STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
HOL-515-2.06
WALNUT CREEK TOWNSHIP
HOLMES COUNTY

FHWA REGION	STATE	PROJECT	
5	OHIO	BRO-3803(2)	

1 / 26

HOL-515-2.06

BRO-3803(2)

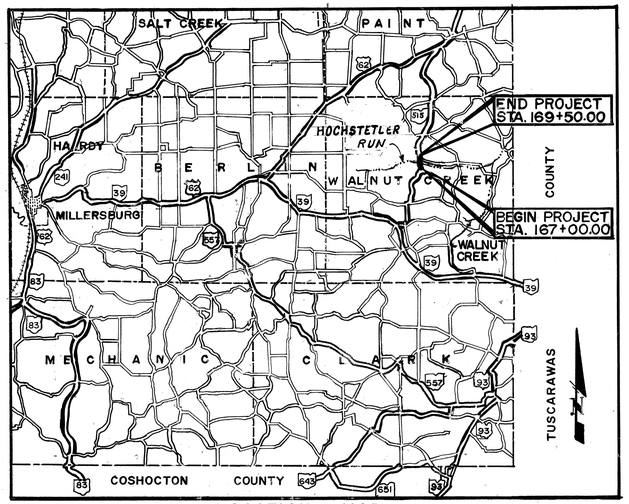
All references to Fed. No. BRZ-3803(2) appearing throughout these plans shall be considered to read: BRO-3803(2).

DESIGN DESIGNATION

CURRENT ADT (1992)	=	1570
DESIGN YEAR ADT (2012)	=	3232
D.H.V. (2011)	=	323
D	=	60%
T	=	7.4%
DESIGN SPEED	=	55 M.P.H
LEGAL SPEED	=	55 M.P.H.
FUNCTIONAL CLASSIFICATION	=	COLLECTOR (RURAL)
DESIGN EXCEPTION APPROVED		
SUPER ELEVATION		
LANE WIDTH.		
GRADED SHOULDER		
HORIZONTAL STOPPING SIGHT DISTANCE		

CONVENTIONAL SIGNS

RIGHT OF WAY	PROPOSED ——— R/W ——— EXISTING ——— R/W ———
SECTION LINE	
LIMITED ACCESS RIGHT OF WAY LINE	LA R/W
CENTERLINE	
GAS LINE	EXISTING ——— G ——— PROPOSED ——— G ——— G ———
UTILITY POLE TELEPHONE	EXISTING Ø PROPOSED
POWER	EXISTING Ø PROPOSED
LIGHT	EXISTING Ø PROPOSED
FENCE	EXISTING —X—X—X—X—
GUARDRAIL	EXISTING
	PROPOSED
CONSTRUCTION LIMITS	CONSTR. LIMITS



LOCATION MAP
SCALE OF MILE
0 1 2 3 4 5 6 MILES

PORTION TO BE REMOVED
FEDERAL
STATE
OTHER ROADS

INDEX OF SHEETS

LINE DATA

BEGIN WORK	STA. 165+50.00
END WORK	STA. 170+75.00
BEGIN PROJECT	STA. 167+00.00
END PROJECT	STA. 169+50.00

LENGTH OF WORK = 525.00 LIN. FT. = 0.099 MILE
LENGTH OF PROJECT = 250.00 LIN. FT. = 0.047 MILE

UNDERGROUND UTILITIES

2 WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SCALES

PLAN		20' 10' 0 20' 40'
PROFILE	HORIZONTAL	20' 0 20' 40'
	VERTICAL	10' 0 10' 20'
CROSS SECTION	HORIZONTAL	10' 0 10' 20'
	VERTICAL	10' 0 10' 20'

STRUCTURE PLANS REVIEWED BY:
Burgess & Niple, Limited
Engineers and Architects

ROBERT P. MADISON INTERNATIONAL, INC.
ARCHITECTS ENGINEERS PLANNERS
2930 EUCLID AVE. CLEVELAND, OHIO 44115

Robert P. Madison

MI

B & N REVIEWED

1995 SPECIFICATION

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 NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON PLANS AND ESTIMATES.

APPROVED: John H. McCarthy
DATE: 8-16-93 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED: B.D. Hardlammi / DEH
DATE: 1-18-94 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED: Christopher L Runyan
DATE: 3-25-94 DEPUTY DIRECTOR, DESIGN

APPROVED: Jerry Wray
DATE: 3-25-94 DIRECTOR, DEPARTMENT OF TRANSPORTATION

REV. 11-27-95

FILE NO.	HOL-515-2.06
	DATE OF LETTING
	CONTRACT NO.

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
GR-1.1	5-6-91	BP-3.1	2-21-92		
GR-1.2	10-30-92	MT-96.11	9-9-88		
GR-2.1	5-6-91	MT-96.20	9-9-88	MC-9.2	5-6-91
GR-2.2	10-30-92	MT-96.25	9-9-88	MC-11	8-1-78
GR-4.1	5-6-91	MT-99.10	11-14-86	PS BD-1-81	6-20-85
GR-4.2	5-6-91	MC-1	6-13-69	TC-52.10	4-3-79
GR-3.4	5-6-91	MC-4	7-26-76	TC-52.20	4-3-79

TC-41.10 8-29-84
TC-41.20 6-21-94

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
802	3-23-95		

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

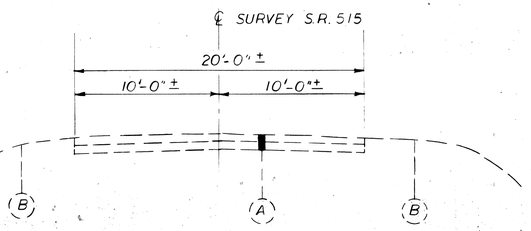
DIVISION ADMINISTATOR DATE

FHWA REGION	STATE	PROJECT		2/26
5	OHIO	BRZ-3803(2)		

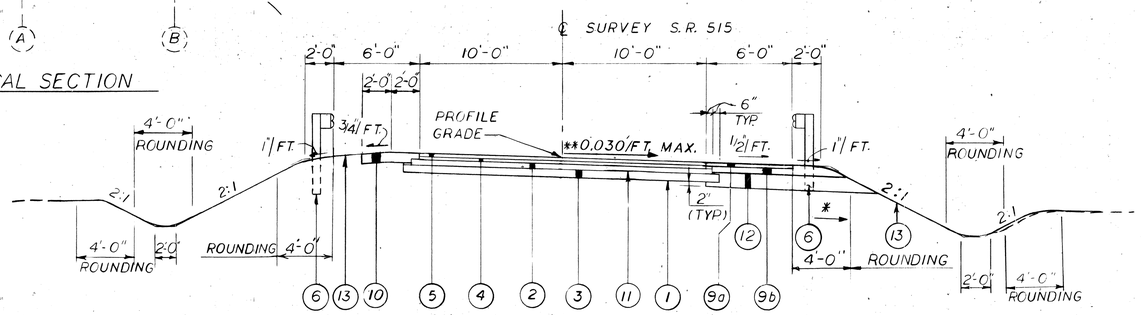
HOL-515-2.06

TYPICAL SECTIONS

TYPE 404 ON 301



EXIST. TYPICAL SECTION

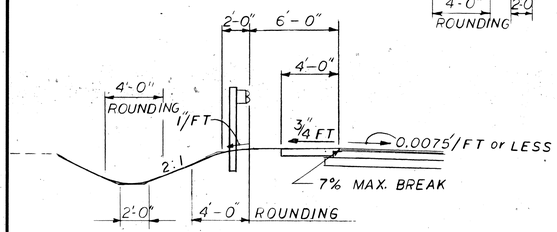


SUPERELEVATED SECTION

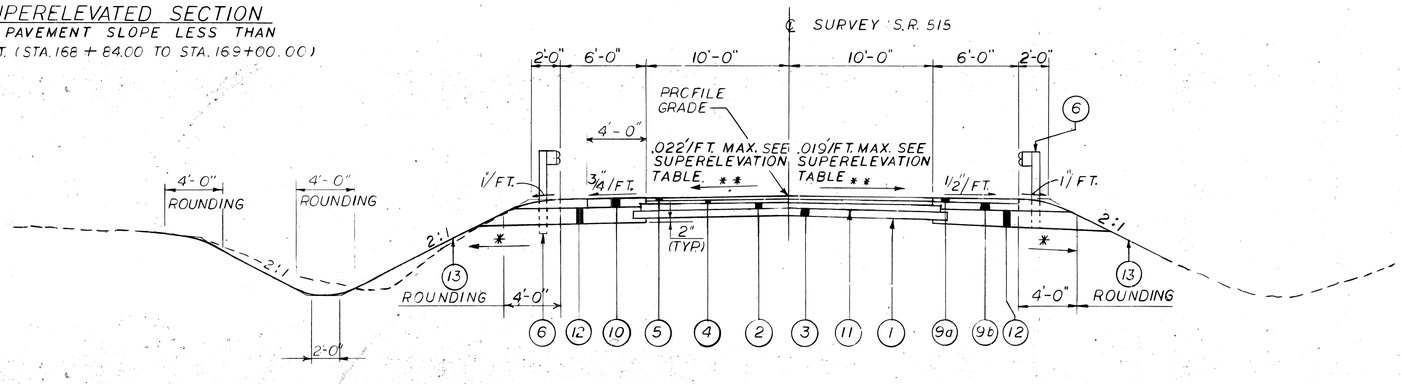
STA. 167+00.00 TO STA. 169+00.00 = 200.00 LIN. FT.

* 1/2" FT. MIN.
1" FT. DESIRABLE

** PAVEMENT SLOPE

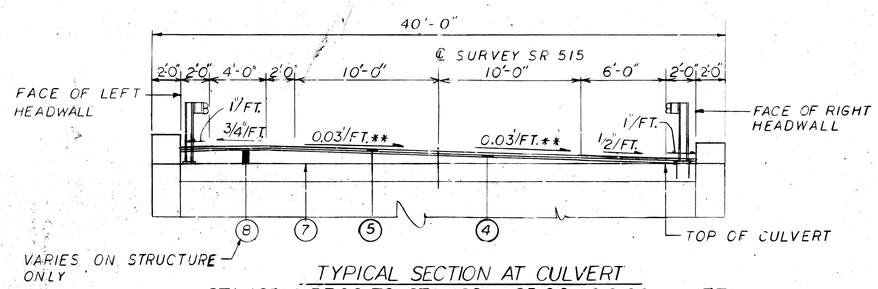


SUPERELEVATED SECTION
FOR PAVEMENT SLOPE LESS THAN
0.0075 FT./FT. (STA. 168 + 84.00 TO STA. 169+00.00)



NORMAL SECTION

STA. 169 + 00.00 TO STA. 169 + 50.00 = 50.00 LIN. FT.



TYPICAL SECTION AT CULVERT

STA. 168 + 37.00 TO STA. 168 + 63.00 = 26.00 LIN. FT.

LEGEND

(1)	ITEM	203	SUBGRADE COMPACTION
(2)	ITEM	301	6" BITUMINOUS AGGREGATE BASE AC-20
(3)	ITEM	304	6" AGGREGATE BASE, AS PER PLAN
(4)	ITEM	402	1 3/4" ASPHALT CONCRETE AC-20
(5)	ITEM	404	1 1/4" ASPHALT CONCRETE AC-20, AS PER PLAN
(6)	ITEM	606	GUARDRAIL, TYPE 5
(7)	ITEM	407	TACK COAT (SEE GENERAL NOTE)
(8)	ITEM	301	BITUMINOUS AGGREGATE BASE AC-20 VARIES (0" TO 11 1/2" MAX.)
(9)	ITEM	615	TEMPORARY PAVEMENT AS PER PLAN (SEE GENERAL NOTE) COURSE MAKE UP:
(9a)	ITEM	404	1 3/4" ASPHALT CONCRETE
(9b)	ITEM	301	5" BITUMINOUS AGGREGATE BASE
(10)	ITEM	304	8" AGGREGATE BASE AS PER PLAN
(11)	ITEM	408	BITUMINOUS PRIME COAT APPLIED AT THE RATE OF 0.40 GAL. PER SQ.YD.
(12)	ITEM	605	AGGREGATE DRAINS (SEE GENERAL NOTES)
(13)	ITEM	659	SEEDING AND MULCHING
(A)			EXISTING FLEXIBLE PAVEMENT
(B)			EXISTING AGGREGATE SHOULDER

SUPERELEVATION TABLE

℄ OF SURVEY STATION	ELEVATION LEFT EDGE	LEFT OFFSET	ELEVATION CENTER	ELEVATION RIGHT EDGE	RIGHT OFFSET
167 + 00	1009.70	10.3'	1009.64	1009.02	10.8'
167 + 25	1009.85	10.0'	1009.68	1009.23	10.0'
167 + 50	1010.00	10.0'	1009.72	1009.39	10.0'
167 + 55	1010.03	10.0'	1009.73	1009.43	10.0'
167 + 75	1010.06	10.0'	1009.76	1009.46	10.0'
168 + 00	1010.10	10.0'	1009.80	1009.50	10.0'
168 + 25	1010.14	10.0'	1009.84	1009.54	10.0'
168 + 35	1010.15	10.0'	1009.85	1009.55	10.0'
168 + 50	1010.10	10.0'	1009.87	1009.60	10.0'
168 + 75	1010.03	10.0'	1009.91	1009.68	10.0'
169 + 00	1009.95	10.0'	1009.95	1009.76	10.0'
169 + 25	1009.89	10.0'	1009.99	1009.80	10.0'
169 + 50	1009.82	9.5'	1010.03	1009.82	11.1'

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

3.
26

HOL-515-2.06

GENERAL NOTES

GENERAL NOTES

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR PLAN ITEMS SET UP TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION, SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER COVERING COMPLETION OF THIS PROJECT.

ELEVATION DATUM

ALL ELEVATIONS SHOWN ON THESE PLANS ARE IN FEET ABOVE THE U.S.G.S. DATUM PLANE.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF UTILITIES AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

TELEPHONE: G.T.E. TELEPHONE OPERATIONS
P.O. BOX 629
NEW PHILADELPHIA, OHIO 44663
(216) 364-0363

GAS: BELDEN BRICK CO.
P.O. BOX 910
CANTON, OHIO 44701
(216) 852-2424

POWER: PUBLIC PROJECT COORDINATOR
OHIO POWER COMPANY
215 NORTH FRONT STREET
COLUMBUS, OHIO 43215
(614) 464-7911

TV CABLE: MW-1 CABLE SYSTEM
35 INDUSTRIAL DRIVE
MARTINSVILLE, INDIANA 46151
(317) 342-1370

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207 STRAW OR HAY BALES 100 EACH

ITEM 201 - CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES AND/OR STUMPS SPECIFICALLY MSARKED FOR REMOVAL WITHIN THE LIMITS OF THIS PROJECT. A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201. CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

EROSION CONTROL

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

SEEDING & MULCHING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS WITHIN THE WORK LIMITS AS SHOWN ON THE CROSS SECTIONS.

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.

ITEM 304 AGGREGATE BASE AS PER PLAN

MATERIALS FURNISHED FOR THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR-COOLED BLAST FURNACE SLAG.

AT THE ~~CONTRACTOR'S~~ OPTION, CRUSHED CONCRETE ~~OBTAINED FROM CONCRETE PAVEMENT ON THIS PROJECT OR PROJECT CONSTRUCTED UNDER ODOT SPECIFICATIONS~~ MAY BE USED FOR ITEM 304 AGGREGATE BASE, ALL CRUSHED CONCRETE ~~PASSING THE NO. 4 SIEVE~~ SHALL BE REPLACED BY MATERIAL OBTAINED FROM APPROVED SOURCES. ~~THE RECYCLED CONCRETE PAVEMENT SHALL NOT CONTAIN MORE THAN 1.0% RECYCLED ASPHALT PAVEMENT. ALL OTHER REQUIREMENTS OF 304 AND 703.04 SHALL APPLY.~~

ITEM 407 - TACK COAT:

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AVERAGE APPLICATION RATES OF 0.075 GALLON PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM 603 FARM DRAINS

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OUTLET ELEVATION SHALL BE, IF POSSIBLE ONE FOOT ABOVE THE FLOW LINE ELEVATION OF THE DITCH.

A MINIMUM LENGTH OF TYPE F OUTLET CONDUIT SHALL BE 10 FT. AN AMIMAL GUARD AND EROSION CONTROL PAD SIMILAR TO THAT SHOWN ON STANDARD CONSTRUCTION DRAWING MC-4 SHALL BE PROVIDED AT THE OUTLET OF THE TYPE F CONDUIT.

PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARD SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 603. TYPE F COUNDUIT.

ITEM 603 6" TYPE F CONDUIT 50 LIN. FT.
ITEM 603 8" TYPE F CONDUIT 50 LIN. FT.

ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT FIFTY (50) FT. INTERVAL ON EACH SIDE OF NORMAL CROWN SECTIONS, AND (25) FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPER ELEVATED SECTIONS, EXCEPT WHERE ITEM 605 UNDER DRAIN HAVE BEEN PROVIDED.

WATERING PERMANENT SEEDED AREAS
THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09:
659 WATER 3.0 M. GAL.

ITEM 614 - BARRIER REFLECTORS

THESE REFLECTORS AND THEIR MOUNTING SHALL CONFIRM TO SUPPLEMENTAL SPECIFICATION 802 EXCEPT THAT SPACING SHALL BE AS SHOWN ON STANDARD DRAWING MT 96.11.

614 MAINTAINING TRAFFIC:

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION 614 AND THE CONSTRUCTION SEQUENCE AS DESCRIBED BELOW AND SHOWN ON SHEET 4 & 5. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON S.R. 515 BY USE OF THE EXISTING PAVEMENT, PORTIONS OF THE EXISTING AND NEW STRUCTURE AND ITEM 615 TEMPORARY PAVEMENT AS PER PLAN.

ALTERNATING ONE-WAY TRAFFIC SHALL BE MAINTAINED DURING PHASE I AND II BY USE OF TEMPORARY SIGNALS AS SHOWN ON STANDARD DRAWING MT-96.20 AND MT-96.25. TRAFFIC SHALL BE SEPARATED FROM THE WORK AREA BY MEANS OF ITEM 622 PORTABLE CONCRETE BARRIER AND TEMPORARY RAILING ACCESS FOR LOCAL PROPERTY OWNERS SHALL BE MAINTAINED AT ALL TIMES.

PAYMENT FOR ALL OF THE ABOVE EXCEPT THOSE ITEMS THAT HAVE BEEN ITEMIZED ON SHEET 4 THRU 5 SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC, INCLUDNG PROVISION, INSTALLATION AND SUBSEQUENT REMOVAL OF TEMPORARY RAILING.

ITEM 615 - TEMPORARY PAVEMENT, AS PER PLAN

TEMPORARY PAVEMENT COURSE MAKEUP FOR THIS PROJECT SHALL CONSIST OF THE FOLLOWING:
1 3/4" - 404 ASPHALT CONCRETE, AC-20
5" - 301 BITUMINOUS AGGREGATE BASE
TEWPORARY PAVEMENT SHALL BE CONSTRUCTED AS SHOWN ON SHEET 5 & 10.
THE TEMPORRY PAVEMENT AS PER CLASS A ON THE RIGHT SIDE FROM STA 166 + 50 TO STA. 170 + 06 SHALL REMAIN IN PLACE AND BECOME PART OF THE NEW PERMANENT SHOULDER.

ITEM 622 PORTABLE CONCRETE BARRIER, 32"

PORTABLE CONCRETE BARRIER SHALL BE TIED TOGETHER AS PER MC-9 OR MC 9.2. TONGUE AND GROOVE SECTIONS WILL NOT BE PERMITTED ON THIS PROJECT.

LOCATION OF GUARD RAILS

THE LOCATIONS OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

TEMPORARY PAVEMENT MARKINGS:

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

614 - TEMPORARY CENTERLINE CLASS II 0.10 MILE
SEE MT 99.10 FOR REQUIREMENTS

DUST CONTROL:

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR PROJECT DUST CONTROL.

ITEM 616	CALCIUM CHLORIDE	1 TON
ITEM 616	WATER	3M-GAL

ITEM 202 - BRIDGE RAILING REMOVED FOR STORAGE, AS PER PLAN.

THE EXISTING TUBULAR BACKUP AND STEEL POSTS SHALL BE SALVAGED AND STORED ON SITE FOR REMOVAL BY STATE FORCES. AN ESTIMATED QUANTITY OF 62.5 LIN. FT. OF ITEM 202 BRIDGE RAILING REMOVED FOR STORAGE AS PER PLAN HAS BEEN CARRIED TO GENRAL SUMMARY. THE EXISTING RAIL ELEMENTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

ITEM 604 MONUMENT

MONUMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATION SEE SHEET NO. 10.

ITEM 404 ASPHALT CONCRETE. AC-20, AS PER PLAN:

Materials furnished for fine and course aggregates used in this item shall exclude all stone and crushed carbonate stone.

CONSTRUCTION SEQUENCE

STAGE I

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION THAT WILL REQUIRE THE CLOSING OF THE EXISTING NORTHBOUND LANE TO TRAFFIC, ALL TEMPORARY SIGNALS, SIGNS, LIGHTS, PORTABLE CONCRETE BARRIERS, AND TEMPORARY PAVEMENT MARKINGS AS SHOWN ON STANDARD DRAWING MT-96.11, SHALL BE FURNISHED AND INSTALLED BEFORE ANY EXISTING PAVEMENT IS CLOSED TO TRAFFIC. TEMPORARY PAVEMENT MARKINGS, RAISED PAVEMENT MARKERS, TEMPORARY GUARDRAIL AND PORTABLE CONCRETE BARRIER INSTALLATION SHALL BE ACCOMPLISHED IN ONE DAY, WITH FLAGGERS BEING UTILIZED FOR THE PROTECTION OF VEHICULAR TRAFFIC DURING THE INSTALLATION OF THESE ITEMS.

WHEN THE ABOVE REQUIRMENTS HAVE BEEN SATISFIED, THE SOUTHBOUND LANE SHALL BE OPENED TO SIGNAL CONTROLLED ALTERNATING ONE-WAY TRAFFIC. CONSTRUCT THE **STAGE** I PORTION OF THE NEW CULVERT, PROPOSED GUARDRAIL, AND PROPOSED PAVEMENT ALONG WITH THE TEMPORARY PAVEMENT AS SHOWN ON SHEET 4. (SEE **STAGE** II).

STAGE II

UPON COMPLETION OF **STAGE** I CONSTUCTION PLACE THE PORTABLE CONCRETE BARRIER AS SHOWN FOR **STAGE** II AND RELOCATE OR INSTALL ANY TEMPORARY SIGNS, LIGHTS, PAVEMENT MARKINGS, AND RAISED PAVEMENT MARKERS AS REQUIRED. FLAGGERS SHALL BE USED FOR THE PROTECTION OF VEHICULAR TRAFFIC DURING THIS OPERATION.

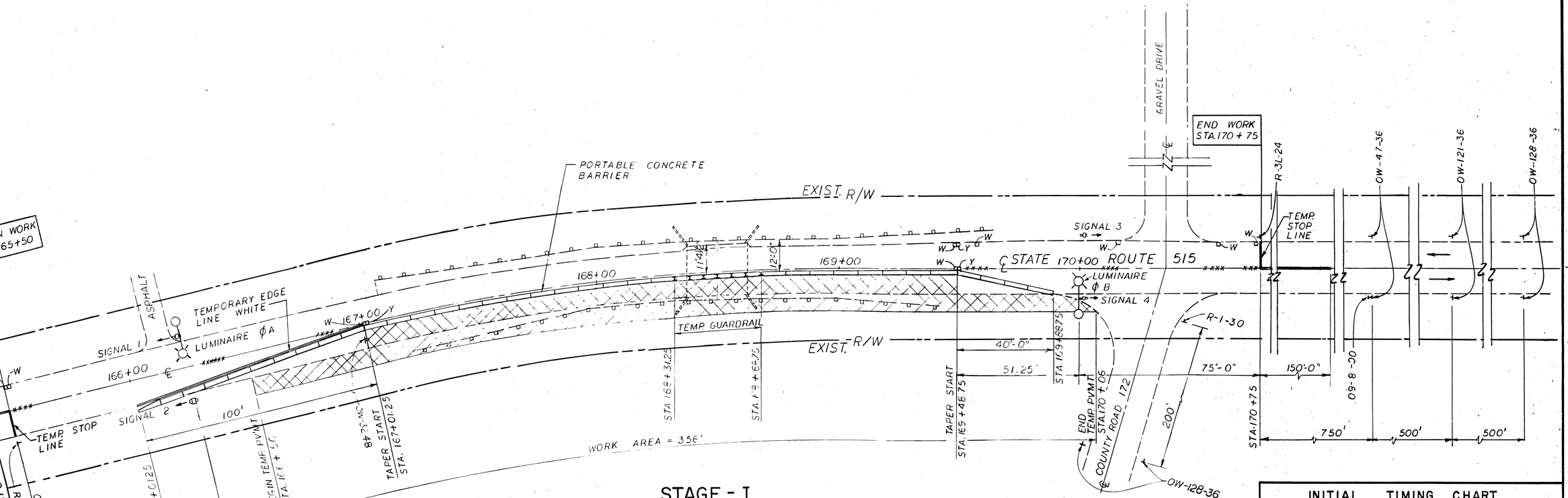
THE COMPLETED PORTION OF THE NEW CULVERT, PAVEMENT AND THE TEMPORARY PAVEMENT SHALL THEN BE OPENED TO TRAFFIC. CONSTRUCT **STAGE** II OF THE PROJECT INCLUDING THE COMPLETION OF THE NEW CULVERT, THE PROPOSED GUARDRAIL, PAVEMENT AND SHOULDERS.

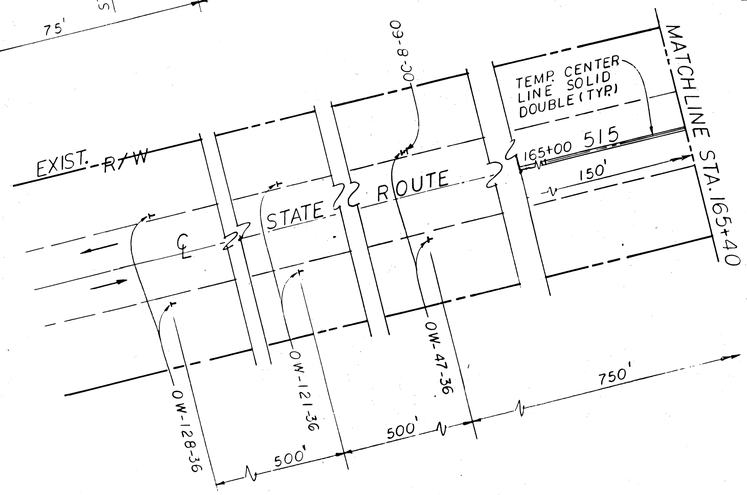
UPON COMPLETION OF **STAGE** II, THE TEMPORARY PAVEMENT WILL REMAIN IN PLACE.

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

HOL-515-2.06

4/26





STAGE - I

MAINTENANCE OF TRAFFIC

NOTES:

1. FOR DETAILS NOT SHOWN SEE STD CONSTRUCTION DWG. MT-96.11 MT-96.20 MT-96.25 AND MT-99.10
2. FOR STAGE CONSTRUCTION SEE DWG. NO. 21
3. FOR TEMP GUARDRAIL DETAILS SEE DWG NO. 22
4. TEMPORARY PAVEMENT SHALL NOT BE REMOVED AFTER CONSTRUCTION.

INITIAL TIMING CHART

INTERVAL	TIME (SECONDS)	ØA INTERVAL 1,2 & 3 SIGNAL 1	2	3	4					ØB INTERVAL 4,5 & 6 SIGNAL 1	2	3	4				
1 & 4	15	G	G	R	R					R	R	G	G				
2 & 5	5	Y	Y	R	R					R	R	Y	Y				
3 & 6	10	R	R	R	R					R	R	R	R				

CYCLE LENGTH = 60 SECONDS

* 6 - REFLECTORS TYPE A2 MOUNTED ON EXISTING GUARDRAIL PRIOR TO START OF STAGE I AND 2 - REFLECTORS TYPE A2 MOUNTED ON TEMP GUARDRAIL ON BRIDGE

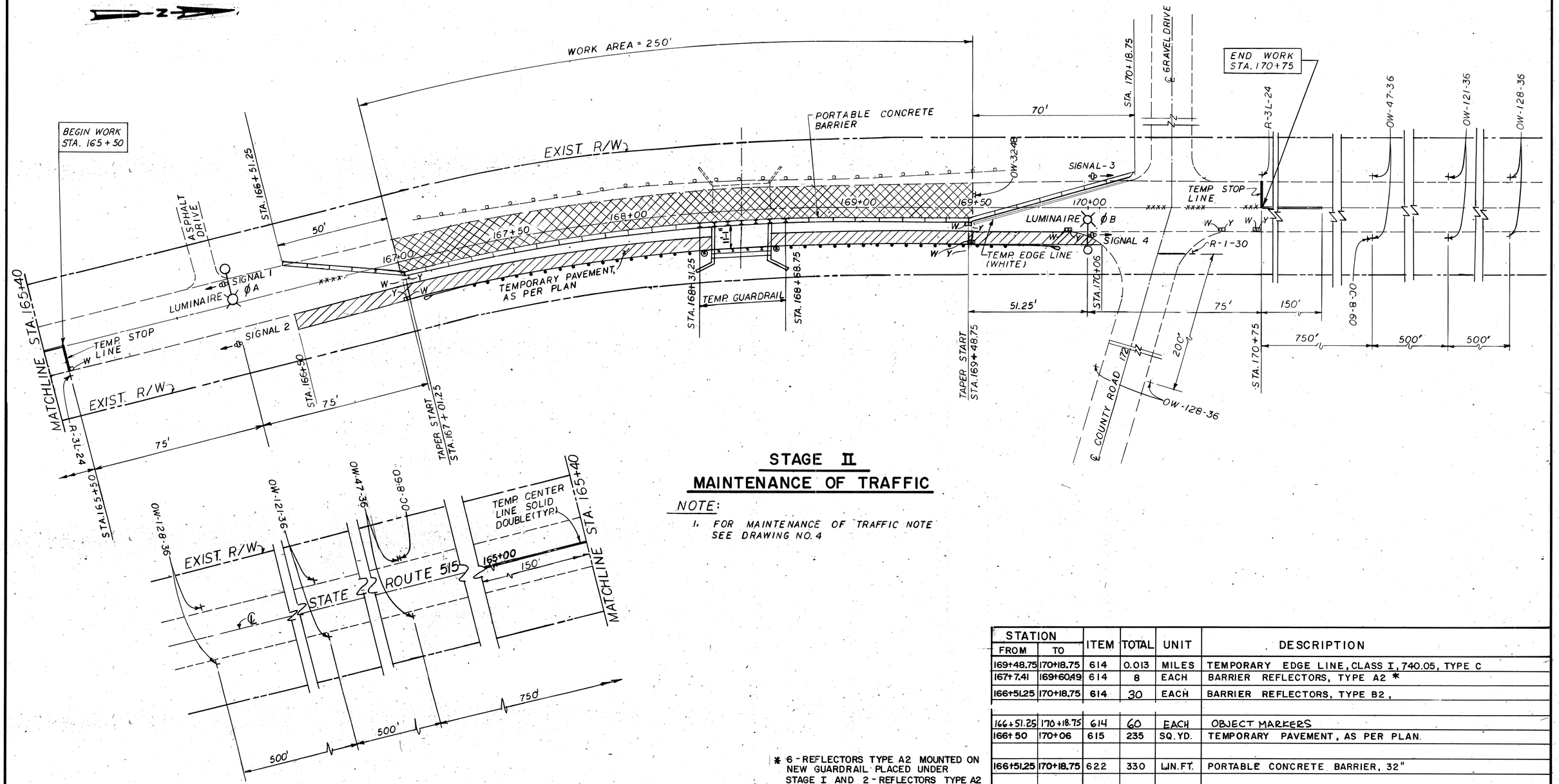
STATION FROM	STATION TO	ITEM	TOTAL	UNIT	DESCRIPTION
164+00	165+50	614	0.06	MILE	TEMPORARY CENTER LINES, CLASS I, 740.05, TYPE-C
170+75	172+25				
165+50		614	20	LIN. FT.	TEMPORARY STOP LINES, CLASS I, 740.05, TYPE-C.
170+75					
166+01.25	167+01.25	614	0.02	MILE	TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE-C.
166+01.25	169+88.75	614	64	EACH	OBJECT MARKERS
166+01.25	169+88.75	614	32	EACH	BARRIER REFLECTOR, TYPE B2
167+11.02	169+58.10	614	8	EACH	BARRIER REFLECTOR, TYPE A2 *
166+01.25	169+88.75	622	350	LIN. FT.	PORTABLE CONCRETE BARRIER, 32"

MAINTENANCE OF TRAFFIC DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

HOL - 515 - 2.06

5/26



STAGE II
MAINTENANCE OF TRAFFIC

NOTE:

1. FOR MAINTENANCE OF TRAFFIC NOTE SEE DRAWING NO. 4

STATION FROM	STATION TO	ITEM	TOTAL	UNIT	DESCRIPTION
169+48.75	170+18.75	614	0.013	MILES	TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C
167+7.41	169+60.49	614	8	EACH	BARRIER REFLECTORS, TYPE A2 *
166+51.25	170+18.75	614	30	EACH	BARRIER REFLECTORS, TYPE B2,
166+51.25	170+18.75	614	60	EACH	OBJECT MARKERS
166+50	170+06	615	235	SQ.YD.	TEMPORARY PAVEMENT, AS PER PLAN.
166+51.25	170+18.75	622	330	LIN.FT.	PORTABLE CONCRETE BARRIER, 32"

* 6 - REFLECTORS TYPE A2 MOUNTED ON NEW GUARDRAIL PLACED UNDER STAGE I AND 2 - REFLECTORS TYPE A2 MOUNTED ON TEMPORARY GUARDRAIL ON BRIDGE

MAINTENANCE OF TRAFFIC DETAILS

614 TEMPORARY RAISED PAVEMENT MARKERS

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

6
26

HOL-515-2.06

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S). THE TRPM'S SHALL BE YELLOW OR WHITE, AS DESCRIBED IN THE PLAN.

MATERIAL
ALL UNITS SHALL BE OF SUFFICIENT STRENGTH AND PROPERLY SHAPED SO AS NOT TO BE DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR DAMAGED BY IMPACTS FROM VEHICLES TIRES, INCLUDING THOSE OF HIGH PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH UNIT AS REQUIRED BY THE USAGE AND SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATED FOR THE APPLICATION.

THE REFLECTOR SHALL HAVE AN EFFECTIVE AREA OF 0.35 SQUARE INCH FOR TYPE A OR 3.0 SQUARE INCH FOR TYPE B. ITS BRIGHTNESS OR SPECIFIC INTENSITY (WHEN TESTED AT 0.2 DEGREE ANGLE OF OBSERVATION AND THE FOLLOWING ANGLES OF INCIDENCE) SHALL MEET OR EXCEED THE FOLLOWING:

SPECIFIC INTENSITY

	TYPE A	
INCIDENCE ANGLE (DEGREES)	WHITE	YELLOW
0	1.0	0.6
20	0.4	0.24
45	–	–

	TYPE B	
	WHITE	YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

ANGLE OF INCIDENCE FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE NORMAL TO THE LEADING EDGE OF THE MARKER FACE (ALSO HORIZONTAL ENTRANCE ANGLE).

ANGLE OF OBSERVATION FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE RETURNED RAY FROM THE MARKER TO THE MEASURING RECEPTOR.

SPECIFIC INTENSITY IS THE MEAN CANDLEPOWER OF THE REFLECTED LIGHT (AT GIVEN INCIDENCE AND DIVERGENCE ANGLES) FOR EACH FOOT-CANDLE AT THE REFLECTOR (ON A PLANE PERPENDICULAR TO THE INCIDENT LIGHT).

TYPE A UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY BOTH AT NIGHT AND DURING DAYLIGHT. THEIR DAY TIME VISIBILITY SHALL BE ASSURED BY SIZE, SHAPE AND COLOR AS FOLLOWS:

1) THE UNITS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.

2) WHEN VIEWED FROM ABOVE, THE UNITS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.

3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE UNIT SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

TYPE B UNITS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETRO-REFLECTING AUTOMOTIVE HEADLIGHT BACK TO THE DRIVER.

INSTALLATION: THEY SHALL BE ATTACHED TO CLEAN, DRY PAVEMENT BY A BUTYL ADHESIVE PAD, A BITUMINOUS ADHESIVE OR OTHER CONSTRUCTION GRADE ADHESIVES (SUCH AS FRANKLIN PANEL AND METAL ADHESIVE) SUITABLE TO ANCHOR THE UNIT UNDER THE ABOVE CONDITIONS. WHEN IT IS NECESSARY TO ATTACH UNITS TO NEW CONCRETE WITH CURING COMPOUND REMAINING, THE CURING COMPOUND MEMBRANE SHALL BE REMOVED BY SANDBLASTING OR OTHER MECHANICAL CLEANING METHOD. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE, AT HIS COST, ANY UNITS WHICH FAIL (BROKEN HOUSING, HOUSING WORN TO THE EXTENT THAT DAYTIME VISIBILITY IS SIGNIFICANTLY DIMINISHED OR OF AN UNACCEPTABLE COLOR, DETACHED OR BROKEN REFLECTOR, HOUSING DETACHED FROM ADHESIVE).

TRPM'S ARE LIKELY TO BE REMOVED BY SNOW PLOWING OPERATIONS, THUS THEY ARE NOT CONSIDERED SUITABLE FOR USE DURING THE PERIOD FROM OCTOBER 15 UNTIL APRIL 30. THE CONTRACTOR IS ADVISED TO SCHEDULE HIS WORK AND/OR THE USE OF THESE DEVICES TO AVOID THIS PERIOD. SHOULD THE CONTRACTOR CHOOSE TO USE TRPM'S DURING THIS PERIOD AND THEY ARE SUBSEQUENTLY REMOVED OR DESTROYED BY SNOW AND ICE CONTROL ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY, AT HIS COST, PROVIDE A SUBSTITUTE TRAFFIC GUIDANCE SYSTEM EFFECTIVE DURING LIGHT AND DARK AND WHICH IS ACCEPTABLE TO THE ENGINEER.

THE UNITS SHALL BE PLACED ACCURATELY TO DEPICT STRAIGHT OR UNIFORMLY CURVING LINES. WHEN USED TO SUPPLEMENT TEMPORARY PAVEMENT MARKINGS, THEY MAY BE PLACED ON OR IMMEDIATELY ADJACENT TO THE PAVEMENT MARKING. LOCATIONS SHALL BE ADJUSTED UP TO ONE FOOT LONGITUDINALLY OR SIX INCHES LATERALLY TO AVOID PLACEMENT ON JOINTS, CRACKED OR DETERIORATED PAVEMENT. THEY SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS IF THIS WILL DETRACT FROM THEIR ABILITY TO REMAIN ATTACHED TO THE PAVEMENT.

APPLICATION
1) WHEN REQUIRED TO SUPPLEMENT PAVEMENT MARKING; THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A OR B	20' C/C
LANE LINE	A OR B	40' C/C*
CENTER LINE (SINGLE/BROKEN)	A OR B	40' C/C *
CENTER LINE (DOUBLE/SOLID)	A OR B	2 UNITS SIDE BY SIDE 4 INCHES APART 20' C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A OR B	10' C/C

* CENTERED IN GAP

2) WHEN USED TO SIMULATE (REPLACE) PAVEMENT MARKING THEY SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	4@3.33' C/C 30' GAP (40' CYCLE)
CENTER LINE (DOUBLE SOLID)	A	2 UNITS SIDE BY SIDE 5' C/C
CENTER LINE (SINGLE BROKEN)	A	4@3.33' C/C 30' GAP (40' CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (WHITE/YELLOW)	A	BACK TO BACK 5' C/C

YELLOW TRPM'S USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTER LINES) SHALL INCLUDE REFLECTIONS FOR BOTH DIRECTIONS. ALL OTHER YELLOW TRPM'S AND WHITE TRPM'S SHALL PROVIDE RETROREFLECTIVITY FOR ONE DIRECTION.

REMOVAL
REMOVAL SHALL BE ACCOMPLISHED IN A MANNER THAT LITTLE OR NONE OF THE ADHESIVE REMAINS ON THE PAVEMENT AND PERMANENT PAVEMENT SURFACES SHALL NOT BE SCARRED, BROKEN OR ROUGHENED SIGNIFICANTLY.

PAYMENT
BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH TRPM AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT AT NO ADDITIONAL COST OF ALL TRPM'S WHICH, IN THE JUDGEMENT OF THE ENGINEER, FAIL FOR ANY REASON, EXCEPT DUE TO FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

ITEM	UNIT	DESCRIPTION
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS

STATIONING (FROM-TO) (SIDE)	SPACING	TYPE A W	TYPE A Y	TYPE A Y/Y	TYPE B W	TYPE B Y	TYPE B Y/Y	REMARKS (LINE TYPE)
165+50 TO	5'C/C	81	81					EDGE LINE-2 COLOR
169+50 (LT.)								STAGE I
167+01.25	5' C/C	51	51					ALONG TEMP BARRIER
169+48.75								STAGE I-2 COLOR
169 + 50	5' C/C	26						EDGE LINE - WHITE
170 + 75 (LT.)								STAGE I
167 + 01.25	5' C/C	51	51					ALONG TEMP BARRIER
169 + 48.75 (LT.)								STAGE II-2 COLOR
165 + 50 TO	5'C/C	31						EDGE LINE - WHITE
167 + 00								STAGE II
167 +.00	5' C/C	76	76					EDGE LINE-2 COLOR
170 + 75 (RT.)								STAGE II
TOTALS		316	259					
		575 *						

* QUANTITY CARRIED TO SHEET NO. 9

R.P. MADISON INTERNATIONAL
ARCHITECTS · ENGINEERS · PLANNERS
2930 EUCLID AVE. CLEVELAND, OHIO 44115

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

614 TEMPORARY RAISED PAVEMENT MARKERS

DESIGNED	DRAWN	CHECKED	DATE	REVISED
M.P	JMP	LJ.	12-2-91	

TEMPORARY SIGN SUPPORT REQUIREMENTS

A. PLACEMENT OF SIGNS WHICH WILL REMAIN MORE THAN ONE DAY:

1) LATERAL PLACEMENT TO NEAREST EDGE OF SIGNS SHALL BE AS FOLLOWS:

   a) ON THE RIGHT SIDE OF THE ROAD FOR APPROACHING TRAFFIC (EXCEPT FOR DUAL MOUNTED SIGNS AND SIGNS DESIGNATED IN THE PLANS FOR LEFT SIDE MOUNTING).

   b) CURBED ROADWAY - MINIMUM 2 FT. BEHIND FACE OF CURB.

   c) UNCURBED ROADWAY-12 FT. FROM EDGE OF TRAFFIC LANE OR 6 FT. FROM EDGE OF PAVED OR USEABLE SHOULDER, WHICHEVER IS GREATER.

   d) BEHIND GUARDRAIL OR BARRIER - PREFERABLY 2 FT. BEHIND FACE OF GUARDRAIL (MINIMUM 1 FT.) FOR SIGNS ON CLASS A SUPPORTS: 4 FT. FOR CLASS B OR C SUPPORTS 1 FT. BEHIND FACE OF CONCRETE BARRIER UNLESS BARRIER TOP MOUNTING IS REQUIRED BY THE PLAN.

2) VERTICAL CLEARANCE OF SIGNS, MEASURED ABOVE ROADWAY ELEVATION; SHALL BE AS FOLLOWS:

   a) RURAL - 5 FT. WHEN PARKED CARS, CONSTRUCTION EQUIPMENT, ETC WILL NOT OBSCURE SIGN VISIBILITY.

   b) RURAL AREAS WITH PARKED CARS OR CONSTRUCTION EQUIPMENT - 7 FT.

   c) URBAN - 7 FT.

   d) CARE SHALL BE TAKEN TO ASSURE THAT SIGNS WILL NOT BE OBSCURED BY CONSTRUCTION EQUIPMENT, TREES, WEEDS OR OTHER OBSTACLES. BRUSH, WEEDS OR GRASS WITHIN THE RIGHT OF WAY SHALL BE TRIMMED AS NECESSARY. SIGNS SHALL NORMALLY BE VISIBLE TO TRAFFIC 400 TO 600 FT. IN ADVANCE OF THE SIGN.

3) SUPPORTS FOR SIGNS WHICH WILL REMAIN IN PLACE MORE THAN ONE DAY SHALL BE FIXED RATHER THAN PORTABLE EXCEPT IN SITUATIONS WHERE THE SIGN MUST REST ON PERMANENT PAVEMENT OR OTHER SURFACE WHICH WOULD BE DAMAGED BY INSERTION OF POST TYPE SUPPORTS.

B. PLACEMENT OF SIGNS WHICH WILL REMAIN FOR ONE DAY OR LESS:

1) SAME AS A-1 ABOVE EXECPT THAT SIGNS MAY BE PLACED ON THE ROADWAY ONLY IF THEY DO NOT INTRUDE INTO A TRAFFIC LANE IN USE.

2) MINIMUM OF 1 FT. ABOVE ROADWAY

C. CLASSES OF SUPPORTS:

ALL TEMPORARY SIGN SUPPORTS SHALL BE OF THE FOLLOWING TYPES:

1) CLASS A:

SUPPORTS SHALL BE USED FOR EXPOSED LOCATIONS ON HIGHWAYS WHERE TRAFFIC APPROACH SPEEDS OF 40 MPH AND HIGHER ARE ENCOUNTERED. THEY ARE ALSO SUITABLE FOR USE IN ALL OTHER LOCATIONS.

2) CLASS B:

SUPRORTS SHALL BE USED FOR EXPOSED LOCATIONS ON HIGHWAYS WHERE TRAFFIC APPROACH SPEEDS OF LESS THAN 40 MPH ARE ENCOUNTERED. THEY ARE ALSO SUITABLE FOR USE IN ALL APPLICATIONS DEFINED FOR CLASS C SUPPORTS.

3) CLASS C:

SUPPORTS MAY ONLY BE USED WHERE FULLY PROTECTED BY GUARDRAIL, CONCRETE BARRIER AND IN LOCATIONS POSITIVELY PROTECTED FROM TRAFFIC SUCH AS ON RETAINING WALLS OR WHERE TRAFFIC APPROACH SPEEDS ARE LESS THAN 25 MPH.

D. TRAFFIC APPROACH SPEEDS:

TRAFFIC APPROACH SPEEDS SHALL BE THE LOCALLY POSTED SPEED (NOT ADVISORY SPEED SIGNS) OR THE MEASURED ACTUAL (85TH PERCENTILE) SPEED (IF AVAILABLE) OF APPROACHING TRAFFIC, WHICHEVER IS HIGHER, ADJACENT TO THE SIGN LOCATION.

TABLE

APPROACH SPEED (MPH)	COMPLETELY PROTECTED BY GUARDRAIL OR BARRIER	PARTLY PROTECTED BY GUARDRAIL OR BARRIER *	GREATER THAN 30' FROM EDGE OF PAVEMENT	WITHIN 30' FROM EDGE OF PAVEMENT
40 AND HIGHER	A, B OR C	A OR B	A OR B **	A ONLY
26 TO 39	A, B OR C	A OR B	A OR B	A OR B
0 TO 25	A, B OR C	A, B OR C	A, B OR C	A, B OR C

* IF SUPPORTS ARE BEHIND GUARDRAIL BUT NOT FULLY 5.5' BEHIND FACE OF RAIL OR IF SIGN IS NOT 1' BEHIND FACE OF CONCRETE BARRIER.

** 30' CRITERION IS BASED UPON STRAIGHT ROADWAY AND A SLOPE OF 6:1 OR FLATTER. SUPPORTS ON THE OUTSIDE OF CURVES OR LOCATED DOWN A SLOPE (STEEPER THAN 6:1) WILL REQUIRE USE OF CLASS A SUPPORTS.

E. BALLASTING

BALLASTING OF PORTABLE SUPPORTS SHALL BE WITH SANDBAGS PLACED WITHIN 1 FT. OF THE GROUND. IN NO CASE SHALL HARD OBJECTS BE USED FOR BALLAST.

F. STRENGTH OF SIGN SUPPORTS

THE CONTRACTOR SHALL CHOOSE SIGN SUPPORTS OF ADEQUATE STRENGTH AND WITH ADEQUATE FOUNDATIONS AND ANCHORAGE TO SUPPORT THE SIGN SIZES ERECTED. PROPRIETARY DEVICES SHALL NOT BE LOADED BEYOND THE LIMITS RECOMMENDED BY THE MANUFACTURER. SLIP BASE TYPE BREAKAWAY BEAM CONNECTIONS SHALL BE AT LEAST PARTIALLY EMBEDDED IN CONCRETE CONSISTING OF A 1 FT. DEEP BY 12" DIAMETER COLLAR. SIGN SUPPORTS WHICH FAIL UNDER TYPICAL WIND LOAD CONDITIONS SHALL BE IMMEDIATELY MODIFIED OR REPLACED WITH A SUPPORT OF ADEQUATE STRENGTH.

G. PROHIBITED SUPPORTS

THE FOLLOWING SUPPORT TYPES SHALL NOT BE PERMITTED ON PROJECTS:

1) SUPPORTS FABRICATED FROM AUTOMOTIVE AXLE DIFFERENTIAL ASSEMBLIES AND SIMILARLY HEAVY ASSEMBLIES WHICH CANNOT BE CONSIDERED BREAKAWAY TYPE.

2) SUPPORTS CONSISTING OF VERTICAL POSTS WITH ANGLED BRACES MADE FROM DRIVEPOST OR OTHER RIGID ELEMENTS.

HOL-515-2.06

CLASS A SUPPORTS

FIXED SUPPORTS

1) ALL #2, #3, AND #4 POST WHEN INSTALLED SINGLY OR IN PAIRS ACCORDING TO THE DETAILS OF TC-41.20. THE NUMBER OF SUPPORTS SHALL BE AS SHOWN ON TC-52.10 AND TC-52.20.

2) THE FOLLOWING POST TYPES, WHEN INSTALLED SINGLY, BY IMBEDMENT OR DRIVING INTO EARTH TO A DEPTH OF ABOUT 42 INCHES:

   a) - UP TO 4" X 4" WOOD

   b) - UP TO 2 INCH DIAMETER SCHEDULE 40 STEEL PIPE

   c) - UP TO 3 INCH DIAMETER SCHEDULE 40 ALUMINUM PIPE

   d) - UP TO 2¼INCH SQUARE, 12 GAUGE WALL, PUNCHED STEEL POST

   e) - UP TO 6" X 8" WOOD WITH BREAKAWAY HOLES SHOWN BELOW

3) THE FOLLOWING POST TYPES WHEN INSTALLED IN PAIRS WITH LESS THAN 7 FT. BETWEEN POSTS, BY IMBEDMENT OR DRIVING INTO EARTH TO A DEPTH OF ABOUT 42 INCHES:

   a) - UP TO 4" X 4" WOOD

   b) - UP TO 2 INCH DIAMETER SCHEDULE 40 STEEL PIPE

   c) - UP TO 3 INCH DIAMETER SCHEDULE 40 ALUMINUM PIPE

   d) - UP TO 2 INCH SQUARE, 14 GAUGE WALL, PUNCHED STEEL POST

4) FIXED TYPE III BARRICADES:

5) ALL BREAKAWAY CONNECTION BEAM SUPPORTS, WHEN INSTALLED ACCORDING TO THE PROPER DETAILS SHOWN ON TC-41.10 WITH A MINIMUM CLEAR DISTANCE BETWEEN SUPPORTS OF 7 FT. FOR SUPPORTS LARGER THAN W6 X 9.

6) ANY BREAKAWAY POST OR POST AND CONNECTION WHICH HAS BEEN CRASH TESTED AND APPROVED BY THE FHWA AS SATISFYING THE BREAKAWAY CRITERIA DESCRIBED IN 630.06.

(CONTINUED ON 210511)

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF THE OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

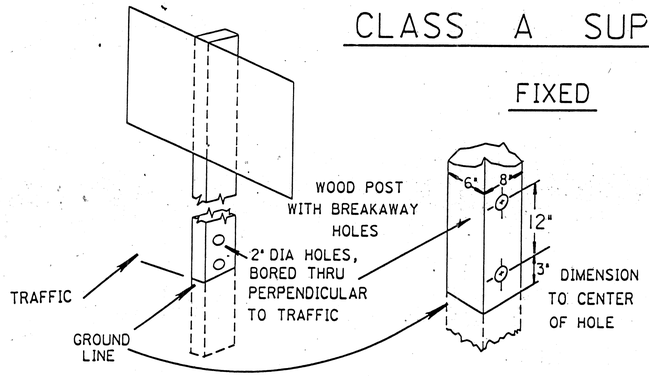
REVISED BY: cn DATE: 4/24/91

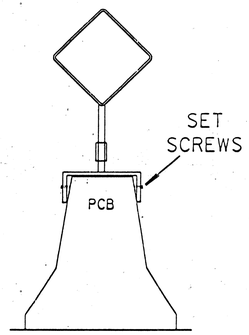
210510	DATE 05/07/90
TEMPORARY SIGN SUPPORT	
PLAN INSERT SHEET	

WCC

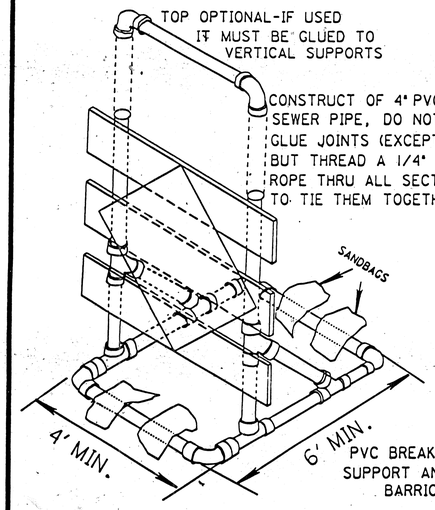
CLASS A SUPPORTS

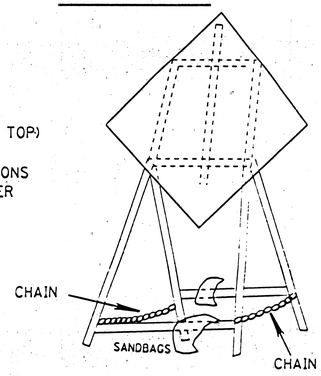
FIXED

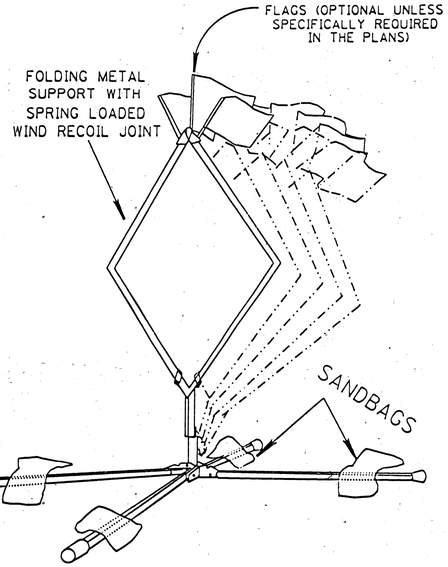




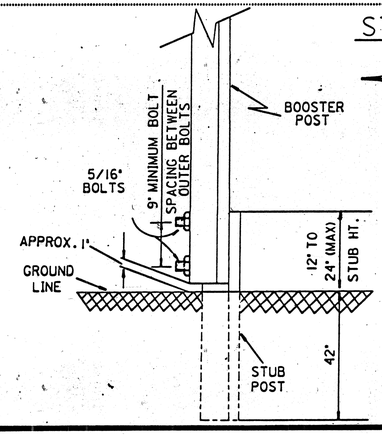
PORTABLE







STUBBING STANDARD



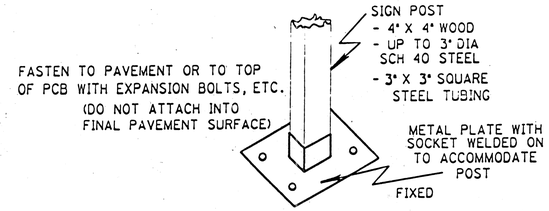
DIRECTION OF TRAFFIC

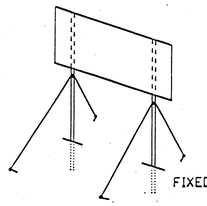
NOTES

1. FOR USE WITH #3 POST OR SMALLER ONLY
2. BOLTS SHALL BE STEEL OR ALUMINUM
3. A MINIMUM OF TWO FASTENERS SHALL BE USED PER ASSEMBLY
4. BOOSTER POST SHALL BE MOUNTED BEHIND STUB POST
5. BOOSTER POST SHALL BE THE SAME OR 1 LB./FT. LESS THAN STUB POST

HOL-515-2.06

CLASS B SUPPORTS

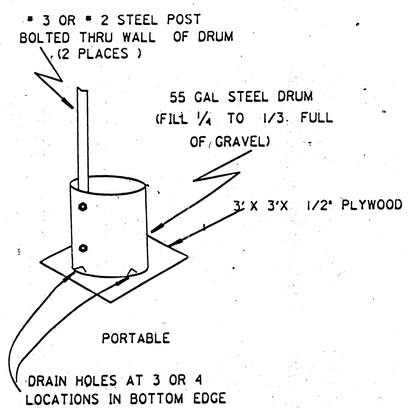




ANY CLASS A SIGN POST WITH GUY WIRES ADDED TO INCREASE SIGN CARRYING ABILITY. (GUY WIRES SHALL NOT BE HEAVIER THAN 1/8" DIA. BRAIDED CABLE. GUY ANCHORS SHALL NOT EXTEND MORE THAN 6" ABOVE GROUND SURFACE).

CLASS C SUPPORTS

1. ALL BEAM TYPE SUPPORTS WITHOUT BREAKAWAY CONNECTIONS.
2. SUPPORTS SIMILAR TO BUT LARGER THAN PERMITTED FOR CLASS A OR B.
3. THE STEEL DRUM(S) SHOWN BELOW MAY BE USED ONLY WHEN LOCATED BEHIND GUARDRAIL OR BARRIER.



ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF THE OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

REVISED BY: CN DATE: 4/24/91

210511	DATE 05/07/90
TEMPORARY SIGN SUPPORT	
PLAN INSERT SHEET	

CAL. BY G.A DATE 5-5-95
CHECK BY MP DATE 5-15-95

FHWA REGION	STATE	PROJECT		9
5	OHIO			26

HOL-515-2.06

CALCULATION

ITEM 203 – SUBGRADE COMPACTION:

STA. 166+50 TO STA. 167+00 = 50.00 LIN.FT.
STA. 169+50 TO STA. 170+06 = 56.00 LIN.FT.
TOTAL = 106.00 LIN.FT.

STA. 167+00 TO STA. 168+37 = 137.00 LIN.FT.
STA. 168+63 TO STA. 169+50 = 87.00 LIN.FT.
TOTAL = 224.00 LIN.FT.

106'X 6' ÷ 9 =70.67 SQ.YD.
224'X26' ÷ 9 = 647.11 SQ.YD.
TOTAL = 717.78 ----------718 SQ.YD.

ITEM 301 –BITUMINOUS AGGREGATE BASE

224'X21'X0.5' ÷ 27 = 87.11 CU.YD.
AT BRIDGE
26'X36'X0.58' {AVG.} ÷ 27 = 20.11 CU.YD.
TOTAL = 107.22 ----------107 CU.YD.

ITEM 304 – AGGREGATE BASE, AS PER PLAN:

224'X 22'X 0.5' ÷ 27 = 91.26 CU.YD.
224'X 3.5'X 0.67' ÷ 27 = 19.45 CU.YD.
224'X 0.5'X 0.25' ÷ 27 = 1.04 CU.YD.
TOTAL = 111.75 ----------112 CU.YD.

ITEM 402 – ASPHALT CONCRETE , AC–20

STA. 167+00 TO STA. 169+50 = 250.00 LIN.FT.
250'X 20'X 0.1458' ÷ 27 = 27.00 CU.YD.
@ BRIDGE 26'X 16'X 0.1458' ÷ 27 = 2.25 CU.YD.
TOTAL = 29.25 ---------- 30 CU.YD.

ITEM 404 – ASPHALT CONCRETE , AC–20 , AS PER PLAN

250'X 20'X0.1042' ÷ 27 = 19.30 CU.YD.
@ BRIDGE 26'X 16'X 0.1042 ÷ 27 = 1.61 CU.YD.
TOTAL = 20.91 ----------21 CU.YD.

ITEM 407 – TACK COAT:

@ BRIDGE 26'X 36' = 936 SQ.FT.
[936 ÷ 9]X0.075 GAL. = 7.8 ---------8 GAL.

ITEM 408 – BITUMINOUS PRIME COAT:

(224'X21' ÷ 9)X 0.40 = 209.06 ----------209 GAL.

ITEM 605 – AGGREGATE DRAIN

STA. 167+00 TO STA. 168+25 = 125.00 LIN.FT.
STA. 168+75 TO STA. 169+15 = 40.00 LIN.FT.
STA. 169+15 TO STA. 169+50 = 35.00 LIN.FT.
STA. 169+00 TO STA. 169+50 = 50.00 LIN.FT.
RIGHT 165 ÷ 25 = 7 X 12 = 84.00 LIN.FT.
35 ÷ 50 = 1 X 12 = 12.00 LIN.FT.
LEFT 50 ÷ 50 = 2 X 12 = 24.00 LIN.FT.
TOTAL = 120 ----------120 LIN.FT.

ITEM 659 – FERTILIZER:

20 LBS. PER 1000 SQ.FT. FOR PERMANENT SEEDED AREA
20 X 1253 X 9 ÷ 1000 ÷ 2000 = ----------0.11 TON.

ITEM 659 – AGRICULTURAL LIMING

100 LBS. PER 1000 SQ.FT. FOR PERMANENT SEEDED AREA
100X 1253X 9 ÷ 1000 ÷ 2000 = ---------- 0.56 TON.

ITEM 659 – WATER:

120 GAL.PER 1000 SQ. FT.
120X 1253X 9 ÷ 1000 ÷ 1000 = 1.35 M.GAL.
1.35 M.GAL. X 2 APPLICATION = 2.70 ----------3 M.GAL.
(TO GENERAL NOTES)

GENERAL SUMMARY

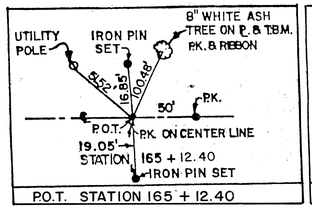
SHEET NUMBER										PARTICIPATION					ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION
3	4	5	6	9	10	11	12	13	14										
																			ROADWAY
LUMP															201	11000	LUMP		CLEARING AND GRUBBING
					400										202	38000	400	LIN.FT.	GUARDRAIL REMOVED
62.50															202	38601	62.50	LIN.FT.	BRIDGE RAILING REMOVED FOR STORAGE , AS PER PLAN
						163	273	166							203	12000	602	CU.YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
						79	139	41							203	20000	259	CU.YD.	EMBANKMENT
				718											203	50000	718	SQ.YD.	SUBGRADE COMPACTION
					4										604	38500	4	EACH	MONUMENT ASSEMBLY
					3625										606	13000	362.5	LIN.FT.	GUARDRAIL TYPE 5
					4										606	25000	4	EACH	ANCHOR ASSEMBLY, TYPE A
					4										606	35140	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4
																			EROSION CONTROL
100															207	70000	100	EACH	STRAW OR HAY BALES
					14										601	32300	14	CU.YD.	ROCK CHANNEL PROTECTION, TYPE D WITH FILTER
						431	483	339							659	10000	1253	SQ.YD.	SEEDING AND MULCHING
				0.11											659	20000	0.11	TON	COMMERCIAL FERTILIZER
				0.56											659	30000	0.56	TON.	AGRICULTURAL LIMING
3															659	35000	3	M.GAL	WATER
																			PAVEMENT
				107											301	10002	107	CU.YD.	BITUMINOUS AGGREGATE BASE, AC– 20
				112											304	20001	112	CU.YD.	AGGREGATE BASE, AS PER PLAN
				30											402	20000	30	CU.YD.	ASPHALT CONCRETE, AC– 20
				21											404	20001	21	CU.YD.	ASPHALT CONCRETE, AC– 20 , AS PER PLAN
				8											407	10000	8	GAL.	TACK COAT
				209											408	10000	209	GAL.	BITUMINOUS PRIME COAT
																			DRAINAGE
50															603	01500	50	LIN.FT.	6" CONDUIT, TYPE F
50															603	02600	50	LIN.FT.	8" CONDUIT, TYPE F
				120											605	31100	120	LIN.FT.	AGGREGATE DRAIN
																			TRAFFIC CONTROL
					0.20										642	00102	0.20	MILE	EDGE LINE, TYPE 2
					0.10										642	00302	0.10	MILE	CENTER LINE, TYPE 2
					6										802	00300	6	EACH	BARRIER REFLECTOR, TYPE A2
																			MAINTENANCE OF TRAFFIC
			575												614	12900	575	EACH	TEMPORARY RAISED PAVEMENT MARKERS, TYPE A
	8	8													614	13202	16	EACH	BARRIER REFLECTOR, TYPE A2
	32	30													614	13302	62	EACH	BARRIER REFLECTOR, TYPE B2
	0.06														614	21300	0.06	MILE	TEMPORARY CENTER LINE, CLASS I, 740.05, TYPE C
0.10															614	21400	0.10	MILE	TEMPORARY CENTER LINE, CLASS II
	64	60													614	13350	124	EACH	OBJECT MARKERS
	0.02	0.013													614	22300	0.03	MILE	TEMPORARY EDGE LINE, CLASS I, 740.05, TYPE C
	20														614	26600	20	LIN.FT.	TEMPORARY STOP LINE, CLASS I, 740.05, TYPE C
		235													615	35001	235	SQ.YD.	TEMPORARY PAVEMENT, AS PER PLAN
3															616	10000	3	M.GAL	WATER
1															616	20000	1	TON.	CALCIUM CHLORIDE
	350	330													622	40020	680	LIN.FT.	PORTABLE CONCRETE BARRIER, 32"
																			FOR STRUCTURE OVER 20' SEE SHEET NO 16 OF 26
LUMP															614	11000	LUMP		MAINTAINING TRAFFIC
															619	15000	LUMP		FIELD OFFICE, TYPE A
															623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
															624	10000	LUMP		MOBILIZATION
															SPECIAL	61925000	LUMP		COMPUTER EQUIPMENT FOR TYPE A OFFICE

REV 11-27-95

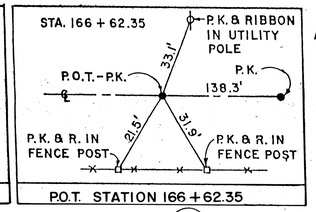
FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

10/26

HOL-515-2.06



P.O.T. STATION 165 + 12.40



P.O.T. STATION 166 + 62.35

TEMPORARY BENCHMARK
FIRST TREE ON PROPERTY LINE, PK.& RIBBON IN STUMP EL. 1010.05
STA. 165+71.00-100.48' LT.

HOCHSTETLER RUN

FIELD DRAIN & PLASTIC PIPE

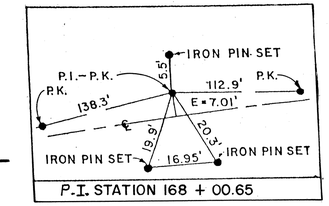
℄ POST STA. 168 + 34.64

℄ BRIDGE STA. 168+50= ℄ STA. 1+50 HOCHSTETLER RUN

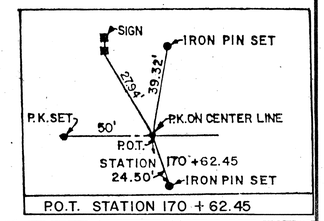
END PROJECT STA. 169 + 50 SLM 2.11
BRZ-3803 (2)

TEMPORARY BENCHMARK
CORNER OF SLAB S.E. CORNER OF BRIDGE
STA. 170+27. EL. 1010.83
93.5' LEFT.

GRAVEL DR.



P.I. STATION 168 + 00.65



P.O.T. STATION 170 + 62.45

℄ POST STA. 168 + 65.36

P.T. STA. 169 + 15.45

R/W

GR-8

TELEPHONE PEDESTAL

G.V.

Vent

8" C.M.P.

SIGN

POWER POLE & GUYWIRE

CONSTRUCTION LIMIT

GR-4

GR-3

GR-7

M3

1+25

℄ Channel 2

1+00

21'

CONSTRUCTION LIMIT

P.C. STA. 166+84.73

90° Tan. To Curve

169+00

℄ SURVEY S.R. 515

170+00

N 5° 20' 00" E 171+00

BUTT END JOINT

168+00

M1

10'

(EXIST) R/W

FIELD DRIVE

167+00

1+75

CONST. LIMITS

Sign

M.B.

R/W (EXIST.)

BUTT END JOINT 2

166+00 N 8° 30' 35" W

℄ SURVEY S.R. 515

M2

30°

4" TREE

GR-2

M4

GR-6

EXIST. TELEPHONE CABLE 2' to 3' BELOW GRADE.

APPROX. EL. OF GAS LINE IS 1003.0±

Field Drive

8" Plastic Pipe

36" C.M.P.

COUNTY ROAD 172

BURIED CABLE

(EXIST) R/W

R/W

2+00

GR-5

GR-1

℄ POST STA. 168 + 34.11

℄ POST STA. 168+65.89

END WORK STA. 170 + 75

CONSTRUCTION LIMIT

BEGIN WORK STA. 165+50

BEGIN PROJECT STA. 167+00.00 SLM 2.06
BRZ-3803 (2)

CURVE DATA
Δ = 13° 50' 35"
D = 6° 00'
EX = 7.01'
T = 115.92'
L = 230.72'
R = 954.94'
PI = 168+00.65

ROCK CHANNEL PROTECTION TYPE-D, 1'-6" THICK WITH FILTER FABRIC, TYP.)

PLAN

TEMP. PAVEMENT, AS PER PLAN

MONUMENT ASSEMBLIES				
REF. NO.	CENTERLINE STATION	LEFT OFF SET IN FEET	RIGHT OFF SET IN FEET	ITEM 604 MONUMENT ASSEMBLY EACH
M1	166 + 84.73	18		1
M2	166 + 84.73		18	1
M3	169 + 15.45	18		1
M4	169 + 15.45		18	1
			TOTAL =	4

EXISTING BRIDGE DATA

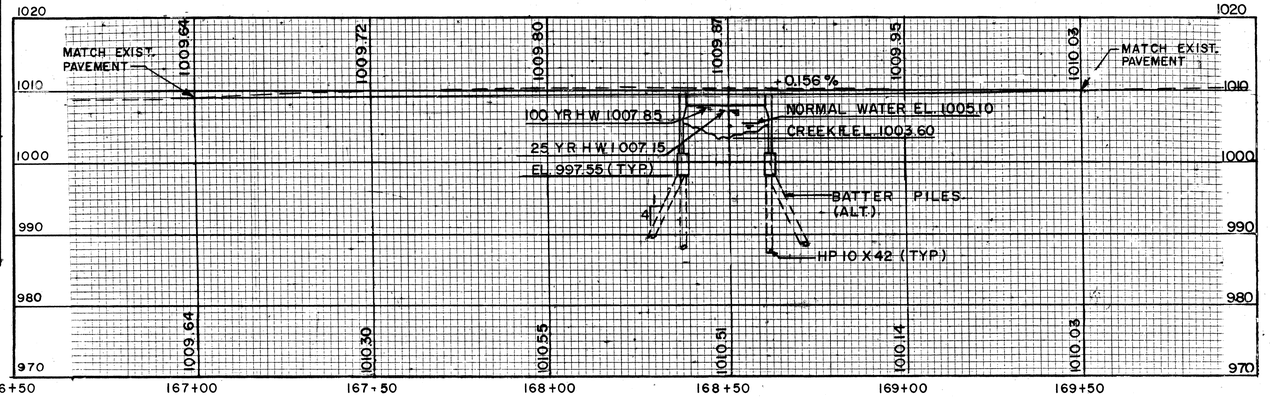
TYPE: SIMPLE SPAN CONCRETE BEAM ON CONCRETE GRAVITY ABUTMENTS
SPAN: 23'-9" (F/F ABUTMENTS)
ROADWAY: 19'-6" F/F CURB
ALIGNMENT: 6° CURVE
SKEW: NONE
APPROACH SLAB: NONE
WEARING SURFACE: ASPHALT CONCRETE
STRUCTURE FILE NO. 3802582

PROPOSED BRIDGE DATA

TYPE: 24'-0" x 5'-0" PRECAST REINFORCED FLATTOPPED THREE SIDED CONCRETE CULVERT
SPAN: 24'-0" PERPENDICULAR TO STRUCTURE WALL
ROADWAY: 32'-0" F/F GUARDRAIL
ALIGNMENT: 6° CURVE (STRUCTURE PARALLEL TO REFERENCE CHORD)
SKEW: NONE
APPROACH SLAB: NONE
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
WEARING SURFACE: ASPHALT CONCRETE
SUPER ELEVATION 0.03 FT/FT MAX.

ITEM-601 ROCK CHANNEL PROTECTION TYPE D WITH FILTER T= 1'-6"

STATION FROM	STATION TO	SIDE	AREA	CU. YD.
168+28	168+38	LT.	$\frac{10 \times 5.75 \text{ AVG.} \times 1.5}{27}$ =	3.19
168+6	168+72	LT.	$\frac{10 \times 5.75 \text{ AVG.} \times 15}{27}$ =	3.19
168+28	168+38	RT.	$\frac{10 \times 6 \text{ AVG.} \times 1.5}{27}$ =	3.33
168+62	168+72	RT.	$\frac{10 \times 7' \text{ AVG.} \times 1.5}{27}$ =	3.89
			TOTAL =	13.60



PROFILE

PAVEMENT MARKING					
CENTERLINE STATION		SIDE	642 CENTER LINE TYPE-2	642 EDGE LINE, WHITE TYPE-2	
FROM	TO	LT./ RT.	MILE	MILE	
165 + 50	170+ 75		0.10		
165 + 50	170 + 75	LT./ RT		0.20	
	TOTAL	=	0.10	0.20	

GUARDRAIL

REF. NO.	CENTERLINE STATION FROM	TO	SIDE RT/LT	202 EXIST. GUARDRAIL TO BE REMOVED LIN. FT.	606 GUARDRAIL TYPE 5 LIN.FT	606 ANCHOR ASSEMBLY TYPE A EACH		606 BRIDGE TERMINAL ASSEMBLY TYPE 4 EACH	802 BARRIER REFLECTOR TYPE A 2 EACH
GR-1	167 + 26.67	168 + 34.19	RT	106.25					
GR-2	168 + 65.80	169+ 40.80	RT	75					
GR-3	167 + 11.02	168 + 34.56	LT	125					
GR-4	168 + 65.44	169 + 58.10	LT	93.75					
GR-5	167 + 06.98	168+ 34.11	RT		100	1		1	
GR-6	168 + 65.89	169+ 65.49	RT		93.75	1		1	
GR-7	167 + 17.84	168+ 34.64	LT		93.75	1		1	3
GR-8	168 + 65.36	169+64.52	LT		75	1		1	3
		TOTAL	=	400	362.50	4		4	6

PLAN AND PROFILE

CALC. BY GA DATE 5-5-92
CHKD BY M.P DATE 5-12-94

OHIO
FHWA REGION 5

BRZ-3803 (2)

11
26

HOL 515-2.06

SEEDING				END AREA		VOLUME	
END WIDTH	SQ. YDS.			CUT	FILL	CUT	FILL
45							
	236	50 40 30 20 10 ℄ 10 20 30 40 50		60	30		
		℄ SURVEY SR. 515					
		1010 C=18 2:1 2:1 2:1 F=15 C=41 F=15 2:1 2:1 C=1 1010					
		1000 FL. EL. 1004.50 FL. EL. 1004.50 1000					
		1009.72					
		STA. 167+50				103	41
		1010.30					
40		1010 C=9 2:1 F=4 2:1 C=37 F=10 2:1 2:1 C=5 1010		51	14		
	167	1000 FLEL. 1005.00 FL. EL. 1004.75 1000					
		1009.64					
		STA. 167+00				56	30
		1009.64					
20		1010 F=18 3:1 2:1 C=7 1010		9	18		
		FL. EL. 1005.15 C=2 FL. EL. 1005.00					
		1000 BEGIN TEMP PAVEMENT 1000					
	28	STA. 166+50				4	8
		1009.33					
0		BEGIN EARTHWORK & SEEDING STA. 166+25		0	0		
	431 = TOTAL	50 40 30 20 10 ℄ 10 20 30 40 50		TOTAL =		163	79

LEGEND

TEMPORARY PAVEMENT, AS PER PLAN

BRUNING 44-1042 PLATE 13

CROSS SECTIONS STA. 166 + 25 TO STA 167 + 50

CALC GA BY
DATE 5-5-92
CHKD MP BY
DATE 5-12-92

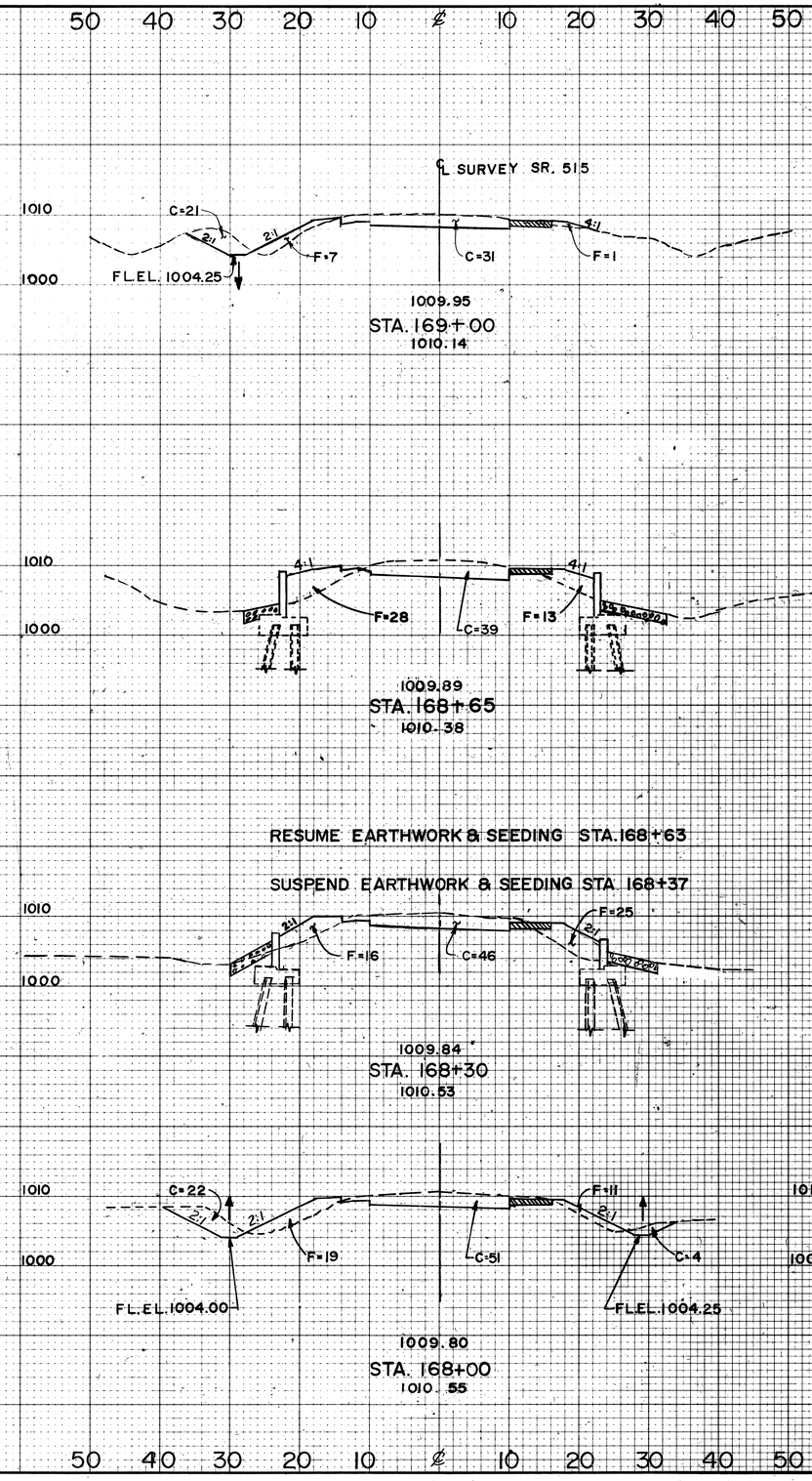
BRZ-3803(2)

OHIO
FHWA REGION 5

12
26

HOL 515-2.06

SEEDING		END AREA		VOLUME	
END WIDTH	SQ YDS	CUT	FILL	CUT	FILL
31		52	8		
	93			62	34
14		39	41		
18		46	41		
	134			84	49
47		77	30		
	256			127	56
483 = TOTAL		TOTAL		273	139



CROSS SECTIONS STA. 168 + 00 TO STA. 169 + 00

CALC BY	GA
DATE	5-5-92
CHKD BY	MP
DATE	5-12-92

BRZ-3803(2)

OHIO

FHWA REGION 5

13
26

HOL 515-2.06

SEEDING END WIDTH	SEEDING 50 YDS
8	
42	
22	Ahead
16	Back
128	
30	
169	
339	= TOTAL

50 40 30 20 10 ℄ 10 20 30 40 50

END EARTHWORK & SEEDING STA. 170+25

℄ SURVEY SR 515

1010
1000

CR. 172

STA. 170+25
1010.71

F=3
3:1
C=3
END TEMPORARY PAVEMENT STA. 170+06

STA. 170+00
1010.41

C=27
2:1
2:1
F=14
FL. EL. 1004.50
C=35
3:1
F=2

1010.03
STA. 169+50
1010.03

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	1
Ahead	0	3	
Back	3	3	
		60	18
62	16		
		106	22
TOTAL		166	41

CROSS SECTIONS STA. 169 + 50 TO STA. 170 + 25

SEEDING	
END WIDTH	SQ YDS

CALC. BY	
DATE	
CHKD. BY	
DATE	

BRZ - 3803 (2)

OHIO

FHWA REGION 5

14
26

HOL - 515 - 2.06

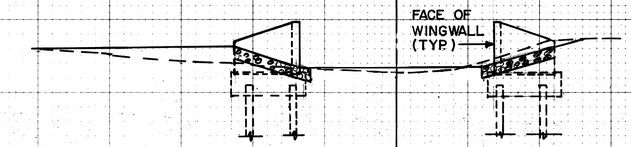
END AREA		VOLUME	
CUT	FILL	CUT	FILL

50 40 30 20 10 ℄ 10 20 30 40 50

℄ CHANNEL

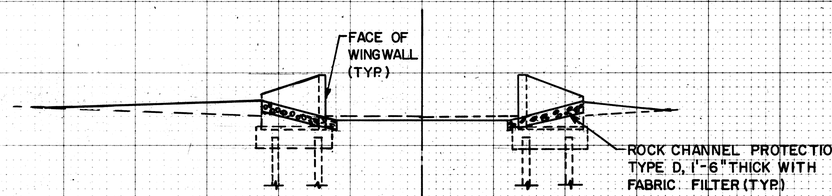
1010
1000
990

STA. 2 + 00



1010
1000
990

STA. 1 + 75



1010
1000
990

STA. 1 + 25

1010
1000
990

STA. 1 + 00

50 40 30 20 10 ℄ 10 20 30 40 50

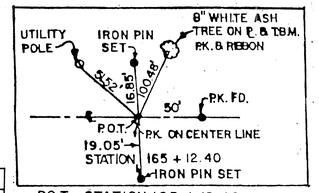
CHANNEL SECTIONS STA. 1+00 TO STA. 2 + 00

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

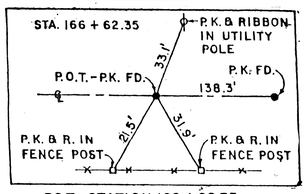
15
26

HOL-515-2.06

CENTERLINE REFERENCE POINTS



P.O.T. STATION 165 + 12.40



P.O.T. STATION 166 + 62.35

TEMPORARY BENCHMARK
FIRST TREE ON PROPERTY LINE, P.K. & RIBBON IN STUMP EL. 1010.05
STA. 165+71.00-100.48' LT.

TEMPORARY BENCHMARK
CORNER OF SLAB S.E. CORNER OF BRIDGE
STA. 170+27 EL. 1010.83
93.5' LEFT

NOTE:
EARTHWORK LIMITS SHOWN ARE APPROXIMATE ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTION.

CURVE DATA

Δ = 13°-50'-35"
D = 6°-00'
Ex = 7.01'
T = 115.92'
L = 230.72'
R = 954.94'
P.I. = 168+00.65

INDICATE TEMPORARY PAVEMENT

PLAN

CENTERLINE REFERENCE POINTS

P.O.T. STATION 168 + 00.65

P.O.T. STATION 170 + 62.45

PROFILE

REVIEWED BY BURGESS & NIPLE, LTD.
S.D.S. 6-9-92

DESIGN DESIGNATION

CURRENT A.D.T. (1991) 1570
DESIGN YEAR A.D.T. (2011) 3232

HYDRAULIC DATA

DRAINAGE AREA = 0.98 SQ. MILES
Q_{100} = 400 CFS Q_{25} = 297 CFS
V_{100} = 4.26 F/S V_{25} = 3.63 F/S
HWD_{100} = 1007.85 HWD_{25} = 1007.15

EXISTING BRIDGE DATA

TYPE: SIMPLE SPAN CONCRETE BEAM ON CONCRETE GRAVITY ABUTMENTS
SPAN: 23'-9" (F/F ABUTMENTS)
ROADWAY: 19'-6" F/F CURB
ALIGNMENT: 6° CURVE
SKEW: NONE
APPROACH SLAB: NONE
WEARING SURFACE: ASPHALT CONCRETE
STRUCTURE FILE NO. 3802582

PROPOSED BRIDGE DATA

TYPE: 24'-0" x 5'-0" PRECAST REINFORCED FLATTOPPED THREE SIDED CONCRETE CULVERT
SPAN: 24'-0" PERPENDICULAR TO STRUCTURE WALL
ROADWAY: 32'-0" F/F GUARDRAIL
ALIGNMENT: 6° CURVE (STRUCTURE PARALLEL TO REFERENCE CHORD)
SKEW: NONE
APPROACH SLAB: NONE
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
WEARING SURFACE: ASPHALT CONCRETE
SUPER ELEVATION 0.03 FT/FT MAX.

R.P. MADISON INTERNATIONAL
ARCHITECTS · ENGINEERS · PLANNERS
2930 EUCLID AVE. CLEVELAND, OHIO 44115

1/10

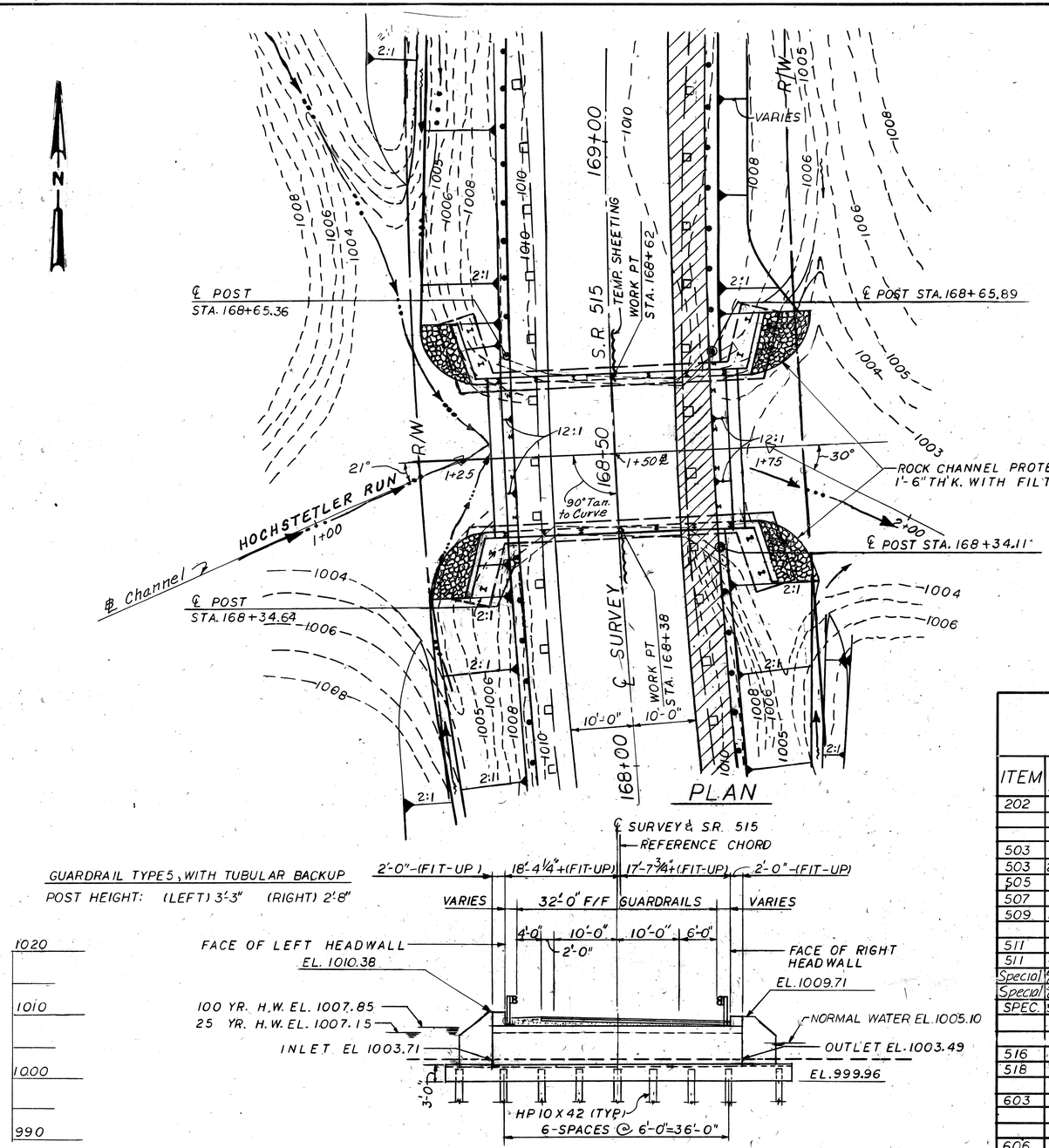
SITE PLAN

BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M. PATEL	JAY	RCW	LJ	8-12-91	

FHWA REGION	STATE	PROJECT		16/26
5	OHIO	BRZ-3803(2)		

HOL-515-2.06



PLAN

PROFILE ALONG ℄ CULVERT

(LOOKING REAR)

NOTE:

① The Type B Waterproofing thruout this plan shall read Membrane Waterproofing sheet Type 2.
② All type D Waterproofing thruout this plan shall read Membrane Waterproofing Sheet type 3.
③ The sides of the structure shall be covered with Membrane Waterproofing sheet type 2.
④ Partial Depth Resin-Bonded Anchoring systems only shall be used as per Standard Drawing GR-2.2.

DESIGN DESIGNATION

CURRENT A.D.T.(1991) 1570
DESIGN YEAR A.D.T.(2011) 3232

HYDRAULIC DATA

DRAINAGE AREA = 0.98 SQ. MILES

Q_{100} = 400 CFS	Q_{25} = 297 CFS
V_{100} = 4.26 F/S	V_{25} = 3.63 F/S
HWD_{100} = 1007.85	HWD_{25} = 1007.15

ESTIMATED QUANTITIES

CALCULATED BY: JMP 11-4-91
CHECKED BY: MP 11-5-91

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION
202	11002	LUMP		STRUCTURE REMOVED, OVER 20' SPAN
503	11100	LUMP		COFFERDAMS CRIB AND SHEETING
503	21300	LUMP		UNCLASSIFIED EXCAVATION
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION
507	12200	1020	LIN.FT.	STEEL PILE HP 10 x 42 (OVER 1000 LIN.FT. TOTAL)
509	15800	7509	LBS	EPOXY COATED REINFORCING STEEL, GRADE 60
511	46000	14	CU.YD.	CLASS C CONCRETE, RETAINING WALL OR WINGWALL
511	46500	55	CU.YD.	CLASS C CONCRETE, FOOTING
Special	67020	57	SQ.YD.	Membrane Waterproofing, Sheet Type 2.
Special	67030	124	SQ.YD.	Membrane Waterproofing, Sheet Type 3.
SPEC.	5126752	50	SQ.YD.	SEALING OF CONCRETE SURFACE (EPOXY) (SEE PROPOSAL NOTES)
516	13600	28	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER 705.03
518	21200	5	CU.YD.	POROUS BACKFILL, WITH FILTER FABRIC
603	70001	40	LIN.FT.	CONDUIT, TYPE A PRECAST REINFORCED FLATTOPPED THREE SIDED CONCRETE CULVERT, AS PER PLAN 24'-0" SPAN x 5'-0" RISE
606	13010	62.5	LIN.FT.	GUARDRAIL, TYPE 5, WITH TUBULAR BACKUP

EXISTING BRIDGE DATA

TYPE: SIMPLE SPAN CONCRETE BEAM ON CONCRETE GRAVITY ABUTMENTS
SPAN: 23'-9" (F/F ABUTMENTS)
ROADWAY: 19'-6" F/F CURB
ALIGNMENT: 8° CURVE
SKEW: NONE
APPROACH SLAB: NONE
WEARING SURFACE: ASPHALT CONCRETE
STRUCTURE FILE NO. 3802582

PROPOSED BRIDGE DATA

TYPE: 24'-0" x 5'-0" PRECAST REINFORCED FLATTOPPED THREE SIDED CONCRETE CULVERT
SPAN: 24'-0" PERPENDICULAR TO STRUCTURE WALL
ROADWAY: 32'-0" F/F GUARDRAIL
ALIGNMENT: 8° CURVE (STRUCTURE PARALLEL TO REFERENCE CHORD)
SKEW: NONE
APPROACH SLAB: NONE
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
WEARING SURFACE: ASPHALT CONCRETE
SUPER ELEVATION: 0.03 FT./FT. MAX.

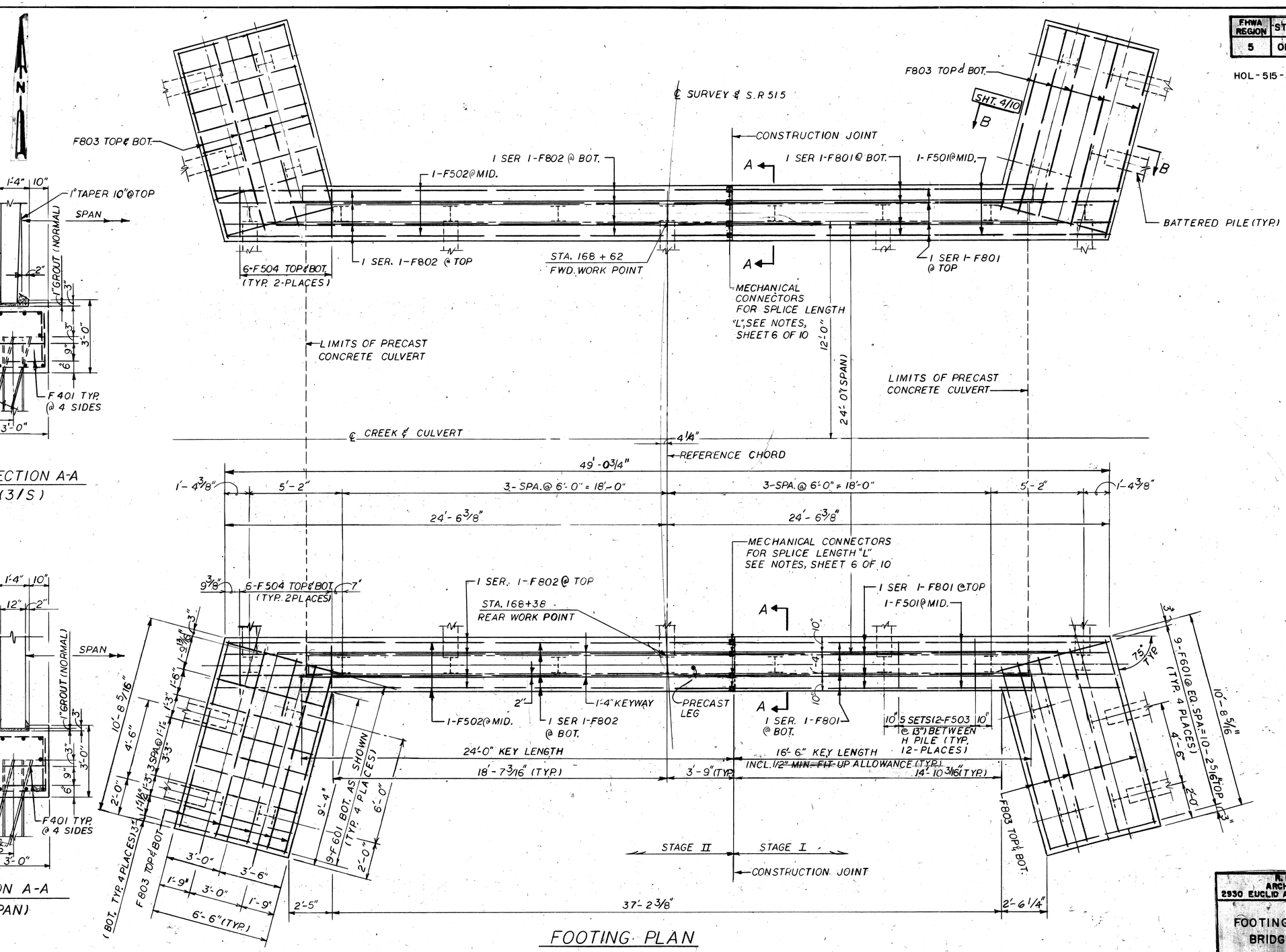
R. R. MADISON INTERNATIONAL 2710
ARCHITECTS · ENGINEERS · PLANNERS
2930 EUCLID AVE. CLEVELAND, OHIO 44115

CULVERT PLAN AND PROFILE
BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.P.	J.L.N.	J.M.P.	L.T.	11-7-91	

FHWA REGION	STATE	PROJECT		
5	OHIO	BRZ-3803(2)		

HOL-515-.206



FOOTING PLAN

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ARCHITECTS · ENGINEERS · PLANNERS
2930 EUCLID AVE. CLEVELAND, OHIO 44115

3/40

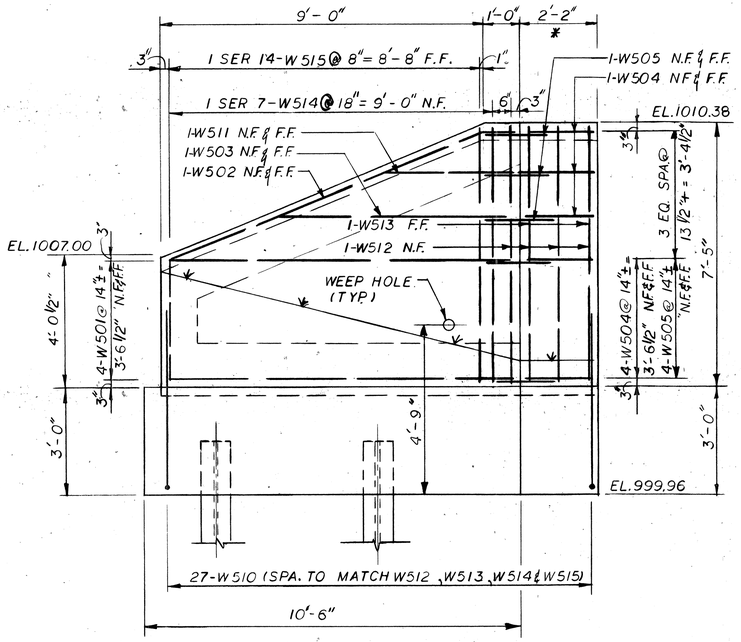
FOOTING PLAN & DETAILS
BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE
A.P.	SCD	J.M.P	LJ	12-MAY

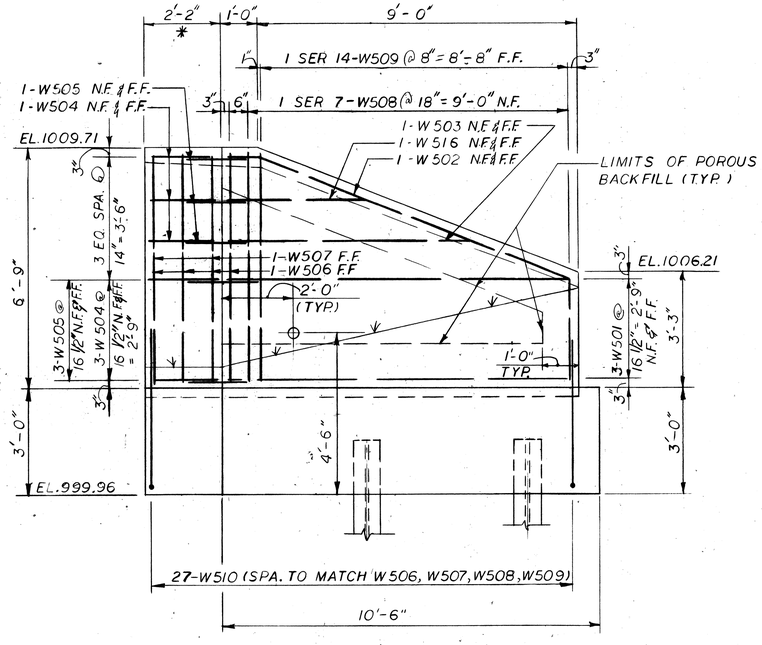
FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

18
26

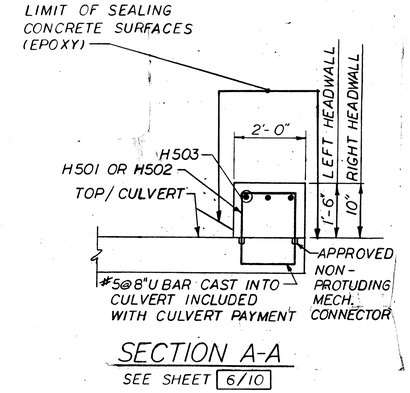
HOL-515-2.06



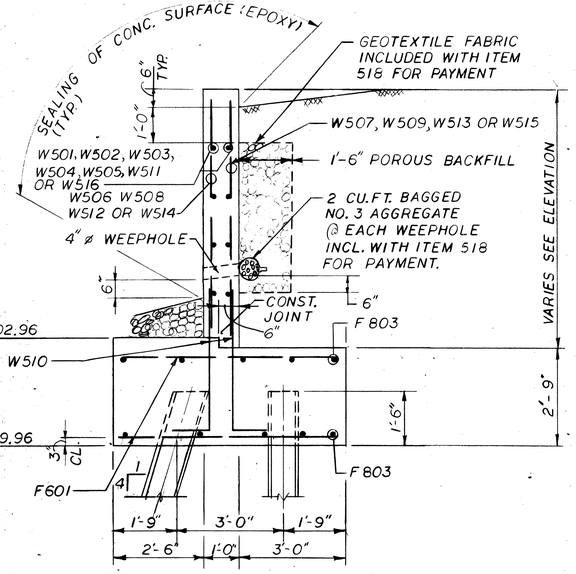
WINGWALL ELEVATION
FORWARD LEFT



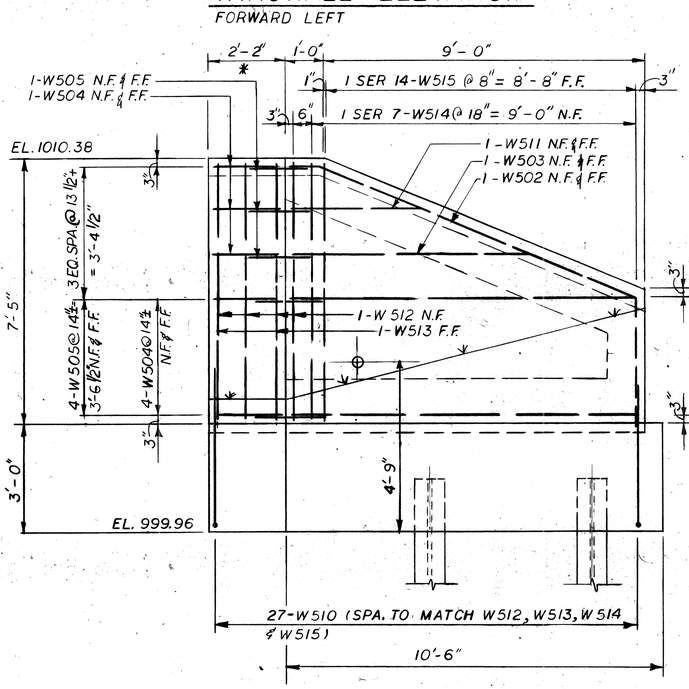
WINGWALL ELEVATION
FORWARD RIGHT



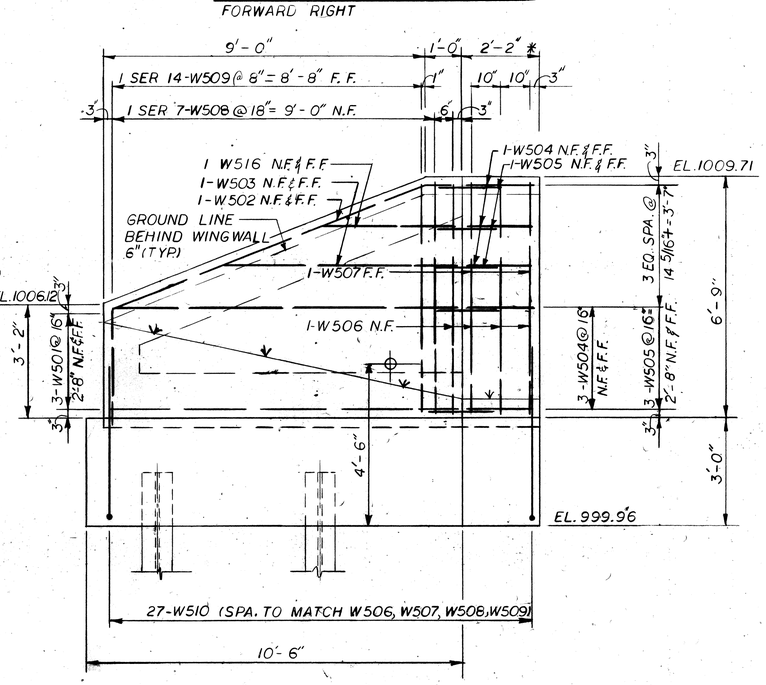
SECTION A-A
SEE SHEET 6/10



WINGWALL SECTION B-B
SEE SHEET 3/10



WINGWALL ELEVATION
REAR LEFT



WINGWALL ELEVATION
REAR RIGHT

* NOT IN SAME PLANE

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4/10

WINGWALL SECTION & ELEVATIONS
BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.P.	RD	JMA	LJ	11-14-91	

FHWA REGION	STATE	PROJECT		19 / 26
5	OHIO	BRZ-3803(2)		

HOL - 515 - 2.06

GENERAL NOTES

REFERENCE SHALL BE MADE TO THE FOLLOWING: STANDARD DRAWINGS: GR-2-2 DATED MAY 6, 1991.

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1989, INCLUDING 1990 + 1991 INTERIM SPECIFICATIONS, AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA: DESIGN LOADING - HS-20-44 AND THE ALTERNATE MILITARY LOADING CONCRETE, CLASS C - COMPRESSIVE STRENGTH - 4000 PSI.

REINFORCING STEEL - ASTM A615, A616 OR A617 - GRADE 60 - MINIMUM YIELD STRENGTH = 60,000 PSI.

REMOVAL OF EXISTING STRUCTURE: AS SHOWN IN STAGE CONSTRUCTION DRAWING, SHEET 7 OF 10.

UTILITY LINES: ALL EXPENSES INVOLVED IN RELOCATING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER SHALL BE APPLIED TO CONCRETE SURFACES AS SHOWN ON SHEET 4 OF 10. SEE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

PILES

SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 33 TONS PER PILE FOR CULVERT AND WING WALL PILES.

MECHANICAL CONNECTORS:

AN APPROVED TYPE OF MECHANICAL CONNECTOR FOR REINFORCING BARS SHALL BE PROVIDED. INSTALLATION OF CONNECTORS SHALL CONFORM WITH MANUFACTURER'S RECOMMENDED PROCEDURES. IF A DOWEL BAR SPLICE TYPE OF CONNECTOR IS FURNISHED, THE MINIMUM DOWEL BAR LENGTH TO BE INCLUDED WITH THE CONNECTOR SHALL BE AS GIVEN BY THE DIMENSION "L" SHOWN ON THE PLANS.
CONNECTORS AND BARS SHALL CONFORM TO THE SAME SPECIFICAITONS, COATING WHICH HAVE BEEN DAMAGED OR WHICH OTHEWISE DO NOT MEET SPECIFICATIONS WITH RESPECT TO COLOR, CONTINUITY AND UNIFORMITY MAY BE REPAIRED AS DIRECTED BY THE ENGINEER OR THEY SHALL BE REPLACED WITH MATERIAL WHICH MEETS THE SPECIFICATIONS.

CONNECTORS AND DOWEL BAR EXTENSIONS SHALL CONFORM WITH ITEM 509 AND BE INCLUDED IN THE BID PRICE PER POUND FOR ITEM 509.

UNLESS INDICATED ON THE DRAWINGS, REINFORCING BARS SHALL BE SPLICED AS FOLLOWS:

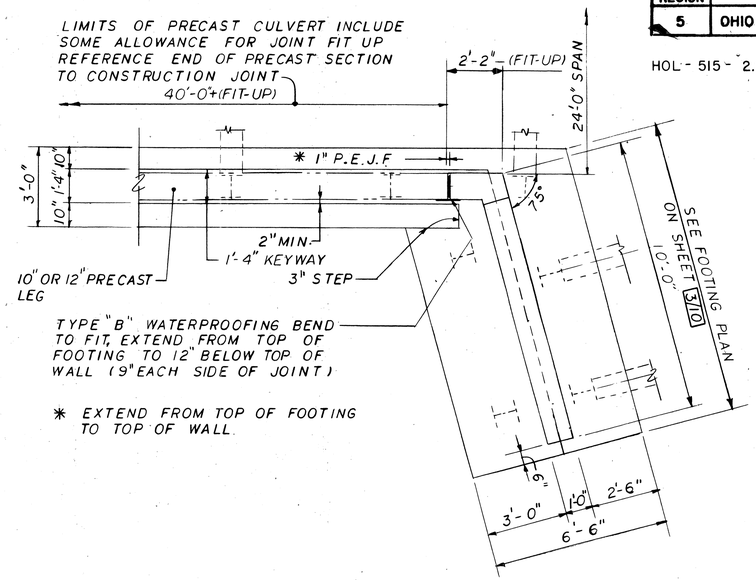
BAR SIZE	TOP BARS	OTHER BARS
# 4	1'-10"	1'-4"
# 5	2'- 5"	1'-8"
# 6	2'-10"	2'-0"
# 7	3'- 7"	2'-7"
# 8	4'- 9"	3'-5"
# 9	6'- 0"	4'-3"
# 10	7'- 8"	5'-6"

TYPE "D" WATERPROOFING

TYPE "D" WATERPROOFING SHALL BE APPLIED TO THE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND 1-FOOT VERTICALLY DOWN THE SIDES. PAYMENT FOR THE WATERPROOFING SHALL BE MADE AT THE CONTRACT PRICE BID PER SQ. YD. FOR ITEM 512, TYPE D WATERPROOFING.

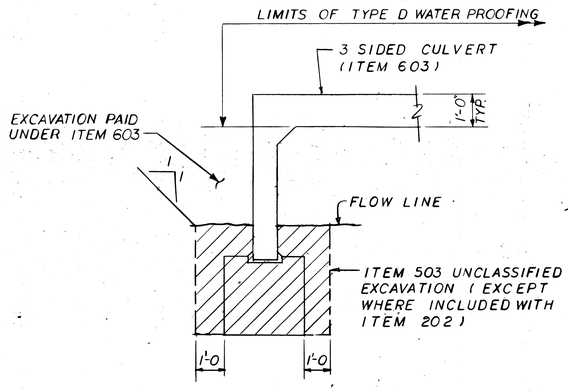
ITEM 518 POROUS BACKFILL WITH FILTER FABRIC

TO ENSURE THAT FINE SOIL PARTICLES INCLUDED WITHIN THE EMBANKMENT DO NOT MIGRATE INTO AND THROUGH THE VOIDS OF THE POROUS BACKFILL MATERIAL, GEOTEXTILE FABRIC, 712.09 TYPE A SHALL BE PLACED AROUND THE 518 POROUS BACKFILL MATERIAL TO THE LIMITS AS SHOWN IN THE PLANS. PAYMENT FOR THE GEOTEXTILE FABRIC SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR THE ITEM 518 POROUS BACKFILL WITH FILTER FABRIC, WHICH SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

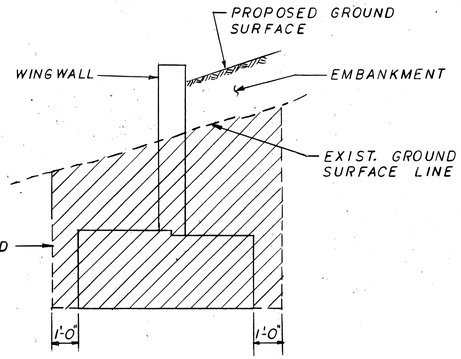


WINGWALL - FOOTING KEYWAY DETAIL

REAR RIGHT SHOWN
FORWARD LEFT, FORWARD RIGHT AND REAR LEFT ARE ALL SIMILAR (SEE FOOTING PLAN)



LIMITS OF UNCLASSIFIED EXCAVATION (CULVERT)



LIMITS OF UNCLASSIFIED EXCAVATION (WINGWALL)

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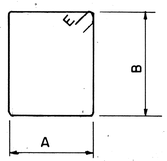
5/10

STRUCTURE NOTES & DETAILS

BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.P	J.M.P	M.P	LJ	11-22-91	

MARK	NO. REQUIRED	LENGTH	TYPE	FOR-WARD	REAR	DIMENSIONS A	B	C	D	E	SERIES INCR.	WEIGHT LBS.
F 401	28	9'-2"	1	14	14	1'-9"	2'-6"			6"		172
F 501	⊕ 4	20'-7"	STR.	2	2							86
F 502	⊕ 4	28'-0"	STR.	2	2							117
F 503	120	6'-5"	2	60	60		2'-1"	2'-6"	2'-1"			804
F 504	48	2'-7"	STR.	24	24							129
F 601	72	6'-0"	STR	36	36							649
F 801	⊕ 1 SER. 16 →	21'-4 1/2"-0"	STR.	8	8						3"	895
F 802	⊕ 1 SER. 16 →	28'-3 1/2"-0"	STR	8	8						3"	1212
F 803	40	10'-4"	STR.	20	20							1103
										SUB TOTAL =		5167
W 501	28	9'-8"	STR.	14	14							282
W 502	8	10'-2"	3	4	4	0'-9"	9'-5"	8'-9"	3'-4 9/16"			85
W 503	8	6'-10"	STR.	4	4							57
W 504	52	1'-11"	STR.	26	26							104
W 505	52	3'-4"	3	26	26	1'-4"	2'-0"	0'-6 1/4"	1'-11 3/16"			181
W 506	8	6'-5"	STR.	4	4							54
W 507	4	6'-8"	STR.	2	2							28
W 508	1 SER. 14	6'-5 1/2"-11"	STR.	7	7						7"	68
W 509	1 SER. 28	6'-8 1/2"-3'-2"	STR.	14	14						3 1/4"	144
W 510	108	5'-0"	4	54	54	0'-10"	4'-4"					563
W 511	4	3'-9"	STR.	2	2							16
W 512	8	7'-1"	STR.	4	4							59
W 513	4	7'-4"	STR	2	2							31
W 514	1 SER. 14	7'-1 1/2"-8"	STR.	7	7						6 13/16"	78
W 515	1 SER. 28	7'-6 1/2"-11"	STR.	14	14						3 1/8"	164
W 516	4	3'-11"	STR.	2	2							16
										SUB TOTAL		1930
H 501	⊕ 39	3'-9"	2			1'-3"	1'-6"	1'-3"				153
H 502	⊕ 39	2'-5"	2			0'-7"	1'-6"	0'-7"				98
H 503	6	25'-8"	STR.									161
										SUB TOTAL =		412
										GRAND TOTAL =		7509



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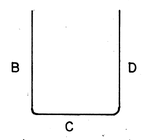

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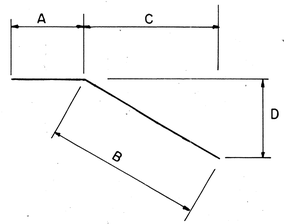

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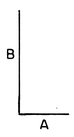
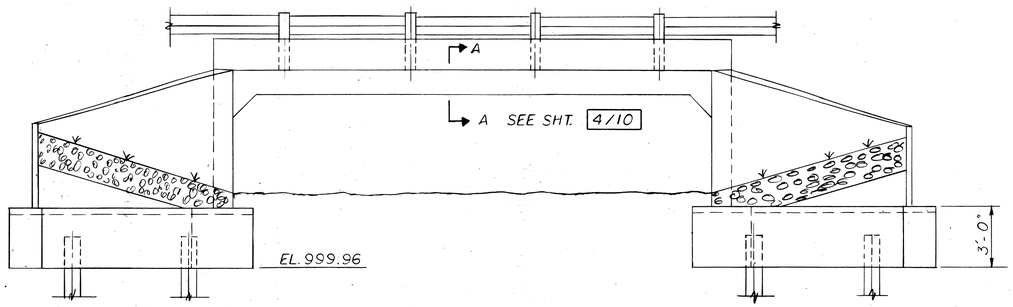


4

BAR TYPES



HEADWALL SECTION

⊕ BARS REQUIRE MECHANICAL CONNECTORS FOR SPLICING

NOTES:

1. REINFORCING STEEL SAMPLES REFER TO CMS SECTION 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURE BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.
2. ALL DIMENSIONS ARE OUT TO OUT.
3. "STR." IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.
4. REFER TO CMS SECTION 509.05 FOR STANDARD BEND DIMENSIONS.
5. ALL REINFORCING STEEL SHALL BE EPOXY COATED

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

20/26

HOL-515-2.06

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2930 EUCLID AVE. CLEVELAND, OHIO 44115

6/10

REINFORCING LIST

BRIDGE NO. HOL-515-0209

OVER

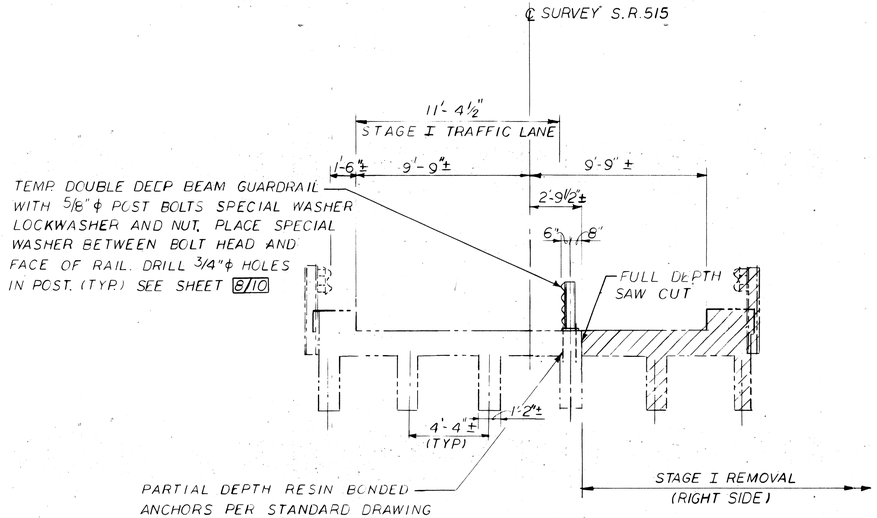
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
M.P	JMP	M.P	LJ	11-14-91	

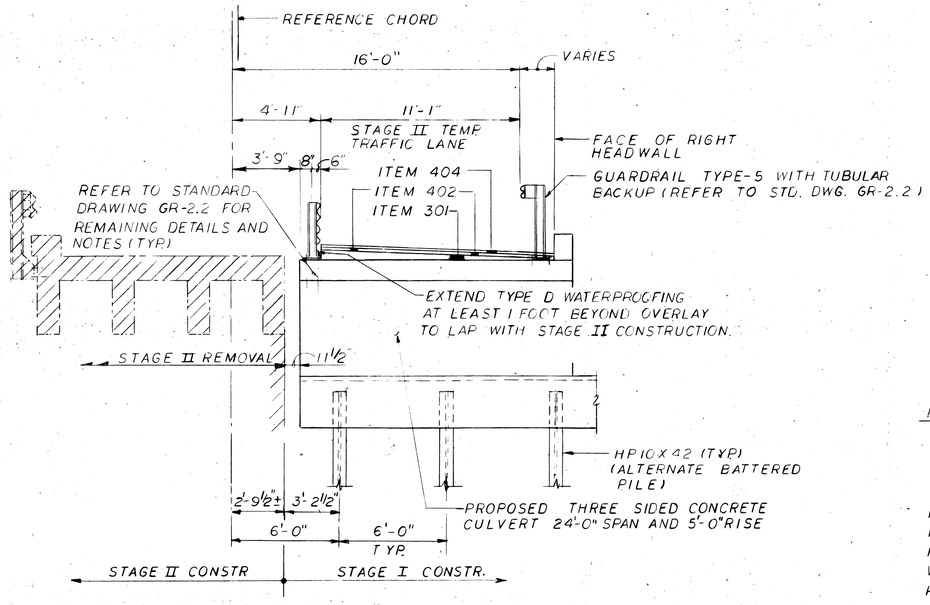
FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

21/26

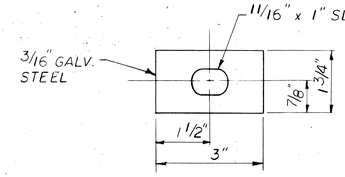
HOL-515-2.06



STAGE I CONSTRUCTION



STAGE II CONSTRUCTION



NOTE
PLACE SPECIAL WASHER BETWEEN POST BOLT HEAD OR NUT AND THE FACE OF RAIL.

SPECIAL WASHER

CONSTRUCTION PROCEDURE NOTES:

1. MAINTAIN TRAFFIC.
2. PROVIDE TEMPORARY CONCRETE BARRIER AND GUARDRAIL ON LEFT SIDE FOR STAGE I REMOVAL AND CONSTRUCTION.
3. TRANSFER TRAFFIC TO LEFT SIDE.
4. PROVIDE TEMPORARY SHEETING TO PERMIT REMOVALS AND CONSTRUCTION.
5. REMOVE RIGHT SIDE (SHOWN AS STAGE I REMOVAL).
6. CONSTRUCT STAGE I (RIGHT SIDE). COMPLETE INCLUDING ITEM 404 - ASPHALT CONCRETE.
7. PROVIDE TEMPORARY CONCRETE BARRIER AND GUARDRAIL ON STAGE I CONSTR. (RIGHT SIDE) AND MAINTAIN TRAFFIC ON STAGE I.
8. REMOVE REMAINDER OF THE EXISTING STRUCTURE (SHOWN AS STAGE II REMOVAL).
9. CONSTRUCT STAGE II (LEFT SIDE).
10. REMOVE TEMPORARY CONCRETE BARRIER AND GUARDRAIL.

NOTE:

PARTIAL DEPTH RESIN BONDED ANCHORS ARE USED REMOVE PRUTRUDING PORTIONS OF ANCHORS PRIOR TO PLACEMENT OF TYPE D WATER PROOFING. THIS WORK SHALL BE INCLUDED WITH ITEM 614 FOR PAYMENT.

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STAGE CONSTRUCTION

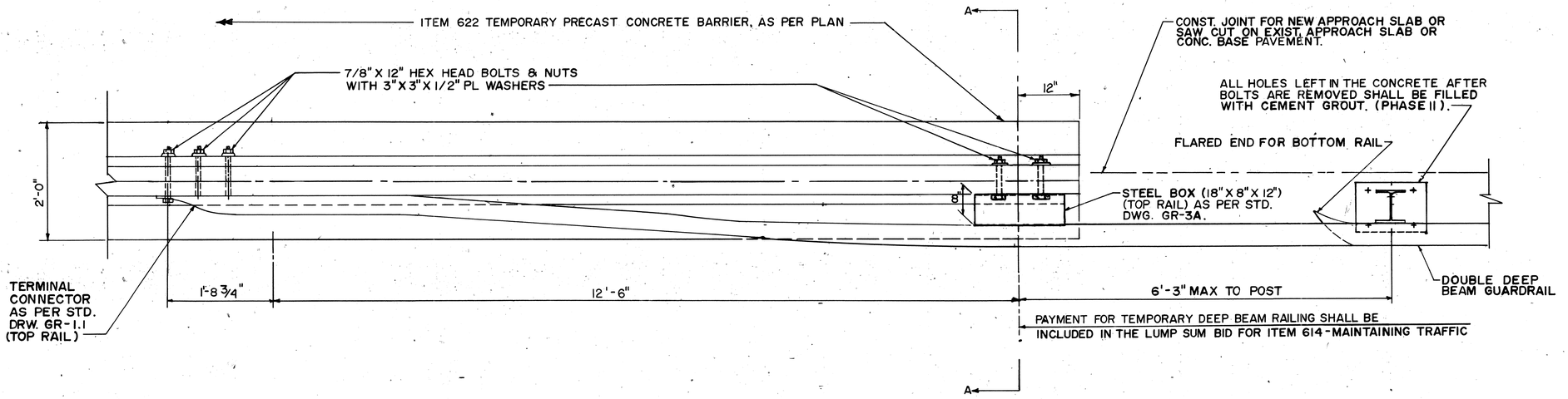
BRIDGE NO. HOL-515-0209
OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.J	J.M.P	R.C.W	M.P	4-19-91	

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

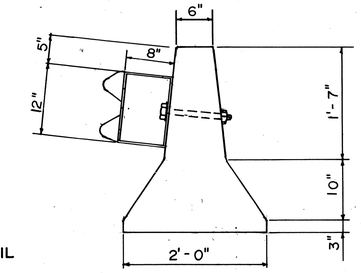
22
26

HOL-515-2.06



DETAIL

CONNECTOR BETWEEN TEMPORARY RAILING AND TEMPORARY CONCRETE BARRIER
STAGE I & 2

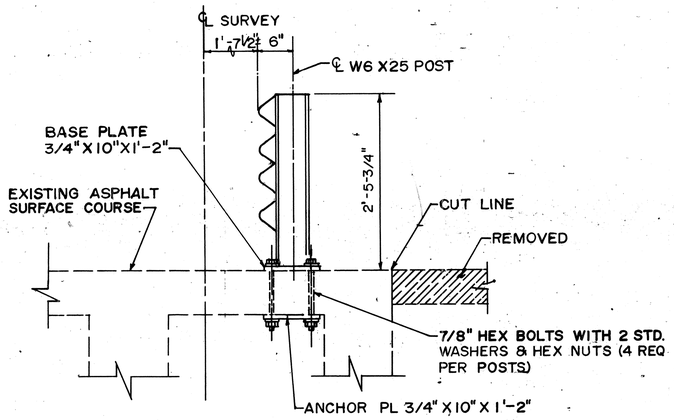


SECTION A-A

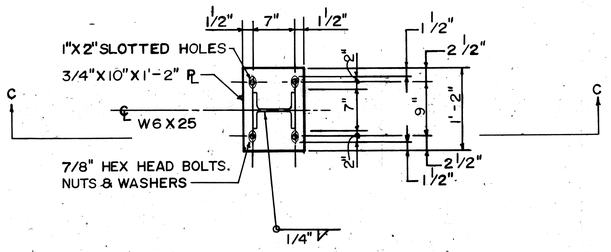
NOTES:

COST OF ALL MATERIAL AND INSTALLATION OF THE CONNECTOR BETWEEN THE TEMPORARY RAILING AND TEMPORARY CONCRETE BARRIER SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC. SEE ROADWAY QUANTITIES FOR PAYMENT.

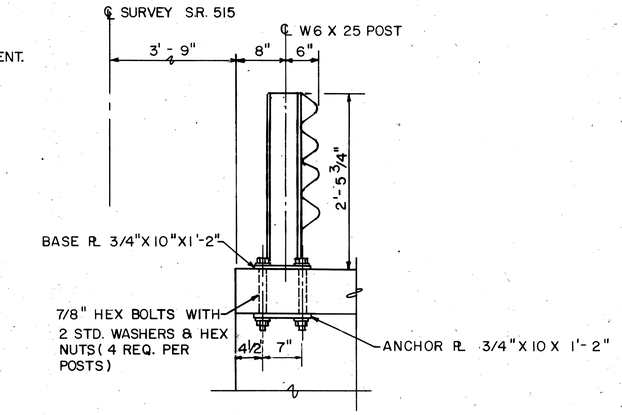
FOR DETAILS NOT SHOWN SEE STD. DWG. GR-1.1 & GR-1.2



SECTION C-C
TEMPORARY GUARDRAIL FOR STAGE I CONSTRUCTION



PLAN
TEMPORARY GUARDRAIL FOR STAGE CONSTRUCTION



SECTION C-C
TEMPORARY GUARDRAIL FOR STAGE II CONSTRUCTION

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2930 EUCLID AVE. CLEVELAND, OHIO 44115

8/10

TEMPORARY GUARDRAIL DETAILS
BRIDGE NO. HOL-515-0209 OVER
HOCHSTETLER RUN

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
GA	WJS.	MP	LJ	5-18-12	

FHWA REGION	STATE	PROJECT	
5	OHIO	BRZ-3803(2)	

23
26

HOL-515-2.06

11/3/88

ITEM 603-Precast Reinforced Concrete Flat Topped Three-sided Culverts

General

Where the plans call for "Item 603 Precast Reinforced Concrete Flat Topped Three-sided Culverts " the culverts shall be manufactured to comply with the following.

These Culverts shall be flat deck structures with a minimum span of 14 feet and a minimum rise of 4 feet; and a maximum span of 34 feet and maximum rise of 10 feet. Minimum wall and deck thicknesses shall be 10 inches and 12 inches respectively, measured under the haunch and at the centerline of the span.

These culverts are intended to be used for the conveyance of storm water, and will be subjected to earth and highway loadings. The culverts are designated by clear span, measured perpendicular to the structure walls, and opening rise. The requirements of the Construction and Material Specifications (CMS) Item 603 Type A conduit shall apply except as modified hereinafter.

Basis of Acceptance

Acceptability of the three-sided culvert produced in accordance with this note shall be determined by the results of the concrete compressive strength tests, by the material requirements described hereinafter and by inspection of the finished product. The manufacturer shall submit shop drawings for review and approval. Manufacture shall not begin until written approval of the submitted drawings has been recieved from the Bureau of Location and Design.

Materials

Cement - Portland cement shall conform to the requirements of AASHTO M 85.

Aggregates - Fine aggregates shall be a natural sand conforming to the CMS 703.02. Course aggregate shall have a standard size designation from a number 5 to a number 8 inclusive as specified in CMS 703.01. The quality requirements of CMS 703.02 shall apply.

Admixtures - Air entraining admixtures conforming to CMS 705.10 and Chemical admixtures conforming to CMS 705.12 Types A, B, D, or F may be used.

Steel Reinforcement - Reinforcement shall consist of welded wire fabric conforming to CMS 709.10 or 709.12, or deformed billet steel bars conforming to CMS 709.01, Grade 60. Both mats of top slab reinforcing and exterior wall mat reinforcing shall be epoxy coated as per CMS 709.00 or 709.14
unless the depth of fill on the culvert measured at the edge of roadway pavement exceeds 3 ft. In lieu of epoxy coated reinforcing, a calcium nitrite-based corrosion inhibiting concrete admixture may be used. The admixture shall conform to ASTM C 494 type C. The calcium nitrite shall be a minimum of 2% calcium nitrite solids by weight of cement. Payment will be included in the bid price for the three-sided culvert.

Design

The culvert design shall be in accordance with the AASHTO standard specifications for highway bridges. The culvert dimensions shall be as shown, subject to the permissible variations contained hereinafter. The minimum concrete compressive strength shall be 5000 p.s.i. Approved reinforcement designs for the structure sections shown are on record in the Bureau of Bridges and Structures, rating and Inventory section and in the District Bridge office.

Modified and Special Designs - The manufacturer may request approval by the purchaser of modified designs which differ from the approved designs.

Placement of Reinforcement - The concrete cover dimension over reinforcement shall be a minimum of 1". When the earth cover over the culvert deck is less than 3 ft. measured at the edge of roadway pavement the minimum concrete cover dimension over the top line of reinforcement in the deck shall be 2". When calcium nitrite-based corrosion inhibiting admixture is used the minimum concrete cover over all exterior reinforcement shall be 2". The clear distance of the end circumferential wires shall not be less than 5/8 in. nor more than 2 in. from the ends of the culvert. Reinforcement shall be assembled utilizing any combination of single or multiple layers (3 maximum) of welded wire fabric or steel bars. The welded wire fabric shall be composed of circumferential and longitudinal wires meeting the spacing requirements hereinafter. The ends of the longitudinal reinforcement shall not be more than 2 in. from the ends of the culvert. The exposure of the ends of longitudinal reinforcement, and spacers used to position the reinforcement shall not be cause for rejection.

Reinforcing development, splices, and spacings
Exterior corner reinforcement shall be fully developed or extend 12 In. past the point of peak stress. For deformed steel bars (CMS 709.01) equal leg 90 degree bends with leg lengths as follows: #3-13", #4-17", #5-21", #6-34", #7-40", and #8-40" will satisfy this development criteria. The development length for welded wire fabric (CMS 709.10 or 709.12) shall conform to AASHTO standard specifications for highway bridges.

Splices in circumferential reinforcement shall be made by lapping and not by welding. Lap lengths shall be as per AASHTO standard specifications for highway bridges.
Spacing center to center of the circumferential wires in a fabric sheet shall not be less than 2 In. nor more than 4 In. The spacing center to center of the longitudinal wires or bars shall not be more than 8 In. Where circumferential reinforcement is composed of bars, crack control criteria shall be checked. Calculations performed by a registered professional engineer verifying that the proposed bar spacings meet the crack control criteria shall be submitted to the purchaser.

Joints

The precast reinforced concrete flat topped three-sided culvert sections shall be produced with a grout filled keyway. The keyway shall provide a void volume equivalent to that of 12 " prestressed beam as per Std. Dwg. PSBD-1-81. The keyway surfaces shall be given a medium sandblast, 2000 p.s.i. water blast, or a thorough wire brushing at the plant within four days prior to leaving the plant. The ends shall be of such design and the ends of the culvert sections so formed that when they are laid together they will make a continuous line of culverts with a smooth interior free of appreciable irregularities, all compatible with the permissible variations hereinafter.

Mortar for the keyway shall be a non-shrinking non-metallic mortar having a minimum compressive strength at 28 days of 5000 p.s.i. according to the Corps of Engineers Specification CRD-C621 when prepared to a moderate fluidity (124-145% @ 5 drops). The mortar or grout shall also meet all other requirements of Specification CRD-C621. A list of approved mortars will be maintained by the ODOT Testing Laboratory located at 1600 West Broad Street In Columbus, Ohio 43223. The mortar shall be prepared, placed and cured in accordance with the manufacturer's recommendations. Before mortaring the keyway shall be thoroughly clean of all dirt, dust and other foreign matter. The keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyway.
The joint exterior outside the limits of the
Type D waterproofing shall be covered with a minimum of a 9 inch wide wrap centered on the joint. The external wrap shall be as per ASTM C-877, or Petrotac as manufactured by Phillips Fiber Corp. Care shall be exercised to keep the joint wrap in its proper location during backfilling.

Manufacture and Construction

Mixture - Aggregates, cement, and water shall be proportioned and mixed in a batch mixer to produce a homogeneous concrete, meeting the strength requirements as stated. In no case however, shall the proportion of portland cement be less than 564 lb./C.Y. of concrete. The hardened concrete shall contain a minmum 4 percent entrained air.

Forms- The forms used shall be sufficiently rigid and accurate to maintain the culvert dimensions within the permissible variations given hereinafter. All the casting surfaces shall be of a smooth material.

Curing - The culvert shall be cured for a sufficient length of time so that the concrete will develop the specified compressive strength in 28 days or less. Any one of the following methods of curing or combinations thereof shall be used for culvert sections

Steam Curing - The culvert sections may be low pressure, steam-cured by a system that will maintain a moist atmosphere.

Water Curing - The culvert sections may be water cured by any method that will keep the sections moist.

Forms Left in Place - An accelerated overnight cure accomplished through the use of an external heat source may be used provided moisture loss from exposed surfaces is minimized. The maximum temperature increase or decrease shall be 40 degrees Fahrenheit per hour. The initial application of the heat shall be two hours after the final placement of concrete to allow the initial set to take place.

Handling - Devices or holes shall be permitted in each culvert section for the purpose of handling. However, not more than four holes may be cast or drilled in each section. The holes shall be tapered unless drilled, and before backfilling the tapered holes shall be filled with portland cement mortar, or with precast concrete plugs which shall be secured with portland cement mortar or other approved adhesive. Drilled holes shall be filled with portland cement mortar. Holes shall be covered on the exterior with the joint wrap material. This wrap shall have a minimum length and width of 9".

Where the culvert is to be placed in a trench, a minimum trench width of 2 ft. on each side of the conduit shall be required. Where the culvert is above the existing ground, the CMS 603.03 requirement that the embankment be constructed to at least the spring-line before trenching is waived.

Physical Requirements

Test Specimen - Concrete compressive strength shall be determined from compression tests made on cores. For each continuous production run, each group of 15 culvert sections of a single size or fraction thereof shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than 3 consecutive days.

Compression Testing of Cores: Cores shall be obtained and tested for compressive strength in accordance with the provisions of ASTM C 497. One core shall be cut from a section selected at random from each group of 15 culvert sections or fraction thereof of a single size from each continuous production run.

Acceptability by core tests: The compressive strength of the concrete in each group of culvert sections defined above is acceptable when the core test strengths are equal to or greater than the design concrete strength.

When the compressive strength of the core tested is less than the design concrete strength, the culvert section from which that core was taken may be cored again. When the compressive strength of the new core is equal to or greater than the design concrete strength, the compressive strength of the concrete in that group of culvert sections is acceptable.

When the compressive strength of any new core is less than the design concrete strength, the culvert section from which that core was taken shall be rejected. Two culvert sections from the remainder of the group shall be selected at random and one core shall be taken from each. If the compressive strength of both cores is equal to or greater than the design concrete strength, the compressive strength of the remainder of that group of culvert sections is acceptable. If the compressive strength of either of the two cores tested is less than the design concrete strength, each culvert of the remainder of the group shall be cored and accepted individually, and any of these culvert sections that have cores with less than the design concrete strength shall be rejected.

Plugging Core Holes - The core holes shall be plugged and sealed by the manufacturer in a manner such that the culvert section will meet all of the test requirements of this proposal. Culvert sections so sealed shall be considered satisfactory for use.

Coring equipment - Every manufacturer furnishing culvert sections under this proposal shall furnish equipment and personnel necessary to obtain the cores.

Permissible Variations

Internal Dimensions - The internal dimension shall vary not more than 2 In. from the design dimensions. The haunch dimensions shall vary not more than 3/4 In. from the dimensions shown.
Deck and Wall Thickness - The deck and wall thickness shall not be less than that shown by more than 3/4 In. A thickness more than that required shall not be cause for rejection.
Length of Opposite Surfaces - Variations in laying lengths of two opposite surfaces of the culvert sections shall not be more than 1 In., except where beveled ends for laying of curves are specified.

9/10

PRECAST REINFORCED CONCRETE FLAT TOPPED THREE-SIDED CULVERTS

FHWA REGION	STATE	PROJECT		
5	OHIO	BRZ-3803(2)		

24/26

HOL-515 - 206

Length of Section - The under run in length shall not be more than 1/2 in. in any culvert section.

Position of Reinforcement - The maximum variation in the position of the reinforcement shall be ± 3/8 inch, except the cover over the reinforcement for the external surface of the top slab shall not be less than 2 inches for earth covers less than 3 ft. The above tolerances or cover requirements do not apply to mating surfaces of the joint.

Area of Reinforcement - The areas of steel reinforcement shall be the design steel areas per linear ft. Steel areas greater than those required shall not be cause for rejection. The permissible variation in diameter of any reinforcement shall conform to the tolerances prescribed in the ASTM specification for that type of reinforcement.

Workmanship and Finish

The culverts shall be substantially free of fractures. All surfaces shall have a smooth finish. The ends shall be normal to the walls and center line within the limits of variations given above, except where beveled ends are specified.

Culverts may be repaired, if necessary, because of occasional imperfections in manufacture, handling damage, or construction. Repairs shall be made in accordance with CMS 519. No additional payment will be made for culvert repairs. Repairs will be acceptable if in the opinion of the purchaser the repairs are sound, properly finished and cured, and the repaired culvert conforms to the requirements contained hereinabove.

Culverts shall be subject to rejection for failure to conform to any of the requirements contained hereinabove or any of the following:

Fractures or cracks passing through the slab or wall.
Defects that indicate imperfect proportioning, mixing, and forming.
Honeycombed or open texture.
Precast Damaged ends, where such damage would prevent making a satisfactory joint.

Inspection

The quality of materials, the process of manufacture, and the finished culvert shall be subject to inspection by the purchaser.

Marking

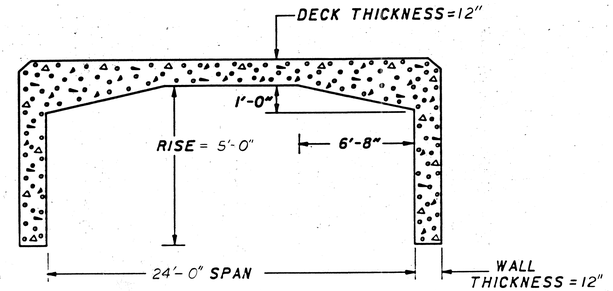
The following information shall be clearly marked on the interior of the culvert by indentation, waterproof paint, or other approved means:

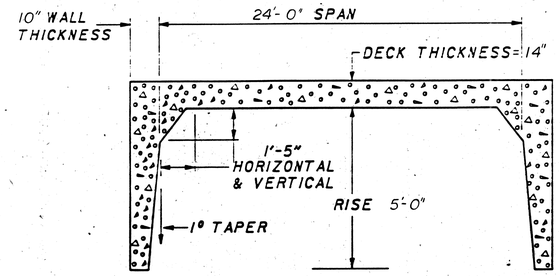
Culvert span and rise
Design earth cover
Date of manufacturer
Name or trademark of the manufacturer

Basis of Payment

The accepted quantity of conduit of the size specified will be paid for at the contract unit price per linear foot, complete in place. Payment will be made under:

Item	Unit	Description
603	Linear Foot	24'-0" span x 5'-0" rise Conduit, Type A Precast Reinforced Concrete Flat Topped Three-sided Culvert As Per Plan.





NOTE:
Three sided culvert wall and top slab thicknesses shown on the plans were obtained from the manufacturers at the time the plans were prepared. If the wall and/or top slab thickness of the culvert proposed are different from what is shown on the plans, a marked copy of the project plans including all plan notes and details showing all items affected by the different culvert dimensions, shall be submitted for approval with the shop drawnings. All work required to accommodate any revised dimension shall be at no extra cost to the State.

10/10

PRECAST REINFORCED CONCRETE FLAT TOPPED THREE-SIDED CULVERTS

PROPERTY MAP

FIRST QTR. WALNUTCREEK TWP.

RANGE 5W TOWNSHIP 9N OF CONNECTICUT WESTERN RESERVE SCHOOL LANDS

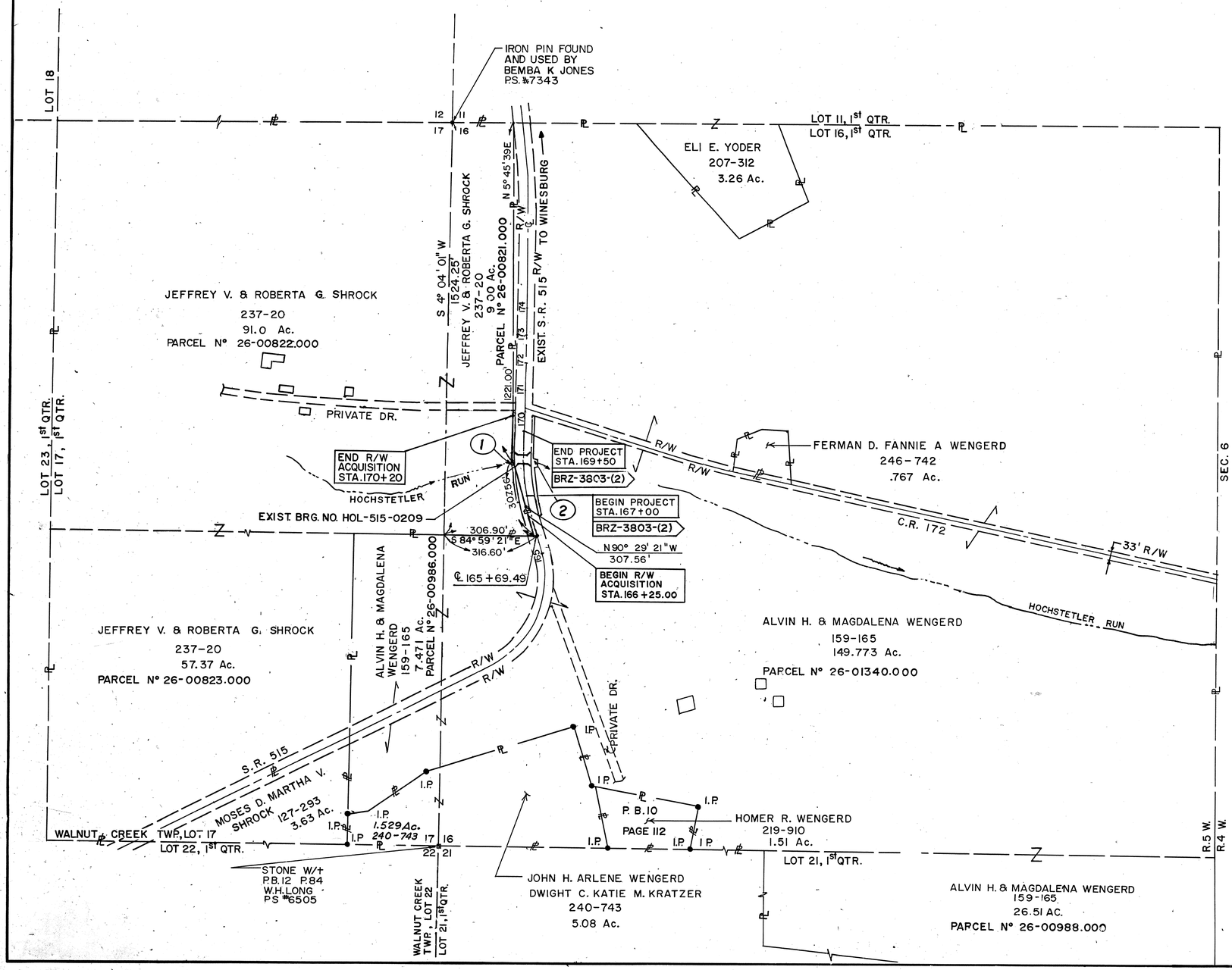
0 100 200 400 600

SCALE IN FEET

FHWA REGION	STATE	PROJECT	
5	OHIO	HOL-515-2.06	

25/26

RIGHT OF WAY PLAN 1/2



INDEX OF OWNERS

① JEFFREY V. & ROBERTA G. SHROCK
② ALVIN H. & MAGDALENA WENGERD

N

UTILITY OWNERS

SYMBOL	TYPE	NAME & ADDRESS
(T)	TELEPHONE	G.T.E. TELEPHONE OPERATIONS P.O BOX 629 NEW PHILADELPHIA, OH. 44663 (216) 364-0363
(G)	GAS	BELDEN BRICK CO. P.O. BOX 910 CANTON, OHIO 44701 (216) 852-2424
(P)	ELECTRIC	PUBLIC PROJECT COORDINATOR OHIO POWER CO. 215 NORTH FRONT STREET COLUMBUS, OHIO 43215
(TV)	TV CABLE	MW-1 CABLE SYSTEM 35 INDUSTRIAL DRIVE MARTINSVILLE, INDIANA 46151 (317) 342-1370

REV	DATE	DESCRIPTION
DIST. 11	10-7-93	Rev. Address for Ohio Power Co. and Added TV Cable Co.
DIST. 11	8-5-93	Rev. Gross Take For Par. No. 1
DIST. 11	5-10-93	Changed Parcels 1-WD & 2-WD to Parcels 1 and 2 (Highway Easements).
	3-15-93	PLAN COMPLETED

PROPERTY MAP

HOLMES COUNTY

WALNUTCREEK TWP. 1st QTR.

LOT 16, TWP. 9, RANGE 5 OF CONNECTICUT WESTERN RESERVE SCHOOL LANDS

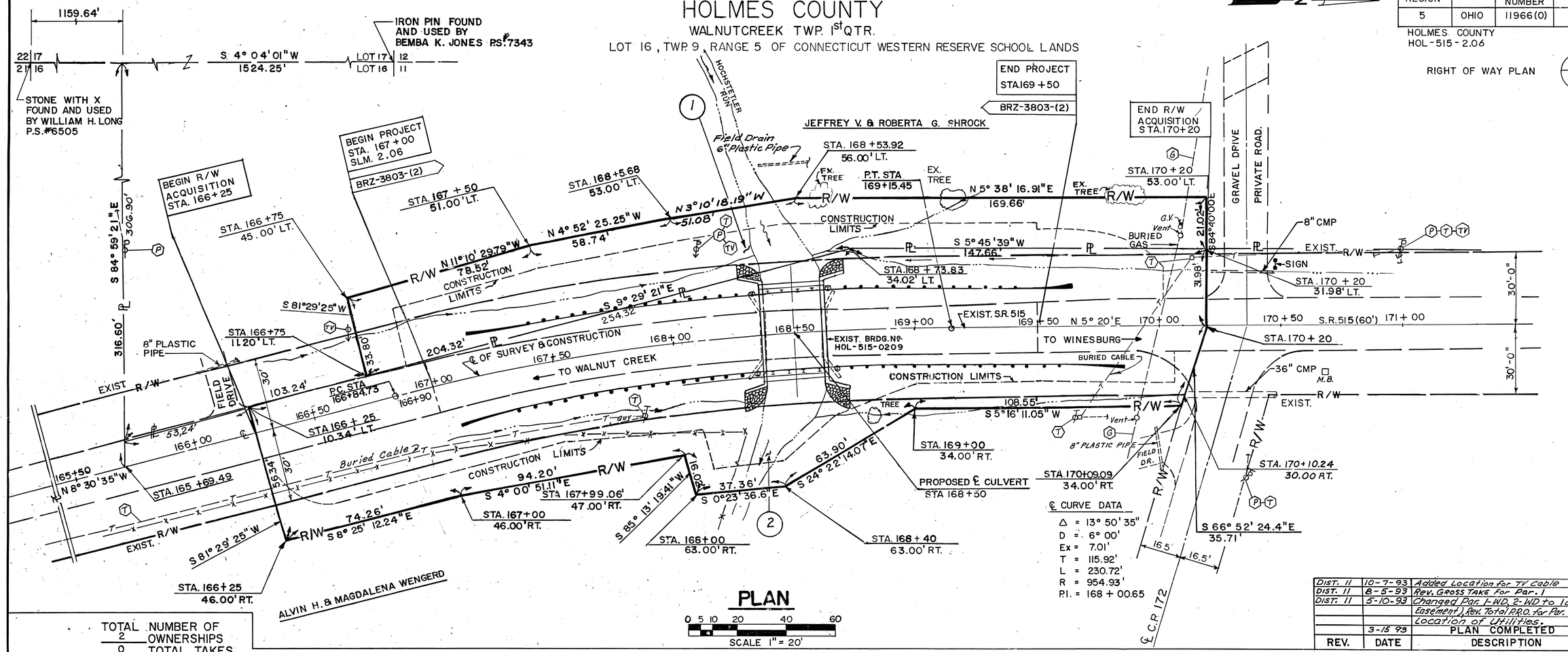
FHWA REGION	STATE	STATE PROJECT NUMBER	
5	OHIO	11966(0)	

HOLMES COUNTY
HOL-515-2.06

RIGHT OF WAY PLAN

26/26

2/2



PLAN

0 5 10 20 40 60

SCALE 1" = 20'

TOTAL NUMBER OF
2 OWNERSHIPS
0 TOTAL TAKES
0 OWNERSHIPS WITH STRUCTURES INVOLVED
0 OWNERSHIPS WITH "P" ITEMS

REV.	DATE	DESCRIPTION
DIST. 11	10-7-93	Added Location for TV Cable
DIST. 11	8-5-93	Rev. Gross Take for Par. 1
DIST. 11	5-10-93	Changed Par. 1-WD, 2-WD to 1 and 2 (Highway Easement), Rev. Total P.R.O. for Par. 1 and Rev. Location of Utilities.
	3-15-93	PLAN COMPLETED

SUMMARY OF ADDITIONAL RIGHT OF WAY

NOTE:
RECORD AREA AFTER OUTSALES MINUS TOTAL P.R.O. MINUS NET TAKE EQUALS NET RESIDUE.

PARCEL	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA(AC)	TOTAL P.R.O.(AC)	GROSS TAKE(AC)	P.R.O. IN TAKE(AC)	NET TAKE(AC)	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS AQUIRED BOOK	AS AQUIRED PAGE
1	JEFFREY V. & ROBERTA G. SHROCK	2	237	20	157.37	0.72	0.222	0.048	0.174	NO	156.476	——	STATE	AREA TO BE ACQUIRED IS FROM TRACT NO. - 9.00 AC. PP NO. 26-00821.000		
2	ALVIN H. & MAGDALENA WENGERD	2	159	165	183.754	4.15	0.606	0.476	0.130	NO	5.02	174.454	STATE	AREA TO BE ACQUIRED IS FROM 149.773 TRACT P.P. NO. 26-01340.000		

SUMMARY AND RIGHT OF WAY PLAN

TE-110
668-6-73

HOLMES COUNTY
HOL-515-2.09

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE HIGHLY DISSECTED UNGLACIATED PORTION OF THE ALLEGHENY PLATEAU REGION, ON THE NARROW FLOODPLAIN OF AND OVER BRANCH OF WALNUT CREEK, IN AN AREA WHERE EXTREMELY DEEP VALLEY AND ALLUVIAL DEPOSITS OVERLIE CLAY SHALE BEDROCK, OF PENNSYLVANIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF ONE DRIVE SAMPLE BORING AND ONE DRIVE SAMPLE-CORE BORING MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM ROTARY AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED BETWEEN JUNE 30 AND JULY 6, 1991.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT INTERVALS OF EXTREMELY LOOSE TO EXTREMELY DENSE UNSTRATIFIED BASIC SILT, SAND AND CLAY MODIFIED WITH GRAVEL, COAL BLOSSOM AND VARYING AMOUNTS OF EACH OTHER THAT GRADUALLY INCREASE IN DENSITY (ERRATIC AT TIMES) WITH INCREASE IN DEPTH OVERLIE A GENTLY SLOPING BEDROCK SURFACE. TEST BORING B-1 ENCOUNTERED BEDROCK SURFACE AT 43.0 FOOT DEPTH, ELEVATION 967.5 FEET AND WAS ADVANCED TO 47.0 FOOT DEPTH, ELEVATION 963.5 FEET WHERE THE BORING WAS TERMINATED AFTER HAVING PENETRATED 4.0 FEET BELOW BEDROCK SURFACE. TEST BORING B-2 ENCOUNTERED BEDROCK SURFACE AT 39.0 FOOT DEPTH, ELEVATION 969.5 FEET AND WAS TERMINATED AT 39.3 FOOT DEPTH, ELEVATION 969.2 FEET AFTER HAVING PENETRATED 0.3 FEET BELOW BEDROCK SURFACE.

NO FREE WATER OBSERVATIONS WERE MADE IN TEST BORING B-1 DURING OR AT THE CONCLUSION OF DRILLING OPERATIONS. FREE WATER WAS OBSERVED AND MEASURED IN TEST BORING B-2 AT 6.5 FOOT DEPTH, ELEVATION 1002.0 FEET.

LOG OF BORING

Date Started 7/5/88 — Sampler Type SS — Dia. 1 3/8" — Water Elev. –
Date Completed 7/6/88 — Casing: Length — Dia. —
Boring No. B-1 — Station & Offset 168+23, 7' LT. (CULVERT — Surface Elev. 1010.5'

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.
1010.5	0														
1009.5	2	AUGERED			ASPHALT AND SUBBASE	-	-	-	-	-	-	-	-	-	VISUAL
	4	AUGERED			BROWN SANDY SILTY CLAY (DRILLER'S DESCRIPTION	-	-	-	-	-	-	-	-	-	VISUAL
1005.5	6	2/2/3			BROWN SILTY CLAY	1	0	1	10	56	33	41	16	35	A-7-6
1003.0	8	2/3/3			BROWN GRAVELLY SANDY SILT	2	22	10	27	26	15	25	5	21	A-4A
1000.5	10	2/2/3			BROWN AND GRAY SILT	3	0	0	2	67	31	NP	NP	26	A-4B
998.0	12	1/1/2			GRAY SILT	4	0	0	3	80	17	28	6	25	A-4B
995.5	14	1/5/8			GRAY SANDY SILT	5	9	13	26	39	13	NP	NP	14	A-4A
993.0	16	12/18/20			GRAY AND BROWN SILTY SAND	6	12	21	28	26	13	NP	NP	10	A-4A
990.5	18	10/19/20			GRAY AND BROWN SILTY GRAVELLY SAND	7	21	17	24	24	14	NP	NP	11	A-4A
988.0	20	11/19/21			GRAY AND BROWN SILTY GRAVELLY SAND	8	18	17	29	25	11	NP	NP	11	A-4A
985.5	22	9/11/15			GRAY SILTY GRAVELLY SAND W/COAL BLOSSOM	9	17	14	31	26	12	NP	NP	17	A-4A
	24														
	26														
980.5	28	10/15/20			GRAY AND BROWN SILTY GRAVELLY SAND	10	16	15	30	26	13	NP	NP	13	A-4A
	30														
	32														
975.5	34	12/21/30			GRAY AND BROWN SILTY GRAVELLY SAND	11	23	16	24	27	10	NP	NP	10	A-4A
	36														
	38														
970.5	40														
	42	3/12/20			GRAY SILTY GRAVELLY SAND — TOP OF ROCK	12	19	17	26	26	12	NP	NP	15	A-4A
967.5	44		3.6	0.4	CLAY SHALE, GRAY, MEDIUM-FIRM WITH SCATTERED THIN CLAY SEAMS AND										
	46				ARENACEOUS INTERVALS, BROKEN AND JOINTED. CORE LOSS 10%.										
963.5	48				— BOTTOM OF BORING										

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

LOG OF BORING

Date Started 6/30/88 — Sampler Type SS — Dia. 1 3/8" — Water Elev. 1002.0'
Date Completed 7/5/88 — Casing: Length — Dia. —
Boring No. B-2 — Station & Offset 168+90, 20' RT. (CULVERT) — Surface Elev. 1008.5'

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.
1008.5	0														
1008.0	2	AUGERED			SOD AND TOPSOIL	-	-	-	-	-	-	-	-	-	VISUAL
	4														
1003.5	6	1/1			GRAY AND BROWN SILT AND CLAY	1	0	1	9	56	34	36	12	34	A-6A
1001.0	8	2/3			GRAY AND BROWN CLAYEY SILT	2	0	3	14	57	26	31	10	26	A-4B
998.5	10	2/3			GRAY SILT	3	0	0	9	73	18	NP	NP	24	A-4B
996.0	12	3/5			GRAY SILT	4	0	0	8	78	14	NP	NP	20	A-4B
993.5	14	9/12			GRAY SANDY SILT	5	11	19	25	33	12	NP	NP	11	A-4A
991.0	16	14/21			GRAY SANDY SILT, WITH COAL BLOSSOM	6	7	8	33	28	14	NP	NP	11	A-4A
988.5	18	13/24			GRAY GRAVELLY SANDY SILT, WITH COAL BLOSSOM	7	17	18	24	29	12	NP	NP	13	A-4A
986.0	20	10/19			GRAY SILTY GRAVELLY SAND W/ COAL BLOSSOM	8	16	20	24	28	12	NP	NP	12	A-4A
983.5	22	10/12			GRAY GRAVELLY SANDY SILT	9	15	16	23	33	13	NP	NP	13	A-4A
	24														
	26														
978.5	28														
	30	24/26			GRAY SILTY GRAVELLY SAND	10	23	19	21	21	16	NP	NP	16	A-4A
	32														
973.5	34														
	36	31/40			BROWN SILTY GRAVELLY SAND	11	27	19	23	21	10	NP	NP	8	A-2-4
	38				TOP OF ROCK										
969.5	40	75(0.3)			GRAY WEATHERED CLAY SHALE	12								11	VISUAL
969.2					— BOTTOM OF BORING										

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. 45 sieve)	0.074mm (No. 200 sieve)	0.005mm	

NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

REVISED 8/29/91

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. HOL-515-0209
OVER BRANCH OF WALNUT CREEK
SEC. HOL-515-2,09

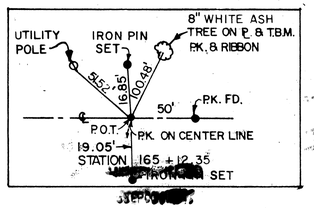
CHECKED BY	REVIEWED BY	DATE
A.F.	M.R.S.	7/22/88

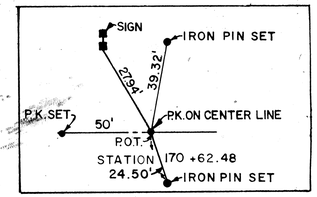
FHWA REGION	STATE	PROJECT	
5	OHIO		

HOLMES COUNTY
HOL-515-2.09

2/2

CENTERLINE REFERENCE POINTS





TEMPORARY BENCHMARK
FIRST TREE ON PROPERTY LINE, PK. & RIBBON IN STUMP EL. 1010.05
STA. 165+12.35-100.48' LT.

TEMPORARY BENCHMARK
CORNER OF SLAB S.E. CORNER OF BRIDGE
STA. 170+27 EL. 1010.83
93.5' LEFT

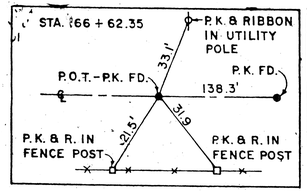
NOTE:
EARTHWORK LIMITS SHOWN ARE APPROXIMATE ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTION.

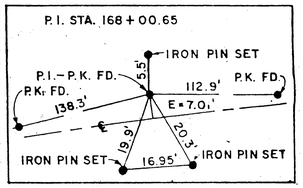
CURVE DATA
Δ = 13°-50'-35"
D = 6°-00'
Ex = 7.01'
T = 115.92'
L = 230.72'
R = 954.94'
P.I. = 168+00.65

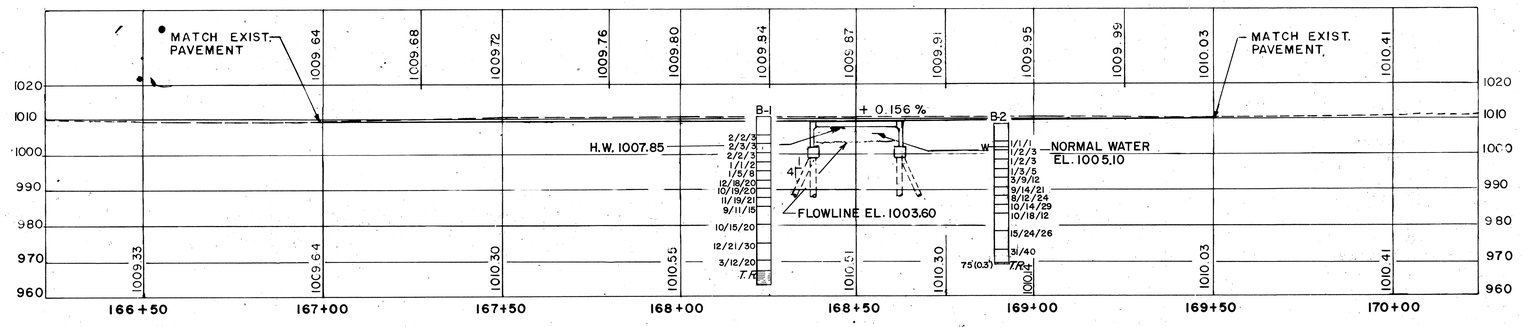
INDICATE TEMPORARY PAVEMENT

PLAN

CENTERLINE REFERENCE POINTS







PROFILE

DESIGN DESIGNATION

CURRENT A.D.T. (1991) 1570
DESIGN YEAR A.D.T. (2011) 3232

HYDRAULIC DATA

DRAINAGE AREA = 0.98 SQ. MILES
Q_{100} = 400 CFS Q_{25} = 297 CFS
V_{100} = 4.26 F/S V_{25} = 3.63 F/S
HWD_{100} = 1007.85 HWD_{25} = 1007.15

EXISTING BRIDGE DATA

TYPE: SIMPLE SPAN CONCRETE BEAM ON CONCRETE GRAVITY ABUTMENTS.
SPAN: 24'-0" (F/F ABUTMENTS)
ROADWAY: 20'-0"
ALIGNMENT: 6° CURVE
SKEW: 4°-00'-00"
APPROACH SLAB: NONE
WEARING SURFACE: ASPHALT CONCRETE
STRUCTURE FILE NO. 3802582

PROPOSED BRIDGE DATA

TYPE: 24'-0" x 4'-0" PRECAST REINFORCED FLATTOPPED THREE SIDED CONCRETE CULVERT
SPAN: 24'-0" PERPENDICULAR TO STRUCTURE WALL
ROADWAY: 32'-0 F/F GUARDRAIL
ALIGNMENT: 6° CURVE
SKEW: 4°-00'-00"
APPROACH SLAB: NONE
LOADING: HS-20-44 & ALTERNATE MILITARY LOADING
WEARING SURFACE: ASPHALT CONCRETE

1 REVISED 8/29/91

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

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SEC. HOL-515-2.09

PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
J.B.H.	A.F.	M.R.S.	7/22/88