CALC. BY	HAM-CR453-1.16	OHIO
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SOIL PROFILE SUBMISSION

GENERAL INFORMATION

INTRODUCTION

This report consists of a soils investigation for proposed improvements to a 3.7 mile section of Cross County Highway located in the cities of Reading, Blue Ash and Montgomery, Village of Amberly, Sycamore Township, and Hamilton County, Ohio, beginning approximately 0.2 miles east of the Galbraith Road interchange and ending approximately 0.3 miles east of the Kenwood Road interchange. The project includes: crack and seat existing mainline pavement then overlay, joint repair of existing ramp concrete pavement, widen median, mainline and ramp shoulders, installation of new guardrail and concrete barrier, overlay ramps and cross roads, new concrete barrier railing, superstructure and substructure repairs of mainline bridges, widen mainline bridge at Kenwood Road, full depth undercutting of mainline pavement at overhead bridges, deck overlay on overhead bridges, new signing and pavement markings, new retaining wall structures at right-of-way and grading conflicts, new underdrain installation, removal and replacement of chain link fences at specified locations, and new lighting at three intersections.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The study section of Cross County Highway consists of moderately to gently sloping terrain dissected by a dendritic drainage system which generally drains to the north and west into the Mill Creek. The western portion of the project from the beginning of the project east to the Ridge Road interchange follows a shallow bedrock cut slope constructed on a western sloping drainage valley up to the ridge located east of Ridge Road. The remainder of the project east of the Ridge Road interchange crosses shallow drainage swales and associated ridges consisting of thin glacial deposits underlain by bedrock. The entire project is closely bounded both to the north and south by commercial and residential developments.

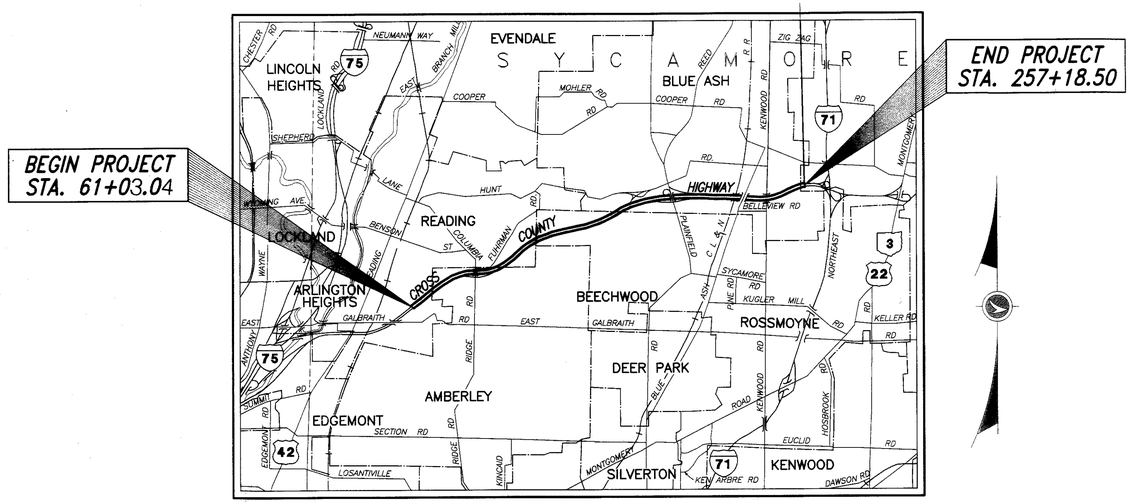
EXPLORATION

Ninety two (92) test borings were made, with either a truck-mounted or skid-mounted rotary drill rig, and with portable sampling equipment. Test borings were made with portable sampling equipment in areas not readily accessible to the drill rig. The portable sampling equipment consisted of a 2-inch O.D. standard split spoon sampler driven with a 35-pound weight dropped 30-inches. The driving energy with this portable equipment is approximately one-fourth of the standard split spoon sampler driving energy per ASTM D1586. The shallow test boring holes were advanced with continuous flight augers. The deeper test boring holes were advanced with hollow stem augers. Standard split spoon samples were obtained ahead of the augers in accordance with the procedures outlined in ASTM D1586, at 2.5-feet depth intervals. At selected locations undisturbed thin wall Shelby tube samples were obtained in accordance with the procedure outlined in ASTM D1587. Bulk bag samples of the auger cuttings were also obtained at selected locations. Bedrock was cored in test boring 64 at the bridge structure overpass at Kenwood Road using a NXM-2" core barrel with a diamond bit. Pavement cores were obtained at 29 locations spaced along the alignment with a 4-inch diameter diamond tip core barrel.

EXPLORATION FINDINGS

The test borings reveal a variable subsurface profile typical of a glaciated area that has been altered by natural processes and developmental grading. The subsurface conditions are erratic, but can be generalized in the following broad terms.

The base material is interbedded shale and limestone bedrock. It is shallow in the profile (less than 25 feet). Outside of the previous and existing defined drainage areas, the bedrock is covered with glacial till (A-6a, A-6b, A-7-6 and A-4b). In the defined drainage areas the bedrock is covered with glacially consolidated alluvial and lakebed silty clays (A-6a and A-6b), clays (A-7-5 and A-7-6), silts (A-4a and A-4b), which in turn are capped with glacial till. Above the glacial till are regressional glacial deposits of sandy silt and silt (A-4a and A-4b), silt and clay, silty clay and clay (A-6a, A-6b, A-7-5 and A-7-6). These deposits are discontinuous; in some areas they are exposed at the surface, in others they are covered with artificial fill, and in others they are missing and the artificial fill is directly over the glacial till. In some localized areas, these near-surface deposits are covered with soft recent stream valley sediments.



VICINITY MAP

0 1/2 1 1 1/2 2
SCALE IN MILES

LEGEND FOR PROJECT AVERAGE OF TEST RESULTS

DESCRIPTION	OHIO CLASSIFICATION	GRADATION (GRD) % GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY	(LL) LIQUID LIMIT	(PL) PLASTIC INDEX	(WC) WATER CONTENT %	SAMPLES TESTED
GRAVEL	A-1-a	48	31	18	- 3 -				8	4 GRD, 1WC
GRAVEL WITH SAND	A-1-b	34	32	24	- 10 -				9	2 GRD, 10 WC
COARSE AND FINE SAND	A-3a								9	2WC
GRAVEL WITH SAND AND SILT	A-2-4	37	29	16	- 18 -				8	2 GRD, 8 WC
GRAVEL WITH SAND, SILT & CLAY	A-2-6						27	12	12	1 LL/PI, 3 WC
SANDY SILT	A-4a								27	1 WC
SILT	A-4b	1	1	10	70	18	18	1	19	2GRD, 1 LL/PI 5 WC
SILT AND CLAY	A-6a						38	20	16	3 LL/PI, 38 WC
SILTY CLAY	A-6b	8	9	12	40	31	39	20	19	2 GRD, 6 LL/PI 73 WC
CLAY	A-7-6						52	30	20	5 LL/PI, 14 WC
WEATHERED SHALE							48	26	14	2 LL/PI, 13 WC
SHALE							41	21	6	2 LL/PI, 13 WC
LIMESTONE										

SOD AND/OR TOPSOIL - X = DEPTH (FEET)

ASPHALT + CONCRETE - X = DEPTH (FEET)

AUGER BORING - PLAN VIEW

DRIVE SAMPLE AND/OR CORE BORING - PLAN VIEW

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY

DRIVE SAMPLE AND/OR CORE BORING PLOTTED TO VERTICLE SCALE ONLY

NOTE: FIGURES ON RIGHT SIDE OF BORING INDICATE WATER CONTENT IN PERCENT

WATER CONTENT NEARLY EQUAL OR GREATER THAN LIQUID LIMIT

INDICATES A NON PLASTIC MATERIAL WITH A HIGH WATER CONTENT

W FREE WATER

STATIC WATER LEVEL

X/Y/Z NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST SIX INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
Z = NUMBER OF BLOWS FOR THIRD 6 INCHES

W/X/Y/Z NUMBER OF BLOWS FOR PORTABLE HAND EQUIPMENT
W = NUMBER OF BLOWS FOR FIRST SIX INCHES
X = NUMBER OF BLOWS FOR SECOND 6 INCHES
Y = NUMBER OF BLOWS FOR THIRD 6 INCHES
Z = NUMBER OF BLOWS FOR FOURTH 6 INCHES

NOTES

Information shown by this subgrade profile was obtained solely for 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.

All available soil and bedrock information which can be conveniently shown on the soil profile foundation investigation sheets has been so reported. Additional subsurface investigation, soil tests and bedrock borings 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, Columbus, Ohio, The Pavement and Soils Section of The Bureau of Location and Design or in The Bridge Bureau at 25 South Front Street, Ohio.

SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
80+50	49 L	0.0	1.0								21.0	A-6a	Brown FILL, silt and clay
80+80	2 L	0.1	1.5								18.9	A-6b	Brown and gray FILL, silty clay
		2.5	4.0								15.5	A-6b	Brown and gray FILL, silty clay
81+84	37 R	0.0	0.8								22.9	A-6b	Brown FILL, silty clay
		0.8	1.2								5.0		Gray unweathered SHALE and LIMESTONE (bedrock)
81+87	43 L	0.0	0.6								16.5	A-6a	Olive brown and gray FILL, silt and clay
		0.6	1.4								7.7		Gray unweathered SHALE and LIMESTONE (bedrock)
83+26	49 L	0.0	1.5	11	11	11	40	28			16.1	A-6b	Olive brown and gray FILL, silty clay
		2.5	3.5						40	20	10.1		Gray unweathered SHALE and LIMESTONE (bedrock)
83+51	40 R	1.0	1.5								10.0		Brown and gray unweathered SHALE and LIMESTONE (bedrock)
85+11	49 R	0.0	1.5						39	20		A-6b	Olive brown and gray FILL, silty clay
85+34	54 L	0.3	1.5								20.8	A-6b	Olive brown and gray FILL, silty clay
		2.5	4.0								10.1		Olive brown weathered SHALE & LIMESTONE (bedrock)
86+73	54 R	2.0	2.5								2.8		Gray unweathered SHALE & LIMESTONE (bedrock)
88+26	59 L	0.0	1.5	2	2	9	61	26			29.5	A-4b	Brown SILT
		2.5	4.0								22.6		Olive brown weathered SHALE & LIMESTONE (bedrock)
		5.0	5.8								10.2		Olive brown weathered SHALE & LIMESTONE (bedrock)
88+31	70 R	0.0	1.5								14.6	A-6b	Olive brown and brown FILL, silty clay
		2.5	3.5						43	22			Gray unweathered SHALE and LIMESTONE (bedrock)
90+00	99 R	0.0	1.5								19.6	A-6b	Olive brown and gray FILL, silty clay
		2.5	2.8								4.5		Gray unweathered SHALE and LIMESTONE (bedrock)
90+06	75 R	1.0	1.8								9.2	A-3a	Brown FILL, sand and clay
		1.8	2.3								4.2		Gray unweathered SHALE and LIMESTONE (bedrock)
91+32	72 L	1.0	1.5	38	22	35	- 5 -					A-1-a	Brown FILL, sand, gravel
93+75	3 R	0.7	1.0								19.0	A-1-b	Brown FILL gravel with sand
95+60	29 R	0.9	1.4	37	37	24	2				11.4	A-1-b	Brown FILL gravel with sand
		1.4	2.0								16.1	A-6b	Gray and brown FILL, silty clay
97+19	163 L	0.4	1.5								18.6	A-7-6	Brown and gray CLAY
		2.5	4.0								19.9	A-6a	Brown and gray SILT and CLAY
		5.0	6.5								17.8	A-6b	Brown trace gray SILTY CLAY

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* SHEET 3 NOT USED

SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
98+64	92 R	1.0	2.3								4.9		Olive brown weathered SHALE and LIMESTONE (bedrock)
99+08	109 L	0.8	1.2	46	32	19	- 3 -					A-1-a	Brown FILL, sand and gravel
		2.1	2.6								12.3	A-6a	Brown and gray SILT and CLAY, gravel
100+30	100 L	0.0	1.5								23.9	A-6a	Brown FILL, silt and clay
		2.5	2.9								5.8		Gray unweathered SHALE and LIMESTONE (bedrock)
101+26	46 R	0.9	1.4								6.6	A-2-4	Brown FILL, gravel with sand and silt
		1.4	1.7								5.5		Gray unweathered SHALE and LIMESTONE (bedrock)
101+36	59 R	0.1	1.0								20.9	A-6b	Brown and olive brown FILL, gravel with sand and stilt
		1.0	1.5						46	24			Olive brown weathered SHALE and LIMESTONE (bedrock)
		2.5	3.0								13.0		Olive brown weathered SHALE and LIMESTONE (bedrock)
102+37	51 L	0.0	1.5								19.4	A-6b	Brown and gray FILL, silty clay
102+98	39 R	0.8	1.5								13.1		Brown weathered SHALE and LIMESTONE (bedrock)
		2.5	3.8								11.3		Olive brown weathered SHALE and LIMESTONE (bedrock)
		3.8	5.2								5.3		Gray unweathered SHALE and LIMESTONE (bedrock)
104+39	56 L	0.6	1.5								22.4	A-6b	Brown trace gray FILL, silty clay
		2.5	4.0								9.2		Gray trace brown weathered SHALE and LIMESTONE (bedrock)
		5.0	5.5								6.8		Gray unweathered SHALE and LIMESTONE (bedrock)
105+40	1 L	0.2	1.5								13.5	A-6b	Brown trace gray FILL, silty clay
		2.5	4.0						51	32	20.4	A-7-6	Brown and gray FILL, clay
106+52	53 L	0.7	1.5								22.0	A-6b	Brown trace gray FILL, silty clay
		2.0	2.2						50	28			Brown weathered SHALE and LIMESTONE (bedrock)
		2.5	4.0								18.1		Brown weathered SHALE and LIMESTONE (bedrock)
		5.0	5.5								14.5		Olive brown weathered SHALE and LIMESTONE (bedrock)
		6.5	7.8								13.7		Gray unweathered SHALE and LIMESTONE
120+63	℄	1.6	2.5								8.8	A-6b	Brown FILL, silty clay
135+11	℄	0.0	1.5								15.3	A-6b	Brown FILL, silty clay
148+14	℄	2.5	4.0						32	17	13.0	A-6b	Brown FILL, silty clay
155+83	35 R	1.2	2.5								13.7	A-2-4	Brown FILL, gravel with sand and silt
		3.0	4.5								18.0	A-6b	Brown SILTY CLAY
156+01	℄	0.3	1.3								20.3	A-6b	Brown, FILL, sandy clay, silt
		2.5	3.5						40	23	15.3	A-6a	Brown, FILL, silt and clay

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SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
156+01	℄	5.0	6.0								21.4	A-6b	Brown SILTY CLAY
160+24	28 L	1.0	1.5								8.4	A-3a	Brown FILL, sand
		3.0	4.5								17.9	A-6a	Brown FILL, silt and clay
		5.0	6.5								15.8	A-6a	Brown trace gray FILL, silt and clay
160+34	27 R	1.3	2.5								15.4	A-6b	Brown FILL, sandy silty clay, gravel
		3.0	4.5								20.4	A-6b	Brown FILL, sandy, silty clay, gravel
161+87	39 L	1.3	1.6	32	27	25	- 17 -				16.0	A-1-b	Brown and gray FILL, gravel with sand
		2.7	3.2								19.5	A-6b	Brown and gray FILL, silty clay
		3.5	4.5								16.0	A-6b	Brown and gray FILL, silty clay
162+28	27 R	1.0	1.4								10.4	A-1-b	Brown and gray FILL, gravel with sand
		1.4	2.5								15.4	A-6b	Brown FILL, silty clay
		3.0	4.5								13.8	A-6b	Brown, trace gray FILL, silty clay
		5.0	6.5								16.5	A-6b	Brown, trace gray SILTY CLAY
164+83	28 L	1.4	2.5								23.4	A-6b	Brown trace gray FILL, silty clay
		3.0	4.5								19.7	A-6b	Brown trace gray FILL, silty clay
172+00	43 L	0.3	1.5								13.0	A-6a	Brown SILT and CLAY, trace sand, trace gravel
		2.5	4.0	5	7	14	40	34			12.1	A-6b	Olive brown SILTY CLAY, trace sand, trace gravel
		5.0	6.5								12.1	A-6a	Gray trace brown SILT and CLAY, trace sand, trace gravel
173+01	℄	0.2	2.0						27	12	10.7	A-2-4	Brown FILL, gravel, sand, silt and clay
		2.0	4.0								12.9	A-6b	Brown and gray FILL, silty clay
178+15	51 L	0.2	1.5								16.3	A-6b	Brown FILL, silty clay
		2.5	4.0								12.3	A-6b	Brown and gray FILL, silty clay
		5.0	6.5								13.4	A-6a	Brown and gray SILT and CLAY, trace sand, trace gravel
179+81	207 L	0.0	1.5								18.4	A-6b	Brown and gray SILTY CLAY, sand
		2.5	4.0						44	27	19.9	A-6b	Brown and gray SILTY CLAY, trace gravel
		5.0	6.5								30.6	A-6b	Brown and gray SILTY CLAY, trace sand and gravel
		7.5	9.0								24.0	A-6b	Brown and olive brown SILTY CLAY, trace sand
181+05	36 R	0.0	1.5								13.1	A-6a	Brown FILL, silt and clay
		2.5	4.0								17.0	A-6a	Brown, trace gray FILL, silt and clay
181+05	36 R	5.0	6.5								16.0	A-6a	Brown and gray FILL, silt and clay
183+62	44 R	0.0	1.5								20.7	A-6a	Brown FILL, silt and clay

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SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
183+62	44 R	2.5	4.0						41	20	11.6	A-7-6	Brown and olive CLAY
		5.0	6.5								10.9	A-6a	Brown SILT and CLAY
186+95	54 R	0.3	1.5								12.2	A-6b	Brown FILL, silty clay
		2.5	4.0								20.1	A-6a	Brown SILT and CLAY, sand, trace gravel
		12.5	13.0								21.9	A-7-6	Gray CLAY
188+72	91 R	2.5	4.0								14.6	A-6b	Brown and gray FILL, silty clay
		5.0	6.5								10.5	A-6a	Gray SILT and CLAY, sand, trace gravel
		8.0	9.0								19.2	A-6b	Gray SILTY CLAY
		9.5	9.7								20.0	A-7-6	Bluish gray CLAY
		10.1	10.6								24.8	A-7-6	Bluish gray CLAY
		12.5	14.0								15.7		Olive brown weathered SHALE and LIMESTONE (bedrock)
189+50	11 R	0.9	1.7	43	20	24	9	4				A-2-4	Brown FILL, gravel, sand and silt
		2.5	2.8								7.6	A-7-6	Brown and gray FILL, clay
		2.8	4.0								22.0		Gray weathered SHALE and LIMESTONE (bedrock)
189+50	82R	1.0	1.4	57	32	10	- 1 -					A-1-a	Brown FILL, sand and gravel
		2.4	2.9								12.3	A-6a	Gray SILT AND CLAY, sand, gravel
192+25	12 L	1.0	2.5								6.4	A-1-b	Brown FILL, gravel and sand
		3.0	4.1								15.5	A-6b	Brown FILL, silty clay
192+25	148 R	2.1	2.6								22.3	A-6a	Brown SILT and CLAY, trace sand
195+06	13 R	0.9	1.5								5.9	A-2-4	Brown FILL, gravel with sand and silt
		3.5	4.0						18	1	12.7	A-4b	Gray sandy SILT
		5.0	5.7	0	0	11	78	11			18.6	A-4b	Gray sandy SILT
196+27	13 L	1.4	1.9								6.1	A-2-6	Brown FILL, gravel with sand, silt and clay
		3.0	4.5								16.6	A-4b	Gray SILT
		5.0	6.5								17.3	A-4b	Gray SILT
198+96	12 R	0.9	1.4	50	39	10	- 1 -				7.8	A-1-a	Brown FILL, gravel, sand
202+01	13 L	1.1	1.5								8.6	A-1-b	Brown FILL, gravel with sand
		1.5	2.5								19.7	A-6b	Brown trace gray FILL, silty clay, sand trace gravel
		3.0	4.5						27	11	9.0	A-6b	Brown FILL, silty clay, sand trace gravel
213+98	℄	0.2	2.0								6.5	A-6b	Brown trace gray FILL, silty clay, sand trace gravel
		2.0	4.0								23.7	A-6b	Brown and dark gray FILL, silty clay, sand trace gravel

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SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
221+96	12 R	0.9	1.3								7.0	A-2-4	Brown FILL, sand and gravel
		1.3	2.5								19.8	A-6b	Brown SILTY CLAY
		3.0	4.5								19.4		Brown weathered SHALE and LIMESTONE (bedrock)
225+01	13 L	1.1	1.6								7.6	A-1-b	Brown FILL, gravel with sand
		1.6	2.1								23.5	A-6b	Brown FILL, silty clay
226+51	2 L	0.0	1.0								20.8	A-6a	Brown FILL, silt and clay
		2.4	2.9								18.9	A-6a	Gray and brown FILL, silt and clay
227+76	13 R	1.1	1.6								7.7	A-1-b	Brown FILL, gravel, sand
		1.6	2.5								8.8		Gray unweathered SHALE and LIMESTONE (bedrock)
229+54	29 L	1.1	2.5								13.5	A-6a	Olive brown and gray SILT and CLAY, gravel
		3.0	4.5						59	40	22.2	A-7-6	Brown and olive brown CLAY, silt
229+81	44 R	0.0	1.5								15.3	A-6b	Brown and gray FILL, silty clay
		2.5	4.0						32	17	13.0	A-6b	Gray SILTY CLAY, sand and gravel
		5.0	5.4								3.3		Gray unweathered SHALE and LIMESTONE (bedrock)
233+01	40 R	1.3	2.5								14.1	A-6b	Brown SILTY CLAY, gravel
		3.0	4.5								11.8	A-6a	Brown and gray SILT and CLAY, sand, gravel
233+10	52 L	0.3	1.5								14.2	A-6a	Brown FILL, silt and clay, gravel
		2.5	3.5								11.1	A-6a	Olive brown SILT and CLAY, sand, gravel
		5.0	6.5								10.9	A-6a	Gray and brown SILT and CLAY, sand, gravel
235+77	82 R	0.5	1.5								18.7	A-6b	Brown SILTY CLAY, trace sand
		2.5	4.0						64	36	23.3	A-6a	Brown SILT and CLAY
		5.0	6.5								25.6	A-6b	Brown SILTY CLAY, sand
		7.5	9.0								6.3	A-6a	Brown SILT and CLAY, sand
235+98	27 L	0.8	1.2								7.1	A-2-4	Brown FILL, gravel, sand
		1.2	2.5								21.3	A-7-6	Brown and gray CLAY, sand
		3.0	4.5								13.1	A-6a	Brown SILT and CLAY
237+26	242 R	0.6	1.5								16.5	A-6b	Brown SILTY CLAY
		2.5	4.0								12.7	A-6a	Brown SILT and CLAY, sand, gravel
		5.0	6.5								10.8	A-6a	Brown SILT and CLAY, sand, gravel
238+13	176 L	0.5	1.5								18.6	A-6b	Brown FILL, silty clay, sand, gravel
		2.5	4.0								14.9	A-6b	Gray and brown SILTY CLAY, sand, gravel

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SUMMARY OF SOIL TEST DATA

Station (ft)	Offset (ft)	Depth (ft) From	Depth (ft) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
238+13	176 L	7.5	9.0								27.9	A-7-6	Brown CLAY, trace sand
238+18	141 R	0.5	1.5								16.2	A-6b	Brown and gray FILL, silty clay
		5.0	6.5								26.5	A-6a	Gray FILL, silt and clay
		7.5	9.0								25.3	A-6a	Gray FILL, silt and clay
		10.0	11.5								23.7	A-6b	Brown and gray SILTY CLAY
239+02	13 R	0.8	1.9								5.3	A-1-b	Brown FILL, gravel, sand
		1.9	2.5								18.5	A-7-6	Brown and gray CLAY, gravel
		3.0	4.5								19.2	A-6b	Brown and gray SILTY CLAY
		5.0	6.5								21.4	A-6b	Brown and gray SILTY CLAY
239+54	90 L	0.3	1.5								17.8	A-6b	Brown and gray FILL, silty clay
		2.5	4.0								19.6	A-6b	Brown SILTY CLAY, trace sand
240+02	61 R	0.3	1.5								7.0	A-6a	Brown FILL, silt and clay
		2.5	4.0								25.8	A-6b	Brown and gray SILTY CLAY
241+17	10 L	0.9	1.2								6.2	A-1-b	Brown FILL, gravel, sand
		1.2	2.5								23.4	A-7-6	Brown and gray CLAY
		3.0	4.5								25.0	A-7-6	Brown and gray CLAY
241+78	65 R	10.1	10.7								27.9	A-6b	Gray SILTY CLAY, sediment
		13.2	13.8								22.9	A-6b	Brown SILTY CLAY, gravel
242+88	55 L	8.0	8.5								27.3	A-4a	Brown SANDY SILT, clay
243+59	14 R	0.8	1.4								5.4	A-2-4	Brown FILL, gravel, sand
		1.4	2.5								13.0	A-6a	Brown and gray FILL, silt and clay
		3.0	4.5								20.6	A-6b	Brown and gray FILL, silty clay
		5.0	6.5								22.0	A-6a	Brown FILL, silt and clay, gravel
244+01	61 R	5.5	6.0								25.2	A-6b	Brown and gray FILL, silty clay
244+65	39 L	0.0	1.5						37	16	21.6	A-6a	Brown and gray FILL, silt and clay
244+98	59 R	0.0	1.5								12.2	A-6a	Brown FILL, silt and clay, gravel
		2.5	4.0						45	22	20.8	A-7-6	Brown and gray FILL, clay, silt
		5.0	6.5								20.5	A-6b	Brown FILL, silty clay
		7.5	9.0								24.0	A-6b	Gray FILL, silty clay
244+98	17 R	12.5	14.0								19.9	A-2-6	Gray FILL, gravel, sand
		15.0	16.5								15.0	A-6b	Brown SILTY CLAY, sand

REVISED: 10/8/96

SUMMARY OF SOIL TEST DATA

Station (ft.)	Offset (ft.)	Depth (ft.) From	Depth (ft.) To	% Gravel	% Coarse Sand	% Fine Sand	% Silt	% Clay	(LL) Liquid Limit	(PI) Plasticity Index	% Water Content	Classification	Description
244+98	17 R	20.0	21.5								21.9	A-6b	Brown SILTY CLAY, sand, silt
247+49	28 L	0.0	1.5								6.4	A-2-4	Brown and gray FILL, sand, gravel
		2.5	4.0								18.8	A-6b	Brown and gray FILL, silty clay
		5.0	6.5								24.1	A-6b	Brown FILL, silty clay
247+51	40 R	0.0	1.5	30	37	9	- 23.5 -				6.6	A-2-4	Brown FILL, gravel, sand, silt, clay
		2.5	4.0						53	28	22.2	A-6b	Gray and brown FILL, silty clay, gravel

SUMMARY OF PAVEMENT THICKNESS

Station (ft.)	Offset (ft.)	Asphalt Pavement (Thickness [in.])	Concrete Pavement Thickness [in.])	Station (ft.)	Offset (ft.)	Asphalt Pavement (Thickness [in.])	Concrete Pavement (Thickness [in.])
196+27	13 L	2	12	241+34	13 R	2	18¼
198+96	12 R	1½	9	241+78	65 R	3	9
202+01	13 L	2	11	243+23	26 L	1½	13
221+96	12 R	1½	9¼	243+59	14 R	1½	8½
225+01	13 L	1½	11½	90+06	75 L	2¾	9¼
227+76	13 R	1½	11½	98+84	92 L	1¾	8¾
229+54	29 L	1¼	8	91+32	72 L	2¾	9½
233+01	40 L	2	11	99+08	109 L	1½	8
235+98	27 L	1¾	7¾	101+26	46 R	1	9½
239+02	13 R	1¼	8½	189+50	82 R	1½	9
241+17	10 L	1½	9¾	192+25	12 L	2	9

Station (ft.)	Offset (ft.)	Asphalt Pavement (Thickness [in.])	Concrete Pavement (Thickness [in.])	Station (ft.)	Offset (ft.)	Asphalt Pavement (Thickness [in.])	Concrete Pavement Thickness [in.])
92+45	10 L	5	11¾	196+27	13 L	2	12
95+60	29 R	1	9¾	198+96	12 R	1½	9
99+47	23 R	1	11	202+01	13 L	2	11
155+82	35 R	2	10	221+96	12 R	1½	9¼
160+24	28 L	2	10	225+01	13 L	1½	11½
160+34	27 R	1	11	227+76	13 R	1½	11½
161+87	39 L	2	13½	229+54	29 L	1¼	8
162+28	27 R	1	11	233+01	40 L	2	11
164+83	28 L	2	11	235+98	27 L	1¾	7¾
189+49	11 R	1¾	9¼	239+02	13 R	1¼	8½
192+24	12 L	2	10	241+17	10 L	1½	9¾
195+05	13 R	1½	9¼				

REVISED: 10/8/96

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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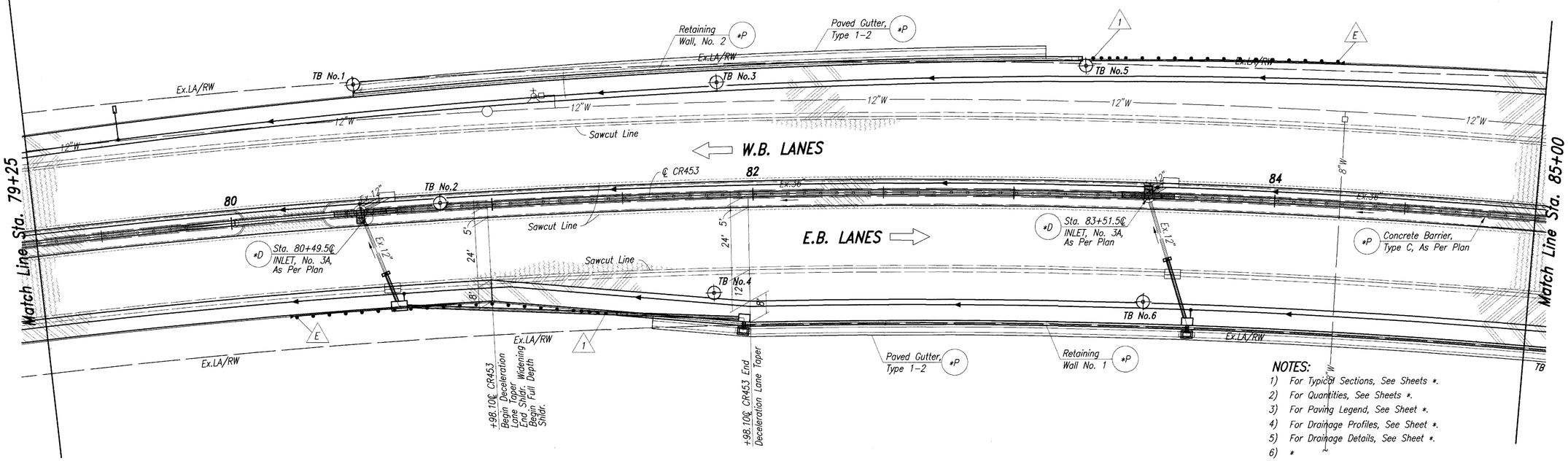
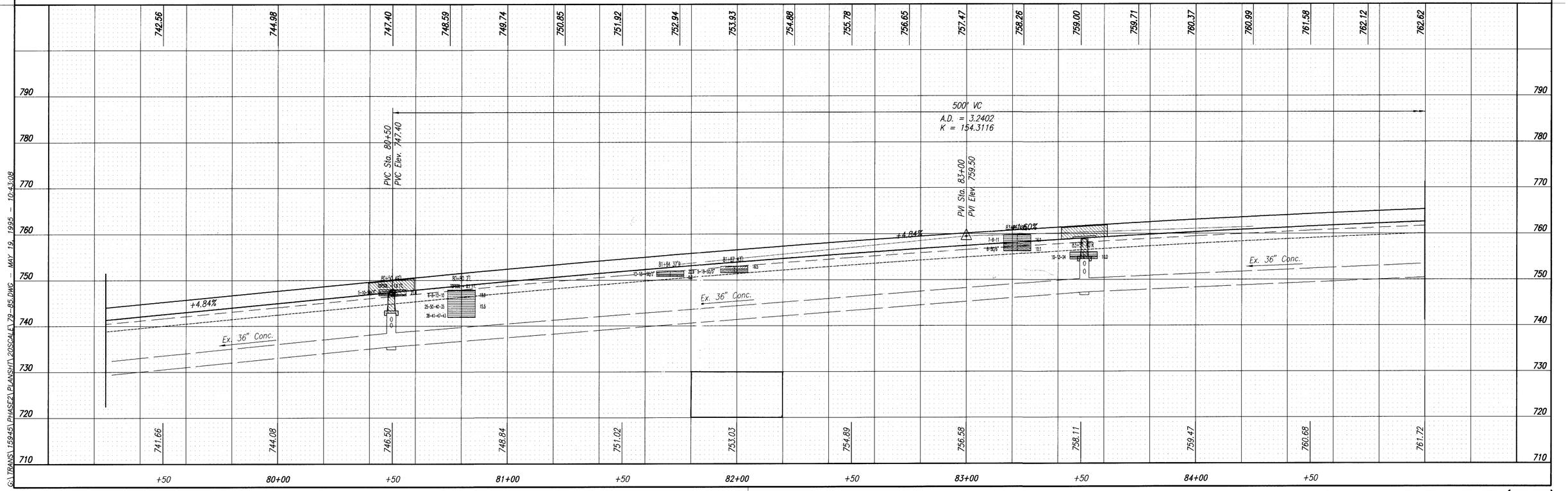


NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *



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Sta. 79+25 to Sta. 85+00 (CR453)

CALC. BY DATE CHKD. BY DATE	HAM-CR453-1.16 HAM-126-23.174	OHIO	FHWA REGION 5

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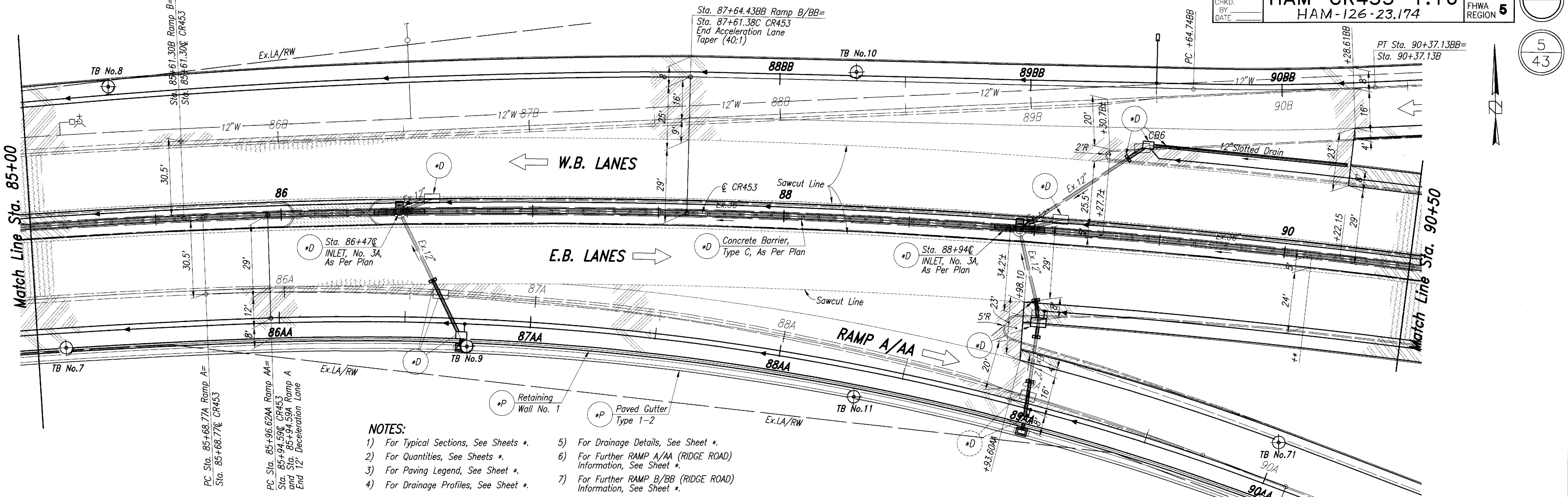

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) For Further RAMP A/AA (RIDGE ROAD) Information, See Sheet *.
7) For Further RAMP B/BB (RIDGE ROAD) Information, See Sheet *.

Sta. 85+00 to Sta. 90+50 (CR453)

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CALC. BY DATE
CHKD. BY DATE

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OHIO
FHWA REGION 5

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RAMP B/BB
W.B. LANES
E.B. LANES
Match Line Sta. 90+50
Match Line Sta. 96+50
Sta. 10+00RD RIDGE ROAD=
Sta. 96+02.59℄ CR453
RIDGE
ROAD
Sawcut Line
Concrete Barrier, Type C, As Per Plan
Concrete Barrier, Type A, As Per Plan
Concrete Barrier, Type D, As Per Plan
Concrete Barrier Transition
Sta. 91+72℄ INLET, No. 3A, As Per Plan
Sta. 94+82.2℄ INLET, No. 3A, As Per Plan
+*,4"x6"Tee ℄ 6"UD=*
+17.5,4"x6"Red ℄ 6"UD=*
+82.2,6"x6"Tee ℄ 6"UD=*
6"UD
TB No.13
TB No.14
TB No.15
Sta. 92+17.50℄ CR453 Begin Full Depth Pavement Replacement and Transition End Shoulder Widening End Type 6 Curb Begin Type 6 Curb, As Per Plan End Pavement Sawcutting
Sta. 92+17.50 CR453 Begin Full Depth Pavement Undercutting End Break and Seat Existing PCC
Sta. 95+30.00 CR453 End Full Depth Pavement Undercutting Transition
Cross County Highway Sta. 96+02.59 CR453= Sta. 10+00.00 Ridge Road
Ex. 36" Conc.
Ex. 24" Conc.
+1.60%
91+00
92+00
93+00
94+00
95+00
96+00

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) For Concrete Barrier Transition Information, See Standard Drawing MC-9.4.
7) For Work on RIDGE ROAD BRIDGE, See Sheet *.
8) For Work on RIDGE ROAD, See Sheet *.
9) *

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\90-96.DWG - MAY 19, 1995 - 11:43:28

Sta. 90+50 to Sta. 96+50 (CR453)

CALC. BY		HAM–CR453–1.16	OHIO
DATE		HAM-126-23.174	FHWA REGION 5
CHKD. BY			
DATE			

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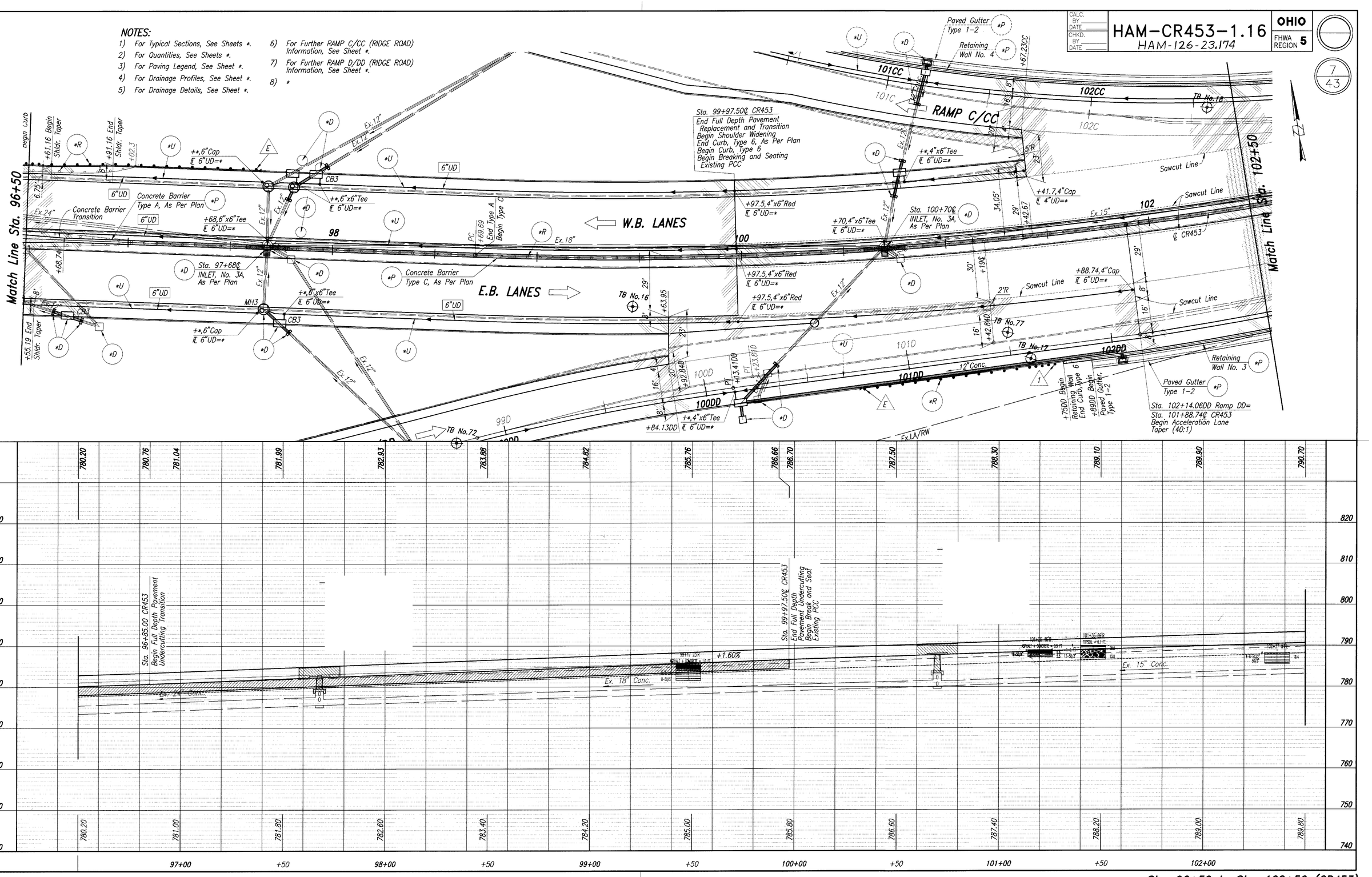
NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) For Further RAMP C/CC (RIDGE ROAD) Information, See Sheet *.
7) For Further RAMP D/DD (RIDGE ROAD) Information, See Sheet *.
8) *



Sta. 96+50 to Sta. 102+50 (CR453)

CALC. BY		HAM–CR453–1.16	OHIO
DATE		HAM-126-23.174	FHWA REGION 5
CHKD. BY			
DATE			

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Ex.LA/RW
103CC
104CC
103C
104C
Retaining Wall No. 4 *P
Paved Gutter Type 1–2 *P
PT Sta. 104+46.58CC Ramp CC=
Sta. 104+30.30℄ CR453 Begin Deceleration Lane
PT Sta. 104+51.13CC Ramp CC=
Sta. 104+31.19℄ CR453
+*,4"x6"Tee ℄ 6"UD=*
+35.63C CR453 End Paved Gutter, Type 1–2
+00C CR453 End Retaining Wall Begin Curb, Type 6
Sta. 108+42.67℄ CR453 End Deceleration Lane Begin Pavement Taper
±87.9,High Point ℄ 4"UD=*
TB No. 23
TB No. 21
TB No.22
TB No.19
TB No.20
+*CC,4"x6"Tee ℄ 6"UD=*
+20.5,4"x6"Tee ℄ 6"UD=*
+75.5,4"x6"Tee ℄ 6"UD=*
Ex. 12"
12" Conc.
8"
29' 41'
30.5'
29'
12'
Sawcut Line
℄ CR453
W.B. LANES
E.B. LANES
104
106
108
Match Line Sta. 102+50
Match Line Sta. 108+50
Sta. 103+20.5℄ INLET, No. 3A, As Per Plan *D
Concrete Barrier, Type C, As Per Plan *D
Sta. 105+75.5℄ INLET, No. 3A, As Per Plan *D
Retaining Wall No. 3 *P
Paved Gutter Type 1–2 *P
+25C CR453 End Paved Gutter, Type 1–2
+50C CR453 End Retaining Wall Begin Curb, Type 6

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *

790.70 791.50 792.30 793.10 793.90 794.70 795.50 796.30 797.10 797.46 797.75 797.97 798.12 798.19 798.19 798.12 797.98

820 810 800 790 780 770 760 750 740

+1.60%
+1.60%
PVI Sta. 108+50
PVI Elev. 800.30
PVC Sta. 106+50
PVC Elev. 797.10
400' VC
High Point Elev. 798.20
High Point Sta. 107+87.93
A.D. = 4.6400
K = 86.2069

790.60 791.40 792.20 793.00 793.80 794.60 795.40 796.20 796.85 797.22 797.29 797.08

103+00 +50 104+00 +50 105+00 +50 106+00 +50 107+00 +50 108+00

G:\TRANS\15945\PHASE2\PLANSHT\ 102-108.DWG – MAY 16, 1995 – 14:37:44

Sta. 102+50 to Sta. 108+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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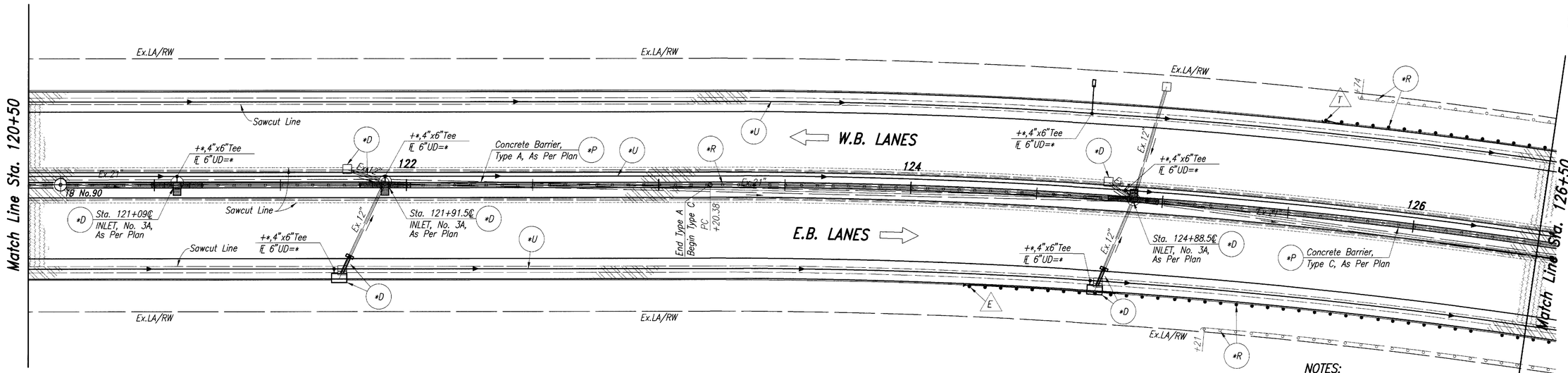

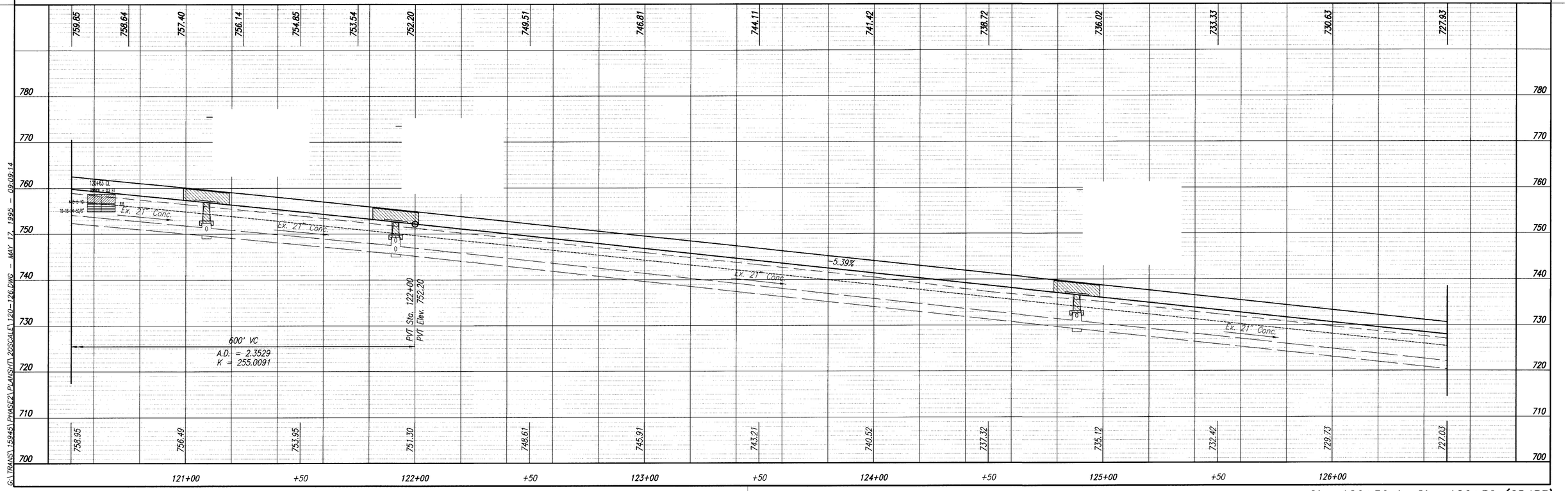

G:\TRANS\15945\PHASE2\PLANSHT\ 20SCALE\ 120-126.DWG - MAY 17, 1995 - 09:09:14

Sta. 120+50 to Sta. 126+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

10/43

Match Line Sta. 132+50

Match Line Sta. 138+50

Ex.42"

Ex.LA/RW

Ex.21" San.

*R

*D

+66,4"x6"Tee
℄ 6"UD=*

+75,4"x6"Tee
℄ 6"UD=*

Sta. 133+00℄
INLET, No. 3A,
As Per Plan

+75,4"x6"Tee
℄ 6"UD=*

A

B

*D

Ex.24"

W.B. LANES

+*,4"x6"Tee
℄ 6"UD=*

+00,4"x6"Tee
℄ 4"UD=*

℄ CR453

134

136

138

+*,4"x6"Tee
℄ 4"UD=*

Concrete Barrier,
Type A, As Per Plan

*P

*U

Sawcut Line

Ex.78"

TB No.91

Concrete Barrier,
Type C, As Per Plan

Sta. 134+52℄
INLET, No. 3A,
As Per Plan

Ex.12"

E.B. LANES

Sta. 136+51.5℄
INLET, No. 3A,
As Per Plan

PT
+83.65
End Type C
Begin Type A

Sta. 132+66℄
Barrier Wall Assembly,
Type TC-21.41,
Design 1

C

D

+*,4"x6"Tee
℄ 6"UD=*

Ex.30"

A Sta. 132+75℄, 4"UD
℄ 4"UD=*

B Sta. 132+75℄, 4"UD
℄ 4"UD=*

C Sta. 132+75℄, 4"UD
℄ 4"UD=*

D Sta. 132+75℄, 4"UD
℄ 4"UD=*

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *

704.30 704.24 704.27 704.39 704.60 704.90 705.29 705.76 706.33 706.98 707.73 708.56 709.48 710.49 711.59 712.76 714.06 715.42 716.88 719.88 722.88 725.88

740 730 720 710 700 690 680 670 660

800' VC
High Point Elev.= 704.24
High Point Sta. 132+78.68
A.D. = 11.3929
K = 70.2194

PVT Sta. 133+00
PVT Elev. 692.88

PVT Sta. 137+00
PVT Elev. 716.88

-5.39%

+6.00%

Ex. 24" Conc.

Ex. 21" Conc.

Ex. 18" Conc.

703.40 703.37 703.70 704.39 705.43 706.83 144"ø 656.81± 708.58 710.69 713.16 715.98 718.98 721.98 724.98

133+00 +50 134+00 +50 135+00 +50 136+00 +50 137+00 +50 138+00

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\132-138.DWG - MAY 17, 1995 - 10:14:59

Sta. 132+50 to Sta. 138+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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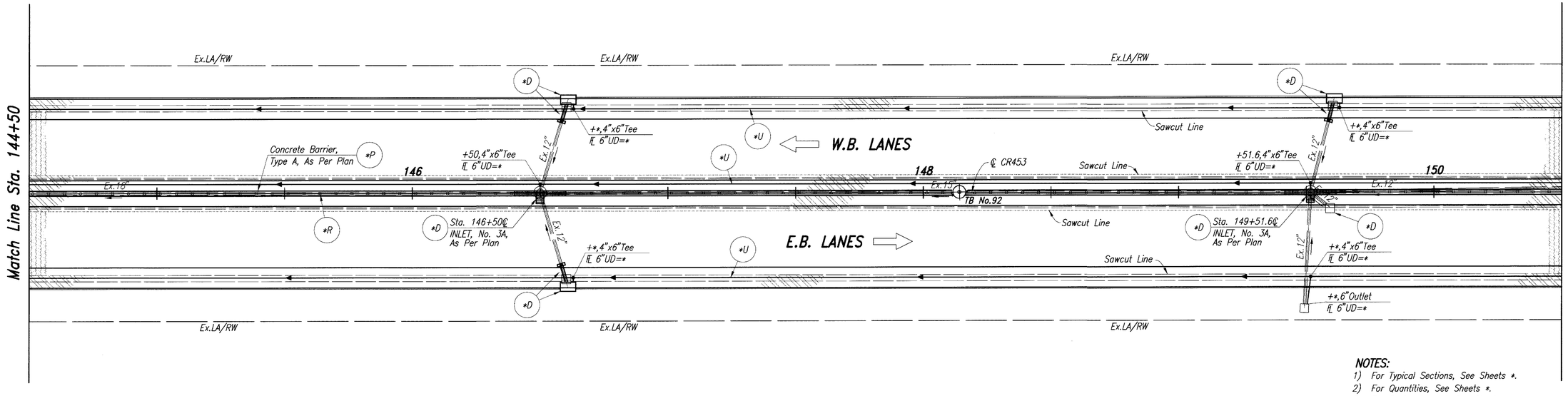
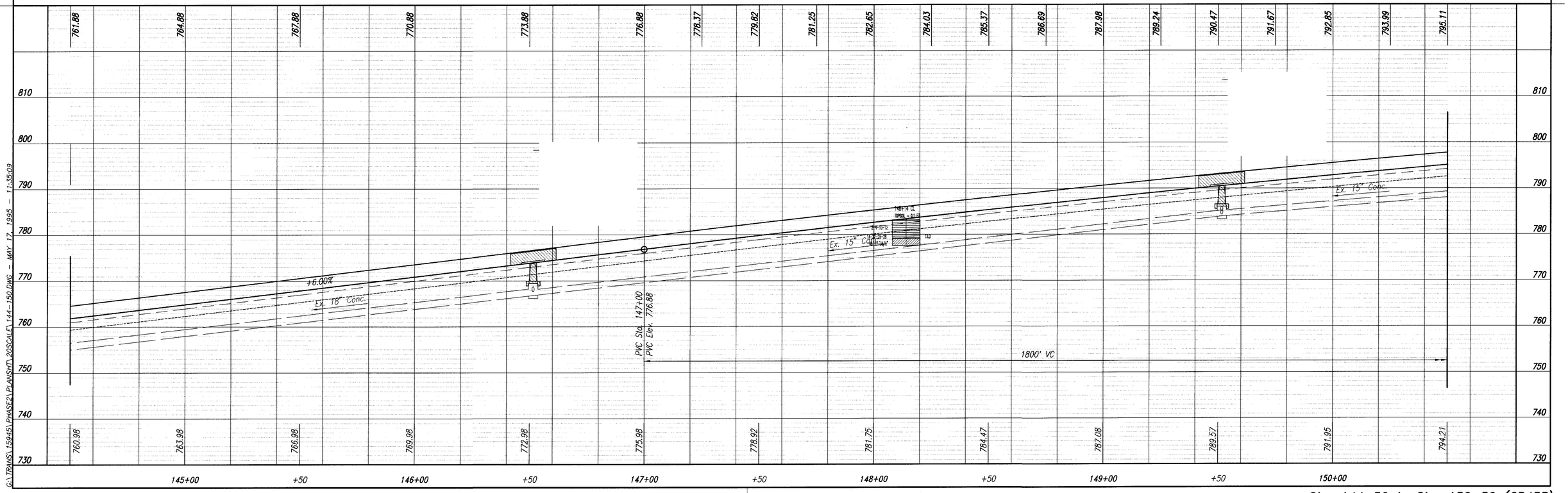
43



NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
6) *



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Sta. 144+50 to Sta. 150+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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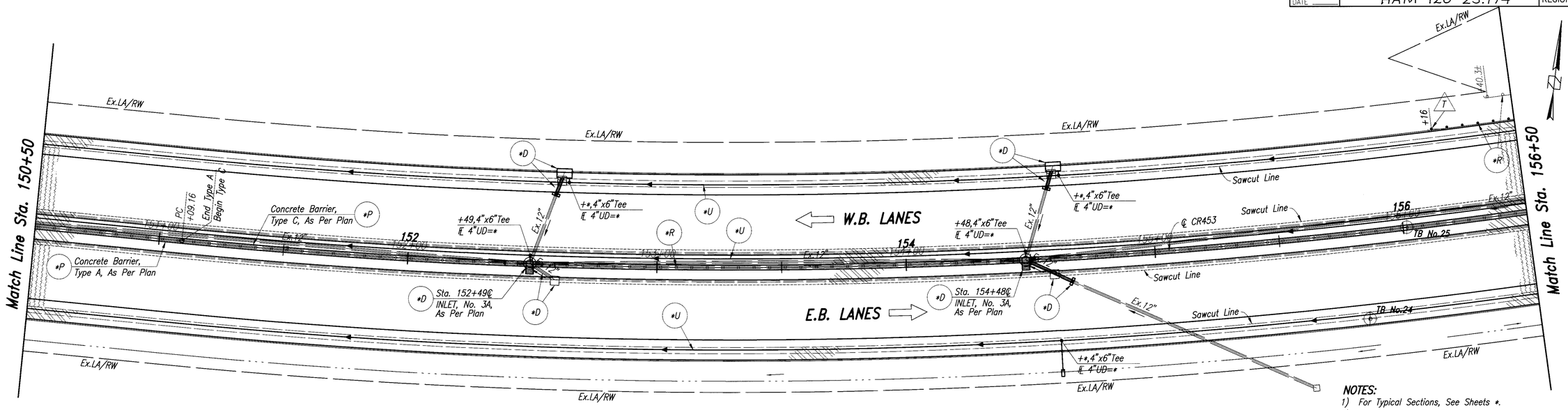
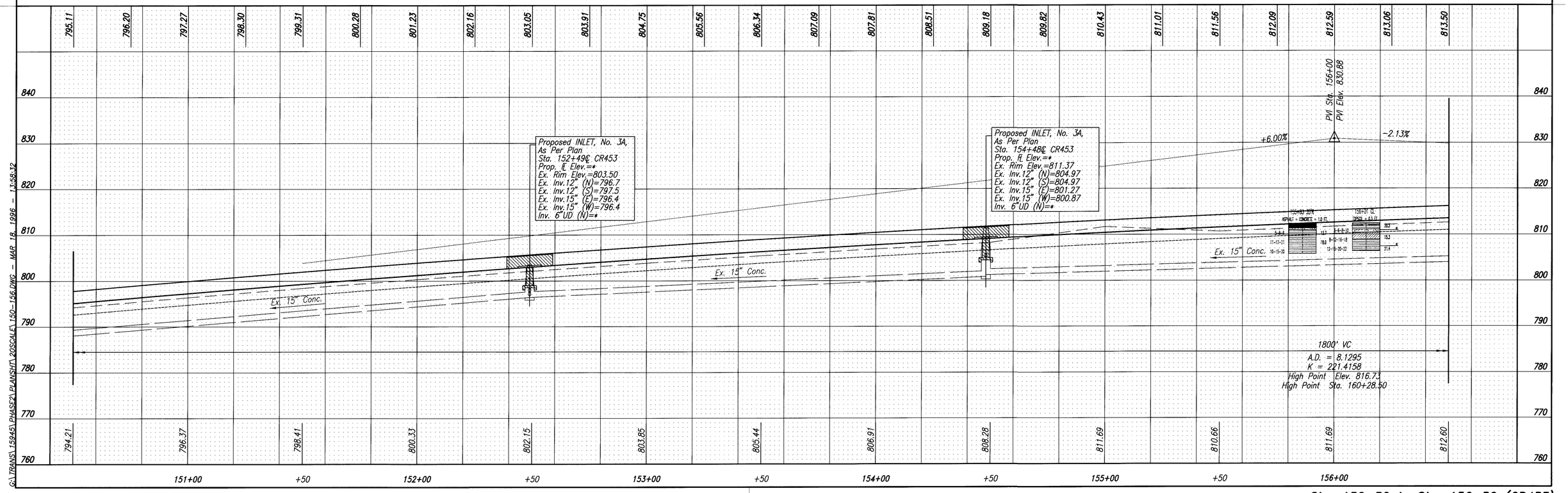
43



NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *



G:\TRANS\15945\PHASE\PLANSHT\ROSCALE\150-156.DWG - MAR 18, 1996 - 13:58:32

Sta. 150+50 to Sta. 156+50 (CR453)

CALC. BY
DATE
CHKD. BY
DATE

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

13
43

Match Line Sta. 156+50

Match Line Sta. 162+50

Ex.LA/RW

Sawcut Line

Concrete Barrier, Type C, As Per Plan

+32.95,4"x6"Inc ℄ 4"UD=*

+*,6"x6"Tee ℄ 6"UD=*

6"Elbow

Sta. 157+32.95℄ CR453 Begin Full Depth Pavement Replacement and Transition End Shoulder Widening End Point: Sawcutting End Break and Seat Existing PCC

Ex. 12"

PT +74.30 End Type C Begin Type A

6"UD

158

W.B. LANES

E.B. LANES

℄ CR453

+51.5,6"x6"Tee ℄ 6"UD=*

Sta. 157+47.5℄ INLET, No. 3A, As Per Plan

Sta. 158+51.5℄ INLET, No. 3A, As Per Plan

Concrete Barrier, Type A, As Per Plan

160

+44.5,6"Cap ℄ 6"UD=*

TB No.26

TB No.27

TB No.28

TB No.29

+44.5,6"Cap ℄ 6"UD=*

+02,6"Cap ℄ 6"UD=*

+02,6"Cap ℄ 6"UD=*

Sta. 160+45.45℄ CR453 End Full Depth Pavement Replacement & Transition Begin Approach Slab Removal & Replacement

+06.07

+31.07

+69.74

+54.90 End Curb

Sta. 160+70.45℄ End Appr. Slab End Conc. Barrier

Sta. 161+75.95℄ Begin Appr. Slab Begin Conc. Barrier

Sta. 161+00.95℄ CR453 End Approach Slab Removal & Replacement, Begin Full Depth Pavement Replacement

+89.99 Begin Curb

+75.24

+13.82

+38.82

DRIVE

ELDORA

8"W

6"C

9ED

Ex.MH

Sta. 10+00.00 ELDORA ROAD= Sta. 161+23.20℄ CR453

+55

813.50 813.91 814.30 814.65 814.98 815.28 815.56 815.80 816.02 816.20 816.36 816.49 816.60 816.67 816.72 816.73 816.72 816.69 816.62 816.52 816.40 816.25 816.07 815.86 815.63

813.60 813.40 814.08 814.65 815.11 815.46 815.69 815.81 815.82 815.72 815.50 815.17 814.72

840 830 820 810 800 790 780 770 760

Sta. 157+32.95 CR453 Begin Full Depth Pavement Replacement and Seat End Break Existing PCC

Ex. 15" Conc.

-2.13%

1800' VC

Sta. 160+45.45 CR453 End Full Depth Pavement Replacement Transition

Sta. 160+70.45 CR453 End Approach Slab Removal & Replacement

Cross County Highway Sta. 161+23.20 CR453 = Sta. 10+00.00 Eldora Road

Sta. 161+75.95 CR453 Begin Approach Slab Removal & Replacement

Sta. 162+00.95 CR453 Begin Full Depth Pavement Replacement Transition

157+00 +50 158+00 +50 159+00 +50 160+00 +50 161+00 +50 162+00

G:\TRANS\159451\PHASE2\PLANSHT\20SCALE\156-162.DWG - MAR 18, 1996 - 13:33:51

Sta. 156+50 to Sta. 162+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

14
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Match Line Sta. 162+50

Match Line Sta. 168+50

Ex.LA/RW

Ex.30"

*D

6"Elbow

TB No.30

*U

6"UD

+*,6"Tee
ℓ 6"UD=*

+25,6"Tee
ℓ 6"UD=*
164

12" Conc.

Ex.12"

Sta. 164+25℄
INLET, No. 3A,
As Per Plan

+*,6"x6"Tee
ℓ 6"UD=*

Sta. 164+48℄
Barrier Wall Assembly,
Type TC-21.41
Design 2

Ex.24"

Sta. 165+13.43℄ CR453
End Full Depth Pavement
Replacement & Transition
Begin Shoulder Widening
Begin Break and Seat
Existing PCC

Sta. 165+92.65℄ CR453
Begin Acceleration Lane
Taper (40:1)
End Shldr. Widening
Begin Full Depth Shldr.

*R

+13.43,6"x4"Red
ℓ 6"UD=*

+13.43,6"x4"Red
ℓ 6"UD=*

24'

W.B. LANES

166

E.B. LANES

+13.43,6"x4"Red
ℓ 6"UD=*

6"Elbow

T

+53

Ex.LA/RW

+*,4"x6"Tee
ℓ 4"UD=*

Sawcut Line

Concrete Barrier,
Type A, As Per Plan

℄ CR453

*P

CORPORATION LINE
VILLAGE OF AMBERLEY
CITY OF BLUE ASH

+92.5,4"x6"Tee
ℓ 4"UD=*
168

Ex.15"

Sta. 167+92.5℄
INLET, No. 3A,
As Per Plan

E

±24

Ex.LA/RW

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *

815.63 815.36 815.07 814.75 814.40 814.02 813.62 813.18 812.72 812.23 811.71 810.65 809.58 808.52 807.46 806.39 805.33 804.26

840 830 820 810 800 790 780 770 760

Sta. 165+13.43℄ CR453
End Full Depth
Pavement Replacement
Begin Break and Seat
Existing PCC

164+83 28℄

-2.13%

Ex. 15" Conc.

PVT Sta. 165+00
PVT Elev. 811.71

1800' VC

814.72 814.17 813.50 812.71 811.82 810.81 809.75 808.68 807.62 806.55 805.49 804.42 803.36

163+00 +50 164+00 +50 165+00 +50 166+00 +50 167+00 +50 168+00

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\162-168.DWG — MAR 18, 1996 — 11:42:09

Sta. 162+50 to Sta. 168+50 (CR453)

CALC. BY DATE
CHKD. BY DATE

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION **5**

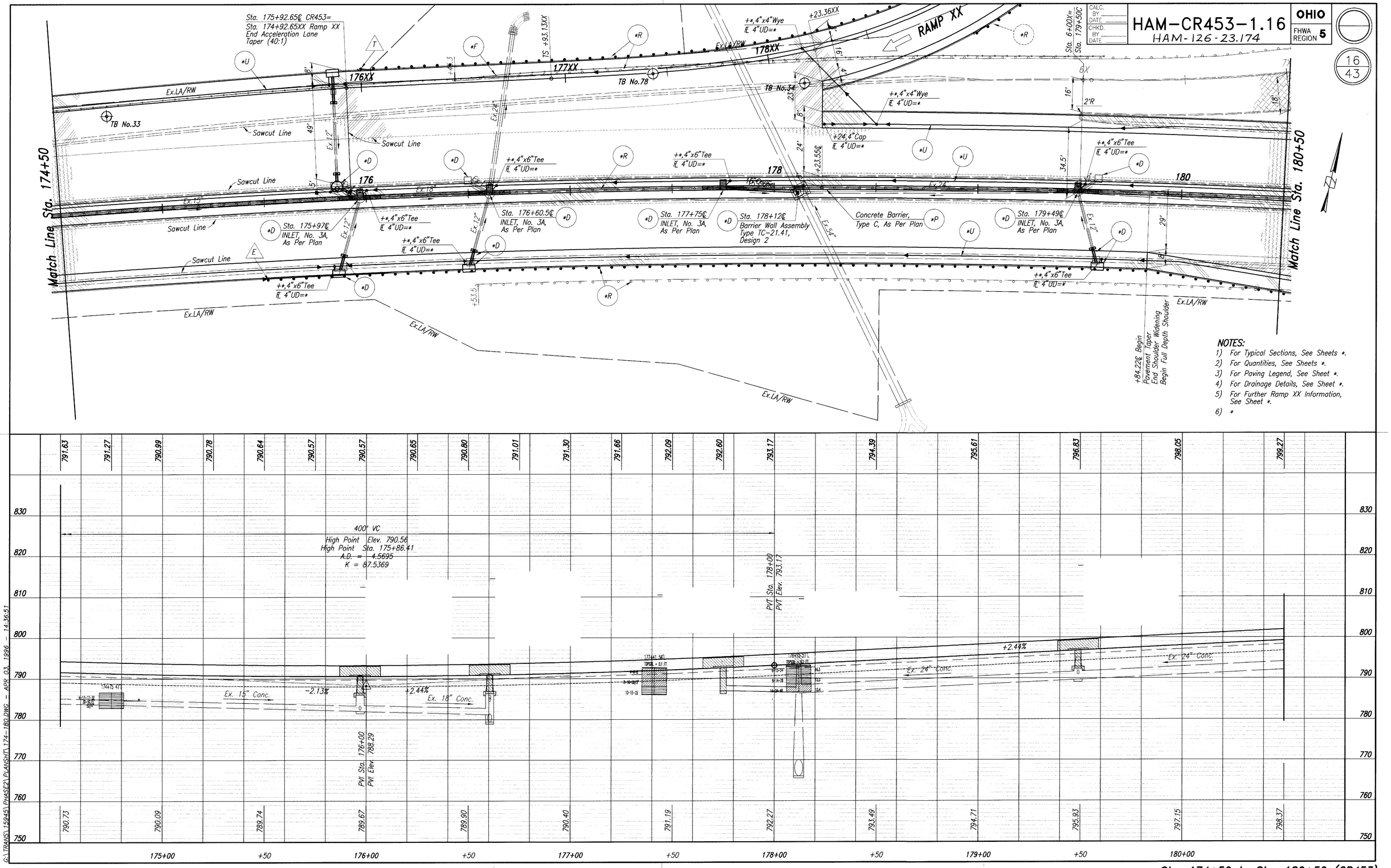
15
43

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\168-174.DWG - MAR 18, 1996 - 11:05:05

Sta. 168+50 to Sta. 174+50 (CR453)

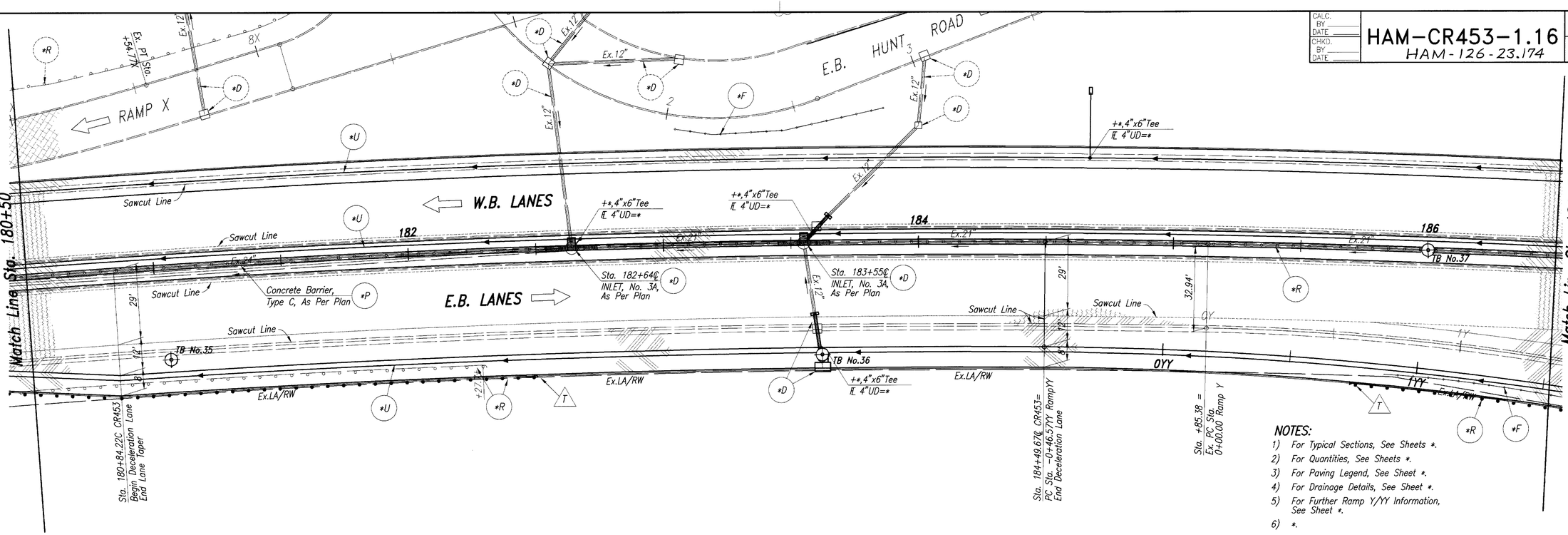


G:\TRANS\15945\PHASE2\PLANSH\174-180.DWG - APR 03, 1996 - 14:36:51

Sta. 174+50 to Sta. 180+50 (CR453)

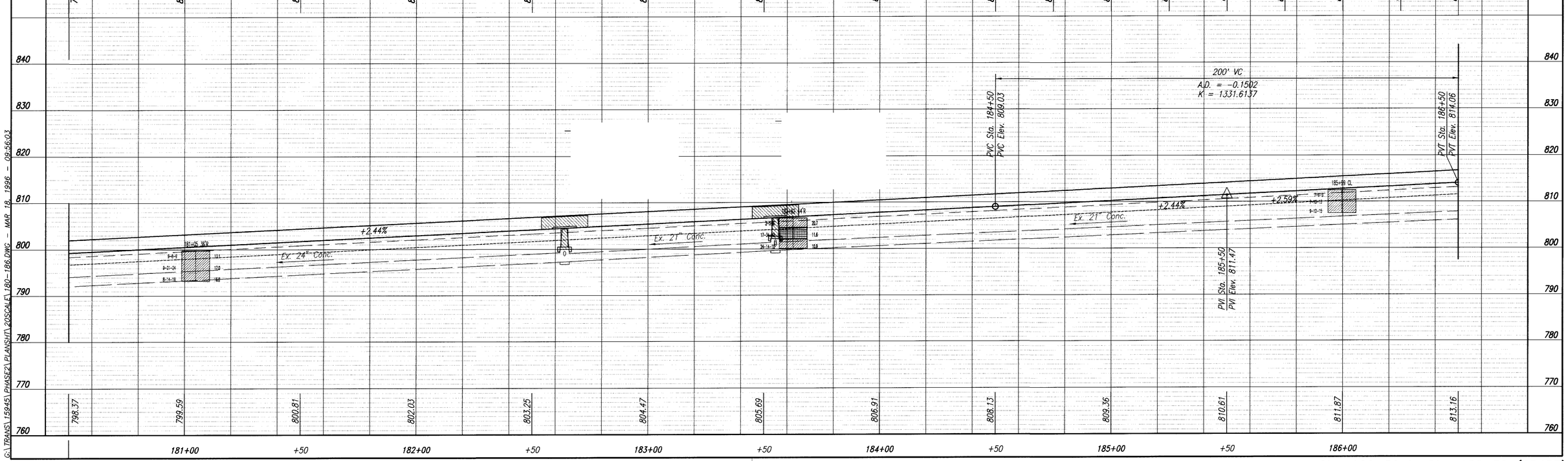
CALC. BY		HAM-CR453-1.16	OHIO
CHKD. BY		HAM-126-23.174	FHWA REGION 5
DATE			

17
43



NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) For Further Ramp Y/YY Information, See Sheet *.
6) *.



Sta. 180+50 to Sta. 186+50 (CR453)

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\180-186.DWG - MAR 18, 1996 - 09:56:03

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

18
43

Match Line Sta. 186+50

Match Line Sta. 192+50

W.B. LANES

E.B. LANES

RAMP Y/YY

Sta. 189+21.50℄ CR453
Begin Full Depth Pavement Undercutting
End Pvm't. Sawcutting
End Break and Seat
Existing PCC

+*,6"x6"Tee
℄ 6"UD=*

+21.50,6"x4"Red
℄ 4"UD=*

6"Elbow

6"UD

*U

*D

*R

*P Concrete Barrier, Type C, As Per Plan

TB No.40

TB No.41

TB No.38

TB No.39

*D Sta. 187+86℄ INLET, No. 3A, As Per Plan

*D Sta. 191+51℄ INLET, No. 3A, As Per Plan

+*,4"x6"Tee
℄ 4"UD=*

+84.22℄

+88.11℄

+83.43Y

+85.38Y

+99.90Y

+08.37Y

PT Sta. 2+85.38Y

PT Sta. 2+99.90Y

*P Paved Gutter Type 1-2

*P Retaining Wall No. 5

Ex. 24"

Ex. 18"

Ex. 12"

Ex. 15"

Ex. LN/RW

188

190

192

2Y

2YY

3YY

4Y

4YY

5Y

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) For Further Ramp Y/YY Information, See Sheet *.
6) *

+2.59%

Ex. 21" Conc.

Ex. 18" Conc.

Ex. 15" Conc.

185+85 54R

185+72 91R

185+50 11R

814.06 815.36 816.65 817.95 819.24 820.54 821.83 823.13 824.42 825.72 827.01 828.31 829.60

813.16 814.46 815.75 817.05 818.34 819.64 820.93 822.03 823.52 824.82 826.11 827.41 828.70

850 840 830 820 810 800 790 780 770

187+00 +50 188+00 +50 189+00 +50 190+00 +50 191+00 +50 192+00

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\186-192.DWG - MAR 18, 1996 - 08:46:24

Sta. 186+50 to Sta. 192+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

19
43

Sta. 9+72.72P Plainfield Road
Sta. 195+72.70℄ CR453

Match Line Sta. 192+50

Match Line Sta. 198+50

6"UD

Ex. Concrete Barrier

+43.23

+02.15

*R Concrete Barrier Removed

*D Concrete Barrier, Type C, As Per Plan

194

*R

+*,6"x6"Tee
ℓ 6"UD=*

*D

Concrete Barrier Transition

12"G

10P

PLAINFIELD ROAD

9P

W.B. LANES

Concrete Barrier Transition

196

*D Sta. 196+26.6℄ INLET, No. 3A, As Per Plan

TB No.43

℄ CR453

Concrete Barrier, Type C, As Per Plan

*P

198

+*,6"x6"Tee
ℓ 6"UD=*

Ex.12"

Ex.15"

*D Sta. 194+50℄ INLET, No. 3A, As Per Plan

Ex.12"

+*,6"x6"Tee
ℓ 4"UD=*

TB No.42

*R Concrete Barrier Removed

*D

+*,6"x6"Tee
ℓ 6"UD=*

E.B. LANES

*D Sta. 198+21.6℄ INLET, No. 3A, As Per Plan

Ex.12"

+*,6"x6"Tee
ℓ 6"UD=*

*D

Ex. Concrete Barrier

+2.15

+43.23

*D

Concrete Barrier Removed

*R

12"G

ROAD

Ex.12"

Ex.12"

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *

829.60 830.90 832.19 833.49 834.78 836.08 837.37 838.67 839.96 841.26 842.55 843.85 845.14

Sta. 194+84.00C CR453
End Full Depth Pavement
Undercutting Transition

Sta. 195+72.70 CR453
Cross County Highway=
Sta. 9+72.72
Plainfield Road

Sta. 196+65.00C CR453
Begin Full Depth Pavement
Undercutting Transition

+2.59%

Ex. 15" Conc.

Ex. 15" Conc.

Ex. 15" Conc.

Ex. 12" Conc.

870 860 850 840 830 820 810 800 790

828.70 830.00 831.29 832.59 833.88 835.18 836.47 837.77 839.06 840.36 841.65 842.95 844.24

193+00 +50 194+00 +50 195+00 +50 196+00 +50 197+00 +50 198+00

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Sta. 192+50 to Sta. 198+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

20
43

Match Line Sta. 198+50

Match Line Sta. 204+50

Ex.LA/RW

Ex.LA/RW

W.B. LANES

E.B. LANES

RAMP A/AA

200

202

203

204

202AA

201AA

203AA

204AA

TB No.44

TB No.45

TB No.46

Concrete Barrier, Type C, As Per Plan

Concrete Barrier, Type A, As Per Plan

Sawcut Line

Sawcut Line

Sta. 201+30.00℄ INLET, No. 3A, As Per Plan

6"UD

6"UD

6"UD

+*,6"x6"Tee ℄ 4"UD=*

+*,6"x6"Tee ℄ 4"UD=*

+27.50,4"x6"Inc ℄ 4"UD=*

+27.50,4"x6"Inc ℄ 4"UD=*

+25,4"x6"Tee ℄ 4"UD=*

6"Elbow

6"Elbow

+39.22,High Point ℄ 4"UD=*

+39.22,High Point ℄ 4"UD=*

+39.22,High Point ℄ 4"UD=*

PT +83.14 End Type C Begin Type A

+93.39℄

+94.85℄

Ex.12"

Ex.12"

Ex.12"

Ex.12"

21'

29'

23'

16'

8'

STATION EQUATION:
Sta. 202+45.23 Back =
Sta. 202+39.22 Ahead

Sta. 202+27.50℄ CR453
End Full Depth Pavement
Replacement & Transition
End Undercutting
Begin Shoulder Widening
Begin Break & Seat Existing PCC

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.

845.14 846.44 847.73 849.03 849.65 850.22 850.74 851.20 851.60 851.95 852.25 852.49 852.68 852.79 852.84 852.90 852.91 852.87 852.77 852.61 852.40 851.95

880 870 860 850 840 830 820 810 800

+2.59% −0.91%

PVC Sta. 200+02
PVC Elev. 849.08

PVI Sta. 202+02
PVI Elev. 854.26

PVT Sta. 203+95.99
PVT Elev. 852.44

400' VC
High Point Elev. 852.97
High Point Sta. 202+98.01
A.D. = 3.5002
K = 114.2794

844.24 845.54 846.83 848.13 849.32 850.30 851.05 851.59 851.91 851.94 852.01 851.87 851.51 851.06

199+00 +50 200+00 +50 201+00 +50 202+00 +50 203+00 +50 204+00

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Sta. 198+50 to Sta. 204+50 (CR453)

CALC. BY DATE
CHKD. BY DATE

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

21
43

Ex.LA/RW
Match Line Sta. 210+50
Match Line Sta. 216+50
Low Point +50,4"x6"Tee
℄ 4"UD=*
Low Point +50.5,4"x6"Tee
℄ 4"UD=*
+09,4"x6"Tee
℄ 4"UD=*
Sta. 210+50.5℄ INLET, No. 3A, AS Per Plan
Sta. 211+09℄ INLET, No. 3A, As Per Plan
Concrete Barrier Type A, As Per Plan
Sta. 213+10℄ INLET, No. 3A, As Per Plan
+35.01℄ CR453 End Deceleration Lane Begin Pavement Taper
+60.01℄ CR453 End Pavement Taper End Full Depth Shldr. Begin Shldr. Widening
W.B. LANES
E.B. LANES
212
214
216
TB No.47
Ex.12"
Plugged
+10,4"x6"Tee
℄ 4"UD=*
Sta. 215+08.5℄ INLET, No. 3A, As Per Plan
+*,4"x6"Tee
℄ 4"UD=*
+08.5,4"x6"Tee
℄ 4"UD=*
Sawcut Line
+*, 4"Elbow
℄ 4"UD=*
+*,4"x6"Tee
℄ 4"UD=*
+*, 4"Elbow
℄ 4"UD=*
Low Point +50,4"x6"Tee
F 4"UD=*
CENTERLINE DEFLECTION
PI Sta. 213+01.80℄
00°15'00" Left
+34.94℄ End Deceleration Lane Taper End Full Depth Shldr. Begin Shldr. Widening
*U
*D
*P
*R
848.59
848.60
848.62
848.66
848.71
848.77
848.84
848.93
849.02
849.14
849.26
849.40
849.55
849.71
849.88
850.07
850.27
850.48
850.71
850.95
851.20
851.46
851.74
852.30
1000' VC
High Point Elev. 848.59
High Point Sta. 210+43.16
A.D. = -2.0303
K = 492.5410
PVI Sta. 215+95
PVI Elev. 851.68
+1.12%
-0.91%
+1.12%
Ex. 18" Conc.
Ex. 15" Conc.
Ex. 24" Conc.
PVI Sta. 210+95
PVI Elev. 846.08
880
870
860
850
840
830
820
810
800
847.70
847.73
847.81
847.95
848.13
848.36
848.65
848.99
849.37
849.80
850.30
850.84
851.40
211+00
+50
212+00
+50
213+00
+50
214+00
+50
215+00
+50
216+00

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) for Work on * BRIDGE + See Sheet *.
5) For Drainage Details, See Sheet *.
6) *

G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\210-216.DWG - MAR 15, 1996 - 14:07:41

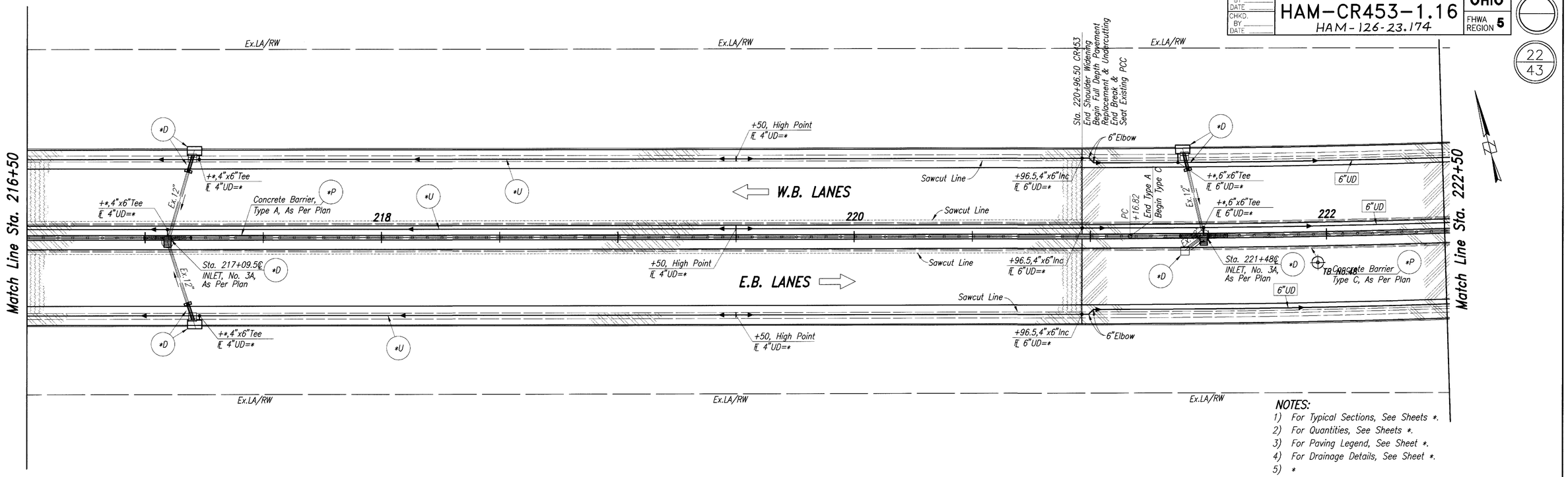
Sta. 210+50 to Sta. 216+50 (CR453)

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

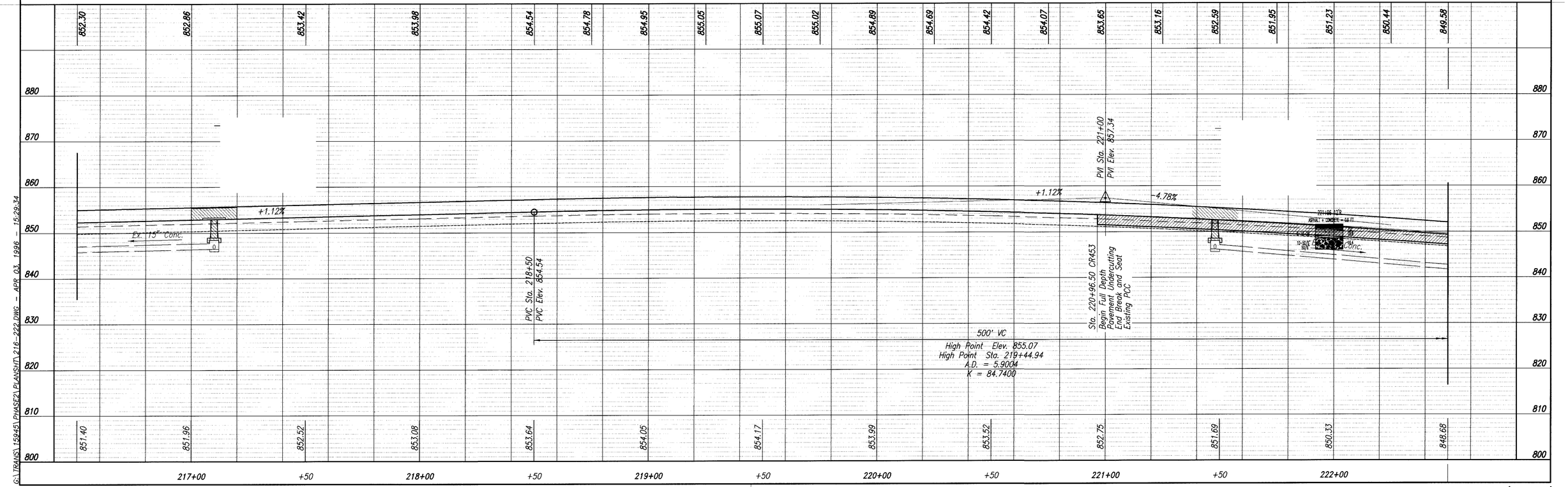
HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

22
43



NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *



G:\TRANS\15945\PHASE2\PLANS\TA 216-222.DWG - APR 03, 1996 - 15:29:34

Sta. 216+50 to Sta. 222+50 (CR453)

HAM-CR453-1.16
HAM-126-23.174
OHIO
FHWA REGION 5


Match Line Sta. 222+50
Match Line Sta. 228+50
Ex.LA/RW
℄ CR453
224
226
W.B. LANES
E.B. LANES
6"UD
+*,6"x6"Tee
℄ 6"UD=*
TB No.49
TB No.50
TB No.51
Sta. 225+50
INLET, No. 3A,
As Per Plan
+59.75C Begin Acceleration Lane Taper (40:1)
Ex.12"
Ex.15"
Ex.18"
Ex.6"
34.38'
24'
Sta. 228+18.55 CR453
Sta. 10+22.61 Railroad Brdg.
849.58
848.64
847.63
846.55
845.39
843.00
840.61
838.22
835.83
833.45
832.34
831.32
830.38
829.52
828.75
828.07
827.47
826.95
826.52
826.18
870
860
850
840
830
820
810
800
790
500' VC
PVI Sta. 223+50
PVI Elev. 845.39
-4.78%
Ex. 12" Conc.
PVC Sta. 225+87.50
PVC Elev. 834.04
525' VC
High Point Elev. 825.64
High Point Sta. 229+38.97
A.D. = -7.1400
K = 73.5294
Sta. 227+59.00 CR453
End Full Depth Pavement
Undercutting Transition
Ex. 15" Conc.
Ex. 27" Conc.
Cross County Highway
Sta. 228+18.55 CR453=
Sta. 10+22.61
Pennsylvania Railroad
PVI Sta. 228+50
PVI Elev. 821.49
848.68
846.63
844.49
842.10
839.71
837.32
834.93
832.55
830.42
828.62
827.17
826.05
825.28
223+00
+50
224+00
+50
225+00
+50
226+00
+50
227+00
+50
228+00
G:\TRANS\15945\PHASE2\PLANSHT\20SCALE\222-228.DWG - MAR 14, 1996 - 10:36:03

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Work on Blue Ash Road Bridge, See Sheet *.
5) For Drainage Details, See Sheet *.
6) NO WORK on Rail Road Bridge.

Sta. 222+50 to Sta. 228+50 (CR453)

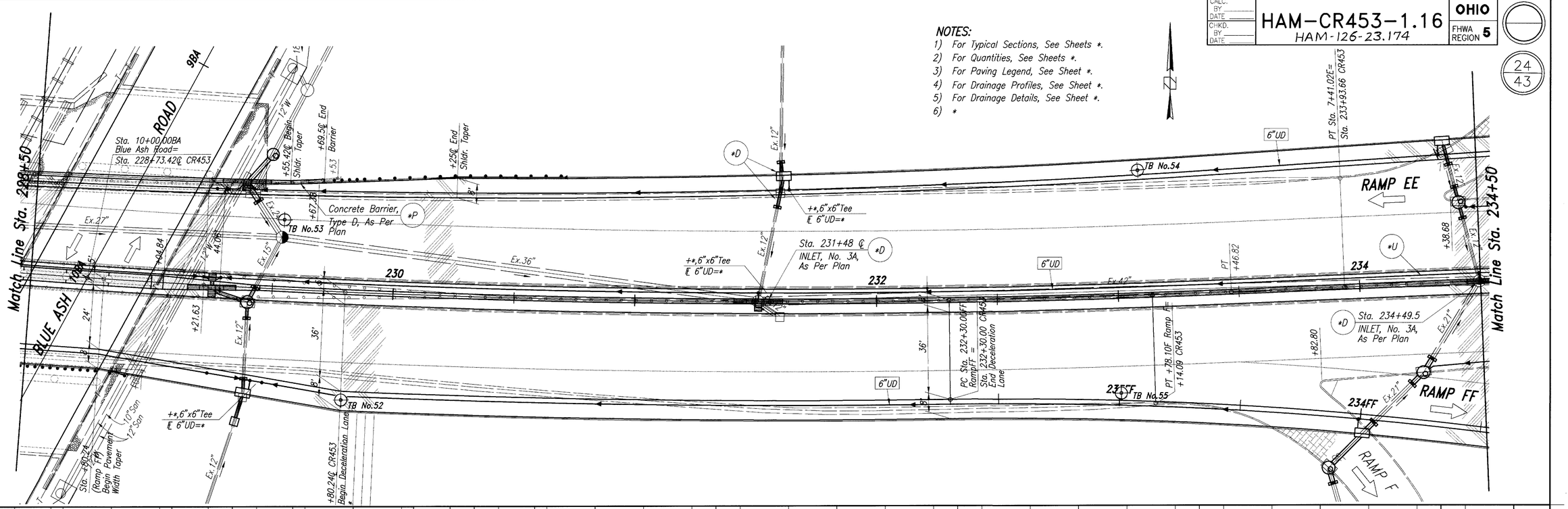
CALC. BY ____ DATE ____
CHKD. BY ____ DATE ____

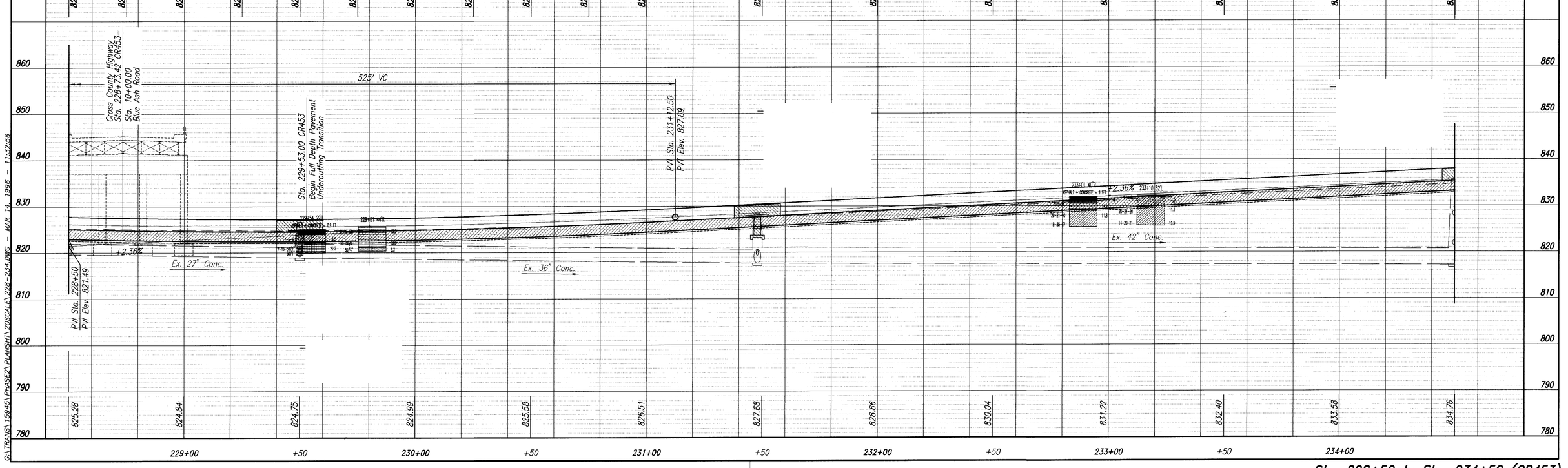
HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

24
43

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *





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Sta. 228+50 to Sta. 234+50 (CR453)

CALC. BY DATE
CHKD. BY DATE

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

25
43

Station x" 4" Tee
℄ x" UD = ***.##

Prop. TS Sta. +59.92EE
= Sta. +59.92
End Acceleration
Lane Taper (40:1)

Prop. Sta. 236+93.65EE

Ex. PC Sta. +00.00G
Sta. +67.66

RAMP EE

236EE

237EE

240GG

RAMP GG

Ex. 48"

Match Line Sta. 234+50

TB No.56

+*, 4"x6"Tee
℄ 6"UD=*

Ex. 12"

Sawcut Line

236

238

++, 6"x4" Red.
℄ 6"UD=*

6"UD

W.B. LANES

240

+91.95

T5 Conc.

Ex. 42"

16" CSPC

TB No.57

TB No.58

E.B. LANES

Sta. 217+09.5 ℄
*D
INLET, No. 3A,
As Per Plan

+93.96

+59.92

+41.79

Ex. PC Sta. 10+00.00H
Sta. 237+96.99 CR453

239FF

236FF

Prop. TS Sta. 234+93.50FF

RAMP HH

239HH

TB No.87
240H

ST +93.27HH

Ex. 60"

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *

+2.36%

PVC Sta. 237+50
PVC Elev. 842.73

Ex. 42" Conc.

1200' VC

835.65 836.83 838.01 839.19 * 840.37 841.55 842.73 843.30 843.85 * 844.36 844.84 845.29 845.70 846.09 846.44 846.76 847.05 847.31 847.54

834.76 835.94 837.12 838.30 839.48 840.66 841.85 842.93 843.92 844.78 845.52 846.13 846.62

870 860 850 840 830 820 810 800 790

235+00 +50 236+00 +50 237+00 +50 238+00 +50 239+00 +50 240+00

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Sta. 234+50 to Sta. 240+50 (CR453)

CALC. BY
DATE
CHKD. BY
DATE

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

26
43

Match Line Sta. 240+50

Match Line Sta. 246+50

Sta. +21.24
Begin Approach Slab Removal and Replacement

Prop. ST Sta. +83.32GG

*D

Ex.12"

TB No.62

241GG

242GG

TB No.64

243GG

Sta. +31.24
End Approach Slab Replacement and Removal

+*,4"x6"Tee
℄ 6"UD=*

Prop. PT Sta. +75.72GG
= Sta. +75.72

TB No.68

*R

244GG

+*, 4"Tee
℄ 4"UD=*
TB No.70

6"UD

Sta. 246+43.74C CR453
End Full Depth Pvmt Replacement
Begin Break and Seat Existing PCC
Begin Shldr. Widening

8'
18'
4'
24'
±80.
End Taper
6'
29'
41'

TB No.59

TB No.66

W.B. LANES

242

244

246

6"UD

+*,6"x4"Red
℄ 6"UD=*

Sawcut Line

24"W

6"W

ROAD

SPKR

KENWOOD

+82.09

TB No.60

Ex.21"

12"G

24'

TB No.67

E.B. LANES

Sawcut Line

6"UD

+75.40
Begin Taper

241HH

242HH

℄
℄ 38+39

+*,6"x6"Tee
℄ 6"UD=*

12" Conc.

TB NO. 61

TB No.61A

Ex.6'x4' Box

Prop. PT Sta. +75.72HH
= Sta. +75.72
Begin Acceleration Lane Taper (40:1)

+15.00
End Taper

Proposed Retaining Wall No. 6

*P

TB No. 65

*R

TB No. 69

12" Conc.

Ex.LA/RW

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Work on Kenwood Road Bridge, See Sheet *.
5) For Drainage Details, See Sheet *.
6) For Retaining Wall Information, See Sheet *.

847.54 847.73 847.90 848.03 848.13 848.20 848.23 848.24 848.22 848.16 848.07 847.95 847.80 847.61 847.40 847.15 846.87 846.56 846.22 845.85 845.44 845.01 844.54 844.04 * 843.51

880 870 860 850 840 830 820 810 800

Sta. 241+21.24 CR453 End Full Depth Pavement Replacement

Sta. 241+46.24 CR453 End Approach Slab Removal & Replacement

Cross County Highway CR453= Sta. 242+41.39 Sta. 50+00.00 Kenwood Road

Sta. 243+06.24 CR453 Begin Approach Slab Removal & Replacement

Sta. 243+31.24 CR453 Begin Full Depth Pavement Replacement

PVI Sta. 243+50
PVI Elev. 856.89

+2.36%

-3.70%

Sta. 246+43.74Q CR453 End Full Depth Pavement Replacement Begin Break and Seat Existing PCC

241+12 68'L
241+34 12'R
241+64 84'R
241+78 103'R
242+02 82'L
242+86 55'L
243+22 26'L
244+01 12'R
244+38 17'R
246+28 38'L

1200' VC
High Point Elev. 848.24
High Point Sta. 242+17.14
A.D. = 6.0624
K = 197.9414

Core data and likely bedding inventory: Shale is very soft to moderately tough, flaky. Core loss 11%. Limestone is hard, crystalline, massive and vuggy in horizontal beds varying from 6" to 4' thick. No core loss. Limestone content ranges from 30% to 75%.

846.62 846.98 847.21 847.32 847.30 846.88 846.88 845.96 845.31 844.53 843.63 842.60

241+00 +50 242+00 +50 243+00 +50 244+00 +50 245+00 +50 246+00

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Sta. 240+50 to Sta. 246+50 (CR453)

CALC. BY ____ DATE ____
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Match Line Sta. 246+50

Match Line Sta. 252+50

Ex.LA/RW

Ex.LA/RW

+82.09℄ End Deceleration Lane

+82.09℄ End Pavement Taper

+*, 4" Tee
℄ 4"UD=*

*R

+37.8

E

TB No.89

41'

24'

Sawcut Line

248

250

252

W.B. LANES

Sta. 249+75℄
INLET, No. 3A,
As Per Plan

+*, 4" Tee
℄ 4"UD=*

+*, 4" Tee
℄ 4"UD=*

+*, 4" Tee
℄ 4"UD=*

Sawcut Line

*P Sta. 248+65℄
INLET, No. 3A,
As Per Plan

*P Sta. 249+00℄
Barrier Wall
Assembly,
Type TC-21.41,
Design 1

Ex.27"

E.B. LANES

*P Sta. 251+75℄
INLET, No. 3A,
As Per Plan

Ex.15"

TB No.88

+76.5

T

*R

+*, 4" Tee
℄ 4"UD=*

Ex.LA/RW

Ex.LA/RW

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Details, See Sheet *.
5) *

843.51 842.95 842.35 841.73 841.07 840.38 839.66 838.91 838.13 837.31 836.46 835.59 834.68 832.82 830.97 829.12 827.27 825.42 823.57

870 860 850 840 830 820 810 800 790

247+51.40℄

-3.70%

1200' VC

PVT Sta. 249+50
PVT Elev. 834.68

842.60 841.44 840.16 838.75 837.22 835.56 833.77 831.92 830.07 828.22 826.37 824.52 822.67

247+00 +50 248+00 +50 249+00 +50 250+00 +50 251+00 +50 252+00

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Sta. 246+50 to Sta. 252+50 (CR453)

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

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HAM-126-23.174

OHIO
FHWA REGION 5

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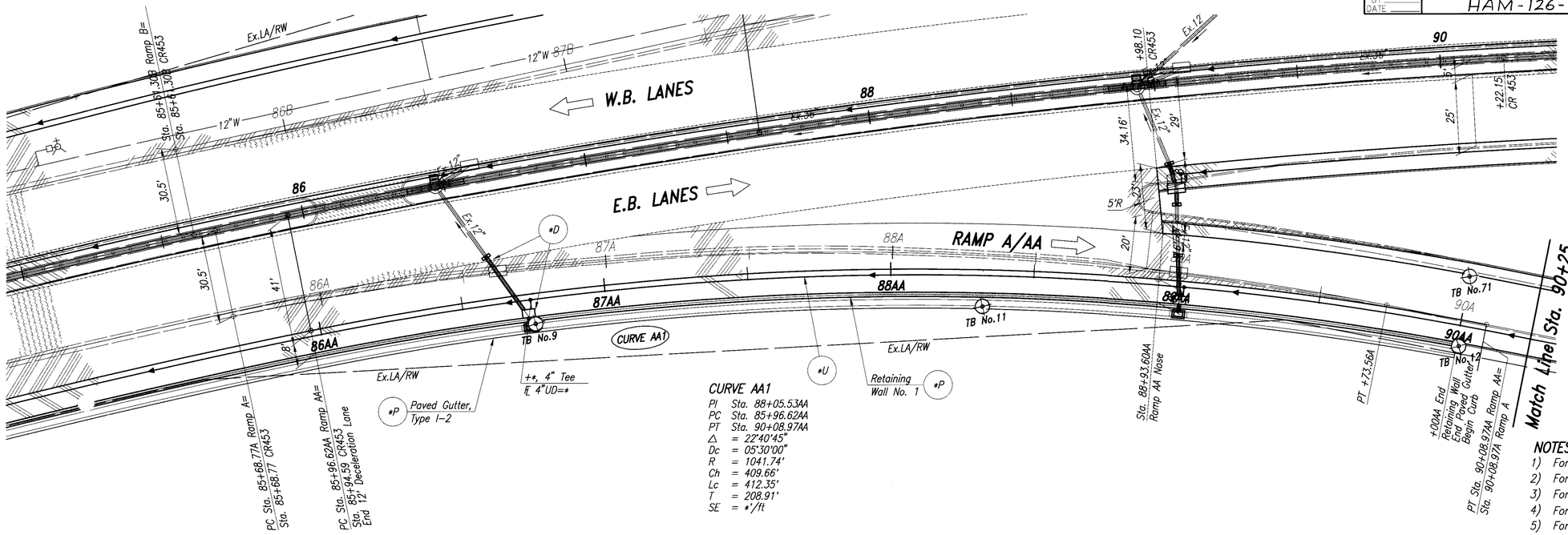

CURVE AA1

PI	Sta.	88+05.53AA
PC	Sta.	85+96.62AA
PT	Sta.	90+08.97AA
△	=	22°40'45"
Dc	=	05°30'00"
R	=	1041.74'
Ch	=	409.66'
Lc	=	412.35'
T	=	208.91'
SE	=	*/ft

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *

G:\TRANS\15945\PHASE2\PLANSHT\RIDGEA1.DWG - APR 18, 1996 - 15:22:34

Sta. 85+68.62AA to Sta. 90+25.00A - RAMP A/AA (RIDGE ROAD)

CALC. BY ____ DATE ____
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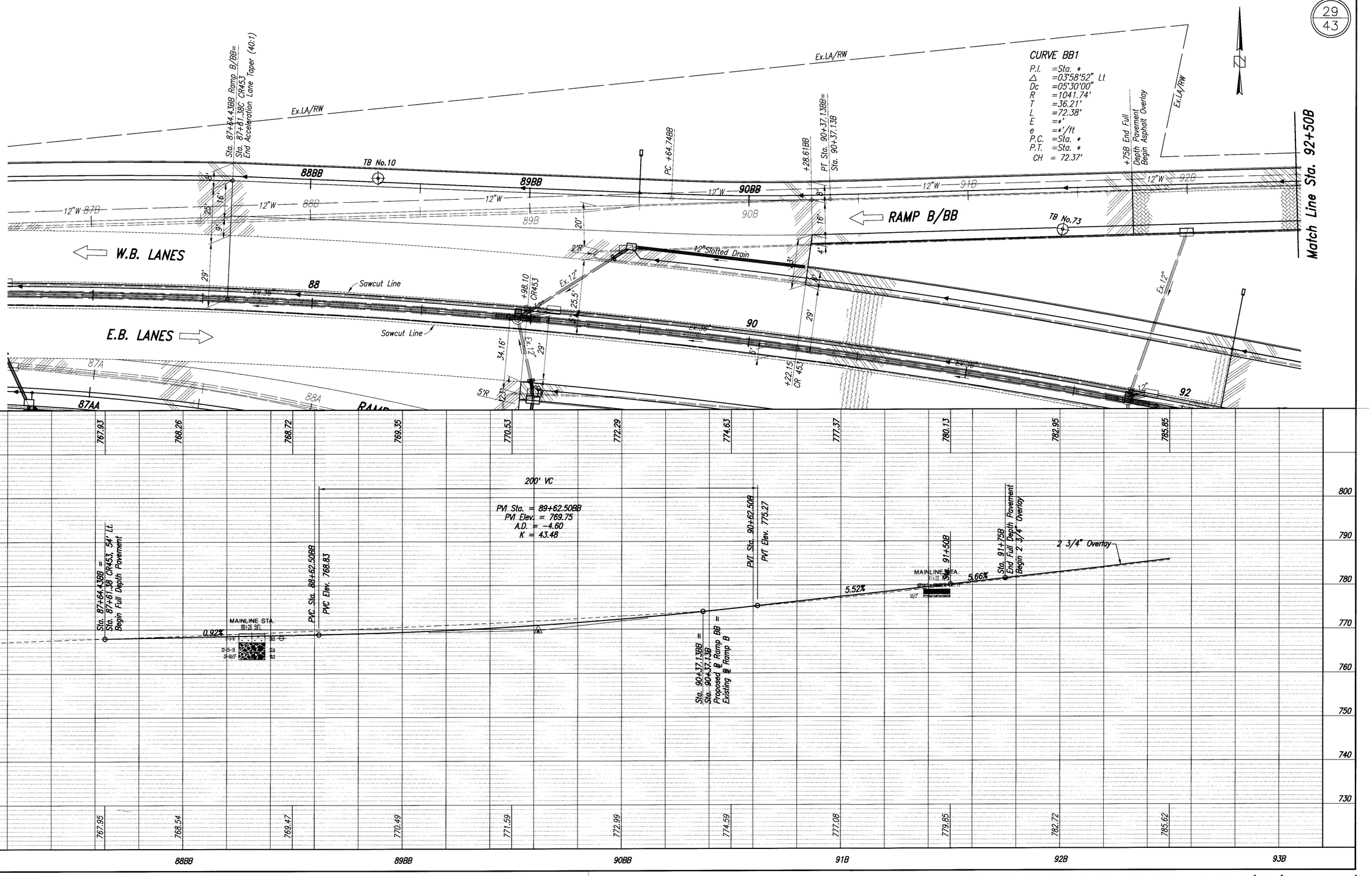

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Sta. 87+64.43BB to Sta. 92+50B – RAMP B/BB (RIDGE ROAD)

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RAMP C/CC
TB No.74
TB No.75
Sta. 11+62.96 RIDGE ROAD =
PC Sta. 96+28.19C RAMP C/CC
Sawcut Lines
Match Line Sta. 100+50CC
Sta. 99+00C RAMP C/CC
End 2-3/4" Overlay
Begin Full Depth Pavement
End Pvmt. Sawcutting
Prop. PC Sta. 100+25.95CC
= Sta. 100+25.95C
Sta. 100+50.00CC
Begin Retaining Wall
Ex. PC+65.31C
+50CC Begin
Paved Gutter,
Type 1-2
Ex.LA/RW
101CC
Sta. 96+28.19C =
Sta. 11+62.96 Ridge Road
Begin 2 3/4" Overlay
2 3/4" Overlay
MAINLINE STA.
Sta. 99+00C
End 2 3/4" Overlay
Begin Full Depth Pavement
-3.60%
PVC Sta. 99+50C
PVC Elev. 789.74
250' VC
High Point Elev. 786.72
High Point Sta. 101+17.91CC
PVI Sta. = 100+75CC
PVI Elev. = 785.24
A.D. = -5.36
K = 46.64
Sta. 100+25.95C =
Sta. 100+25.95CC
Existing ℄ Ramp C =
Proposed ℄ Ramp CC
96C
97C
98C
99C
100C
101CC

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *

Sta. 96+28.19C to Sta. 100+50.00CC - RAMP C/CC (RIDGE ROAD)

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CALC. BY ___ DATE ___
CHKD. BY ___ DATE ___

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *


Curve C/CC 2
Δ = 29°26'39"
R = 818.51'
T = 215.07'
Arc = 420.63'
CH = 416.02'
Dc = 07°00'00"
PC Sta. 100+25.95CC Ahead= Sta. 100+25.95C Back
Match Line Sta. 100+50CC
+50CC Begin Retaining Wall End Curb, Type 6
+50CC Begin Paved Gutter, Type 1-2
+55 C/CC End Taper
Prop. Sta. 100+67.23CC
RAMP C/CC
101CC
102CC
103CC
104CC
101C
102C
103C
104C
102
104
106
Ex.LA/RW
TB No.18
TB No.21
Prop. PT Sta. 104+46.58CC = Sta. 104+30.90 CR453 Begin 12' Deceleration Lane
Ex. PT Sta. 104+51.13OC = Sta. 104+31.19 CR453
+35.63C CR453 End Paved Gutter, Type 1-2
+00C CR453 End Retaining Wall Begin Curb, Type 6
+42.67 CR453
W.B. LANES
E.B. LANES
Ex.12"
Ex.15"
250' VC
Low Point Elev. 786.72
Low Point Sta. 101+17.91CC
PVI Sta. = 100+75CC
PVI Elev. = 785.24
A.D. = -5.36
K = 46.64
PVT Sta. 102+00CC
PVT Elev. 787.44
MAINLINE STA.
1.76%
Sta. 104+46.58CC
Sta. 104+30.90 CR453
End Full Depth Pavement
787.22
786.76
786.63
787.44
788.32
789.20
790.08
790.96
791.78
786.55
786.07
786.73
787.45
788.25
789.64
790.41
791.23
792.08
810
800
790
780
770
760
750
740
100CC
101CC
102CC
103CC
104CC
105CR453

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Sta. 100+50CC to Sta. 104+46.58CC - RAMP C/CC (RIDGE ROAD)

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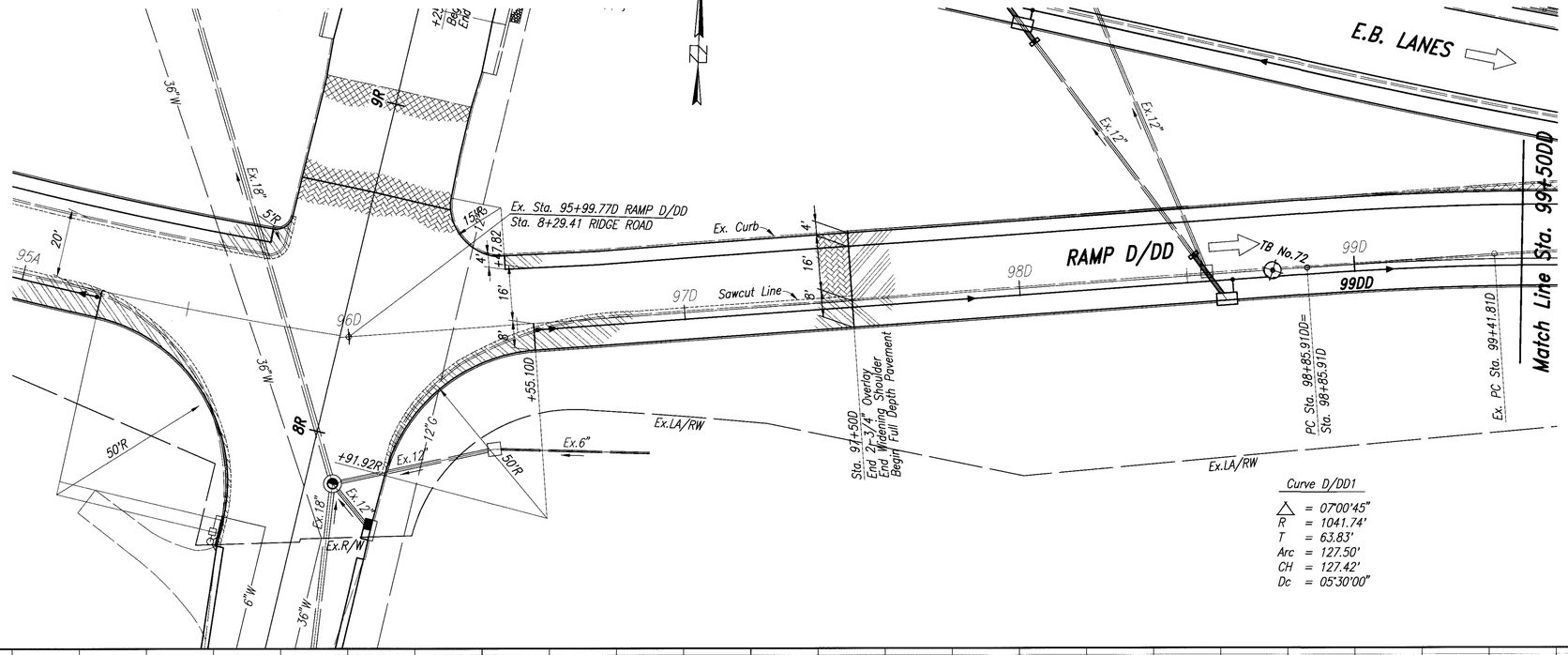
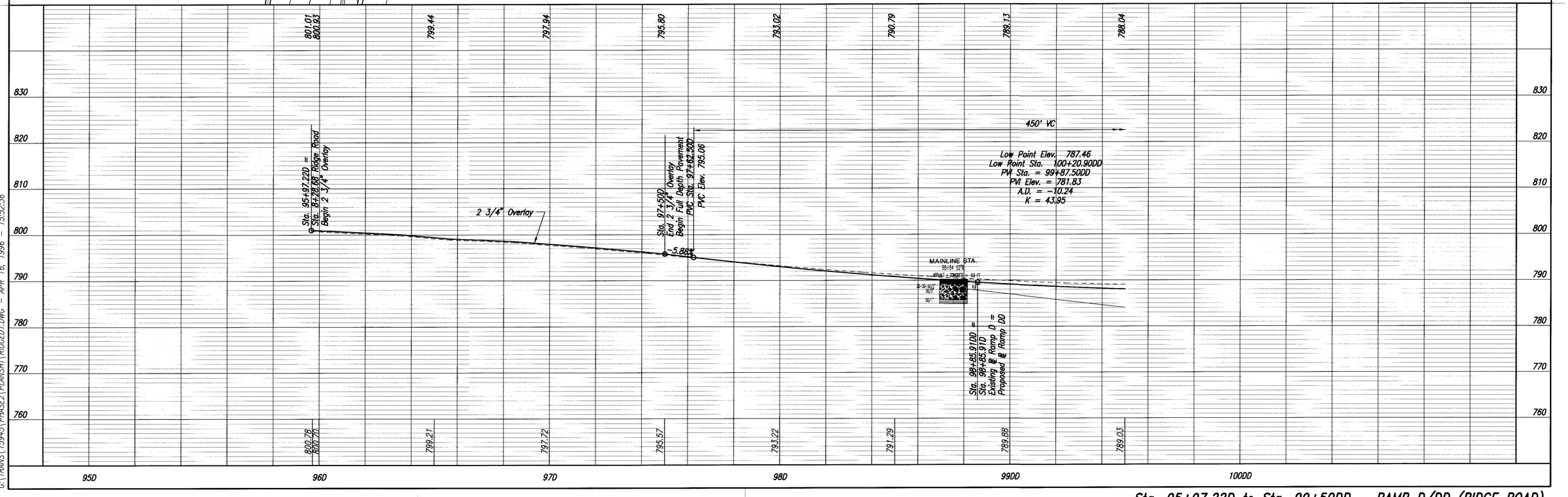


Curve D/DD1

△	= 07°00'45"
R	= 1041.74'
T	= 63.83'
Arc	= 127.50'
CH	= 127.42'
Dc	= 05°30'00"

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *



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Sta. 95+97.22D to Sta. 99+50DD - RAMP D/DD (RIDGE ROAD)

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DATE			

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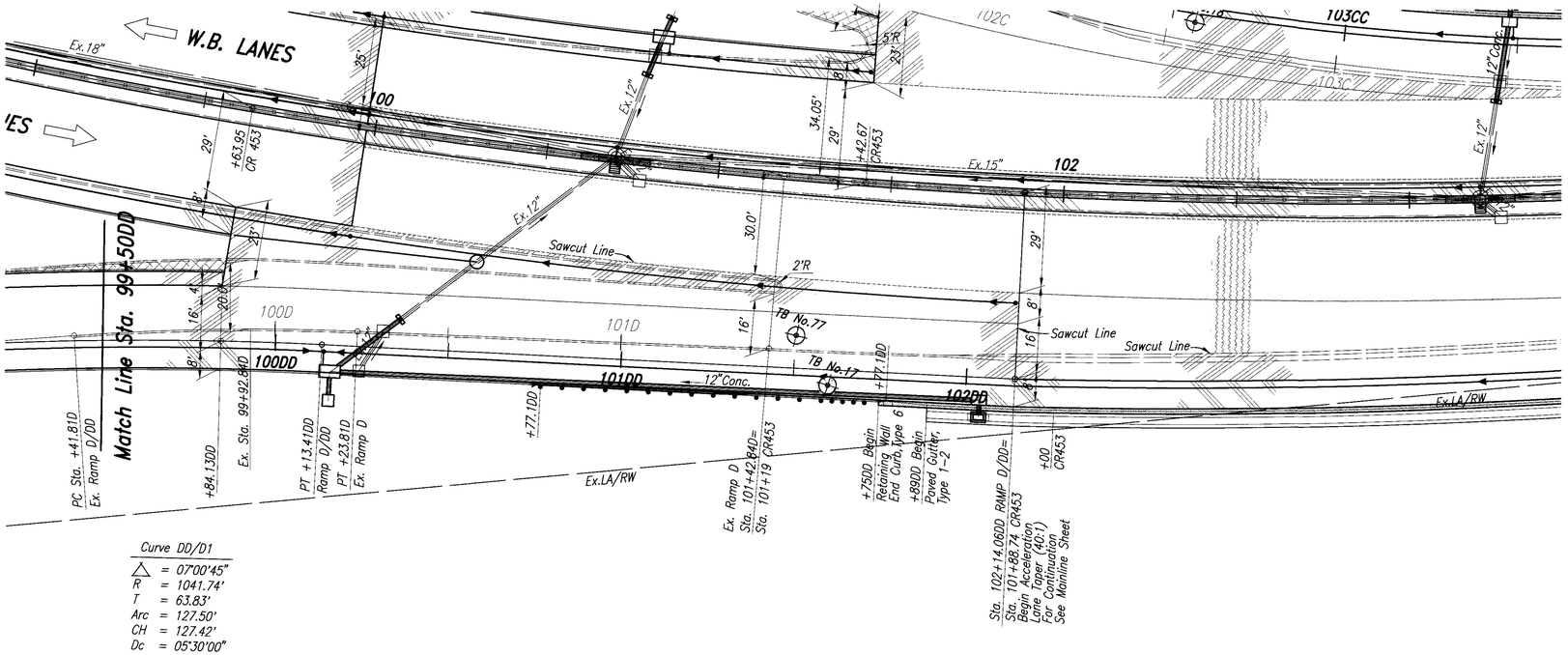
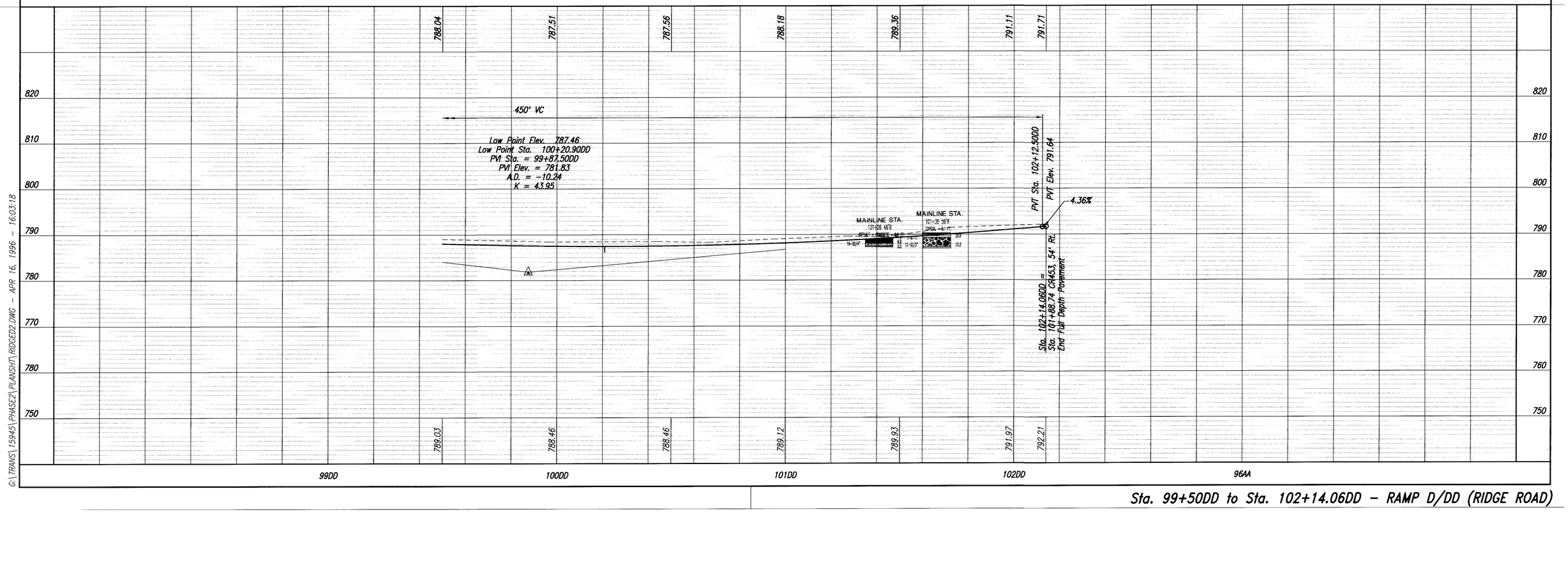


Curve DD/D1

△	= 07°00'45"
R	= 1041.74'
T	= 63.83'
Arc	= 127.50'
CH	= 127.42'
Dc	= 05°30'00"

NOTES:

1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Drainage Profiles, See Sheet *.
5) For Drainage Details, See Sheet *.
6) *



Sta. 99+50DD to Sta. 102+14.06DD – RAMP D/DD (RIDGE ROAD)

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CALC. BY DATE
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RAMP G
RAMP EE
RAMP GG
NORTH CONNECTOR
Prop. TS Sta. 235+59.92EE = Sta. 235+59.92 CR453 End Acceleration Lane Taper (40:1)
L = 200.0000'
R = 150.0000'
Theta = 38°11'50"
X = 191.2921'
Y = 43.0533'
Stan = 69.6239'
Ltan = 136.5756'
A = 173.2051
P = 10.9364
K = 98.5367
Prop. Sta. 239+54.01EE= Ex. Sta. 4+30.42G Ramp G
Prop. PT Sta. 238+99.95
Prop. Sta. 237+33.98GG = Ex. Sta. 4+81.51G Access Road
Δ = 53°29'06"
R = 150.0000'
T = 75.5814'
L = 140.0231'
Dc = 3°11'49.9"
Prop. CS Sta. 237+59.92EE
Prop. Sta. 236+93.65EE
TB No.56
TB No.82
TB No.83
Prop. TS Sta. 234+93.50FF
Ex. PC Sta. 0+00.00H = Sta. 235+86.99 CR453
Sta. 236+15.50 CR453 End Shoulder Widening Begin Full Depth Pavement
Ex.LA/RW
Ex.12"
Ex.21"
236EE
237EE
238EE
239EE
236FF
235FF
236
PVI Sta. = 237+25EE
PVI Elev. = 840.04
A.D. = 0.60
K = 83.33
50' VC
Sta. 235+59.92EE = Sta. 235+59.92 CR453, 54' Lt. Begin Full Depth Pavement
PVC Sta. 237+00EE
PVC Elev. 839.69
PVT Sta. 237+50EE
PVT Elev. 840.24
Sta. 239+30EE End Full Depth Pavement Begin 2 3/4" Overlay
Sta. 239+54.01EE = Sta. 4+30.42G Access Rd. End 2 3/4" Overlay
MAINLINE STA.
1.40%
0.80%
870
860
850
840
830
820
810
800
837.72
838.29
838.99
839.69
840.24
840.64
841.04
841.44
841.80
841.82
837.50
837.64
837.39
837.08
838.78
840.48
842.17
841.89
841.57
841.59
235CR453
236EE
237EE
238EE
239EE
240EE

Sta. 235+59.92EE to Sta. 239+54.01EE - RAMP EE (BLUE ASH & KENWOOD ROAD)

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RAMP EE
RAMP FF
RAMP F
RAMP H
SOUTH CONNECTOR
Ex. PT Sta. 233+46.82
End Full Depth Pavement Replacement & Transition
End Pavement Undercutting
Begin Shoulder Widening
TB No.54
TB No.55
TB No.83
TB No. 84
234
236FF
237FF
237HH
235FF
234FF
238FF
PT +46.82
Ex.42"
Ex.21"
Ex.12"
Prop. PC Sta. 232+30.00 CR453
= Sta. 232+30.00FF
End 12' Deceleration Lane
PT Sta. 8+78.10F =
Sta. 233+14.09 CR453
Δ = 09°13'21"
R = 1637.0223'
T = 132.0364'
L = 263.5024'
Dc = 3°30'00"
Prop. TS Sta. 234+93.50FF
Prop. Sta. 235+00.00FF
Begin Taper
Prop. Sta. 235+50.00FF
End Taper
Begin Taper
Sta. 1+57.08H
L = 200.0000'
R = 150.0000'
Theta = 38°11'50"
X = 191.2921'
Y = 43.0533'
Stan = 69.6239'
Ltan = 136.5756'
P = 10.9364
K = 98.5367
A = 173.2051
Prop. CS Sta. 236+93.50FF
Δ = 44°42'34"
R = 150.0000'
T = 61.6870'
L = 117.0491'
Dc = 38°11'50"
Δ = 35°24'52"
R = 150.0000'
T = 47.8919'
L = 92.7148'
Dc = 38°11'50"
Prop. PC Sta. 237+00.55HH
Prop. Sta. 236+34.20HH
= Ex. Sta. 4+54.23H Access Road
Prop. Sta. 238+26.93FF=
Ex. Sta. 4+08.12H Access Road
B Shift 24' Rt.
PT Sta. 3+14.16H (Ramp H)
= Ex. Sta. 2+89.16H Rt.
150' VC
High Point Elev. 838.53
High Point Sta. 237+04.69FF
PVI Sta. = 237+12.50FF
PVI Elev. = 839.25
A.D. = 3.84
K = 39.06
PVC Sta. 236+37.50FF
PVC Elev. 837.96
PVT Sta. 237+87.50FF
PVT Elev. 837.66
1.72%
-2.12%
Sta. 232+30FF =
Sta. 232+30 CR453, 54' Rt.
Begin Full Depth Pavement
Sta. 238+07.28FF
End Full Depth Pavement
Begin 2 3/4" Overlay
Sta. 238+26.93FF =
Sta. 4+08.12H Access Rd.
End 2 3/4" Overlay
MAINLINE STA.
830.95
831.29
832.15
833.01
833.87
834.73
835.59
836.45
837.31
838.15
838.53
838.27
837.39
836.86
830.59
830.95
831.84
832.77
834.19
835.81
836.51
841.56
844.53
844.08
841.80
839.53
837.26
836.63
870
860
850
840
830
820
810
800
232CR453
233FF
234FF
235FF
236FF
237FF
238FF

Sta. 232+30.00FF to Sta. 238+26.93FF - RAMP FF (BLUE ASH & KENWOOD ROAD)

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DATE

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Prop. Sta. 237+33.98GG RAMP GG
Ex. Sta. 4+81.51G NORTH CONNECTOR

Prop. Sta. 239+54.01EE RAMP EE
= Ex. Sta. 4+30.42G NORTH CONNECTOR

NORTH CONNECTOR

RAMP GG

Curve GG1
Δ = 42°09'53"
R = 150.0000'
T = 57.8273'
L = 110.3872'
Dc = 38°11'50"

Curve GG2
Δ = 07°59'52"
R = 2864.7890'
T = 196.5044'
L = 392.3943'
Dc = 2°00'00"

Ex.LA/RW

Prop. PT Sta. 238+99.95

TB No.82

TB No.85

CS +83.32GG

PC +72.94GG

+56.66GG

+25GG Begin Taper

+75GG End Taper Sta. 240+20GG

240+80 CR453 End Taper

Sta. 241+21.24 CR453 Slab Removal Begin Approach Pavement Replace and +51.52GG End Curb

Begin Appr. Slab Sta. 241+21.24

+81.00 CR453

Match Line Sta. 241+00GG

Ex.12"

237GG 238GG 239GG 240GG 241GG 242GG

842.32 842.26 842.63 843.31 843.99 844.67 845.35 846.03 846.71 847.39 847.86

842.09 842.03 842.59 843.29 843.99 844.69 845.40 846.10 846.80 847.80 847.87

880 870 860 850 840 830 820 810

Low Point Elev. 842.22
Low Point Sta. 237+52.32GG
PVI Sta. = 237+68GG
PVI Elev. = 842.19
A.D. = -1.73
K = 11.53
20' VC

Sta. 237+33.98GG = Sta. 4+81.51G Access Rd. Begin 2-3/4" Overlay

PVC Sta. 237+58GG
PVC Elev. 842.23

PVI Sta. 237+78GG
PVI Elev. 842.33

Sta. 237+58GG End 2-3/4" Overlay Begin Full Depth Pavement

-0.37%

MAINLINE STA. 238+03.76L
329SQ. = 53.0 CY

3-4-5 78.8
5-10-14 143 K
7-7-7
5-7-12 77.8

MAINLINE STA. 238+54.90R
329SQ. = 61.0 CY

5-7-8 77.8
5-4-7 115.6
5-10-15

1.36%

PVC Sta. 241+50GG
PVC Elev. 847.39

150' VC

High Point Elev. = 847.96
High Point Sta. = 242+33.61GG
PVI Sta.= 242+25GG
PVI Elev. = 848.41
A.D. = 2.44
K = 61.48

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Sta. 237+33.98GG to Sta. 242+00.00GG – RAMP GG (BLUE ASH & KENWOOD ROAD)

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DATE			

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SOUTH CONNECTOR

RAMP FF

RAMP HH

RAMP GG

E.B. LANES

W.B. LANES

238HH

239HH

237HH

240

241GG

241HH

240+50HH

Sta. 240+50HH

Match Line

TB No.86

TB No.87

TB No.59

Ex. PC Sta. 3+71.16H

Ex. LA/ RW

Prop. Sta. 238+26.93FF = Ex. Sta. 4+08.12H Access Road

Prop. Sta. 236+34.02HH= Ex. Sta. 4+54.23H Access Road

Ex. PT Sta. 5+13.82H

Prop. PC Sta. 237+00.55HH

Prop. CS Sta. 237+93.27HH

Prop. ST Sta. 239+93.27HH

Prop. ST Sta. 240+83.32GG

Sta. 241+21.24 CR453 Begin Approach Slab Removal and Replacement

Begin Apprr. Slab Sta. 241+21.24

End Curb +51.52GG

240+80 CR453 End Taper

240+75.40 CR453 Begin Taper

+91.05 CR453

+82.09 CR453

+20.31HH

Δ = 35°24'52"
R = 150.0000'
T = 47.8919'
L = 92.7148'
D_c = 38°11'50"

L = 200.0000'
R = 150.0000'
Theta = 38°11'50"
X = 191.2921'
Y = 43.0533'
Stan = 69.6239'
Ltan = 136.5756'
A = 173.2051
P = 10.9364
K = 98.5367

Δ = 075°9'52"
T = 208.7880'
D_c = 108.5044'
392.5543'
210°00"

50'R

30'R

24"W

836.09 836.41 837.43 838.45 839.71 841.43 843.37 844.89 845.81 846.31

880 870 860 850 840 830 820 810

100' VC
PVI Sta. = 238+00HH
PVI Elev. = 839.47
A.D. = 1.88
K = 53.19

125' VC
PVI Sta. = 239+50HH
PVI Elev. = 845.35
A.D. = 2.96
K = 42.23

Sta. 236+34.20HH = Sta. 4+54.23H Access Rd. Begin 2 3/4" Overlay

Sta. 236+58.20HH = End 2 3/4" Overlay Begin Full Depth Pavement

PVC Sta. 237+50HH
PVC Elev. 838.45

PVT Sta. 238+50HH
PVT Elev. 841.43

PVC Sta. 238+87.50HH
PVC Elev. 842.90

PVT Sta. 240+12.50HH
PVT Elev. 845.95

2.04%

2.04%

3.92%

0.96%

MAINLINE STA. 238+16 14¼"

MAINLINE STA. 240+02 84⅛"

835.86 836.18 837.52 838.91 840.30 841.70 843.09 844.49 845.88 846.31

236HH 237HH 238HH 239HH 240HH 241HH

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Sta. 236+34.20HH to Sta. 240+50HH – RAMP HH (BLUE ASH & KENWOOD ROAD)

CALC. BY	HAM–CR453–1.16	OHIO
DATE	HAM-126-23.174	FHWA REGION 5
CHKD. BY		
DATE		

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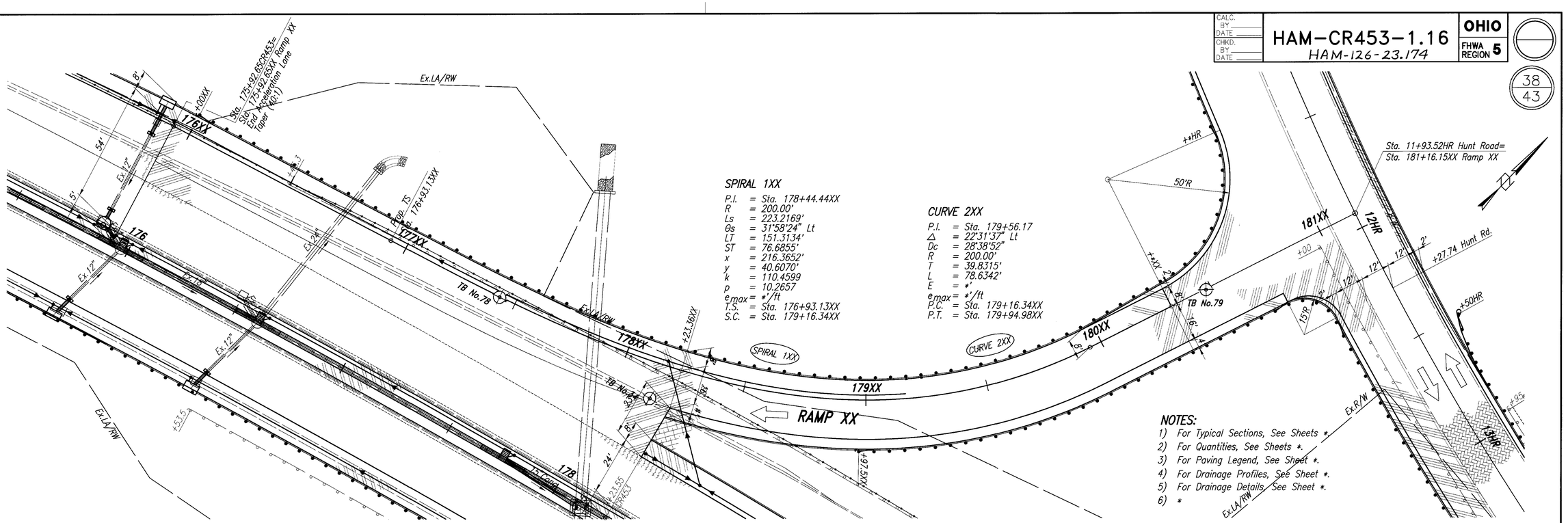
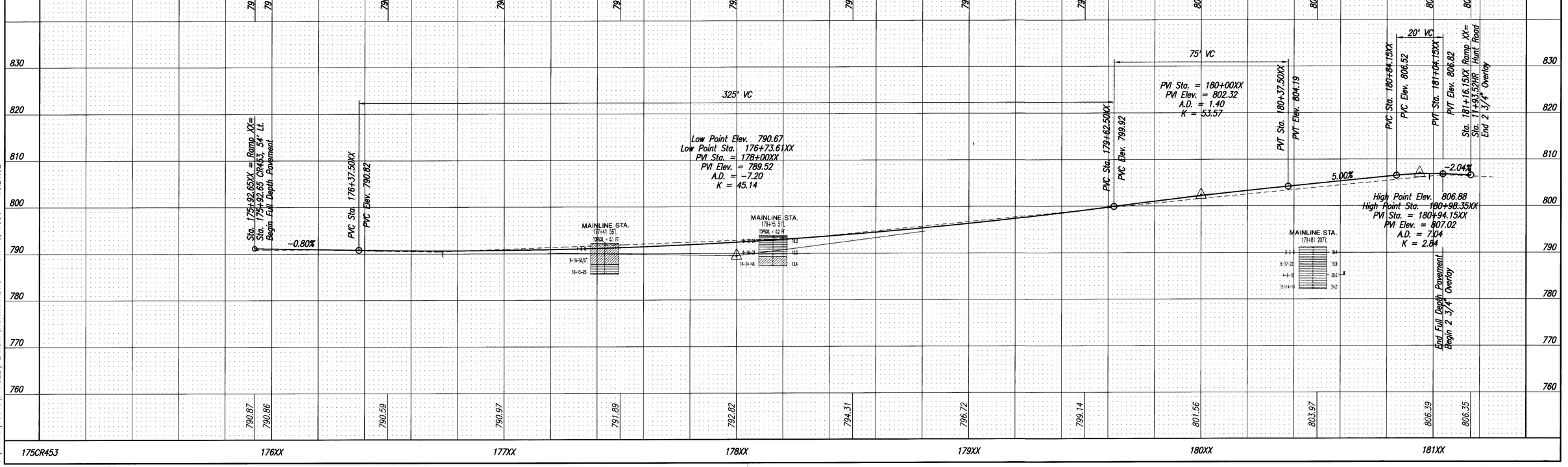
43





Sta. 175+92.65XX to Sta. 181+16.15XX – RAMP XX (HUNT ROAD)

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

HAM–CR453–1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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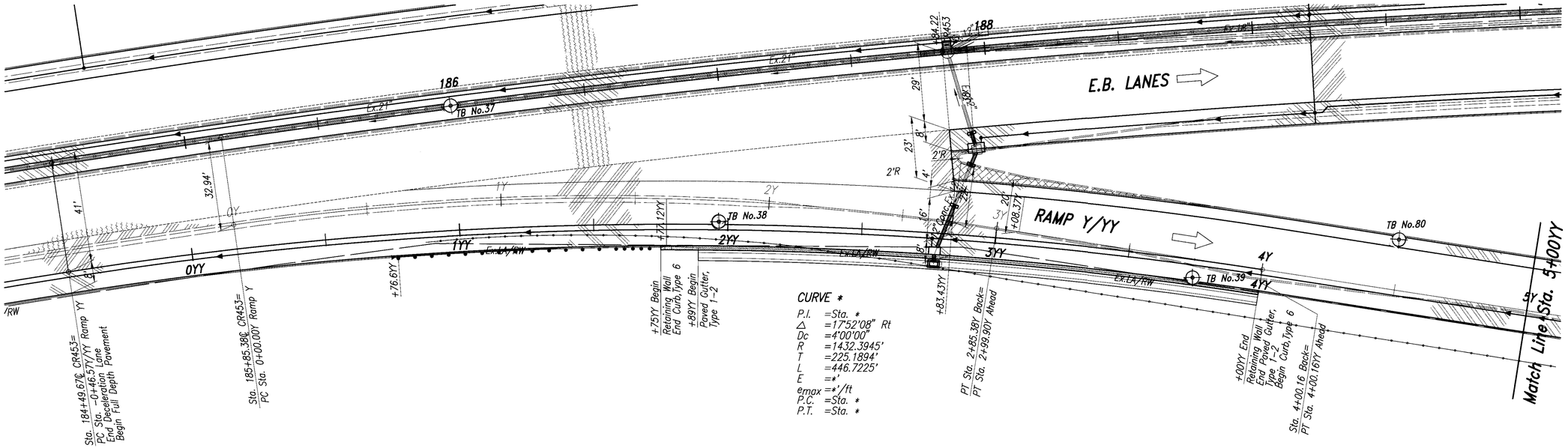

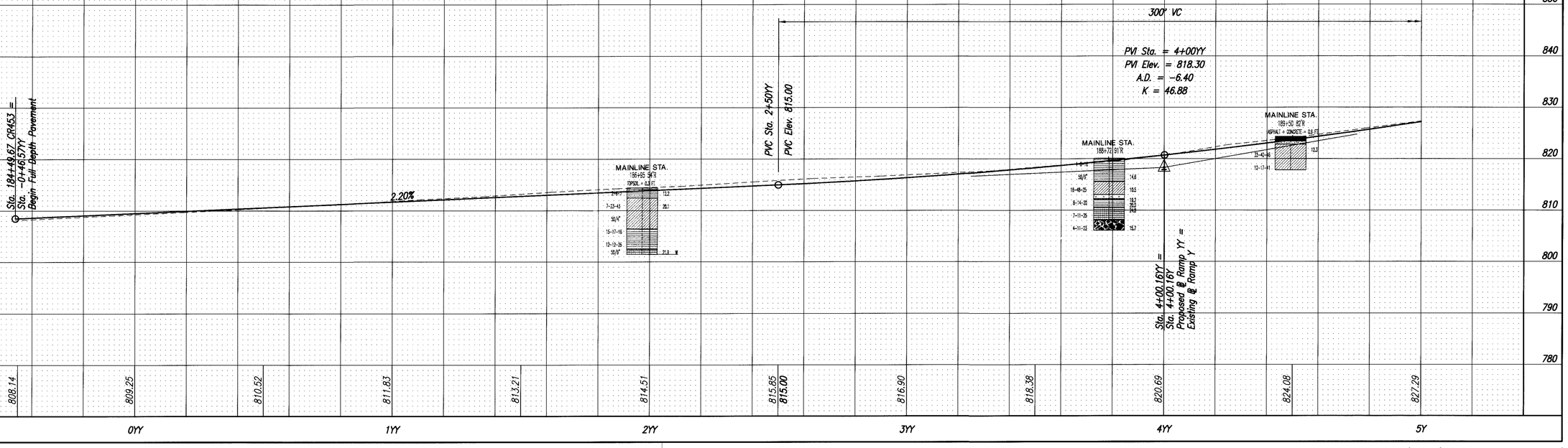

G:\TRANS\15945\PHASE2\PLANSHT\PLAINY1.DWG - APR 16, 1996 - 14:42:32

Sta. -0+46.57YY to Sta. 5+00Y - RAMP Y/YY (PLAINFIELD ROAD)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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Match Line Sta. 5+00Y

5Y

+38Y Begin Pavement Taper Begin Pavement Saw Cutting

+88Y End Pavement Taper

Ex.12"

+48.55Y

6Y

RAMP Y/YY

7Y

TB No.81

8Y

9Y

10Y

Ex. Sta. 7+74.69 PLAINFIELD ROAD
Ex. Sta. 11+03.20Y RAMP Y

+38.18Y

+27.78Y

Ex.LA/RW

Sta. 7+62.50Y End Full Depth Pavement, Begin 2 3/4" Overlay

12"G

6"W

8"P

7P PLAINFIELD ROAD

15'R

5'R

50'R

827.16 831.20 835.50 839.52 843.01 846.02 848.99 851.98 854.97 857.95 861.17 863.19 864.47 864.54

827.29 833.63 836.69 839.77 842.79 845.78 848.76 851.75 854.74 857.73 860.94 862.96 864.24 864.31

125' VC

PVI Sta. = 6+62.50Y
PVI Elev. = 840.87
A.D. = 2.72
K = 45.96

PVT Sta. 7+25Y
PVT Elev. 844.55

300' VC

PVI Sta. = 4+00Y
PVI Elev. = 818.30
A.D. = -6.40
K = 46.88

PVT Sta. 5+50Y
PVT Elev. 831.20

PVC Sta. 6+00Y
PVC Elev. 835.50

8.60%

5.88%

MAINLINE STA.
192+25 1483
CONST. GRADE = 65.0

2 3/4" Overlay

Sta. 11+03.20Y = Sta. 7+74.69 Plainfield Road

870 860 850 840 830 820 810 800

5Y 6Y 7Y 8Y 9Y 10Y 11Y

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Sta. 5+00Y to Sta. 11+03.20Y - RAMP Y/YY (PLAINFIELD ROAD)

CALC. BY DATE	HAM-CR453-1.16 HAM-126-23.174	OHIO FHWA REGION 5
CHKD. BY DATE		

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LEGEND

AUGER BORING LOCATION - PLAN VIEW

PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING 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 INDICATES 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

w INDICATES FREE WATER ELEVATION

INDICATES STATIC WATER ELEVATION

INTRODUCTION

This report consists of a subsurface exploration for a widening of the existing Cross County Highway bridge over Kenwood Road at Station 242+41.39 in Hamilton County, Ohio.

GEOLOGY OF THE SITE

The bridge is located in an artificially filled drainage area underlain by recent alluvial deposits underlain by late Wisconsin Age regressional deposits underlain by Wisconsin to Illinoian Aged overconsolidated glacial deposits underlain by interbedded shale and limestone bedrock of the Upper Ordovician Period.

EXPLORATION

Two (2) test borings were made with a truck-mounted rotary drill rig advancing hollow stem augers. Standard split spoon samples were obtained ahead of the augers in accordance with the procedures outlined in ASTM D1586, at 2.5-feet intervals. Bedrock was cored in Test Boring 64 using a NXM-2" core barrel with a diamond bit.

EXPLORATION FINDINGS

The test borings disclosed medium stiff to stiff fill underlain by recent soft to medium stiff alluvial deposits (A-6b) underlain by unconsolidated glacial deposits (A-6b, A-4a) underlain by over consolidated glacial till (A-6b) to depths of 14.0 to 14.5 feet underlain by interbedded shale and limestone bedrock. The shale is very soft to moderately tough. The shale content ranges from 61% to 72%. The limestone is hard, crystalline, fossiliferous and occurs in layers varying from 1/2" to 4" thick. The limestone content ranges from 39% to 28% with the higher content occurring in the upper ten feet.

SYMBOLS OF ROCK TYPES

- COAL
- WEATHERED MUDSTONE
- MUDSTONE
- WEATHERED SHALE
- SHALE
- CLAYSTONE
- SILTSTONE
- WEATHERED SANDSTONE
- SANDSTONE
- LEACHED DOLOMITE
- DOLOMITE
- LEACHED LIMESTONE
- LIMESTONE
- BOULDERS OR COBBLES

Particle Size Definitions

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

GENERAL INFORMATION

DRIVE SAMPLE - PRESS SAMPLE - CORE BORINGS

Drive sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampling device, at 2 1/2 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 sampling device 18 inches is considered the standard penetration test.

Drive/press sample borings are made by means of a mechanically-powered rotary-type drilling machine, employing a 2" O.D., 1-3/8" I.D. split spoon sampling device, and 3" O.D. thin wall press sampling device. The press sampler is advanced by continuous uniform pressure, applied by the drilling machine.

Core borings are made by means of a mechanically-powered rotary-type drilling machine, employing an NXM core barrel with industrial diamond cutting head.

The boring log sheets display a graphic plot of the information obtained, including depth and elevation of the sample, type of sample, the standard penetration test readings in three 6-inch increments, depth and elevation of press samples, field number assigned to sample, sample description (based on laboratory tests utilizing the Ohio Department of Transportation classification system) and gradation, plasticity and moisture content determinations. Results of strength and consolidation testing, if performed on undisturbed samples, will appear graphically on separate enclosures. Rock samples are displayed on the log sheets including depth and elevation of the sample, amount of recovery and a visual classification based on type, color, degree of hardness, grain size, bedding, and other qualifying factors.

All available soil and bedrock information which can be conveniently shown on the structure subsurface profile investigation sheets has been so reported. Additional subsurface investigation, soil tests and bedrock borings 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, Columbus, Ohio The Pavement and Soils Section of The Bureau of Location and Design or in The Bridge Bureau at 25 South Front Street, Columbus, Ohio.

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

42
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Sta. +21.24
Begin Approach Slab Removal and Replacement

Prop. ST Sta. +83.32GG

*D

Ex.12"

241GG

242GG

243GG

244GG

TB No.64

Sta. +31.24
End Approach Slab Replacement and Removal

+*, 4"x6"Tee
℄ 6"UD=*

Prop. PT Sta. +75.72GG
= Sta. +75.72

*R

+*, 4"Tee
℄ 4"UD=*
TB No.70

6"UD

Sta. 246+43.74℄ CR453
End Full Depth Pvmt'l. Replacement
Begin Break and Seat Existing PCC
Begin Shldr. widening

Match Line Sta. 240+50

±80.
End Taper

18"
8"
4"
24"
6"
29"

TB No.68

8"
41'

W.B. LANES

242

SMR

ROAD

24"W

6"W

244

+*, 6"x4"Red
℄ 6"UD=*

246

Sawcut Line

Match Line Sta. 246+50

+82.09

Ex.21"

12"G

KENWOOD

24'

7"

E.B. LANES

Sawcut Line

+75.40
Begin Taper

241HH

242HH

36139

TB No.61A

+*, 6"x6"Tee
℄ 6"UD=*

12"Conc.

Ex.6'x4' Box

Prop. PT Sta. +75.72HH
= Sta. +75.72
Begin Acceleration Lane Taper (40:1)

+15.00
End Taper

Proposed
Retaining
Wall No. 6

*P

Ex.LA/RW

NOTES:
1) For Typical Sections, See Sheets *.
2) For Quantities, See Sheets *.
3) For Paving Legend, See Sheet *.
4) For Work on Kenwood Road Bridge, See Sheet *.
5) For Drainage Details, See Sheet *.
6) For Retaining Wall Information, See Sheet *.

847.54 847.73 847.90 848.03 848.13 848.20 848.23 848.24 848.22 848.16 848.07 847.95 847.80 847.61 847.40 847.15 846.87 846.56 846.22 845.85 845.44 845.01 844.54 844.04 * 843.51

880 870 860 850 840 830 820 810 800

Sta. 241+21.24 CR453
End Full Depth Pavement Replacement

Sta. 241+46.24 CR453
End Approach Slab Removal & Replacement

Cross County Highway
Sta. 242+41.39 CR453=
Sta. 50+00.00
Kenwood Road

Sta. 243+06.24 CR453
Begin Approach Slab Removal & Replacement

Sta. 243+31.24 CR453
Begin Full Depth Pavement Replacement

PVI Sta. 243+50
PVI Elev. 856.89

+2.36%

-3.70%

Sta. 246+43.74℄ CR453
End Full Depth Pavement Replacement
Begin Break and Seat Existing PCC

241+78.10
ASPHALT + CONCRETE= 1.0 FT

242+88.55

1200' VC
High Point Elev. 848.24
High Point Sta. 242+17.14
A.D. = 6.0624
K = 197.9414

846.62 846.98 847.21 847.32 847.30 847.38 846.88 846.88 845.96 845.31 844.53 843.63 842.60

241+00 +50 242+00 +50 243+00 +50 244+00 +50 245+00 +50 246+00

Sta. 240+50 to Sta. 246+50 (CR453)

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

HAM-CR453-1.16
HAM-126-23.174

OHIO
FHWA REGION 5

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43

LOG OF TEST BORING

PROJECT: Geotechnical Exploration, Cross County Highway, HAM-CR453-1.16, Hamilton County, Ohio

BORING # 61A PROJECT # 93723EJ

LOCATION OF BORING Ramp HH, Blue Ash & Kenwood Road, Sta. 241+78 65'Rt.

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE Cond	Blow * Counts	No.	Type	Recovery	TESTING RESULTS W.C.	ATTERBERG LIMITS L.L.	P.L.	P.I.	GRADATION PERCENTAGE Agg.	C.S.	F.S.	Silt	Clay	SHTL Class
825.7	GROUND SURFACE	0.0																
825.5	ASPHALT (Thickness 3")	1.1		D/I	3/8/10	1A 1B	DS	18"										
824.7	CONCRETE (Thickness 9")																	
824.6	Mixed gray and brown moist medium dense FILL, sand and gravel (BASE LAYER Thickness 1").	4.5		I	7/8/8	2	DS	18"										
821.2	Mixed brown and gray moist stiff FILL, sandy silty clay with trace fine gravel and organics.		5	I	6/5/6	3	DS	16"										
818.7	Mixed brown moist medium stiff FILL, sandy silty clay, trace organics.	7.0		I	6/7/8	4	DS	12"										
	Dark gray moist soft to medium stiff SILTY CLAY with organics (Sediment).		10	I	3/4/5	5	DS	15"	27.9									
813.7		12.0																
811.2	Brown moist stiff to very stiff sandy SILTY CLAY, with iron oxide stains and trace fine gravel (glacial till)	14.5		I	6/7/13	6	DS	15"	22.9									
810.2	Gray moist soft SHALE and thinly bedded LIMESTONE (bedrock).	15.4	15	I	50/5"	7	DS	5"										
	Bottom of test boring at 15.4 feet.																	
	NOTE: Two Shelby tubes were pushed in an offset hole from 9.0 – 11.0 and 12.0 – 14.0 feet below the existing ground surface with 21.0 and 17.5 inches of recovery, respectively.		20															
			25															

Datum USGS
Surf. Elev. 825.7
Date Started 1/26/94

Hammer Wt. 140 lbs.
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 5 in.
Rock Core Dia.
Boring Method CFA

Foreman GB
Engineer MAH/DBT
Date Completed 1/26/94

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED 15.0 ft.
AT COMPLETION Dry ft.
AFTER hrs. ft.
BACKFILLED Immediately hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

* STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

LOG OF TEST BORING

PROJECT: Geotechnical Exploration, Cross County Highway, HAM-CR453-1.16, Hamilton County, Ohio

BORING # 64 (1/2) PROJECT # 93723EJ

LOCATION OF BORING Ramp HH, Blue Ash & Kenwood Road, Sta. 242+88 55'Lt.

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE Cond	Blow Counts	No.	Type	Recovery	TESTING RESULTS W.C.	ATTERBERG LIMITS L.L.	P.L.	P.I.	GRADATION PERCENTAGE Agg.	C.S.	F.S.	Silt	Clay	SHTL Class
831.0	GROUND SURFACE	0.0																
828.5	Mixed brown moist medium stiff FILL silty clay with hair like roots and iron oxide stains, trace coarse sand.	2.5		I	3/5/10	1A 1B	DS	10"										
826.5	Mottled brown moist soft sandy SILTY CLAY with gravel and iron oxide stains and hairlike roots (glacial till).	4.5		I	8/12/12	2	DS	18"										
824.0	Mottled brown, trace gray moist stiff sandy SILT with gravel and iron oxide stains, trace organics, trace hairlike roots.	7.0	5	I	4/5/5	3	DS	8"										
821.5	Mottled brown, trace gray very moist soft to medium stiff sandy SILT, trace iron oxide stains, some clay.	9.5		I	6/2/3	4	DS	18"	27.3									
	Mottled olive brown and brown, trace gray moist stiff sandy SILTY CLAY with gravel and silty sand seams (glacial till).		10	I	10/25/50/3"	5	DS	10"										
817.0		14.0		L	50/6"	6	DS	0"										
	Gray , trace olive brown moist soft WEATHERED SHALE and thinly bedded LIMESTONE (bedrock).		15	D	50/3"	7A 7B	DS	3"										
813.0		18.0		D	50/6"	8	DS	6"										
	Gray SHALE and thinly bedded LIMESTONE. Shale is very soft to soft. Limestone is hard, crystalline, fossiliferous and occurs in horizontal layers varying from 1/2" to 3" thick. Approximately 37% limestone and 63% shale. (bedrock).		20			9	RC	51/60"										
808.0		23.0																
	Gray SHALE and thinly bedded LIMESTONE. Shale is very soft to moderately tough. Limestone is hard, crystalline, fossiliferous and occurs in horizontal layers varying from 1/2" to 4" thick. Approximately 39% limestone and 61% shale. (bedrock).		25			10	RC	52/60"										
803.0		28.0																

Datum USGS
Surf. Elev. 831.0
Date Started 12/3/93

Hammer Wt. 140 lbs.
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia. NXM-2"
Boring Method HSA

Foreman DEH
Engineer MAH/DBT
Date Completed 12/3/93

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION 16.8 ** ft.
AFTER hrs. ft.
BACKFILLED Immediately hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

* STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

LOG OF TEST BORING

PROJECT: Geotechnical Exploration, Cross County Highway, HAM-CR453-1.16, Hamilton County, Ohio

BORING # 64 (2/2) PROJECT # 93723EJ

LOCATION OF BORING Ramp HH, Blue Ash & Kenwood Road, Sta. 242+88 55'Lt.

ELEV.	SOIL DESCRIPTION COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS	STRA. DEPTH	DEPTH SCALE	SAMPLE Cond	Blow * Counts	No.	Type	Recovery	TESTING RESULTS W.C.	ATTERBERG LIMITS L.L.	P.L.	P.I.	GRADATION PERCENTAGE Agg.	C.S.	F.S.	Silt	Clay	SHTL Class
			28.0															
	Gray SHALE and thinly bedded LIMESTONE. Shale is very soft to moderately tough. Limestone is hard, crystalline, fossiliferous and occurs in horizontal layers varying from 1/2" to 4" thick. Approximately 28% limestone and 72% shale. (bedrock).		30			11	RC	58/60"										
798.0		33.0																
	Bottom of test boring at 33.0 feet.		35															
	NOTES: A Shelby tube was pushed in an offset hole from 7.5 to 9.5 feet below the existing ground surface with 23 inches of recovery.																	
	** Water introduced into hole for rock coring. Good water return.																	

Datum USGS
Surf. Elev. 831.0
Date Started 12/3/93

Hammer Wt. 140 lbs.
Hammer Drop 30 in.
Pipe Size 2 in. O.D.

Hole Diameter 8 in.
Rock Core Dia. NXM-2"
Boring Method HSA

Foreman DEH
Engineer MAH/DBT
Date Completed 12/3/93

SAMPLE CONDITIONS
D – DISINTEGRATED
I – INTACT
U – UNDISTURBED
L – LOST

SAMPLE TYPE
DS – DRIVEN SPLIT SPOON
PT – PRESSED SHELBY TUBE
CA – CONTINUOUS FLIGHT AUGER
RC – ROCK CORE

GROUND WATER DEPTH
FIRST NOTED None ft.
AT COMPLETION 16.8 ** ft.
AFTER hrs. ft.
BACKFILLED Immediately hrs.

BORING METHOD
HSA – HOLLOW STEM AUGERS
CFA – CONTINUOUS FLIGHT AUGERS
DC – DRIVING CASING
MD – MUD DRILLING

* STANDARD PENETRATION TEST – DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS