TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

November 19, 2013

CALL NO. 109
CONTRACT ID NO. 131218
ADDENDUM # 1

Subject: Hart County, NHPP IM 0652 (089)
Letting November 22, 2013

(1)Revised - Plan Sheets
(2)Added - Special Notes - Pages 17(a)-17(i) of 224
(3)Added - Traffic Loops - Pages 17(j)-17(rr) of 224
(4)Revised - Bid Items - Pages 216-224 of 224

Proposal revisions are available at http://transportation.ky.gov/Construction-Procurement/.

Plan revisions are available at http://www.lynnimaging.com/kytransportation/.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Ryan Griffith

Ryan Griffith
Acting Director
Division of Construction Procurement

RG:ks
Enclosures

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

HART
I-65
OVER CSX RAILROAD
STA. 3324+82.14

ESTIMATE OF QUANTITIES

BID ITEM CODE		08100	08104	08150	08151	08001	08002	02231	02998	08046	8094	08033	03299	21532ED	24539EC	8020	8039	23964EC									
BID ITEM		Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Structure Excavation, Common	Structure Excavation, Solid Rock	Structure Granular Backfill	Masonry Coating	Piles - Steel HP 12 x 53	Pile Points 12"	Test Piles	Armored Edge for Concrete	Railing System Type 3	PCC I Beam HN 60-49"	Crushed Aggregate Slope Protection	Pre-Drilling For Piles	Protective Fence									
UNIT		C.Y.	C.Y.	LBS.	LBS.	C.Y.	C.Y.	C.Y.	S.Y.	L.F.	EA.	L.F.	L.F.	L.F.	L.F.	TON	L.F.	L.F.									
Substructure	Semi-Integral Abut. 1	357	11.7	26,785	940	173	1,190	551	105																		
	Semi-Integral Abut. 2	435	11.7	30,082	940	173	1,409	803	105	357	22	27				70	220										
Superstructure			792.4		145,737				630				373.4	261.3	1,771			261									
BRIDGE TOTALS		792	815.8	56,867	147,617	346	2,599	1,354	840	357	22	27	373.4	261.3	1,771	70	220	261									

INDEX OF SHEETS

SPECIAL NOTES

SPECIAL PROVISIONS

69 Embankment at Bridge End Bent Structures

STANDARD DRAWINGS

BBP-001-12	Elastomeric Bearing Pads for Prestressed Beams
BBP-002-04	Bearing Details
BGX-006-09	Stencils for Structures
BGX-012-02	Geotechnical Legend
BJE-001-12	Neoprene Expansion Dams and Armored Edges
BPS-003-08	HP12x53 Steel Pile

SPECIFICATIONS

2012 Standard Specifications for Road and Bridge Construction.

6th Edition AASHTO LRFD Design Specifications (2012)

REVISION	DATE
1 Added Protective Fence Bid Item	11/2013

DATE: 09/26/2013 | CHECKED BY
DESIGNED BY: C. Renfro | R. Wade
DETAILED BY: J. Lopez | R. Wade

STATE OF KENTUCKY
ROGER J WADE
9860
LICENSED
PROFESSIONAL ENGINEER

09/26/2013

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

ROUTE: **I-65** | CROSSING: **CSX Railroad**

TITLE SHEET

ITEM NUMBER: **4-14.00**

PREPARED BY

Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

SHEET NO. S1
DRAWING NO. 26935

LETTING DATE
CONSTRUCTION PROJECT NO.

LETTING DATE

CONSTRUCTION PROJECT NO.

⚠ REVISED 11-13-13

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

HART
I–65
OVER CSX RAILROAD
STA. 3324+82.14

ESTIMATE OF QUANTITIES

BID ITEM CODE		08100	08104	08150	08151	08001	08002	02231	02998	08046	8094	08033	03299	21532ED	24539EC	8020	8039	23964EC
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UNIT		C.Y.	C.Y.	LBS.	LBS.	C.Y.	C.Y.	C.Y.	S.Y.	L.F.	EA.	L.F.	L.F.	L.F.	L.F.	TON	L.F.	L.F.
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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
HART

ROUTE
I–65

CROSSING
CSX Railroad

TITLE SHEET

ITEM NUMBER
4–14.00

PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

SHEET NO.
S1

DRAWING NO.
26935

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2B1

TYPICAL SECTIONS
DETAILS & PAVEMENT DESIGN

NOTES :

(1) REMOVE EXISTING ASPHALT SHOULDER PAVEMENT , DGA , AND EDGE DRAIN TO RECEIVE NEW MEDIAN PAVEMENT. ALL MATERIALS REMOVED , EXCLUDING THE PIPE AND HEADWALLS, MAY BE USED IN THE BOTTOM LIFT OF SUBGRADE FILL FOR THE NEW MEDIAN IN LIEU OF BORROW MATERIAL.

(2) EXISTING LONGITUDINAL EDGE DRAINS THROUGH WIDENED AREAS AND ON OUTSIDE EDGE OF EXISTING PAVEMENT SHALL BE REMOVED AND NEW EDGE DRAINS CONSTRUCTED AS SHOWN IN THE DETAILS FOR THE PROJECT

ALL LONGITUDINAL PIPE DRAINAGE SYSTEMS FOR THE PAVEMENT DRAINAGE BLANKET SHALL BE OUTLETTED TO A HEADWALL OR MEDIAN BOX INLET. OUTLETS SHALL BE IN FILL SECTION WHENEVER POSSIBLE. OUTLET SPACING FOR THE 4" PIPE ON THE OUTSIDE EDGE OF EXIST. PVMT. SHALL NOT EXCEED 500 FEET EXCEPT GRADES 1% OR LESS , THEN THE SPACING SHALL NOT EXCEED 250 FEET. OUTLET SPACING FOR 6" PERFORATED PIPE SHALL NOT EXCEED 1000 FEET. ALL SAGS SHALL HAVE AN OUTLET.

(3) CORRECTING THE EXISTING CROSS SLOPE FROM 1.56% TO 2% AND SHIFTING THE PROPOSED CROWN 2' - 9" FROM THE EXISTING SHALL BE DONE USING A LEVELING AND WEDGING COURSE. CORRECTING ANY IRREGULARITIES IN THE EXISTING PAVEMENT PROFILES SHALL ALSO BE INCORPORATED INTO THIS LEVELING AND WEDGING COURSE

(5) THE INSPECTION AND CERTIFICATION OF THE EDGE DRAIN SYSTEM SHALL BE DONE AFTER THE PROJECT HAS BEEN COMPLETED, NOT AT THE COMPLETION OF THE EDGE DRAIN SYSTEM.

(6) FABRIC GEOTEXTILE TYPE IV, CRUSHED AGGREGATE SIZE 57 ARE INCIDENTAL TO PERFORATED PIPE - 4" OR PERFORATED PIPE - 6" AS APPLICABLE. REMOVAL OF EXISTING EDGE DRAIN ON OUTSIDE SHOULDER SHALL BE INCLUDED IN THE UNIT PRICE BID FOR NEW PERFORATED PIPE. WASTE THE EXISTING UNDERDRAIN PIPE. HEADWALLS SHALL BE REUSED IF POSSIBLE AND PAID FOR UNDER BID ITEM "REMOVE & RESET PERF.PIPE HEADWALL."

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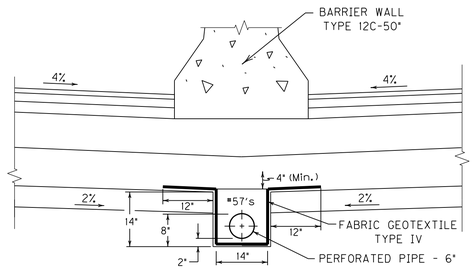


PERF. PIPE DETAIL

LONGITUDINAL DRAINAGE FOR DRAINAGE BLANKET (MEDIAN)

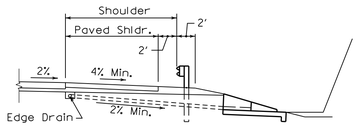
PERFORATED PIPE - 6"	LIN. FT.
NON-PERFORATED PIPE-6"	LIN. FT.
INSPECT & CERTIFY EDGE DRAIN SYSTEM	LP. SUM

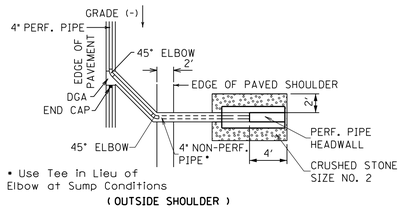
LONGITUDINAL PAVEMENT EDGE DRAINS (OUTSIDE SHOULDER)

PERFORATED PIPE-4"	LIN. FT.
NON-PERFORATED PIPE-4"	LIN. FT.
CRUSHED AGGREGATE SIZE NO. 2 EDGE DRAIN OUTLET HEADWALLS	TON (Est. @ One Per Outlet) EACH
INSPECT & CERTIFY EDGE DRAIN SYSTEM	LP. SUM

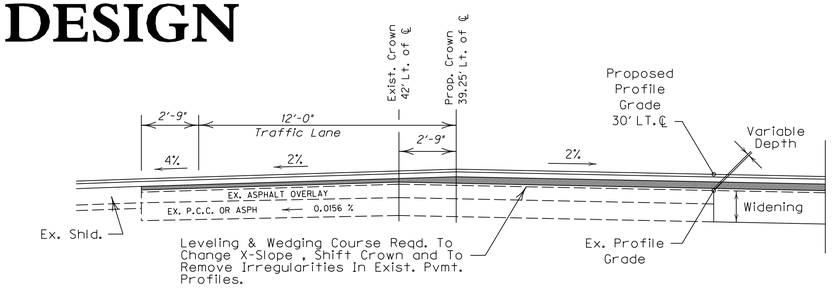
LONGITUDINAL PAVEMENT EDGE DRAIN - REPLACE EXISTING

(Perforated Pipe)





(OUTSIDE SHOULDER)



CROWN SHIFT DETAIL

(SOUTHBOUND SHOWN)

SPECIAL NOTE FOR PAVEMENT SUBSURFACE DRAINAGE OUTLET

A QUANTITY OF CRUSHED AGGREGATE SIZE NO. 2 AS DEFINED IN THE CURRENT "KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" SHALL BE USED AT ALL PERFORATED PIPE HEADWALL OUTLETS AS ILLUSTRATED IN THE DETAIL AT RIGHT. CRUSHED AGGREGATE SIZE NO. 2 SHALL BE PLACED A MINIMUM DEPTH OF 4 INCHES AS DETAILED AT RIGHT.

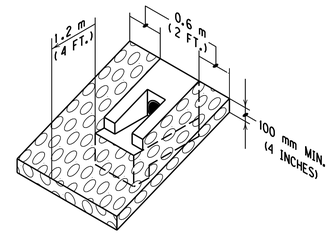
DENSE GRADED AGGREGATE (DGA) REMOVED DURING PLACEMENT OF THE CRUSHED AGGREGATE SIZE NO. 2 SHALL BE USED TO DRESS THE EXISTING SHOULDERS WHERE DGA IS EXPOSED. OTHER MATERIALS REMOVED DURING PLACEMENT OF THE CRUSHED AGGREGATE SIZE NO. 2 SHALL BE WASTED AS DIRECTED BY THE ENGINEER. NO DIRECT PAYMENT WILL BE ALLOWED FOR DISPOSAL OF WASTED MATERIAL.

THE CONTRACT UNIT PRICE FOR "CRUSHED AGGREGATE SIZE NO. 2" SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, AND OTHER INCIDENTALS NECESSARY TO PLACE CRUSHED AGGREGATE SIZE NO. 2 FOR CONTROL OF VEGETATION AND/OR EROSION CONTROL AT PAVEMENT EDGE DRAIN OUTLETS.

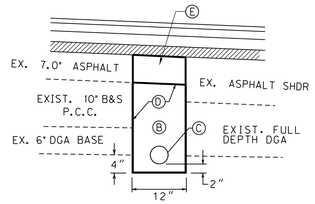
SEE CURRENT STANDARD DRAWING RDP-010 FOR DIMENSIONS AND OTHER DETAILS.

ESTIMATE ONE TON OF CRUSHED AGGREGATE SIZE NO. 2 FOR EACH PERFORATED PIPE HEADWALL OUTLET.

PERFORATED PIPE EDGE DRAINS LOCATED IN SAGS SHALL BE OUTLETED WITH A "T" CONNECTION, 4" NON-PERFORATED PIPE AND SUITABLE EDGE DRAIN OUTLET HEADWALL WITH CRUSHED AGGREGATE SIZE NO. 2.



PAVEMENT SUBSURFACE DRAINAGE OUTLET



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NON-PERFORATED PIPE - 4" (OUTLET)
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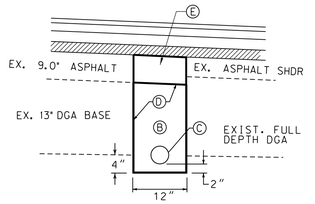
PERFORATED PIPE
DRAIN REPLACEMENT
MILE POINT 58.7 TO MILE POINT 61.2



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PERFORATED PIPE
DRAIN REPLACEMENT
MILE POINT 61.3 TO MILE POINT 65.6

PREPARED BY DATE
CHECKED BY DATE
APPROVED BY DATE

SCALE : N.T.S.

TYPICAL SECTIONS DETAILS AND PAVEMENT DESIGN

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2B1

Revised 11/13/2013

NEW SHEET

TYPICAL SECTIONS DETAILS & PAVEMENT DESIGN

NOTES :

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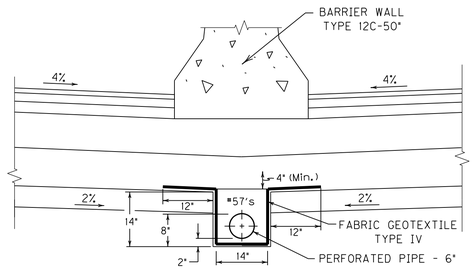

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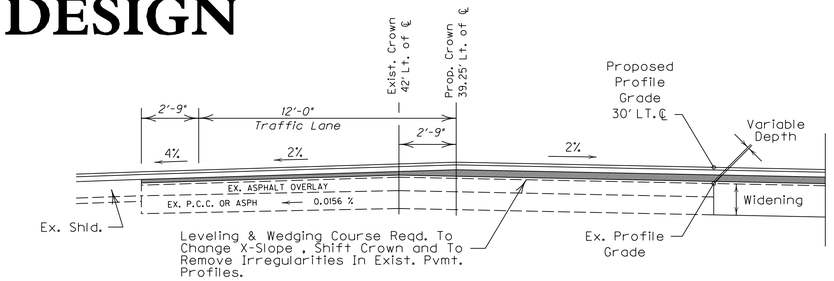
INSPECT & CERTIFY EDGE DRAIN SYSTEM	LP. SUM



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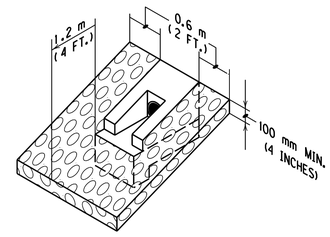
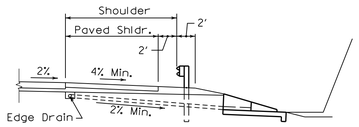
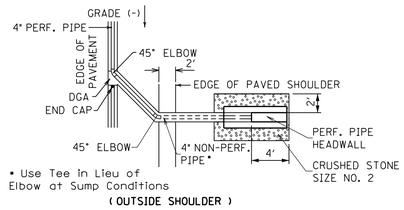


PAVEMENT SUBSURFACE DRAINAGE OUTLET

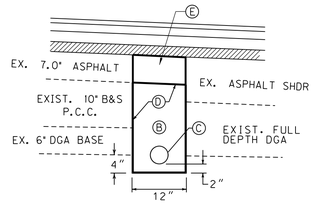
LONGITUDINAL PAVEMENT EDGE DRAIN - REPLACE EXISTING

(Perforated Pipe)





(OUTSIDE SHOULDER)



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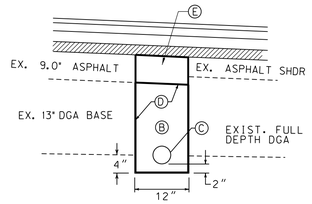
PERFORATED PIPE
DRAIN REPLACEMENT
MILE POINT 58.7 TO MILE POINT 61.2



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PERFORATED PIPE
DRAIN REPLACEMENT
MILE POINT 61.3 TO MILE POINT 65.6

PREPARED BY DATE
CHECKED BY DATE
APPROVED BY DATE

SCALE : N.T.S.

TYPICAL SECTIONS DETAILS AND PAVEMENT DESIGN

GENERAL SUMMARY (SHEET 2 OF 3)

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2L

ITEM NO.	ITEM		UNIT	I-65	US 31W	KY 88 & OLD CUT ROAD	RAMP E	RAMP F	RAMP G	RAMP H	PROJECT TOTALS
2545	CLEARING AND GRUBBING	11	LS	1							1
2555	CONCRETE - CLASS B	5	CU YD	40							40
2562	SIGNS	12	SQ FT	911	450	450	240	240	240	240	2771
2568	MOBILIZATION		LS	1							1
2569	DEMOBILIZATION		LS	1							1
2570	PROJECT CPM SCHEDULE	13	LS	1							1
2585	EDGE KEY		LF		67	75					142
2596	FABRIC - GEOTEXTILE TYPE I	14	SQ YD	3190.64	27.36			50.20	108.84		3377.04
2598	FABRIC - GEOTEXTILE TYPE III	15	SQ YD	3461							3461
2599	FABRIC - GEOTEXTILE TYPE IV	16	SQ YD	85132	14167						99299
2600	FABRIC - GEOTEXTILE TYPE IV FOR PIPE		SQ YD	4803	2753	703	438			1157	9854
2650	MAINTAIN & CONTROL TRAFFIC		LS	1							1
2651	DIVERSIONS (BYPASS DETOURS)		LS		1	1					2
2671	PORTABLE CHANGEABLE MESSAGE SIGN	17	EACH	4		2					6
2676	MOBILIZATION FOR MILLING & TEXTURING		LS	1							1
2696	SHOULDER RUMBLE STRIPS - SAWED		LF	134600							134600
2701	TEMP SILT FENCE		LF	51863							51863
2703	SILT TRAP TYPE A		EACH	500							500
2704	SILT TRAP TYPE B		EACH	500							500
2705	SILT TRAP TYPE C		EACH	500							500
2706	CLEAN SILT TRAP TYPE A		EACH	1000							1000
2707	CLEAN SILT TRAP TYPE B		EACH	1000							1000
2708	CLEAN SILT TRAP TYPE C		EACH	1000							1000
2709	CLEAN TEMP SILT FENCE		LF	51863							51863
2720	SIDEWALK - 4 IN CONCRETE		SQ YD	130							130
2726	STAKING		LS	1							1
2731	REMOVE STRUCTURE - KY 88		LS			1					1
2731	REMOVE STRUCTURE - US31W		LS	1							1
2731	REMOVE STRUCTURE - CSX RAILROAD		LS	1							1
2731	REMOVE STRUCTURE - GREEN RIVER BRIDGE		LS	1							1
2775	ARROW PANEL	17	EACH		2	2	1	1	1	1	8
2898	RELOCATE CRASH CUSHION		EACH	5			1	1	1	1	9
2998	MASONRY COATING		SQ YD	37840							37840
3171	CONCRETE BARRIER WALL TYPE 9T	18	LF	232		500	1700	2150	1450	500	6532
3225	TUBULAR MARKERS	2	EACH	156							156
3270	TREE AND BUSH REMOVAL		LF	27990		754					28744
4793	CONDUIT 1 1/4 INCH	19	LF	80							80
4795	CONDUIT 2 INCH	19	LF	20							20
4820	TRENCHING AND BACKFILLING	19	LF	90							90
4829	PIEZOELECTRIC SENSOR	19	EACH	6							6
4830	LOOP WIRE	19	LF	2900							2900
4895	LOOP SAW SLOT AND FILL	19	LF	560							560
4933	TEMP SIGNAL - PHASE 2		EACH	1							1

16	84,732 SQ YDS FOR CONSTRUCTION ACCESS GATES, ESTIMATED AT 4 GATES, A NOMINAL QUANTITY TO BE USED FOR CAPPING SINKHOLES, AND 14,167 CARRIED OVER FROM THE PAVEMENT SUMMARY
17	THE QUANTITIES FOR THESE BID ITEMS INCLUDE INITIAL PLACEMENT ONLY. ANY RELOCATION REQUIRED WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCIDENTAL TO MAINTENANCE OF TRAFFIC
18	TO BE FURNISHED BY THE CONTRACTOR AND WILL BECOME PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT
19	FOR PERMANENT TRAFFIC DATA ACQUISITION STATION
20	16,677 SQ YDS USED FOR DITCH LINING AND 50,000 USED FOR TEMPORARY EROSION CONTROL MEASURES
21	THE BID ITEM "MOT PAVEMENT REPAIR" PER SQ YD SHALL INCLUDE THE REMOVAL AND DISPOSAL OF DETERIORATED PAVEMENT DURING DIFFERENT PHASES OF MOT. THE PAVEMENT SHALL BE REMOVED TO A DEPTH SPECIFIED BY THE ENGINEER AND REPLACED WITH ASPHALT SURFACE (5 INCHES MAXIMUM DEPTH)
22	A NOMINAL QUANTITY ADDED. PERFORATED HEADWALLS TO BE RESET WILL BE DETERMINED BY THE RESIDENT ENGINEER
23	50% OF THE TOTAL LINEAR FEET OF ALL INSTALLED PIPE REGARDLESS OF MATERIAL TYPE (SEE SUPPLEMENTAL SPECIFICATIONS)
24	THE CONTRACTOR IS TO FLUSH SEDIMENT FROM THE DRAINAGE BLANKET LAYER PRIOR TO CONSTRUCTING THE FINAL COURSES OF PAVEMENT
25	SEE SHEET R2H FOR PERMEABLE PAVEMENT DRAIN DETAIL

THE TOTAL EARTHWORK QUANTITIES LISTED BELOW HAVE BEEN CACLULATED FROM THE CROSS SECTIONS AS SHOWN ON THE PLANS

EXCAVATION	163,911
ROCK	124,727
EMB BENCH	26,531
TOTAL EXCAVATION	315,169
EMBANKMENT	54,395

THE CONTRACTOR IS ADVISED THAT THE EARTHWORK FIGURES ABOVE ARE SHOWN FOR INFORMATION PURPOSES ONLY. ASSUMPTIONS FOR SHRINK AND SWELL FACTORS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

GENERAL SUMMARY (2 OF 3)

GENERAL SUMMARY (SHEET 2 OF 3)

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2L

ITEM NO.	ITEM		UNIT	I-65	US 31W	KY 88 & OLD CUT ROAD	RAMP E	RAMP F	RAMP G	RAMP H	PROJECT TOTALS
2545	CLEARING AND GRUBBING	11	LS	1							1
2555	CONCRETE - CLASS B	5	CU YD	40							40
2562	SIGNS	12	SQ FT	911	450	450	240	240	240	240	2771
2568	MOBILIZATION		LS	1							1
2569	DEMOBILIZATION		LS	1							1
2570	PROJECT CPM SCHEDULE	13	LS	1							1
2585	EDGE KEY		LF		67	75					142
2596	FABRIC - GEOTEXTILE TYPE I	14	SQ YD	3190.64	27.36			50.20	108.84		3377.04
2598	FABRIC - GEOTEXTILE TYPE III	15	SQ YD	3461							3461
2599	FABRIC - GEOTEXTILE TYPE IV	16	SQ YD	85132	14167						99299
2600	FABRIC - GEOTEXTILE TYPE IV FOR PIPE		SQ YD	4803	2753	703	438			1157	9854
2650	MAINTAIN & CONTROL TRAFFIC		LS	1							1
2651	DIVERSIONS (BYPASS DETOURS)		LS		1	1					2
2671	PORTABLE CHANGEABLE MESSAGE SIGN	17	EACH	4		2					6
2676	MOBILIZATION FOR MILLING & TEXTURING		LS	1							1
2696	SHOULDER RUMBLE STRIPS - SAWED		LF	134600							134600
2701	TEMP SILT FENCE		LF	51863							51863
2703	SILT TRAP TYPE A		EACH	500							500
2704	SILT TRAP TYPE B		EACH	500							500
2705	SILT TRAP TYPE C		EACH	500							500
2706	CLEAN SILT TRAP TYPE A		EACH	1000							1000
2707	CLEAN SILT TRAP TYPE B		EACH	1000							1000
2708	CLEAN SILT TRAP TYPE C		EACH	1000							1000
2709	CLEAN TEMP SILT FENCE		LF	51863							51863
2720	SIDEWALK - 4 IN CONCRETE		SQ YD	130							130
2726	STAKING		LS	1							1
2731	REMOVE STRUCTURE - KY 88		LS			1					1
2731	REMOVE STRUCTURE - US31W		LS	1							1
2731	REMOVE STRUCTURE - CSX RAILROAD		LS	1							1
2731	REMOVE STRUCTURE - GREEN RIVER BRIDGE		LS	1							1
2775	ARROW PANEL	17	EACH		2	2	1	1	1	1	8
2898	RELOCATE CRASH CUSHION		EACH	5			1	1	1	1	9
2998	MASONRY COATING		SQ YD	37840							37840
3171	CONCRETE BARRIER WALL TYPE 9T	18	LF	232		500	1700	2150	1450	500	6532
3225	TUBULAR MARKERS	2	EACH	156							156
3270	TREE AND BUSH REMOVAL		LF	27990		754					28744
4793	CONDUIT 1¼INCH	19	LF	80							80
4795	CONDUIT 2 INCH	19	LF	20							20
4820	TRENCHING AND BACKFILLING	19	LF	90							90
4829	PIEZOELECTRIC SENSOR	19	EACH	6							6
4830	LOOP WIRE	19	LF	2900							2900
4895	LOOP SAW SLOT AND FILL	19	LF	560							560
4933	TEMP SIGNAL - PHASE 2		EACH	1							1

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GENERAL SUMMARY (2 OF 3)

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
I-65 MEDIAN															
CL	3066+00	TO	3069+24			324									Connect to exsiting at 3066+00
CL	3069+24	TO	3077+23			791		8						1	Outlet to median inlet 3069+24
CL	3077+23	TO	3087+28			997		8						1	Outlet to median inlet 3077+23
CL	3087+28	TO	3094+71			735		8						1	Outlet to median inlet 3094+71
CL	3094+71	TO	3102+20			741		8						1	Outlet to median inlet 3102+20
CL	3102+20	TO	3107+72			544		8						1	Outlet to median inlet 3107+72
CL	3107+72	TO	3114+71			691		8						1	Outlet to median inlet 3114+71
CL	3114+71	TO	3126+71			1192		8						1	Outlet to median inlet 3126+71
CL	3126+71	TO	3133+92			713		8						1	Outlet to median inlet 3133+92
CL	3133+92	TO	3140+05			605		8						1	Outlet to median inlet 3140+05
CL	3140+05	TO	3141+19			106		8						1	Outlet to median inlet 3141+19
CL	3141+19	TO	3143+00			173		8						1	Outlet to median inlet 3141+19
CL	3143+00	TO	3151+25			817		8						1	Outlet to median inlet 3143+00
CL	3151+25	TO	3155+27			394		8						1	Outlet to median inlet 3151+25
CL	3155+27	TO	3165+70			1035		8						1	Outlet to median inlet 3165+70
CL	3165+70	TO	3170+60			482		8						1	Outlet to median inlet 3170+60
CL	3178+19	TO	3180+66			239		8						1	Outlet to median inlet 3180+66
CL	3180+66	TO	3181+58			84		8						1	Outlet to median inlet 3180+66
CL	3181+58	TO	3185+69			403		8						1	Outlet to median inlet 3181+58
CL	3185+69	TO	3196+68			1091		8						1	Outlet to median inlet 3185+69
CL	3196+68	TO	3203+17			641		8							Outlet to median inlet 3196+68
CL	3203+17	TO	3212+76			951		8						1	Outlet to median inlet 3203+17
CL	3212+76	TO	3219+19			635		8						1	Outlet to median inlet 3212+76
CL	3219+19	TO	3233+63			1436		8						1	Outlet to median inlet 3219+19
CL	3233+63	TO	3241+66			795		8						1	Outlet to median inlet 3241+66
CL	3241+66	TO	3249+41			767		8						1	Outlet to median inlet 3249+41
CL	3249+41	TO	3256+00			651		8						1	Outlet to median inlet 3256+00
CL	3256+00	TO	3263+15			707		8						1	Outlet to median inlet 3263+15
CL	3263+15	TO	3270+18			695		8						1	Outlet to median inlet 3270+18
CL	3270+18	TO	3275+82			556		8						1	Outlet to median inlet 3275+82
CL	3275+82	TO	3279+60			370		8						1	Outlet to median inlet 3279+60
CL	3279+60	TO	3280+33			65		8						1	Outlet to median inlet 3280+33
CL	3280+33	TO	3281+40			99		8						1	Outlet to median inlet 3280+33
CL	3281+40	TO	3286+82			534		8						1	Outlet to median inlet 3281+40
CL	3286+82	TO	3292+33			543		8						1	Outlet to median inlet 3286+82
CL	3292+33	TO	3310+81			1840		8						1	Outlet to median inlet 3292+33
CL	3310+81	TO	3320+27			938		8						1	Outlet to median inlet 3310+81
CL	3320+27	TO	3323+97			362		8						1	Outlet to median inlet 3323+97
CL	3325+41	TO	3332+54			705		8						1	Outlet to median inlet 3332+54
CL	3334+39	TO	3337+80			333		8						1	Outlet to median inlet 3337+80
CL	3337+80	TO	3342+50			462		8						1	Outlet to median inlet 3342+50
CL	3342+50	TO	3343+35			77		8						1	Outlet to median inlet 3343+35
CL	3343+35	TO	3344+50			107		8						1	Outlet to median inlet 3343+35
CL	3344+50	TO	3349+10			452		8						1	Outlet to median inlet 3344+50
CL	3349+10	TO	3354+99			581		8						1	Outlet to median inlet 3349+10
CL	3354+99	TO	3363+15			808		8						1	Outlet to median inlet 3354+99
CL	3363+15	TO	3368+30			507		8						1	Outlet to median inlet 3363+15
CL	3368+30	TO	3372+29			391		8						1	Outlet to median inlet 3368+30
CL	3372+29	TO	3380+28			791		8						1	Outlet to median inlet 3372+29
CL	3380+28	TO	3388+52			816		8						1	Outlet to median inlet 3380+28
CL	3388+52	TO	3401+24			1264		8						1	Outlet to median inlet 3388+52
CL	3401+24	TO	3403+00			176		12							
I-65 NORTHBOUND															
RT	3051+50	TO	3054+00	1	250		22					1			
RT	3054+00	TO	3056+50	1	250		22				1				
RT	3056+50	TO	3059+00	1	250		22		1						
RT	3059+00	TO	3061+50	1	250		22		1						
RT	3061+50	TO	3063+45	1	195		18		1						
RT	3063+45	TO	3065+95		250										
RT	3065+95	TO	3070+95	1	500		22		1						
RT	3070+95	TO	3075+95	1	500		22		1						
RT	3075+95	TO	3080+95	1	500		22		1						
RT	3080+95	TO	3084+60	1	365		22					1			
RT	3084+60	TO	3087+27	1	267		22					1			
RT	3087+27	TO	3089+75	1	248		22				1				
RT	3089+75	TO	3092+95	1	320		22				1				
RT	3092+95	TO	3097+95	1	500		22				1				
RT	3097+95	TO	3102+95	1	500		22				1				
RT	3102+95	TO	3105+45	1	250		22		1						
RT	3105+45	TO	3107+95	1	250		22		1						
RT	3107+95	TO	3110+45	1	250		22		1						
RT	3110+45	TO	3112+95	1	250		22					1			
RT	3112+95	TO	3115+45	1	250		22				1				
RT	3115+45	TO	3117+95	1	250		22					1			
RT	3117+95	TO	3120+45	1	250		22				1				
RT	3120+45	TO	3124+70	1	425		22				1				
RT	3124+70	TO	3129+70	1	500		22				1				
RT	3129+70	TO	3134+70	1	500		22					1			
RT	3134+70	TO	3138+65	1	395		22					1			
RT	3138+65	TO	3141+15	1	250		18			1					
RT	3141+15	TO	3143+65		250										
RT	3143+65	TO	3146+15	1	250		22				1				
RT	3146+15	TO	3148+65	1	250		22				1				
RT	3148+65	TO	3151+15	1	250		22				1				
RT	3151+15	TO	3153+65	1	250		22				1				
RT	3153+65	TO	3155+31	1	166		22					1			
RT	3155+31	TO	3157+80	1	249		22					1			
RT	3157+80	TO	3162+80	1	500		22				1				

PAVEMENT EDGE DRAIN SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2R

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2R

Revised 11/13/2013

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
I-65 MEDIAN															
CL	3066+00	TO	3069+24			324									Connect to exsiting at 3066+00
CL	3069+24	TO	3077+23			791		8	1		1		1		Outlet to median inlet
CL	3077+23	TO	3087+28			997		8	1		1		1		Outlet to median inlet
CL	3087+28	TO	3094+71			735		8	1		1		1		Outlet to median inlet
CL	3094+71	TO	3102+20			741		8	1		1		1		Outlet to median inlet
CL	3102+20	TO	3107+72			544		8	1		1		1		Outlet to median inlet
CL	3107+72	TO	3114+71			691		8	1		1		1		Outlet to median inlet
CL	3114+71	TO	3126+71			1192		8	1		1		1		Outlet to median inlet
CL	3126+71	TO	3133+92			713		8	1		1		1		Outlet to median inlet
CL	3133+92	TO	3140+05			605		8	1		1		1		Outlet to median inlet
CL	3140+05	TO	3141+19			106		8	1		1		1		Outlet to median inlet
CL	3141+19	TO	3143+00			173		8	1		1		1		Outlet to median inlet
CL	3143+00	TO	3151+25			817		8	1		1		1		Outlet to median inlet
CL	3151+25	TO	3155+27			394		8	1		1		1		Outlet to median inlet
CL	3155+27	TO	3165+70			1035		8	1		1		1		Outlet to median inlet
CL	3165+70	TO	3170+60			482		8	1		1		1		Outlet to median inlet
CL	3170+60	TO	3178+19			239		8	1		1		1		Outlet to median inlet
CL	3180+66	TO	3181+58			84		8	1		1		1		Outlet to median inlet
CL	3181+58	TO	3185+69			403		8	1		1		1		Outlet to median inlet
CL	3185+69	TO	3196+68			1091		8	1		1		1		Outlet to median inlet
CL	3196+68	TO	3203+17			641		8							Outlet to median inlet
CL	3203+17	TO	3212+76			951		8	1		1		1		Outlet to median inlet
CL	3212+76	TO	3219+19			635		8	1		1		1		Outlet to median inlet
CL	3219+19	TO	3233+63			1436		8	1		1		1		Outlet to median inlet
CL	3233+63	TO	3241+66			795		8	1		1		1		Outlet to median inlet
CL	3241+66	TO	3249+41			767		8	1		1		1		Outlet to median inlet
CL	3249+41	TO	3256+00			651		8	1		1		1		Outlet to median inlet
CL	3256+00	TO	3263+15			707		8	1		1		1		Outlet to median inlet
CL	3263+15	TO	3270+18			695		8	1		1		1		Outlet to median inlet
CL	3270+18	TO	3275+82			556		8	1		1		1		Outlet to median inlet
CL	3275+82	TO	3279+60			370		8	1		1		1		Outlet to median inlet
CL	3279+60	TO	3280+33			65		8	1		1		1		Outlet to median inlet
CL	3280+33	TO	3281+40			99		8	1		1		1		Outlet to median inlet
CL	3281+40	TO	3286+82			534		8	1		1		1		Outlet to median inlet
CL	3286+82	TO	3292+33			543		8	1		1		1		Outlet to median inlet
CL	3292+33	TO	3310+81			1840		8	1		1		1		Outlet to median inlet
CL	3310+81	TO	3320+27			938		8	1		1		1		Outlet to median inlet
CL	3320+27	TO	3323+97			362		8	1		1		1		Outlet to median inlet
CL	3325+41	TO	3332+54			705		8	1		1		1		Outlet to median inlet
CL	3334+39	TO	3337+80			333		8	1		1		1		Outlet to median inlet
CL	3337+80	TO	3342+50			462		8	1		1		1		Outlet to median inlet
CL	3342+50	TO	3343+35			77		8	1		1		1		Outlet to median inlet
CL	3343+35	TO	3344+50			107		8	1		1		1		Outlet to median inlet
CL	3344+50	TO	3349+10			452		8	1		1		1		Outlet to median inlet
CL	3349+10	TO	3354+99			581		8	1		1		1		Outlet to median inlet
CL	3354+99	TO	3363+15			808		8	1		1		1		Outlet to median inlet
CL	3363+15	TO	3368+30			507		8	1		1		1		Outlet to median inlet
CL	3368+30	TO	3372+29			391		8	1		1		1		Outlet to median inlet
CL	3372+29	TO	3380+28			791		8	1		1		1		Outlet to median inlet
CL	3380+28	TO	3388+52			816		8	1		1		1		Outlet to median inlet
CL	3388+52	TO	3401+24			1264		8	1		1		1		Outlet to median inlet
CL	3401+24	TO	3403+00			176		12	2						
I-65 NORTHBOUND															
RT	3051+50	TO	3054+00	1	250		22								
RT	3054+00	TO	3056+50	1	250		22								
RT	3056+50	TO	3059+00	1	250		22								
RT	3059+00	TO	3061+50	1	250		22								
RT	3061+50	TO	3063+45	1	195		18								
RT	3063+45	TO	3065+95	1	250										
RT	3065+95	TO	3070+95	1	500		22								
RT	3070+95	TO	3075+95	1	500		22								
RT	3075+95	TO	3080+95	1	500		22								
RT	3080+95	TO	3084+60	1	365		22								
RT	3084+60	TO	3087+27	1	267		22								
RT	3087+27	TO	3089+75	1	248		22								
RT	3089+75	TO	3092+95	1	320		22								
RT	3092+95	TO	3097+95	1	500		22								
RT	3097+95	TO	3102+95	1	500		22								
RT	3102+95	TO	3105+45	1	250		22								
RT	3105+45	TO	3107+95	1	250		22								
RT	3107+95	TO	3110+45	1	250		22								
RT	3110+45	TO	3112+95	1	250		22								
RT	3112+95	TO	3115+45	1	250		22								
RT	3115+45	TO	3117+95	1	250		22								
RT	3117+95	TO	3120+45	1	250		22								
RT	3120+45	TO	3124+70	1	425		22								
RT	3124+70	TO	3129+70	1	500		22								
RT	3129+70	TO	3134+70	1	500		22								
RT	3134+70	TO	3138+65	1	395		22								
RT	3138+65	TO	3141+15	1	250		18								
RT	3141+15	TO	3143+65		250										
RT	3143+65	TO	3146+15	1	250		22								
RT	3146+15	TO	3148+65	1	250		22								
RT	3148+65	TO	3151+15	1	250		22								
RT	3151+15	TO	3153+65	1	250		22								
RT	3153+65	TO	3155+31	1	166		22								
RT	3155+31	TO	3157+80	1	249		22								
RT	3157+80	TO	3162+80	1	500		22								

PAVEMENT EDGE DRAIN SUMMARY

MicroStation v8.11.7.443 | E-SHEET NAME: | USER: wmorris | DATE PLOTTED: November 12, 2013 | FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R0020RSU - PERF PIPE (10F4).DGN

PAVEMENT EDGE DRAIN SUMMARY

STATIONS			ITEM CODE	CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
			UNIT TO BID ON	TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
				00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
RT	3162+80	TO	3167+80	1	500		22				1				
RT	3167+80	TO	3170+76	1	296		22		1						
RT	3177+90	TO	3179+60	1	170		22		1			1			
RT	3179+60	TO	3180+69	1	109		18		1			1			
RT	3180+69	TO	3182+20		151										
RT	3182+20	TO	3184+70	1	250		22		1						
RT	3184+70	TO	3189+70	1	500		22		1						
RT	3189+70	TO	3194+70	1	500		22					1			
RT	3194+70	TO	3199+70	1	500		22					1			
RT	3199+70	TO	3204+70	1	500		22				1	1			
RT	3204+70	TO	3209+70	1	500		22				1				
RT	3209+70	TO	3214+70	1	500		22					1			
RT	3214+70	TO	3219+70	1	500		22					1			
RT	3219+70	TO	3224+70	1	500		22				1	1			
RT	3224+70	TO	3229+70	1	500		22					1			
RT	3229+70	TO	3232+20	1	250		22				1				
RT	3232+20	TO	3233+65	1	145		22				1				
RT	3233+65	TO	3236+15	1	250		22					1			
RT	3236+15	TO	3238+65	1	250		22				1				
RT	3238+65	TO	3241+15	1	250		22					1			
RT	3241+15	TO	3243+65	1	250		22					1			
RT	3243+65	TO	3246+15	1	250		22					1			
RT	3246+15	TO	3248+65	1	250		22					1			
RT	3248+65	TO	3251+15	1	250		22					1			
RT	3251+15	TO	3253+65	1	250		22					1			
RT	3253+65	TO	3256+15	1	250		22					1			
RT	3256+15	TO	3258+15	1	200		22					1			
RT	3258+15	TO	3259+21	1	106		22					1			
RT	3275+52	TO	3278+00	1	248		22					1			
RT	3278+00	TO	3280+49	1	249		18					1			
RT	3280+49	TO	3282+90		241							1			
RT	3282+90	TO	3287+90	1	500		22					1			
RT	3287+90	TO	3292+90	1	500		22					1			
RT	3292+90	TO	3297+90	1	500		22					1			
RT	3297+90	TO	3302+90	1	500		22					1			
RT	3302+90	TO	3307+90	1	500		22					1			
RT	3307+90	TO	3312+90	1	500		22					1			
RT	3312+90	TO	3317+90	1	500		22					1			
RT	3317+90	TO	3320+28	1	238		22					1			
RT	3320+28	TO	3322+50	1	222		22					1			
RT	3322+50	TO	3323+51	1	101		22					1			
RT	3324+89	TO	3329+89	1	500		22					1			
RT	3329+89	TO	3332+38	1	249		22					1			
RT	3334+10	TO	3335+42		132										
RT	3360+59	TO	3362+00	1	141		22								
RT	3362+00	TO	3364+50	1	250		22					1			
RT	3364+50	TO	3367+00	1	250		22					1			
RT	3367+00	TO	3369+50	1	250		22					1			
RT	3369+50	TO	3372+00	1	250		22					1			
RT	3372+00	TO	3377+00	1	500		22					1			
I-65 SOUTHBOUND															
LT	3051+50	TO	3054+00	1	250		22								
LT	3054+00	TO	3056+50	1	250		22								
LT	3056+50	TO	3059+00	1	250		22								
LT	3059+00	TO	3061+50	1	250		22								
LT	3061+50	TO	3063+54	1	204		18		1						
LT	3063+54	TO	3066+00		246										
LT	3066+00	TO	3071+00	1	500		22		1						
LT	3071+00	TO	3076+00	1	500		22		1						
LT	3076+00	TO	3081+00	1	500		22								
LT	3081+00	TO	3084+60	1	360		22								
LT	3084+60	TO	3087+29	1	269		22								
LT	3087+29	TO	3089+80	1	251		22								
LT	3089+80	TO	3094+20	1	440		22								
LT	3094+20	TO	3099+20	1	500		22								
LT	3099+20	TO	3104+20	1	500		22								
LT	3104+20	TO	3106+70	1	250		22								
LT	3106+70	TO	3109+20	1	250		22								
LT	3109+20	TO	3111+70	1	250		22								
LT	3111+70	TO	3114+20	1	250		22								
LT	3114+20	TO	3116+70	1	250		22								
LT	3116+70	TO	3119+20	1	250		22								
LT	3119+20	TO	3121+70	1	250		22								
LT	3121+70	TO	3124+70	1	300		22								
LT	3124+70	TO	3129+70	1	500		22								
LT	3129+70	TO	3134+70	1	500		22								
LT	3134+70	TO	3138+35	1	365		22								
LT	3138+35	TO	3141+14	1	279		18								
LT	3141+14	TO	3143+65		251										
LT	3143+65	TO	3146+15	1	250		22								
LT	3146+15	TO	3148+65	1	250		22								
LT	3148+65	TO	3151+15	1	250		22								
LT	3151+15	TO	3153+65	1	250		22								
LT	3153+65	TO	3155+24	1	159		22								
LT	3155+24	TO	3157+70	1	246		22								
LT	3157+70	TO	3162+70	1	500		22								
LT	3162+70	TO	3167+70	1	500		22								

Tie to US 31W Ramp F

PAVEMENT EDGE DRAIN SUMMARY

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
RT	3162+80	TO	3167+80	1	500		22				1				
RT	3167+80	TO	3170+76	1	296		22		1						
RT	3177+90	TO	3179+60	1	170		22		1						
RT	3179+60	TO	3180+69	1	109		18		1						
RT	3180+69	TO	3182+20		151										
RT	3182+20	TO	3184+70	1	250		22		1						
RT	3184+70	TO	3189+70	1	500		22		1						
RT	3189+70	TO	3194+70	1	500		22					1			
RT	3194+70	TO	3199+70	1	500		22					1			
RT	3199+70	TO	3204+70	1	500		22					1			
RT	3204+70	TO	3209+70	1	500		22				1				
RT	3209+70	TO	3214+70	1	500		22				1				
RT	3214+70	TO	3219+70	1	500		22					1			
RT	3219+70	TO	3224+70	1	500		22				1				
RT	3224+70	TO	3229+70	1	500		22					1			
RT	3229+70	TO	3232+20	1	250		22					1			
RT	3232+20	TO	3233+65	1	145		22				1				
RT	3233+65	TO	3236+15	1	250		22				1				
RT	3236+15	TO	3238+65	1	250		22					1			
RT	3238+65	TO	3241+15	1	250		22				1				
RT	3241+15	TO	3243+65	1	250		22					1			
RT	3243+65	TO	3246+15	1	250		22		1						
RT	3246+15	TO	3248+65	1	250		22		1						
RT	3248+65	TO	3251+15	1	250		22					1			
RT	3251+15	TO	3253+65	1	250		22					1			
RT	3253+65	TO	3256+15	1	250		22				1				
RT	3256+15	TO	3258+15	1	200		22					1			
RT	3258+15	TO	3259+21	1	106		22					1			
RT	3275+52	TO	3278+00	1	248		22					1			
RT	3278+00	TO	3280+49	1	249		18				1				
RT	3280+49	TO	3282+90		241										
RT	3282+90	TO	3287+90	1	500		22				1				
RT	3287+90	TO	3292+90	1	500		22				1				
RT	3292+90	TO	3297+90	1	500		22					1			
RT	3297+90	TO	3302+90	1	500		22					1			
RT	3302+90	TO	3307+90	1	500		22					1			
RT	3307+90	TO	3312+90	1	500		22		1						
RT	3312+90	TO	3317+90	1	500		22		1						
RT	3317+90	TO	3320+28	1	238		22		1						
RT	3320+28	TO	3322+50	1	222		22		1						
RT	3322+50	TO	3323+51	1	101		22		1						
RT	3324+89	TO	3329+89	1	500		22				1				
RT	3329+89	TO	3332+38	1	249		22		1						
RT	3334+10	TO	3335+42		132										Tie to US 31W Ramp F
RT	3360+59	TO	3362+00	1	141		22					1			
RT	3362+00	TO	3364+50	1	250		22					1			
RT	3364+50	TO	3367+00	1	250		22		1						
RT	3367+00	TO	3369+50	1	250		22		1						
RT	3369+50	TO	3372+00	1	250		22		1						
RT	3372+00	TO	3377+00	1	500		22		1						
I-65 SOUTHBOUND															
LT	3051+50	TO	3054+00	1	250		22				1				
LT	3054+00	TO	3056+50	1	250		22				1				
LT	3056+50	TO	3059+00	1	250		22				1				
LT	3059+00	TO	3061+50	1	250		22				1				
LT	3061+50	TO	3063+54	1	204		18		1						
LT	3063+54	TO	3066+00		246										
LT	3066+00	TO	3071+00	1	500		22		1						
LT	3071+00	TO	3076+00	1	500		22		1						
LT	3076+00	TO	3081+00	1	500		22					1			
LT	3081+00	TO	3084+60	1	360		22					1			
LT	3084+60	TO	3087+29	1	269		22					1			
LT	3087+29	TO	3089+80	1	251		22				1				
LT	3089+80	TO	3094+20	1	440		22					1			
LT	3094+20	TO	3099+20	1	500		22				1				
LT	3099+20	TO	3104+20	1	500		22				1				
LT	3104+20	TO	3106+70	1	250		22				1				
LT	3106+70	TO	3109+20	1	250		22				1				
LT	3109+20	TO	3111+70	1	250		22					1			
LT	3111+70	TO	3114+20	1	250		22					1			
LT	3114+20	TO	3116+70	1	250		22					1			
LT	3116+70	TO	3119+20	1	250		22					1			
LT	3119+20	TO	3121+70	1	250		22					1			
LT	3121+70	TO	3124+70	1	300		22					1			
LT	3124+70	TO	3129+70	1	500		22				1				
LT	3129+70	TO	3134+70	1	500		22				1				
LT	3134+70	TO	3138+35	1	365		22				1				
LT	3138+35	TO	3141+14	1	279		18				1				
LT	3141+14	TO	3143+65		251										
LT	3143+65	TO	3146+15	1	250		22				1				
LT	3146+15	TO	3148+65	1	250		22				1				
LT	3148+65	TO	3151+15	1	250		22				1				
LT	3151+15	TO	3153+65	1	250		22				1				
LT	3153+65	TO	3155+24	1	159		22				1				
LT	3155+24	TO	3157+70	1	246		22				1				
LT	3157+70	TO	3162+70	1	500		22					1			
LT	3162+70	TO	3167+70	1	500		22					1			

PAVEMENT EDGE DRAIN SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2S

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
LT	3167+70	TO	3170+76		306		22						1		Outlet to DBI
LT	3177+90	TO	3180+68	1	278		18		1						
LT	3180+68	TO	3183+15	1	247										
LT	3183+15	TO	3187+90	1	475		22		1						
LT	3187+90	TO	3192+90	1	500		22					1			
LT	3192+90	TO	3197+89	1	499		22					1			
LT	3250+72	TO	3253+20	1	248		22					1			
LT	3253+20	TO	3255+70	1	250		22					1			
LT	3255+70	TO	3258+20	1	250		22					1			
LT	3258+20	TO	3260+70	1	250		22					1			
LT	3260+70	TO	3263+20	1	250		22					1			
LT	3263+20	TO	3265+70	1	250		22					1			
LT	3265+70	TO	3268+20	1	250		22					1			
LT	3268+20	TO	3270+70	1	250		22				1				
LT	3270+70	TO	3273+20	1	250		22				1				
LT	3273+20	TO	3275+70	1	250		22					1			
LT	3275+70	TO	3278+20	1	250		22					1			
LT	3278+20	TO	3280+48	1	228		18				1				
LT	3280+48	TO	3281+50		102										
LT	3281+50	TO	3284+00	1	250		22				1				
LT	3284+00	TO	3289+00	1	500		22				1				
LT	3289+00	TO	3294+00	1	500		22					1			
LT	3294+00	TO	3299+00	1	500		22					1			
LT	3299+00	TO	3304+00	1	500		22					1			
LT	3304+00	TO	3308+56	1	456		22					1			
LT	3320+66	TO	3323+15	1	249		22					1			
LT	3323+15	TO	3324+77		162		22						1		Outlet to DBI
LT	3326+04	TO	3331+00	1	496		22		1						
LT	3331+00	TO	3333+01	1	201		22		1						
LT	3334+69	TO	3338+35	1	366		22		1						
LT	3338+35	TO	3340+85	1	250		22				1				
LT	3340+85	TO	3343+33	1	248		18					1			
LT	3343+33	TO	3345+29		196										
LT	3346+90	TO	3351+90	1	500		22				1				
LT	3351+90	TO	3356+90	1	500		22				1				
LT	3356+90	TO	3361+79	1	489		22					1			
LT	3367+19	TO	3369+65	1	246		22				1				
LT	3369+65	TO	3372+15	1	250		22		1						
LT	3372+15	TO	3377+00	1	485		22		1						
TOTAL I-65				149	51,725	32,212	3,264	412	36	1	54	57	2	49	
US 31W RAMP E TURNING RDWY															
RT	30+00	TO	33+25	1	325		22				1				
RT	33+25	TO	33+85		60										Tie to US 31W Ramp E
TOTAL RAMP E TURNING RDWY				1	385	0	22		0	0	1	0	0	0	
US 31W RAMP E															
RT	32+70	TO	34+26	1	156		22				1				
LT	34+26	TO	37+30	1	304		22		1						
LT	37+30	TO	39+78	1	248		40						1		Outlet to DBI
LT	39+78	TO	41+78		200										Outlet to DBI
LT	41+78	TO	43+78	1	200		22					1			
LT	43+78	TO	45+78	1	200		22			1					
LT	45+78	TO	47+50	1	172		22				1				
RT	47+50	TO	50+00	1	250		22				1				
RT	50+00	TO	54+34	1	434		22				1				
TOTAL US 31W RAMP E				8	2,164	0	194	0	1	1	4	1	1	0	
US 31W RAMP F															
RT	14+56	TO	19+55	1	499		22				1				
RT	19+55	TO	22+05	1	250		22				1				
RT	22+05	TO	24+55	1	250		22				1				
RT	24+55	TO	27+05	1	250		22		1						
RT	27+05	TO	29+00	1	195		18		1						
RT	29+00	TO	31+20		220										
RT	31+20	TO	33+40	1	220		22		1						
RT	33+40	TO	35+60	1	220		22				1				
RT	35+60	TO	37+80	1	220		22				1				
RT	37+80	TO	39+50	1	170		22				1				
TOTAL US 31W RAMP F				9	2,494	0	194	0	3	0	6	0	0	0	
US 31W RAMP G TURNING RDWY															
RT	5+33	TO	7+42	1	209		18				1				
RT	7+42	TO	9+00		158										
RT	9+00	TO	9+88	1	88		22				1				
TOTAL RAMP G TURNING RDWY				2	455		40				2				

Revised 11/13/2013

PAVEMENT EDGE DRAIN SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2T

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
LT	3167+70	TO	3170+76		306		22						1		Outlet to DBI
LT	3177+90	TO	3180+68	1	278		18		1						
LT	3180+68	TO	3183+15	1	247										
LT	3183+15	TO	3187+90	1	475		22		1						
LT	3187+90	TO	3192+90	1	500		22					1			
LT	3192+90	TO	3197+89	1	499		22					1			
LT	3250+72	TO	3253+20	1	248		22					1			
LT	3253+20	TO	3255+70	1	250		22					1			
LT	3255+70	TO	3258+20	1	250		22					1			
LT	3258+20	TO	3260+70	1	250		22					1			
LT	3260+70	TO	3263+20	1	250		22					1			
LT	3263+20	TO	3265+70	1	250		22					1			
LT	3265+70	TO	3268+20	1	250		22					1			
LT	3268+20	TO	3270+70	1	250		22				1				
LT	3270+70	TO	3273+20	1	250		22				1				
LT	3273+20	TO	3275+70	1	250		22					1			
LT	3275+70	TO	3278+20	1	250		22					1			
LT	3278+20	TO	3280+48	1	228		18				1				
LT	3280+48	TO	3281+50		102										
LT	3281+50	TO	3284+00	1	250		22				1				
LT	3284+00	TO	3289+00	1	500		22				1				
LT	3289+00	TO	3294+00	1	500		22					1			
LT	3294+00	TO	3299+00	1	500		22					1			
LT	3299+00	TO	3304+00	1	500		22					1			
LT	3304+00	TO	3308+56	1	456		22					1			
LT	3320+66	TO	3323+15	1	249		22					1			
LT	3323+15	TO	3324+77		162		22						1		Outlet to DBI
LT	3326+04	TO	3331+00	1	496		22		1						
LT	3331+00	TO	3333+01	1	201		22		1						
LT	3334+69	TO	3338+35	1	366		22		1						
LT	3338+35	TO	3340+85	1	250		22				1				
LT	3340+85	TO	3343+33	1	248		18					1			
LT	3343+33	TO	3345+29		196										
LT	3346+90	TO	3351+90	1	500		22				1				
LT	3351+90	TO	3356+90	1	500		22				1				
LT	3356+90	TO	3361+79	1	489		22					1			
LT	3367+19	TO	3369+65	1	246		22				1				
LT	3369+65	TO	3372+15	1	250		22		1						
LT	3372+15	TO	3377+00	1	485		22		1						
TOTAL I-65				149	51,725	32,212	3,264	412	36	1	54	57	2	49	
US 31W RAMP E TURNING RDWY															
RT	30+00	TO	33+25	1	325		22				1				
RT	33+25	TO	33+85		60										Tie to US 31W Ramp E
TOTAL RAMP E TURNING RDWY				1	385	0	22		0	0	1	0	0	0	
US 31W RAMP E															
RT	32+70	TO	34+26	1	156		22				1				
LT	34+26	TO	37+30	1	304		22		1						
LT	37+30	TO	39+78	1	248		40						1		Outlet to DBI
LT	39+78	TO	41+78		200										Outlet to DBI
LT	41+78	TO	43+78	1	200		22					1			
LT	43+78	TO	45+78	1	200		22			1					
LT	45+78	TO	47+50	1	172		22				1				
RT	47+50	TO	50+00	1	250		22				1				
RT	50+00	TO	54+34	1	434		22				1				
TOTAL US 31W RAMP E				8	2,164	0	194	0	1	1	4	1	1	0	
US 31W RAMP F															
RT	14+56	TO	19+55	1	499		22				1				
RT	19+55	TO	22+05	1	250		22				1				
RT	22+05	TO	24+55	1	250		22				1				
RT	24+55	TO	27+05	1	250		22		1						
RT	27+05	TO	29+00	1	195		18		1						
RT	29+00	TO	31+20		220										
RT	31+20	TO	33+40	1	220		22		1						
RT	33+40	TO	35+60	1	220		22				1				
RT	35+60	TO	37+80	1	220		22				1				
RT	37+80	TO	39+50	1	170		22				1				
TOTAL US 31W RAMP F				9	2,494	0	194	0	3	0	6	0	0	0	
US 31W RAMP G TURNING RDWY															
RT	5+33	TO	7+42	1	209		18				1				
RT	7+42	TO	9+00		158										
RT	9+00	TO	9+88	1	88		22				1				
TOTAL RAMP G TURNING RDWY				2	455		40				2				

PAVEMENT EDGE DRAIN SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2T

PAVEMENT EDGE DRAIN SUMMARY

	STATIONS			CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
	ITEM CODE			00078	01000	01001	01010	01011	01020	01024	01028	01032	01740	01741	
	UNIT TO BID ON			TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
US 31W RAMP G															
RT	9+89	TO	10+58		69										Tie to Ramp G Turning Roadway
RT	10+58	TO	12+60	1	202		22				1				
RT	12+60	TO	14+60	1	200		22				1				
RT	14+60	TO	16+50	1	190		18		1						
RT	16+50	TO	18+55		205										
RT	18+55	TO	20+65	1	210		22		1						
RT	20+65	TO	22+75	1	210		22				1				
RT	22+75	TO	23+25		50										Tie to I-65 Southbound
TOTAL US 31 RAMP G				5	1336		106		2		3				
US 31W RAMP H															
RT	2+03	TO	4+50	1	247		22				1				
RT	4+50	TO	7+00	1	250		22				1				
RT	7+00	TO	12+00	1	500		22				1				
RT	12+00		17+00	1	500		22				1				
RT	17+00		20+00	1	300		22				1				
RT	20+00		22+45	1	245		18				1				
RT	22+45		24+95		250										
RT	24+95		27+00	1	205		22				1				
RT	27+00		28+95	1	195		22				1				
TOTAL US 31W RAMP H				8	2,692	0	172	0	0	0	8	0	0	0	
TOTAL PROJECT				182	61,251	32,212	3,992	412	42	2	78	58	3	49	

PAVEMENT EDGE DRAIN SUMMARY

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2U

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 & 4-14.00	R2U

Revised 11/13/2013

PAVEMENT EDGE DRAIN SUMMARY

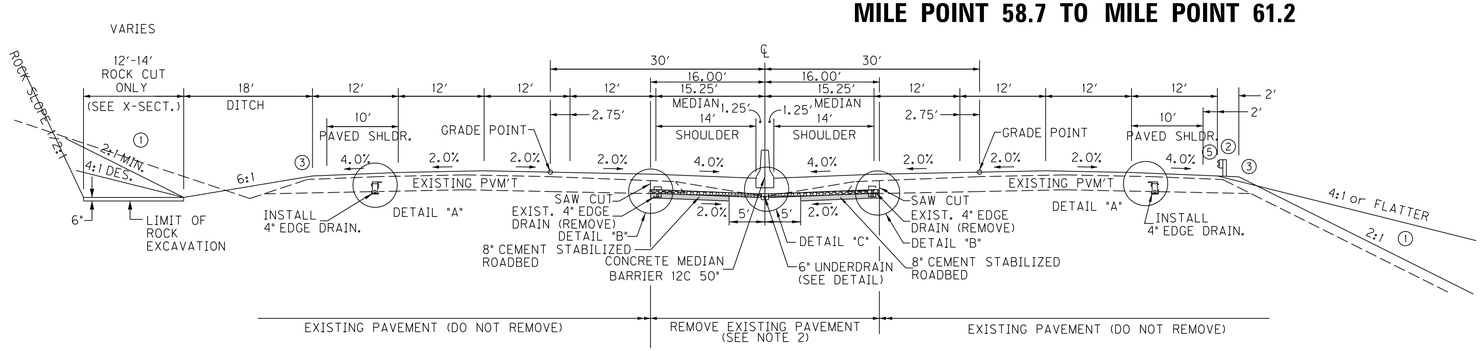
STATIONS				ITEM CODE	CRUSHED AGGREGATE SIZE NO. 2	PERFORATED PIPE 4 INCH	PERFORATED PIPE 6 INCH	NON-PERFORATED PIPE - 4 INCH	NON-PERFORATED PIPE - 6 INCH	PERF PIPE HEADWALL TY 1 - 4 INCH	PERF PIPE HEADWALL TY 2 - 4 INCH	PERF PIPE HEADWALL TY 3 - 4 INCH	PERF PIPE HEADWALL TY 4 - 4 INCH	CORED HOLE DRAINAGE BOX CON - 4 IN	CORED HOLE DRAINAGE BOX CON - 6 IN	REMARKS
				UNIT TO BID ON	TON	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	
US 31W RAMP G																
RT	9+89	TO	10+58			69										
RT	10+58	TO	12+60	1	202							1				Tie to Ramp G Turning Roadway
RT	12+60	TO	14+60	1	200			22				1				
RT	14+60	TO	16+50	1	190			18		1						
RT	16+50	TO	18+55		205											
RT	18+55	TO	20+65	1	210			22		1						
RT	20+65	TO	22+75	1	210			22								
RT	22+75	TO	23+25		50							1				Tie to I-65 Southbound
TOTAL US 31 RAMP G				5	1336			106		2		3				
US 31W RAMP H																
RT	2+03	TO	4+50	1	247			22				1				
RT	4+50	TO	7+00	1	250			22				1				
RT	7+00	TO	12+00	1	500			22				1				
RT	12+00		17+00	1	500			22				1				
RT	17+00		20+00	1	300			22				1				
RT	20+00		22+45	1	245			18				1				
RT	22+45		24+95		250											
RT	24+95		27+00	1	205			22				1				
RT	27+00		28+95	1	195			22				1				
TOTAL US 31W RAMP H				8	2,692	0		172	0	0	0	8	0	0	0	
TOTAL PROJECT				182	61,251	32,212		3,992	412	42	2	78	58	3	49	

PAVEMENT EDGE DRAIN SUMMARY

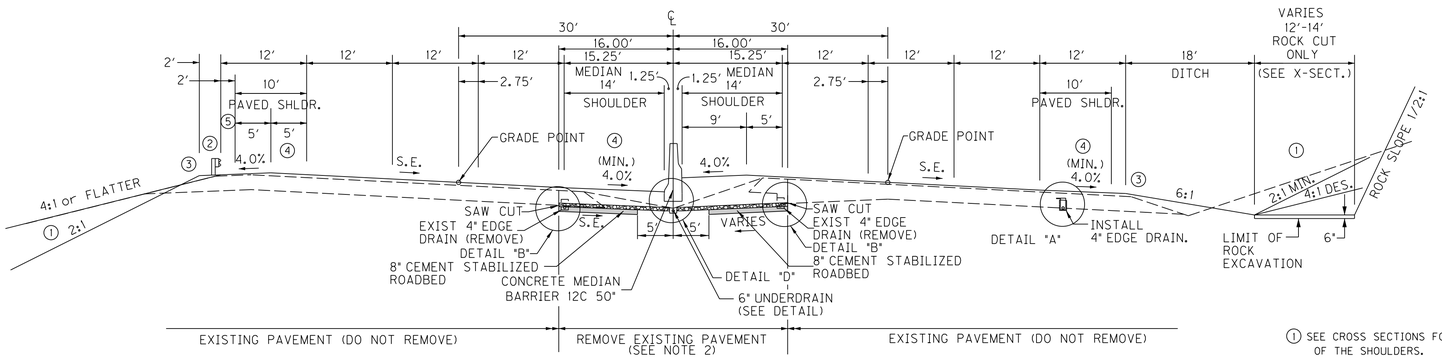
MicroStation v8.11.7.443 | E-SHEET NAME: | USER: wlmorris DATE PLOTTED: November 12, 2013 | FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R0020USU - PERF PIPE (40F41.DGN

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 4-14.00	R2

TYPICAL SECTIONS
I-65 WIDENING & OVERLAY
MILE POINT 58.7 TO MILE POINT 61.2



NORMAL SECTION



SUPERELEVATED SECTION

NOTES:

1. FOR SUPERELEVATED SECTIONS, CONSTRUCT THE PAVEMENT DRAINAGE BLANKET FOR WIDENING TO THE INSIDE SO AS TO PROVIDE POSITIVE DRAINAGE (2% OR GREATER) TO THE 6 INCH PERFORATED PIPE IN THE MEDIAN.

2. REMOVE EXISTING ASPHALT PAVEMENT, DGA, AND EDGE DRAIN TO RECEIVE NEW MEDIAN PAVEMENT. USE ALL MATERIALS REMOVED, EXCLUDING THE PIPE AND HEADWALLS, IN THE BOTTOM LIFT OF SUBGRADE FILL FOR THE NEW MEDIAN IN LIEU OF BORROW MATERIAL. WASTE THE EXISTING UNDERDRAIN PIPE. RE-USE HEADWALLS, IF POSSIBLE.

3. REMOVE EXISTING LONGITUDINAL EDGE DRAINS THROUGH WIDENED AREAS AND CONSTRUCT NEW EDGE DRAINS AS SHOWN IN THE DETAILS FOR THE PROJECT. PLUG REMAINING LONGITUDINAL EDGE DRAINS IF THE BREAK IS ON THE HIGH END, AND PROPERLY DISCHARGE THEM IF THE BREAK IS ON THE LOW END.

4. UNDERDRAIN OUTLETS WILL BE SPACED AS REQUIRED BY THE PROPOSAL ATTACHMENTS AND SPECIFICATIONS. OUTLETS HAVE BEEN SPOTTED ON THE PLANS, HOWEVER, THE ACTUAL LOCATIONS MAY CHANGE TO INCORPORATE EXISTING OUTLETS IN THE SPACING PLAN.

5. THE CONTRACTOR WILL SAW CUT THE EXISTING PAVEMENT, INCLUDING THE THE EXISTING SUBGRADE AT THE LOCATIONS INDICATED TO ASSURE A CLEAN STRAIGHT EDGE FOR THE CONSTRUCTION OF THE ADJACENT NEW FILL DEPTH DESIGN. SAWCUT SHALL BE PAID FOR AT THE UNIT PRICE PER LINEAR FOOT.

6. FABRIC GEOTEXTILE TYPE IV AND CRUSHED AGGREGRATE SIZE NO. 57 ARE INCIDENTAL TO PERFORATED PIPE - 4 INCH OR PERFORATED PIPE - 6 INCH AS APPLICABLE.

7. A GEOMETRIC GRADE WAS ESTABLISHED FOR THIS PROJECT. SINCE DEVELOPMENT OF THE GEOMETRIC GRADE, THERE HAVE BEEN SUBSEQUENT PAVEMENT REHABILITATION PROJECTS AND OTHER MAINTENANCE / PAVEMENT PRESERVATION ACTIVITIES THAT MAY HAVE INVOLVED PAVEMENT MILLING AND PAVEMENT OVERLAYS. THERE ARE ALSO AREAS WHERE PAVEMENT PATCHES HAVE BEEN PLACED AND/OR THE EXISTING PAVEMENT IS OUT OF SECTION. THE EXISTING ASPHALT PAVEMENT OVERLAY FOR THIS SECTION OF ROADWAY CONSISTS OF A NOMINAL 8.5 INCHES ASPHALT PAVEMENT OVERLAY.

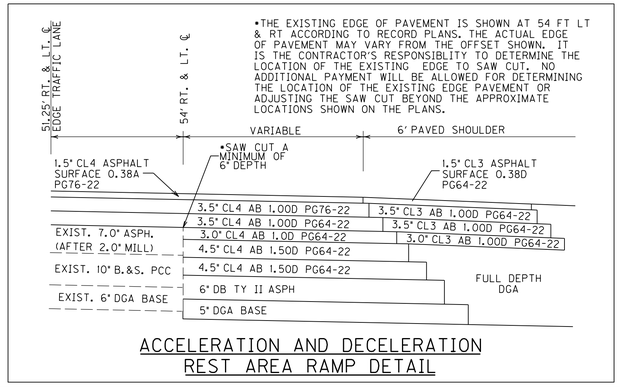
   PROPOSED ADDITIONAL PAVEMENT OVERLAYS HAVE BEEN DETERMINED BASED ON NOMINAL EXISTING 8.5 INCHES ASPHALT OVERLAY. THE PROPOSED 8.5 INCHES ASPHALT OVERLAY CONSISTS OF 1.5 INCHES ASPHALT SURFACE AND 7 INCHES ASPHALT BASE (3.5" + 3.5") PLACED OVER THE EXISTING PAVEMENT THICKNESSES. LAYER THICKNESSES FOR THE PROPOSED ADDITIONAL PAVEMENT OVERLAY WILL BE ADJUSTED FOR LOCATIONS WHERE THE NOMINAL PAVEMENT THICKNESS VARIES FROM THE NOMINAL 8.5 INCHES ASPHALT OVERLAY. QUANTITIES FOR BOTH LEVELING AND WEDGING AND MILLING HAVE BEEN INCLUDED IN THE PLANS TO BE USED AS DIRECTED BY THE ENGINEER TO FACILITATE CONSISTENT PLACEMENT OF THE PROPOSED ADDITIONAL ASPHALT PAVEMENT OVERLAY. LEVELING AND WEDGING AND/OR MILLING AT SPOT LOCATIONS MAY BE DIRECTED BY THE ENGINEER TO MATCH PAVEMENT LAYERS BETWEEN THE OVERLAY OF THE EXISTING PAVEMENT AND PAVEMENT WIDENING. MILLING FOR THESE PURPOSES SHALL BE IN ADDITION TO THAT REQUIRED TO ADJUST PAVEMENT CROSS-SLOPE, SHIFT THE CROWN POINT, AND TO ADJUST IRREGULARITIES IN THE PAVEMENT PROFILE.

8. STA. 3040+50 TO STA. 3051+50 TRANSISTION PAVEMENT OVERLAY FOR TRAFFIC LANES, MEDIAN & SHOULDER FROM PREVIOUS PROJECT TO 8.5" OVERYLAY FOR THIS PROJECT, REMOVE TEMPORARY MEDIAN BARRIER AND CONSTRUCT PERMANENT MEDIAN BARRIER;

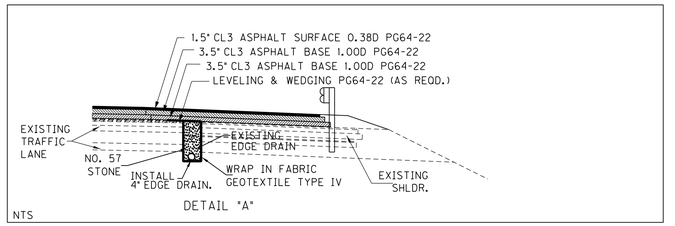
   STA. 3051+50 TO STA. 3066+00 OVERLAY TRAFFIC LANES, MEDIAN AND SHOULDER PAVEMENT, REMOVE TEMPORARY MEDIAN BARRIER AND CONSTRUCT PERMANENT MEDIAN BARRIER;

   STA. 3066+00 TO STA 3161+36 SAW CUT 16' EITHER SIDE OF CENTELINE AND PAVE MEDIAN, CONSTRUCT PERMANENT MEDIAN BARRIER AND OVERLAY TRAFFIC LANES AND SHOLDERS, CONSTRUCT FULL DEPTH PAVEMENT IN WIDENED AREAS;

   STA. 3161+36 TO STA 3170+86 (GREEN RIVER BRIDGE) CONSTRUCT FULL DEPTH PAVEMENT.

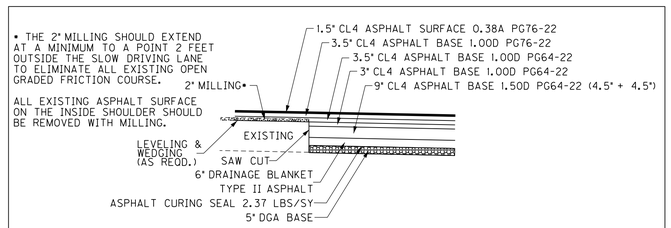


ACCELERATION AND DECELERATION REST AREA RAMP DETAIL



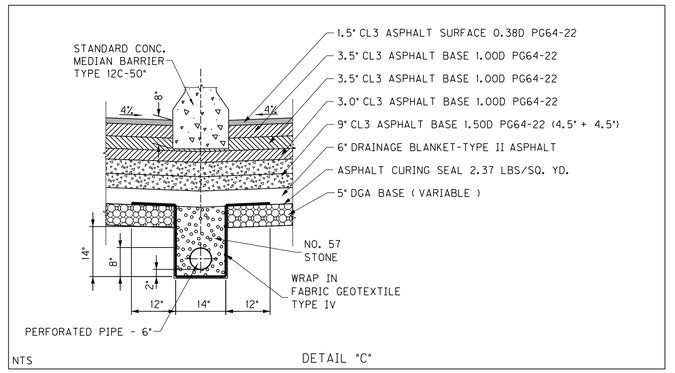
DETAIL "A"

NTS



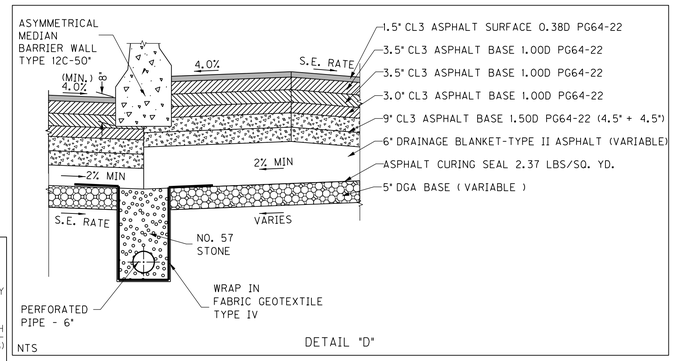
NTS

DETAIL "B"



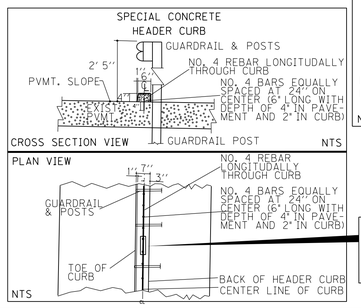
NTS

DETAIL "C"



NTS

DETAIL "D"



DETAIL
NO. 4 BARS WITH 1'-9" OVERLAP
NO. 4 BARS AT 24" O. C.

1. SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.

2. SHOULDER SHALL BE WIDENED 2' WHERE GUARDRAIL IS TO BE INSTALLED. CONTRARY TO STANDARD DRAWINGS ALL GUARDRAIL POSTS SHALL BE 7' IN LENGTH.

3. ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT WHERE THE DGA BASE TIES INTO THE EXISTING DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
   ASPHALT SEAL COAT
   ASPHALT SEAL AGGRAGATE

4. SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SLOPES.

5. EXTEND OVERLAY TO FACE OF GUARDRAIL

SCALE: NTS

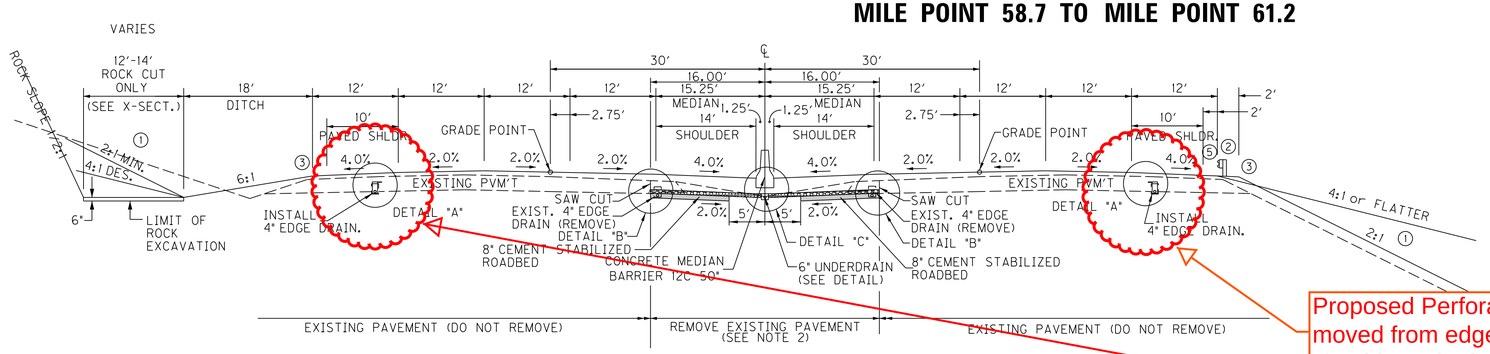
TYPICAL SECTIONS- I-65

FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R002001TS - ML SOUTH OF GREEN R.DGN
USER: wlmorris
DATE PLOTTED: November 13, 2013
E-SHEET NAME:
MicroStation v8.11.7.443

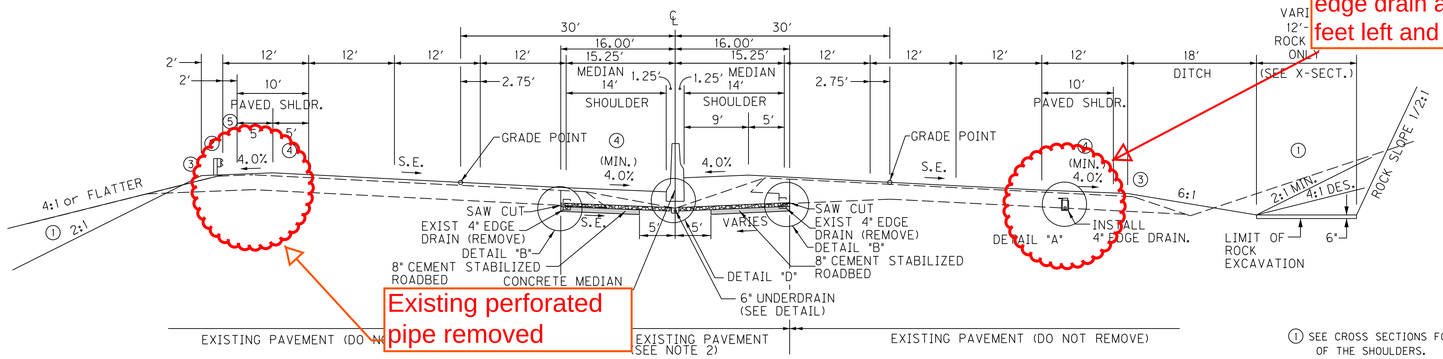
COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 4-14.00	R2

Revised 11/13/2013

TYPICAL SECTIONS
I-65 WIDENING & OVERLAY
MILE POINT 58.7 TO MILE POINT 61.2

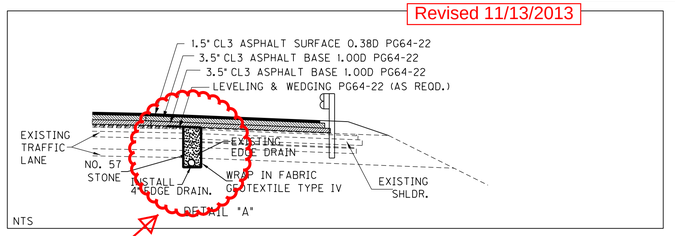


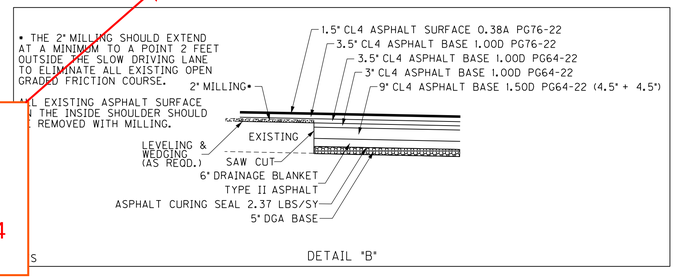
NORMAL SECTION

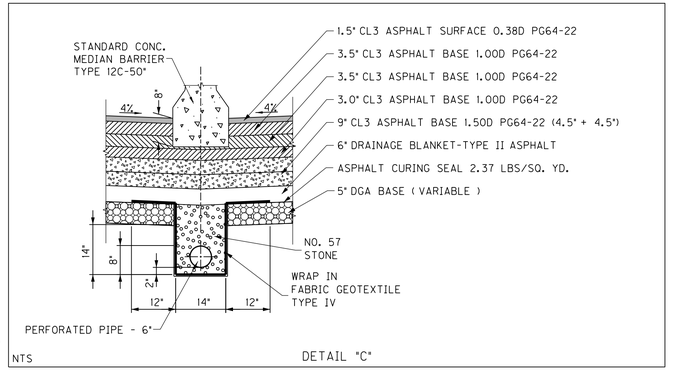


Existing perforated pipe removed

Proposed Perforated pipe moved from edge of proposed shoulder to be located in the same location as the existing edge drain at approximately 54 feet left and right of centerline







NOTES:

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2. REMOVE EXISTING ASPHALT PAVEMENT, DGA, AND EDGE DRAIN TO RECEIVE NEW MEDIAN PAVEMENT. USE ALL MATERIALS REMOVED, EXCLUDING THE PIPE AND HEADWALLS, IN THE BOTTOM LIFT OF SUBGRADE FILL FOR THE NEW MEDIAN IN LIEU OF BORROW MATERIAL. WASTE THE EXISTING UNDERDRAIN PIPE. RE-USE HEADWALLS, IF POSSIBLE.
3. REMOVE EXISTING LONGITUDINAL EDGE DRAINS THROUGH WIDENED AREAS AND CONSTRUCT NEW EDGE DRAINS AS SHOWN IN THE DETAILS FOR THE PROJECT. PLUG REMAINING LONGITUDINAL EDGE DRAINS IF THE BREAK IS ON THE HIGH END. AND PROPERLY DISCHARGE THEM IF THE BREAK IS ON THE LOW END.
4. UNDERDRAIN OUTLETS WILL BE SPACED AS REQUIRED BY THE PROPOSAL ATTACHMENTS AND SPECIFICATIONS. OUTLETS HAVE BEEN SPOTTED ON THE PLANS, HOWEVER, THE ACTUAL LOCATIONS MAY CHANGE TO INCORPORATE EXISTING OUTLETS IN THE SPACING PLAN.
5. THE CONTRACTOR WILL SAW CUT THE EXISTING PAVEMENT, INCLUDING THE THE EXISTING SUBGRADE AT THE LOCATIONS INDICATED TO ASSURE A CLEAN STRAIGHT EDGE FOR THE CONSTRUCTION OF THE ADJACENT NEW FULL DEPTH DESIGN. SAWCUT SHALL BE PAID FOR AT THE UNIT PRICE PER LINEAR FOOT.
6. FABRIC GEOTEXTILE TYPE IV AND CRUSHED AGGREGRATE SIZE NO. 57 ARE INCIDENTAL TO PERFORATED PIPE - 4 INCH OR PERFORATED PIPE - 6 INCH AS APPLICABLE.
7. A GEOMETRIC GRADE WAS ESTABLISHED FOR THIS PROJECT. SINCE DEVELOPMENT OF THE GEOMETRIC GRADE, THERE HAVE BEEN SUBSEQUENT PAVEMENT REHABILITATION PROJECTS AND OTHER MAINTENANCE / PAVEMENT PRESERVATION ACTIVITIES THAT MAY HAVE INVOLVED PAVEMENT MILLING AND PAVEMENT OVERLAYS. THERE ARE ALSO AREAS WHERE PAVEMENT PATCHES HAVE BEEN PLACED AND/OR THE EXISTING PAVEMENT IS OUT OF SECTION. THE EXISTING ASPHALT PAVEMENT OVERLAY FOR THIS SECTION OF ROADWAY CONSISTS OF A NOMINAL 8.5 INCHES ASPHALT PAVEMENT OVERLAY.

   PROPOSED ADDITIONAL PAVEMENT OVERLAYS HAVE BEEN DETERMINED BASED ON NOMINAL EXISTING 8.5 INCHES ASPHALT OVERLAY. THE PROPOSED 8.5 INCHES ASPHALT OVERLAY CONSISTS OF 1.5 INCHES ASPHALT SURFACE AND 7 INCHES ASPHALT BASE (3.5" + 3.5") PLACED OVER THE EXISTING PAVEMENT THICKNESSES. LAYER THICKNESSES FOR THE PROPOSED ADDITIONAL PAVEMENT OVERLAY WILL BE ADJUSTED FOR LOCATIONS WHERE THE NOMINAL PAVEMENT THICKNESS VARIES FROM THE NOMINAL 8.5 INCHES ASPHALT OVERLAY. QUANTITIES FOR BOTH LEVELING AND WEDGING AND MILLING HAVE BEEN INCLUDED IN THE PLANS TO BE USED AS DIRECTED BY THE ENGINEER TO FACILITATE CONSISTENT PLACEMENT OF THE PROPOSED ADDITIONAL ASPHALT PAVEMENT OVERLAY. LEVELING AND WEDGING AND/OR MILLING AT SPOT LOCATIONS MAY BE DIRECTED BY THE ENGINEER TO MATCH PAVEMENT LAYERS BETWEEN THE OVERLAY OF THE EXISTING PAVEMENT AND PAVEMENT WIDENING. MILLING FOR THESE PURPOSES SHALL BE IN ADDITION TO THAT REQUIRED TO ADJUST PAVEMENT CROSS-SLOPE, SHIFT THE CROWN POINT, AND TO ADJUST IRREGULARITIES IN THE PAVEMENT PROFILE.

SUPERELEVATED SECTION

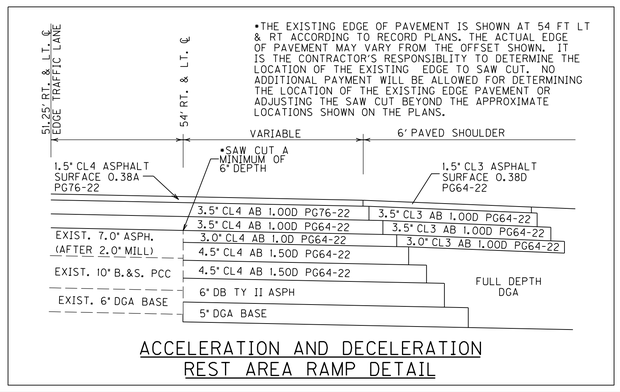
8. STA. 3040+50 TO STA. 3051+50 TRANSISTION PAVEMENT OVERLAY FOR TRAFFIC LANES, MEDIAN & SHOULDER FROM PREVIOUS PROJECT TO 8.5" OVERYLAY FOR THIS PROJECT, REMOVE TEMPORARY MEDIAN BARRIER AND CONSTRUCT PERMANENT MEDIAN BARRIER;

   STA. 3051+50 TO STA. 3066+00 OVERLAY TRAFFIC LANES, MEDIAN AND SHOULDER PAVEMENT, REMOVE TEMPORARY MEDIAN BARRIER AND CONSTRUCT PERMANENT MEDIAN BARRIER;

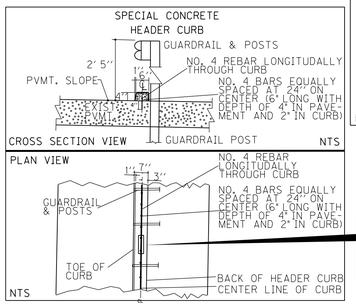
   STA. 3066+00 TO STA 3161+36 SAW CUT 16' EITHER SIDE OF CENTELINE AND PAVE MEDIAN, CONSTRUCT PERMANENT MEDIAN BARRIER AND OVERLAY TRAFFIC LANES AND SHOLDERS, CONSTRUCT FULL DEPTH PAVEMENT IN WIDENED AREAS;

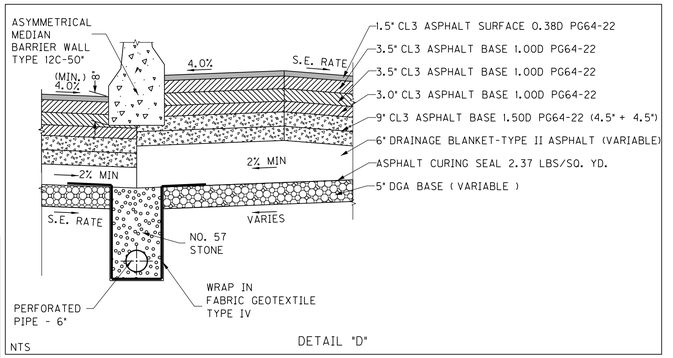
   STA. 3161+36 TO STA 3170+86 (GREEN RIVER BRIDGE) CONSTRUCT FULL DEPTH PAVEMENT.

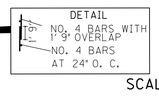
Updated detail



ACCELERATION AND DECELERATION REST AREA RAMP DETAIL







① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.

② SHOULDER SHALL BE WIDENED 2' WHERE GUARDRAIL IS TO BE INSTALLED. CONTRARY TO STANDARD DRAWINGS ALL GUARDRAIL POSTS SHALL BE 7' IN LENGTH.

③ ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT WHERE THE DGA BASE TIES INTO THE EXISTING DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
   ASPHALT SEAL COAT
   ASPHALT SEAL AGGRAGATE

④ SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SLOPES.

⑤ EXTEND OVERLAY TO FACE OF GUARDRAIL

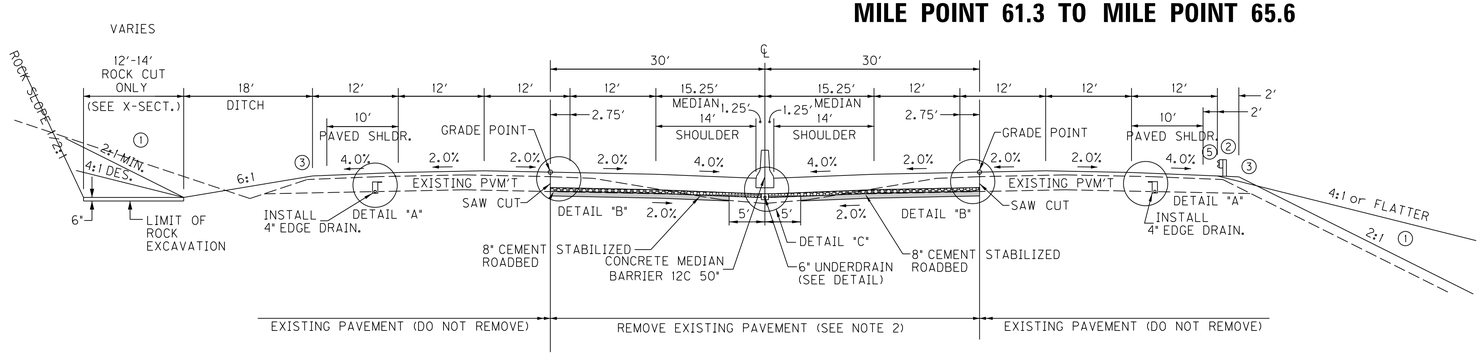
SCALE: NTS

TYPICAL SECTIONS- I-65

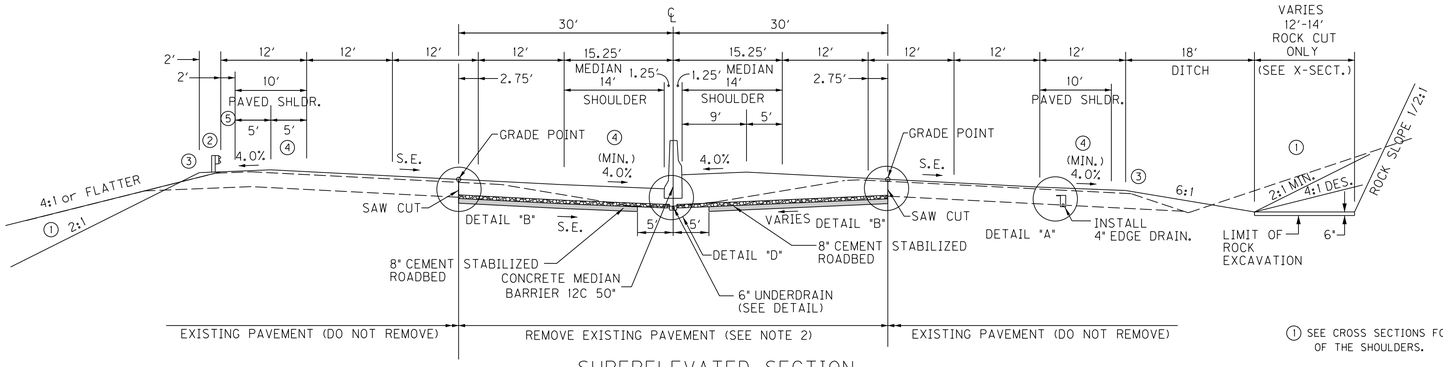
FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R002001TS - ML SOUTH OF GREEN R.DGN
USER: wlmorris
DATE PLOTTED: November 13, 2013
E-SHEET NAME:
MicroStation v8.11.7.443

COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 4-14.00	R2A

TYPICAL SECTIONS
I-65 WIDENING & OVERLAY
MILE POINT 61.3 TO MILE POINT 65.6



NORMAL SECTION



SUPERELEVATED SECTION

NOTES:

1. FOR SUPERELEVATED SECTIONS, CONSTRUCT THE PAVEMENT DRAINAGE BLANKET FOR WIDENING TO THE INSIDE SO AS TO PROVIDE POSITIVE DRAINAGE (2% OR GREATER) TO THE 6 INCH PERFORATED PIPE IN THE MEDIAN.

2. REMOVE EXISTING ASPHALT PAVEMENT, DGA, AND EDGE DRAIN TO RECEIVE NEW MEDIAN PAVEMENT. USE ALL MATERIALS REMOVED, EXCLUDING THE PIPE AND HEADWALLS, IN THE BOTTOM LIFT OF SUBGRADE FILL FOR THE NEW MEDIAN IN LIEU OF BORROW MATERIAL. WASTE THE EXISTING UNDERDRAIN PIPE. RE-USE HEADWALLS, IF POSSIBLE.

3. REMOVE EXISTING LONGITUDINAL EDGE DRAINS THROUGH WIDENED AREAS AND CONSTRUCT NEW EDGE DRAINS AS SHOWN IN THE DETAILS FOR THE PROJECT. PLUG REMAINING LONGITUDINAL EDGE DRAINS IF THE BREAK IS ON THE HIGH END, AND PROPERLY DISCHARGE THEM IF THE BREAK IS ON THE LOW END.

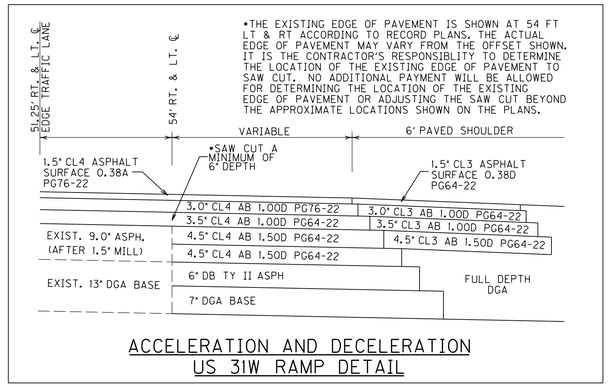
4. UNDERDRAIN OUTLETS WILL BE SPACED AS REQUIRED BY THE PROPOSAL ATTACHMENTS AND SPECIFICATIONS. OUTLETS HAVE BEEN SPOTTED ON THE PLANS, HOWEVER, THE ACTUAL LOCATIONS MAY CHANGE TO INCORPORATE EXISTING OUTLETS IN THE SPACING PLAN.

5. THE CONTRACTOR WILL SAW CUT THE EXISTING PAVEMENT, INCLUDING THE THE EXISTING SUBGRADE AT THE LOCATIONS INDICATED TO ASSURE A CLEAN STRAIGHT EDGE FOR THE CONSTRUCTION OF THE ADJACENT NEW FULL DEPTH DESIGN. SAWCUT SHALL BE PAID FOR AT THE UNIT PRICE PER LINEAR FOOT.

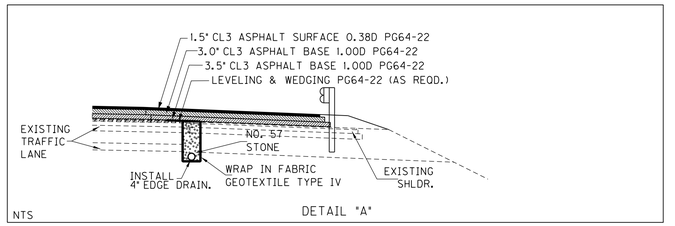
6. FABRIC GEOTEXTILE TYPE IV AND CRUSHED AGGREGRATE SIZE NO. 57 ARE INCIDENTAL TO PERFORATED PIPE - 4 INCH OR PERFORATED PIPE - 6 INCH AS APPLICABLE.

7. A GEOMETRIC GRADE WAS ESTABLISHED FOR THIS PROJECT. SINCE DEVELOPMENT OF THE GEOMETRIC GRADE, THERE HAVE BEEN SUBSEQUENT PAVEMENT REHABILITATION PROJECTS AND OTHER MAINTENANCE / PAVEMENT PRESERVATION ACTIVITIES THAT MAY HAVE INVOLVED PAVEMENT MILLING AND PAVEMENT OVERLAYS. THERE ARE ALSO AREAS WHERE PAVEMENT PATCHES HAVE BEEN PLACED AND/OR THE EXISTING PAVEMENT IS OUT OF SECTION. THE EXISTING ASPHALT PAVEMENT OVERLAY FOR THIS SECTION OF ROADWAY CONSISTS OF A NOMINAL 8.5 INCHES ASPHALT PAVEMENT OVERLAY.

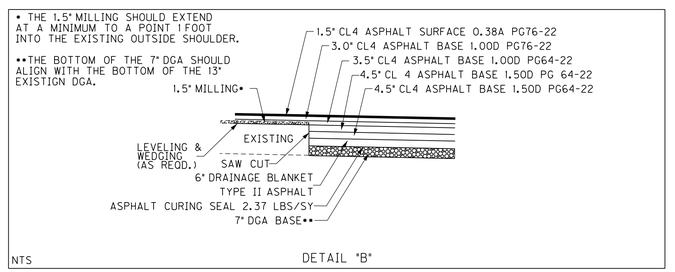
   PROPOSED ADDITIONAL PAVEMENT OVERLAYS HAVE BEEN DETERMINED BASED ON NOMINAL EXISTING 8.5 INCHES ASPHALT OVERLAY. THE PROPOSED 8.0 INCHES ASPHALT OVERLAY CONSISTS OF 1.5 INCHES ASPHALT SURFACE AND 6.5 INCHES ASPHALT BASE (3.0" + 3.5") PLACED OVER THE EXISTING PAVEMENT THICKNESSES. LAYER THICKNESSES FOR THE PROPOSED ADDITIONAL PAVEMENT OVERLAY WILL BE ADJUSTED FOR LOCATIONS WHERE THE NOMINAL PAVEMENT THICKNESS VARIES FROM THE NOMINAL 8.5 INCHES ASPHALT OVERLAY. QUANTITIES FOR BOTH LEVELING AND WEDGING AND MILLING HAVE BEEN INCLUDED IN THE PLANS TO BE USED AS DIRECTED BY THE ENGINEER TO FACILITATE CONSISTENT PLACEMENT OF THE PROPOSED ADDITIONAL ASPHALT PAVEMENT OVERLAY. LEVELING AND WEDGING AND/OR MILLING AT SPOT LOCATIONS MAY BE DIRECTED BY THE ENGINEER TO MATCH PAVEMENT LAYERS BETWEEN THE OVERLAY OF THE EXISTING PAVEMENT AND PAVEMENT WIDENING. MILLING FOR THESE PURPOSES SHALL BE IN ADDITION TO THAT REQUIRED TO ADJUST PAVEMENT CROSS-SLOPE, SHIFT THE CROWN POINT, AND TO ADJUST IRREGULARITIES IN THE PAVEMENT PROFILE.



ACCELERATION AND DECELERATION
US 31W RAMP DETAIL



NTS DETAIL "A"



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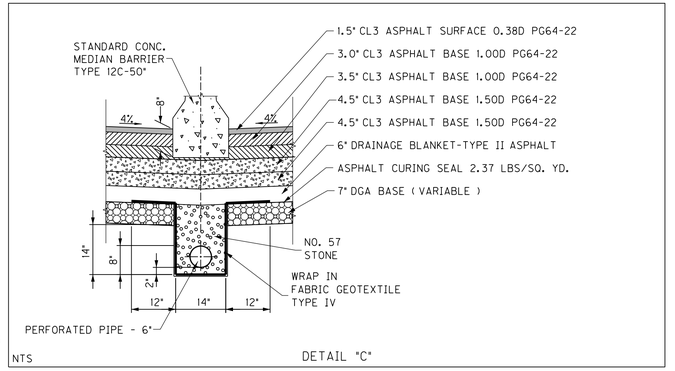

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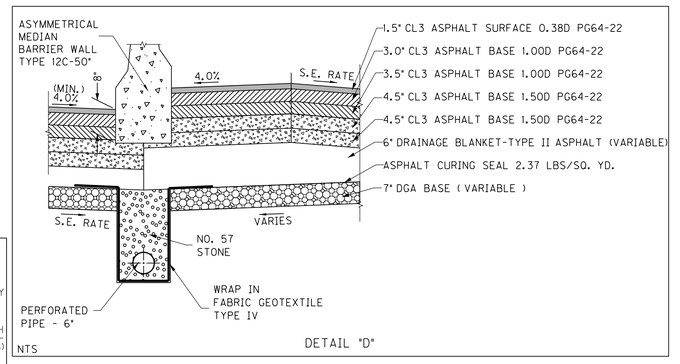

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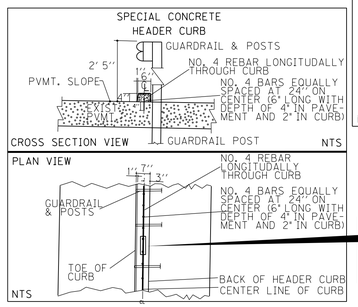
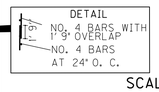




SCALE: NTS

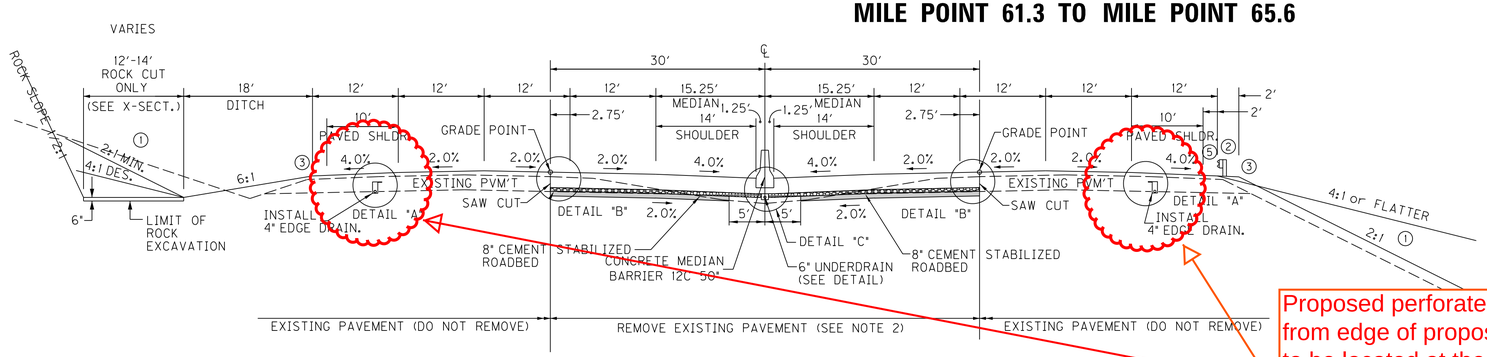
TYPICAL SECTIONS- I-65

FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R0020ATS - ML NORTH OF GREEN R.DGN
USER: wlmorris
DATE PLOTTED: November 13, 2013
E-SHEET NAME:
MicroStation v8.11.7.443

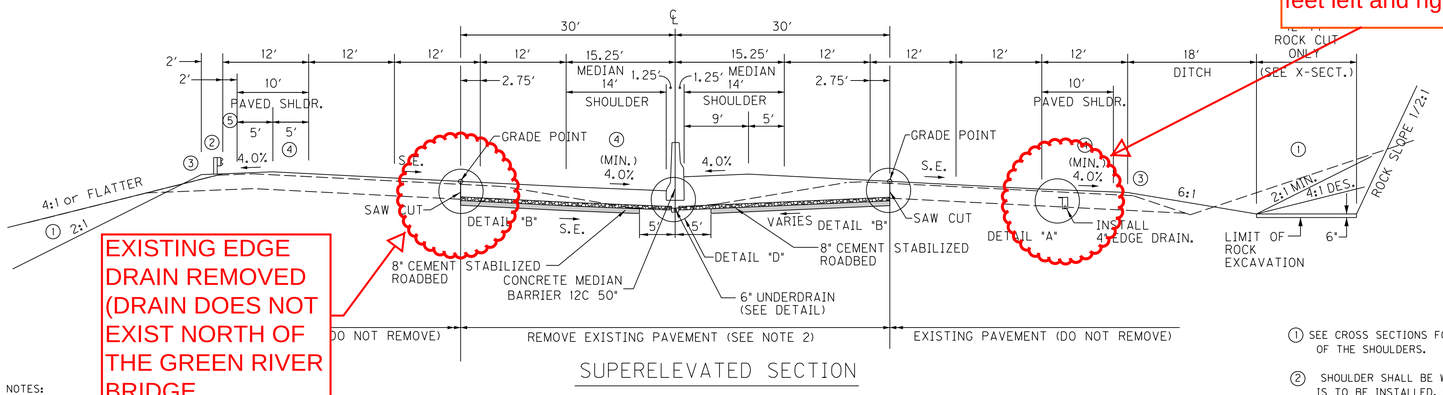
COUNTY OF	ITEM NO.	SHEET NO.
HART	4-13.00 4-14.00	R2A

Revised 11/13/2013

TYPICAL SECTIONS
I-65 WIDENING & OVERLAY
MILE POINT 61.3 TO MILE POINT 65.6



NORMAL SECTION

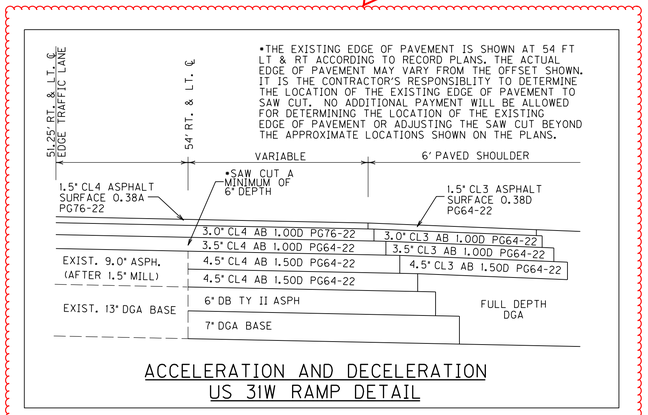


SUPERELEVATED SECTION

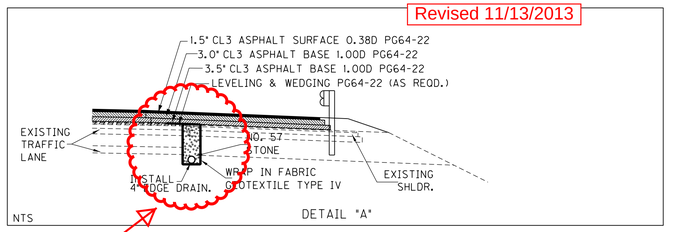
EXISTING EDGE DRAIN REMOVED (DRAIN DOES NOT EXIST NORTH OF THE GREEN RIVER BRIDGE

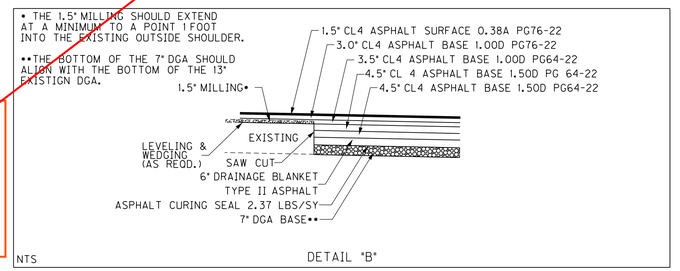
Proposed perforated pipe moved from edge of proposed shoulder to be located at the existing edge of pavement at approximately 54 feet left and right of centerline

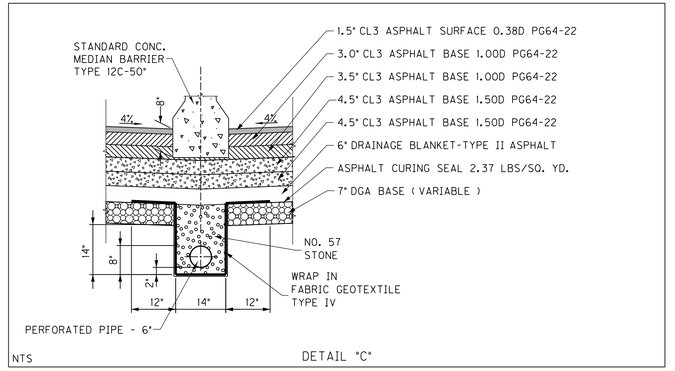
Updated detail

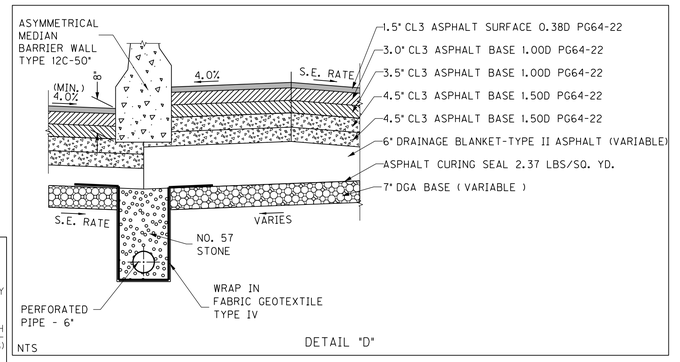


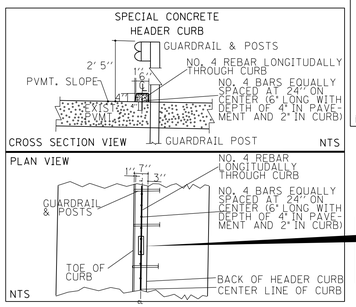
ACCELERATION AND DECELERATION
US 31W RAMP DETAIL

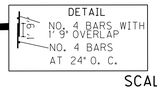












① SEE CROSS SECTIONS FOR SLOPES OUTSIDE THE LIMITS OF THE SHOULDERS.

② SHOULDER SHALL BE WIDENED 2' WHERE GUARDRAIL IS TO BE INSTALLED. CONTRARY TO STANDARD DRAWINGS ALL GUARDRAIL POST SHALL BE 7' IN LENGTH.

③ ASPHALT SEAL REQUIRED FROM OUTSIDE EDGE OF PAVED SHOULDER TO A POINT WHERE THE DGA BASE TIES INTO THE EXISTING DITCH OR FILL SLOPE. TWO APPLICATIONS OF THE FOLLOWING:
ASPHALT SEAL COAT
ASPHALT SEAL AGGRAGATE

④ SUPERELEVATED SHOULDERS, CONSTRUCT TO STANDARD SUPERELEVATION EXCEPT NOT FLATTER THAN SLOPES INDICATED FOR NORMAL SLOPES.

⑤ EXTEND OVERLAY TO FACE OF GUARDRAIL

NOTES:

1. FOR SUPERELEVATED SECTIONS, CONSTRUCT THE PAVEMENT DRAINAGE BLANKET FOR WIDENING TO THE INSIDE SO AS TO PROVIDE POSITIVE DRAINAGE (2% OR GREATER) TO THE 6 INCH PERFORATED PIPE IN THE MEDIAN.

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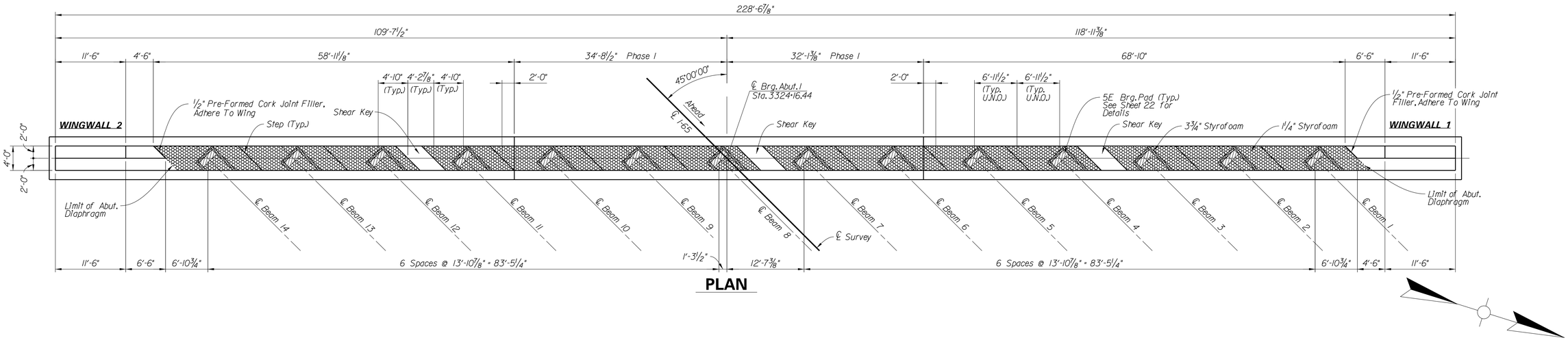
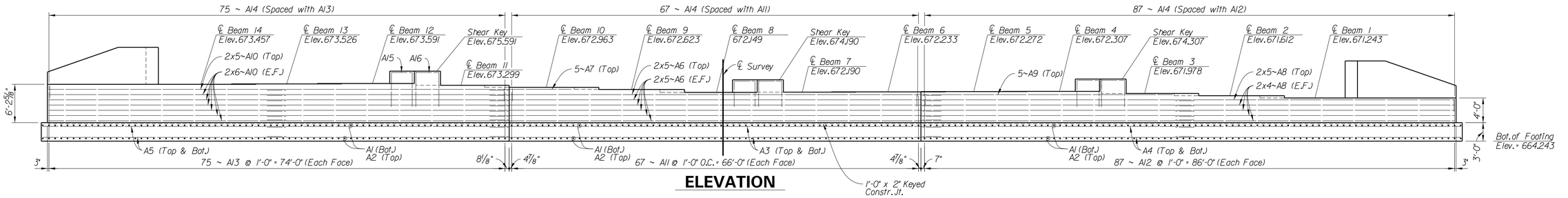
SCALE: NTS

TYPICAL SECTIONS- I-65

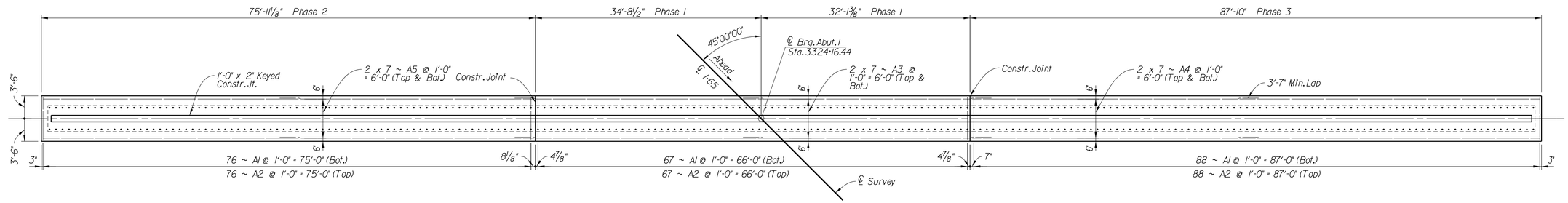
FILE NAME: V:\1785\ACTIVE\178562008\TRANSPORTATION\DESIGN\DRAWING\PLANSHEETS\SECTION 4\R00204TS - ML NORTH OF GREEN R.DGN
USER: wlmorris
DATE PLOTTED: November 13, 2013
E-SHEET NAME:
MicroStation v8.11.7.443



PLAN



ELEVATION



FOOTING PLAN

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: J. Lopez	R. Wade

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

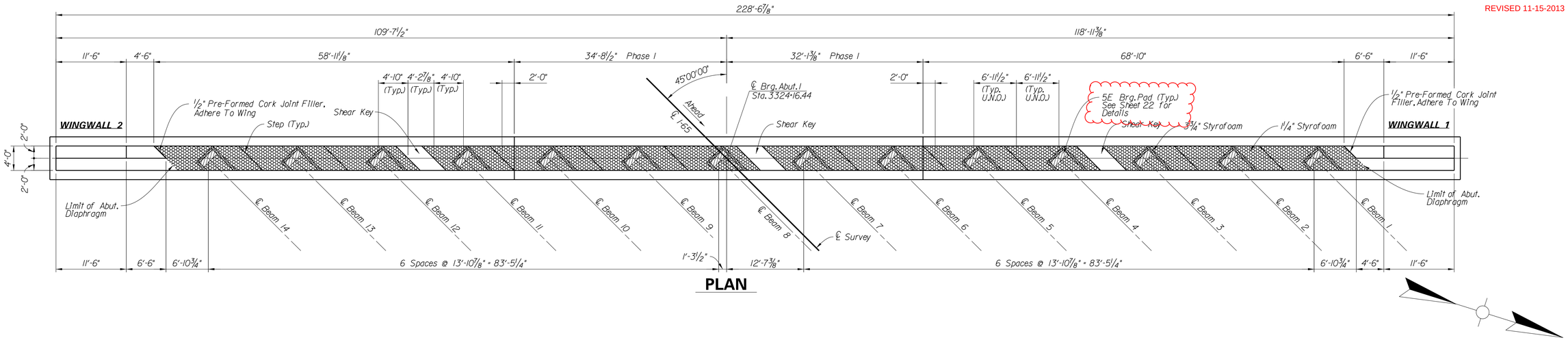
COUNTY
HART

ROUTE	CROSSING
I–65	CSX Railroad

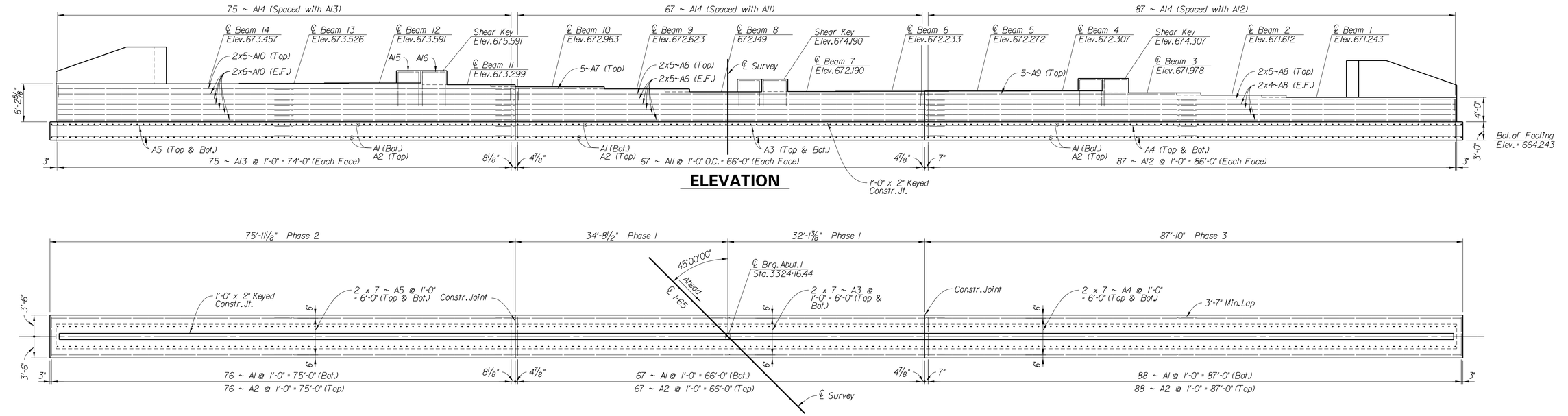
SEMI–INTEGRAL ABUTMENT 1

ITEM NUMBER	PREPARED BY	SHEET NO.
4–14.00	Qk4 *1046 E Chestnut Street* *Louisville, Kentucky 40204*	S9
		DRAWING NO. 26935

REVISED 11-15-2013



PLAN



ELEVATION

FOOTING PLAN

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: J. Lopez	R. Wade

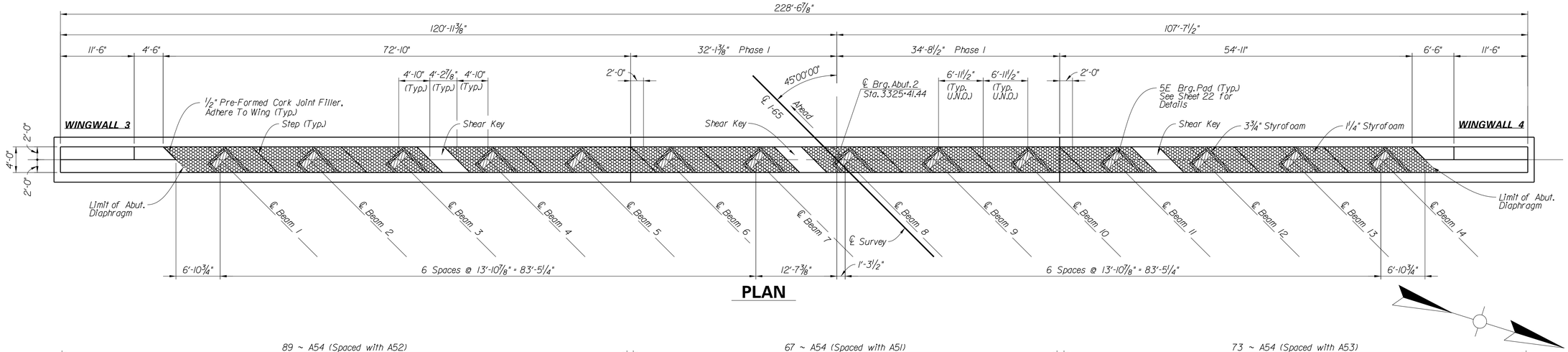
Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

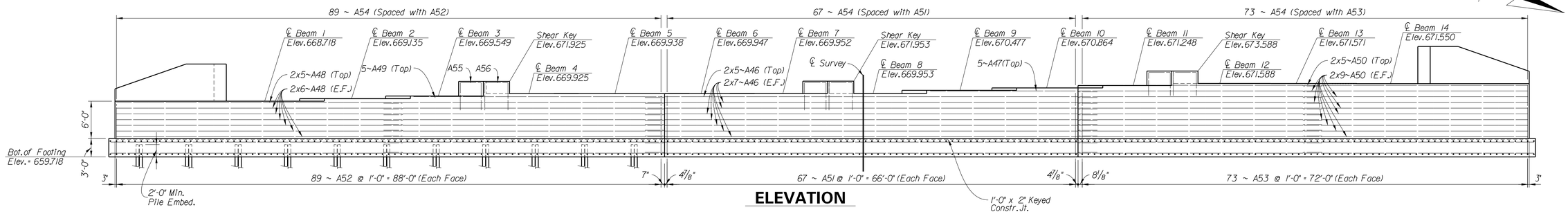
ROUTE	CROSSING
I-65	CSX Railroad

SEMI-INTEGRAL ABUTMENT 1

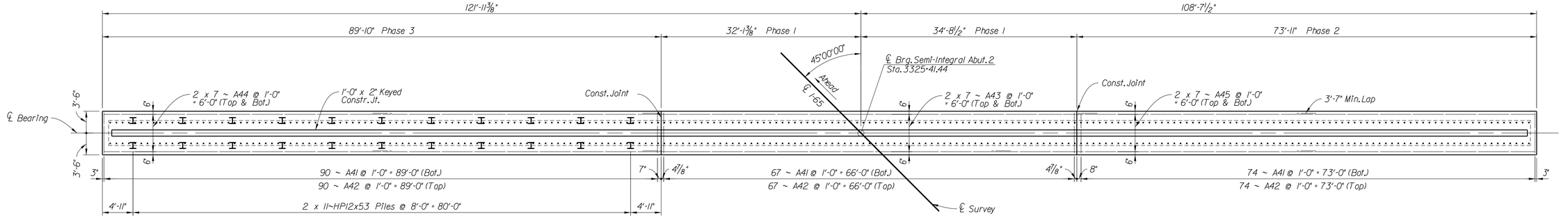
ITEM NUMBER	PREPARED BY	SHEET NO.
4-14.00	Qk4 *1046 E Chestnut Street* *Louisville, Kentucky 40204*	S9
		DRAWING NO. 26935



PLAN



ELEVATION



FOOTING PLAN

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: J. Lopez	R. Wade

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

ROUTE: **I-65** | CROSSING: **CSX Railroad**

SEMI-INTEGRAL ABUTMENT 2

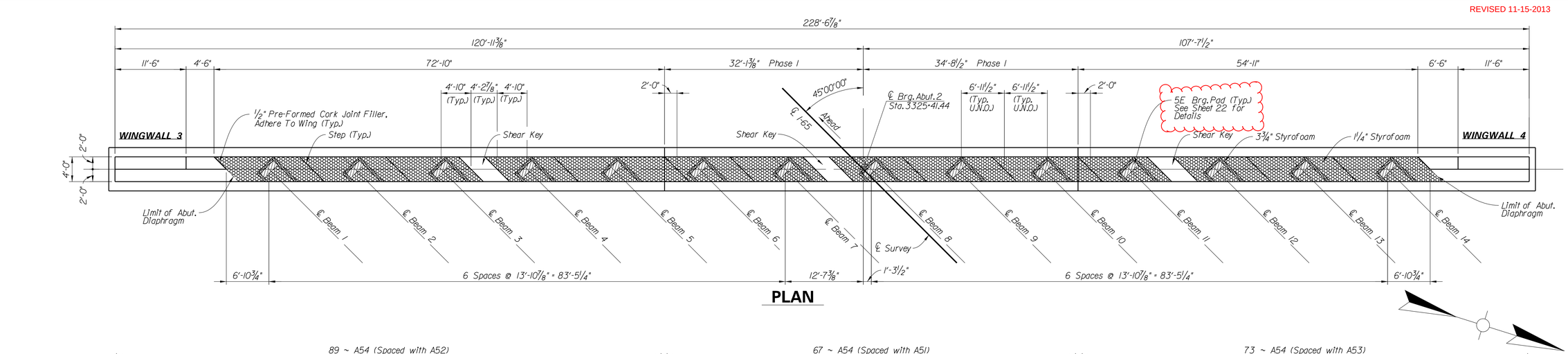
ITEM NUMBER: **4-14.00**

PREPARED BY:
Qk4
1046 E Chestnut Street
Louisville, Kentucky 40204

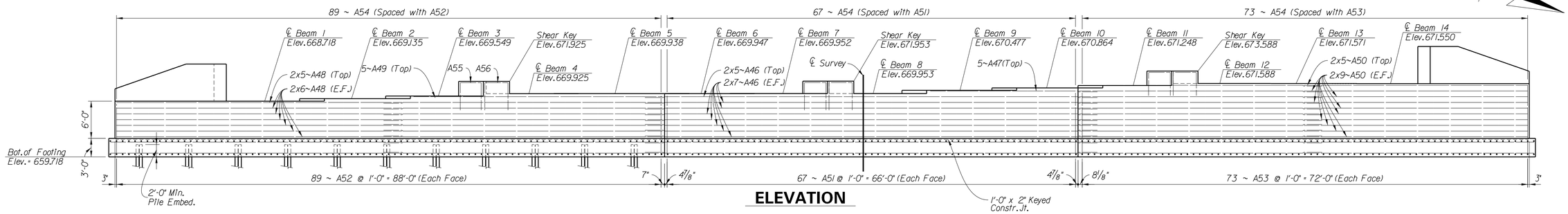
SHEET NO.: S11

DRAWING NO.: **26935**

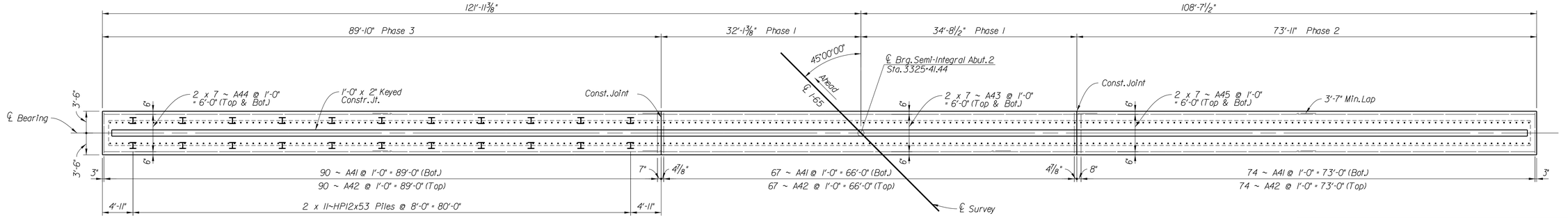
REVISED 11-15-2013



PLAN



ELEVATION



FOOTING PLAN

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: J. Lopez	R. Wade

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

ROUTE: **I-65** | CROSSING: **CSX Railroad**

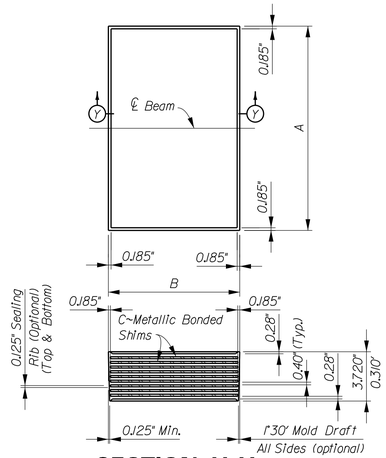
SEMI-INTEGRAL ABUTMENT 2

ITEM NUMBER	PREPARED BY	SHEET NO.
4-14.00	**Qk4** *1046 E Chestnut Street* *Louisville, Kentucky 40204*	S11
		DRAWING NO. **26935**

TABLE OF ELEVATIONS (NORTH BOUND LANES)

	℄ BEAM 8			LEFT GUTTERLINE	℄ BEAM 9			℄ BEAM 10			CONSTR. JOINT	PROFILE GRADE	℄ BEAM 11			CROWN	℄ BEAM 12			℄ BEAM 13			℄ BEAM 14			RIGHT GUTTERLINE
	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.
1 - 1																										679.605
2 - 2																							679.594			679.545
3 - 3																				679.675			679.530			679.479
4 - 4																	679.753			679.609			679.460			679.408
5 - 5													679.476			679.669	679.685			679.537			679.382			679.328
6 - 6								679.161			679.221	679.395	679.406			679.596	679.612			679.458			679.296			679.239
7 - 7								679.083			679.148	679.320	679.331			679.517	679.532			679.371			679.201			679.140
8 - 8					678.759			679.007			679.070	679.239	679.249			679.429	679.444			679.275			679.095			679.031
9 - 9	678.309			678.440	678.680			678.924			678.986	679.150	679.160			679.333	679.347			679.168			678.978			678.911
10 - 10	678.229			678.359	678.595			678.833			678.893	679.052	679.062			679.227	679.239			679.051			678.851			678.780
11 - 11	678.143			678.273	678.504			678.734			678.792	678.945	678.954			679.110	679.122			678.923			678.713			678.639
12 - 12	678.051			678.180	678.404			678.626			678.681	678.827	678.836			678.983	678.993			678.785			678.565			678.487
13 - 13	677.951			678.078	678.294			678.507			678.559	678.698	678.706			678.844	678.854			678.636			678.407			678.327
14 - 14	677.842			677.968	678.175			678.377			678.427	678.559	678.567			678.696	678.704			678.477			678.240			678.158
15 - 15	677.722			677.847	678.044			678.236			678.284	678.409	678.416			678.537	678.544			678.309			678.066			677.983
16 - 16	677.593			677.716	677.903			678.085			678.130	678.249	678.256			678.369	678.376			678.134			677.887			677.802
17 - 17	677.452			677.574	677.752			677.924			677.967	678.079	678.086			678.192	678.199			677.952						
18 - 18	677.301			677.421	677.589			677.753			677.794	677.901	677.908			678.009	678.015			677.766						
19 - 19	677.139			677.258	677.418			677.574			677.613	677.716	677.722			677.821	677.827									
20 - 20	676.968			677.085	677.237			677.387			677.425	677.526	677.532			677.655										
21 - 21	676.787			676.903	677.049			677.194			677.232	677.351														
22 - 22	676.598			676.713	676.854																					
23 - 23	676.402			676.517	676.657																					
24 - 24	676.202			676.315																						
25 - 25																										
26 - 26																										
27 - 27																										
28 - 28																										
29 - 29																										
30 - 30																										
31 - 31																										
32 - 32																										
33 - 33																										
A - A	678.376			678.519	678.850			679.188			679.275	679.509	679.523			679.790	679.814			679.748			679.678			679.654
B - B	678.334			678.476	678.808			679.148			679.235	679.470	679.484			679.751	679.776			679.711			679.642			679.618
C - C	676.138			676.284	676.662			677.049			677.149	677.417	677.433			677.744	677.773			677.756			677.735			677.727
D - D	676.082			676.227	676.606			676.995			677.095	677.364	677.380			677.691	677.721			677.705			677.685			677.678

DIMENSIONS FOR I-BEAM PADS			
PAD	A	B	C
5E	38"	12"	7~0.12" x 37.630" x 11.630"



SECTION Y-Y
(5E)

GENERAL NOTES
(BEARING PAD)

SPECIFICATIONS: Fabricate the Elastomeric Bearing Pads to the design and dimensions as shown on these drawings and to AASHTO Standard Specifications for Highway Bridges, Division II, Section 18

Ensure bearings are low temperature Grade 3 with durometer hardness of 50 and subjected to the load testing requirements corresponding to Design Method A.

Include the price of bearing pads in the bid for the beams.

BEARING PAD DETAILS

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: F. Koch	R. Wade

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

ROUTE: **I-65** | CROSSING: **CSX Railroad**

N.B. Construction Elevations

ITEM NUMBER: **4-14.00**

PREPARED BY
Qk4
1046 E. Chestnut St.
Louisville, Kentucky 40204

SHEET NO. S22

DRAWING NO. **26935**

FILE NAME: V:_PROJECTS PRIOR TO 2000\99102 I-65 WIDENING\BRIDGES\9. I-65 OVER CSX RAILROAD\4. STAGE II FINAL\DRAWINGS\CD TO STATE\S269

USER: king
DATE PLOTTED: October 17, 2013

E-SHEET NAME:

MicroStation v8.11.7.443

TABLE OF ELEVATIONS (NORTH BOUND LANES)

	℄ BEAM 8			LEFT GUTTERLINE	℄ BEAM 9			℄ BEAM 10			CONSTR. JOINT	PROFILE GRADE	℄ BEAM 11			CROWN	℄ BEAM 12			℄ BEAM 13			℄ BEAM 14			RIGHT GUTTERLINE
	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.	TOP OF BEAM	DIM. "X"	CONST. ELEV.
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6 - 6								679.161			679.221	679.395	679.406			679.596	679.612			679.458			679.296			679.239
7 - 7								679.083			679.148	679.320	679.331			679.517	679.532			679.371			679.201			679.140
8 - 8					678.759			679.007			679.070	679.239	679.249			679.429	679.444			679.275			679.095			679.031
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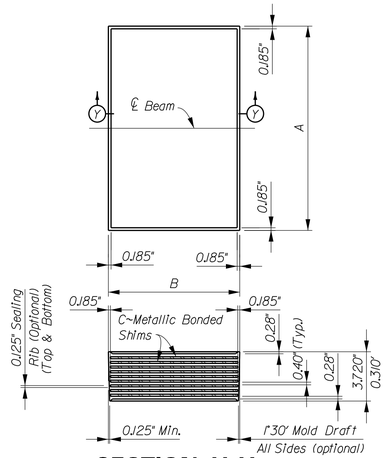
C - C	676.138			676.284	676.662			677.049			677.149	677.417	677.433			677.744	677.773			677.756			677.735			677.722
D - D	676.082			676.227	676.606			676.995			677.095	677.364	677.380			677.691	677.721			677.705			677.685			677.678

REVISED 11-15-2013

DIMENSIONS FOR I-BEAM PADS			
PAD	A	B	C
5E	38"	12"	7~0.12" x 37.630" x 11.630"



SECTION Y-Y
(5E)

GENERAL NOTES
(BEARING PAD)

SPECIFICATIONS: Fabricate the Elastomeric Bearing Pads to the design and dimensions as shown on these drawings and to AASHTO Standard Specifications for Highway Bridges, Division II, Section 18

Ensure bearings are low temperature Grade 3 with durometer hardness of 50 and subjected to the load testing requirements corresponding to Design Method A.

Include the price of bearing pads in the bid for the beams.

BEARING PAD DETAILS

REVISION	DATE

DATE: 9/26/2013	CHECKED BY
DESIGNED BY: C. Renfro	R. Wade
DETAILED BY: F. Koch	R. Wade

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: HART

ROUTE: I-65 | CROSSING: CSX Railroad

N.B. Construction Elevations

ITEM NUMBER: 4-14.00

PREPARED BY: Qk4, 1046 E. Chestnut St., Louisville, Kentucky 40204

SHEET NO. S22

DRAWING NO. 26935

FILE NAME: V:_PROJECTS PRIOR TO 2000\99102 I-65 WIDENING\BRIDGES\9. I-65 OVER CSX RAILROAD\4. STAGE II FINAL\DRAWINGS\CD TO STATE\S26935.dgn

USER: king
DATE PLOTTED: October 17, 2013

E-SHEET NAME:

MicroStation v8.11.7.443

LETTING DATE

CONSTRUCTION PROJECT NO.

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

HART COUNTY
KY 88 OVER
I-65 at STA. 19+99.95

ESTIMATE OF QUANTITIES

BID ITEM CODE		8100	8104	8150	8151	8020	2231	2998	8046	8094	8033	3299	21532ED	24539EC	8001	8002	8039
BID ITEM		Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Crushed Aggregate Slope Protection	Structure Granular Backfill	Masonry Coating	Piles - Steel HP 12 x 53	Pile Points 12"	Test Piles	Armored Edge for Concrete	Rail System Type 3	Precast PCI-Beam Type HN 60-49 Hybrid	Structure Excavation Common	Structure Excavation, Rock	Pre-Drilling for Piles
UNIT		C.Y.	C.Y.	LBS.	LBS.	Tons	C.Y.	S.Y.	L.F.	Each	L.F.	L.F.	L.F.	L.F.	C.Y.	C.Y.	L.F.
Substructure	Integral End Bent 1	34.4	5.6	3073	1053	161	151	42	121	12	16						55
	Pier #1	113.5		18305				166							283	20	
	Integral End Bent 2	34.4	5.6	3073	1053	103	154	42	187	12	22						66
Superstructure			415.9		124,472			1230				87.5	553.3	1365.8			
BRIDGE TOTALS		182.3	427.1	24,451	126,578	264	302	1480	308	24	38	87.5	553.3	1365.8	283	20	121

INDEX OF SHEETS

SPECIAL NOTES

SPECIAL PROVISIONS

69 Embankment at Bridge End Bent Structures

STANDARD DRAWINGS

BBP-002-04	Bearing Details
BGX-006-09	Stencils for Structures
BGX-012-02	Geotechnical Legend
BJE-001-12	Neoprene Expansion Dams and Armored Edges
BPS-003-09	HP 12X53 Steel Piles

SPECIFICATIONS

2012 Standard Specifications for Road and Bridge Construction

6th Edition AASHTO LRFD Design Specification (2012)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY: C. Renfrow	R. Wade
DETAILED BY: F. Koch	R. Wade

STATE OF KENTUCKY
ROGER J. WADE 9860 LICENSED
PROFESSIONAL ENGINEER

09/26/2013

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
HART

ROUTE	CROSSING
KY 88	I-65

COVER SHEET

ITEM NUMBER
4-14.00

PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

SHEET NO. S1

DRAWING NO. 27067

REVISED 11-15-2013

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

HART COUNTY
KY 88 OVER
I-65 at STA. 19+99.95

ESTIMATE OF QUANTITIES

BID ITEM CODE		8100	8104	8150	8151	8020	2231	2998	8046	8094	8033	3299	21532ED	24539EC	8001	8002	8039
BID ITEM		Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Crushed Aggregate Slope Protection	Structure Granular Backfill	Masonry Coating	Piles - Steel HP 12 x 53	Pile Points 12"	Test Piles	Armored Edge for Concrete	Rail System Type 3	Precast PCI-Beam Type HN 60-49 Hybrid	Structure Excavation Common	Structure Excavation, Rock	Pre-Drilling for Piles
UNIT		C.Y.	C.Y.	LBS.	LBS.	Tons	C.Y.	S.Y.	L.F.	Each	L.F.	L.F.	L.F.	L.F.	C.Y.	C.Y.	L.F.
Substructure	Integral End Bent 1	34.4	5.6	3073	1053	161	151	42	121	12	16						55
	Pier #1	113.5		18305				166							283	20	
	Integral End Bent 2	34.4	5.6	3073	1053	103	151	42	187	12	22						66
Superstructure			415.9		124,472			1230				87.5	553.3	1365.8			
BRIDGE TOTALS		182.3	427.1	24,451	126,578	264	302	1480	308	24	38	87.5	553.3	1365.8	283	20	121

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SPECIAL NOTES

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BPS-003-09	HP 12X53 Steel Piles

SPECIFICATIONS

2012 Standard Specifications for Road and Bridge Construction

6th Edition AASHTO LRFD Design Specification (2012)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY: C. Renfrow	R. Wade
DETAILED BY: F. Koch	R. Wade

STATE OF KENTUCKY
ROGER J. WADE
9860
LICENSED
PROFESSIONAL ENGINEER

09/26/2013

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
HART

ROUTE	CROSSING
KY 88	I-65

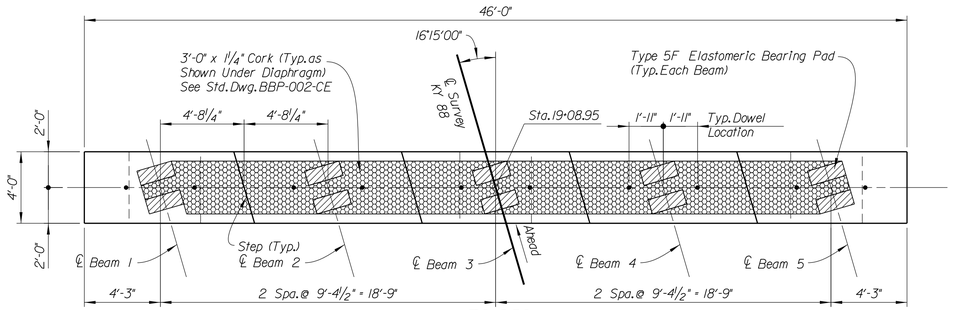
COVER SHEET

ITEM NUMBER	PREPARED BY	SHEET NO.
4-14.00	Qk4 *1046 E. Chestnut Street* *Louisville, Kentucky 40202*	S1 DRAWING NO. 27067

MicroStation v8.11.7.180 E-SHEET NAME: USER: jlopez DATE PLOTTED: October 17, 2013 FILE NAME: V:_PROJECTS PRIOR TO 2000\99102 I-65 WIDENING\BRIDGES\7. KY 88 OVER I-65\4. STAGE II FINAL\DRAWINGS\S-1 COVER SHEET.DGN

CONSTRUCTION PROJECT NO.

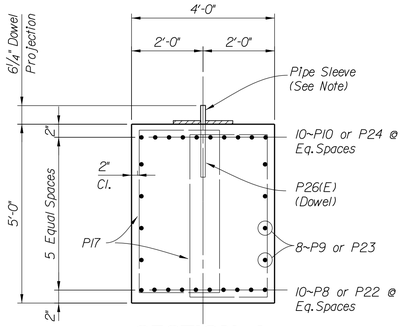
LETTING DATE



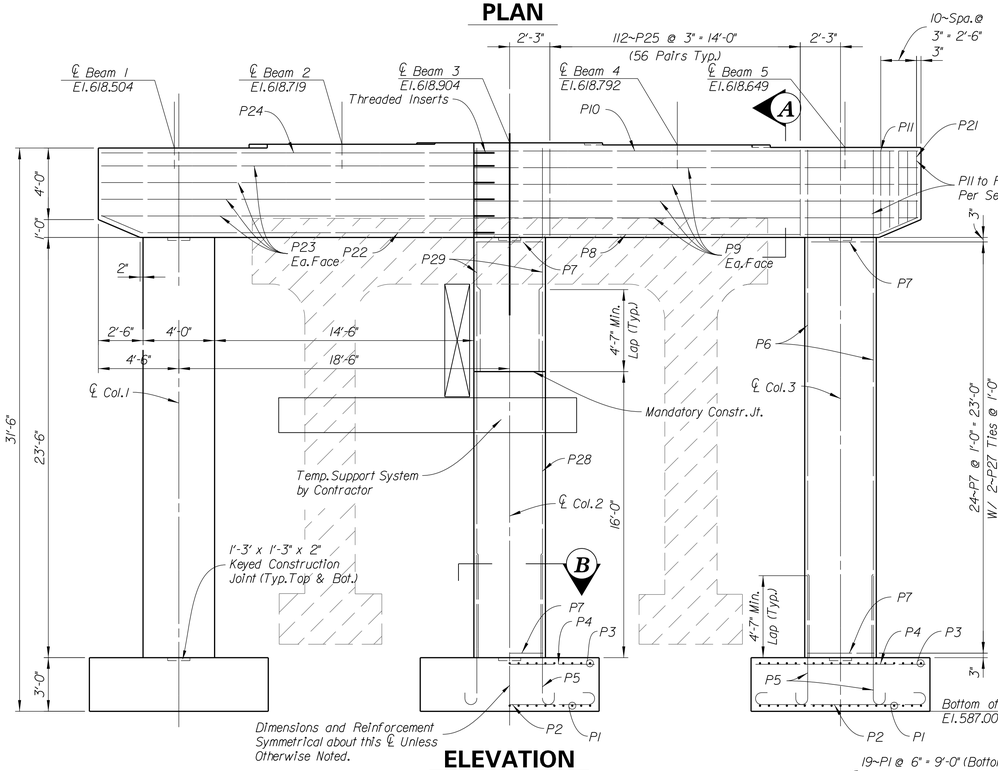
PLAN

NOTES:

1. PA26(E) Dowel bars to be in place before cap is poured. Place std.weight 2" x 5" long commercial pipe sleeves,closed at one end, over dowels. Secure pipe sleeves to prevent floating while placing concrete. Pipe sleeve shall be incidental to Precast Prestressed Concrete I-Beams. Pipe sleeve to sit on cork.
2. Elastomeric Bearing Pad: See Sheet S14.

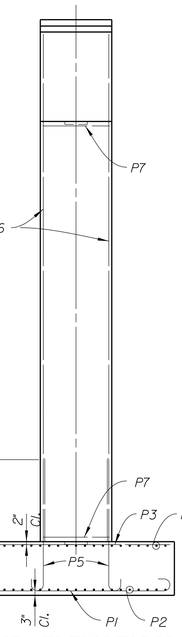


SECTION A

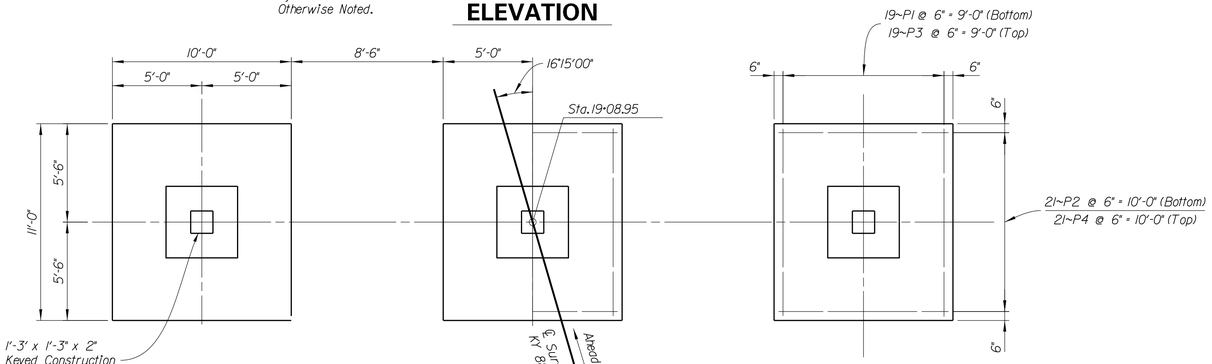


ELEVATION

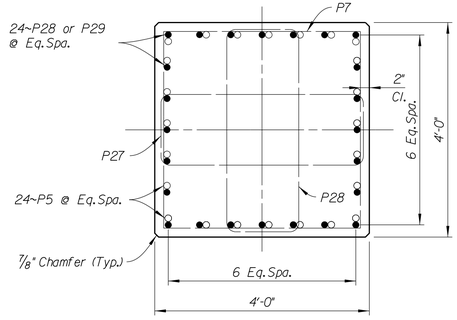
Note: The Contractor shall submit for review a temporary support system for Stage 2 Pier Construction.



END ELEVATION



FOOTING PLAN

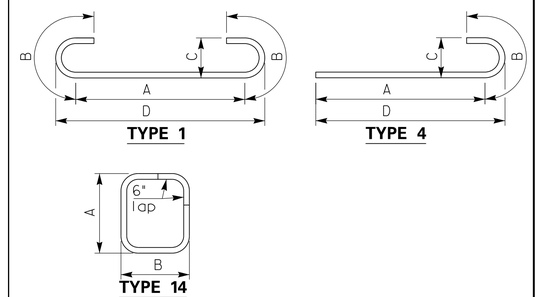


SECTION B

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH ft	LENGTH in	LOCATION	a ft	a in	b ft	b in	c ft	c in	d ft	d in
P1	1	19	8	12	8	Footing	9	10	1	5	0	8	10	6
P2	1	21	8	11	8	Footing	8	10	1	5	0	8	9	6
P3	Str	19	5	10	6	Footing								
P4	Str	21	5	9	6	Footing								
P5	4	72	8	8	5	Footing to Column	7	0	1	5	0	8	7	4
P6	Str	48	8	26	6	Column								
P7	14	72	5	15	8	Column	3	8	3	8				
P8	8	10	8	27	2	Cap	24	6	2	8	1	0	2	6
P9	Str	8	5	24	10	Cap								
P10	4	10	8	25	11	Cap	24	6	1	5	0	8	24	10
P11	14	4	5	15	6	CAp	4	7	2	8				
P12	14	4	5	15	4	Cap	4	6	2	8				
P13	14	4	5	15	3	Cap	4	5 1/2	2	8				
P14	14	4	5	15	1	Cap	4	4 1/2"	2	8				
P15	14	4	5	15	0	Cap	4	4	2	8				
P16	14	4	5	14	10	Cap	4	3	2	8				
P17	14	4	5	14	9	Cap	4	2 1/2"	2	8				
P18	14	4	5	14	7	Cap	4	1 1/2"	2	8				
P19	14	4	5	14	5	Cap	4	1/2"	2	8				
P20	14	4	5	14	4	Cap	4	0	2	8				
P21	14	4	5	14	2	Cap	3	11	2	8				
P22	8	10	8	23	2	Cap	20	6	2	8	1	0	2	6
P23	Str	8	5	20	10	Cap								
P24	4	10	8	21	11	Cap	20	6	1	5	0	8	24	10
P25	14	200	5	15	8	Cap	4	8	2	8				
P26	Str	10	*	2	0	Cap								
P27	14	144	4	12	4	Coumn	2	0	3	8				
P28	Str	24	8	20	7	Column								
P29	Str	24	8	10	6	Column								

* Use 1 1/2" Diamenter Epoxy Coated Smooth Round Pin. May be of Commercial Grade Steel. Weight is Included in Estimate of Quantities for Steel Reinforcement.



BAR TYPES

REVISION	DATE
DATE:	CHECKED BY
DESIGNED BY: C. RENFROW	R. WADE
DETAILED BY: J. LOPEZ	R. WADE

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: HART

ROUTE: KY 88 | CROSSING: I-65

PIER 1

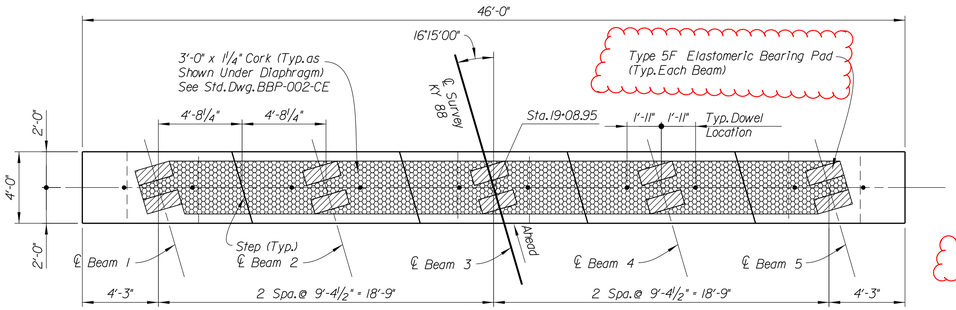
ITEM NUMBER: 4-14.00

PREPARED BY: Qk4
815 W. Market St., Suite 300
Louisville, Kentucky 40202

SHEET NO. S9

DRAWING NO. 27067

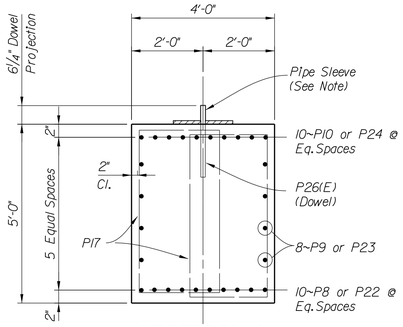
REVISED 11-15-2013



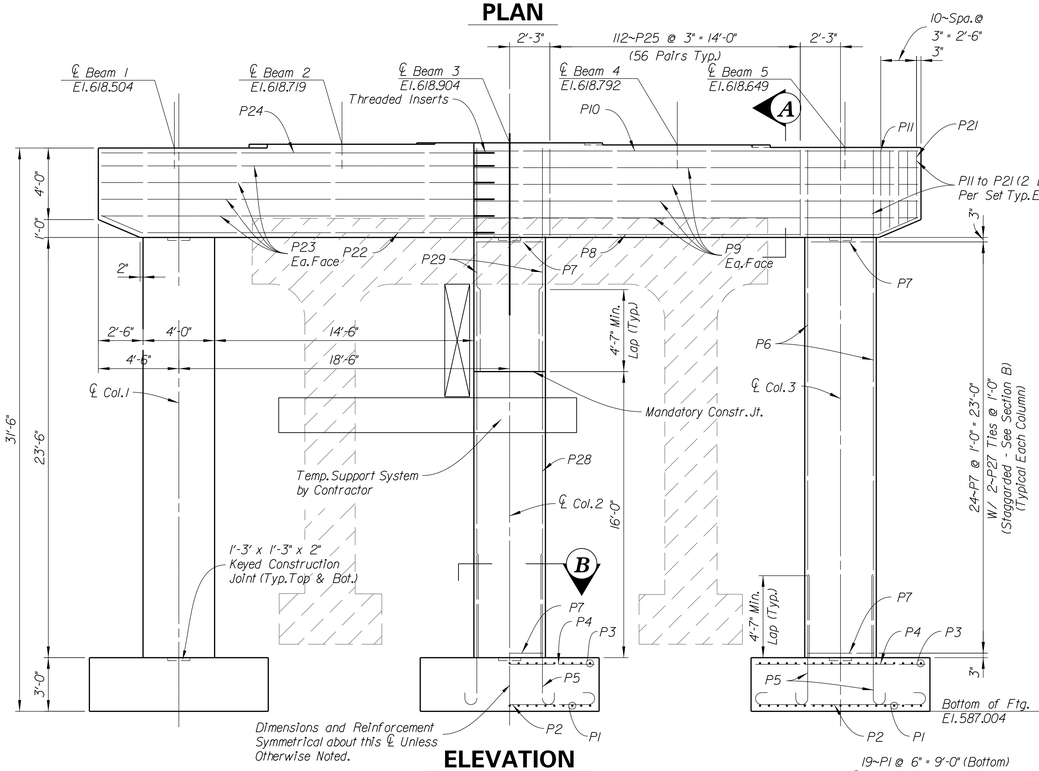
PLAN

NOTES:

1. PA26(E) Dowel bars to be in place before cap is poured. Place std.weight 2" x 5" long commercial pipe sleeves, closed at one end, over dowels. Secure pipe sleeve to prevent floating while placing concrete. Pipe sleeve shall be incidental to Precast Prestressed Concrete I-Beams. Pipe sleeve to sit on cork.
2. Elastomeric Bearing Pad: See Sheet S14.

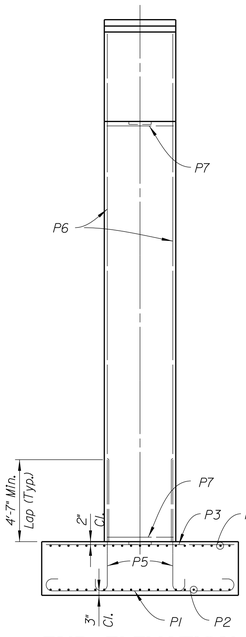


SECTION A

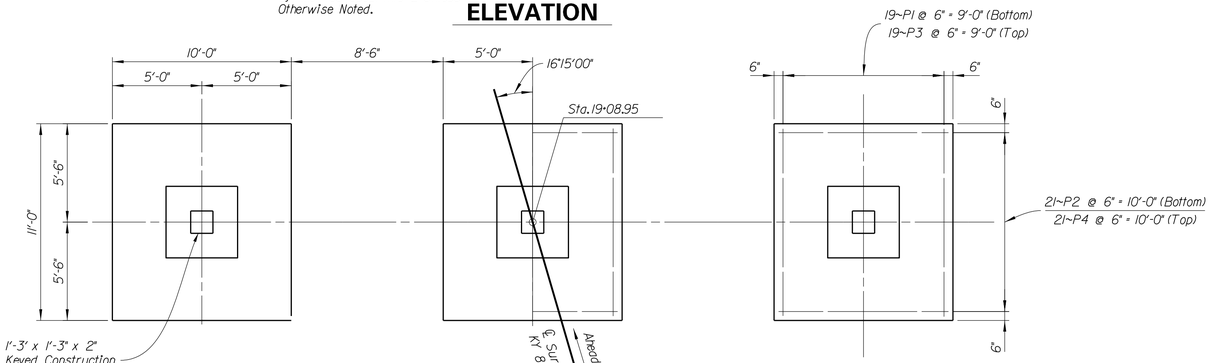


ELEVATION

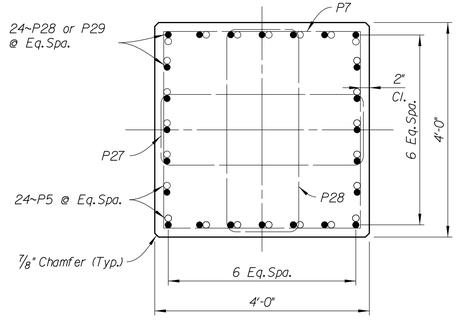
Note: The Contractor shall submit for review a temporary support system for Stage 2 Pier Construction.



END ELEVATION



FOOTING PLAN

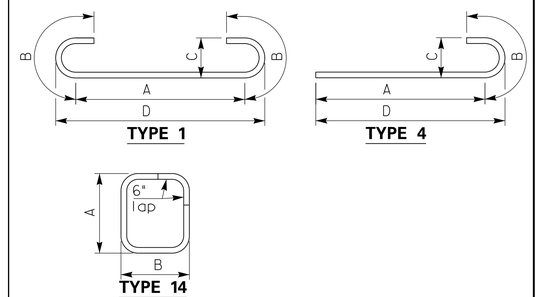


SECTION B

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH ft	LENGTH in	LOCATION	a ft	a in	b ft	b in	c ft	c in	d ft	d in
P1	1	19	8	12	8	Footing	9	10	1	5	0	8	10	6
P2	1	21	8	11	8	Footing	8	10	1	5	0	8	9	6
P3	Str	19	5	10	6	Footing								
P4	Str	21	5	9	6	Footing								
P5	4	72	8	8	5	Footing to Column	7	0	1	5	0	8	7	4
P6	Str	48	8	26	6	Column								
P7	14	72	5	15	8	Column	3	8	3	8				
P8	8	10	8	27	2	Cap	24	6	2	8	1	0	2	6
P9	Str	8	5	24	10	Cap								
P10	4	10	8	25	11	Cap	24	6	1	5	0	8	24	10
P11	14	4	5	15	6	CAp	4	7	2	8				
P12	14	4	5	15	4	Cap	4	6	2	8				
P13	14	4	5	15	3	Cap	4	5 1/2	2	8				
P14	14	4	5	15	1	Cap	4	4 1/2"	2	8				
P15	14	4	5	15	0	Cap	4	4	2	8				
P16	14	4	5	14	10	Cap	4	3	2	8				
P17	14	4	5	14	9	Cap	4	2 1/2"	2	8				
P18	14	4	5	14	7	Cap	4	1 1/2"	2	8				
P19	14	4	5	14	5	Cap	4	1/2"	2	8				
P20	14	4	5	14	4	Cap	4	0	2	8				
P21	14	4	5	14	2	Cap	3	11	2	8				
P22	8	10	8	23	2	Cap	20	6	2	8	1	0	2	6
P23	Str	8	5	20	10	Cap								
P24	4	10	8	21	11	Cap	20	6	1	5	0	8	24	10
P25	14	200	5	15	8	Cap	4	8	2	8				
P26	Str	10	*	2	0	Cap								
P27	14	144	4	12	4	Coumn	2	0	3	8				
P28	Str	24	8	20	7	Column								
P29	Str	24	8	10	6	Column								

* Use 1 1/2" Diamenter Epoxy Coated Smooth Round Pin. May be of Commercial Grade Steel. Weight is Included in Estimate of Quantities for Steel Reinforcement.



BAR TYPES

REVISION	DATE
DATE:	CHECKED BY
DESIGNED BY: C. RENFROW	R. WADE
DETAILED BY: J. LOPEZ	R. WADE

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: HART

ROUTE: KY 88 | CROSSING: I-65

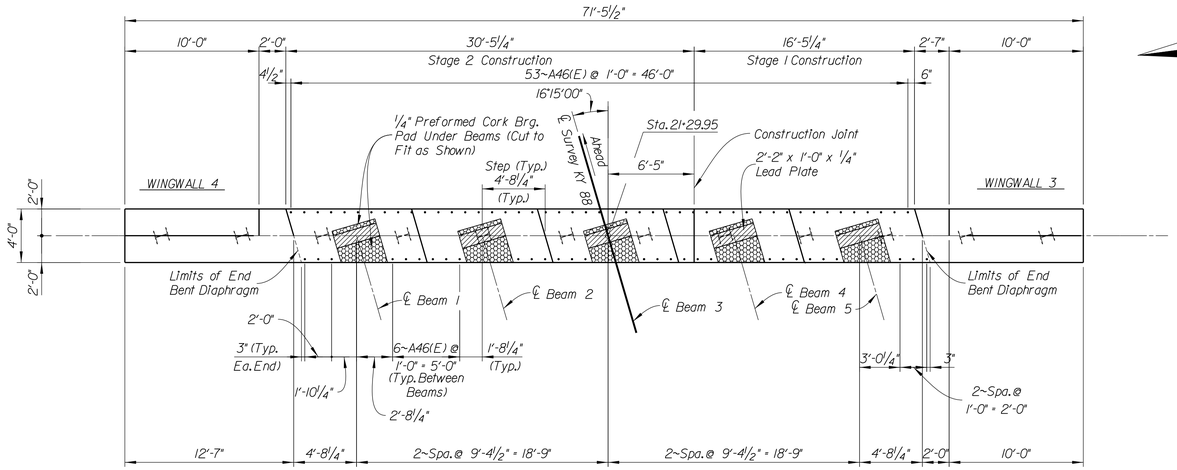
PIER 1

ITEM NUMBER: 4-14.00

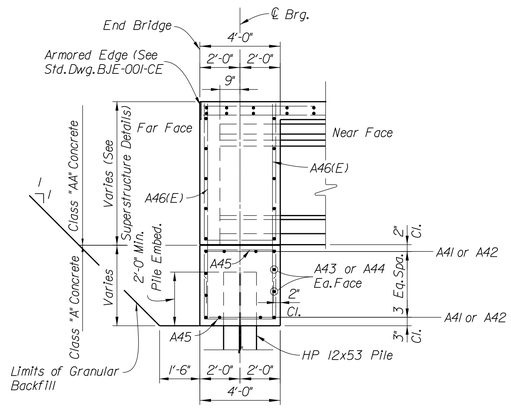
PREPARED BY: Qk4
815 W. Market St., Suite 300
Louisville, Kentucky 40202

SHEET NO. S9

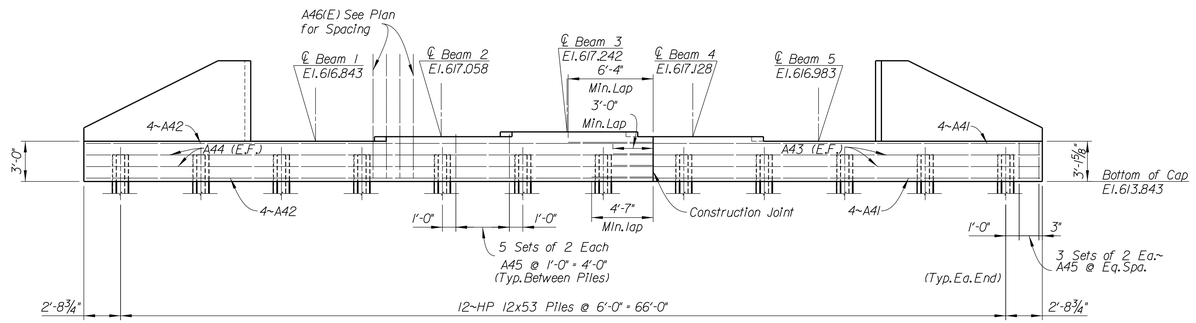
DRAWING NO. 27067



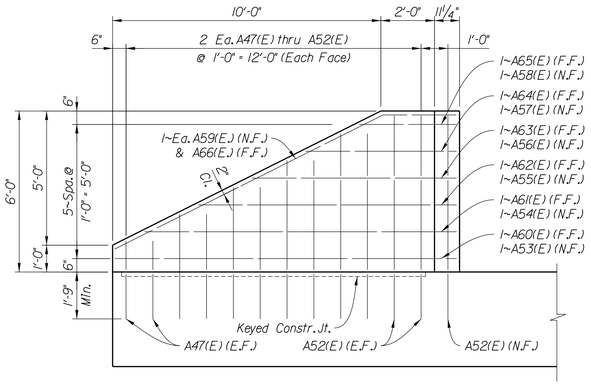
PLAN



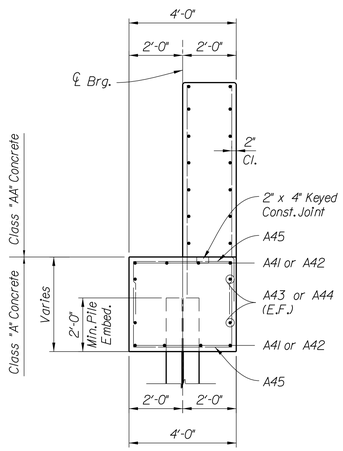
SECTION A



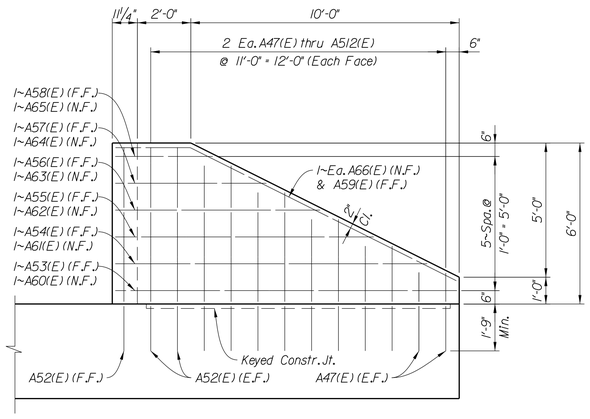
ELEVATION



WINGWALL 4



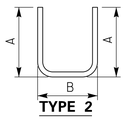
TYPICAL SECTION



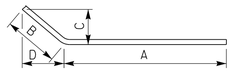
WINGWALL 3

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH ft	LENGTH in	LOCATION	a ft	a in	b ft	b in	c ft	c in	d ft	d in
A41	Str.	8	8	33	5	Cap								
A42	Str.	8	8	42	2	Cap								
A43	Str.	4	5	31	10	Cap								
A44	Str.	4	5	42	2	Cap								
A45(E)	②	122	5	9	0	Cap	2	8	3	8				
A46(E)	Str.	77	5	5	10	Wing Wall								
A47(E)	Str.	8	5	2	11	Wing Wall								
A48(E)	Str.	8	5	3	11	Wing Wall								
A49(E)	Str.	8	5	4	11	Wing Wall								
A50(E)	Str.	8	5	5	11	Wing Wall								
A51(E)	Str.	8	5	6	11	Wing Wall								
A52(E)	Str.	12	5	7	7	Wing Wall								
A53(E)	Str.	2	5	12	9	Wing Wall								
A54(E)	Str.	2	5	11	8	Wing Wall								
A55(E)	Str.	2	5	9	8	Wing Wall								
A56(E)	Str.	2	5	7	8	Wing Wall								
A57(E)	Str.	2	5	5	8	Wing Wall								
A58(E)	Str.	2	5	3	8	Wing Wall								
A59(E)	⑧	2	5	19	5	Wing Wall	11	2	1	9¾	0	9¾	1	7½
A60(E)	Str.	2	5	12	0	Wing Wall								
A61(E)	Str.	2	5	10	8	Wing Wall								
A62(E)	Str.	2	5	8	8	Wing Wall								
A63(E)	Str.	2	5	6	8	Wing Wall								
A64(E)	Str.	2	5	4	8	Wing Wall								
A65(E)	Str.	2	5	2	8	Wing Wall								
A66(E)	⑧	2	5	20	11	Wing Wall	11	2	2	8⅞	1	2¾	2	5⅜



TYPE 2



TYPE 8

BAR TYPES

REVISION	DATE
DATE:	CHECKED BY
DESIGNED BY: C. RENFROW	R. WADE
DETAILED BY: F. KOCH	R. WADE

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **HART**

ROUTE: **KY 88** | CROSSING: **I–65**

INTEGRAL END BENT 2

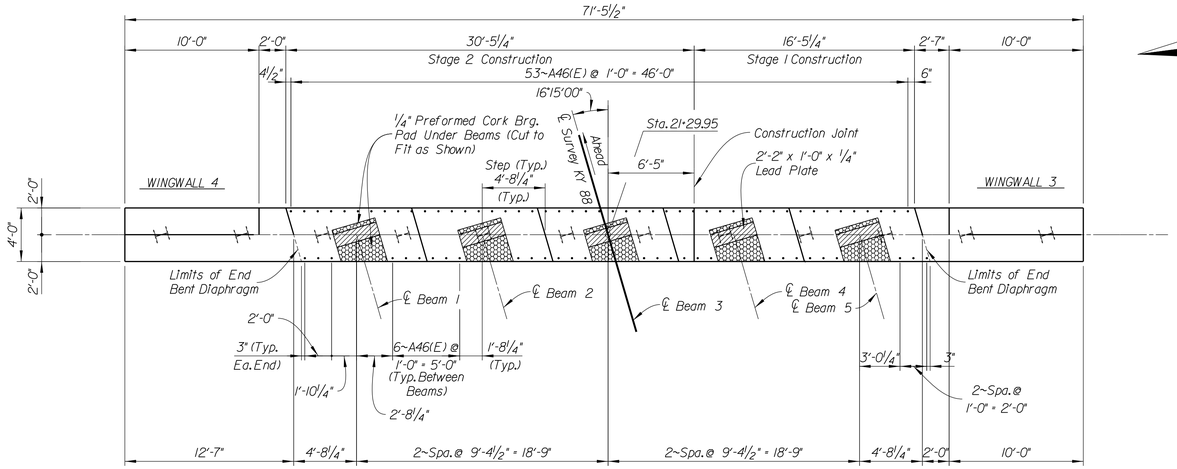
ITEM NUMBER: **4–14.00**

PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

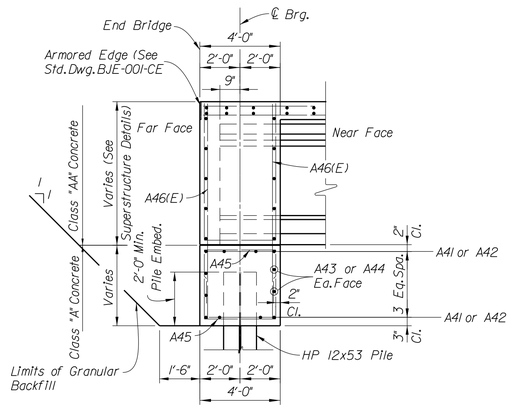
SHEET NO. S10

DRAWING NO. 27067

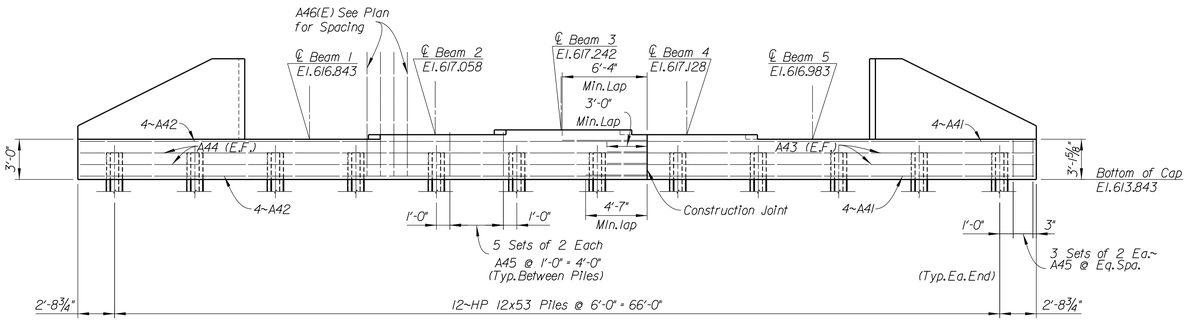
REVISED 11-15-2013



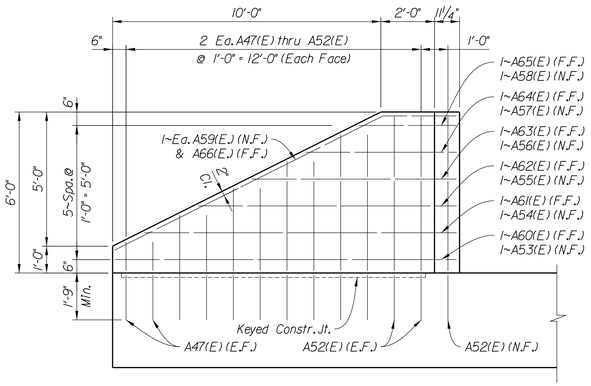
PLAN



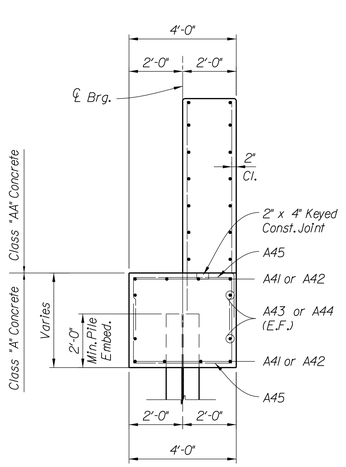
SECTION A



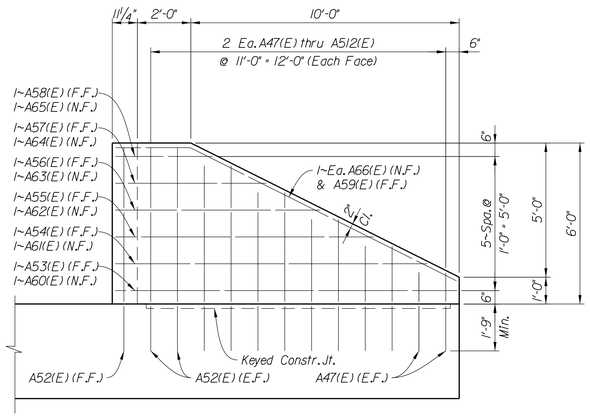
ELEVATION



WINGWALL 4



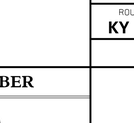
TYPICAL SECTION



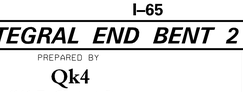
WINGWALL 3

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH ft	LENGTH in	LOCATION	a ft	a in	b ft	b in	c ft	c in	d ft	d in
A41	Str.	8	8	33	5	Cap								
A42	Str.	8	8	42	2	Cap								
A43	Str.	4	5	31	10	Cap								
A44	Str.	4	5	42	2	Cap								
A45(E)	②	122	5	9	0	Cap	2	8	3	8				
A46(E)	Str.	77	5	5	10	Wing Wall								
A47(E)	Str.	8	5	2	11	Wing Wall								
A48(E)	Str.	8	5	3	11	Wing Wall								
A49(E)	Str.	8	5	4	11	Wing Wall								
A50(E)	Str.	8	5	5	11	Wing Wall								
A51(E)	Str.	8	5	6	11	Wing Wall								
A52(E)	Str.	12	5	7	7	Wing Wall								
A53(E)	Str.	2	5	12	9	Wing Wall								
A54(E)	Str.	2	5	11	8	Wing Wall								
A55(E)	Str.	2	5	9	8	Wing Wall								
A56(E)	Str.	2	5	7	8	Wing Wall								
A57(E)	Str.	2	5	5	8	Wing Wall								
A58(E)	Str.	2	5	3	8	Wing Wall								
A59(E)	⑧	2	5	19	5	Wing Wall	11	2	1	9¾	0	9¾	1	7½
A60(E)	Str.	2	5	12	0	Wing Wall								
A61(E)	Str.	2	5	10	8	Wing Wall								
A62(E)	Str.	2	5	8	8	Wing Wall								
A63(E)	Str.	2	5	6	8	Wing Wall								
A64(E)	Str.	2	5	4	8	Wing Wall								
A65(E)	Str.	2	5	2	8	Wing Wall								
A66(E)	⑧	2	5	20	11	Wing Wall	11	2	2	8⅞	1	2¾	2	5⅜



TYPE 2



TYPE 8

BAR TYPES

REVISION	DATE
DATE:	CHECKED BY
DESIGNED BY: C. RENFROW	R. WADE
DETAILED BY: F. KOCH	R. WADE

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: HART

ROUTE: KY 88

CROSSING: I-65

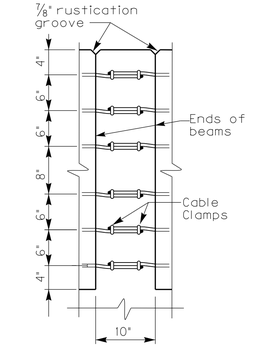
INTEGRAL END BENT 2

ITEM NUMBER: 4-14.00

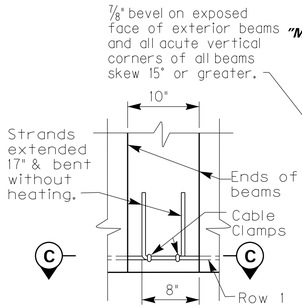
PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

SHEET NO. S10

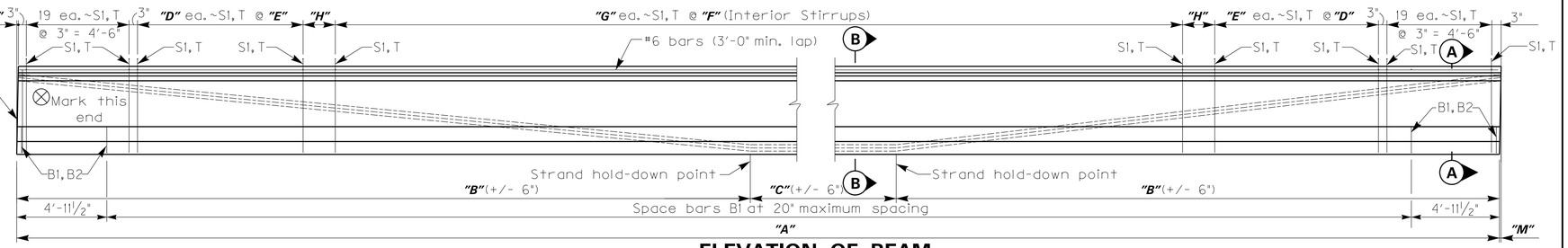
DRAWING NO. 27067



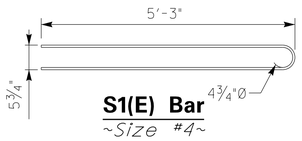
SECTION C–C



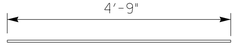
STRAND SPLICE DETAIL



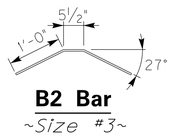
ELEVATION OF BEAM



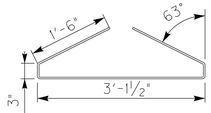
S1(E) Bar
~Size #4~



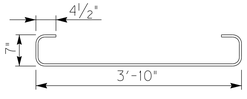
S2 Bar
~Size #5~



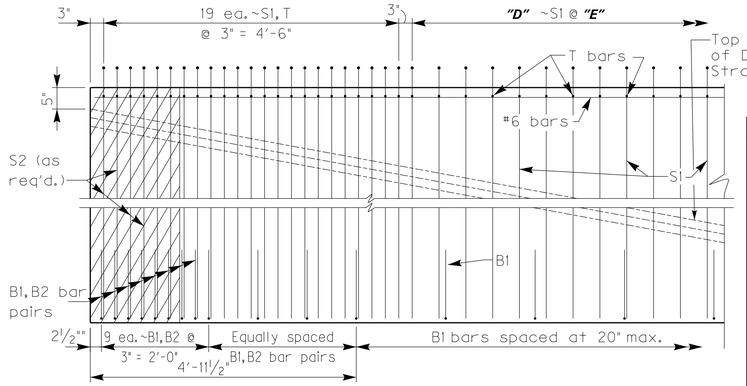
B2 Bar
~Size #3~



B1 Bar
~Size #3~



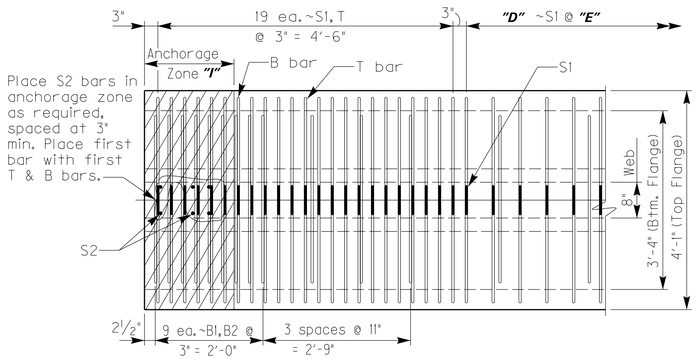
T(E) Bar
~Size #4~



PARTIAL SECTION ON CENTERLINE

SECTION A–A

SECTION B–B



TYPICAL SQUARED END TREATMENT

General Notes

CONCRETE: Ensure prestressed girder concrete is in accordance with these plans and the specifications.

MATERIALS DESIGN SPECIFICATIONS: For prestressed beams:
FY = 60,000 psi F'S = 270,000 psi

PRESTRESSING REINFORCEMENT: Ensure that strands are 6/10" (nominal diameter, 0.217 sq. in.), uncoated seven-wire stress relieved, low-relaxation conforming to AASHTO M 203, Grade 270. Billing of the cost for redesign of beam and subsequent plan modifications will be made for any request of alternate strand type or arrangement. The designer of the original plans is responsible for the billing and work.

CONSTRUCTION METHOD: Pretension all beams. Ensure concrete has attained f'ci (shown in the table) in standard test cylinders that are made and cured identically with the beams without bond stresses being transferred to the concrete or releasing the end anchors. Attain f'c (shown in the table) at or prior to 28 days. Apply an initial force of 43,943 lbs. per low-relaxation strand to develop a stress of 202,500 psi. No beam will be accepted that is honeycombed to the extent that strength of the beam or resistance to deterioration has been affected. An allowance of 0.0005L is made for shortening of beams due to shrinkage and elastic change. Show a detensioning plan by sequential numbering of the strand pattern on the shop plans.

LIFTING DEVICES: Detail lifting devices on the shop plans. Loads are to be distributed equally to each device.

BEARING DEVICES: Include the price for lead plates and/or bearing pads in the bid for precast beams.

FABRICATION: The 'Maximum Allowable Camber' shown on the beam sheet is the amount of camber, measured prior to casting the deck, above which the beam will begin to encroach into the slab. If the measured camber is greater than the 'Maximum Allowable Camber' the contractor will be responsible for any necessary adjustments to assure a minimum slab thickness of eight (8) inches as shown in the plans. This work will be considered incidental to the completion of the structure and have the approval of the Engineer.

Strand Data with number indicated in rows

Mark	Midspan (SECTION B–B) ①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑳	End (SECTION A–A) ①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	Total No.	Concrete Stress (psi) f'ci	f'c	No. of S Bars S1	S2	Hold-Down Capacity lbs.
B1	17	19	3	3	3	3	3	3	3		2	17	16										3	3	3	3	3	3	3	2	59	7000	9000	189	20	56,932
B2	17	9	3	3	3	3	3	3	3		2	17	6										3	3	3	3	3	3	3	2	49	7000	9000	175	16	62,384

Beam Data (measured along centerline)

Mark	Total No.	Dimensions A	B	C	D	E	F	G	H	I	M	Approximate Weight	Maximum Allowable Camber
B1	5	142'-10"	57'-0"	28'-10"	35	9"	12"	81	11"	15"	0"	166,194	5"
B2	5	130'-4"	52'-0"	26'-4"	31	9"	12"	75	8"	15"	0"	150,549	3 7/8"

REVISION	DATE

DATE: August 2012	CHECKED BY
DESIGNED BY: S. Weber	C. Renfrow
DETAILED BY: F. Koch	S. Weber

ITEM NUMBER
4–14.00

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
HART

ROUTE
KY 88

CROSSING
I–65

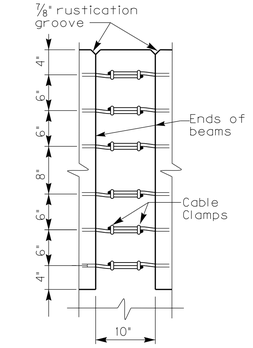
PCI BEAM 60" HYBRID

PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

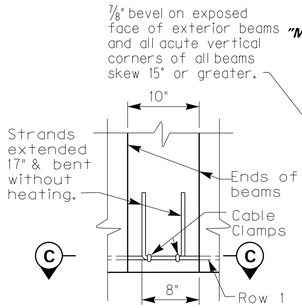
SHEET NO.
S12

DRAWING NO.
27067

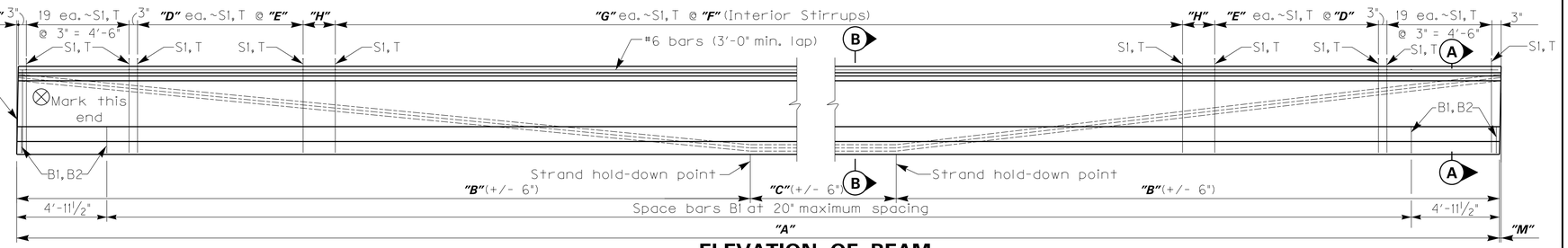
REVISED 11-15-2013



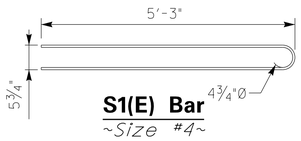
SECTION C–C



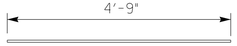
STRAND SPLICE DETAIL



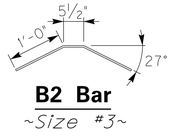
ELEVATION OF BEAM



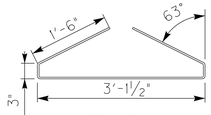
S1(E) Bar
~Size #4~



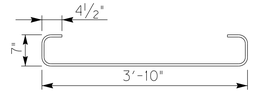
S2 Bar
~Size #5~



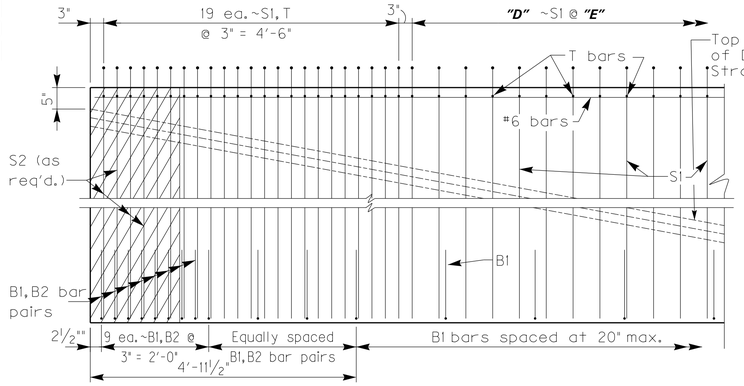
B2 Bar
~Size #3~



B1 Bar
~Size #3~



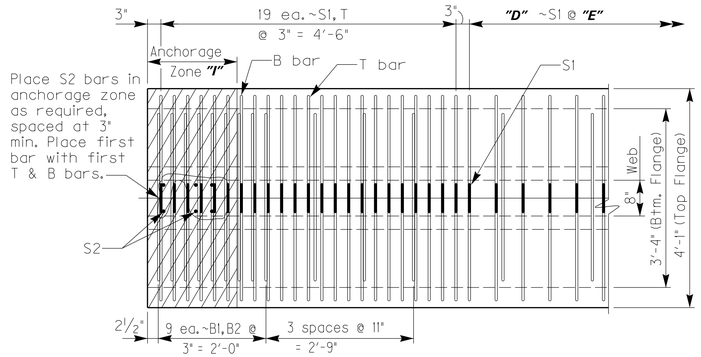
T(E) Bar
~Size #4~



PARTIAL SECTION ON CENTERLINE

SECTION A–A

SECTION B–B



TYPICAL SQUARED END TREATMENT

General Notes

CONCRETE: Ensure prestressed girder concrete is in accordance with these plans and the specifications.

MATERIALS DESIGN SPECIFICATIONS: For prestressed beams:
FY = 60,000 psi F'S = 270,000 psi

PRESTRESSING REINFORCEMENT: Ensure that strands are ⅘" (nominal diameter, 0.217 sq. in.), uncoated seven-wire stress relieved, low-relaxation conforming to AASHTO M 203, Grade 270. Billing of the cost for redesign of beam and subsequent plan modifications will be made for any request of alternate strand type or arrangement. The designer of the original plans is responsible for the billing and work.

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5	130'-4"	52'-0"	26'-4"	31	9"	12"	75	8"	15"	0"	150,549	3⅞"

ITEM NUMBER 4-14.00

REVISION	DATE

DATE: August 2012	CHECKED BY
DESIGNED BY: S. Weber	C. Renfrow
DETAILED BY: F. Koch	S. Weber

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
HART

ROUTE	CROSSING
KY 88	I-65

PCI BEAM 60" HYBRID

PREPARED BY
Qk4
1046 E. Chestnut Street
Louisville, Kentucky 40202

SHEET NO. S12
DRAWING NO. 27067

Special Note for CPM Scheduling

A. General.

This special note replaces the requirements of Standard Specification 108.02. Contrary to Standard Specifications 108.07.04, additional contract time will only be added when the Engineer deems the critical path of the project has been affected. Create the progress schedule required for this project using the critical path method (CPM). The Contractor shall designate a Schedule Representative who shall be responsible for coordinating with the Engineer during the preparation and maintenance of the schedule. The contractor shall submit an interim schedule followed by a baseline schedule, or only a baseline schedule, depending on when the contractor starts work as described below.

B. Interim Schedule.

If the Contractor starts work within 15 days of the Notice to Begin Work, they shall submit an interim schedule. The interim schedule will be in CPM schedule format. The interim schedule shall include detailed activities for the work to be accomplished during the first 30 days of the Contract, and summary activities for the balance of the work. The interim schedule, if required, shall be submitted at the Preconstruction Conference. No work shall begin without the submission of an interim schedule.

C. Baseline Schedule.

The Contractor shall submit a baseline schedule as outlined in the submission requirements section (C.2) within 15 days of the Notice to Begin Work. No pay estimates will be processed after 15 days without the submission of the baseline schedule. The baseline schedule will be in CPM schedule format and as described herein. The Engineer will review the baseline schedule and will “accept”, “accept as noted” or “reject" the schedule within 10 days of receipt. If the Engineer does not provide written notification regarding the disposition of the baseline schedule within 10 days, the submission will be considered “accepted.”

For baseline schedules that are “accepted as noted”, the Contractor shall make the necessary revisions and resubmit the revised schedule within 5 days. The Engineer will only “reject” baseline schedules that are not in compliance with contract requirements.

For baseline schedules that are “rejected”, the Engineer shall indicate in writing portions of the schedule that are not in compliance with the contract requirements. The Project Engineer shall conduct a mandatory meeting with the Contractor and the Contractor’s Schedule Representative within 5 days of the Engineer’s written notice. The purpose of this meeting is to resolve disputes with the baseline schedule so that it may be resubmitted. The Contractor shall provide clarification and all additional information necessary for the Engineer within 3 days of this meeting. The Contractor shall submit the revised Baseline Schedule to the Engineer for review and acceptance within 5 days of this meeting.

No pay estimates will be generated until the baseline schedule is “accepted” or “accepted as noted.” In the event the baseline schedule is not “accepted” within 45 days of the Notice to Begin Work, all work shall cease on the project until the baseline schedule is “accepted”. The incurred delays from the “cease work order” will be the contractor’s responsibility and will not be considered for time extension. Any claims associated with time impacts for work performed or delay experienced prior to the baseline schedule being “accepted” or “accepted as noted” will be evaluated at the sole discretion of the Engineer. “Acceptance” by the Engineer will not relieve the Contractor of their responsibilities for compliance with specifications and contract requirements or for the accuracy or feasibility of the schedule.

“Acceptance” of the baseline schedule does not revise the Contract Documents. The baseline schedule must be “accepted” or “accepted as noted” by the Engineer prior to the Engineer evaluating any contractor claims associated with time impacts.

The Engineer’s review of the baseline schedule will be for compliance with the contract documents and contract requirements. “Acceptance” by the Engineer will not relieve the Contractor of any of their responsibilities for the accuracy or feasibility of the schedule.

1. Schedule Requirements.

Generate and submit an electronic copy of the baseline schedule using Primavera Contractor 5.0 Deluxe by Primavera Systems Inc., Bala Cynwyd, PA, or equivalent electronically transferable software. The Contractor’s costs associated with these provisions should be incorporated into the bid item for the Project CPM schedule.

Provide a calendar day schedule that shows the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project by the Original Contract Completion Date. Show the order and interdependence of activities and the sequence for accomplishing the work. Describe all activities in sufficient detail so that the Engineer can readily identify the work and measure the progress of each activity. The baseline schedule must reflect the scope of work, required phasing, maintenance of traffic requirements, interim completion dates, the Completion Date, and other project milestones established in the Contract Documents. Include activities for submittals, working drawings, shop drawing preparation, submittal review time for the Department shop drawings, material procurement and fabrication, and the delivery of materials, plant, and equipment, and other similar activities.

The Contractor shall be responsible for assuring all work, including all subcontractor’s work, is included in the schedule. The Contractor shall be responsible for assuring that all work sequences are logical and that the schedule indicates a coordinated plan.

Failure by the Contractor to include any element of work required for performance of the Contract shall not excuse the Contractor from completing all work within the required time. Omissions and errors will be corrected as described in Section F or H in this note and will not affect contract time.

a) Administrative Identifier Information.

1. Project Number
2. County
3. Route Number
4. Item Number
5. CID Number
6. Award Date
7. Date of Notice to Begin Work
8. Completion Date
9. Contractor's Name
10. Contractor's Dated Signature
11. KYTC's Dated Accepted Signature

b) Project Activities.

i. Activity Identification (ID): Assign each activity a unique identification number. Activity ID length shall not exceed 10 characters. Assign baseline Activity ID's in sequences of 10 (e.g.; A1000, A1010, A1020). This will allow modifications and additional items to be placed into the Identification scheme easily. Once accepted, the Activity ID shall be used for the duration of the project.

ii. Activity Description: Each activity shall have a narrative description consisting of a verb or work function (e.g.; form, pour, excavate, pier #2) and an object (e.g.; slab, footing, underdrain).

iii. Activity Original Duration: Assign planned duration in calendar days for each activity. Do not exceed a duration of 14 calendar days for any construction activity unless approved by the Engineer. Do not represent the maintenance of traffic, erosion control, and other similar items as single activities extending to the Completion Date. Break these Contract Items into component activities in order to meet the duration requirements of this paragraph.

iv. Activity Relationships:

- All activities, except the first activity, shall have a predecessor(s). All activities, except the final activity, shall have a successor(s).
- Use only finish-to-start relationships with no leads or lags to link activities, or use start-to-start relationships with lags no greater than the predecessor duration to link activities.
- Use of finish-to-finish relationship is only permitted when both activities are already linked with a start-to-start relationship.

c) Project Milestones.

i. Start Project: The Contractor shall include as the first milestone in the schedule, a milestone named "Start Project". The date used for this milestone is the date the contract is executed and signed by the Department.

ii. End Project Milestone: The Contractor shall include as the last activity in the project schedule, a milestone named "End Project". The date used for this milestone is considered the Contractor's planned project completion date and is defined by schedule's critical path.

iii. Start Phase Milestone: The Contractor shall include as the first activity for a project phase, an activity named "Start Phase X", where "X" identifies the phase of work. The Contractor may include additional milestones but, as a minimum, must include all contractual milestones.

iv. End Phase Milestone: The Contractor shall include as the last activity in a project phase, an activity named "End Phase X" where "X" identifies the phase of work. The Contractor may include additional milestones, but at a minimum contractual milestones.

d) Schedule Options.

The schedule may only be calculated using retained logic. Show open ends as non-critical. Schedule durations are to be contiguous. The project calendar will be based on the Contractor's plan for completing the project. However, the scheduling increment (hours or days) will be stipulated during the Preconstruction Conference. All days must remain active unless the Contractor is instructed not to work as specified in the contract documents. Total float shall be calculated as finish float.

2. Submission Requirements.

Submit all schedules within the time frames specified. Submit the schedule and information in electronic file format via email, and compact disc (CD) compatible with the Engineer's computer. Submit the following information in hard copy along with the electronic baseline schedule:

a) A baseline schedule in tabular format. For each activity on the chart, indicate the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start Date, Early Finish Date, and Percent Complete.

b) A baseline schedule in a bar chart format, on paper. Use arrows to show the relationships among activities. Identify the critical path of the project on the bar chart in red. The critical path is defined as; the longest path of activities in the project that determines the project completion date. The activities that make-up the critical path of activities are the "Critical Activities."

3. Submittal Cover Memo.

A cover memo shall accompany each scheduling element for all submittals. This cover memo shall contain:

- Identification of the submission as the Tabular Baseline Schedule, Baseline Bar Chart, Updated Bar Chart, Baseline Report, Logic Report, Progress Report, etc.
- Administrative Identifier Information (see section C.1.a)
- Any critical notes as determined by the Contractor

An example Cover Memo is provided in this note.

D. Float.

Use of float suppression techniques, such as; preferential sequencing (arranging critical path through activities more susceptible to Department caused delay), lag logic restraints, unrealistic activity durations, zero total or free float constraints, extending activity times, or imposing constraint dates other than as required by the contract, shall be cause for rejection of the project schedule or its updates. Schedules with negative float will also not be accepted.

1. Definitions of Float.

Total Float is the length of time along a given network path that the actual start and finish of activity(s) can be delayed without delaying the project

completion date. Project Float is the length of time between the End Project Milestone and the specified Contract Completion Date.

2. Ownership of Float.

Float available in the schedule, at any time shall not be considered for the exclusive use of either the Department or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather is less than expected, will also contribute to the Project Float. A schedule showing work completing in less time than the contract time, and accepted by the Department, will be considered to have Project Float. Project Float will be a resource available to both the Department and the Contractor. No time extensions will be granted nor project completion delay damages paid unless a delay occurs which impacts the project's critical path, consumes all available float and extends the work beyond the Contract Completion Date.

3. Negative Float.

Negative float is not allowed. Schedules with negative float will not be accepted. Negative float will not be a basis for requesting time extensions. Any extension of time will be addressed in accordance with the Section F. Scheduled completion date(s) that extend beyond the contract (or phase) completion date(s) may be used in computations for assessment of liquidated damages. The use of this computation is not to be construed as an order by the Department to accelerate the project.

E. Monthly Update Schedule.

A monthly update schedule is a schedule in which only progress is updated from the prior data date to the current data date. Work added and/or excusable delays encountered since the prior data date must be represented as a schedule revision as described in Section E.

1. Update Requirements.

Each month on a date set at the Preconstruction Conference and until Formal Acceptance, submit an updated schedule and all required information with a data date of the last day of the preceding month. The date for submission and data date may be adjusted to accommodate regularly scheduled progress meetings. Submit the monthly updated CPM on paper and a copy of the updated schedule in electronic format in Section C.2. The Engineer shall “accept” or “reject” the schedule update within 10 days of receipt of the updated CPM schedule. The Engineer may withhold estimates if the updated schedule is not submitted as required by this section. For each updated schedule, identify the actual start and finish dates for all completed activities and the actual start date and remaining duration for all activities in progress.

Submit the following with each updated schedule:

a) CPM Schedule in Bar Chart Format

b) Electronic files (formatted as described above)

c) A Baseline Report, Logic Report, and Progress Report per section E.2.

2. Submittal Cover Memo.

All update submittals shall be accompanied with a brief cover memo containing all the information require in the Baseline Submittal Cover Memo per section C.3 with the addition of:

- Baseline Report
  - Narrative of baseline expectations
  - Project completion status per baseline expectations
- Logic Report
  - Logic Modification Report per section F
  - Narrative of all logic changes and reasoning
  - Two separate CPM submissions; one reflecting the schedule without changes in logic, the other reflecting the proposed logic and the effects.
  - Description of fragnet required per section F
- Progress Report
  - Narrative of all schedule changes since last update
  - Narrative identifying any changes or shifts in the critical path and reasoning for the changes or shifts in the critical path.
  - Details of each change including impact of change on the schedule, float consumption or addition, and reason causing change when float is consumed

F. Revisions.

The work may require and/or the Contractor may make revisions to the CPM schedule. Addition of new activities (fragnets required) or new calendars or changes to existing activities, calendars or logic constitute a revision. All revisions must be reported in a Logic Modification Report. The Logic Modification Report is a separate CPM update which includes all the changes recommended by the contractor within the current monthly update schedule. It shall include a Narrative explanation of the necessary changes accompanying the monthly update schedule. Any revision which modifies the critical path or impacts an interim date or project completion date is considered a Logic Modification. A fragnet is defined as the sequence of new activities that are proposed to be added to the existing schedule. The fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities. If submitted as a fragnet, the Contractor shall compute two Finish Dates. The first Finish Date shall be computed without consideration of any impact by the fragnet. The second Finish Date shall be computed with consideration of any impact by the fragnet. The Contractor shall also

submit a written narrative stating the reason for the proposed revisions. The Engineer shall "accept" or "reject" proposed revisions within 10 days of receipt of appropriate schedules and narrative. All approved revisions will be incorporated into the Monthly Update Schedule which will become the Revised Monthly Update Schedule.

G. Time Extensions.

The Work may require and/or the Contractor may request an extension of the Completion Date. Perform the following analysis to compute the duration of the time extension. Submit two paper copies and two electronic copies of each analysis performed.

1. Determine project progress prior to circumstance(s) necessitating the time extension. Unless the Engineer requests an interim schedule updated to the date of the circumstance alleging to have caused delay, the previous accepted monthly update shall be used to display the prior progress of the project. This schedule is referred to as the Un-impacted Schedule
2. Prepare a fragmentary network (fragnet) depicting the circumstance that is believed to have delayed the project.
3. Insert the fragnet into the Un-impacted Schedule, run the schedule calculations and determine the finish date. This schedule is referred to as the Impacted Schedule.
4. Compare the Impacted Schedule finish date with the Un-impacted Schedule finish date in order to determine the duration of any warranted time extension.

Submit the impacted schedule with the request for time extension. Include a narrative report describing the effects of new activities and relationships to interim and contract completion dates. All time extensions approved by the Engineer will be incorporated into the monthly update with the fragnet used to determine impacts incorporated into the schedule.

Time extensions will be considered only if an excusable delay impacts the Critical Path. An excusable delay is defined as any additional items and/or time necessary to complete work added to the contract by change order or a severe weather event in which the National Weather Service initiates a Weather Warning for the project area, only for the duration of the Warning advisory, and only insofar as it will affect the current item of work.

H. Recovery Schedule.

If the Monthly Update Schedule or Revised Monthly Update Schedule projects a finish date for the Project or Project Milestones more than 5 calendar days later than the Completion and Milestone Dates, submit a recovery schedule showing a plan to finish by the current Completion and Milestone Dates. The acceptance of any schedule projecting a completion date for the Project beyond the Current Contract Completion Date does not constitute approval of a time extension or an order to accelerate. All changes to completion dates and orders to accelerate must be made via Change Order. The Department will withhold Estimates until the Engineer "accepts" the recovery schedule. The Engineer will use the schedule to evaluate time extensions and associated costs

requested by the Contractor. In the event the current Completion Date is in dispute, the recovery schedule will need to be submitted once the dispute has been resolved.

I. Basis of Payment.

The Department will make partial payments according to Section 109.05 of the standard specifications and as modified by the following schedule:

1. The Department will release 50 percent of the lump sum amount bid for Project CPM Schedule to the Contractor with the first regular estimate payable after the Engineer has "accepted" the CPM Baseline schedule submission and the Department has received the schedule electronically.
2. The Department will release an additional 25 percent of the lump sum amount bid for Project CPM Schedule to the Contractor with the first regular estimate payable after 50 percent of the original contract amount is complete.
3. The Department will release the remaining 25 percent of the lump sum amount bid for Project CPM Schedule to the Contractor with the first regular estimate payable after project completion.

The Department will pay for the accepted quantities at the contract price as follows:

Code	**Pay Item**	**Pay Unit**
------	Project CPM Schedule	Lump Sum

The Department will consider payment as full compensation for all work required in this provision.

Adapted from Ohio Department of Transportation PN 107 with help from Clint Bishop.

HART CO. I-65 m.p. 62.9
STATION 535
FIGURE 1

SITE LOCATION IS APPROXIMATE AND WILL BE DETERMINED IN THE FIELD AND APPROVED BY DIVISION OF PLANNING PERSONNEL PRIOR TO ANY CONSTRUCTION.

ALL LOOPS SHALL BE 6'X6' SQUARE AND SHALL BE INSTALLED 16' FROM LEADING EDGE TO LEADING EDGE AS SHOWN. PIEZOELECTRIC SENSORS (PIEZOS) SHALL BE INSTALLED 5' FROM THE EDGE OF LOOPS WITH THE EDGE OF EACH PIEZO FLUSH WITH THE EDGE OF THE CORRESPONDING DRIVING LANE. LOOPS AND PIEZOS SHALL BE INSTALLED SPLICE-FREE TO THE CABINET AND A MINIMUM OF 2' OF WIRE FOR EACH SENSOR SHALL BE COILED INSIDE EACH JUNCTION BOX AND CABINET. ALL LOOPS AND PIEZOS SHALL BE LABELED IN ALL JUNCTION BOXES AND CABINET. DIVISION OF PLANNING PERSONNEL WILL CONNECT THE LOOPS AND PIEZOS INSIDE THE CABINET.

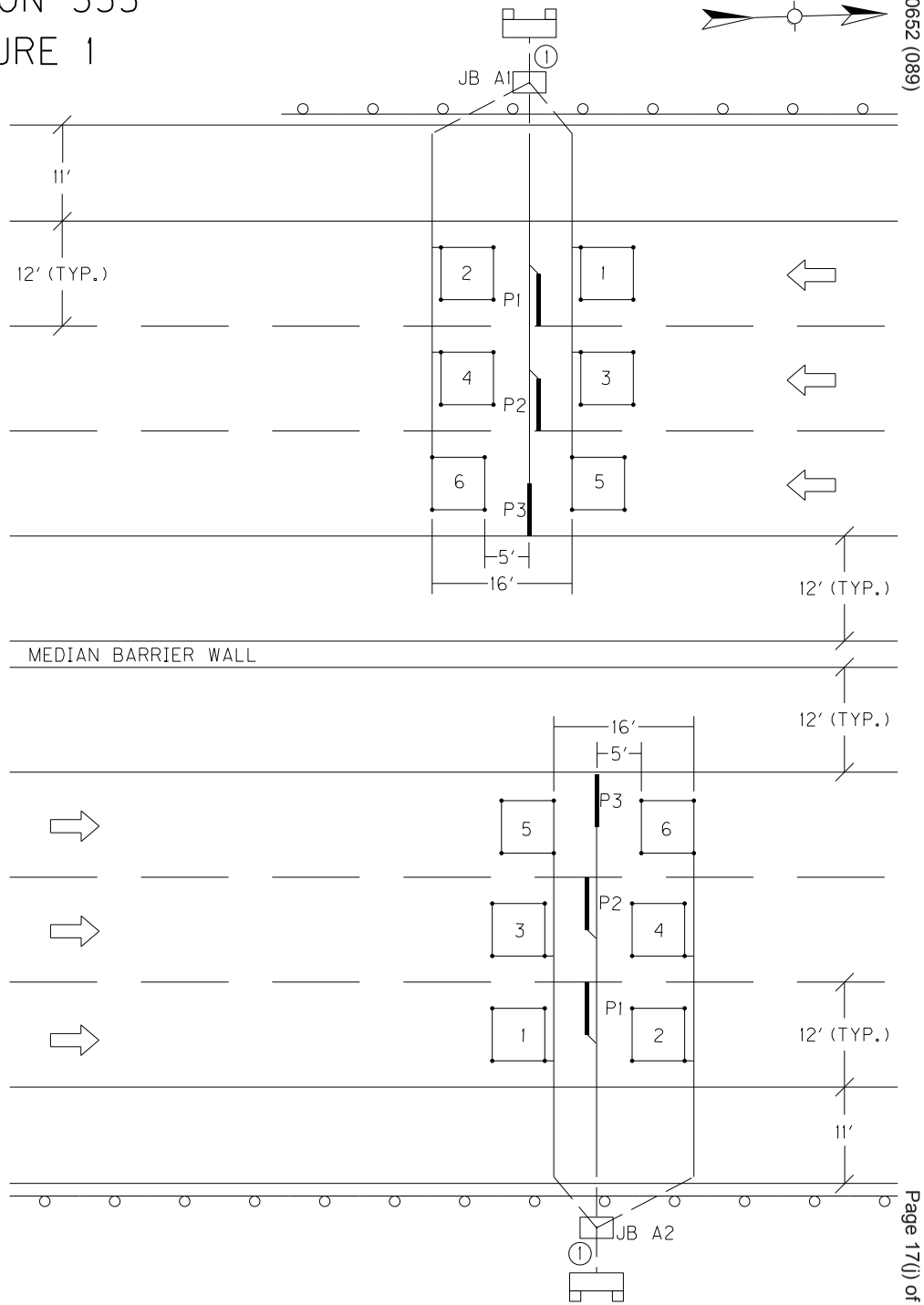
INSTALL ONE (1) 1¼" CONDUIT FROM EACH SAW SLOT TO NEAREST JUNCTION BOX.

INSTALL TWO (2) TYPE A JUNCTION BOXES (JB A1 AND A2).

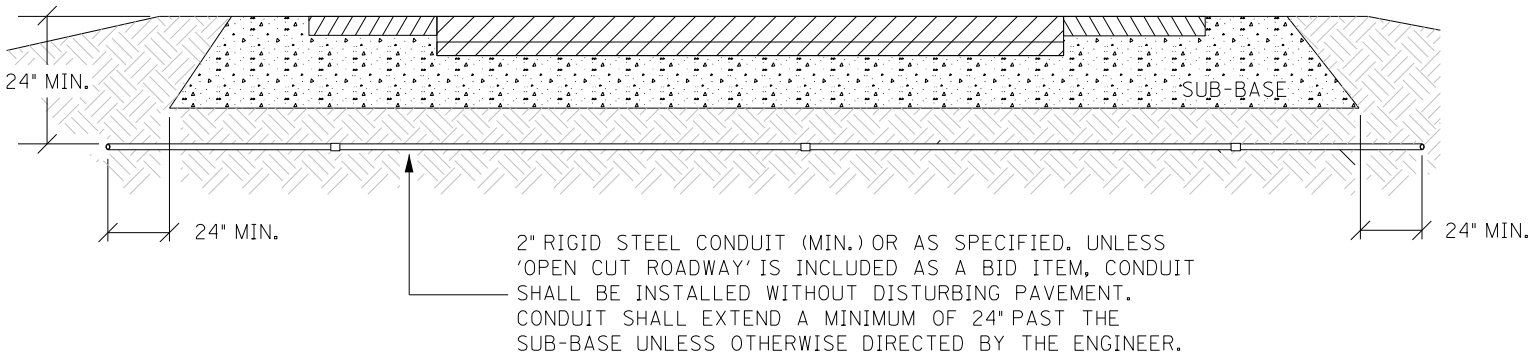
INSTALL TWO (2) 20"X20"X8" CABINETS MOUNTED TO TWO (2) WOOD POSTS (EACH).

CODED NOTE:

① INSTALL ONE (1) 2" CONDUIT.



SCALE 1"=20'

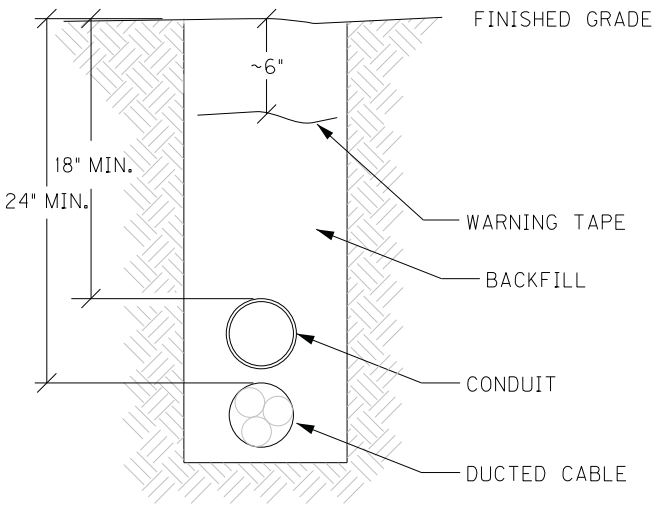


CONDUIT UNDER PAVEMENT

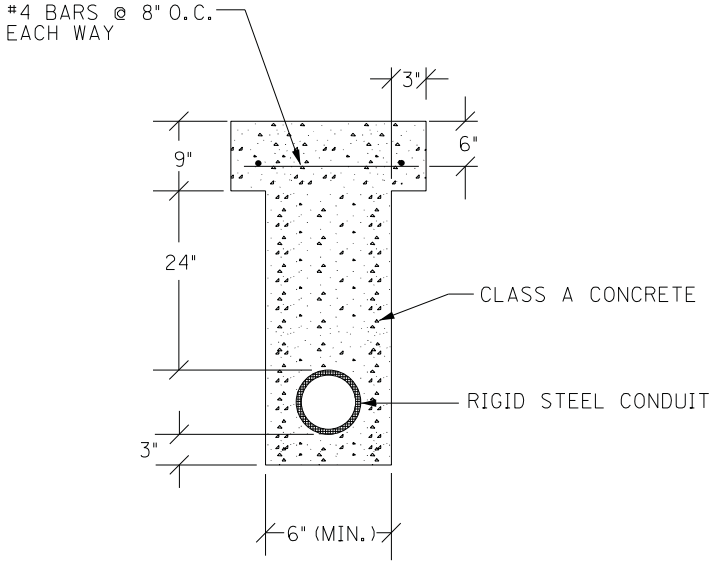
TOTAL TRENCH WIDTH SHALL BE 3" (NOM.) WIDER THAN THE SUM OF THE OUTSIDE DIAMETER(S) OF THE CONDUIT(S) INSTALLED. CONDUIT(S) SHALL BE CENTERED IN TRENCH.

CONTRACTOR SHALL PLACE BACKFILL IN LIFTS (9" MAX.) COMPACT BACKFILL, AND RESTORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER

CONTRACTOR SHALL INSTALL UNDERGROUND UTILITY WARNING TAPE ABOVE CONDUIT AS SHOWN.



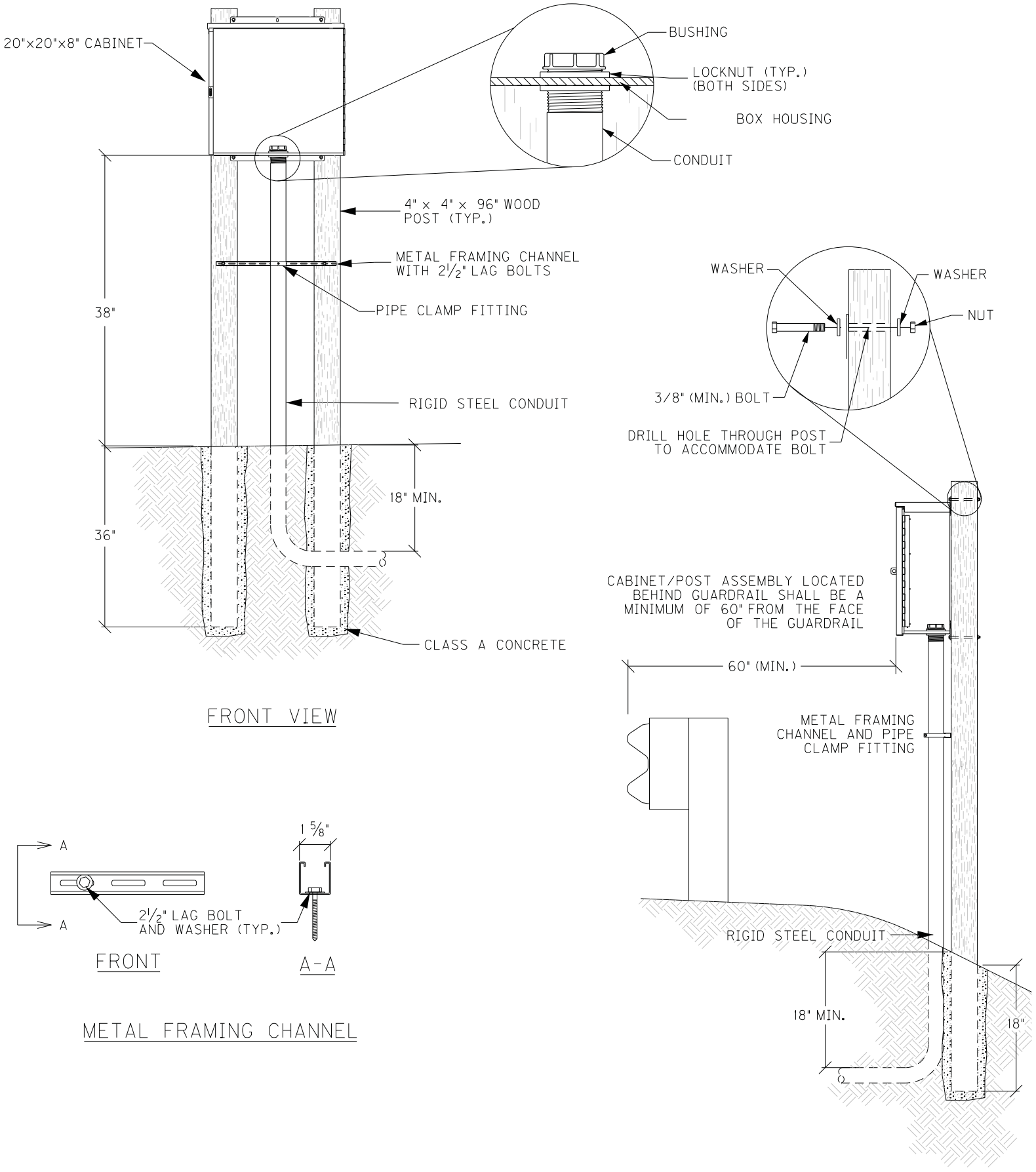
CONDUIT TRENCH



OPEN CUT PAVEMENT DETAIL

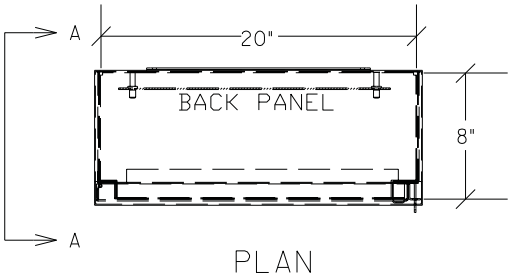
CONDUIT INSTALLATION

NOT TO SCALE

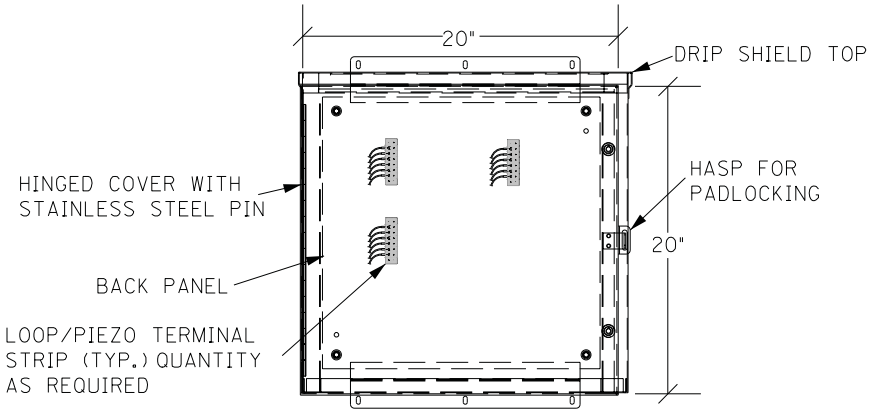


GALVANIZED STEEL CABINET DOUBLE POST ASSEMBLY

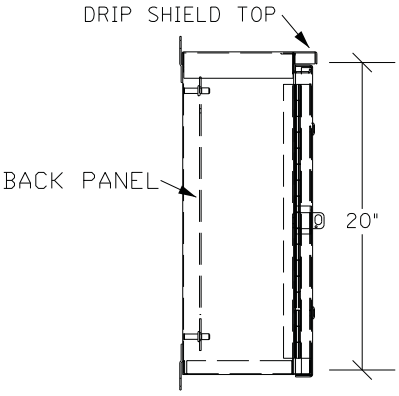
NOT TO SCALE



PLAN

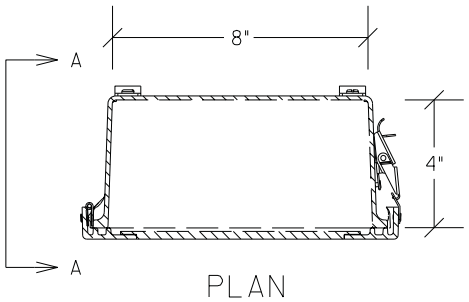


ELEVATION

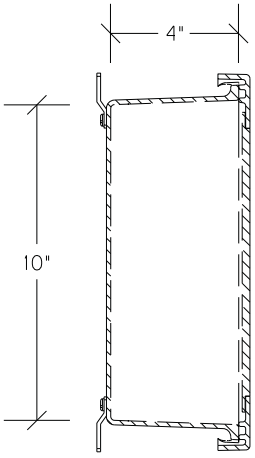


SECTION A-A

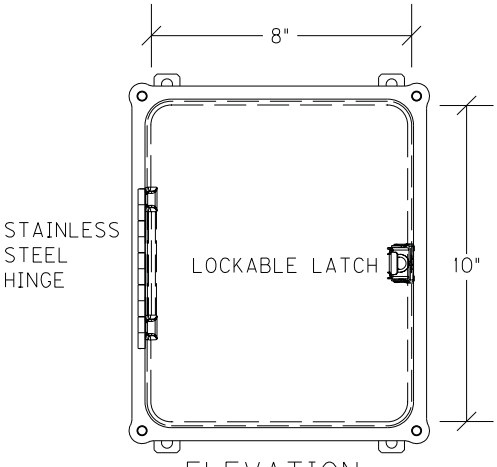
GALVANIZED STEEL CABINET



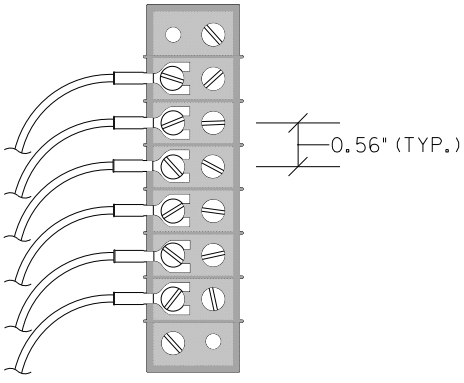
PLAN



SECTION A-A



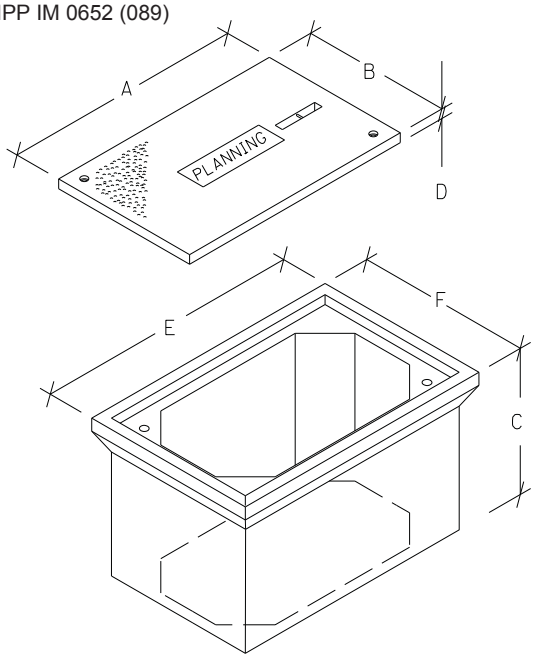
ELEVATION



TERMINAL STRIP (TYP.)

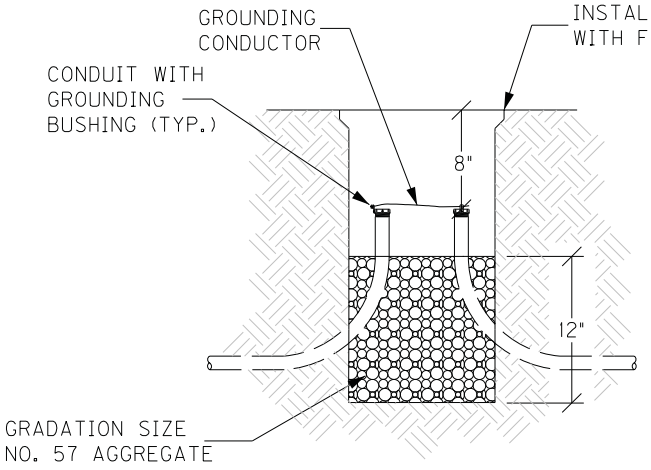
JUNCTION BOX 10"x8"X4"

NOT TO SCALE



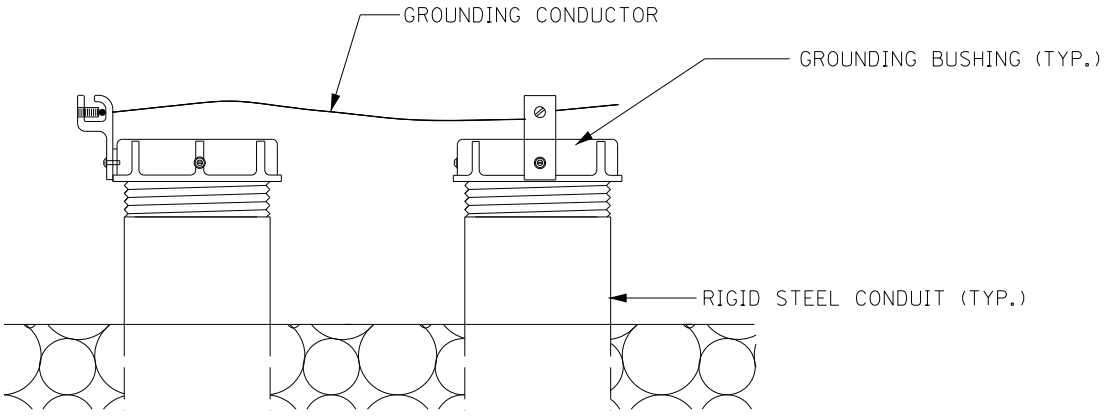
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D*	E	F
TYPE A	23"	14"	18"	2"	25"	16"
TYPE B	18"	11"	12"	1¾"	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

* MINIMUM
STACKABLE BOXES ARE PERMITTED



WHERE REQUIRED, JUNCTION BOX SHALL BE ORIENTED SUCH THAT THE DIMENSIONS COMPLY WITH THE NATIONAL ELECTRICAL CODE.

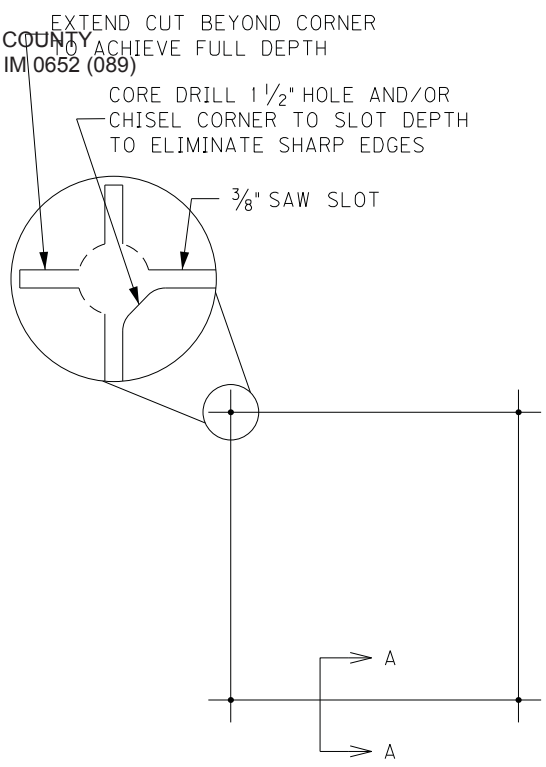
ELEVATION



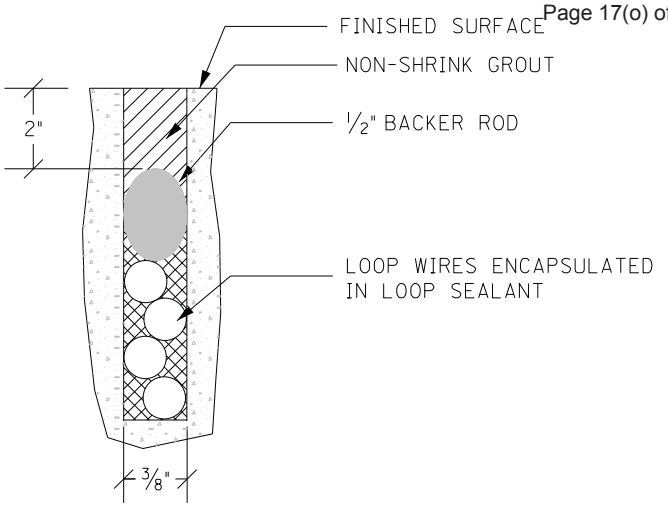
GROUNDING DETAIL

JUNCTION BOX - TYPE A, TYPE B, TYPE C

NOT TO SCALE



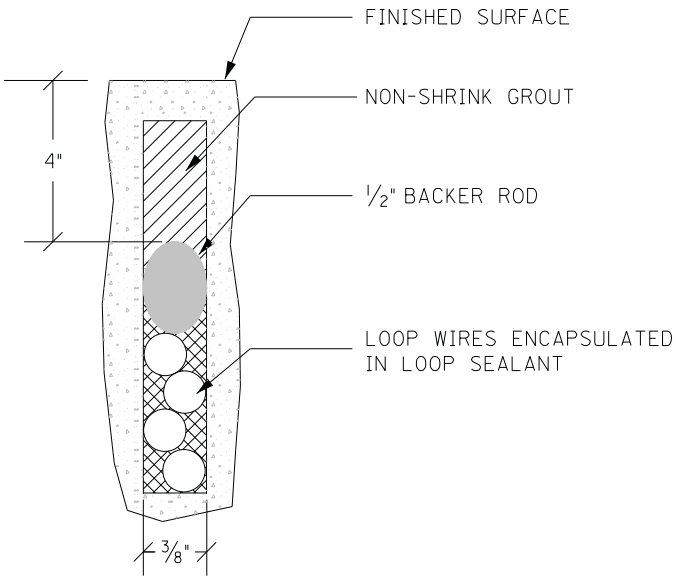
SAW CUT PLAN



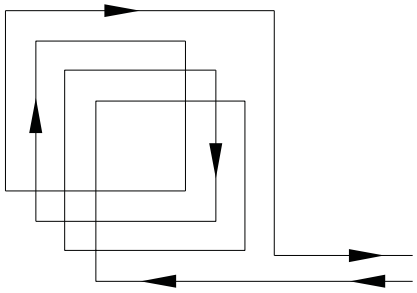
SECTION A-A (CONCRETE)

UNLESS SPECIFIED OTHERWISE, ALL LOOPS SHALL BE 6' x 6' SQUARE, CENTERED IN EACH LANE, WITH FOUR TURNS OF 14 AWG LOOP WIRE.

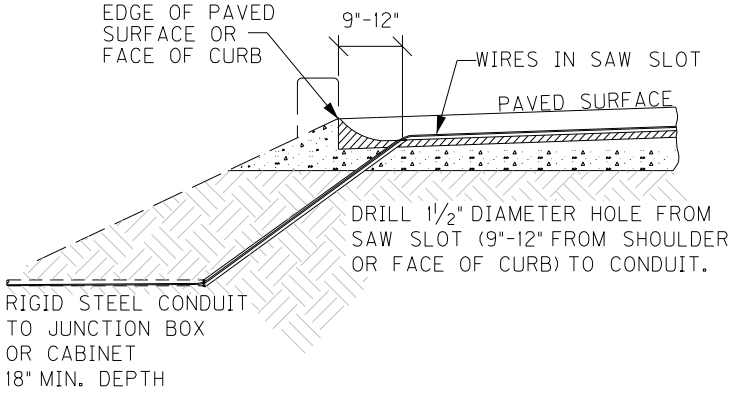
ADJACENT SAW SLOTS SHALL BE A MINIMUM OF 12" APART.



SECTION A-A (ASPHALT)



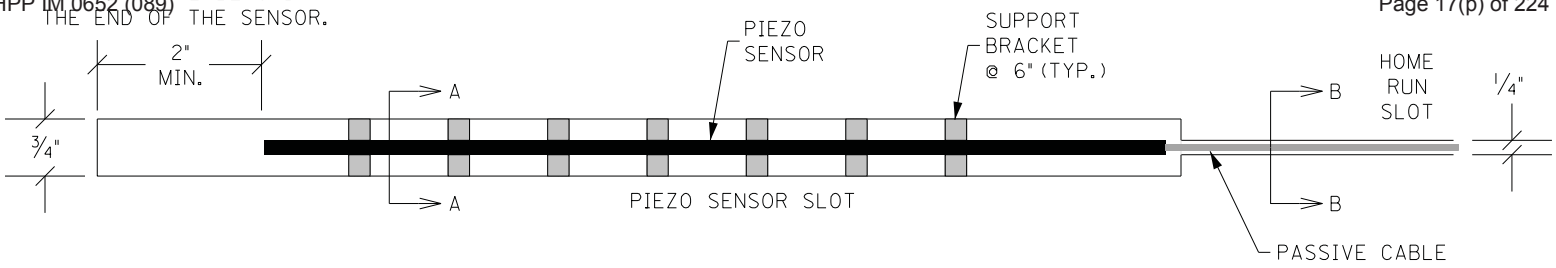
WIRING PLAN



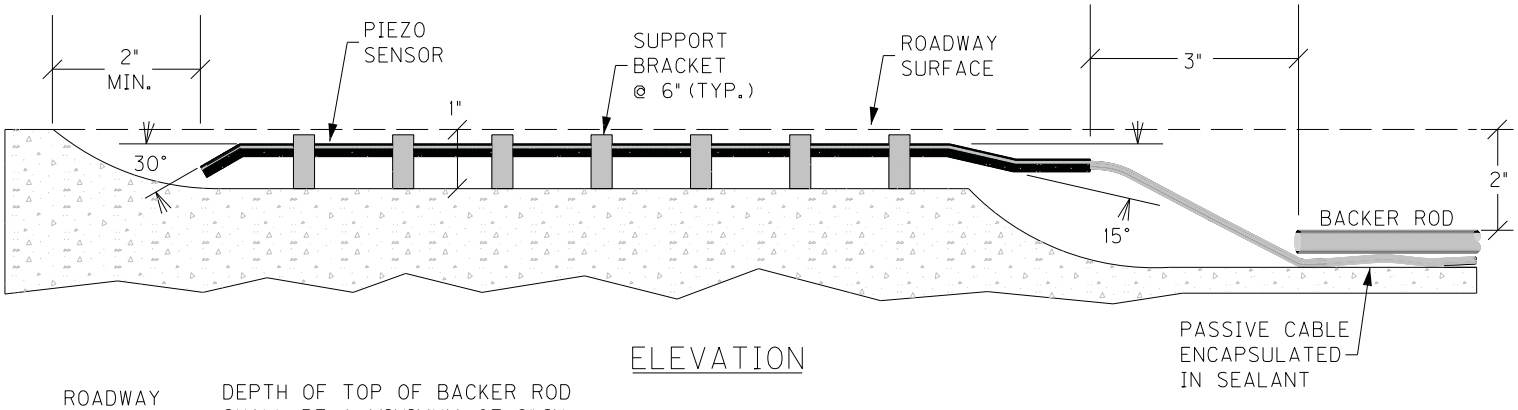
SAW SLOT EDGE OF PAVEMENT TRANSITION

INDUCTIVE LOOP DETECTOR

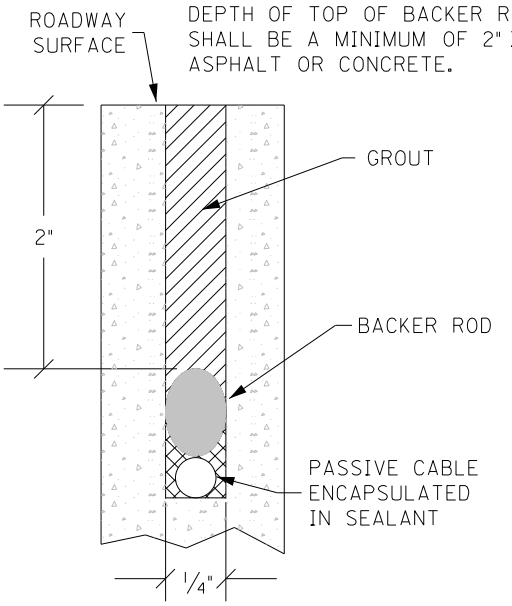
NOT TO SCALE



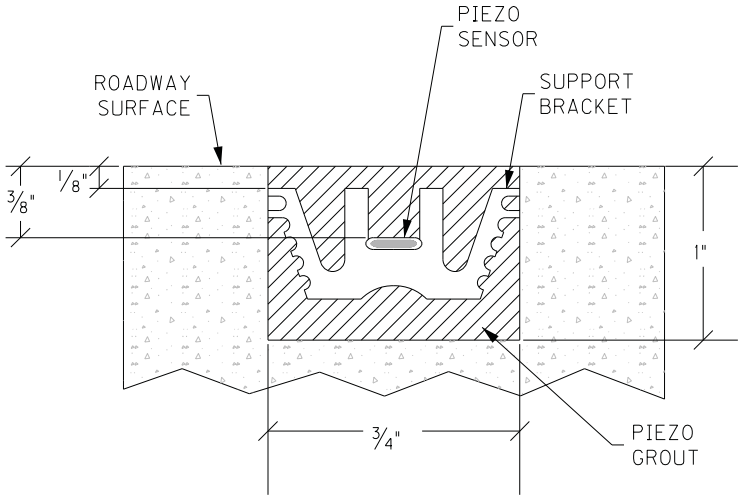
PLAN



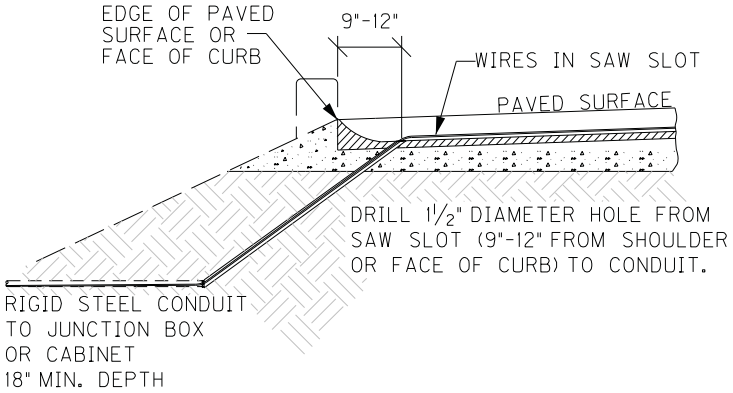
ELEVATION



SECTION B-B



SECTION A-A



SAW SLOT EDGE OF PAVEMENT TRANSITION

PIEZOELECTRIC SENSOR INSTALLATION

NOT TO SCALE

PERMANENT TRAFFIC DATA ACQUISITION STATIONS
ESTIMATE OF QUANTITIES

Bid Item Code	Description	Unit	Quantity
2562	SIGNS	SQ FT	
2650	MAINTAIN AND CONTROL TRAFFIC	LP SUM	
2775	FLASHING ARROW	EACH	
4791	CONDUIT ¾ INCH	LIN FT	
4793	CONDUIT 1 ¼ INCH	LIN FT	80
4795	CONDUIT 2 INCH	LIN FT	20
4810	JUNCTION BOX	EACH	
4811	JUNCTION BOX TYPE B	EACH	
4820	TRENCHING AND BACKFILLING	LIN FT	90
4821	OPEN CUT ROADWAY	LIN FT	
4829	PIEZOELECTRIC SENSOR	EACH	6
4830	LOOP WIRE	LIN FT	2900
4850	CABLE NO. 14/1 PAIR	LIN FT	
4871	POLE – 35’ WOODEN	EACH	
4895	LOOP SAW SLOT AND FILL	LIN FT	560
4899	ELECTRICAL SERVICE	EACH	
4901	TELEPHONE SERVICE	EACH	
20213EC	INSTALL PAD MOUNT ENCLOSURE	EACH	
20359EC	GALV STEEL CABINET	EACH	2
20360ES818	WOOD POST	EACH	4
20391ES835	JUNCTION BOX TYPE A	EACH	2
20392ES835	JUNCTION BOX TYPE C	EACH	
20468EC	JUNCTION BOX 10x8x4	EACH	
21543EN	BORE AND JACK PIPE – 2 IN	LIN FT	
23206EC	INSTALL CONTROLLER CABINET	EACH	

MATERIAL, INSTALLATION, AND BID ITEM NOTES FOR PERMANENT TRAFFIC DATA ACQUISITION STATIONS

1. DESCRIPTION

Except as specified in these notes, all work shall consist of furnishing and installing all materials necessary for permanent data acquisition station equipment installation(s) and shall be performed in accordance with the current editions of:

- The Contract
- Division of Planning Standard Detail Sheets
- Kentucky Transportation Cabinet, Department of Highways, *Standard Specifications for Road and Bridge Construction*
- Kentucky Transportation Cabinet, Department of Highways, Standard Drawings
- National Fire Protection Association *(NFPA) 70: National Electrical Code*
- Institute of Electrical and Electronic Engineers (IEEE), *National Electrical Safety Code*
- Federal Highway Administration, *Manual on Uniform Traffic Control Devices*
- American Association of State Highway and Transportation Officials (AASHTO), *Roadside Design Guide*.
- Standards of the utility company serving the installation, if applicable

The permanent traffic data acquisition station layout(s) indicate the extent and general arrangement of the proposed installation and are for general guidance. Any omission or commission shown or implied shall not be cause for deviation from the intent of the plans and specifications. Information shown on the plans and in this proposal and the types and quantities of work listed are not to be taken as an accurate or complete evaluation of the material and conditions to be encountered during construction. The bidder must draw his own conclusion as to the conditions encountered. The Department of Highways (Department) does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation if the conditions encountered are not in accordance with the information shown. If any modifications of the plans or specifications are considered necessary by the Contractor, details of such modifications and the reasons, therefore, shall be submitted in writing to the Engineer for written approval prior to beginning such modified work.

The Contractor shall contact all utility companies and the district utility agent prior to beginning construction to insure proper clearance and shielding from existing and proposed utilities. The Contractor shall use all possible care in excavating on this project so as not to disturb any existing utilities whether shown on the plans or not shown on the plans. Any utilities disturbed or damaged by the Contractor during construction shall be replaced or repaired to original condition by the Contractor at no cost to the department. If necessary, to avoid existing utilities, the Contractor shall hand dig areas where poles or conduit cross utilities.

The Contractor shall be responsible for all damage to public and/or private property resulting from his work.

The Contractor shall inspect the project site prior to submitting a bid and shall be thoroughly familiarized with existing conditions. Submission of a bid will be considered an affirmation of this inspection having been completed. The Department will not honor any claims resulting from site conditions.

2. MATERIALS

All proposed materials shall be approved prior to being utilized. The Contractor shall submit for material approval an electronic file of descriptive literature, drawings and any requested design data for the proposed materials. After approval, no substitutions of any approved materials may be made without the written approval of the Engineer.

Materials requiring sampling shall be made available a sufficient time in advance of their use to allow for necessary testing.

2.1. Anchoring

2.1.1. Anchor and Anchor Rod

Anchor, except rock anchor, shall be expanding type, with a minimum area of 135 square inches.

Anchor rod shall be galvanized steel, double-eye, have a minimum diameter of 5/8 inches, and a minimum length of 84 inches. Minimum holding capacity shall be 15,400 lbs.

Rock anchor shall be galvanized steel, triple-eye, expanding type, with a minimum diameter of ¾ inch, a minimum 53 inches long, and a minimum tensile strength of 23,000 lb.

2.1.2. Guy Wire and Guy Guard

Guy wire shall be Class A, Zinc-coated, 3/8 inch diameter, high strength grade steel (minimum 10,800 lb.) and galvanized per ASTM A475. Guy guard shall be 8’ long, fully-rounded, yellow, and able to be securely attached to the guy wire.

2.1.3. Strandvise for Guy Wire

Strandvise for guy wire shall be 3/8 inch and rated to hold a minimum of 90% of the rated breaking strength (RBS) of the strand used.

2.2. Asphalt

Asphalt shall be a minimum CL2 Asph Surf 0.38C PG64-22 and conform to the *Standard Specifications for Road and Bridge Construction.*

2.3. Backer Rod

Backer rod shall be ½ inch diameter, closed cell polyethylene foam and shall meet or exceed the following physical properties:

- Density (average): 2.0 lbs/cu.ft. (minimum): ASTM D 1622 test method
- Tensile Strength: 50 PSI (minimum): ASTM D 1623 test method
- Compression Recovery: 90% (minimum): ASTM D 5249 test method
- Water Absorption: 0.03 gm/cc (maximum): ASTM C 1016 test method

2.4. Cabinets

2.4.1. Galvanized Steel Cabinet

Galvanized Steel Cabinet shall be constructed of 16 or 14 gauge galvanized steel and shall meet or exceed the industry standards set forth by UL 50 and NEMA 3R. The finish shall be an ANSI 61 gray polyester powder finish inside and out over the galvanized steel. Cabinet shall have minimum inside dimensions of 20 inches high by 20 inches wide by 8 inches deep.

The cabinet shall be equipped with the following:

- Drip shield top
- Seam-free sides, front, and back, to provide protection in outdoor installations against rain, sleet, and snow
- Hinged cover with 16 gauge galvanized steel continuous stainless steel pin.
- Cover fastened with captive plated steel screws, knob or latch
- Hasp and staple for padlocking
- No gaskets or knockouts
- Back panel for terminal block installation
- Post mounting hardware
- Terminal Blocks

2.4.2. Anchor Bolt for Pad Mounted Cabinet

Anchor bolt for pad mounted cabinet shall be galvanized steel with minimum dimensions of 3/8 inch by 6 inches.

2.5. Concrete

Concrete shall be Class A and conform to the *Standard Specifications for Road and Bridge Construction.*

2.6. Conduit and Conduit Fittings

Conduit and conduit fittings shall be rigid steel unless otherwise specified.

Conduit shall be zinc galvanized inside and out and conform to the NEC, UL Standard 6, and ANSI C-80.1.

Rigid Steel Conduit Fittings shall be galvanized inside and out and conform to the NEC, UL Standard 514B, and ANSI C-80.4. Intermediate Metal Conduit (IMC) will not be approved as an acceptable alternative to rigid steel conduit.

2.7. Conduit sealant

Conduit sealant shall be weather-, mold-, and mildew-resistant and chemically resistant to gasoline, oil, dilute acids and bases. Conduit sealant shall be closed cell type and shall meet or exceed the following properties:

- Cure Time — 20 minutes max.
- Density — 64.4 kg/m3; 6 lbs/ft3
- Compressive Strength (ASTM 1691) — 13.8 MPa; 330 or 300 psi

- Tensile Strength (ASTM 1623) 15.9 MPa; 270 or 250 psi
- Flexural Strength (ASTM D790) 14.5 MPa; 460 or 450 psi
- Service Temperature -20 to 200 F

2.8. Electrical Service Meter Base

Electrical service meter base shall meet or exceed all requirements of the National Electrical Code and the local utility providing the electrical service.

2.9. Electrical Service Disconnect

Electrical service disconnect shall meet or exceed all requirements of the National Electrical Code and the local utility providing the electrical service.

2.10. Flashing Arrow

Flashing Arrow shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.11. Ground Fault Circuit Interrupter (GFCI) Receptacle

Ground Fault Circuit Interrupter Receptacle shall be 2-pole, 3-wire, 20 Amp, 125 Volt, 60 Hz, NEMA 5-20R configuration and meet or exceed the following standards and certifications:

- NEMA WD-1 and WD-6
- UL 498 and 943
- NOM 057
- ANSI C-73

This item shall include a UL listed, 4 inch x4 inch x $2^{1}/_{8}$ inch box with ¾ inch side and end knockouts and a 1½ inches deep, single-receptacle cover to house the GFCI receptacle. Box and cover shall be hot rolled, galvanized steel with a minimum thickness of 0.62 inches.

2.12. Grounding

2.12.1. Ground Rod

Ground Rod shall be composite shaft consisting of a pure copper exterior (5 mil minimum) that has been inseparably molten welded to a steel core. Ground Rod shall have a minimum diameter of 5/8 inch, a minimum length of 8 feet and shall be manufactured for the sole purpose of providing electrical grounding.

2.12.2. Ground Rod Clamp

Ground rod shall be equipped with a one piece cast copper or bronze body with a non-ferrous hexagonal head set screw and designed to accommodate a 10 AWG solid through 2 AWG stranded grounding conductor.

2.13. Grout

2.13.1. Grout for Inductive Loop Installation

Grout for inductive loop installation shall be non-shrink, shall meet the requirements of the *Standard Specifications for Road and Bridge Construction*,

and shall be included on the KYTC Division of Materials, *List of Approved Materials*.

2.13.2. Grout for Piezoelectric Sensor Installation

Grout for piezoelectric sensor installation shall be per the piezoelectric sensor manufacturer's recommendation. Grout shall be suitable for installation in both asphalt and Portland cement pavements. Grout shall have a short curing time (tack free in ten minutes; open to traffic in forty minutes; and fully cured within sixty minutes) to prevent unnecessary lane closure time and should be of sufficient consistency to prevent running when applied on road surfaces with a drainage cross slope. Particulate matter within the grout shall not separate or settle and the grout shall not shrink during the curing process.

2.14. Hardware

Except where specified otherwise, all hardware such as nuts, bolts, washers, threaded ends of fastening devices, etc. with a diameter less than 5/8 inch shall be passivated stainless steel, alloy type 316 or type 304. Stainless steel hardware shall meet ASTM F593 and F594 for corrosion resistance. All other nuts and bolts shall meet ASTM A307 and shall be galvanized.

2.14.1. Conduit Strap

Conduit strap shall be double-hole, stainless steel, and sized to support specified conduit. Conduit strap shall attach to wood pole or post with two 2 ¼ inch wood screws.

2.14.2. Mounting Strap for Pole Mount Cabinet

Mounting strap for pole mount cabinet shall be ¾ inch x 0.03 inch stainless steel; equipped with clips or buckles to securely hold strap

2.14.3. Metal Framing Channel and Fittings

Metal framing channel shall be 1 5/8 inches wide galvanized steel that conforms to ASTM A1011 and ASTM A653. One side of the channel shall have a continuous slot with in-turned edges to accommodate toothed fittings.

Fittings shall be punch pressed from steel plates and conform to ASTM A575 and the physical requirements of ASTM A1011.

2.15. Junction Box

2.15.1. Junction Box Type A, B, or C

Junction Box Type A, B, or C shall meet or exceed ANSI/SCTE 77-2007, Tier 15. Box shall have an open bottom. A removable, non-slip cover marked "PLANNING" shall be equipped with a lifting slot and attached with a minimum of two 3/8 inch stainless steel hex bolts and washers. Type A Box shall have nominal inside dimensions of 13 inches wide by 24 inches long by 18 inches deep. Type B Box shall have nominal inside dimensions of 11 inches wide by 18 inches long by 12

inches deep. Type C Box shall have nominal inside dimensions of 24 inches wide by 36 inches long by 30 inches deep.

2.15.2. Aggregate for Junction Box Type A, B, or C

Aggregate for junction box type A, B, or C shall be gradation size no. 57 and conform to the *Standard Specifications for Road and Bridge Construction.*

2.15.3. Junction Box 10x8x4

Junction Box Type 10x8x4 shall be constructed of a UV-stabilized, nonmetallic material or non-rusting metal and be weatherproof in accordance with NEMA 4X. Box shall be equipped with an overhanging door with a continuous durable weatherproof gasket between the body and door. Door shall be hinged with stainless steel screws, hinge(s) and pin(s) and shall be equipped with a stainless steel padlockable latch on the side opposite the hinge(s). Junction Box 10x8x4 shall have minimum inside dimensions of 10 inches high by 8 inches wide by 4 inches deep.

2.16. Maintain and Control Traffic

Materials for the bid item Maintain and Control Traffic shall conform to the *Standard Specifications for Road and Bridge Construction,* and the KYTC Department of Highways *Standard Drawings.*

2.17. Piezoelectric Sensor

Piezoelectric sensor (piezo) shall provide a consistent level voltage output signal when a vehicle axle passes over it, shall have a shielded transmission cable attached, and shall meet the following requirements:

- Dimensions: such that sensor will fit in a ¾ inch wide by 1 inch deep saw cut. Total length shall be as specified.
- Output uniformity: ± 7% (maximum)
- Typical output level range: 250mV (minimum) from a wheel load of 400 lbs.
- Working temperature range: -40° to 160° F.
- Sensor life: 30 million Equivalent Single Axle Loadings (minimum)

Shielded transmission cable shall be coaxial and shall meet the following requirements:

- RG 58C/U with a high density polyethylene outer jacket rated for direct burial
- Length shall be a minimum of 100 feet. Installations may exceed 100 feet so the piezo shall be supplied with a lead-in of appropriate length so that the cable can be installed splice-free from the piezo to the cabinet.
- Soldered, water resistant connection to the sensor.

One installation bracket for every 6 inches of sensor length shall also be supplied. Piezo shall be a RoadTrax BL Class I or approved equal.

2.18. Saw Slot Sealant

Saw Slot Sealant shall be non-shrink, non-stringing, moisture cure, polyurethane encapsulant suitable for use in both asphalt and concrete pavements. It shall provide a void-free encapsulation for detector loop cables and adequate compressive yield strength and flexibility to withstand heavy vehicular traffic and normal pavement movement.

The cured encapsulant shall meet or exceed the following:

- Hardness (Indentation): 35-65 Shore A, ASTM D2240
- Tensile Strength: 150 psi minimum, ASTM D412
- Elongation: 125% minimum 2 inch/minute pull, ASTM D412
- Tack-free Drying Time: 24 hours maximum, ASTM C679
- Complete Drying Time: 30 hours maximum, KM 64-447
- Chemical Interactions (seven day cure at room temperature, 24-hour immersion, KM 64-446):
  - Motor Oil: No effect
  - Deicing Chemicals: No effect
  - Gasoline: Slight swell
  - Hydraulic Brake Fluid: No effect
  - Calcium Chloride (5%): No effect

2.19. Seeding and Protection

Material for Seeding and Protection shall be Seed Mixture Type I and conform to the *Standard Specifications for Road and Bridge Construction.*

2.20. Signs

Materials for signs shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.21. Splicing Materials

2.21.1. Electrical Tape

Electrical tape shall be a premium grade, UL-listed, all-weather, vinyl-insulating tape with a minimum thickness of 7 mil. Tape shall be flame retardant and resistant to abrasion, moisture, alkalis, acids, corrosion, and weather (including ultraviolet exposure).

2.21.2. Splice Kit

Splice kit shall be inline resin-type and rated for a minimum of 600V. Resin shall be electrical insulating-type and shall provide complete moisture and insulation resistance.

2.22. Steel Reinforcing Bar

Steel reinforcing bar shall be #5 and shall conform to the *Standard Specifications for Road and Bridge Construction.*

2.23. Terminal Block

Terminal block shall be rated for a minimum of 300 V and have a minimum of six terminal pairs with 9/16-inch nominal spacing (center to center) for connecting loop and piezoelectric sensor wires to cable assemblies. Terminal block shall have screw type terminal strips to accommodate wire with spade-tongue ends.

2.24. Warning Tape

Warning tape shall be acid and alkali resistant formulated for direct burial. Tape shall be a minimum of 3 inches wide by 4.0 mils (nominal) thick, and shall be permanently imprinted with a minimum 1 inch black legend on a red background warning of an electric line. Tape shall meet or exceed the following industry specifications:

- American Gas Association (AGA) 72-D-56
- American Petroleum Institute (API) RP 1109
- American Public Works Association (APWA) Uniform Color Code
- Department of Transportation (DOT) Office of Pipeline Safety USAS B31.8
- Federal Gas Safety Regulations S 192-321 (e)
- General Services Administration (GSA) Public Buildings Service Guide: PBS 4-1501, Amendment 2
- National Transportation Safety Board (NTSB) PSS 73-1
- Occupational Safety and Health Administration (OSHA) 1926.956 (c) (1)

2.25. Wire and Cable

All cable and wire shall be plainly marked in accordance with the National Electrical Code (NEC).

2.25.1. Loop Wire

Loop wire shall be 14 AWG, stranded, copper, single conductor, and shall conform to the International Municipal Signal Association (IMSA) Specification No. 51-7.

2.25.2. Cable No. 14/1 Pair

Cable No. 14/1 pair loop lead-in cable shall be 14 AWG, stranded, copper paired, electrically shielded conductors, and shall conform to IMSA 19-2.

2.25.3. Grounding conductor

Grounding conductor and bonding jumper shall be solid or stranded, 4 AWG bare copper.

2.25.4. Service Entrance Conductor

Service entrance conductor shall be stranded, copper, Type USE-2, sized as required to comply with the NEC.

2.25.5. Telephone Wire

Telephone wire shall be Category 3 (Cat 3) or Category 5 (Cat 5) and shall be equipped with an RJ-11 modular plug.

2.25.6. Terminal for electrical wire or cable

Terminal for electrical wires or cables shall be insulated, solderless, spade tongue terminals of correct wire and stud size. Terminal for electrical wires or cables shall be incidental to the wire or cable (including piezoelectric sensor transmission cable) to be connected to terminal strips.

2.26. Wood Post

Wood post shall be pretreated to conform to the American Wood Preservers' Association (AWPA) C-14 and shall have minimum dimensions of 4 inches by 4 inches by 8 feet long (for Galvanized Steel Cabinet) or 4 feet long (for Junction Box 10x8x4), sawed on all four sides with both ends square.

2.27. Wooden Pole

Wooden pole shall be a Class IV wood pole of the length specified and shall conform to the *Standard Specifications for Road and Bridge Construction* except the pole shall be treated in accordance with AWPA P9 Type A.

3. CONSTRUCTION METHODS

The plans indicate the extent and general arrangement of the installation and are for guidance. When the Contractor deems any modifications to the plans or specifications necessary, details of such changes and the reasons shall be submitted in writing to the engineer for written approval prior to beginning the modified work.

After the project has been let and awarded, the Division of Construction shall notify the Division of Planning of the scheduled date for a Pre-Construction meeting so that prior arrangements can be made to attend. This will allow the Division of Planning an opportunity to address any concerns and answer any questions that the Contractor may have before beginning the work.

The Division of Planning Equipment Management Team (502-564-7183) shall be notified a minimum of seven days before any work pertaining to these specifications begins to allow their personnel the option to be present during installation.

Unless otherwise specified, installed materials shall be new.

Construction involving the installation of loops or piezoelectric sensors shall not be performed when the temperature of the pavement is less than 38ºF.

A final inspection will be performed by a member of the Central Office Division of Planning equipment staff after the installation is complete to verify that the installation is in compliance with the plans and specifications.

Any required corrective work shall be performed per the *Standard Specifications for Road and Bridge Construction.*

3.1. Anchoring

Furnish: Anchor, anchor rod, guy wire, strand vise, guy guard.

Anchor shall be installed in relatively dry and solid soil. Rock anchor shall be installed in solid rock. Excavate the hole at a 45° to 60° angle in line with the guy (hole size shall be slightly larger than the expanded anchor – see manufacturer's recommendation). Attach rod to anchor, install assembly into hole, and expand anchor. Backfill and tamp entire disturbed area. The effectiveness of the anchor is dependent upon the thoroughness of backfill tamping. Attach guy to strand vise on pole and anchor rod and tighten to required tension. Install guy guard on guy.

3.2. Bore and Jack Pipe – 2"

Furnish: Steel Encasement Pipe, 2"

Bore and jack pipe – 2" shall conform to the Section 706 of the *Standard Specifications for Road and Bridge Construction.*

3.3. Cleanup and Restoration

Furnish: Seed Mix Type 1 (as required); fertilizer (as required); agricultural limestone (as required); mulch or hydromulch (as required); tackifier (as required).

The Contractor shall be responsible for repairing any damage to public and/or private property resulting from his work. Upon completion of the work, restore all disturbed highway features in like kind design and materials. This shall include filling any ruts and leveling ground appropriately. Contractor shall dispose of all waste and debris off the project. Sow all disturbed earthen areas with Seed Mix Type 1 per Section 212 of the *Standard Specifications for Road and Bridge Construction*. All materials and labor necessary for cleanup and restoration shall be considered incidental to other bid items.

3.4. Conduit

Furnish: Conduit; conduit fittings; bushings (grounding where required); LB condulets (as required); weatherheads (as required); conduit straps; hardware; conduit sealant.

Conduit that may be subject to regular pressure from traffic shall be laid to a minimum depth of 24 inches below grade. Conduit that will not be subject to regular pressure from traffic shall be laid to a minimum depth of 18 inches below grade.

Conduit ends shall be reamed to remove burrs and sharp edges. Cuts shall be square and true so that the ends will butt together for the full circumference of the conduit. Tighten couplings until the ends of the conduit are brought together. Do not leave exposed threads. Damaged portions of the galvanized surfaces and untreated threads resulting from field cuts shall be painted with an Engineer-approved, rust inhibitive paint. Conduit bends shall have a radius of no less than 12 times the nominal diameter of the conduit, unless otherwise shown on the plans.

Contractor shall install a bushing (grounding bushing where required) on both ends of all conduits. Cap spare conduits on both ends with caps or conduit sealant.

Conduit openings in junction boxes and cabinets shall be waterproofed with a flexible, removable conduit, working it around the wires, and extending it a minimum 1 inch into the end of the conduit.

After the conduit has been installed and prior to backfilling, the conduit installation shall be inspected and approved by the Engineer.

3.5. Electrical Service

Furnish: Meter base, service disconnect, wire, GFCI AC duplex receptacle with box and cover; conduit, conduit fittings, bushings (grounding where required); LB condulets (as required); weatherhead; conduit straps; hardware; conduit sealant; ground rod with clamp; grounding conductor.

Prior to any construction, the Contractor shall initiate a work order with the local power

company for the installation of electrical service to the site. A representative from the Division of Planning and the local power company shall be consulted prior to choosing an exact location for the pole. The Contractor shall clear the right-of-way for the electrical service drop.

Contractor shall obtain electrical inspections, memberships, meter base, service disconnect and any other requirements by the utility serving the installation and pay all fees as required.

Install meter-base and disconnect panel with a 30-ampere, fused, circuit breaker inside. Install a manufactured weatherproof hub connectors to connect the conduit to the top of the meter base and service disconnect.

Install a rigid ¾ inch conduit with three 8 AWG service conductors from the cabinet, through the service disconnect to the meter base and a 1¼" conduit with three 8 AWG service conductors from the meter base to a weatherhead two feet from the top of the electrical service pole. Install conduit straps 30 inches on center and provide a drip loop where the wire enters the weatherhead. Splice electric drop with service entrance conductors at the top of the pole.

The limit of conduit incidental to "Install Electrical Service" for a pad mounted cabinet is 24 inches beyond face of service pole.

Install a 120-volt, 20-amp GFCI AC duplex receptacle with box and cover in the automatic data recorder (ADR) cabinet.

Install a ground rod with clamp. Install a grounding conductor wire from the meter base, through the disconnect panel, to the ground rod clamp. Install grounding conductor in 1-¾" conduit from service disconnect to ground rod.

After completing the installation and before the electrical service is connected, obtain a certificate of compliance from the Kentucky Department of Housing, Buildings and Construction, Electrical Inspection Division.

3.6. Flashing Arrow

Furnish: Arrow Panel

Construction of Flashing Arrow shall conform to the *Standard Specifications for Road and Bridge Construction.*

3.7. Galvanized Steel Cabinet

Furnish: Cabinet; wood posts; concrete; conduit fittings; metal framing channel; pipe clamp; terminal block(s); spade tongue wire terminals; wire labels; hardware.

Where right-of-way allows, locate the cabinet such that it is outside the clear zone in accordance with the *Roadside Design Guide*. Install Cabinet such that the door of the

cabinet faces the roadway.

Excavate as required and install wood posts to a depth of 36 inches and place concrete around posts as shown on the standard detail sheets. Install metal framing channel with pipe clamp between posts.

Install Cabinet on wood posts 38 inches above the finished grade as shown on the standard detail sheets. Install a unistrut between posts when two posts are specified.

Install the required number of terminal blocks on the cabinet back plate. Install a spade tongue terminal on each loop and piezo sensor wire entering the cabinet and connect wires to terminal block(s). Wiring shall be neat and orderly. Label all wires and cables inside cabinet.

Install conduit from ground to cabinet and attach to pipe clamp. Install locknuts to attach conduit to cabinet and install a conduit bushing as shown on the standard detail sheets.

3.8. Grounding

Furnish: Ground rod with clamp; grounding conductor.

At sites with electrical or solar service, all conduits, poles, and cabinets shall be bonded to ground rods and the electrical system ground to form a complete grounded system.

Install such that top of ground rod is a minimum of 3 inches below finished grade.

Grounding systems shall have a maximum 25 ohms resistance to ground. If the resistance to ground is greater than 25 ohms, two or more ground rods connected in parallel shall be installed. Adjacent ground rods shall be separated by a minimum of 6 feet.

3.9. Install Pad Mount Enclosure

Furnish: Concrete; anchor bolts with washers and nuts; conduit; conduit fittings; conduit grounding bushings; ground rod with clamp; grounding conductor; conduit sealant; wooden stakes (where required); wire labels; hardware.

The Contractor shall be responsible for securing the enclosure from the Central Office Division of Planning Warehouse in Frankfort and transporting it to the installation site.

Where right-of-way allows, locate the enclosure such that it is outside the clear zone in accordance with the *Roadside Design Guide*.

Excavate as required, and place concrete to construct the enclosure foundation as specified on the standard detail sheets. Install enclosure on the concrete base such that the door(s) of the enclosure opens away from traffic (hinges away from traffic). Install anchor bolts, washers, and nuts to secure the enclosure to the foundation.

Install ground rod with clamp and install one ¾ inch rigid conduit from enclosure base to

ground rod. Install a grounding conductor from ground rod to enclosure base and bond to each conduit bushing in the base.

Install two ¾ inch rigid steel conduits: one for electrical service and one for telephone service from the base of the enclosure to 24 inches beyond the concrete base. Make all field wiring connections to the electrical service and/or telephone service, as applicable.

If electrical and/or telephone service are not provided as bid items in the contract, plug conduit on both ends with a cap, conduit sealant, or electrical tape. Mark the location of the buried conduit end(s) with a wooden stake labeled "3/4 in. conduit."

Install specified rigid steel conduit(s) into the base of the enclosure for sensor wire entry. Install one spare 2 inch conduit from the enclosure base to 2 feet beyond the concrete base. Plug spare conduit on both ends with a cap, conduit sealant or electrical tape.

The limit of all conduits incidental to "Install Pad Mount Enclosure" is 24 inches beyond the edge of the concrete base.

Wiring in enclosure shall be neat and orderly. Label all wires and cables inside enclosure. KYTC personnel will furnish and install terminal blocks and connect sensors to terminal blocks.

3.10. Install Controller Cabinet

Furnish: Mounting brackets; mounting straps; conduit; LB condulets; conduit fittings; conduit grounding bushings; ground rod with clamp; grounding conductor; cable staples; conduit sealant; wooden stakes (where required); wire labels; hardware.

The Contractor shall be responsible for securing the cabinet from the Central Office Division of Planning Warehouse in Frankfort and transporting it to the installation site. Any existing holes in the cabinet not to be reused shall be covered or plugged to meet NEC requirements.

Install mounting brackets and secure cabinet to pole with mounting straps.

Install a ground rod with clamp. Install grounding conductor in 1-¾" conduit form cabinet to ground rod.

Install one ¾ inch rigid steel conduit with two lb condulets from cabinet to electrical service disconnect box. Install one ¾ inch rigid steel conduit with two LB condulets from cabinet to telephone network interface device box. Make all field wiring connections to the electrical service and/or telephone service, as applicable.

If electrical and/or telephone service are not provided as bid items in the contract, plug conduit on both ends with cap, plumbers putty, conduit sealant, or electrical tape. Mark the location of the buried conduit end(s) with a wooden stake labeled "3/4 in. conduit".

Install specified rigid steel conduit(s) and type LB condulet(s) into the bottom of the cabinet for sensor wire entry. The limit of conduits incidental to "Install Controller Cabinet" is 24 inches beyond the face of the pole.

Wiring in cabinet shall be neat and orderly. Label all wires and cables inside cabinet. KYTC personnel will furnish and install terminal blocks and connect sensors to terminal blocks.

3.11. Junction Box Type 10x8x4

Furnish: Junction box; wood post; conduit fittings; wire labels; hardware.

Where right-of-way allows, locate the junction box such that it is outside the clear zone in accordance with the Roadside Design Guide.

Excavate as required and install wood post(s) to a depth of 18 inches. Install junction box on wood post such that the bottom of the box is 18 inches above the finished grade as shown on the standard detail sheets. Box shall be installed with four (4) 2½ inch wood screws and washers.

Install locknuts to attach conduit to junction box and install a conduit bushing as shown on the standard detail sheets.

Wiring inside box shall be neat and orderly. Label all wires and cables inside box.

3.12. Junction Box Type A, B, or C

Furnish: Junction box, No. 57 aggregate; grounding conductor

Excavate as required and place approximately 12 inches of No. 57 aggregate beneath the proposed junction box to allow for drainage. Install specified junction box type A, B, or C near the edge of pavement, flush with finished grade per the detail sheets. Where required, orient the box so that the dimensions comply with the National Electrical Code. Stub conduits with grounding bushings into junction box at its base to accommodate wires and connect grounding conductor to all grounding bushings. Backfill to existing grade, and restore disturbed area to the satisfaction of the Engineer.

Wiring inside box shall be neat and orderly. Label all wires and cables inside box.

3.13. Loops

Furnish: Wire; saw slot sealant; backer rod; grout; conduit sealant.

The plans and notes specify the approximate location for loop installations. Prior to sawing slots or drilling cores, the Contractor shall meet with a representative of the Division of Planning to verify the precise layout locations on site. Avoid expansion joints and pavement sections where potholes, cracks, or other roadway flaws exist.

Upon completion of this meeting, the Contractor shall measure out and mark the

proposed loop locations with spray paint or chalk such that the saw slots will be parallel and perpendicular to the direction of traffic. Marked lines shall be straight and exact to the locations determined and sized as shown on the plans. Unless indicated otherwise, loops shall be 6 feet by 6 feet square and loops in the same lane shall be spaced 16 feet from leading edge to leading edge.

On resurfacing, rehabilitation, and new construction projects that include new asphalt pavement, the Contractor shall install loops prior to laying the final surface course. On projects with milling and texturing, the Contractor may install the loops prior to or after the milling operation; however, if installed prior to milling, the Contractor shall be responsible for ensuring that the loops are installed at a depth such that the milling operation will not disturb the newly installed loops. The Contractor shall correct damage caused by the milling operations to newly installed loops prior to placement of the final surface course at no additional cost to the Cabinet.

For projects that include the installation of new asphalt and piezoelectric sensors, the Contractor shall mark or otherwise reference all loops installed prior to the final surface course such that the loops can be accurately located when the piezoelectric sensors are installed after placement of the final surface course.

For projects that do not have asphalt surfacing, the Contractor shall install the loops in the surface of the pavement.

The Prime Contractor shall coordinate the installation of loops with the electrical sub-Contractor and the Engineer to ensure correct operation of the completed installation.

The following is a typical step by step procedure for the installation of a loop.

- Carefully mark the slot to be cut, perpendicular to the flow of traffic and centered in the lane.
- Make each saw-cut 3/8-inch wide and at a depth such that the top of the backer rod is a minimum of 2 inches below the surface of rigid (PCC/Concrete) pavement or 4 inches below the surface of asphalt pavement.
- Drill a 1½ inch core hole at each corner and use a chisel to smooth corners to prevent sharp bends in the wire.
- Clean ALL foreign and loose matter out of the slots and drilled cores and within 1 foot on all sides of the slots using a high pressure washer.
- Completely dry the slots and drilled cores and within 1 foot on all sides of the slots using oil-free forced air, torpedo heaters, electric heaters, or natural evaporation, depending on weather conditions. Be very careful not to burn the asphalt if heat is used.
- Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway.

- Closely inspect all cuts, cores, and slots for jagged edges or protrusions prior to the placement of the wire. All jagged edges and protrusions shall be ground or re-cut and cleaned again.
- Place the loop wire splice-free from the termination point (cabinet or junction box) to the loop, continue around the loop for four turns, and return to the termination point.
- Push the wire into the saw slot with a blunt object such as a wooden stick. Make sure that the loop wire is pushed fully to the bottom of the saw slot.
- Install conduit sealant to a minimum of 1" deep into the cored 1½ inch hole.
- Apply loop sealant from the bottom up and fully encapsulate the loop wires in the saw slot. The wire should not be able to move when the sealant has set.
- Cover the encapsulated loop wire with a continuous layer of backer rod along the entire loop and home run saw slots such that no voids are present between the loop sealant and backer rod.
- Finish filling the saw cut with non-shrinkable grout per manufacturer's instructions. Alleviate all air pockets and refill low spaces. There shall be no concave portion to the grout in the saw slot. Any excess grout shall be cleaned from the roadway to alleviate tracking.
- Clean up the site and dispose of all waste off the project.
- Ensure that the grout has completely cured prior to subjecting the loop to traffic. Curing time varies with temperature and humidity.

Exceptions to installing loop wire splice-free to the junction box or cabinet may be considered on a case-by-case basis and must be pre-approved by the Engineer. If splices are allowed, they shall be located in a junction box and shall conform to the construction note for Splicing.

If loop lead-in cable (Cable No. 14/1 Pair) is specified, cable shall be installed splice free to the cabinet ensuring that extra cable is left in each junction box or cabinet. All wires and cables shall be labeled in each junction box and cabinet.

Loop inductance readings shall be between 100 and 300 microhenries. The difference of the loop inductance between two loops in the same lane shall be ±20 microhenries. Inductance loop conductors shall test free of shorts and grounds. Upon completion of the project, all loops must pass an insulation resistance test of at least 100 million ohms to ground when tested with a 500 Volt direct current potential in a reasonably dry atmosphere between conductors and ground.

3.14. Maintain and Control Traffic

Furnish (all as required): Drums, traffic cones, barricades used for channelization purposes, delineators, and object markers.

Maintain and Control Traffic shall conform to the plans, the Standard Specifications for Road and Bridge Construction, and the KYTC Department of Highways Standard Drawings.

3.15. Open Cut Roadway

Furnish: Concrete, reinforcing bars.

Excavate trench by sawing and chipping away roadway to dimensions as indicated on the detail sheets. After placing conduit, install concrete and steel reinforcing bars per the *Standard Specifications for Road and Bridge Construction*. Restore any disturbed sidewalk to its original condition.

3.16. Piezoelectric Sensor

Furnish: Piezoelectric sensor and cable; sensor support brackets; saw slot sealant; backer rod; grout; conduit sealant.

The plans and notes specify the approximate location for piezoelectric sensor (piezo) installations. Prior to sawing slots or drilling cores, the Contractor shall meet with a representative of the Division of Planning to verify the final layout on site. Avoid expansion joints and pavement sections where potholes, cracks, or other roadway flaws exist. Roadway ruts at the proposed piezo location shall not be in excess of ½ inch under a 4-foot straight edge.

Install the piezo perpendicular to traffic in the final surface course of the pavement. Locate the sensor in the lane as shown on the site layout drawing. Eleven-foot length sensors shall be centered in the lane.

The following is a typical step by step procedure for the installation of a piezo. Refer specifically to the manufacturer's instructions provided with the sensor prior to installation.

- Carefully mark the slot to be cut, perpendicular to the flow of traffic and properly positioned in the lane.
- It is strongly recommended that a ¾ inch wide diamond blade be used for cutting the slot, or that blades be ganged together to provide a single ¾ inch wide cut. The slot shall be wet cut to minimize damage to the pavement.
- Cut a slot ¾ inch wide (±1/16 inch) by 1 inch minimum deep. The slot should be a minimum of 2 inches longer than the sensor (including the lead attachment). Drop the saw blade an extra ½ inch down on both ends of the sensor. The lead out of the passive cable should be centered on the slot.
- Cut the slot for the passive cable ¼ inch wide and at a depth so that the top of the backer rod is a minimum of 2 inches below the road surface.
- Clean ALL foreign and loose matter out of the slot and within 1 foot on all sides of the slot using a high pressure washer.
- Completely dry the slot and within 1 foot on all sides of the slot using oil-free forced air, torpedo heaters, electric heaters, or natural evaporation, depending on weather conditions. Be very careful not to burn the asphalt if heat is used.

- Measure 9-12 inches from the edge of the paved surface (shoulder break or face of curb) and drill a 1½ inch hole on a 45º angle to the conduit adjacent to the roadway.
- Place strips of 2-4 inch wide tape strips on the pavement along the lengths of both sides of the sensor slot, 1/8 inch away from the slot.
- Wear clean, protective latex (or equivalent) gloves at all times when handling sensors. Visually inspect sensor to ensure it is straight. Check lead attachment and passive cable for cuts, gaps, cracks and/or bare wire. Verify that the correct sensor type and length is being installed by checking the data sheet. Verify there is sufficient cable to reach the cabinet. Piezo lead-in cable shall not be spliced.
- Test the sensor for capacitance, dissipation factor and resistance, according to the directions enclosed with the sensor. Capacitance and dissipation should be within ±20% of the piezo data sheet. Resistance (using the 20M setting) should be infinite. Record the sensor serial number and the test results and label "pre-installation." This information should be stored in the counter cabinet and/or returned to Department Planning personnel.
- Lay the sensor next to the slot and ensure that it is straight and flat.
- Clean the sensor with steel wool or an emery pad and wipe with alcohol and a clean, lint-free cloth.
- Place the installation bracket clips every 6 inches along the length of the sensor.
- Bend the tip of the sensor downward at a 30° angle. Bend the lead attachment end down at a 15° angle and then 15° back up until level (forming a lazy Z).
- Place the sensor in the slot, with the brass element 3/8 inch below the road surface along the entire length. The tip of the sensor should be a minimum of 2 inches from the end of the slot and should not touch the bottom of the slot. The top of the plastic installation bracket clips should be 1/8 inch below the surface of the road. The lead attachment should not touch the bottom or sides of the slot. Ensure the sensor ends are pushed down per the manufacturer's instructions.
- Visually inspect the length of the sensor to ensure it is at uniform depth along its length and it is level (not twisted, canted or bent).
- On the passive cable end, block the end of the slot approximately 3-5 inches beyond the end of the lead attachment area creating an adequate "dam" so that the sensor grout does not flow out.
- Use one bucket of sensor grout per piezo installation. Overfill the slot with sensor grout and allow to cure for a minimum of 10 minutes before continuing with the installation. Ensure that sensor grout fills around and beneath the sensor completely and that there is not a trough on top.
- Remove the tape along the sides of the saw slot when the adhesive starts to cure.
- Carefully remove the dam from the end of the sensor.
- Route the lead-in cable through the saw slot
- Install conduit sealant to a minimum of 1" deep into the cored 1½ inch hole.
- Cover the lead-in cable with encapsulant, backer rod, and grout.
- If necessary, after the grout has hardened, grind with an angle grinder until the profile is a 1/16 inch mound. There shall be no concave portion to the mound.

- Clean up the site and dispose of all waste off the project.
- Ensure that the sensor grout has completely cured prior to subjecting the sensor to traffic. Curing time will vary with temperature and humidity.

Upon installation, test the sensor for capacitance, dissipation factor and resistance, according to the directions enclosed with the sensor. Capacitance and dissipation should be within +20% of the piezo data sheet. Resistance (using the 20M setting) should be infinite. Perform a functional test of the piezo with an oscilloscope to ensure that the sensor is generating a proper response to the passage of vehicles.

Record the sensor serial number and the test results and label "post-installation." This information should be stored in the counter cabinet and/or returned to Department Planning personnel.

3.17. Pole – Wooden

Furnish: Pole; anchoring equipment (as required); hardware (as required).

Excavate and install wood pole to a minimum depth of one-sixth the total pole height. Place backfill material in hole and compact until flush with existing grade. Install guy wire, guy guard, anchor, anchor rod, and strand vise, if necessary. Anchor shall be a minimum of one-third the pole height from the face of the pole. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer.

3.18. Removal of Existing Equipment

The Contractor shall remove existing materials (including but not limited to: poles, anchors, cabinets, junction boxes, conduit and wire) not to be reused. Contractor shall dispose of all removed materials off the project. All materials and labor necessary for the removal of existing equipment shall be considered incidental to other bid items.

3.19. Signs

Furnish: Signs; sign standards; hardware.

Construction of **s**igns shall conform to the *Standard Specifications for Road and Bridge Construction.*

3.20. Splicing

Furnish: Splice kit; solder.

These notes describe the splicing process (if permitted) and are not intended to grant permission to splice. Permission to splice shall be determined by the Division of Planning and the locations shall be shown on the layout sheet. If splicing is needed but not shown on the layout sheet, the Contractor shall receive prior written approval from the Division of Planning.

All splices shall conform to the provisions of the NEC.

Splices for loop and loop lead-in wire shall be twisted and soldered. Abrade the outer jacket of both wires to promote good adhesion and prevent capillary leak paths. Seal the splice with an electrical sealing resin. Spliced loop conductors shall test free of shorts and unauthorized grounds and shall have an insulating resistance of at least 100 megohms when tested with a 500 volt direct current potential in a reasonably dry atmosphere between conductors and ground.

For piezos, the same type coax cable, supplied by the manufacturer, shall be used to splice to the sensor's lead-in cable. Cables shall be soldered. Abrade the outer jacket of both cables to promote good adhesion and prevent capillary leak paths. Seal the splice with an electrical sealing resin. Spliced piezo cables shall be tested and have a minimum resistance of 20 megohms, a maximum dissipation factor of 0.03, a capacitance within the manufacturer's recommended range based upon the length of additional cable. A functional test of the piezo shall be performed to ensure that the sensor is generating a proper response to the passage of vehicles.

3.21. Telephone Service

Furnish: Conduit; conduit fittings; grounding bushings; LB condulets (as required); weatherhead; conduit straps; hardware; conduit sealant.

The Contractor shall contact the local telephone company for the installation of telephone service to the site. Telephone Company will install service to a telephone network interface device (NID) on the pole.

Install rigid ¾ inch conduit with weatherhead from the cabinet to 72 inches above the finished grade and install conduit straps every 30 inches on center. Install telephone cable with and RJ-11 modular plug from NID to cabinet. Leave eight feet of additional telephone cable coiled inside cabinet.

The limit of conduit incidental to "Install Telephone Service" for a pad mounted cabinet is 24 inches beyond face of service pole.

3.22. Trenching and Backfilling

Furnish: Warning tape; seed mix type I; cereal rye or German foxtail-millet; mulch; concrete (as required); asphalt (as required).

Excavate trench and provide required cover as shown on the standard detail sheets. After placing conduit, backfill material shall be placed and compacted in lifts of 9 inches or less. Install warning tape as shown on the detail sheet. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer. This item shall include concrete, asphalt or approved replacement material for sidewalks, curbs, roadways, etc. (if required).

3.23. Wiring

Furnish: Wire; wire labels; spade tongue wire terminals (as required).

Installation of all wiring shall conform to the NEC. Permanent identification numbers shall be affixed to all wires in all junction boxes and cabinets (see Layout(s) for loop and piezo numbers).

Additional lengths of each loop and piezo sensor wire shall be neatly coiled in all cabinets and junction boxes as follows:

Enclosure Type	Additional length of each wire
Galvanized Steel Cabinet	2’
Pad Mount Cabinet (332)	8’
Pole Mount Cabinet (336)	4’
Junction Box Type 10x8x4	2’
Junction Box Type A, B, or C	2’

3.24. Wood Post

Furnish: Wood post; concrete (as required); seed mix type I; cereal rye or German foxtail-millet; mulch.

Excavate hole to specified depth and place concrete, if required. Install post, backfill to existing grade, and tamp backfill. Provide temporary erosion control, seeding, protection and restoration of disturbed areas to the satisfaction of the Engineer.

4. BID ITEM NOTES AND METHOD OF MEASUREMENT FOR PAYMENT

Only the bid items listed will be measured for payment. All other items required to complete the vehicle detection installation shall be incidental to other items of work. Payment at the contract unit price shall be full compensation for all materials, labor, equipment and incidentals to furnish and install these items.

4.1. Bore and Jack Pipe – 2”

Bore and jack pipe – 2” shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction*.

4.2. Conduit

Conduit shall include furnishing and installing specified conduit in accordance with the specifications. This item shall include conduit fittings, bodies, boxes, weatherheads, expansion joints, couplings, caps, conduit sealant, electrical tape, clamps, bonding straps and any other necessary hardware. Conduit will be measured in linear feet.

4.3. Electrical Service

Electrical Service shall include furnishing and installing all necessary materials and payment of all fees toward the complete installation of an electrical service which has passed all required inspections. Incidental to this item shall be furnishing and installing:

- Meter-base per utility company’s specifications
- Service disconnect panel per utility company’s specifications
- Meter base and service disconnect entrance hubs, waterproof
- Service entrance conductors
- Rigid steel conduit
- Rigid steel conduit fittings
- Conduit straps
- Weatherhead
- Duplex GFCI receptacle, 120-volt, 20-amp
- Ground rod with clamp
- Grounding conductor

Also incidental to this item shall be any necessary clearing of right of way for the electrical service drop.

Electrical service will be measured in individual units each.

4.4. Flashing Arrow

Flashing Arrow shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.5. Galvanized Steel Cabinet

Galvanized Steel Cabinet shall include furnishing and installing galvanized steel cabinet on post as specified. Incidental to this item shall be furnishing and installing grounding hardware, and any necessary post/pole mounting hardware. Also incidental to this item shall be furnishing and installing the required number of terminal blocks and connection of all

sensors to the terminal blocks. Galvanized Steel Cabinet will be measured in individual units each.

4.6. Install Pad Mount Enclosure

Install Pad Mount Enclosure shall include installing a Department-furnished enclosure as specified on the detail sheets.

This item shall include obtaining the enclosure from KYTC and transporting it to the installation site and furnishing and installing the following:

- Concrete foundation (including any excavation necessary)
- Anchor bolts, lock washers, and nuts
- Conduit
- Conduit fittings (including grounding bushings)
- Weatherhead
- Terminal Strip(s)
- Ground rod with clamp
- Grounding conductor

Install Pad Mount Enclosure will be measured in individual units each.

4.7. **Install Controller Cabinet**

Install Controller Cabinet shall include installing a Department-furnished cabinet as specified on the detail sheets.

This item shall include obtaining the cabinet from KYTC and transporting it to the installation site and furnishing and installing the following:

- Conduit
- Conduit Fittings
- Terminal Strip(s)
- Ground rod with clamp
- Grounding conductor

Install Controller Cabinet will be measured in individual units each.

4.8. Junction Box Type 10" x 8" x 4"

Junction Box Type 10”x8”x4” shall include furnishing and installing specified junction box in accordance with the specifications. This item shall include connectors, splice sleeves, conduit fittings, mounting materials and any other items required to complete the installation. Incidental to this item shall be furnishing and installing specified post (wood, channel, metal, etc.) as required for the installation. Junction Box Type 10”x8”x4” will be measured in individual units each.

4.9. Junction Box Type A, B, or C

Junction Box Type A, B, or C shall include furnishing and installing specified junction box in accordance with the specifications. This item shall include excavation, furnishing and installing #57 aggregate, backfilling around the box, and restoration of disturbed areas to

the satisfaction of the Engineer. Incidental to this item shall be furnishing and installing a grounding conductor bonding all conduit grounding bushings in the box. Junction Box Type A, B, or C will be measured in individual units each.

4.10. Loop Saw Slot and Fill

Loop Saw Slot and Fill shall include sawing and cleaning saw slots and furnishing and installing conduit sealant, loop sealant, backer rod, grout, or other specified material. Loop Saw Slot and Fill will be measured in linear feet of sawed slot.

4.11. Maintain and Control Traffic

Maintain and Control Traffic shall be measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.12. Open Cut Roadway

Open Cut Roadway shall include excavating trench (sawing and chipping roadway) to dimensions as indicated on the detail sheets and furnishing and placing concrete, steel reinforcing bars, and asphalt. This item also includes restoring any disturbed sidewalk to its original condition. Open Cut Roadway will be measured in linear feet.

4.13. Piezoelectric Sensor

Piezoelectric sensor (piezo) shall include sawing and cleaning saw slots and furnishing and installing piezo in accordance with the specifications. This item shall include furnishing and installing lead-in wire, conduit sealant, encapsulation material, backer rod, grout, testing, and accessories. Piezo will be measured in individual units each.

4.14. Pole – 35’ Wooden

Pole – 35’ Wooden shall include excavation, furnishing and installing specified wood pole, backfilling and restoring disturbed areas to the satisfaction of the Engineer. Incidental to this item shall be furnishing and installing guy wire, anchor and anchor rod, strand vise, and guy guard, if specified.

Pole – 35’ Wooden will be measured in individual units each.

4.15. Signs

Signs shall be furnished, installed, and measured for payment per the *Standard Specifications for Road and Bridge Construction.*

4.16. Telephone Service

Telephone Services shall include furnishing and installing all necessary materials and payment of all fees toward the complete installation of a telephone service, which has passed all required inspections. Incidental to this item shall be furnishing and installing:

- Telephone cable with an RJ-11 modular plug
- Rigid steel conduit
- Rigid steel conduit fittings
- Conduit straps
- Weatherhead

Telephone service will be measured in individual units each.

4.17. Trenching and Backfilling

Trenching and Backfilling shall include excavation, warning tape, backfilling, temporary erosion control, seeding, protection and restoration of disturbed areas to original condition. This item shall include concrete, asphalt or approved replacement material for sidewalks, curbs, roadways, etc. (if required). Trenching and backfilling will be measured in linear feet.

4.18. Wire or Cable

Wire or cable shall include furnishing and installing specified wire or cable within saw slot, conduit, junction box, cabinet, or overhead as indicated on the detail sheets. Incidental to this item shall be the labeling of all wires and cables in each junction box, cabinet and splice box, and furnishing and installing other hardware required for installing cable. Wire or Cable will be measured in linear feet.

4.19. Wood Post

Wood Post shall include furnishing and installing wood post as specified. This item shall include excavation, furnishing and placing concrete (if required), backfilling around the post, and restoration of disturbed areas to the satisfaction of the engineer. Wood Post will be measured in individual units each.

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PROPOSAL BID ITEMS

Report Date 1/19/13

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0010	00001		DGA BASE	117,853.00	TON		$	
0020	00003		CRUSHED STONE BASE	4,829.00	TON		$	
0030	00008		CEMENT STABILIZED ROADBED	113,929.00	SQYD		$	
0040	00018		DRAINAGE BLANKET-TYPE II-ASPH	83,088.00	TON		$	
0050	00022		JPC PAVEMENT DRAINAGE BLANKET	1,369.00	TON		$	
0060	00100		ASPHALT SEAL AGGREGATE	813.00	TON		$	
0070	00103		ASPHALT SEAL COAT	98.00	TON		$	
0080	00190		LEVELING & WEDGING PG64-22	24,244.00	TON		$	
0090	00205		CL3 ASPH BASE 1.50D PG64-22	63,542.00	TON		$	
0100	00208		CL4 ASPH BASE 1.50D PG64-22	50,583.00	TON		$	
0110	00214		CL3 ASPH BASE 1.00D PG64-22 (PERFORATED PIPE INSTALL)	2,553.00	TON		$	
0120	00214		CL3 ASPH BASE 1.00D PG64-22	81,994.00	TON		$	
0130	00217		CL4 ASPH BASE 1.00D PG64-22	57,859.00	TON		$	
0140	00219		CL4 ASPH BASE 1.00D PG76-22	56,329.00	TON		$	
0150	00339		CL3 ASPH SURF 0.38D PG64-22	16,455.00	TON		$	
0160	00342		CL4 ASPH SURF 0.38A PG76-22	25,530.00	TON		$	
0170	00358		ASPHALT CURING SEAL	274.00	TON		$	
0180	00388		CL3 ASPH SURF 0.38B PG64-22	1,022.00	TON		$	
0190	02071		JPC PAVEMENT-11 IN	4,300.00	SQYD		$	
0200	02072		JPC PAVEMENT-11 IN SHLD	2,542.00	SQYD		$	
0210	02101		CEM CONC ENT PAVEMENT-8 IN	125.00	SQYD		$	
0220	02542		CEMENT	2,215.00	TON		$	
0230	02677		ASPHALT PAVE MILLING & TEXTURING	25,148.00	TON		$	
0240	02702		SAND FOR BLOTTER	579.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0250	00071		CRUSHED AGGREGATE SIZE NO 57	418.44	TON		$	
0260	00078		CRUSHED AGGREGATE SIZE NO 2	29,258.00	TON		$	
0270	01015		INSPECT & CERTIFY EDGE DRAIN SYSTEM	1.00	LS		$	
0280	01810		STANDARD CURB AND GUTTER	2,800.00	LF		$	
0290	01845		ISLAND INTEGRAL CURB	176.00	LF		$	
0300	01877		SPECIAL HEADER CURB	13,215.00	LF		$	
0310	01955		CONC MEDIAN BARRIER TYPE 12C1	300.00	LF		$	
0320	01967		CONC MEDIAN BARRIER TYPE 12C	36,059.00	LF		$	
0330	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	433.00	EACH		$	
0340	01983		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	76.00	EACH		$	
0350	01984		DELINEATOR FOR BARRIER - WHITE	3,675.00	EACH		$	
0360	01985		DELINEATOR FOR BARRIER - YELLOW	8,119.00	EACH		$	
0370	01992		INSTALL TEMP CONC MED BARR	55,940.00	LF		$	
0380	02003		RELOCATE TEMP CONC BARRIER	176,794.00	LF		$	
0390	02014		BARRICADE-TYPE III	6.00	EACH		$	
0400	02081		JPC PAVEMENT-8 IN SHLD	312.00	SQYD		$	

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PROPOSAL BID ITEMS

Report Date 1/19/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0410	02159		TEMP DITCH	51,863.00	LF		$	
0420	02165		REMOVE PAVED DITCH	2,913.00	SQYD		$	
0430	02200		ROADWAY EXCAVATION	315,169.00	CUYD		$	
0440	02223		GRANULAR EMBANKMENT	380.00	CUYD		$	
0450	02237		DITCHING	16,825.00	LF		$	
0460	02259		FENCE-TEMP	500.00	LF		$	
0470	02262		FENCE-WOVEN WIRE TYPE 1	57,986.00	LF		$	
0480	02265		REMOVE FENCE	55,822.00	LF		$	
0490	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	10.00	EACH		$	
0500	02367		GUARDRAIL END TREATMENT TYPE 1	27.00	EACH		$	
0510	02369		GUARDRAIL END TREATMENT TYPE 2A	18.00	EACH		$	
0520	02371		GUARDRAIL END TREATMENT TYPE 7	2.00	EACH		$	
0530	02381		REMOVE GUARDRAIL	24,537.00	LF		$	
0540	02387		GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	5.00	EACH		$	
0550	02429		RIGHT-OF-WAY MONUMENT TYPE 1	39.00	EACH		$	
0560	02432		WITNESS POST	39.00	EACH		$	
0570	02469		CLEAN SINKHOLE	19.00	EACH		$	
0580	02483		CHANNEL LINING CLASS II	3,201.16	TON		$	
0590	02484		CHANNEL LINING CLASS III	2,913.00	TON		$	
0600	02545		CLEARING AND GRUBBING (APPROX. 135 ACRES, INCLUDES 35 ACRES FOR MEDIAN)	1.00	LS		$	
0610	02555		CONCRETE-CLASS B	40.00	CUYD		$	
0620	02562		TEMPORARY SIGNS	2,771.00	SQFT		$	
0630	02570		PROJECT CPM SCHEDULE SEE DESIGN FOR SPECIAL NOTE	1.00	LS		$	
0640	02585		EDGE KEY	142.00	LF		$	
0650	02596		FABRIC-GEOTEXTILE TYPE I	3,377.00	SQYD		$	
0660	02598		FABRIC-GEOTEXTILE TYPE III	3,461.00	SQYD		$	
0670	02599		FABRIC-GEOTEXTILE TYPE IV	99,299.00	SQYD		$	
0680	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	9,854.00	SQYD	2.00	$	$19,708.00
0690	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0700	02651		DIVERSIONS (BY-PASS DETOURS) (US 31W)	1.00	LS		$	
0710	02651		DIVERSIONS (BY-PASS DETOURS) (KY 88 & OLD CUT ROAD)	1.00	LS		$	
0720	02671		PORTABLE CHANGEABLE MESSAGE SIGN	6.00	EACH		$	
0730	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0740	02696		SHOULDER RUMBLE STRIPS-SAWED	134,600.00	LF		$	
0750	02701		TEMP SILT FENCE	51,863.00	LF		$	
0760	02703		SILT TRAP TYPE A	500.00	EACH		$	
0770	02704		SILT TRAP TYPE B	500.00	EACH		$	
0780	02705		SILT TRAP TYPE C	500.00	EACH		$	
0790	02706		CLEAN SILT TRAP TYPE A	1,000.00	EACH		$	
0800	02707		CLEAN SILT TRAP TYPE B	1,000.00	EACH		$	
0810	02708		CLEAN SILT TRAP TYPE C	1,000.00	EACH		$	
0820	02709		CLEAN TEMP SILT FENCE	51,863.00	LF		$	
0830	02720		SIDEWALK-4 IN CONCRETE	130.00	SQYD		$	
0840	02726		STAKING	1.00	LS		$	
0850	02775		ARROW PANEL	8.00	EACH		$	
0860	02898		RELOCATE CRASH CUSHION	9.00	EACH		$	

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PROPOSAL BID ITEMS

Report Date 1/19/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
0870	02998		MASONRY COATING	37,840.00	SQYD		$	
0880	03171		CONCRETE BARRIER WALL TYPE 9T	6,532.00	LF		$	
0890	03225		TUBULAR MARKERS	156.00	EACH		$	
0900	03270		TREE AND BRUSH REMOVAL	28,744.00	LF		$	
0910	04933		TEMP SIGNAL 2 PHASE	1.00	EACH		$	
0920	05950		EROSION CONTROL BLANKET	66,186.00	SQYD		$	
0930	05952		TEMP MULCH	373,444.00	SQYD		$	
0940	05966		TOPDRESSING FERTILIZER	27.00	TON		$	
0950	05985		SEEDING AND PROTECTION	519,961.00	SQYD		$	
0960	06417		FLEXIBLE DELINEATOR POST-W	377.00	EACH		$	
0970	06418		FLEXIBLE DELINEATOR POST-Y	42.00	EACH		$	
0980	06510		PAVE STRIPING-TEMP PAINT-4 IN	27,740.00	LF		$	
0990	06511		PAVE STRIPING-TEMP PAINT-6 IN	584,176.00	LF		$	
1000	06514		PAVE STRIPING-PERM PAINT-4 IN	16,804.00	LF		$	
1010	06516		PAVE STRIPING-PERM PAINT-8 IN	200.00	LF		$	
1020	06550		PAVE STRIPING-TEMP REM TAPE-W	1,000.00	LF		$	
1030	06551		PAVE STRIPING-TEMP REM TAPE-Y	1,000.00	LF		$	
1040	06568		PAVE MARKING-THERMO STOP BAR-24IN	80.00	LF		$	
1050	06570		PAVE MARKING-PAINT CROSS-HATCH	23,000.00	SQFT		$	
1060	06574		PAVE MARKING-THERMO CURV ARROW	13.00	EACH		$	
1070	06578		PAVE MARKING-THERMO MERGE ARROW	4.00	EACH		$	
1080	06585		PAVEMENT MARKER TY IVA-MW TEMP	5,697.00	EACH		$	
1090	06586		PAVEMENT MARKER TY IVA-MY TEMP	7,686.00	EACH		$	
1100	06588		PAVEMENT MARKER TY IVA-BY TEMP	3,834.00	EACH		$	
1110	06592		PAVEMENT MARKER TYPE V-B W/R	1,904.00	EACH		$	
1120	06593		PAVEMENT MARKER TYPE V-B Y/R	1,046.00	EACH		$	
1130	06600		REMOVE PAVEMENT MARKER TYPE V	885.00	EACH		$	
1140	08903		CRASH CUSHION TY VI CLASS BT TL3	10.00	EACH		$	
1150	10020NS		FUEL ADJUSTMENT	1.00	DOLL		$	
1160	10030NS		ASPHALT ADJUSTMENT	1.00	DOLL		$	
1170	20415ES508		CONC MED BAR TY 12C2(50)	260.00	LF		$	
1180	20432ES112		REMOVE CRASH CUSHION	4.00	EACH		$	
1190	20757ED		PAVEMENT REPAIR	5,000.00	SQYD		$	
1200	20758ED		REMOVE AND RESET PERF PIPE HEADWALL	25.00	EACH		$	
1210	21370ED		LONGITUDINAL SAW CUT- 6 IN	74,907.00	LF		$	
1220	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	23,612.50	LF		$	
1230	22664EN		WATER BLASTING EXISTING STRIPE	14,270.00	LF		$	
1240	23131ER701		PIPELINE VIDEO INSPECTION	1,616.00	LF		$	
1250	23274EN11F		TURF REINFORCEMENT MAT 1	6,034.00	SQYD		$	
1260	23979EC		CRASH CUSHION TY VI CLASS C TL3	1.00	EACH		$	
1270	24189ER		DURABLE WATERBORNE MARKING-6 IN W	114,167.00	LF		$	
1280	24190ER		DURABLE WATERBORNE MARKING-6 IN Y	81,742.00	LF		$	
1290	24191ER		DURABLE WATERBORNE MARKING-12 IN W	5,248.00	LF		$	
1300	24255EC		REMOVE CABLE GUARDRAIL BARRIER SYSTEM	18,716.00	LF		$	
1310	24277EC		FLUSH SEDIMENT	1.00	LS		$	
1320	24470ED		PERMEABLE PAVEMENT DRAIN	144.00	SQYD		$	

Section: 0003 - DRAINAGE

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PROPOSAL BID ITEMS

Report Date 1/19/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1330	00440		ENTRANCE PIPE-15 IN	42.00	LF		$	
1340	00461		CULVERT PIPE-15 IN	111.00	LF		$	
1350	00462		CULVERT PIPE-18 IN	767.00	LF		$	
1360	00464		CULVERT PIPE-24 IN	78.00	LF		$	
1370	00466		CULVERT PIPE-30 IN	16.00	LF		$	
1380	00521		STORM SEWER PIPE-15 IN	987.00	LF		$	
1390	00522		STORM SEWER PIPE-18 IN	1,214.00	LF		$	
1400	00526		STORM SEWER PIPE-30 IN	19.00	LF		$	
1410	01000		PERFORATED PIPE-4 IN	61,251.00	LF		$	
1420	01001		PERFORATED PIPE-6 IN	32,212.00	LF		$	
1430	01011		NON-PERFORATED PIPE-6 IN	4,404.00	LF		$	
1440	01020		PERF PIPE HEADWALL TY 1-4 IN	42.00	EACH		$	
1450	01024		PERF PIPE HEADWALL TY 2-4 IN	2.00	EACH		$	
1460	01028		PERF PIPE HEADWALL TY 3-4 IN	78.00	EACH		$	
1470	01032		PERF PIPE HEADWALL TY 4-4 IN	58.00	EACH		$	
1480	01202		PIPE CULVERT HEADWALL-15 IN	3.00	EACH		$	
1490	01204		PIPE CULVERT HEADWALL-18 IN	8.00	EACH		$	
1500	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		$	
1510	01432		SLOPED BOX OUTLET TYPE 1-15 IN	2.00	EACH		$	
1520	01433		SLOPED BOX OUTLET TYPE 1-18 IN	16.00	EACH		$	
1530	01440		SLOPED BOX INLET-OUTLET TYPE 1	1.00	EACH		$	
1540	01450		S & F BOX INLET-OUTLET-18 IN	2.00	EACH		$	
1550	01480		CURB BOX INLET TYPE B	11.00	EACH		$	
1560	01490		DROP BOX INLET TYPE 1	17.00	EACH		$	
1570	01493		DROP BOX INLET TYPE 2	1.00	EACH		$	
1580	01496		DROP BOX INLET TYPE 3	6.00	EACH		$	
1590	01544		DROP BOX INLET TYPE 11	2.00	EACH		$	
1600	01559		DROP BOX INLET TYPE 13G	2.00	EACH		$	
1610	01584		CAP DROP BOX INLET	8.00	EACH		$	
1620	01642		JUNCTION BOX-18 IN	2.00	EACH		$	
1630	01690		FLUME INLET TYPE 1	6.00	EACH		$	
1640	01691		FLUME INLET TYPE 2	21.00	EACH		$	
1650	01740		CORED HOLE DRAINAGE BOX CON-4 IN	3.00	EACH		$	
1660	01741		CORED HOLE DRAINAGE BOX CON-6 IN	49.00	EACH		$	
1670	02157		PAVED DITCH TYPE 1	731.00	SQYD		$	
1680	02690		SAFELOADING	20.00	CUYD		$	
1690	21601NN		CONC MED BAR BOX INLET TY 12A2-50	5.00	EACH		$	
1700	21602NN		CONC MED BARR BOX INLET TY 12B2-50	45.00	EACH		$	
1710	23126EN		BORE AND JACK PIPE-18 IN	116.00	LF		$	

Section: 0004 - BRIDGE I-65 OVER GREEN RIVER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1720	02231		STRUCTURE GRANULAR BACKFILL	1,886.00	CUYD		$	
1730	02403		REMOVE CONCRETE MASONRY	385.00	CUYD		$	
1740	02599		FABRIC-GEOTEXTILE TYPE IV	1,280.00	SQYD		$	
1750	02731		REMOVE STRUCTURE (GREEN RIVER BRIDGE)	1.00	LS		$	
1760	02998		MASONRY COATING	2,105.00	SQYD		$	

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PROPOSAL BID ITEMS

Report Date 1/19/13

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
1770	03299		ARMORED EDGE FOR CONCRETE	254.00	LF		$	
1780	08001		STRUCTURE EXCAVATION-COMMON	1,128.00	CUYD		$	
1790	08002		STRUCTURE EXCAV-SOLID ROCK	57.00	CUYD		$	
1800	08019		CYCLOPEAN STONE RIP RAP	3,569.00	TON		$	
1810	08020		CRUSHED AGGREGATE SLOPE PROT	661.00	TON		$	
1820	08033		TEST PILES	266.00	LF		$	
1830	08046		PILES-STEEL HP12X53	3,085.00	LF		$	
1840	08094		PILE POINTS-12 IN	65.00	EACH		$	
1850	08100		CONCRETE-CLASS A	2,401.00	CUYD		$	
1860	08104		CONCRETE-CLASS AA	3,423.00	CUYD		$	
1870	08130		MECHANICAL REINF COUPLER #5	3,660.00	EACH		$	
1880	08132		MECHANICAL REINF COUPLER #7	3,082.00	EACH		$	
1890	08136		MECHANICAL REINF COUPLER #11	180.00	EACH		$	
1900	08150		STEEL REINFORCEMENT	327,038.00	LB		$	
1910	08151		STEEL REINFORCEMENT-EPOXY COATED	1,097,002.00	LB		$	
1920	08160		STRUCTURAL STEEL (APPROXIMATE WEIGHT: 3,878,670 LBS.)	1.00	LS		$	
1930	08170		SHEAR CONNECTORS (APPROXIMATE WEIGHT: 21,895 LBS.)	1.00	LS		$	
1940	08473		EXPANSION DAM-NEOPRENE (5 INCH)	254.00	LF		$	
1950	08500		APPROACH SLAB	704.00	SQYD		$	
1960	20745ED		ROCK SOUNDINGS	108.00	LF		$	
1970	20746ED		ROCK CORINGS	203.00	LF		$	
1980	21532ED		RAIL SYSTEM TYPE III	1,494.00	LF		$	
1990	22839NN		CSL TESTING10 TUBES	4.00	EACH		$	
2000	23428EC		CONCRETE PATCHING REPAIR	500.00	CUFT		$	
2010	24621EC		DRILLED SHAFT - 108 IN (COMMON)	100.00	LF		$	
2020	24622EC		DRILLED SHAFT - 108 IN (SOLID ROCK)	50.00	LF		$	
2030	24623EC		DRILLED SHAFT - 102 IN (SOLID ROCK)	56.00	LF		$	

Section: 0005 - BRIDGE I-65 OVER CSX RAILROAD

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2040	02231		STRUCTURE GRANULAR BACKFILL	1,354.00	CUYD		$	
2050	02731		REMOVE STRUCTURE (CSX RAILROAD BRIDGE)	1.00	LS		$	
2060	02998		MASONRY COATING	840.00	SQYD		$	
2070	03299		ARMORED EDGE FOR CONCRETE	373.40	LF		$	
2080	08001		STRUCTURE EXCAVATION-COMMON	346.00	CUYD		$	
2090	08002		STRUCTURE EXCAV-SOLID ROCK	2,599.00	CUYD		$	
2100	08020		CRUSHED AGGREGATE SLOPE PROT	70.00	TON		$	
2110	08033		TEST PILES	27.00	LF		$	
2120	08039		PRE-DRILLING FOR PILES	220.00	LF		$	
2130	08046		PILES-STEEL HP12X53	357.00	LF		$	
2140	08094		PILE POINTS-12 IN	22.00	EACH		$	
2150	08100		CONCRETE-CLASS A	792.00	CUYD		$	
2160	08104		CONCRETE-CLASS AA	815.80	CUYD		$	
2170	08150		STEEL REINFORCEMENT	56,867.00	LB		$	
2180	08151		STEEL REINFORCEMENT-EPOXY COATED	147,617.00	LB		$	
2190	21532ED		RAIL SYSTEM TYPE III	261.30	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2200	24539EC		PPC I-BEAM HN60-49	1,771.00	LF		$	

Section: 0006 - BRIDGE I-65 OVER US 31W

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2210	02231		STRUCTURE GRANULAR BACKFILL	571.00	CUYD		$	
2220	02731		REMOVE STRUCTURE (US 31W BRIDGE)	1.00	LS		$	
2230	02998		MASONRY COATING	1,821.00	SQYD		$	
2240	03299		ARMORED EDGE FOR CONCRETE	308.00	LF		$	
2250	08001		STRUCTURE EXCAVATION-COMMON	3,077.00	CUYD		$	
2260	08020		CRUSHED AGGREGATE SLOPE PROT	726.00	TON		$	
2270	08033		TEST PILES	1,720.00	LF		$	
2280	08046		PILES-STEEL HP12X53	16,384.00	LF		$	
2290	08094		PILE POINTS-12 IN	268.00	EACH		$	
2300	08100		CONCRETE-CLASS A	870.80	CUYD		$	
2310	08104		CONCRETE-CLASS AA	945.00	CUYD		$	
2320	08130		MECHANICAL REINF COUPLER #5	72.00	EACH		$	
2330	08133		MECHANICAL REINF COUPLER #8	32.00	EACH		$	
2340	08135		MECHANICAL REINF COUPLER #10	72.00	EACH		$	
2350	08150		STEEL REINFORCEMENT	132,902.00	LB		$	
2360	08151		STEEL REINFORCEMENT-EPOXY COATED	268,487.00	LB		$	
2370	08671		PRECAST PC BOX BEAM SB33	3,537.00	LF		$	
2380	21532ED		RAIL SYSTEM TYPE III	361.00	LF		$	

Section: 0007 - BRIDGE KY 88 OVER I-65

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2390	02231		STRUCTURE GRANULAR BACKFILL	302.00	CUYD		$	
2400	02731		REMOVE STRUCTURE (KY 88 BRIDGE)	1.00	LS		$	
2410	02998		MASONRY COATING	1,480.00	SQYD		$	
2420	03299		ARMORED EDGE FOR CONCRETE	87.50	LF		$	
2430	08001		STRUCTURE EXCAVATION-COMMON	283.00	CUYD		$	
2440	08002		STRUCTURE EXCAV-SOLID ROCK	20.00	CUYD		$	
2450	08020		CRUSHED AGGREGATE SLOPE PROT	264.00	TON		$	
2460	08033		TEST PILES	38.00	LF		$	
2461	08039		PRE-DRILLING FOR PILES ADDED: 11-19-13	121.00	LF		$	
2470	08046		PILES-STEEL HP12X53	308.00	LF		$	
2480	08094		PILE POINTS-12 IN	24.00	EACH		$	
2490	08100		CONCRETE-CLASS A	182.30	CUYD		$	
2500	08104		CONCRETE-CLASS AA	427.10	CUYD		$	
2510	08150		STEEL REINFORCEMENT	24,451.00	LB		$	
2520	08151		STEEL REINFORCEMENT-EPOXY COATED	126,578.00	LB		$	
2530	21532ED		RAIL SYSTEM TYPE III	553.30	LF		$	
2540	24539EC		PPC I-BEAM HN60-49 REVISED 11-19-13	1,365.80	LF		$	

Section: 0008 - SIGNING

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2550	04903		REFERENCE MARKER	62.00	EACH		$	
2560	04904		BARRIER MOUNTING BRACKET	31.00	EACH		$	
2570	06400		GMSS GALV STEEL TYPE A	9,104.00	LB		$	
2580	06405		SBM ALUMINUM PANEL SIGNS	1,825.00	SQFT		$	
2590	06406		SBM ALUM SHEET SIGNS .080 IN	601.00	SQFT		$	
2600	06407		SBM ALUM SHEET SIGNS .125 IN	578.00	SQFT		$	
2610	06410		STEEL POST TYPE 1	2,400.00	LF		$	
2620	06412		STEEL POST MILE MARKERS	13.00	EACH		$	
2630	06441		GMSS GALV STEEL TYPE C	12,391.00	LB		$	
2640	06451		REMOVE SIGN SUPPORT BEAM	60.00	EACH		$	
2650	06490		CLASS A CONCRETE FOR SIGNS	95.00	CUYD		$	
2660	06491		STEEL REINFORCEMENT FOR SIGNS	3,295.00	LB		$	
2670	20418ED		REMOVE & RELOCATE SIGNS	22.00	EACH		$	
2680	20419ND		ROADWAY CROSS SECTION	20.00	EACH		$	
2690	20912ND		BARRIER WALL POST	35.00	EACH		$	
2700	21373ND		REMOVE SIGN	8.00	EACH		$	
2710	21596ND		GMSS TYPE D	106.00	EACH		$	
2720	24631EC		BARCODE SIGN INVENTORY	265.00	EACH		$	

Section: 0009 - HIGH MAST LIGHTING AT 1-65 & US 31W

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2730	04714		POLE 120 FT MTG HT HIGH MAST	8.00	EACH		$	
2740	04760		POLE W/SECONDARY CONTROL EQUIP	2.00	EACH		$	
2750	04773		HPS LUMINAIRE HIGH MAST	48.00	EACH		$	
2760	04797		CONDUIT-3 IN	1,282.00	LF		$	
2770	04800		MARKER	17.00	EACH		$	
2780	04820		TRENCHING AND BACKFILLING	6,155.00	LF		$	
2790	04860		CABLE-NO. 8/3C DUCTED	775.00	LF		$	
2800	04861		CABLE-NO. 6/3C DUCTED	1,925.00	LF		$	
2810	04862		CABLE-NO. 4/3C DUCTED	5,025.00	LF		$	
2820	04863		CABLE-NO. 2/3C DUCTED	2,600.00	LF		$	
2830	04940		REMOVE LIGHTING	1.00	LS		$	
2840	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	10.00	EACH		$	
2850	20392NS835		ELECTRICAL JUNCTION BOX TYPE C	4.00	EACH		$	
2860	20410ED		MAINTAIN LIGHTING	1.00	LS		$	
2870	21543EN		BORE AND JACK CONDUIT	1,282.00	LF		$	
2880	23161EN		POLE BASE-HIGH MAST	85.00	CUYD		$	
2890	24601EC		INSTALL (MONITORING SYSTEM)	2.00	EACH		$	

Section: 0010 - TRAFFIC LOOPS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2900	04793		CONDUIT-1 1/4 IN	80.00	LF		$	
2910	04795		CONDUIT-2 IN	20.00	LF		$	
2920	04820		TRENCHING AND BACKFILLING	90.00	LF		$	
2930	04829		PIEZOELECTRIC SENSOR	6.00	EACH		$	
2940	04830		LOOP WIRE	2,900.00	LF		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2950	04895		LOOP SAW SLOT AND FILL	560.00	LF		$	
2960	20359NN		GALVANIZED STEEL CABINET	2.00	EACH		$	
2970	20360ES818		WOOD POST	4.00	EACH		$	
2980	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	2.00	EACH		$	

Section: 0011 - WATER MAIN AND FORCE MAIN RELOCATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
2990	03383		PVC PIPE-4 IN4 INCH WATER MAIN	51.00	LF		$	
3000	03385		PVC PIPE-6 IN6 INCH WATER MAIN	20.00	LF		$	
3010	03389		PVC PIPE-10 IN10 INCH WATER MAIN	1,789.00	LF		$	
3020	03464		TIE-IN 4 IN	1.00	EACH		$	
3030	03466		TIE-IN 6 IN	1.00	EACH		$	
3040	03470		TIE-IN 10 IN	1.00	EACH		$	
3050	03530		GATE VALVE-10 IN	2.00	EACH		$	
3060	03559		BEND 90 DEG 4 IN	1.00	EACH		$	
3070	03560		BEND 90 DEG 6 IN	1.00	EACH		$	
3080	03561		BEND 90 DEG 10 IN	1.00	EACH		$	
3090	21109ND		RELOCATE SERVICE (1 INCH)	2.00	EACH		$	
3100	21109ND		RELOCATE SERVICE (2 INCH)	2.00	EACH		$	
3110	21353ND		TIE-IN TO FORCE MAIN (2.5 INCH)	2.00	EACH		$	
3120	22605NN		CAP AND BLOCK-6 IN (6 INCH CAP AND PLUG)	1.00	EACH		$	
3130	23499EC		CONN TO TAP SLEEVE & VALVE-10X10X6 (10X10X6 TEE)	1.00	EACH		$	
3140	23843EC		PVC PIPE-2 1/2 IN (2.5 INCH FORCE MAIN)	930.00	LF		$	
3150	24186EC		BORE AND JACK PIPE-36 IN (36 INCH CASING PIPE)	840.00	LF		$	
3160	24236ND		CUT AND PLUG 10 IN10 INCH CAP AND PLUG	1.00	EACH		$	
3170	24486ED		TEE10X10X4	1.00	EACH		$	
3180	24633EC		CAP & PLUG (4 INCH)	1.00	EACH		$	
3190	24633EC		CAP & PLUG (2.5 INCH)	2.00	EACH		$	
3200	24634EC		BEND(2.5 INCH BEND 90 DEGREE)	2.00	EACH		$	
3210	24634EC		BEND (2.5 INCH BEND 45 DEGREE SEG)	2.00	EACH		$	

Section: 0012 - TRAINEE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
3220	02742		TRAINEE PAYMENT REIMBURSEMENT 1 IRON WORKER	1,400.00	HOUR		$	
3230	02742		TRAINEE PAYMENT REIMBURSEMENT 1 CEMENT MASON	1,200.00	HOUR		$	

Section: 0013 - MOBILIZATION &/OR DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
3240	02568		MOBILIZATION	1.00	LS		$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	FP	AMOUNT
3250	**02569**		**DEMOBILIZATION**	**1.00**	**LS**		**$**	