

ITEM 614, MAINTAINING TRAFFIC

ON SR 122, A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 30 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET P.6. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF \$ 7,500 PER DAY FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

ON SPRINGBORO ROAD, ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 30 CONSECUTIVE CALENDAR DAYS CONCURRENTLY WITH S.R. 122, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET P.6. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF \$ 900 PER DAY FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE DISTRICT RATHER THAN THE GENERAL SWITCHBOARD NUMBER.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:
ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND, AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

"WITHOUT POSITIVE PROTECTION" MEANS USE OF DRUMS, CONES, SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS "WITHOUT POSITIVE PROTECTION". FOR

WORK ZONES USING A COMBINATION OF BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:

- THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER; OR
 - THE ACTIVE WORK AREA Laterally CLOSEST TO THE OPEN TRAVELED LANE; OR
 - OTHER LOCATION AS APPROVED BY THE ENGINEER.
- THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 40 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION OF TRAFFIC RESTRICTIONS TIME TABLE

ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	>= 2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	4 CALENDAR DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION


ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

LOCATION	1 LANE CLOSED		TIME UNIT	DISINCENTIVE PER LANE PER TIME UNIT
	WEEKDAY	WEEKEND		
WAR-122-6.33	AT ALL TIMES	AT ALL TIMES	1 MINUTE	\$55
SPRINGBORO RD	AT ALL TIMES	AT ALL TIMES	1 MINUTE	\$5

SHEET NUM.											PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
3	4	15	19	20							01/NHS/CV	EXT	TOTAL				
		LS									LS	201	11000	LS		CLEARING AND GRUBBING	
		2									LS	202	11000	LS		STRUCTURE REMOVED	
		98	42								2	202	20010	2	EACH	HEADWALL REMOVED	
			40								140	202	23000	140	SY	PAVEMENT REMOVED	
											40	202	35100	40	FT	PIPE REMOVED, 24" AND UNDER	
		515									515	202	38000	515	FT	GUARDRAIL REMOVED	
		1									1	202	42001	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN	
		2									2	202	42010	2	EACH	ANCHOR ASSEMBLY REMOVED, TYPE E	
		1									1	202	42040	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE T	
		181									181	202	75000	181	FT	FENCE REMOVED	
		164									164	203	10000	164	CY	EXCAVATION	
		506									506	203	20000	506	CY	EMBANKMENT	
74											74	203	10001	74	CY	EXCAVATION, AS PER PLAN	
74											74	203	20001	74	CY	EMBANKMENT, AS PER PLAN	
		98	42								140	204	10000	140	SY	SUBGRADE COMPACTION	
		125									125	606	15050	125	FT	GUARDRAIL, TYPE MGS	
		2									2	606	26150	2	EACH	ANCHOR ASSEMBLY, MGS TYPE E, NCHRP 350 OR MASH 2016	
				3							3	623	38500	3	EACH	MONUMENT ASSEMBLY	
											LS	878	25000	LS		INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS	
				1							1	601	32204	1	CY	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	
273											273	659	00300	273	CY	TOPSOIL	
1,498											1,498	659	10000	1,498	SY	SEEDING AND MULCHING	
0.33											0.33	659	20000	0.33	TON	COMMERCIAL FERTILIZER	
0.51											0.51	659	31000	0.51	ACRE	LIME	
13.6											13.6	659	35000	13.6	MGAL	WATER	
											5,000	832	30000	5,000	EACH	EROSION CONTROL	
			40								40	611	05700	40	FT	15" CONDUIT, TYPE A, 706.02	
		31	10								41	302	46000	41	CY	ASPHALT CONCRETE BASE, PG64-22	
		16	7								23	304	20000	23	CY	AGGREGATE BASE	
		2	1								3	407	20000	3	GAL	NON-TRACKING TACK COAT	
		10	3								13	441	50000	13	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, DEPTH 3.0"	
		3									3	621	00100	3	EACH	RPM	
		3									3	621	54000	3	EACH	RAISED PAVEMENT MARKER REMOVED	
		0.02	0.02								0.04	642	00104	0.04	MILE	EDGE LINE, 6", TYPE 1	
		0.01	0.01								0.02	642	00300	0.02	MILE	CENTER LINE, TYPE 1	
			17								17	642	00500	17	FT	STOP LINE, TYPE 1	
		6									6	626	00110	6	EACH	BARRIER REFLECTOR, TYPE 2, BIDIRECTIONAL	
		LS									LS	503	11100	LS		COFFERDAMS AND EXCAVATION BRACING	
		LS									LS	503	21320	LS		UNCLASSIFIED EXCAVATION, INCLUDING ROCK	
		4,770									4,770	509	10000	4,770	LB	EPOXY COATED REINFORCING STEEL	
		12.36									12.36	511	46010	12.36	CY	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING	
		29.64									29.64	511	46510	29.64	CY	CLASS QC1 CONCRETE, FOOTING	
		1.7									1.7	511	46610	1.7	CY	CLASS QC1 CONCRETE, HEADWALL	
		35.2									35.2	512	10000	35.2	SY	SEALING OF CONCRETE SURFACES	
		46.3									46.3	512	33000	46.3	SY	TYPE 2 WATERPROOFING	
		31									31	516	13600	31	SF	1" PREFORMED EXPANSION JOINT FILLER	
		LS									LS	518	21220	LS		POROUS BACKFILL	
		11									11	601	32104	11	CY	ROCK CHANNEL PROTECTION, TYPE B WITH GEOTEXTILE FABRIC	
		52									52	601	11000	52	SY	RIPRAP, TYPE D	
		57									57	611	94800	57	FT	8' X 4' CONDUIT, TYPE A, 706.05, 3' DESIGN EARTH COVER	

GENERAL SUMMARY

DESIGN AGENCY



DESIGNER
GAT

REVIEWER
MLB 10/04/21

PROJECT ID
113587

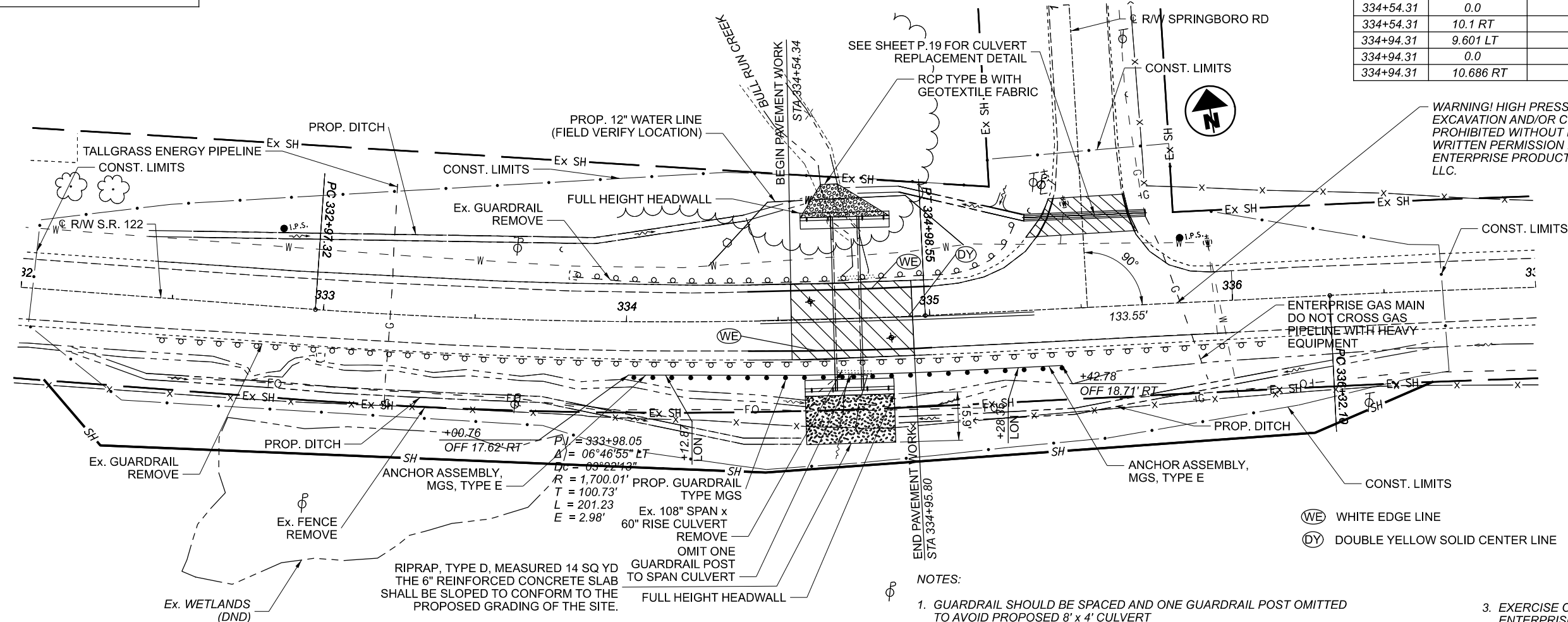
SHEET TOTAL
P.7 23

EXISTING STRUCTURE	
TYPE:	PRECAST CONCRETE BOX
SIZE:	108" SPAN x 60" RISE, 32' LONG
SKEW:	5°
ALIGNMENT:	TANGENT
CFN:	1800221
OLD CFN:	831220634
DATE BUILT:	UNKNOWN
CONDITION:	SERIOUS
LATITUDE:	N 39° 29' 14.55"
LONGITUDE:	W 84° 13' 14.10"

PROPOSED STRUCTURE	
TYPE:	PRECAST CONCRETE BOX
SIZE:	8' SPAN x 4' RISE, 57' LONG
SKEW:	0°
ALIGNMENT:	TANGENT
CFN:	1985650
DESIGN SERVICE LIFE:	75 YEARS
STREAM pH:	7.94
ABRASIVE?:	LEVEL 2

 FULL DEPTH PAVEMENT
STA. 334+54.31 - STA. 334+94.31

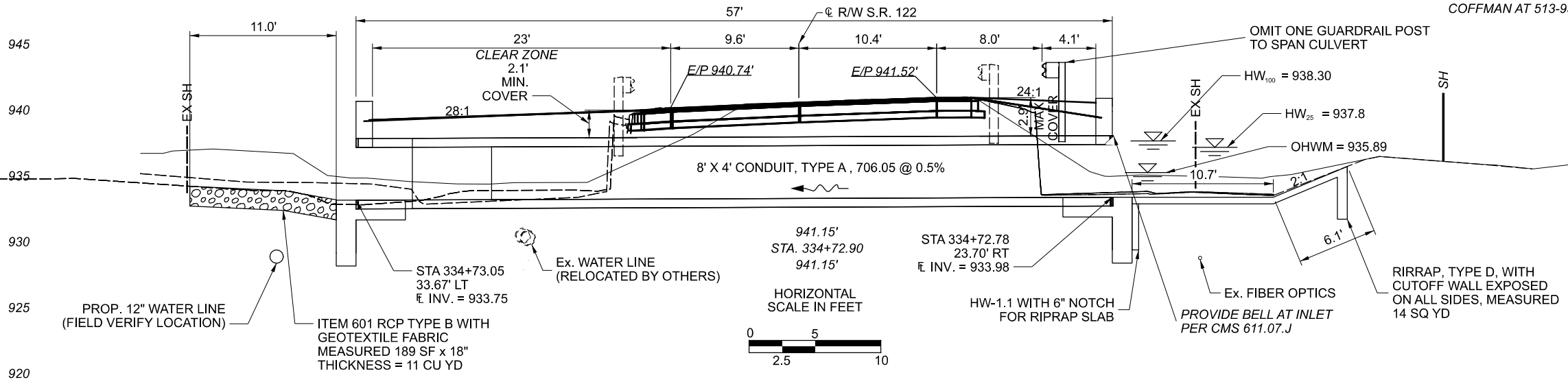
PROPOSED PAVEMENT ELEVATIONS		
STATION	OFFSET (FT)	ELEVATION (FT)
334+54.31	9.754 LT	939.560
334+54.31	0.0	941.095
334+54.31	10.1 RT	941.418
334+94.31	9.601 LT	940.829
334+94.31	0.0	941.323
334+94.31	10.686 RT	941.591



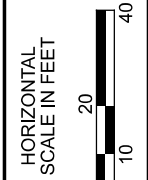
(WE) WHITE EDGE LINE
(DY) DOUBLE YELLOW SOLID CENTER LINE

- NOTES:
- GUARDRAIL SHOULD BE SPACED AND ONE GUARDRAIL POST OMITTED TO AVOID PROPOSED 8' x 4' CULVERT
 - EXERCISE CAUTION WITHIN VICINITY OF TALLGRASS ENERGY 24" HIGH PRESSURE NATURAL GAS PIPELINE. A TALLGRASS ENERGY REPRESENTATIVE TO BE ON SITE WHEN GRADING OR WORK IS DONE WITHIN 25 FT OF GAS MAIN. GUARDRAIL TO BE HAND DUG AND POSTS INSTALLED BY HAND WHEN WITHIN THE 25 FT AND WHEN POSTS CROSS THE GAS PIPELINE. CONTRACTOR TO MEET WITH TALLGRASS REPRESENTATIVES ON SITE PRIOR TO ANY CONSTRUCTION.
 - EXERCISE CAUTION WITHIN VICINITY OF ENTERPRISE PRODUCTS 6" GAS MAIN. CONTRACTOR SHALL HAND DIG NEAR EXISTING GAS MAINS. ENTERPRISE REPRESENTATIVE MUST BE ON SITE FOR WORK LOCATED NEAR THE PIPE LINE. 48 (BUSINESS) HOURS ADVANCED NOTICED REQUIRED. CONTACT JONATHAN COFFMAN AT 513-933-4403.

HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	169 ACRES
Q ₂₅ :	167.10 CFS
Q ₁₀₀ :	199.90 CFS
HW ₂₅ :	937.80 FT
HW ₁₀₀ :	938.30 FT
ROADWAY:	941.88 FT
V ₆₅ :	6.00 FPS
V ₁₀₀ :	6.50 FPS
OHWM:	935.89 FT



HORIZONTAL SCALE IN FEET


HORIZONTAL SCALE IN FEET


CULVERT DETAIL WAR-122-6.33
BULL RUN CREEK

DESIGN AGENCY



DESIGNER	GAT
REVIEWER	MLB 10/04/21
PROJECT ID	113587
SHEET	TOTAL
P.9	23

GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STANDARD DRAWING CONFORMS TO "LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA: THE FOLLOWING DESIGN DATA IS ASSUMED:

INTERNAL ANGLE OF FRICTION (ϕ) = 30 DEGREES
 COEFFICIENT OF FRICTION (μ) = 0.30
 UNIT WEIGHT OF SOIL = 120 PCF
 UNIT WEIGHT OF CONCRETE = 150 PCF
 SLOPE OF BACKFILL = 4:1 Max. (TYPE A & B HEADWALLS)
 HEIGHT OF LIVE LOAD SURCHARGE = 2 FT
 MAXIMUM FOUNDATION BEARING PRESSURE = 2000 P.S.F.

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI
 (FOOTING, WINGWALL AND FORESLOPE WALL)

REINFORCING STEEL - ASTM A615, A616, OR A617
 GRADE 60 MINIMUM YIELD STRENGTH
 60,000 PSI (ALL REINFORCING SHALL BE
 EPOXY COATED)

PRECAST CONCRETE: THE DEPARTMENT WILL NOT PERMIT THE USE OF PRECAST HEADWALLS, WINGWALL, OR FOOTINGS ON THIS PROJECT.
 FORESLOPE WALL ANCHOR DOWELS: ANCHOR PER CMS 510 WITH NONSHRINK, NONMETALLIC GROUT CONFORMING TO CMS 705.20 AND TO A DEPTH SPECIFIED ON SHEET 6/6. PAYMENT FOR DOWEL HOLES, GROUT AND INSTALLATION SHALL BE INCLUDED WITH ITEM 511.

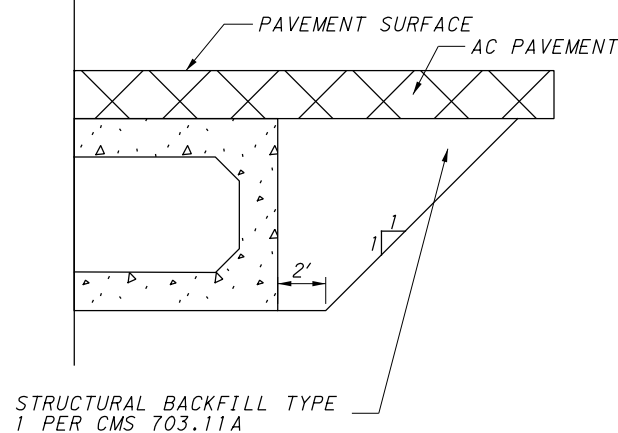
AS AN ALTERNATIVE TO RESIN BONDING, THREADED INSERTS OR NONPROTRUDING MECHANICAL CONNECTORS CAST INTO THE CULVERT BY THE MANUFACTURER MAY BE USED PROVIDED THEY CAN RESIST AN ULTIMATE PULL-OUT STRENGTH OF 12 KIPS AND MAINTAIN A MINIMUM COVER OF 3 INCHES AT THE BOTTOM OF THE CULVERT SLAB. MECHANICAL CONNECTORS MUST PROVIDE AN "L-SHAPED" BAR INSIDE THE CULVERT WITH A MINIMUM HORIZONTAL LENGTH OF 12 INCHES. PAYMENT FOR INSERTS OR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 611.

ITEM 611-CONDUIT, MISC.: 8'x4' CONDUIT, TYPE A, 706.05 (WAR-122-0633)

FOLLOW ALL REQUIREMENT OF CMS 611 AND 706.05.

STRUCTURAL BACKFILL TYPE 1 THAT MEETS THE GRADATIONS OF ITEM 304 SHALL BE PLACED AS SHOWN IN THE DETAIL BELOW. QUANTITY SHALL BE BASED ON A TRENCH LENGTH OF 32 FEET, WHICH IS THE LENGTH OF THE PAVEMENT PLUS 4 FEET OF ADDITIONAL LENGTH PER SIDE, MEASURED ALONG THE CENTER LINE OF THE CULVERT. PAYMENT FOR STRUCTURAL BACKFILL TYPE 1 AND THE EXCAVATION REQUIRED FOR THE PLACEMENT OF THE STRUCTURAL BACKFILL SHALL BE INCLUDED IN ITEM 611 FOR PAYMENT.

SYMMETRICAL ABOUT ϕ STRUCTURE

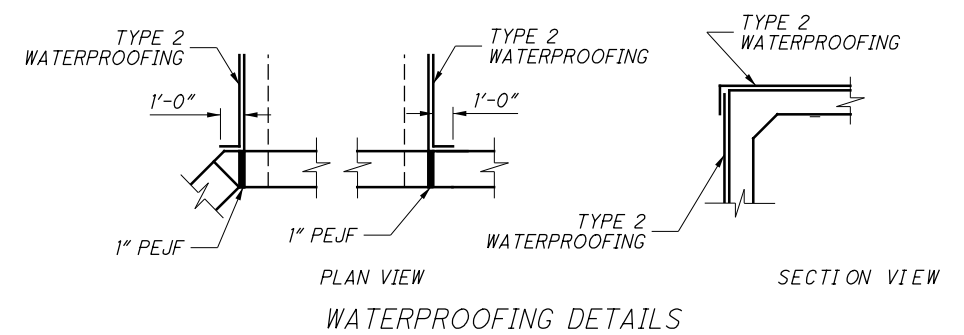
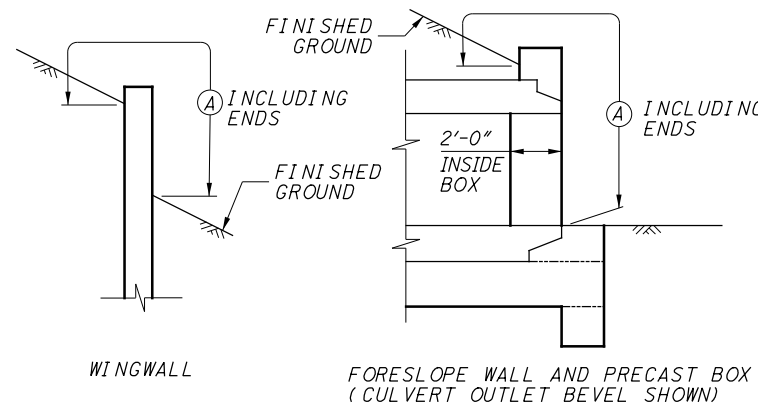


POROUS BACKFILL WITH FILTER FABRIC 1'-6" THICK SHALL BE PLACED BEHIND THE WINGWALLS ONLY AND SHALL EXTEND TO 12" BELOW THE EMBANKMENT SURFACE. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN THE POROUS BACKFILL AND REPLACED EXCAVATION ADJACENT TO THE STRUCTURE. IT SHALL TURN UNDER THE BOTTOM OF THE POROUS BACKFILL AND RETURN 6" ABOVE THE TOP ELEVATION OF THE WEEPHOLE.

WEEPHOLES SHALL BE PLACED 6" TO 12" ABOVE THE NORMAL WATER ELEVATION OR GROUND LINE AND SHALL HAVE A MAXIMUM SPACING OF 10'-0". A MINIMUM OF ONE WEEPHOLE SHALL BE PROVIDED PER WINGWALL.

PREFORMED EXPANSION JOINT FILLER: PREFORMED EXPANSION JOINT FILLER (PEJF) CONFORMING TO CMS 705.03, 1 INCH THICK, SHALL BE PLACED ABOVE THE FOOTING BETWEEN THE SIDES OF THE BOX CULVERT AND THE ENDS OF THE WINGWALLS. PAYMENT FOR MATERIALS AND INSTALLATION SHALL BE INCLUDED WITH ITEM 516 - 1" PREFORMED EXPANSION JOINT FILLER.

SEALING OF FORESLOPE WALL AND WINGWALLS: ALL EXPOSED FORESLOPE WALL AND WINGWALL CONCRETE SHALL BE SEALED WITH EPOXY-URETHANE SEALER. THE LIMITS SHALL BE AS SHOWN IN THE DIAGRAMS BELOW. PAYMENT FOR THE EPOXY-URETHANE SEALER SHALL BE PER ITEM 512 - SEALING OF CONCRETE SURFACES.



BASIS OF PAYMENT: ALL LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO CONSTRUCT THE FOOTING, CUTOFF WALL, WINGWALLS AND FORESLOPE WALL SHALL BE INCLUDED WITH ITEM 511 - CLASS C CONCRETE (RET-WALL/WINGWALL- INCLUDING FOOTING). PAYMENT FOR REINFORCING STEEL SHALL BE INCLUDED WITH ITEM 509 - EPOXY COATED REINFORCING STEEL.

LIMITS OF ITEM 512-SEALING CONCRETE SURFACES

(A) - SEAL ENTIRE CONCRETE SURFACE AREA

ESTIMATED QUANTITIES			
ITEM	TOTAL	UNIT	DESCRIPTION
201	LUMP		CLEARING AND GRUBBING
202	2	EACH	HEADWALL REMOVED
202	98	SY	PAVEMENT REMOVED
202	515	FT	GUARDRAIL REMOVED
202	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN
202	2	EACH	ANCHOR ASSEMBLY REMOVED, TYPE E
202	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE T
202	181	FT	FENCE REMOVED
203	164	CY	EXCAVATION
203	506	CY	EMBANKMENT
204	98	SY	SUBGRADE COMPACTION
606	125	FT	GUARDRAIL, TYPE MGS
606	2	EA	ANCHOR ASSEMBLY, MGS TYPE E, NCHRP 350 OR MASH 2016
878	LUMP		INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIAL
302	31	CY	ASPHALT CONCRETE BASE, PG64-22
304	16	CY	AGGREGATE BASE
407	2	GAL	NON-TRACKING TACK COAT
441	10	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, DEPTH 3.0"
621	3	EACH	RPM
621	3	EACH	RAISED PAVEMENT MARKER REMOVED
642	0.02	MILE	EDGE LINE, 6", TYPE 1
642	0.01	MILE	CENTER LINE, TYPE 1
626	6	EACH	BARRIER REFLECTOR, TYPE 2, BIDIRECTIONAL

ESTIMATED QUANTITIES			
ITEM	TOTAL	UNIT	DESCRIPTION
202	LUMP		STRUCTURE REMOVED
503	LUMP		COFFERDAMS AND EXCAVATION BRACING
503	LUMP		UNCLASSIFIED EXCAVATION, INCLUDING ROCK
509	4,770	LB.	EPOXY COATED REINFORCING STEEL
511	12.36	CU. YD.	CLASS QC1 CONCRETE, RETAINING/WINGWALL NOT INCLUDING FOOTING
511	29.64	CU. YD.	CLASS QC1 CONCRETE, FOOTING
511	1.7	CU. YD.	CLASS QC1 CONCRETE, HEADWALLS
512	46.3	SQ. YD.	SEALING OF THE CONCRETE SURFACES
512	136.8	SQ. YD.	TYPE 2 MEMBRANE WATERPROOFING
516	31	SQ. FT.	1" PREFORMED EXPANSION JOINT FILLER
518	LUMP		POROUS BACKFILL WITH FILTER FABRIC
601	11	CU. YD.	ROCK CHANNEL PROTECTION 18" TYPE B WITH GEOTEXTILE FABRIC
601	52	SQ. YD.	RIPRAP, TYPE D
611	57	LIN. FT.	8'-0" SPAN 4'-0" RISE CONDUIT, TYPE A, 706.05, 3' DESIGN EARTH COVER

NOTE: TOTALS CARRIED TO GENERAL SUMMARY SHEET

