

SHEET NO.

REFERE

2nd CONDUIT, TYPE B

CATCH BASIN, NO. 6

WORK ZONE IMPACT ATTENUATOR,
24" WIDE HAZARDS,
(UNIDIRECTIONAL)

WORK ZONE IMPACT ATTENUATOR,
24" WIDE HAZARDS, (BIDIRECTIONAL)

WORK ZONE RAISED PAVEMENT
MARKER, WHITE

WORK ZO
MARKER, YELLOW



DESIGN AGENCY

E.L. ROBINSON ENGINEERING
1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 160 Grandview Heights, Ohio
DESIGNER
SWC
REVIEWER
MLL 10/04/23
PROJECT ID
105187
SHEET
18
TOTAL
157

MAINTENANCE OF TRAFFIC SUBSUMMARY

SHEET NO.	REFERENCE NO.	STATION		SIDE	202			611			614													615			622						
		FROM	TO		PAVEMENT REMOVED	PIPE REMOVED, 24" AND UNDER	CATCH BASIN REMOVED	12" CONDUIT, TYPE B	CATCH BASIN, NO. 6	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (BIDIRECTIONAL)	WORK ZONE RAISED PAVEMENT MARKER, WHITE	WORK ZONE RAISED PAVEMENT MARKER, YELLOW	BARRIER REFLECTOR, TYPE 1, ONE WAY	BARRIER REFLECTOR, TYPE 1, TWO WAY	OBJECT MARKER, ONE WAY	OBJECT MARKER, TWO WAY	MAINTAINING TRAFFIC, MISC.: TEMPORARY MEDIAN	WORK ZONE CENTER LINE, CLASS I, 807 PAINT	WORK ZONE EDGE LINE, WHITE, CLASS I, 6", 807 PAINT	WORK ZONE EDGE LINE, YELLOW CLASS I, 6", 807 PAINT	WORK ZONE CHANNELIZING LINE, CLASS I, 12", 807 PAINT	WORK ZONE DOTTED LINE, WHITE, CLASS I, 6", 807 PAINT	WORK ZONE DOTTED LINE, YELLOW, CLASS I, 6", 807 PAINT	WORK ZONE STOP LINE, CLASS I	WORK ZONE ARROW, CLASS I	ROADS FOR MAINTAINING TRAFFIC	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN	PORTABLE BARRIER, UNANCHORED	PORTABLE BARRIER, ANCHORED, AS PER PLAN	GLARE SCREEN	
PHASE 2					SY	FT	EACH	FT	EACH	EA	EA	EA	EA	EACH	EACH	EACH	EACH	SF	MILE	MILE	MILE	FT	FT	FT	FT	EACH	LS	SY	SY	FT	FT	FT	
31	ELW-4	213+50.00	239+65.00	RT																													
31	ELY-5	213+50.00	239+22.00	RT																0.49	0.50												
31	ELY-6	214+38.00	238+90.00	LT/RT							117										0.46												
31	ELW-5	214+60.00	238+60.00	LT/RT									115							0.45													
31	PB-6	215+55.00	239+00.00	LT/RT								1			7	40	7	40												2095	250	1845	
31	PB-7	221+25.00	233+70.00	RT						1					26		26													745	500		
33	DLW-4	236+20.00	237+2																														

MAINTENANCE OF TRAFFIC SUBSUMMARY

DESIGN AGENCY

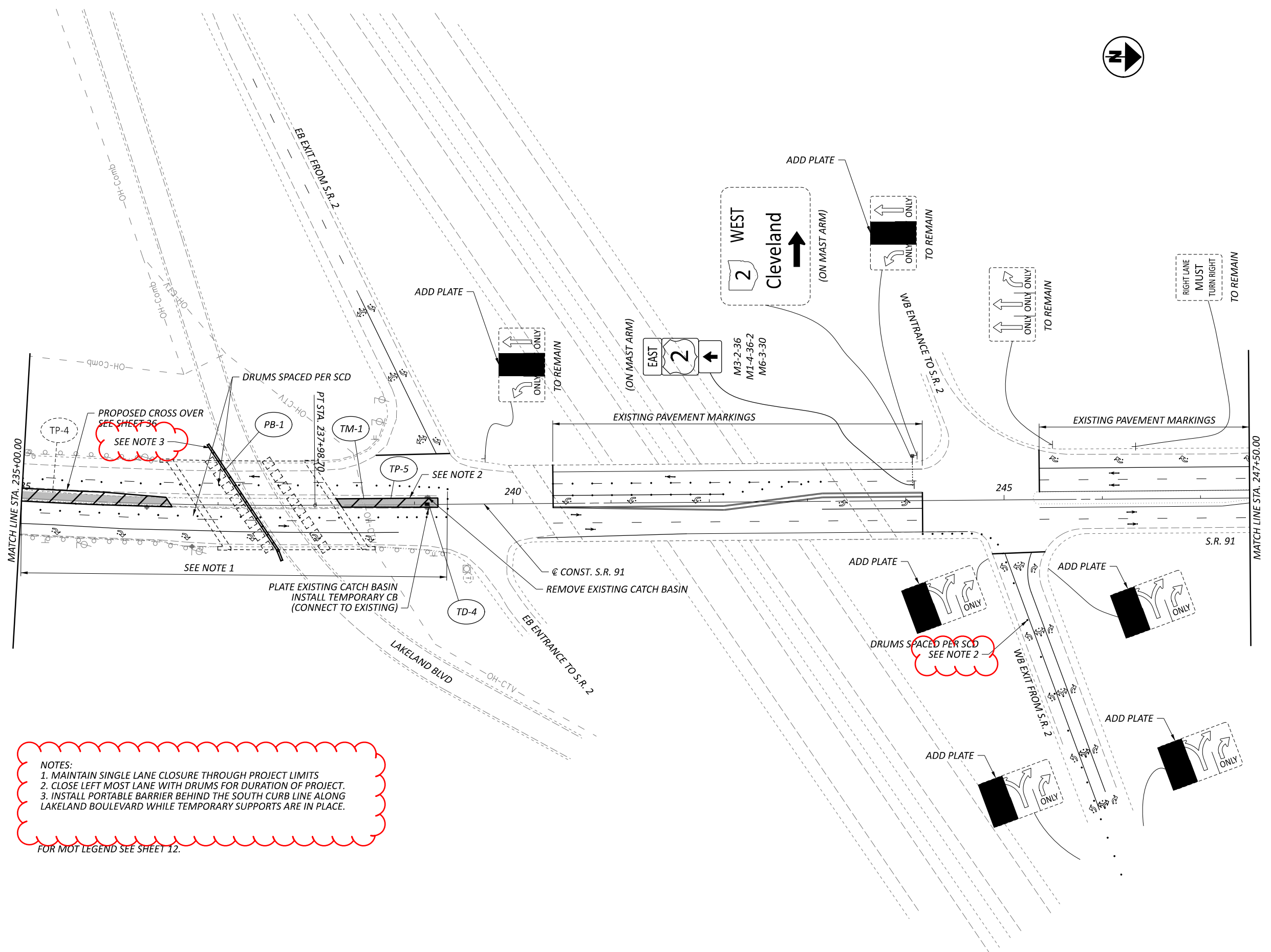
E.L. ROBINSON
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 Grandview Heights, Ohio

DESIGNER
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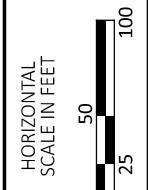
REVIEWER
 MLL 10/04/23

PROJECT ID
 105187

SHEET TOTAL
 19 | 157

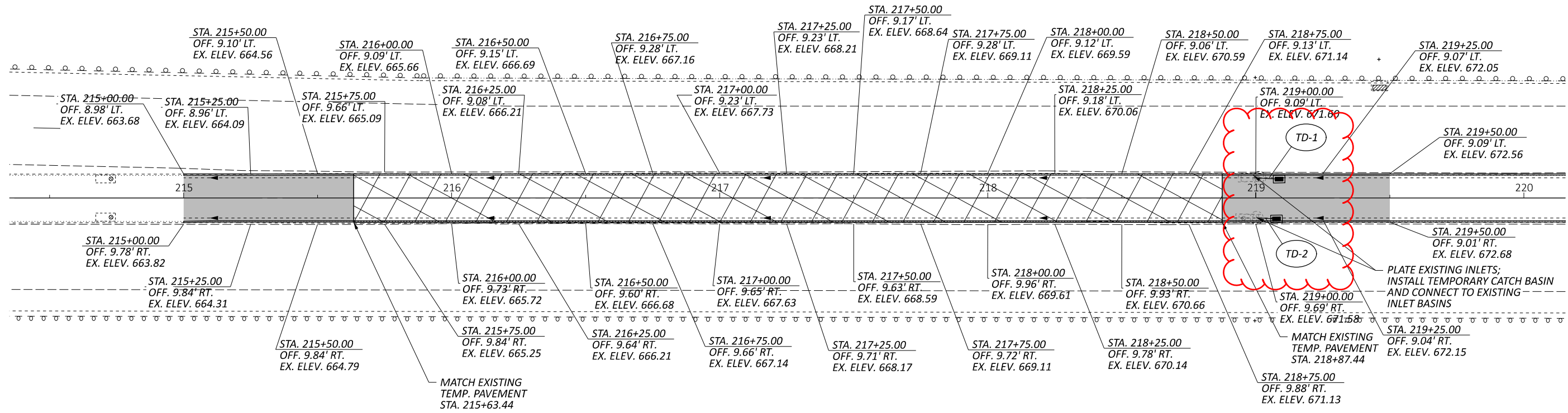
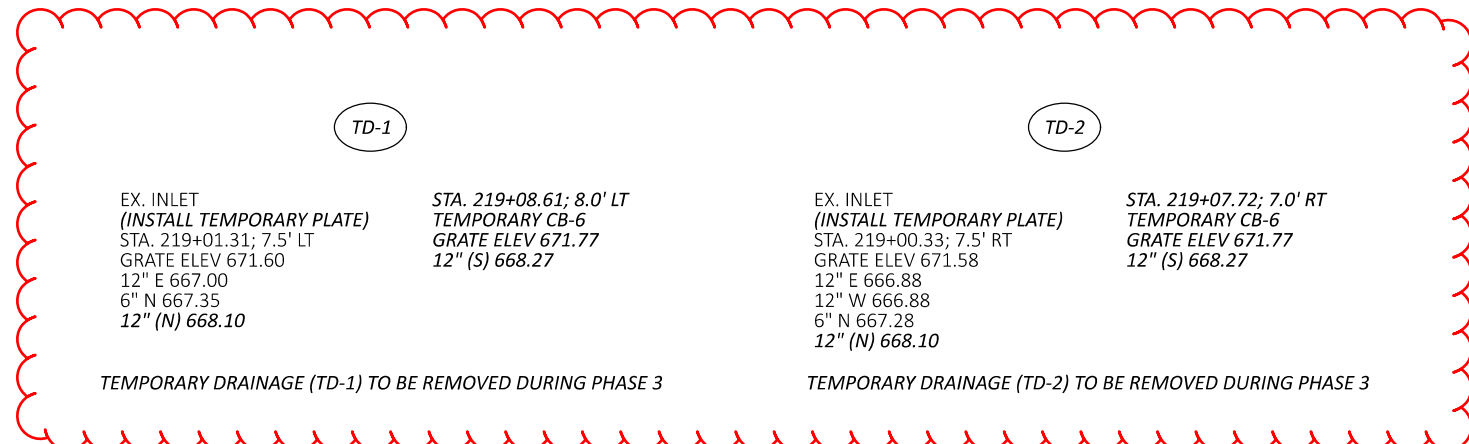


NOTES:
 1. MAINTAIN SINGLE LANE CLOSURE THROUGH PROJECT LIMITS
 2. CLOSE LEFT MOST LANE WITH DRUMS FOR DURATION OF PROJECT.
 3. INSTALL PORTABLE BARRIER BEHIND THE SOUTH CURB LINE ALONG LAKELAND BOULEVARD WHILE TEMPORARY SUPPORTS ARE IN PLACE.
 FOR MOT LEGEND SEE SHEET 12.

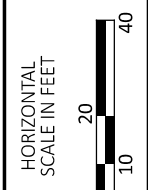
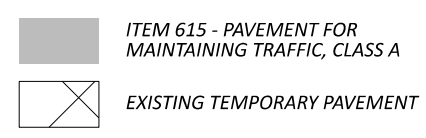


MAINTENANCE OF TRAFFIC - PRE-PHASE PLANS
 STA. 235+00.00 TO STA. 247+50.00

DESIGN AGENCY	
ER	
E.L. ROBINSON ENGINEERING 1468 West 9th St, Suite 800 Cleveland, Ohio 950 Goodale Blvd, Suite 160 Grandview Heights, Ohio	
DESIGNER	SWC
REVIEWER	MJC
PROJECT ID	105187
SHEET	TOTAL
23	157



NOTES:
 1. CONTRACT SHALL EXPOSE EXISTING TEMPORARY PAVEMENT PLACED ON A PREVIOUS PROJECT BASED ON RECORD PLAN INFORMATION.



MAINTENANCE OF TRAFFIC - CROSS OVER DETAILS
 SOUTH CROSS OVER

DESIGN AGENCY

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MJC 10/04/23

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SHEET TOTAL

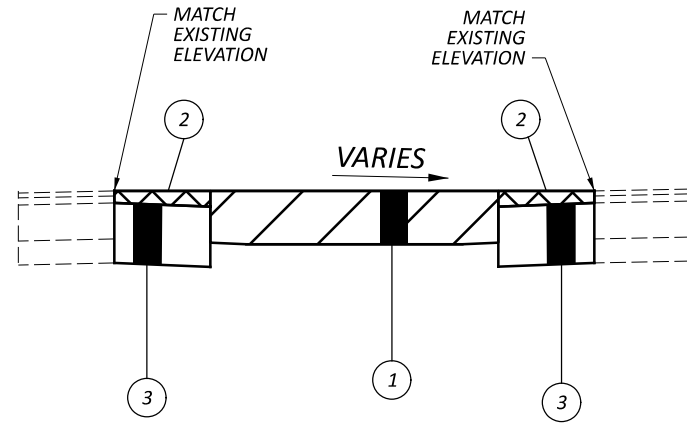
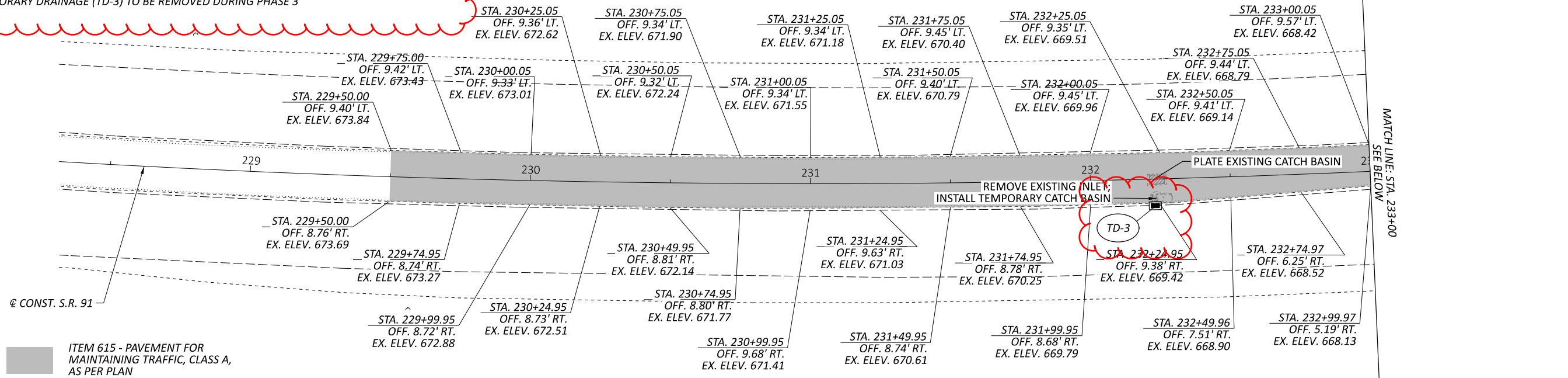
35 157

EX. CB
(INSTALL TEMPORARY PLATE)
STA. 232+22.86; 0.0' RT
GRATE ELEV 669.55
12" E 665.30

EX. INLET
(TO BE REMOVED)
STA. 232+22.86; 6.0' RT

STA. 232+23.07; 10.9' RT
TEMPORARY CB-6
GRATE ELEV 669.45
12" (E) 665.23
(CONTRACTOR TO FIELD VERIFY)

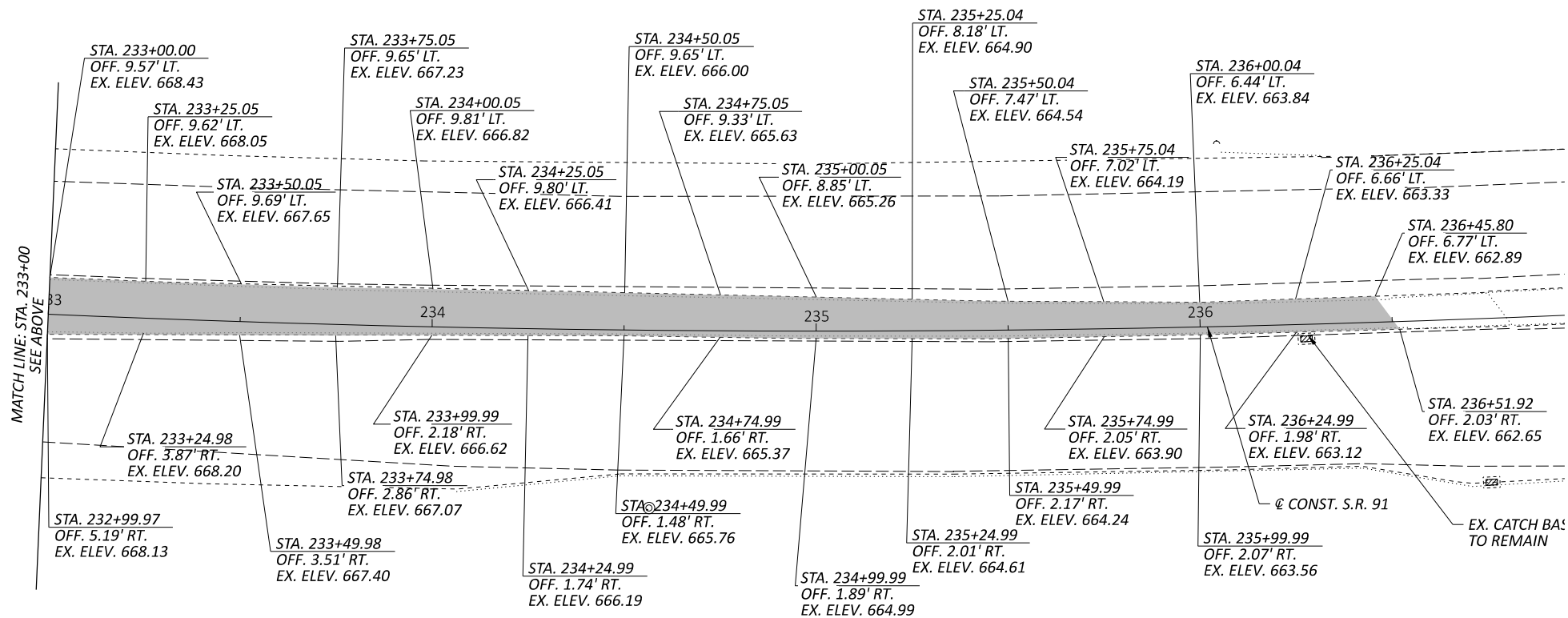
TEMPORARY DRAINAGE (TD-3) TO BE REMOVED DURING PHASE 3



- 1 ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A
- 2 ITEM 615 - PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A, AS PER PLAN
- 3 PERMANENT PAVEMENT
9" - 301 ASPHALT BASE
6" - 304 AGGREGATE BASE
(SEE NOTE 1)

TEMPORARY PAVEMENT NOTES:

1. CONTRACTOR SHALL INSTALL PERMANENT PAVEMENT TO THE TOP OF THE 301 LAYER AS SHOWN IN THE TYPICAL SECTION AND PLACE TEMPORARY PAVEMENT IN BETWEEN IN THE MEDIAN.
2. CONTRACTOR SHALL PLACE TEMPORARY SURFACE AND INTERMEDIATE COURSE LAYERS ONTOP OF TEMPORARY AND PERMANENT PAVEMENT INCLUDING A VARIABLE DEPTH INTERMEDIATE COARSE TO MEET THE SURFACE ELEVATIONS SHOWN IN THIS SHEET.
3. INTERMEDIATE COURSE PLACED OVER PERMANENT PAVEMENT CAN BE LEFT IN PLACE PROVIDED IT MEETS THE THICKNESS AND MATERIAL SPECS SHOWN IN THE TYPICAL SECTIONS.



MAINTENANCE OF TRAFFIC - CROSS OVER DETAILS
NORTH CROSS OVER

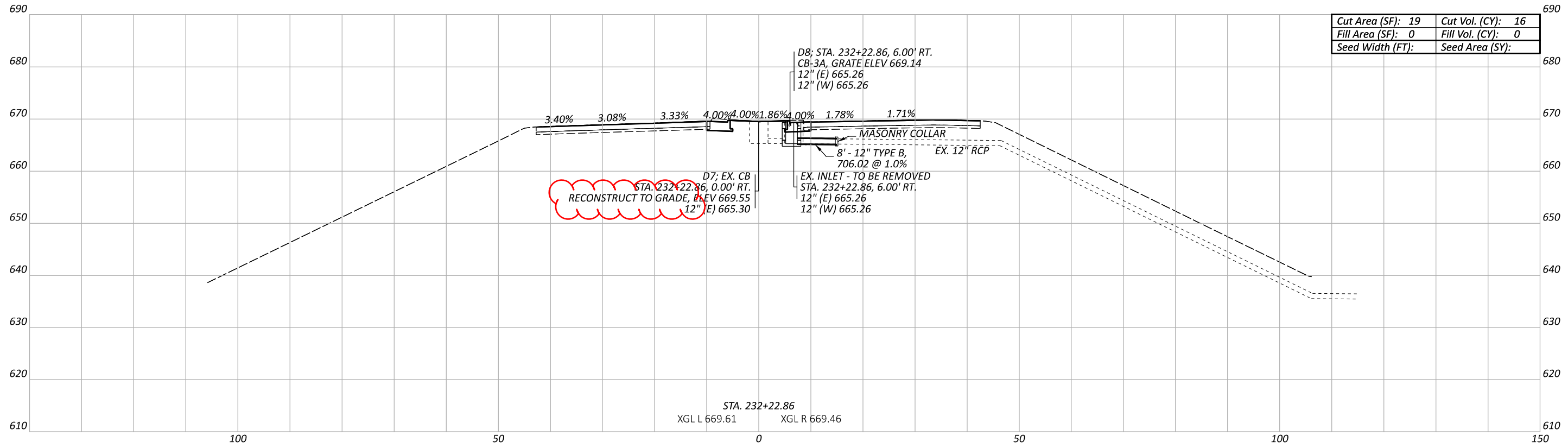
DESIGN AGENCY
ER

DESIGNER
SWC

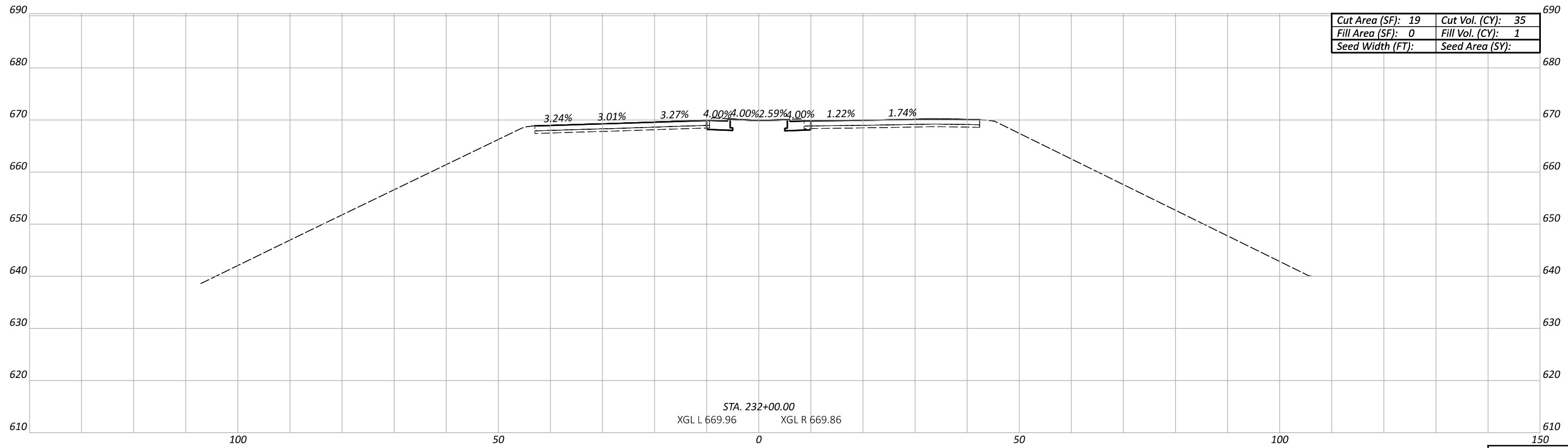
REVIEWER
MJC 10/04/23

PROJECT ID
105187

SHEET TOTAL
36 157



Cut Area (SF):	19	Cut Vol. (CY):	16
Fill Area (SF):	0	Fill Vol. (CY):	0
Seed Width (FT):		Seed Area (SY):	



Cut Area (SF):	19	Cut Vol. (CY):	35
Fill Area (SF):	0	Fill Vol. (CY):	1
Seed Width (FT):		Seed Area (SY):	

CROSS SECTIONS - S.R. 91
 STA. 232+00.00 TO STA. 232+22.86

DESIGN AGENCY



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DESIGNER
 SWC

REVIEWER
 MLL 10/04/23

PROJECT ID
 105187

Sheet Totals			105187	
Seeding	Cut	Fill	SHEET	TOTAL
			61	157

REFERENCE NO.	SHEET NO.	SIDE	ROADWAY	STATION TO STATION	625												632		
					CONNECTION, FUSED PULL APART EACH	CONNECTION, UNFUSED PERMANENT EACH	LIGHT POLE, CONVENTIONAL, DESIGN A12B30 EACH	LIGHT POLE ANCHOR BOLTS ON STRUCTURE EACH	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE FT	NO. 10 AWG POLE AND BRACKET CABLE FT	CONDUIT, 2", 725.04 FT	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-II/III-M, 10500-12900 LUMENS EACH	TRENCH FT	STRUCTURE JUNCTION BOX EACH	PULL BOX, 725.08, 18" EACH	POWER SERVICE, AS PER PLAN EACH	DISCONNECT CIRCUIT EACH	CONDUIT RISER, 2" DIAMETER EACH	
A12	75	LT	SR-91	226+26.31	3		1	4		126		1		1					
A12-A11	75	LT	SR-91	226+26.31 223+83.90					756		242								
A11	75	LT	SR-91	223+83.90	3		1	4		126		1							
A11-PB-1	75	LT	SR-91	223+83.90 222+65.99					402		124		78	1					
PB-1	75	LT	SR-91	222+65.99		3									1				
PB1-EXA10	75	LT	SR-91	222+65.99 222+08.23					189		53		53						
EXA10	75	LT	SR-91	222+08.23		3			120								1		1
B12	75	RT	SR-91	227+20.04	3		1	4		126		1		1					
B12-B11	75	RT	SR-91	227+20.04 224+79.20					759		243								
B11	75	RT	SR-91	224+79.20	3		1	4		126		1		1					
B11-PB-2	75	RT	SR-91	224+79.20 223+57.67					414		128		69						
PB-2	75	RT	SR-91	223+57.67		3									1				
PB2-EXB10	75	RT	SR-91	223+57.67 222+87.75					240		70		70						
EXB10	75	RT	SR-91	222+87.75		3			120								1		1
PROJECT															1				
TOTALS CARRIED TO GENERAL SUMMARY					12	12	4	16	3000	504	860	4	270	4	2	1	2		2

ITEM 625 LUMINAIRE, CONVENTIONAL, SOLID-STATE (LED), AS PER PLAN, IES-II/III-M, 10500-12900 LUMENS

IN ADDITION TO THE REQUIREMENTS OF CMS 625.08 AND 725.11 THE FOLLOWING IS ADDED.

STREETLIGHTING LUMINAIRES SHALL BE LED, 3,000K CCT, 7 CRI MIN., AND SHALL COMPLY WITH I.E.S. CLASSIFICATIONS FOR TYPE II OR TYPE III DISTRIBUTION. LUMINAIRES SHALL BE EQUIPPED WITH A PROPER SLIP FITTER TO MATCH THE POLE SPECIFIED AND SHALL INCLUDE A DRIVER COMPLYING WITH 725.11C AND MATCHES THE VOLTAGE OF THE EXISTING CIRCUIT.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

FIRST ENERGY
ATTN: JOHN ZASSICK
6896 MILLER RD, SUITE 101
BRECKSVILLE, OH 44141
(440) 546-8706
EMAIL: JMZASSICK@FIRSTENERGYCORP.COM

PROPOSED LUMINAIRES SHALL HAVE AN INTENSITY AND LIGHTING CONTOUR AS THE EXISTING LUMINAIRES.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID FOR EACH ITEM 625, "LUMINAIRE, CONVENTIONAL, SOLID-STATE (LED), AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED FOR SATISFACTORY PERFORMANCE OF THIS WORK.

ITEM 625 - POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

FIRST ENERGY
ATTN: JOHN ZASSICK
6896 MILLER RD, SUITE 101
BRECKSVILLE, OH 44141
(440) 546-8706
EMAIL: JMZASSICK@FIRSTENERGYCORP.COM

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT THE BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE FOR EACH EXISTING POWER SERVICE, SINCE THERE MAY BE A REASSIGNMENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

THIS ITEM SHALL INCLUDE ALL LABOR, MATERIALS AND INCIDENTALS TO RE-ESTABLISH POWER SERVICE AT THE PROPOSED POLE LOCATIONS FROM THE EXISTING CIRCUIT AS DETAILED IN THE PLANS.

DESIGN AGENCY



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Grandview Heights, Ohio

DESIGNER

SWC

REVIEWER

MJC 10/04/23

PROJECT ID

105187

SHEET TOTAL

74 | 157

ITEM 509 - CONCRETE REINFORCEMENT, REPLACEMENT OF EXISTING CONCRETE REINFORCEMENT, AS PER PLAN:

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT CONCRETE REINFORCEMENT BY THE NUMBER OF POUNDS ACCEPTED IN PLACE. REPLACE ALL EXISTING STEEL REINFORCEMENT BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW CONCRETE REINFORCEMENT OF THE SAME SIZE, COATING, AND MATERIAL AT NO COST TO THE DEPARTMENT.

A QUANTITY OF 100 LBS WAS CARRIED TO THE ESTIMATED QUANTITIES FOR THIS ITEM.

ITEM 510, DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN:

DRILL DOWEL HOLES WHERE SHOWN IN THE PLANS. INSTALL REINFORCING STEEL ACCORDING TO ITEM 510 USING EPOXY GROUT, 705.20. PRIOR TO DRILLING DOWEL HOLES IN EXISTING PIER CAPS AND ABUTMENTS, LOCATE ALL EXISTING REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AID OF A REINFORCING STEEL BAR LOCATOR (PACHOMETER). IF AN EXISTING BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, MOVE THE DOWEL HOLE TO EITHER SIDE OF THE EXISTING BAR.

HORIZONTAL DOWELS IN THE WINGWALLS SHALL MEET THE ACCEPTANCE CRITERIA OF TO ICEES AC308. THE REINFORCING STEEL DOWEL BARS ARE TO BE GALVANIZED AS LISTED IN REINFORCING STEEL TABLES.

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA. BRIDGE DECK, AS PER PLAN

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA. BRIDGE DECK (PARAPET), AS PER PLAN

ITEM 511 - CLASS QC1 CONCRETE, PIER CAP, AS PER PLAN

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN

1. GENERAL REQUIREMENTS:

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A RUBBED SURFACE IN ACCORDANCE WITH CMS 511.15 (B) ON ALL EXPOSED SURFACES.

2. MATERIALS:

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

WATER/CEMENT RATIO SHALL BE A MINIMUM OF 0.42 AND MAXIMUM OF 0.50.

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.62 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

DECK SLAB THICKNESS FOR CONCRETE QUANTITY:

THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 3 3/4" INCHES AND A HAUNCH WIDTH EQUAL TO THE TOP FLANGE WIDTH. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE.

THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.23.

ITEM 512 - SEALING CONCRETE SURFACES

THE CONTRACTOR SHALL SEAL ALL EXPOSED SUBSURFACE ELEMENTS INCLUDING ABUTMENTS, WINGWALL AND PIER, AND ALL BRIDGE RAILINGS AND RAILING ON APPROACH SLABS AND PORTIONS OF DECK AS SPECIFIED IN THE PLANS WITH EPOXY URETHANE SEALER.

THE COLOR OF THE URETHANE FINISH COAT OF THE EPOXY-URETHANE SEALER SHALL BE TINTED SO THE FINAL COLOR IS FEDERAL COLOR STANDARD NO. 27722 (BUFF).

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

THE CONTRACTOR SHALL PATCH THE SPALLED AND UNSOUND AREAS OF THE PIERS AND THE FORWARD AND REAR ABUTMENTS AS SHOWN IN THESE PLANS AND AS IDENTIFIED BY THE PROJECT ENGINEER. THE QUANTITIES SHOWN ON THE PLAN DETAILS HAVE BEEN INCREASED BY 25% AND CARRIED TO THE ESTIMATED QUANTITIES TO ACCOUNT FOR ANTICIPATED DETERIORATION BETWEEN THE TIME OF INITIAL SOUNDING AND THE TIME OF CONSTRUCTIONS.

PRIOR TO THE SURFACE CLEANING SPECIFIED IN C&MS 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED STEEL REINFORCEMENT. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ITEM 526 - REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN

THE APPROACH SLABS SHALL BE CONSTRUCTED PER ODOT STANDARD CONSTRUCTION DRAWING AS-1-15 AND WITH THE INCLUSION OF AN INTEGRAL REINFORCED CONCERTE MEDIAN BARRIER (ISLAND). THE ADDITIONAL LABOR AND MATERIALS INCLUDING CONCRETE AND REINFORCING'S STEEL SHOWN IN THE PLAN DETAILS ARE TO BE INCLUDED IN THE SQUARE YARD PRICE BID FOR THIS ITEM.

ITEM 601 - SLOPE PROTECTION, MISC.: GROUTING OF CRUSHED AGGREGATE SLOPE PROTECTION

THE INTENT OF THIS ITEM IS TO PROVIDE AN INSPECTION ACCESS PATH. THE PATH SHALL BE CONSTRUCTED BY GROUTING IN PLACE CRUSHED AGGREGATE SLOPE PROTECTION. THE PATH SHALL HAVE A NOMINAL WIDTH OF THREE FEET AND EXTEND FROM THE ABUTMENT TO THE TOE OF SLOPE. THE GROUT SHALL BE MIXED AND PLACED IN ACCORDANCE WITH CMS 601.05. THE GROUT SHALL COMPLETELY FILL ALL VOIDS WITHIN THE 12-INCH THICK CRUSHED AGGREGATE SLOPE PROTECTION.

MEASUREMENT AND PAYMENT: ACCEPTED QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER CUBIC YARD OF GROUT PLACED. THIS PRICE SHALL INCLUDE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS. CRUSHED AGGREGATE SLOPE PROTECTION SHALL BE PAID FOR SEPARATELY.

ITEM 607 - VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN (6'-6" TALL)

THIS ITEM SHALL BE AS PER THE DETAILS IN THE PLANS, THE APPLICABLE PORTIONS OF STANDARD DRAWING VPF-1-90 AND THE FENCE MANUFACTURER'S RECOMMENDATIONS. WITH THE FOLLOWING MODIFICATIONS. THE CONTRACTOR SHALL USE A 6'-6" TALL VANDAL PROTECTIVE FENCE AS DETAILED IN THE PLANS.

THE ANCHORS ON THE TOP OF RAILING SHALL BE CAST IN PLACE

THE COLOR OF THE FENCE FABRIC, RAILS, POSTS, BASE PLATES TIE WIRE AND ADDITIONAL VISUAL HARDWARE AND CAULK SHALL BE BLACK.

INSTALL FENCING FOR EACH CONSTRUCTION PHASE PRIOR TO OPENING THAT PHASE TO VEHICULAR AND/OR PEDESTRIAN TRAFFIC.

THE DEPARTMENT WILL PAY FOR THE COMPLETED AND ACCEPTED QUANTITIES AT THE UNIT PRICE BID PER FOOT FOR ITEM 607 - VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

ITEM 623 - CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN

AFTER COMPLETION OF ALL WORK, BUT PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, AN OHIO PROFESSIONAL SURVEYOR SHALL DETERMINE THE MINIMUM VERTICAL CLEARANCES OF ALL EXISTING AND NEW BRIDGES WITHIN THE PROJECT LIMITS. AT A MINIMUM, MEASUREMENTS SHALL BE TAKEN ALONG EACH FASCIA BEAM AT THE EDGE OF SHOULDERS, EDGE LINES, LANE LINES, AND CROWN OF THE ROADWAY BELOW. FOR BRIDGES OVER RAILROADS, MEASUREMENTS SHALL BE TAKEN ALONG EACH FASCIA BEAM AND EACH MEDIAN BEAM AT BOTH RAILS OF EACH TRACK BELOW. THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM SHALL BE USED, WHERE APPLICABLE, TO DOCUMENT THE MEASUREMENTS. WHERE THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM IS NOT APPLICABLE, THE MEASUREMENTS SHALL BE DOCUMENTED ON A CONTRACTOR DEVELOPED FORM THAT CLOSELY RESEMBLES THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM AND ACCURATELY DEPICTS THE BRIDGE AND BELOW LANE AND SHOULDER AND/OR TRACK CONFIGURATION. THE COMPLETED FORM SHALL BEAR THE STAMP OR SEAL OF THE OHIO PROFESSIONAL SURVEYOR WHO HAS TAKEN THE MEASUREMENTS AND SHALL BE SUBMITTED TO THE PROJECT ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

THE ODOT DISTRICT 12 VERTICAL CLEARANCE SURVEY FORM CAN BE DOWNLOADED FROM THE FOLLOWING WEBSITE

<http://www.dot.state.oh.us/districts/D12/HighwayManagement/Documents>

ITEM 625. STRUCTURE GROUNDING SYSTEM, AS PER PLAN:

INSTALL NEW STRUCTURE GROUNDING SYSTEM PER ODOT STANDARD DRAWING HL-50.21.

IF THE EXISTING GROUNDING SYSTEM IS FUNCTIONING, THE CONTRACTOR IS PERMITTED TO CONNECT THE NEW SYSTEM TO THE EXISTING GROUND WIRES THROUGH THE NEW PIER CAPS IN LIEU OF PROVIDING NEW GROUND WIRES ALONG THE OUTSIDE OF THE PIERS.

ITEM 845, FIELD METALLIZING, MISC.: SHOP METALLIZING NEW GIRDERS

ALL PROVISIONS OF SUPPLEMENTAL SPECIFICATIONS 845 - SHOP AND FIELD METALLIZING OF STRUCTURAL STEEL SHALL REMAIN IN EFFECT. ALL METALIZING OF STRUCTURAL STEEL SHALL BE PERFORMED IN THE SHOP OR OFF SITE PRIOR TO ERECTION. AREAS OF METALIZING DAMAGED DURING ERECTION SHALL BE REPAIRED PER 845.17.

ABBREVIATIONS

ABUT. - ABUTMENT
ADT - AVERAGE DAILY TRAFFIC
ADTT - AVERAGE DAILY TRUCK TRAFFIC
APPR. - APPROACH
B - BOTTOM
B-BOTTOM
B-BASELINE
B.F. - BACK FACE
BM - BENCHMARK
BOT./BOTT./BTM. - BOTTOM
BRG. - BEARING
C - CENTERLINE
C/C - CENTER TO CENTER
C.I.P. - CAST-IN-PLACE
C.J. - CONSTRUCTION JOINT
CLR./CL. - CLEAR
C&MS OR CMS - CONSTRUCTION AND MATERIAL SPECIFICATIONS
CONC. - CONCRETE
CONSTR./CONST. - CONSTRUCTION
CVN - CHARPY V-NOTCH
DIA. - DIAMETER
DIM. - DIMENSION
DND - DO NOT DISTURB
DWG. - DRAWING
E - EAST
EB - EASTBOUND
E.F. - EACH FACE
EL. OR ELEV. - ELEVATION
EOP - EDGE OF PAVEMENT
EQ. - EQUAL
EST. - ESTIMATED
EX. - EXISTING
EXP. - EXPANSION
F.A. - FORWARD ABUTMENT
F/F - FACE TO FACE
F.F. - FRONT FACE
F.S. - FIELD SPLICE
FT. - FOOT OR FEET
FWD. - FORWARD
FWS - FUTURE WEARING SURFACE
GBL - GRADE BREAK LINE
HMWM - HIGH MOLECULAR WEIGHT METHACRYLATE
HW - HIGH WATER
IN. - INCH
JT. - JOINT
L.F. - LEFT FORWARD
LT. - LEFT
LTBR - LEFT TOE BRIDGE RAILING
MAX. - MAXIMUM
MIN. - MINIMUM
MISC. - MISCELLANEOUS
N - NORTH
NB - NORTHBOUND

NO. - NUMBER
N.P.C.P.P. - NON-PERFORATED CORRUGATED PLASTIC PIPE
OHWM - ORDINARY HIGH WATER MARK
O/O - OUT TO OUT
P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
PG - PROFILE GRADE
PROP. - PROPOSED
PRV'D - PROVIDED
PSF - POUNDS PER SQUARE FOOT
P.V.I. - POINT OF VERTICAL INTERSECTION
Q - FLOW RATE
R - RADIUS
R.A. - REAR ABUTMENT
RCP - ROCK CHANNEL PROTECTION
REQD. - REQUIRED
R.F. - RIGHT FORWARD
R.R. - RAILROAD
RT. - RIGHT
RTBR - RIGHT TOE BRIDGE RAILING
R/W - RIGHT OF WAY
S - SOUTH
SB - SOUTHBOUND
SER. - SERIES
SHLDR - SHOULDER
SIP - STAY IN PLACE
SLPR. - SLEEPER
SPA. - SPACE OR SPACES
STA. - STATION
STD. - STANDARD
STR - STRAIGHT
T - TOP
T&B - TOP & BOTTOM
TBR - TO BE REMOVED
TEMP. - TEMPORARY
T.O.S. OR T/S - TOP OF SLOPE
T/T - TOE TO TOE
TYP. - TYPICAL
U.N.O. - UNLESS NOTED OTHERWISE
VAR. - VARIES
V - VELOCITY
W - WEST
WB - WESTBOUND
WP - WORK POINT
WWR - WELDED WIRE REINFORCEMENT

SFN	4305167
DESIGN AGENCY	
DESIGNER	CHECKER
MJM	JOL
REVIEWER	
RER	5/14/24
PROJECT ID	105187
SUBSET	TOTAL
5	42
SHEET	TOTAL
81	157

MADE BY: LAH		DATE: 6/1/2023		ESTIMATED QUANTITIES						STRUCTURAL FILE NUMBER: 4305167	
CHECKED BY: MJM		DATE: 6/5/2023									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER	PIER	GEN.	REFERENCE SHEET NO.		
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				1	STRUCTURE - GENERAL NOTES - 1 OF 2		
202	22900	317	SY	APPROACH SLAB REMOVED				317			
203	20001	53	CY	EMBANKMENT, AS PER PLAN				53	STRUCTURE - GENERAL NOTES - 1 OF 2		
503	11101	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				1	STRUCTURE - GENERAL NOTES - 1 OF 2		
503	21101	74	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN				74	STRUCTURE - GENERAL NOTES - 1 OF 2		
509	10000	326,366	LB	EPOXY COATED STEEL REINFORCEMENT	25,007	284,110	17,249				
509	20001	100	LB	CONCRETE REINFORCEMENT, REPLACEMENT OF EXISTING CONCRETE REINFORCEMENT, AS PER PLAN		100			STRUCTURE - GENERAL NOTES - 2 OF 2		
509	26000	521	LB	GALVANIZED STEEL REINFORCEMENT	521						
509	30020	13,732	FT	NO. 4 DEFORMED GFRP REINFORCEMENT		13,732					
510	10001	959	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN	323		636		STRUCTURE - GENERAL NOTES - 2 OF 2		
511	34447	988	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN		988			STRUCTURE - GENERAL NOTES - 2 OF 2		
511	34451	136	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN		136			STRUCTURE - GENERAL NOTES - 2 OF 2		
511	42511	110	CY	CLASS QC1 CONCRETE, PIER CAP, AS PER PLAN			110		STRUCTURE - GENERAL NOTES - 2 OF 2		
511	44113	227	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	227				STRUCTURE - GENERAL NOTES - 2 OF 2		
512	10100	3,724	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		1,870	1,854		STRUCTURE - GENERAL NOTES - 2 OF 2		
512	33000	5	SY	TYPE 2 WATERPROOFING		5					
513	10200	303,085	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF		303,085					
513	10280	913,085	LB	STRUCTURAL STEEL MEMBERS, LEVEL 4		913,085					
513	20000	15,780	EACH	WELDED STUD SHEAR CONNECTORS		15,780					
516	11210	239	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL (4")		239					
516	13600	109	SF	1" PREFORMED EXPANSION JOINT FILLER	109						
516	44100	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (16"x21"x2.8735")		20					
516	44100	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (FIXED - 16"x21"x2.8735")		10					
516	44300	20	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (12" x 16" x 3.9482")		20					
518	21200	162	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	162						
518	40000	280	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	280						
518	40010	100	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	100						
519	11101	118	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN	118				STRUCTURE - GENERAL NOTES - 2 OF 2		
526	25001	441	SY	REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN				441	STRUCTURE - GENERAL NOTES - 2 OF 2		
601	21150	11	CY	SLOPE PROTECTION, MISC. GROUTING OF CRUSHED AGGREGATE SLOPE PROTECTION				11	STRUCTURE - GENERAL NOTES - 2 OF 2		
607	39901	806	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN (6'-6" TALL)		806			STRUCTURE - GENERAL NOTES - 2 OF 2		
623	10001	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN					STRUCTURE - GENERAL NOTES - 2 OF 2		
625	33001	1	EACH	STRUCTURE GROUNDING SYSTEM, AS PER PLAN				1	STRUCTURE - GENERAL NOTES - 2 OF 2		
845	98000	54,943	SF	FIELD METALLIZING, MISC.: SHOP METALLIZING NEW GIRDERS		54,943			STRUCTURE - GENERAL NOTES - 2 OF 2		
846	00110	96	CF	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM				96			

ESTIMATED QUANTITIES
 BRIDGE NO. LAK-91-0423
 SR 91 OVER CSX AND NS RAILROADS

SFN
4305167

DESIGN AGENCY



E.L. ROBINSON
ENGINEERING

1488 West 9th St, Suite 800
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DESIGNER: MJM | CHECKER: JOL

REVIEWER: RER

PROJECT ID: 105187

SUBSET	TOTAL
6	42
SHEET	TOTAL
82	157

ITEM 510. DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN:

DRILL DOWEL HOLES WHERE SHOWN IN THE PLANS. INSTALL REINFORCING STEEL ACCORDING TO ITEM 510 USING EPOXY GROUT, 705.20. PRIOR TO DRILLING DOWEL HOLES IN EXISTING ABUTMENTS, LOCATE ALL EXISTING REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AID OF A REINFORCING STEEL BAR LOCATOR (PACHOMETER). IF AN EXISTING BAR IS ENCOUNTERED AT THE SAME LOCATION AS A PROPOSED DOWEL HOLE, MOVE THE DOWEL HOLE TO EITHER SIDE OF THE EXISTING BAR.

HORIZONTAL DOWELS IN THE WINGWALLS SHALL MEET THE ACCEPTANCE CRITERIA OF TO ICCES AC308. THE REINFORCING STEEL DOWEL BARS ARE TO BE GALVANIZED AS LISTED IN REINFORCING STEEL TABLES.

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA BRIDGE DECK, AS PER PLAN

ITEM 511 - CLASS QC2 CONCRETE WITH QC/QA BRIDGE DECK (PARAPET), AS PER PLAN

ITEM 511 - CLASS QC1 CONCRETE, PIER CAP, AS PER PLAN

ITEM 511 - CLASS QC1 CONCRETE WITH QC/QA ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN

1. GENERAL REQUIREMENTS:

THE PROVISIONS OF ITEM 511 SHALL APPLY EXCEPT AS NOTED BELOW. IN ADDITION, THE CONTRACTOR SHALL PROVIDE A RUBBED SURFACE IN ACCORDANCE WITH CMS 511.15 (B) ON ALL EXPOSED SURFACES.

THIS ITEM SHALL INCLUDE THE SURVEYING, LAYOUT AND TIME REQUIRED TO DETERMINE THE SCREED TABLE ELEVATIONS USING THE INCLUDED SCREED FORMULA TABLE.

2. MATERIALS:

ALL COARSE AGGREGATE SHALL HAVE AN ABSORPTION OF 1.00% OR GREATER AS DEFINED PER ASTM C127

WATER/CEMENT RATIO SHALL BE A MINIMUM OF 0.42 AND MAXIMUM OF 0.50.

DECK PLACEMENT DESIGN ASSUMPTIONS:

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.41 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103".

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65".

DECK SLAB THICKNESS FOR CONCRETE QUANTITY:

THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A VARIABLE HAUNCH THICKNESS BETWEEN 2 7/8" AND 4 1/8" INCHES AND A HAUNCH WIDTH EQUAL TO THE TOP FLANGE WIDTH. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE.

THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE TOP OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.23.

INSPECTION OF EXISTING STRUCTURAL STEEL

THE ENGINEER WILL VISUALLY INSPECT ALL EXISTING BUTT-WELDED SPLICES AND/OR TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THE WELDS, PLATES AND BEAMS OR GIRDERS ARE FREE OF DEFECTS AND CRACKS. IF NECESSARY, REMOVE ALL DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS THAT MAY INTERFERE WITH THE ENGINEER'S INSPECTION. THE INSPECTION WILL NOT TAKE PLACE UNTIL THE TOP FLANGES ARE CLEANED ACCORDING TO C&MS 511.07, BUT IT WILL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE DEPARTMENT WILL PAY FOR THE COST ASSOCIATED WITH THIS INSPECTION WITH ITEM 511 - SUPERSTRUCTURE CONCRETE. THE ENGINEER WILL REPORT ALL CRACKS FOUND TO THE OFFICE OF CONSTRUCTION ADMINISTRATION, BRIDGE CONSTRUCTION SPECIALIST, ALONG WITH SPECIFIC INFORMATION ON LOCATION OF THE CRACKS, LENGTH, AND DEPTH SO AN EVALUATION AND REPAIR OR REPLACEMENT RECOMMENDATION CAN BE MADE.

ITEM 511 - CONCRETE, MISC.: TEMPORARY SUPPORTS FOR PIER CAP CONSTRUCTION AND COLUMN PATCHING

THIS ITEM INCLUDES ALL MATERIAL, EQUIPMENT, DESIGN, INSTALLATION, EXCAVATION, EMBANKMENT, REMOVAL, LABOR, AND INCIDENTALS NECESSARY TO TEMPORARILY SUPPORT THE SUPERSTRUCTURE DURING PIER CAP CONCRETE PLACEMENT, PIER BEARING REPLACEMENT, AND PIER COLUMN PATCHING. TEMPORARY SUPPORTS SHALL BE INSTALLED AS DETAILED IN THE PLANS AND SHALL REMAIN IN PLACE UNTIL ALL PIER CAP CONCRETE AND COLUMN PATCHING MATERIAL HAS CURED FOR 7 DAYS.

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SUPERSTRUCTURE. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF THE SUPERSTRUCTURE, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF SUPERSTRUCTURE AT BOTH PIERS AT THE CONTRACT LUMP SUM PRICE FOR CONCRETE MISC.: TEMPORARY SUPPORTS FOR PIER CAP CONSTRUCTION AND COLUMN PATCHING. THE DEPARTMENT WILL NOT MAKE ADDITIONAL PAYMENT FOR PROVIDING AN ALTERNATE DESIGN.

ITEM 512 - SEALING CONCRETE SURFACES

THE CONTRACTOR SHALL SEAL ALL EXPOSED SUBSURFACE ELEMENTS INCLUDING ABUTMENTS, WINGWALL AND PIER, AND ALL BRIDGE RAILINGS AND RAILING ON APPROACH SLABS AND PORTIONS OF DECK AS SPECIFIED IN THE PLANS WITH EPOXY URETHANE SEALER.

THE COLOR OF THE URETHANE FINISH COAT OF THE EPOXY-URETHANE SEALER SHALL BE TINTED SO THE FINAL COLOR IS FEDERAL COLOR STANDARD NO. 27722 - BUFF.

ITEM 513. STRUCTURAL STEEL MEMBERS, LEVEL UP, AS PER PLAN

THIS WORK CONSISTS INSTALLING NEW CROSSFRAMES BETWEEN THE NORTHBOUND AND SOUTHBOUND SUPERSTRUCTURES AS SHOWN ON THE FRAMING PLANS AND AS DETAILED IN ARCHIVED STANDARD BRIDGE DRAWING GSD-1-96 DATED 07-19-02.

ALL PROVISIONS OF CMS 513 SHALL APPLY.

NEW STEEL SHALL MEET THE REQUIREMENTS OF ASTM A709 GRADE 50.

ITEM 513. STRUCTURAL STEEL, MISC.: BOLTED COVER PLATE RETROFITS

THIS WORK CONSISTS INSTALLING NEW BOLTED COVER PLATE RETROFITS AS DETAILED ON THE FRAMING PLANS AND THE MOMENT PLATE RETROFIT DETAILS.

ALL PROVISIONS OF CMS 513 SHALL APPLY. NEW STEEL SHALL MEET THE REQUIREMENTS OF ASTM A709 GRADE 50. THE LEVEL OF THE FABRICATOR QUALIFICATIONS SHALL BE 1 OR HIGHER. WHERE A SHAPE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

THIS WORK INCLUDES ALL FIELD MEASUREMENT, FIELD DRILLING OF HOLES IN THE EXISTING STEEL, AND SURFACE PREPARATION OF PROPOSED FAYING SURFACES ON THE EXISTING BEAMS. FAYING SURFACES SHALL BE BLAST CLEAN TO A SSPC-SP10 AS DESCRIBED UNDER 514.13 C.

THIS ITEM INCLUDES ALL MATERIAL, EQUIPMENT, LABOR, AND INCIDENTALS NECESSARY TO INSTALL THE NEW BOLTED COVER PLATE RETROFITS AT EACH LOCATION SHOWN IN THE PLANS. THE QUANTITY BID FOR EACH LOCATION SHALL INCLUDE BOTH THE TOP AND BOTTOM FLANGE COVER PLATE RETROFITS AT EACH LOCATION SHOWN ON THE PLANS.

ITEM 513. STRUCTURAL STEEL MISC.: REPLACEMENT OF CROSSFRAMES:

THIS WORK CONSISTS OF REPLACING CROSSFRAMES AS INDICATED IN THE PLANS IN ORDER TO FACILITATE THE CONSTRUCTION OF THE BOLTED COVER PLATE RETROFITS. THIS ITEM WILL INCLUDE SUPPLYING NEW CROSSFRAMES AND WELDING THEM BACK TO THE ORIGINAL POSITIONS OF THE CROSSFRAMES THAT ARE BEING REPLACED. AFTER REMOVAL, ALL WELDS WILL BE GROUND SMOOTH IN PREPARATION OF WELDING THE NEW CROSSFRAMES IN PLACE. ALL CROSSFRAMES TO BE REPLACED WILL BE FIELD MEASURED TO VERIFY SIZE AND LENGTHS PRIOR TO ORDERING MATERIAL. THE NEW CROSSFRAMES WILL BE WELDED TO THE GIRDERS OR BEAMS ON BOTH SIDES OF THE VERTICAL LEG AND ON THE TOP SIDE OF THE HORIZONTAL LEG. THE ANGLE WILL BE WELDED USING A 1/4" CONTINUOUS FILLET WELD. STEEL MEMBERS TO BE FABRICATED UNDER THIS ITEM WILL NOT REQUIRE SHOP DRAWINGS PRIOR TO FABRICATION. AISC CERTIFICATION IS NOT REQUIRED. THE CONTRACTOR WILL TAKE THE NECESSARY FIELD MEASUREMENTS TO VERIFY MEASUREMENTS BEFORE ORDERING MATERIALS. THE ENGINEER WILL HAVE THE AUTHORITY AND THE RESPONSIBILITY FOR ENSURING THAT THE STEEL IS ACCEPTABLE. ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM, EXCEPT FOR PAINT, WILL BE INCLUDED FOR PAYMENT OF EACH REPLACED CROSSFRAME UNDER ITEM 513 - STRUCTURAL STEEL MISC.: REPLACEMENT OF CROSSFRAMES.

ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT
ITEM 514 - FIELD PAINTING STRUCTURAL STEEL, FINISH COAT

THESE ITEMS INCLUDE THE PAINTING OF NEW STRUCTURAL STEEL USED IN THE RETROFITS AND THE LOAD PLATES FOR THE BEARINGS. THIS ALSO INCLUDES THE EXISTING STEEL WITHIN 1 FOOT OF THE DIAPHRAGM CONCRETE.

THE CONTRACTOR IS TO MASK THE ELASTOMERIC BEARING TO PROTECT AGAINST OVER SPRAY WHEN PAINTING THE LOAD PLATES.

THE FINISH COAT SHALL CLOSELY MATCH THE EXISTING PAINT COLOR. THE EXISTING STEEL WAS COATED USING FEDERAL COLOR STANDARD NO. 595B-15450 - (LIGHT BLUE, GLOSS).

ITEM 514 - FIELD PAINTING, MISC.: COATING OF BEAM ENDS:

PRIOR TO ENCASING THE BEAM ENDS, PREPARE THE ENDS PER SSPC SP10 OR SSPC SP11 TO BARE METAL ACHIEVING A 1.5 TO 3.5 MIL PROFILE. PAINT THE BEAM ENDS WITH ORGANIC ZINC PRIME COAT PER C&MS 514. PROVIDE THE PRIME COAT THICKNESS AS PER C&MS 514.20. EXTEND THE LIMITS OF THE BEAM PREPARATION AND PAINTING 1-FT BEYOND THE LIMITS OF THE END DIAPHRAGM CONCRETE.

AFTER THE DIAPHRAGM CONCRETE IS SET, SEAL THE INTERFACE BETWEEN THE BEAM AND CONCRETE WITH CAULK.

THE DEPARTMENT WILL PAY FOR ALL ABOVE LABOR AND AT THE CONTRACT BID PRICE FOR ITEM 514 - FIELD PAINTING, MISC.: COATING OF BEAM ENDS.

ITEM 516. JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS WORK CONSISTS OF RAISING OR RE-POSITIONING EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS. SUBMIT CONSTRUCTION PLANS IN ACCORDANCE WITH C&MS 501.05. IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE NEW CONCRETE DECK TO REMAIN FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, IMMEDIATELY CEASE THE JACKING OPERATION AND INSTALL SUPPORTS TO THE SATISFACTION OF THE ENGINEER. ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR

APPROVAL. EPOXY INJECT ALL BEAMS THAT SEPARATE FROM THE DECK FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH C&MS 512.07. THE DEPARTMENT WILL NOT PAY FOR THE COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS. THE BRIDGE BEARINGS SHALL BE FULLY SEATED AT ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUBMIT A REPAIR PLAN TO THE ENGINEER. THE DEPARTMENT WILL NOT PAY FOR THE REPAIR COSTS TO ENSURE FULL SEATING ON BEARINGS. THE DEPARTMENT WILL MEASURE THIS WORK ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

THE CONTRACTOR SHALL PATCH THE SPALLED AND UNSOUND AREAS OF THE PIERS AND THE FORWARD AND REAR ABUTMENTS AS SHOWN IN THESE PLANS AND AS IDENTIFIED BY THE PROJECT ENGINEER. THE QUANTITIES SHOWN ON THE PLAN DETAILS HAVE BEEN INCREASED BY 25% AND CARRIED TO THE ESTIMATED QUANTITIES TO ACCOUNT FOR ANTICIPATED DETERIORATION BETWEEN THE TIME OF INITIAL SOUNDING AND THE TIME OF CONSTRUCTIONS.

PRIOR TO THE SURFACE CLEANING SPECIFIED IN C&MS 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED STEEL REINFORCEMENT. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ITEM SPECIAL - COMPOSITE FIBER WRAP SYSTEM:

DESCRIPTION: THIS WORK SHALL CONSIST OF PROVIDING AND INSTALLING A FIBER WRAP INCLUDING PREPARATION, WRAPPING THE PIER, AND ALL INCIDENTALS NECESSARY TO COMPLETE THIS WORK. THE INSTALLATION SHALL BE PER THE MANUFACTURER'S REQUIREMENTS.

MATERIALS: SUPPLIERS SHALL HAVE A MINIMUM OF 10 INSTALLATIONS AND FURNISH CERTIFIED TEST REPORTS INCLUDING 1000 HOUR TESTS FOR 140 °F WATER, SALT WATER, ALKALINE SOIL, OZONE AND EFFERVESCENCE IN ADDITION TO THE REQUIREMENTS LISTED BELOW.

THE FABRIC FOR THE COMPOSITE CASING SHALL BE CONTINUOUS FILAMENT WOVEN FABRIC. PRIMARY FIBERS FOR THE FABRIC SHALL BE (E) ELECTRICAL GLASS FIBERS. THE FIBER SHALL HAVE A MINIMUM NOMINAL THICKNESS OF 0.05 INCHES.

THE MINIMUM WEIGHT OF THE FABRIC SHALL BE 27.0 OUNCES PER SQUARE YARD.

THE EPOXY SHALL BE SUPPLIED BY THE MANUFACTURER TO MEET THE COMPOSITE STRENGTH GIVEN BELOW. POLYESTER RESIN SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR EPOXY RESIN.

THE COMPOSITE OF THE FIBER WRAPPED COLUMN CASING SYSTEM SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

PROPERTY	REQUIREMENTS	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH, PSI MIN. IN PRIMARY FIBER DIRECTION	60,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK 0.01" PER MINUTE TESTING SPEED
ULTIMATE TENSILE STRENGTH, PSI MIN. IN ORTHOGONAL FIBER DIRECTION	3,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK 0.01" PER MINUTE TESTING SPEED
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO 100% HUMIDITY	60,000 PSI	C581
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO OZONE	60,000 PSI	D1149 EXCEPT NOT UNDER STRESS DURING OZONE EXPOSURE
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO ALKALI	60,000 PSI	D3038 USING SOIL BURIAL - WATER CONTENT OF 73% ± 3%
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE TO SALT WATER	60,000 PSI	C581 AND D1141 OMITTING ADDITION OF HEAVY METAL REAGENTS
TENSILE STRENGTH (MIN. AFTER TEST) 1000 HOURS EXPOSURE @ 140 DEGREES F	60,000 PSI	D3045
TENSILE STRENGTH (MIN. AFTER TEST) ULTRAVIOLET (UV) EXPOSURE	60,000 PSI	G154 USING FS40 UV-B BULBS FOR A MIN. 40 CYCLES. THE CYCLE SHALL BE 4 HOURS OF CONDENSATE EXPOSURE AT 40 DEGREES C.
ELONGATION:		
PERCENT, MIN.	1.7 %	
PERCENT, MAX.	5.0 %	
TENSILE MODULUS, PSI MIN. OF PRIMARY FIBERS	3,000,000	D3039
VISUAL EFFECTS	ACCEPTANCE LEVEL III	D2563
COEFFECIENT OF THERMAL EXPANSION IN THE PRIMARY DIRECTION	4,300,000 PPM/DEG. F (+15%)	D696

MADE BY: LAH		DATE: 6/1/2023		ESTIMATED QUANTITIES						STRUCTURAL FILE NUMBER: 4305191	
CHECKED BY: MJM		DATE: 6/5/2023									
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER	PIER	GEN.	REFERENCE SHEET NO.		
202	11203	LS		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				1	STRUCTURE - GENERAL NOTES - 1 OF 3		
202	22900	387	SY	APPROACH SLAB REMOVED				387			
202	23500	1,246	SY	WEARING COURSE REMOVED		1,246					
503	11101	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				1	STRUCTURE - GENERAL NOTES - 1 OF 3		
503	21101	35	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	35				STRUCTURE - GENERAL NOTES - 1 OF 3		
509	10000	131,215	LB	EPOXY COATED STEEL REINFORCEMENT	17,204	107,311	6,700				
509	20001	100	LB	CONCRETE REINFORCEMENT, REPLACEMENT OF EXISTING CONCRETE REINFORCEMENT, AS PER PLAN	100				STRUCTURE - GENERAL NOTES - 1 OF 3		
509	26000	404	LB	GALVANIZED STEEL REINFORCEMENT	404						
509	30020	5,656	FT	NO. 4 DEFORMED GFRP REINFORCEMENT			5,656				
510	10001	596	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT, AS PER PLAN	176		420		STRUCTURE - GENERAL NOTES - 1 OF 3		
511	33500	2	EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE							
511	34447	481	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN		481			STRUCTURE - GENERAL NOTES - 2 OF 3		
511	34451	58	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET), AS PER PLAN		58			STRUCTURE - GENERAL NOTES - 2 OF 3		
511	42511	17	CY	CLASS QC1 CONCRETE, PIER CAP, AS PER PLAN			17		STRUCTURE - GENERAL NOTES - 2 OF 3		
511	44113	32	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	32				STRUCTURE - GENERAL NOTES - 2 OF 3		
511	81200	LUMP		CONCRETE, MISC.: TEMPORARY SUPPORTS FOR PIER CAP CONSTRUCTION AND COLUMN PATCHING					STRUCTURE - GENERAL NOTES - 2 OF 3		
512	10100	1,212	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		703	509		STRUCTURE - GENERAL NOTES - 2 OF 3		
512	33000	7	SY	TYPE 2 WATER PROOFING	7						
513	10201	1,364	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN		1,364			STRUCTURE - GENERAL NOTES - 2 OF 3		
513	20000	6,024	EACH	WELDED STUD SHEAR CONNECTORS		6,024					
513	90000	11,620	LB	STRUCTURAL STEEL, MISC.: BOLTED COVER PLATE RETROFITS		11,620			STRUCTURE - GENERAL NOTES - 2 OF 3		
513	95030	15	EACH	STRUCTURAL STEEL, MISC.: REPLACEMENT OF CROSSFRAMES		15			STRUCTURE - GENERAL NOTES - 2 OF 3		
514	00060	527	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT		527			STRUCTURE - GENERAL NOTES - 2 OF 3		
514	00066	527	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT		527			STRUCTURE - GENERAL NOTES - 2 OF 3		
514	27700	206	SF	FIELD PAINTING, MISC.: COATING OF BEAMS ENDS		206			STRUCTURE - GENERAL NOTES - 2 OF 3		
516	10010	218	FT	ARMORLESS PREFORMED JOINT SEAL				218			
516	13900	142	SF	2" PREFORMED EXPANSION JOINT FILLER	142						
516	25000	332	SF	NYLON REINFORCED NEOPRENE SHEETING				332			
516	43200	24	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) (12"x14"x2.3488")		24					
516	43200	24	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE) (14"x16"x2.3488")		24					
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN					STRUCTURE - GENERAL NOTES - 2 OF 3		
518	21200	93	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	93						
518	40000	241	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	241						
518	40010	80	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	80						
SPECIAL	51900100	2,090	SF	COMPOSITE FIBER WRAP SYSTEM			2,090		STRUCTURE - GENERAL NOTES - 2 & 3		
519	11101	104	SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN	72		32		STRUCTURE - GENERAL NOTES - 3 OF 3		
526	25001	504	SY	REINFORCED CONCRETE APPROACH SLABS (T=15"), AS PER PLAN				504	STRUCTURE - GENERAL NOTES - 3 OF 3		
526	90030	214	FT	TYPE C INSTALLATION				214			
601	21150	7	CY	SLOPE PROTECTION, MISC. GROUTING OF CRUSHED AGGREGATE SLOPE PROTECTION				7	STRUCTURE - GENERAL NOTES - 3 OF 3		
623	10001	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN					STRUCTURE - GENERAL NOTES - 3 OF 3		
625	33001	1	EACH	STRUCTURE GROUNDING SYSTEM, AS PER PLAN		1			STRUCTURE - GENERAL NOTES - 3 OF 3		
844	10001	778	SF	CONCRETE PATCHING WITH GALVANIC ANODE PROTECTION, AS PER PLAN			778		STRUCTURE - GENERAL NOTES - 3 OF 3		

ESTIMATED QUANTITIES
 BRIDGE NO. LAK-91-0449
 SR 91 OVER LAKE LAND BOULEVARD

SFN
 4305191
 DESIGN AGENCY

 E.L. ROBINSON
 ENGINEERING
 1488 West 9th St. Suite 800
 Cleveland, Ohio
 950 Goodale Blvd. Suite 160
 Grandview Heights, Ohio
 DESIGNER: MJM
 CHECKER: AEF
 REVIEWER: RER
 5/14/24
 PROJECT ID: 105187
 SUBSET: 6
 TOTAL: 39
 SHEET: 124
 TOTAL: 157