

**ITEM 614, MAINTAINING TRAFFIC: I-480 AND GRAYTON ROAD**

A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING OR THE COMPLETED PAVEMENT.

THE MAINTENANCE OF TRAFFIC CONSISTS OF THREE PHASES FOR GRAYTON ROAD AND TWO PHASES FOR I-480.

**GRAYTON ROAD PHASE 1:**

PRIOR TO CROSSOVER CONDITION, REMOVE RAISED MEDIAN ON GRAYTON ROAD FROM STA. 25+40 TO STA. 27+50 AND PLACE TEMPORARY PAVEMENT USING LEFT LANE CLOSURES IN ACCORDANCE WITH ODOT SCD MT-95.30.

REDUCE TRAFFIC TO ONE LANE IN EACH DIRECTION ON GRAYTON ROAD. SHIFT TRAFFIC TO THE EAST SIDE OF THE BRIDGE FROM BROOKPARK ROAD TO STA. 27+50. ADJUST PLACEMENT OF SIGNAL HEADS AT THE INTERSECTION OF GRAYTON ROAD AND BROOKPARK ROAD TO MATCH TEMPORARY LANE ALIGNMENT ON GRAYTON ROAD.

DETOUR GRAYTON ROAD SOUTHBOUND TRAFFIC WISHING TO ACCESS RAMP G-4 TO I-480 EASTBOUND TO THE BROOKPARK ROAD ENTRANCE.

PERFORM WORK ON THE WEST SIDE OF THE EXISTING BRIDGE.

**GRAYTON ROAD PHASE 2:**

REDUCE TRAFFIC TO ONE LANE IN EACH DIRECTION ON GRAYTON ROAD. SHIFT TRAFFIC TO THE WEST SIDE OF THE BRIDGE FROM BROOKPARK ROAD TO STA. 27+50. ADJUST PLACEMENT OF SIGNAL HEADS AT THE INTERSECTION OF GRAYTON ROAD AND BROOKPARK ROAD TO MATCH TEMPORARY LANE ALIGNMENT ON GRAYTON ROAD.

REOPEN RAMP G-4 ENTRANCE FROM GRAYTON ROAD.

PERFORM WORK ON THE EAST SIDE OF THE EXISTING BRIDGE.

**GRAYTON ROAD PHASE 3:**

REDUCE TRAFFIC TO ONE LANE IN EACH DIRECTION ON GRAYTON ROAD AND MAINTAIN TRAFFIC IN THE OUTSIDE LANE OF EACH DIRECTION FROM BROOKPARK ROAD TO STA. 28+00.

ADJUST PLACEMENT OF SIGNAL HEADS AT THE INTERSECTION OF GRAYTON ROAD AND BROOKPARK ROAD BACK TO THEIR ORIGINAL CONFIGURATION.

REMOVE TEMPORARY PAVEMENT FROM STA. 25+40 TO STA. 27+50. CONSTRUCT RAISED MEDIAN FROM STA. 19+65 TO STA. 27+50.

**I-480 PHASE A:**

CLOSE LEFT LANE IN EACH DIRECTION ON I-480 WITHIN PERMITTED LANE CLOSURE TIMES, MAINTAINING THREE LANES IN EACH DIRECTION. TEMPORARY PAVEMENT TO BE INSTALLED ON OUTSIDE SHOULDER FROM STA. 472+00 TO 496+82.

CLOSE A PORTION OF THE WESTBOUND RAMP G-3 EXIT LANE FROM STATION 485+50 TO 482+00. EXIT RAMP WILL REMAIN OPEN. CONSTRUCT OUTSIDE (RIGHT) PIER.

SHIFT RAMP G-4 ONTO SHOULDER AROUND STATION 483+50. TEMPORARY PAVEMENT MAY BE REQUIRED. MAINTAIN 12' RAMP LANE ALONG EDGE LINE FOR EASTBOUND I-480 TO STATION 487+00. ORIGINAL MERGE WILL BE IN PLACE.

PERFORM WORK ON OUTSIDE (NORTH AND SOUTH) PIERS FOR GRAYTON ROAD

**I-480 PHASE B:**

IMPLEMENT A 6' TRAFFIC SHIFT ON BOTH EASTBOUND AND WESTBOUND I-480 FROM STA. 480+93 TO STA. 487+90.

INSTALL TEMPORARY CONCRETE BARRIER WALL NEAR THE MEDIAN ON EASTBOUND I-480 FROM STA. 482+21 TO STA. 485+88 AND ON WESTBOUND I-480 FROM STA. 482+93 TO STA. 486+60.

PERFORM WORK ON THE CENTER PIER FOR GRAYTON ROAD.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE PER LANE CLOSURE SCHEDULE. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

**ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS)**

NO WORK SHALL BE PERFORMED AND ALL I-480 EXISTING LANES AND MINIMUM OF ONE LANE EACH DIRECTION ON GRAYTON ROAD SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING
(OTHER HOLIDAY OR EVENT)	

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT	TIME ALL I-480 LANES AND MINIMUM ONE LANE EACH DIRECTION ON GRAYTON ROAD MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00AM WEDNESDAY THROUGH 6:00AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY

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.

**WORK ZONE MARKINGS AND SIGNS**

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF C&MS 614.04 AND 614.11.

**ITEM 622, PORTABLE BARRIER, UNANCHORED, AS PER PLAN**

THIS WORK SHALL CONSIST OF FURNISHING, MAINTAINING, AND SUBSEQUENTLY REMOVING A 32-INCH PORTABLE BARRIER AT THE LOCATIONS SHOWN ON THE PLANS. FOR DETAILS, SEE SCD RM-4.2.

PORTABLE STEEL BARRIER IS AN APPROVED ALTERNATIVE TO PORTABLE CONCRETE BARRIER. FOR INFORMATION ON APPROVED VENDORS, SEE THE APPROVED PRODUCTS LIST MAINTAINED BY ROADWAY ENGINEERING.

PORTABLE BARRIER, 32 INCHES HIGH WITH AN 18-INCH MINIMUM HEIGHT GLARE SCREEN MAY BE USED AT THE OPTION OF THE CONTRACTOR. THE GLARE SCREEN SHALL BE CONSTRUCTED USING ONE OF THE SCREENS PROVIDED ON THE APPROVED LIST, AVAILABLE ON THE OFFICE OF ROADWAY ENGINEERING WEBSITE.

PADDLE OR INTERMITTENT TYPE GLARE SCREENS SHALL BE DESIGNED USING A 20 DEGREE CUT-OFF ANGLE BASED ON TANGENT ALIGNMENT. THAT SPACING SHALL BE USED THROUGHOUT THE BARRIER LENGTH WITHOUT REGARD TO BARRIER CURVATURE.

THE GLARE SCREEN SYSTEM SHALL BE SECURELY FASTENED TO THE 32-INCH PORTABLE BARRIER USING THE HARDWARE AND PROCEDURES SPECIFIED BY THE MANUFACTURER.

FOR DIRECTIONS ON HOW TO INSTALL THE GLARE SCREEN AND THE BARRIER, SEE THE MANUFACTURER'S INSTRUCTIONS.

PAYMENT SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE WORK AND SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR ITEM 622, PORTABLE BARRIER, 32". AS PER PLAN

**ITEM 614, REPLACEMENT SIGN**

FLATSHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED, BUT GOOD, CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT SIGN, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF DAMAGED SIGNS, HARDWARE AND SUPPORTS, AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

AN ESTIMATED QUANTITY OF 2 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

**ITEM 614, REPLACEMENT DRUM**

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT DRUM, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

AN ESTIMATED QUANTITY OF 20 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

**ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)**

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS WEB PAGE FOR ROADWAY STANDARDS WEB PAGE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER

**DUST CONTROL**

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 2.5 M. GAL

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**MAINTENANCE OF TRAFFIC GENERAL NOTES**

**CUY - 480 - 07 .27**

**ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN**

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE (OFFICE OF MATERIALS MANAGEMENT WEB PAGE). THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. The PCMS shall be delineated in accordance with C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET(S) OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

(THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN \_ HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.)

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE. THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

(THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.)

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE TO THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN 36 SIGN MONTH

ASSUMING 4 PCMS SIGN(S) FOR 9 MONTH(S)

**LANE VALUE CONTRACT**

THE CONTRACTOR SHALL BE ASSESSED DISINCENTIVES AS DESIGNATED IN THE LANE VALUE CONTRACT TABLE LOCATED ON THIS SHEET FOR EACH UNIT OF TIME THE DESCRIBED CRITICAL LANE/RAMP IS RESTRICTED FROM FULL USE BY THE TRAVELING PUBLIC WITHIN THE RESTRICTED TIME PERIOD. THE DISINCENTIVES WILL BE ASSESSED FOR ALL RESTRICTIONS OF THE CRITICAL WORK.

CRITICAL WORK IS SHOWN IN THE LANE VALUE CONTRACT TABLE.

CRITICAL WORK IS DEFINED AS HAVING THE DESIGNATED SECTIONS OPEN TO UNRESTRICTED TRAFFIC AS SHOWN IN THE TABLE, OR THE ENTIRE PROJECT IF NOT OTHERWISE LISTED.

UNRESTRICTED TRAFFIC IS DEFINED AS ALL TRAFFIC LANES BEING AVAILABLE FOR USE WITH TEMPORARY SAFETY FEATURES IN PLACE.

**LANE VALUE CONTRACT TABLE**

DESCRIPTION OF CRITICAL LANE/RAMP TO BE MAINTAINED	RESTRICTED TIME PERIOD	TIME UNIT	DISINCENTIVE \$ PER TIME UNIT
1 LANE EB I-480 AT CR 68 (GRAYTON ROAD) INTERCHANGE	AS PER DISTRICT 12 PERMITTED LANE CLOSURE SCHEDULE	EACH HOUR	\$16,000
1 LANE WB I-480 AT CR 68 (GRAYTON ROAD) INTERCHANGE	AS PER DISTRICT 12 PERMITTED LANE CLOSURE SCHEDULE	EACH HOUR	\$16,000

**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 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 BUSINESS 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.

**DELINEATION OF PORTABLE AND PERMANENT BARRIER**

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL; AND, ON PERMANENT CONCRETE BARRIER (INCLUDING BRIDGE PARAPETS) LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE.

BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THE SPACING SHALL BE AS PER TRAFFIC SCD MT-101.70. OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614.03 AND SCD MT-101.70. WHEN THE PB CONTAINS GLARE SCREEN, ONE SET OF THREE VERTICAL STRIPES OF SHEETING SHALL BE CONSIDERED EQUIVALENT TO AN OBJECT MARKER, ONE-WAY.

INCREASED BARRIER DELINEATION, AS SPECIFIED HEREIN, SHALL BE INSTALLED ON ALL PB AND PERMANENT CONCRETE BARRIER LOCATED WITHIN 5 FEET OF THE EDGE OF THE TRAVELED LANE UNDER EITHER OF THE FOLLOWING CONDITIONS: ALONG TAPERS AND TRANSITION AREAS; OR ALONG CURVES (OUTSIDE ONLY) WITH DEGREE OF CURVATURE GREATER THAN OR EQUAL TO 3 DEGREES.

THE INCREASED BARRIER DELINEATION SHALL CONSIST OF EITHER DELINEATION PANELS OR THE TRIPLE STACKING OF WORK ZONE BARRIER REFLECTORS.

DELINEATION PANELS SHALL CONSIST OF PANELS OF DELINEATION, APPROXIMATELY 34 INCHES LONG AND 6 INCHES WIDE AND SHALL BE "CRIMPED." PANELS SHALL BE INSTALLED AND SPACED PER TRAFFIC SCD MT-101.70.

TRIPLE-STACKED BARRIER REFLECTORS SHALL CONSIST OF ALIGNING THREE BARRIER REFLECTORS VERTICALLY, AT LOCATIONS WHERE A SINGLE BARRIER REFLECTOR WOULD BE OTHERWISE ATTACHED. THERE SHALL BE NO OPEN SPACE BETWEEN THE ADJACENT BARRIER REFLECTORS. THE TRIPLE-STACKED BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THEY SHALL BE SPACED AND ALIGNED PER TRAFFIC SCD MT-101.70.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE PLANS AND CARRIED TO THE GENERAL SUMMARY:

ITEM 614, BARRIER REFLECTOR, TYPE 1, ONE WAY	47 EACH
ITEM 614, OBJECT MARKER, ONE WAY	47 EACH
ITEM 614, INCREASED BARRIER DELINEATION	216 FEET

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

ALONG RUNS OF INCREASED BARRIER DELINEATION WHERE THIS ITEM IS PROVIDED, THE QUANTITY SHALL BE MEASURED AS THE ENTIRE LENGTH OF THE RUN OF INCREASED BARRIER DELINEATION, INCLUDING THE SPACES BETWEEN THE INDIVIDUAL DELINEATION PANELS OR STACKS OF BARRIER REFLECTORS.

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REF. NO.	SHEET NO.	PHASE	STATION		SIDE	607		614	614	614	614	614	614	614	615		622	622	614
			FROM	TO		TEMPORARY VANDAL FENCE, TYPE B		WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I	WORK ZONE EDGE LINE, CLASS I, 4", 740.06, TYPE I	WORK ZONE EDGE LINE, CLASS I, 6", 740.06, TYPE I	WORK ZONE CHANNELIZING LINE, CLASS I, 8", 740.06, TYPE I	WORK ZONE DOTTED LINE, CLASS I, 4", 740.06, TYPE I	WORK ZONE DOTTED LINE, CLASS I, 6", 740.06, TYPE I	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE I	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN		PORTABLE BARRIER, UNANCHORED, AS PER PLAN	PORTABLE BARRIER, ANCHORED
						FT		MILE	MILE	MILE	FT	FT	FT	EACH	SQ YD		FT	FT	EACH
	13	1	19+00	20+33	RT									1			133		
			20+33	24+12	RT	379												379	
			24+12	25+00	RT									1			88		
			25+40	27+50	CL										93				
SL1			17+25	17+25	RT						11								
CL1			16+80	27+50	RT			0.20											
EW1			16+80	27+50	RT				0.20										
EW2			16+51	31+50	RT/LT				0.31										
EY1			BROOKPARK RD																
CL2			25+17	27+50	RT/LT			0.04			0.05								
	14	1																	
EY1			27+50	28+50	LT						0.02								
CH1			32+20	35+20	LT							300							
DW1			35+20	38+50	LT								330						
LA1			32+40		LT													1	
LA2			33+00		LT													1	
LA3			33+60		LT													1	
LA4			34+20		LT													1	
LA5			34+80		LT													1	
	17	2	19+00	20+33	LT									1			133		
			20+33	24+12	LT	379												379	
			24+12	25+00	LT									1			88		
DY1			16+02	16+80	LT						109								
CL1			16+80	25+17	LT			0.16											
EW1			16+80	28+50	RT/LT				0.24										
EW2			16+80	19+15	LT				0.04										
DW1			19+15	20+10	LT							95							
EW3			20+10	30+85	LT				0.20										
EY1			25+17	28+00	RT/LT						0.05								
	18	2																	
EY1			27+50	31+60	LT						0.08								
EY2			27+50	28+00	RT						0.01								
	21	3																	
DY1			16+02	16+80	RT/LT							123							
EY1			16+80	28+50	LT						0.22								
EY2			19+00	31+60	RT						0.24								
CH1			16+80	19+00	LT							220							
SL2			16+80	16+80	LT								36						
	22	3			3														
EW1			27+50	30+85					0.06										
TOTALS CARRIED TO GENERAL SUMMARY						758		0.40	1.05	0.67	520	232	425	47	4	93	442	758	5

CALCULATED	LJS
	CHECKED
MSD	
<b>MAINTENANCE OF TRAFFIC SUBSUMMARY</b>	
<b>GRAYTON ROAD PHASES 1, 2, 3</b>	
<b>CUY - 480-07.27</b>	
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SHEET NUMBER										PART.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	CALCULATED	MRW	CHECKED	LJS
7		30			37	38	39			01/BRO/BR										
<b>ROADWAY</b>																				
					LS					LS	201	11000	LS		CLEARING AND GRUBBING					
					1576					1,576	202	23000	1,576	SY	PAVEMENT REMOVED					
					288					288	202	30000	288	SF	WALK REMOVED					
					136					136	202	30600	136	SY	CONCRETE MEDIAN REMOVED					
					275					275	202	30701	275	FT	CONCRETE BARRIER REMOVED, AS PER PLAN					7
					420					420	202	32000	420	FT	CURB REMOVED					
					422					422	202	38000	422	FT	GUARDRAIL REMOVED					
					426					426	203	10000	426	CY	EXCAVATION					
					19					19	203	20000	19	CY	EMBANKMENT					
										2189	204	10000	2,189	SY	SUBGRADE COMPACTION					
					275					275	606	15050	275	FT	GUARDRAIL, TYPE MGS, NCHRP 350					
					2					2	606	26150	2	EACH	ANCHOR ASSEMBLY, MGS TYPE E, NCHRP 350/MASH 2016					
					2					2	606	26550	2	EACH	ANCHOR ASSEMBLY, MGS TYPE T					
					2					2	606	35002	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1					
					2					2	606	35102	2	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2					
					586					586	609	14001	586	FT	CURB, TYPE 2-A, AS PER PLAN					4
					49					49	609	70000	49	SY	4" CONCRETE MEDIAN					
					93					93	609	72001	93	SY	CONCRETE MEDIAN, AS PER PLAN					4
					205					205	622	10100	205	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE B1					
					2					2	622	10200	2	EACH	BARRIER TRANSITION					50
					2					2	622	25006	2	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE B1					
<b>EROSION CONTROL</b>																				
	2									2	659	00100	2	EACH	SOIL ANALYSIS TEST					
	102									102	659	00300	102	CY	TOPSOIL					
					922					922	659	10000	922	SY	SEEDING AND MULCHING					
	46									46	659	14000	46	SY	REPAIR SEEDING AND MULCHING					
	46									46	659	15000	46	SY	INTER-SEEDING					
	0.13									0.13	659	20000	0.13	TON	COMMERCIAL FERTILIZER					
	0.19									0.19	659	31000	0.19	ACRE	LIME					
	5.1									5.1	659	35000	5.1	MGAL	WATER					
										10,000	832	30000	10,000	EACH	EROSION CONTROL					
<b>DRAINAGE</b>																				
						568				568	605	11110	568	FT	6" SHALLOW PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC					
						78				78	611	07400	78	FT	18" CONDUIT, TYPE B					
						277				277	611	08200	277	FT	18" CONDUIT, TYPE F					
						4				4	611	98180	4	EACH	CATCH BASIN, NO. 3A					
<b>PAVEMENT</b>																				
					550					550	252	01500	550	FT	FULL DEPTH PAVEMENT SAWING					
					101					101	301	46000	101	CY	ASPHALT CONCRETE BASE, PG64-22					
					404					404	304	20000	404	CY	AGGREGATE BASE					
					62					62	407	10000	62	GAL	TACK COAT					
					22					22	441	50000	22	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22					
					30					30	441	50200	30	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448)					
					932					932	451	14010	932	SY	9" REINFORCED CONCRETE PAVEMENT, CLASS QC IP					
					158					158	SPECIAL	45130000	158	FT	PRESSURE RELIEF JOINT, TYPE A					
		4964								4,964	618	40100	4,964	FT	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)					

**GENERAL SUMMARY**

**CUY - 480-07.27**





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PAVEMENT CALCULATIONS

LOCATION	STATION		SIDE	LENGTH L	AVERAGE WIDTH W	SURFACE AREA A A = L x W	CADD MEASURED AREAS	204	252	301	304	407	407	441	441	451	609	609	609	618	NOTE				
								SUBGRADE COMPACTION	FULL DEPTH PAVEMENT SAWING	ASPHALT CONCRETE BASE, PG64-22	AGGREGATE BASE	TACK COAT (FOR SURFACE)	TACK COAT (FOR INTERMEDIATE)	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448)	9" REINFORCED CONCRETE PAVEMENT, CLASS QC IP	CURB, TYPE 2-A, AS PER PLAN	4" CONCRETE MEDIAN	CONCRETE MEDIAN, AS PER PLAN	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE)		RATE R	THICKNESS T		
								$\frac{A}{9}$		$\frac{A \times (T / 12)}{27}$	$\frac{A \times (T / 12)}{27}$	$\frac{A \times R}{9}$	$\frac{A \times R}{9}$	$\frac{A \times (T / 12)}{27}$	$\frac{A \times (T / 12)}{27}$	$\frac{A}{9}$	4 x L	$\frac{3.0' \times L}{9}$	$\frac{4.0' \times L}{9}$						
	FROM	TO					SY	FT	CY	CY	GAL	GAL	CY	CY	SY	FT	SY	SY	FT	GAL / SY	INCHES				
GRAYTON RD.	19+65.00	20+08.38	CL	43.38	60.30	2615.60									290.62	173.52					CONCRETE PAV'T				
	20+08.38	20+33.38	CL	25.00	0.00	0.00																"			
	20+33.38	24+11.86	CL	378.48	0.00	0.00																"			
	24+11.86	24+36.86	CL	25.00	0.00	0.00																"			
	24+36.86	25+40.00	CL	103.14	56.00	5775.84									641.76	412.56						"			
	19+65.00	20+08.38	CL	43.38	65.30	2832.50	314.72			52.45												6.00	AGGREGATE BASE		
	20+08.38	20+33.38	CL	25.00	68.50	1712.50	190.28			31.71												6.00	"		
	20+33.38	24+11.86	CL	378.48	0.00	0.00																6.00	"		
	24+11.86	24+36.86	CL	25.00	68.50	1712.50	190.28			31.71												6.00	"		
	24+36.86	25+40.00	CL	103.14	61.00	6291.54	699.06			116.51												6.00	"		
	19+65.00	20+08.38	CL	43.38	3.00	130.14				4.02												10.00	BELOW MEDIAN		
	24+36.86	25+40.00	CL	103.14	3.00	309.42				9.55												10.00	"		
	19+65.00	20+08.38	CL	43.38	3.00	130.14																14.46	RAISED MEDIAN		
	24+36.86	25+40.00	CL	103.14	3.00	309.42																34.38	"		
	25+40.00	27+50.00	CL	210.00	4.00	840.00																93.33	"		
I-480	483+03.50	483+78.50	CL	75.00	21.00	1575.00					8.75	8.75	6.08	8.51								0.05 / 0.05	1.25 / 1.75	SURFACE COURSES	
	483+78.50	485+03.50	CL	125.00	19.50	2437.50					13.54	13.54	9.40	13.17								0.05 / 0.05	1.25 / 1.75	"	
	485+03.50	485+78.50	CL	75.00	21.00	1575.00					8.75	8.75	6.08	8.51								0.05 / 0.05	1.25 / 1.75	"	
	483+03.50	483+78.50	CL	75.00	20.50	1537.50							28.47										6.00	ASPHALT BASE	
	483+78.50	485+03.50	CL	125.00	19.00	2375.00							43.98										6.00	"	
	485+03.50	485+78.50	CL	75.00	20.50	1537.50							28.47										6.00	"	
	483+03.50	483+78.50	CL	75.00	20.50	1537.50	170.83						35.59										7.50	AGGREGATE BASE	
	483+78.50	485+03.50	CL	125.00	19.00	2375.00	263.89						54.98										7.50	"	
	485+03.50	485+78.50	CL	75.00	20.50	1537.50	170.83						35.59										7.50	"	
	483+03.50	483+78.50	CL	75.00	5.50	412.50	45.83						7.64										6.00	MEDIAN BARRIER	
	483+78.50	485+03.50	CL	125.00	7.00	875.00	97.22						16.20										6.00	"	
	485+03.50	485+78.50	CL	75.00	5.50	412.50	45.83						7.64										6.00	"	
																							550.00		
																								4964.00	
TOTALS								2188.77	550.00	100.92	403.59	31.04	31.04	21.56	30.19	932.38	586.08	48.84	93.33	4964.00					
TOTALS CARRIED TO GENERAL SUMMARY								2189	550	101	404	62	62	22	30	932	586	49	93	4964					

CALCULATED	MRW	CHECKED	LJS
PAVEMENT SUBSUMMARY			
CUY - 480-07.27			
38			
114			



ESTIMATED QUANTITIES

CALC. BY: JDA DATE: 01/30/20  
CHKD. BY: LNB DATE: 02/07/20

ITEM	ITEM EXTENSION	TOTAL	UNIT	DESCRIPTION	REAR ABUTMENT	FORWARD ABUTMENT	PIERS	SUPER-STRUCTURE	GENERAL	REF. SHEET NUMBER
202	11203	LS	--	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					LS	4/47
202	22900	322	SY	APPROACH SLAB REMOVED					322	
503	11100	LS	--	COFFERDAMS AND EXCAVATION BRACING					LS	
503	21100	215	CY	UNCLASSIFIED EXCAVATION	84	99	32			
509	10000	235,432	LB	EPOXY COATED REINFORCING STEEL	7,952	9,334	807	212,999	4,340	
510	10000	572	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	238	270	64			
511	34446	838	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK				838		
511	34450	96	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)				85	11	
511	43210	2	CY	CLASS QC1 CONCRETE, PIER			2			
511	45711	107	CY	CLASS QC1 CONCRETE, ABUTMENT, AS PER PLAN	50	57				4/47
511	51512	170	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK				150	20	
512	10050	592	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	2	3		555	37	
512	10100	1,792	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	89	105	306	1,154	138	4/47
512	10600	179	FT	CONCRETE REPAIR BY EPOXY INJECTION			179			
512	33000	63	SY	TYPE 2 WATERPROOFING				63		
SPECIAL	51271500	69	SY	URETHANE TOP COAT SEALER			69			5/47
512	74000	307	SY	REMOVAL OF EXISTING COATINGS FROM CONCRETE SURFACES			307			
513	10200	10,000	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF				10,000		
513	20000	10,516	EACH	WELDED STUD SHEAR CONNECTORS				10,516		
514	00050	2,800	SF	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL				2,800		
514	00056	2,800	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT				2,800		4/47
514	00060	3,800	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				3,800		4/47
514	00066	3,800	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT				3,800		4/47
514	00504	20	MNHR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL				20		
514	10000	3	EACH	FINAL INSPECTION REPAIR				3		
516	11210	183	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL				183		
516	13600	11	SF	1" PREFORMED EXPANSION JOINT FILLER					11	
516	44201	18	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (LOAD PLATE 13"x20"x1.50", NEOPRENE 12"x19"x3.95")				18		26/47
516	44201	18	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN (LOAD PLATE 15"x20"x1.50", NEOPRENE 14"x19"x3.95")				18		26/47
516	47001	LS	--	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN					LS	4/47
518	12200	4	EACH	SCUPPERS, INCLUDING SUPPORTS				4		
518	21200	93	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	43	50				
518	40000	183	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	84	99				
518	40010	80	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	40	40				
SPECIAL	51900100	2,377	SF	COMPOSITE FIBER WRAP SYSTEM (SEE PROPOSAL NOTE)			2,377			5/47
519	11100	453	SF	PATCHING CONCRETE STRUCTURE		3	450			
526	25011	413	SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=15"), AS PER PLAN					413	5/47
SPECIAL	53000400	70	EACH	STRUCTURE, MISC.: GROUT AND SEAL PORTABLE BARRIER ANCHOR HOLES				62	8	8/114
601	20010	15	CY	CRUSHED AGGREGATE SLOPE PROTECTION	7	8				
607	39901	817	FT	WIND PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN				749	98	5/47
607	98000	230	FT	FENCE, MISC.: MODIFY EXISTING FENCE				230		5/47

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DATE: 10/18/19  
REVIEWED: MJL  
DRAWN: DWJ  
DESIGNED: JDA

STRUCTURE FILE NUMBER: 1814184  
CHECKED: LNB

ESTIMATED QUANTITIES  
BRIDGE NO. CUY-480-0727  
GRAYTON ROAD OVER I-480

CUY-480-07.27  
PID No. 103991

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**REINFORCING STEEL LIST**

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
					A	B	C	D	E	
<b>ABUTMENTS</b>										
A501	11	5'-8"	65	STR						
A502	10	5'-6"	57	STR						
A503	11	5'-3"	60	STR						
A504	11	5'-0"	57	STR						
A505	10	4'-10"	50	STR						
A506	11	4'-6"	52	STR						
A507	20	4'-3"	89	STR						
A508	15	23'-0"	360	STR						
A509	10	20'-6"	214	STR						
A510	1	20'-5"	21	STR						
A511	5	10'-7"	55	STR						
A512	5	11'-8"	61	STR						
A513	15	12'-7"	197	STR						
A514	5	9'-2"	48	STR						
A515	5	3'-5"	18	STR						
A516	84	2'-5"	212	1	1'-3"	1'-3"				
A517	82	3'-8"	314	STR						
A518	1	3'-9"	4	STR						
A519	1	4'-2"	4	STR						
A520	5	3'-6"	18	19	2'-9"	0'-8"	0'-5"			
A521	1	4'-3"	4	STR						
A522	1	3'-10"	4	STR						
A523	28	22'-11"	669	STR						
A524	28	21'-8"	633	STR						
A525	12	3'-11"	49	19	2'-9"	1'-0"	0'-7"			
A526	2	3'-9"	8	19	2'-9"	0'-10"	0'-6"			
A527	N O T U S E D									
A528	12	3'-9"	47	19	2'-9"	0'-10"	0'-6"			
A529	2	3'-11"	8	19	2'-9"	1'-0"	0'-7"			
A530	N O T U S E D									
A531	4	4'-1"	17	STR						
A532	12	4'-5"	55	STR						
A533	12	4'-6"	56	STR						
A534	11	4'-9"	54	STR						
A535	11	5'-0"	57	STR						
A536	10	5'-2"	54	STR						
A537	11	5'-4"	61	STR						
A538	12	5'-8"	71	STR						
A539	15	5'-10"	91	STR						
A540	10	24'-3"	253	STR						
A541	10	26'-11"	281	STR						
A542	5	14'-3"	74	STR						
A543	5	14'-1"	73	STR						
A544	15	12'-7"	197	STR						
A545	10	6'-10"	71	STR						
A546	5	5'-8"	30	STR						
A547	1	37'-5"	39	STR						
A548	5	13'-11"	73	STR						
A549	5	12'-11"	67	STR						
A550	98	2'-5"	247	1	1'-3"	1'-3"				
A551	96	3'-8"	367	STR						
A552	2	5'-0"	10	STR						
A553	2	4'-4"	9	STR						
A554	1	3'-10"	4	STR						
A555	28	26'-1"	762	STR						
A556	28	26'-4"	769	STR						
A557	6	3'-8"	23	19	2'-9"	0'-8"	0'-8"			
A558	12	3'-11"	49	19	2'-9"	0'-10"	0'-10"			
A559	2	3'-9"	8	19	2'-9"	0'-9"	0'-8"			
A560	N O T U S E D									
A561	12	3'-9"	47	19	2'-9"	0'-9"	0'-8"			
A562	2	3'-11"	8	19	2'-9"	0'-10"	0'-10"			
A563	N O T U S E D									
A564	4	9'-0"	38	30	1'-6"	0'-8"	3'-0"	2'-10"		
A565	16	1'-1"	18	STR						
A566	6	9'-0"	56	30	1'-6"	0'-8"	3'-0"	2'-10"		

**REINFORCING STEEL LIST**

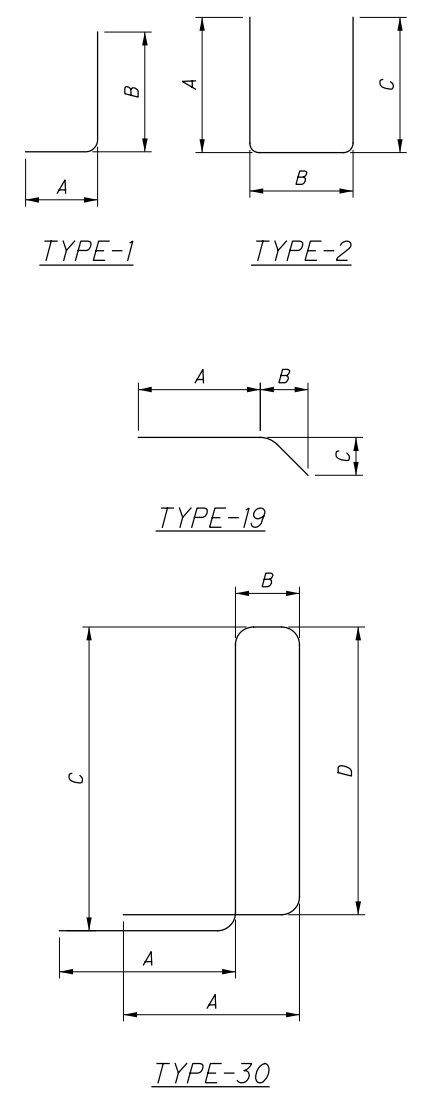
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
					A	B	C	D	E	
A567	16	1'-4"	22	STR						
A601	90	5'-4"	721	STR						
A602	84	5'-4"	673	STR						
A603	174	4'-8"	1220	STR						
A604	87	3'-5"	446	2	1'-2"	1'-5"	1'-2"			
A605	87	8'-3"	1078	2	3'-10"	0'-11"	3'-10"			
A606	15	6'-3"	141	2	2'-1"	2'-5"	2'-1"			
A607	206	5'-4"	1650	STR						
A608	206	4'-8"	1444	STR						
A609	103	3'-5"	529	2	1'-2"	1'-5"	1'-2"			
A610	103	8'-3"	1276	2	3'-10"	0'-11"	3'-10"			
A611	25	3'-7"	135	1	1'-8"	2'-1"				
A612	9	6'-9"	91	2	2'-4"	2'-5"	2'-4"			
A613	15	3'-10"	86	1	1'-8"	2'-4"				
A901	16	5'-0"	272	STR						
A902	40	2'-1"	283	STR						
TOTAL			17286	LBS						
<b>PIERS</b>										
P601	12	10'-3"	185	2	3'-7"	3'-5"	3'-7"			
P602	20	5'-7"	168	1	2'-2"	3'-7"				
P603	20	4'-0"	120	2	1'-9"	1'-2"	1'-5"			
P901	20	3'-7"	244	STR						
P902	8	3'-4"	91	STR						
TOTAL			807	LBS						

**LEGEND**

- ◇ REINFORCING BAR WITH MECHANICAL CONNECTOR, FEMALE THREADED INSERT REQUIRED FOR PHASE 1 CONSTRUCTION FOR "N" BARS OF TOTAL, SEE TABLE TO RIGHT
- ⊕ REINFORCING BAR WITH MECHANICAL CONNECTOR, MALE THREADED END REQUIRED FOR PHASE 2 CONSTRUCTION FOR "N" BARS OF TOTAL, SEE TABLE TO RIGHT

LOCATION	MARK	"N"
REAR ABUT.	A508	5
	A509	5
	A514	5
	A515	5
	A523	14
	A524	14
FWD. ABUT.	A540	5
	A541	5
	A545	5
	A546	5
	A555	14
	A556	14

**BENDING DIAGRAMS**



**REINFORCING STEEL NOTES**

- SERIES BARS - EACH BAR VARIES BY TABULATED AMOUNT.
- ALL DIMENSIONS ARE OUT TO OUT.
- TYPE 'STR' INDICATES A STRAIGHT BAR.
- THE BAR SIZE NUMBER IS INDICATED IN THE 'MARK' COLUMN. THE FIRST ONE OR TWO DIGITS OF EACH MARK INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A #5 BAR SIZE AND P101 IS A #11 BAR SIZE.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.



DATE 10/18/19  
REVIEWED MJL  
STRUCTURE FILE NUMBER 181418-4

DRAWN DWJ  
CHECKED EAO

DESIGNED LNB  
CHECKED EAO

REINFORCING STEEL LIST - 1  
BRIDGE NO. CUY-480-0727  
GRAYTON ROAD OVER I-480

CUY-480-07.27  
PID No. 103991