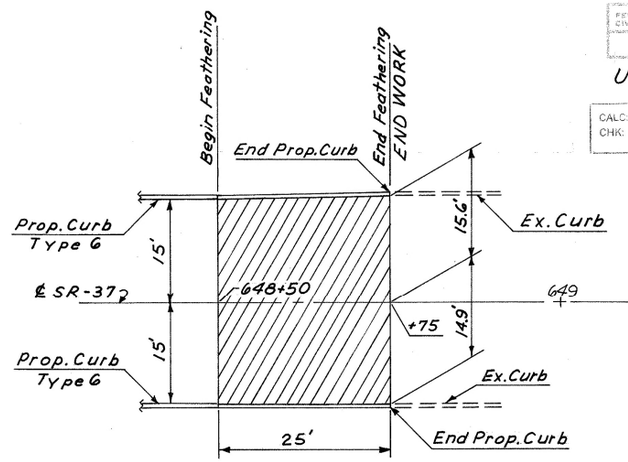
UNI-37-12.23

FED. RD. DIVISION	STATE	PROJECT		10 / 19
2	OHIO			

UNI-37-12.23

CALC: WRH 5/10/81
CHK: R.T.S. 7/22/81

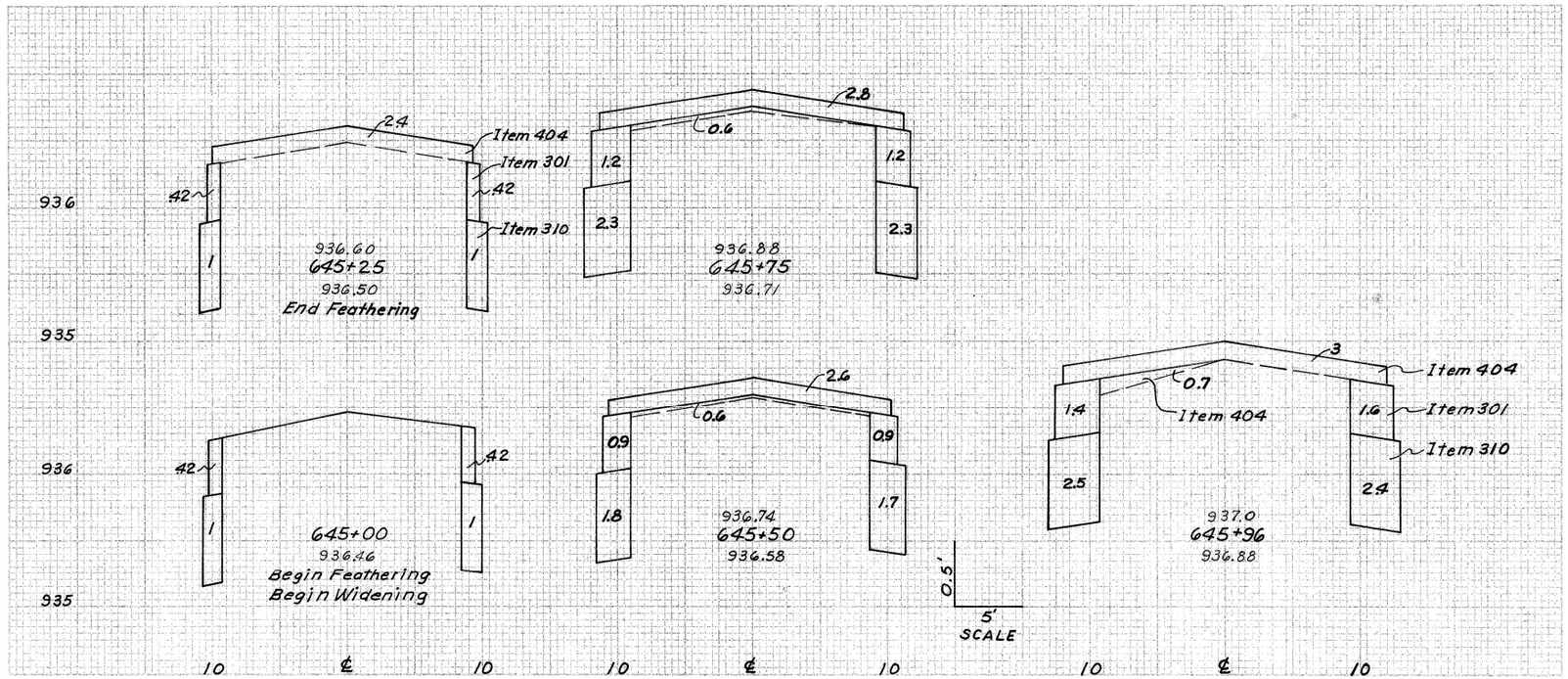




Exaggerated Cross Sections, Profile and Quantities Carried on Sheet No. 9

0 10 20
SCALE

LEGEND
Feathering
Widening



Station	404 1½" E.Area S.F.	404 1½" Vol. C.Y.	404 0 Min. E.Area S.F.	404 0 Min. Vol. C.Y.	301 5" E.Area S.F.	301 5" Vol. C.Y.	310 8" E.Area S.F.	310 8" Vol. C.Y.	407 E.Area W	407 Vol. S.Y.
645+00	0		0		.84		2		17.7	
		1.1		0		.8		1.8		50.0
645+25	2.4		0		.84		2		18.3	
		2.3		.28		1.2		2.6		50.14
645+50	2.6		0.6		1.77		3.5		17.8	
		2.5		.06		1.9		3.7		50.14
645+75	2.8		0.6		2.42		4.5		18.3	
		2.7		.06		2.3		4.4		43.17
645+96	3		0.7		2.62		4.9		18.7	
Totals		8.6		1.0		6.2		2.5		193.45

Item 407 Tack Coat
0.10 Gal./sq.yd. × 193.45 = 20.0 Gal.
Item 407 Cover Aggregate
193.45 Sq.Yd. × 7# ÷ 2000 = 0.67 Tons

Quantities Carried to General Summary

Transition Details

FHWA REGION	STATE	PROJECT	
5	OHIO		

11
19

UNI-37-12.23

EXISTING BRIDGE DECK & STRUCTURE REMOVAL

CONSTRUCTION PROCEDURE: All attempts shall be made and extreme care shall be taken to prevent debris from the removal of the existing bridge deck & structure and any construction material from falling into the stream. There shall be no in-stream work and any debris which may fall into the stream shall not be retrieved unless absolutely necessary.
The Contractor shall submit, in advance to the Director for approval, a plan of the operations for the removal of all bridge structures or portions thereof.

MICROFILMED
SEP 1 0 1984

N

To Richwood

℄ SR 37

Located in Magnetic Springs

Magnetic Springs

Ordinary High Water - 923.8

Item Special - Equipment Access Dr. See Note on sheet no. 3

Item Special quantity carried to General Summary on sht. No. 4

Permissible Access Drive (Schematic)

Permissible Access Drive (Not to scale)

* Not incl. embankment Construction

End Appr. Slab Sta. 646+21.00

Begin Appr. Slab Sta. 647+72.16

304 Agg. Base: 10 × 40' × 8" = 268 ÷ 27 = 10 c.y. (Per each Access Drive)

4' Conc. Walk

Rock channel protection 18" thick, Type C without bedding.

0.155 C.Y. per running ft. × 200 ft. length = 31.0 C.Y. below ordinary High Water.

Earthwork Limits shown are approximate. Actual slopes shall conform to plan cross sections.

The Contractor shall neither ford nor operate equipment in the stream at anytime. The Contractor shall remove the existing wooden piers and drive and cap the proposed piles with equipment that is operated from within the existing Right-of-Way. The Contractor will be permitted to locate equipment on a previously erected box beam deck span to set the following span.

DESIGN DISCHARGE (estimated)
Q_{25} 4800 cfs v = 5.3 fps Elev. 930.0
Q_{100} 6440 cfs v = 6.2 fps Elev. 931.0

DESIGN TRAFFIC
1978 = 1610 ADT
1998 = 2818 ADT

Drainage Area 69.5 Sq. Miles

BM - Top of 4" Well Casing (N/S) 15' Above Ground Level, 228' Rt. ℄ Sta. 648+00 - Elev. 934.77

HP 12×53 steel piles
Est. average pay length

Rear Abut.	35 ft.
Piers	35 ft.
Forward Abut.	30 ft.

Clears 25 yr. design high water by 4.7'±

Bridge Limits 151.16'

Remove existing abutments above Elev. 925.00

Transition & Feathering +0.72 %

Salvage

1959 H.W. From Local Res. 934.53

0.00%

1959 HW 933.37 ODOT Records

Footing Elev. 928.4

Top of slope El. 933.2±

8" 304 Agg. Base

Ord. H.W. 923.8

Estimated 100 yr. Elev. 931±

Normal Water 11-78, 923.12

Estimated 25 yr. design High Water Elev. 930±

8" 304 Aggregate Base

Remove entire existing down wood piles

EXISTING STRUCTURE

TYPE: STEEL BEAM (Not Continuous)
SPAN: 3-39' SPANS (clear)
WIDTH: 24' CURB TO CURB
WIDTH: 32'-4" OUT TO OUT
STRENGTH: H-15
CONDITION: POOR
SKEW: 0°
HEIGHT: 17'
APPROACH SLAB: NONE
BUILT: 1932

PROPOSED STRUCTURE

TYPE: Prestressed concrete box beams with capped pile substructures.
SPANS: 3 Equal @ 49'-0" (49'-9" - 50'-6" - 49'-9" % substructures).
ROADWAY: 44'-0" t/f guardrail.
LOADING: HS 20-44 & Alternate Military Loading.
SKEW: 0°
WEARING SURFACE: 2½" Asphalt Concrete.
APPROACH SLABS: AS-1-72 (25' long).
ALIGNMENT: Tangent.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

1 / 7

SITE PLAN

BRIDGE NO. UNI-37-1224
OVER BOKES CREEK
STA. 646+21.00
647+72.16

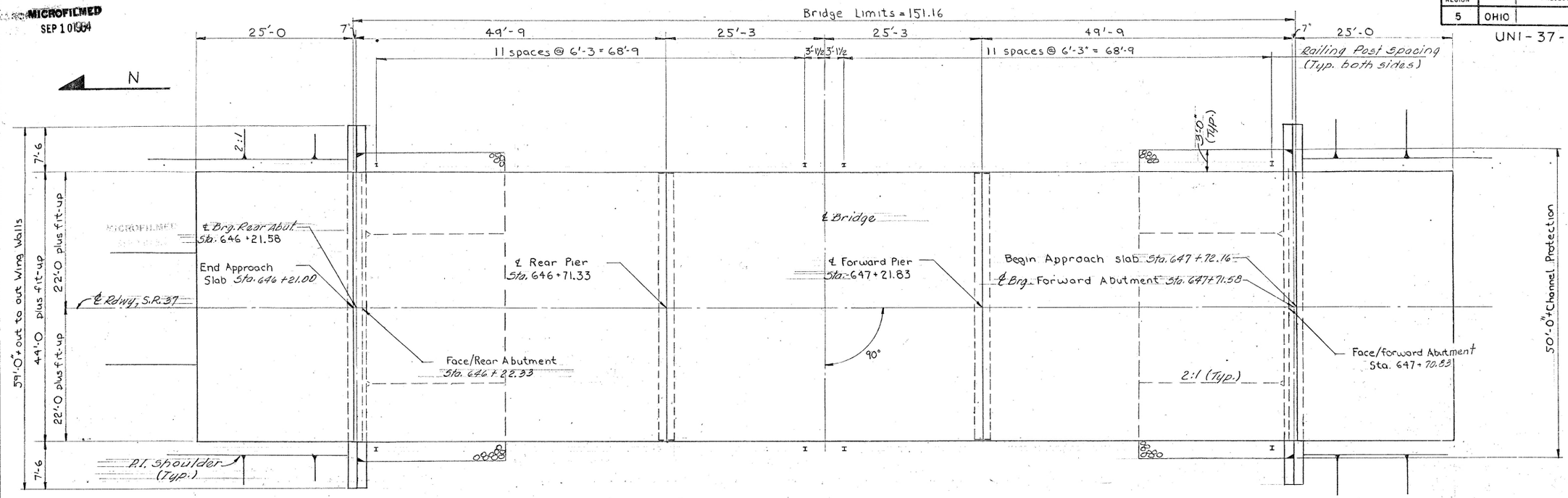
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		FPK	FPK	LLE	N.J.B.

WJJ 9-10-81

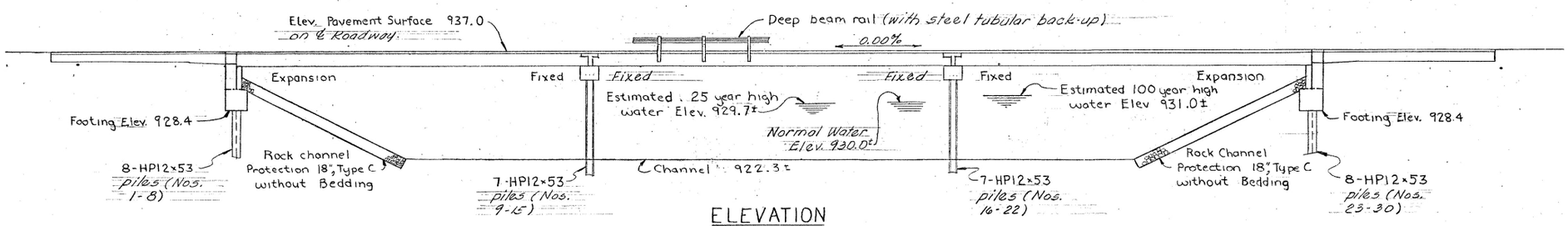
FHWA REGION	STATE	PROJECT	
5	OHIO		

12/19

UNI-37-12.23



GENERAL PLAN



ELEVATION

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

2/7

GENERAL PLAN & ELEVATION

BRIDGE NO. UNI-37-1224
OVER BOKES CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	LMW		WTF	WJJ	9-10-81	

FHWA REGION	STATE	PROJECT	
5	OHIO		

13/19

UNI-37-12.23

REINFORCING STEEL LIST

ABUTMENTS

Mark	No.	Length	Weight	Type	A	B	C	D
A401	32	8'-11"	191	4	1'-9"	2'-6¼"		
A501	8	30'-0"	250	St.				
A502	16	16'-2"	270	St.				
A503	32	8'-11"	298	St.				
A504	24	23'-1"	578	St.				
A505	8	5'-0"	42	St.				
A506	8	5'-6"	46	3	2'-8"	2'-11"	0'-6"	
A507	8	4'-6"	38	St.				
A508	8	3'-0"	25	St.				
A509	8	5'-3"	44	St.				
A510	8	6'-0"	50	St.				
A511	24	6'-3"	156	St.				
A512	156	6'-1"	990	1	2'-8"	1'-10"	1'-10"	
A601	60	12'-1"	1089	1	1'-11"	5'-3"	5'-3"	
A602	10	2'-10"	43	St.				
A801	8	30'-0"	641	St.				
A802	16	16'-10	719	St.				
D801	60	7'-3"	1161	5	4'-11"			
A1001	16	25'-1"	1727	St.				

PIERS

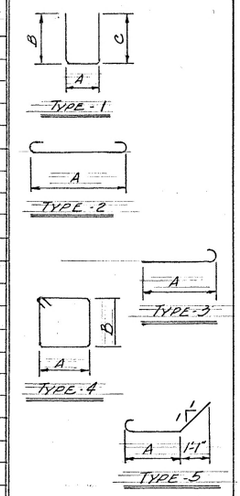
Mark	No.	Length	Weight	Type	A	B	C	D
P401	28	8'-11"	167	4	1'-9"	2'-6¼"		
P501	136	7'-3"	1028	1	2'-8"	2'-6"	2'-6"	
P502	8	22'-10"	191	St.				
P503	242	3'-4"	841	2	2'-2"			
P601	20	2'-3"	68	St.				
P801	16	23'-2"	990	St.				
P1001	16	24'-10"	1710	St.				

BRIDGE MEMBERS

Mark	No.	Length	Weight	Type	A	B	C	D
B501		**	*	St.				
B502		**	*	3	**			
B503		5'-2"	*	1	3'-7"	0'-11"	0'-11"	
B504		6'-2"	*	1	3'-7"	1'-5"	1'-5"	
B505		8'-4"	*	St.				
B506		8'-11"	*	3	8'-4"			

REINFORCING STEEL SAMPLES: Refer to CMS Sections 106.03, 700, 709.01 through 709.05 & 709.08. Sufficient additional reinf. steel of like kind shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.

BENDING DIAGRAM



*Payment included with Item 515 Prestressed Conc. Bridge Members.

** To be determined by Fabricator.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abuts.	Piers	Supers.	Gen'l.
202	Lump	Sum	Structure removed				Lump
403	37	Cu.Yd.	Asphalt concrete, AC-20			37	
404	26	Cu.Yd.	Asphalt concrete, AC-20			26	
503	83	Cu.Yd.	Unclassified excavation	83			
505	Lump	Sum	Test pile.				Lump
506	Lump	Sum	Pile test load				Lump
507	1010	Lin.Ft.	Steel piles, HP12x53	520	490		
509	13,353	Lbs.	Reinforcing steel, Grade 60	8358	4995		
510	30	Each	Dowel holes	10	20		
511	8	Cu.Yd.	Class S concrete, superstructure			8	
511	71	Cu.Yd.	Class C concrete, abutments.	71			
511	32	Cu.Yd.	Class C concrete, piers		32		
512	765	Sq.Yd.	Type D Waterproofing			765	
515	33	Each	Prestressed concrete bridge members (4'-0"x 50'-0")			33	
			(see Proposal Note. For Epoxy Coated Reinforcing Steel)				
516	132	Each	1"x5"x13" Elastomeric bearing pads, 50 durometer			132	
516	286	Sq.Ft.	1" Preformed expansion joint filler	190	96		
516	95	Lin.Ft.	Joint sealer 705.01 or 705.02	95			
517	302.32	Lin.Ft.	Railing (deep beam rail with steel tubular back-up, Type 2 posts and bolts)			302.32	
518	24	Cu.Yd.	Porous backfill	24			
601	138	Cu.Yd.	Rock channel protection 18" thick, Type C without bedding				138
Spec.	232	Sq.Ft.	Steel drip strip			232	

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWING(S):

AS-1-72 DATED 6-30-72
DBR-2-73 DATED 4-10-73
PSBD-1-71 DATED 9-1-71

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979 AND 1980 INTERIM SPECIFICATIONS, AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA

DESIGN LOADING - HS20-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 P.S.I. FOR SUBSTRUCTURE

REINFORCING STEEL - ASTM A615, A616, OR A617 - MINIMUM YIELD 60,000 PSI

CONCRETE FOR PRESTRESSED CONCRETE BEAMS - UNIT STRESS 2200 PSI COMPRESSION 444 PSI TENSION

PRESTRESSING STRAND ASTM A416

$f's$ = 270,000 PSI

INITIAL STRESS = 0.70 $f's$

REMOVAL OF EXISTING STRUCTURE: WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED

EMBANKMENT CONSTRUCTION: WHEN THE ACCESS DRIVES ARE NO LONGER NEEDED, THE EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE. EXCAVATION MAY THEN BE MADE FOR THE ABUTMENTS AND THE PILES SHALL BE DRIVEN:

PILES SHALL BE DRIVEN TO BEDROCK. THE BEARING CAPACITY SHALL BE CONSIDERED OBTAINED BY REFUSAL ON HARD BEDROCK OR BY PENETRATING SOFT BEDROCK FOR SEVERAL INCHES WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH. THE DESIGN LOAD IS 40 TONS PER PILE FOR THE ABUTMENT AND 62 TONS PER PILE FOR THE PIER PILES.

APPROACH SLABS: PAVEMENT JACKING HOLES AS SHOWN ON STANDARD DRAWING AS-1-72 SHALL NOT BE PROVIDED AND THE COVER OF THE TOP REINFORCING STEEL SHALL BE INCREASED FROM 2" TO 3".

POROUS BACKFILL SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPES.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

3/7

GENERAL NOTES, ESTIMATED QUANTITIES & REINFORCING STEEL LIST.
BRIDGE NO. UNI-37-1224
OVER BOKES CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	EAB		8-4-81 WTF			

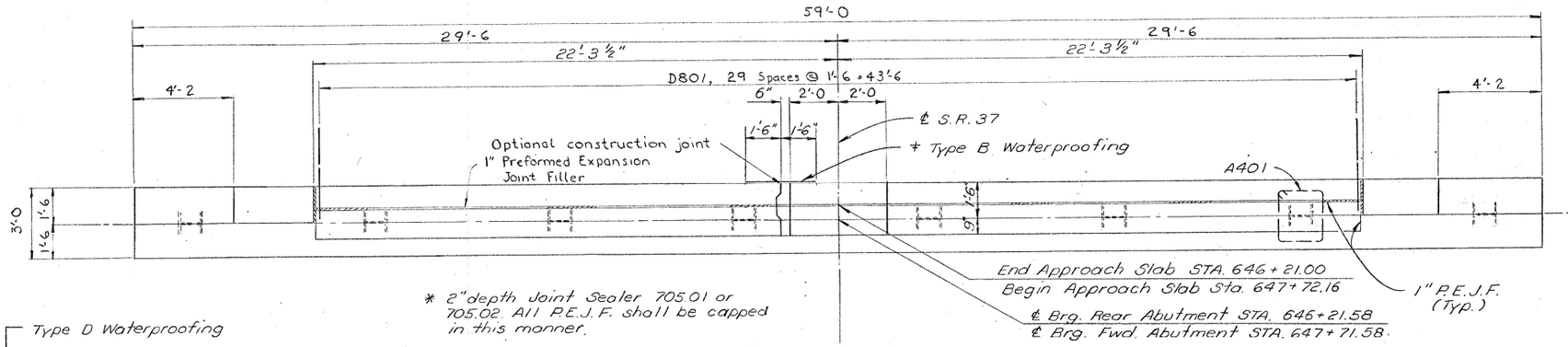
FHWA REGION	STATE	PROJECT	
5	OHIO		

14/19

UNI-37-12.23

Rear Abutment

Forward Abutment



* 2" depth Joint Sealer 705.01 or 705.02. All P.E.J.F. shall be capped in this manner.

Note: Fill holes in beam and abutment with 705.02 joint sealer. Include joint seal with Item 515 for payment.

ABUTMENT PLAN

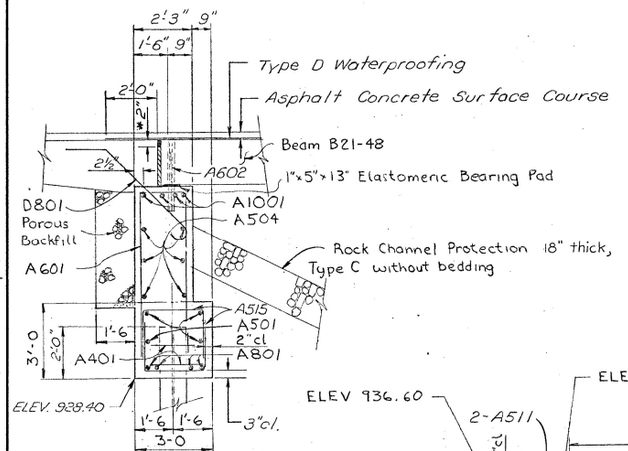
If the construction joint is made, Type B Waterproofing will be required and shall be included with abutment concrete for payment.

NOTES

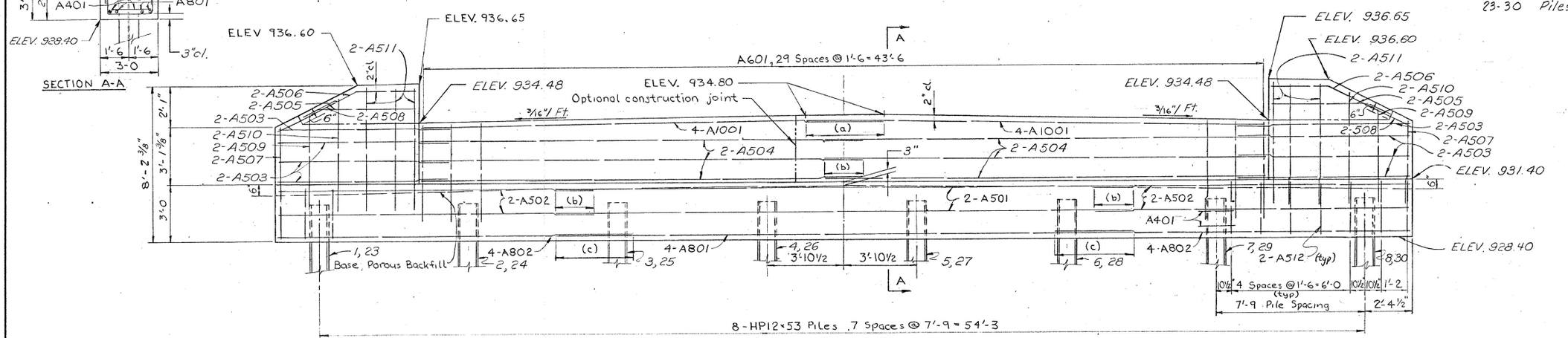
Wingwalls above the bridge seat construction joint shall not be placed until the prestressed beams have been erected

Porous backfill shall extend upward to the plane of the subgrade, and laterally to the surface of the embankment slopes

Care shall be taken to place reinforcing steel in the vicinity of the bridge seat so as not to interfere with drilling of anchor dowel holes



SECTION A-A



ELEVATION

Letter	Length
(a)	5'-10"
(b)	1'-10"
(c)	2'-6"

PILE NUMBERING:

1-8 Piles in Rear Abutment
23-30 Piles in Forward Abutment

LEGEND
N.S.~Near Side
F.S.~Far Side

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

4 | 7

REAR AND FORWARD ABUTMENT DETAILS

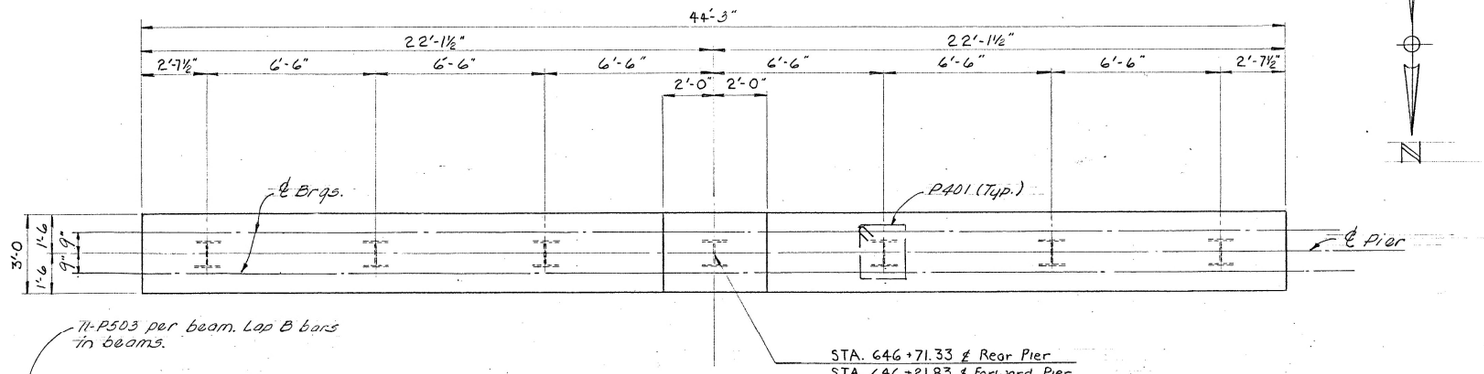
BRIDGE NO. UNI-37-1224
OVER BOKES CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	LMW		WTF	WJJ	9-10-81	

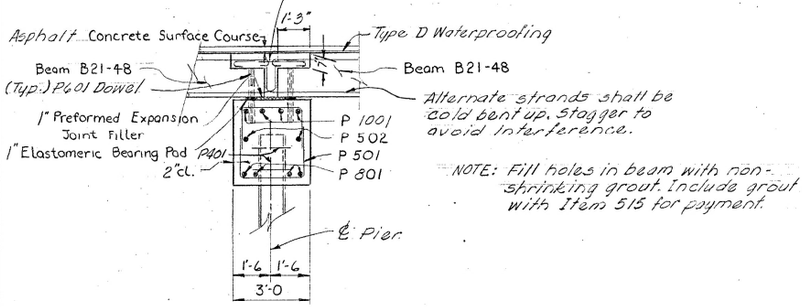
FHWA REGION	STATE	PROJECT	
5	OHIO		

15/19

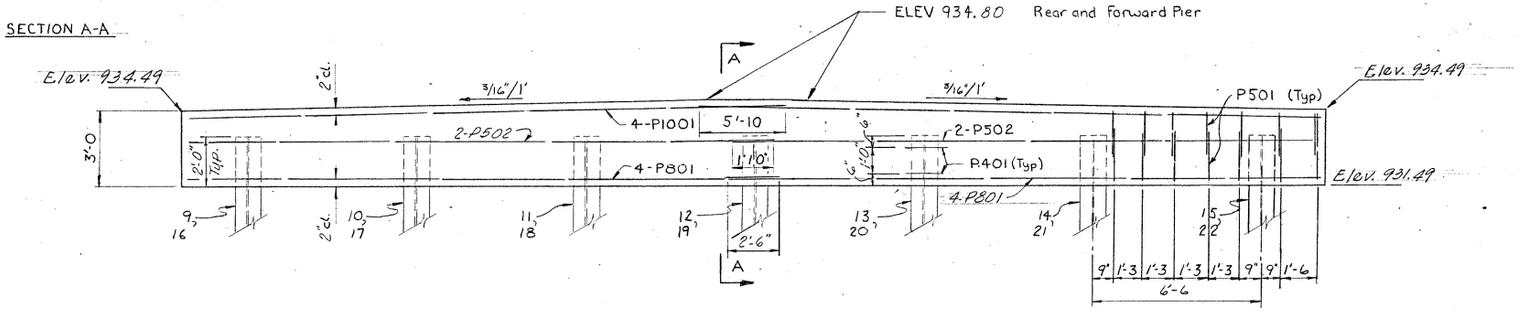
UNI-37-12.23



PIER PLAN



SECTION A-A



ELEVATION

NOTES

Care shall be taken to place reinforcing in the vicinity of the bridge seat so as not to interfere with drilling of anchor dowel holes.

PILE NUMBERING:
9-15 Piles in Rear Pier
16-22 Piles in

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

5/7

REAR & FORWARD PIER DETAILS

BRIDGE NO. UNI-37-12 24
OVER BOKES CREEK

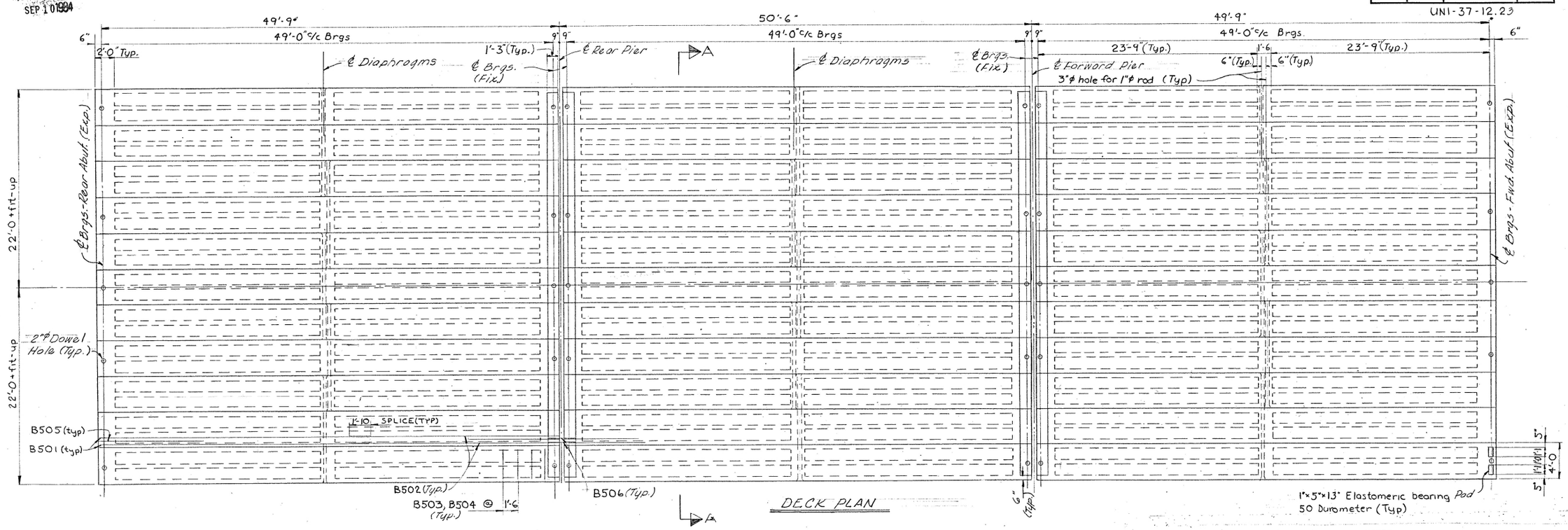
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	LMW		WTF	WJJ	9-10-81	

MICROFILMED
SEP 1 01994

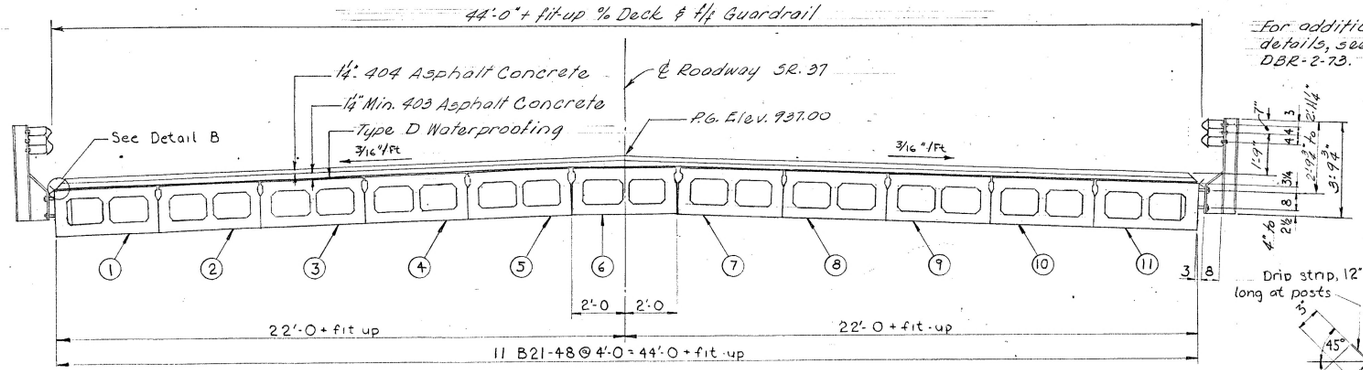
FHWA REGION	STATE	PROJECT	
5	OHIO		

16/19

UNI-37-12.23

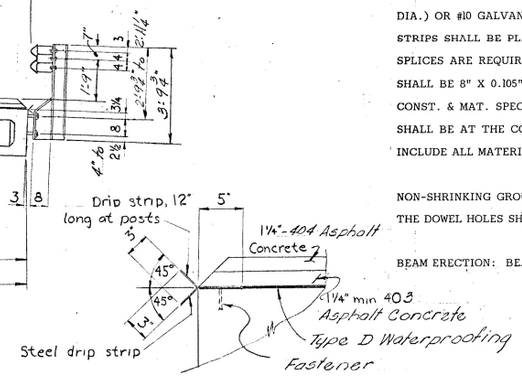


DECK PLAN



SECTION A-A

For additional railing details, see Std. Dwg. DBR-2-73.



Detail B

NOTES

DRIP STRIP: PRIOR TO APPLYING DECK MEMBRANE WATERPROOFING, A BENT DRIP STRIP SHALL BE INSTALLED ALONG THE DECK EDGES AS SHOWN IN DETAIL B. STRIPS SHALL BE FASTENED AT 1'-6 c/c MAXIMUM WITH 1-1/4 X 5/32 X 1/4 FLAT HEAD DRIVE PINS AND WASHERS (LENGTH X SHANK DIA. X HEAD DIA.) OR #10 GALVANIZED SCREWS AND EXPANSION ANCHORS, SUBJECT TO APPROVAL BY THE ENGINEER. STRIPS SHALL BE PLACED FULL LENGTH OF DECK, ENDING AT FACE OF ABUTMENT WINGWALL. WHERE SPLICES ARE REQUIRED, A 3" (MIN.) LAP, WITH FASTENER THROUGH LAP, SHALL BE USED. DRIP STRIPS SHALL BE 8" X 0.105" (#12 GA.) GALVANIZED, IN ACCORDANCE WITH ASTM A568 AND SECTION 711.02 ODOT CONST. & MAT. SPEC., OR 8" X #20 GA. ASTM A167, TYPE 304, MILL FINISH STAINLESS STEEL. PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL, SQ. FT. STEEL DRIP STRIP, WHICH SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE ITEM.

NON-SHRINKING GROUT USED TO FILL THE KEYWAYS, THE TIE ROD RECESSES IN THE FASCIA BEAMS AND THE DOWEL HOLES SHALL BE INCLUDED WITH ITEM 515 FOR PAYMENT.

BEAM ERECTION: BEAM #6 SHALL BE ERECTED FIRST, THEN WORK OUTWARD.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

6/7

SUPERSTRUCTURE DETAILS

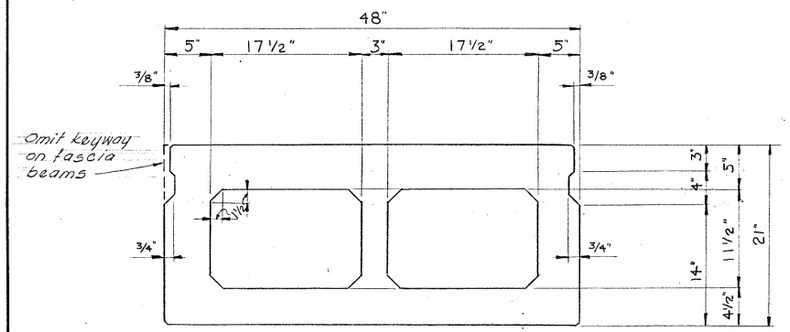
BRIDGE NO. UNI-37-1224
OVER BOKES CREEK

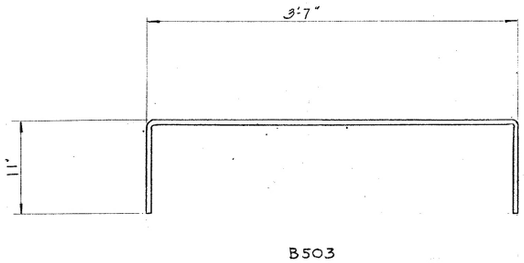
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	LMW		WTF	WJJ	9-10-81	

FHWA REGION	STATE	PROJECT	
5	OHIO		

17/19

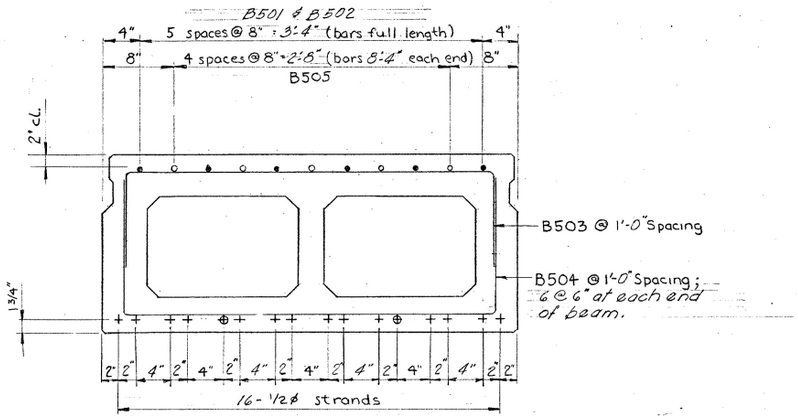
UNI-37-12.23





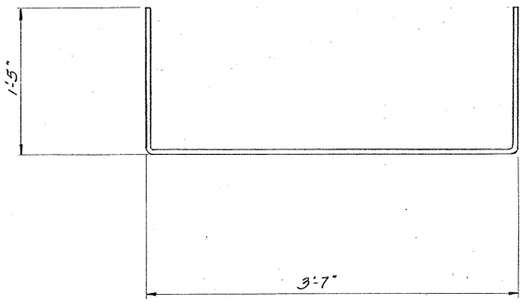
B503

B501 & B502

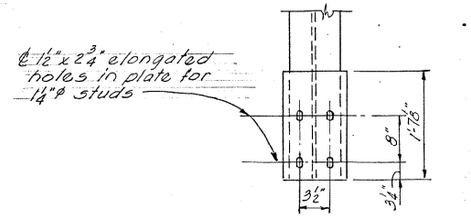


B21-48

⊕ Debond 1'-6" from each end of beam.



B504



SLOTTED HOLE DETAIL FOR PLATE ON RAIL POST

NOTES

PRESTRESSING STRANDS ARE ASTM A416 1/2 IN. 7 - WIRE UNCOATED, STRESS-RELIEVED STRANDS WITH AN ULTIMATE STRENGTH OF 270 KSI AND AN INITIAL TENSION OF 28,900 LBS. PER STRAND.

REFER TO STD. DRWG. PSBD-1-71 FOR THE FOLLOWING:

- BEAM LIFTING INSERTS
- ANCHOR DOWELS
- WALL THICKENING AT GUARD RAIL ANCHORS
- TYPICAL PLANS OF DIAPHRAGMS & TRANSVERSE TIE RODS
- BEAM DIMENSIONAL TOLERANCES
- DETAILS AND REINFORCEMENT OF BEAM ENDS
- END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE

CALCULATED DEFLECTION DUE TO SURFACE COURSE AND RAILING - NEGLIGIBLE

CALCULATED CAMBER AT TIME OF PAVING, INCLUDING ALLOWANCE FOR CAMBER GROWTH DUE TO CREEP, 1 1/2"

ASPHALT CONCRETE SURFACE COURSE SHALL CONSIST OF A VARIABLE THICKNESS OF 403 AND A 1 1/4" THICKNESS OF 404. THE 403 SHALL BE PLACED IN TWO OPERATIONS. THE FIRST COURSE SHALL BE OF 1 1/4 UNIFORM THICKNESS, AND THE SECOND COURSE SHALL BE FEATHERED TO PLACE THE SURFACE 1 1/4" BELOW FINAL PAVEMENT ELEVATION. (MAXIMUM SECOND COURSE THICKNESS, AT END OF SPANS, EQUALS 1 1/2".)

P/S BEAM FINAL CAMBER IS 1 1/2". THIS IS 2 1/8" IN EXCESS OF THE AMOUNT REQUIRED TO PLACE THE TOP OF THE BEAM PARALLEL TO PROFILE GRADE. THIS EXCESS AMOUNT SHALL BE COMPENSATED FOR BY THICKENING THE 403 LEVELING COURSE FROM 1 1/4" (1 3/8" AT CENTER OF BEAM 6) AT CENTER OF SPANS TO 2 3/4" (3 1/8 AT CENTER OF BEAM 6) AT ENDS OF SPANS.

EPOXY COATING OF MILD STEEL:

ALL MILD REINFORCING STEEL IN THE OUTSIDE BEAMS (1 AND 11) AND ALL MILD REINFORCING STEEL EXCEPT B504 BARS IN THE REMAINING BEAMS (2 THRU 10) SHALL BE EPOXY COATED. SEE NOTE IN PROPOSAL.

NON-SHRINKING GROUT USED TO FILL THE BEAM SHEAR KEYS, TIE ROD RECESSES IN THE FASCIA BEAMS, AND THE DOWEL HOLES SHALL BE INCLUDED WITH ITEM 515 FOR PAYMENT.

NON-SHRINKING MORTAR: IN LIEU OF THE REQUIREMENTS FOR NON-SHRINKING MORTAR AND GROUT GIVEN ON STANDARD DRAWING PSBD-1-71, NON-SHRINKING MORTAR SHALL BE MADE WITH MATERIALS AND PROPORTIONS AS FOLLOWS:

2680 LBS. SAND, 703.02, @ 6% MOISTURE
9 BAGS CEMENT, 701.05
40 GALLONS WATER, 499.02
9 LBS. EXPANDING GROUTING AID ADMIXTURE, INTERPLAST - N BY SIKA CHEMICAL CORPORATION, OR APPROVED EQUAL.

THE CEMENT, SAND AND WATER SHALL BE MIXED FIRST, AFTER WHICH THE ADMIXTURE SHALL BE ADDED. BATCH SIZE SHALL BE LIMITED SO PLACEMENT CAN BE COMPLETED WITHIN 30 MINUTES. WATER SHALL NOT BE ADDED TO INCREASE FLOWABILITY WHICH HAS BEEN DECREASED BY DELAYED USE OF MORTAR.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

7/7

SUPERSTRUCTURE DETAILS

BRIDGE NO. UNI-37-1224
OVER BOKES CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
LMW	LMW		WTF	WJJ	9-10-81	

CENTERLINE SURVEY PLAT
& PROPERTY MAP
UNI 37 SECTION 12.23
UNION COUNTY LEESBURG TOWNSHIP
VMS NO'S 3696,6199

FHWA REGION	STATE	PROJECT	
5	OHIO		

18/19

1/2

UNI-37-12.23

BRS-789(1)

SCALE IN FEET
0 100 200

End Project Sta 648+00

P.I. Sta. 650+62.78
Def. 0° 03' 30" Rt.

Begin Project Sta 645+96

JOSEPH S. KING

VILLAGE OF MAGNETIC SPRINGS

William & April Warnstaff

Sta. 637+15.28
℄ SR-37 & CR-183
FOUND R.R. SPIKE

CR-183

HOPEWELL RD.

℄ SURVEY & EXIST. SR-37

EX. R/W 2

PROP R/W

EX. CHANNEL EASEMENT

CREEK

PROP. R/W

RR SPIKE FOUND
STA 650+95.78

EX. R/W 2

635 640 645 650 655

N. 12° 36' 25" E.

N. 12° 39' 55" E.

EX. R/W 3

EX. R/W 3

PROP R/W

P/L

P/L

MAGNETIC STREET

CATHARINE STREET

BOKES

1

1A

2

3

4

5

JOSEPH S. KING

UNKNOWN OWNER

JOSEPH S. KING

GEORGE A. MURPHY
NO R/W REQUIRED

ROSE STREET

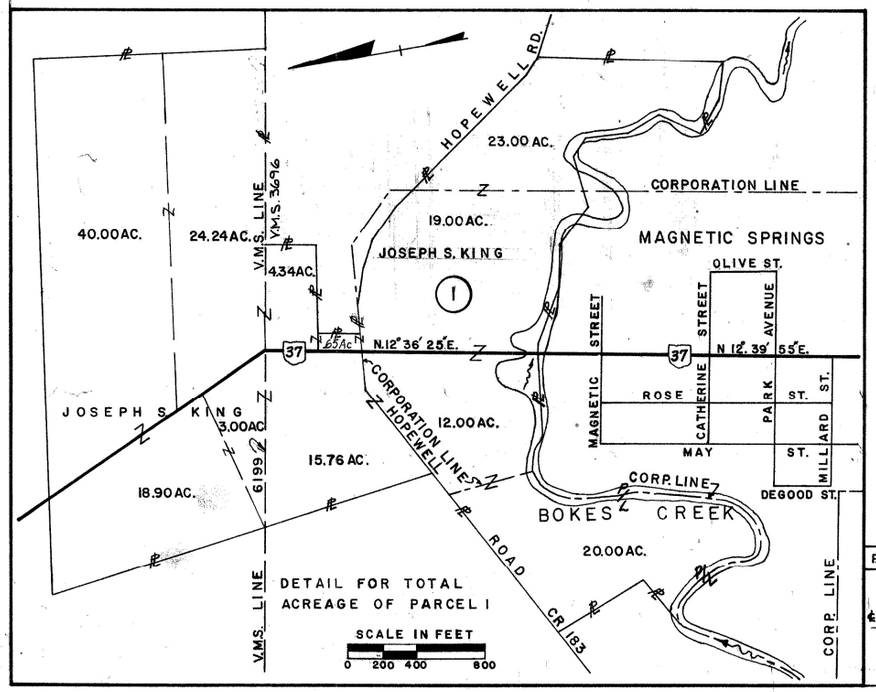
CORP. LINE
MAGNETIC SPRINGS

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE BY THE OHIO DEPARTMENT OF TRANSPORTATION IN 1978

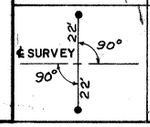
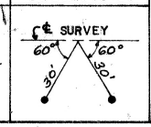
SIGNED Otis T. Waugh
DATE 2-20-81 REGISTERED SURVEYOR NO. 5538

SEAL

RECORDED IN PLAT BOOK 4 PAGE 85
UNION COUNTY RECORDERS OFFICE



●=CENTERLINE REFERENCE MONUMENT TO BE SET DURING CONSTRUCTION

P.O.T. STA. 645+50	P.O.T. STA. 648+50
	

UTILITIES

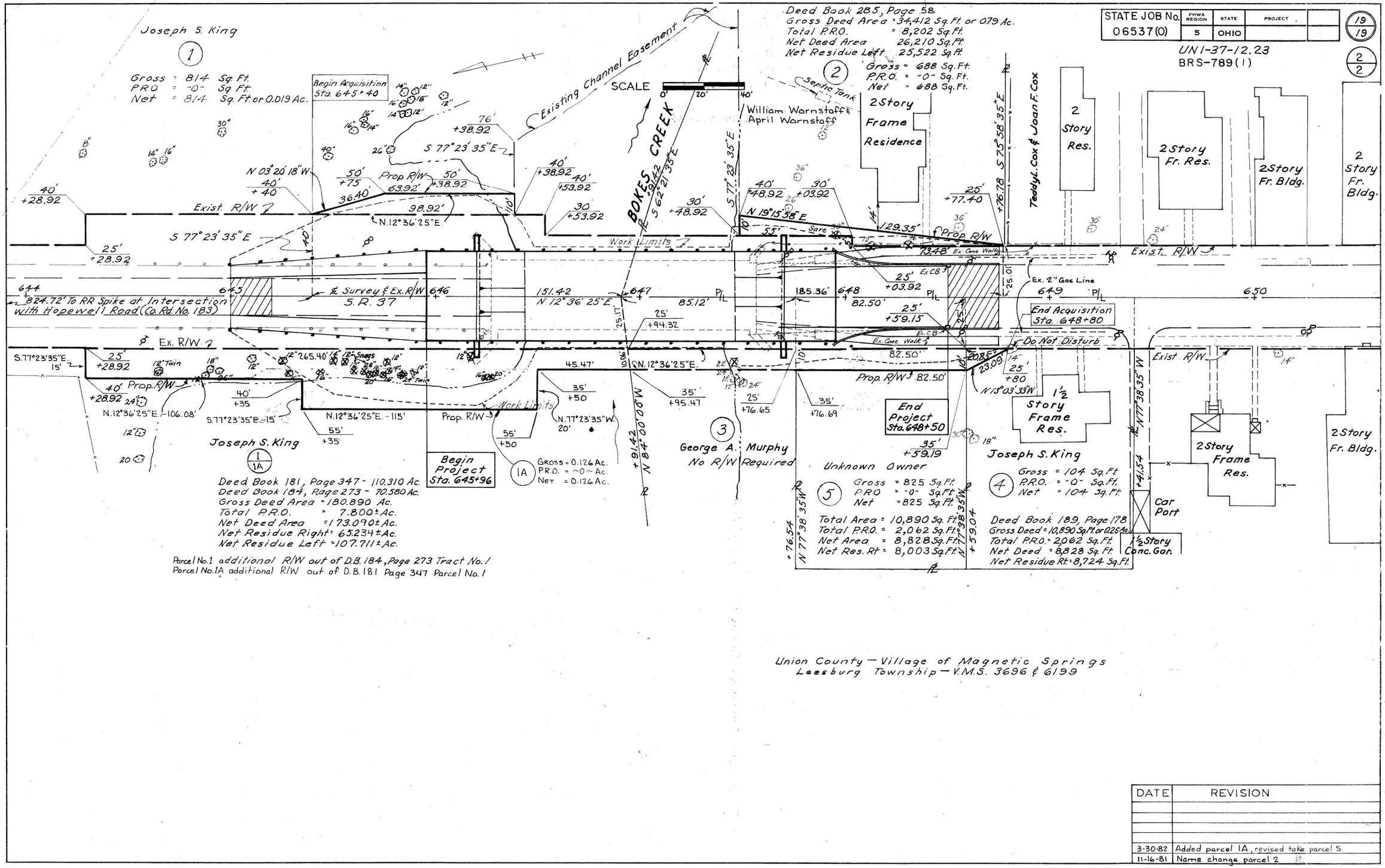
OHIO EDISON COMPANY
23 NORTH FRANKLIN STREET
RICHWOOD, OHIO 43344

UNITED TELEPHONE COMPANY
127 NORTH MAIN STREET
BELLEFONTAINE, OHIO 43311

COLUMBIA GAS COMPANY
843 EAST 5th. STREET
MARYSVILLE, OHIO 43040

DATE	DESCRIPTION OF REVISION
3-30-82	Added parcel 1A. Revised parcel 5.
11-16-81	Name changed parcel 2.

CENTER LINE SURVEY PLAT



Parcel No. 1 additional R/W out of D.B. 184, Page 273 Tract No. 1
Parcel No. 1A additional R/W out of D.B. 181 Page 347 Parcel No. 1

TE - 118
600 - 6 - 73

MICROFILMED
SEP 1 01984

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE RELATIVELY FLAT GLACIATED PORTION OF THE MISSISSIPPI VALLEY PLAIN REGION, ON THE BROAD FLOODPLAIN OF AND OVER BOKES CREEK, IN AN AREA WHERE DEEP GLACIAL-DERIVED MATERIAL AND ALLUVIAL DEPOSITS OVERLIE DOLOMITIC LIMESTONE BEDROCK, OF THE MONROE FORMATION.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED ON OCTOBER 23, 1979.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT INTERVALS OF LOOSE TO EXTREMELY DENSE STRATIFIED SILTS, SAND AND GRAVEL MODIFIED WITH CLAY AND INCREASING (ERRATICALLY) IN DENSITY WITH INCREASE IN DEPTH OVERLIE SLOPING BEDROCK SURFACE ENCOUNTERED AT 35 TO 41-FOOT DEPTH, ELEVATION 901 TO 892 FEET. THE BORINGS WERE TERMINATED AT 45-FOOT DEPTH, ELEVATION 892 FEET, AFTER PENETRATING 3 TO 10 FEET BELOW BEDROCK SURFACE.

FREE WATER WAS OBSERVED AND MEASURED IN BORING B-8 AT 11-FOOT DEPTH, ELEVATION 925 FEET AND IN BORING B-1 AT 12-FOOT DEPTH, ELEVATION 924 FEET.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR — Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y/Z — Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
  - X = Number of Blows for First 6 inches.
  - Y = Number of Blows for Second 6 inches.
  - Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z — Indicates Final Measurement of Penetration, in Inches.
- W — Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

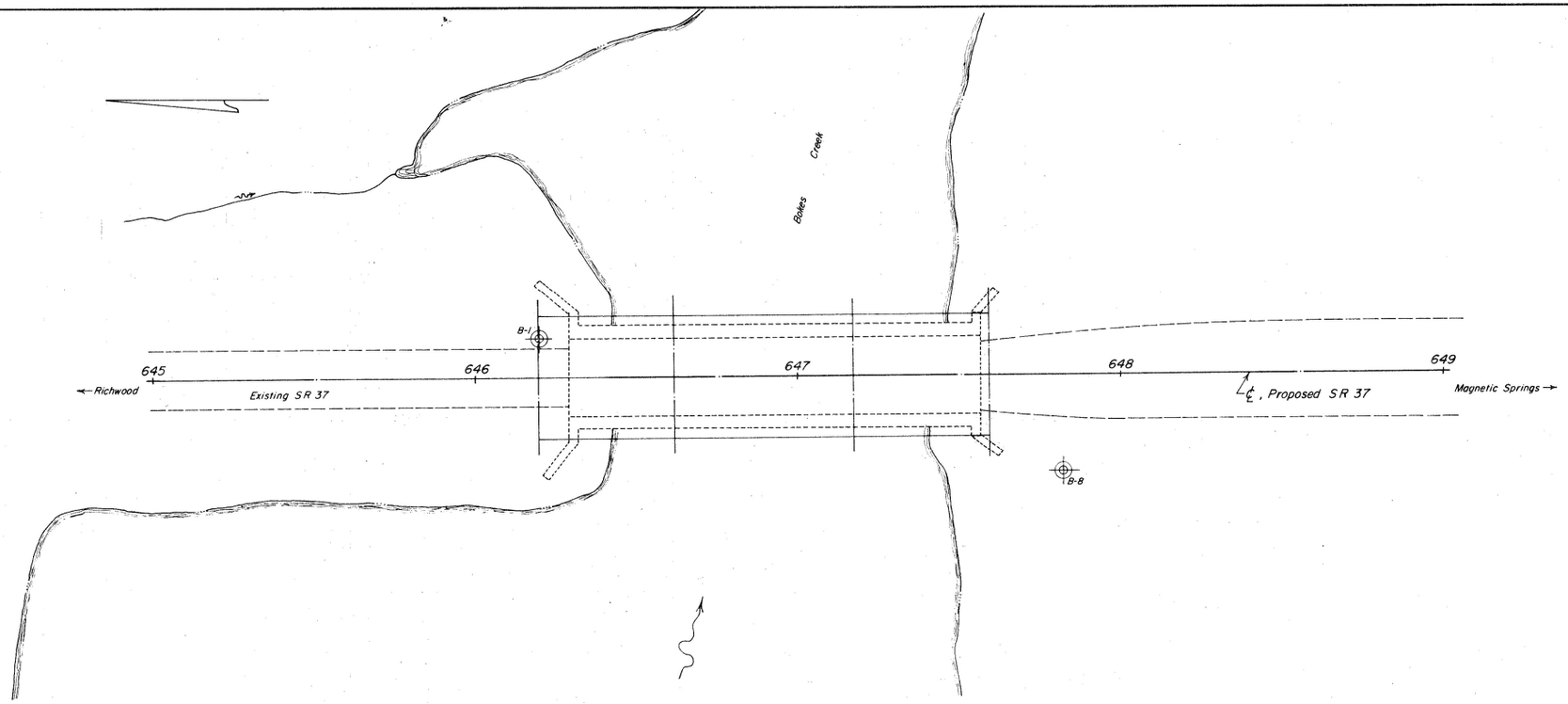
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	12" / 3"	2.0mm / No. 10 sieve	0.42mm / No. 40 sieve	0.074mm / No. 200 sieve	0.005mm	

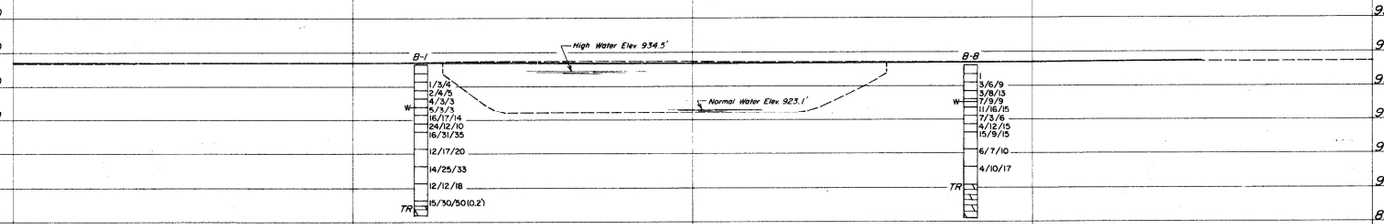
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. UNI-37-1224
OVER BOKES CREEK
SEC. UNI-37-12.23

CHECKED BY	REVIEWED BY	DATE
L. N. L.	R. D. R.	11/8/79





SCALE: 1" = 20'

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. UNI-37-1224
OVER BOKES CREEK
SEC. UNI-37-12.23

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L. N. L.	L. N. L.	R. D. R.	11/8/79

TE-122
400-12-72

LOG OF BORING

Date Started 10/23/79 | HOLLOW STEM Sampler Type AUGER Dia | Water Elev
Date Completed 10/23/79 | Casing: Length Dia
Boring No B-1 | Station & Offset 646+20 - 12' LT. (REAR ABUTMENT) | Surface Elev 936.5'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
936.5	0														
934.0	2	AUGERED			BROWN SANDY CLAY	11	6	9	14	27	44	28	11	19	A-6a
931.5	4	1/3/4			BROWN SANDY CLAY	12	4	4	13	31	48	31	13	21	A-6a
929.0	6	2/4/5			BROWN SANDY CLAY	13	4	4	9	34	49	34	13	21	A-6a
926.5	8	4/3/3			BROWN AND GRAY SILTY SANDY GRAVEL	14	35	11	14	20	20	33	10	32	A-4a
924.0	10	5/3/3			BROWN AND GRAY GRAVELLY SANDY SILT	15	17	10	29	23	21	25	6	26	A-4a
921.5	12	16/17/14			BROWN AND GRAY SILTY SANDY GRAVEL	16	53	15	9	11	12	22	5	26	A-1-b
919.0	14	24/12/10			BROWN AND GRAY SILTY SANDY GRAVEL	17	56	22	8	8	6	19	3	13	A-1-a
916.5	16	16/31/35			BROWN SILTY SAND	18	0	5	64	19	12	NP	NP	16	A-3a
911.5	18	12/17/20			BROWN AND GRAY SILTY SAND	19	4	8	42	34	12	NP	NP	17	A-4a
906.5	20	14/25/33			BROWN AND GRAY SANDY GRAVELLY SILT	20	29	6	19	30	16	NP	NP	12	A-4a
901.5	22	12/12/18			BROWN AND GRAY SILTY SAND	21	9	13	48	18	12	NP	NP	18	A-3a
896.5	24														
895.3	26	35/30/50 (0.2)			BROWN CLAY AND LIMESTONE FRAGMENTS TOP OF ROCK	22	38	5	6	20	31	28	12	19	A-6a
	28		1.8	1.5	DOLOMITIC LIMESTONE, GRAY, HARD, VERY BADLY BROKEN AND SEVERLY JOINTED. CORE LOSS 45%.										
892.0	30														
	32														
	34														
	36														
	38														
	40														
	42														
	44														

BOTTOM OF BORING

LOG OF BORING

Date Started 10/23/79 | HOLLOW STEM Sampler Type AUGER Dia | Water Elev 925.2
Date Completed 10/23/79 | Casing: Length Dia
Boring No B-8 | Station & Offset 647+82 - 30' RT. (FORWARD ABUTMENT) | Surface Elev 936.1'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
936.1	0														
933.6	2														
	4	1 (1.5')			BROWN GRAVELLY SANDY CLAY	1	28	21	9	17	25	38	12	21	A-6a
931.1	6	3/6/9			BROWN SILTY SANDY GRAVEL	2	48	37	5	5	5	NP	NP	6	A-1-b
928.6	8	3/8/13			BROWN SILTY SANDY GRAVEL	3	49	36	5	5	5	NP	NP	6	A-1-b
926.1	10	7/9/9			BROWN SILTY SANDY GRAVEL	4	43	35	10	7	5	NP	NP	13	A-1-b
923.6	12	11/16/15			BROWN SAND AND GRAVEL	5	-	-	-	-	-	-	-	-	VISUAL
921.1	14	7/3/6			BROWN AND GRAY SANDY GRAVELLY SILT	6	25	13	13	24	25	24	7	17	A-4a
918.6	16	4/12/15			BROWN SILTY SAND	7	7	5	62	15	11	NP	NP	20	A-3a
916.1	18	15/9/15			BROWN SILTY GRAVELLY SAND	8	17	9	51	12	11	NP	NP	17	A-3a
911.1	20	6/7/10			BROWN SANDY GRAVELLY SILT	9	26	9	18	28	19	17	4	13	A-4a
906.1	22	4/10/17			BROWN CLAYEY SILT	10	0	1	1	51	47	24	8	19	A-4b
901.0	24				TOP OF ROCK										
	26		4.5	0.4	DOLOMITIC LIMESTONE, GRAY, HARD, BADLY BROKEN AND SEVERLY JOINTED. CORE LOSS 12%.										
	28														
	30														
	32														
	34														
	36														
	38														
	40														
	42		4.2	0.8											
891.1	44														

BOTTOM OF BORING

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - TESTING LABORATORY
1600 WEST BROAD STREET COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. UNI-37-1224
OVER BOKES CREEK
SEC. UNI-37-12.23

BORING DATA

TYPED BY	CHECKED BY	REVIEWED BY	DATE
S.M.G.	L.N.L.	R.D.R.	11/8/79