



CUY-90-14.90

PID 77332/85531

APPENDIX EX-76

CUY-090-23.98 PID 17515

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

OHIO DEPARTMENT OF TRANSPORTATION



PART	METRIC BRIDGE SECTION	ENGLISH BRIDGE NUMBER	STRUCTURE FILE NUMBER	CITY	FEATURE INTERSECTED
1	CUY-90-23979L	CUY-90-1490L	1809342	CLEVELAND	STARKWEATHER AVE.
2	CUY-90-23979R	CUY-90-1490R	1807625	CLEVELAND	STARKWEATHER AVE.
3	CUY-90-24237	CUY-90-1506	1807684	CLEVELAND	KENILWORTH AVE.
4	CUY-90-26200EN	CUY-90-1628EN	1807552	CLEVELAND	E. 9TH STREET
5	CUY-90-26200L	CUY-90-1628L	1807498	CLEVELAND	E. 9TH STREET
6	CUY-90-26200R	CUY-90-1628R	1807714	CLEVELAND	E. 9TH STREET
7	CUY-90-26393	CUY-90-1640	1807773	CLEVELAND	I-77 RAMPS
8	CUY-90-26570EX	CUY-90-1651EX	1807919	CLEVELAND	E. 14TH STREET
9	CUY-90-26570L	CUY-90-1651L	1807900	CLEVELAND	E. 14TH STREET
10	CUY-90-26570R	CUY-90-1651R	1807803	CLEVELAND	E. 14TH STREET

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND PROPOSAL SHALL GOVERN THESE IMPROVEMENTS.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THESE IMPROVEMENTS WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAYS AND PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS & ESTIMATES.

CONCRETE BRIDGE DECK
WEARING SURFACE REPAIR
INCLUDING: PATCHING &
INJECTION



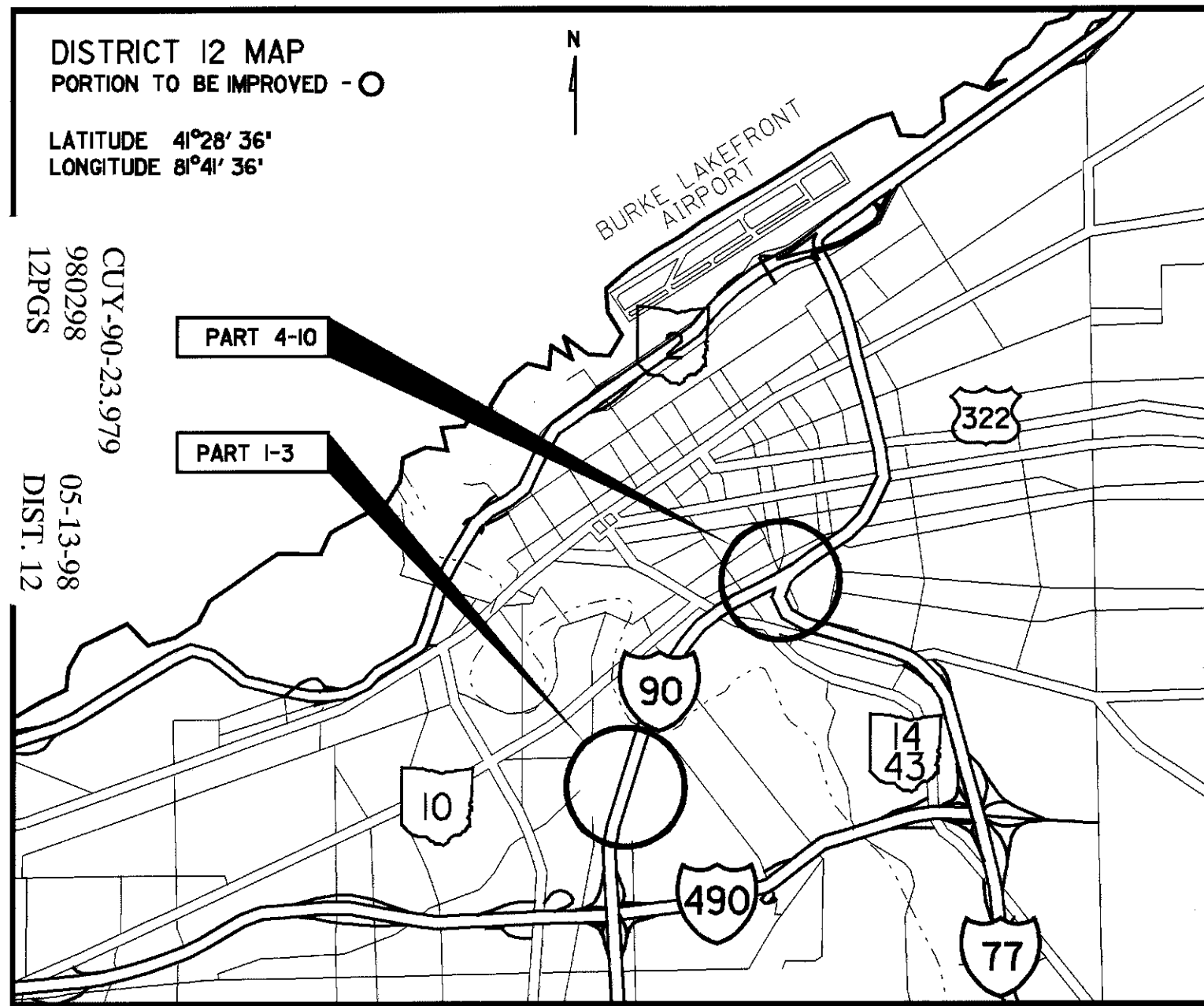
Approved: *David Doyle*
District Deputy Director
Date: 2/25/98

Approved: *Paul J. ...*
Director, Department of Transportation
Date: 2/27/98

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STANDARD DRAWINGS		STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
MT-35.10M	1/30/95			SS-933	7/17/95
MT-35.11M	1/30/95				
MT-97.10M	4/25/94				
MT-105.10M	4/25/94				
MT-105.11M	4/25/94				

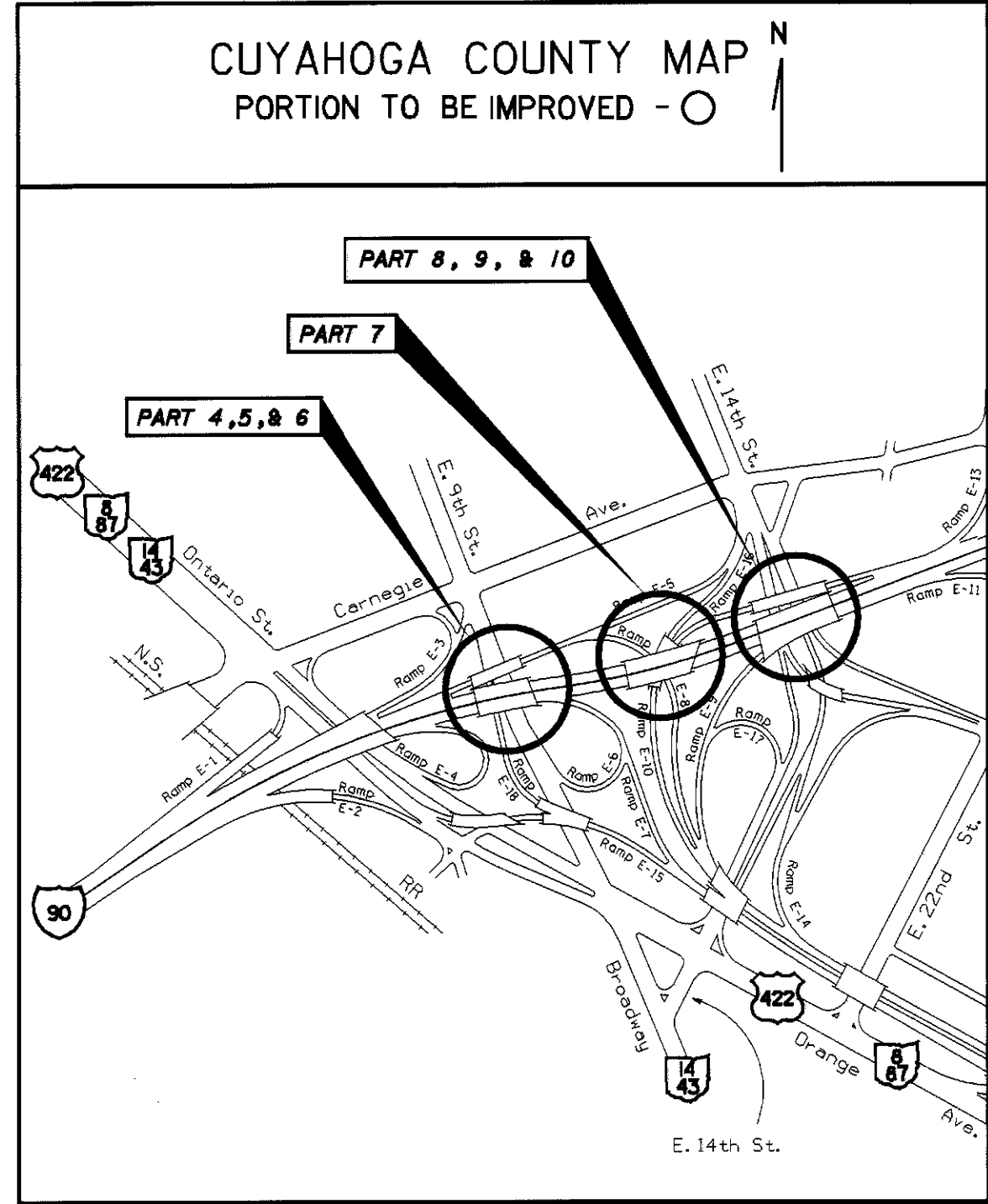
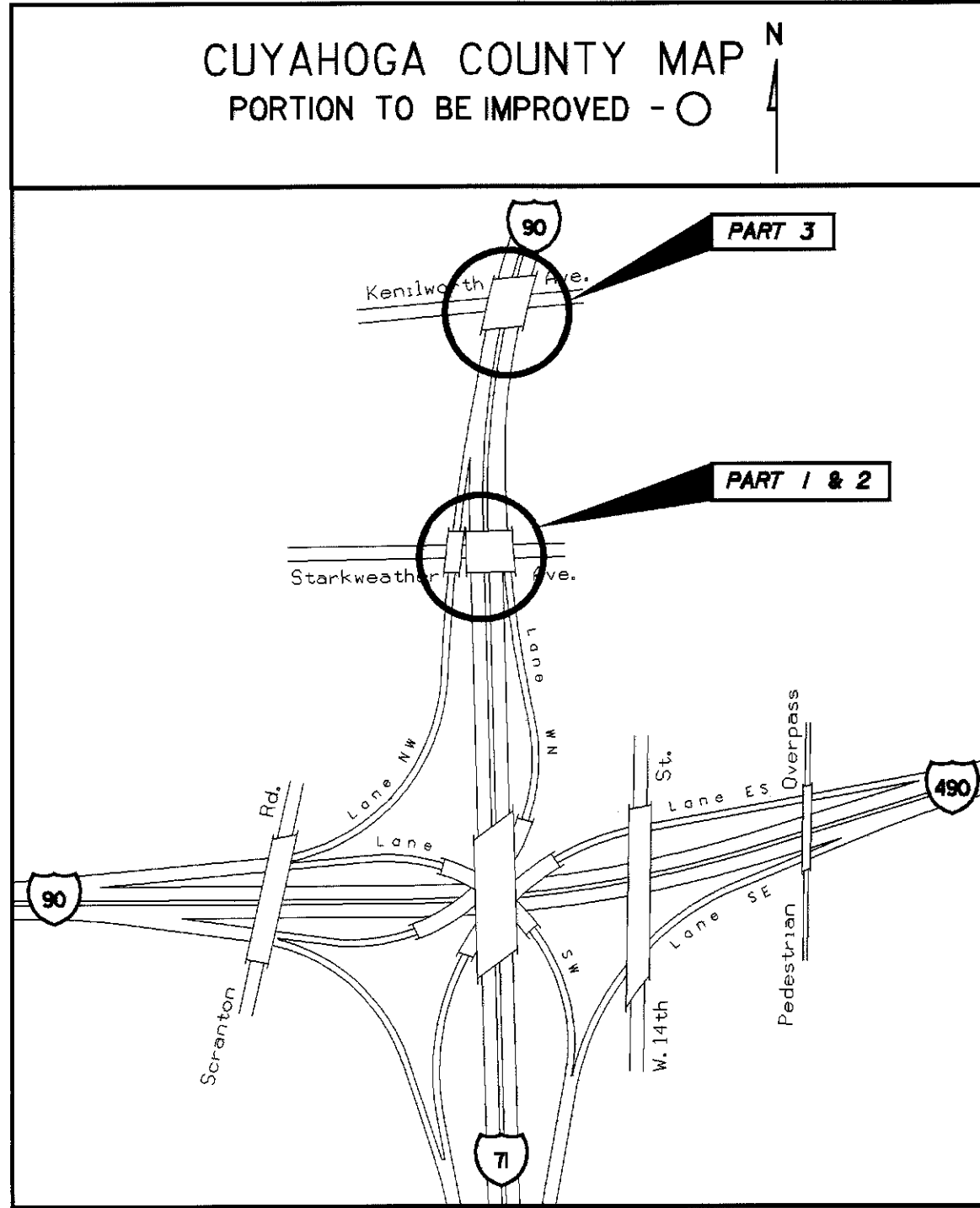


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FEDERAL PROJECT NO. 17515
 CONSTRUCTION PROJECT NO.
 RAILROAD INVOLVEMENT NONE
 CUYAHOGA COUNTY
 CUY-90-23.979 + VAR.
 1/12

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LOCATION MAPS



CALCULATED
JAC
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LOCATION PLAN

CUYAHOGA COUNTY
CUY-90-23.979 + VAR.

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PROPOSED WORK

THE INTENT OF THIS PROJECT IS TO PATCH OBVIOUS EXISTING POTHoles AND BROKEN-UP AREAS OF THE WEARING SURFACE, AND EPOXY INJECT DELAMINATED BRIDGE DECK TOP AREAS WITH MINIMAL DISRUPTION TO THE TRAVELING PUBLIC.

SUPPLEMENTAL SPECIFICATIONS

SS-933, DATED 7/17/95

SEQUENCE OF OPERATIONS

THE CONTRACTOR IS CONSTRAINED TO THE FOLLOWING SEQUENCE OF OPERATIONS:

1. PATCH WEARING SURFACE AREAS THAT HAVE LOOSE CONCRETE AND/OR BITUMINOUS PATCHES.
2. INJECT DELAMINATED AREAS OUTLINED BY THE ENGINEER.
3. RESOUND WEARING SURFACE (AFTER THE EPOXY HAS CURED) TO INSURE ALL AREAS ARE PROPERLY INJECTED.
4. REINJECT REMAINING DELAMINATED AREAS.

ITEM SPECIAL-PATCHING CONCRETE BRIDGE DECK WITH QSC

A. DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING THE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO REPAIR CONCRETE BRIDGE DECK OVERLAYS AND BACKWALL TOPS, INCLUDING THE REMOVAL OF LOOSE AND UNSOUND CONCRETE AND BITUMINOUS PATCHES, THE SURFACE PREPARATION AND THE MIXING, PLACING, FINISHING, CURING, AND COMPRESSIVE STRENGTH TESTING.

B. REMOVAL OF UNSOUND CONCRETE

THE ENGINEER SHALL OUTLINE THE AREAS TO BE REMOVED. THE PERIMETER OF ALL REMOVAL AREAS SHALL BE SAWED TO A DEPTH OF 2" TO PRODUCE A VERTICAL OR SLIGHTLY UNDERCUT FACE. ADDITIONAL SAW CUTS MAY BE REQUIRED TO FACILITATE REMOVAL. SAW CUTS SHALL NOT EXTEND BEYOND THE LIMITS OF THE PATCH. COOLING WATER FROM WET SAWING AND DUST FROM DRY SAWING SHALL NOT BE ALLOWED TO CONTAMINATE THE EXPOSED PATCH HOLES. ALL PATCHES OTHER THAN SOUND CONCRETE AND ALL OBVIOUSLY LOOSE AND DISINTEGRATED CONCRETE SHALL BE REMOVED. THE UNSOUND CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35-POUND CLASS AND SHALL BE OPERATED AT AN ANGLE OF LESS THAN 45 DEGREES MEASURED FROM THE SURFACE OF THE DECK. CONCRETE SHALL BE REMOVED IN A MANNER THAT PREVENTS CUTTING, ELONGATING OR DAMAGING REINFORCING STEEL. WHERE THE BOND BETWEEN THE CONCRETE AND A PRIMARY REINFORCING BAR HAS BEEN DESTROYED, OR WHERE MORE THAN ONE HALF OF THE PERIPHERY OF SUCH A BAR HAS BEEN EXPOSED, THE ADJACENT CONCRETE SHALL BE REMOVED TO A DEPTH THAT WILL PROVIDE A THREE-QUARTER INCH CLEARANCE AROUND THE BAR EXCEPT WHERE OTHER REINFORCING BARS MAKE THIS IMPRACTICABLE. REINFORCEMENT WHICH HAS BECOME LOOSE SHALL BE ADEQUATELY SUPPORTED AND TIED BACK INTO PLACE. THE AVERAGE PATCH DEPTH IS APPROXIMATELY FIVE INCHES. NO ADJUSTMENT OF COST SHALL BE MADE IF DEPTH VARIES FROM THIS FIVE INCHES. MINIMUM DEPTH OF PATCH IS ONE-INCH.

C. SURFACE PREPARATION

CLEANING SHALL CLOSELY PRECEDE APPLICATION OF THE PATCHING MATERIAL. THE SURFACE TO BE PATCHED AND THE EXPOSED REINFORCING STEEL SHALL BE THOROUGHLY CLEANED WITHIN 24 HOURS PRIOR TO PATCHING BY ABRASIVE BLASTING FOLLOWED BY AN AIR BLAST. BLASTING ABRASIVES CONTAINING MORE THAN 1% FREE SILICA SHALL NOT BE ALLOWED. IT MAY BE NECESSARY TO USE HAND TOOLS TO REMOVE SCALE FROM THE REINFORCING STEEL.

CONTAMINATION OF THE AREA TO BE PATCHED BY CONSTRUCTION EQUIPMENT OR FROM ANY OTHER SOURCE SHALL BE PREVENTED BY PLACEMENT OF A CLEAN 4-MIL POLYETHYLENE SHEET (OR ANY OTHER COVERING AS APPROVED BY THE ENGINEER) ON THE SURFACE OF THE DECK FOLLOWING THE AIR BLAST CLEANING.

WHERE REINFORCING STEEL IS EXPOSED, THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORTS FOR THE CONCRETE MIXER SO THAT REINFORCING STEEL AND ITS BOND WITH THE CONCRETE WILL NOT BE DAMAGED BY THE WEIGHT AND MOVEMENT OF THE CONCRETE MIXER, OR SHALL PROVIDE MEANS TO CONVEY CONCRETE FROM THE MIXER TO THE PATCH LOCATIONS.

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GENERAL NOTES

CUYAHOGA COUNTY
CUY-90-23.979 - VARIOUS

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FOR PATCHES WHICH DO NOT USE WATER AS THE ACTIVATOR, THE PREPARED SURFACE SHALL BE SURFACE DRY. FOR PATCHES WHICH REQUIRE WATER AS THE ACTIVATOR THE PREPARED SURFACE SHALL BE LEFT IN THE CONDITION AS RECOMMENDED BY THE MANUFACTURER. ANY ADDITIONAL SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE PATCHING MATERIAL WHICH IS USED.

D. MATERIALS

OVERLAYS SHALL BE PATCHED WITH QUICK SETTING CONCRETE MORTAR MEETING THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 933, TYPE 2.

E. PLACING

QSC PATCHES SHALL BE PROPORTIONED, MIXED, BONDED AND PLACED PER THE MANUFACTURER'S RECOMMENDATIONS WHEN THE AMBIENT TEMPERATURE IS ABOVE 50 DEGREES F. COARSE AGGREGATE, WHICH HAS BEEN CLEANED, DRIED AND BAGGED, SHALL BE ADDED AT A RATE OF 30 POUNDS OF AGGREGATE PER 50 LBS. OF DRY QSC MORTAR. A MINIMUM OF TWO PORTABLE CONCRETE MIXERS SHALL BE PRESENT AT THE WORK.

IF PLACEMENT OF THE PATCHES IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR WORK AREA. THE PLAN SHALL BE SUBMITTED AT LEAST 15 CALENDAR DAYS IN ADVANCE AND BE APPROVED BY THE ENGINEER BEFORE CONCRETE IS PLACED. THE LIGHTS SHALL BE DIRECTED SO THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

THE PATCHING MATERIAL SHALL BE PLACED, CONSOLIDATED AND FINISHED TO THE ADJACENT GRADE. THE PATCHES SHALL BE HAND VIBRATED AND LEVELED WITH A STRAIGHTEDGE LONG ENOUGH TO SPAN THE PATCH. THE SCREED SHALL BE PLACED PARALLEL TO THE BRIDGE CENTERLINE SO THAT THE DECK PROFILE REMAINS CONSISTENT WITH THE WORN SURFACE.

THE CONTRACTOR SHALL TEST THE SURFACE OF THE PLASTIC CONCRETE FOR TRUENESS AND FOR BEING FLUSH WITH THE EDGES OF THE ADJACENT SURFACES BY USE OF A STRAIGHTEDGE. THE STRAIGHTEDGING SHALL BE DONE BY PLACING THE STRAIGHTEDGE PARALLEL TO THE BRIDGE CENTERLINE WITH THE ENDS RESTING ON THE EXISTING WEARING SURFACE ADJACENT TO THE PATCH AND DRAWING THE STRAIGHTEDGE ACROSS THE PATCH. THE STRAIGHTEDGE SHOULD BE IN CONTACT WITH THE ADJACENT EXISTING SURFACE WHILE DRAWING IT ACROSS THE PATCH. ANY HIGH OR LOW AREAS EXCEEDING 1/8 INCH IN 10 FEET SHALL BE CORRECTED. IF ANY CORRECTIONS ARE MADE, THE SURFACE SHALL BE RECHECKED.

F. FINISHING

AFTER THE PATCHES HAVE BEEN CONSOLIDATED AND FINISHED THEY SHALL BE TEXTURED IN ACCORDANCE WITH SECTION 451.09 OF THE CMS.

G. CURING

QSC PATCHES SHALL BE CURED FOR A MINIMUM OF 2 HOURS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. 2000 PSI COMPRESSIVE STRENGTH SHALL BE VERIFIED WITH A PROPERLY CALIBRATED IMPACT REBOUND HAMMER, PROVIDED BY THE CONTRACTOR, PRIOR TO OPENING TO TRAFFIC.

H. INSPECTION AND SOUNDING OF CONCRETE PATCHES

ALL PATCHED AREAS SHALL BE SOUNDED AFTER CURING AND BEFORE FINAL ACCEPTANCE. ALL UNSOUND AREAS SHALL BE REMOVED AND REPATCHED ACCORDING TO THIS NOTE. REPLACEMENT OF REJECTED AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE UNIT BID PRICE FOR THIS ITEM.

I. METHOD OF MEASUREMENT

THE QUANTITY SHALL BE THE ACTUAL AREA IN SQUARE YARDS OF THE EXPOSED SURFACE OF ALL PATCHES, IRRESPECTIVE OF THE DEPTH OF THE PATCH, COMPLETE, IN PLACE AND ACCEPTED.

J. BASIS OF PAYMENT

PAYMENT SHALL BE MADE AT THE CONTRACT PRICE BID FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ.METER	PATCHING CONCRETE BRIDGE DECK WITH QSC.

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GENERAL NOTES

CUYAHOGA COUNTY
CUY-90-23.979 - VARIOUS

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ITEM SPECIAL-LOW PRESSURE EPOXY INJECTING DELAMINATED CONCRETE

THIS WORK SHALL CONSIST OF LOW-PRESSURE EPOXY INJECTION OF DELAMINATED CONCRETE OF BRIDGE DECKS IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND MANUFACTURER'S RECOMMENDATIONS AS DIRECTED BY THE ENGINEER. ALL SEALING OF THE DECK MUST BE COMPLETE AND QSC PATCHES CURED MORE THAN 10 DAYS BEFORE THE CONCRETE CAN BE INJECTED. NO INJECTION WILL BE ALLOWED BETWEEN NOVEMBER 1ST AND MARCH 31ST.

THE CONTRACTOR SHALL HAVE THREE YEARS EXPERIENCE IN INJECTING CONCRETE DELAMINATIONS. THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTS TO THE PROJECT ENGINEER STATING IT IS EXPERIENCED WITH INJECTING DELAMINATED CONCRETE ON ODOT PROJECTS.

THE INJECTION RESIN SHALL BE THERMAL-CHEM INJECTION RESIN PRODUCT NO. 2, POLY-CARB MARK-10 INJECTION RESIN, DURAL CRETE LV OR SIKADUR 52 INJECTION RESIN. BONDER SHALL BE THERMAL-CHEM BONDER PRODUCT NO. 4, POLY-CARB MARK 8 NON SAG EPOXY BONDER, DURAL CRETE GEL OR SIKADUR HI-MOD GEL (SIKASTIX 31). ALL MATERIALS SHALL BE STORED AND INCORPORATED IN THE WORK AS RECOMMENDED BY THE MANUFACTURER. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT AT JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER ARE SATISFIED THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF EPOXY PRESSURE INJECTION.

THE ENGINEER SHALL SOUND THE ENTIRE DECK WEARING SURFACE AND OUTLINE THE AREAS TO BE INJECTED. SOUNDING MAY HAVE TO BE DELAYED UNTIL THE DECK IS SUFFICIENTLY DRY TO PERMIT DETECTION OF ALL AREAS OF DELAMINATION.

PORTS SHALL BE INSTALLED IN CLEAN HOLES VACUUM-DRILLED TO PREVENT FINES FROM BEING IMPACTED INTO THE CRACK. THE HOLES SHALL BE 6 INCHES DEEP FOR TOP SURFACE INJECTION SO THAT THE EPOXY WILL PENETRATE THE HOLLOW PLANE. THE FIRST PORT SHALL BE LOCATED NEAR THE EDGE OF THE OUTLINED UNSOUND AREA. ADDITIONAL PORTS SHALL BE PLACED AT DISTANCES SLIGHTLY GREATER THAN THE DISTANCE FROM THE FIRST PORT TO THE VOID EDGE. PORT PLACEMENT MUST ENSURE THAT THE GROUT FACE REACHES THE EDGE OF THE VOID BEFORE REACHING THE NEXT PORT. PORTS AND VISIBLE CRACKS SHALL BE SEALED WITH BONDER TO PREVENT EMISSION OF INJECTION RESIN. THE BONDER SHALL CURE 24 HOURS PRIOR TO INJECTION OF EPOXY RESIN.

THE RESIN SHALL BE INJECTED ONLY WHEN THE DECK IS DRY AND ITS TEMPERATURE IS ABOVE 50 DEGREES F. THE INJECTION RESIN SHALL BE AT 70 DEGREES F PRIOR TO MIXING COMPONENTS. THE EPOXY INJECTION EQUIPMENT SHALL BE CAPABLE OF INJECTING THE MATERIAL INTO THE PORTS AT LOW PRESSURE OF 14 TO 20 PSI. THE INJECTION EQUIPMENT SHALL BE CAPABLE OF METERING, MIXING, INJECTING AND MEASURING THE FLOW OF THE EPOXY RESIN ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

THE INJECTION SHALL COMMENCE AT THE EDGE OF THE DELAMINATION AND CONTINUE UNTIL THE EPOXY RESIN APPEARS AT THE NEXT PORT. MOST INCOMPLETELY FILLED VOIDS ARE CAUSED BY THE OPERATOR STOPPING THE INJECTION PROCESS PREMATURELY: THEREFORE, A STEADY, LOW PRESSURE SHALL BE MAINTAINED ON THE EPOXY UNTIL A STEADY CLEAR FLOW APPEARS AT THE NEXT PORT. THEN THE NOZZLE IS REMOVED, THE PORT CLOSED AND THE INJECTION CONTINUED FROM PORT TO PORT UNTIL THE VOID IS COMPLETELY FILLED. SINCE THE GROUT IS MOVING UNDER VISCOUS FLOW CONDITIONS WHICH ARE GOVERNED BY FLUID SURFACE FRICTION, THE INJECTION PROCESS IS SLOW. REGARDLESS, INJECTION PRESSURE SHALL BE 20 PSI MAXIMUM SO THAT COVER CONCRETE IS NOT BLOWN OFF. PROGRESS OF THE EPOXY SHALL BE CHECKED WITH A TAPPING HAMMER.

THE OUTLINED INJECTED VOIDS SHALL BE SOUNDED WITH A HAMMER BY THE ENGINEER. ANY REMAINING UNSOUND AREAS SHALL BE PORTED AND RE-INJECTED AT NO ADDITIONAL COST TO THE STATE. ALL PORTS SHALL BE CUT OFF FLUSH WITH THE SURFACE. ALL EQUIPMENT, LABOR AND MATERIALS REQUIRED BY THE ENGINEER TO ACCOMPLISH THIS WORK SHALL BE SUPPLIED BY THE CONTRACTOR.

THIS SPECIFICATION LIMITS THE INJECTING PRESSURE TO 20 PSI MAX. TO PREVENT BLOWING THE DELAMINATION OFF THE DECK. IF THE CONTRACTOR PREFERS TO UTILIZE A HIGHER PRESSURE INJECTION PROCESS INSTEAD OF THE LOW PRESSURE HEREIN REQUIRED, HE SHALL SUBMIT HIS PROPOSED METHOD OF PREVENTING BLOW OFF OF THE SURFACE TO THE DIRECTOR FOR APPROVAL. NO HIGH PRESSURE INJECTION WILL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE DIRECTOR.

NO VEHICULAR TRAFFIC INCLUDING CONSTRUCTION TRAFFIC WILL BE PERMITTED ON A BRIDGE DECK WHICH HAS RECEIVED TOP SURFACE INJECTION UNTIL THE EPOXY HAS CURED SUFFICIENTLY TO DEVELOP DESIGN STRENGTH. TIME REQUIRED TO CURE WILL DEPEND ON THE EPOXY FORMULATION AND WILL BE DETERMINED BY THE MANUFACTURER. A MINIMUM OF 6 HOURS IS REQUIRED REGARDLESS OF THE MANUFACTURER'S RECOMMENDATION.

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GENERAL NOTES

CUYAHOGA COUNTY
CUY-90-23.979 + VARIOUS

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INSPECTION AND SOUNDING OF INJECTED AREAS: ALL INJECTED AREAS SHALL BE SOUNDED AFTER CURING AND BEFORE FINAL ACCEPTANCE. ALL UNSOUND AREAS SHALL BE RE-REPORTED AND REINJECTED ACCORDING TO THIS NOTE. REINJECTION OF REJECTED AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE UNIT BID PRICE FOR THIS ITEM.

METHOD OF MEASUREMENT: THE FOOTAGE UNDER THIS ITEM SHALL BE THE NUMBER OF SQUARE FEET OF DELAMINATED DECK CONCRETE THAT ARE SATISFACTORILY INJECTED AND ACCEPTED.

BASIS OF PAYMENT: THE CONTRACT UNIT PRICE BID SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND PLACING ALL MATERIALS, SOUNDING THE INJECTED AREAS, SUPPLYING THE MANUFACTURER'S REPRESENTATIVE AND ALL OTHER MATERIAL, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THIS SPECIFICATION.

PAYMENT SHALL BE MADE AT CONTRACT PRICE FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ. METER	STRUCTURE, MISC.: LOW PRESSURE EPOXY INJECTING DELAMINATED CONCRETE-BRIDGE DECK TOP SURFACE

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ESTIMATED QUANTITIES					METRIC BRIDGE SECTION									
					PART	1	2	3	4	5	6	7	8	9
ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	CUY-90-23979L	CUY-90-23979R	CUY-90-24237	CUY-90-26200EN	CUY-90-26200L	CUY-90-26200R	CUY-90-26393	CUY-90-26570EX	CUY-90-26570L	CUY-90-26570R
SPECIAL	519 11550	10	SQ.M.	PATCHING CONCRETE BRIDGE DECK WITH QSC *	1	1	1	1	1	1	1	1	1	1
SPECIAL	530 00600	539	SQ.M.	STRUCTURE, MISC:LOW PRESSURE EPOXY INJECTING DELAMINATED CONCRETE, BRIDGE DECK TOP SURFACE	20	63	22	27	55	70	121	35	50	76
614	11000	LUMP		MAINTAINING TRAFFIC	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP
614	11100	80	M.H.	LAW ENFORCEMENT OFFICER WITH PATROL CAR	8	8	8	8	8	8	8	8	8	8
614	20500	5.00	KM	TEMPORARY LANE LINE, CLASS II, 642 PAINT	0.10	0.40	0.62	0.14	0.42	0.56	1.11	0.34	0.55	0.76
624	10000	LUMP		MOBILIZATION	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	LUMP

* ALL OR A PORTION OF THIS ITEM IS SUBJECT TO NON-PERFORMANCE AS DIRECTED BY THE ENGINEER.

7 12	CUYAHOGA COUNTY CUY-90-23.979 + VAR.	ESTIMATED QUANTITIES	DRAWN RJV CHECKED RJV	REVISED RJV	DATE 2-98	STRUCTURE FILE NUMBER SEE TITLE SHEET	OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 CONSTRUCTION DEPT.
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PART	BRIDGE NO.	LOCATION	WEARING SURFACE TYPE	WEARING SURFACE AREA (SQ. M.)	BRIDGE LIMITS (METERS)	AVG. WIDTH (METERS)	NUMBER OF LANES
1	CUY-90-23979L	I-90 LANE R-W OVER STARKWEATHER AVE.	DENSE CONCRETE	679	50.6	13.4	2 W.B.
2	CUY-90-23979R	I-90 OVER STARKWEATHER AVE.	DENSE CONCRETE	2096	50.4	42.9	3 W.B. 4 E.B.
3	CUY-90-24237	I-90 OVER KENILWORTH AVE.	DENSE CONCRETE	2201	51.5	43.6	4 W.B. 4 E.B.
4	CUY-90-26200EN	I-90 OVER EAST 9TH STREET	DENSE CONCRETE	512	69.2	7.6	1 W.B.
5	CUY-90-26200L	I-90 OVER EAST 9TH STREET	DENSE CONCRETE	1032	70.6	14.6	3 W.B.
6	CUY-90-26200R	I-90 OVER EAST 9TH STREET	DENSE CONCRETE	1312	70.6	18.6	4 E.B.
7	CUY-90-26393	I-90 OVER I-77 RAMPS	DENSE CONCRETE	2699	92.5	29.2	3 W.B. 3 E.B.
8	CUY-90-26570EX	I-90 OVER EAST 14TH STREET	DENSE CONCRETE	941	85.8	11.0	2 W.B.
9	CUY-90-26570L	I-90 OVER EAST 14TH STREET	DENSE CONCRETE	1349	92.2	14.6	3 W.B.
10	CUY-90-26570R	I-90 OVER EAST 14TH STREET	DENSE CONCRETE	2041	94.8	21.6	4 E.B.

BRIDGE DATA

OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 PRODUCTION DEPT.

DATE: 2-98
 REVIEWED: GWN
 STRUCTURE FILE NUMBER: SEE TITLE SHEET

DRAWN: RJW
 CHECKED: MJW

CUYAHOGA COUNTY
 CUY-90-23.979 + VAR.

8
12

MAINTENANCE OF TRAFFIC

ITEM 614 - MAINTAINING TRAFFIC

GENERALLY THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO MAKE THE PROPOSED REPAIR WITH A MINIMUM OF HAZARD, DELAY AND INCONVENIENCE TO THE MOTORISTS USING THE HIGHWAY. FURTHERMORE, IN ADDITION TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE FOLLOWING SPECIFIC PROVISIONS ARE MANDATORY.

I. NOTIFICATION

SINCE FUNCTIONAL TRAFFIC CONTROL IS A MAJOR CONCERN ON THIS PROJECT, IT IS ESSENTIAL THAT THE MOTORING PUBLIC BE ADEQUATELY FOREWARNED OF FUTURE LANE CLOSURES AND TRAFFIC CONSTRUCTIONS. THEREFORE, THE CONTRACTOR SHALL SUBMIT A SCHEDULE TO THE OHIO DEPARTMENT OF TRANSPORTATION INDICATING THE LOCATIONS AND DATES OF THE LANE CLOSURES AT LEAST 3 DAYS PRIOR TO THE IMPLEMENTATION OF ANY SUCH CLOSURES. THE CONTRACTOR SHALL ALSO NOTIFY THE LOCAL LAW ENFORCEMENT AGENCIES OF LANE CLOSURES AT LEAST THREE DAYS PRIOR TO IMPLEMENTATION.

II. NIGHTTIME WORK (HOURS BETWEEN SUNRISE AND SUNSET)

NIGHTTIME WORK SHALL BE PERMITTED IN ACCORDANCE WITH THESE PLANS AND NOTES. THE CONTRACTOR SHALL PROVIDE FLOOD LIGHTING OF THE WORK AREA IN ORDER TO ASSURE THE SAFEST CONDITIONS DURING NIGHTTIME WORK. A PLAN FOR LIGHTING FOR NIGHTTIME OPERATIONS SHALL BE PRESENTED TO AND APPROVED BY THE ENGINEER.

III. RESTRICTIONS:

NOTE: THE WEEKEND IS CONSIDERED TO START AT 6PM FRIDAY AND END 12 MIDNIGHT SUNDAY.

NO LANE CLOSURES WEEKDAYS 6AM MONDAY TO 6PM FRIDAY OR WEEKENDS 6PM TO 7PM FRIDAY.

NO TWO-LANE CLOSURES WEEKDAYS 6AM MONDAY TO 6PM FRIDAY OR WEEKENDS 6PM TO 12 MIDNIGHT FRIDAY, 12 NOON TO 12 MIDNIGHT SATURDAY, AND 12 NOON TO 10PM SUNDAY.

NO LANE CLOSURES SHALL BE IN PLACE WHEN NO WORK IS BEING DONE.

EXIT AND ENTRANCE RAMP LANES SHALL REMAIN OPEN AT ALL TIMES AND EXHIBIT A MINIMUM WIDTH OF 10 FEET.

NOTWITHSTANDING THE ABOVE, NO LANE CLOSURES SHALL OCCUR DURING THE PERIOD BEGINNING AT 12:00 NOON ON THE DAY PRECEDING AND CONTINUING UNTIL NOON ON THE DAY FOLLOWING LEGAL HOLIDAYS AND HOLIDAY WEEKENDS SUCH AS MEMORIAL DAY, FOURTH OF JULY, AND LABOR DAY. FURTHERMORE, NO LANE CLOSURES SHALL BE IMPLEMENTED OR IN PLACE DURING INCREASED TRAFFIC VOLUMES CAUSED BY SPECIAL EVENTS OR WHEN THE ENGINEER DEEMS THE CLIMATOLOGICAL CONDITIONS TOO HAZARDOUS.

MAINTENANCE OF TRAFFIC SYSTEMS

A. WHEN REQUIRED

WHENEVER ANY PART OF THE TRAVELED SURFACE IS BEING WORKED UPON OR IS OTHERWISE NOT SUITABLE FOR SAFE AND CONVENIENT USE BY VEHICLES, TRAFFIC CONTROL DEVICES SUFFICIENT TO PROTECT SUCH AREAS TO ASSURE THE SAFE AND CONVENIENT PASSAGE OF VEHICULAR TRAFFIC SHALL BE INSTALLED AND MAINTAINED. SUCH TRAFFIC CONTROL DEVICES AND THE MANNER IN WHICH THEY ARE USED SHALL BE CONSISTENT WITH THESE PLANS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, HEREINAFTER REFERRED TO AS THE "MANUAL". THE TRAFFIC CONTROL DEVICE SYSTEM SHALL CONSTITUTE THE MINIMUM PROVISIONS FOR TRAFFIC CONTROL FOR EACH PARTICULAR SITUATION. WHENEVER THE ENGINEER DEEMS IT NECESSARY ESPECIALLY WHERE A GRADE, CURVE, OR MERGE CONDITIONS EXISTS, HE MAY DIRECT THAT ADDITIONAL OR ALTERNATIVE DEVICES BE USED.

B. CONDITIONS

DURING ALL PARTS OF THIS PROJECT, SIGNING, BARRICADES, FLASHING ARROWS, ETC. SHALL BE LOCATED AS INDICATED IN THE MANUAL, AS SHOWN ON THE MAINTENANCE OF TRAFFIC SHEETS OR AS SHOWN ON STANDARD DRAWING MT-97.10M DATED APRIL 25, 1994.

C. ADVANCE WARNING SIGNS

ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHENEVER THEY ARE NOT APPLICABLE.

D. FLASHING ARROW REQUIREMENT

WHENEVER ANY PART OF THE TRAVELED SURFACE IS CLOSED, THE MOTORIST SHALL BE WARNED AND DIRECTED BY THE CONTRACTOR THROUGH THE USE OF ONE FLASHING ARROW FOR EACH LANE CLOSED ACCORDING TO THOSE PROVISIONS SET FORTH IN THE "MANUAL", THE MAINTENANCE OF TRAFFIC PLANS, AND STD. DRG. MT-35.10M AND MT-35.11M.

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MAINTENANCE OF TRAFFIC

CUYAHOGA COUNTY
CUY-90-23.979 + VARIOUS

MAINTENANCE OF TRAFFIC

E. LAW ENFORCEMENT OFFICER WITH PATROL CAR

THE CONTRACTOR SHALL PROVIDE AND PAY ALL COST FOR THE SERVICES OF LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR THE EXCLUSIVE PURPOSE OF CONTROLLING TRAFFIC AS DETERMINED BY THE ENGINEER. THE NUMBER OF OFFICERS AND CARS REQUIRED FOR THIS PURPOSE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE OFFICERS SHALL MOVE THEIR PATROL CARS AS NECESSARY TO ENSURE THEIR CONSTANT PRESENCE AT THE POINT(S) OF SLOWDOWN, STOPPAGE OR BACK-UP. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS FOR SCHEDULING AND PAYMENT OF LAW ENFORCEMENT OFFICER WITH PATROL CAR. PAYMENT FOR THE ABOVE WILL BE INCLUDED IN THE MAN HOUR BID PRICE FOR ITEM SPECIAL- LAW ENFORCEMENT OFFICER WITH PATROL CAR.

F. PROTECTION OF PUBLIC

WHENEVER ANY WORK IS BEING DONE DIRECTLY OVER A TRAVELED LANE OR SHOULDER THE CONTRACTOR SHALL SUPPLY SUFFICIENT SAFETY EQUIPMENT AS APPROVED BY THE DIRECTOR TO PROTECT THE TRAVELING PUBLIC FROM ANY CONSTRUCTION DEBRIS. IF TRAVELED LANES UNDER STRUCTURES ARE TO BE CLOSED FOR REASONS OF SAFETY, METHOD AND TIME OF CLOSURE MUST BE APPROVED PRIOR TO IMPLEMENTATION. PERSONAL CARS SHALL NOT BE PARKED WITHIN THE L/A.

G. FAILURE TO COMPLY

IF THERE IS ANY FAILURE TO COMPLY WITH PROVISIONS FOR TRAFFIC CONTROL SET OUT IN THESE PLANS AND NOTES, OR WITH THE PROVISIONS OF THE "MANUAL", THE HIGHWAY IN THE VICINITY OF THE WORK AREA SHALL NOT BE CONSIDERED IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC. ANY FAILURE TO KEEP THE HIGHWAY, IN THE VICINITY OF THE WORK AREA, IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC SHALL BE CONSIDERED A BREACH OF THIS CONTRACT. WORK SHALL BE SUSPENDED UNTIL THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF THE AFOREMENTIONED ITEMS.

TRAFFIC CONTROL MATERIAL

A. SIGNS

SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZES SHALL BE AS PROVIDED IN THE "MANUAL", OR IN DESIGN DRAWINGS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION. THE SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO THE START OF THE PROJECT.

B. SIGN SUPPORTS

SIGN SUPPORTS SHALL BE AS SHOWN ON STANDARD DRAWINGS MT-105.10M AND MT-105.11M.

C. FLASHING ARROWS

THE ELECTRIC FLASHING ARROW SHALL BE AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-35.10M AND MT-35.11M.

D. CONES

CONES SHALL BE LOCATED AS SHOWN IN THE "MANUAL" AND THE TRAFFIC CONTROL PLANS.

E. DRUMS

DRUMS SHALL BE LOCATED AS SHOWN ON THE TRAFFIC CONTROL PLANS AND ARE REQUIRED FOR NIGHTTIME CLOSURES.

F. LIGHTING DEVICES

FLASHERS SHALL BE 12 VOLT BATTERY-OPERATED MODELS WITH 7 INCH DIAMETER YELLOW LENSES ILLUMINATED BY RAPID INTERMITTENT FLASHERS OF SHORT DURATION AND SHALL BE PLACED ON ALL SIGNS AT ALL TIMES.

PAYMENT

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING AND REMOVING TEMPORARY MAINTENANCE OF TRAFFIC CONTROL DEVICES SHALL BE MADE UNDER THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

PAYMENT FOR PROVIDING LAW ENFORCEMENT OFFICER WITH PATROL CAR SHALL BE MADE UNDER THE MAN HOUR BID PRICE FOR ITEM 614-LAW ENFORCEMENT OFFICER WITH PATROL CAR.

COOPERATION BETWEEN CONTRACTORS

CONTRACTORS ARE REFERRED TO SECTION 105.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE CONTRACTOR MUST COOPERATE WITH THE GREAT LAKES CONSTRUCTION COMPANY OF PROJECT 315-97. PROJECT 315-97 WILL CONTROL WHEN CERTAIN LANE CLOSURES ARE IN PLACE.

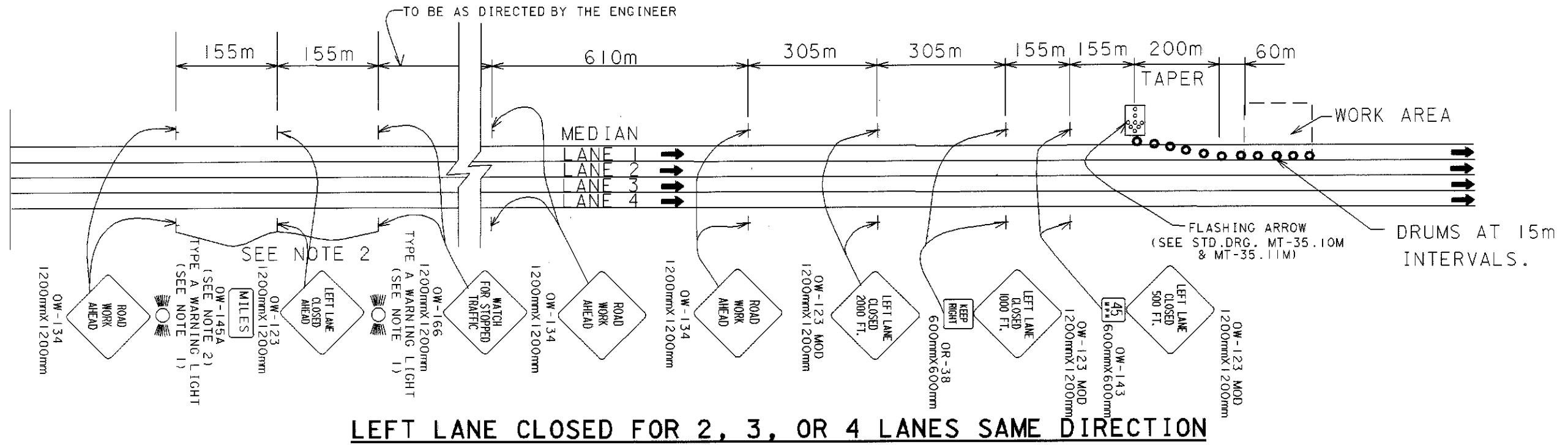
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MAINTENANCE OF TRAFFIC

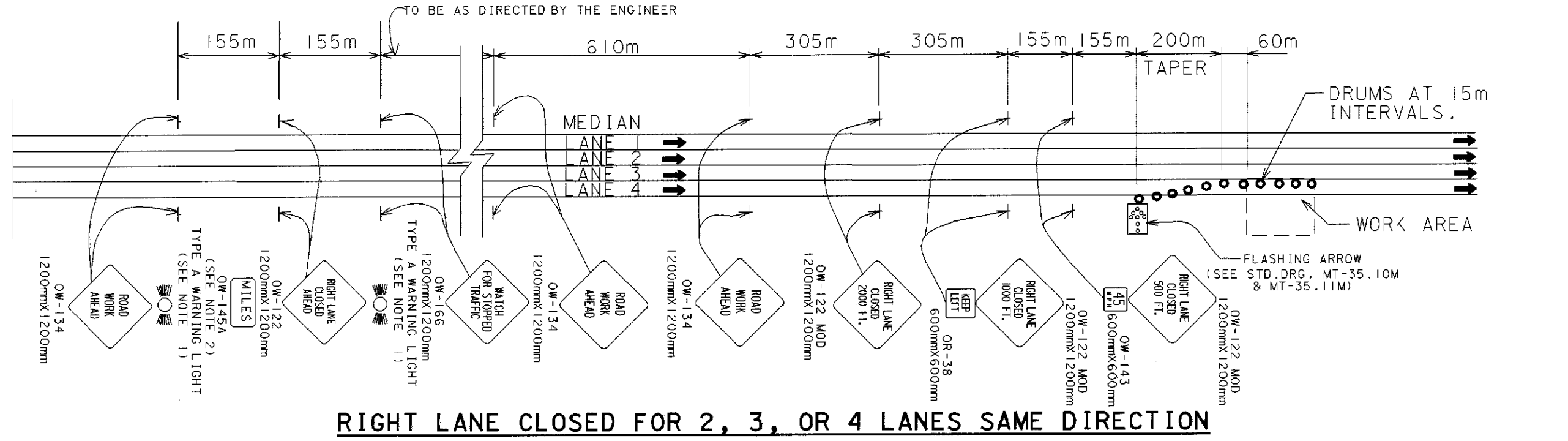
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LEFT LANE CLOSED FOR 2, 3, OR 4 LANES SAME DIRECTION

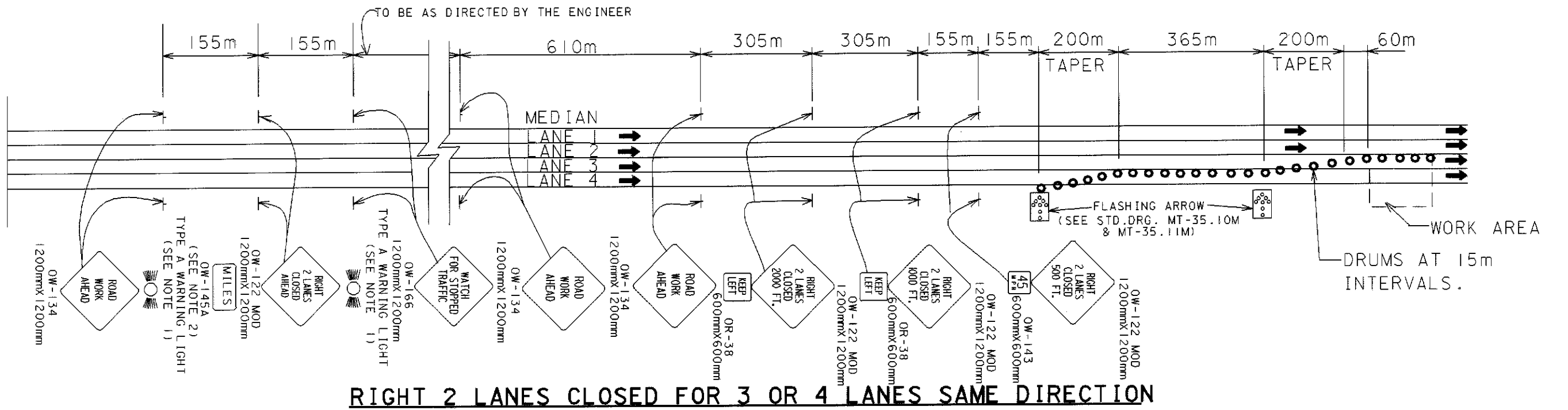
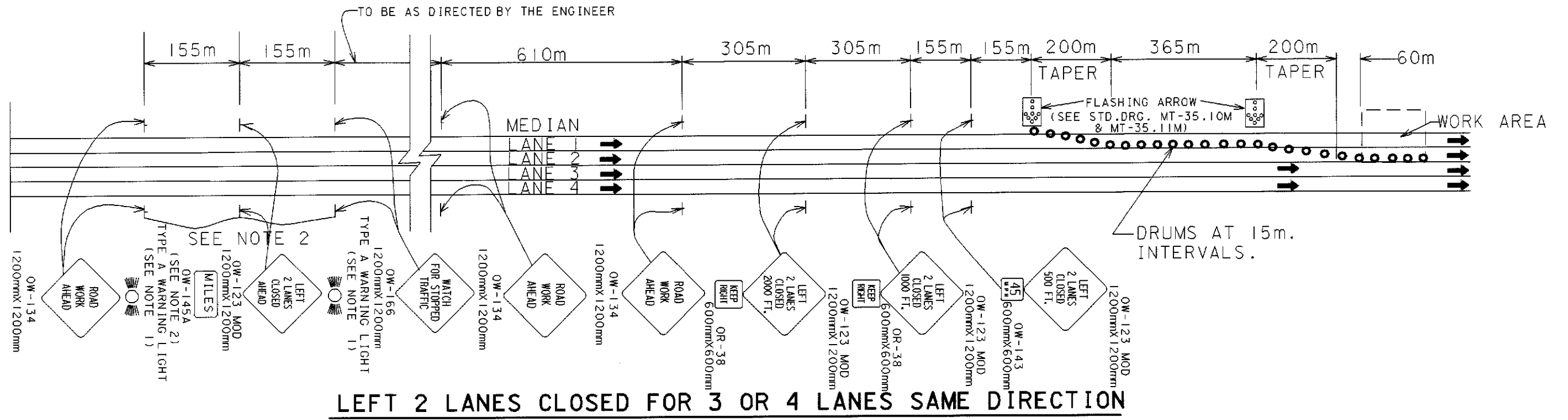


RIGHT LANE CLOSED FOR 2, 3, OR 4 LANES SAME DIRECTION

GENERAL NOTES:

1. TYPE A FLASHING WARNING LIGHTS SHOWN ON THE "ROAD WORK AHEAD" AND "RIGHT(OR LEFT) LANE CLOSED AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
2. EXTRA ADVANCE WARNING SIGN GROUPS CONSISTING OF OW-128, OW-122, OR OW 123 AND OW-166 SIGNS PLUS DISTANCE PLATES SHALL BE ERECTED AT THE DIRECTION OF THE ENGINEER.
3. THE ARRANGEMENT OF SIGNS SHOWN ABOVE SHALL BE APPLIED TO ALL PORTIONS OF ROADWAY, INCLUDING RAMPS, WHICH ARE LOCATED WITHIN THE MAINTENANCE OF TRAFFIC LIMITS.

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GENERAL NOTES:

1. TYPE A FLASHING WARNING LIGHTS SHOWN ON THE "ROAD WORK AHEAD" AND "RIGHT(OR LEFT) 2 LANES CLOSED AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
2. EXTRA ADVANCE WARNING SIGN GROUPS CONSISTING OF OW-128, OW-122 MOD, OR OW 123 MOD AND OW-166 SIGNS PLUS DISTANCE PLATES SHALL BE ERECTED AT THE DIRECTION OF THE ENGINEER.
3. THE ARRANGEMENT OF SIGNS SHOWN ABOVE SHALL BE APPLIED TO ALL PORTIONS OF ROADWAY, INCLUDING RAMPS, WHICH ARE LOCATED WITHIN THE MAINTENANCE OF TRAFFIC LIMITS.