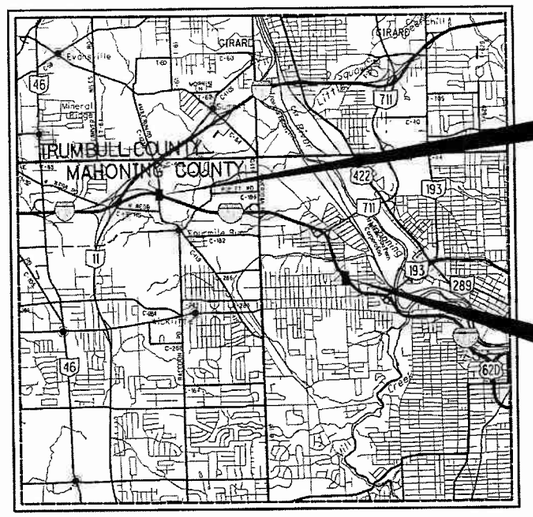
MAH - IR 680-00.68/03.73
210545 PID - 105857
Dist 4 10/14/2021

Contract Proposal available @ www.contracts.dot.state.oh.us

P:\DOT\04\0022 MAH-680-00.68_03.73\105857\Design\Roadway\Sheets\105857_GT001.dgn Sheet 6/22/2021 2:57:13 PM CMT1008



LOCATION MAP

SCALE IN MILES 0 1 2 3 4

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

	FOUR MILE RUN RD.	BELLE VISTA AVE.
CURRENT ADT (2020)	6200	6600
DESIGN YEAR ADT (2040)	7300	7800
DESIGN HOURLY VOLUME (2040)	730	780
DIRECTIONAL DISTRIBUTION	0.60	0.60
TRUCKS (24 HOUR B&C)	3%	3%
DESIGN SPEED	40 MPH	40 MPH
LEGAL SPEED	35 MPH	35 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
05 - MAJOR COLLECTOR (URBAN) - FOUR MILE RUN RD.
05 - MAJOR COLLECTOR (URBAN) - BELLE VISTA AVE.
NHS PROJECT ..... NO

DESIGN EXCEPTIONS
NONE REQUIRED

ADA DESIGN WAIVERS
NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

PLAN PREPARED BY:
CARPENTER MARTY transportation
6812 SINGLETREE DRIVE COLUMBUS, OH 43229
614.856.2424 • WWW.CMTRAN.COM

ENGINEERS SEAL:
STRUCTURE MAH-680-0068
STATE OF OHIO ALEXANDER MATTHEW REGER No. 81224 REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 6/22/2021

ENGINEERS SEAL:
FOR ENTIRE PLAN EXCEPT STRUCTURES OVER 20'
STATE OF OHIO TONY W. GRIESHOP No. 70196 REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 6/22/2021

ENGINEERS SEAL:
STRUCTURE MAH-680-0373
STATE OF OHIO GREGORY D. JOHNSON No. 66952 REGISTERED PROFESSIONAL ENGINEER
SIGNED:
DATE: 6/22/2021

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

MAH-680-0.68 / 3.73

AUSTINTOWN TOWNSHIP
CITY OF YOUNGSTOWN
MAHONING COUNTY

INDEX OF SHEETS:

LOCATION	LATITUDE	LONGITUDE
1	41°07'35" N	80°44'15" W
2	41°06'30" N	80°41'20" W

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A DECK REPLACEMENT ON STRUCTURE MAH-680-0068 (FOUR MILE RUN ROAD) OVER I.R. 680 AND SUPERSTRUCTURE REPLACEMENT ON STRUCTURE MAH-680-0373 (BELLE VISTA AVENUE) OVER I.R. 680. ALSO INCLUDES MINIMAL APPROACH ROADWAY WORK.

EARTH DISTURBED AREAS - MAH-680-0.68

PROJECT EARTH DISTURBED AREA: 0.5 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.3 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (NOI NOT REQUIRED)

EARTH DISTURBED AREAS - MAH-680-3.73

PROJECT EARTH DISTURBED AREA: 0.5 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.3 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (NOI NOT REQUIRED)

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2019 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT FOR THE SIDE ROADS AS DESCRIBED ON SHEETS 8-13 AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED
DATE 6/24/21 DISTRICT DEPUTY DIRECTOR

APPROVED Jack Marchbanks for MGS
DATE 6/25/21 DIRECTOR, DEPARTMENT OF TRANSPORTATION

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	1/17/20	F-3.3	7/19/13	RM-1.1	1/15/21	HL-10.13	4/17/20	MT-101.75	1/17/20	800-2019	7/16/21
BP-4.1	7/19/13	F-3.4	7/19/13	RM-4.2	4/17/20	HL-20.11	1/15/21	MT-101.90	7/17/20	813	10/19/18
BP-5.1	1/18/19			RM-4.5	7/21/17	HL-20.14	4/17/20	MT-102.20	4/19/19	821	4/20/12
BP-7.1	7/17/20	HW-2.1	7/20/18	RM-4.6	7/19/13	HL-30.11	1/15/21	MT-105.10	1/17/20	825	1/17/20
		HW-2.2	7/20/18			HL-30.22	1/15/21	MT-110.10	7/19/13	832	10/19/18
CB-1.1	7/19/19			AS-1-15	7/17/15	HL-30.32	4/17/20			840	1/15/21
CB-2.2	1/15/21	MGS-1.1	1/19/18	AS-2-15	1/18/19	HL-40.20	7/17/20	TC-22.20	1/17/14	863	10/17/14
		MGS-2.1	1/19/18	BR-2-15	7/17/15	HL-50.21	1/15/21	TC-41.20	10/18/13	869	10/17/14
DM-1.1	7/17/20	MGS-3.1	1/19/18	EXJ-6-17	1/15/21	HL-60.11	7/21/17	TC-41.30	10/18/13	902	7/19/19
DM-1.2	1/18/13	MGS-3.2	1/18/13	GSD-1-19	1/18/19	HL-60.31	1/17/20	TC-42.20	10/18/13	913	4/21/17
DM-4.1	7/17/20	MGS-4.2	7/19/13	SBR-1-20	7/17/20			TC-52.10	10/18/13	921	4/20/12
DM-4.3	1/15/16	MGS-4.3	1/18/13	SICD-1-96	7/18/14	MT-95.30	7/19/19	TC-52.20	1/15/21	992	4/18/14
DM-4.4	1/15/16	MGS-6.2	7/19/19	SICD-2-14	7/18/14	MT-95.45	1/17/20	TC-61.10	1/17/20		
				VPF-1-90	7/20/18	MT-97.10	4/19/19	TC-61.30	7/19/19		
F-1.1	7/19/13	MH-1.1	1/15/16			MT-99.60	7/15/16	TC-71.10	1/19/18		
F-2.1	7/20/18	MH-1.2	1/15/16	HL-10.11	1/15/21	MT-101.60	1/17/20				
F-3.1	7/19/13			HL-10.12	1/20/17	MT-101.70	1/17/20				

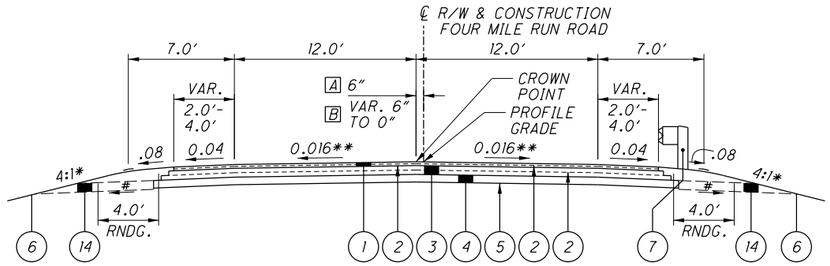
SUPPLEMENTAL SPECIFICATIONS

800-2019	7/16/21
813	10/19/18
821	4/20/12
825	1/17/20
832	10/19/18
840	1/15/21
863	10/17/14
869	10/17/14
902	7/19/19
913	4/21/17
921	4/20/12
992	4/18/14

SPECIAL PROVISIONS

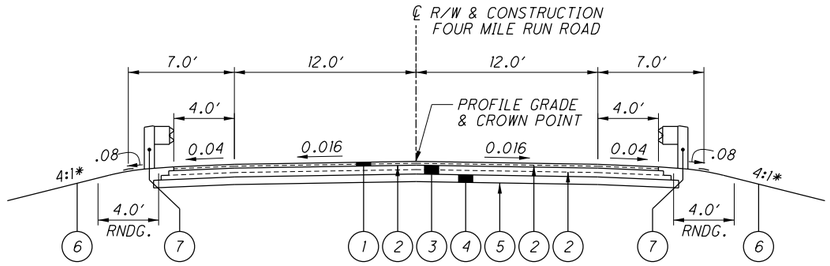
ASBESTOS 10/05/2018
ASBESTOS 9/25/2018

FEDERAL PROJECT NO. E171 (454)
PID NO. 105857
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
MAH-680-0.68 / 3.73
1 / 126



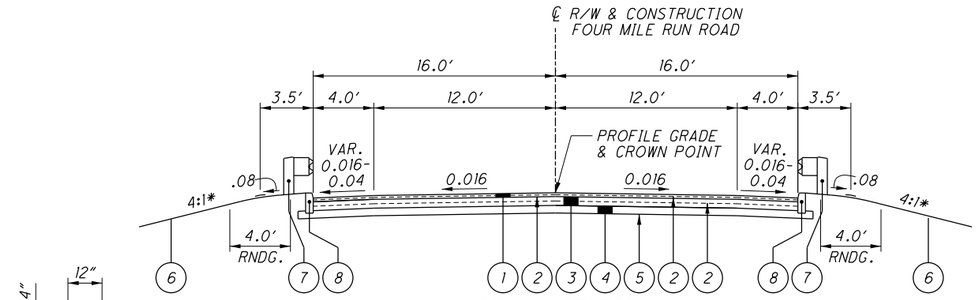
NORMAL SECTION

SECTION APPLIES:
A STA. 6+50.00 TO STA. 6+80.00
B STA. 6+80.00 TO STA. 7+00.00



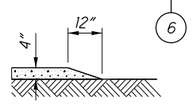
NORMAL SECTION

SECTION APPLIES:
STA. 7+00.00 TO STA. 7+70.77
STA. 11+35.00 TO STA. 11+50.00

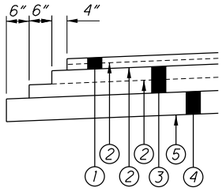


NORMAL SECTION

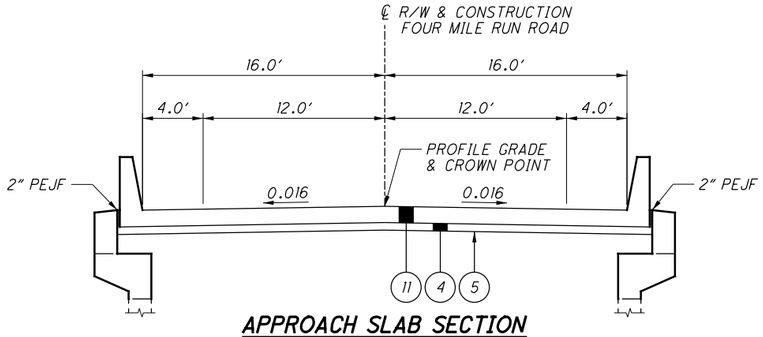
SECTION APPLIES:
STA. 7+70.77 TO STA. 7+83.00
STA. 11+22.77 TO STA. 11+35.00



END CURB LT. AT STA. 7+78 AND
TAPER FROM 4″ TO 0″ IN 12″

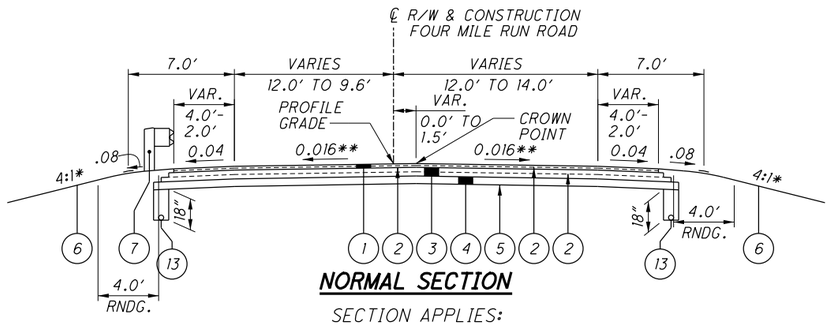


UNCURBED BASE AND SUBBASE STEP DETAIL



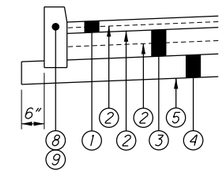
APPROACH SLAB SECTION

SECTION APPLIES:
STA. 7+88.91 TO STA. 8+03.00
STA. 11+02.77 TO STA. 11+16.85

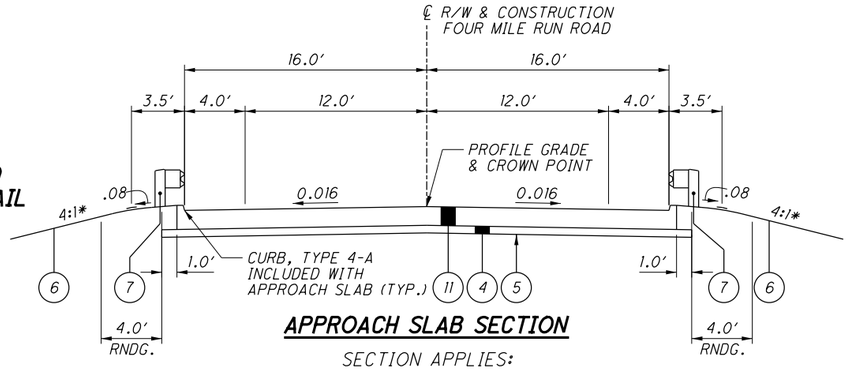


NORMAL SECTION

SECTION APPLIES:
STA. 11+50.00 TO STA. 12+50.00



CURBED BASE AND SUBBASE STEP DETAIL



APPROACH SLAB SECTION

SECTION APPLIES:
STA. 7+83.00 TO STA. 7+88.91
STA. 11+16.85 TO STA. 11+22.77

LEGEND FOR PROPOSED PAVEMENT

1. ITEM 441 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, AS PER PLAN (2 - 1½″ LIFTS)
2. ITEM 407 TACK COAT (0.055 GAL./SY)
3. ITEM 301 7″ ASPHALT CONCRETE BASE, PG64-22
4. ITEM 304 6″ AGGREGATE BASE, AS PER PLAN
5. ITEM 204 SUBGRADE COMPACTION
6. ITEM 659 SEEDING AND MULCHING
7. ITEM 606 GUARDRAIL, TYPE MGS
8. ITEM 609 CURB, TYPE 4-C
9. ITEM 609 CURB, TYPE 6
10. ITEM 608 4″ CONCRETE WALK
11. ITEM 526 REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=13″)
12. ITEM 526 REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17″), AS PER PLAN
13. ITEM 605 6″ BASE PIPE UNDERDRAIN
14. ITEM 605 AGGREGATE DRAINS

LEGEND FOR EXISTING PAVEMENT

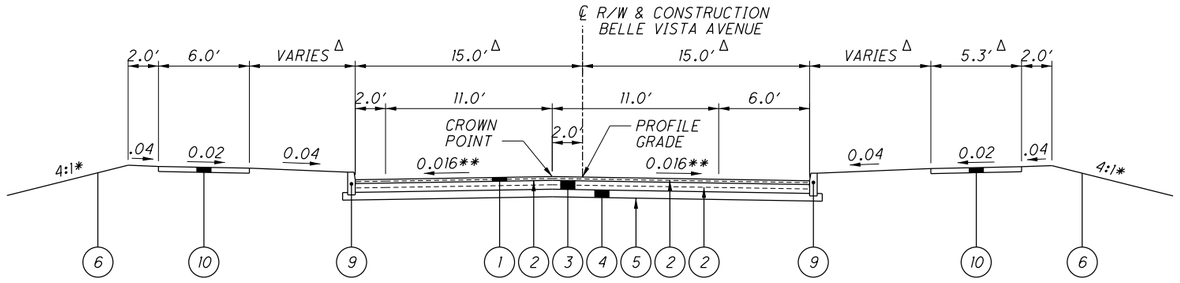
- A EXISTING 8½″± ASPHALT CONCRETE PAVEMENT
- B EXISTING 3″± ASPHALT CONCRETE PAVEMENT
- C EXISTING 9″± REINFORCED PORTLAND CEMENT CONCRETE
- D EXISTING 6″± AGGREGATE BASE
- E EXISTING 5″± SIDEWALK
- F EXISTING CURB

NOTES

* OR AS SHOWN IN CROSS SECTIONS
** TRANSITION TO EXISTING CROSS SLOPE IN 15′.
# 0.04 MIN., 0.08 DESIRABLE

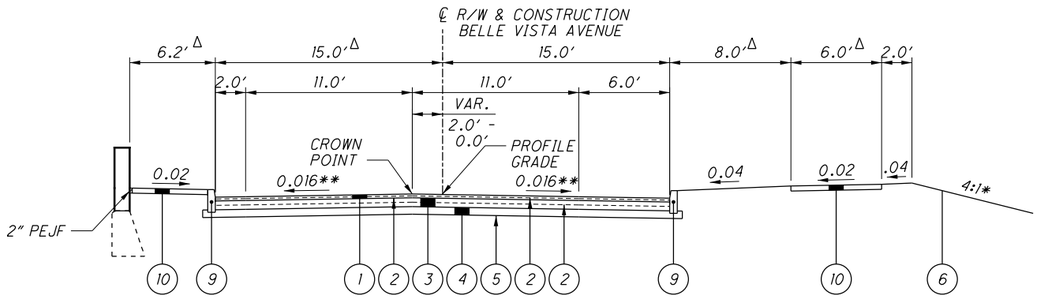
TYPICAL SECTIONS - FOUR MILE RUN ROAD

MAH-680-0.68/3.73



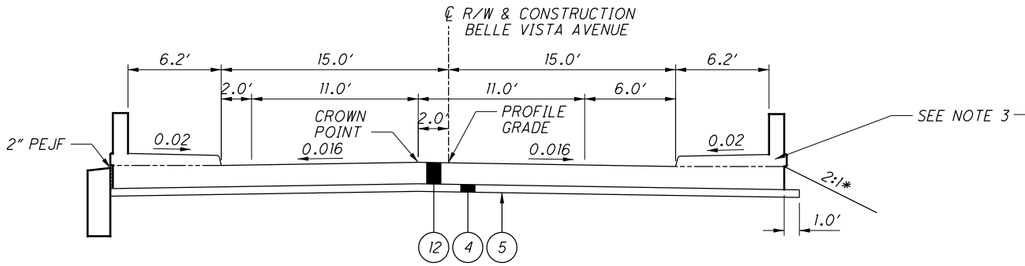
NORMAL SECTION

SECTION APPLIES:
STA. 2+75.00 TO STA. 4+03.15



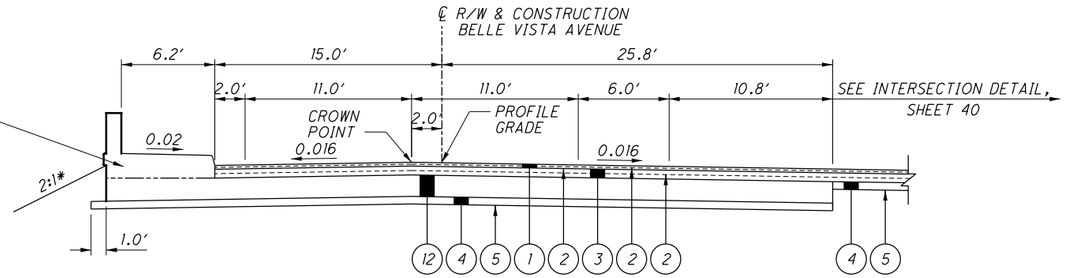
NORMAL SECTION

SECTION APPLIES:
STA. 6+56.73 TO STA. 7+00.00



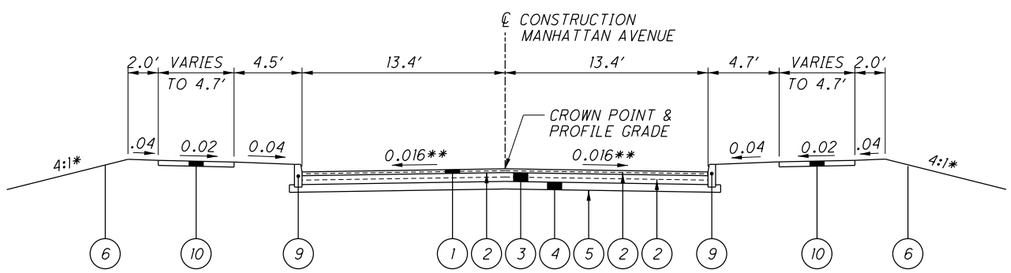
APPROACH SLAB SECTION

SECTION APPLIES:
STA. 4+03.15 TO STA. 4+33.15



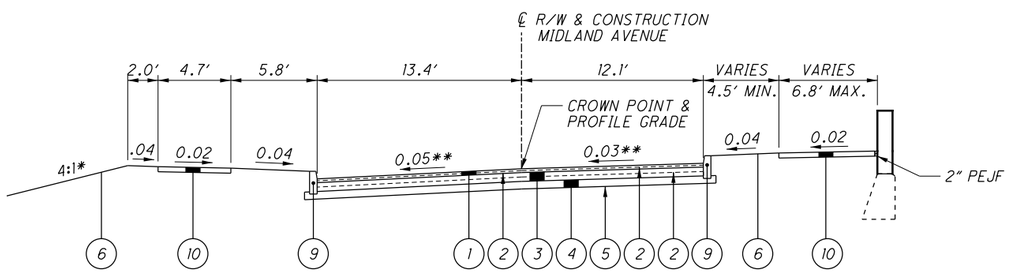
APPROACH SLAB SECTION

SECTION APPLIES:
STA. 6+26.73 TO STA. 6+56.73



NORMAL SECTION - MANHATTAN AVE.

SECTION APPLIES:
STA. 100+15.00 TO STA. 100+50.00



NORMAL SECTION - MIDLAND AVE.

SECTION APPLIES:
STA. 200+25.50 TO STA. 200+50.00

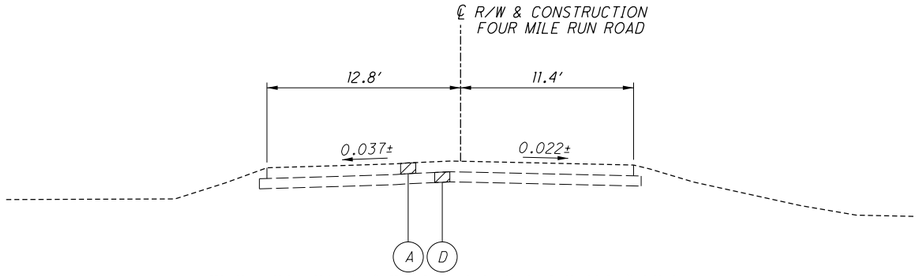
NOTES

1. FOR LEGEND SEE SHEET 2.
2. FOR CURBED BASE/SUBBASE STEP DETAIL, SEE SHEET 2.
3. FOR THE APPROACH SLAB SIDEWALK/RAILING DETAILS, SEE SHEET 110.

* OR AS SHOWN IN CROSS SECTIONS
** TRANSITION TO EXISTING CROSS SLOPE IN 15′. SEE ADJOINING PAVEMENT SECTIONS ON SHEET 4.
Δ DIMENSIONS SHOWN ARE NORMAL TO THE SECTION. SEE SHEETS 39-40 FOR VARIABLE DIMENSIONS AND STATIONING.

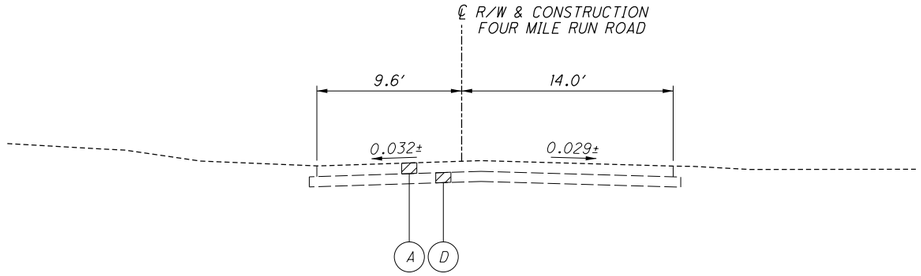
TYPICAL SECTIONS - BELLE VISTA AVENUE

MAH-680-0.68/3.73



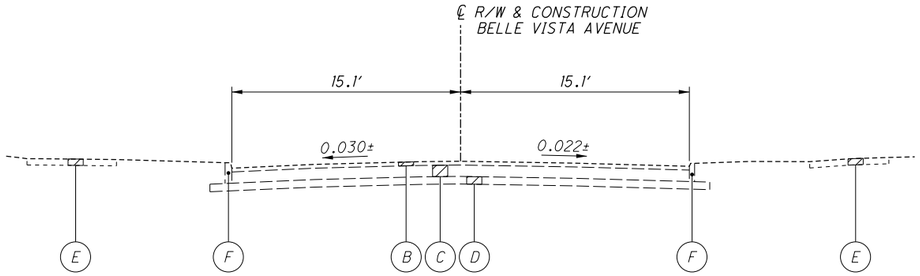
SECTION OF EXISTING ADJOINING PAVEMENT - FOUR MILE RUN ROAD

SECTION APPLIES:
STA. 6+50.00



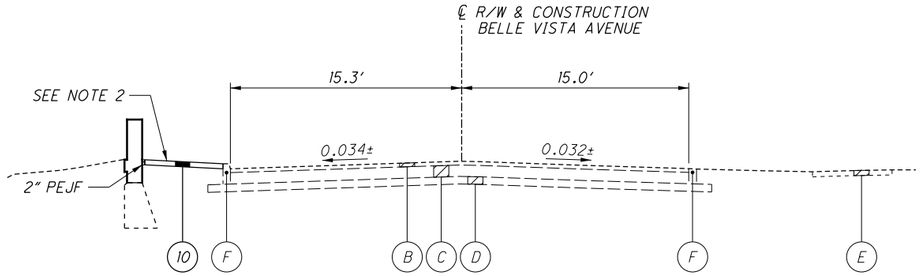
SECTION OF EXISTING ADJOINING PAVEMENT - FOUR MILE RUN ROAD

SECTION APPLIES:
STA. 12+50.00



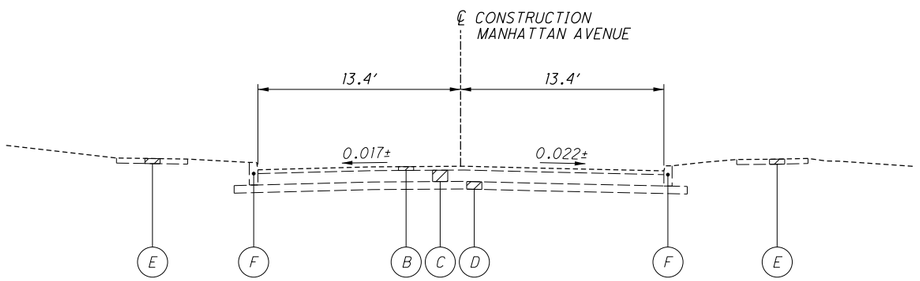
SECTION OF EXISTING ADJOINING PAVEMENT - BELLE VISTA AVENUE

SECTION APPLIES:
STA. 2+75.00



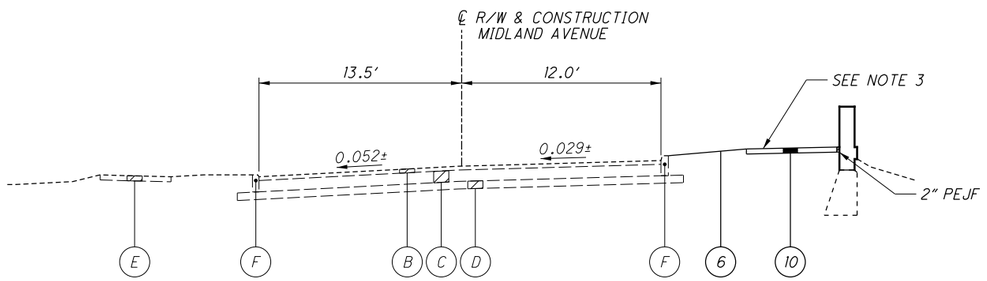
SECTION OF EXISTING ADJOINING PAVEMENT - BELLE VISTA AVENUE

SECTION APPLIES:
STA. 7+00.00



SECTION OF EXISTING ADJOINING PAVEMENT - MANHATTAN AVENUE

SECTION APPLIES:
STA. 100+50.00



SECTION OF EXISTING ADJOINING PAVEMENT - MIDLAND AVENUE

SECTION APPLIES:
STA. 200+50.00

NOTES

1. FOR LEGEND SEE SHEET 2.
2. WALK ENDS AT STA. 7+10.60.
3. WALK ENDS AT 200+62.10.

TYPICAL SECTIONS - EXISTING

MAH-680-0.68/3.73

UTILITIES

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS:

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE OHIO OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE (OGPUPS), THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEADQUARTERS AND ALL NON REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ALL AREAS.

OUPS 1-800-362-2764 (CONTACT LIMITED BASIS PARTICIPANTS DIRECTLY)
OGPUPS 1-800-925-0988
ODOT 330-786-2267 MICHELLE CHANEY

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

ELECTRIC:
FIRST ENERGY
OHIO EDISON
730 SOUTH AVENUE
YOUNGSTOWN, OHIO 44502
ATTN: RAYMOND JENKINS
PHONE: 330-740-7625

TELECOM:
AT&T
THE OHIO BELL TELEPHONE CO.
50 W. BOWERY ST.
6TH FLOOR
AKRON, OHIO 44308
ATTN: HAROLD MAYNARD
PHONE: 330-384-8974

TELECOM:
ARMSTRONG CABLE
9328 WOODWORTH ROAD
NORTH LIMA, OHIO 44452
ATTN: GENO SHONCE
PHONE: 330-726-0115 EXT. 224

GAS:
DOMINION EAST OHIO
320 SPRINGSIDE DRIVE
SUITE 320
AKRON, OH 44333
ATTN: MALLERIE STRASSER
PHONE: 330-664-4601

WATER:
YOUNGSTOWN WATER DEPARTMENT
26 S. PHELPS STREET
YOUNGSTOWN, OH 44503
ATTN: DAN BLAKELY
PHONE: 330-743-5340

SANITARY:
CITY OF YOUNGSTOWN
WASTEWATER TREATMENT
725 POLAND AVENUE
YOUNGSTOWN, OH 44502
ATTN: DAVID J. PAULL
PHONE: 330-742-8820

TELECOM:
SPECTRUM
4352 YOUNGSTOWN ROAD SE
WARREN, OH 44484
ATTN: GREG REITER
PHONE: 330-369-7115
ATTN: FRANK DILLON
PHONE: 330-369-7164

LIGHTING:
CITY OF YOUNGSTOWN
ENGINEERING & CONSTRUCTION DEPARTMENT
CITY HALL, 5TH FLOOR
26 SOUTH PHELPS STREET
YOUNGSTOWN, OH 44503
ATTN: CHUCK SHASHO
DEPUTY DIRECTOR OF PUBLIC WORKS
PHONE: 330-742-8800

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

SURVEYING PARAMETERS (MAH-680-0.68)

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE THIS SHEET OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: TYPE B

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID 12A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE
COMBINED SCALE FACTOR: 0.999894580
ORIGIN OF COORDINATE
SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH C&MS 623.

UNITS ARE IN U.S. SURVEY FEET.

SURVEYING PARAMETERS (MAH-680-3.73)

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE THIS SHEET OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: TYPE B

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID 12A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2011)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE
COMBINED SCALE FACTOR: 0.999899124
ORIGIN OF COORDINATE
SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH C&MS 623.

UNITS ARE IN U.S. SURVEY FEET.

DOMINION ENERGY OHIO GAS LINE

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LATERAL AND SUBJACENT SUPPORT OF DOMINION ENERGY'S PIPELINE(S), IN COMPLIANCE TO 29 CFR, PART 1926, SUBPART P, (SAFE EXCAVATION & SHORING). ONE-FOOT MINIMUM VERTICAL AND HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN DOMINION ENERGY OHIO'S (DEO) EXISTING PIPELINE(S) AND ALL OTHER IMPROVEMENTS. EXTREME CARE SHOULD BE TAKEN NOT TO HARM ANY DEO FACILITY (PIPELINES, ETC.) OR APPURTENANCE (PIPE COATING, TRACER WIRE, CATHODIC PROTECTION TEST STATION WIRES & DEVICES, VALVE BOXES, ETC.). DEO FACILITIES MUST BE PROTECTED WITH A TARP DURING BRIDGE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE AND LIABLE FOR ENSURING THAT ALL DEO EXISTING FACILITIES, ABOVE AND BELOW GROUND, REMAIN UNDAMAGED, ACCESSIBLE AND IN WORKING ORDER. THE CROSSING OF DEO'S PIPELINE WITH ANOTHER STEEL FACILITY MAY CREATE A POTENTIAL CORROSION ISSUE FOR THE PROPOSED FACILITY AND EXISTING DEO FACILITY. PLEASE CONTACT DOMINION ENERGY OHIO'S CORROSION DEPARTMENT: DAVE CUTLIP (330-266-2121), RICK MCDONALD (330-266-2122), OR AL HUMRICHOUSER (330-478-3757). SEE STRUCTURE PLANS (MAH-680-0373) FOR GAS LINE WORK.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

EXISTING PLANS

EXISTING PLANS MAY BE INSPECTED IN THE ODOT DISTRICT 4 OFFICE IN AKRON, OHIO.

CENTERLINE R/W & CONSTRUCTION REFERENCES AND BENCHMARKS - MAH-680-0.68

				GROUND (PROJECT)		GRID			
ROUTE	STATION	OFFSET (FT)	SIDE	NORTHING	EASTING	NORTHING	EASTING	ELEVATION	DESCRIPTION
FOUR MILE RUN RD.	1+58.27	16.14	LT.	536104.604	2454325.750	536048.088	2454067.015	1051.00	CP11 - MONUMENT TYPE B
FOUR MILE RUN RD.	7+41.93	18.07	LT.	536688.895	2454305.134	536632.317	2454046.401	1055.60	BM #1 - CHISELED "X" ON N BOLT ON FH
FOUR MILE RUN RD.	7+78.47	17.16	RT.	536724.549	2454341.257	536667.968	2454082.521	1054.29	CP12 - MONUMENT TYPE B
FOUR MILE RUN RD.	12+44.13	17.44	LT.	537190.924	2454318.197	537134.293	2454059.463	1062.84	BM #2 - CHISELED "X" ON N BOLT ON FH
FOUR MILE RUN RD.	17+96.42	16.85	RT.	537744.751	2454360.124	537688.062	2454101.386	1075.74	CP13 - MONUMENT TYPE B
PROJECT SCALE FACTOR: 1.000105431									

CENTERLINE R/W & CONSTRUCTION REFERENCES AND BENCHMARKS - MAH-680-3.73

				GROUND (PROJECT)		GRID			
ROUTE	STATION	OFFSET (FT)	SIDE	NORTHING	EASTING	NORTHING	EASTING	ELEVATION	DESCRIPTION
I.R. 680	608+66.57	0.21	RT.	530511.465	2467934.631	530457.949	2467685.676	951.17	CP01 - MONUMENT TYPE B
I.R. 680	604+43.80	0.69	RT.	530826.309	2467652.472	530772.761	2467403.546	953.89	CP02 - MONUMENT TYPE B
BELLE VISTA AVE.	9+95.24	33.80	LT.	531133.578	2467742.746	531079.999	2467493.810	960.08	CP03 - MONUMENT TYPE B
BELLE VISTA AVE.	-2+91.95	19.39	LT.	530031.496	2467796.401	529978.029	2467547.460	986.09	CP04 - MONUMENT TYPE B
PROJECT SCALE FACTOR: 1.000100886									

CALCULATED MGM
CHECKED TWG

GENERAL NOTES

MAH-680-0.68 / 3.73

REVIEW OF DRAINAGE AND SANITARY FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 8PM AND 7AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

UNRECORDED STORMWATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 SDR35.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 611 - 6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION 50 FT.

ITEM 611 - 6" CONDUIT, TYPE C, FOR DRAINAGE CONNECTION 50 FT.

ITEM 611 - 6" CONDUIT, TYPE E, FOR DRAINAGE CONNECTION 50 FT.

ITEM 611 - 6" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION 50 FT.

ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER C&MS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS

FURNISH A CONTINUANCE FOR ALL UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS SUCH AS SANITARY, WASTE-WATER, CURTAIN/GRADIENT DRAINS, AND FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. FURNISH AN UNOBSTRUCTED CONTINUANCE OF THE UNRECORDED ACTIVE SANITARY SEWER CONNECTIONS TO THE SATISFACTION OF THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT. ALL SANITARY AND SANITARY WASTE-WATER CONTINUANCE MAY ALSO REQUIRE A NPDES PERMIT FROM THE OHIO ENVIRONMENTAL PROTECTION AGENCY. REPORT ALL CONTINUANCE TO THE LOCAL HEALTH DEPARTMENT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.45

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 611 - 6" CONDUIT, TYPE B, 707.45	20 FT.
ITEM 611 - 6" CONDUIT, TYPE C, 707.45	20 FT.

EXISTING SUBSURFACE DRAINAGE

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS OR AGGREGATE DRAINS ENCOUNTERED DURING CONSTRUCTION.

PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO A SLOPE.

UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 611 - 4" CONDUIT, TYPE F	30 FT.
ITEM 605 - 4" UNCLASSIFIED PIPE UNDERDRAINS	100 FT.

ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), AS PER PLAN, PG64-22

FOLLOW SPECIFICATION 703.05 EXCEPT DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

ITEM 304 - AGGREGATE BASE, AS PER PLAN

GRANULATED SLAG (GS) SHALL NOT BE PERMITTED FOR THIS ITEM. ALL OTHER REQUIREMENTS OF SECTIONS 304 AND 703.17 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL STILL BE APPLICABLE.

SEEDING AND MULCHING (MAH-680-0.68)

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659 - SOIL ANALYSIS TEST	2 EACH
ITEM 659 - TOPSOIL (1108) X (111 CY / 1000 SY) = 122.99 CY	123 CY
ITEM 659 - REPAIR SEEDING AND MULCHING (1108) X (0.05) = 55.4 SY	55 SY
ITEM 659 - COMMERCIAL FERTILIZER [(1108) X 1 TON / 7410 SY)] = 0.15 TON	0.15 TON
ITEM 659 - LIME (1108) X 1 ACRE / 4840 SY) = 0.229 ACRE	0.23 ACRE
ITEM 659 - WATER [(1108) X 0.0054 M GAL / SY)] = 5.98 M GAL.	6 MGAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

SEEDING AND MULCHING (MAH-680-3.73)

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659 - SOIL ANALYSIS TEST	2 EACH
ITEM 659 - TOPSOIL (684) X (111 CY / 1000 SY) = 75.9 CY	76 CY
ITEM 659 - REPAIR SEEDING AND MULCHING (684) X (0.05) = 34.2 SY	34 SY
ITEM 659 - COMMERCIAL FERTILIZER [(684) X 1 TON / 7410 SY)] = 0.092 TON	0.09 TON
ITEM 659 - LIME (684) X 1 ACRE / 4840 SY) = 0.141 ACRE	0.14 ACRE
ITEM 659 - WATER [(684) X 0.0054 M GAL / SY)] = 3.6 M GAL.	4 MGAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

UNSTABLE OR UNSUITABLE SOILS FOR PAVEMENT STABILIZATION

THE FOLLOWING ITEMS AND QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO ADDRESS UNSTABLE OR UNSUITABLE SOILS ENCOUNTERED IN THE AREAS OF PAVEMENT CONSTRUCTION:

ITEM 204 - EXCAVATION OF SUBGRADE	20 CY
ITEM 204 - GRANULAR MATERIAL, TYPE B	20 CY
ITEM 204 - GEOTEXTILE FABRIC	50 SY

CALCULATED MGM CHECKED TWG

GENERAL NOTES

MAH-680-0.68 / 3.73

ITEM SPECIAL - MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D., AND CONFORM TO AASHTO M 181.

ALL HARDWARE INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, AND ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL MAILBOX SUPPORT SYSTEM, (SINGLE) (DOUBLE).

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET 121.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A W-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ITEM 611 - CATCH BASIN NO. 3A, AS PER PLAN

ALL PROVISIONS OF ITEM 611 AND ODOT STANDARD CONSTRUCTION DRAWING CB-2.2 APPLY WITH THE ADDITION THAT THE CASTING SHALL BE FABRICATED TO ACCOMMODATE A 4" CURB HEIGHT.

ITEM 605 - AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT THE FOLLOWING LOCATIONS AND THE TOTAL QUANTITY CARRIED TO THE GENERAL SUMMARY.

MAH-680-0.68	
STA. 6+75.00, LT.	9 FT
STA. 6+75.00, RT.	11 FT
STA. 7+38.00, LT.	9 FT
STA. 7+38.00, RT.	11 FT
	TOTAL = 40 FT

ITEM 638 - VALVE BOX ADJUSTED TO GRADE

THE VALVE BOXES AT THE FOLLOWING LOCATIONS SHALL BE ADJUSTED TO GRADE AND THE TOTAL QUANTITY CARRIED TO THE GENERAL SUMMARY.

MAH-680-3.73 (BELLE VISTA AVE.)	
STA. 3+08.27, 7.07' RT.	1 EACH
STA. 3+27.43, 15.71' LT.	1 EACH
STA. 3+37.79, 6.74' RT.	1 EACH
STA. 6+51.37, 4.72' RT.	1 EACH
MAH-680-3.73 (MIDLAND AVE.)	
STA. 200+30.34, 11.30' LT.	1 EACH
STA. 200+33.04, 3.75' LT.	1 EACH
STA. 200+36.11, 9.67' LT.	1 EACH
	TOTAL = 7 EACH

ITEM 202 - CATCH BASIN REMOVED, AS PER PLAN

ALL PROVISIONS OF ITEM 202 APPLY WITH THE ADDITION THAT THE CONCRETE SURROUNDING THE CATCH BASIN SHALL BE REMOVED WITH THE CATCH BASIN.

OBJECT MARKERS AND STRUCTURE IDENTIFICATION SIGNS

OBJECT MARKERS WILL BE PLACED ON EACH APPROACH OFF THE LEFT AND RIGHT SHOULDER, FACING TRAFFIC, AND BEHIND THE GUARDRAIL IF APPLICABLE. ONE OM-3L AND ONE OM-3R WILL BE INSTALLED AT EACH APPROACH. THE SIGNS WILL BE MOUNTED ON NEW NO. 2 POSTS AND SHALL BE INSTALLED AS PER STANDARD CONSTRUCTION DRAWING TC-41.20, MOST CURRENT REVISION. EACH POST WILL BE 10.5 FT IN LENGTH.

STRUCTURE IDENTIFICATION SIGNS (I-H25b) WILL BE INSTALLED ON THE SAME POST AND DIRECTLY BELOW THE OBJECT MARKER OFF THE RIGHT SHOULDER ON EACH APPROACH. A QUANTITY OF ONE SIGN WILL BE INSTALLED AT EACH APPROACH. THE SIGNS WILL HAVE A NON-REFLECTIVE WHITE SHEETING BACKGROUND.

INSTALL SIGNS FOR THE FOLLOWING STRUCTURES:
MAH-680-0068 (2 APPROACHES)

SEE TRAFFIC CONTROL PLANS FOR QUANTITIES.

STRUCTURE IDENTIFICATION SIGN

STRUCTURE IDENTIFICATION SIGNS, I-H25b, WILL BE PLACED ON EACH APPROACH OFF THE RIGHT SHOULDER, FACING TRAFFIC, AND BEHIND GUARDRAIL IF APPLICABLE. A QUANTITY OF ONE SIGN PER APPROACH WILL BE INSTALLED. THE SIGNS WILL HAVE A NON-REFLECTIVE WHITE SHEETING BACKGROUND AND ONLY THE SLM OF THE STRUCTURE.

THE SIGNS WILL BE MOUNTED ON NEW NO. 2 POSTS AND WILL BE INSTALLED AS PER STANDARD CONSTRUCTION DRAWING TC-41.20, MOST CURRENT VERSION. EACH POST WILL BE 7.5' IN LENGTH.

THE EXISTING STRUCTURE IDENTIFICATION SIGN AND POST SHALL BE REMOVED PRIOR TO INSTALLATION OF NEW STRUCTURE IDENTIFICATION SIGNS.

INSTALL SIGNS FOR THE FOLLOWING STRUCTURE:
MAH-680-0373 (2 APPROACHES)

SEE TRAFFIC CONTROL PLANS FOR QUANTITIES.

ENDANGERED SPECIES HABITAT - INDIANA BAT/ NORTHERN LONG-EARED BAT - MAH-680-0.68 & MAH-680-3.73

THE AFOREMENTIONED PROJECTS ARE LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT, AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

CALCULATED MGM
CHECKED TWG

GENERAL NOTES

MAH-680-0.68 / 3.73

ITEM 614, MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.

2. TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.

3. ONLY DURING OFF-PEAK PERIODS (ie ANY PERIOD OTHER THAN 6-8AM AND 3-6PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

4. A QUANTITY OF 10 CY OF ITEM 614 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC SHALL BE PROVIDED FOR USE IN MAINTAINING PAVEMENT, SHOULDERS AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER.

5. PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULDER WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREVER THERE ARE PAVEMENT ELEVATION DIFFERENCES.

6. THE CONTRACTOR SHALL PLACE THE SIGNS: W8-1 [BUMP] PER OMUTCD 2C.28; W8-11 [UNEVEN LANES] PER OMUCTD 6F.45; AND W6-3 [TWO-WAY TRAFFIC] PER OMUTCD 6F.32. PAYMENT FOR THESE SIGNS SHALL BE INCIDENTAL TO THE LUMP SUM ITEM 614- MAINTAINING TRAFFIC.

7. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE NED OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE QUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL MAY HAVE OTHER CONSTRUCTION RELATED DUTIES AS LONG AS IMMEDIATE ATTENTION IS GIVEN TO TRAFFIC CONTROL. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

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.

FOUR MILE RUN RD.

A MINIMUM OF ONE 10' LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 75 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 11. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $1000 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. THE CONTRACTOR SHALL NOTIFY AUSTINTOWN TOWNSHIP EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN GATES, BARRICADES AND ADVANCE WARNING SIGNS AS DETAILED ON STANDARD CONSTRUCTION DRAWING MT-101.60 AND SHOWN ON SHEET 11.

BELLE VISTA AVE.

A MINIMUM OF ONE 10' LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 120 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 12. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $1000 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT. THE CONTRACTOR SHALL NOTIFY THE CITY OF YOUNGSTOWN EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN GATES, BARRICADES AND ADVANCE WARNING SIGNS AS DETAILED ON STANDARD CONSTRUCTION DRAWING MT-101.60 AND SHOWN ON SHEET 12.

PEDESTRIANS SHALL BE DETOURED AS SHOWN ON SHEET 13 AND AS DETAILED ON STANDARD CONSTRUCTION DRAWING MT-110.10.

INTERSTATE ROUTE 680:

A MINIMUM OF 2 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE SPECIFIED BY USE OF THE EXISTING PAVEMENT.

FOR BRIDGE PAINTING AND THE INSTALLATION OF THE GUARDRAIL AND TYPE D BARRIER, THE CONTRACTOR SHALL USE SCD MT-95.30 AND/OR MT-102.20 TO CLOSE A LANE OR SHIFT TRAFFIC ON I.R. 680. THE CONTRACTOR SHALL PROTECT ANY EQUIPMENT AND/OR MATERIAL PARKED OR STORED WITHIN 30 FT. OF THE EDGE OF PAVEMENT BY LOCATING THE ITEM 6 FT. OR MORE BEHIND GUARDRAIL OR PORTABLE BARRIER.

THROUGH TRAFFIC MAY BE STOPPED ON I.R. 680 FOR DECK REMOVAL. SHORT TERM CLOSURES PER SCD MT-99.60 SHALL BE LIMITED TO A MAXIMUM OF 15 MINUTE PERIODS BETWEEN 12:00 AM AND 6:00 AM.

LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES ON I.R. 680 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 LANES 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

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE PER THE LANE VALUE CONTRACT (PN 127).

NOTICE OF CLOSURE SIGN

NOTICE OF CLOSURE SIGNS (W20-H13), SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW.

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

NOTICE OF CLOSURE SIGN TIME TABLE		
ITEM	DURATION OF CLOSURE	SIGN DISPLAYED TO PUBLIC
RAMP & ROAD CLOSURES	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	7 CALENDAR DAYS PRIOR TO CLOSURE
	< 12 HOURS	2 BUSINESS DAYS PRIOR TO CLOSURE

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

W20-H13-60

THE COST OF THE NOTICE OF CLOSURE SIGN IS CONSIDERED TO BE INCIDENTAL TO AND INCLUDED IN ITEM 614 - MAINTAINING TRAFFIC.

I.R. 680 LANE CLOSURES

ON I.R. 680, THE DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AS PER THE PERMITTED LANE CLOSURE CHART. THE PERMITTED LANE CLOSURE CHART USED FOR THIS PROJECT SHALL BE THE MOST CURRENT CHART AVAILABLE ON THE DATE THIS PROJECT SELLS.

THE CHART CAN BE FOUND AT:

http://plcm.dot.state.oh.us

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE REQUIREMENTS IN THE CHART, THE CONTRACTOR SHALL BE ASSESSED DISINCENTIVES IN THE AMOUNT OF $2,500 PER HOUR OR PORTION THEREOF THAT THE LANE REDUCTION REMAINS BEYOND THE SPECIFIED LIMIT.

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 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.

CALCULATED MGM CHECKED TWG

MAINTENANCE OF TRAFFIC GENERAL NOTES

MAH-680-0.68 / 3.73

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE CHANGEABLE MESSAGE SIGN, THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE ODOT OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCE 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.

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 PCMS SHOULD NOT BE LOCATED IN THE MEDIAN OF THE HIGHWAY UNLESS IT IS PROTECTED FROM BOTH DIRECTIONS OF TRAFFIC. 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 THE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF. ADDITIONALLY WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

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

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE CONTRACTOR. A LIST OF ALL PROPOSED PREPROGRAMMED MESSAGES WILL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PREPROGRAMMED 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 OF 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, DE-ACTIVATED 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 AREAS] ALLOW REMOTE SIGN ACTIVATION, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 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 WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THEIR USE. THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AS OUTLINED IN 614.02.

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 83 SNMT

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 - DETOUR SIGNING

THE CONTRACTOR SHALL PROVIDE, MAINTAIN, AND SUBSEQUENTLY REMOVE ALL DETOUR SIGNING AND SUPPORTS AS SHOWN ON SHEETS 11-13 AND ON MT-101.60. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - DETOUR SIGNING.

DUST CONTROL

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

ITEM 616 - WATER 2 MGAL

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

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

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

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

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

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

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

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

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

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

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

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

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 800 HOURS

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

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

ITEM 614 - WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)

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 APPROVED PRODUCTS 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.

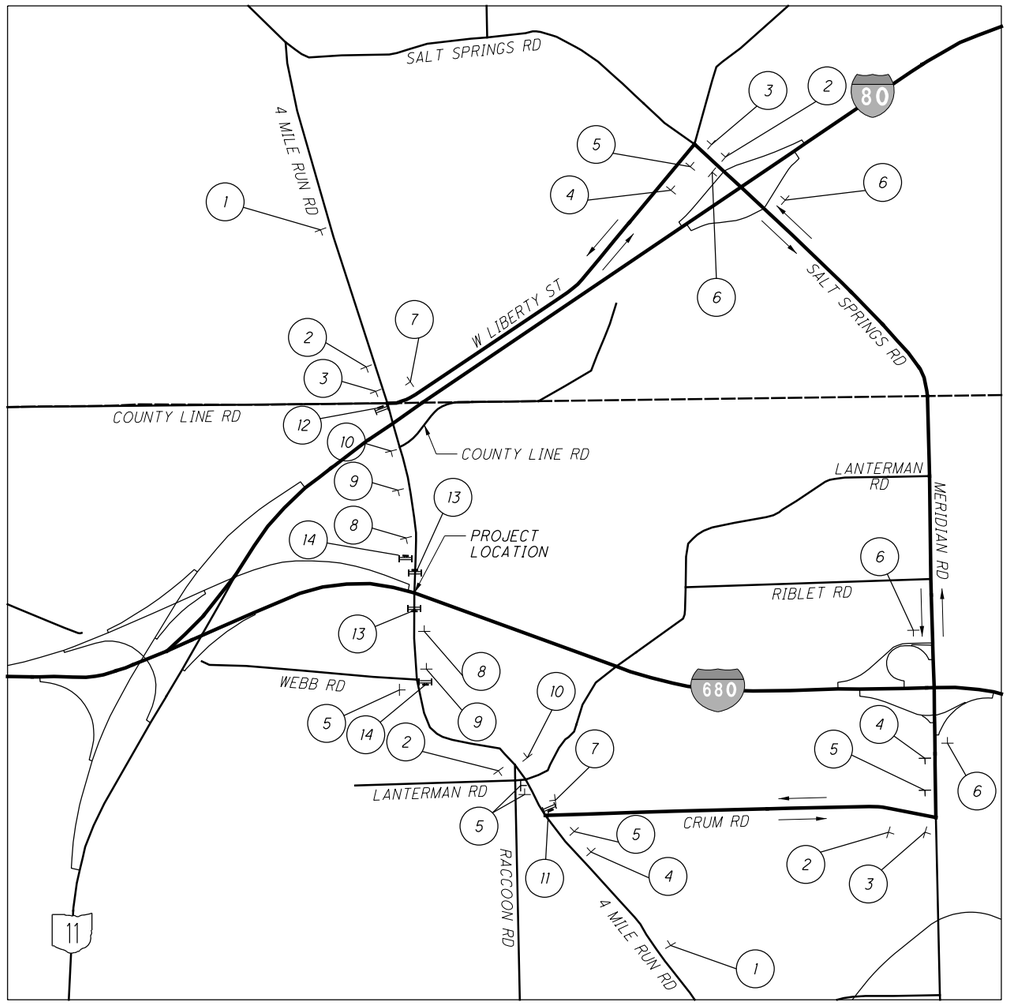
PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY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

REF. NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL) EACH	614 BARRIER REFLECTOR, TYPE 1, (ONE WAY) EACH	614 OBJECT MARKERS, ONE WAY EACH	622 PORTABLE BARRIER, UNANCHORED FT
IA-1	14	I.R. 680 EB	441+03.00	441+28.00	RT.	1			
IA-2	14	I.R. 680 WB	450+20.00	450+45.00	LT.	1			
PB-1	14	I.R. 680 EB	441+28.00	445+50.00	RT.		9	9	420
PB-2	14	I.R. 680 WB	445+00.00	450+20.00	LT.		11	11	520
IA-3	15	I.R. 680	603+45.00	603+70.00	RT.	1			
IA-4	15	I.R. 680	603+55.00	603+80.00	RT.	1			
IA-5	15	I.R. 680	609+70.00	609+95.00	LT.	1			
IA-6	15	I.R. 680	609+80.00	610+05.00	LT.	1			
PB-3	15	I.R. 680	603+70.00	608+00.00	RT.		10	10	430
PB-4	15	I.R. 680	603+80.00	608+00.00	RT.		9	9	420
PB-5	15	I.R. 680	605+00.00	609+80.00	LT.		11	11	480
PB-6	15	I.R. 680	605+00.00	609+70.00	LT.		10	10	470
TOTALS CARRIED TO GENERAL SUMMARY						6	60	60	2740

CALCULATED SJJ
CHECKED MGM

MAINTENANCE OF TRAFFIC - ESTIMATED QUANTITIES

MAH-680-0.68/3.73



(1) DETOUR 1500FT
W20-2-48

(2) DETOUR / FOUR MILE RUN RD
M4-8-24
D3-1-VAR
M5-1L-21

(3) DETOUR / FOUR MILE RUN RD
M4-8-24
D3-1-VAR
M6-1L-21

(4) DETOUR / FOUR MILE RUN RD
M4-8-24
D3-1-VAR
M5-1R-21

(5) DETOUR / FOUR MILE RUN RD
M4-8-24
D3-1-VAR
M6-1R-21

(6) DETOUR / FOUR MILE RUN RD
M4-8-24
D3-1-VAR
M6-3-21

(7) FOUR MILE RUN RD / END DETOUR
D3-1-VAR
M4-8A-24

(8) ROAD CLOSED 500FT
W20-3-48

(9) TYPE A WARNING LIGHT
ROAD CLOSED 1000FT
W20-3-48

(10) TYPE A WARNING LIGHT
ROAD CLOSED AHEAD
W16-2-48

(11) TYPE B WARNING LIGHT
ROAD CLOSED
0.7 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
R11-3A-60
M4-10R-48
TYPE III BARRICADE

(12) TYPE B WARNING LIGHT
ROAD CLOSED
0.5 MILES AHEAD
LOCAL TRAFFIC ONLY
DETOUR
R11-3A-60
M4-10L-48
TYPE III BARRICADE

(13) TYPE B WARNING LIGHT
ROAD CLOSED
R11-2-48
TYPE III BARRICADE
(TO BE PLACED AT LOCATION WHERE ONLY THE CONTRACTOR IS PERMITTED)

(14) TYPE B WARNING LIGHT
ROAD CLOSED
0.1 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3a-60
TYPE III BARRICADE

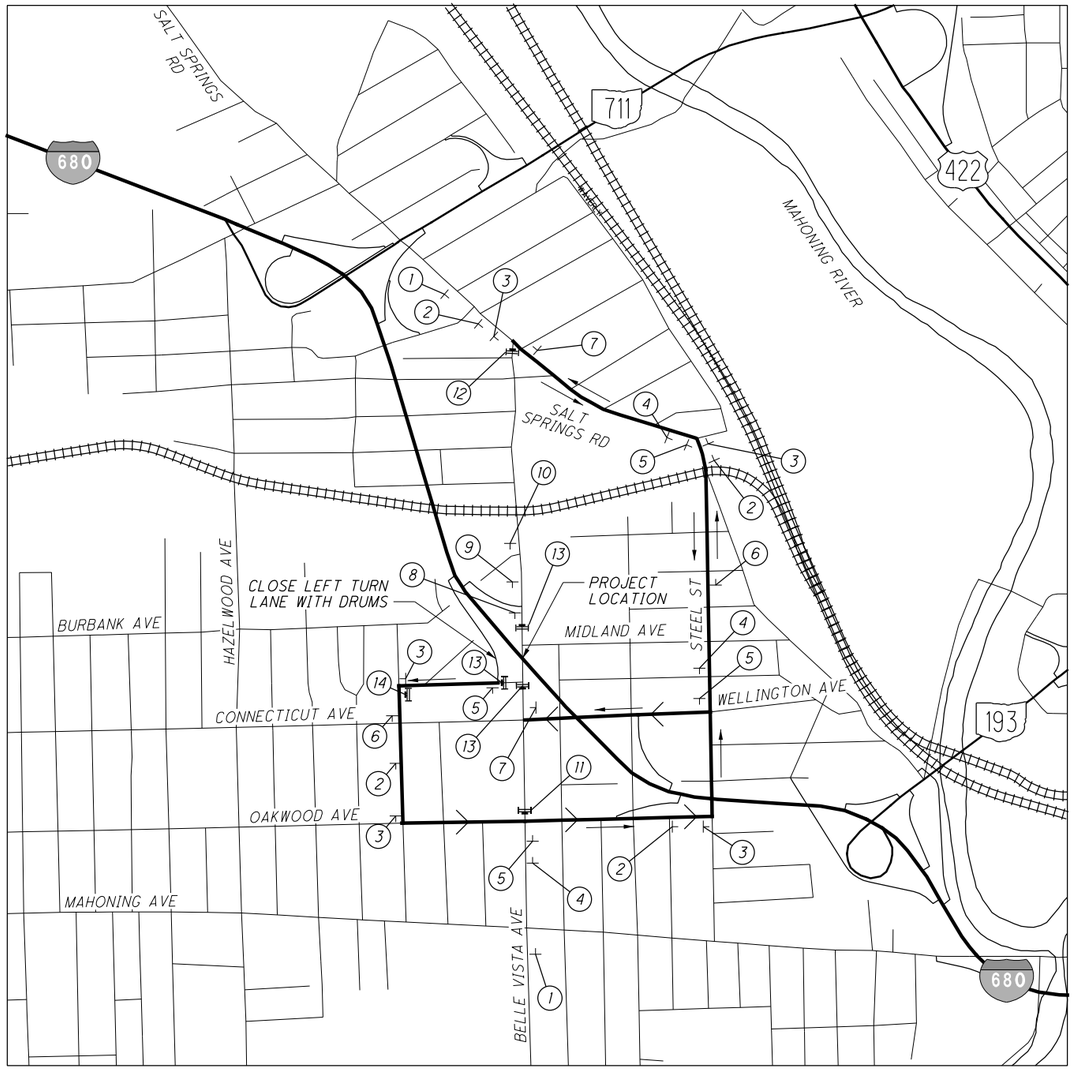
NOT TO SCALE

CALCULATED MGM CHECKED TWG

MAINTENANCE OF TRAFFIC
DETOUR PLAN - FOUR MILE RUN ROAD

MAH-680-0.68 / 3.73

11
126



(1) DETOUR 1500FT
W20-2-48

(2) DETOUR / BELLE VISTA AVE
M4-8-24
D3-1-VAR
M5-1L-21

(3) DETOUR / BELLE VISTA AVE
M4-8-24
D3-1-VAR
M6-1L-21

(4) DETOUR / BELLE VISTA AVE
M4-8-30
D3-1-VAR
M5-1R-21

(5) DETOUR / BELLE VISTA AVE
M4-8-24
D3-1-VAR
M6-1R-21

(6) DETOUR / BELLE VISTA AVE
M4-8-24
D3-1-VAR
M6-3-21

(7) BELLE VISTA AVE / END DETOUR
D3-1-VAR
M4-8A-24

(8) ROAD CLOSED 500FT
W20-3-48

TYPE A WARNING LIGHT
(9) ROAD CLOSED 1000FT
W20-3-48

TYPE A WARNING LIGHT
(10) ROAD CLOSED AHEAD
W16-2-48

TYPE B WARNING LIGHT
(11) ROAD CLOSED 0.7 MILES AHEAD / LOCAL TRAFFIC ONLY / DETOUR
R11-3A-60
M4-10R-48
TYPE III BARRICADE

TYPE B WARNING LIGHT
(12) ROAD CLOSED 0.5 MILES AHEAD / LOCAL TRAFFIC ONLY / DETOUR
R11-3A-60
M4-10L-48
TYPE III BARRICADE

TYPE B WARNING LIGHT
(13) ROAD CLOSED
R11-2-48
TYPE III BARRICADE
(TO BE PLACED AT LOCATION WHERE ONLY THE CONTRACTOR IS PERMITTED)

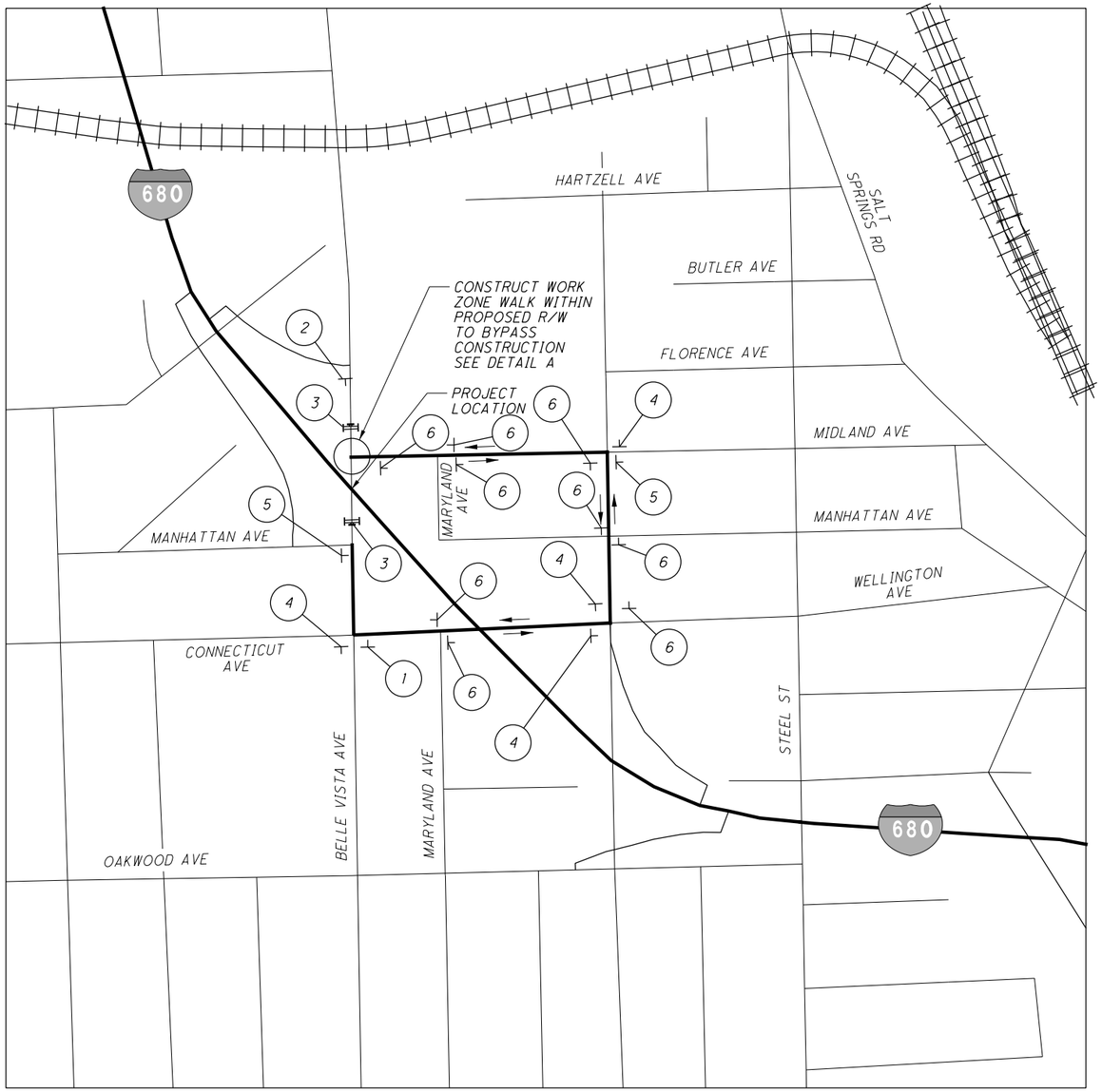
TYPE B WARNING LIGHT
(14) ROAD CLOSED 0.1 MILES AHEAD / LOCAL TRAFFIC ONLY / DETOUR
R11-3A-60
M4-10R-48
TYPE III BARRICADE

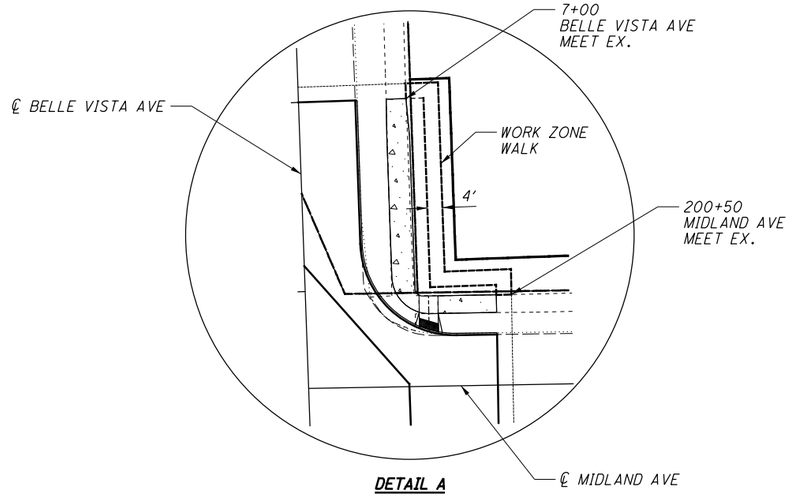
NOT TO SCALE

CALCULATED MGM
CHECKED TWG

MAINTENANCE OF TRAFFIC
DETOUR PLAN - BELLE VISTA AVENUE

MAH-680-0.68 / 3.73





DETAIL A

1

R9-H9A-30
M4-9BR-30

2

R9-H9A-30
M4-9BL-30

3

R9-9-30
TYPE I BARRICADE

4

M4-9BL-30

5

M4-9BR-30

6

M4-9BC-30

NOTES

1. PEDESTRIAN TRAFFIC TO MIDLAND AVE. SHALL BE MAINTAINED.
2. FOR ADDITIONAL DETAILS SEE SCD MT-110.10
3. THE WORK ZONE WALK SHALL BE CONSTRUCTED WITHIN THE PROPOSED CONSTRUCTION LIMITS.
4. PAYMENT FOR THE WORK ZONE WALK SHALL BE INCIDENTAL TO ITEM 614 - MAINTAINING TRAFFIC.

NOT TO SCALE

CALCULATED MGM CHECKED TWG

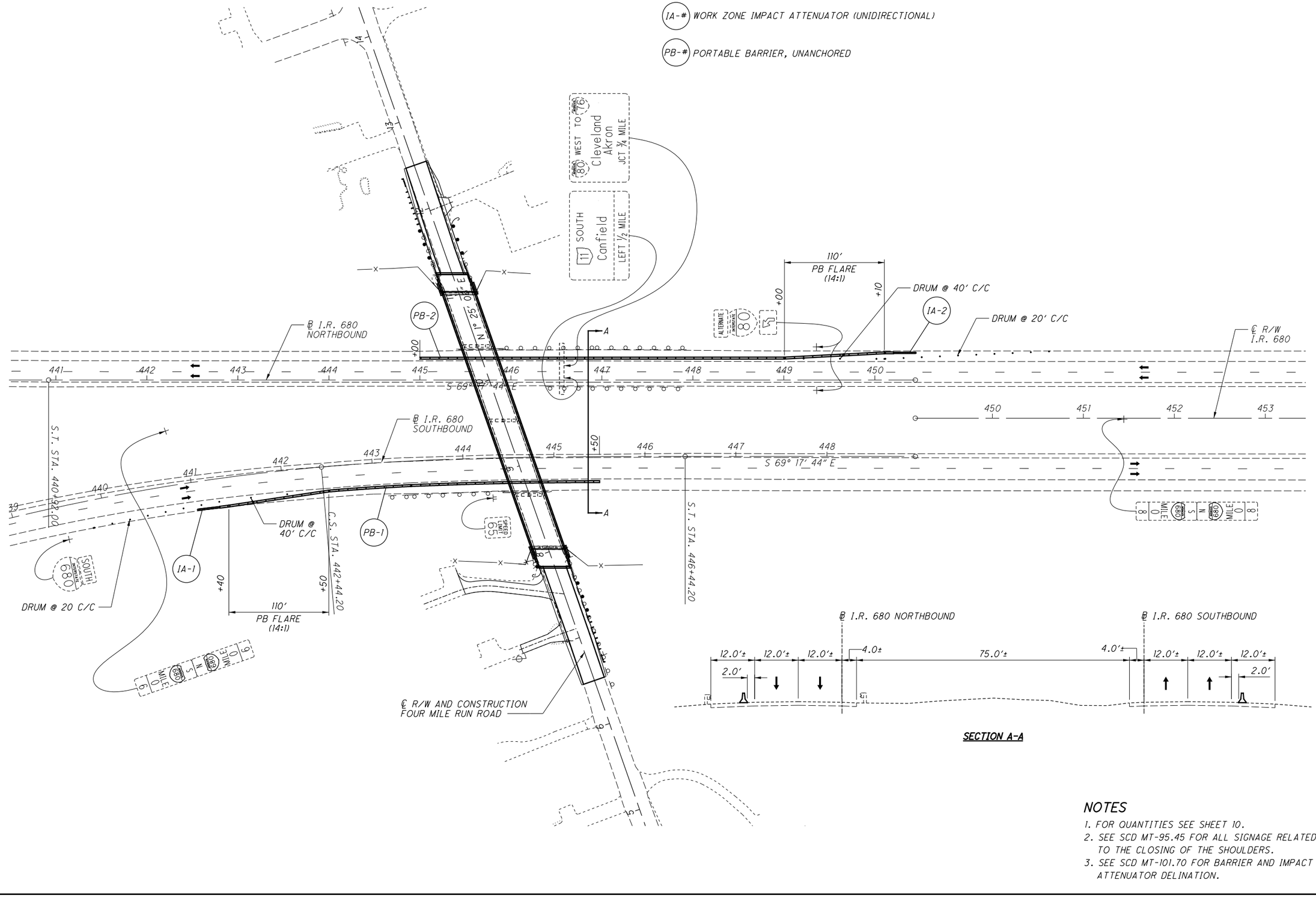
MAINTENANCE OF TRAFFIC
PEDESTRIAN DETOUR PLAN - BELLE VISTA AVE

MAH-680-0.68/3.73

LEGEND

IA-# WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)

PB-# PORTABLE BARRIER, UNANCHORED



SECTION A-A

NOTES

1. FOR QUANTITIES SEE SHEET 10.
2. SEE SCD MT-95.45 FOR ALL SIGNAGE RELATED TO THE CLOSING OF THE SHOULDERS.
3. SEE SCD MT-101.70 FOR BARRIER AND IMPACT ATTENUATOR DELINATION.

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MGM
CHECKED TWG

MAINTENANCE OF TRAFFIC - I.R. 680
FOUR MILE RUN ROAD

MAH-680-0.68/3.73

14
126

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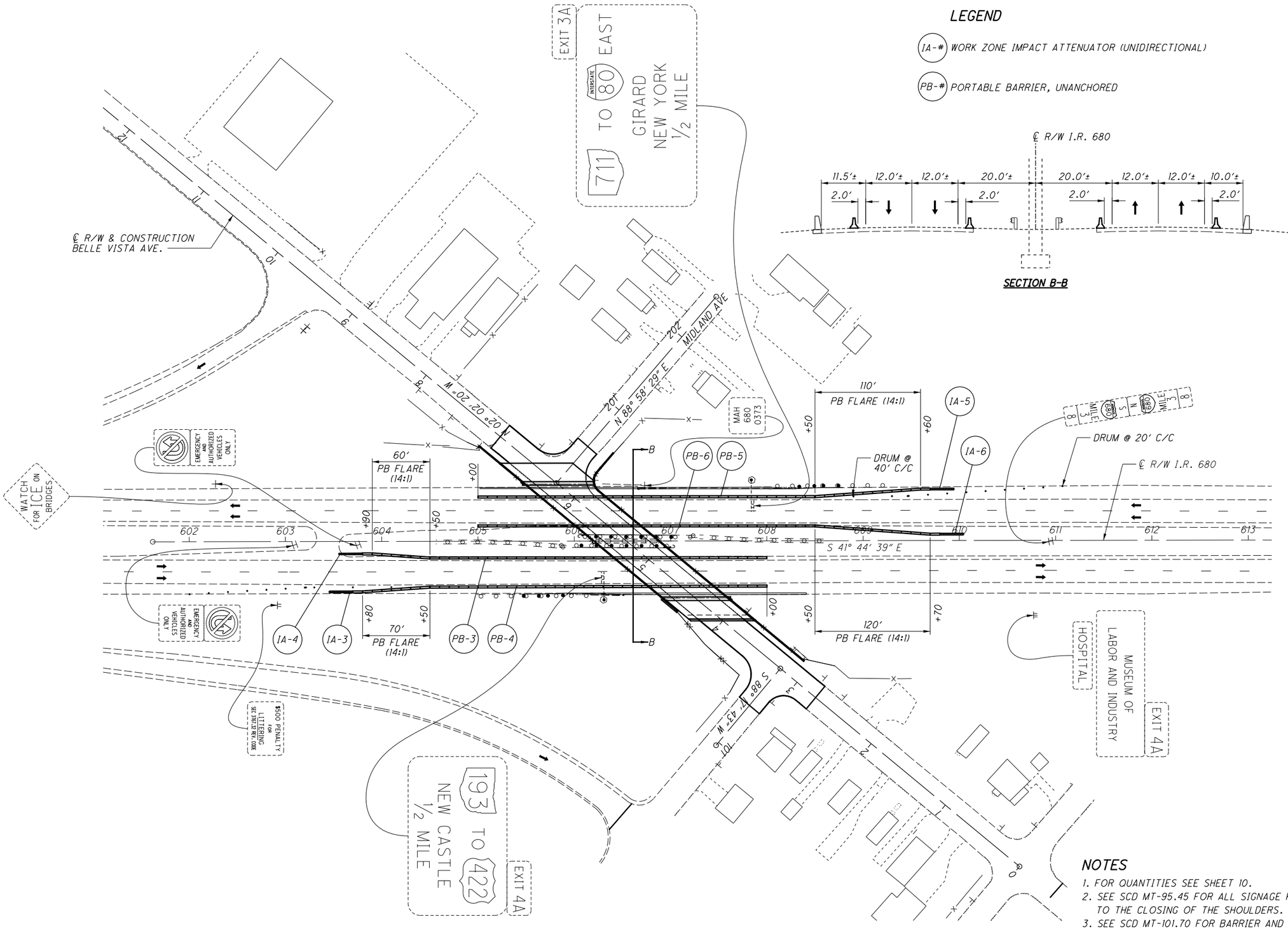


HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED MGM
CHECKED TWG

MAINTENANCE OF TRAFFIC - I.R. 680
BELLE VISTA AVENUE

MAH-680-0.68/3.73

15
126

P:\ODT\04\0022_MAH-680-00.68_03.73\05857\Design\Roadway\Sheets\05857_MP373.dgn Sheet 6/24/2021 2:47:02 PM CMT008

SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		5	6	7	19	20	27	35	37A	121	OFFICE CALCS	01/IMS/BR	02/IMS/OT/YTOW						
																		ROADWAY	
		LS										LS		201	11000	LS		CLEARING AND GRUBBING	
					1							1		202	20010	1	EACH	HEADWALL REMOVED	
									263		1,640	1,903		202	23000	1,903	SY	PAVEMENT REMOVED	
						2,400						2,400		202	30000	2,400	SF	WALK REMOVED	
						174						174		202	30700	174	FT	CONCRETE BARRIER REMOVED	
						467						467		202	32000	467	FT	CURB REMOVED	
					244							244		202	35100	244	FT	PIPE REMOVED, 24" AND UNDER	
					328	348						676		202	38000	676	FT	GUARDRAIL REMOVED	
					4							4		202	53100	4	EACH	MAILBOX REMOVED	
					1							1		202	58101	1	EACH	CATCH BASIN REMOVED, AS PER PLAN	7
					75	178						253		202	75000	253	FT	FENCE REMOVED	
							188	346				534		203	10000	534	CY	EXCAVATION	
							148	56				204		203	20000	204	CY	EMBANKMENT	
									205		2,554	2,759		204	10000	2,759	SY	SUBGRADE COMPACTION	
			20									20		204	13000	20	CY	EXCAVATION OF SUBGRADE	
			20									20		204	30010	20	CY	GRANULAR MATERIAL, TYPE B	
			50									50		204	50000	50	SY	GEOTEXTILE FABRIC	
					137.5	275						412.5		606	15050	412.5	FT	GUARDRAIL, TYPE MGS	
					2							2		606	20050	2	EACH	ROUNDED END SECTION	
					2							2		606	26150	2	EACH	ANCHOR ASSEMBLY, MGS TYPE E, MASH 2016	
					1	2						3		606	26550	3	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
					3	2						5		606	35002	5	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
					1							1		606	35102	1	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
					75							75		607	15000	75	FT	FENCE, TYPE 47	
						185						185		607	20000	185	FT	FENCE, TYPE CL	
					75	185						260		607	70000	260	FT	FENCELINE SEEDING AND MULCHING	
						2,156						2,156		608	10000	2,156	SF	4" CONCRETE WALK	
						230						230		608	52000	230	SF	CURB RAMP	
						469						469		622	10160	469	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	
						2						2		622	25000	2	EACH	CONCRETE BARRIER END SECTION, TYPE D	
						2						2		622	25050	2	EACH	CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D	
										2		2		623	38500	2	EACH	MONUMENT ASSEMBLY	
					4							4		SPECIAL	69050000	4	EACH	MAILBOX SUPPORT	7
																		EROSION CONTROL	
					2							2		601	21050	2	SY	TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT	
					10							10		601	21060	10	SY	TIED CONCRETE BLOCK MAT WITH TYPE 2 UNDERLAYMENT	
					1							1		601	32204	1	CY	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC	
			4									4		659	00100	4	EACH	SOIL ANALYSIS TEST	
			199									199		659	00300	199	CY	TOPSOIL	
							1,108	684				1,792		659	10000	1,792	SY	SEEDING AND MULCHING	
			89									89		659	14000	89	SY	REPAIR SEEDING AND MULCHING	
			0.24									0.24		659	20000	0.24	TON	COMMERCIAL FERTILIZER	
			0.37									0.37		659	31000	0.37	ACRE	LIME	
			10									10		659	35000	10	MGAL	WATER	
												20,000		832	30000	20,000	EACH	EROSION CONTROL	
																		DRAINAGE	
					1							1		602	20000	1	CY	CONCRETE MASONRY	
			100									100		605	05200	100	FT	4" UNCLASSIFIED PIPE UNDERDRAINS	
					258							258		605	14000	258	FT	6" BASE PIPE UNDERDRAINS	
				40								40		605	31100	40	FT	AGGREGATE DRAINS	
			30									30		611	00406	30	FT	4" CONDUIT, TYPE F	
					14							14		611	00510	14	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
			50									50		611	00900	50	FT	6" CONDUIT, TYPE B	
			50									50		611	01100	50	FT	6" CONDUIT, TYPE C	
			50									50		611	01400	50	FT	6" CONDUIT, TYPE E	
			50									50		611	01500	50	FT	6" CONDUIT, TYPE F	
					39							39		611	04400	39	FT	12" CONDUIT, TYPE B	

CALCULATED MGM
CHECKED TWG

GENERAL SUMMARY

MAH-680-0.68 / 3.73

SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	6	7	19	20	37A	47	55	56	57A	OFFICE CALCS	01/IMS/ BR	02/IMS/ OT/YTOW						
																	DRAINAGE CONTINUED	
			31								31		611	04900	31	FT	12" CONDUIT, TYPE D	
			50								50		611	05700	50	FT	15" CONDUIT, TYPE A, 706.02	
			182	100							282		611	06100	282	FT	15" CONDUIT, TYPE C	
				1							1		611	98180	1	EACH	CATCH BASIN, NO. 3A	
			1								1		611	98181	1	EACH	CATCH BASIN, NO. 3A, AS PER PLAN	7
			3								3		611	98470	3	EACH	CATCH BASIN, NO. 2-2B	
				2							2		611	99150	2	EACH	INLET ADJUSTED TO GRADE	
				2							2		611	99154	2	EACH	INLET RECONSTRUCTED TO GRADE	
				2							2		611	99574	2	EACH	MANHOLE, NO. 3	
			1								1		611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
																	PAVEMENT	
				539							539		252	01500	539	FT	FULL DEPTH PAVEMENT SAWING	
					13					414	427		301	46000	427	CY	ASPHALT CONCRETE BASE, PG64-22	
										417	417		304	20001	417	CY	AGGREGATE BASE, AS PER PLAN	6
					7					329	336		407	10000	336	GAL	TACK COAT	
					5					159	164		441	50101	164	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN, PG64-22	6
					71						71		452	10050	71	SY	6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS	
			45								45		609	24510	45	FT	CURB, TYPE 4-C	
				383							383		609	26000	383	FT	CURB, TYPE 6	
																	WATER WORK	
						485						485	638	01200	485	FT	8" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS	
						20						20	638	06601	20	FT	14" STEEL PIPE ENCASEMENT, OPEN CUT, AS PER PLAN	44
						1						1	638	10201	1	EACH	6" FIRE HYDRANT, AS PER PLAN	45
				1		1					1	1	638	10301	2	EACH	FIRE HYDRANT EXTENDED AND ADJUSTED TO GRADE, AS PER PLAN	44
						1						1	638	10481	1	EACH	FIRE HYDRANT REMOVED, AS PER PLAN	45
		7				4					7	4	638	10800	11	EACH	VALVE BOX ADJUSTED TO GRADE	
						2						2	638	10900	2	EACH	SERVICE BOX ADJUSTED TO GRADE	
						2						2	SPECIAL	63820880	2	EACH	CUT AND PLUG EXISTING 8" WATER LINE (CITY OF YOUNGSTOWN)	45
						2						2	638	98000	2	EACH	WATER WORK, MISC.: EBAA EXPANSION JOINT	44
						8						8	638	98000	8	EACH	WATER WORK, MISC.: 8" 45 DEGREE BEND WITH MEGA LUG	44
						24						24	638	98000	24	EACH	WATER WORK, MISC.: ADJUSTABLE ROLL SUPPORTS	44
						293						293	638	98600	293	FT	WATER WORK, MISC.: 2" PIPE INSULATION WITH 20 GA. STAINLESS STEEL JACKET, COMPLETE	44
						456						456	638	98600	456	FT	WATER WORK, MISC.: REMOVAL 8" WATER MAIN	44
																	SANITARY SEWER	
	20										20		611	00900	20	FT	6" CONDUIT, TYPE B, 707.45	
	20		35								55		611	01100	55	FT	6" CONDUIT, TYPE C, 707.45	
				2							2		611	99654	2	EACH	MANHOLE ADJUSTED TO GRADE	
																	LIGHTING	
								6	4		10		625	00450	10	EACH	CONNECTION, FUSED PULL APART	
								6			6		625	00460	6	EACH	CONNECTION, UNFUSED PULL APART	
								2			2		625	10490	2	EACH	LIGHT POLE, CONVENTIONAL, DESIGN AT8B33	
								1			1		625	10490	1	EACH	LIGHT POLE, CONVENTIONAL, DESIGN AT12B33	
								4			4		625	10614	4	EACH	LIGHT POLE ANCHOR BOLTS ON STRUCTURE	
								2			2		625	14000	2	EACH	LIGHT POLE FOUNDATION, 24" X 6' DEEP	
								1,407			1,407		625	23000	1,407	FT	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE	
								254			254		625	23400	254	FT	NO. 10 AWG POLE AND BRACKET CABLE	
									210		210		625	24320	210	FT	1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 2400 VOLT CABLES	
								419			419		625	25400	419	FT	CONDUIT, 2", 725.04	
								3			3		625	26253	3	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-II-M, LED, 9,000-11,000 LUMENS	55
								191	200		391		625	29000	391	FT	TRENCH	
								21			21		625	29400	21	FT	TRENCH IN PAVED AREA	
								1			1		625	29900	1	EACH	JUNCTION BOX	
								2			2		625	30700	2	EACH	PULL BOX, 725.08, 18"	
								2			2		625	32000	2	EACH	GROUND ROD	
								1			1		625	33000	1	EACH	STRUCTURE GROUNDING SYSTEM	
								1			1		625	34001	1	EACH	POWER SERVICE, AS PER PLAN	55
								212	200		412		625	36011	412	FT	UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN	55
							LS				LS		SPECIAL	62540000	LS		MAINTAIN EXISTING LIGHTING	55

CALCULATED MGM
CHECKED TWG

GENERAL SUMMARY

MAH-680-0.68 / 3.73

SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
					8	9	10	49	50	55	56	01/IMS/BR	02/IMS/OT/YTOW						
																		LIGHTING CONTINUED	
										2		2		SPECIAL	62540010	2	EACH	REPLACEMENT OF EXISTING LIGHTING UNIT	55
											4	4		625	75401	4	EACH	LIGHT POLE REMOVED, AS PER PLAN	55
										1		1		625	76000	1	EACH	ARC FLASH CALCULATIONS AND LABEL (CC-A)	
																		TRAFFIC CONTROL	
								7				7		626	00102	7	EACH	BARRIER REFLECTOR, TYPE 1, (ONE WAY)	
								6				6		626	00110	6	EACH	BARRIER REFLECTOR, TYPE 2, (ONE WAY)	
								8				8		626	00110	8	EACH	BARRIER REFLECTOR, TYPE 2, (BIDIRECTIONAL)	
									57			57		630	02100	57	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
									114			114		630	03100	114	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
									34			34		630	04100	34	FT	GROUND MOUNTED SUPPORT, NO. 4 POST	
									2			2		630	08600	2	EACH	SIGN POST REFLECTOR	
									82.2			82.2		630	80100	82.2	SF	SIGN, FLAT SHEET	
									4			4		630	80100	4	SF	SIGN, FLAT SHEET, 730.20	
									10			10		630	84900	10	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
									1			1		630	85100	1	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
									1			1		630	85400	1	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	
									8			8		630	86002	8	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
									2			2		630	86102	2	EACH	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL	
									1			1		630	87100	1	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION	
									1			1		630	87500	1	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
									1			1		630	89100	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND REERECTION, TYPE TC-12.30	
								681				681		642	30000	681	FT	REMOVAL OF PAVEMENT MARKING	
								0.50				0.50		646	10010	0.50	MILE	EDGE LINE, 6"	
								0.34				0.34		646	10200	0.34	MILE	CENTER LINE	
								104				104		646	10300	104	FT	CHANNELIZING LINE, 8"	
								11				11		646	10400	11	FT	STOP LINE	
								139				139		646	10500	139	FT	CROSSWALK LINE	
								299				299		646	10600	299	FT	TRANSVERSE/DIAGONAL LINE	
								40				40		646	10800	40	SF	ISLAND MARKING	
								2				2		646	20300	2	EACH	LANE ARROW	
								104				104		646	20504	104	FT	DOTTED LINE, 6"	
																		STRUCTURE OVER 20 FOOT SPAN (MAH-680-0068)	
																		FOR MAH-680-0068 ESTIMATED QUANTITIES	60
																		STRUCTURE OVER 20 FOOT SPAN (MAH-680-0373)	
																		FOR MAH-680-0373 ESTIMATED QUANTITIES	84
																		MAINTENANCE OF TRAFFIC	
						800						800		614	11110	800	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
							6					6		614	12380	6	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	
						LS						LS		614	12420	LS		DETOUR SIGNING	
					10							10		614	13000	10	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
							60					60		614	13310	60	EACH	BARRIER REFLECTOR, TYPE 1, (ONE WAY)	
							60					60		614	13350	60	EACH	OBJECT MARKER, ONE WAY	
						83						83		614	18601	83	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	9
						2						2		616	10000	2	MGAL	WATER	
							2,740					2,740		622	41100	2,740	FT	PORTABLE BARRIER, UNANCHORED	
																		INCIDENTALS	
												LS		614	11000	LS		MAINTAINING TRAFFIC	
												9		619	16010	9	MNTH	FIELD OFFICE, TYPE B	
												LS		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS		624	10000	LS		MOBILIZATION	

CALCULATED MGM
CHECKED TWG

GENERAL SUMMARY

MAH-680-0.68 / 3.73

REF. NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 HEADWALL REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT	202 FENCE REMOVED FT	202 GUARDRAIL REMOVED FT	202 MAILBOX REMOVED EACH	202 CATCH BASIN REMOVED, AS PER PLAN EACH	601 TIED CONCRETE BLOCK MAT WITH TYPE 1 UNDERLAYMENT SY	601 TIED CONCRETE BLOCK MAT WITH TYPE 2 UNDERLAYMENT SY	601 ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC CY	602 CONCRETE MASONRY CY	605 6" BASE PIPE UNDERDRAINS FT	606 GUARDRAIL, TYPE MGS FT	606 ROUNDED END SECTION EACH	606 ANCHOR ASSEMBLY, MGS TYPE E, MASH 2016 EACH	606 ANCHOR ASSEMBLY, MGS TYPE T EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	607 FENCE, TYPE 47 FT	607 FENCELINE SEEDING AND MULCHING FT	609 CURB, TYPE 4-C FT	611 6" CONDUIT, TYPE F, FOR UNDERDRAIN OUTLETS FT	611 12" CONDUIT, TYPE B FT	611 12" CONDUIT, TYPE D FT	611 15" CONDUIT, TYPE A, 706.02 FT	611 15" CONDUIT, TYPE C FT	611 CATCH BASIN, NO. 3A, AS PER PLAN EACH	611 CATCH BASIN, NO. 2-2B EACH	611 PRECAST REINFORCED CONCRETE OUTLET EACH	611 6" CONDUIT, TYPE C, 707.45 FT	690 SPECIAL - MAILBOX SUPPORT EACH
D-1	21	FOUR MILE RUN RD	6+70.00		LT./RT.		38								0.50																				
D-2	21	FOUR MILE RUN RD	6+95.00	7+26.00	LT.		26																												
D-3	21	FOUR MILE RUN RD	7+45.00	7+83.00	LT.										0.20												39				1			
D-4	22	FOUR MILE RUN RD	10+89.31	11+25.00	LT.	1	32				1			1	0.25																36		1		
D-5	22	FOUR MILE RUN RD	11+25.00	12+35.00	LT.		148																								110		1		
D-6	22	FOUR MILE RUN RD	12+35.00	12+70.00	LT.																										36		1		
E-1	21	FOUR MILE RUN RD	7+59.67	7+65.17	RT.								10																						
E-2	22	FOUR MILE RUN RD	11+03.90	11+06.73	RT.							2																							
F-1	54	FOUR MILE RUN RD	7+85.06	7+98.56	RT.			16																16	16										
F-2	54	FOUR MILE RUN RD	7+95.44	8+09.85	LT.			27																27	27										
F-3	54	FOUR MILE RUN RD	10+95.48	11+06.91	RT.			16																16	16										
F-4	54	FOUR MILE RUN RD	11+07.60	11+22.29	LT.			16																16	16										
GR-1	21	FOUR MILE RUN RD	6+67.92	7+85.82	RT.				166								37.5		1		1					12									
GR-2	21	FOUR MILE RUN RD	7+78.60	7+96.51	LT.				29								25	1				1				9									
GR-3	22	FOUR MILE RUN RD	11+08.75	11+79.94	RT.				54								37.5	1		1	1					12									
GR-4	22	FOUR MILE RUN RD	11+19.95	12+37.84	LT.				79								37.5		1		1					12									
MB-1	21	FOUR MILE RUN RD	7+22.56		LT.					1																									1
MB-2	21	FOUR MILE RUN RD	7+49.05		LT.					1																									1
MB-3	22	FOUR MILE RUN RD	12+18.66		RT.					1																									1
MB-4	22	FOUR MILE RUN RD	12+71.54		LT.					1																									1
S-1	22	FOUR MILE RUN RD	11+25.00	11+57.00	LT.																													35	
UD-1	22	FOUR MILE RUN RD	11+06.05	12+50.00	RT.											137										8								
UD-2	22	FOUR MILE RUN RD	11+25.00	12+50.00	LT.											121										6							1	
TOTALS CARRIED TO GENERAL SUMMARY						1	244	75	328	4	1	2	10	1	1.0	258	137.5	2	2	1	3	1	75	75	45	14	39	31	50	182	1	3	1	35	4

CALCULATED MGM
CHECKED TWG

ESTIMATED QUANTITIES - FOUR MILE RUN ROAD

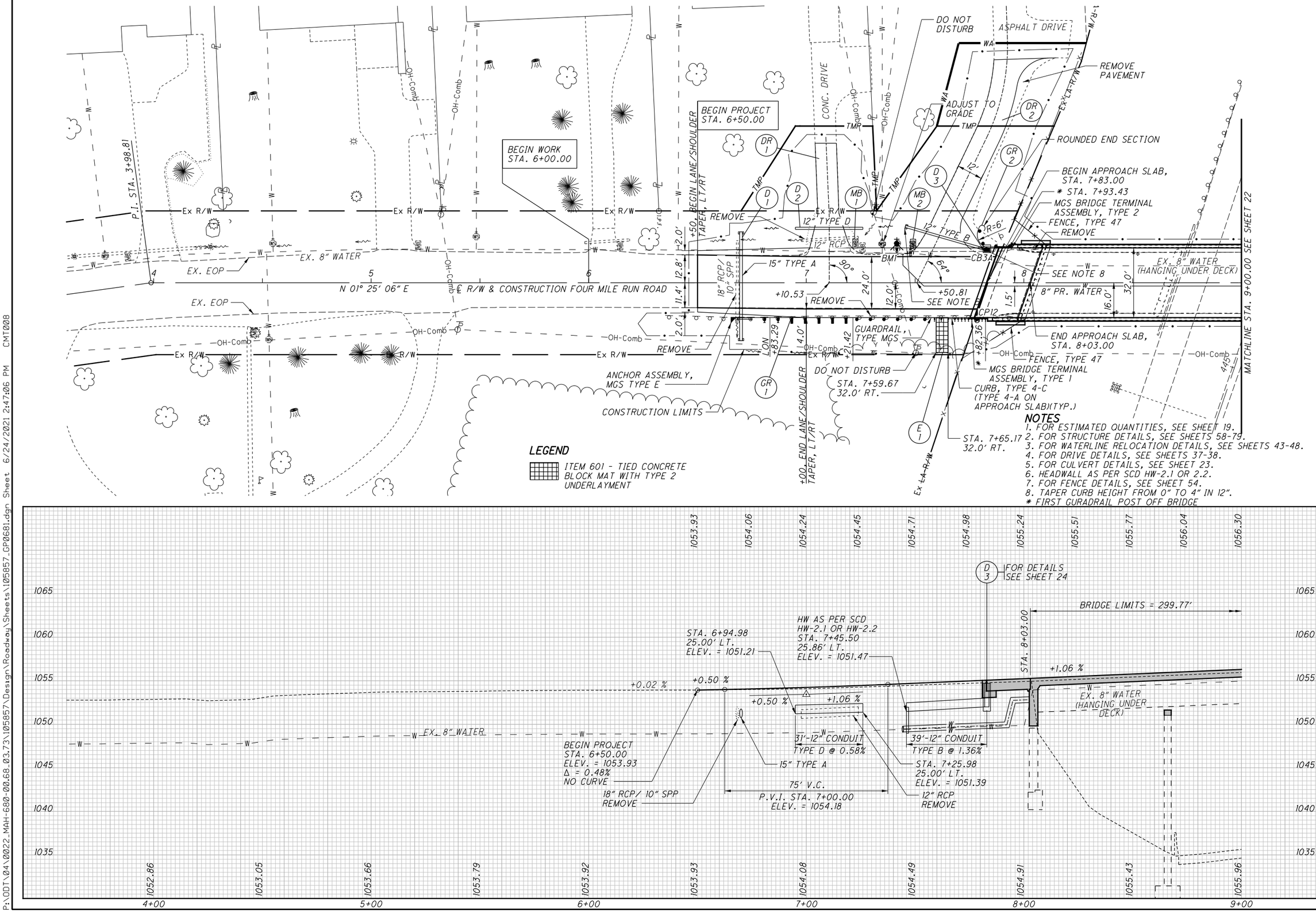
MAH-680-0.68/3.73

REF. NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 WALK REMOVED SF	202 CONCRETE BARRIER REMOVED FT	202 CURB REMOVED FT	202 FENCE REMOVED FT	202 GUARDRAIL REMOVED FT	252 FULL DEPTH PAVEMENT SAWING FT	606 GUARDRAIL, TYPE MGS FT	606 ANCHOR ASSEMBLY, MGS TYPE T EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	607 FENCE, TYPE CL FT	607 FENCELINE SEEDING AND MULCHING FT	608 4" CONCRETE WALK SF	608 CURB RAMP SF	609 CURB, TYPE 6 FT	611 15" CONDUIT, TYPE C FT	611 CATCH BASIN, NO. 3A EACH	611 INLET, ADJUSTED TO GRADE EACH	611 INLET, RECONSTRUCTED TO GRADE EACH	611 MANHOLE, NO.3 EACH	611 MANHOLE, ADJUSTED TO GRADE EACH	622 CONCRETE BARRIER, SINGLE SLOPE, TYPE D FT	622 CONCRETE BARRIER END SECTION, TYPE D EACH	622 CONCRETE BARRIER, END ANCHORAGE, REINFORCED, TYPE D EACH	638 FIRE HYDRANT EXTENDED AND ADJUSTED TO GRADE, AS PER PLAN EACH
B-1	36	I.R. 680	605+02.00	608+05.00	LT.		139				309															274	1	1	
B-2	36	I.R. 680	606+17.00	608+41.00	RT.		35				230															195	1	1	
C-1	28	BELLE VISTA AVE	2+75.00	100+50.00	LT.			52											54										
C-2	28	BELLE VISTA AVE	2+75.00	3+85.09	RT.			140											110										
C-3	28	BELLE VISTA AVE	100+50.00	4+21.82	LT.			129											102										
C-4	29	MIDLAND AVE	200+26.93	200+50.00	RT.			16											12										
C-5	29	BELLE VISTA AVE	200+50.00	7+00.00	RT.			74											80										
C-6	29	BELLE VISTA AVE	6+74.79	7+00.00	LT.			56											25										
D-7	28	BELLE VISTA AVE	2+92.00		LT.																		1						
D-8	28	BELLE VISTA AVE	2+93.00		RT.																		1						
D-9	28	MANHATTAN AVE	100+44.90		RT.																	1							
D-10	28	MANHATTAN AVE	100+45.56		LT.																	1							
D-11	29	BELLE VISTA AVE	6+85.00		LT.															13	1								
D-12	29	BELLE VISTA AVE	6+85.00	7+42.41	LT.															79				1					
D-13	29	BELLE VISTA AVE	7+42.41	7+37.43	LT.															8				1					
F-5	54	BELLE VISTA AVE	2+80.50	3+11.63	RT.				33						35	35													
F-6	54	BELLE VISTA AVE	3+47.16	4+47.73	LT.				114						118	118													
F-7	54	BELLE VISTA AVE	5+97.64	5+98.22	RT.				17						16	16													
F-8	54	BELLE VISTA AVE	7+07.29	7+22.73	LT.				14						16	16													
GR-5	36	I.R. 680	605+42.61	606+19.50	RT.					74		50.0		1															
GR-6	36	I.R. 680	606+02.89	607+02.87	RT.					100		87.5	1																
GR-7	36	I.R. 680	606+05.20	607+05.20	LT.					100		87.5	1																
GR-8	36	I.R. 680	608+02.50	608+79.38	LT.					74		50.0		1															
SA-2	28	BELLE VISTA AVE	3+41.30		℄															1									
SA-3	28	BELLE VISTA AVE	3+76.48		℄															1									
W-1	28	BELLE VISTA AVE	2+75.00	100+50.00	LT.	291											234	54											
W-2	28	BELLE VISTA AVE	2+75.00	3+84.49	RT.	517											599												
W-3	28	BELLE VISTA AVE	100+50.00	4+28.64	LT.	660											563	59											
W-4	29	MIDLAND AVE	200+26.94	200+62.10	RT.	187											194	65											
W-5	29	BELLE VISTA AVE	200+50.00	7+00.00	RT.	458											395	52											
W-6	29	BELLE VISTA AVE	6+75.39	7+10.60	LT.	287											171												
WA-1	29	MIDLAND AVE	200+38.22		LT.																								1
TOTALS CARRIED TO GENERAL SUMMARY						2400	174	467	178	348	539	275	2	2	185	185	2156	230	383	100	1	2	2	2	2	469	2	2	1

CALCULATED MGM
CHECKED TWG

ESTIMATED QUANTITIES - BELLE VISTA AVENUE

MAH-680-0.68/3.73



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MGM
CHECKED TWG

PLAN AND PROFILE - FOUR MILE RUN ROAD STA. 3+50.00 TO STA. 9+00.00

MAH-680-0.68/3.73

21
126

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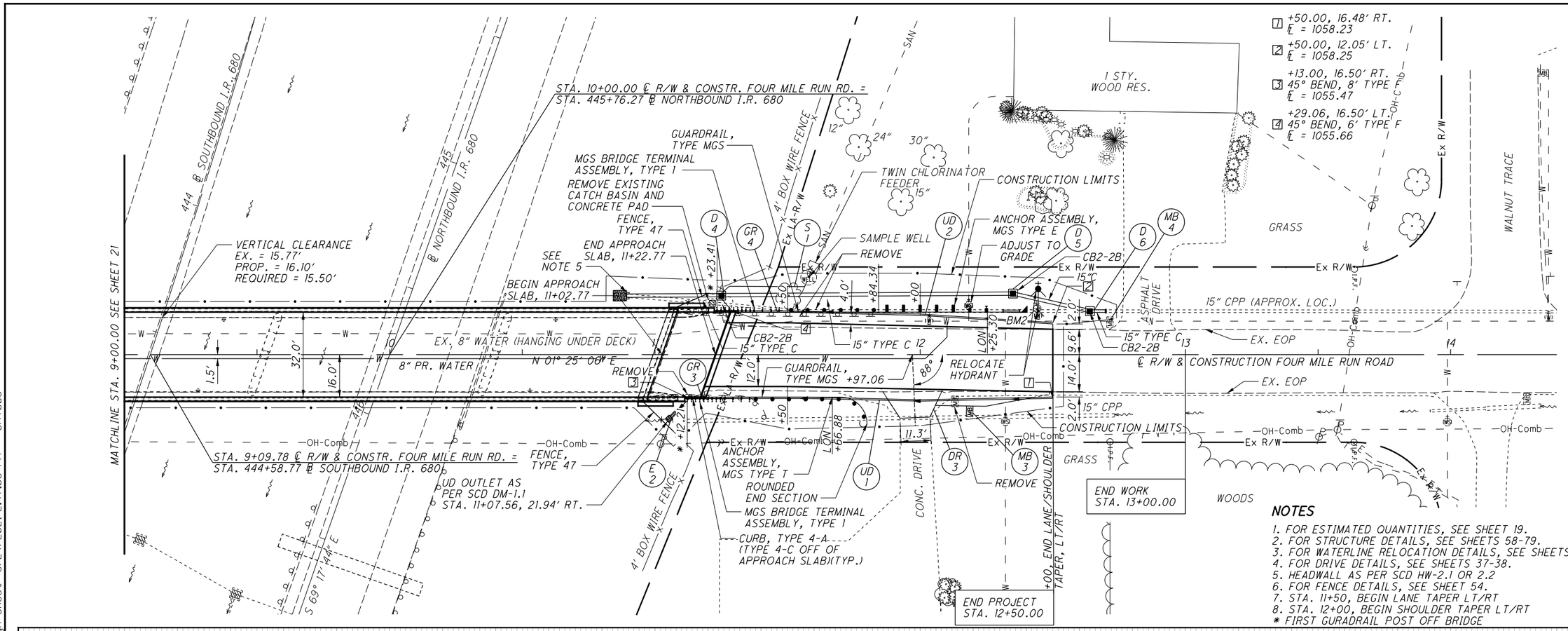

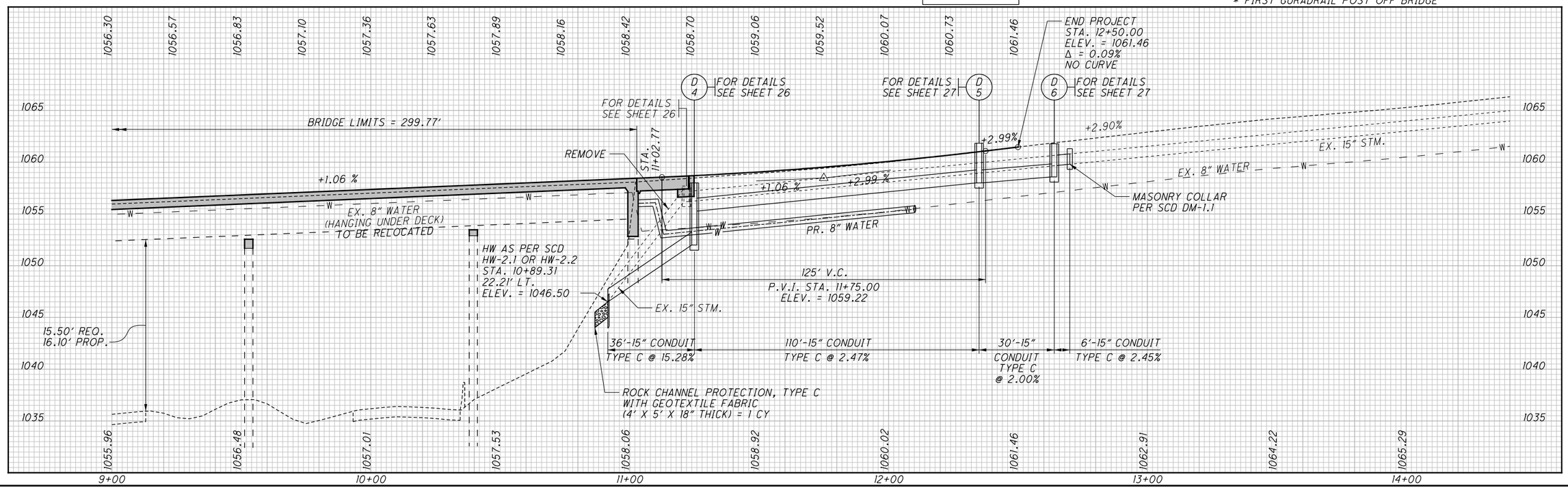

NOTES

1. FOR ESTIMATED QUANTITIES, SEE SHEET 19.
2. FOR STRUCTURE DETAILS, SEE SHEETS 58-79.
3. FOR WATERLINE RELOCATION DETAILS, SEE SHEETS 43-48.
4. FOR DRIVE DETAILS, SEE SHEETS 37-38.
5. HEADWALL AS PER SCD HW-2.1 OR 2.2
6. FOR FENCE DETAILS, SEE SHEET 54.
7. STA. 11+50, BEGIN LANE TAPER LT/RT
8. STA. 12+00, BEGIN SHOULDER TAPER LT/RT

* FIRST GUARDRAIL POST OFF BRIDGE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MGM
CHECKED TWG

PLAN AND PROFILE - FOUR MILE RUN ROAD
STA. 9+00.00 TO STA. 14+50.00

MAH-680-0.68/3.73

22
126

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SEEDING END WIDTH	SEEDING SQ. YDS.
39	
	66
20 0	
0	
	66

HYDRAULIC DESIGN DATA

DRAINAGE AREA = 0.71 ACRES

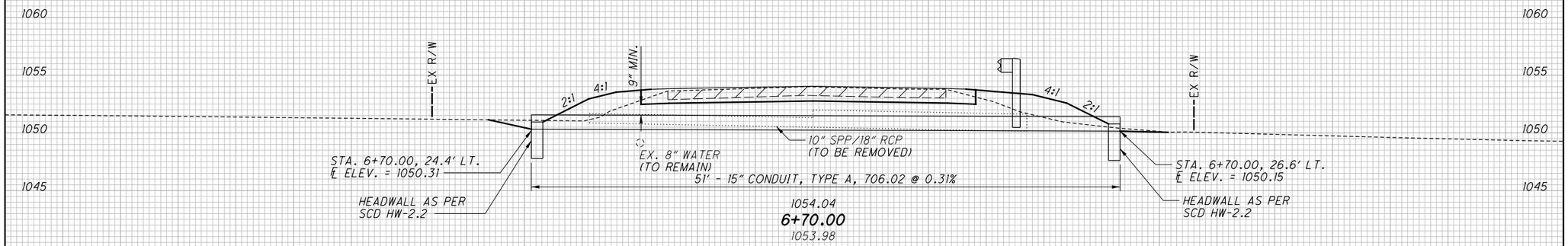
Q_{25} = 1.53 CFS	V_{25} = 3.43 FPS
Q_{100} = 1.82 CFS	V_{100} = 3.62 FPS
HW_{25} = 1051.0	DESIGN SERVICE LIFE: 75 YEARS
HW_{100} = 1051.0	pH = 8.0

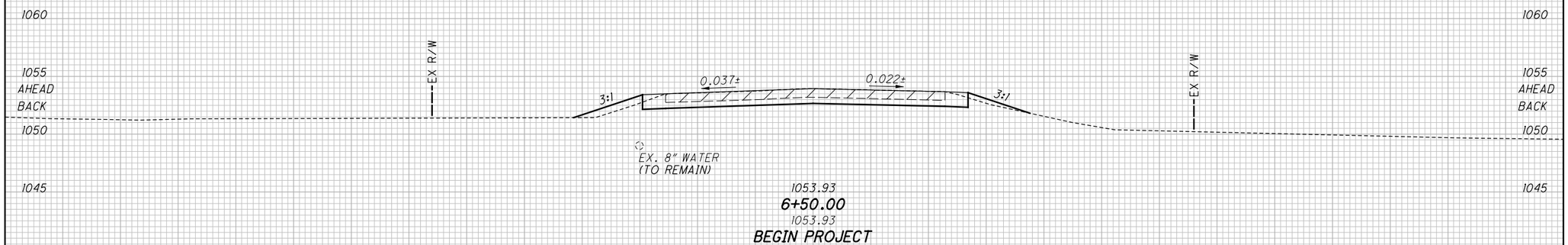
EXISTING STRUCTURE

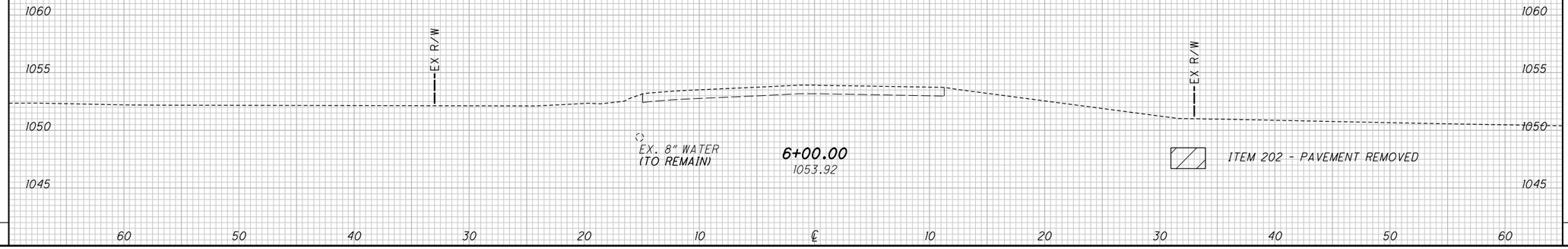
TYPE: RCP/SPP
SIZE: 18"/10" RESPECTIVELY
LENGTH: 38 FT.
SKEW: NONE
ALIGNMENT: TANGENT
DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: TYPE A - 706.02
SIZE: 15"
LENGTH: 50 FT.
ROADWAY - 27.32' EOS TO EOS
SKEW: NONE
ALIGNMENT: TANGENT







END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
15	25		
		11	10
13 0	3 0		
0	0		
		11	9

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - FOUR MILE RUN ROAD
STA. 6+00.00 TO STA. 6+70.00

MAH-680-0.68/3.73

23
126

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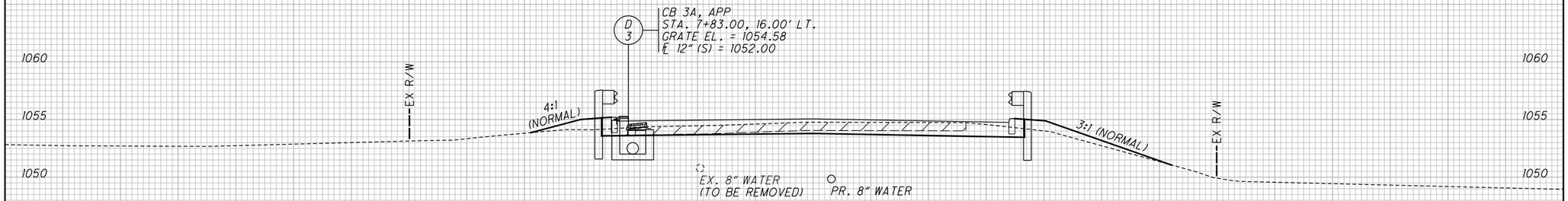
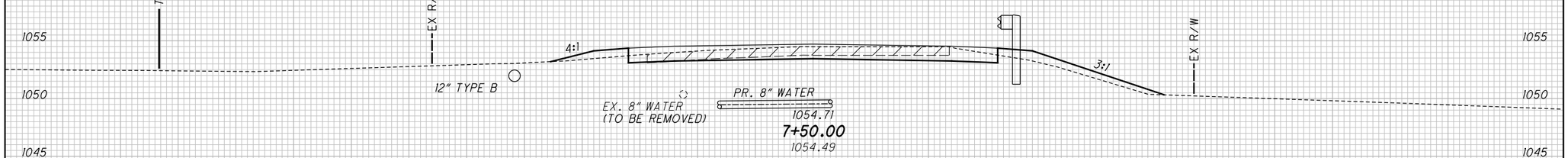
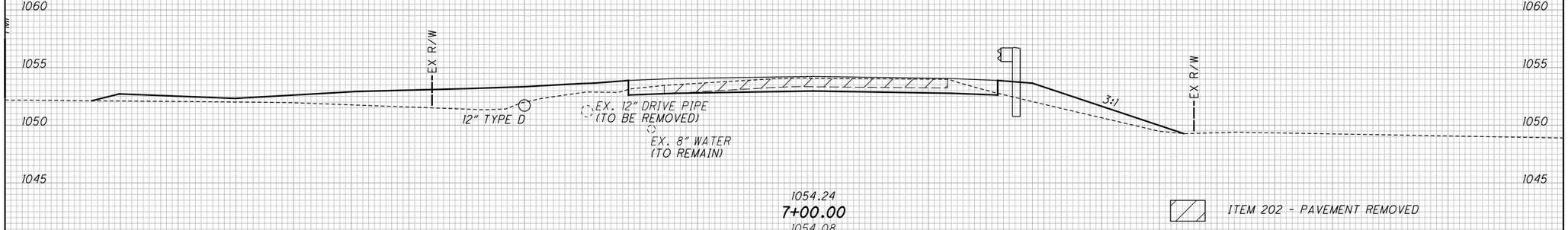
SEEDING END WIDTH	SEEDING SQ. YDS.
35	127
34	272
64	172
	571

60 50 40 30 20 10 ℄ 10 20 30 40 50 60





NOTE
FOR DRIVEWAY PROFILES AND GRADING SEE SHEETS 37-38.



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
14	10		
12	13	28	68
13	60	16	14
		16	47
		60	129

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - FOUR MILE RUN ROAD
STA. 7+00.00 TO STA. 7+83.00

MAH-680-0.68/3.73

SEEDING END WIDTH	SEEDING SQ. YDS.
20	
0	
0	
20	
35	
	61

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

1065
1060
1055
1050

AHEAD
BACK

EX. 15" STM.
(TO BE REMOVED)

15" TYPE C

PR. 8" WATER

EX. 8" WATER
(TO BE REMOVED)

1058.45
11+02.77 (AHEAD, SKEWED 19°17'00" L.F.)
1058.09
BEGIN APPROACH SLAB

1060
1055
1050
1045

AHEAD
BACK

PR. 8" WATER

EX. 8" WATER
(TO BE REMOVED)

1055.27
8+03.00 (BACK, SWEWED 19°17'00" L.F.)
1054.94
END APPROACH SLAB

1060
1055
1050
1045

EX R/W

4:1
(NORMAL)

3:1 (NORMAL)

EX R/W

EX. 8" WATER
(TO BE REMOVED)

PR. 8" WATER

1055.06
7+83.00 (AHEAD, SKEWED 19°17'00" L.F.)
1054.77
BEGIN APPROACH SLAB

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
11	0		
0	0		
0	0		
11	0		
14	9		
		9	3

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - FOUR MILE RUN ROAD
STA. 7+83.00 TO STA. 11+02.77

MAH-680-0.68/3.73

25
126

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SEEDING	
END WIDTH	SQ. YDS.
	34
	104
	35
	35
	61
	165

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

1065 1060 1055 1050

EX R/W

3:1

EX. 15" STM. (TO BE REMOVED)

15" TYPE C

1058.5

EX. 8" WATER (TO BE REMOVED)

PR. 8" WATER

1059.06

11+50.00

1058.92

10:1

EX. 15" STM. (TO REMAIN)

EX R/W

1065 1060 1055 1050

6:1 (NORMAL)

15" TYPE C

EX. 8" WATER (TO BE REMOVED)

PR. 8" WATER

EX. 15" STM. (TO REMAIN)

1058.67

11+22.77 (AHEAD, 19°17'00" L.F.)

1058.43

CB 2-2B
STA. 11+25.00, 22.23' LT.
GRATE EL. = 1058.00
℄ 15" (N) = 1055.28
℄ 15" (S) = 1052.00
℄ 6" (E) = 1055.50
℄ 6" (W) = 1055.50

D 4

1065 1060 1055 1050

6:1 (NORMAL)

EX. 8" WATER (TO BE REMOVED)

PR. 8" WATER

EX. 15" STM. (TO REMAIN)

1058.67

11+22.77 (BACK, SKEWED 19°17'00" L.F.)

1058.43

END APPROACH SLAB

EX. CB TO BE REMOVED
STA. 11+21.73, 19.36' LT.
EX. GRATE EL. = 1057.70
EX. ℄ 15" (N) = 1056.20
EX. ℄ 15" (S) = 1056.20

ITEM 202 - PAVEMENT REMOVED

END AREA	
CUT	FILL
22	2
18	4
18	4
11	2
31	5

VOLUME	
CUT	FILL
20	3

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - FOUR MILE RUN ROAD
STA. 11+22.77 TO STA. 11+50.00

MAH-680-0.68/3.73

SEEDING	
END WIDTH	SQ. YDS.
0	
AHEAD 0	
BACK 20	
	103
17	
	142
	245

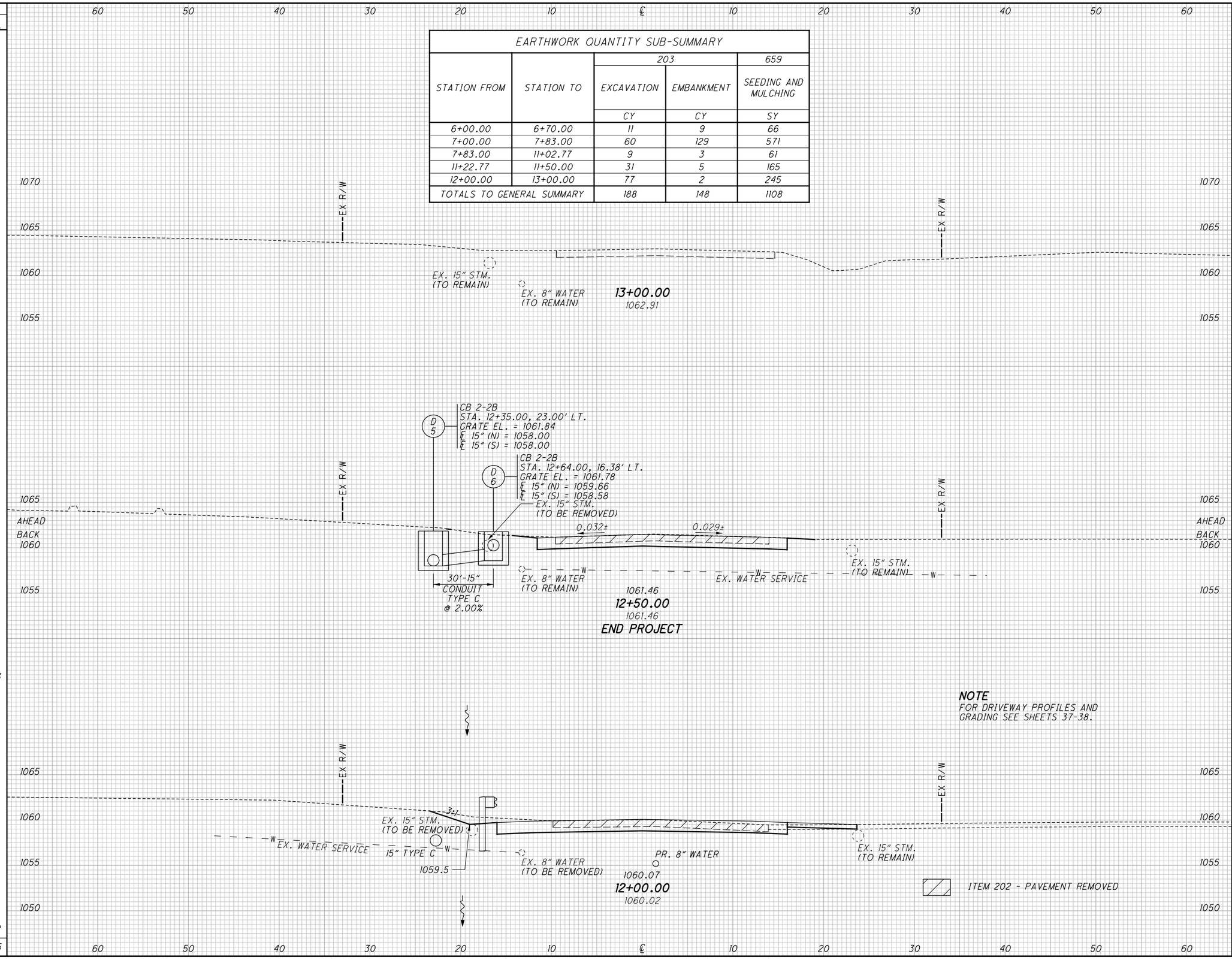
END AREA	
CUT	FILL
0	
AHEAD 0	0
BACK 13	0
24	0

VOLUME	
CUT	FILL
34	0
43	2
77	2

CALCULATED MGM
CHECKED TWG

EARTHWORK QUANTITY SUB-SUMMARY

STATION FROM	STATION TO	203 EXCAVATION	203 EMBANKMENT	659 SEEDING AND MULCHING
		CY	CY	SY
6+00.00	6+70.00	11	9	66
7+00.00	7+83.00	60	129	571
7+83.00	11+02.77	9	3	61
11+22.77	11+50.00	31	5	165
12+00.00	13+00.00	77	2	245
TOTALS TO GENERAL SUMMARY		188	148	1108



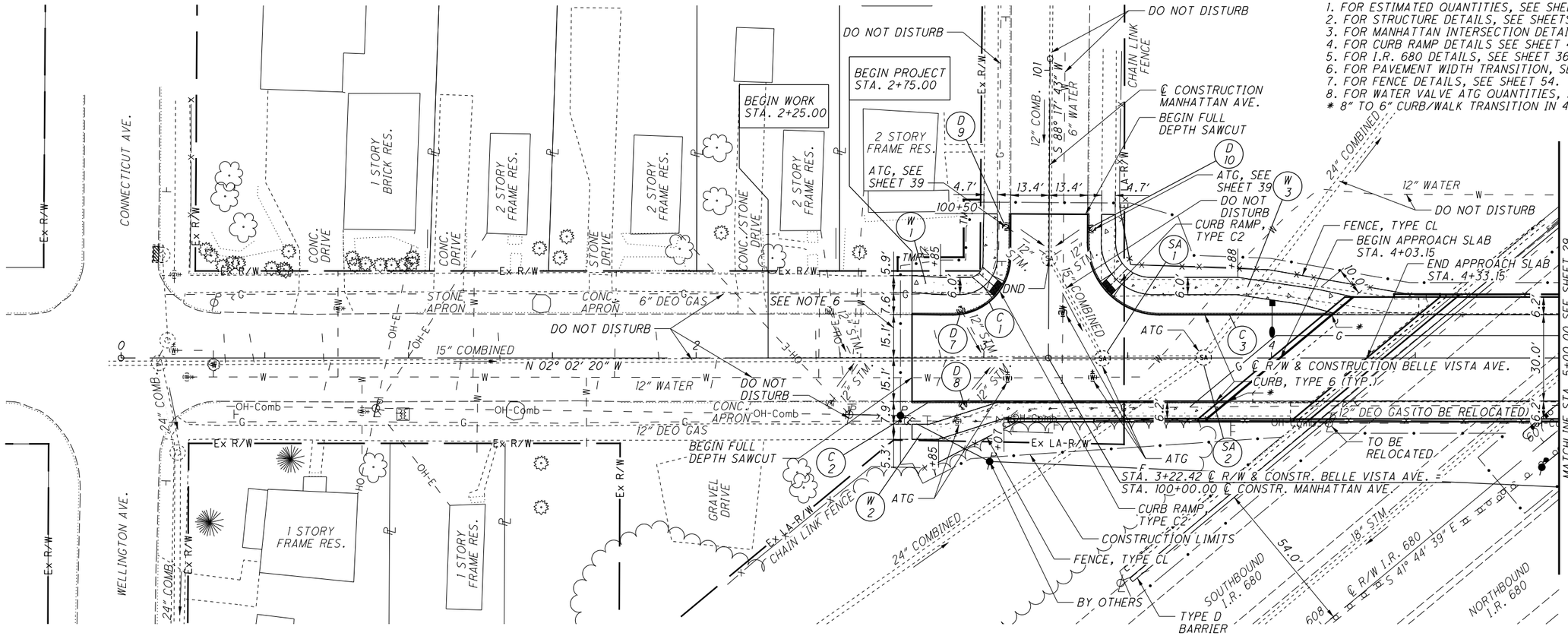
CROSS SECTIONS - FOUR MILE RUN ROAD
STA. 12+00.00 TO STA. 13+00.00

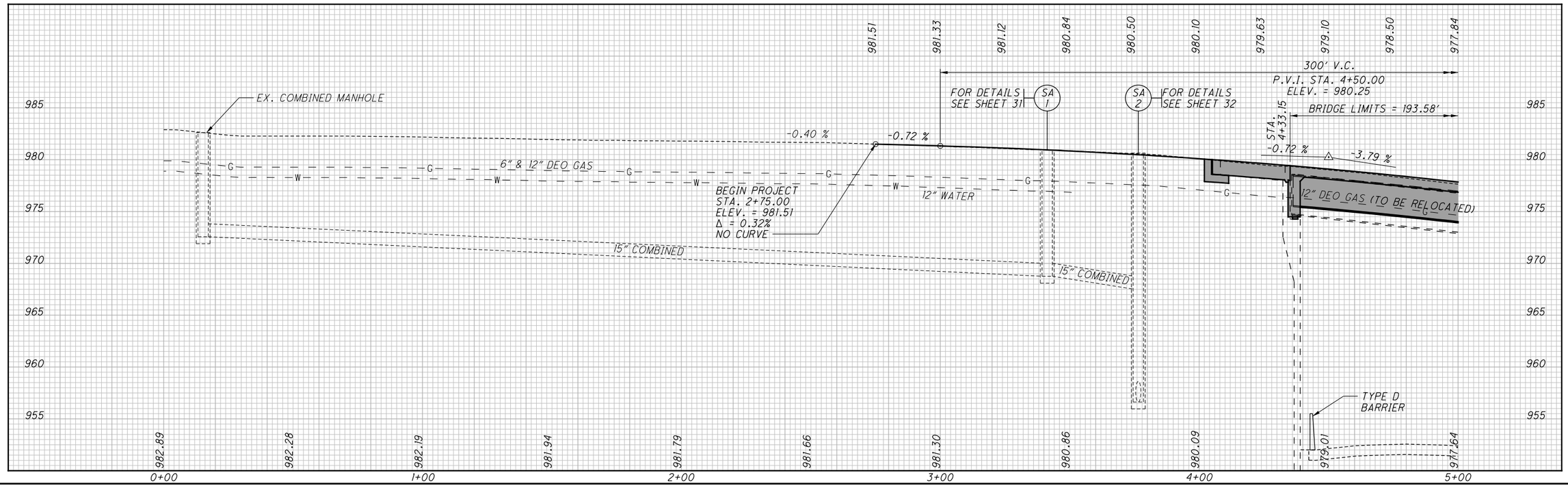
MAH-680-0.68 / 3.73

NOTES

1. FOR ESTIMATED QUANTITIES, SEE SHEET 20.
2. FOR STRUCTURE DETAILS, SEE SHEETS 80-118.
3. FOR MANHATTAN INTERSECTION DETAILS SEE SHEET 39.
4. FOR CURB RAMP DETAILS SEE SHEET 41.
5. FOR I.R. 680 DETAILS, SEE SHEET 36.
6. FOR PAVEMENT WIDTH TRANSITION, SEE SHEET 39.
7. FOR FENCE DETAILS, SEE SHEET 54.
8. FOR WATER VALVE ATG QUANTITIES, SEE SHEET 7.

* 8" TO 6" CURB/WALK TRANSITION IN 4'.





PLAN AND PROFILE - BELLE VISTA AVENUE
STA. 0+00.00 TO STA. 5+00.00

CALCULATED MGM
CHECKED TWG

HORIZONTAL SCALE IN FEET
0 10 20 40

MAH-680-0.68/3.73

28
126

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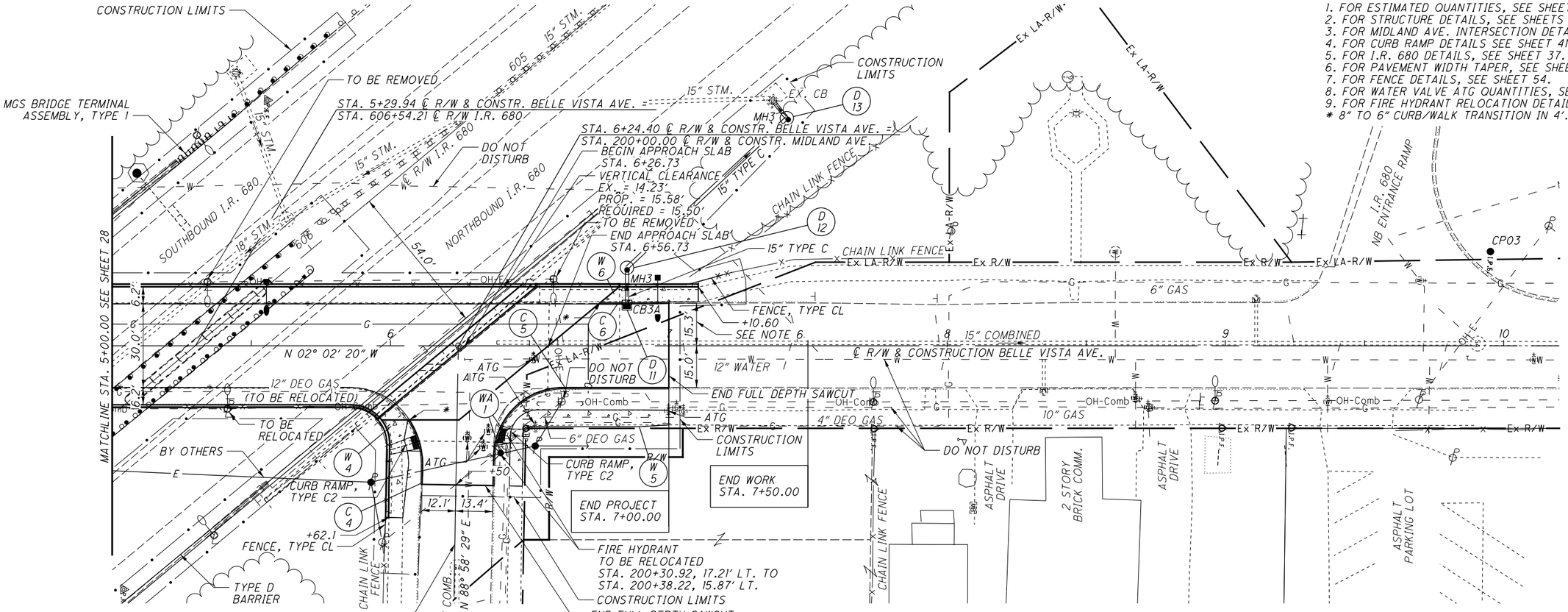
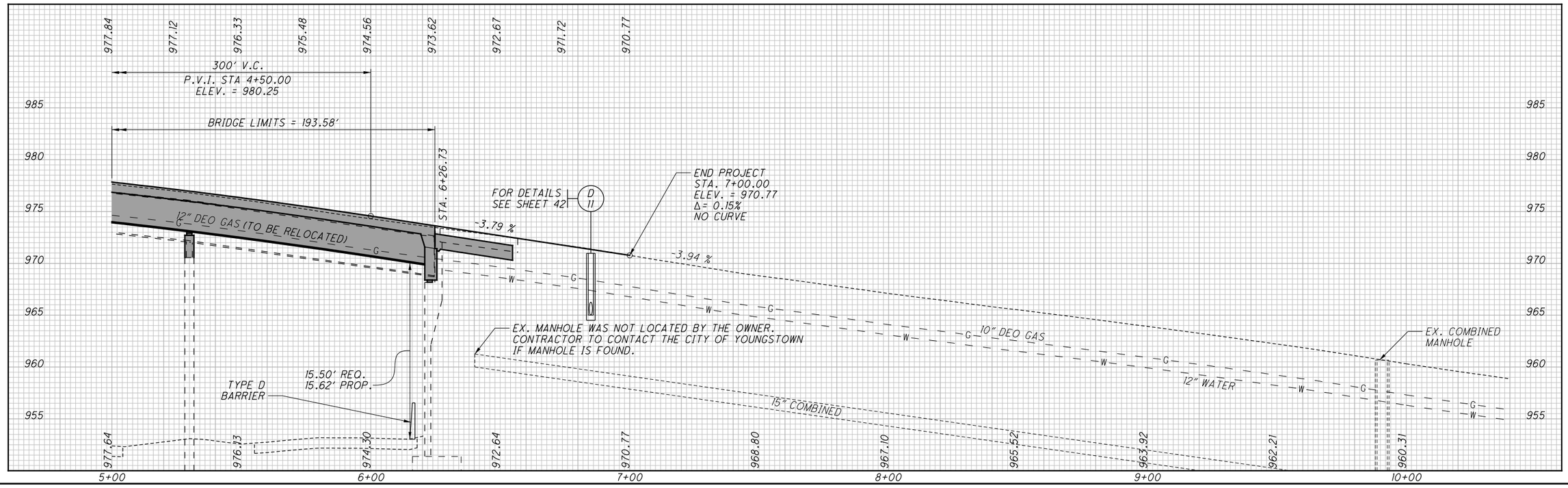
NOTES

1. FOR ESTIMATED QUANTITIES, SEE SHEET 20.
2. FOR STRUCTURE DETAILS, SEE SHEETS 80-118.
3. FOR MIDLAND AVE. INTERSECTION DETAILS SEE SHEET 40.
4. FOR CURB RAMP DETAILS SEE SHEET 41.
5. FOR I.R. 680 DETAILS, SEE SHEET 37.
6. FOR PAVEMENT WIDTH TAPER, SEE SHEET 40.
7. FOR FENCE DETAILS, SEE SHEET 54.
8. FOR WATER VALVE ATG QUANTITIES, SEE SHEET 7.
9. FOR FIRE HYDRANT RELOCATION DETAILS, SEE SHEET 46.
* 8" TO 6" CURB/WALK TRANSITION IN 4'.





PLAN AND PROFILE - BELLE VISTA AVENUE
STA. 5+00.00 TO STA. 10+20.00

MAH-680-0.68/3.73

29
126

CALCULATED MGM
CHECKED TWG

HORIZONTAL SCALE IN FEET
0 10 20 40

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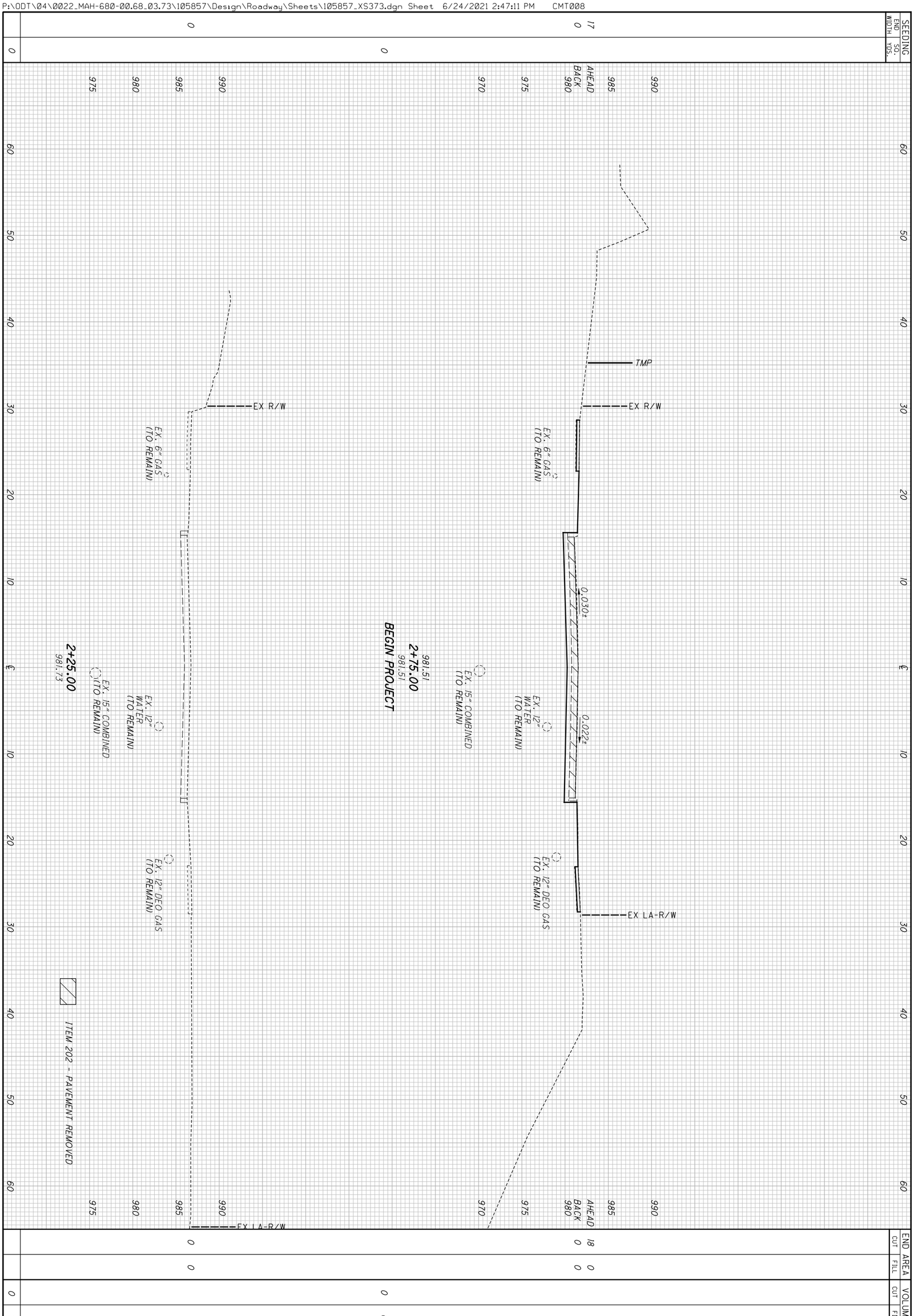

30/126	MAH-680-0.68/3.73	CROSS SECTIONS - BELLE VISTA AVENUE STA. 2+25.00 TO STA. 2+75.00	CALCULATED MGM CHECKED TWG

SEEDING	
END WIDTH	SQ. YDS.
28	108
11	39
	147

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

985 980 975 970 965 960 955

EX. COMBINED MANHOLE
ADJUST TO GRADE
STA. 3+41.30, 0.14' RT.
PR. RIM EL. = 980.94
EX. RIM EL. = 981.03
℄ 15" (N) = 968.78
℄ 15" (S) = 968.78
℄ 15" (W) = 969.57

SA 1

4:1

EX. 6" WATER (TO REMAIN)

EX. 12" DEO GAS (TO REMAIN)

EX. 12" WATER (TO REMAIN)

EX. 15" COMBINED (TO REMAIN)

980.84
3+50.00
980.86

EX. COMB. INLET
RECONSTRUCT TO GRADE
STA. 2+93.00, 15.24' RT.
PR. T/C EL. = 981.65
EX. T/C EL. = 981.44
℄ 12" (W) = 977.48

D 8

EX. COMB. INLET WITH SUMP
RECONSTRUCT TO GRADE
STA. 2+92.00, 18.57' LT.
PR. T/C EL. = 981.68
EX. T/C EL. = 981.43
℄ 12" (E) = 976.41

D 7

EX LA-R/W

4:1

EX. 6" GAS (TO REMAIN)

EX. 12" WATER (TO REMAIN)

EX. 12" DEO GAS (TO REMAIN)

EX. 12" STM (TO REMAIN)

EX. 12" STM (TO REMAIN)

EX. 15" COMBINED (TO REMAIN)

981.33
3+00.00
981.30

ITEM 202 - PAVEMENT REMOVED

END AREA	
CUT	FILL
19	5
19	6

VOLUME	
CUT	FILL
35	10
17	3
52	13

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - BELLE VISTA AVENUE
STA. 3+00.00 TO STA. 3+50.00

MAH-680-0.68/3.73

SEEDING END WIDTH	SEEDING SQ. YDS.
28	
28	
17	
30	
161	
178	

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

985 980 975 970

4:1

EX. 12" DEO GAS
(TO BE RELOCATED)

980.01
4+03.15 (SKEWED 50°17'41" L.F.)(AHEAD)
979.97
BEGIN APPROACH SLAB

4:1

EX. 12" DEO GAS
(TO BE RELOCATED)

980.01
4+03.15 (SKEWED 50°17'41" L.F.)(BACK)
979.97

EX. COMBINED MANHOLE
ADJUST TO GRADE
STA. 3+76.48, 0.10' LT.
PR. RIM EL. = 980.94
EX. RIM EL. = 980.64
℄ 24" (NW) = 956.62
℄ 24" (SE) = 956.62
℄ 15" (S) = 970.06

SA 2

4:1

EX. 12" WATER
(TO REMAIN)

EX. 12" DEO GAS
(TO BE RELOCATED)

980.10
4+00.00
980.09

ITEM 202 - PAVEMENT REMOVED

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
90	5		
21	13		
21	16		
4	3		
37	19		
41	22		

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - BELLE VISTA AVENUE
STA. 4+00.00 TO STA. 4+03.15

MAH-680-0.68 / 3.73

32
126

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SEEDING END WIDTH	SEEDING SQ. YDS.
18	
0	
0	
20	
	80
	80

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

980 975 970 965 960 955 985

AHEAD
BACK

EX. 12" DEO GAS
(TO BE RELOCATED)

973.63
6+26.73 (SKEWED 50°17'41" L.F.)
973.46
BEGIN APPROACH SLAB

979.42
4+33.15 (SKEWED 50°17'41" L.F.)
979.36
END APPROACH SLAB

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
115	0		
0	0		
0	0		
73	0		
		90	3
		90	3

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - BELLE VISTA AVENUE
STA. 4+33.15 TO STA. 6+26.73

MAH-680-0.68 / 3.73

33
126

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SEEDING END WIDTH	SEEDING SQ. YDS.
50	73
22	67
22	
140	

50 40 30 20 10 ℄ 10 20 30 40 50 60 70

975
970
965
960

EX LA-R/W
EX R/W
R/W
4:1

EX. 12" WATER (TO REMAIN)
EX. 12" DEO GAS (TO REMAIN)
EX. 6" DEO GAS (TO REMAIN)
EX. 4" DEO GAS (TO REMAIN)

971.72
6+75.00
971.75
EX. 15" COMBINED (TO REMAIN)

EX. 12" WATER (TO REMAIN)
EX. 12" DEO GAS (TO BE RELOCATED)
EX. 8" WATER (TO REMAIN)

EX. 15" COMBINED (TO REMAIN)
972.49
6+56.73 (SKEWED 50°17'41" L.F.)(AHEAD)
972.47

EX. 12" WATER (TO REMAIN)
EX. 12" DEO GAS (TO BE RELOCATED)
EX. 8" WATER (TO REMAIN)

EX. 15" COMBINED (TO REMAIN)
972.49
6+56.73 (SKEWED 50°17'41" L.F.)(BACK)
972.47
END APPROACH SLAB

ITEM 202 - PAVEMENT REMOVED

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
14	22		
		11	7
15	7		
132	1		
		137	1
		148	8

CALCULATED MGM
CHECKED TWG

CROSS SECTIONS - BELLE VISTA AVENUE
STA. 6+56.73 TO STA. 6+75.00

MAH-680-0.68/3.73

34
126

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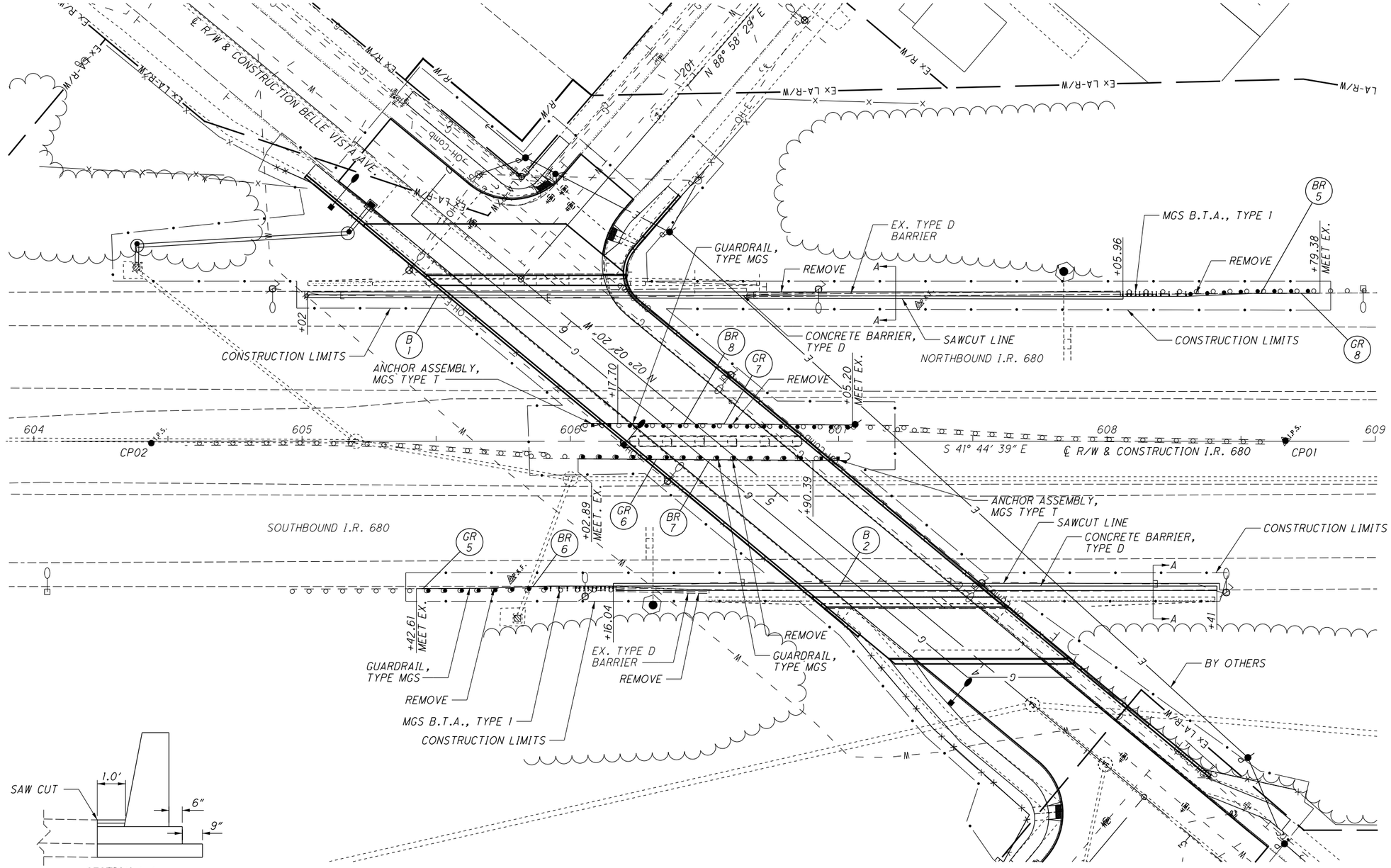
CROSS SECTIONS - BELLE VISTA AVENUE
STA. 7+00.00 TO STA. 7+50.00

MAH-680-0.68/3.73

CALCULATED MGM
CHECKED TWG

EARTHWORK QUANTITY SUB-SUMMARY				
		203		659
STATION FROM	STATION TO	EXCAVATION	EMBANKMENT	SEEDING AND MULCHING
		CY	CY	SY
2+25.00	2+75.00	0	0	0
3+00.00	3+50.00	52	13	147
4+00.00	04+03.15	41	22	178
4+33.15	6+26.73	90	3	80
6+56.73	6+75.00	148	8	140
7+00.00	7+50.00	15	10	139
TOTALS TO GENERAL SUMMARY		346	56	684

SEEDING END WIDTH	SEEDING SQ. YDS.	STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0		7+50.00	0	0		
0		7+00.00 AHEAD	0	0		
50		7+00.00 BACK	18	0		
	139				15	10
	139				15	10



SECTION A-A

PROPOSED PAVEMENT BUILDUP

441 AC SURFACE COURSE (T=3.0", 2-1.5" LIFTS)
407 TACK COAT (0.055 GAL/SY)
301 AC BASE (T=9.0", 2-4.5" LIFTS)
304 AGGREGATE BASE (T=6.0")

NOTES

1. FOR ESTIMATED QUANTITIES, SEE SHEETS 19-20.
2. FOR TRAFFIC CONTROL ESTIMATED QUANTITIES, SEE SHEETS 49-50.
3. FOR BELLE VISTA AVENUE DETAILS, SEE SHEETS 28-29.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MGM
CHECKED TWG

PLAN AND PROFILE - I.R. 680
STA. 604+00.00 TO STA. 609+00.00

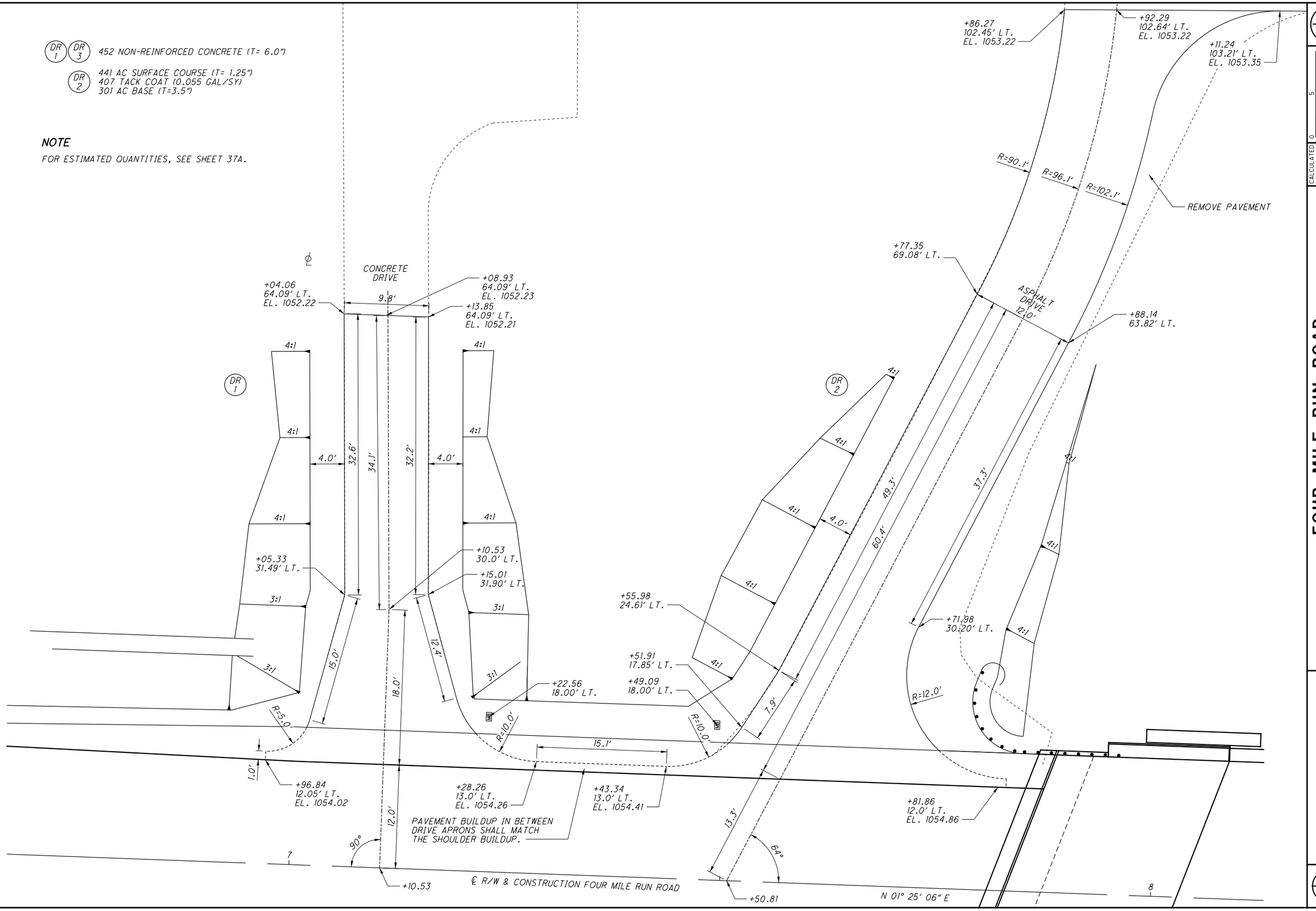
MAH-680-0.68/3.73

DR 1, DR 3 — 452 NON-REINFORCED CONCRETE (T= 6.0")

DR 2 — 441 AC SURFACE COURSE (T= 1.25")
407 TACK COAT (0.055 GAL/SY)
301 AC BASE (T=3.5")

NOTE

FOR ESTIMATED QUANTITIES, SEE SHEET 37A.



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HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MGM
CHECKED TWG

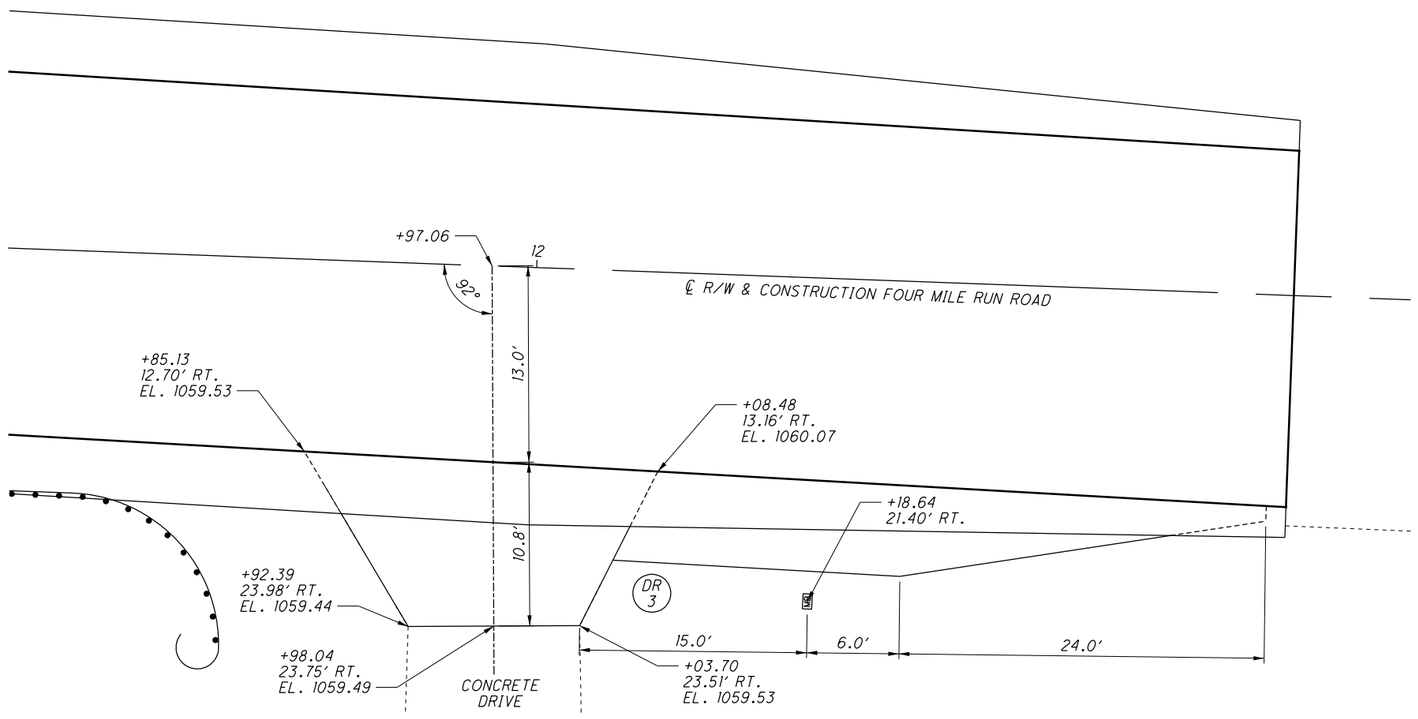
FOUR MILE RUN ROAD
DRIVE DETAILS

MAH-680-0.68/3.73

37
126

DR 1, DR 3 — 452 NON-REINFORCED CONCRETE (T= 6.0")

DR 2 — 441 AC SURFACE COURSE (T= 1.25")
407 TACK COAT (0.055 GAL/SY)
301 AC BASE (T=3.5")



REF. NO.	LOCATION	STATION FROM	STATION TO	SIDE	202 PAVEMENT REMOVED SY	202 SUBGRADE COMPACTION SY	452 6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS SY	301 3.5" ASPHALT CONCRETE BASE, PG64-22 CY	407 TACK COAT (0.055 GAL/SY) GAL	441 1.25" AC SURFACE COURSE, TYPE I, (448), PG64-22, AS PER PLAN CY
DR-1	FOUR MILE RUN RD	7+10.53		LT.	62.8	59.7	59.7			
DR-2	FOUR MILE RUN RD	7+50.81		LT.	181.9	134.0		13.0	7.4	4.7
DR-3	FOUR MILE RUN RD	11+97.06		RT.	18.2	11.6	11.6			
TOTALS TO GENERAL SUMMARY					263	205	71	13	7	5

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MGM
CHECKED TWG

FOUR MILE RUN ROAD
DRIVE DETAILS

MAH-680-0.68 / 3.73

37A
126

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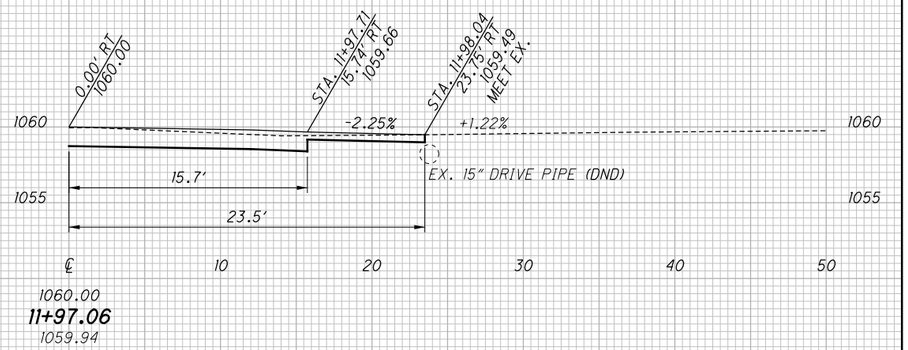
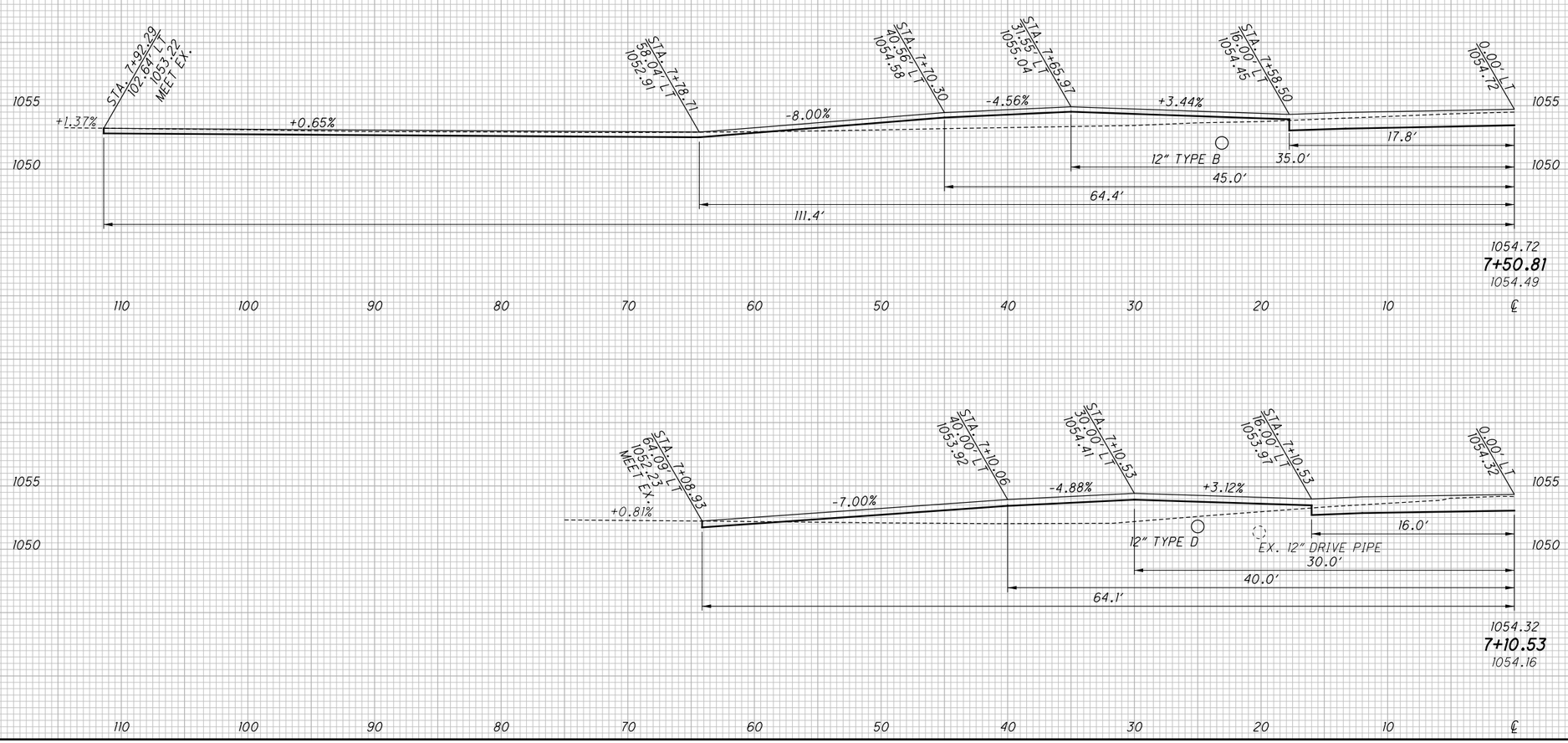
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

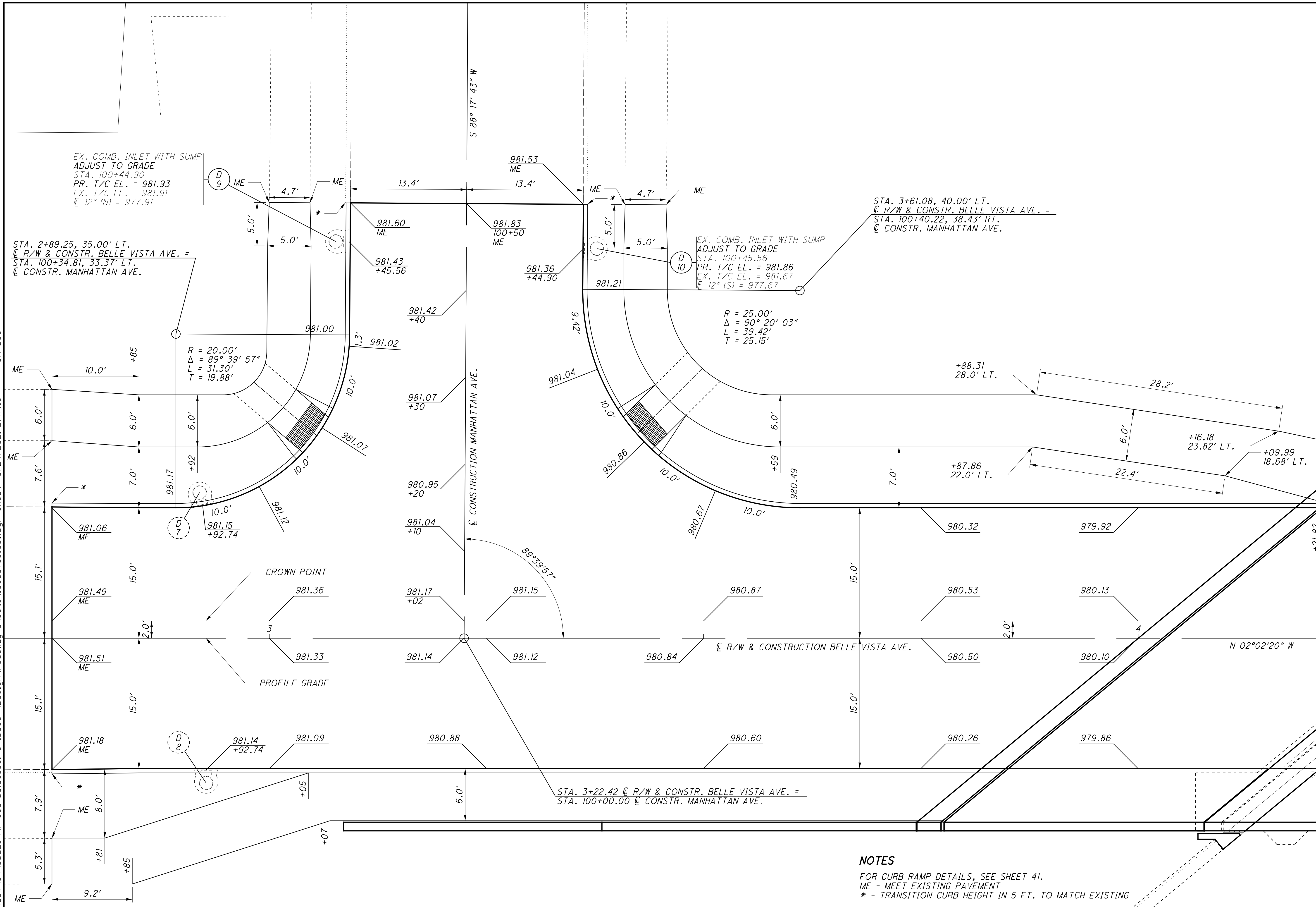
CALCULATED MGM
CHECKED TWG





FOUR MILE RUN ROAD
DRIVE PROFILES

MAH-680-0.68 / 3.73



EX. COMB. INLET WITH SUMP
ADJUST TO GRADE
STA. 100+44.90
PR. T/C EL. = 981.93
EX. T/C EL. = 981.91
℄ 12" (N) = 977.91
D 9
ME
4.7'
13.4'
13.4'
5.0'
5.0'
981.53 ME
981.60 ME
981.83 100+50 ME
981.43 +45.56
981.36 +44.90
EX. COMB. INLET WITH SUMP
ADJUST TO GRADE
STA. 100+45.56
PR. T/C EL. = 981.86
EX. T/C EL. = 981.67
℄ 12" (S) = 977.67
D 10
STA. 3+61.08, 40.00' LT.
℄ R/W & CONSTR. BELLE VISTA AVE. =
STA. 100+40.22, 38.43' RT.
℄ CONSTR. MANHATTAN AVE.
STA. 2+89.25, 35.00' LT.
℄ R/W & CONSTR. BELLE VISTA AVE. =
STA. 100+34.81, 33.37' LT.
℄ CONSTR. MANHATTAN AVE.
S 88° 17' 43" W
981.21
981.42 +40
981.00
1.3'
981.02
R = 20.00'
Δ = 89° 39' 57"
L = 31.30'
T = 19.88'
R = 25.00'
Δ = 90° 20' 03"
L = 39.42'
T = 25.15'
9.42'
981.04
10.0'
981.07 +30
981.07
+88.31 28.0' LT.
28.2'
+16.18 23.82' LT.
+09.99 18.68' LT.
+87.86 22.0' LT.
22.4'
6.0'
7.0'
7.6'
+85
+92
+59
981.17
980.86
980.49
980.67
980.95 +20
981.12
981.15 +92.74
D 7
981.06 ME
981.04 +10
℄ CONSTRUCTION MANHATTAN AVE.
89°39'57"
980.32
979.92
+21.82
CROWN POINT
981.49 ME
981.36
981.17 +02
981.15
980.87
980.53
980.13
15.1'
15.0'
2.0'
3
4
981.51 ME
981.33
981.14
981.12
980.84
℄ R/W & CONSTRUCTION BELLE VISTA AVE.
980.50
980.10
N 02°02'20" W
PROFILE GRADE
981.18 ME
D 8
981.14 +92.74
981.09
980.88
980.60
980.26
979.86
*
+05
6.0'
STA. 3+22.42 ℄ R/W & CONSTR. BELLE VISTA AVE. =
STA. 100+00.00 ℄ CONSTR. MANHATTAN AVE.
7.9'
8.0'
+07
5.3'
+81
+85
9.2'

NOTES

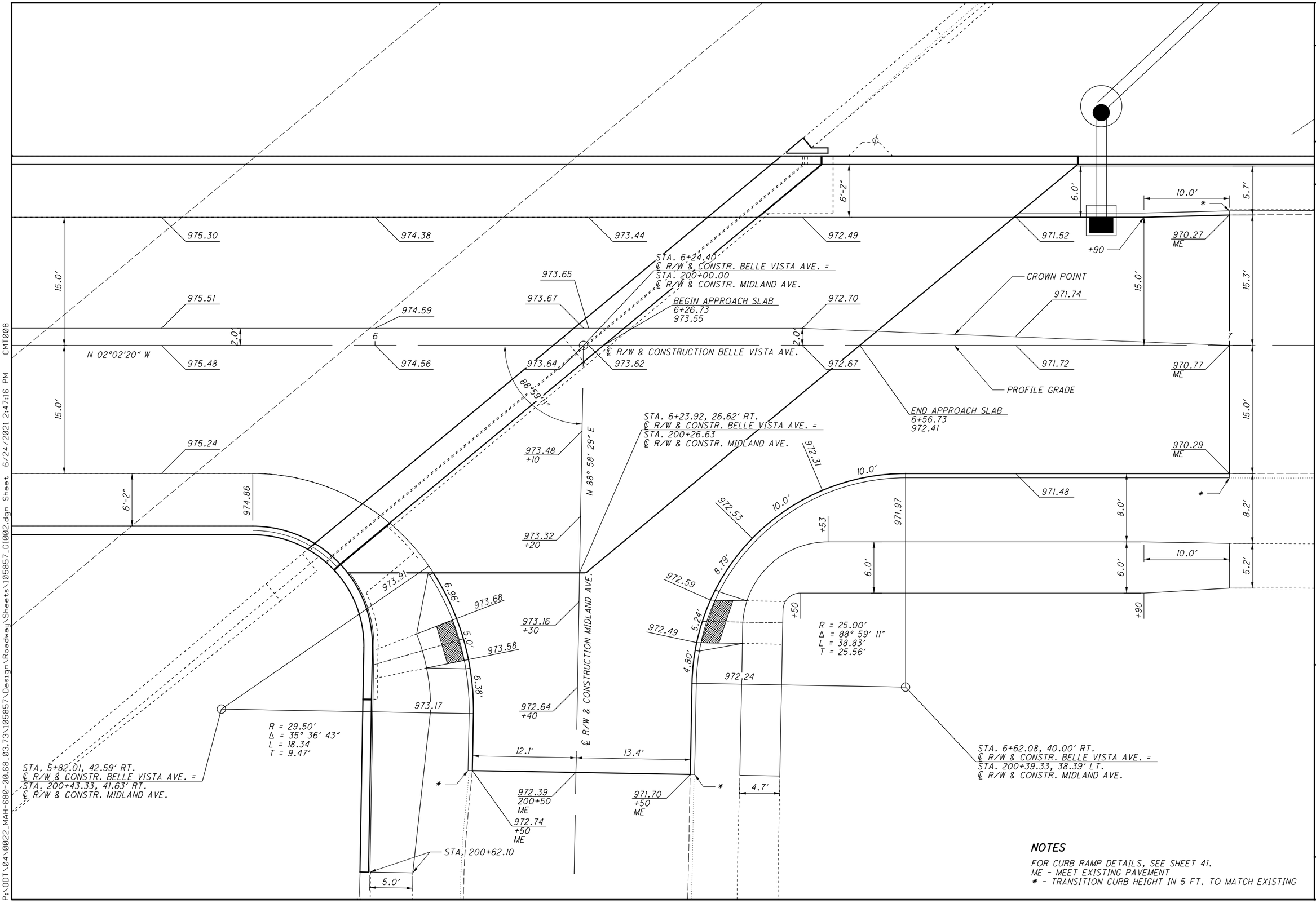
FOR CURB RAMP DETAILS, SEE SHEET 41.
ME - MEET EXISTING PAVEMENT
* - TRANSITION CURB HEIGHT IN 5 FT. TO MATCH EXISTING

HORIZONTAL SCALE IN FEET (0, 2.5, 5, 10)

CALCULATED MGM
CHECKED TWG

BELLE VISTA AVE/MANHATTAN AVE INTERSECTION DETAIL

MAH-680-0.68/3.73



NOTES

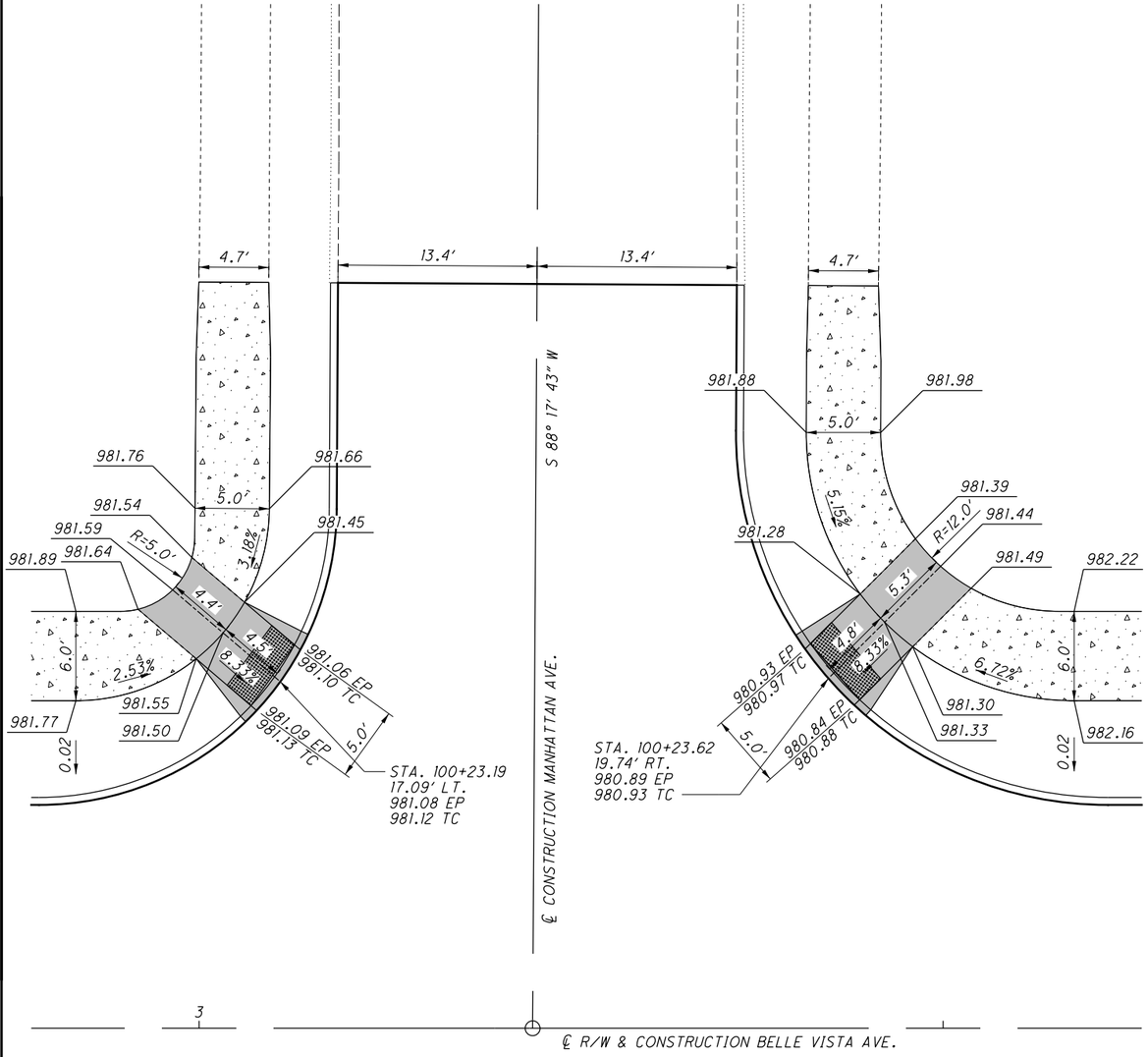
FOR CURB RAMP DETAILS, SEE SHEET 41.
ME - MEET EXISTING PAVEMENT
* - TRANSITION CURB HEIGHT IN 5 FT. TO MATCH EXISTING

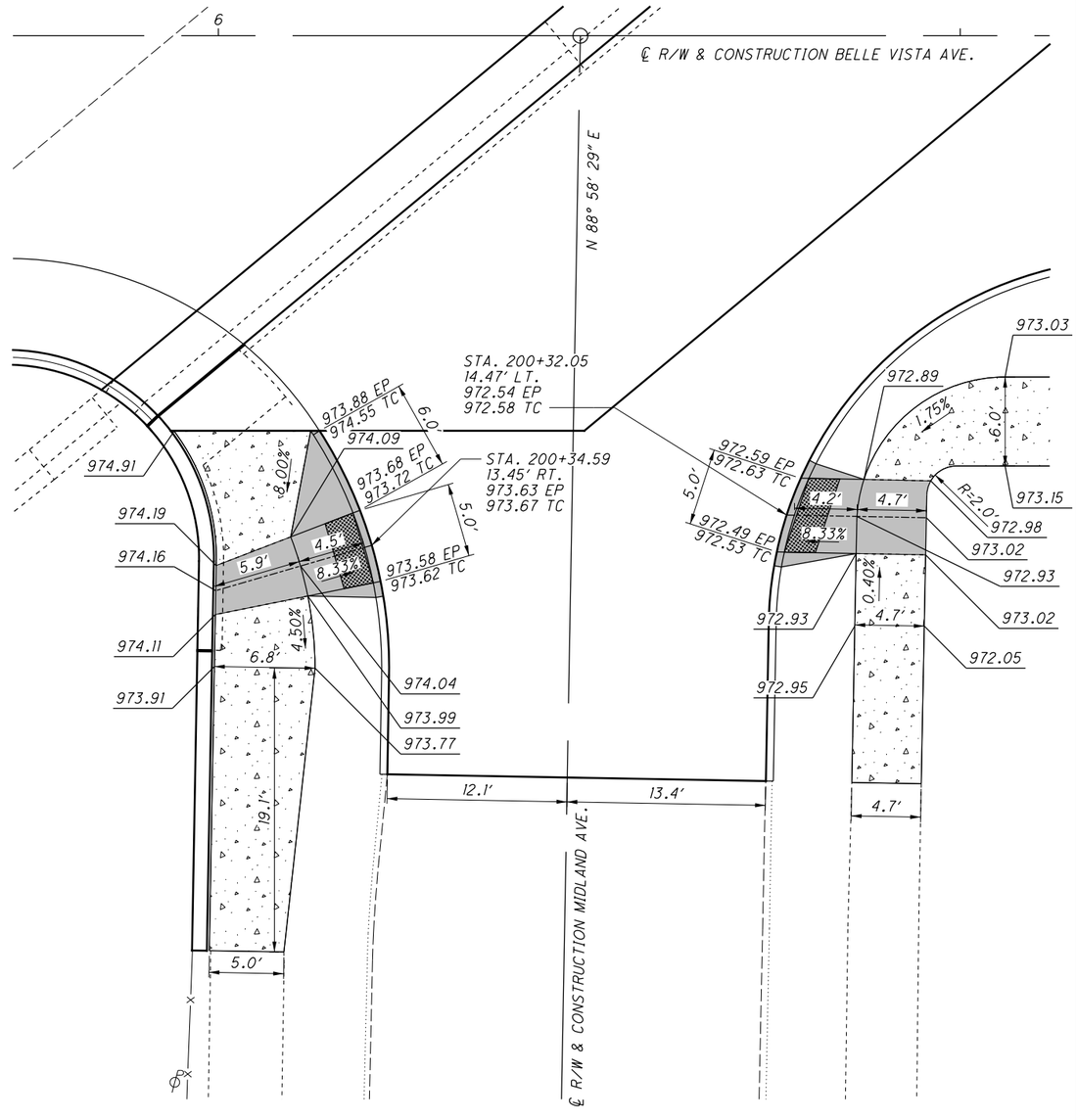
HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MGM
CHECKED TWG

BELLE VISTA AVE/MIDLAND AVE INTERSECTION DETAIL

MAH-680-0.68/3.73





NOTES

1. FOR MANHATTAN AVENUE INTERSECTION DETAILS, SEE SHEET 39.
2. FOR MIDLAND AVENUE INTERSECTION DETAILS, SEE SHEET 40.

HORIZONTAL SCALE IN FEET
0 2.5 5 10

CALCULATED MGM
CHECKED TWG

BELLE VISTA AVE CURB RAMP DETAILS

MAH-680-0.68 / 3.73

41
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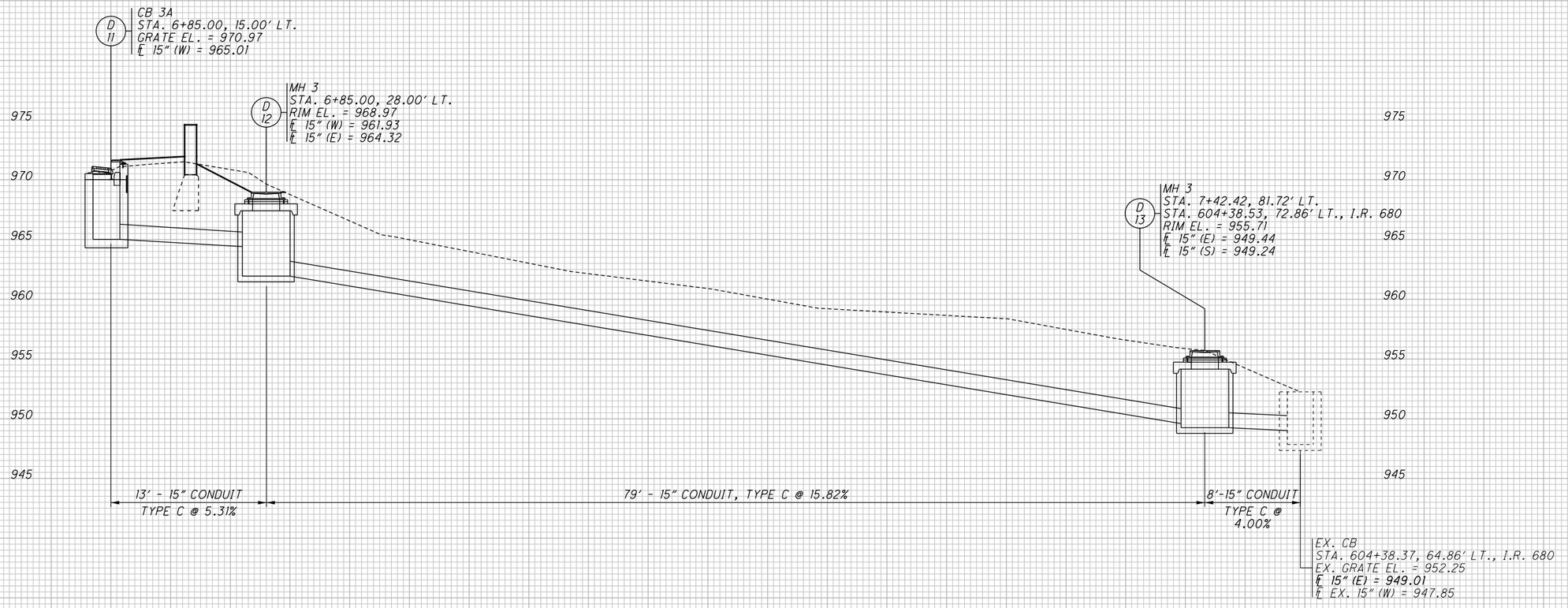


CALCULATED MGM
CHECKED TWG

DRAINAGE PROFILE - BELLE VISTA AVE

MAH-680-0.68 / 3.73

WATERWORK GENERAL NOTES

UNLESS OTHERWISE SHOWN OR INDICATED, ALL WATER WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS), 2019 EDITION.

DUCTILE IRON PIPE FOR WATER LINES SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST REVISION OF AWWA STANDARDS C150 AND C151.

ALL PIPES SHALL BE CEMENT LINED IN ACCORDANCE WITH THE LATEST REVISION OF AWWA STANDARDS C104.

CLASS SHALL BE CLASS 52.

PIPE JOINTS SHALL BE PUSH-ON JOINTS, AND SHALL BE JOINTED BY THE USE OF A RUBBER RING GASKET INSERTED IN THE BELL END.

COUPLING RUBBER RINGS AND LUBRICANTS SHALL BE FURNISHED AND INCLUDED IN THE PRICE OF THE PIPE. ALL RUBBER GASKETS SHALL BEAR THE IDENTIFYING MARK OF THE PIPE MANUFACTURER, GASKET SIZE AND THE YEAR OF MANUFACTURER. RUBBER SHALL BE ALL NEW NATURAL OR SYNTHETIC RUBBER, HAVING THE MECHANICAL PROPERTIES REQUIRED FOR THE SERVICE.

ALL DUCTILE IRON PIPES SHALL BE MARKED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS. MARKINGS SHALL INCLUDE THE MANUFACTURER S NAME OR INITIALS, YEAR CAST AND CLASS LETTER OR NUMBER.

EACH PIECE OF EQUIPMENT SHALL BE SHOP TESTED BY HYDROSTATIC PRESSURE BEFORE SHIPMENT FROM THE FACTORY. EACH INDIVIDUAL SHIPMENT SHALL BE ACCOMPANIED BY THE MANUFACTURER S SWORN CERTIFICATE IN DUPLICATE CERTIFYING THAT ALL PIPES MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.

STANDARD PIPE LENGTH SHALL BE 18 FEET.

PIPE SHALL BE ALL THE SAME LENGTH, NO RANDOM LENGTHS ACCEPTED.

FITTINGS SHALL BE DUCTILE IRON PER AWWA C153.

WATER MAINS SHALL BE TAPPED AND COPPER SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

BEFORE ACCEPTANCE, WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA C600, LATEST EDITION, AND DISINFECTED IN ACCORDANCE WITH AWWA C651, LATEST EDITION.

THE CONTRACTOR SHALL SUPPLY A TEMPORARY, SAFE WATER SERVICE TO ALL USERS THAT WILL HAVE THEIR WATER SERVICE INTERRUPTED BY CONSTRUCTION.

LOCATIONS AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE DRAWINGS HAVE BEEN OBTAINED FROM EXISTING RECORDS AND FIELD SURVEYS, AND DO NOT NECESSARILY REPRESENT AS-BUILT CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING EXISTING MAINS AND UTILITIES.

THE CONTRACTOR SHALL CONTACT MR. DAN BLAKELY THE CITY OF YOUNGSTOWN WATER DEPARTMENT (330-743-5340) AT LEAST 48 HOURS IN ADVANCE OF BEGINNING ANY WATER WORK ON THIS PROJECT.

ALL CONNECTIONS TO EXISTING WATER MAINS SHALL BE SCHEDULED WITH THE CITY OF YOUNGSTOWN WATER DEPARTMENT AT LEAST 48 HOURS IN ADVANCE OF THE WORK. THE CITY MAY REQUIRE THAT THESE CONNECTIONS BE PERFORMED DURING OFF-PEAK HOURS SUCH AS NIGHTS, EARLY MORNINGS, AND/OR WEEKENDS. NO ADDITIONAL PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR PERFORMING SUCH WORK DURING OFF-HOURS.

AFTER THE INSTALLATION OF THE PROPOSED WATER MAIN IS COMPLETE, AND AFTER THE LINE HAS PASSED THE BACTERIA TEST AND PRESSURE TESTING, THE CONTRACTOR IS TO ASSIST PUBLIC UTILITIES IN THE TRANSFER OF WATER SERVICES FROM THE OLD WATER MAIN TO THE NEW MAIN. WHILE TRANSFERRING WATER SERVICES, THE CONTRACTOR IS RESPONSIBLE FOR THE EXCAVATION REQUIRED TO EXPOSE THE WATER SERVICE AT THE RIGHT-OF-WAY AND AT THE NEW MAIN WITH A TYPICAL 3'X5' TRENCH.

ALL UNUSED OR REMOVED FITTINGS AND PIPE SHALL BE DELIVERED TO THE CITY OF YOUNGSTOWN WATER DEPARTMENT.

CLEARANCE

THE CONTRACTOR SHALL MAINTAIN A 12-INCH MINIMUM VERTICAL CLEARANCE FROM THE EDGE OF ALL WATER MAINS TO THE EDGE OF ALL STORM SEWER PIPES AND/OR INLET CONNECTION PIPES WHERE THEY CROSS.

THE CONTRACTOR SHALL MAINTAIN A 4-FOOT MINIMUM HORIZONTAL CLEARANCE FROM THE EDGE OF ALL WATER MAINS TO THE EDGE OF ALL STORM SEWER PIPES AND STORM SEWER MANHOLES.

THE CONTRACTOR SHALL MAINTAIN A 10-FOOT MINIMUM HORIZONTAL CLEARANCE FROM THE EDGE OF ALL WATER MAINS TO THE EDGE OF ALL SANITARY SEWERS AND/OR FORCE MAIN PIPES.

THE CONTRACTOR SHALL MAINTAIN AN 18-INCH MINIMUM VERTICAL CLEARANCE FROM THE EDGE OF ALL WATER MAINS AND/OR SERVICE LINES TO THE EDGE OF ALL SANITARY SEWER PIPES WHERE THEY CROSS.

THE CONTRACTOR SHALL MAINTAIN A 12-INCH MINIMUM VERTICAL CLEARANCE AND A 36-INCH MINIMUM HORIZONTAL CLEARANCE FROM THE EDGE OF ALL WATER MAIN PIPE TO THE EDGE OF ALL DIRECT BURIAL CONDUITS, CONCRETE ENCASED ELECTRICAL CONDUITS, LIGHT POLE BASES, AND HAND HOLE PULL BOXES.

THE CONTRACTOR SHALL MAINTAIN A 12-INCH MINIMUM VERTICAL CLEARANCE AND A 36-INCH MINIMUM HORIZONTAL CLEARANCE FROM THE EDGE OF ALL WATER MAINS TO THE EDGE OF ALL GAS MAINS AND SERVICES.

OPERATING VALVES

THE OPERATION OF ANY EXISTING WATER VALVE (OPENING OR CLOSING) SHALL BE PERFORMED ONLY BY THE CITY OF YOUNGSTOWN. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A MINIMUM 48 HOUR NOTIFICATION OF THE REQUEST TO OPEN OR CLOSE A VALVE. SYSTEM OR SEASONAL DEMANDS MAY CONTROL THE TIME OF DAY, WEEK, MONTH, OR YEAR WHEN VALVES MAY BE OPENED OR CLOSED. NO ADDITIONAL PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DELAYS CAUSES BY SYSTEM DEMANDS RELATING TO THE OPERATION OF VALVES.

CONNECTING THE EXISTING WATER MAINS

CONTACT THE CITY OF YOUNGSTOWN WATER DEPARTMENT TO CONNECT TO THE EXISTING WATER MAIN. THE CITY WILL PROVIDE THE HOT TAPPING SLEEVE AND VALVE BOX AND CONNECT TO THE EXISTING MAIN.

EXISTING SERVICE CONNECTIONS

ALL ACTIVE SERVICE CONNECTIONS WITHIN THE WATER MAIN TRENCH SHALL BE SUPPORTED ACROSS THE TRENCH AND PROTECTED. IF THESE CONNECTIONS ARE DAMAGED, THEY SHALL BE REPLACED IN KIND. THE COST FOR SUPPORTING OR REPLACING THE SERVICE CONNECTIONS WITHIN THE WATER WORK LIMITS SHALL BE INCLUDED IN OTHER ITEMS OF WORK, AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

ALL INACTIVE SERVICE CONNECTIONS SHALL BE ABANDONED IN PLACE OR REMOVED. THE ABANDONMENT OF INACTIVE SERVICE CONNECTIONS SHALL INCLUDE THE EXCAVATION, REMOVAL, AND DISPOSAL OF INACTIVE SERVICE BOXES.

ALL ACTIVE SERVICE CONNECTIONS THAT ARE TO BE REPLACED SHALL BE REMOVED DURING INSTALLATION OF THE PROPOSED SERVICE CONNECTIONS.

THE COST FOR ABANDONING OR REMOVING EXISTING SERVICE CONNECTIONS SHALL BE INCLUDED IN OTHER ITEMS OF WORK, AND NO SEPARATE MEASUREMENT OF PAYMENT SHALL BE MADE.

DEWATERING

THE CONTRACTOR SHALL, AT ALL TIMES DURING CONSTRUCTION, PROVIDE AND MAINTAIN AMPLE MEANS AND METHODS FOR REMOVING AND PROPERLY DISPOSING WATER ENTERING THE TRENCHES OR OTHER PARTS OF THE WORK. THE CONTRACTOR SHALL KEEP SAID EXCAVATIONS AS DRY AS POSSIBLE UNTIL WATER MAINS AND SERVICES HAVE BEEN INSTALLED, TESTED, AND DISINFECTED. ALL WATER PUMPED OR DRAINED FROM THE WORK SHALL BE DISPOSED OF IN A SUITABLE MANNER WITHOUT DAMAGE TO ADJACENT PROPERTY, SEWERS, UTILITIES, PAVEMENTS, ELECTRICAL CONDUITS, OR WATER MAINS. THE FULL COST OF REMOVING ALL WATER SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF WORK, AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

EXCAVATION AND PREPARATION OF TRENCH

UNLESS OTHERWISE PROVIDED, ALL EXCAVATION SHALL BE UNCLASSIFIED AND SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL MATERIAL ENCOUNTERED IN THE EXCAVATION, INCLUDING ROCK, PAVEMENT SURFACE, PAVEMENT BASE, AND OTHER MATERIALS. IT SHALL ALSO INCLUDE THE PLACING AND REMOVAL OF SHEETING AND BRACING. ALL EXCAVATED MATERIALS SHALL BE STORED IN CONVENIENT PILES WITHIN THE CONSTRUCTION SITE, AND REMOVED FROM THE SITE UPON COMPLETION OF THE WORK, UNLESS OTHERWISE SPECIFIED.

EXCAVATION AND TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. ALL TRENCHES SHALL BE EXCAVATED TO A DEPTH OF 6-INCHES BELOW THE BOTTOM OF THE PIPE. THE TRENCH BELOW THE BOTTOM OF THE PIPE SHALL BE BACKFILLED TO THE GRADE OF THE BOTTOM OF THE PIPE WITH PIPE BEDDING MATERIAL. HOLES SHALL BE RECESSED FOR PIPE BELLS. PIPE BEDDING MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

WHERE UNSTABLE OR UNSUITABLE MATERIAL IS ENCOUNTERED IN THE EXCAVATION OF THE WATER MAIN TRENCH BOTTOM, AS DETERMINED BY THE ENGINEER, SUCH MATERIAL SHALL BE REMOVED TO A DEPTH SPECIFIED BY THE ENGINEER. THE TRENCH SHALL BE REFILLED WITH CLASS B LIMESTONE BEDDING MATERIAL MEETING THE REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. HOLES SHALL BE RECESSED IN THE BEDDING MATERIAL FOR THE PIPE BELL. BEDDING MATERIAL, SHALL BE COMPACTED IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. SHOULD IT BE NECESSARY TO EXCAVATE MORE THAN THREE FEET BELOW THE ORIGINAL TRENCH BOTTOM, THE CONTRACTOR SHALL RECEIVE ADDITIONAL PAYMENT FOR THE EXCAVATION AND BACKFILL BELOW THE THREE FOOT DEPTH.

NO BLASTING OF ROCK WILL BE PERMITTED FOR WATER MAIN CONSTRUCTION.

SHEETING AND BRACING FOR TRENCH EXCAVATION

THE CONTRACTOR SHALL FURNISH AND INSTALL SHEETING, BRACING, AND/OR TRENCH BOXES AS REQUIRED TO PREVENT ANY CAVING OR SETTLING OF THE EXCAVATION OR TRENCH WALLS. THE TYPE AND AMOUNT OF SUCH PROTECTION SHALL BE CONSISTENT WITH THE MAGNITUDE OF THE WORK AND THE CHARACTER OF THE MATERIAL IN WHICH THE EXCAVATION IS MADE, AND SHALL BE IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.

WHEN THE BACKFILL IS HIGH ENOUGH TO REMOVE SHEETING, BRACING, AND/OR TRENCH BOXES WITH SAFETY, THE SHEETING AND/OR TRENCH BOXES SHALL BE REMOVED IN SUCH A MANNER AS TO PREVENT DAMAGE BY CAVING OF THE TRENCH WALLS OR UNDERMINING OF THE WATER PIPE.

WHENEVER SHEETING IS DRIVEN TO A DEPTH BELOW THE ELEVATION OF THE BOTTOM OF THE PIPE, THAT PORTION OF THE SHEETING BELOW THE TOP OF THE PIPE SHALL NOT BE DISTURBED OR REMOVED. PAYMENT FOR ALL SHEETING, BRACING, AND TRENCH BOXES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF WORK, AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

REMOVAL OF EXCAVATED MATERIAL

ALL MATERIAL IN EXCESS OF THAT REQUIRED FOR BACKFILL, AND ALL MATERIAL NOT SUITABLE OR NOT APPROVED BY THE ENGINEER FOR BACKFILL, MUST BE REMOVED FROM THE SITE OF WORK AND DISPOSED OF AT OTHER LOCATIONS BY THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN PERMITS FOR SUCH DISPOSAL. THE COST OF REMOVING ALL EXCAVATED MATERIAL, INCLUDING EARTH, OLD PIPE, PAVING MATERIALS, CONCRETE, AND OTHER DEBRIS CREATED IN THE COURSE OF THE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS OF WORK AND NO ADDITIONAL COMPENSATION SHALL BE MADE.

CALCULATED MGM CHECKED TWG

WATER WORK NOTES

MAH-680-0.68 / 3.73

WATER MAIN INSTALLATION

WATER MAIN MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. ALL INSTALLATION PRACTICES SHALL BE IN CONFORMANCE WITH AWWA STANDARDS C-600.

THE SAND BEDDING AND BACKFILL UNDER, AROUND, AND TO A DEPTH OF 1-FT. ABOVE THE TOP OF THE PIPE SHALL BE FREE OF STONE OR OTHER OBJECTIONABLE MATERIAL. THE SAND SHALL BE THOROUGHLY TAMPED AND COMPACTED IN 6-INCH LAYERS SIMULTANEOUSLY ON EACH SIDE OF THE PIPE.

THE USE OF CRUSHED AIR COOLED BLAST FURNACE SLAG FOR PIPE BEDDING, PIPE COVER, OR BACKFILL WILL NOT BE PERMITTED.

COMPACTED PREMIUM BACKFILL IS REQUIRED FOR UNDERGROUND CONSTRUCTION UNDER OR WITHIN THREE FEET OF ANY PROPOSED OR EXISTING SIDEWALK OR PAVEMENT. THE BACKFILLING SHALL CONFORM TO THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND DETAIL AS SHOWN ON SHEET 46.

THE GROUND OVER THE WATER MAIN SHALL REMAIN FREE OF TRASH CONTAINERS, TREES, SHRUBS, AND OTHER VEGETATION (EXCLUDING GRASS). NO EARTH SHALL BE MOUNDED OVER THE WATER MAIN FOR AESTHETICS OR FOR REDUCING TRAFFIC NOISE.

USE EXTREME CAUTION WHEN EXCAVATING IN THE AREA OF EXISTING WATER MAIN PIPES, VALVES, HYDRANTS, AND THRUST BLOCKS.

ALL WATER MAIN CONSTRUCTION SHALL BE INSPECTED BY THE CITY YOUNGSTOWN.

THE PROPOSED FACILITIES MUST MAINTAIN A MINIMUM OF 35 PSI OF PRESSURE DELIVERED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTORS.

DISINFECTION

ALL WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESS PITS FOR DISINFECTION, INCLUDING ALL NECESSARY EXCAVATION, SHEETING, SHORING, AND BACKFILL.

ITEM 638 - WATER WORK, MISC.: REMOVAL 8" WATER MAIN

THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO REMOVE THE EXISTING 8" WATER MAIN AND BRIDGE HANGER ASSEMBLIES. ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER FOOT FOR ITEM 638, WATER WORKS, MISC.: REMOVAL 8" WATER MAIN.

DAMAGE TO EXISTING FACILITIES

THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN EXCAVATING IN THE AREA OF EXISTING WATER MAIN PIPES, VALVES, HYDRANTS, THRUST BLOCKS, STORM SEWERS, UTILITY LINES, AND OTHER APPURTENANCES. DAMAGE AND REPAIR OF EXISTING ITEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

EXISTING FACILITIES REQUIRING REPLACEMENT, ADJUSTMENT, OR RELOCATION TO ACCOMMODATE NEW WATER MAIN CONSTRUCTION, SHALL BE REPLACED, ADJUSTED AND/OR RELOCATED BY THE CONTRACTOR AT HIS EXPENSE. CONTACT MR. DAN BLAKELY, CHIEF ENGINEER, CITY OF YOUNGSTOWN WATER DEPARTMENT (330-743-5340) TO SCHEDULE THIS WORK. THE CITY OF YOUNGSTOWN RESERVES THE RIGHT TO MAKE SUCH REPAIRS, READJUSTMENTS, OR RELOCATIONS AND SUBMIT A BILL FOR PAYMENT TO THE CONTRACTOR AT THE COMPLETION OF SUCH SERVICES.

AREAS DISTURBED OR DAMAGED BY CONSTRUCTION SHALL BE RESTORED.

ITEM 638 - WATER WORK, MISC.: 2" PIPE INSULATION WITH 20 GA. STAINLESS STEEL JACKET, COMPLETE

UNDER THIS ITEM, THE CONTRACTOR SHALL PROVIDE AND INSTALL 2" POLYURETHANE OR POLYISOCYANURATE FOAM PIPE INSULATION WITH STAINLESS STEEL JACKET, INCLUDING ALL STRAPPING AND HARDWARE (STAINLESS STEEL) REQUIRED FOR COMPLETE INSTALLATION WHERE SHOWN ON THE PLANS. INSULATION AND STAINLESS STEEL JACKET SHALL BE SUPPLIED TOGETHER FROM A SINGLE SOURCE.

PAYMENT FOR THIS ITEM SHALL BE MADE ON A PER FOOT BASIS FOR INSULATION.

ITEM 638 - WATER WORK, MISC.: 8" EBAA EXPANSION JOINT

UNDER THIS ITEM, THE CONTRACTOR SHALL PROVIDE AND INSTALL YOUNGSTOWN WATER APPROVED EBAA EXPANSION JOINT ON EACH SIDE OF THE BRIDGE SPAN AS SHOWN ON THE PLANS. EXPANSION JOINT WILL BE EBAA EX-TEND 200, OR APPROVED EQUAL, ALLOWING FOR EXPANSION AND CONTRACTION OF THE WATERLINE ON THE BRIDGE. THIS ITEM SHALL INCLUDE ALL REQUIRED HARDWARE AND STAINLESS STEEL FASTENERS FOR A COMPLETE OPERABLE SYSTEM.

PAYMENT FOR THIS ITEM SHALL BE MADE FOR EACH ITEM COMPLETED, INSTALLED AND TESTED.

ITEM 638 - WATER WORK, MISC.: 8" 45 DEGREE BEND WITH MEGA LUG

UNDER THIS ITEM, THE CONTRACTOR SHALL PROVIDE AND INSTALL FITTINGS AS SHOWN ON THE PLANS WITH MEGA LUG JOINT RESTRAINT, OR APPROVED EQUAL, MEETING CITY OF YOUNGSTOWN WATER DEPARTMENT STANDARDS. THIS ITEM SHALL INCLUDE ALL NECESSARY STAINLESS STEEL HARDWARE, INCLUDING STAINLESS STEEL FASTENERS, AS WELL AS THRUST BLOCKING AS REQUIRED ON THE PLANS.

PAYMENT FOR THIS ITEM SHALL BE MADE FOR EACH ITEM COMPLETED, INSTALLED AND TESTED.

FIRE HYDRANT EXTENDED AND ADJUSTED TO GRADE, AS PER PLAN

PAYMENT FOR THIS ITEM SHALL INCLUDE FURNISHINGS AND INSTALLING THE ENTIRE HYDRANT. SUCH PAYMENT SHALL INCLUDE ALL EXCAVATION, SHEETING, BRACING, SHORING, HYDRANT AND PIPE MATERIALS, VALVES, VALVE BOXES, VALVE BOX COVERS, THRUST RESTRAINTS, FITTINGS, COUPLINGS, CLOSURE PIECES, CONNECTIONS TO DISINFECTION, RESTORATION, AND APPURTENANCES.

WHERE EXISTING HYDRANTS ARE TO BE ADJUSTED TO CONFORM TO PROJECT ALIGNMENT AND OR GRADE, RELOCATE THE HYDRANT WITHOUT DISTURBING THE LOCATION OF THE HYDRANT LATERAL TEE AT THE MAIN.

BEFORE EXCAVATING, CLOSE VALVES, ON HYDRANT BRANCHES TO BE CUT. WHERE THE DISTANCE OF THE CENTER OF THE EXISTING HYDRANT TO THE CENTER OF THE GATE VALVE ON THE HYDRANT BRANCH IS LESS THAN 4 FEET, EXTEND THE TRENCH TO THE HYDRANT BRANCH VALVE TO PERMIT REMOVAL OF THE PIPE. ADEQUATELY SUPPORT THE HYDRANT BEFORE BEING DISCONNECTED. EXTEND THE HYDRANT BRANCH WITH NEW PIPE OF THE SAME SIZE AS THE EXISTING PIPE. THOROUGHLY CLEAN THE REMOVED HYDRANT OF DIRT, RESET IT, AND CONNECT IT TO THE EXTENDED BRANCH. PROVIDE DRAINAGE PITS AND THRUST BLOCKING ACCORDING TO SPECIFICATIONS.

AFTER HYDRANTS HAVE BEEN RESET, OPEN BRANCH AND HYDRANT VALVES UNTIL WATER FLOW EXPELS ALL AIR AND DIRT.

FOR HYDRANTS THAT REQUIRE PROTECTIVE BOLLARDS, PAYMENT FOR THIS ITEM SHALL INCLUDE THE BOLLARDS.

THE CITY OF YOUNGSTOWN SHALL APPROVE THE FINAL PLACEMENT AND NOZZLE ORIENTATION OF EACH FIRE HYDRANT ASSEMBLY PRIOR TO CONSTRUCTION.

SHOP DRAWINGS

THE CONTRACTOR SHALL SUBMIT TO THE CITY OF YOUNGSTOWN WATER DEPARTMENT A MINIMUM OF FOUR (4) SETS OF PRINTS OF ALL SHOP DRAWINGS GENERATED BY THE PIPE OR STRUCTURAL FABRICATOR OF ALL PIPE, FITTINGS, AND MISCELLANEOUS OR SPECIAL DETAILS OF PIPE AND FITTING JOINTS INCLUDING LINE AND ASSEMBLY LAYOUT, SLIP JOINT DETAILS, EXPANSION JOINTS, VICTAULIC COUPLE DETAILS, FIELD APPLIED OR FACTORY APPLIED INSULATION, JACKET, SLEEVE PACKING DETAILS, PIPE SUPPORT DETAILS INCLUDING CLAMP, SHIMS AND ANY OTHER PIPE APPURTENANCES. THE LINE AND ASSEMBLY LAYOUT SHALL INCLUDE ALL PIPE AND FITTING DIMENSIONS, LOCATION OF ALL PIPE JOINTS AND TYPES, ALL PIPE SUPPORTS, ELEVATIONS OF PIPE AT SUPPORTS, EXPANSION JOINTS AND LOCATION OF ANY OTHER APPURTENANCES. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

SHOP DRAWING APPROVAL BY THE CITY DOES NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

ITEM 638 - 14" STEEL PIPE ENCASEMENT, OPEN CUT, AS PER PLAN

UNDER THIS ITEM, CONTRACTOR SHALL PROVIDE AND INSTALL 14" DIAMETER SCHEDULE 40 STEEL PIPE SLEEVES, LINK-SEAL MODEL C MODULAR SEALS (OR APPROVED EQUAL), CASING SPACERS, AND GROUT ON EACH SIDE OF THE BRIDGE AS SHOWN ON THE PLANS.

PAYMENT FOR THIS ITEM SHALL BE MADE ON A PER LINEAR FOOT BASIS FOR INSTALLATION.

ITEM 638 - WATER WORK, MISC.: ADJUSTABLE ROLL SUPPORTS

UNDER THIS ITEM, CONTACTOR SHALL PROVIDE NON-CONDUCTIVE PIPE ROLLERS, ADJUSTABLE ROLL SUPPORTS, AND FRP PIPE SADDLES WHERE SHOWN ON THE PLANS TO SUPPOERT THE PROVIDED WATERLINE. ROLLERS, SUPPORTS, AND SADDLES SHALL BE SIZED TO CARRY THE PROPOSED WATERLINE WITH 2" PIPE INSULATION AND 20 GA. STAINLESS STEEL JACKET. SUPPORTS AND ALL HARDWARE SHALL BE HOT-DIPPED GALVANIZED. THESE ITEMS SHALL BE FULLY FIELD-ADJUSTABLE AND BE PROVIDED WITH ALL REQUIRED HARDWARE AND FASTENERS FOR A COMPLETE OPERABLE SYSTEM. THE SYSTEM SHALL BE CAPABLE OF CARRYING A MINIMUM OF TWO TIMES THE FULL WEIGHT OF THE PIPE, INSULATION, AND JACKET.

PAYMENT FOR THIS ITEM SHALL BE MADE FOR EACH ITEM COMPLETED AND INSTALLED.

CALCULATED MGM
CHECKED TWG

WATER WORK NOTES

MAH-680-0.68 / 3.73

INSULATION AND OUTER JACKET

BURIED PIPE BEYOND THE STRUCTURE HAVING LESS THAN 4 FEET (4') COVER SHALL BE INSULATED WITH DRI-THERM WATER REPELLANT CALCIUM CARBONATE INSULATION NO LESS THAN 8 INCHES (8") THICK COMPLETELY AROUND THE PIPE.

MEASUREMENT

THE NUMBER OF LINEAR FEET OF STEEL PIPE TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING.

PAYMENT

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID AT THE CONTRACT PRICE BID PER FOOT FOR "ITEM 638 - 8" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS CLASSIFIED AS TO SIZE AND TYPE, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE PIPE, INCLUDING ALL EXPANSION JOINTS, COUPLINGS, PIPE INSULATION, INSTALLING SUPPORT ASSEMBLIES AND OTHER PIPE APPURTENANCES, FURNISHING AND COMPLETING THE SLEEVE PACKING DETAIL INCLUDING THE SEAL, AND FOR ALL LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM EXCEPT FOR THE ITEMS SPECIFICALLY LISTED AS SEPARATE PAY ITEMS.

ITEM 638 - 6" FIRE HYDRANT, AS PER PLAN

THE CITY OF YOUNGSTOWN SHALL PROVIDE AND DROP OFF THE FIRE HYDRANT ONLY. THE CONTRACTOR WILL INSTALL THE FIRE HYDRANT AND PROVIDE ALL LABOR AND MATERIALS REQUIRED TO INSTALL THE FIRE HYDRANT. THE CONTRACTOR SHALL CONTACT MR. DAN BLAKELY WITH THE CITY OF YOUNGSTOWN WATER DEPARTMENT (330-743-5340) AT LEAST 48 HOURS IN ADVANCE TO SCHEDULE DROP OFF OF THE FIRE HYDRANTS.

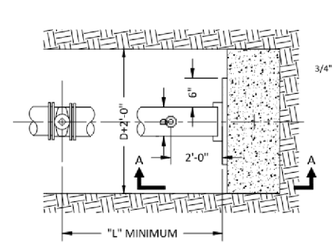
ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR ITEM 638, 6" FIRE HYDRANT, AS PER PLAN.

ITEM 638 - FIRE HYDRANT REMOVED, AS PER PLAN

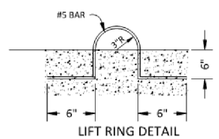
THIS ITEM SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO REMOVE THE EXISTING FIRE HYDRANT AND STORE ON-SITE FOR THE CITY OF YOUNGSTOWN TO PICK UP. THE CONTRACTOR SHALL CONTACT MR. DAN BLAKELY WITH THE CITY OF YOUNGSTOWN WATER DEPARTMENT (330-743-5340) AT LEAST 48 HOURS IN ADVANCE TO SCHEDULE PICK UP OF THE FIRE HYDRANTS.

ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR ITEM 638, FIRE HYDRANT REMOVED, AS PER PLAN.

CUT AND PLUG EXISTING 8" WATER LINE



PIPE DIAMETER	H	B	L	VOLUME CU. FT.
3"	5"	1"	10'	1.43
4"	6"	1"	10'	1.76
6"	8"	1"	10'	2.52
8"	12"	1"	10'	4.00
12"	23"	3"	18'	8.64
16"	37"	3"	18'	15.39



THRUST BLOCK DETAIL

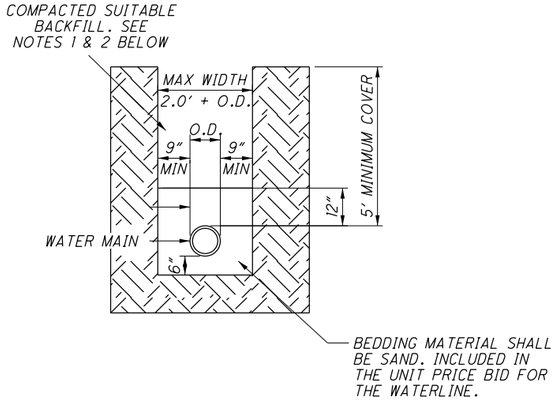
NOTES:

1. BACKER DESIGNED FOR 3000 PSF SOIL BEARING.
2. END OF PIPE CAPPED OR PLUGGED.
3. GREASE STEEL PLATE WHERE IN CONTACT WITH CONCRETE BACKER.
4. PLACE CONCRETE AGAINST UNDISTURBED SOIL.
5. THOROUGHLY COMPACT BACKFILL BETWEEN VALVE AND END OF PIPE.
6. A LAYER OF POLYETHYLENE SHEETING REQUIRED BETWEEN CONCRETE AND WATERLINE, VALVES, ETC.

CALCULATED MGM
CHECKED TWG

WATER WORK NOTES

MAH-680-0.68/3.73

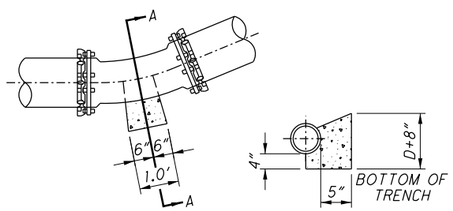


WATER MAIN TRENCH DETAILS

- NOT TO SCALE -

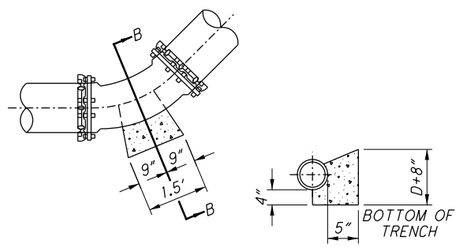
NOTES:

1) PREMIUM BACKFILL REQUIRED UNDER EXISTING OR FUTURE PAVEMENTS, SIDEWALKS, AND/OR DRIVES OR WHEN REQUIRED BY LOCAL MUNICIPALITY.
2) PREMIUM BACKFILL SHALL BE LIMESTONE SCREENINGS GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.
3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
4) MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH ODOT SPECIFICATIONS.



PLAN SECTION A-A

11¼ & 22½ DEGREE BEND



PLAN SECTION B-B

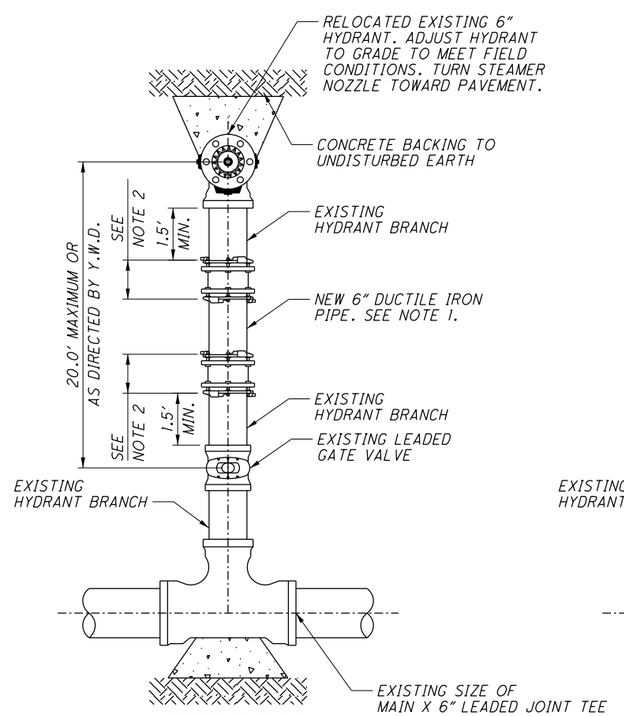
45 DEGREE BEND

TYPICAL THRUST BLOCK DETAIL FOR HORIZONTAL DEFLECTION FOR PIPE UP TO 16" DIAMETER

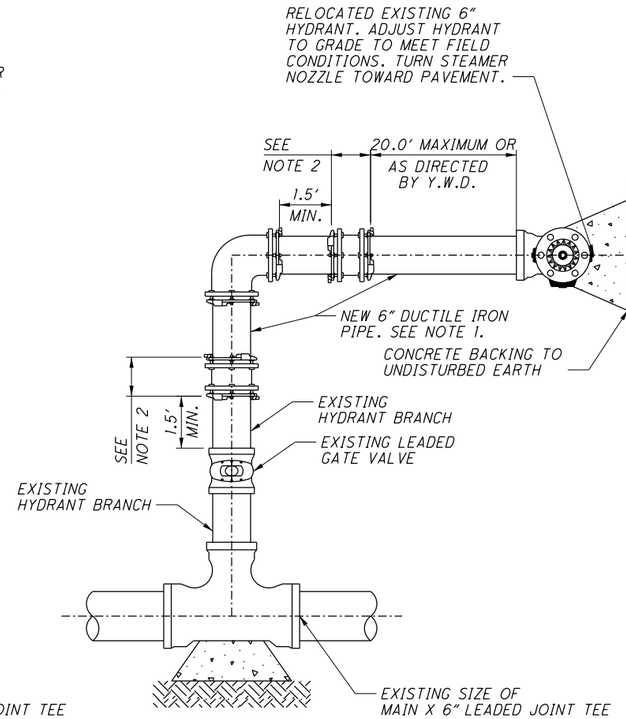
- NOT TO SCALE -
D = PIPE DIAMETER

NOTES:

1) ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.
2) ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.
3) DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.
4) USE FORMS WHEN POURING CONCRETE TO MAINTAIN.



STRAIGHT TYPE



OFFSET TYPE

EXTEND, SHORTEN, AND ADJUST EXISTING 6" HYDRANT TO GRADE

- NOT TO SCALE -

1) PLAIN END X PLAIN END DUCTILE IRON PIPE AS SPECIFIED (CUT TO SUIT).
2) CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS WITH ROD AND CLAMPS AS DIRECTED BY THE WATER DEPARTMENT. COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE. EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; TWO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACKHEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536). THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE NO's 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS. IF THE BRANCH IS TO BE SHORTENED, USE ONLY (1) SLEEVE OR COUPLING WITH NO NEW PIPE REQUIRED.
3) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".
4) IF EXISTING HYDRANT IS DAMAGED, INSTALL NEW MECHANICAL JOINT HYDRANT.

CALCULATED MGM
CHECKED TWG

WATER WORK DETAILS

MAH-680-0.68 / 3.73

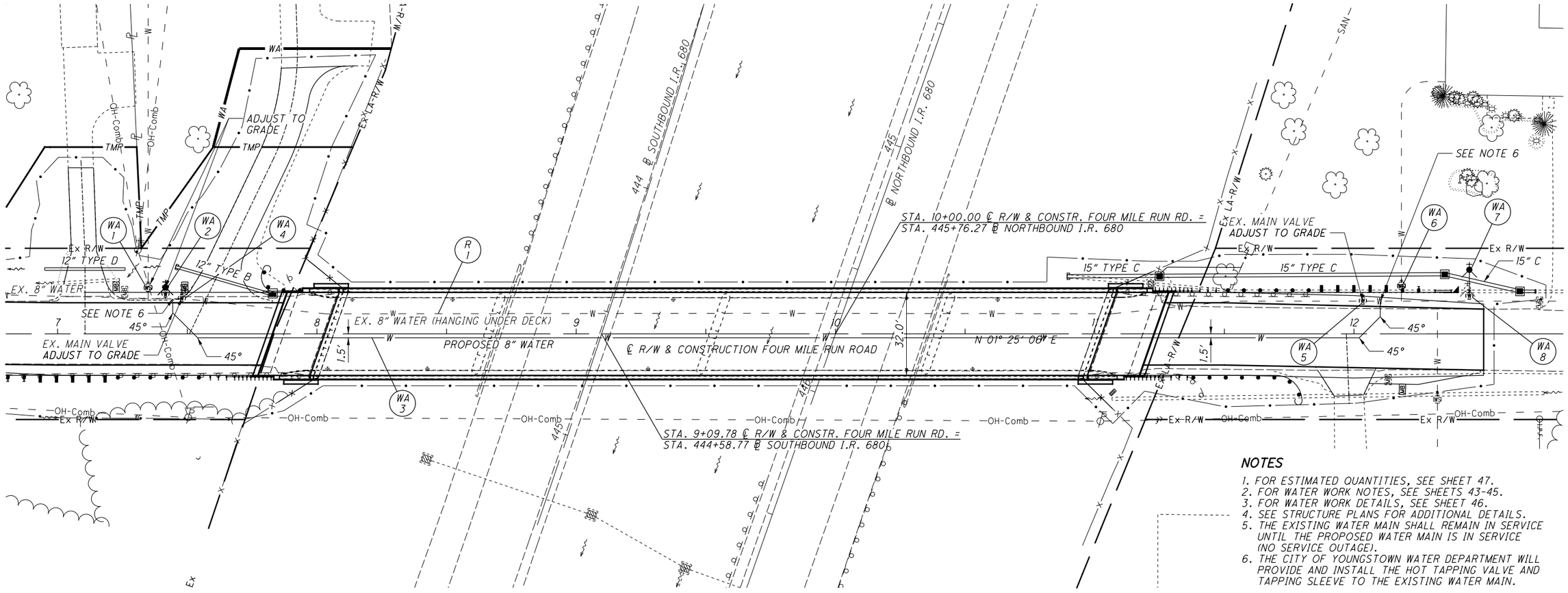
WATER WORK ESTIMATED QUANTITIES

FOUR MILE RUN RD

CALCULATED MGM | CHECKED TWG

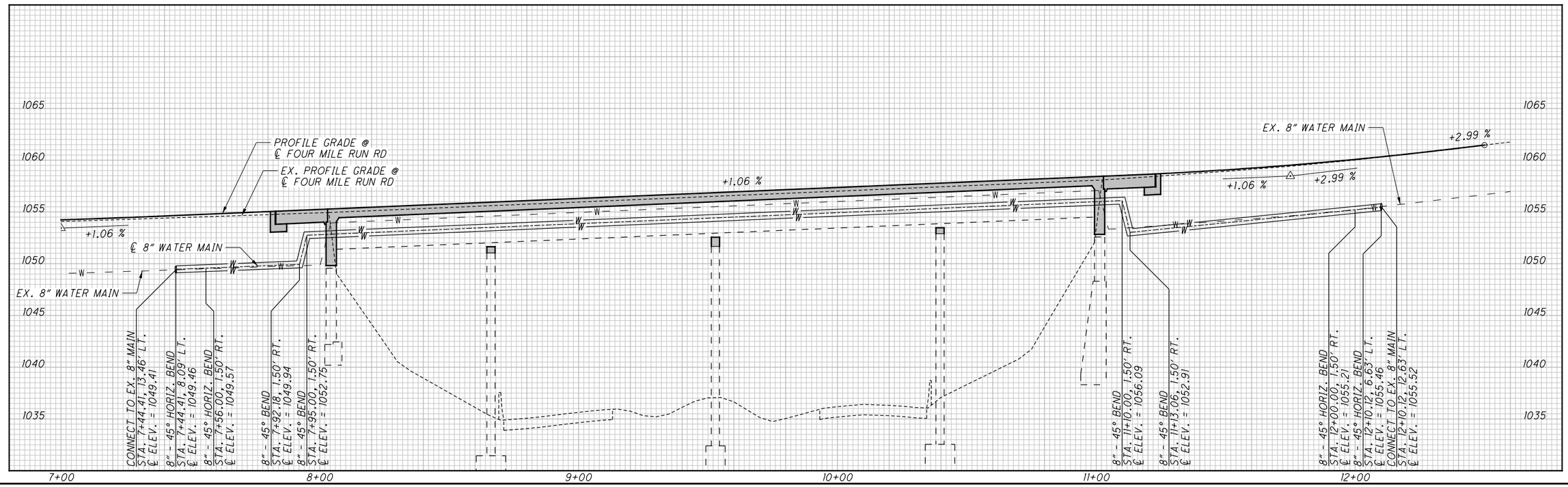
MAH-680-0.68/3.73

REF. NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	638 WATER WORKS, MISC.: REMOVAL 8" WATER MAIN (FT)	638 8" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 52, PUSH-ON JOINTS AND FITTINGS (FT)	638 14" STEEL PIPE ENCASEMENT, OPEN CUT, AS PER PLAN (FT)	638 6" FIRE HYDRANT, AS PER PLAN (EACH)	638 FIRE HYDRANT EXTENDED AND ADJUSTED TO GRADE, AS PER PLAN (EACH)	638 FIRE HYDRANT REMOVED, AS PER PLAN (EACH)	638 VALVE BOX ADJUSTED TO GRADE (EACH)	638 SERVICE BOX ADJUSTED TO GRADE (EACH)	638 CUT AND PLUG EXISTING 8" WATER LINE (EACH)	638 WATER WORKS, MISC: 2" PIPE INSULATION WITH 20 GA. STAINLESS STEEL JACKET, COMPLETE (FT)	638 WATER WORKS, MISC: EBAA EXPANSION JOINT (EACH)	638 WATER WORKS, MISC: 8" 45 DEGREE BEND WITH MEGA LUG (EACH)	638 WATER WORKS, MISC: ADJUSTABLE ROLL SUPPORTS (EACH)	
R-1	48	FOUR MILE RUN RD	7+47.90	12+03.41	LT.	456								2					
WA-1	48	FOUR MILE RUN RD	7+34.86		LT.								1						
WA-2	48	FOUR MILE RUN RD	7+41.60		LT.				1		1	1							
WA-3	48	FOUR MILE RUN RD	7+44.41	12+10.12	LT./RT.		485	20							293	2	8	24	
WA-4	48	FOUR MILE RUN RD	7+47.90		LT.							1							
WA-5	48	FOUR MILE RUN RD	12+03.41		LT.							1							
WA-6	48	FOUR MILE RUN RD	12+18.30		LT.								1						
WA-7	48	FOUR MILE RUN RD	12+44.49		LT.					1									
WA-8	48	FOUR MILE RUN RD	12+44.49		LT.							1							
TOTALS CARRIED TO GENERAL SUMMARY						456	485	20	1	1	1	4	2	2	293	2	8	24	



NOTES

1. FOR ESTIMATED QUANTITIES, SEE SHEET 47.
2. FOR WATER WORK NOTES, SEE SHEETS 43-45.
3. FOR WATER WORK DETAILS, SEE SHEET 46.
4. SEE STRUCTURE PLANS FOR ADDITIONAL DETAILS.
5. THE EXISTING WATER MAIN SHALL REMAIN IN SERVICE UNTIL THE PROPOSED WATER MAIN IS IN SERVICE (NO SERVICE OUTAGE).
6. THE CITY OF YOUNGSTOWN WATER DEPARTMENT WILL PROVIDE AND INSTALL THE HOT TAPPING VALVE AND TAPPING SLEEVE TO THE EXISTING WATER MAIN.



HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED MGM
CHECKED TWG

WATERLINE PLAN AND PROFILE FOUR MILE RUN ROAD

MAH-680-0.68 / 3.73

48
126

REF. NO.	SHEET NO.	LOCATION	STATION FROM	STATION TO	SIDE	626 BARRIER REFLECTOR, TYPE 1 (ONE WAY) EACH	626 BARRIER REFLECTOR, TYPE 2 (ONE WAY) EACH	626 BARRIER REFLECTOR, TYPE 2 (BI-DIRECTIONAL) EACH	642 REMOVAL OF PAVEMENT MARKING FT	646 EDGE LINE, 6" (WHITE) FT	646 CENTER LINE (DOUBLE-SOLID) FT	646 CHANNELIZING LINE, 8" FT	646 STOP LINE FT	646 CROSSWALK LINE FT	646 TRANSVERSE/DIAGONAL LINE, (WHITE) FT	646 TRANSVERSE/DIAGONAL LINE, (YELLOW) FT	646 ISLAND MARKING SF	646 LANE ARROW EACH	646 DOTTED LINE, 6" FT		
AR-1	53	BELLE VISTA AVE	8+52.00		LT/RT.													1		
AR-2	53	BELLE VISTA AVE	9+18.00		LT/RT.													1		
BR-1	51	FOUR MILE RUN RD	6+67.92	7+85.82	RT.			2												
BR-2	51	FOUR MILE RUN RD	7+78.60	7+96.51	LT.			2												
BR-3	51	FOUR MILE RUN RD	11+08.75	11+79.94	RT.			2												
BR-4	51	FOUR MILE RUN RD	11+19.95	12+37.84	LT.			2												
BR-5	36	I.R. 680	605+02.00	608+79.38	LT.	4	1													
BR-6	36	I.R. 680	605+42.61	608+41.00	RT.	3	1													
BR-7	36	I.R. 680	606+02.89	607+02.89	RT.		2													
BR-8	36	I.R. 680	606+05.20	607+05.20	LT.		2													
CH-1	53	BELLE VISTA AVE	8+24.00	9+28.00	RT.							104								
CL-1	51	FOUR MILE RUN RD	6+50.00	12+50.00	℄						600									
CL-2	52	BELLE VISTA AVE	0+29.00	2+10.00	LT./RT.						181									
CL-3	52, 53	BELLE VISTA AVE	0+29.00	9+28.00	LT.						899									
CL-4	53	BELLE VISTA AVE	6+50.00	7+70.00	LT./RT.						120									
CW-1	52	BELLE VISTA AVE	3+00.00	3+48.00	LT.									79						
CW-2	53	BELLE VISTA AVE	6+07.00	6+41.00	RT.									60						
DL-1	53	BELLE VISTA AVE	7+20.00	8+24.00	RT.														104	
EW-1	51	FOUR MILE RUN RD	6+50.00	12+50.00	LT.					600										
EW-2	51	FOUR MILE RUN RD	6+50.00	12+50.00	RT.					600										
EW-3	52, 53	BELLE VISTA AVE	0+50.00	8+24.00	RT.					774										
EW-4	52, 53	BELLE VISTA AVE	0+86.00	7+32.00	LT.					646										
IM-1	52	BELLE VISTA AVE	0+29.00	0+33.00	LT./RT.													40		
SL-1	52	BELLE VISTA AVE	0+33.00		LT.								11							
TLW-1	52, 54	BELLE VISTA AVE	0+50.00	6+01.00	RT.										99					
TLW-2	52	BELLE VISTA AVE	0+86.00	3+03.00	LT.										22					
TLW-3	52, 54	BELLE VISTA AVE	3+43.00	7+32.00	LT.										28					
TLW-4	53	BELLE VISTA AVE	6+50.00	8+24.00	RT.										36					
TLY-1	52	BELLE VISTA AVE	0+29.00	2+10.00	LT./RT.											82				
TLY-2	53	BELLE VISTA AVE	6+50.00	7+70.00	LT.											32				
R-1	52	BELLE VISTA AVE	0+29.00	2+75.00	LT./RT.				461											
R-2	53	BELLE VISTA AVE	7+00.00	9+19.00	LT./RT.				220											
SUBTOTAL										2620	1800				185	114				
TOTALS CARRIED TO GENERAL SUMMARY						7	6	8	681	0.50 MI	0.34 MI	104	11	139	299		40	2	104	

CALCULATED SJJ
CHECKED MGM

TRAFFIC CONTROL - PAVEMENT MARKINGS

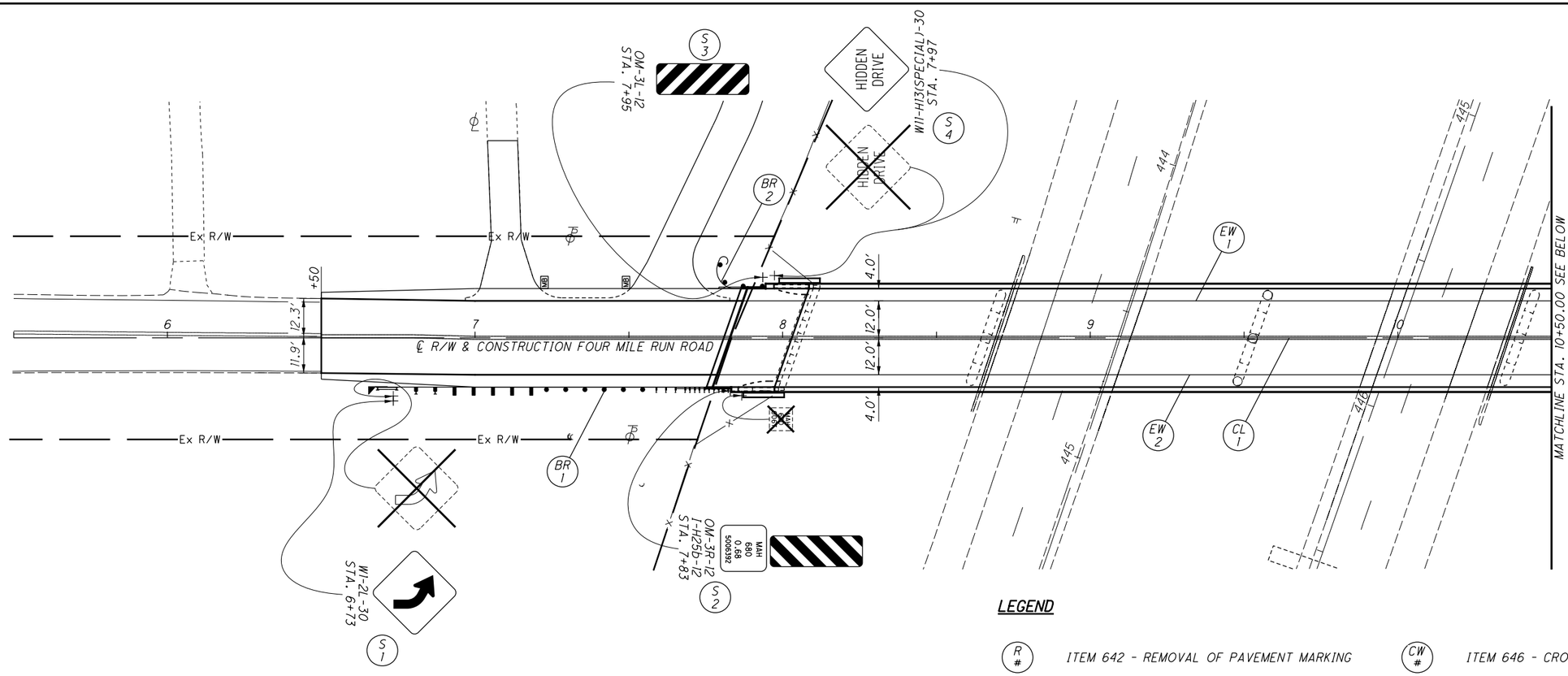
MAH-680-0.68/3.73

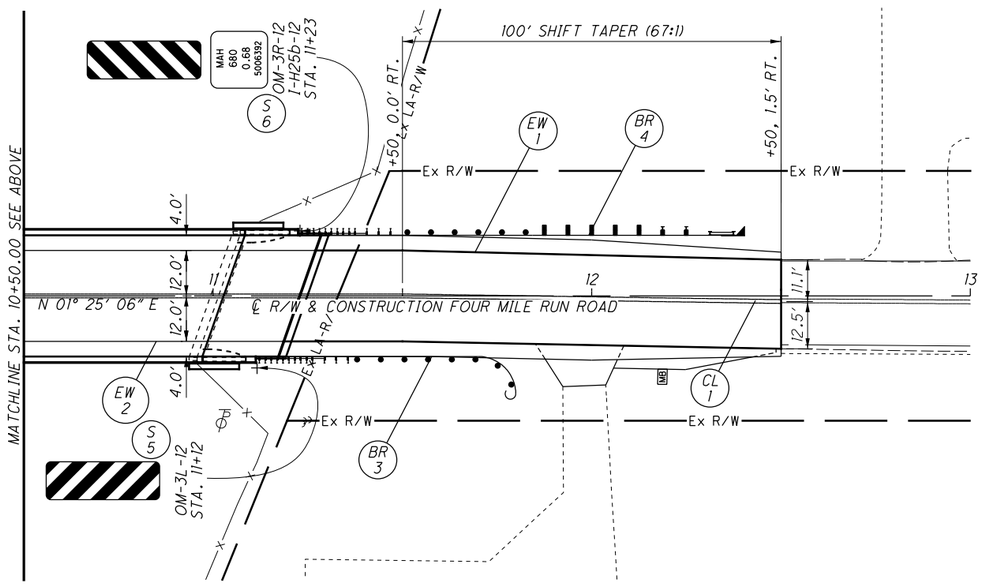
REF. NO.	SHEET NO.	LOCATION	STATION	CODE	SIZE (INCHES)	SIDE	630 GROUND MOUNTED SUPPORT, NO. 2 POST FT	630 GROUND MOUNTED SUPPORT, NO. 3 POST FT	630 GROUND MOUNTED SUPPORT, NO. 4 POST FT	630 SIGN POST REFLECTOR (RED) EACH	630 SIGN, FLAT SHEET SF	630 SIGN, FLAT SHEET, 730.20 SF	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTIOON EACH	630 REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH	630 REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL EACH	630 REMOVAL OF OVERHEAD SIGN SUPPORT AND REERECTION, TYPE TC-12.30 EACH
S-1	51	FOUR MILE RUN RD	6+73	W1-2L	30 X 30	RT.		14			6.25		1			1				
S-2	51	FOUR MILE RUN RD	7+83	OM-3R	12 X 36	RT.	10.5				3		1			1				
				I-H25b	12 X 12							1								
S-3	51	FOUR MILE RUN RD	7+95	OM-3L	12 X 36	LT.	10.5				3									
S-4	51	FOUR MILE RUN RD	7+97	W11-13H(SP)	30 X 30	LT.		14			6.25		1			1				
S-5	51	FOUR MILE RUN RD	11+12	OM-3L	12 X 36	RT.	10.5				3									
S-6	51	FOUR MILE RUN RD	11+23	OM-3R	12 X 36	LT.	10.5				3									
				I-H25b	12 X 12							1								
S-7	52	BELLE VISTA AVE	1+85	M2-1	21 X 15	RT.		15			2.19									
				M1-1	30 X 24						5.00									
S-8	52	BELLE VISTA AVE	2+52	-	-	RT.											1			
S-9	52	BELLE VISTA AVE	2+80	-	-	RT.							2			1				
S-10	52	BELLE VISTA AVE	3+16	D3-H6	72 X 12	RT.		30			6				1				2	
				D3-H6A	72 X 12						6									
				D3-H6A	72 X 12						6									
S-11	52	BELLE VISTA AVE	3+24	I-H25b	12 X 12	RT.	7.5					1	1			1				
S-12	52	BELLE VISTA AVE	3+85	M2-H3	48 X 60	RT.			34		20		1			1				
S-13	52	MANHATTAN AVE	100+33	R1-1	30 X 30	LT.		14		1	6.25		1							
S-14	53	I.R. 680	606+30			RT.												1		1
S-15	53	BELLE VISTA AVE	7+00	I-H25b	12 X 12	LT.	7.5					1								
S-16	53	BELLE VISTA AVE	7+53	-	-	LT.		13					1			1				
				-	-									1						
S-17	53	MIDLAND AVE	201+57	R1-1	30 X 30	LT.		14		1	6.25		1			1				
TOTALS CARRIED TO GENERAL SUMMARY							57	114	34	2	82.2	4	10	1	1	8	1	1	2	1

CALCULATED SJJ
CHECKED MGM

TRAFFIC CONTROL - SIGNAGE

MAH-680-0.68/3.73





LEGEND

R #	ITEM 642 - REMOVAL OF PAVEMENT MARKING	CW #	ITEM 646 - CROSSWALK LINE
EW #	ITEM 646 - EDGE LINE, 6" (WHITE)	AR #	ITEM 646 - LANE ARROW
CL #	ITEM 646 - CENTER LINE (DOUBLE-SOLID)	DL #	ITEM 646 - DOTTED LINE, 6"
CH #	ITEM 646 - CHANNELIZING LINE, 8"	SL #	ITEM 646 - STOP LINE
TLW #	ITEM 646 - TRANSVERSE/DIAGONAL LINE, WHITE	IM #	ITEM 646 - ISLAND MARKING
TLY #	ITEM 646 - TRANSVERSE/DIAGONAL LINE, YELLOW		

STOP — PROPOSED SIGN

STOP — EXISTING SIGN TO REMAIN

STOP — EXISTING SIGN TO BE REMOVED

NOTE

FOR ESTIMATED QUANTITIES, SEE SHEET 49-50.

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED KDW CHECKED TWG

TRAFFIC CONTROL - FOUR MILE RUN ROAD
STA. 5+50.00 TO STA. 13+00.00

MAH-680-0.68/3.73

51
126

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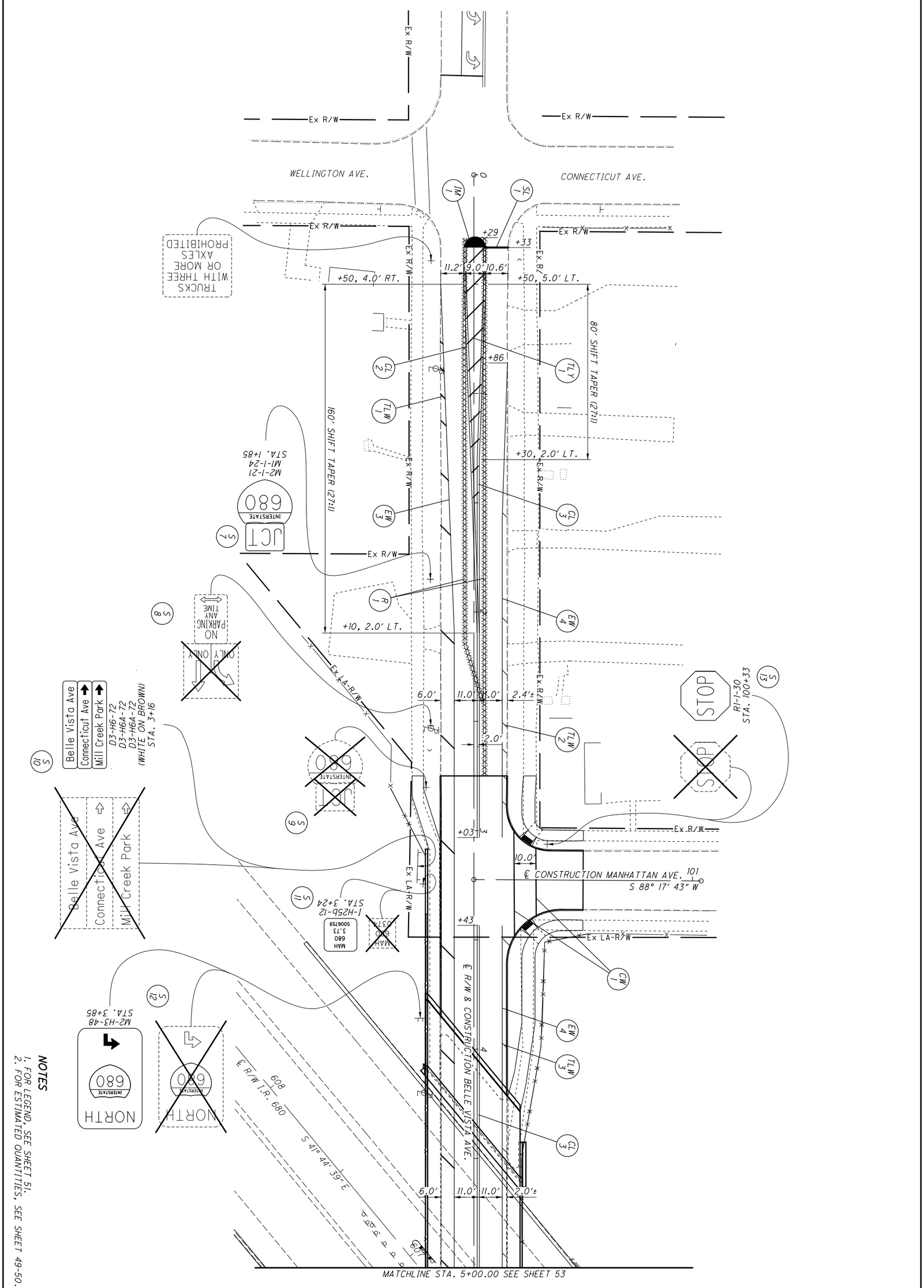


NOTES

1. FOR LEGEND, SEE SHEET 51.
2. FOR ESTIMATED QUANTITIES, SEE SHEET 49-50.

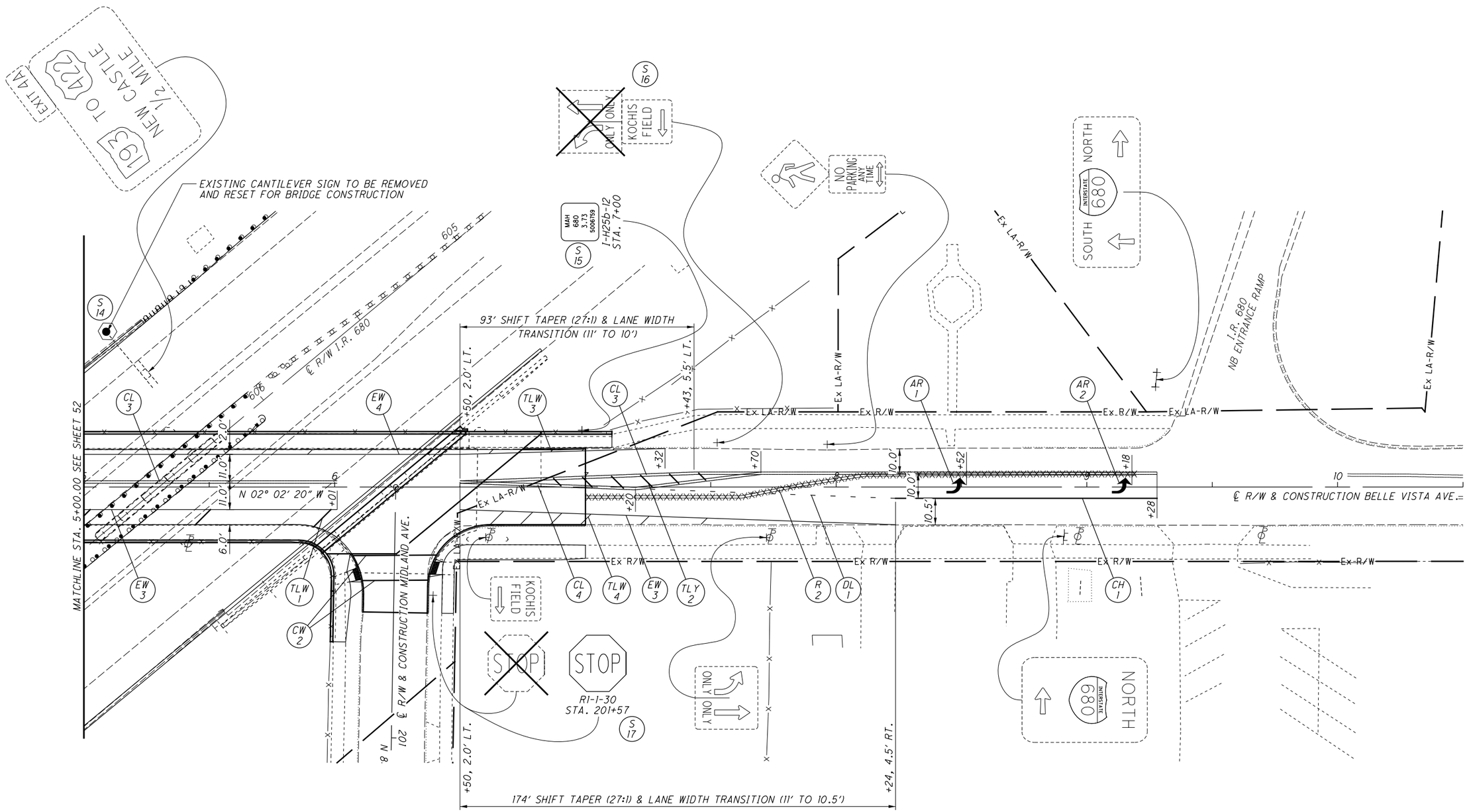
52 / 126	MAH-680-0.68 / 3.73	TRAFFIC CONTROL - BELLE VISTA AVENUE STA. 0+00.00 TO STA. 5+00.00	CALCULATED KDW CHECKED TWG	0 20 10 40 HORIZONTAL SCALE IN FEET

TRAFFIC CONTROL - BELLE VISTA AVENUE
STA. 5+00.00 TO STA. 10+50.00

MAH-680-0.68/3.73

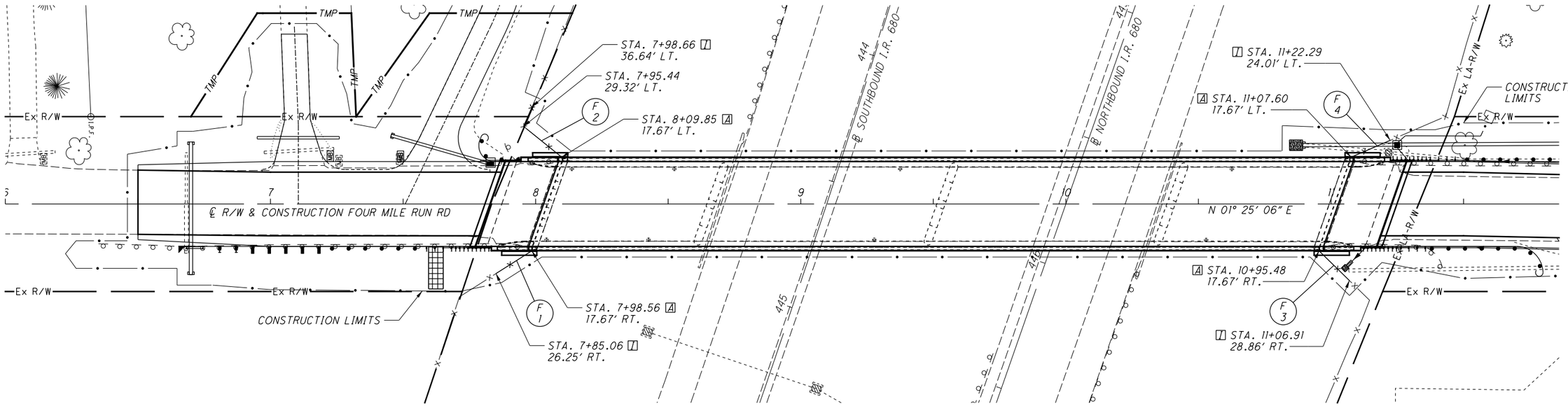
CALCULATED KDW
CHECKED TWG

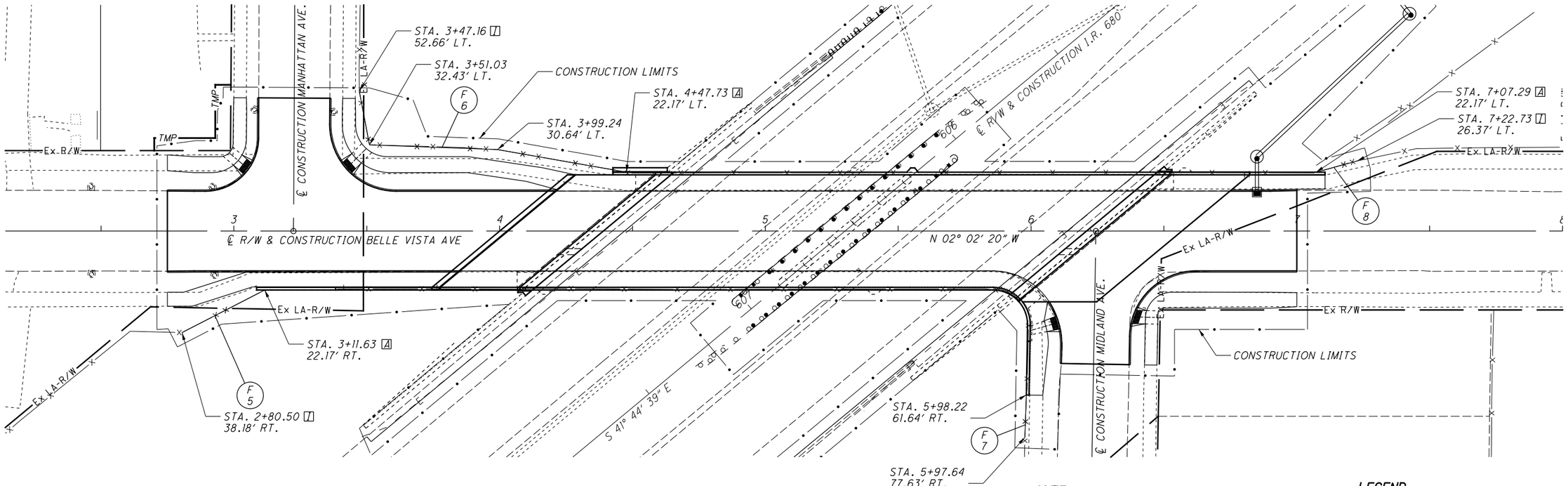
HORIZONTAL SCALE IN FEET
0 10 20 40



NOTES

1. FOR LEGEND, SEE SHEET 51.
2. FOR ESTIMATED QUANTITIES, SEE SHEET 49-50.
3. FOR I.R. 680 BARRIER REFLECTORS, SEE SHEET 36.





NOTE

FOR ESTIMATED QUANTITIES, SEE SHEETS 19-20.

LEGEND

◬ ABUTMENT POST ASSEMBLY

◫ INTERMEDIATE POST ASSEMBLY

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED MGM
CHECKED TWG

FENCE PLAN
FOUR MILE RUN RD/ BELLE VISTA AVE
MAH-680-0.68/ 3.73

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ITEM 625, LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-II-M, LED, 9,000-11,000 LUMENS

IN ADDITION TO THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION 813 AND 913:

1. LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS SHALL BE 120 VOLT WITH LED LAMPS.

2. SHALL BE MANUFACTURED BY:
- AMERICAN ELECTRIC LIGHTING, AUTOBAHN SERIES, MODEL NO.: ATBM-P10-MVOLT-R2-4B-3K (10,635 LUMENS)
- COOPER/EATON, VERDEON SERIES, MODEL NO.: VERD-G-A028-E-U-T2-7030-AP (9,096 LUMENS/LAMP)
- GE EVOLVE SERIES, MODEL NO.: ERLH-1-10-B3-30-GRAY (9,600 LUMENS)
- OR APPROVED EQUAL

3. LUMINAIRES SUPPLIED SHALL INCLUDE ALL NECESSARY ADAPTERS TO FIT THE LIGHTING BRACKET ARMS.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 625, LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-II-M, LED, 9,000-11,000 LUMENS" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625, LIGHT POLE ANCHOR BOLTS ON STRUCTURE

WHEN A LIGHT POLE IS MOUNTED ON A PILASTER ON A BRIDGE PARAPET OR ON A RETAINING WALL, THE REQUIRED ANCHOR BOLTS MAY DIFFER IN LENGTH AN/OR SHAPE FROM THOSE REQUIRED WHEN THE POLE IS MOUNTED ON A CAST-IN-PLACE DRILLED SHAFT FOUNDATION. THE COST DIFFERENTIAL FOR FURNISHING SUCH BOLTS IS INCLUDED HEREIN.

IN ADDITION, THERE IS NO FOUNDATION CONSTRUCTION ITEM IN WHICH TO INCLUDE THE SETTING OF THE ANCHOR BOLTS. THUS, THE SETTING OF THE ANCHOR BOLTS INTO THE PILASTER IS ALSO PART OF THIS WORK.

PAYMENT WILL BE MADE AT EACH POLE LOCATION AT THE UNIT PRICE BID FOR ITEM 625, "LIGHT POLE ANCHOR BOLTS ON STRUCTURE" AND SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING THE SET OF ANCHOR BOLTS REQUIRED.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH C&MS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

CONDUIT EXPANSION AND DEFLECTION

EXPANSION FITTINGS SHALL BE OZ TYPE AX, CROUSE HINDS TYPE XJG, OR EQUAL APPROVED BY THE ENGINEER. EACH EXPANSION FITTING SHALL PROVIDE EITHER 4 OR 8 INCHES TOTAL MOVEMENT AS SPECIFIED BY THE PLAN DETAILS AND SHALL HAVE AN EXTERNAL COPPER BONDING JUMPER, UNLESS SPECIFIED OTHERWISE BY THE PLAN DETAILS.

DEFLECTION COUPLINGS SHALL BE OZ TYPE DX, CROUSE HINDS TYPE XD, OR EQUAL APPROVED BY THE ENGINEER. EACH DEFLECTION COUPLING SHALL HAVE AN EXTERNAL COPPER BONDING JUMPER, UNLESS SPECIFIED OTHERWISE BY THE PLAN DETAILS. MINIMUM DEFLECTION CAPABILITY: 25°.

EXPANSION AND DEFLECTION FITTINGS FULLY OR PARTIALLY EMBEDDED IN CONCRETE, SOIL, OR SIMILAR MATERIAL SHALL BE COMPLETELY WRAPPED IN A NEOPRENE SLEEVE OR SHEET OF 1/2-INCH MINIMUM THICKNESS. SECURE NEOPRENE WRAP WITH TIE-WRAPS PRIOR TO EMBEDMENT OF THE FITTING.

ITEM 625, LIGHT POLE REMOVED, AS PER PLAN

REMOVAL OF LIGHT POLES SHALL BE AS PER C&MS 625 AND 725 WITH THE FOLLOWING ADDITIONAL CRITERIA:

THE EXISTING LIGHTING SYSTEM IS MAINTAINED BY OHIO EDISON. THE CONTRACTOR SHALL COORDINATE WITH OHIO EDISON PRIOR TO BEGINNING OF CONSTRUCTION TO HAVE OHIO EDISON'S FORCES REMOVE THE EXISTING LUMINAIRES AND CIRCUIT CABLES. ONCE THESE ITEMS ARE REMOVED, THE CONTRACTOR SHALL REMOVE THE LIGHT POLES.

ITEM 625, POWER SERVICE, AS PER PLAN

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

THE POWER SERVICE SHALL BE METERED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

POWER COMPANY: FIRST ENERGY OHIO EDISON

ADDRESS: 730 SOUTH AVENUE, YOUNGSTOWN, OHIO 44502

PHONE #: 330-740-7625

CONTACT NAME: RAYMOND JENKINS

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 NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO 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.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH C&MS ITEM 625, "POWER SERVICE, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM SPECIAL, MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND WHICH ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF THE EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION, A WRITTEN RECORD OF THE CONDITION OF EXISTING LIGHTING SHALL BE MADE BY ODOT'S REPRESENTATIVE. THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT IN WORKING ORDER, INDIVIDUAL POLES WHICH ARE NOT STANDING, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR.

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS.

REPLACEMENT OF KNOCKED DOWNED UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A UNIT BASIS.

BETTERMENTS SHALL BE COVERED IN ITEMS OF WORK PERTAINING TO THE CONSTRUCTION OF PERMANENT IMPROVEMENT.

WHEN THE SEQUENCE OF CONSTRUCTION ACTIVITIES REQUIRES, OR SHOULD THE CONTRACTOR DESIRE, THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING OF THIS PORTION OF THE ROADWAY.

PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR SETS OF THE TEMPORARY LIGHTING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.

THIS PLAN SHALL SHOW LOCATIONS OF POLES, LENGTHS OF BRACKET ARMS, STYLES OF LUMINAIRES, MOUNTING HEIGHTS, WIRING METHODS AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES WITH AN AVERAGE TO MINIMUM UNIFORMITY NOT TO EXCEED 3:1. MOUNTING HEIGHT OF TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 30 FEET, AND THE MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE "B" FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THESE CRITERIA, THEN UNDERGROUND WIRING SHALL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING.

ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WHEN NO LONGER NEEDED, THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

THE MAINTAINING AGENCY WILL PAY FOR ELECTRICAL ENERGY CONSUMED BY EXISTING POWER SERVICES AND BY PROPOSED PERMANENT POWER SERVICES AFTER ACCEPTANCE OF THE LIGHTING WORK. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY POWER SERVICES.

THE LUMP SUM PRICE BID FOR ITEM SPECIAL "MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

THE UNIT PRICE BID FOR ITEM SPECIAL "REPLACEMENT OF EXISTING LIGHTING UNIT" SHALL BE FULL PAYMENT FOR THE REPLACEMENT OF AN EXISTING LIGHTING UNIT WHICH HAS BEEN KNOCKED DOWN AFTER THE AFOREMENTIONED INSPECTION AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO PROVIDE A REPLACEMENT FOR SUCH UNIT.

ITEM SPECIAL, REPLACEMENT OF EXISTING LIGHTING UNIT 2 EACH

ITEM 625, ARC FLASH CALCULATIONS AND LABEL

THE CONTRACTOR SHALL SATISFY THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 825 FOR THE CONTROL CENTERS. THE CONTRACTOR MAY BE ABLE TO OBTAIN LABELS FOR THE ODOT MAINTAINED INSTALLATIONS FROM THE ODOT SIGN SHOP, 1606 WEST BROAD STREET, COLUMBUS, OHIO 43223, FOR NON-ODOT MAINTAINED INSTALLATIONS THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE LABEL MADE FROM "ENGINEER GRADE" SIGN SHEETING OR AN EQUIVALENT LABEL MATERIAL. THE ODOT OFFICE OF ROADWAY ENGINEERING AND THE DISTRICT OFFICE HAVE AN EXCEL SPREADSHEET AVAILABLE UPON REQUEST, TO ASSIST WITH MAKING AND DOCUMENTING THE REQUIRED CALCULATIONS.

METHOD OF MEASUREMENT SHALL BE AS PER 825.06. THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625, ARC FLASH CALCULATION AND LABEL (CC-A) 1 EACH

ITEM 625, UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN

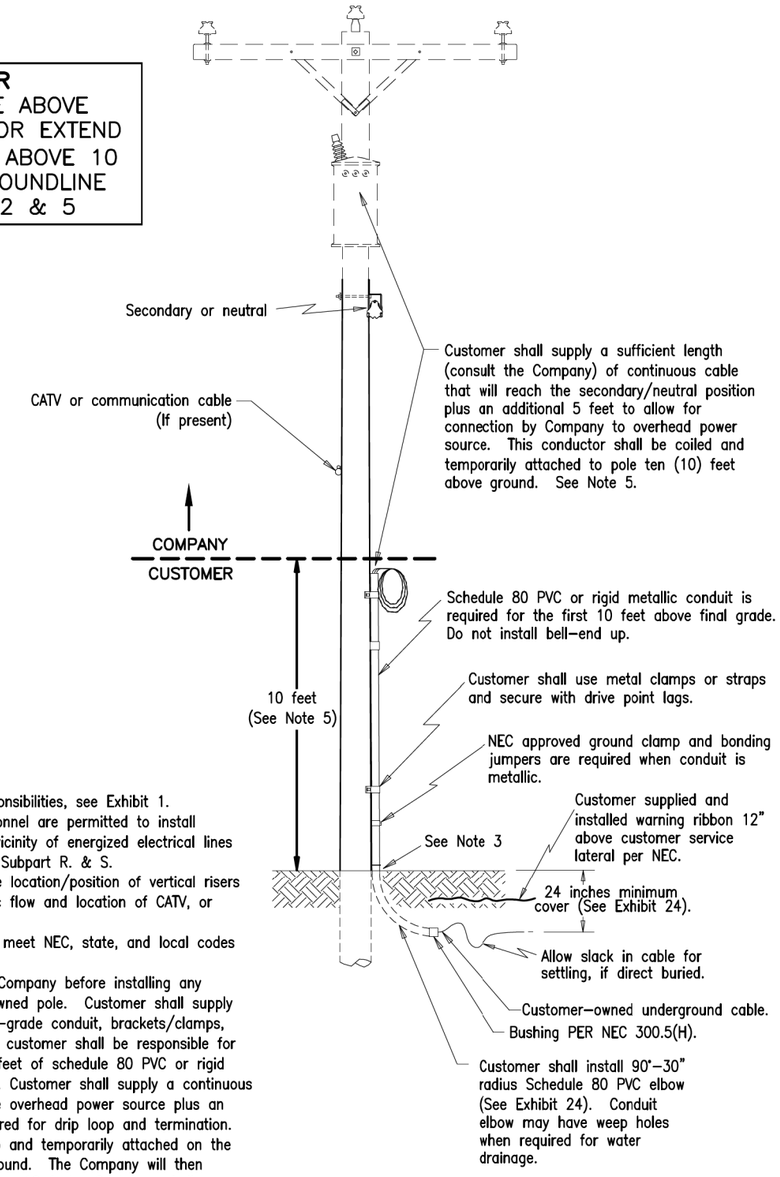
UNDERGROUND WARNING/MARKING TAPE SHALL BE IN ACCORDANCE WITH C&MS 725.22 EXCEPT THE TAPE SHALL NOT BE FURNISHED WITH TRACER WIRE.

CALCULATED GRS CHECKED NAU

LIGHTING GENERAL NOTES

MAH-680-0.68/3.73

DANGER
HIGH VOLTAGE ABOVE
DO NOT CLIMB OR EXTEND
CONDUIT/WIRES ABOVE 10
FEET FROM GROUNDLINE
SEE NOTES 2 & 5



Notes:

1. For customer/Company responsibilities, see Exhibit 1.
2. **CAUTION:** Only qualified personnel are permitted to install electrical equipment in the vicinity of energized electrical lines as described in OSHA 1910 Subpart R. & S.
3. Company shall determine the location/position of vertical risers on the pole based on traffic flow and location of CATV, or Telephone Co. attachments.
4. All service installations shall meet NEC, state, and local codes and regulations.
5. Customer shall contact the Company before installing any facilities on the Company-owned pole. Customer shall supply all of the required electrical-grade conduit, brackets/clamps, weatherhead, and cable. The customer shall be responsible for installing the first ten (10) feet of schedule 80 PVC or rigid metallic conduit on the pole. Customer shall supply a continuous length of cable to reach the overhead power source plus an additional five (5) feet required for drip loop and termination. The cable shall be coiled up and temporarily attached on the pole ten (10) feet above ground. The Company will then complete the installation above 10 feet. Customer shall coordinate the installation with the Company.
6. Conduit size is limited to 3" or 4" dia. conduit. For conduit diameter greater than 4", see Exhibit 10A.

DIRECT ATTACHMENT OF CUSTOMER-OWNED UNDERGROUND SECONDARY SERVICE LATERAL(S) ON OHIO OPERATING COMPANY'S POLES

FirstEnergy.

Service Guide	REV.
EXHIBIT 9	3
	DATE 2/19

CALCULATED GRS
CHECKED NAU

LIGHTING DETAILS

MAH-680-0.68 / 3.73

SHEET NO.	STATION FROM	STATION TO	SIDE	POLE/PULL BOX NO.	625 CONNECTION, FUSED PULL APART EACH	CONNECTION, UNFUSED PULL APART EACH	LIGHT POLE, CONVENTIONAL, DESIGN AT8B33 EACH	LIGHT POLE, CONVENTIONAL, DESIGN AT12B33 EACH	LIGHT POLE ANCHOR BOLTS ON STRUCTURE EACH	LIGHT POLE FOUNDATION, 24" X 6' EACH	NO. 4 AWG 600 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-M, LED, 9,000-11,000 LUMENS EACH	TRENCH FT	TRENCH IN PAVED AREA FT	JUNCTION BOX EACH	PULL BOX, 725.08, 18" EACH	GROUND ROD EACH	STRUCTURE GROUNDING SYSTEM EACH	POWER SERVICE, AS PER PLAN EACH	UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN FT	LIGHT POLE REMOVED, AS PER PLAN EACH
57	3+64		LT.	PWR SERVICE A																	1		
57	3+64	4+00	LT.	PWR SERVICE A TO A-1							201		57		57							57	
57	4+00		LT.	A-1	2	2	1			1		82		1					1				
57	4+00	4+27	LT.	A-1 TO PB-1							111		27		27							27	
57	4+27		LT.	PB-1														1					
57	4+27	5+55	LT.	PB-1 TO A-2							417		129		16							16	
57	5+55		LT.	A-2	2	2	1		4			82		1			1			1			
57	5+55	7+26	LT.	A-2 TO PB-2							543		171		62	15						77	
57	7+26		LT.	PB-2														1					
57	7+26	6+96	LT.	PB-2 TO A-3							135		35		29	6						35	
57	6+96		LT.	A-3	2	2		1		1		90		1					1				
57	4+20±		RT.																				1
57	5+34±		LT.																				1
57	5+41±		RT.																				1
57	6+59±		LT.																				1
TOTALS CARRIED TO GENERAL SUMMARY					6	6	2	1	4	2	1407	254	419	3	191	21	1	2	2	1	1	212	4

CALCULATED GRS
CHECKED NAU

LIGHTING SUBSUMMARY

MAH-680-0.68/3.73

56
126

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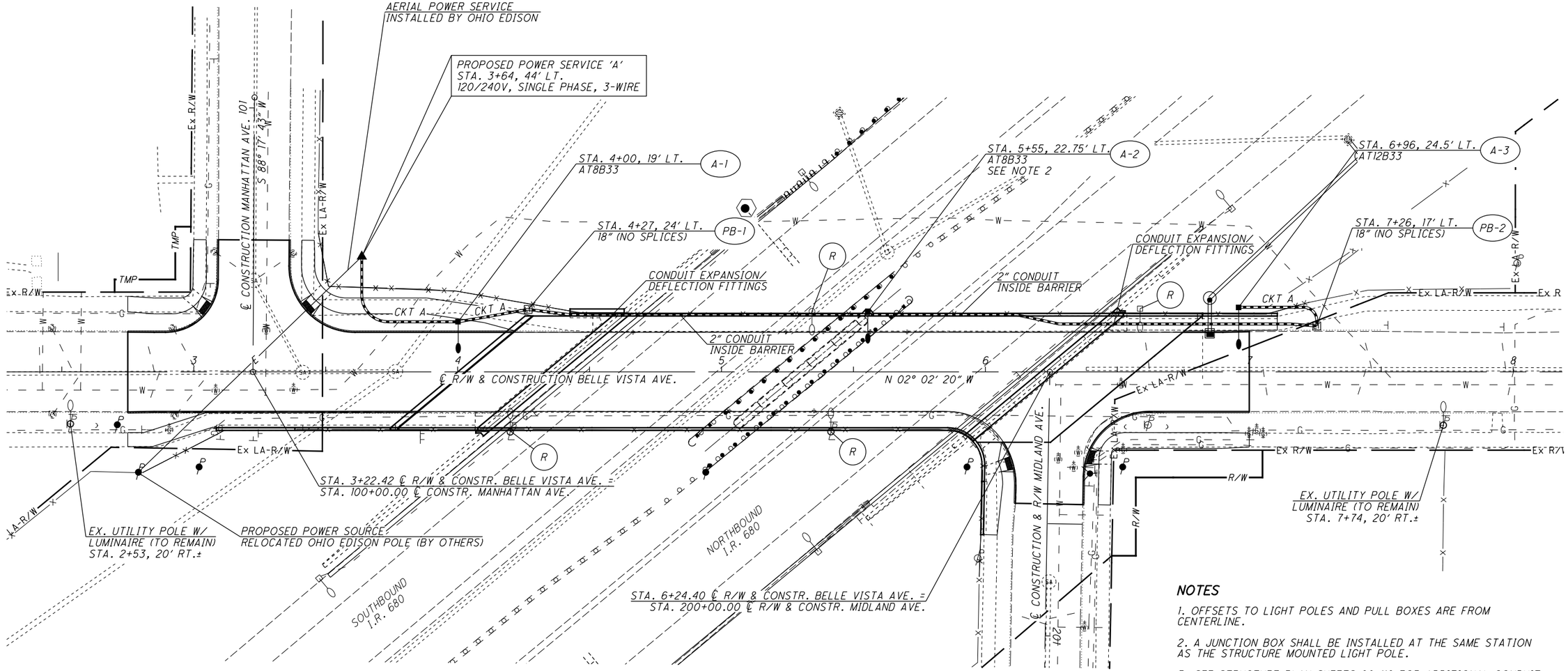
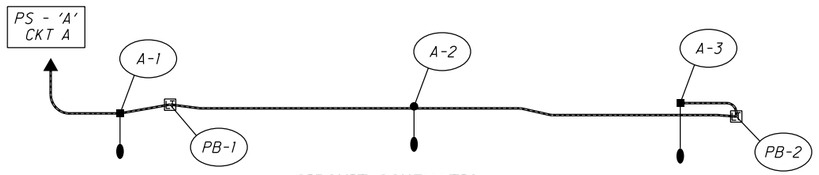


NOTES

1. OFFSETS TO LIGHT POLES AND PULL BOXES ARE FROM CENTERLINE.
2. A JUNCTION BOX SHALL BE INSTALLED AT THE SAME STATION AS THE STRUCTURE MOUNTED LIGHT POLE.
3. SEE STRUCTURE PLAN SHEETS 80-118 FOR ADDITIONAL CONDUIT DETAILS.
4. SEE SHEET 57A FOR I.R. 680 CIRCUIT INFORMATION.



CIRCUIT SCHEMATIC
(NOT TO SCALE)

POWER SERVICE 'A'

CONTROL CENTER DESIGNATION	LINE VOLTS	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CONDUCTOR SIZE - AWG	ENCLOSURE RATING (AMPS)	CIRCUIT NO.	CIRCUIT LOAD AMPS	CIRCUIT FUSE SIZE AMPS	CIRCUIT CABLE SIZE AWG	MAINTAINING AGENCY
A	240	0.3	2	60	A	1.15	10	4	CITY OF YOUNGSTOWN
					-	-	-	-	
					-	-	-	-	

PLAN LEGEND

EXIST.	PROP.	ITEM
		UTILITY POLE, W/ CONVENTIONAL LUMINAIRE
		LIGHT POLE, STRUCTURE MOUNTED, W/ CONVENTIONAL LUMINAIRE, TYPE II DIST.
		LIGHT POLE, W/ CONVENTIONAL LUMINAIRE, TYPE II DIST.
A-1	A-1	LIGHT POLE/TOWER, IDENTIFICATION NO.
△	▲	POWER SERVICE
PB-1	PB-1	PULL BOX, IDENTIFICATION NO.
		2" CONDUIT, 725.04
R		LIGHT POLE TO BE REMOVED

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED NAU
CHECKED KAM

LIGHTING PLAN
BELLE VISTA AVENUE

MAH-680-0.68/3.73

57
126

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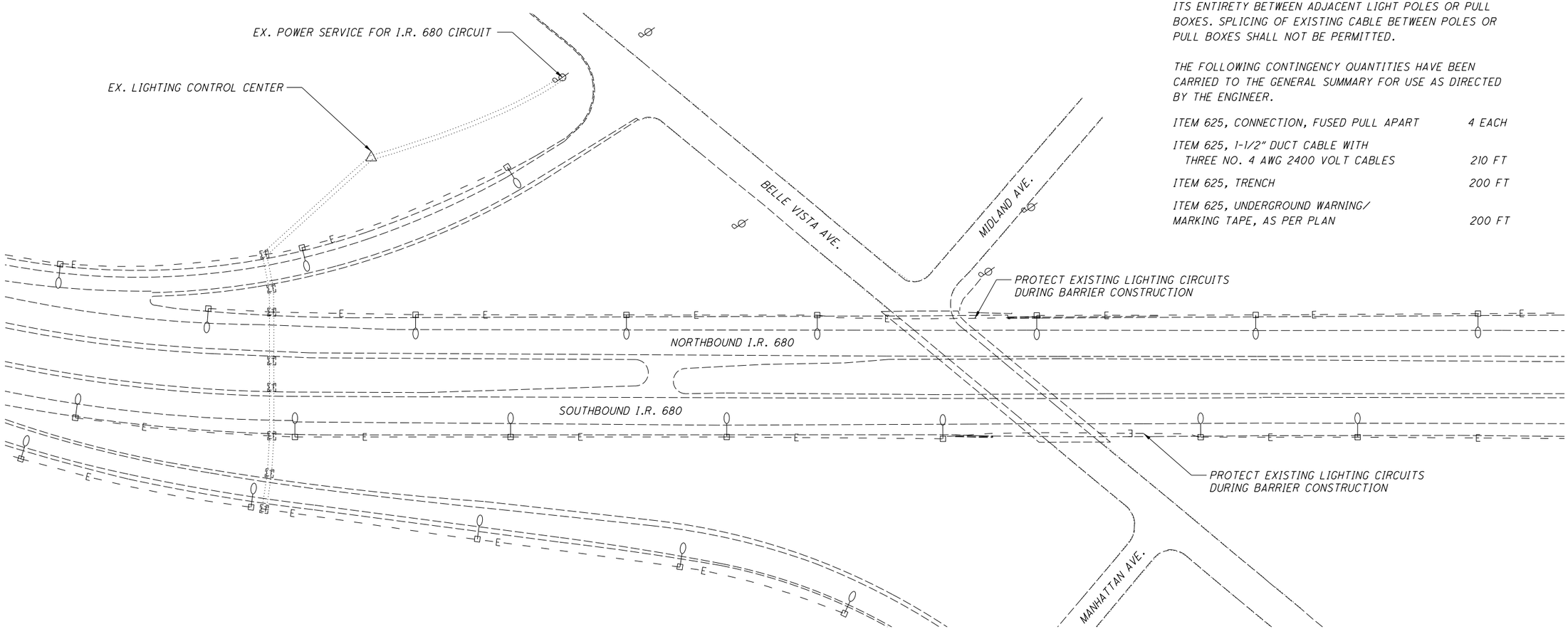


EXISTING IR-680 LIGHTING CIRCUITS

THIS NOTE APPLIES TO THE EXISTING LIGHTING CIRCUITS ALONG IR-680 UNDER THE BELLE VISTA AVENUE BRIDGE. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO NOT DAMAGE THE EXISTING LIGHTING CIRCUIT CABLE WHEN CONSTRUCTING THE PROPOSED CONCRETE D BARRIER ALONG THE OUTSIDE SHOULDER OF NORTHBOUND AND SOUTHBOUND IR-680.

SHOULD DAMAGE OCCUR TO EXISTING CIRCUIT CABLE DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE THIS CABLE. THE DAMAGED CIRCUIT CABLE SHALL BE REPLACED IN ITS ENTIRETY BETWEEN ADJACENT LIGHT POLES OR PULL BOXES. SPLICING OF EXISTING CABLE BETWEEN POLES OR PULL BOXES SHALL NOT BE PERMITTED.

THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 625, CONNECTION, FUSED PULL APART	4 EACH
ITEM 625, 1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 2400 VOLT CABLES	210 FT
ITEM 625, TRENCH	200 FT
ITEM 625, UNDERGROUND WARNING/ MARKING TAPE, AS PER PLAN	200 FT

NOTE
CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL I.R. 680 CIRCUITS AND EQUIPMENT. EXISTING CONTROL CENTER, PULL BOXES, AND POLES WERE LOCATED USING EXISTING PLANS AND AERIAL PHOTOGRAPHY. PLEASE CONTACT ODOT DISTRICT 4 - MICHELLE CHANEY 330-786-2267 PRIOR TO DIGGING.

PLAN LEGEND	
EXIST.	ITEM
	EXISTING PULL BOX
	POWER SERVICE
	LIGHT POLE, W/ CONVENTIONAL LUMINAIRE
—E—	EXISTING CIRCUIT
	EXISTING CONDUIT

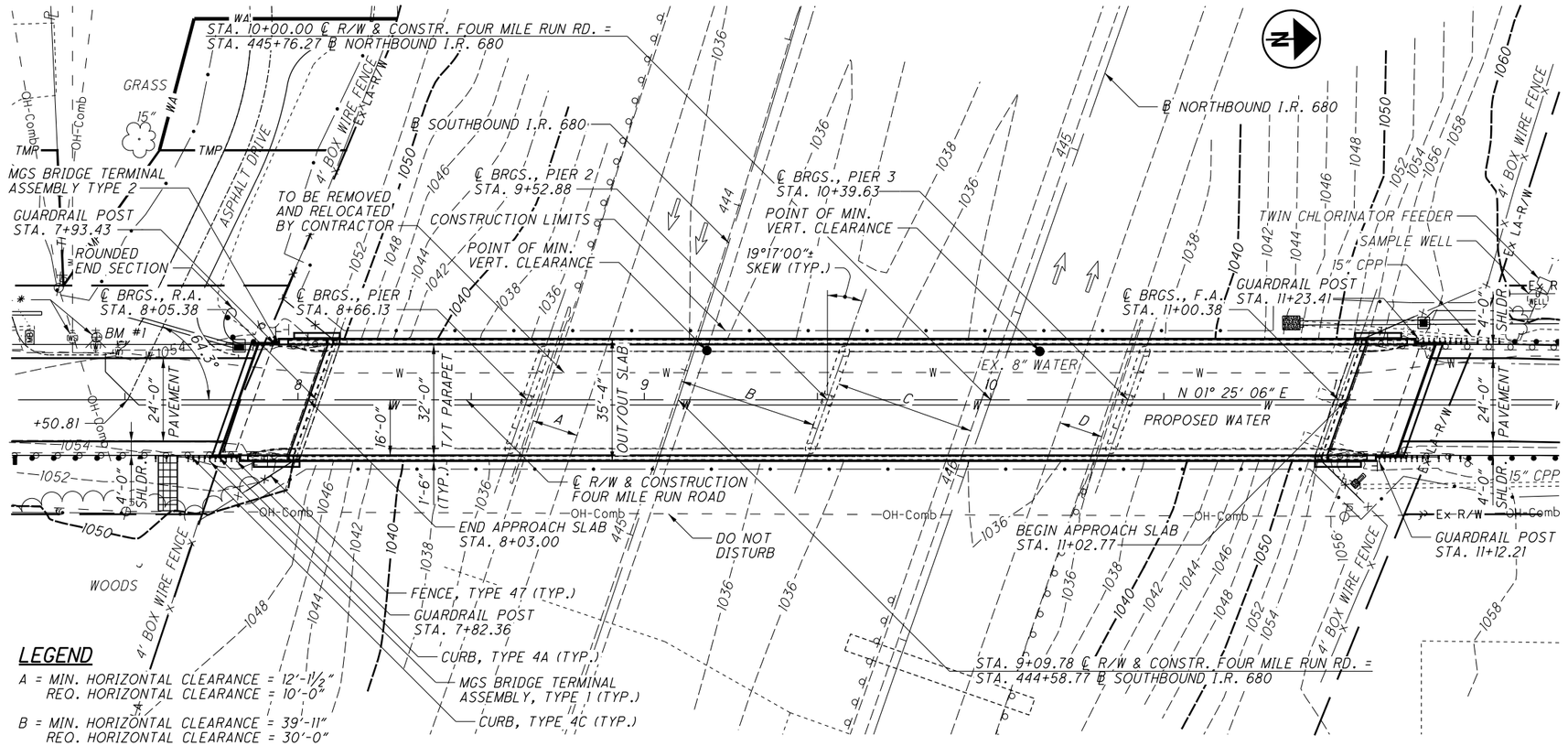
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED GRS
CHECKED NAU

LIGHTING PLAN
IR-680 CIRCUIT

MAH-680-0.68 / 3.73

57A
126



LEGEND

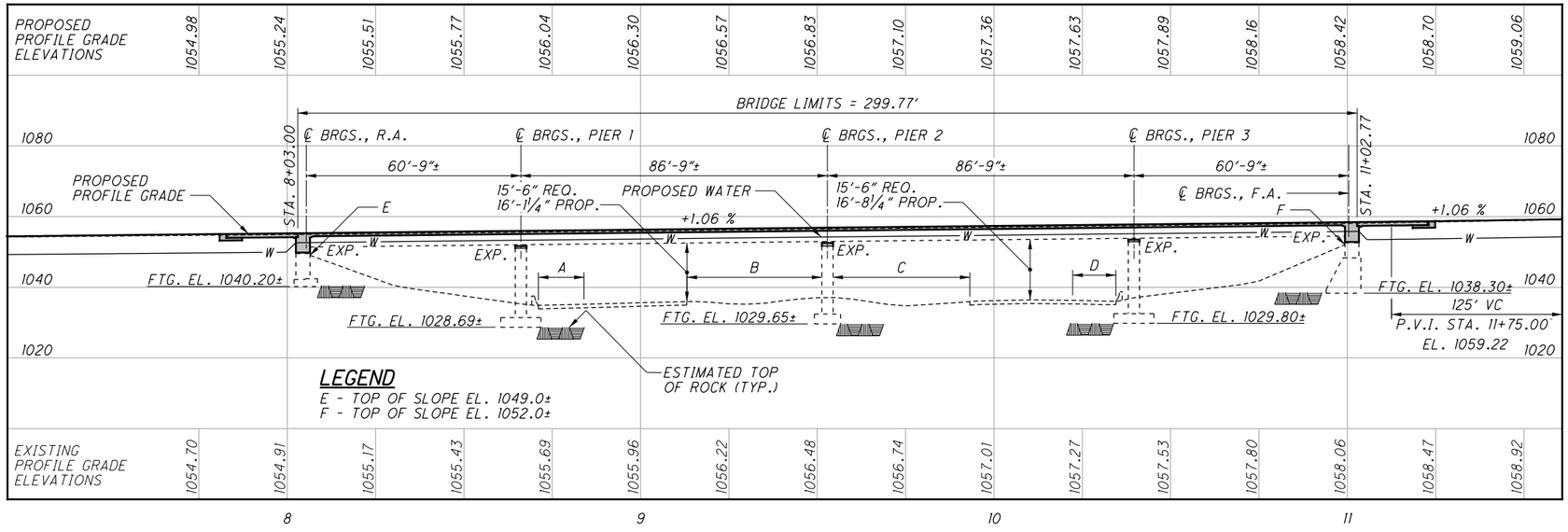
A = MIN. HORIZONTAL CLEARANCE = 12'-11½"
REQ. HORIZONTAL CLEARANCE = 10'-0"

B = MIN. HORIZONTAL CLEARANCE = 39'-11"
REQ. HORIZONTAL CLEARANCE = 30'-0"

C = MIN. HORIZONTAL CLEARANCE = 40'-6¼"
REQ. HORIZONTAL CLEARANCE = 30'-0"

D = MIN. HORIZONTAL CLEARANCE = 11'-3⅝"
REQ. HORIZONTAL CLEARANCE = 10'-0"

PLAN



LEGEND

E - TOP OF SLOPE EL. 1049.0±
F - TOP OF SLOPE EL. 1052.0±

PROFILE ALONG ℄ R/W & CONSTRUCTION FOUR MILE RUN ROAD

BENCHMARK DATA

CP #11 STA. 1+58.27,	EL. 1051.00,	OFFSET 16.14', LT.
BM #1 STA. 7+41.93,	EL. 1055.60,	OFFSET 18.07', LT.
BM #2 STA. 12+44.13,	EL. 1062.84,	OFFSET 17.44', LT.

FOR ADDITIONAL BENCHMARK INFORMATION SEE ROADWAY PLAN SHEET (5/126)

NOTE

DESIGN TRAFFIC:
2020 ADT = 6200 2020 ADTT = 186
2040 ADT = 7300 2040 ADTT = 219
DIRECTIONAL DISTRIBUTION = 0.60

LEGEND

* - ADJUST TO GRADE
⊕ - BENCHMARK
ITEM 601 - TIED CONCRETE BLOCK MAT, TYPE 2

S.B. I.R. 680
- 15'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
  15'-9¼" EXISTING MINIMUM VERTICAL CLEARANCE
  16'-1¼" PROPOSED MINIMUM VERTICAL CLEARANCE

N.B. I.R. 680
- 15'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
  16'-4¼" EXISTING MINIMUM VERTICAL CLEARANCE
  16'-8¼" PROPOSED MINIMUM VERTICAL CLEARANCE

PROPOSED WORK

THE EXISTING NON-COMPOSITE CONCRETE DECK WILL BE REMOVED AND REPLACED WITH A COMPOSITE CONCRETE DECK. THE SUPERSTRUCTURE WILL BE RAISED TO IMPROVE VERTICAL CLEARANCE. PORTIONS OF THE ABUTMENTS WILL BE REMOVED TO CONVERT TO SEMI-INTEGRAL. NEW ELASTOMERIC BEARINGS ON RAISED PIER CAPS. THE APPROACH SLABS WILL BE REMOVED AND REPLACED. EXISTING BEAMS WILL BE SPOT PAINTED.

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK, ABUTMENTS AND CAP AND COLUMN PIERS
SPANS: 60'-9"±, 86'-9"±, 86'-9"±, 60'-9"± C/C BEARINGS
ROADWAY: 28'-0"± F/F SAFETY CURB
LOADING: CF = 400 (57)
SKEW: 19°17'00"± L.F.
WEARING SURFACE: 2"± ASPHALT CONCRETE
APPROACH SLABS: 20'-0"± LONG
STRUCTURAL FILE NUMBER: 5006392
DATE BUILT: 1967
DISPOSITION: TO BE REHABILITATED

PROPOSED STRUCTURE

PROPOSED WORK: RAISE SUPERSTRUCTURE, NEW COMPOSITE CONCRETE DECK, CONVERT ABUTMENTS TO SEMI-INTEGRAL, NEW APPROACH SLABS
SPANS: 60'-9"±, 86'-9"±, 86'-9"±, 60'-9"± C/C BEARINGS
ROADWAY: 32'-0" TOE/TOE PARAPET
LOADING: HS20, CASE II AND ALTERNATE MILITARY LOADING (SUPERSTRUCTURE); CF = 400 (57) (SUBSTRUCTURE)
FUTURE WEARING SURFACE: 60 PSF
SKEW: 19°17'00"± L.F. DECK SURFACE AREA: 10592 FT²
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: 20'-0" LONG (AS-1-15) AS-2-15 (TYPE C)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41°07'34.75" N
LONGITUDE 80°44'14.42" W

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINCLAIR DR. · COLUMBUS, OH 43229
ENGINEERS · CONSULTANTS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

MAHONING COUNTY
STA. 8+03.00
STA. 11+02.77

SITE PLAN
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

1 / 22
58 / 126

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REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15	REVISED	7-17-2015
AS-2-15	REVISED	1-18-2019
SBR-1-20	REVISED	7-17-2020
SICD-1-96	REVISED	7-18-2014
SICD-2-14	DATED	7-18-2014
VPF-1-90	REVISED	7-20-2018

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

869	DATED	10-17-2014

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

HS20, CASE II AND THE ALTERNATE MILITARY LOADING (SUPERSTRUCTURE)

CF = 400(57) (SUBSTRUCTURE)

FUTURE WEARING SURFACE (FWS) OF 60 LBS/FT^2

DESIGN DATA:

CONCRETE CLASS QC2 WITH QC/QA - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60 MINIMUM YIELD STENGTH 60,000 PSI

PROPOSED STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50,000 PSI

EXISTING STRUCTURAL STEEL - A709 GRADE 36 - YIELD STRENGTH 36,000 PSI

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL

2½" CONCRETE COVER

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

THIS WORK CONSISTS OF THE REMOVAL OF CONCRETE DECKS INCLUDING SIDEWALKS, PARAPETS, RAILINGS, DECK JOINTS, BULB ANGLES AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (BEAMS, GIRDERS, CROSSFRAMES, ETC.). THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. PERFORM WORK CAREFULLY DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE RAM TYPE OF EQUIPMENT IS PROHIBITED. SUBMIT CONSTRUCTION PLANS ACCORDING TO C&MS 501.05.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, DRAW THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK ON THE SURFACE OF THE DECK. DRILL SMALL DIAMETER PILOT HOLES 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH DECK. PERFORM WORK CAREFULLY DURING CUTTING OF THE DECK SLAB TO AVOID DAMAGING STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE. REPLACE OR REPAIR STEEL MEMBERS DAMAGED BY THE SLAB CUTTING OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE ENGINEER. OBTAIN THE ENGINEER'S APPROVAL BEFORE PERFORMING REPAIR.

REMOVAL METHODS: THE CONTRACTOR MAY REMOVE CONCRETE BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STRUCTURAL MEMBERS (PRESTRESSED BOX BEAM, I-BEAM, STEEL BEAM GIRDER, ETC.), THE CONTRACTOR MAY USE A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS UNLESS APPROVED BY THE ENGINEER. REMOVAL METHODS OVER STRUCTURAL MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING THE PRIMARY STRUCTURAL MEMBERS.

DUE TO THE POSSIBLE PRESENCE OF ATTACHMENTS (EG., FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.), TO EXISTING STRUCTURAL MEMBERS, PERFORM WORK CAREFULLY DURING DECK REMOVAL TO AVOID DAMAGING STRUCTURAL MEMBERS THAT ARE TO REMAIN. REPLACE OR REPAIR STRUCTURAL MEMBERS DAMAGED BY THE REMOVAL OPERATIONS AT NO COST TO THE PROJECT. AT LEAST 7 DAYS BEFORE PERFORMING REPAIR WORK, SUBMIT A PROPOSED REPAIR PLAN, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER TO THE DIRECTOR. OBTAIN THE DIRECTOR'S APPROVAL BEFORE PERFORMING REPAIR.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

EXISTING WELDED ATTACHMENTS: REMOVE EXISTING WELDED ATTACHMENTS (E.G. FINISHING MACHINE AND FORM SUPPORTS; AND SUPPORTS FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) LOCATED IN THE DESIGNATED TENSION PORTIONS OF THE TOP FLANGES OF EXISTING STEEL MEMBERS AND GRIND THE FLANGE SURFACES SMOOTH. CAREFULLY GRIND PARALLEL TO THE FLANGES.

MEASUREMENT AND PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C&MS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

UTILITY LINES:

THE UTILITIES SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

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 2.28 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 BEAM TO THE FACE OF THE SAFETY HANDRAIL OF 65".

ASBESTOS NOTIFICATION

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT 88 S.F. ON MAH-680-0068 OF ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE. ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM

OHIO EPA, DAPC
P.O. BOX 1049
COLUMBUS, OH 43216-1049

OR

ASBESTOS PROGRAM
OHIO EPA, DAPC
50 W. TOWN ST., SUITE 700
COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORMS TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORMS SHALL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORMS AND BRIDGE INSPECTION REPORTS ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 4 OFFICE, 2088 S. ARLINGTON ROAD, AKRON, OHIO 44306.

BASIS FOR PAYMENT - THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORMS. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

ITEM 513 - STRUCTURAL STEEL MEMBERS LEVEL UF, AS PER PLAN

ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD-FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PRE-QUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE IN ACCORDANCE WITH 501.06, TO THE ENGINEER. PROVIDE THE ENGINEER "AS-BUILT" DRAWINGS ACCORDING TO 513.06, EXCEPT 501.04 DOES NOT APPLY. UPON RECEIPT OF THE ENGINEER'S ACCEPTANCE, SUPPLY A COPY OF THE DRAWINGS, ACCORDING TO SUPPLEMENT 1002, TO THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

THE FOLLOWING MEMBERS ARE INCLUDED IN THIS ITEM: CROSSFRAMES AND MODIFIED CROSSFRAMES.

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

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 511 - CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN:

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 THE 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 511.08, 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 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 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL 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 EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
STK	AMR	STK		GDJ	7-28-20	5006392

GENERAL NOTES
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

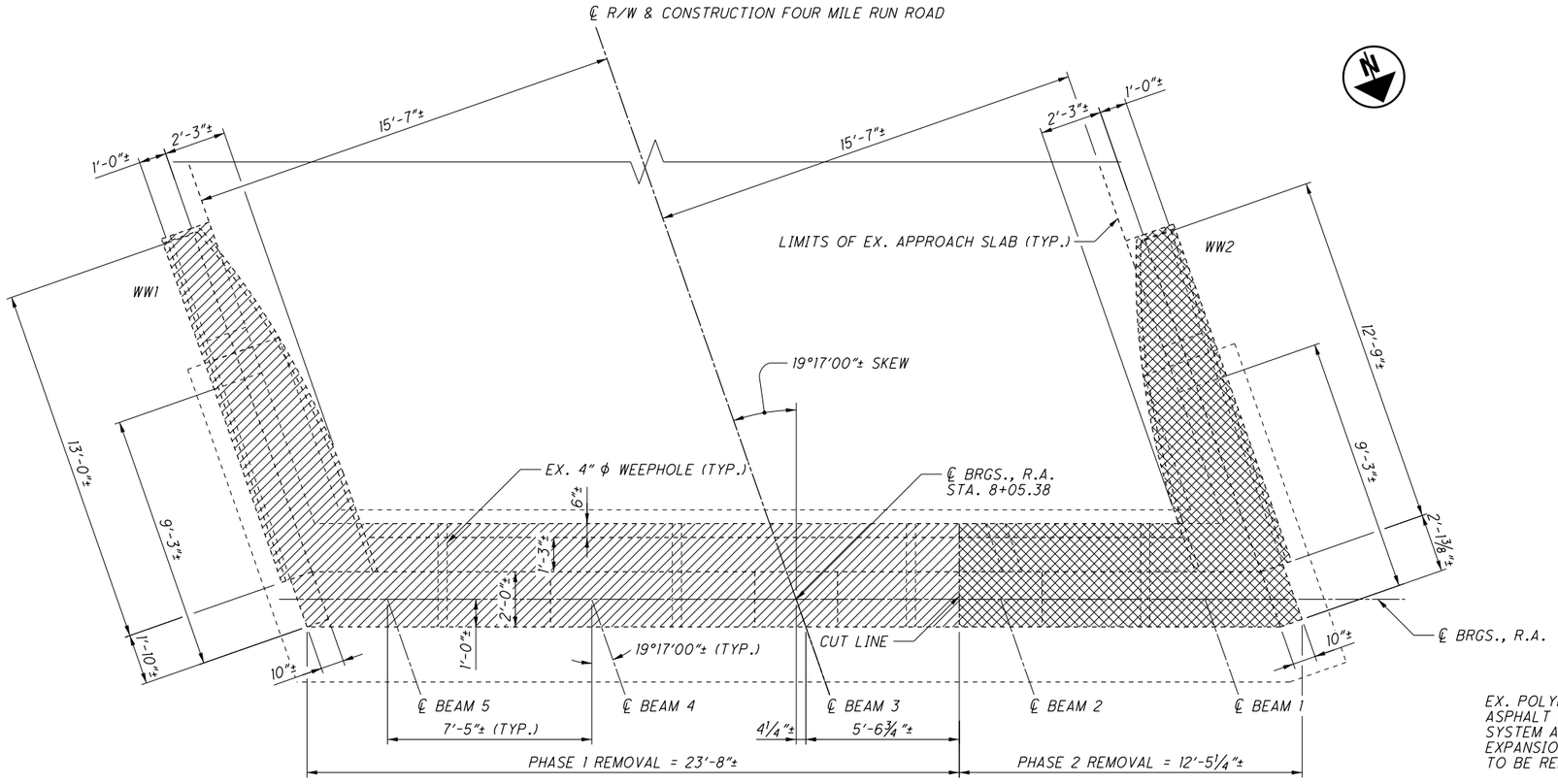
ESTIMATED QUANTITIES						DESIGN: DATE:	AMR 5/24/2021		CHECK: DATE:	STK 5/24/2021
ITEM	EXTENSION	TOTAL 01/IMS/BR	TOTAL 02/IMS/OT/YTOW	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GEN.	SHEET #
202	11203	LS		-	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LS	2
202	22900	144		SY	APPROACH SLAB REMOVED				144	
202	23500	1068		SY	WEARING COURSE REMOVED			924	144	
503	21300	LS		-	UNCLASSIFIED EXCAVATION	LS				
509	10000	98034		LB	EPOXY COATED REINFORCING STEEL	3094	2680	92260		
509	20001	129		LB	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	129				2
509	30020	9979		FT	NO. 4 GFRP DEFORMED BARS			9979		
510	10000	274		EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	136	138			
511	21523	370		CY	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE, AS PER PLAN			370		2
511	33501	2		EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	2				6, 7
511	34450	99		CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)			91	8	
511	42510	6		CY	CLASS QC1 CONCRETE, PIER CAP		6			
511	44111	29		CY	CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	29				6, 7
512	10100	958		SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	28	232	652	46	
513	10201		6700	LB	STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN			6700		2
513	20000	2940		EACH	WELDED STUD SHEAR CONNECTORS			2940		
514	00050	686		SF	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL			686		
514	00056	686		SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT			686		
514	00060	686	1077	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, INTERMEDIATE COAT			1763		
514	00066	686	1077	SF	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, FINISH COAT			1763		
514	00504	8		MNHR	GRINDING FINS, TEARS, SLIVERS ON EXISTING STRUCTURAL STEEL			8		
514	10000	5	2	EACH	FINAL INSPECTION REPAIR			7		
516	10010	70		FT	ARMORLESS PREFORMED JOINT SEAL				70	
516	13600	17		SF	1" PREFORMED EXPANSION JOINT FILLER			17		
516	13900	114		SF	2" PREFORMED EXPANSION JOINT FILLER	114				
516	14020	125		SF	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL	125				
516	42600	16		FT	ELASTOMERIC BEARING PAD, MISC: 2" ELASTOMERIC STRIP	16				6, 7, 8
516	44100	15		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (11.5"x20"x2.4985" WITH A 12.5"X21"X2" LOAD PLATE)		15			
516	44200	10		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (10.5"x16"x3.3979" WITH A 11.5"X17.5"X1.5" LOAD PLATE)	10				
516	47001	LS		-	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN			LS		2, 4, 5
518	21200	33		CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	33				
518	40000	80		FT	6" PERFORATED CORRUGATED PLASTIC PIPE	80				
518	40010	83		FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	83				
526	15010	154		SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=13")				154	
526	90030	70		FT	TYPE C INSTALLATION				70	
607	39900	460		FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC			460		

DESIGN AGENCY
CARPENTER MARTY transportation

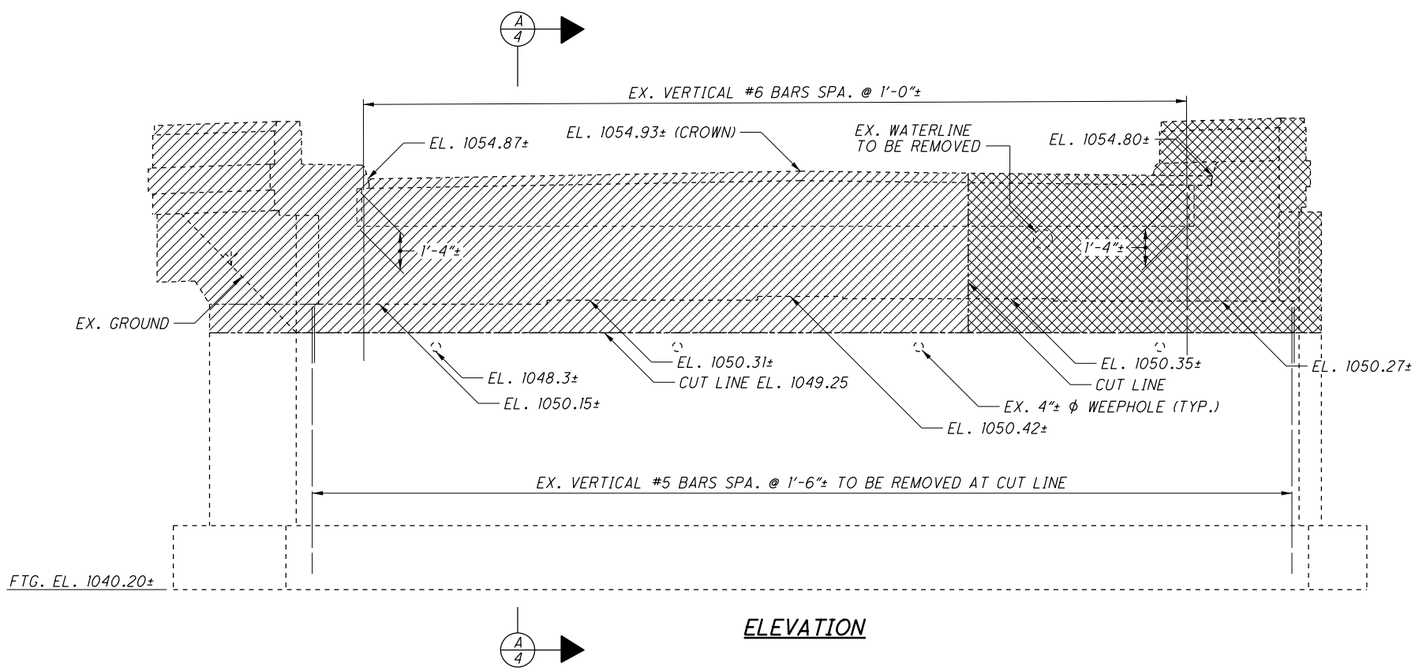
REVIEWED GDJ DATE 7-28-20
STRUCTURE FILE NUMBER 5006392
DRAWN AMR REVISED
DESIGNED AMR CHECKED STK

ESTIMATED QUANTITIES
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



PLAN



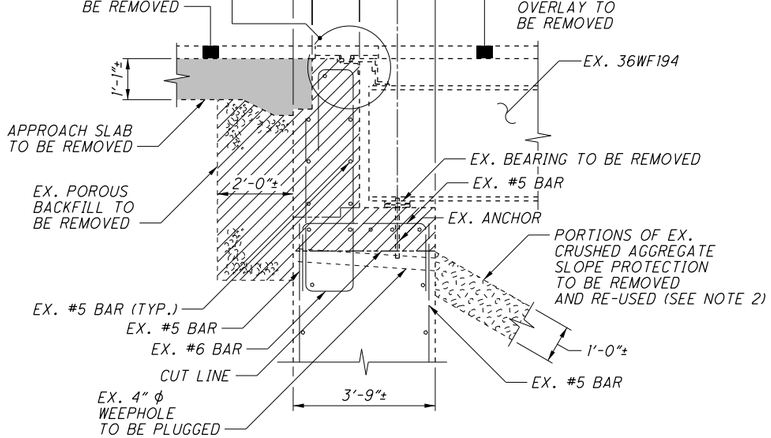
ELEVATION

NOTES

1. ALL EXISTING VERTICAL REINFORCING AND EXISTING BEARING ANCHOR RODS SHALL BE REMOVED AT THE CUT LINE WITH THE EXCEPTION OF VERTICAL REINFORCING IN THE WINGWALLS. SEE SHEET 5/22 FOR DETAILS. PAYMENT TO BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.
2. REMOVE PORTIONS OF CRUSHED AGGREGATE SLOPE PROTECTION AS NECESSARY TO FACILITATE THE TEMPORARY SUPPORT OF EXISTING BEAMS. SLOPE PROTECTION SHALL BE RE-USED FOLLOWING JACKING PROCEDURES. PAYMENT TO BE INCLUDED WITH ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.
3. WEEPHOLES TO BE FILLED WITH CEMENT GROUT. PAYMENT INCLUDED WITH ITEM 511, CLASS QCI CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN.

LEGEND

- PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - PHASE 1
- PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - PHASE 2
- APPROACH SLAB REMOVED



A/4,5 SECTION

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ENGINEERS CONSULTANTS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

REAR ABUTMENT REMOVAL DETAILS

BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

4/22

61/126

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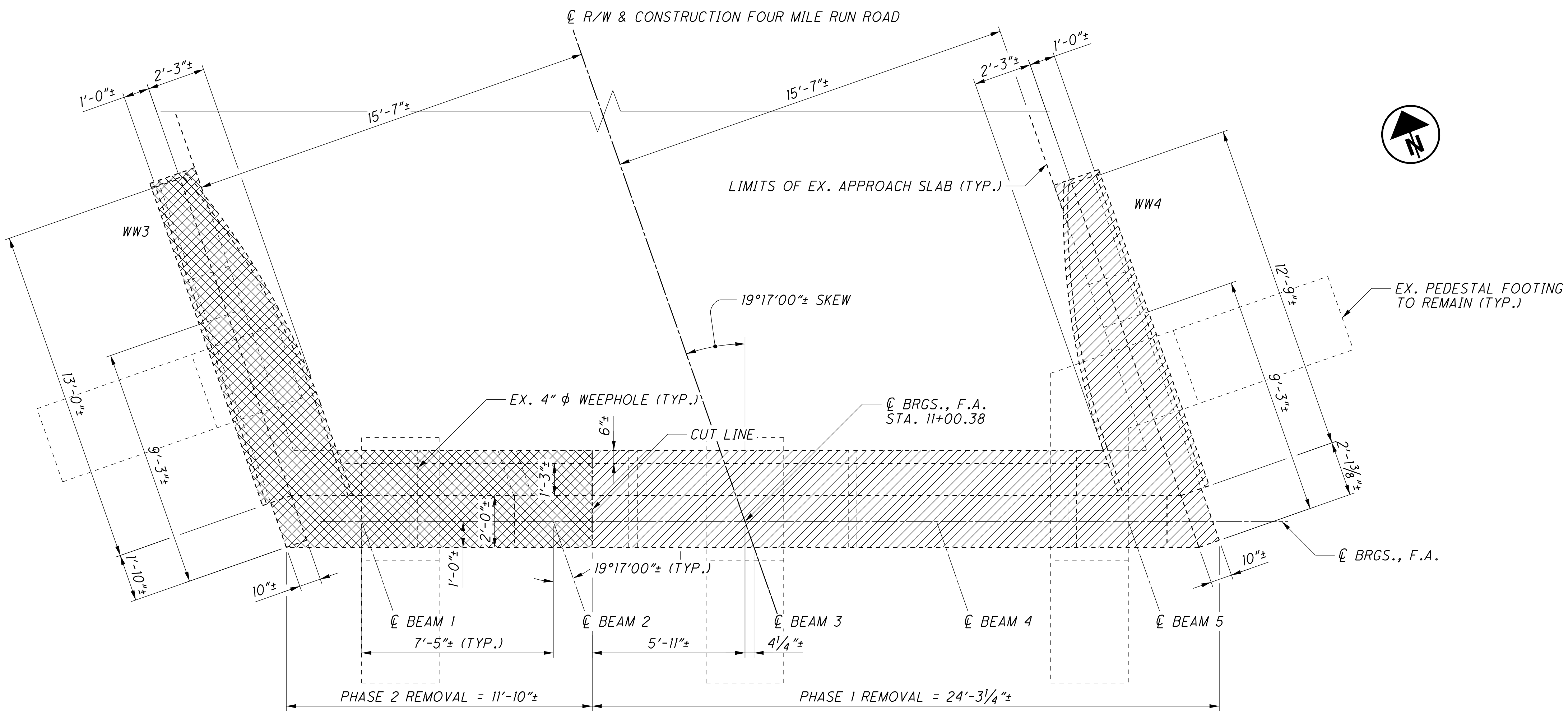
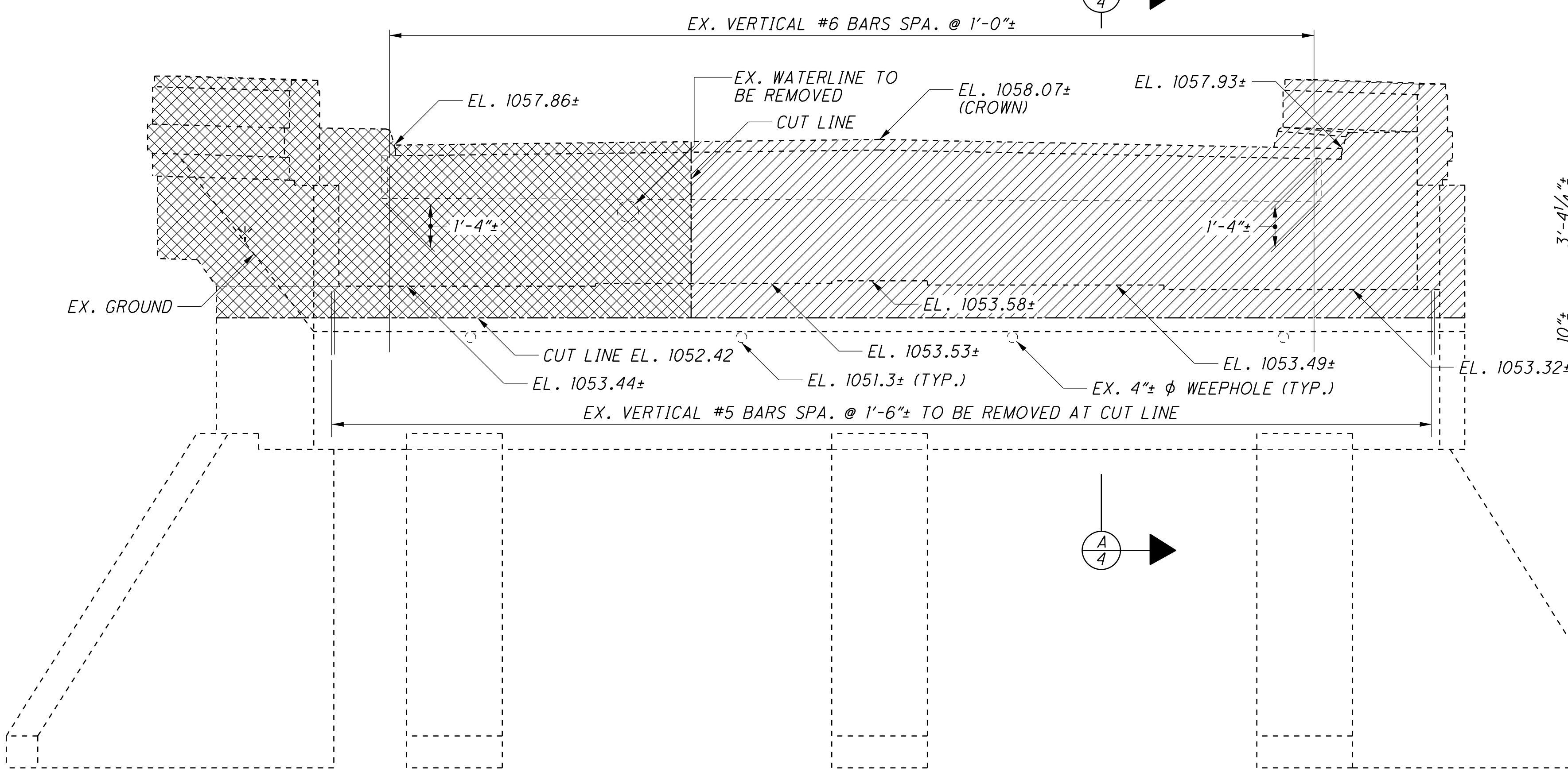
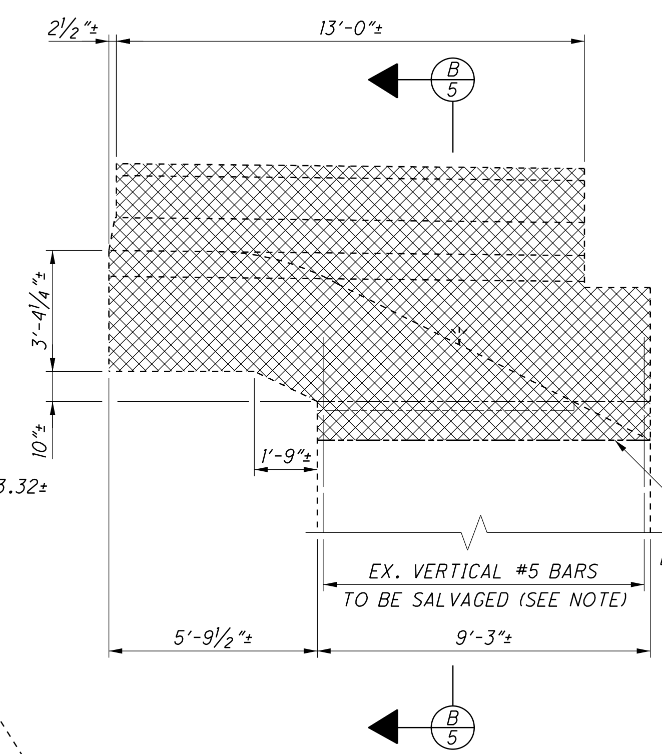


PLAN

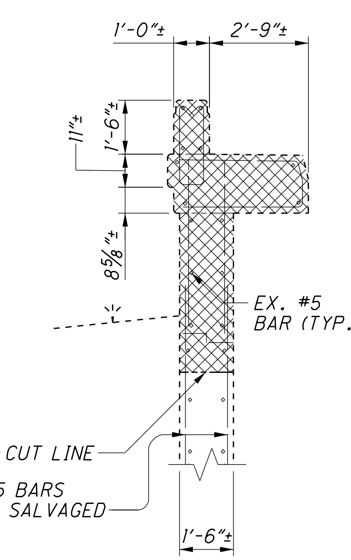


ELEVATION



WINGWALL ELEVATION

WW3 SHOWN, OTHERS SIMILAR



B/5 SECTION

TYPICAL ALL WINGWALLS

NOTES

1. ALL EXISTING VERTICAL REINFORCING AND EXISTING BEARING ANCHOR RODS SHALL BE REMOVED AT THE CUT LINE WITH THE EXCEPTION OF VERTICAL REINFORCING IN THE WINGWALLS. A MINIMUM OF 31" OF THE EXISTING VERTICAL REINFORCING IN THE WINGWALLS SHALL BE SALVAGED. PAYMENT TO BE INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.
2. REMOVE PORTIONS OF CRUSHED AGGREGATE SLOPE PROTECTION AS NECESSARY TO FACILITATE THE TEMPORARY SUPPORT OF EXISTING BEAMS. SLOPE PROTECTION SHALL BE RE-USED FOLLOWING JACKING PROCEDURES. PAYMENT TO BE INCLUDED WITH ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN.
3. WEEPHOLES TO BE FILLED WITH CEMENT GROUT. PAYMENT INCLUDED WITH ITEM 511, CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN.

LEGEND

PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - PHASE 1

PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN - PHASE 2

DESIGN AGENCY: CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

FORWARD ABUTMENT REMOVAL DETAILS

BRIDGE NO. MAH-680-0068

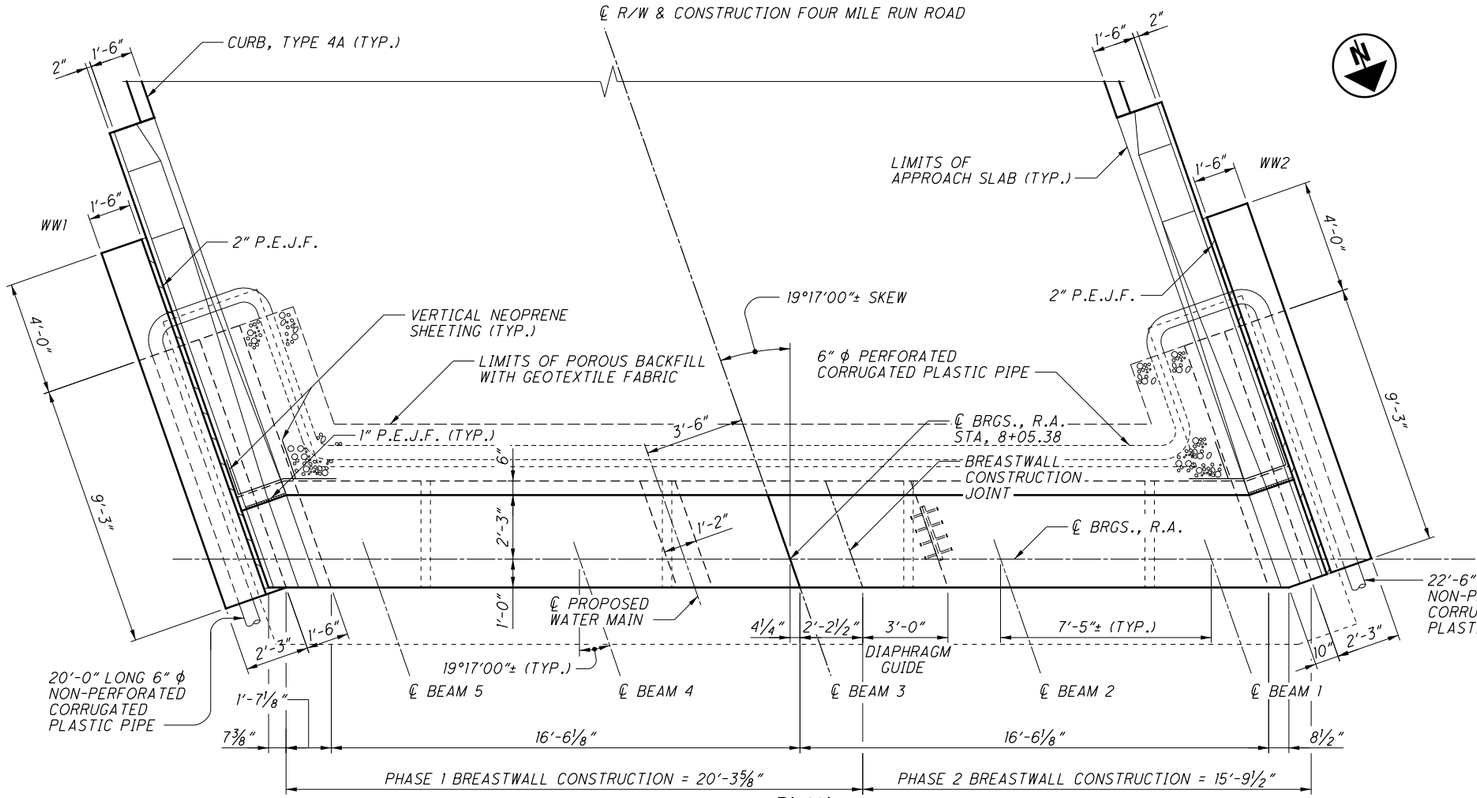
FOUR MILE RUN ROAD OVER I.R. 680

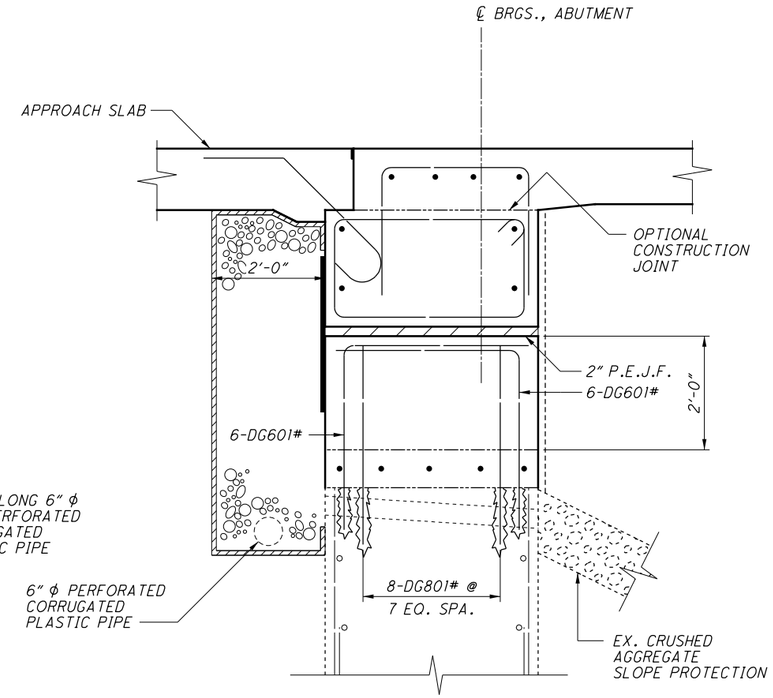
MAH-680-0.68 / 3.73

PID No. 105857

5 / 22

62 / 126





S 6,7 SECTION

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS, SEE STD. DWGS. SICD-1-96 AND SICD-2-14.
2. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   #5 BARS = 8 INCHES
   #6 BARS = 9 INCHES
   #8 BARS = 12 INCHES
3. PAYMENT FOR SEMI-INTEGRAL DIAPHRAGM GUIDE CONCRETE, REINFORCING STEEL AND ALL RELATED APPURTENANCES SHALL BE INCLUDED UNDER ITEM 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
4. A501#, D401, D501, D502, D503, D504, D505, D506, D507 & DG601# BARS SHALL BE PLACED PARALLEL TO ℄ OF BEAMS.
5. WEEPHOLES TO BE FILLED WITH CEMENT GROUT THAT HAS COMPLETELY CURED PRIOR TO DRILLING DOWEL HOLES FOR DIAPHRAGM GUIDE REINFORCEMENT. PAYMENT INCLUDED WITH ITEM 511, CLASS QCI CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN.
6. SEE SHEET 8/22 FOR WINGWALL DETAILS.

LEGEND

- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

% - BAR TO UTILIZE A MECHANICAL CONNECTOR

∓ - ELEVATION TAKEN AT BRIDGE LIMITS

E.F. - EACH FACE

F.F. - FAR FACE

N.F. - NEAR FACE

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS • ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

REAR ABUTMENT DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

6 / 22

63
126

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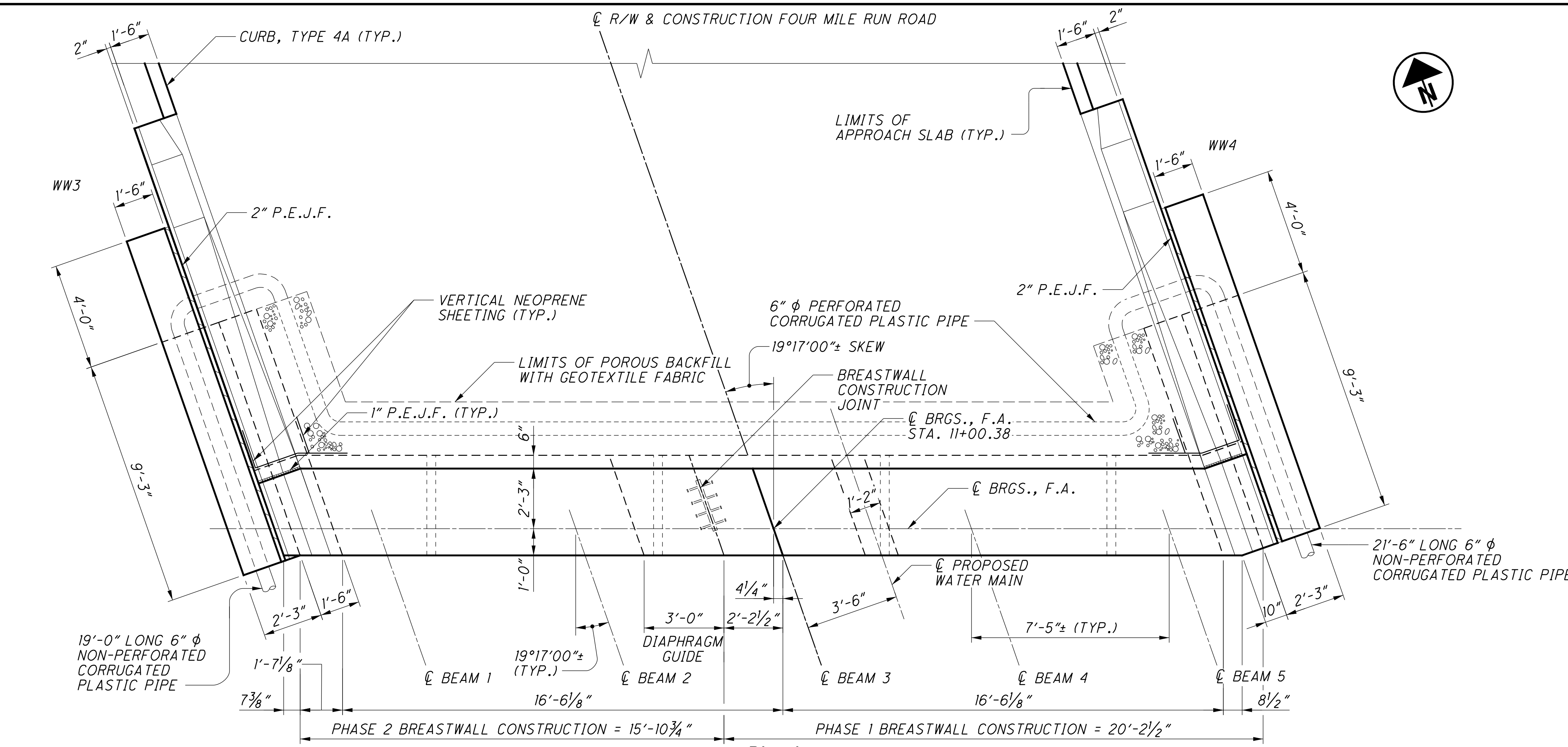
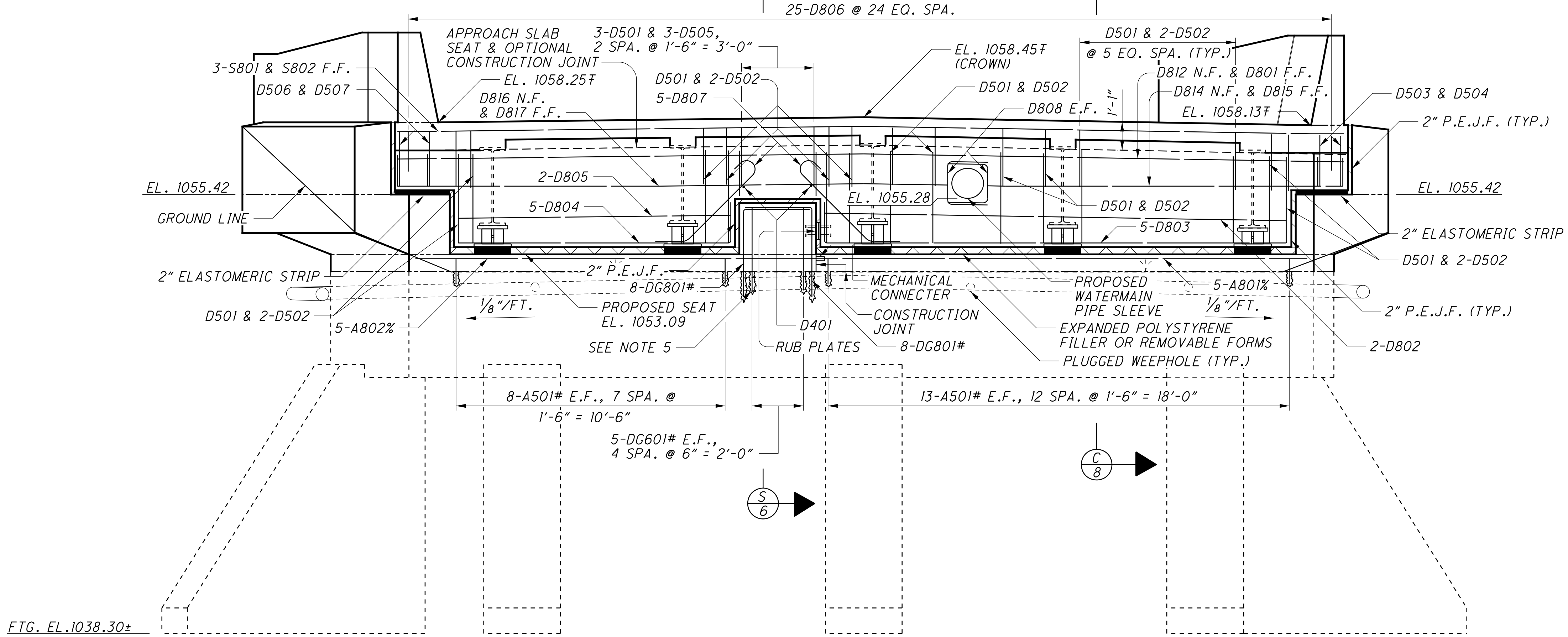


PLAN



ELEVATION

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS, SEE STD. DWGS. SICD-1-96 AND SICD-2-14.
2. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   - #5 BARS = 8 INCHES
   - #6 BARS = 9 INCHES
   - #8 BARS = 12 INCHES
3. PAYMENT FOR SEMI-INTEGRAL DIAPHRAGM GUIDE CONCRETE, REINFORCING STEEL AND ALL RELATED APPURTENANCES SHALL BE INCLUDED UNDER ITEM 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
4. A501#, D401, D501, D502, D503, D504, D505, D506, D507 & DG601# BARS SHALL BE PLACED PARALLEL TO ℄ OF BEAMS.
5. WEEPHOLES TO BE FILLED WITH CEMENT GROUT THAT HAS COMPLETELY CURED PRIOR TO DRILLING DOWEL HOLES FOR DIAPHRAGM GUIDE REINFORCEMENT. PAYMENT INCLUDED WITH ITEM 511, CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN.
6. SEE SHEET 8/22 FOR WINGWALL DETAILS.

LEGEND

- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

% - BAR TO UTILIZE A MECHANICAL CONNECTOR

∓ - ELEVATION TAKEN AT BRIDGE LIMITS

E.F. - EACH FACE

F.F. - FAR FACE

N.F. - NEAR FACE

DESIGN AGENCY: CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

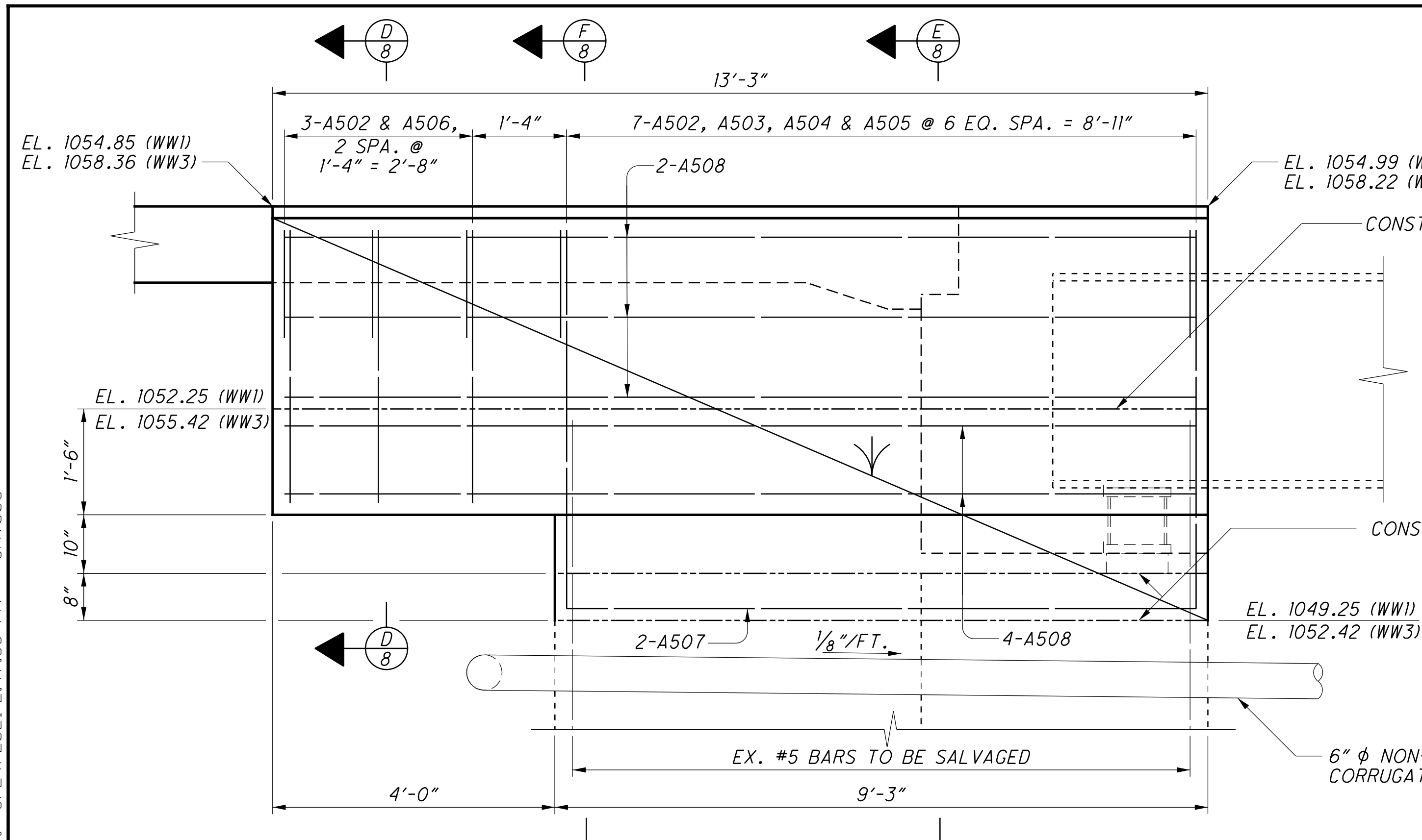
FORWARD ABUTMENT DETAILS

BRIDGE NO. MAH-680-0068

FOUR MILE RUN ROAD OVER I.R. 680

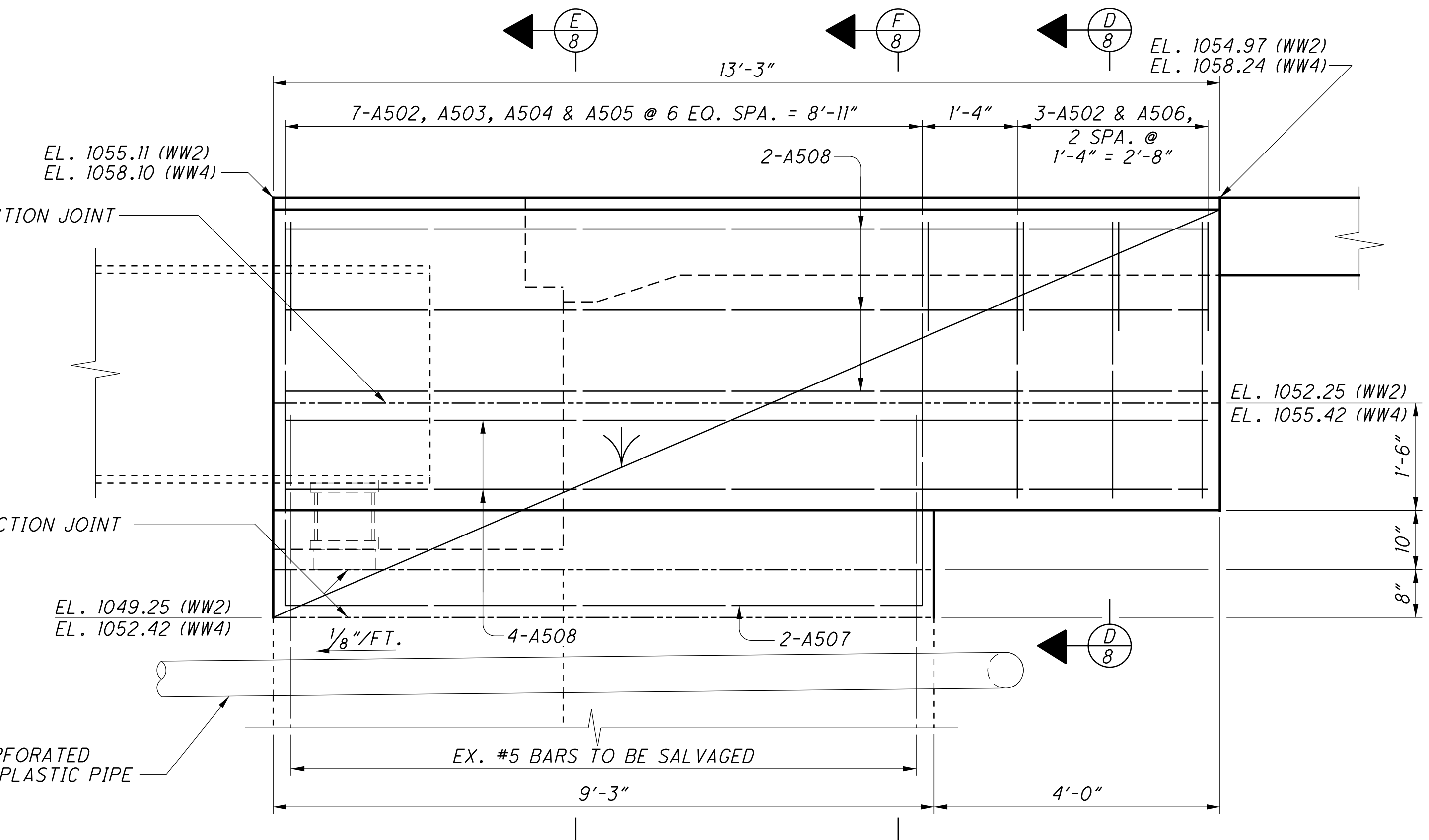
MAH-680-0.68 / 3.73

PID No. 105857



WINGWALL 1 & 3

PARAPET NOT SHOWN FOR CLARITY



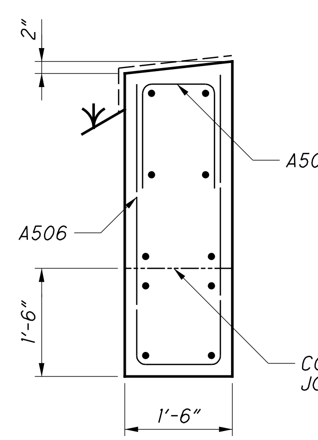
WINGWALL 2 & 4

PARAPET NOT SHOWN FOR CLARITY

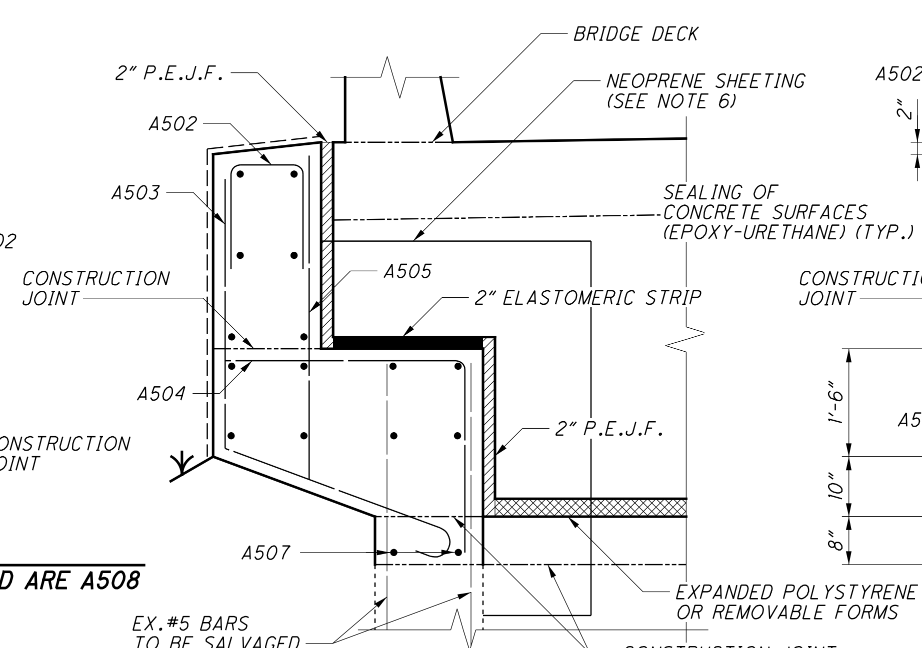
LEGEND

\# - BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

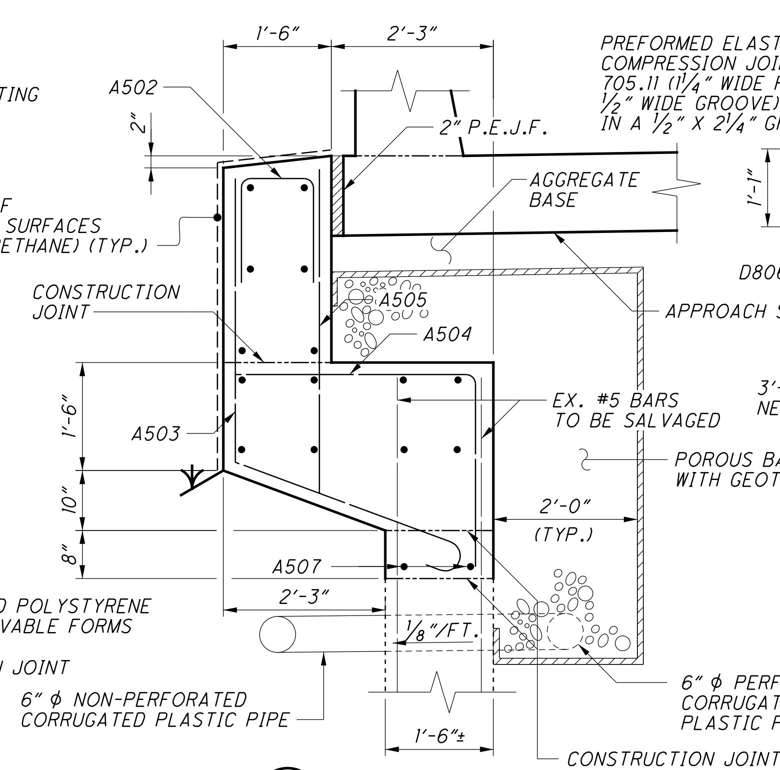
E.F. - EACH FACE



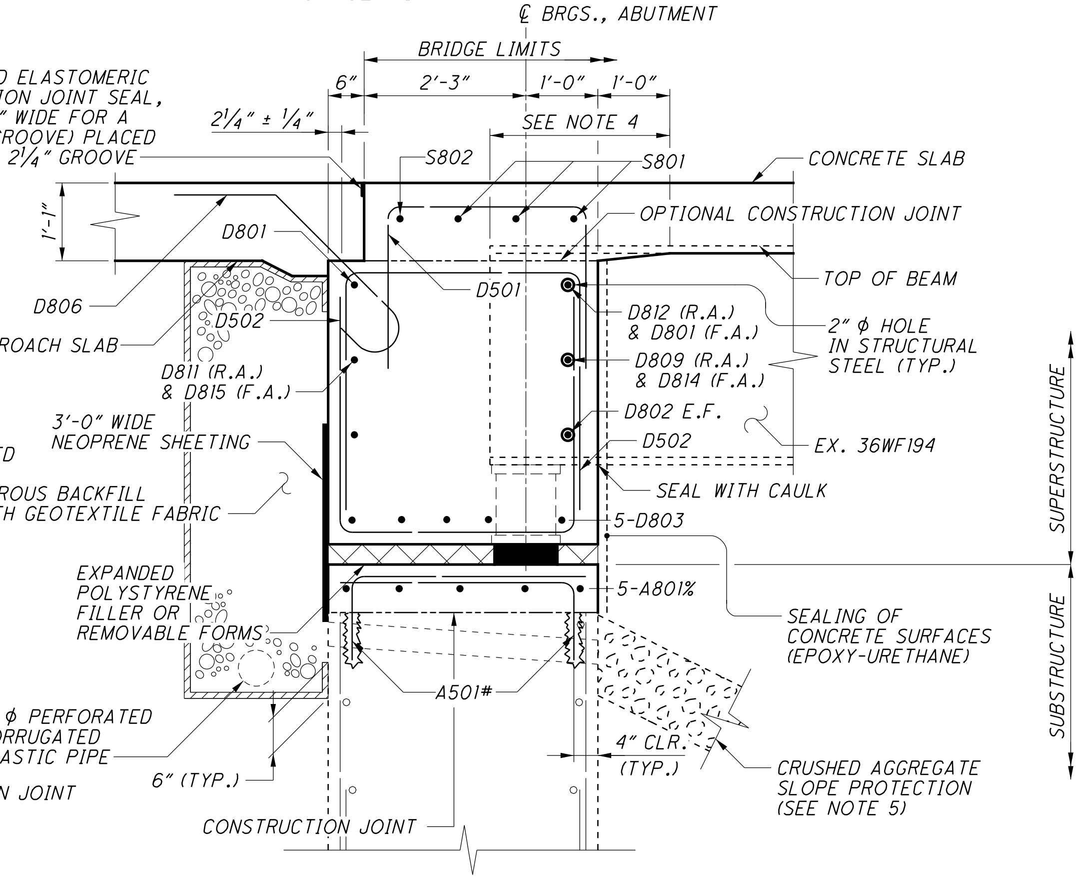
SECTION D/8
BARS NOT LABELED ARE A508



SECTION E/8
BARS NOT LABELED ARE A508



SECTION F/8
BARS NOT LABELED ARE A508



SECTION C/6,7

NOTES

1. SEE STD. DWG. SICD-1-96 AND SICD-2-14 FOR ADDITIONAL NOTES AND DETAILS.
2. PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS WITH THE DECK CONCRETE OR AT LEAST 48 HOURS BEFORE PLACEMENT OF THE DECK CONCRETE. IF PLACED SEPERATELY, LOCATE THE HORIZONTAL CONSTRUCTION JOINT IN THE DIAPHRAGM AS SHOWN ON SCID-1-96 FOR STEEL SUPERSTRUCTURES AND PLACE REMAINING DIAPHRAGM CONCRETE WITH THE DECK.
3. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   #5 BAR = 8 INCHES
4. PAINT BEAMS FROM END TO 1'-0" BEYOND FACE OF DIAPHRAGM. PAYMENT SHALL BE INCLUDED WITH ITEM 514.

NOTES (CONT.)

5. EXISTING CRUSHED AGGREGATE SLOPE PROTECTION SHALL BE SALVAGED AND RE-USED FOLLOWING JACKING PROCEDURES.
6. 3'-0" WIDE NEOPRENE SHEETING SHALL BE CENTERED ON THE VERTICAL AND HORIZONTAL COMPONENTS OF THE CORNER JOINT BETWEEN THE BACK OF THE DIAPHRAGM AND WINGWALL.

DESIGN AGENCY: CARPENTER MARTY transportation, 6612 SINGLETREE DR. COLUMBUS, OH 43229, 614.656.2424 CMTRAN.COM

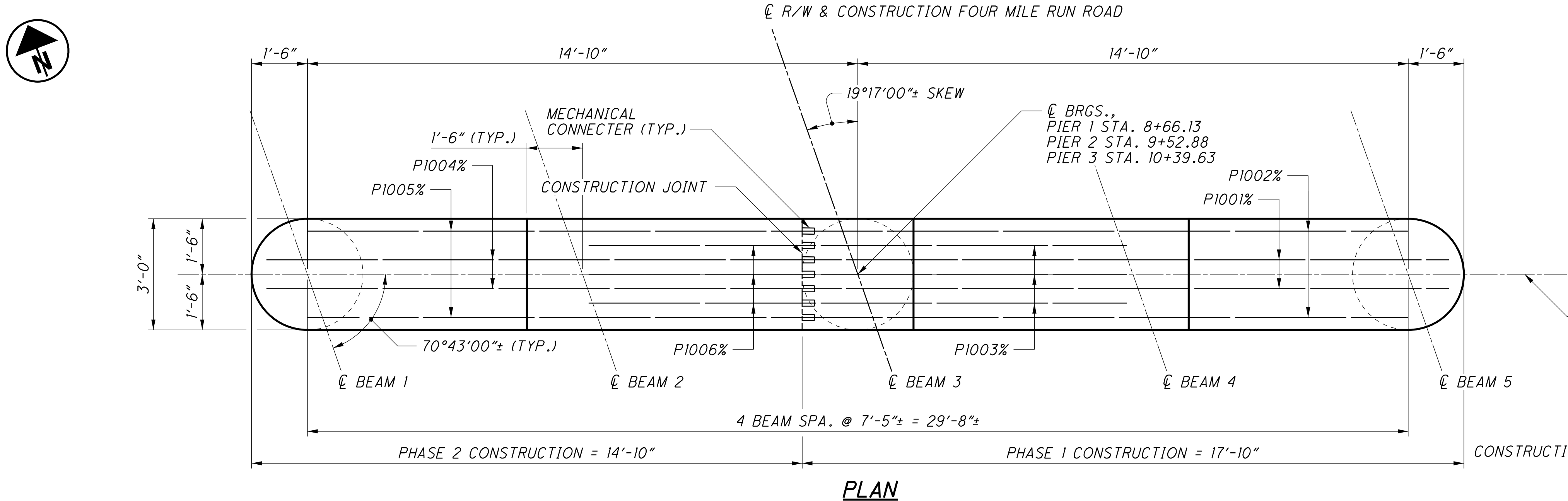
DESIGNED AMR | CHECKED STK | DRAWN MTJ | REVISED | REVIEWED GDJ | DATE 7-28-20 | STRUCTURE FILE NUMBER 5006392

WINGWALL & ABUTMENT DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

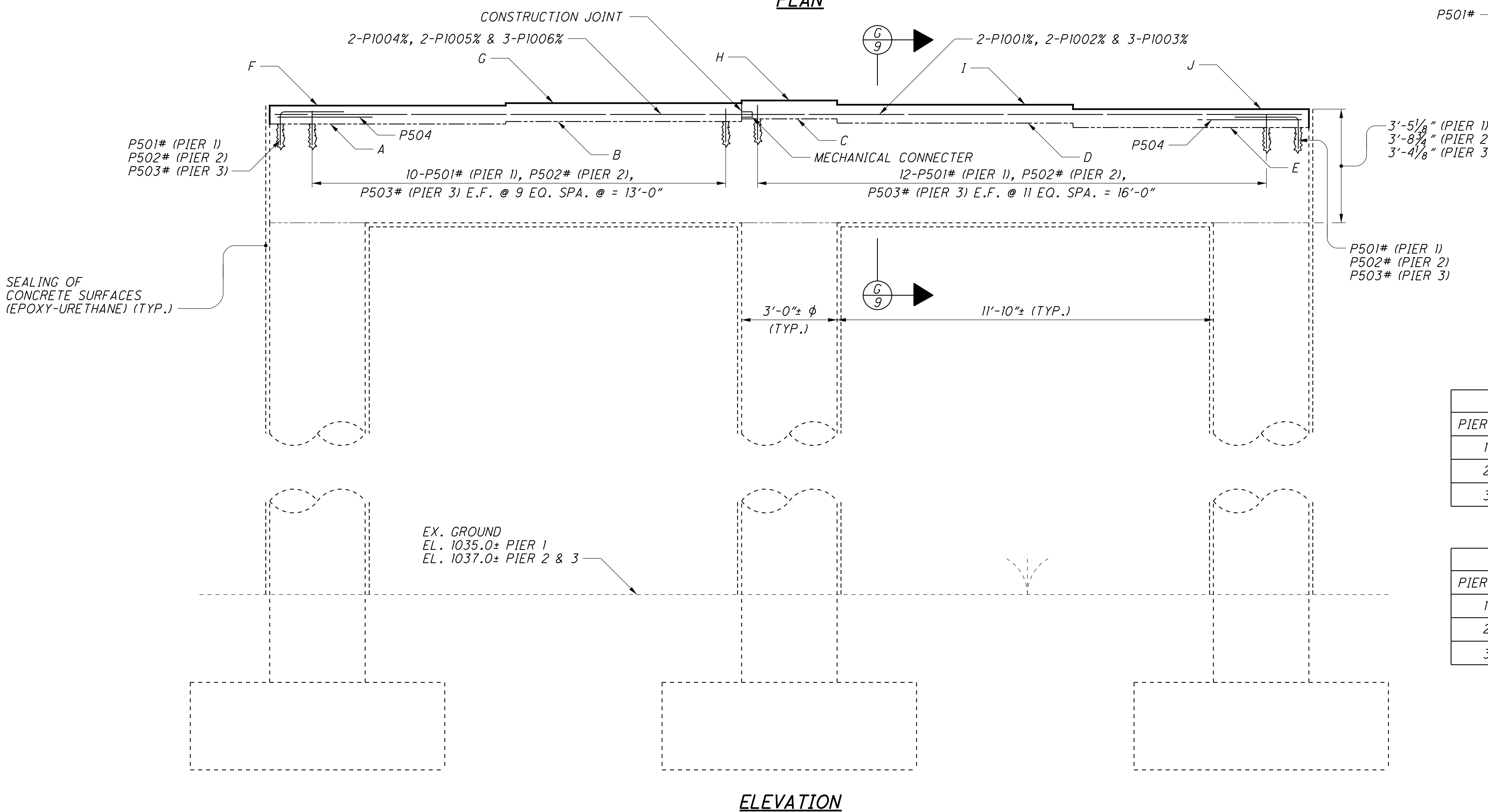
MAH-680-0.68/3.73
PID No. 105857

8/22

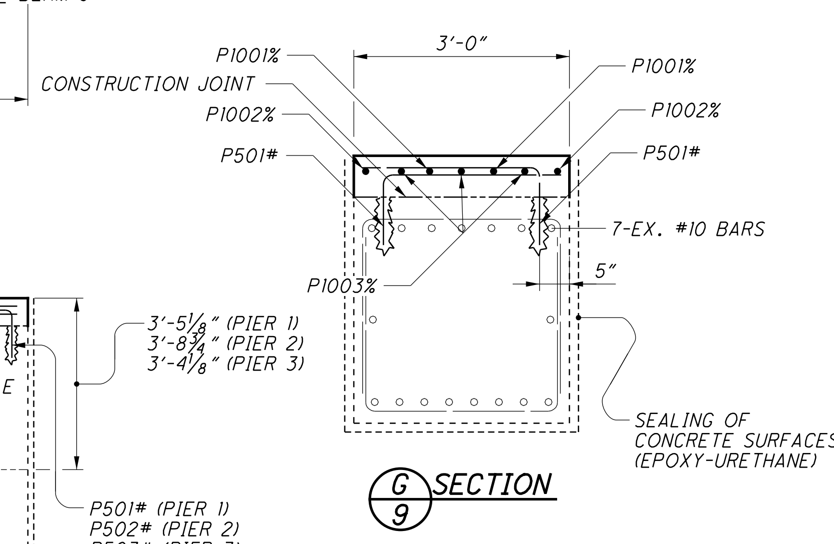
65/126



PLAN



ELEVATION



G/9 SECTION

NOTES

1. MINIMUM EMBEDMENT DEPTH:
   NO. 5 BAR = 8 INCHES
2. EXISTING BEARING ANCHOR RODS WILL BE CUT AT THE EXISTING SEAT. PAYMENT INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

LEGEND

\# - BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

% - BAR TO UTILIZE A MECHANICAL CONNECTOR

E.F. - EACH FACE

EXISTING PIER ELEVATIONS

PIER NO.	A	B	C	D	E
1	1050.94±	1050.99±	1051.09±	1050.95±	1050.86±
2	1051.59±	1051.61±	1051.70±	1051.55±	1051.44±
3	1052.76±	1052.81±	1052.91±	1052.78±	1052.72±

PROPOSED PIER ELEVATIONS

PIER NO.	F	G	H	I	J
1	1051.35	1051.41	1051.51	1051.41	1051.29
2	1052.27	1052.33	1052.42	1052.29	1052.17
3	1053.14	1053.22	1053.33	1053.18	1053.06

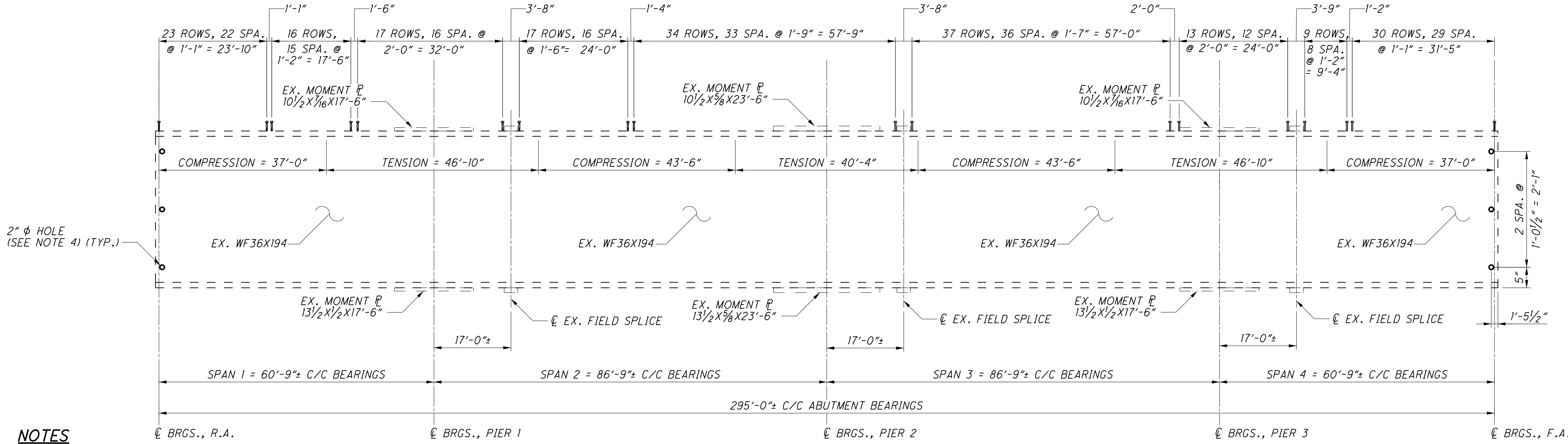
DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
AMR	STK	AMR		GDJ	7-28-20	5006392

PIER DETAILS

BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



BEAM ELEVATION

VERTICAL SCALE EXAGGERATED

NOTES

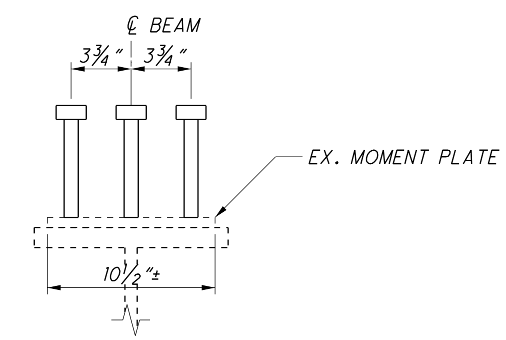
1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED AS "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG AND BE AT LEAST ¼" FOR THICKNESSES UP TO ¾" OR 5⁄16" FOR GREATER THAN ¾" THICK.

2. FOR ADDITIONAL CROSS FRAME DETAILS SEE RETIRED STD. DWG. GSD-1-96. THE RETIRED STANDARD DRAWING CAN BE FOUND AT: HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/ENGINEERING/STRUCTURES/STANDARD/ARCHIVEDSTANDARDDRAWINGS/PAGES/SUPERSTRUCTUREDETAIL(BEAMSPLICES).ASPX

3. SEE SHEET 12/22 FOR WATER MAIN AND MODIFIED CROSSFRAME DETAILS.

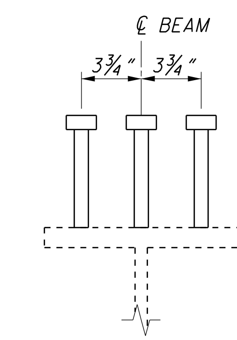
4. ALL COST ASSOCIATED WITH FIELD DRILLING OF WEB HOLES IN THE EXISTING STRUCTURAL STEEL AT THE BEAM ENDS IS CONSIDERED INCIDENTAL TO ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN.

5. THE BOTTOM FACE OF THE BOTTOM FLANGE OF THE BEAMS SHALL BE PAINTED WITHIN THE LIMITS SHOWN. PAYMENT SHALL BE INCLUDED WITH ITEM 514. PAINT COLOR TO MATCH EXISTING.



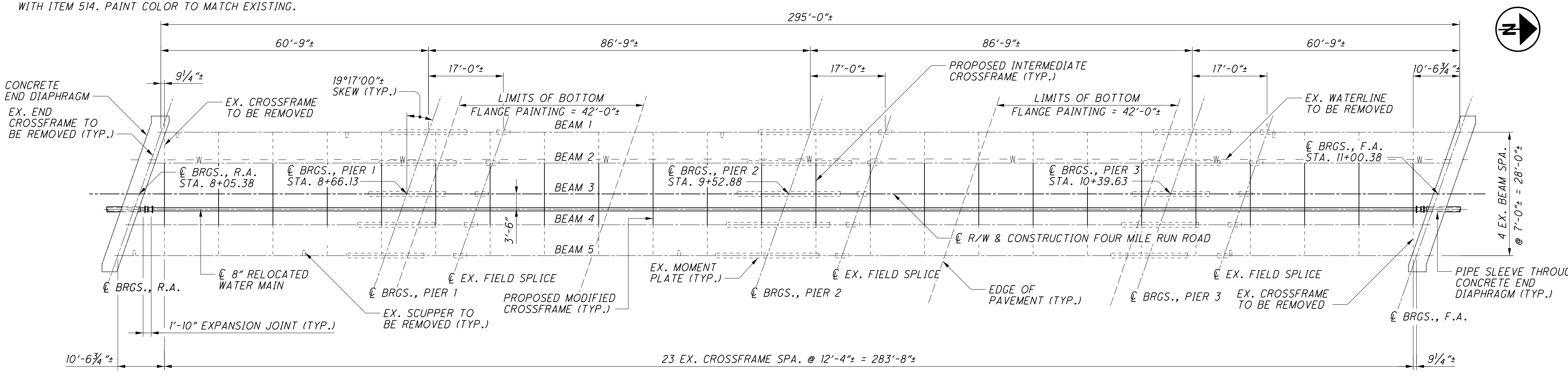
SHEAR STUD CONNECTOR (MOMENT PLATE)

⅞" ϕ X 7"



SHEAR STUD CONNECTOR (TYP.)

⅞" ϕ X 7"



FRAMING PLAN

DESIGN AGENCY: CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
STK	MTJ	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AMR		5006392	

FRAMING PLAN AND BEAM ELEVATION

BRIDGE NO. MAH-680-0068

FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73

PID No. 105857

WORK SEQUENCE

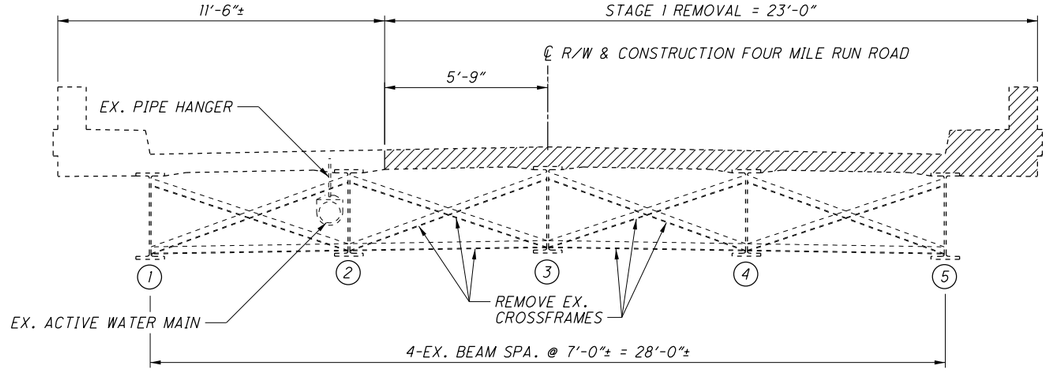
1. REMOVE THE RIGHT PORTION OF THE DECK SHOWN.
2. REMOVE EXISTING CROSSFRAMES BETWEEN BEAMS 2 & 3.
3. RAISE BEAMS 3, 4 & 5 TO THEIR FINAL ELEVATIONS.
4. CONTRACTOR TO REMOVE EXISTING CROSSFRAMES AND CONSTRUCT NEW MODIFIED CROSSFRAMES, 8" WATERMAIN AND WATERMAIN SUPPORT BETWEEN BEAMS 3 & 4. REMOVAL OF EXISTING CROSSFRAMES AND CONSTRUCTION OF NEW MODIFIED CROSSFRAMES SHALL BE PERFORMED ALTERNATELY TO ENSURE THAT BEAM 3 IS SUFFICIENTLY BRACED AT ALL TIMES.
5. DEACTIVATE EXISTING WATER MAIN AND ACTIVATE PROPOSED WATER MAIN IN COORDINATION WITH UTILITY OWNER AND LOCAL MUNICIPALITY.
6. REMOVE THE LEFT PORTION OF DECK SHOWN, DEACTIVATED WATER MAIN AND HANGERS.
7. RAISE BEAMS 1 & 2 TO THEIR FINAL ELEVATIONS.
8. CONSTRUCT PROPOSED CROSSFRAME BETWEEN BEAMS 2 & 3.
9. CONSTRUCT PROPOSED REINFORCED CONCRETE DECK.

NOTES

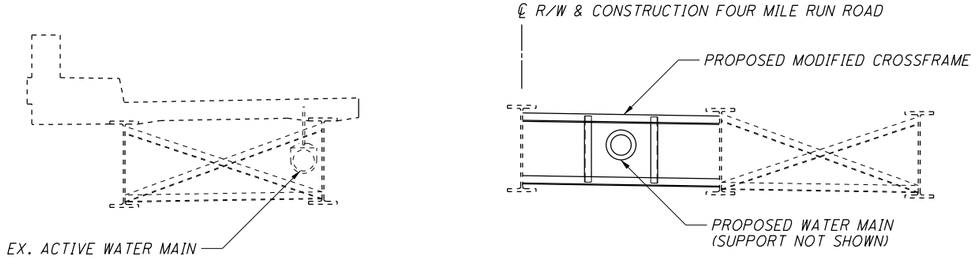
1. FOR ADDITIONAL CROSSFRAME DETAILS SEE STD. DWG. GSD-1-96.
2. SEE SHEET 10/22 FOR MODIFIED CROSSFRAME DETAILS.
3. SEE SHEET 12/22 FOR WATER MAIN AND SUPPORT DETAILS.

LEGEND

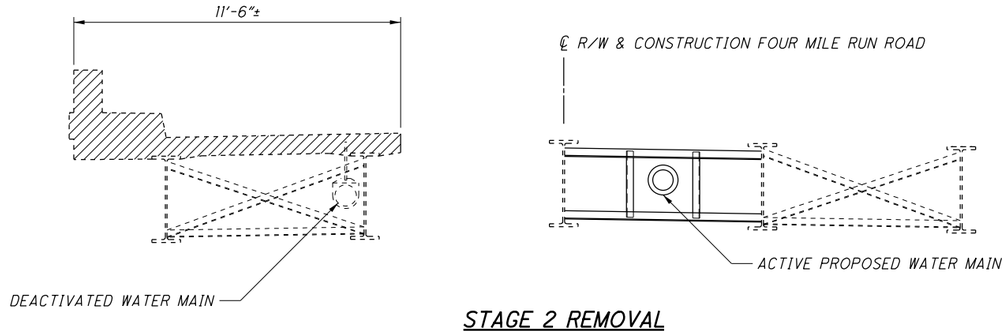
- PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN



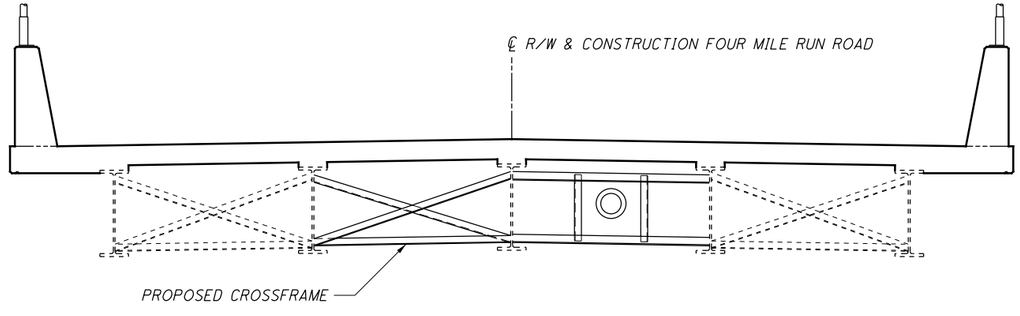
STAGE 1 REMOVAL



STAGE 1 CONSTRUCTION



STAGE 2 REMOVAL



STAGE 2 CONSTRUCTION

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

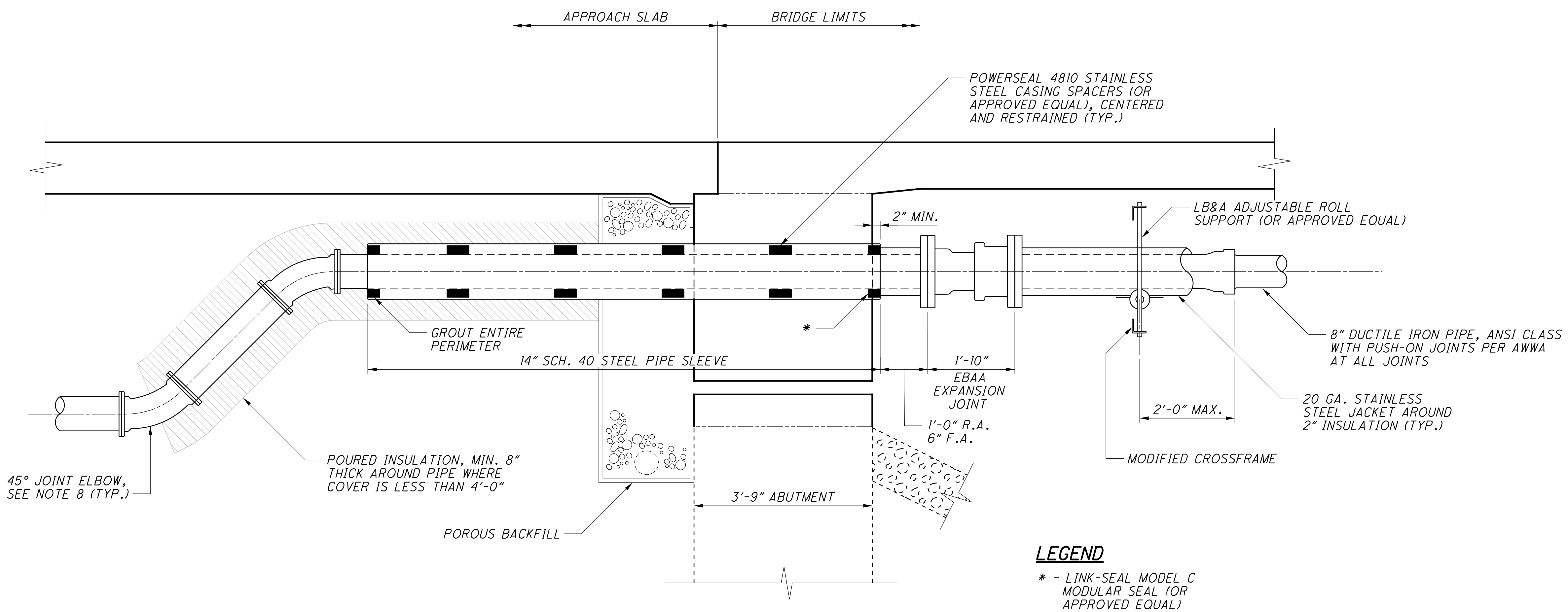
DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

WATER MAIN CONSTRUCTION SEQUENCE
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

11 / 22

68
126

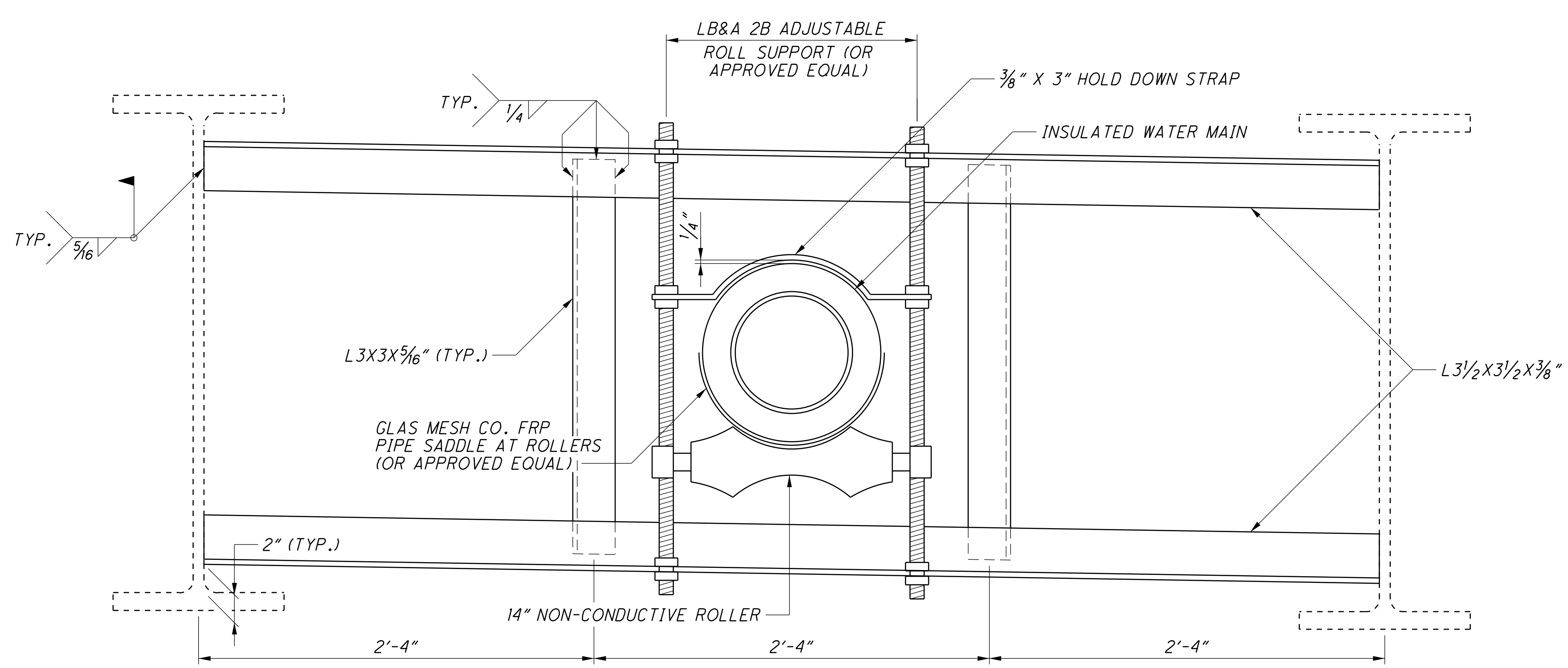


LEGEND

* - LINK-SEAL MODEL C MODULAR SEAL (OR APPROVED EQUAL)

TYPICAL SECTION AT WATER LINE

REAR APPROACH SHOWN
FORWARD SIMILAR



MODIFIED CROSSFRAME & ADJUSTABLE ROLL SUPPORT DETAIL

NOTES

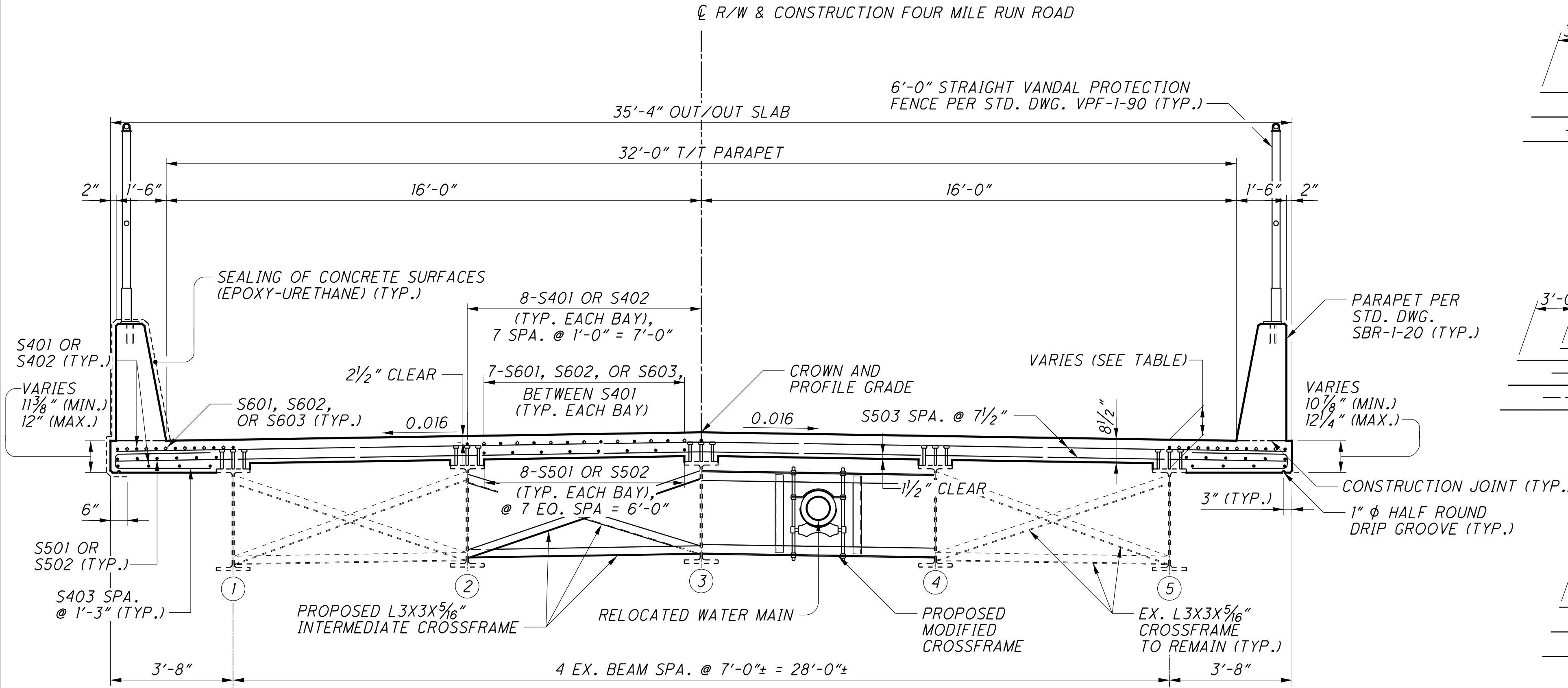
1. REFER TO ROADWAY PLANS FOR PAYMENT OF WATER MAIN AND ADDITIONAL NOTES.
2. 8" DUCTILE IRON PIPE, GASKETS, 2" INSULATION, STAINLESS STEEL JACKET, 14" SCH. 40 STEEL PIPE, CASING SPACERS, MODULAR SEAL, GROUT, POURED INSULATION, ADJUSTABLE ROLL SUPPORT ASSEMBLIES, AND FRP SADDLES SHALL BE INCLUDED WITH WATER WORKS FOR PAYMENT.
3. PAYMENT FOR DRILLING HOLES IN THE MODIFIED CROSSFRAMES TO BE INCLUDED WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN.
4. ADJUSTABLE ROLL SUPPORT SHALL BE GALVANIZED.
5. SEE SHEET 10/22 FOR EXPANSION JOINT LOCATIONS.
6. EXPANSION JOINT SHALL BE EBAA EX-TEND 200, LINEAR END, MECHANICAL JOINT WITH MEGA-LUGS (OR APPROVED EQUAL).
7. DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINT C-153 DUCTILE IRON FITTINGS WITH MEGA LUGS (OR APPROVED EQUAL).
8. REFER TO ROADWAY PLANS FOR 45° JOINT ELBOW DETAILS.

DESIGN AGENCY
CARPENTER MARTY transportation

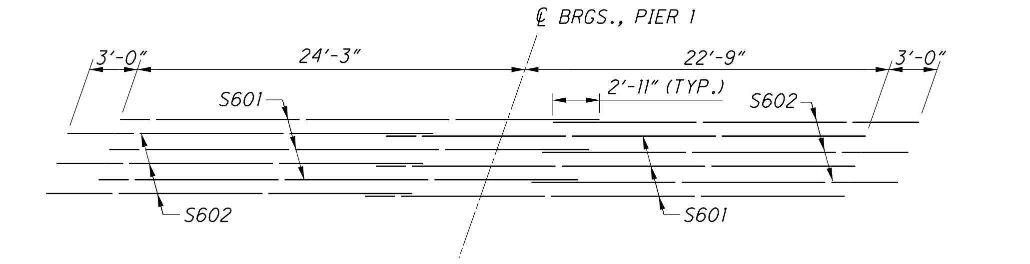
REVIEWED GDJ	DATE 7-28-20	STRUCTURE FILE NUMBER 5006392
DRAWN AMR	REVISED	
DESIGNED AMR	CHECKED STK	

WATER MAIN DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

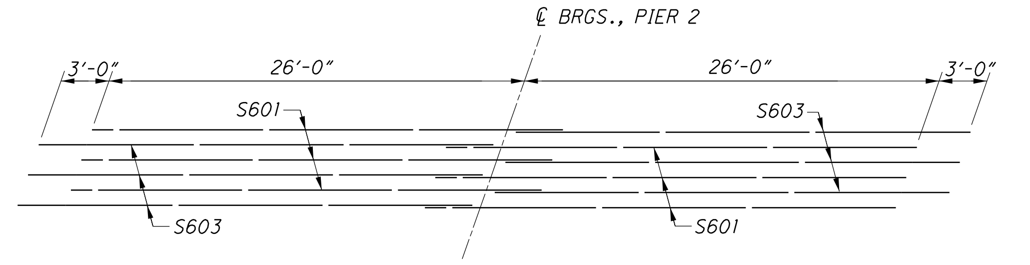
MAH-680-0.68 / 3.73
PID No. 105857



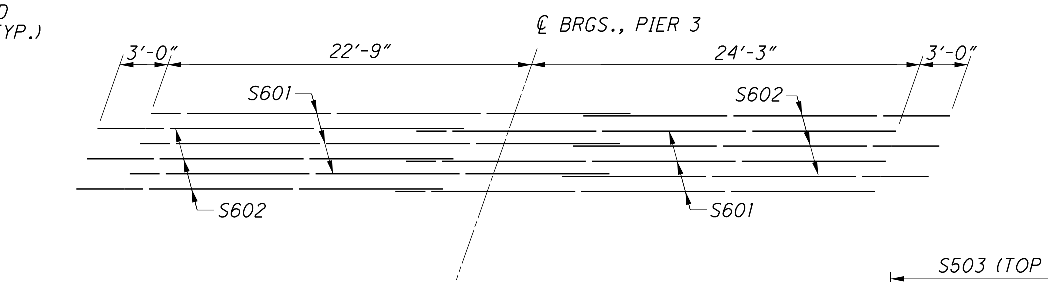
TRANSVERSE SECTION



STAGGER DIAGRAM (PIER 1)



STAGGER DIAGRAM (PIER 2)



STAGGER DIAGRAM (PIER 3)

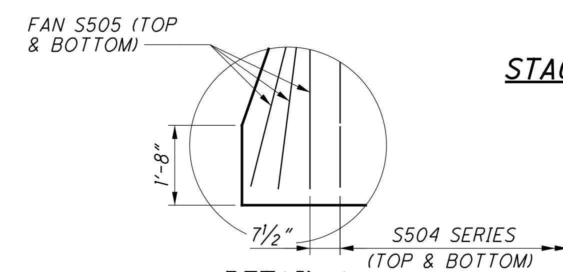
NOTES

1. SEE SHEET 16/22 FOR PARAPET AND VANDAL PROTECTION FENCE DETAILS.
2. SEE SHEET 10/22 FOR MODIFIED CROSSFRAME DETAILS.
3. REINFORCING STEEL MAY BE FIELD OR SHOP BENT TO ACCOMODATE THE CROWN. PAYMENT SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.
4. DECK SLAB 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 HAUNCH. THE ESTIMATE ASSUMES AN AVERAGE HAUNCH THICKNESS OF 3¼ 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, 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.
5. MINIMUM LAP SPLICE LENGTHS:
   - #4 = 23 INCHES
   - #5 = 31 INCHES
   - #6 = 35 INCHES

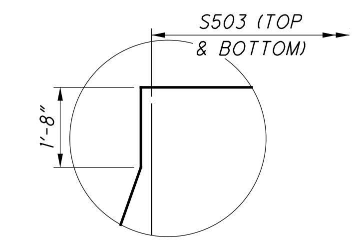
**** DEPTH OF DECK TABLE (IN.)**

LOC.	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5
R.A.	12	11⅞	12	12	12⅜
PIER 1	11⅝	11⅞	11¾	11¼	11
PIER 2	11½	11¾	11¾	11⅝	11⅜
PIER 3	12⅛	12½	12	12⅛	11⅞
F.A.	12	12	12⅛	12	11⅞

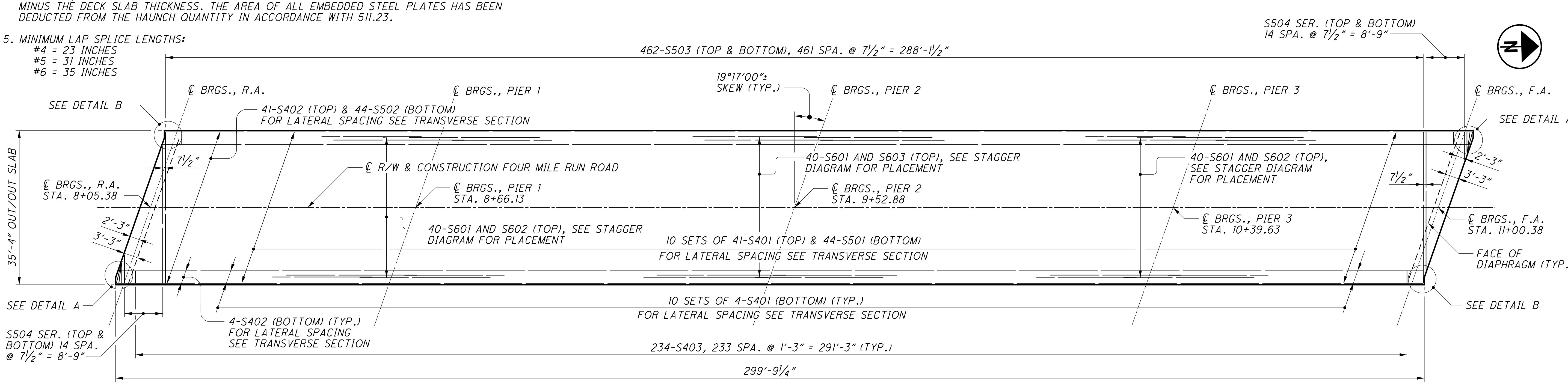
** DIMENSIONS MEASURED FROM TOP OF EXISTING BEAM TOP FLANGE TO SURFACE OF DECK



DETAIL A



DETAIL B



DECK PLAN

DESIGN AGENCY: CARPENTER MARTY Transportation, 6612 SINGLETREE DR. COLUMBUS, OH 43229, 614.656.2424 • CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
STK	MTJ	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
AMR		5006392	

TRANSVERSE SECTION AND DECK PLAN

BRIDGE NO. MAH-680-0068

FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73

PID No. 105857

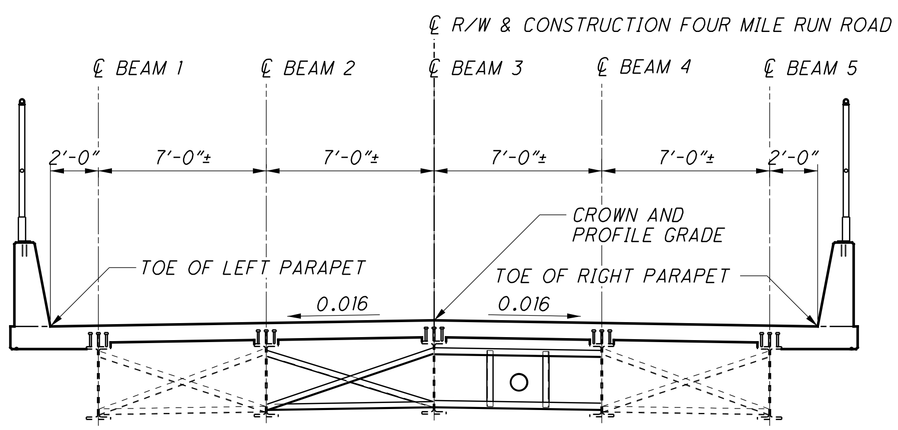
13/22

70/126

CMT008 6/24/2021 2:47:40 PM Sheet P:\ODT\04\0022_MAH-680-00.68_03.73\105857\Design\Structures\MAH680_0068C\Sheets\680_0068C_SD001.dgn

FINAL DECK SURFACE, TOP OF HAUNCH, AND SCREED ELEVATIONS (FT.)																				
LOCATION	DESCRIPTION	R.A.	1/4	1/2	3/4	PIER 1	SPLICE 1	1/4	1/2	3/4	PIER 2	SPLICE 2	1/4	1/2	3/4	PIER 3	1/4	SPLICE 3	1/2	3/4	F.A.
TOE OF LEFT PARAPET	STATION	8+10.98	8+26.17	8+41.35	8+56.54	8+71.73	8+88.73	8+93.42	9+15.10	9+36.79	9+58.48	9+75.48	9+80.17	10+01.85	10+23.54	10+45.23	10+60.42	10+62.23	10+75.60	10+90.79	11+05.98
	SCREED ELEVATION	1055.10	1055.28	1055.45	1055.59	1055.75	1055.96	1056.01	1056.27	1056.47	1056.67	1056.87	1056.93	1057.19	1057.39	1057.59	1057.75	1057.77	1057.93	1058.09	1058.23
	FINAL DECK ELEVATION	1055.10	1055.26	1055.43	1055.59	1055.75	1055.93	1055.98	1056.21	1056.44	1056.67	1056.85	1056.90	1057.13	1057.36	1057.59	1057.75	1057.77	1057.91	1058.07	1058.23
℄ BEAM 1	STATION	8+10.28	8+25.47	8+40.65	8+55.84	8+71.03	8+88.03	8+92.72	9+14.40	9+36.09	9+57.78	9+74.78	9+79.47	10+01.15	10+22.84	10+44.53	10+59.72	10+61.53	10+74.90	10+90.09	11+05.28
	TOP OF HAUNCH ELEVATION	1054.42	1054.60	1054.76	1054.91	1055.06	1055.27	1055.33	1055.58	1055.78	1055.98	1056.19	1056.24	1056.50	1056.71	1056.90	1057.07	1057.09	1057.25	1057.40	1057.55
	FINAL DECK ELEVATION	1055.13	1055.29	1055.45	1055.61	1055.77	1055.95	1056.00	1056.23	1056.46	1056.69	1056.87	1056.92	1057.15	1057.38	1057.61	1057.77	1057.79	1057.93	1058.09	1058.25
℄ BEAM 2	STATION	8+07.83	8+23.02	8+38.20	8+53.39	8+68.58	8+85.58	8+90.27	9+11.95	9+33.64	9+55.33	9+72.33	9+77.02	9+98.70	10+20.39	10+42.08	10+57.27	10+59.08	10+72.45	10+87.64	11+02.83
	TOP OF HAUNCH ELEVATION	1054.51	1054.68	1054.85	1054.99	1055.15	1055.35	1055.41	1055.66	1055.87	1056.07	1056.27	1056.33	1056.58	1056.79	1056.99	1057.15	1057.18	1057.33	1057.49	1057.63
	FINAL DECK ELEVATION	1055.21	1055.37	1055.54	1055.70	1055.86	1056.04	1056.09	1056.32	1056.55	1056.78	1056.96	1057.01	1057.24	1057.47	1057.70	1057.86	1057.88	1058.02	1058.18	1058.34
CROWN, PROFILE GRADE & ℄ BEAM 3	STATION	8+05.38	8+20.57	8+35.76	8+50.94	8+66.13	8+83.13	8+87.82	9+09.51	9+31.19	9+52.88	9+69.88	9+74.57	9+96.26	10+17.94	10+39.63	10+54.82	10+56.63	10+70.01	10+85.19	11+00.38
	SCREED ELEVATION	1055.30	1055.48	1055.64	1055.79	1055.94	1056.15	1056.21	1056.46	1056.66	1056.86	1057.06	1057.12	1057.38	1057.59	1057.78	1057.95	1057.97	1058.12	1058.28	1058.43
	TOP OF HAUNCH ELEVATION	1054.59	1054.77	1054.93	1055.08	1055.24	1055.44	1055.50	1055.75	1055.95	1056.16	1056.35	1056.41	1056.67	1056.88	1057.07	1057.24	1057.26	1057.41	1057.57	1057.72
	FINAL DECK ELEVATION	1055.30	1055.46	1055.62	1055.78	1055.94	1056.12	1056.17	1056.40	1056.63	1056.86	1057.04	1057.09	1057.32	1057.55	1057.78	1057.94	1057.96	1058.11	1058.27	1058.43
℄ BEAM 4	STATION	8+02.93	8+18.12	8+33.31	8+48.49	8+63.68	8+80.68	8+85.37	9+07.06	9+28.74	9+50.43	9+67.43	9+72.12	9+93.81	10+15.49	10+37.18	10+52.37	10+54.18	10+67.56	10+82.74	10+97.93
	TOP OF HAUNCH ELEVATION	1054.45	1054.63	1054.79	1054.94	1055.10	1055.30	1055.36	1055.61	1055.81	1056.02	1056.22	1056.27	1056.53	1056.74	1056.94	1057.10	1057.12	1057.28	1057.44	1057.58
	FINAL DECK ELEVATION	1055.16	1055.32	1055.48	1055.65	1055.81	1055.99	1056.04	1056.27	1056.50	1056.73	1056.91	1056.96	1057.19	1057.42	1057.65	1057.81	1057.83	1057.97	1058.13	1058.29
℄ BEAM 5	STATION	8+00.48	8+15.67	8+30.86	8+46.04	8+61.23	8+78.23	8+82.92	9+04.61	9+26.29	9+47.98	9+64.98	9+69.67	9+91.36	10+13.04	10+34.73	10+49.92	10+51.73	10+65.11	10+80.29	10+95.48
	TOP OF HAUNCH ELEVATION	1054.32	1054.50	1054.66	1054.80	1054.96	1055.17	1055.23	1055.48	1055.68	1055.88	1056.08	1056.14	1056.40	1056.61	1056.80	1056.97	1056.99	1057.14	1057.30	1057.44
	FINAL DECK ELEVATION	1055.02	1055.19	1055.35	1055.51	1055.67	1055.85	1055.90	1056.13	1056.36	1056.59	1056.77	1056.82	1057.05	1057.28	1057.51	1057.67	1057.69	1057.83	1057.99	1058.15
TOE OF RIGHT PARAPET	STATION	7+99.78	8+14.97	8+30.16	8+45.34	8+60.53	8+77.53	8+82.22	9+03.91	9+25.59	9+47.28	9+64.28	9+68.97	9+90.66	10+12.34	10+34.03	10+49.22	10+51.03	10+64.41	10+79.59	10+94.78
	SCREED ELEVATION	1054.98	1055.16	1055.33	1055.47	1055.63	1055.84	1055.90	1056.15	1056.35	1056.55	1056.75	1056.81	1057.07	1057.28	1057.47	1057.63	1057.65	1057.81	1057.97	1058.11
	FINAL DECK ELEVATION	1054.98	1055.15	1055.31	1055.47	1055.63	1055.81	1055.86	1056.09	1056.32	1056.55	1056.73	1056.78	1057.01	1057.24	1057.47	1057.63	1057.65	1057.79	1057.95	1058.11

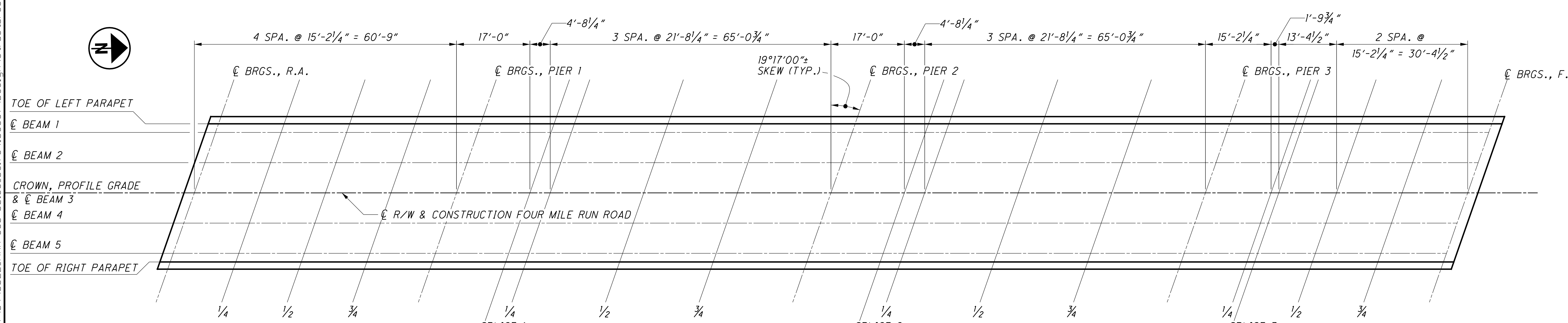
DEFLECTION TABLE (INCHES)																				
LOCATION	DESCRIPTION	R.A.	1/4	1/2	3/4	PIER 1	SPLICE 1	1/4	1/2	3/4	PIER 2	SPLICE 2	1/4	1/2	3/4	PIER 3	1/4	SPLICE 3	1/2	3/4	F.A.
BEAMS 1 & 5	ANTICIPATED REBOUND/ DEFLECTION ADJUSTMENT	0	5/16	3/8	1/8	0	7/16	9/16	15/16	1/2	0	5/16	1/2	15/16	9/16	0	1/8	1/8	3/8	5/16	0
BEAMS 2 - 4	ANTICIPATED REBOUND/ DEFLECTION ADJUSTMENT	0	3/16	3/16	1/16	0	1/4	5/16	1/2	1/4	0	3/16	1/4	1/2	5/16	0	1/16	1/8	3/16	3/16	0



TRANSVERSE SECTION

NOTES

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATIONS PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.
3. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATIONS AFTER ALL ANTICIPATED DEAD LOAD DEFLECTION HAVE OCCURRED.



PLAN

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DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229 614.656.2424 CMTRAN.COM

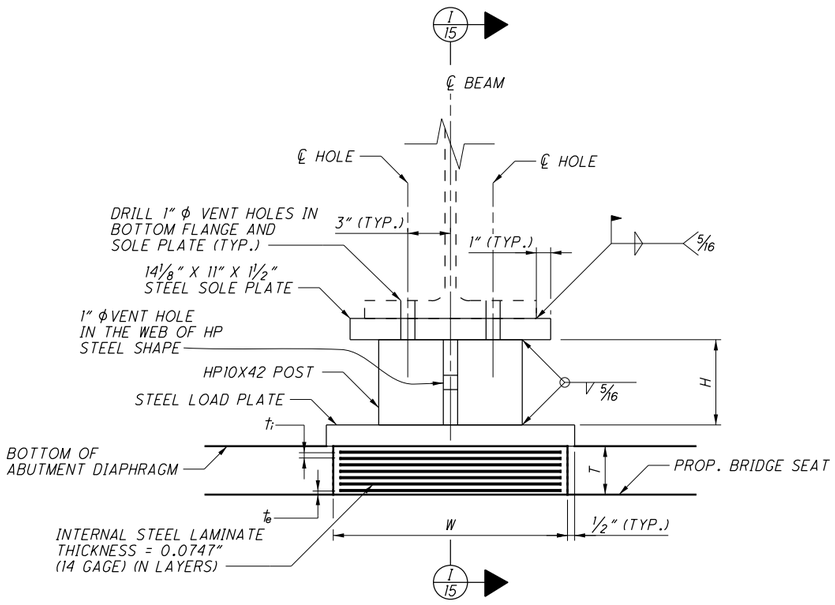
DESIGNED STK | CHECKED AMR | DRAWN MTJ | REVISED | REVIEWED GDJ | DATE 7-28-20 | STRUCTURE FILE NUMBER 5006392

FINAL DECK SURFACE, TOP OF HAUNCH, AND SCREED ELEVATIONS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

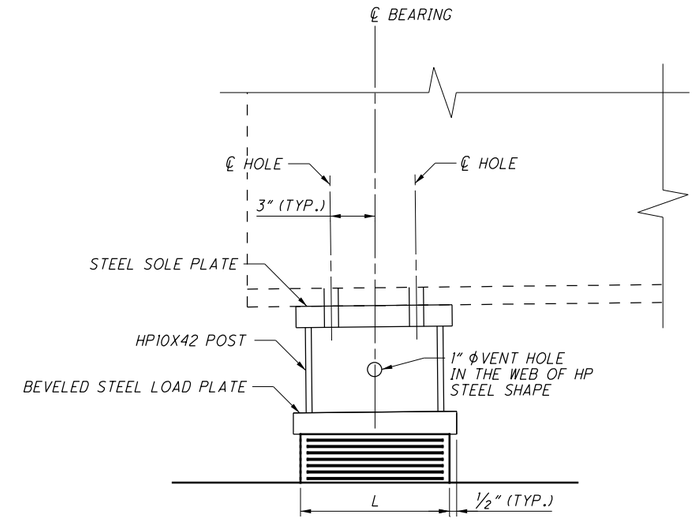
MAH-680-0.68 / 3.73
PID No. 105857

14 / 22

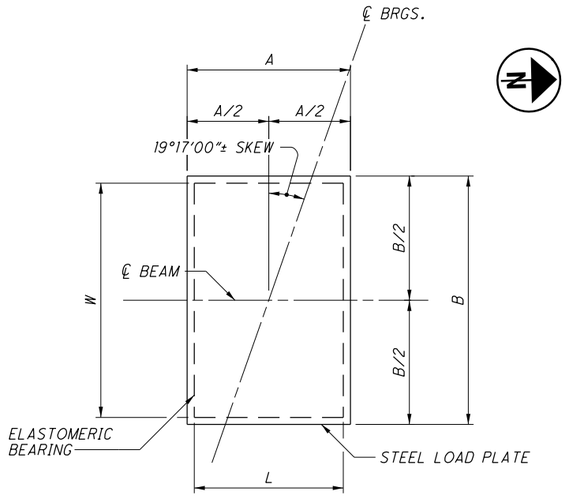
71 / 126



LAMINATED ELASTOMERIC EXPANSION BEARING (REAR AND FORWARD ABUTMENT)

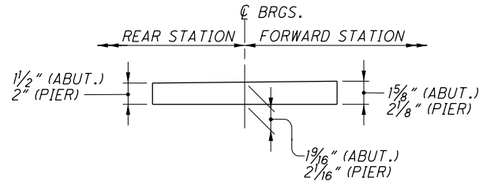


I/15 SECTION

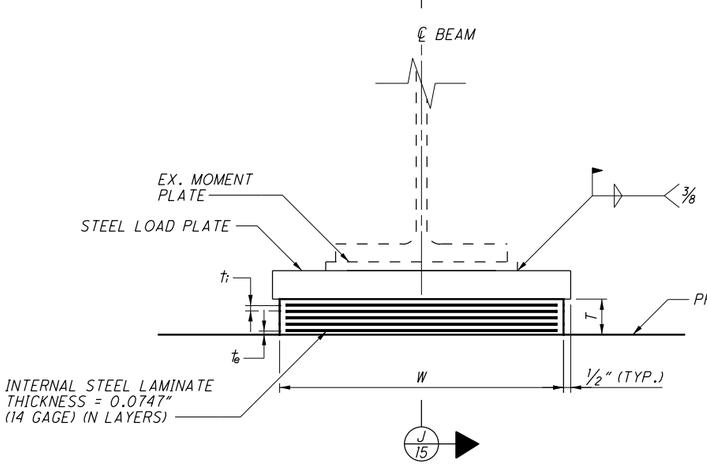


ELASTOMERIC BEARING PAD AND STEEL LOAD PLATE PLAN

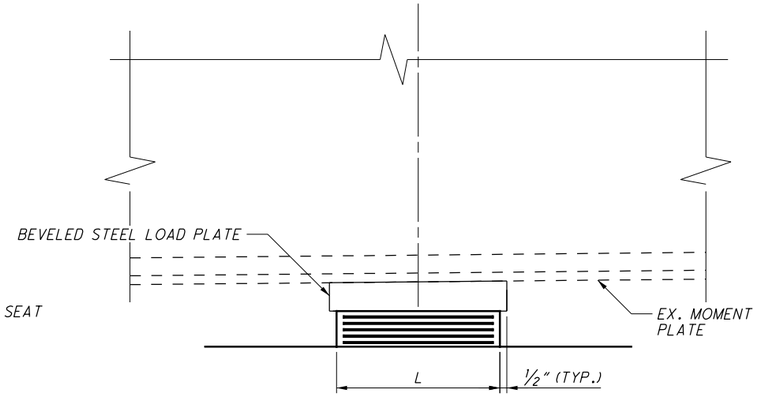
HP 10X42 HEIGHT (H)			
REAR ABUTMENT		FORWARD ABUTMENT	
BEAM	H (IN.)	BEAM	H (IN.)
1	7 3/16	1	7 1/16
2	8 3/4	2	8 3/16
3	9 5/8	3	9
4	8 1/16	4	7 7/16
5	6	5	6



BEVELED STEEL LOAD PLATE DETAIL



LAMINATED ELASTOMERIC EXPANSION BEARING (PIERS 1, 2, & 3)



J/15 SECTION

ELASTOMERIC BEARINGS											
LOCATION	BEARING DIMENSIONS						STEEL LOAD PLATE		REACTIONS*		MAXIMUM DESIGN LOAD
	L	W	ti	te	T	N	A	B	DL	LL	
ABUTMENTS	10.5"	16.5"	.375"	.25"	3.3979"	7	11.5"	17.5"	60.8 k	46.1 k	106.9 k
PIERS	11.5"	20"	.375"	.25"	2.4985"	5	12.5"	21"	147.5 k	56.1 k	203.6 k

* REACTIONS ARE UNFACTORED

LEGEND

ti - THICKNESS OF INTERNAL LAYERS

te - THICKNESS OF EXTERNAL LAYERS (BOTTOM ONLY)

T - TOTAL THICKNESS OF ELASTOMERIC BEARINGS

N - NUMBER OF STEEL LAMINATES AND INTERNAL LAYERS
INTERNAL STEEL LAMINATE THICKNESS = 0.0747" (14 GAGE)

NOTES

1. ELASTOMERIC BEARING: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED UNDER DIVISION I, SECTION 14.6.6 (METHOD A) OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
2. STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. THE STEEL PLATES AND HP10X42 SECTIONS SHALL BE ASTM A709 GRADE 50 AND PAINTED PER ITEM 514.
3. BASIS OF PAYMENT: PAYMENT FOR ALL MATERIALS, LABOR, TESTING, FIELD DRILLING OF BEAM FLANGES, PAINTING OF PLATES AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL THE ELASTOMERIC BEARINGS FOR THE BEAMS WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), EACH. ALL COST ASSOCIATED WITH THE HP SECTIONS AND SOLE PLATES ARE CONSIDERED INCIDENTAL TO ITEM 516.
4. ALL EXISTING PIER BEARING ANCHOR RODS SHALL BE CUT AT THE EXISTING SEAT. PAYMENT SHALL BE INCLUDED UNDER ITEM 516.
5. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	MTJ	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

BEARING DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

15 / 22

72
126

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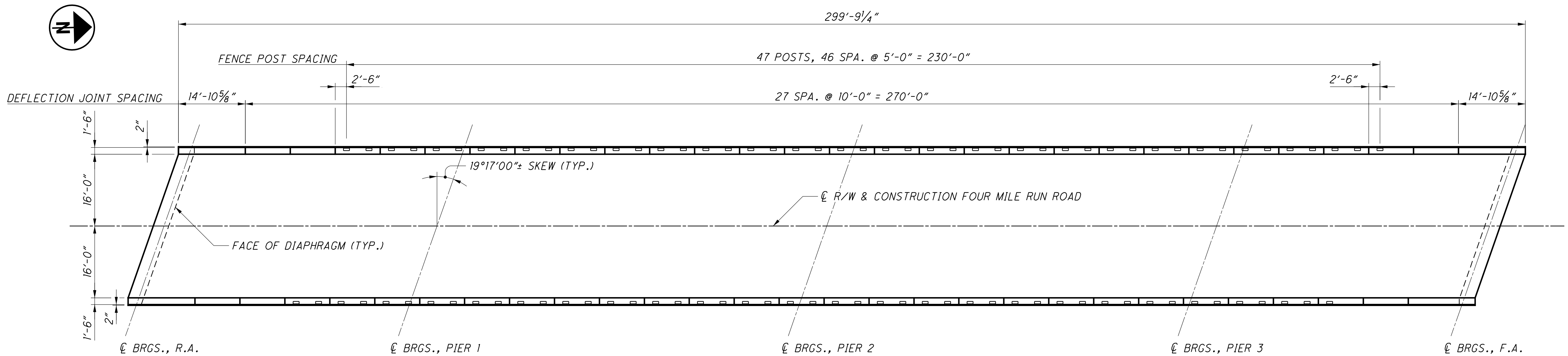
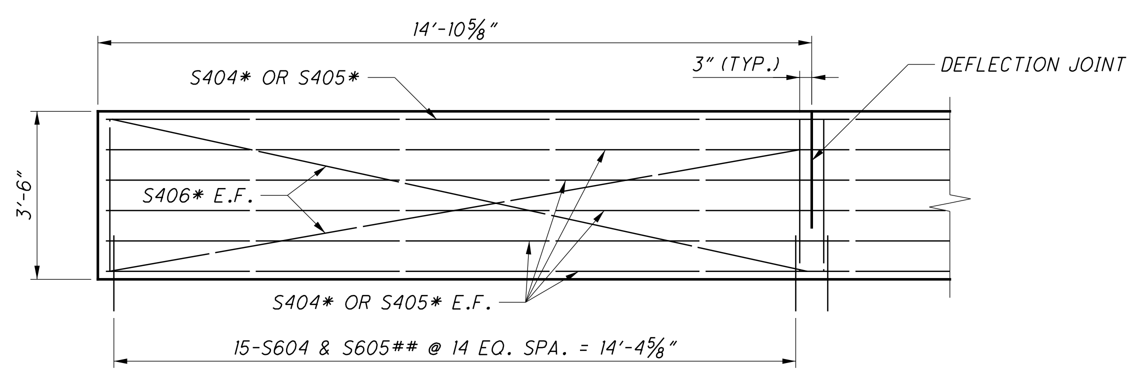
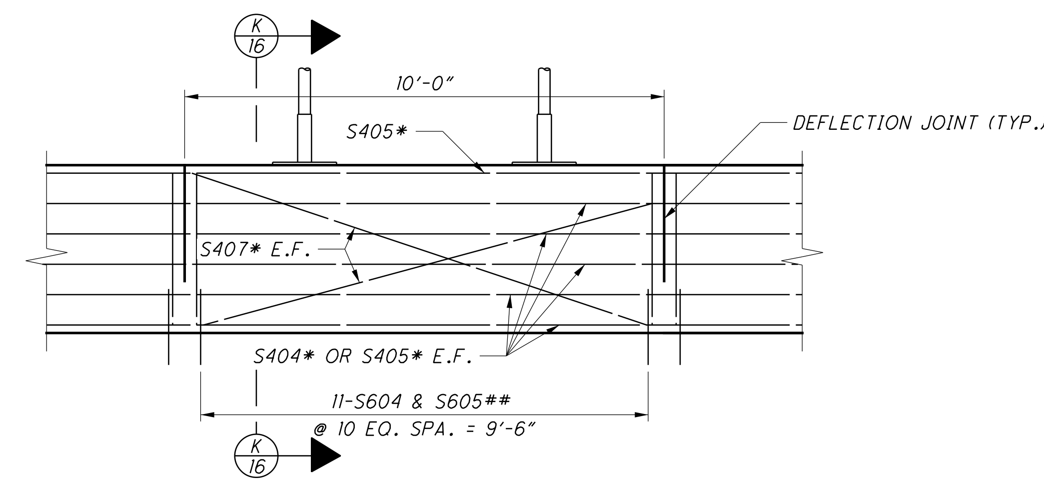


PLAN

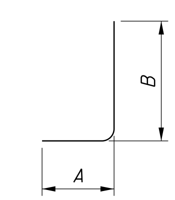
FENCE POST & DEFLECTION JOINT SPACING TYPICAL FOR BOTH SIDES



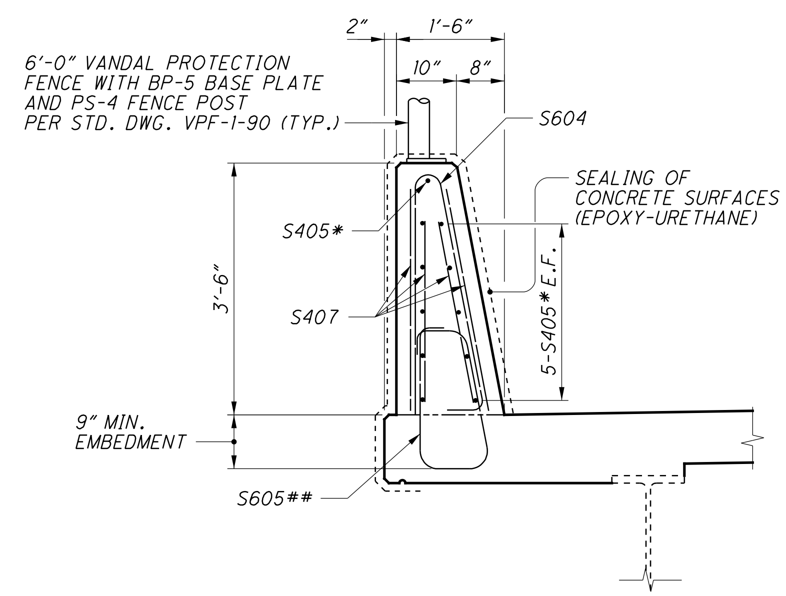
TYPICAL 14'-10⅝" PANEL



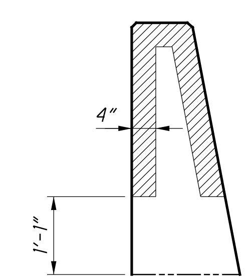
TYPICAL 10'-0" PANEL



TYPE-1



K/16 SECTION



SAWCUT DETAIL AT DEFLECTION JOINTS

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. SBR-1-20 AND VPF-1-90.
2. MINIMUM LAP LENGTH:
   #4 GFRP BAR = 13 INCHES
3. PAYMENT FOR ½" ϕ GLASS FIBER REINFORCED POLYMER REINFORCEMENT SHALL BE INCLUDED WITH ITEM 509 - NO. 4 GFRP DEFORMED BARS.

LEGEND

E.F. - EACH FACE

- BAR SHALL BE PLACED PRIOR TO POURING OF BRIDGE DECK.

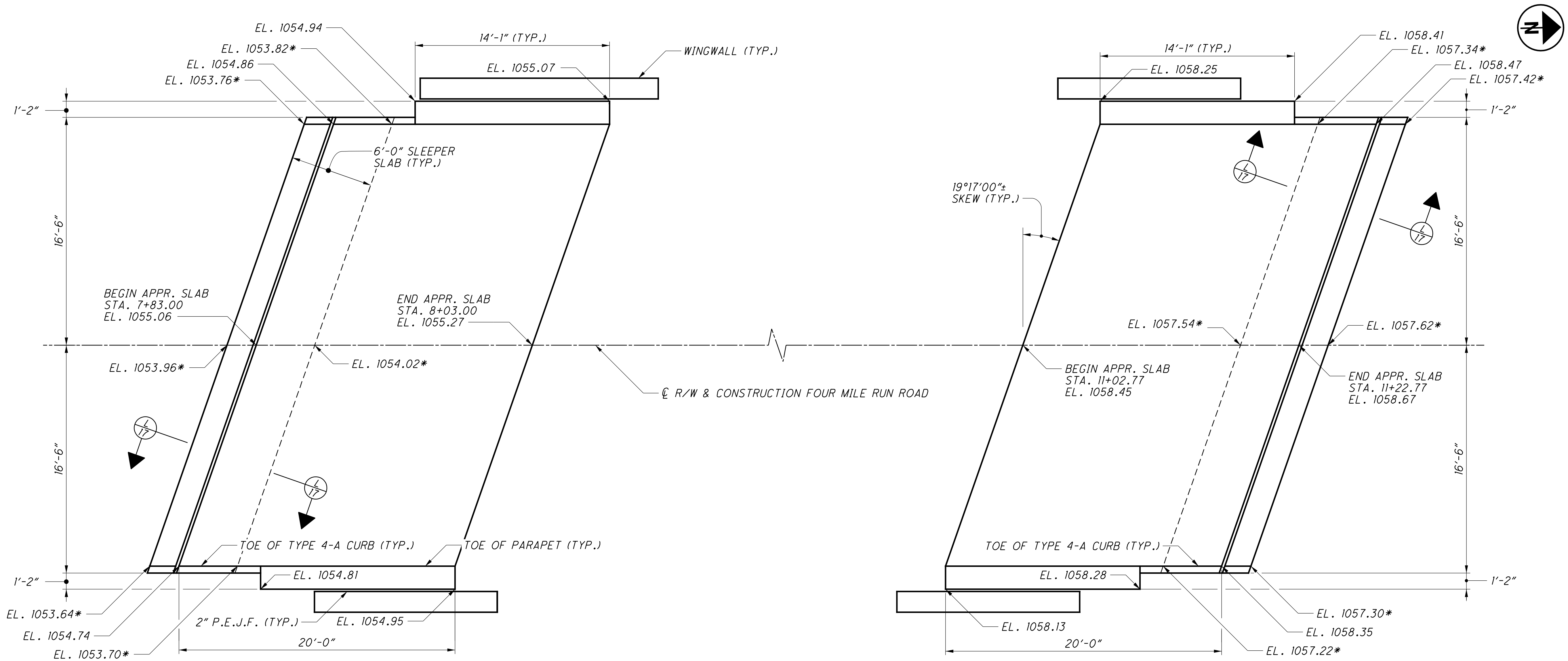
* - DENOTES BAR TO BE GLASS FIBER REINFORCED POLYMER (GFRP)

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTINA.COM

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
AMR	STK	AMR		GDJ	7-28-20	5006392

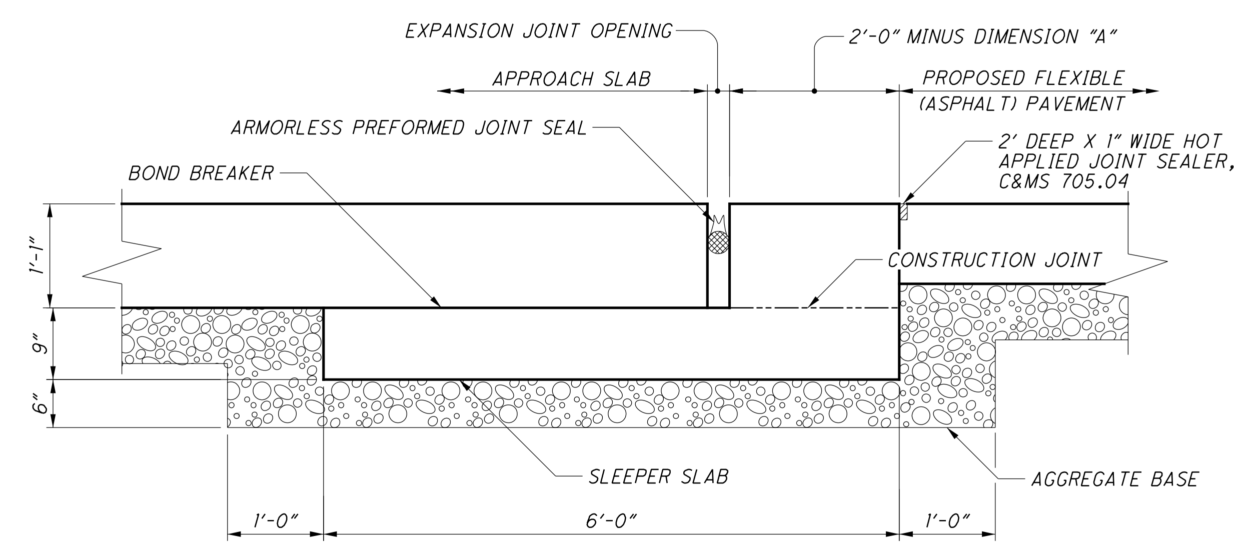
PARAPET & VANDAL PROTECTION FENCE DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



REAR APPROACH SLAB PLAN

FORWARD APPROACH SLAB PLAN



(L/17) SECTION
TYPE C INSTALLATION

LEGEND

* - SLEEPER SLAB ELEVATION

NOTES

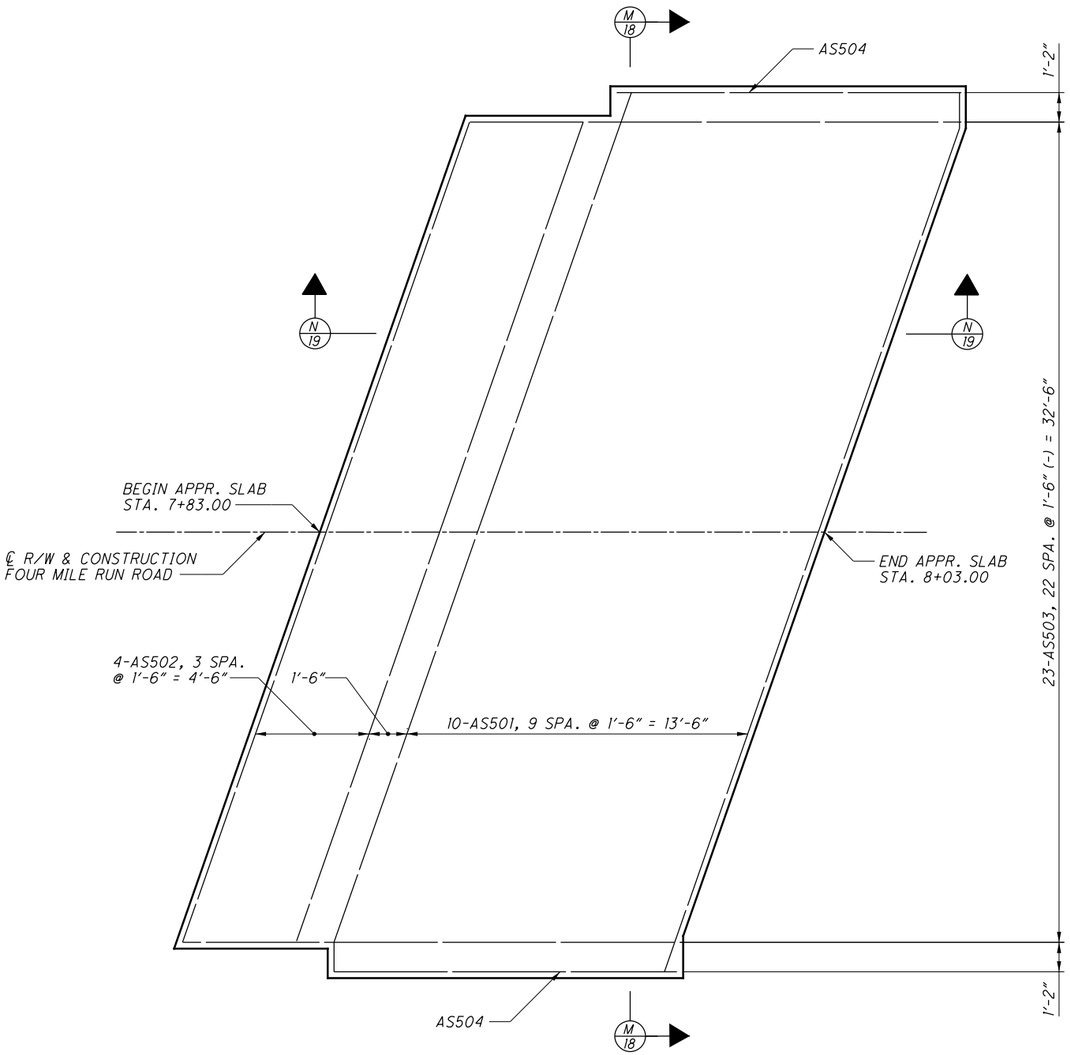
1. FOR ADDITIONAL NOTES AND DETAILS INCLUDING EXPANSION JOINT OPENING DIMENSIONS SEE STD. DWGS. AS-1-15 AND AS-2-15.
2. SLEEPER SLAB ELEVATIONS ARE TAKEN AT THE TOP OF THE SLEEPER SLAB.
3. TYPE 4-A CURB ON THE APPROACH SLAB AND TYPE C INSTALLATION SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526.

DESIGN AGENCY
CARPENTER MARTY transportation

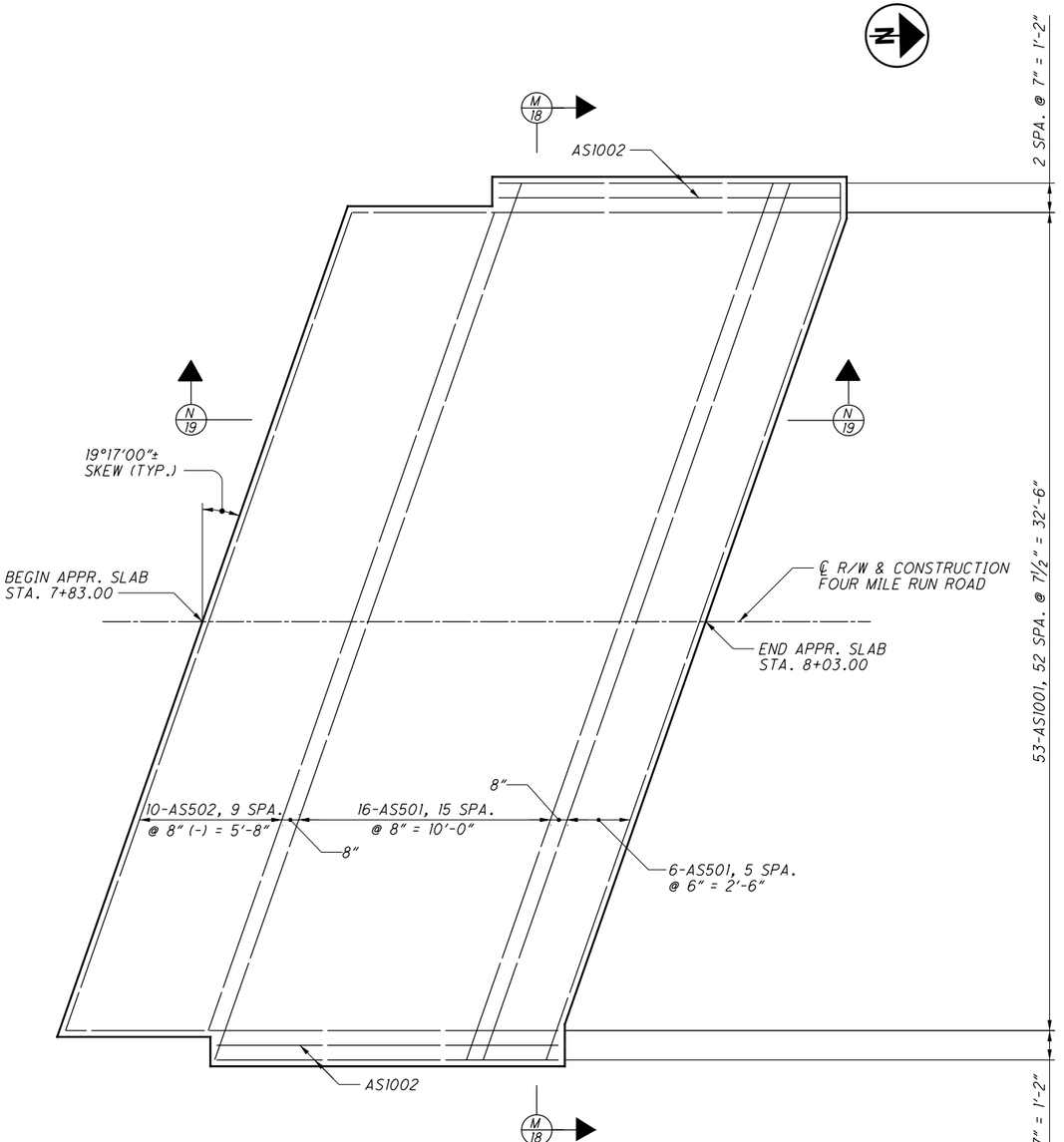
DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
AMR	STK	MTJ		GDJ	7-28-20	5006392

APPROACH SLAB DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

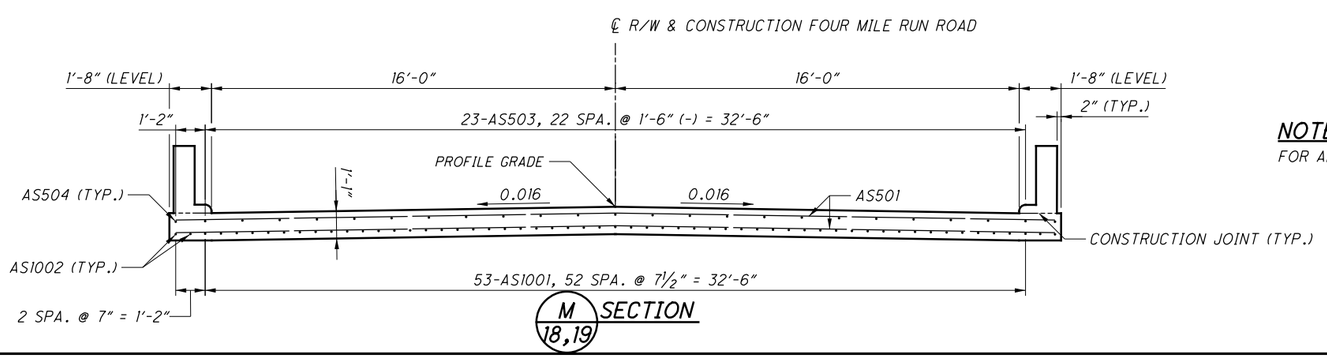
MAH-680-0.68 / 3.73
PID No. 105857



PLAN - TOP REINFORCING



PLAN - BOTTOM REINFORCING



SECTION

NOTE

FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. AS-1-15.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	MTJ	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

REAR APPROACH SLAB REINFORCING
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

18 / 22

75
126

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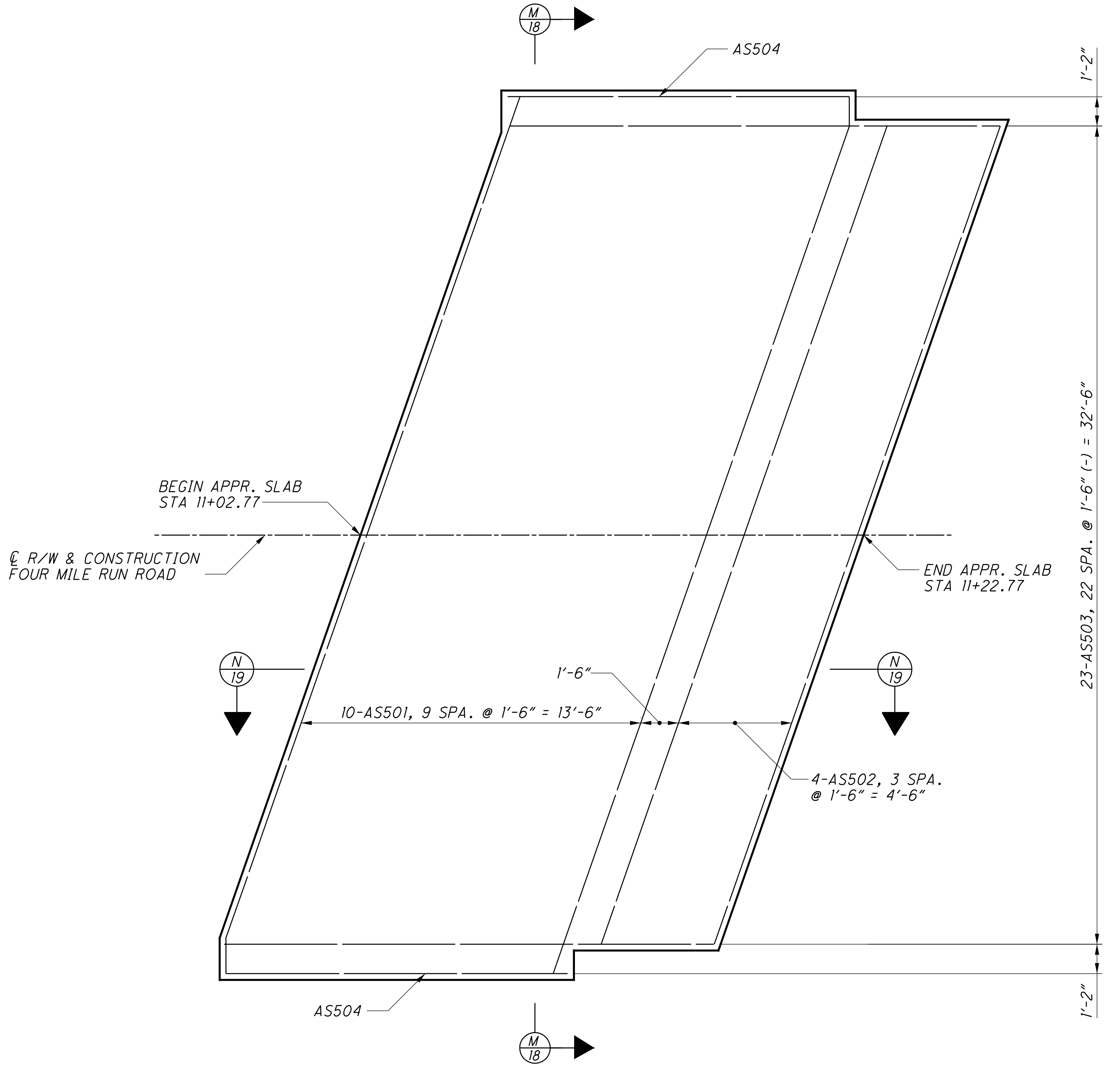
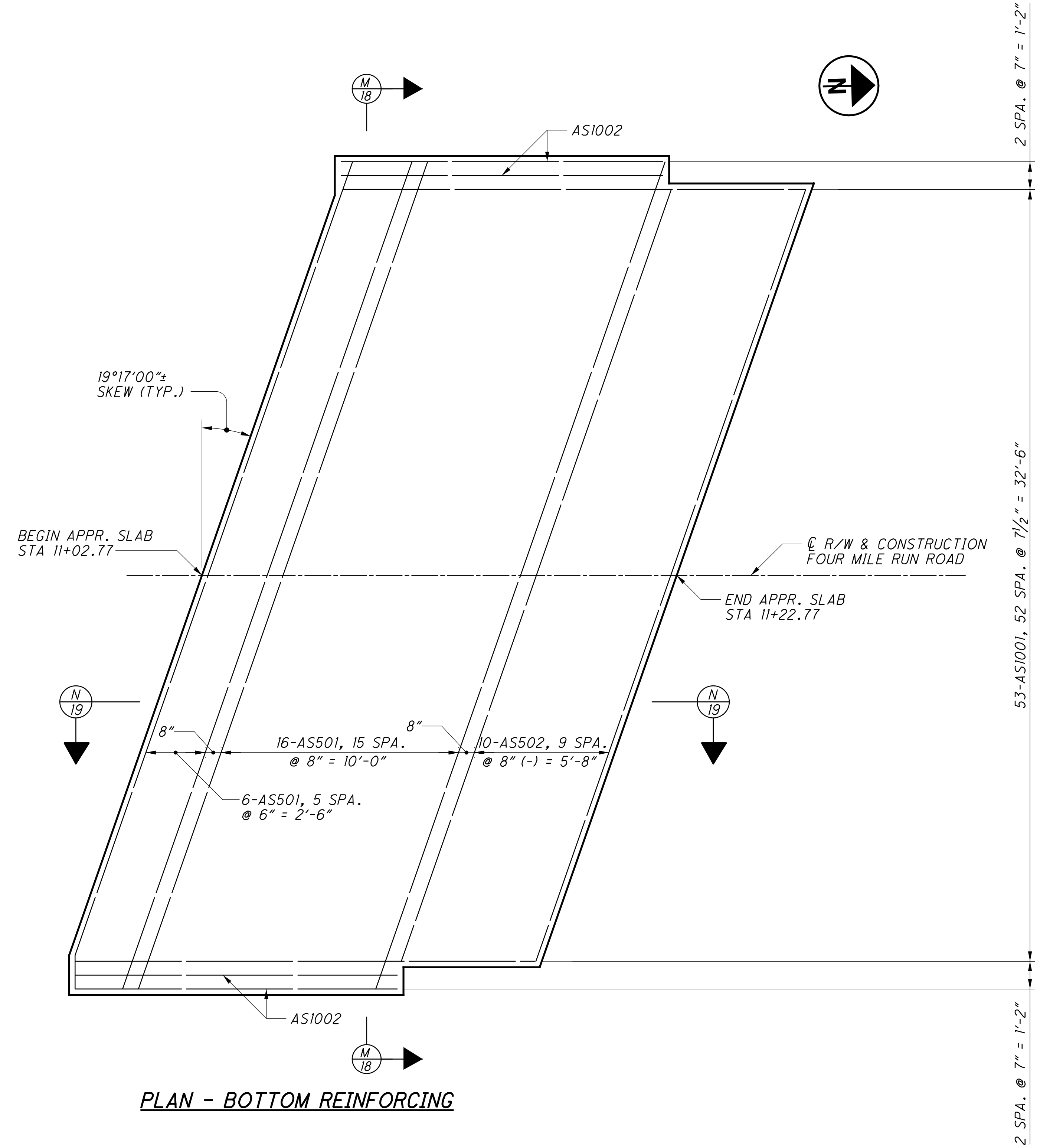
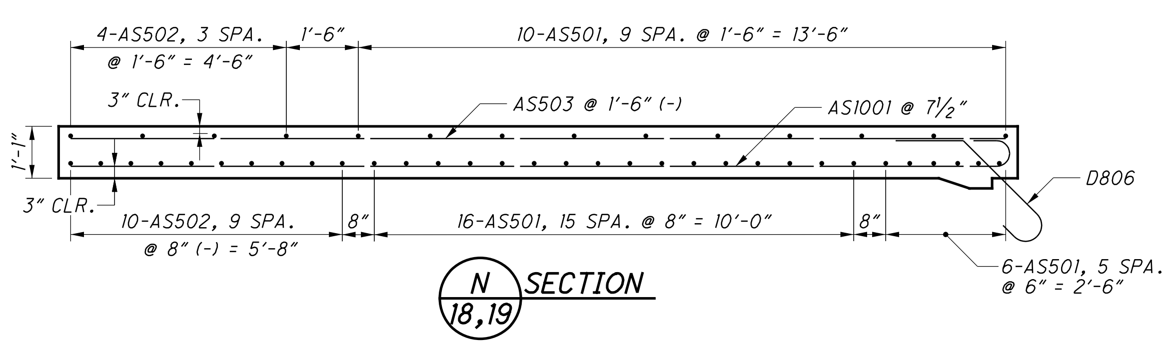


PLAN - TOP REINFORCING



PLAN - BOTTOM REINFORCING



N
18,19
SECTION

NOTE

FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. AS-1-15.

FORWARD APPROACH SLAB REINFORCING
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

DESIGNED	DRAWN	REVIEWED	DATE
AMR	MTJ	GDJ	7-28-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006392	

DESIGN AGENCY
CARPENTER MARTY transportation

MAH-680-0.68/3.73
PID No. 105857

19/22

76/126

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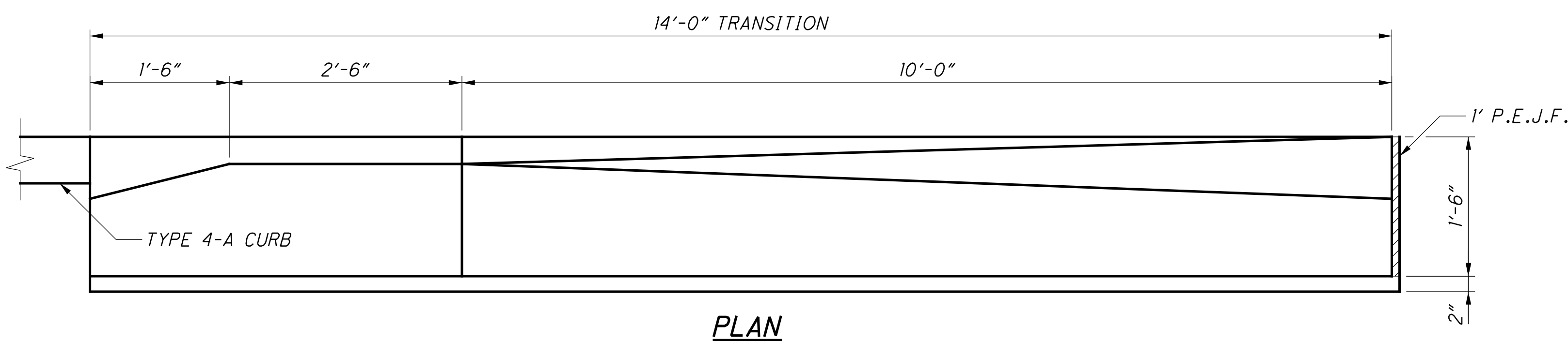
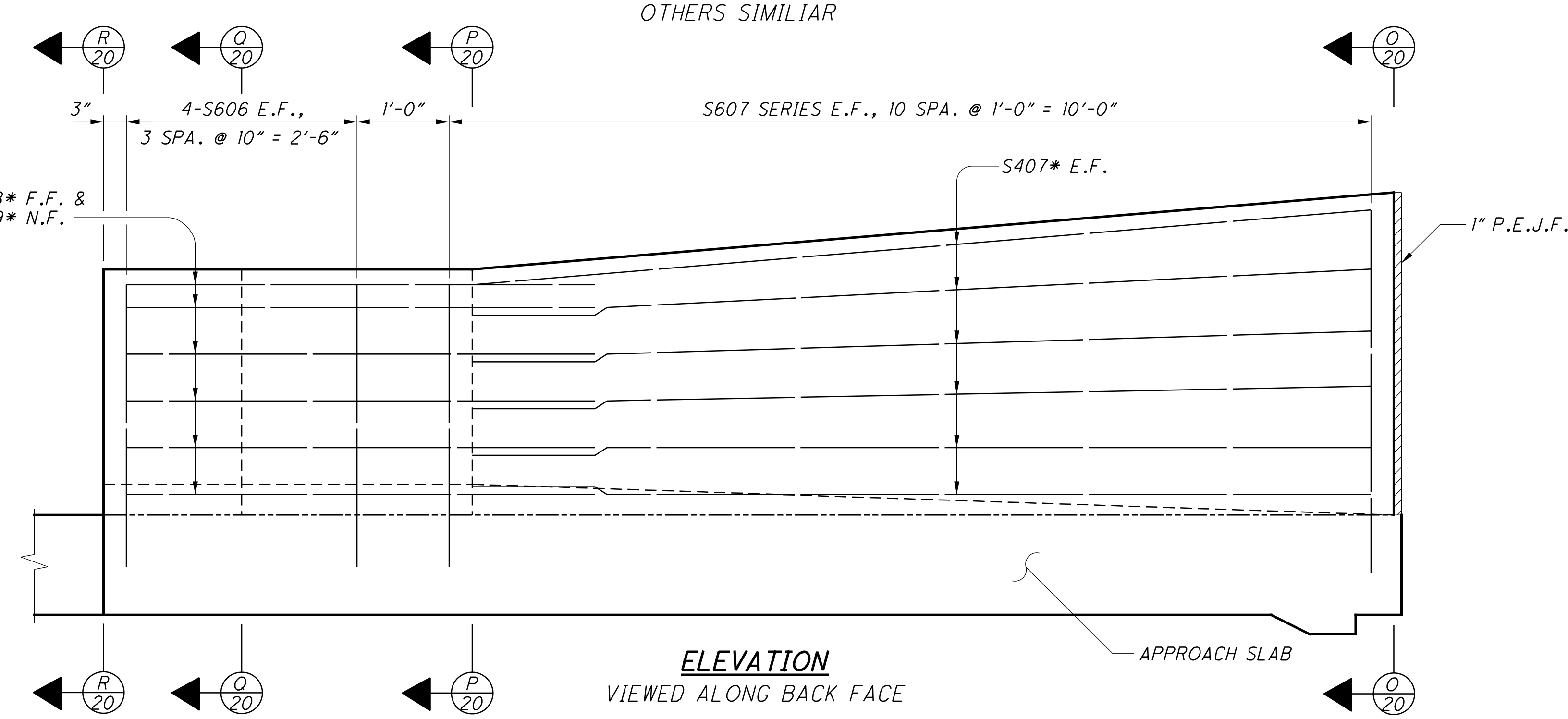


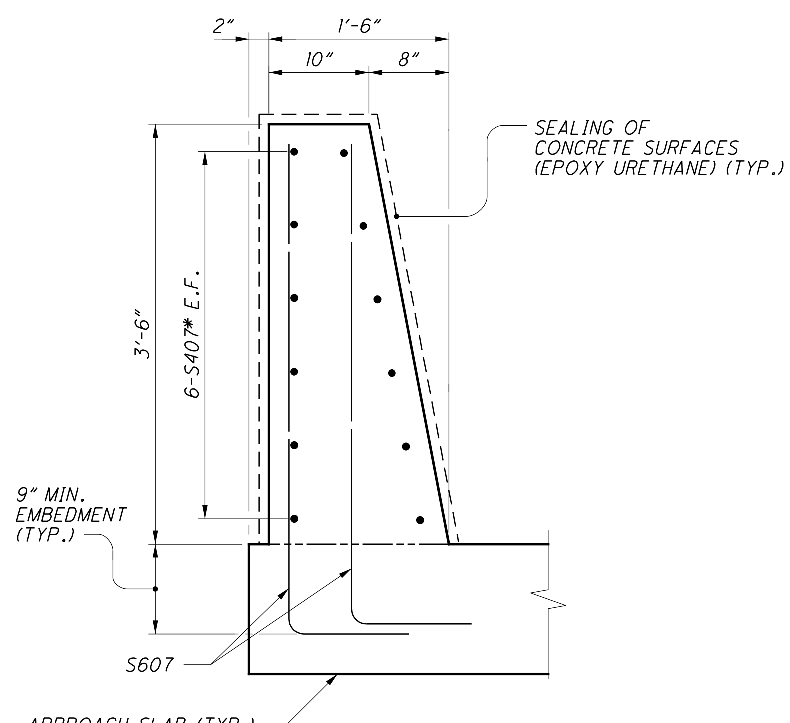
PLAN

REAR APPROACH RIGHT SIDE SHOWN
OTHERS SIMILIAR

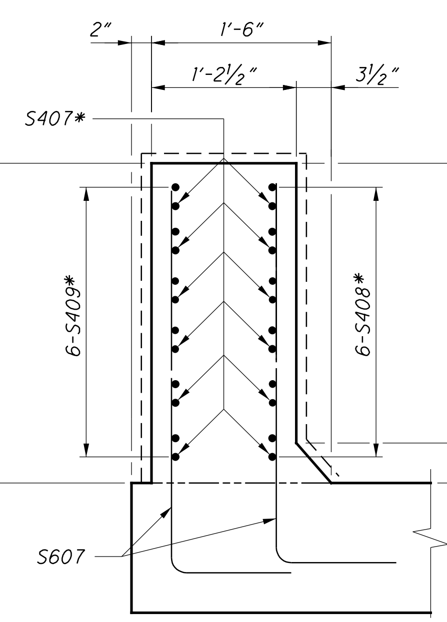


ELEVATION

VIEWED ALONG BACK FACE



O/20 SECTION



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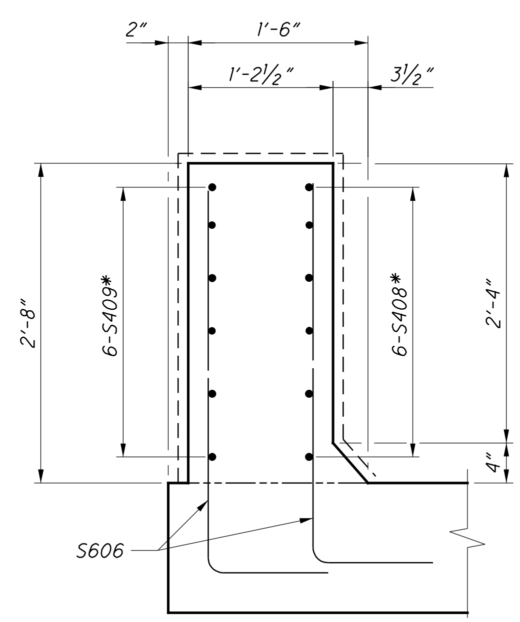
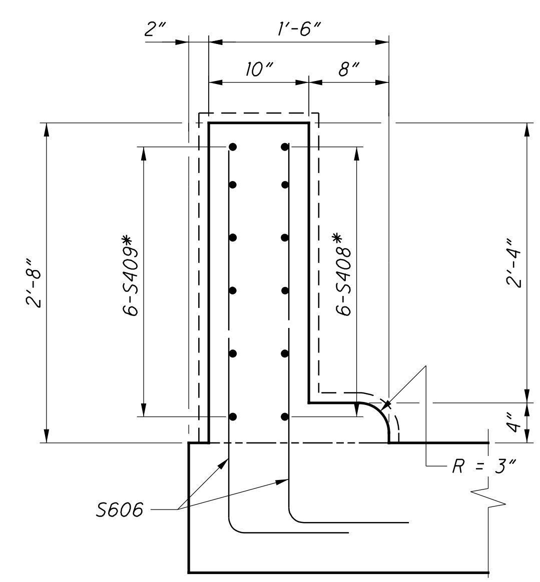


Q/20 SECTION



R/20 SECTION

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. AS-1-15 AND SBR-1-13.
2. PAYMENT FOR PARAPET CONCRETE ON APPROACH SLABS SHALL BE INCLUDED WITH ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET).
3. PAYMENT FOR ½" ϕ GLASS FIBER REINFORCED POLYMER REINFORCEMENT SHALL BE INCLUDED WITH ITEM 509 - NO. 4 GFRP DEFORMED BARS.

LEGEND

E.F. - EACH FACE

F.F. - FAR FACE

N.F.- NEAR FACE

* - DENOTES BAR TO BE GLASS FIBER REINFORCED POLYMER (GFRP)

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
AMR	STK	MTJ		GDJ	7-28-20	5006392

APPROACH SLAB BARRIER DETAILS
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

20/22

77/126

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MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS		
	R.A.	F.A.	TOTAL				A	B	C
ABUTMENTS									
A501#	42	42	84	4'-5"	387	1	3'-5"	1'-2"	
A502	20	20	40	6'-3"	261	2	2'-8"	1'-2"	2'-8"
A503	14	14	28	7'-7"	222	37	3'-4"	1'-4"	3'-6"
A504	14	14	28	5'-11"	173	1	3'-5"	2'-8"	
A505	14	14	28	4'-4"	127	STR			
A506	6	6	12	8'-1"	102	2	3'-7"	1'-2"	3'-7"
A507	4	4	8	8'-11	75	STR			
A508	28	28	56	12'-11"	755	STR			
A801%	5	5	10	20'-9"	555	STR			
A802%	5	5	10	16'-4"	437	STR			
SUB-TOTAL					3094				

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS		
	R.A.	F.A.	TOTAL				A	B	C
DIAPHRAGMS									
D401	2	2	4	3'-7"	10	STR			
D501	27	27	54	7'-0"	395	2	2'-3"	2'-9"	2'-3"
D502	48	48	96	9'-10"	985	2	3'-3"	3'-7"	3'-3"
D503	2	2	4	6'-6'	28	2	2'-0"	2'-9"	2'-0"
D504	2	2	4	10'-2"	43	3	3'-7	1'-2"	
D505	3	3	6	11'-2"	70	3	3'-7"	1'-8"	
D506	2	2	4	6'-10"	29	2	2'-2"	2'-9"	2'-2"
D507	2	2	4	10'-4"	44	3	3'-7"	1'-3"	
D801	1	1	2	36'-11"	198	19	35'-5"	1'-5"	6"
D802	2	2	4	18'-4"	196	STR			
D803	5	5	10	20'-1"	537	1	18'-4"	2'-0"	
D804	5	5	10	12'-9"	341	1	10'-11"	2'-0"	
D805	2	2	4	10'-11"	117	STR			
D806	25	25	50	4'-8"	624	18	2'-6"	1'-0"	1'-0"
D807	10	10	20	6'-3"	334	18	4'-1"	1'-0"	1'-0"
D808	4	4	8	4'-7"	98	2	1'-9"	1'-6"	1'-9"
D809	1		1	14'-0"	38	STR			
D810	1		1	21'-4"	57	19	20'-2"	1'-1"	5"
D811	1		1	13'-10"	37	19	12'-4"	1'-5"	6"
D812	1	1	2	36'-7"	196	19	35'-9"	1'-1"	5"
D813	1		1	21'-4"	57	19	19'-11"	1'-4"	5"
D814		1	1	13'-11"	38	19	12'-9"	1'-1"	5"
D815		1	1	13'-10"	37	19	12'-5"	1'-4"	5"
D816		1	1	21'-5"	58	STR			
D817		1	1	21'-3"	57	19	19'-9"	1'-5"	6"
SUB-TOTAL					4624				

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS	
	R.A.	F.A.	TOTAL				A	B
DIAPHRAGM GUIDES								
DG601#	10	10	20	6'-6"	196	1	3'-5"	3'-3"
DG801#	16	16	32	5'-10"	499	1	2'-7"	3'-6"
SUB-TOTAL					695			

MARK	NUMBER				LENGTH	WEIGHT	TYPE	DIMENSIONS		
	PIER 1	PIER 2	PIER 3	TOTAL				A	B	R
PIERS										
P501#	46			46	3'-3"	156	1	2'-6"	11"	
P502#		46		46	3'-6"	168	1	2'-6"	1'-2"	
P503#			46	46	3'-2"	152	1	2'-6"	10"	
P504	2	2	2	6	8'-2"	52	24	2'-8	2'-0"	1'-4"
P1001%	2	2	2	6	17'-5"	450	STR			
P1002%	2	2	2	6	16'-4"	422	STR			
P1003%	3	3	3	9	8'-9"	339	STR			
P1004%	2	2	2	6	14'-5"	373	STR			
P1005%	2	2	2	6	13'-4"	345	STR			
P1006%	3	3	3	9	5'-9"	223	STR			
SUB-TOTAL						2680				

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS			
					A	B	C	INC
SUPERSTRUCTURE								
S401	490	30'-0"	9820	STR				
S402	49	18'-8"	611	STR				
S403	468	5'-11"	1850	2	2'-10"	6"	2'-10"	
S501	440	30'-0"	13768	STR				
S502	44	25'-4"	1163	STR				
S503	924	35'-0"	33731	STR				
S504	4 SERIES OF 15	6'-8" TO 31'-10"	1205	STR				1'-9 1/2" (+)
S505	12	5'-0"	63	STR				
S601	120	30'-0"	5408	STR				
S602	80	22'-11"	2754	STR				
S603	40	27'-11"	1678	STR				
S604	658	7'-0"	6919	23	6"	3'-3"	3'-3"	
S605	658	7'-2"	7083	29	9 1/2"	2'-2"		
S606	32	4'-1"	197	1	1'-0"	3'-3"		
S607	8 SERIES OF 11	4'-1" TO 4'-11"	595	1	1'-0"	3'-3" TO 4'-1"		1"
S801	6	37'-0"	593	STR				
S802	2	37'-0"	198	19	35'-7"	1'-4"	5"	
SUB-TOTAL			87636					

LEGEND

% - REINFORCING BAR UTILIZES A MECHANICAL CONNECTOR. BAR LENGTH IS MEASURED TO THE CONSTRUCTION JOINT. EXTRA BAR LENGTH AND/OR BAR END PREPARATION MAY BE NECESSARY DEPENDING UPON THE TYPE OF MECHANICAL ANCHOR FURNISHED.

- BARS TO BE DOWELED INTO EXISTING STRUCTURE.

NOTE

SEE SHEET 22/22 FOR NOTES AND BENDING DIAGRAM.

P:\ODT\04\0022_MAH-680-00.68_03.73\105857\Design\Structures\MAH680_0068C\Sheets\680_0068C_SL001.dgn Sheet 6/24/2021 2:47:44 PM CMT008

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED MTJ | DRAWN MTJ | REVIEWED GDJ | DATE 7-28-20
CHECKED AMR | REVISED | STRUCTURE FILE NUMBER 5006392

REINFORCING STEEL LIST

BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSION
	R.A.	F.A.	TOTAL				A
APPROACH SLABS							
AS501	32	32	64	36'-10"	2459	STR	
AS502	14	14	28	34'-5"	1006	STR	
AS503	23	23	46	19'-6"	936	STR	
AS504	2	2	4	13'-7"	57	STR	
AS1001	53	53	106	20'-11"	9541	16	19'-6"
AS1002	4	4	8	15'-0"	517	16	13'-7"
				SUB-TOTAL	14516		

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS				
				A	B	C	D	E
SUPERSTRUCTURE (GFRP)								
S404*	22	10'-4"	STR					
S405*	220	30'-0"	STR					
S406*	16	14'-10"	STR					
S407*	264	10'-0"	STR					
S408*	24	6'-4"	25	2'-6"	2'-5"	1'-4"	5"	1 1/2"
S409*	24	5'-1"	STR					
SUB-TOTAL	9979							

MECHANICAL CONNECTORS		
LOCATION	BAR SIZE	TOTAL
ABUTMENTS	8	10
PIERS	10	21

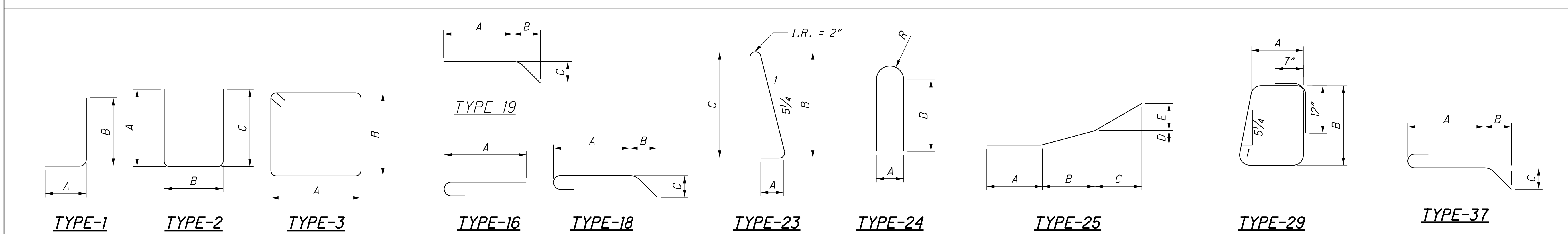
NOTES

1. THE BAR NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S501 IS A NO. 5 BAR. BAR DIMENSIONS ARE OUT TO OUT UNLESS OTHERWISE INDICATED.
2. ALL REINFORCING STEEL IS TO BE EPOXY COATED.
3. APPROACH SLAB REINFORCING STEEL, WITH THE EXCEPTION OF PARAPET REINFORCING, SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=13").
4. DIAPHRAGM GUIDE REINFORCING STEEL SHALL BE INCLUDED FOR PAYMENT WITH ITEM 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
5. PAYMENT FOR MECHANICAL CONNECTORS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.
6. PAYMENT FOR ½" ϕ GLASS FIBER REINFORCED POLYMER REINFORCEMENT SHALL BE INCLUDED WITH ITEM 509 - NO. 4 GFRP DEFORMED BARS.

LEGEND

* - DENOTES BAR TO BE GLASS FIBER REINFORCED POLYMER (GFRP)

BENDING DIAGRAM

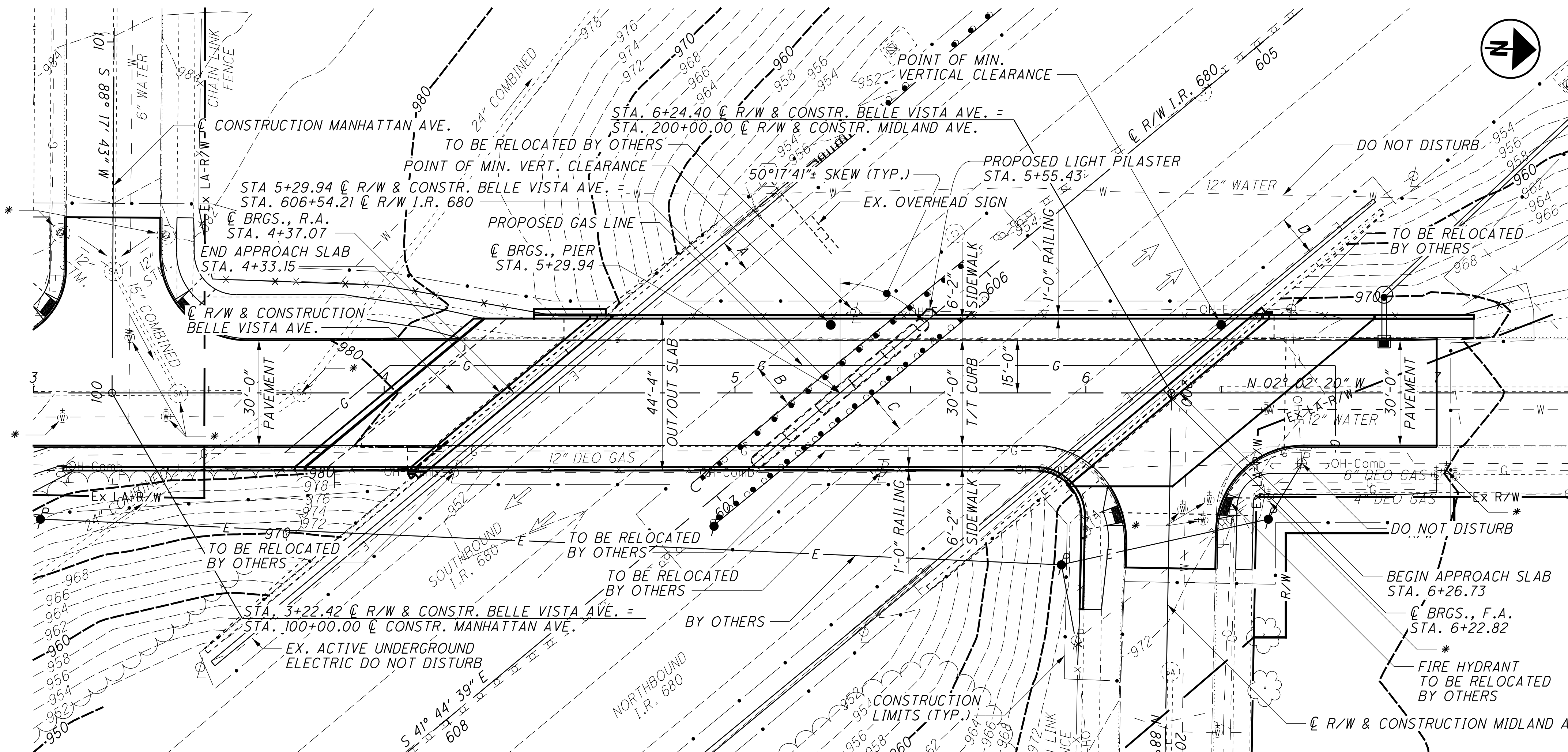


DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED MTJ | CHECKED AMR | DRAWN MTJ | REVISED | REVIEWED GDJ | DATE 7-28-20 | STRUCTURE FILE NUMBER 5006392

REINFORCING STEEL & GFRP LIST
BRIDGE NO. MAH-680-0068
FOUR MILE RUN ROAD OVER I.R. 680

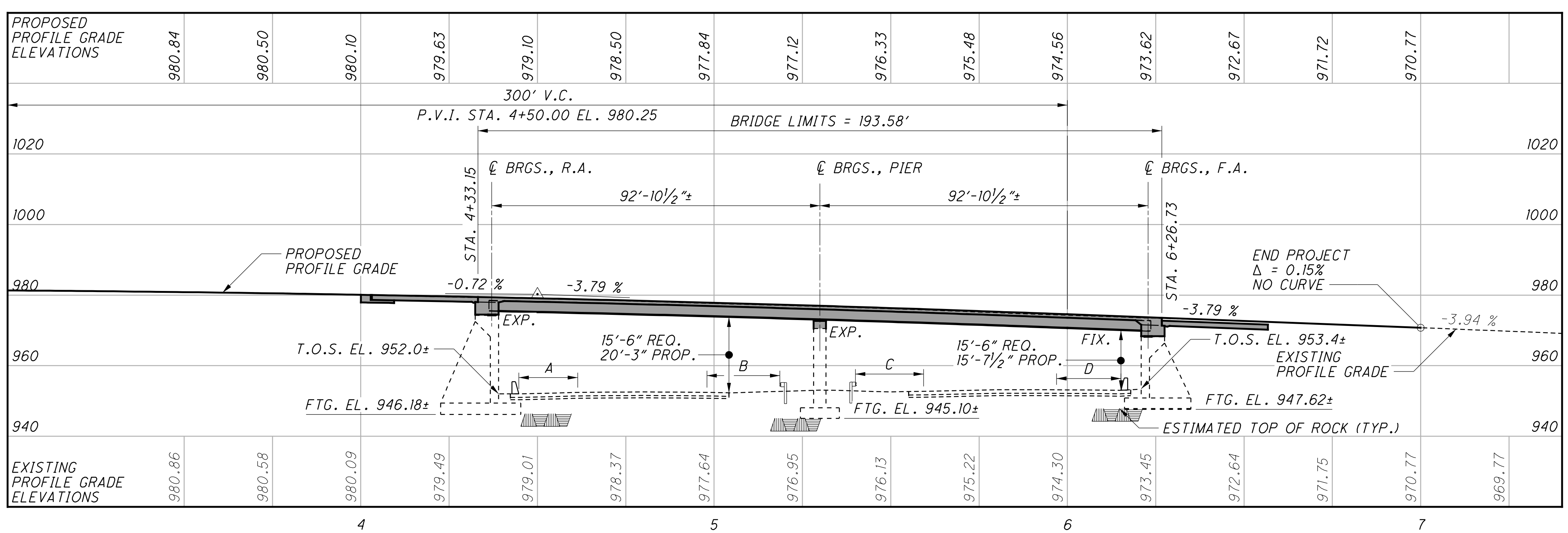
MAH-680-0.68 / 3.73
PID No. 105857



PROPOSED WORK

THE EXISTING SUPERSTRUCTURE WILL BE REMOVED AND REPLACED WITH NEW ROLLED GALVANIZED STEEL BEAMS AND A COMPOSITE CONCRETE DECK. PORTIONS OF THE ABUTMENTS WILL BE REMOVED TO CONVERT TO SEMI-INTEGRAL. NEW ELASTOMERIC BEARINGS ON NEW PIER CAP. THE APPROACH SLABS WILL BE REMOVED AND REPLACED.

PLAN



PROFILE ALONG C R/W & CONSTRUCTION BELLE VISTA AVE.

BENCHMARK DATA

CP #1 STA. 608+66.56, EL. 951.17, OFFSET 0.20', RT.
CP #2 STA. 604+43.80, EL. 953.89, OFFSET 0.69', RT.

FOR ADDITIONAL BENCHMARK INFORMATION SEE ROADWAY PLAN SHEET 5/126

NOTE

DESIGN TRAFFIC:
2020 ADT = 6600   2020 ADTT = 198
2040 ADT = 7800   2040 ADTT = 234
DIRECTIONAL DISTRIBUTION = 0.60

LEGEND

* - ADJUST TO GRADE

S.B. I.R. 680
● 15'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
18'-11½" EXISTING MINIMUM VERTICAL CLEARANCE
20'-3" PROPOSED MINIMUM VERTICAL CLEARANCE

N.B. I.R. 680
● 15'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
14'-2¾" EXISTING MINIMUM VERTICAL CLEARANCE
15'-7½" PROPOSED MINIMUM VERTICAL CLEARANCE

A = MIN. HORIZONTAL CLEARANCE = 10'-0"
REQ. HORIZONTAL CLEARANCE = 10'-0"

B = MIN. HORIZONTAL CLEARANCE = 13'-1½"
REQ. HORIZONTAL CLEARANCE = 6'-0"

C = MIN. HORIZONTAL CLEARANCE = 12'-1"
REQ. HORIZONTAL CLEARANCE = 6'-0"

D = MIN. HORIZONTAL CLEARANCE = 10'-0"
REQ. HORIZONTAL CLEARANCE = 10'-0"

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL GIRDER WITH REINFORCED NON-COMPOSITE CONCRETE DECK AND SUBSTRUCTURE
SPANS: 92'-10½"± - 92'-10½"± C/C BEARINGS
ROADWAY: 30'-0"± TOE/TOE OF CURB WITH 6'-2"± SIDEWALKS
LOADING: CF 2000 (57)
SKEW: 50°17'41"± L.F.
WEARING SURFACE: 3"± ASPHALT CONCRETE
APPROACH SLABS: 25'-0" LONG - REAR AS-1-54, FORWARD SPECIAL DESIGN
STRUCTURAL FILE NUMBER: 5006759
DATE BUILT: 1967
DISPOSITION: TO BE REHABILITATED

PROPOSED STRUCTURE

PROPOSED WORK: CONVERT ABUTMENTS TO SEMI-INTEGRAL, NEW ROLLED GALVANIZED STEEL BEAMS AND COMPOSITE CONCRETE DECK, REPLACE APPROACH SLABS
SPANS: 92'-10½"± - 92'-10½"± C/C BEARINGS
ROADWAY: 30'-0" TOE/TOE CURB WITH 6'-2" SIDEWALKS
LOADING: HL-93 (SUPERSTRUCTURE); CF 2000 (57) (SUBSTRUCTURE)
FUTURE WEARING SURFACE LOADING: 0.060 KSF
SKEW: 50°17'41"± L.F.   DECK SURFACE AREA: 8373 FT²
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: 30'-0" LONG (AS-1-15) AS-2-15 (TYPE C R.A., TYPE B F.A.)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41°06'31.07" N
LONGITUDE 80°41'19.90" W

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED ERK | CHECKED GDJ | DRAWN ERK | REVISED | REVIEWED STK | DATE 7-29-20 | STRUCTURE FILE NUMBER 5006759

MAHONING COUNTY
STA. 4+33.15
STA. 6+26.73

SITE PLAN
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

1/39

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-15	REVISED	7-17-2015
AS-2-15	REVISED	1-18-2019
BR-2-15	DATED	7-17-2015
EXJ-6-17	REVISED	1-15-2021
GSD-1-19	DATED	1-18-2019
SICD-1-96	REVISED	7-18-2014
SICD-2-14	DATED	7-18-2014
VPF-1-90	REVISED	7-20-2018

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

840	DATED	1-17-2020
863	DATED	10-17-2014
869	DATED	10-17-2014

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE 8TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2017 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

SPECIAL DESIGN SPECIFICATIONS:

THIS BRIDGE REQUIRED THE USE OF A TWO DIMENSIONAL MODEL USING THE FINITE ELEMENT DESIGN METHOD TO ANALYZE THE STRUCTURE. THE COMPUTER PROGRAM USED FOR STRUCTURAL ANALYSIS WAS LEAP BRIDGE STEEL. THE BRIDGE COMPONENTS DESIGNED BY THIS METHOD WERE THE STEEL BEAMS AND CROSSFRAMES.

DEAD LOAD DISTRIBUTION: WEIGHT OF DECK AND STEEL BEAMS WERE USED FOR THE NON-COMPOSITE DEAD LOAD BASED ON TRIBUTARY AREA. THE WEIGHT OF THE APPURTENANCES AND FUTURE WEARING SURFACE COURSE WERE DIVIDED EQUALLY AMONG THE BEAMS FOR THE COMPOSITE DEAD LOAD.

LIVE LOAD DISTRIBUTION FACTORS:
EXTERIOR MEMBERS - DIRECT LANE LOADING FOR WHEEL (OR AXLE) LOAD & FOR LANE LOAD MOMENTS. DIRECT LANE LOADING FOR WHEEL (OR AXLE) LOAD & LANE LOAD SHEARS.
INTERIOR MEMBERS - DIRECT LANE LOADING FOR WHEEL (OR AXLE) LOAD & FOR LANE LOAD MOMENTS. DIRECT LANE LOADING FOR WHEEL (OR AXLE) LOAD & LANE LOAD SHEARS.

DESIGN LOADING:

HL-93 (SUPERSTRUCTURE)

CF 2000(57) (SUBSTRUCTURE)

FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/FT^2

DESIGN DATA:

CONCRETE CLASS QC2 WITH QC/QA - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)

REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL

2½" CONCRETE COVER

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN:

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT, EXCEPT FOR WEARING COURSE REMOVAL. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO C&MS 501.05

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST, OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

MEASUREMENT AND PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C&MS SECTIONS 102.05, 105.02, AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

UTILITY LINES:

THE UTILITIES SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

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 2.74 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 BEAM TO THE FACE OF THE SAFETY HANDRAIL OF 65".

ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN:

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 REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ASBESTOS NOTIFICATION

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE BRIDGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT 35 S.F. ON MAH-680-0373 OF ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE. ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM

OHIO EPA, DAPC
P.O. BOX 1049
COLUMBUS, OH 43216-1049
OR
ASBESTOS PROGRAM
OHIO EPA, DAPC
50 W. TOWN ST., SUITE 700
COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORMS TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORMS SHALL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORMS AND BRIDGE INSPECTION REPORTS ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 4 OFFICE, 2088 S. ARLINGTON ROAD, AKRON, OHIO 44306.

BASIS FOR PAYMENT - THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORMS. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 510 - DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT:

PRIOR TO DRILLING HOLES, LOCATE ALL EXISTING REINFORCING STEEL BARS IN THE AREA OF THE HOLE WITH THE AIDE 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. THE DEPARTMENT WILL PAY FOR DOWEL HOLES AND GROUTING WITH ITEM 510 - DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN

1.0 DESCRIPTION

IN ADDITION TO THE REQUIREMENTS OF CONSTRUCTION AND MATERIAL SPECIFICATION 513, THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO CLEAN AND GALVANIZE ALL STRUCTURAL STEEL SURFACES, AS SPECIFIED HEREIN. THE GALVANIZED COATING SYSTEM MAY BE APPLIED BY A GALVANIZER NOT QUALIFIED AS A FABRICATION SHOP UNDER CONSTRUCTION AND MATERIAL SPECIFICATION 513, BUT THE APPROVED FABRICATOR OF THE STRUCTURAL STEEL SHALL BE RESPONSIBLE FOR THE QUALITY OF THE APPLIED GALVANIZED COATING SYSTEM AND ANY REPAIRS, RE-FABRICATING, ADDITIONAL LAYDOWNS REQUIRED TO ASSURE THE FABRICATED STEEL MEETS ALL REQUIREMENTS OF THIS SPECIFICATION. SECTIONS 513.27 AND 513.28 SHALL NOT APPLY.

THIS ITEM SHALL ALSO INCLUDE GALVANIZING, PER 711.02, OF ALL NUTS, WASHERS, BOLTS, ANCHOR BOLTS.

SHEAR STUDS SHALL BE INSTALLED AS PER SECTION 513.22.

2.0 PRE-FABRICATION MEETING

IN ADDITION TO THE PRE-FABRICATION MEETING REQUIREMENTS UNDER 513.07, BOTH THE FABRICATOR'S QUALITY CONTROL SPECIALIST, (QCS) AND GALVANIZER'S QCS COATING APPLICATOR SHALL BE PRESENT AND DISCUSS METHODS OF OPERATION, QUALITY CONTROL, INCLUDING REPAIRS, TRANSPORTATION, ERECTION METHODS TO ACCOMPLISH ALL PHASES OF THE PREPARATION AND COATING WORK REQUIRED BY THIS SPECIFICATION.

3.0 QUALITY CONTROL

3.1 QUALITY CONTROL SPECIALIST

THE GALVANIZER'S QCS (QUALITY CONTROL SPECIALIST) REQUIRED UNDER 514, IS RESPONSIBLE FOR ALL QUALITY CONTROL REQUIREMENTS OF THIS SPECIFICATION. THE QCS SHALL HAVE THE TESTING EQUIPMENT SPECIFIED IN 514.05

3.2 QUALITY CONTROL POINTS (QCP)

QUALITY CONTROL POINTS (QCP) ARE POINTS IN TIME WHEN ONE PHASE OF THE WORK IS COMPLETE AND READY FOR INSPECTION BY THE FABRICATOR'S QCS AND THE DEPARTMENT'S QA REPRESENTATIVE. THE NEXT OPERATIONAL STEP MUST NOT PROCEED UNLESS THE QCP HAS BEEN ACCEPTED OR QA INSPECTION WAIVED BY THE DEPARTMENT'S QA REPRESENTATIVE. AT THESE POINTS THE FABRICATOR MUST AFFORD ACCESS TO INSPECT ALL AFFECTED SURFACES. IF INSPECTION INDICATES A DEFICIENCY, THAT PHASE OF THE WORK MUST BE CORRECTED IN ACCORDANCE WITH THESE SPECIFICATIONS PRIOR TO BEGINNING THE NEXT PHASE OF WORK. DISCOVERY OF DEFECTIVE WORK OR MATERIAL AFTER A QUALITY CONTROL POINT IS PAST OR FAILURE OF THE FINAL PRODUCT BEFORE FINAL ACCEPTANCE, MUST NOT IN ANY WAY PREVENT REJECTION OR OBLIGATE THE DEPARTMENT TO FINAL ACCEPTANCE.

QUALITY CONTROL POINTS

QUALITY CONTROL POINTS (QCP)	PURPOSE
A. SOLVENT CLEANING	REMOVE ASPHALTIC CEMENT, OIL, GREASE, SALT, DIRT, ETC.
B. GRINDING EDGES	REMOVE SHARP CORNERS PER AWS.
C. ABRASIVE BLASTING	BLAST SURFACES, INCLUDING REPAIR FINS, TEARS, SLIVERS OR SHARP EDGES.
D. GALVANIZING	CHECK COATING THICKNESS.
E. FAYING SURFACE CLEANING	CHECK FAYING SURFACE ROUGHNESS. CHECK BOLT HOLE CLEARANCE. CHECK FOR OTHER FIELD CONNECTIONS UNIFORM COATING THICKNESS.
F. SECOND LAY DOWN	CHECK SWEEP AND CAMBER TOLERANCES OF EACH STRUCTURAL MEMBER.
G. FIELD REPAIR OF DAMAGED AREAS	CHECK FOR DAMAGE AREAS AFTER ERECTION OF STRUCTURE. PERFORM DAMAGE REPAIRS.
H. FINAL REVIEW	CLEAN STRUCTURE AS PER QCP #1. VISUALLY INSPECT SYSTEM FOR ACCEPTANCE.

A. SOLVENT CLEANING (QCP #1)

THE STEEL MUST BE SOLVENT CLEANED WHERE NECESSARY TO REMOVE ALL TRACES OF ASPHALTIC CEMENT, OIL, GREASE, DIESEL FUEL DEPOSITS, AND OTHER SOLUBLE CONTAMINANTS PER SSPC-SP 1 SOLVENT CLEANING. UNDER NO CIRCUMSTANCES MUST ANY ABRASIVE BLASTING BE DONE TO AREAS WITH ASPHALTIC CEMENT, OIL, GREASE, OR DIESEL FUEL DEPOSITS. STEEL MUST BE ALLOWED TO DRY BEFORE BLAST CLEANING BEGINS. THE GALVANIZER'S QCS SHALL INSPECT AND DOCUMENT THAT THE CLEANING CONFORMS TO SSPC-SP1 AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

B. GRINDING EDGES (QCP #2)

ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES MUST HAVE A 1/16 INCH RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE. THERMALLY CUT MATERIAL THICKER THAN 1 1/2 INCH MUST HAVE THE SIDES GROUND TO REMOVE THE HEAT EFFECTED ZONE, AS NECESSARY TO ACHIEVE THE SPECIFIED SURFACE CLEANING. THE GALVANIZER'S QCS MUST VISUALLY INSPECT AND DOCUMENT THAT THE GRINDING CONFORMS TO THIS SPECIFICATION AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

C. ABRASIVE BLASTING (QCP #3)

BEAMS AND GIRDERS MUST BE PREPARED BY THE FABRICATOR TO STEEL STRUCTURES PAINTING COUNCIL (SSPC) GRADE SIX (6) COMMERCIAL BLAST CLEANING PRIOR TO GALVANIZING. ALL MATERIAL MUST BE FREE OF PAINT MARKS. SECONDARY ANGLE, PLATES, BARS AND SHAPES NEED NOT BE BLAST CLEANED.

ABRASIVES MUST ALSO BE CHECKED FOR OIL CONTAMINATION BEFORE USE. A SMALL SAMPLE OF ABRASIVES MUST BE ADDED TO ORDINARY TAP WATER. ANY DETECTION OF A OIL FILM ON THE SURFACE OF THE WATER MUST BE CAUSE FOR REJECTION. THE GALVANIZER'S QCS MUST PERFORM AND RECORD THIS TEST AT THE START OF EACH SHIFT.

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	GDJ	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006759	

GENERAL NOTES
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

2 / 39

81 / 126

ALL FINS, TEARS, SLIVERS AND BURRED OR SHARP EDGES THAT ARE PRESENT ON ANY STEEL MEMBER OR THAT APPEAR AFTER THE BLASTING OPERATION MUST BE CONDITIONED PER ASTM A6. WELDING REPAIRS MUST ONLY BE PERFORMED BY THE 513 FABRICATOR.

THE GALVANIZER'S QCS MUST VISUALLY INSPECT AND DOCUMENT THAT THE BLAST CONFORMS TO SSPC-SP6, THAT ALL CONDITIONING IS PERFORMED PER ASTM A6, AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

D. GALVANIZING (QCP #4)

GALVANIZED PER 711.02 AND THIS SPECIFICATION. COATING THICKNESS MUST BE A MINIMUM OF 4 MILS MEASURED AS SPECIFIED.

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE FABRICATOR, GALVANIZER AND ERECTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. PRIOR TO GALVANIZING, SURFACE IMPERFECTIONS MAY BE REPAIRED BY THE FABRICATOR IN CONFORMANCE WITH ASTM A6. IMPERFECTIONS GREATER THAN THE LIMITS ALLOWED BY ASTM A6 MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE DEPARTMENT.

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH 711.02.

DOCUMENTATION OF COATING THICKNESS MUST BE PERFORMED BY THE GALVANIZER'S QCS. THE GALVANIZER'S QCS MUST RECORD THE GAGE READINGS AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

E. FAYING SURFACE CLEANING (QCP #5)

AREAS OF FIELD CONNECTIONS MUST HAVE A UNIFORM GALVANIZED COATING THICKNESS FREE OF LOCAL EXCESSIVE ROUGHNESS WHICH WOULD PREVENT SPLICE PLATES, BEARINGS OR OTHER FIELD CONNECTIONS FROM MAKING INTIMATE CONTACT.

FAYING SURFACES OF THE BOLTED SPLICES MUST BE ROUGHENED IN THE SHOP AFTER GALVANIZING BY HAND WIRE BRUSHING. POWER WIRE BRUSHING IS NOT PERMITTED. ALL FIELD SPLICE BOLT HOLES MUST BE FREE OF ZINC BUILD UP. AFTER GALVANIZING, CLEAN EACH HOLE AS NECESSARY SO THAT A DRIFT PIN 1/16" LESS THAN THE DIAMETER OF THAT HOLE CAN BE FULLY INSERTED. CONSIDERATION WILL BE GIVEN TO OTHER METHODS OF TREATING THE FAYING SURFACES AND BOLT HOLES IF A WRITTEN REQUEST IS SUBMITTED TO THE OFFICE OF MATERIAL MANAGEMENT (OMM) IN ACCORDANCE WITH C&MS 108.05.

INSPECTION OF THE ROUGHENING OF THE FAYING SURFACES AND CHECKING OF HOLES WITH DRIFT PINS MUST BE PERFORMED BY THE GALVANIZER'S QCS. ACCEPTANCE OF THE FAYING SURFACES AND HOLES SHALL BE DOCUMENTED BY THE GALVANIZER'S QCS.

F. SECOND LAY DOWN (QCP #6)

AFTER GALVANIZING, MATERIALS MUST BE PLACED IN A SECOND SHOP ASSEMBLY PER C&MS SECTION 513.24 TO CHECK ALIGNMENT OF HOLES, SWEEP AND CAMBER AGAINST THE FABRICATORS ORIGINAL RECORDED LAY DOWN DIMENSIONS. THIS SHOP ASSEMBLY MAY BE PERFORMED AT THE GALVANIZER'S FACILITY, BY THE FABRICATORS PERSONNEL, IF APPROVED BY THE OFFICE OF MATERIAL MANAGEMENT (OMM). THE SECOND LAY DOWN MAY BE WAIVED BY THE OMM IF THE FABRICATOR RECORDS INDIVIDUAL BEAM CAMBERS AND SWEEPS DURING THE FIRST LAY DOWN, AND THE NEW INDIVIDUAL BEAM CAMBERS AND SWEEPS, AFTER GALVANIZING, COMPARED TO THE FIRST LAY DOWN ARE WITHIN THE FOLLOWING TOLERANCES:

BEARING POINTS AFTER GALVANIZING MUST BE WITHIN $\pm \frac{1}{8}$ INCH OF THE APPROVED SHOP DRAWING LAY DOWN.

CAMBER POINTS AFTER GALVANIZING MUST BE $+ \frac{1}{4}$" OR - 0 INCH FROM THE FIRST LAY DOWN.

SWEEP POINTS AFTER GALVANIZING MUST BE $\pm \frac{3}{8}$" FROM THE FIRST LAY DOWN.

INDIVIDUAL BEAMS THAT EXCEED THE LISTED TOLERANCES MUST BE PLACED WITH AT LEAST TWO ADJACENT BEAMS IN LAY DOWN FOR CHECKING AGAINST THE RECORDED SHOP ASSEMBLY RECORDS PER 513.24. DOCUMENTATION OF THE SECOND LAY DOWN OR INDIVIDUAL MEMBER CAMBERS MUST BE RECORDED BY THE FABRICATOR'S QCS OR GALVANIZER'S QCS PER 513.24.

G. FIELD REPAIR OF DAMAGED AREAS (QCP #7)

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE CONTRACTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. IMPERFECTIONS MAY BE REPAIRED BY GRINDING AS ALLOWED BY ASTM A6 BY THE CONTRACTOR. IMPERFECTIONS THAT ARE GREATER THAN THE GRINDING LIMITS ALLOWED BY ASTM A6 MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE OMM.

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH 711.02.

DAMAGED GALVANIZING WHICH WILL BE INACCESSIBLE FOR REPAIR AFTER ERECTION MUST BE REPAIRED PRIOR TO ERECTION.

IN ORDER TO MINIMIZE DAMAGE TO THE GALVANIZED STEEL, CONCRETE SPLATTER AND FORM LEAKAGE MUST BE WASHED FROM THE SURFACE OF THE STEEL SHORTLY AFTER THE CONCRETE IS PLACED AND BEFORE IT IS DRY. IF THE CONCRETE DRIES, IT MUST BE REMOVED.

TEMPORARY ATTACHMENTS, SUPPORTS FOR SCAFFOLDING AND FINISHING MACHINE OR FORMS MUST NOT DAMAGE THE COATING SYSTEM. IN PARTICULAR, SUFFICIENT SIZE SUPPORT PADS MUST BE USED ON THE FASCIAS WHERE BRACING IS USED.

DOCUMENTATION OF GALVANIZING REPAIRS MUST BE PERFORMED BY THE GALVANIZER'S QCS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

H. FINAL REVIEW (QCP #8)

AFTER THE ERECTION WORK HAS BEEN COMPLETED, INCLUDING ALL CONNECTIONS AND THE APPROVED REPAIR OF ANY DAMAGED BEAMS, GIRDERS OR OTHER STEEL MEMBERS, AND THE DECK HAS BEEN PLACED, THE CONTRACTOR AND ENGINEER MUST INSPECT THE STRUCTURE FOR DAMAGED COATING. (QCP #8). DAMAGED AREAS MUST BE REPAIRED BY QCP #7. AT THE COMPLETION OF CONSTRUCTION, THE GALVANIZING MUST BE UNDAMAGED AND THE SURFACES FREE FROM GREASE, OIL, CHALK MARKS, PAINT, CONCRETE SPLATTER OR OTHER SILAGE. SUCH SILAGE WILL BE REMOVED BY SOLVENT CLEANING PER SSPC-SP1 (QCP #1).

DOCUMENTATION OF FINAL REVIEW MUST BE PERFORMED BY THE GALVANIZER'S QCS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

4.0 TESTING EQUIPMENT

THE FABRICATOR MUST PROVIDE THE GALVANIZER'S QCS INSPECTOR THE FOLLOWING TESTING EQUIPMENT IN GOOD WORKING ORDER FOR THE DURATION OF THE PROJECT. ONE (POSITECTOR 2000 OR 6000, QUANIX 2200, OR ELCOMETER A345FBI1) AND THE CALIBRATION PLATES, 38-200 MM AND 250-625 MM [1.5-8 MILS AND 10-25 MILS] AS PER THE NBS CALIBRATION STANDARDS IN ACCORDANCE WITH ASTM D-1186.

5.0 COATING THICKNESS

GALVANIZED THICKNESS MUST BE DETERMINED BY USE OF TYPE 2 MAGNETIC GAGE IN ACCORDANCE WITH THE FOLLOWING:

FIVE SEPARATE SPOT MEASUREMENTS MUST BE MADE, SPACED EVENLY OVER ONE (1) RANDOMLY SELECTED, 100 SQUARE FEET OF SURFACE AREA ON EACH STRUCTURAL MEMBER. THREE GAGE READINGS MUST BE MADE FOR EACH SPOT MEASUREMENT. THE PROBE MUST BE MOVED A DISTANCE OF 1 TO 3 INCHES FOR EACH NEW GAGE READING. ANY UNUSUALLY HIGH OR LOW GAGE READING THAT CANNOT BE REPEATED CONSISTENTLY MUST BE DISCARDED. THE AVERAGE (MEAN) OF THE 3 GAGE READINGS MUST BE USED AS THE SPOT MEASUREMENT. THE AVERAGE OF FIVE SPOT MEASUREMENTS FOR EACH SUCH 100 SQUARE FOOT AREA MUST NOT BE LESS THAN THE SPECIFIED THICKNESS. NO SINGLE SPOT MEASUREMENT IN ANY 100 SQUARE FOOT AREA MUST BE LESS THAN 80% OF THE SPECIFIED MINIMUM THICKNESS. ANY ONE OF 3 READINGS WHICH ARE AVERAGED TO PRODUCE EACH SPOT MEASUREMENT, MAY UNDER-RUN OR OVER-RUN BY A GREATER AMOUNT. THE 5 SPOT MEASUREMENTS MUST BE MADE FOR ONE (1) RANDOMLY SELECTED, 100 SQUARE FEET OF AREA ON EACH STRUCTURAL MEMBER. ALL SPLICE MATERIAL AND SECONDARY MEMBERS MUST HAVE AT LEAST ONE SPOT MEASURED ON EACH PIECE. THE PROBE MUST BE MOVED SO THAT ONE READING IS TAKEN AT EACH END AND MIDDLE OF THE PIECE FOR A TOTAL OF THREE READINGS.

THE GALVANIZER'S QCS MUST INSPECT AND PROVIDE DOCUMENTATION OF ACTUAL DATA, THE GALVANIZED THICKNESS CHECKS WERE PERFORMED PER SPECIFICATION, AND THE COATING THICKNESS MEETS SPECIFICATION REQUIREMENTS.

6.0 HANDLING AND SHIPPING

REASONABLE CARE MUST BE EXERCISED IN HANDLING THE GALVANIZED STEEL DURING SHIPPING, ERECTION, AND SUBSEQUENT CONSTRUCTION OF THE BRIDGE. THE STEEL MUST BE INSULATED FROM THE BINDING CHAINS BY SOFTENERS. HOOKS AND SLINGS USED TO HOIST STEEL MUST BE PADDED. DIAPHRAGMS AND SIMILAR PIECES MUST BE SPACED IN SUCH A WAY THAT NO RUBBING WILL OCCUR DURING SHIPMENT THAT MAY DAMAGE THE GALVANIZING. THE STEEL MUST BE STORED ON PALLETS AT THE JOB SITE, OR BY OTHER MEANS, SO THAT IT DOES NOT REST ON THE GROUND OR SO THAT COMPONENTS DO NOT FALL OR REST ON EACH OTHER.

7.0 SAFETY REQUIREMENT AND PRECAUTIONS

THE CONTRACTOR MUST MEET THE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), IN ADDITION TO THE SCAFFOLDING REQUIREMENTS BELOW.

THE CONTRACTOR IS REQUIRED TO MEET THE APPLICABLE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION IN ADDITION TO THE SCAFFOLDING REQUIREMENTS SPECIFIED BELOW.

8.0 SCAFFOLDING

RUBBER ROLLERS, OR OTHER PROTECTIVE DEVICES MEETING THE APPROVAL OF THE ENGINEER, MUST BE USED ON SCAFFOLD FASTENINGS. METAL ROLLERS OR CLAMPS AND OTHER TYPES OF FASTENINGS WHICH WILL MAR OR DAMAGE COATED SURFACES MUST NOT BE USED.

9.0 INSPECTION ACCESS FOR FIELD REPAIR

IN ADDITION TO THE REQUIREMENT OF 105.10, THE CONTRACTOR MUST FURNISH, ERECT, AND MOVE SCAFFOLDING AND OTHER APPROPRIATE EQUIPMENT, TO PERMIT THE INSPECTOR THE OPPORTUNITY TO INSPECT CLOSELY OBSERVE, ALL AFFECTED SURFACES. THIS OPPORTUNITY MUST BE PROVIDED TO THE INSPECTOR DURING ALL PHASES OF THE WORK AND CONTINUE FOR A PERIOD OF AT LEAST TEN (10) WORKING DAYS AFTER THE TOUCH-UP WORK HAS BEEN COMPLETED. WHEN SCAFFOLDING IS USED, IT MUST BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS. WHEN SCAFFOLDING, OR THE HANGERS ATTACHED TO THE SCAFFOLDING ARE SUPPORTED BY HORIZONTAL WIRE ROPES, OR WHEN SCAFFOLDING IS PLACED DIRECTLY UNDER THE SURFACE TO BE PAINTED, THE FOLLOWING REQUIREMENTS MUST BE COMPLIED WITH:

WHEN SCAFFOLDING IS SUSPENDED 43" OR MORE BELOW THE COATED SURFACE TO BE REPAIRED, TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING. ONE ROW OF GUARDRAIL MUST BE PLACED AT 42" ABOVE THE SCAFFOLDING AND THE OTHER ROW AT 20" ABOVE THE SCAFFOLDING.

WHEN THE SCAFFOLDING IS SUSPENDED AT LEAST 21", BUT LESS THAN 43" BELOW THE COATED SURFACE TO BE REPAIRED, A ROW OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING AT 20" ABOVE THE SCAFFOLDING.

TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF SCAFFOLDING NOT PREVIOUSLY MENTIONED. THE ROWS OF GUARDRAIL MUST BE PLACED AT 42" AND 20" ABOVE SCAFFOLDING, AS PREVIOUSLY MENTIONED.

ALL SCAFFOLDING MUST BE AT LEAST 24" WIDE WHEN GUARDRAIL IS USED AND 28" WIDE WHEN THE SCAFFOLDING IS SUSPENDED LESS THAN 21" BELOW THE COATED SURFACE TO BE REPAIRED AND GUARDRAIL IS NOT USED. IF TWO OR MORE SCAFFOLDING ARE LAID PARALLEL TO ACHIEVE THE PROPER WIDTH, THEY MUST BE RIGIDLY ATTACHED TO EACH OTHER TO PRECLUDE ANY DIFFERENTIAL MOVEMENT.

ALL GUARDRAILS MUST BE CONSTRUCTED AS A SUBSTANTIAL BARRIER WHICH IS SECURELY FASTENED IN PLACE AND IS FREE FROM PROTRUDING OBJECTS SUCH AS NAILS, SCREWS AND BOLTS. THERE MUST BE AN OPENING IN THE GUARDRAIL, PROPERLY LOCATED, TO ALLOW THE INSPECTOR ACCESS ONTO THE SCAFFOLDING.

THE RAILS AND UPRIGHTS MUST BE EITHER METAL OR WOOD. IF PIPE RAILING IS USED, THE RAILING MUST HAVE A NOMINAL DIAMETER OF NO LESS THAN ONE AND ONE HALF INCHES. IF STRUCTURAL STEEL RAILING IS USE, THE RAILS MUST BE 2 X 2 X 3/8 INCH STEEL ANGLES OR OTHER METAL SHAPES OF EQUAL OR GREATER STRENGTH. IF WOOD RAILING IS USED, THE RAILING MUST BE 2 X 4 INCH (NOMINAL) STOCK. ALL UPRIGHTS MUST BE SPACED AT NO MORE THAN 8 FEET ON CENTER. IF WOOD UPRIGHTS ARE USED, THE UPRIGHTS MUST BE 2 X 4 INCHES (NOMINAL) STOCK.

WHEN THE SURFACE TO BE INSPECTED IS MORE THAN 15 FEET ABOVE THE GROUND OR WATER, AND THE SCAFFOLDING IS SUPPORTED FROM THE STRUCTURE BEING PAINTED, THE CONTRACTOR MUST PROVIDE THE INSPECTOR WITH A SAFETY BELT AND LIFELINE. THE LIFELINE MUST NOT ALLOW A FALL GREATER THAN 6 FEET. THE CONTRACTOR MUST PROVIDE A METHOD OF ATTACHING THE LIFELINE TO THE STRUCTURE INDEPENDENT OF THE SCAFFOLDING, CABLES, OR BRACKETS SUPPORTING THE SCAFFOLDING.
WHEN SCAFFOLDING IS MORE THAN TWO AND ONE HALF FEET ABOVE THE GROUND, THE CONTRACTOR MUST PROVIDE A LADDER FOR ACCESS ONTO THE SCAFFOLDING. THE LADDER AND ANY EQUIPMENT USED TO ATTACH THE LADDER TO THE STRUCTURE MUST BE CAPABLE OF SUPPORTING 250 POUNDS WITH A SAFETY FACTOR OF AT LEAST FOUR (4). ALL RUNGS, STEPS, CLEATS, OR TREADS MUST HAVE UNIFORM SPACING AND MUST NOT EXCEED 12" ON CENTER. AT LEAST ONE SIDE RAIL MUST EXTEND AT LEAST 36" ABOVE THE LANDING NEAR THE TOP OF THE LADDER.

AN ADDITIONAL LANDING MUST BE REQUIRED WHEN THE DISTANCE FROM THE LADDER TO THE POINT WHERE THE SCAFFOLDING MAY BE ACCESSED, EXCEEDS 12". THE LANDING MUST BE A MINIMUM OF AT LEAST 24" WIDE AND 24" LONG. IT MUST ALSO BE OF ADEQUATE SIZE AND SHAPE SO THAT THE DISTANCE FROM THE LANDING TO THE POINT WHERE THE SCAFFOLDING IS ACCESSED DOES NOT EXCEED 12". THE LANDING MUST BE RIGID AND FIRMLY ATTACHED TO THE LADDER; HOWEVER, IT MUST NOT BE SUPPORTED BY THE LADDER. THE SCAFFOLDING MUST BE CAPABLE OF SUPPORTING A MINIMUM OF 1000 LBS.

IN ADDITION TO THE AFOREMENTIONED REQUIREMENTS, THE CONTRACTOR IS STILL RESPONSIBLE TO OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS, ORDERS AND DECREES.

THE CONTRACTOR MUST FURNISH ALL NECESSARY TRAFFIC CONTROL TO PERMIT INSPECTION DURING AND AFTER ALL PHASES OF THE PROJECT.

10.0 PROTECTION OF PERSONS AND PROPERTY

THE CONTRACTOR MUST INSTALL AND MAINTAIN SUITABLE SHIELDS OR ENCLOSURES TO PREVENT DAMAGE TO ADJACENT BUILDINGS, PARKED CARS, TRUCKS, BOATS, OR VEHICLES TRAVELING ON, OVER, OR UNDER STRUCTURES HAVING GALVANIZED REPAIRS. THEY MUST BE SUITABLY ANCHORED AND REINFORCED TO PREVENT INTERFERING WITH NORMAL TRAFFIC OPERATIONS IN THE OPEN LANES. PAYMENT FOR THE SHIELDS MUST BE INCLUDED AS INCIDENTAL TO THE APPLICABLE FIELD COATING OPERATION. WORK MUST BE SUSPENDED WHEN DAMAGE TO ADJACENT BUILDINGS, MOTOR VEHICLES, BOATS, OR OTHER PROPERTY IS OCCURRING.

WHEN OR WHERE ANY DIRECT OR INDIRECT DAMAGE OR INJURY IS DONE TO PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR MUST RESTORE, AT HIS OWN EXPENSE, SUCH PROPERTY, TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.

11.0 POLLUTION CONTROL

THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF FEDERAL, STATE OR LOCAL AGENCIES.

12.0 METHOD OF MEASUREMENT

THE COST OF ALL LABOR, MATERIALS, EQUIPMENT NECESSARY TO GALVANIZE AND TO FABRICATE THE STRUCTURAL STEEL IN ACCORDANCE WITH 513 AND PERFORM ANY NECESSARY FIELD REPAIR SHALL BE INCLUDED IN THIS 513, AS PER PLAN ITEM.

13.0 BASIS OF PAYMENT

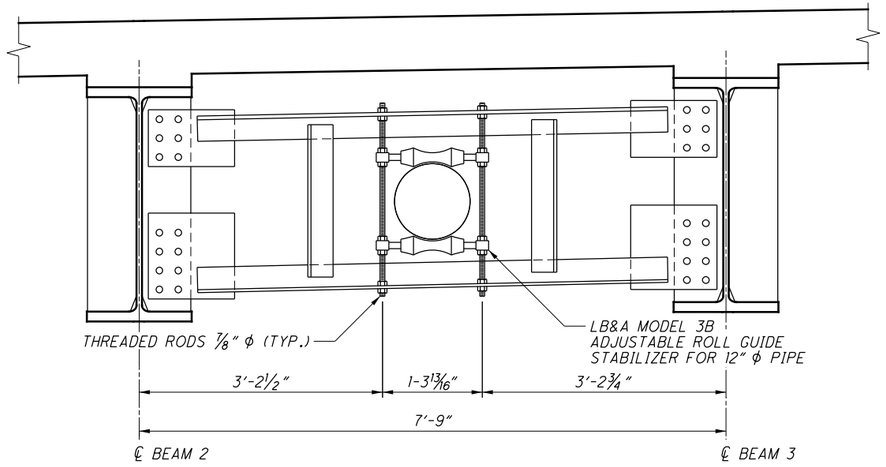
PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR THE ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN.

DESIGN AGENCY: CARPENTER MARTY transportation, 6612 SINGLETREE DR. COLUMBUS, OH 43229, 614.656.2424, CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	GDJ	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006759	

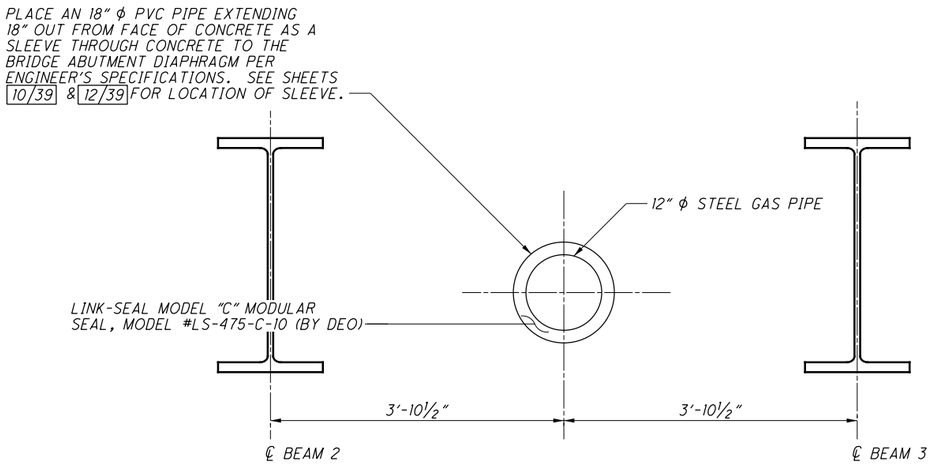
GENERAL NOTES
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



SUPPORT ELEVATION

TYP. AT EACH CROSSFRAME IN BAY 2



DIAPHRAGM PENETRATION ELEVATION

ITEM 690 - SPECIAL - DOMINION ENERGY OHIO STABILIZERS AND SUPPORTS

UNDER THIS ITEM THE ODOT CONTRACTOR WILL INSTALL THE SPECIAL PIPE STABILIZERS AND SUPPORTS (PROVIDED BY DEO) AT ALL CROSSFRAME LOCATIONS BETWEEN BEAMS 2 AND 3 TO SUPPORT THE PROPOSED GAS LINES. INSTALLATION OF THE SUPPORTS AND PIPE SHALL OCCUR PRIOR TO THE COMPLETION OF THE DECK POUR. THE ODOT CONTRACTOR IS TO FIELD VERIFY ALL PIPE SUPPORT LOCATIONS AND ALL OTHER DIMENSIONS BEFORE PERFORMING ANY WORK.

LB&A MODEL 3B ADJUSTABLE ROLL GUIDE STABILIZER FOR 12" ϕ PIPE AND ALL ASSOCIATED HARDWARE NEEDED TO INSTALL THE SUPPORT WILL BE PURCHASED FROM LB&A BY DOMINION ENERGY OHIO AND PROVIDED TO THE ODOT CONTRACTOR. SUPPORTS WILL BE MANUFACTURED BY THE FOLLOWING:

LB&A, INC.
P.O. BOX 540
WESTTOWN, PA, 19395

THESE ITEMS WILL BE FULLY FIELD-ADJUSTABLE AND BE PROVIDED WITH ALL REQUIRED HARDWARE AND FASTENERS FOR A COMPLETE OPERABLE SYSTEM. DOMINION ENERGY OHIO (DEO) SHALL BE CONTACTED TO COORDINATE INSTALLATION OF THE GAS LINES, SUPPLIED AND INSTALLED BY DEO. ADVANCE NOTICE SHOULD BE GIVEN TO DEO AND IT IS THE ODOT CONTRACTOR'S RESPONSIBILITY TO COORDINATE THIS WORKS SUCH THAT IT WILL NOT CAUSE ANY DELAY. 3 MONTHS NOTICE FOR CONSTRUCTION START DATE AND 3 WEEKS NOTICE TO DELIVER PVC CASING PIPE, PIPE STABILIZERS, SUPPORTS, AND ALL ASSOCIATED HARDWARE SHALL BE PROVIDED. 3 WEEKS NOTICE SHALL BE PROVIDED FOR DEO TO INSTALL GAS LINE, LINK-SEAL, AND BOOT SEAL. ALL MATERIAL AND FABRICATION WHICH IS ASSOCIATED WITH THE INSTALLATION OF THE GAS LINE SUPPORTS ATTACHED TO PROPOSED BEAMS SHALL BE IN ACCORDANCE WITH C&MS 513. THE DOMESTIC REQUIREMENTS OF 106.09, MAY BE WAIVED.

DOMINION ENERGY OHIO
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OH 44333
CONTACT: MALLERIE STRASSER
PHONE: 330-472-4209

REQUIREMENTS FOR GAS LINE INSTALLATION SHALL BE THE RESPONSIBILITY OF DEO. THE DEO CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE SUPPORTS AND STABILIZERS PER THE MANUFACTURER'S SPECIFICATIONS ONCE THE GAS LINE IS INSTALLED.

ODOT CONTRACTOR TO INSTALL THE PVC CASING PIPE (SUPPLIED BY DEO) WITH 18" OF PIPE EXTENDING OUT FROM FACE OF CONCRETE IN ORDER TO ACCOMMODATE LINK-SEAL AND BOOT SEAL. DEO TO PROVIDE AND INSTALL LINK SEAL AND BOOT SEAL. THE PVC PIPE SLEEVE SHALL EXTEND THROUGH THE GEOTEXTILE FABRIC WALL AT THE REAR ABUTMENT END OF THE BRIDGE. PVC PIPE CAN BE CUT TO LENGTH IF EXCESS REMAINS AFTER SEALS ARE INSTALLED.

ANY FIELD CUTS, WELDS, OR DAMAGE TO THE HOT DIPPED GALVANIZED COATING DURING THE INSTALLATION SHALL BE REPAIRED PER C&MS 711.02.

NEW GAS LINE SHALL ON THE BRIDGE SHALL BE COVERED WITH A TARP TO PROTECT IT'S COATING FROM DAMAGE DURING CONSTRUCTION.

MAINTENANCE OF TRAFFIC:
ALL TRAFFIC SIGNS, BARRICADES, DEVICES, AND TRAFFIC CONTROL PERSONNEL USED FOR THE SAFETY AND CONTROL OF PEDESTRIAN AND VEHICULAR TRAFFIC IN AND AROUND THE WORK AREA SHALL BE FURNISHED BY, AND BE THE RESPONSIBILITY OF DEO AT ALL TIMES. ALL ABOVE STATED ITEMS SHALL BE IN ACCORDANCE OF: THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS. INCLUDING BY NOT EXCLUSIVE OF C&MS 614.02 AND 614.03.

PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED FOR PAYMENT WITH ITEM 690, SPECIAL - DOMINION ENERGY OHIO STABILIZERS AND SUPPORTS.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
614.540.6633 CARPENTERMARTY.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	GDJ	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
STK		5006759	

GAS LINE GENERAL NOTES AND DETAILS

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

4 / 39

83
126

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ESTIMATED QUANTITIES						DESIGN: GDJ DATE: 5-24-2021			CHECK: ERK DATE: 5-24-2021	
ITEM	EXTENSION	TOTAL 01/IMS/BR	TOTAL 03/IMS/OT/DEOG	UNIT	DESCRIPTION	ABUT.	PIERS	SUPER.	GEN.	SHEET #
202	11203	LS		-	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					2, 6-9, 35
202	22900	271		SY	APPROACH SLAB REMOVED				271	
202	23500	919		SY	WEARING COURSE REMOVED				919	
203	10000	201		CY	EXCAVATION				201	
204	30010	17		CY	GRANULAR MATERIAL, TYPE B				17	
204	50001	350		SY	GEOTEXTILE FABRIC, AS PER PLAN				350	33
503	21300	LS		-	UNCLASSIFIED EXCAVATION					
509	10000	99817		LB	EPOXY COATED REINFORCING STEEL	843	4241	91873	2860	
510	10000	346		EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	98			248	
511	21522	357		CY	CLASS QC2 CONCRETE WITH QC/QA, SUPERSTRUCTURE			357		
511	33501	2		EACH	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	2				10, 12
511	42510	40		CY	CLASS QC1 CONCRETE, PIER CAP		40			
511	44110	10		CY	CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING	10				
511	51512	76		CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK			76		
511	53012	16		CY	CLASS QC2 CONCRETE, MISC.: RETAINING WALLS				16	13, 35, 36
512	10050	356		SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)			281	75	
512	10100	1465		SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	691	197	442	135	
513	10241	345400		LB	STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN			345400		2-3
513	20000	3582		EACH	WELDED STUD SHEAR CONNECTORS			3582		
516	10010	67		FT	ARMORLESS PREFORMED JOINT SEAL				67	
516	12310	396		LB	SIDEWALK COVER PLATE				396	
516	13600	122		SF	1" PREFORMED EXPANSION JOINT FILLER			37	85	
516	13900	71		SF	2" PREFORMED EXPANSION JOINT FILLER	71				
516	14000	52		SF	PREFORMED EXPANSION JOINT FILLER, MISC.: 4" THICK	52				10, 12
516	14020	177		FT	SEMI-INTEGRAL ABTUMENT EXPANSION JOINT SEAL	177				
516	44200	6		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (12" X 20" X 3.124" WITH A 13" X 21" X 2" LOAD PLATE)	6				
516	44200	6		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (16" X 20" X 3.124" WITH A 17" X 21" X 2" LOAD PLATE)		6			
516	44200	6		EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (12" X 20" X 3.124" WITH A 13" X 26" X 2" LOAD PLATE)	6				
517	74501	459		FT	RAILING, CONCRETE, AS PER PLAN			383	76	27
518	21200	33		CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC				33	
519	11101	198		SF	PATCHING CONCRETE STRUCTURE, AS PER PLAN	198				2, 6-7
526	30011	309		SY	REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN				309	28-31
526	90020	58		SY	TYPE B INSTALLATION				58	
526	90030	67		FT	TYPE C INSTALLATION				67	
607	39930	555		FT	VANDAL PROTECTION FENCE, 12' CURVED, COATED FABRIC	17		384	154	
SPECIAL	69098400		LS	-	DOMINION ENERGY OHIO STABILIZERS AND SUPPORTS					4
840	23000	184		CY	SELECT GRANULAR BACKFILL				184	
863	00300	987		SY	GEOGRID, TYPE P3				987	

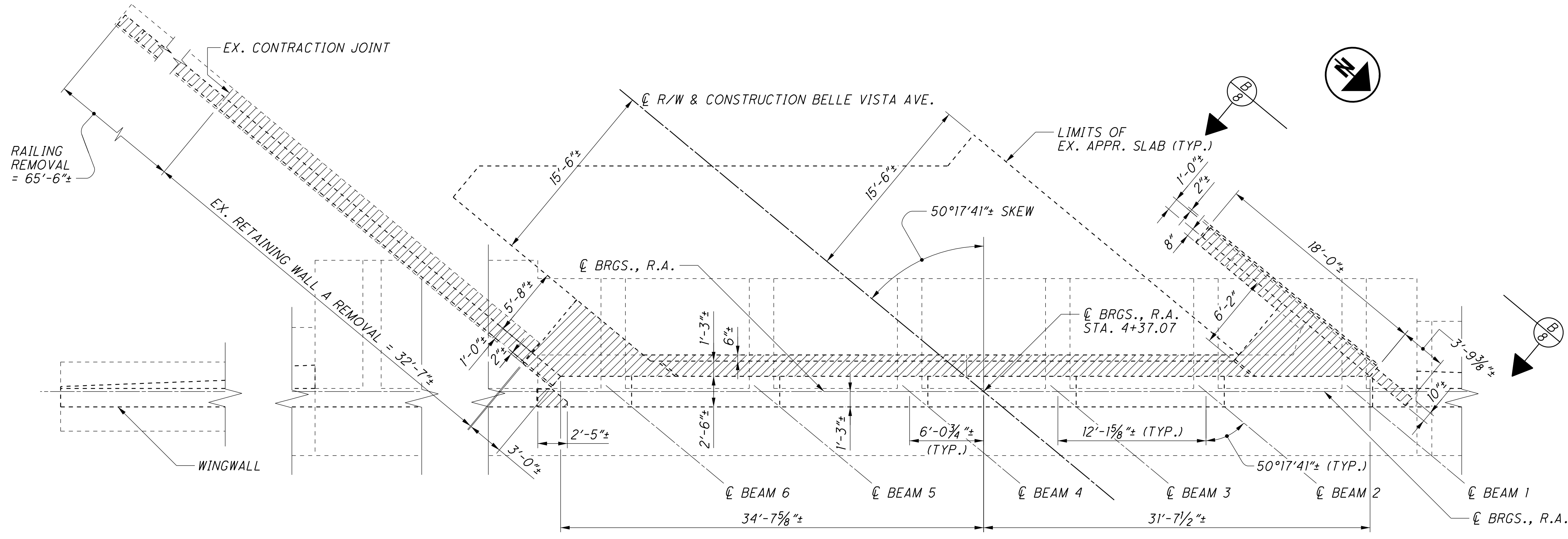
P:\ODT\04\0022_MAH-680-00.68_03.73\105857\Design\Structures\MAH680_0373C\Sheets\680_0373C_S0001.dgn Sheet 6/24/2021 2:47:49 PM CMT008

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
ERK	ERK	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

ESTIMATED QUANTITIES
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



PLAN

LEGEND

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

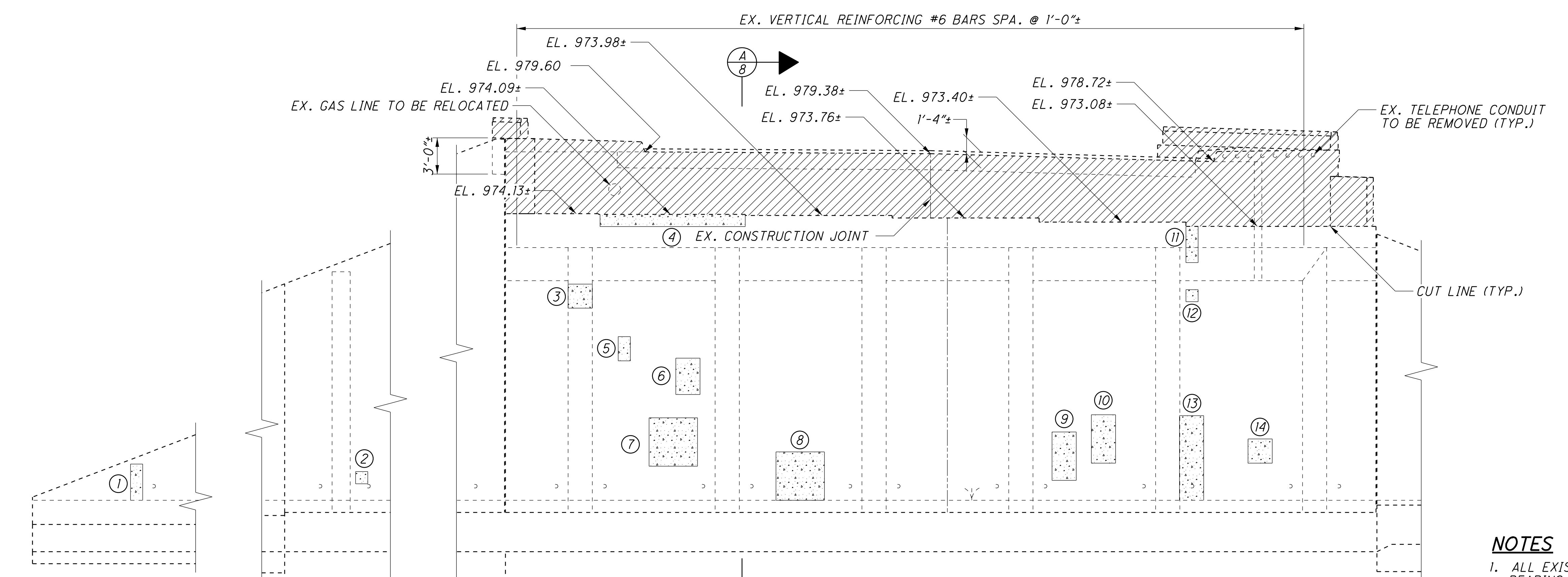
PHYSICAL INVENTORY OF MEASURED QUANTITIES OF DETERIORATION WAS PERFORMED IN NOVEMBER OF 2019.

EXACT DIMENSIONS AND LOCATIONS OF PATCHES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ESTIMATED PATCHING QUANTITIES (S.F.)

REAR ABUTMENT	MEASURED QUANTITIES	ESTIMATED QUANTITIES
1	3.0	4.5*
2	1.0	1.5*
3	4.0	6.0*
4	12.0	18.0*
5	2.0	3.0*
6	6.0	9.0*
7	16.0	24.0*
8	16.0	24.0*
9	8.0	12.0*
10	8.0	12.0*
11	3.0	4.5*
12	1.0	1.5*
13	14.0	21.0*
14	4.0	6.0*
TOTAL R.A.	98.0	147.0*

* - ESTIMATED QUANTITIES HAVE BEEN INCREASED BY 50% OVER MEASURED QUANTITIES TO ACCOUNT FOR ADDITIONAL DETERIORATION.



ELEVATION

NOTES

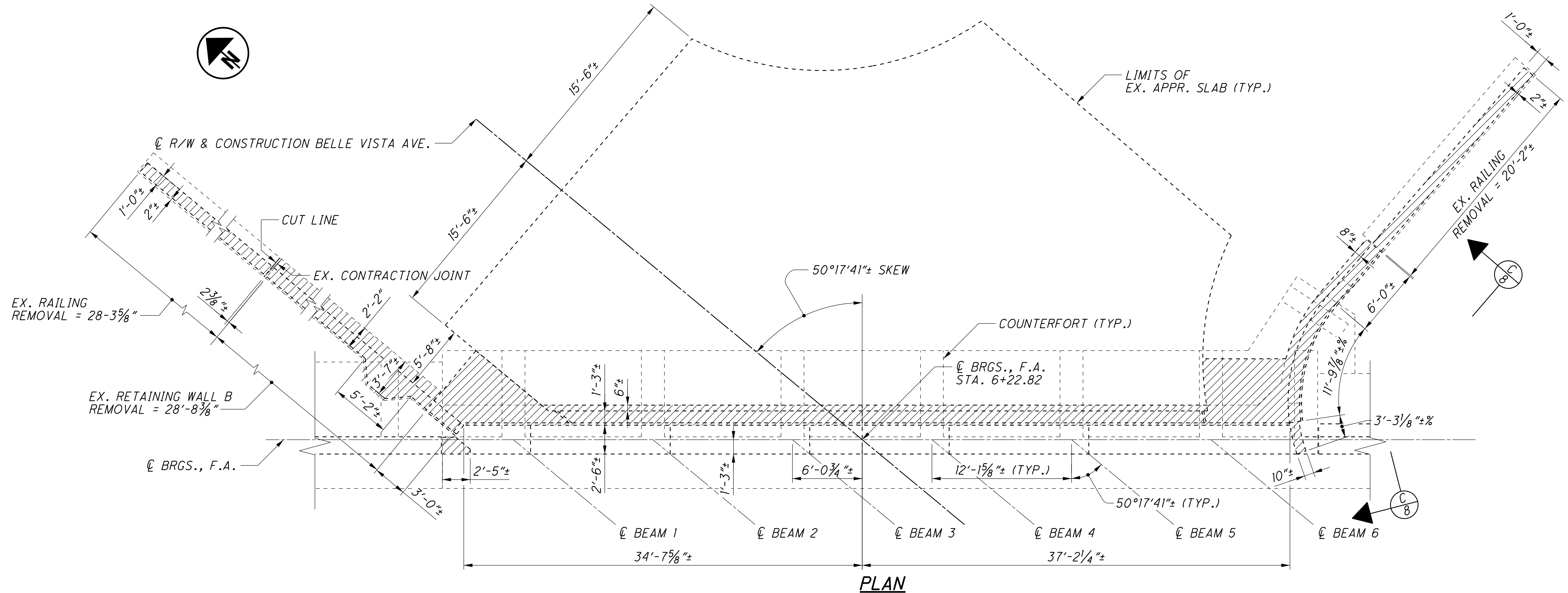
1. ALL EXISTING VERTICAL REINFORCING STEEL AND EXISTING BEARING ANCHOR RODS SHALL BE REMOVED AT THE CUT LINE.
2. SEE SHEET 35/39 FOR RETAINING WALL REMOVAL DETAILS.

DESIGN AGENCY CARPENTER MARTY transportation

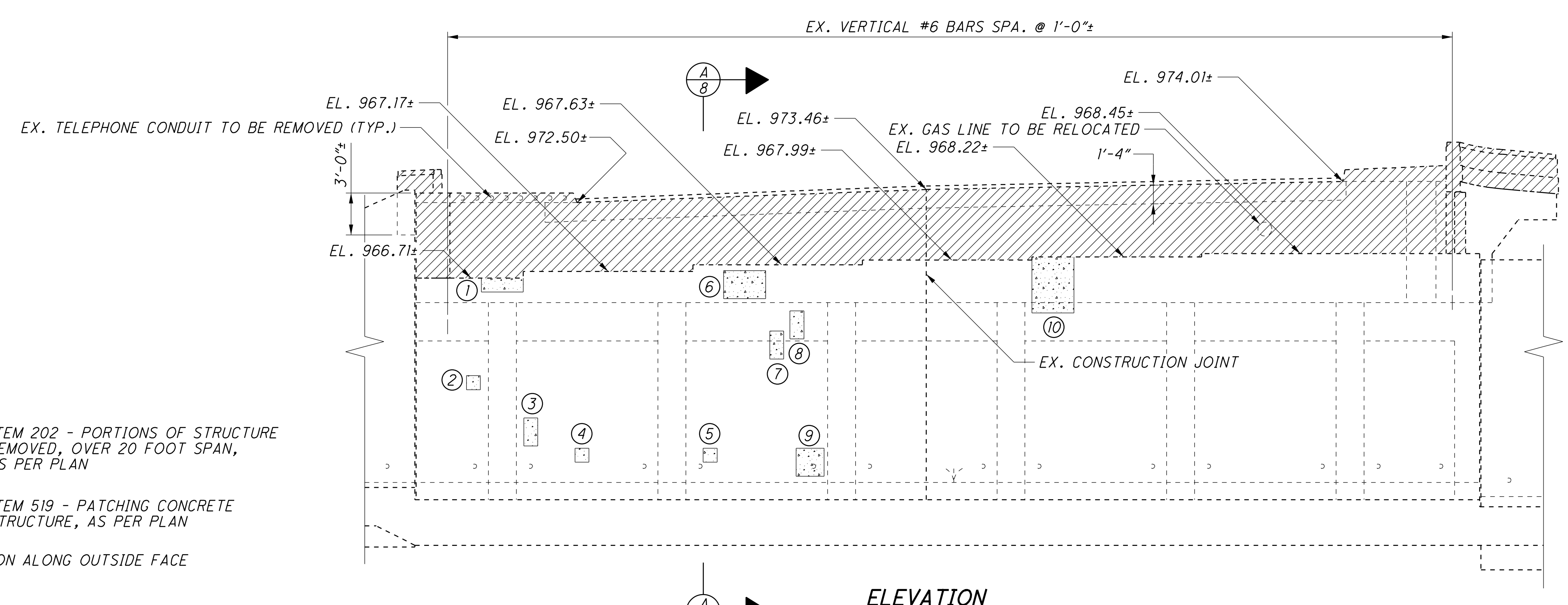
DESIGNED AMR | CHECKED ERK | DRAWN AMR | REVIEWED STK | DATE 7-29-20 | STRUCTURE FILE NUMBER 5006759

REAR ABUTMENT REMOVAL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



PLAN



ELEVATION

LEGEND

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

% - DIMENSION ALONG OUTSIDE FACE

NOTE

ALL EXISTING VERTICAL REINFORCING STEEL AND EXISTING BEARING ANCHOR RODS SHALL BE REMOVED AT THE CUT LINE.

ITEM 519 - PATCHING CONCRETE STRUCTURE, AS PER PLAN

PHYSICAL INVENTORY OF MEASURED QUANTITIES OF DETERIORATION WAS PERFORMED IN NOVEMBER OF 2019.

EXACT DIMENSIONS AND LOCATIONS OF PATCHES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ESTIMATED PATCHING QUANTITIES (S.F.)

FORWARD ABUTMENT	MEASURED QUANTITIES	ESTIMATED QUANTITIES
1	3.0	4.5*
2	1.0	1.5*
3	2.0	3.0*
4	1.0	1.5*
5	1.0	1.5*
6	6.0	9.0*
7	2.0	3.0*
8	2.0	3.0*
9	4.0	6.0*
10	12.0	18.0*
TOTAL F.A.	34.0	51.0*

* - ESTIMATED QUANTITIES HAVE BEEN INCREASED BY 50% OVER MEASURED QUANTITIES TO ACCOUNT FOR ADDITIONAL DETERIORATION.

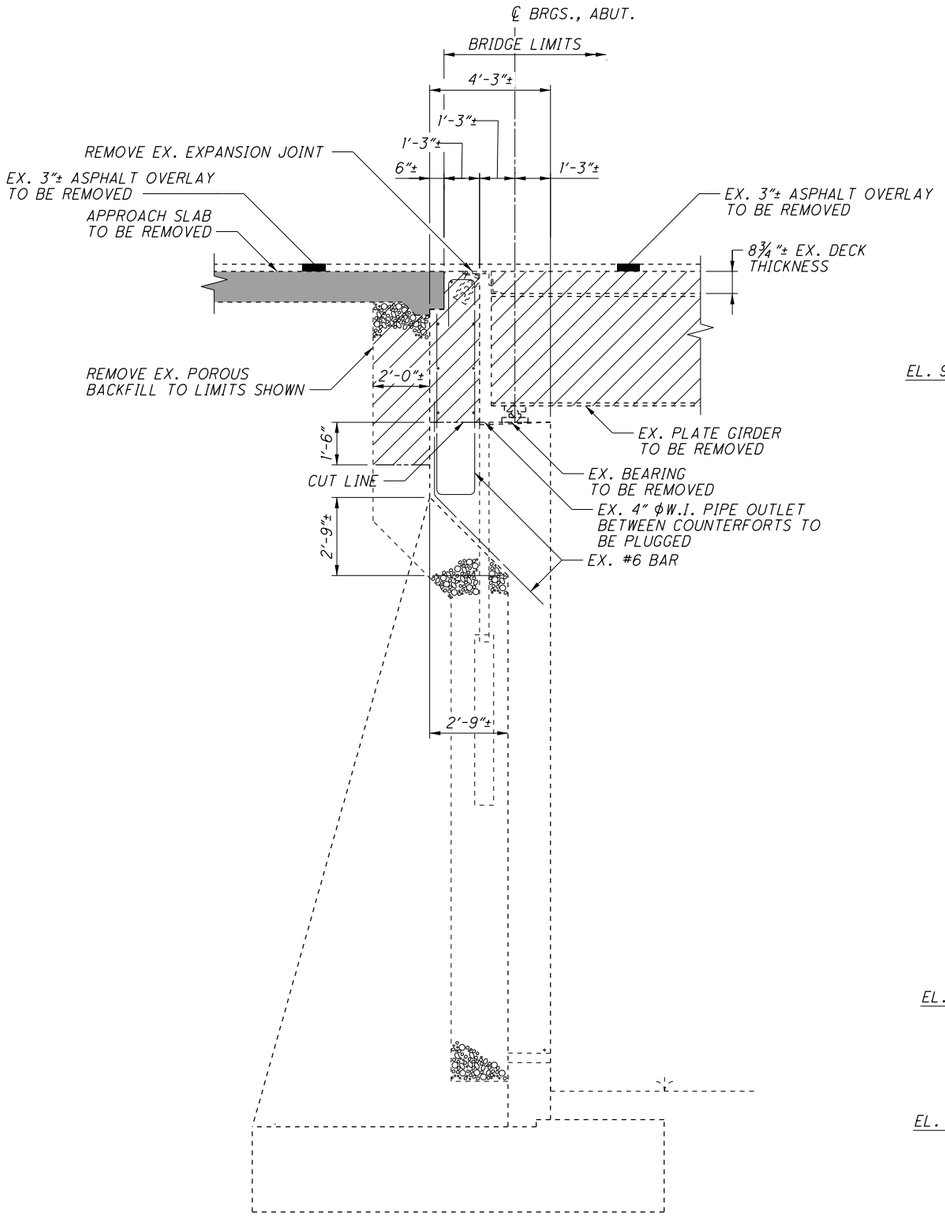
DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

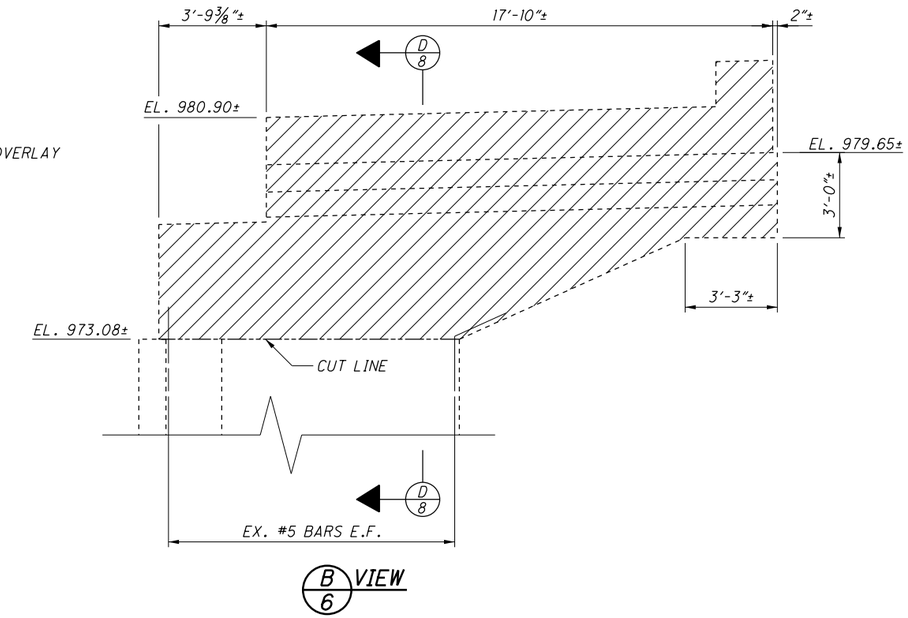
FORWARD ABUTMENT REMOVAL DETAILS

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

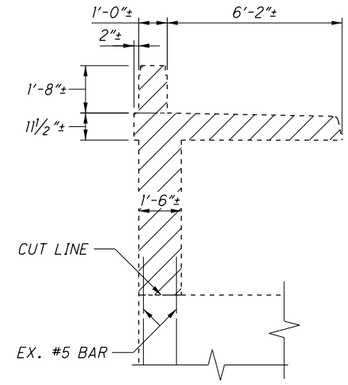
MAH-680-0.68 / 3.73
PID No. 105857



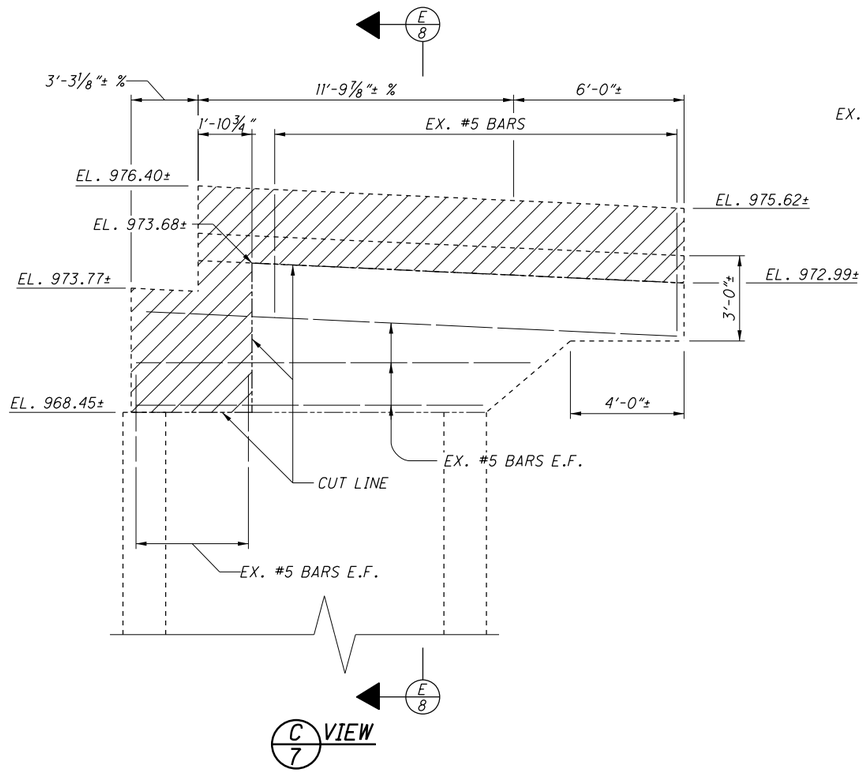
A/6 A/7 SECTION



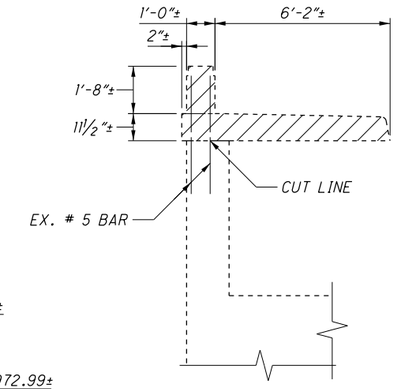
B/6 VIEW



D/8 SECTION



C/7 VIEW



E/8 SECTION

NOTE

ALL EXISTING REINFORCING STEEL SHALL BE REMOVED AT THE CUT LINE.

LEGEND

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

ITEM 202 - APPROACH SLAB REMOVED

% - DIMENSION ALONG OUTSIDE FACE

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECT - ENGINEER

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

ABUTMENT REMOVAL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

8 / 39

87 / 126

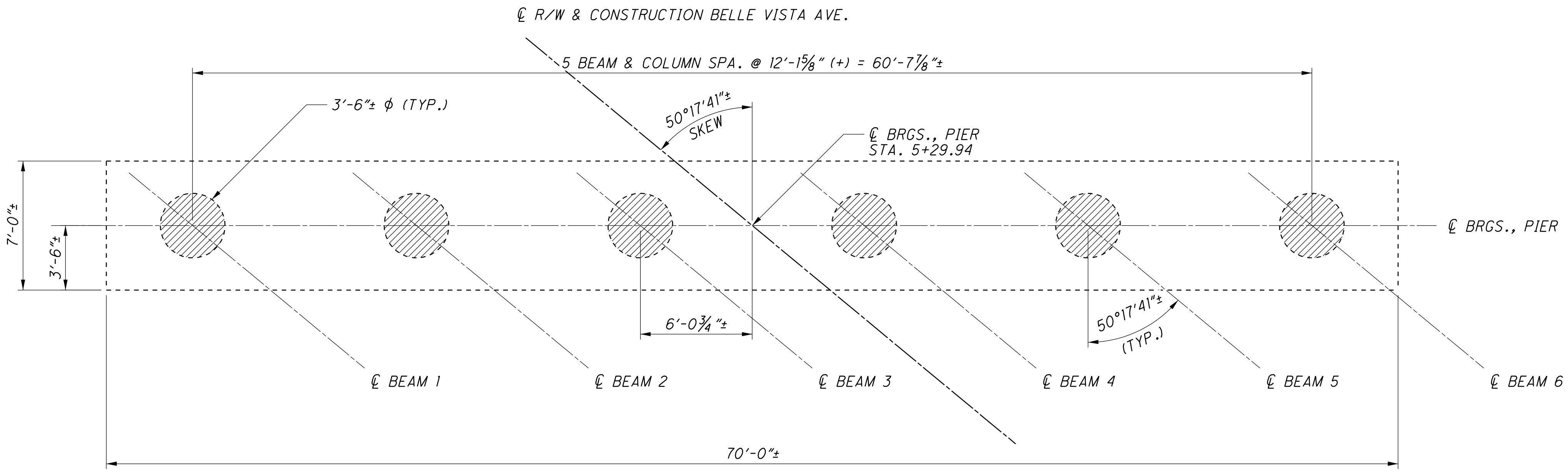
NOTES

1. PIER COLUMN REMOVAL SHALL BE PER ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN. FOR ADDITIONAL RESTRICTIONS SEE GENERAL NOTES SHEET [2/39].

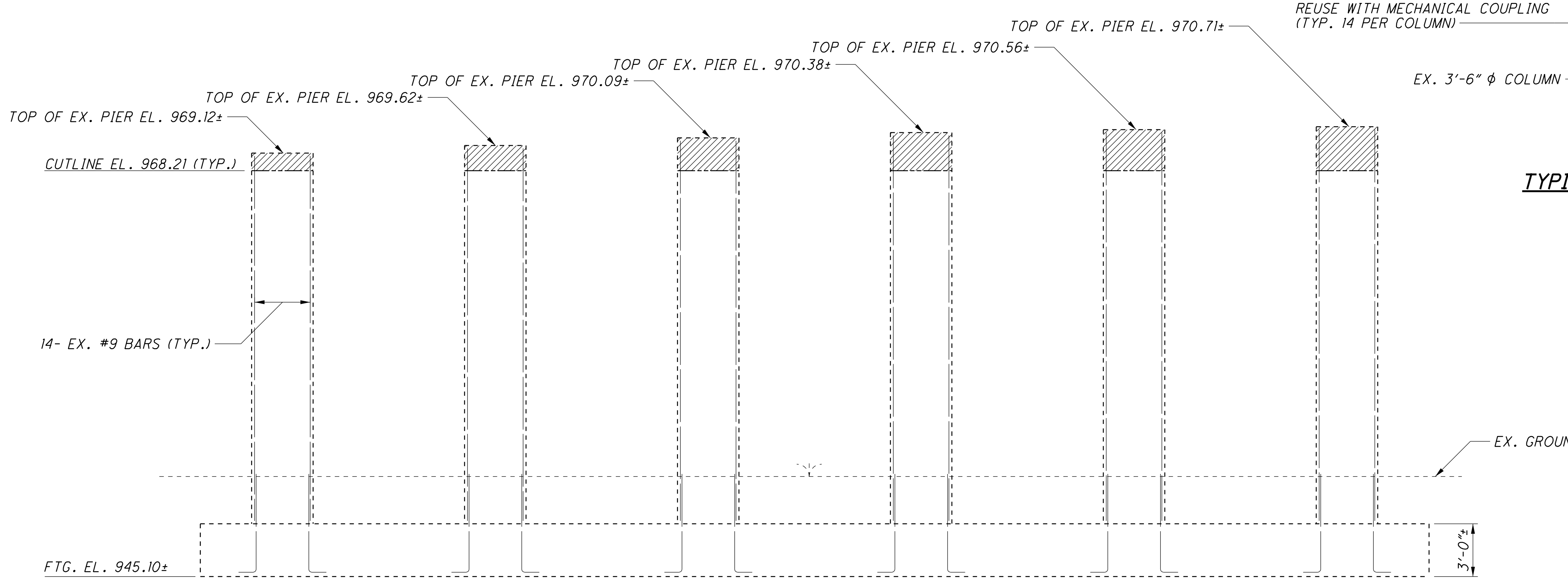
2. ALL DIMENSIONS AND ELEVATIONS SHOWN ARE PER THE EXISTING STRUCTURE PLANS OR AS OBSERVED IN THE FIELD AND SHALL BE CONSIDERED APPROXIMATE.

3. THE EXISTING COLUMN REINFORCING STEEL EXTENDING INTO THE PROPOSED CONCRETE CAP SHALL BE SALVAGED. CARE SHALL BE TAKEN DURING CONCRETE REMOVAL SO AS NOT TO DAMAGE THE REINFORCING STEEL TO BE REUSED. MINIMUM LENGTH OF 6" REQUIRED ON EXISTING REINFORCING STEEL FOR COUPLER. EXPOSED REINFORCING STEEL TO BE REUSED SHALL BE REPAIRED WITH EPOXY COATING PER C&MS SECTION 509. THE COST OF EPOXY COATING INCLUDING ALL LABOR AND MATERIALS NECESSARY TO COMPLETE THE REPAIRS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN.

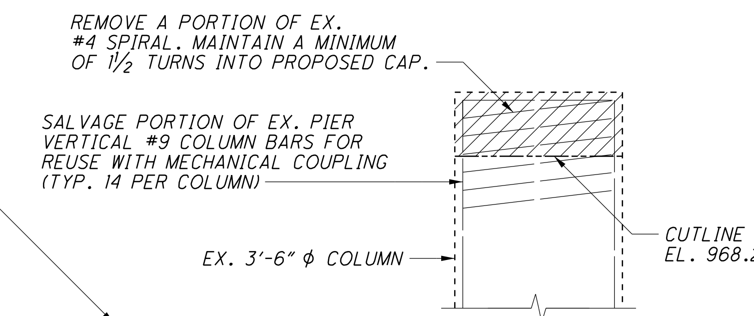
4. DO NOT DAMAGE EXISTING REINFORCING TO BE REUSED.



PLAN

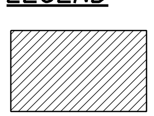


ELEVATION



TYPICAL COLUMN REMOVAL

LEGEND



ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

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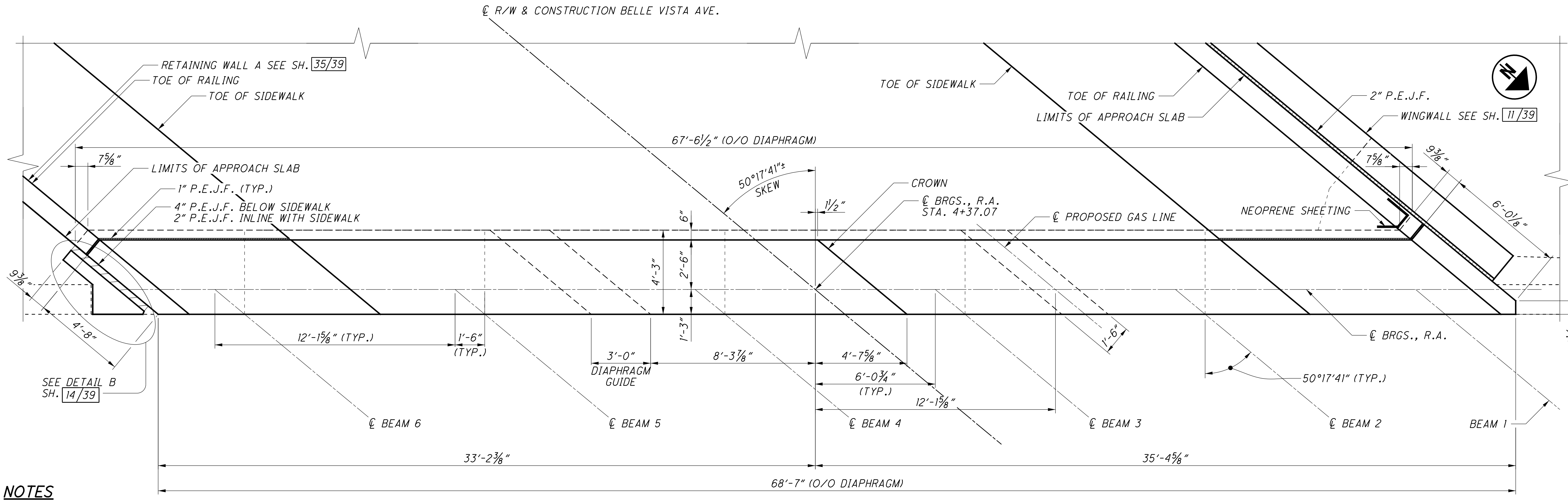
DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 · CMTNA.COM

DESIGNED AMR	DRAWN AMR	REVIEWED STK	DATE 7-29-20
CHECKED GDJ	REVISED	STRUCTURE FILE NUMBER 5006759	

PIER REMOVAL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



PLAN

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS, SEE STD. DWG. SICD-1-96 AND SICD-2-14.
2. D501, D502, D503, D504, D505, D506, D507, & D801 BARS SHALL BE PLACED PARALLEL TO ℄ OF BEAMS.
3. MINIMUM EMBEDMENT DEPTH FOR DOWELS BARS:
   - #5 BARS = 8 INCHES
   - #6 BARS = 9 INCHES
   - #8 BARS = 12 INCHES
4. MINIMUM BAR LAP LENGTH:
   - #8 BARS = 64 INCHES
5. PAYMENT FOR SEMI-INTEGRAL DIAPHRAGM GUIDE CONCRETE, REINFORCING STEEL, AND ALL RELATED APPURTENANCES SHALL BE INCLUDED UNDER 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
6. COORDINATE GAS LINE AND CASING INSTALLATION WITH DOMINION GAS.
7. ABUTMENT DIAPHRAGM CONCRETE: PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

LEGEND

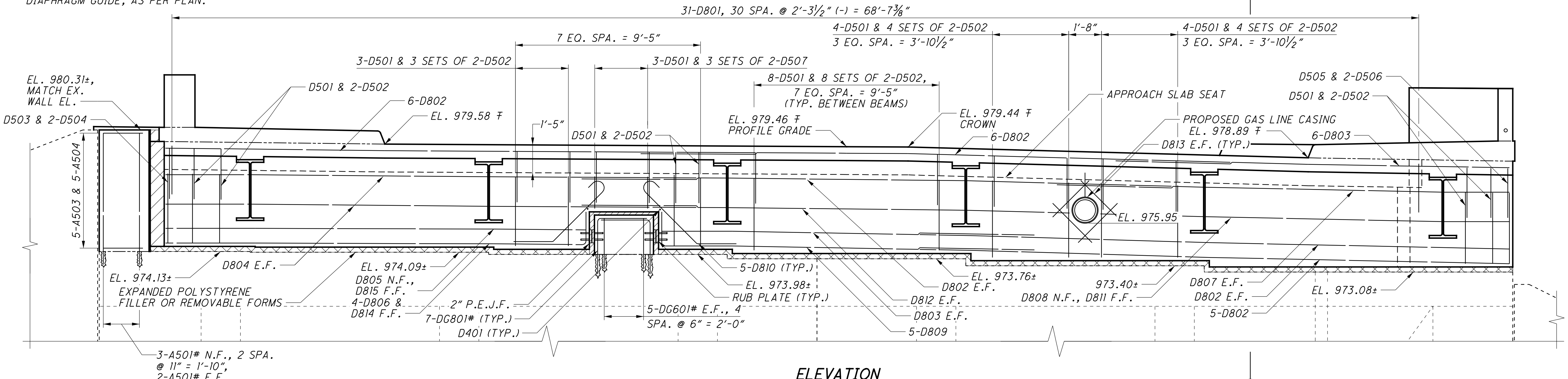
Ŧ - ELEVATION TAKEN AT BRIDGE LIMITS

\# - BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

E.F. - EACH FACE

N.F. - NEAR FACE

F.F - FAR FACE



ELEVATION

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE
ERK	GDJ	ERK		STK	12-18-19

STRUCTURE FILE NUMBER 5006759

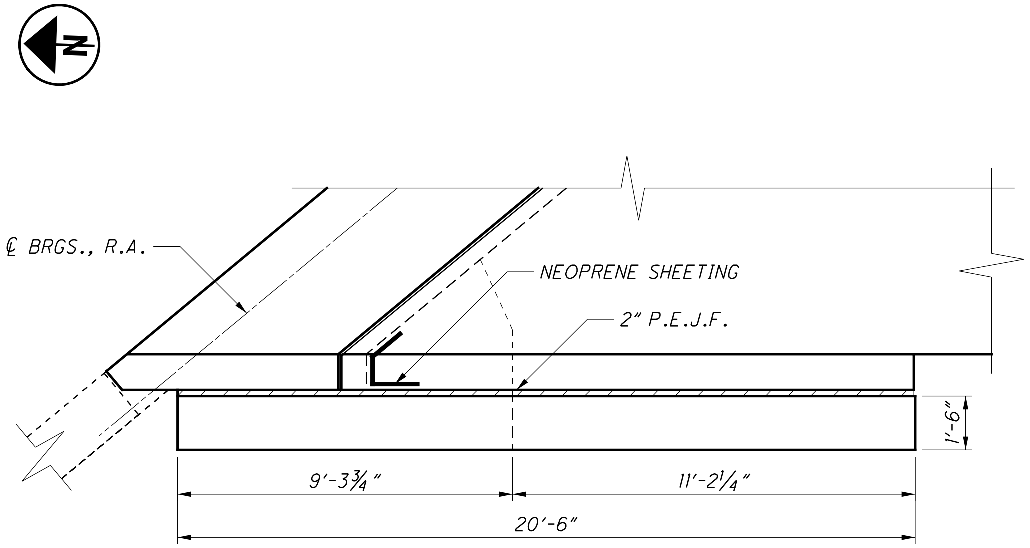
REAR ABUTMENT DETAILS

BRIDGE NO. MAH-680-0373

BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

PID No. 105857



PLAN

NOTE

MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
#5 BAR = 8 INCHES

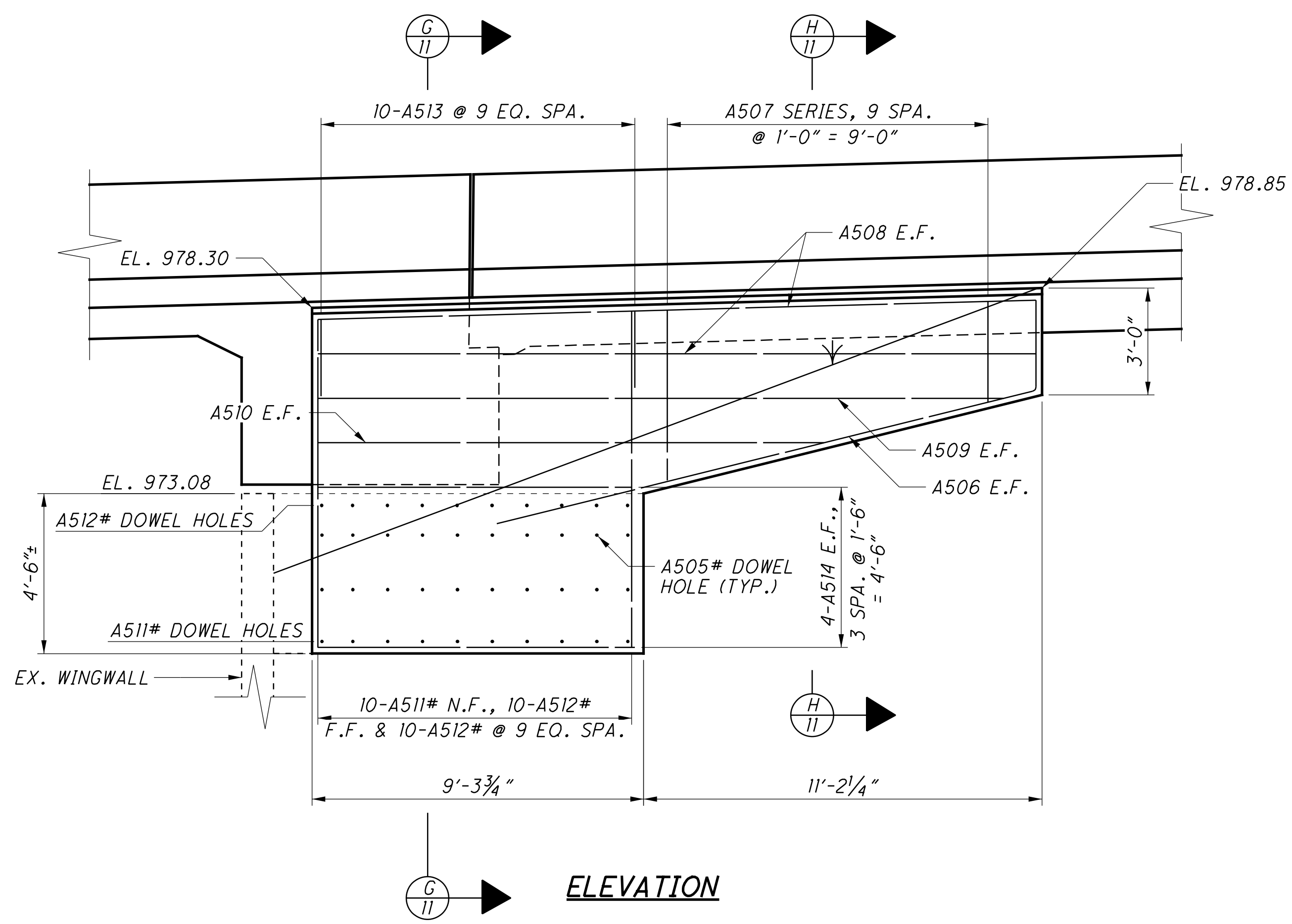
LEGEND

E.F. - EACH FACE

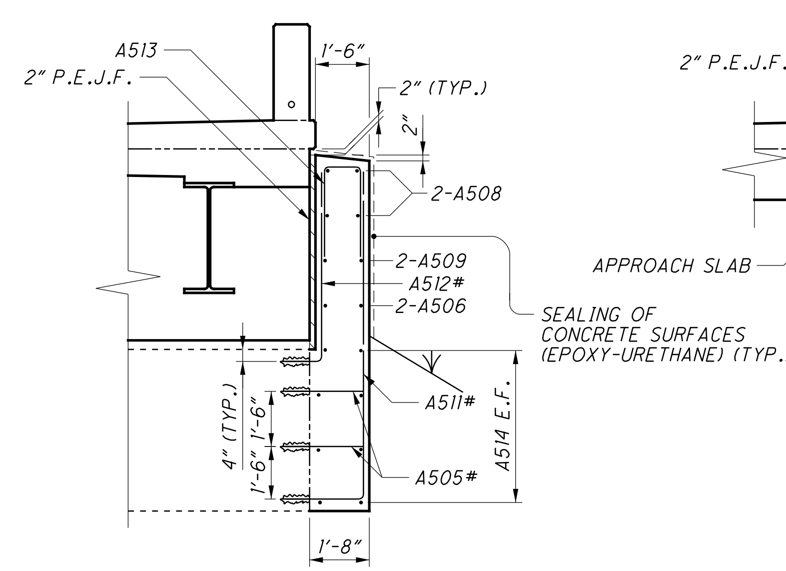
F.F. - FAR FACE

N.F. - NEAR FACE

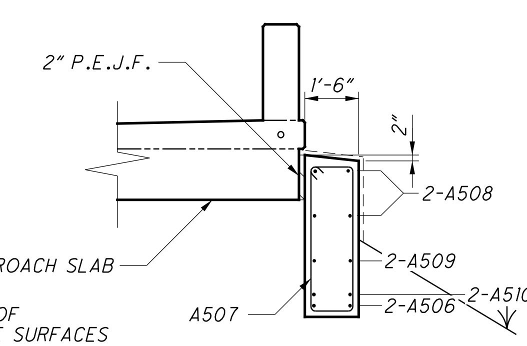
- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE



ELEVATION



G/11 SECTION



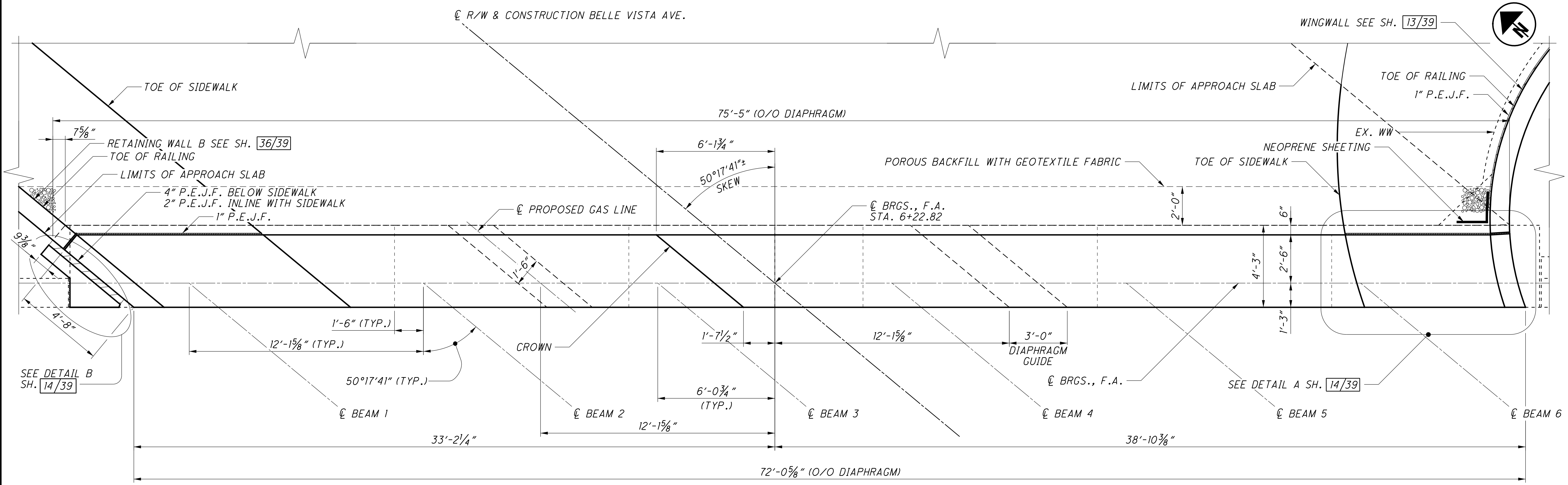
H/11 SECTION

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

DESIGNED AMR | CHECKED GDJ | DRAWN AMR | REVISED | REVIEWED STK | DATE 7-29-20 | STRUCTURE FILE NUMBER 5006759

REAR ABUTMENT WINGWALL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



PLAN

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS, SEE STD. DWG. SICD-1-96 AND SICD-2-14.
2. D508, D509, D510, D511, D512, & D801 BARS SHALL BE PLACED PARALLEL TO ℄ OF BEAMS.
3. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   - #5 BARS = 8 INCHES
   - #6 BARS = 9 INCHES
   - #8 BARS = 12 INCHES
4. MINIMUM BAR LAP LENGTH:
   - #8 BARS = 64 INCHES
5. PAYMENT FOR SEMI-INTEGRAL DIAPHRAGM GUIDE CONCRETE, REINFORCING STEEL, AND ALL RELATED APPURTENANCES SHALL BE INCLUDED UNDER 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
6. COORDINATE GAS LINE AND CASING INSTALLATION WITH DOMINION GAS.
7. ABUTMENT DIAPHRAGM CONCRETE: PLACE THE DIAPHRAGM CONCRETE ENCASING THE STRUCTURAL MEMBER ENDS AFTER THE DECK PLACEMENT IN THE ADJACENT SPAN IS COMPLETE. PROCEDURES THAT PLACE THE ABUTMENT DIAPHRAGM WITH THE DECK CONCRETE MAY BE APPROVED BY THE ENGINEER IF THE PLACEMENT SUBMITTAL CAN ASSURE THAT THE DECK CONCRETE IN THE ADJACENT SPAN WILL BE PLACED BEFORE CONCRETE IN THE DIAPHRAGM HAS REACHED ITS INITIAL SET.

LEGEND

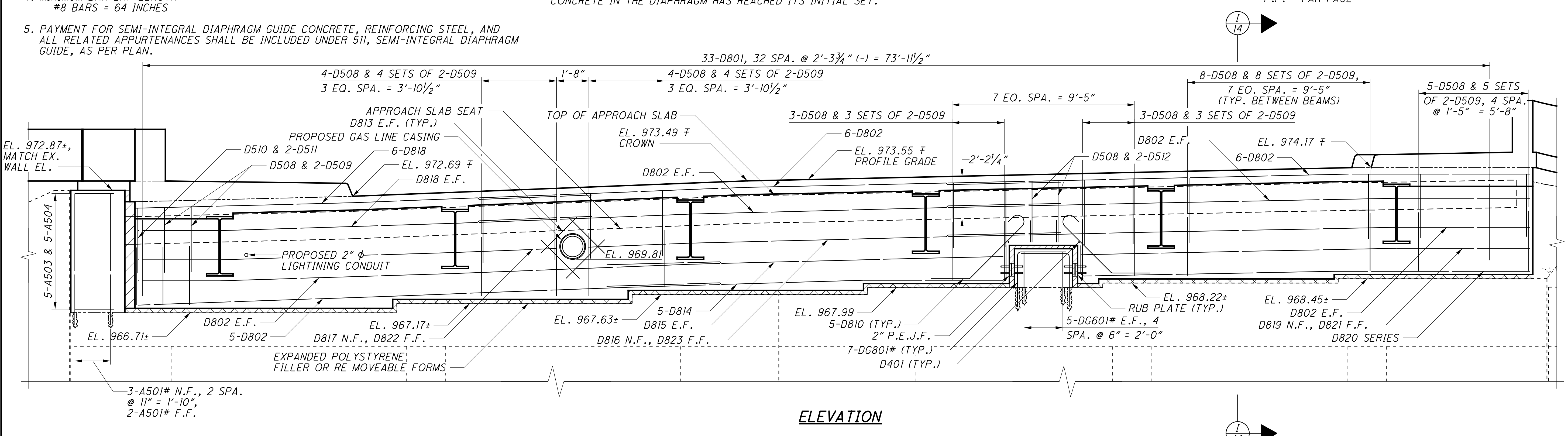
Ŧ - ELEVATION TAKEN AT BRIDGE LIMITS

- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

E.F. - EACH FACE

N.F. - NEAR FACE

F.F. - FAR FACE



ELEVATION

I/14

FORWARD ABUTMENT DETAILS

BRIDGE NO. MAH-680-0373

BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

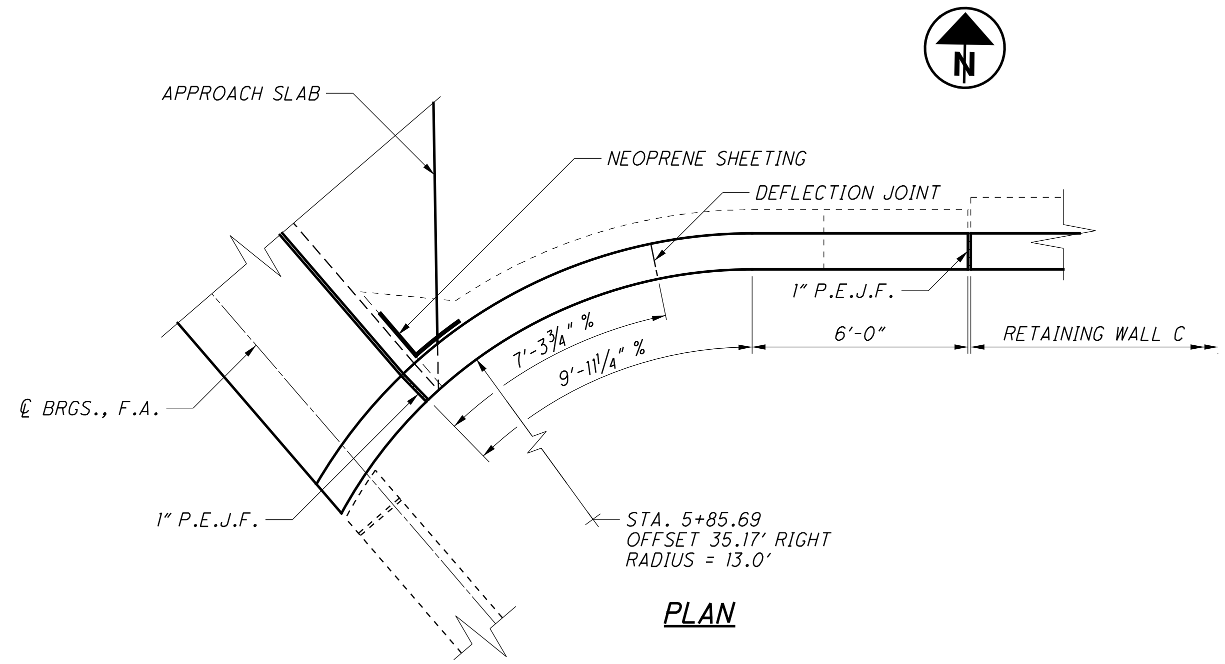
PID No. 105857

12/39

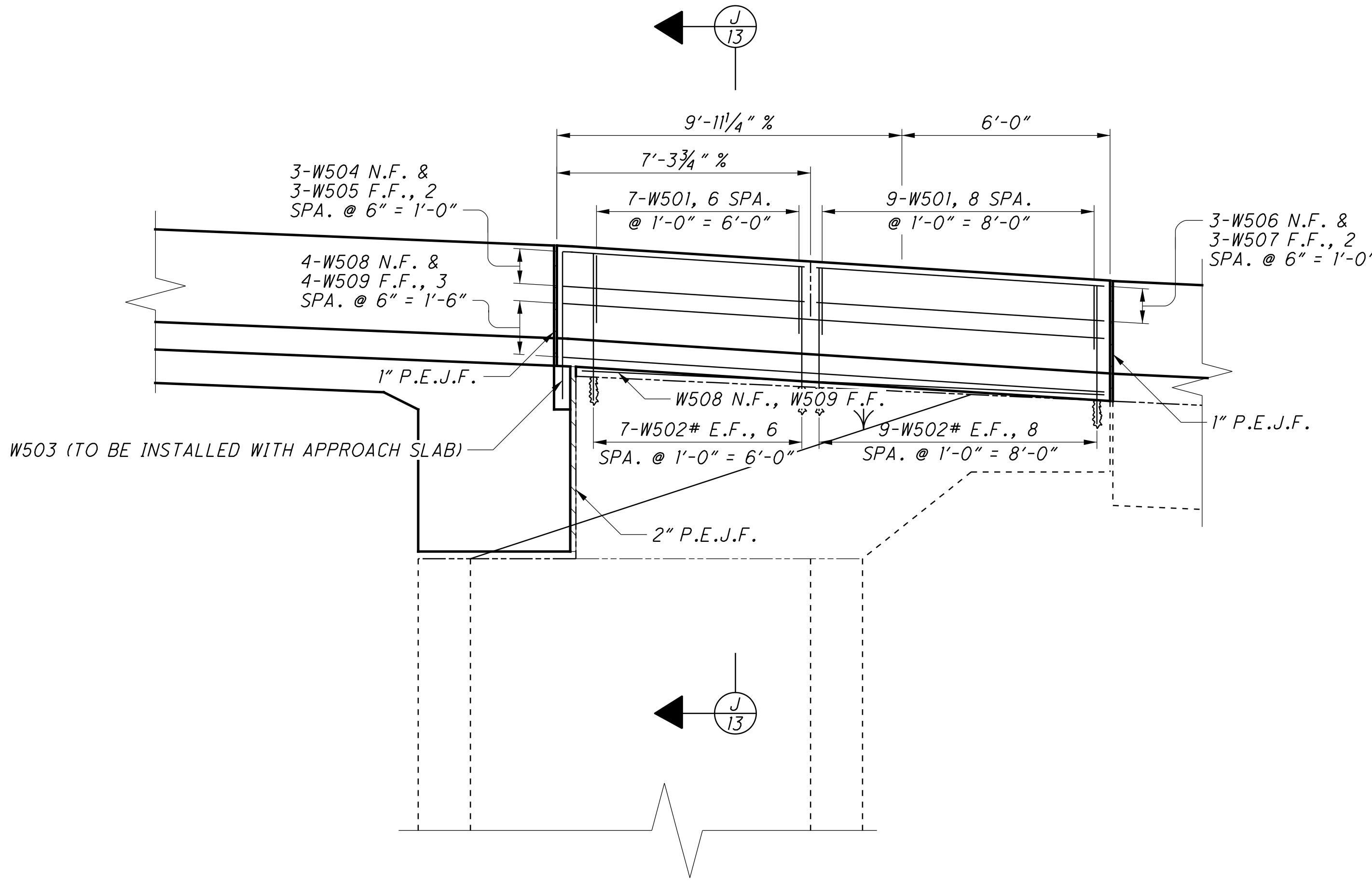
91/126

DESIGN AGENCY: CARPENTER MARTY transportation, 6612 SINGLETREE DR. COLUMBUS, OH 43229, 614.656.2424, CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	ERK	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

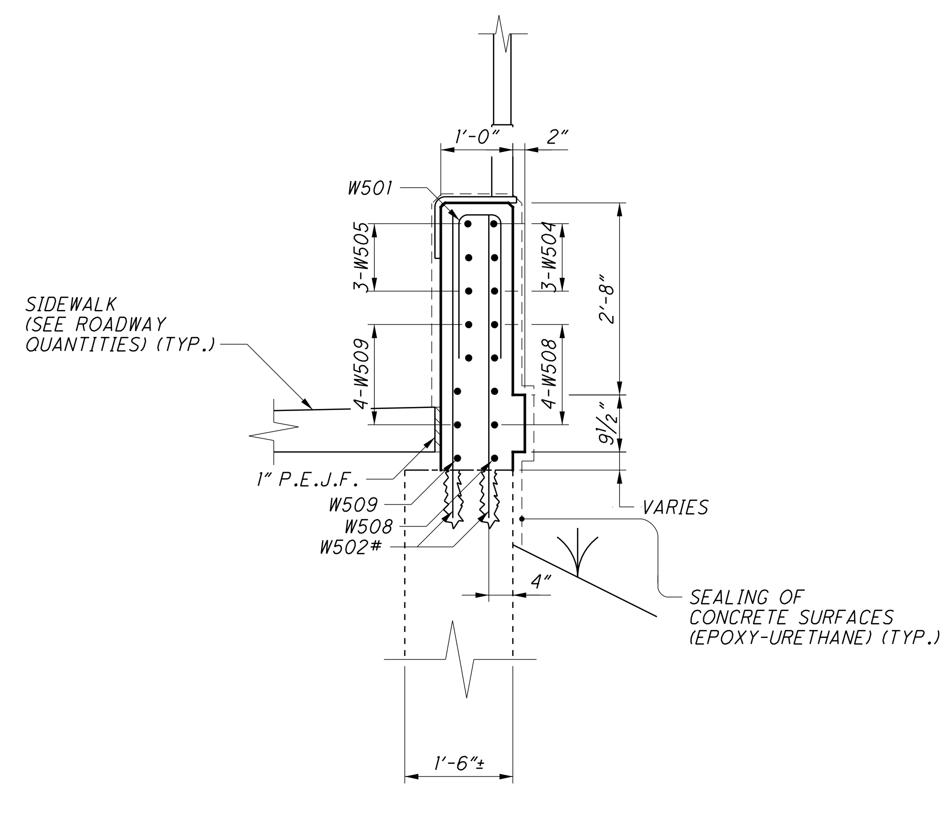


PLAN



ELEVATION

VIEWED ALONG OUTSIDE FACE



J/13 SECTION

NOTES

1. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   #5 BAR = 8 INCHES

2. CONCRETE TO BE CLASS QC2 WITH QC/QA CONCRETE AND INCLUDED FOR PAYMENT WITH ITEM 511, CLASS QC2 CONCRETE, MISC.: RETAINING WALLS.

LEGEND

E.F. - EACH FACE

- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

% - DIMENSION ALONG OUTSIDE FACE

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

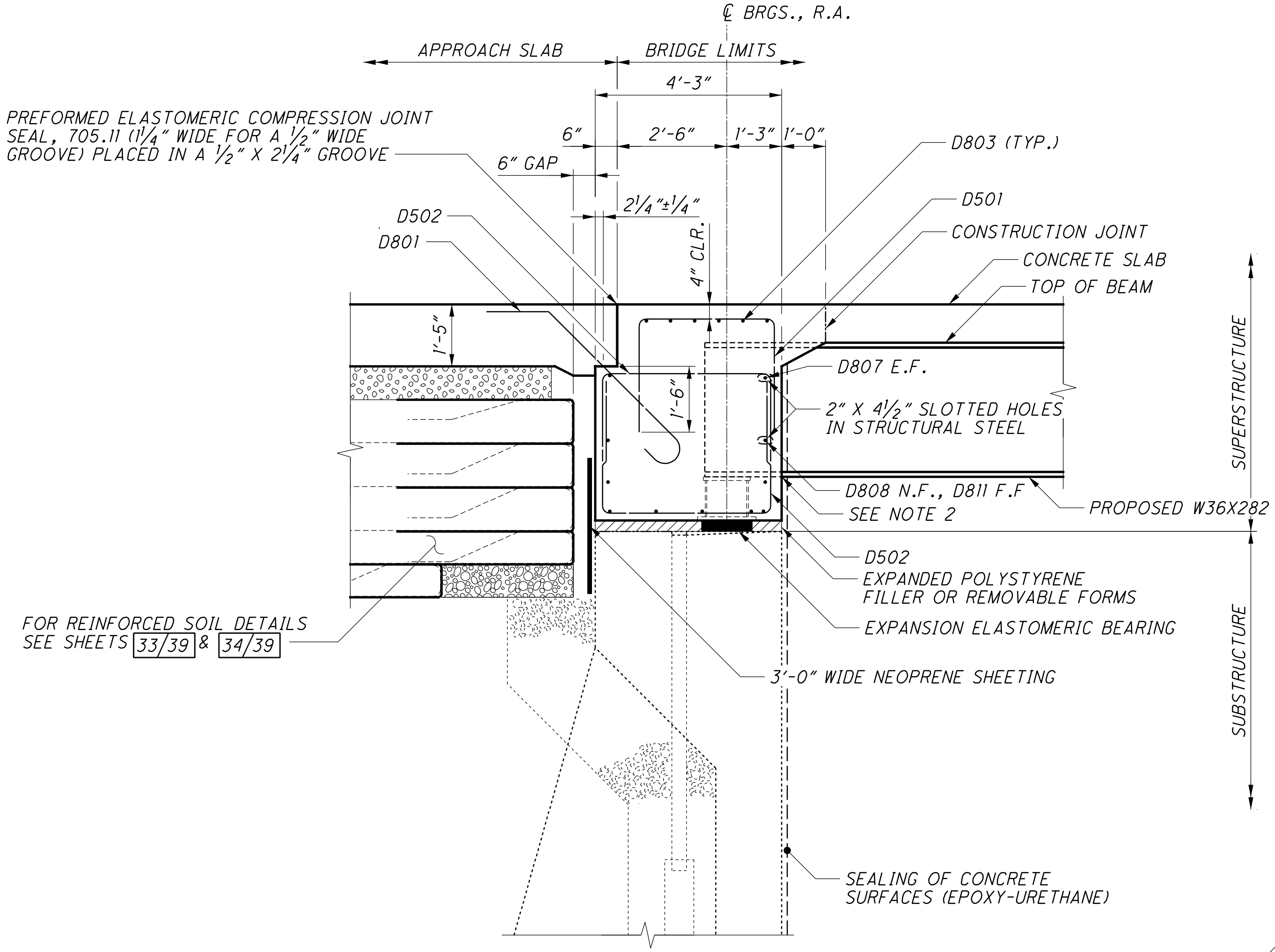
FORWARD ABUTMENT WINGWALL DETAILS

BRIDGE NO. MAH-680-0373

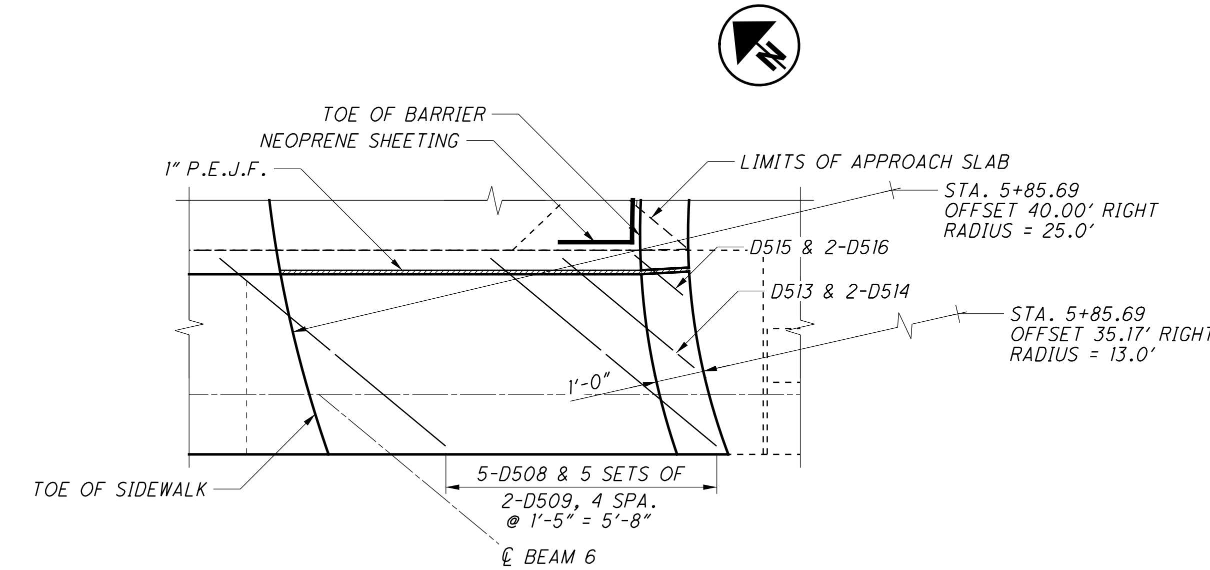
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

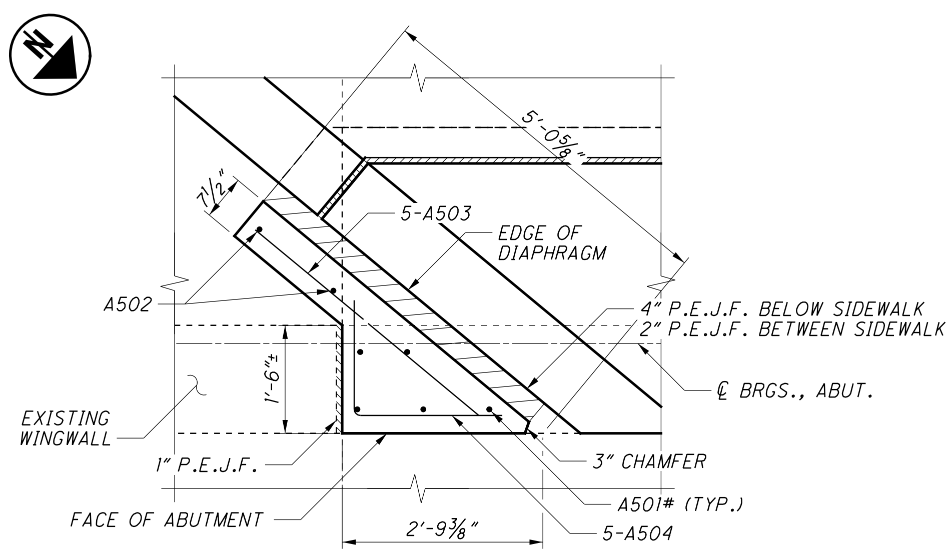
PID No. 105857



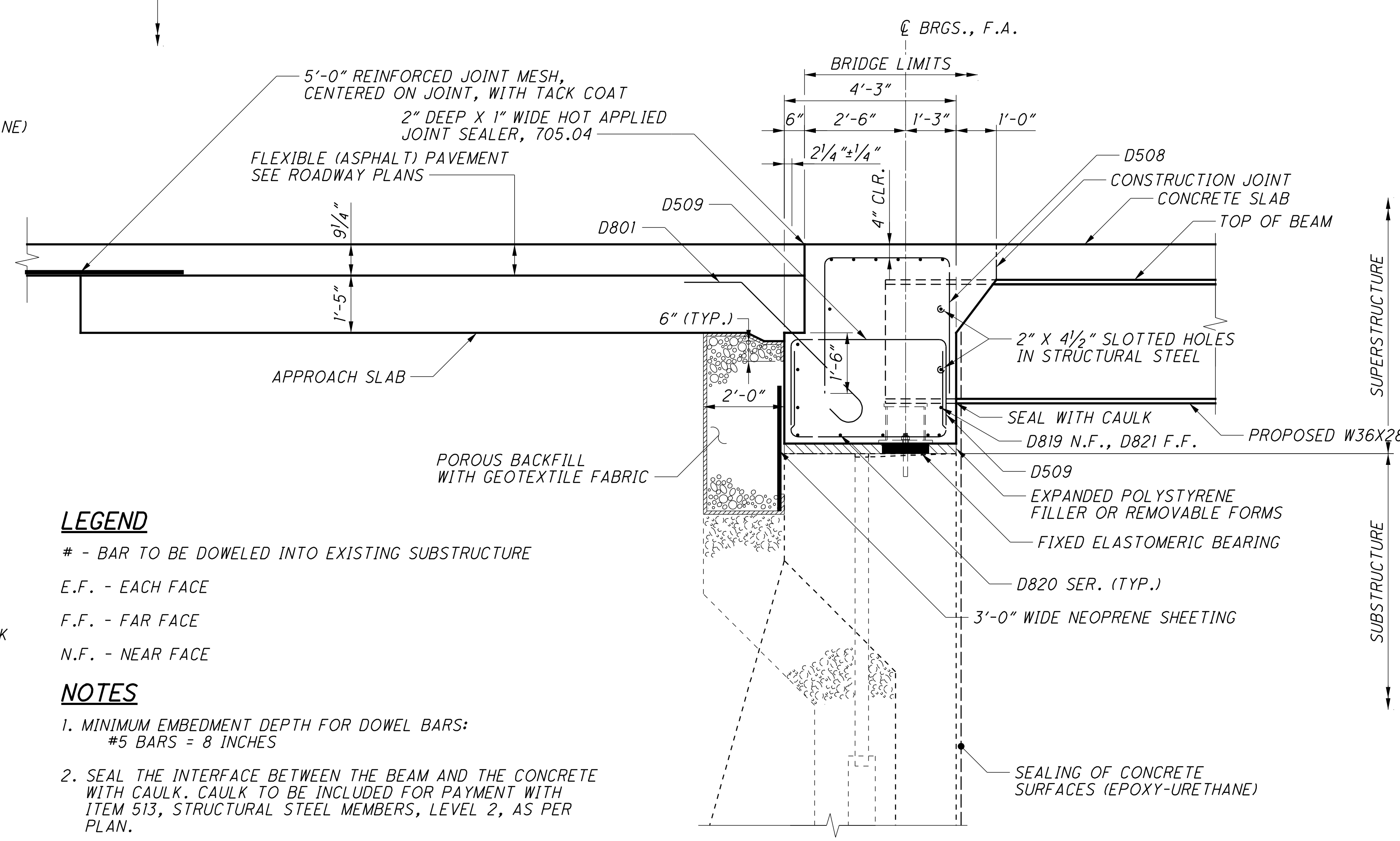
F/10 SECTION
BARS NOT LABELED ARE D802



DETAIL A



DETAIL B



I/14 SECTION
BARS NOT LABELED ARE D802

LEGEND

- BAR TO BE DOWELED INTO EXISTING SUBSTRUCTURE

E.F. - EACH FACE

F.F. - FAR FACE

N.F. - NEAR FACE

NOTES

1. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   #5 BARS = 8 INCHES
2. SEAL THE INTERFACE BETWEEN THE BEAM AND THE CONCRETE WITH CAULK. CAULK TO BE INCLUDED FOR PAYMENT WITH ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN.
3. PLACE DOWELS A MINIMUM OF 4" FROM EDGE OF CONCRETE.
4. SEE SHEET 33/39 FOR SECTION WITH GAS LINE SLEEVE.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	ERK	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

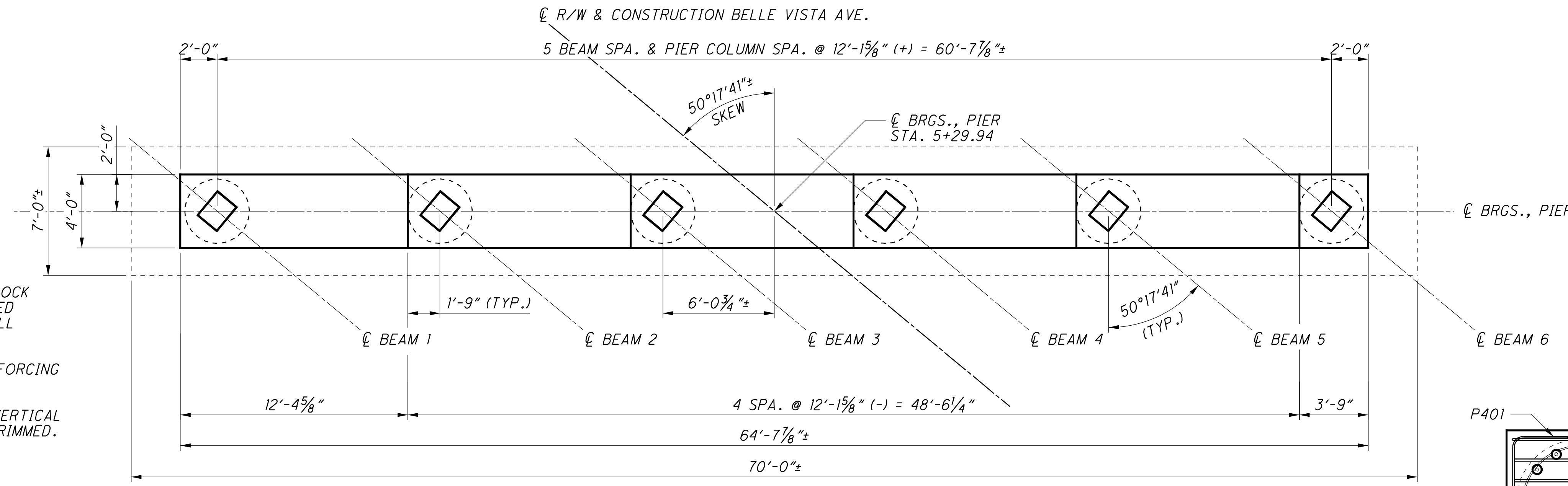
ABUTMENT SECTIONS & MISCELLANEOUS DETAILS

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

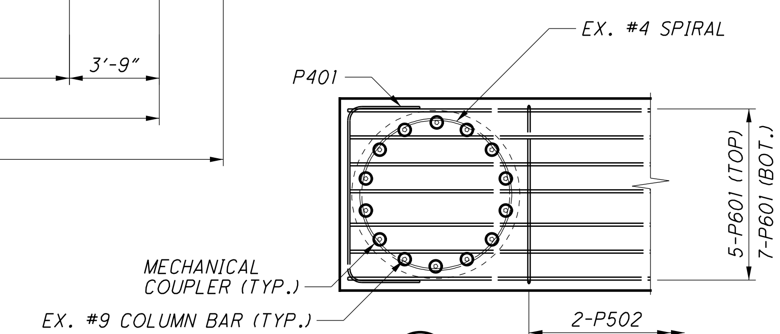
MAH-680-0.68 / 3.73
PID No. 105857

NOTES

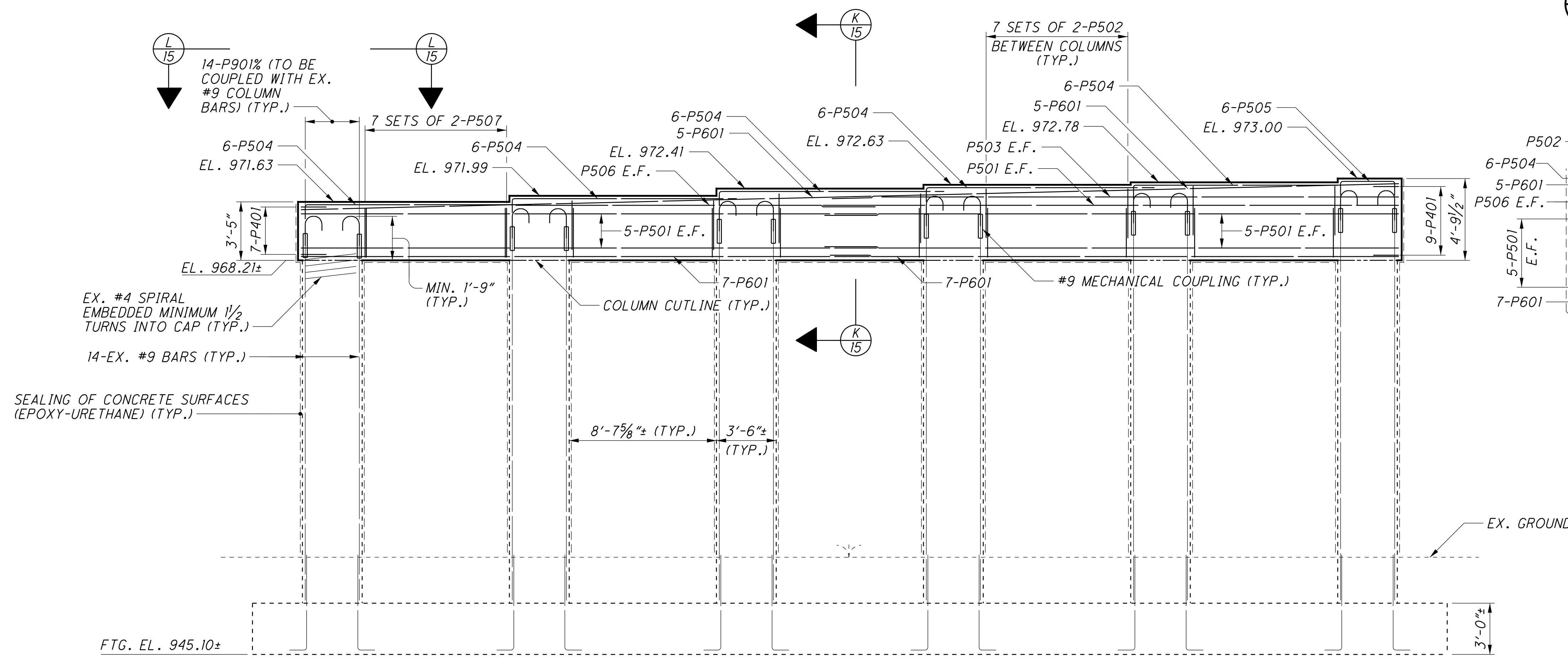
1. MINIMUM SPLICE LENGTHS:
   #5 BAR = 37 INCHES
   #6 BAR = 48 INCHES
2. MECHANICAL COUPLER SHALL BE DAYTON SUPERIOR D250L BAR LOCK L-SERIES OR ENGINEER APPROVED EQUIVALENT. THE COUPLER SHALL BE EPOXY COATED.
3. DO NOT DAMAGE EXISTING REINFORCING TO BE REUSED.
4. P901% BARS ASSUME EXISTING VERTICAL REINFORCING STEEL WAS NOT TRIMMED.



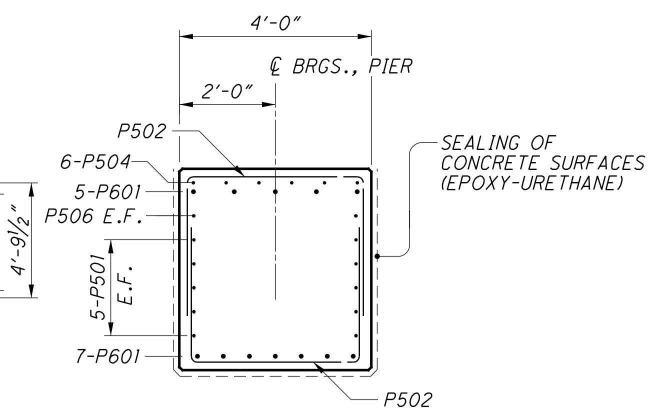
PLAN



L/15 VIEW



ELEVATION



K/15 SECTION

LEGEND

E.F. - EACH FACE

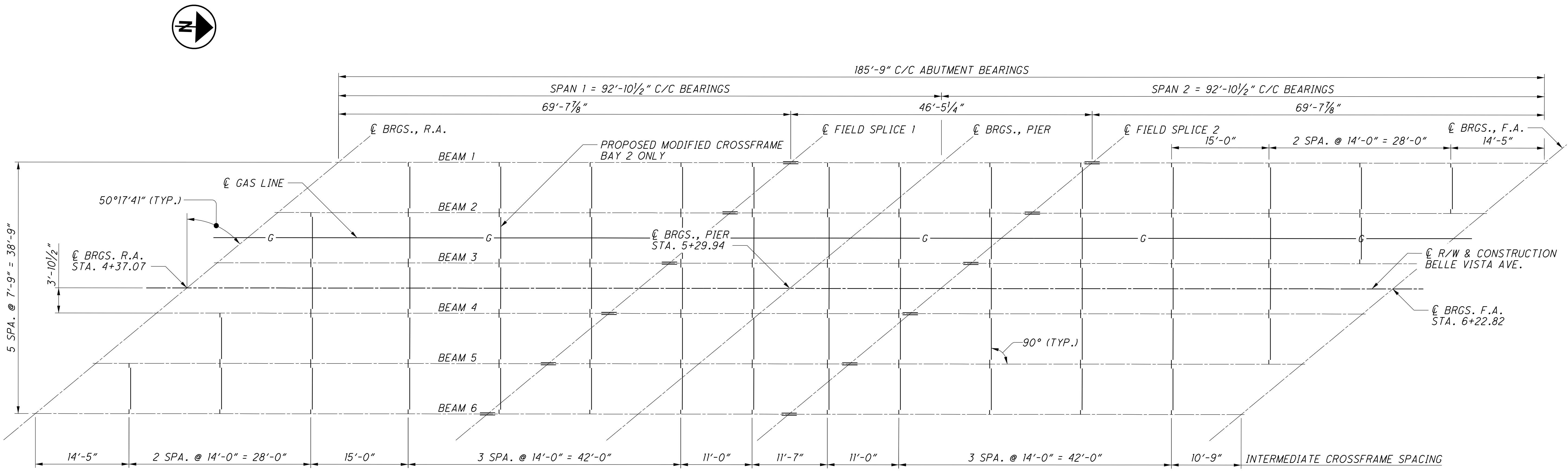
% - BAR TO UTILIZE MECHANICAL COUPLER

DESIGN AGENCY: CARPENTER MARTY transportation

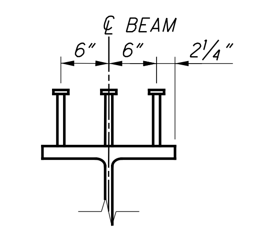
DESIGNED AMR | CHECKED GDJ | DRAWN AMR | REVISED | REVIEWED STK | DATE 7-29-20 | STRUCTURE FILE NUMBER 5006759

PIER DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

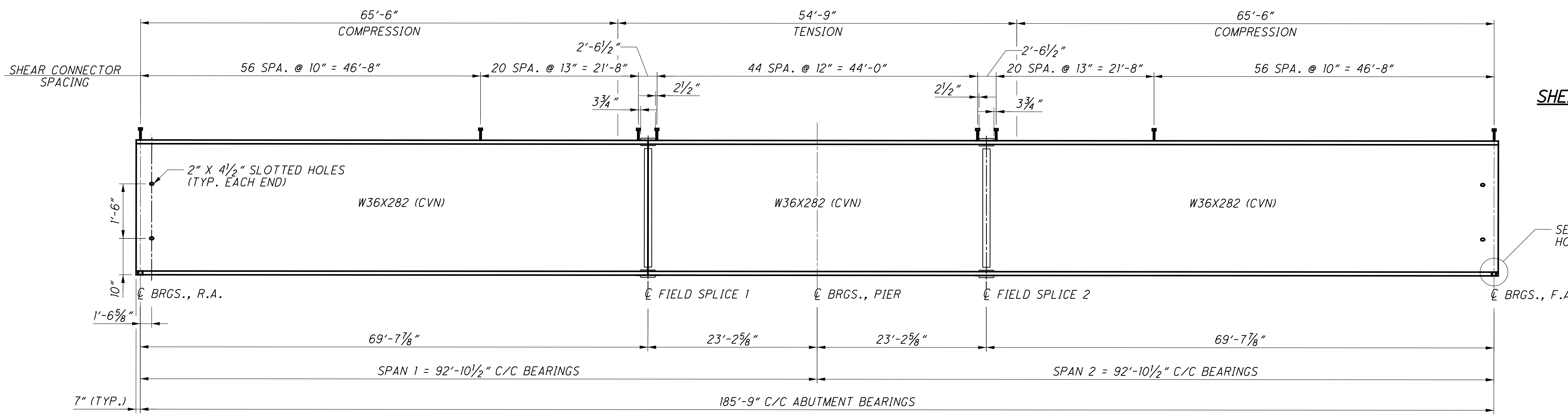


FRAMING PLAN



SHEAR STUD CONNECTOR

⅞" ϕ X 6"



BEAM ELEVATION

VERTICAL SCALE EXAGGERATED

NOTE

1. WELD ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". DO NOT WELD ATTACHMENTS TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE AT LEAST 1" FROM EDGE OF FLANGE, BE NO MORE THAN 2" LONG, AND BE AT LEAST ¼" FOR THICKNESSES UP TO ¾" OR 5/16" FOR GREATER THAN ¾" THICK.
2. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229 614.656.2424 CMTRAN.COM

DESIGNED GDJ	DRAWN GDJ	REVIEWED STK	DATE 7-29-20
CHECKED ERK	REVISED	STRUCTURE FILE NUMBER 5006759	

FRAMING PLAN AND BEAM ELEVATION
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

16/39

95/126

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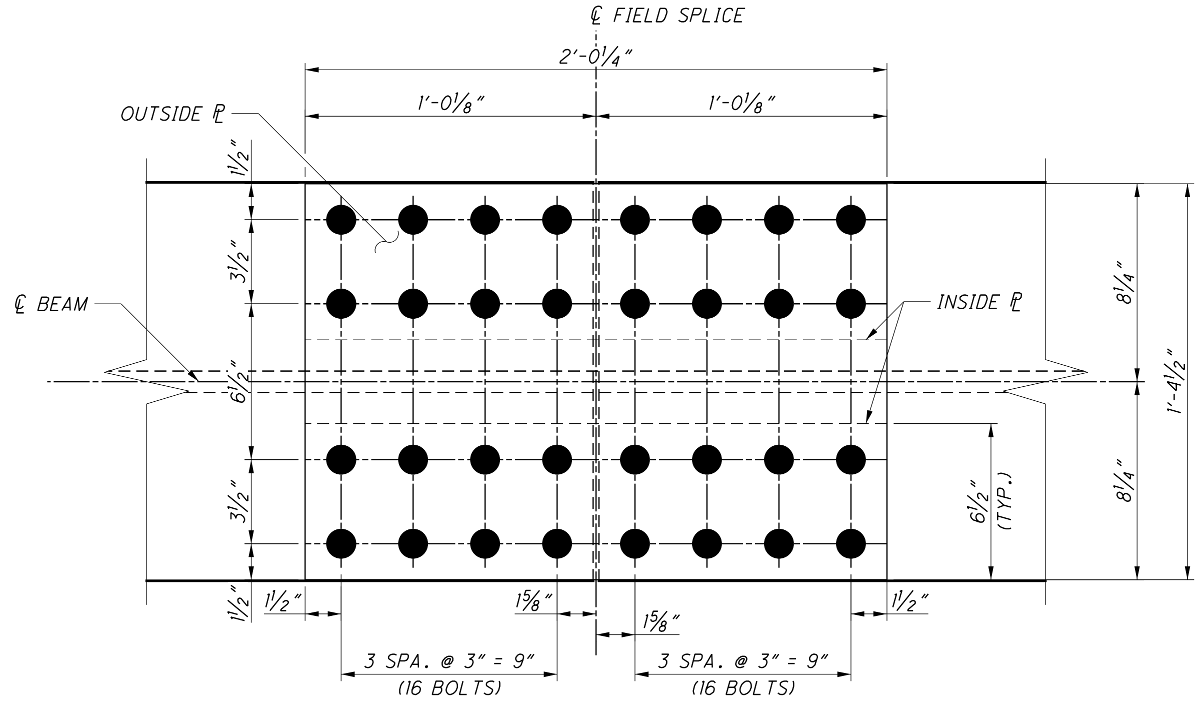
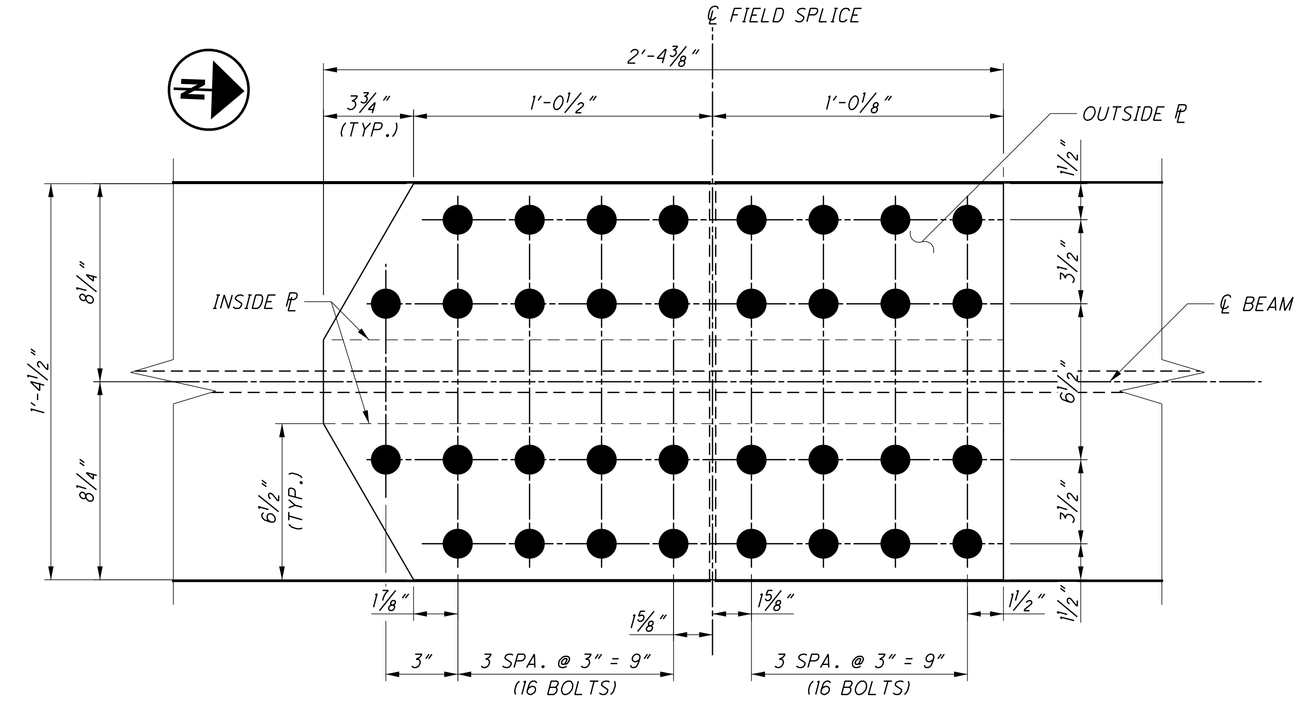


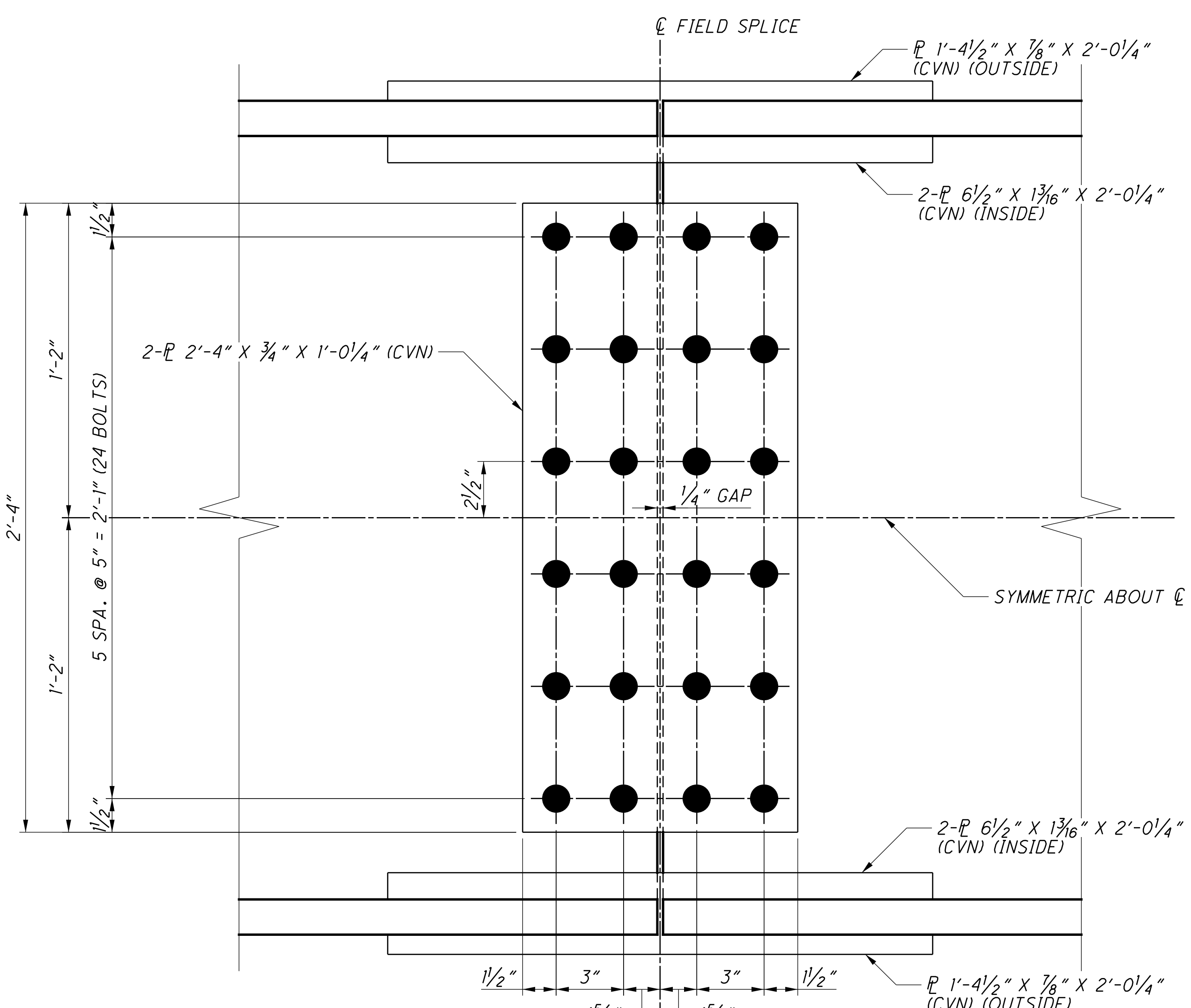
PLAN - FLANGE SPLICE

TOP (ALL BEAMS)
BOTTOM (BEAMS 2-5)



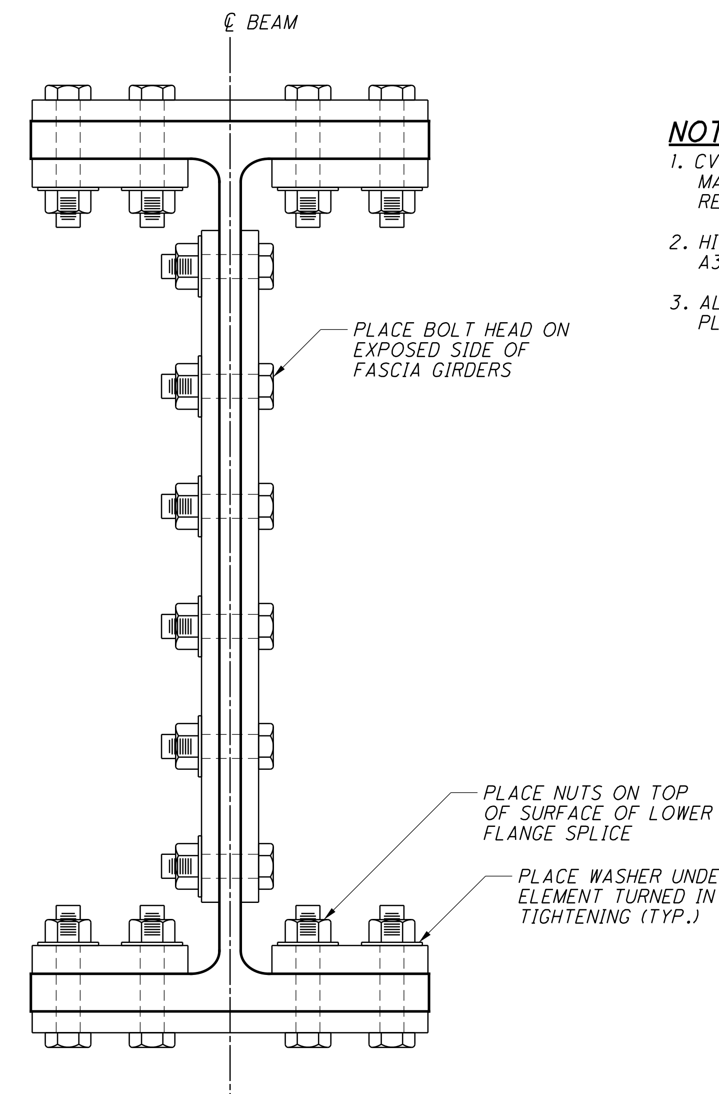
PLAN - FLANGE SPLICE

BOTTOM (BEAMS 1 & 6)



ELEVATION

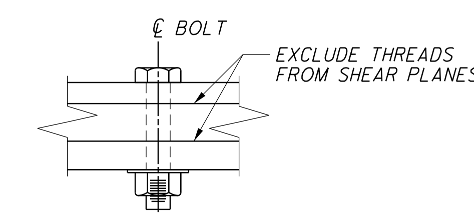
GIRDERS 2 THRU 5 SHOWN, 1 & 6 SIMILAR



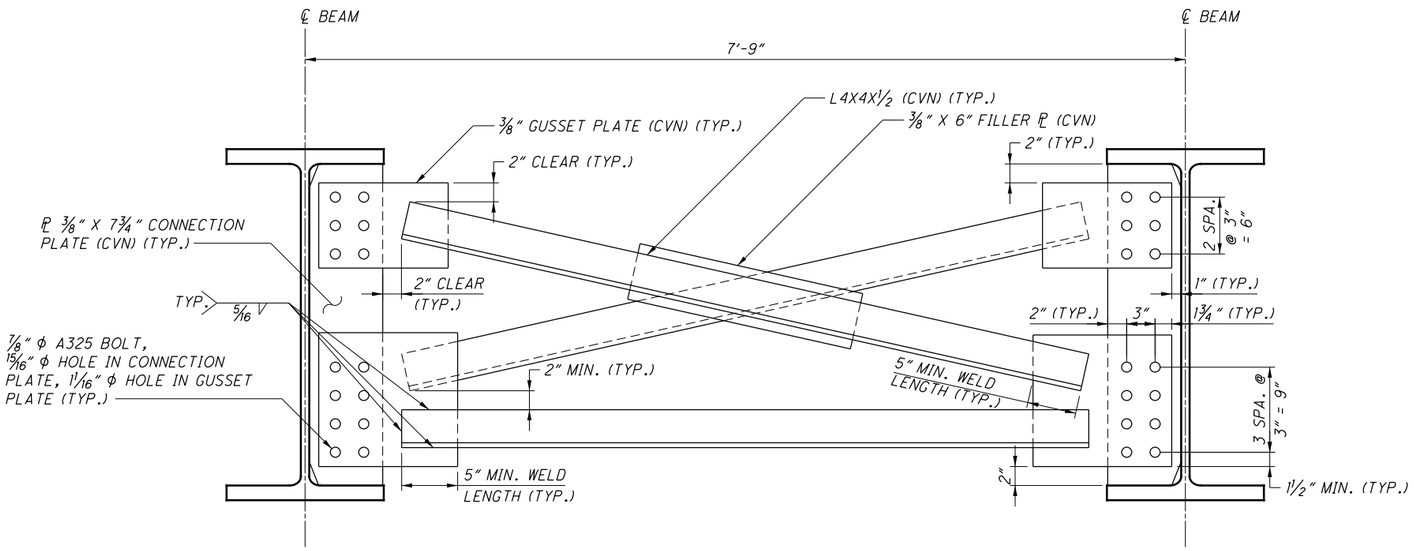
SECTION

NOTES

1. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
2. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM F3125, GRADE A325, TYPE 1 GALVANIZED. 1⅛" DIAMETER HOLES.
3. ALL BOLTS SHALL BE SIZED TO EXCLUDE THREADS FROM SHEAR PLANES. SEE BOLT DETAIL.

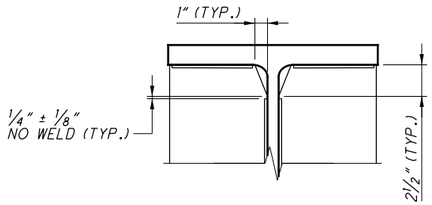


BOLT DETAIL

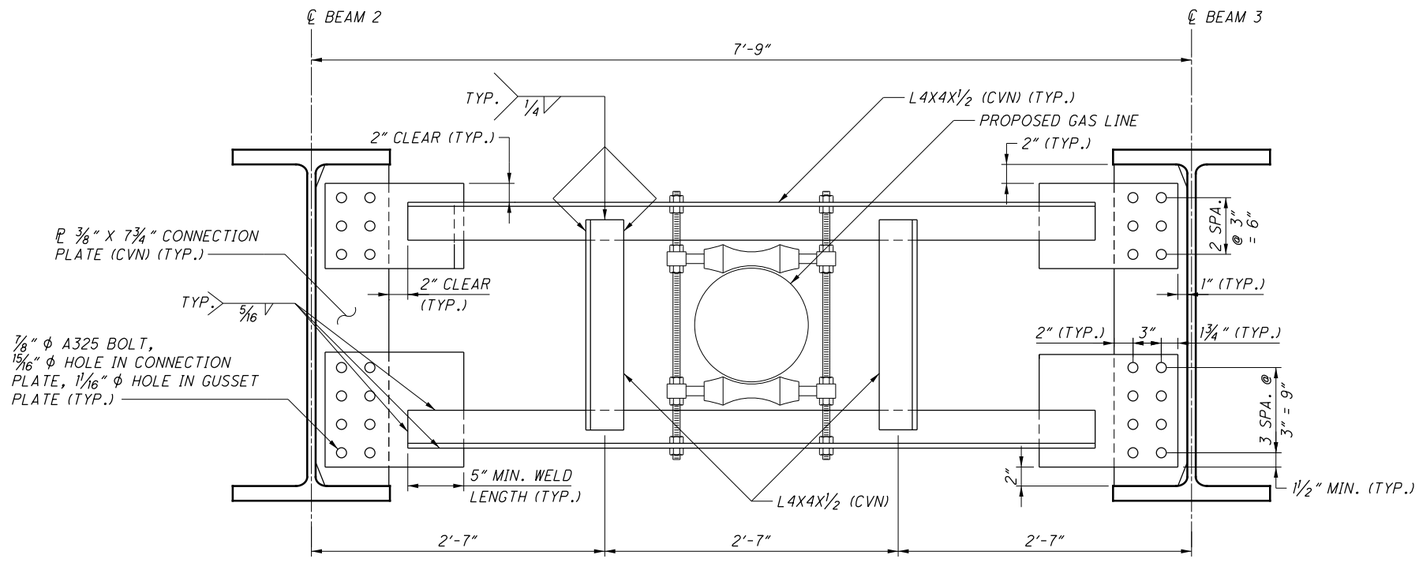


INTERMEDIATE CROSSFRAME

TYPE A
TYP. FOR ALL CROSSFRAMES
EXCEPT BAY 2



STIFFENER CLIP AND WELD TERMINATION



MODIFIED GAS LINE CROSSFRAME

TYP. FOR ALL CROSSFRAMES
IN BAY 2

NOTES

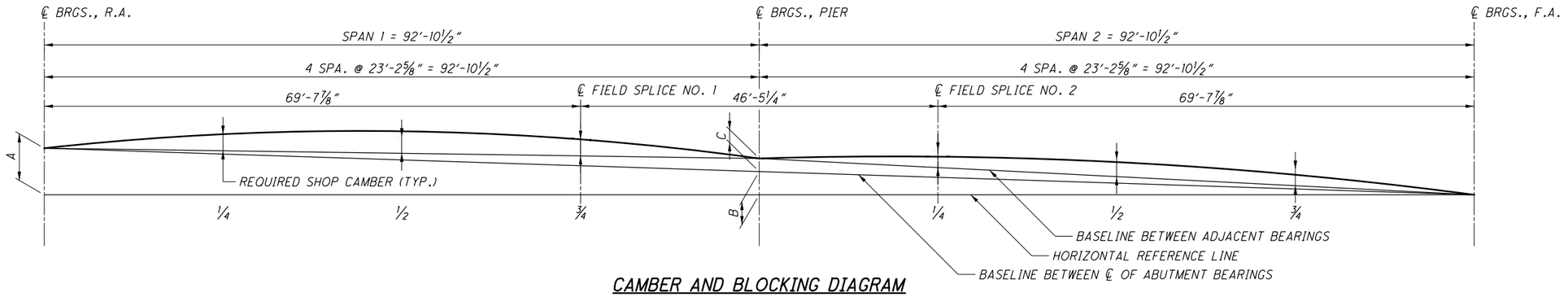
1. HIGH STRENGTH BOLTS SHALL BE ASTM F3125, GRADE A325, TYPE 1 GALVANIZED.
2. ALL BOLTS SHALL BE SIZED TO EXCLUDE THREADS FROM SHEAR PLANES. SEE BOLT DETAIL ON SHEET 17/39.
3. CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.
4. ALL MEMBERS SHALL BE WELDED PRIOR TO GALVANIZING.
5. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. GSD-1-19.
6. SEE SHEET 4/39 FOR ADDITIONAL GAS LINE NOTES AND DETAILS.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ENGINEERS CONSULTANTS

DESIGNED ERK | DRAWN ERK | REVIEWED STK | DATE 7-29-20
CHECKED GDJ | REVISED | STRUCTURE FILE NUMBER 5006759

CROSSFRAME DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



CAMBER AND BLOCKING DIAGRAM

BEAM 1 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/8	7/16	3/16	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 3/8	1 1/16	13/16	0	9/16	1 1/4	1	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	5/16	0	0	0
REQUIRED SHOP CAMBER	0	2 3/4	3 3/16	2	0	1	1 9/16	1 1/4	0

BEAM 2 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	5/16	7/16	1/4	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/4	1 9/16	13/16	0	1/2	1 1/8	7/8	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	7/16	1/4	0	0
REQUIRED SHOP CAMBER	0	2 9/16	3 5/16	2 1/16	0	1 1/16	1 11/16	1 1/8	0

BEAM 3 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	5/16	7/16	1/4	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/4	1 9/16	13/16	0	7/16	1 1/16	7/8	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	1/2	9/16	0	0
REQUIRED SHOP CAMBER	0	2 9/16	3 5/16	2 1/16	0	1 1/16	1 5/16	1 1/8	0

BEAM 4 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/8	7/16	1/4	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/4	1 9/16	13/16	0	7/16	1	7/8	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	3/4	3/4	3/16	0
REQUIRED SHOP CAMBER	0	2 5/8	3 5/16	2 1/16	0	1 5/16	2 1/16	1 5/16	0

BEAM 5 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/8	7/16	1/4	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 5/16	1 1/16	7/8	0	7/16	1	7/8	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	15/16	1 1/16	9/16	0
REQUIRED SHOP CAMBER	0	2 11/16	3 3/16	2 1/8	0	1 1/2	2 3/8	1 11/16	0

BEAM 6 - DEFLECTION AND CAMBER TABLE (INCHES)									
LOCATION	R.A.	¼	½	¾ & SPLICE 1	PIER	¼ & SPLICE 2	½	¾	F.A.
DEFLECTION DUE TO WEIGHT OF STEEL	0	3/8	1/2	1/4	0	1/8	5/16	1/4	0
DEFLECTION DUE TO REMAINING DEAD LOAD	0	1 1/2	1 7/8	1 1/16	0	3/8	1 1/16	15/16	0
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	0	1	1 5/16	1	0	1 1/8	1 1/16	1 5/8	0
REQUIRED SHOP CAMBER	0	2 7/8	3 11/16	2 5/16	0	1 5/8	3 1/16	2 13/16	0

BLOCKING TABLE			
LOCATION	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"
BEAM 1	6'-0½"	3'-0¼"	4⅝"
BEAM 2	5'-10¾"	2'-11⅜"	4⅛"
BEAM 3	5'-9"	2'-10½"	5⅛"
BEAM 4	5'-7¼"	2'-9⅝"	5⅛"
BEAM 5	5'-5¼"	2'-8⅝"	5¼"
BEAM 6	5'-3⅛"	2'-7⅝"	5¼"

NOTES

POSITIVE CAMBER VALUES INDICATE CAMBER ABOVE CHORD BETWEEN ADJACENT BEARINGS.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
614.882.0003 CARPENTERMARTY.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	ERK	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

CAMBER TABLE AND DIAGRAM
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

19 / 39

98
126

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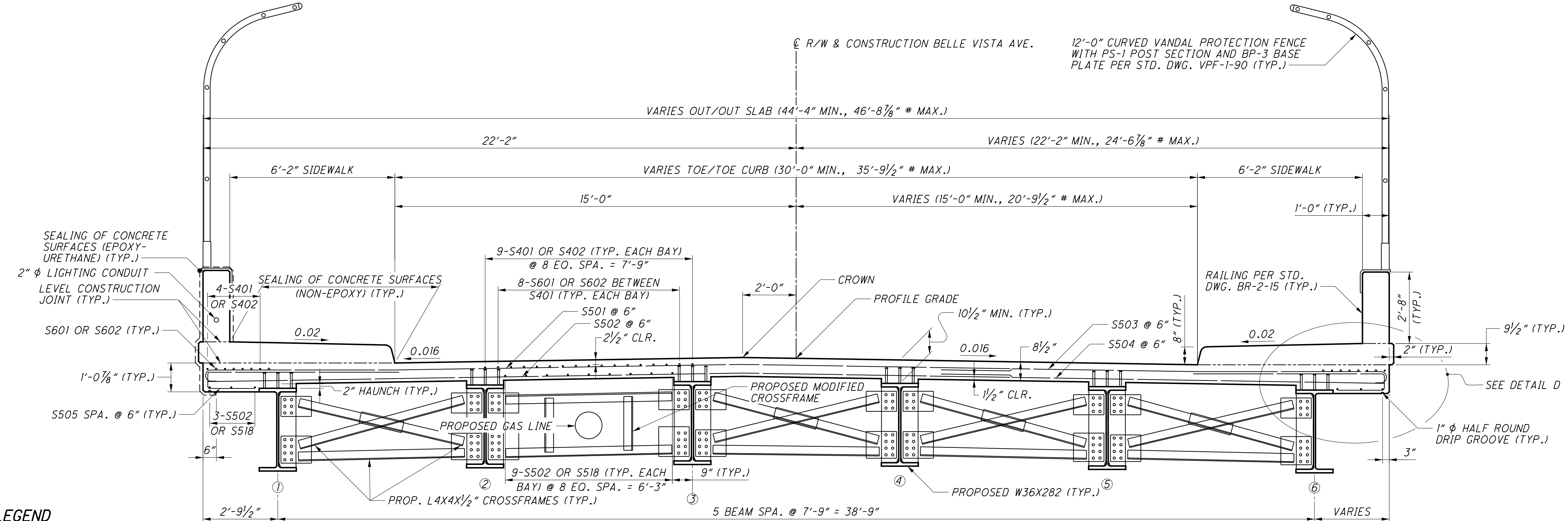


TRANSVERSE SECTION

LEGEND

A = S508 SER. (TOP) & S509 SER. (BOTTOM), 61 SPA. @ 6" = 30'-6"

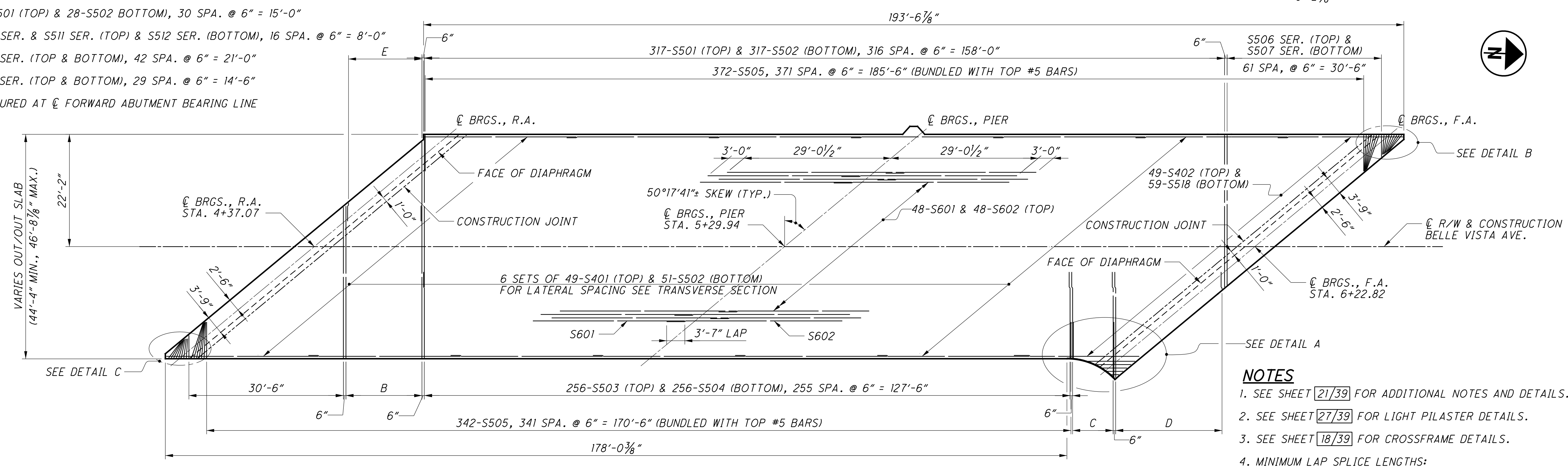
B = 28-S501 (TOP) & 28-S502 BOTTOM), 30 SPA. @ 6" = 15'-0"

C = S510 SER. & S511 SER. (TOP) & S512 SER. (BOTTOM), 16 SPA. @ 6" = 8'-0"

D = S513 SER. (TOP & BOTTOM), 42 SPA. @ 6" = 21'-0"

E = S514 SER. (TOP & BOTTOM), 29 SPA. @ 6" = 14'-6"

= MEASURED AT ℄ FORWARD ABUTMENT BEARING LINE



DECK PLAN

NOTES

1. SEE SHEET 21/39 FOR ADDITIONAL NOTES AND DETAILS.
2. SEE SHEET 27/39 FOR LIGHT PILASTER DETAILS.
3. SEE SHEET 18/39 FOR CROSSFRAME DETAILS.
4. MINIMUM LAP SPLICE LENGTHS:
   #4 BAR = 23 INCHES
   #5 BAR = 36 INCHES
   #6 BAR = 43 INCHES

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229 614.656.2424 CMTRAN.COM

REVIEWED	DATE
STK	7-29-20
STRUCTURE FILE NUMBER	
5006759	

DRAWN	REVISED
GDJ	

DESIGNED	CHECKED
GDJ	ERK

TRANSVERSE SECTION AND DECK PLAN

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

20/39

99/126

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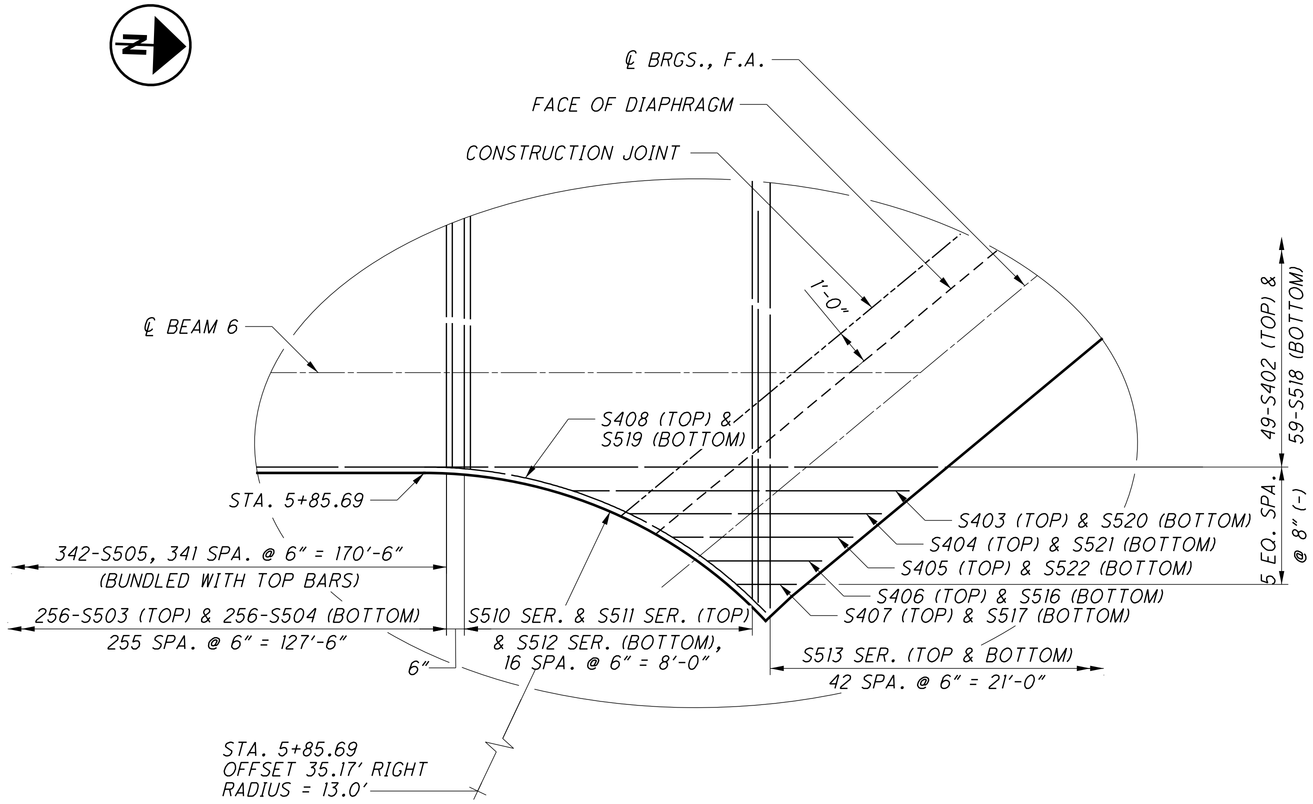
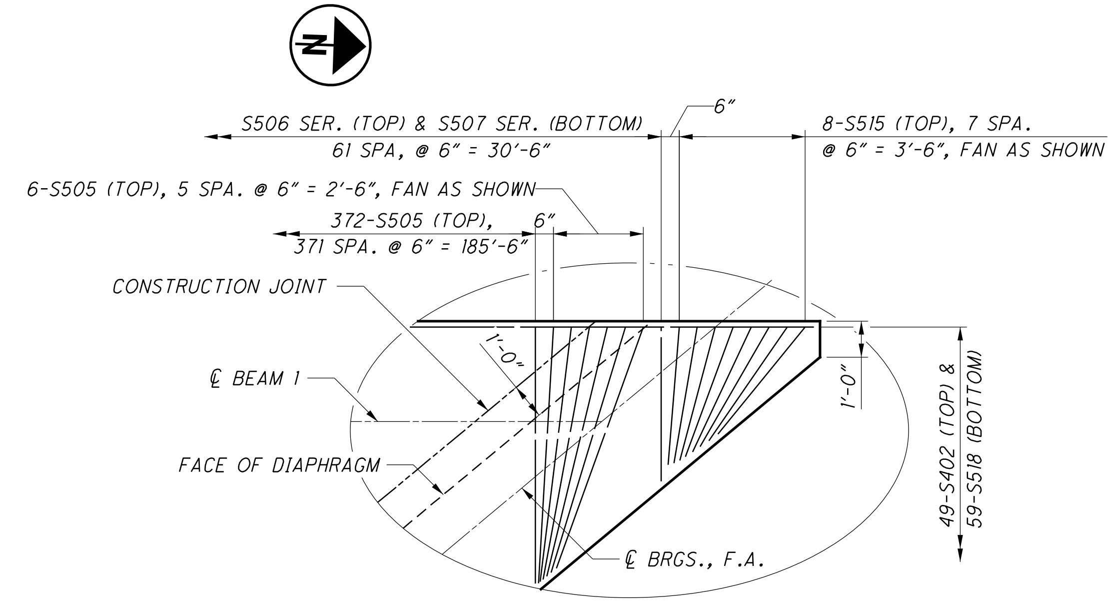
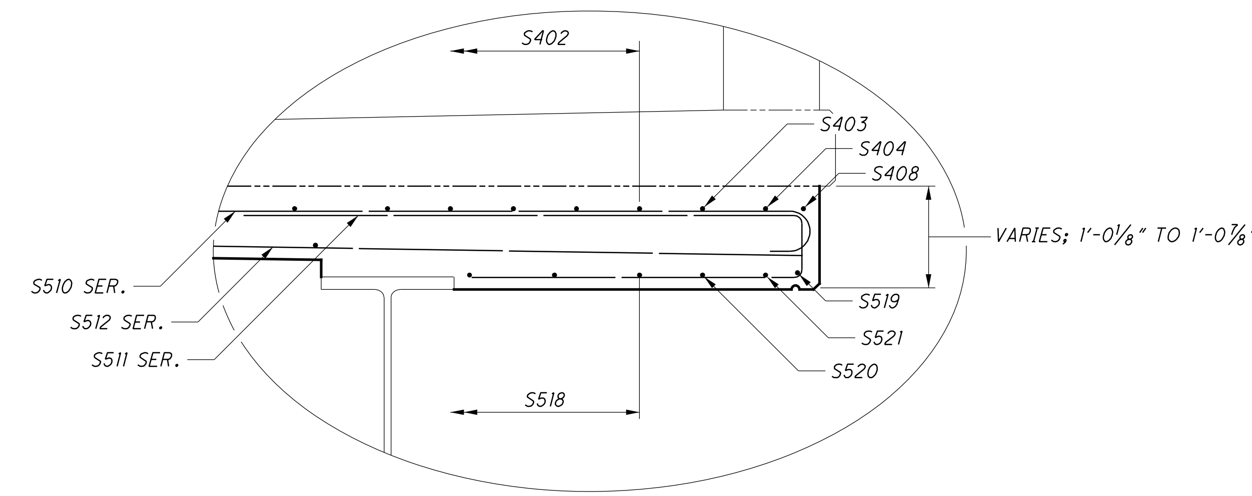


DETAIL A

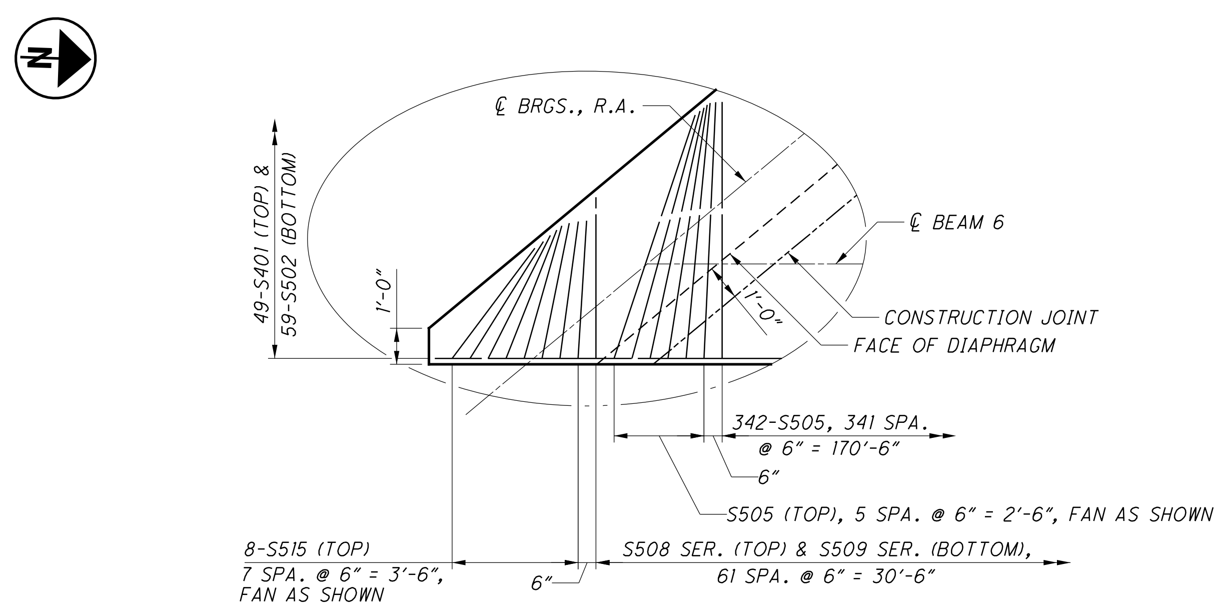


DETAIL B



DETAIL D

TOWARDS FORWARD ABUTMENT



DETAIL C

NOTES

1. DECK SLAB 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 HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 3⅝" INCHES AND A CONSTANT HAUNCH WIDTH EQUAL TO THE TOP FLANGE. 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, 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.

2. SEE SHEETS 25/39 & 27/39 FOR RAILING AND SIDEWALK DETAILS.
3. SEE SHEET 26/39 VANDAL PROTECTION FENCING DETAILS.
4. REINFORCING STEEL MAY BE FIELD OR SHOP BENT TO ACCOMMODATE THE CROWN. PAYMENT SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

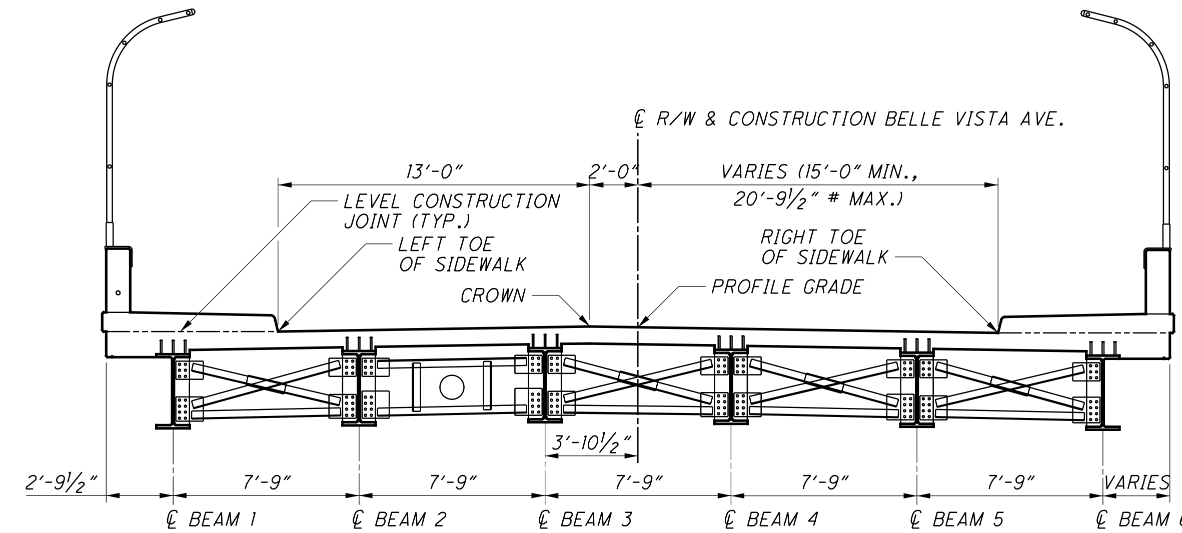
SLAB DETAILS

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

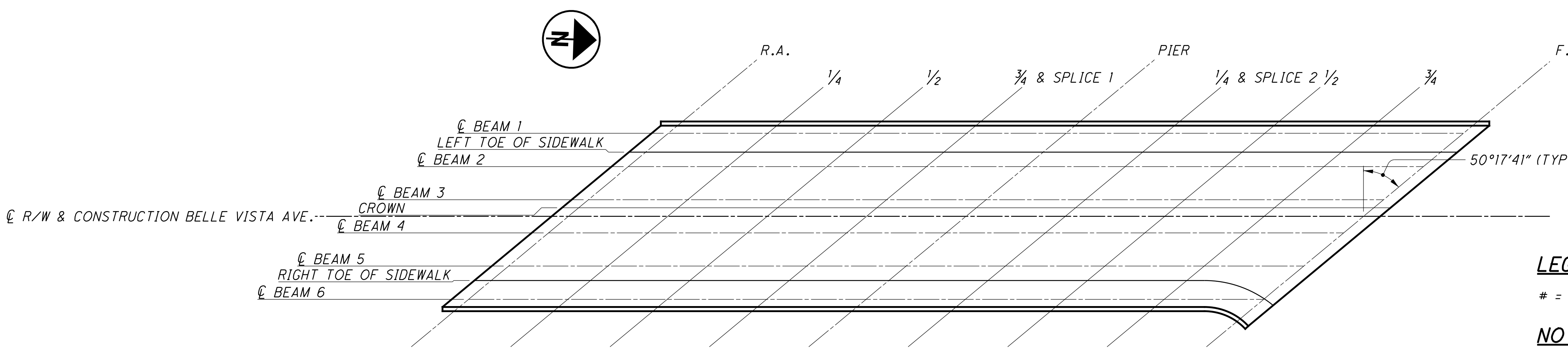
MAH-680-0.68 / 3.73
PID No. 105857

FINAL DECK SURFACE, TOP OF HAUNCH, AND SCREED ELEVATIONS TABLE (FT.)

LOCATION	DESCRIPTION	R.A.	1/4	1/2	3/4 & SPLICE 1	PIER	1/4 & SPLICE 2	1/2	3/4	F.A.
CENTERLINE BEAM 1	STATION	4+60.40	4+83.62	5+06.84	5+30.06	5+53.28	5+76.50	5+99.72	6+22.93	6+46.15
	TOP OF HAUNCH ELEVATION	977.90	977.44	976.84	976.08	975.27	974.52	973.73	972.82	971.86
	FINAL DECK SURFACE ELEVATION	978.68	978.11	977.48	976.79	976.05	975.25	974.40	973.52	972.64
LEFT TOE OF SIDEWALK	STATION	4+55.13	4+78.35	5+01.57	5+24.79	5+48.01	5+71.23	5+94.45	6+17.67	6+40.88
	SCREED ELEVATION	978.81	978.35	977.75	977.02	976.22	975.48	974.69	973.79	972.84
	FINAL DECK SURFACE ELEVATION	978.81	978.24	977.62	976.95	976.22	975.44	974.60	973.72	972.84
CENTERLINE BEAM 2	STATION	4+51.07	4+74.29	4+97.51	5+20.73	5+43.94	5+67.16	5+90.38	6+13.60	6+36.82
	TOP OF HAUNCH ELEVATION	978.24	977.79	977.21	976.49	975.70	974.96	974.19	973.29	972.34
	FINAL DECK SURFACE ELEVATION	978.95	978.40	977.79	977.13	976.41	975.63	974.80	973.93	973.05
CENTERLINE BEAM 3	STATION	4+41.74	4+64.96	4+88.17	5+11.39	5+34.61	5+57.83	5+81.05	6+04.27	6+27.49
	TOP OF HAUNCH ELEVATION	978.58	978.15	977.59	976.88	976.12	975.40	974.64	973.77	972.82
	FINAL DECK SURFACE ELEVATION	979.28	978.75	978.17	977.52	976.83	976.07	975.27	974.41	973.53
CROWN	STATION	4+39.48	4+62.70	4+85.92	5+09.13	5+32.35	5+55.57	5+78.79	6+02.01	6+25.23
	SCREED ELEVATION	979.36	978.94	978.38	977.69	976.93	976.22	975.46	974.59	973.64
	FINAL DECK SURFACE ELEVATION	979.36	978.84	978.25	977.62	976.93	976.18	975.38	974.52	973.64
PROFILE GRADE	STATION	4+37.07	4+60.29	4+83.51	5+06.73	5+29.94	5+53.16	5+76.38	5+99.60	6+22.82
	SCREED ELEVATION	979.38	978.97	978.42	977.73	976.97	976.26	975.52	974.65	973.70
	FINAL DECK SURFACE ELEVATION	979.38	978.86	978.29	977.65	976.97	976.23	975.43	974.58	973.70
CENTERLINE BEAM 4	STATION	4+32.40	4+55.62	4+78.84	5+02.06	5+25.28	5+48.50	5+71.72	5+94.93	6+18.15
	TOP OF HAUNCH ELEVATION	978.71	978.31	977.77	977.09	976.34	975.65	974.91	974.06	973.11
	FINAL DECK SURFACE ELEVATION	979.42	978.91	978.34	977.72	977.05	976.32	975.53	974.69	973.81
CENTERLINE BEAM 5	STATION	4+23.07	4+46.29	4+69.51	4+92.73	5+15.95	5+39.16	5+62.38	5+85.60	6+08.82
	TOP OF HAUNCH ELEVATION	978.78	978.40	977.88	977.22	976.50	975.82	975.11	974.28	973.34
	FINAL DECK SURFACE ELEVATION	979.48	979.00	978.45	977.86	977.20	976.50	975.73	974.91	974.04
RIGHT TOE OF SIDEWALK	STATION	4+19.01	4+42.22	4+65.44	4+88.66	5+11.88	5+35.10	5+58.32	5+81.54	5+99.64
	SCREED ELEVATION	979.51	979.14	978.64	977.98	977.27	976.60	975.90	975.08	974.27
	FINAL DECK SURFACE ELEVATION	979.51	979.03	978.50	977.91	977.27	976.57	975.82	975.01	974.27
CENTERLINE BEAM 6	STATION	4+13.74	4+36.96	4+60.17	4+83.39	5+06.61	5+29.83	5+53.05	5+76.27	5+99.49
	TOP OF HAUNCH ELEVATION	978.83	978.49	978.00	977.36	976.64	975.99	975.30	974.49	973.57
	FINAL DECK SURFACE ELEVATION	979.61	979.14	978.62	978.05	977.42	976.73	975.99	975.20	974.28



TRANSVERSE SECTION



PLAN

LEGEND

= MEASURED AT ℄ FORWARD ABUTMENT BEARING LINE

NOTES

1. SCREED ELEVATIONS SHOWN REPRESENT THE THEORETICAL DECK SURFACE LOCATION PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

2. TOP OF HAUNCH ELEVATIONS SHOWN REPRESENT THE THEORETICAL LOCATION OF THE BOTTOM OF THE DECK ABOVE THE BEAM/HAUNCH PRIOR TO DEFLECTIONS CAUSED BY DECK PLACEMENT AND OTHER ANTICIPATED DEAD LOADS.

3. FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

4. SEE SH. 19/39 FOR CAMBER TABLE.

DESIGN AGENCY: CARPENTER MARTY transportation

DESIGNED: ERK | CHECKED: GDJ | DRAWN: ERK | REVISED | REVIEWED: STK | DATE: 7-29-20 | STRUCTURE FILE NUMBER: 5006759

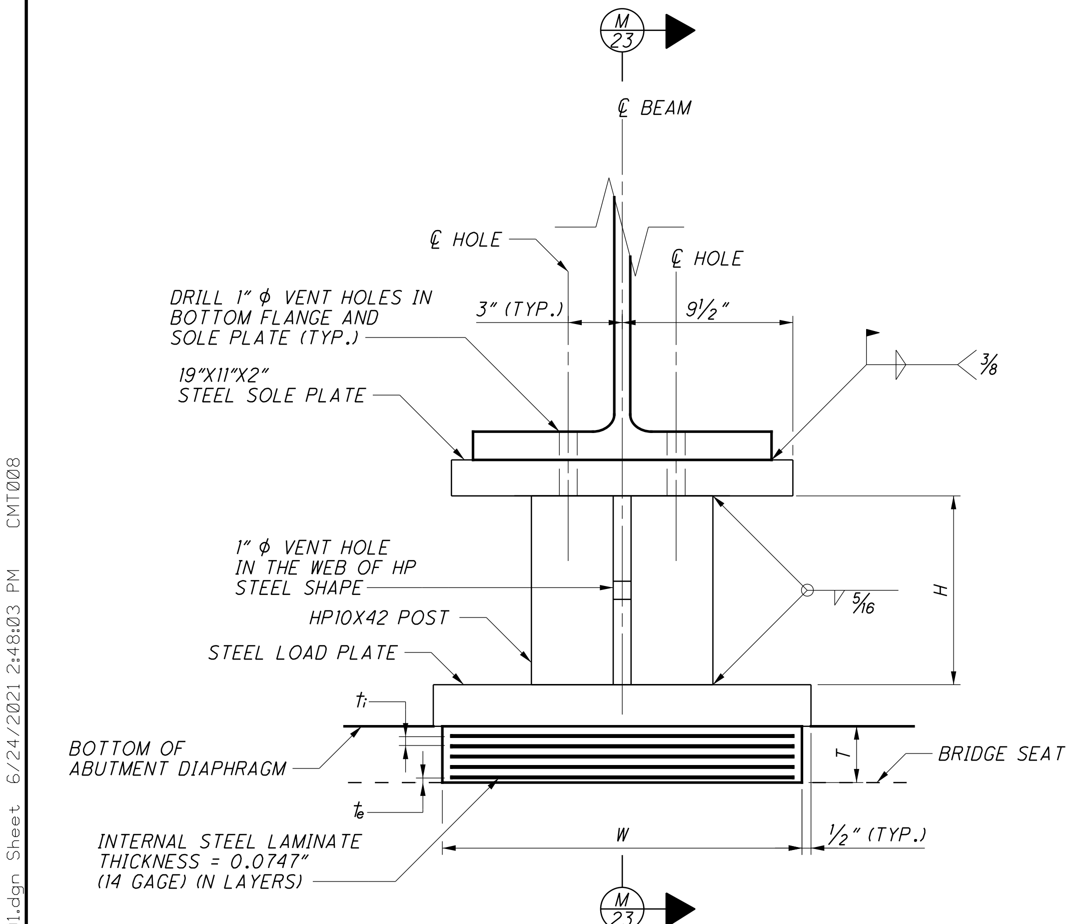
FINAL DECK SURFACE, TOP OF HAUNCH, AND SCREED ELEVATIONS

BRIDGE NO. MAH-680-0373

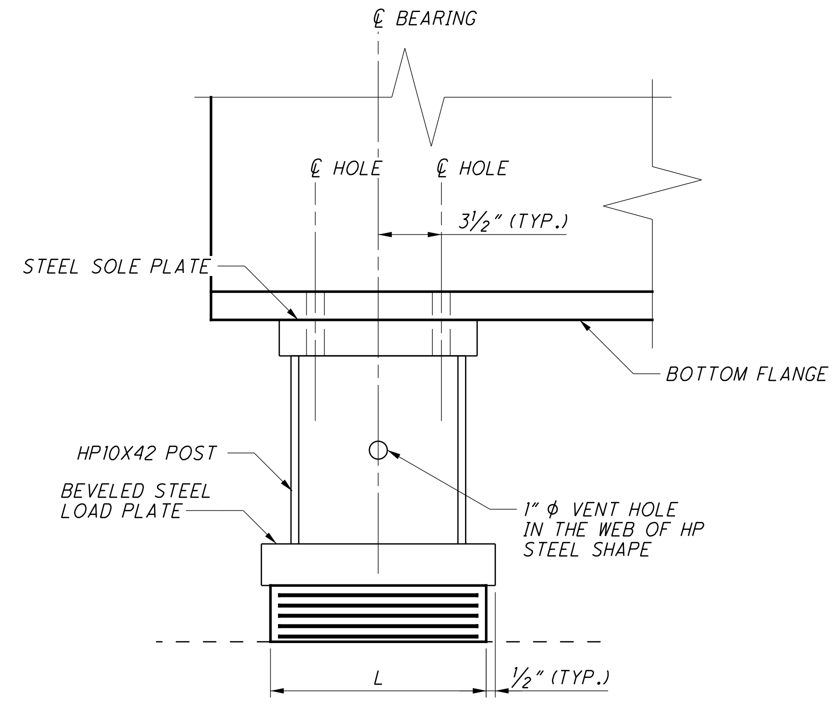
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

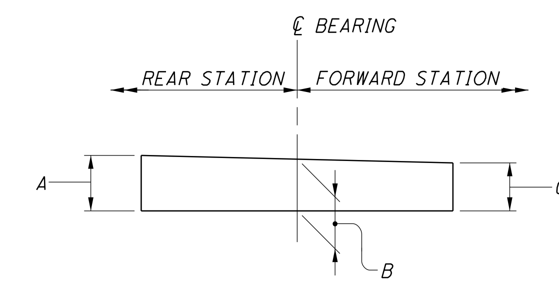
PID No. 105857



LAMINATED ELASTOMERIC EXPANSION BEARING (REAR ABUTMENT)

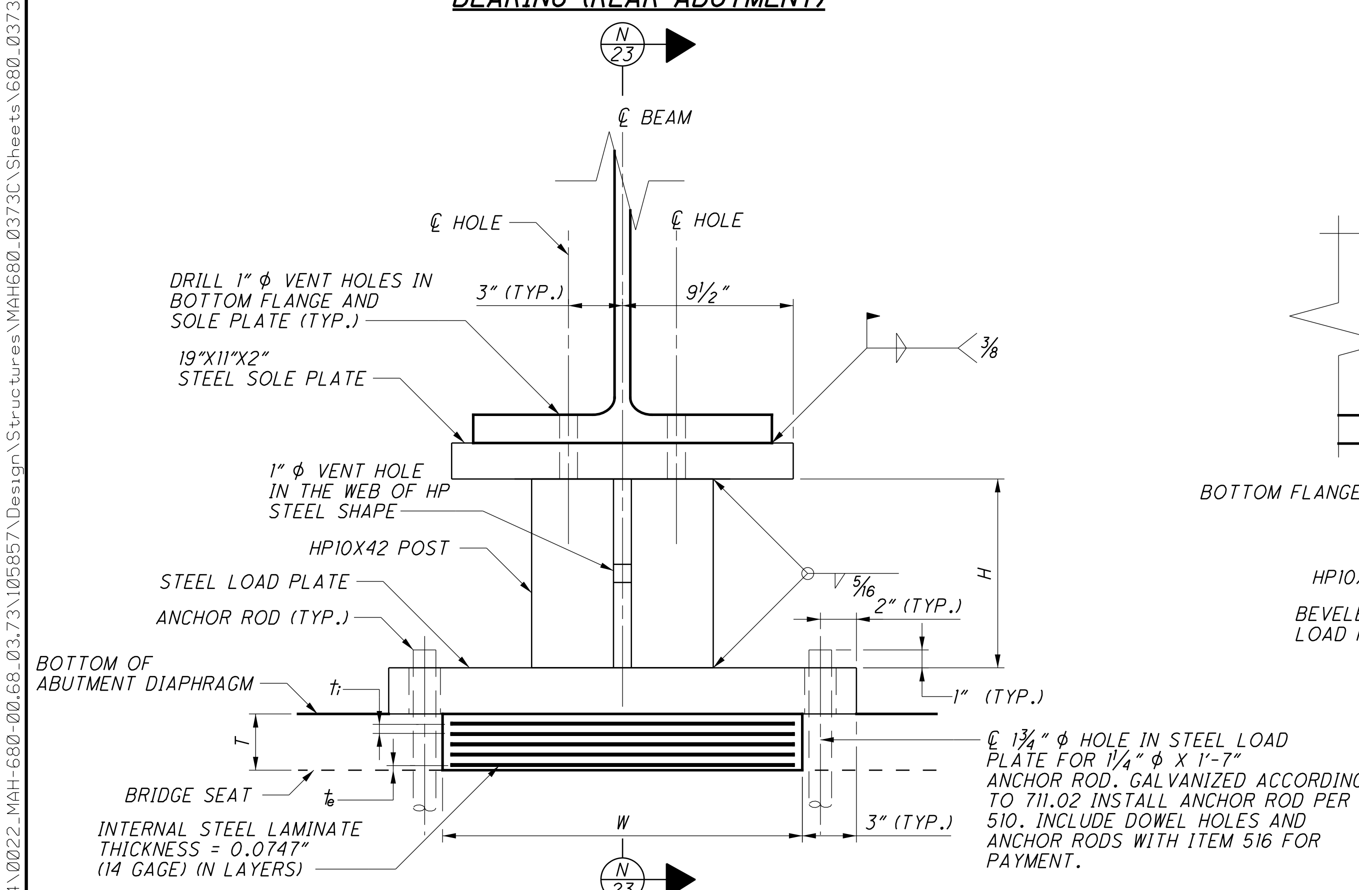


SECTION M/23

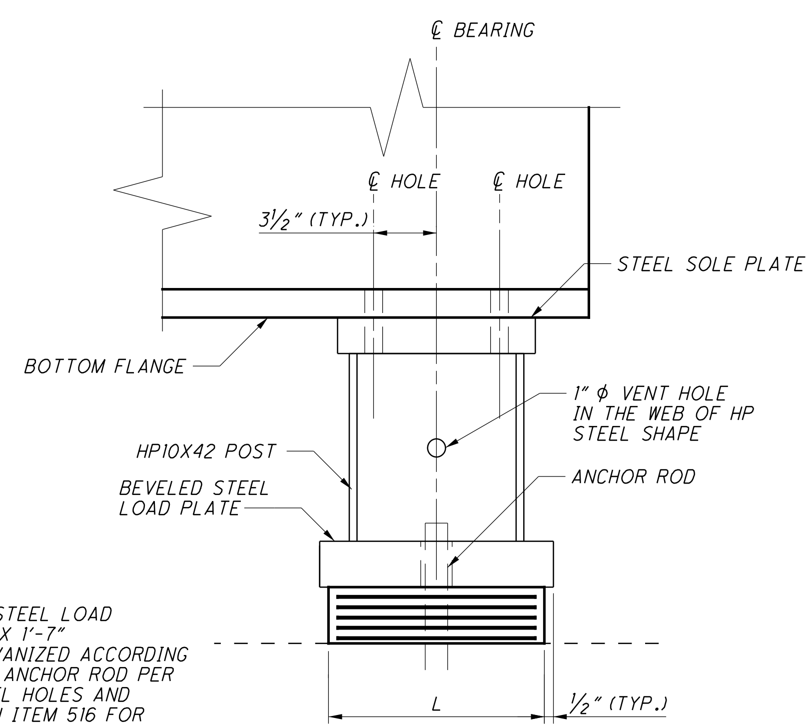


BEVELED STEEL LOAD PLATE DETAIL

STEEL LOAD PLATES				
LOCATION	BEAM	A	B	C
REAR ABUTMENT	1-5	2⅜"	2 3/16"	2"
	6	2¼"	2⅛"	2"
PIER	1-6	2⅝"	2 5/16"	2"
FORWARD ABUTMENT	1-6	2½"	2¼"	2"



LAMINATED ELASTOMERIC FIXED BEARING (FORWARD ABUTMENT)



SECTION N/23

HP 10x42 HEIGHT (H)			
REAR ABUTMENT		FORWARD ABUTMENT	
BEAM	H (IN.)	BEAM	H (IN.)
1	11½"	1	15 5/16"
2	11¾"	2	15 9/16"
3	11⅜"	3	15¾"
4	10 5/16"	4	14 15/16"
5	9 13/16"	5	14 15/16"
6	10"	6	14 15/16"

NOTE

SEE SHEET 24/39 FOR NOTES

LEGEND

t_i - THICKNESS OF INTERNAL LAYERS

t_e - THICKNESS OF EXTERNAL LAYERS (BOTTOM ONLY)

T - TOTAL THICKNESS OF ELASTOMERIC BEARINGS

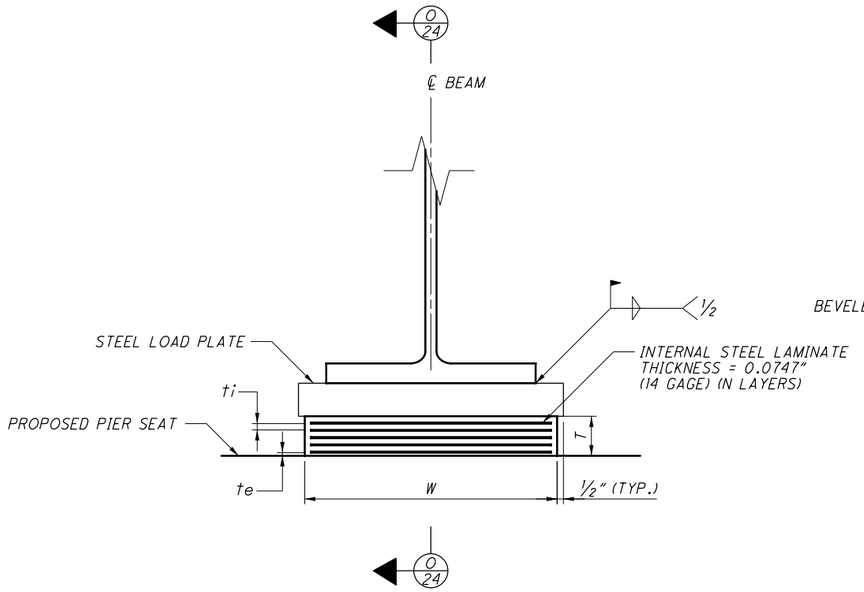
N - NUMBER OF STEEL LAMINATES AND INTERNAL LAYERS
INTERNAL STEEL LAMINATE THICKNESS = 0.0747" (14 GAGE)

DESIGN AGENCY CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229 614.656.2424 CMTRAN.COM

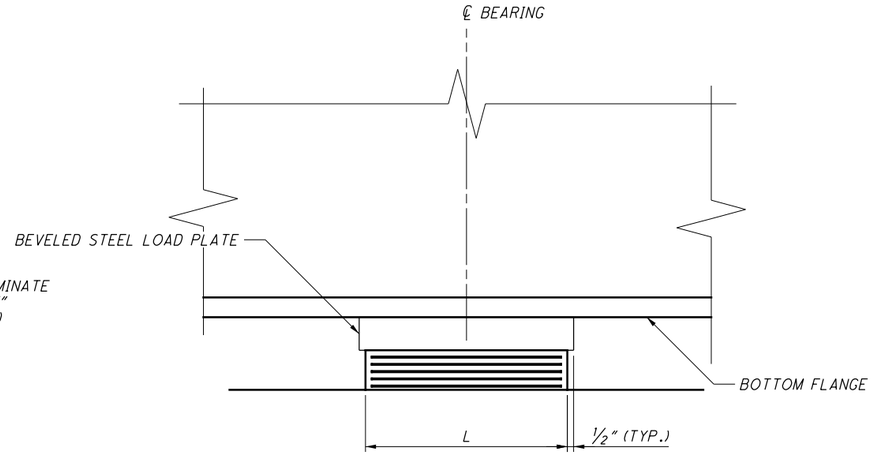
DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	STK	7-29-20
CHECKED GDJ	REVISED	STRUCTURE FILE NUMBER 5006759	

BEARING DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

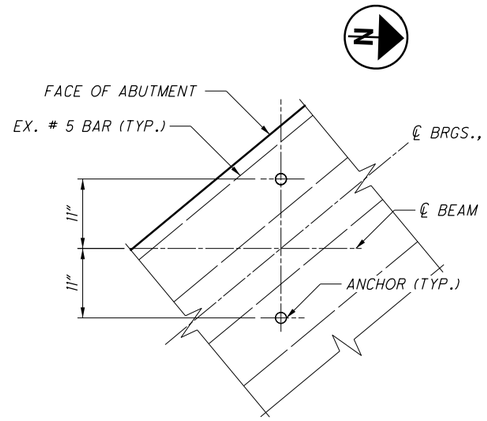
MAH-680-0.68 / 3.73
PID No. 105857



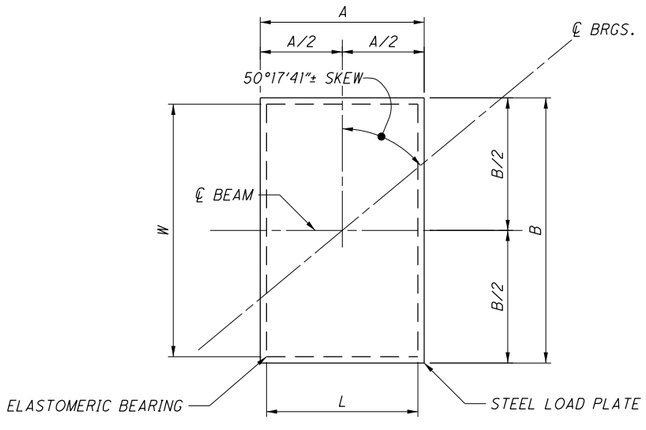
LAMINATED ELASTOMERIC EXPANSION BEARING (PIER)



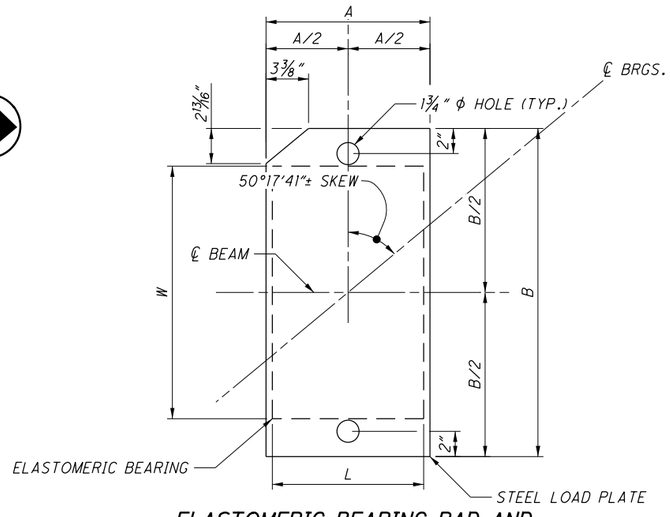
0/24 SECTION



BEARING ANCHOR PLAN



ELASTOMERIC BEARING PAD AND STEEL LOAD PLATE PLAN (R.A. & PIER)



ELASTOMERIC BEARING PAD AND STEEL LOAD PLATE PLAN (F.A.)

ELASTOMERIC BEARINGS

LOCATION	BEARING DIMENSIONS						STEEL LOAD PLATE		REACTIONS*		MAXIMUM DESIGN LOAD *
	L	W	ti	te	T	N	A	B	DL	LL	
REAR ABUTMENT	12"	20"	.5"	.25"	3.124"	5	13"	21"	137.4 k	57.8 k	195.2 k
PIER	16"	20"	.5"	.25"	3.124"	5	17"	21"	226.6 k	103.7 k	330.3 k
FORWARD ABUTMENT	12"	20"	.5"	.25"	3.124"	5	13"	26"	149.5 k	68.0 k	217.5 k

* REACTIONS ARE UNFACTORED

LEGEND

ti - THICKNESS OF INTERNAL LAYERS

te - THICKNESS OF EXTERNAL LAYERS (BOTTOM ONLY)

T - TOTAL THICKNESS OF ELASTOMERIC BEARINGS

N - NUMBER OF STEEL LAMINATES AND INTERNAL LAYERS
INTERNAL STEEL LAMINATE THICKNESS = 0.0747" (14 GAGE)

NOTES

1. ELASTOMERIC BEARING: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
2. STEEL LOAD PLATES SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS. THE STEEL PLATES AND HP10X42 SECTIONS SHALL BE ASTM A709 GRADE 50 AND BE SIMILIARLY COATED AS THE STRUCTURAL STEEL. GALVANIZING SHALL BE DONE IN THE SHOP AND BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 516, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE).
3. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UPSTATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

BEARING DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

24/39
103/126

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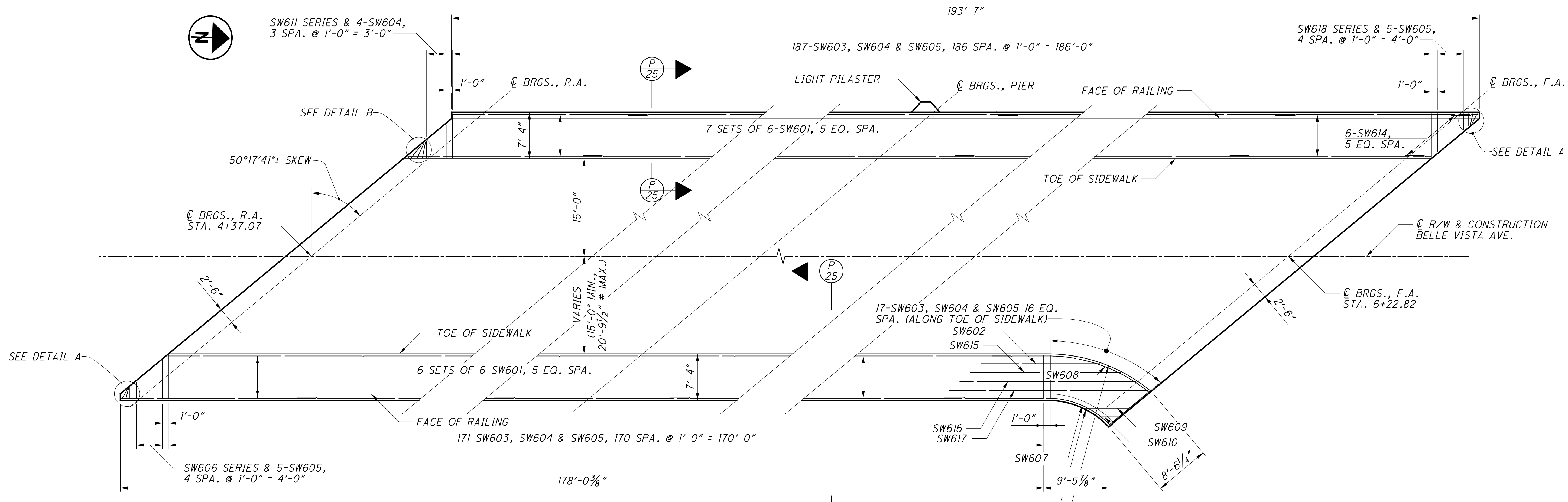
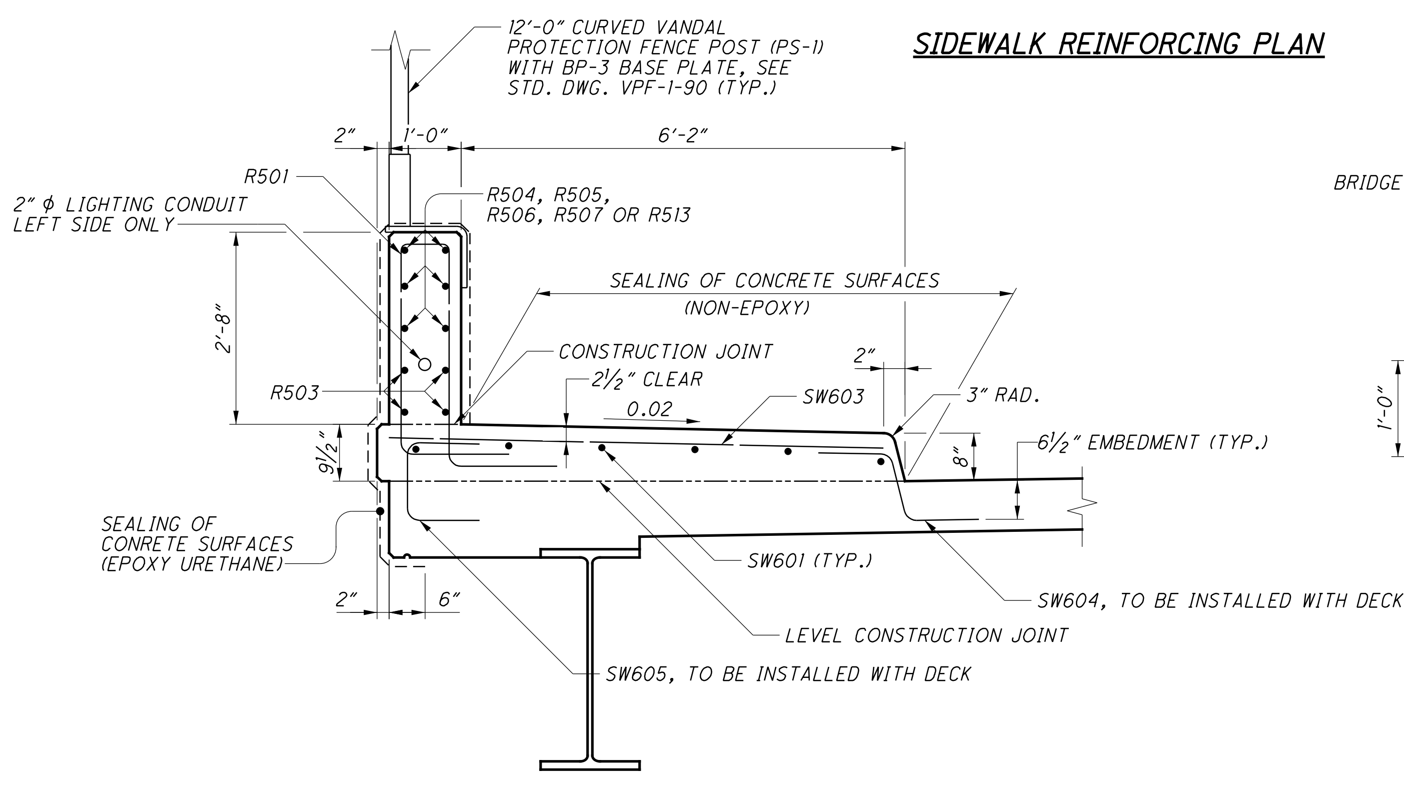
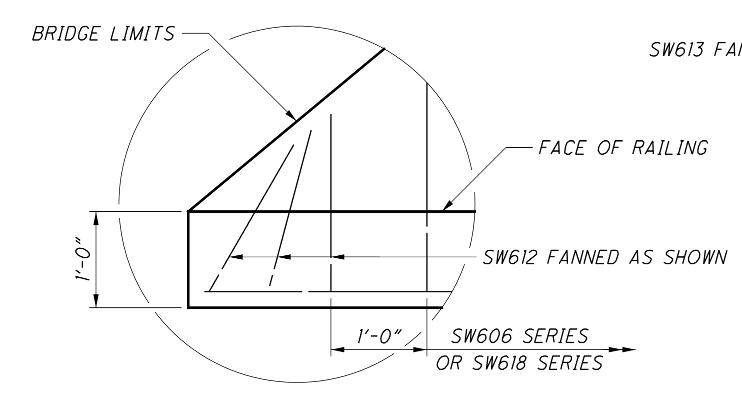


SIDEWALK REINFORCING PLAN

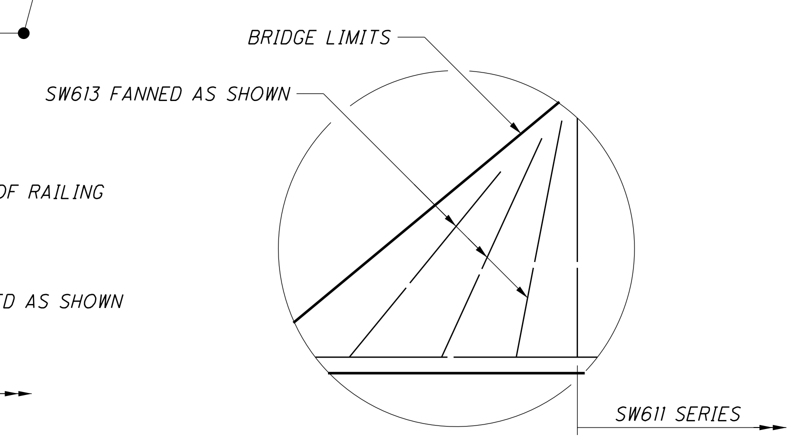


P/25 P/27 SECTION



DETAIL A

RIGHT SIDE SHOWN
LEFT SIDE SIMILAR



DETAIL B

NOTES

1. SEE SHEETS 26/39 & 27/39 FOR RAILING AND VANDAL PROTECTION FENCE DETAILS
2. SEE SHEET 31/39 FOR SIDEWALK DETAILS ON APPROACH SLABS.
3. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. BR-2-15 AND VPF-1-90.
4. RAILING CONCRETE AND REINFORCING STEEL TO BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING, CONCRETE, AS PER PLAN.
5. CONCRETE FOR SIDEWALK TO BE INCLUDED FOR PAYMENT WITH ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK.
6. MINIMUM LAP SPLICE LENGTH:
   #6 BAR = 34 INCHES

LEGEND

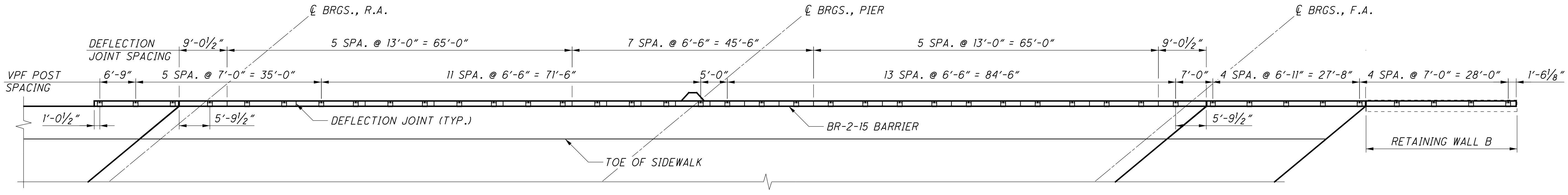
- MEASURED AT ℄ FORWARD ABUTMENT BEARING LINE

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
CMTRAN.COM

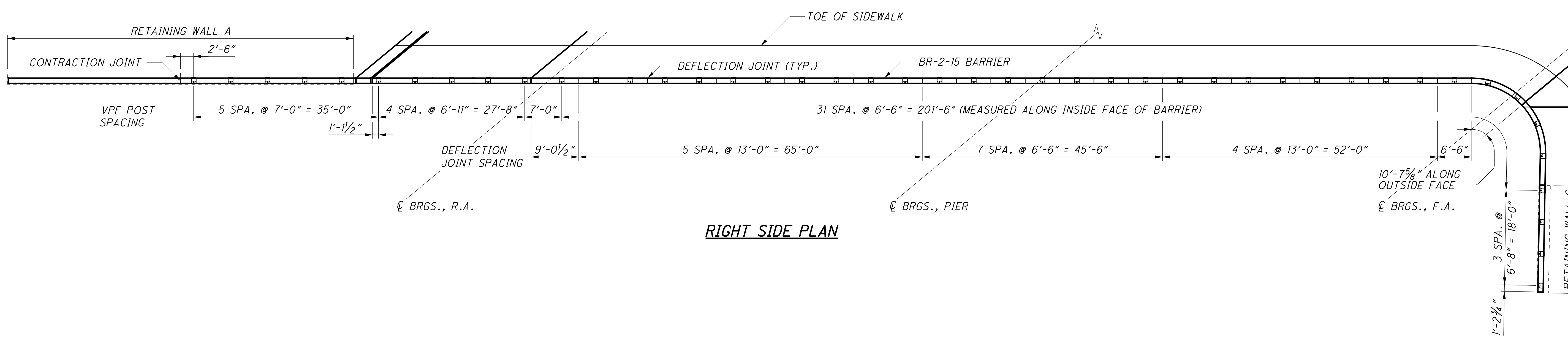
DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

SIDEWALK DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



LEFT SIDE PLAN



RIGHT SIDE PLAN

NOTES

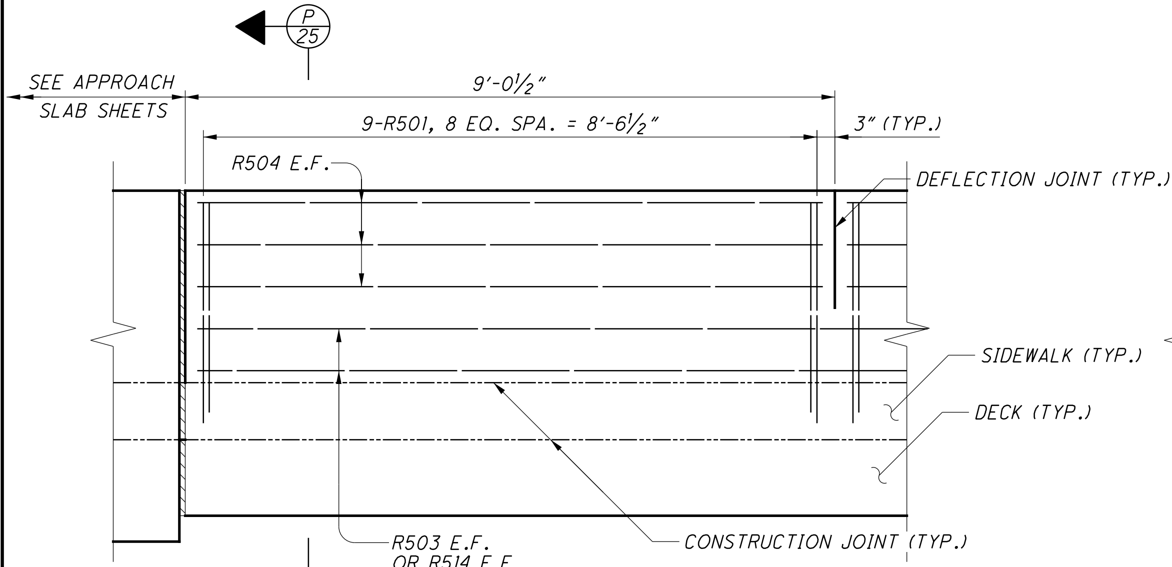
1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. BR-2-15 & VPF-1-90.
2. SEE SHEETS 27/39 FOR RAILING DETAILS.
3. SEE SHEETS 35/39 & 36/39 FOR RAILING DETAILS ON RETAINING WALLS.
4. REFER TO SHEET 25/39 FOR SIDEWALK DETAILS.
5. RALIING POST SPACING IS MEASURED ALONG THE CENTERLINE OF THE BASEPLATE.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229

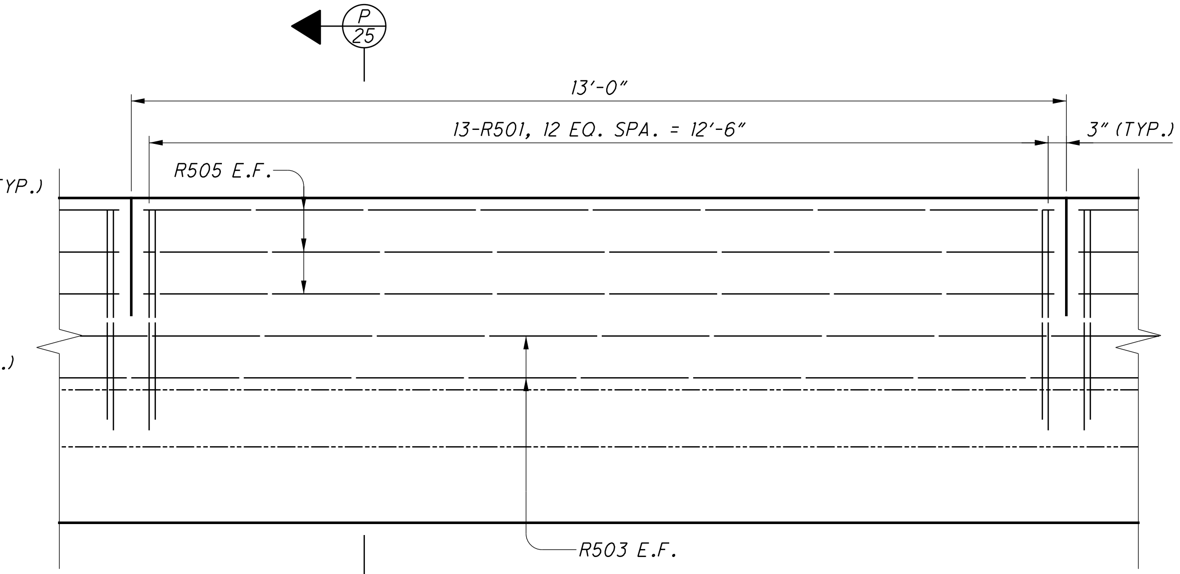
DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

VANDAL PROTECITON FENCE AND RAILING PLAN
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

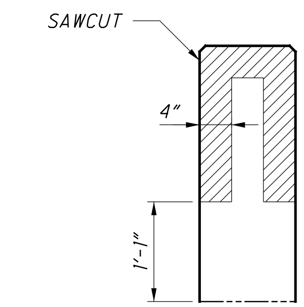
MAH-680-0.68 / 3.73
PID No. 105857



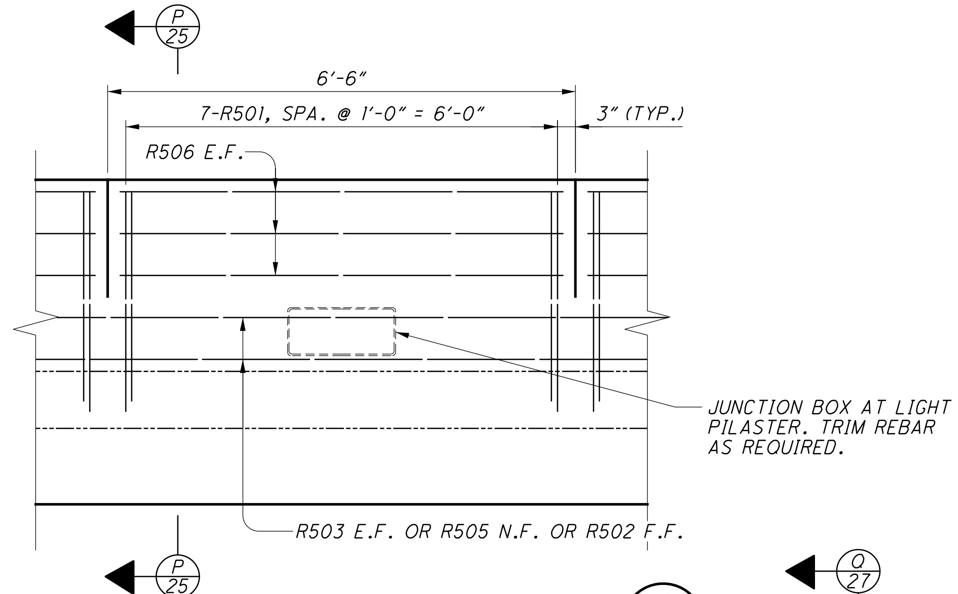
TYPICAL 9'-0½" PANEL
VIEWED ALONG BACK FACE



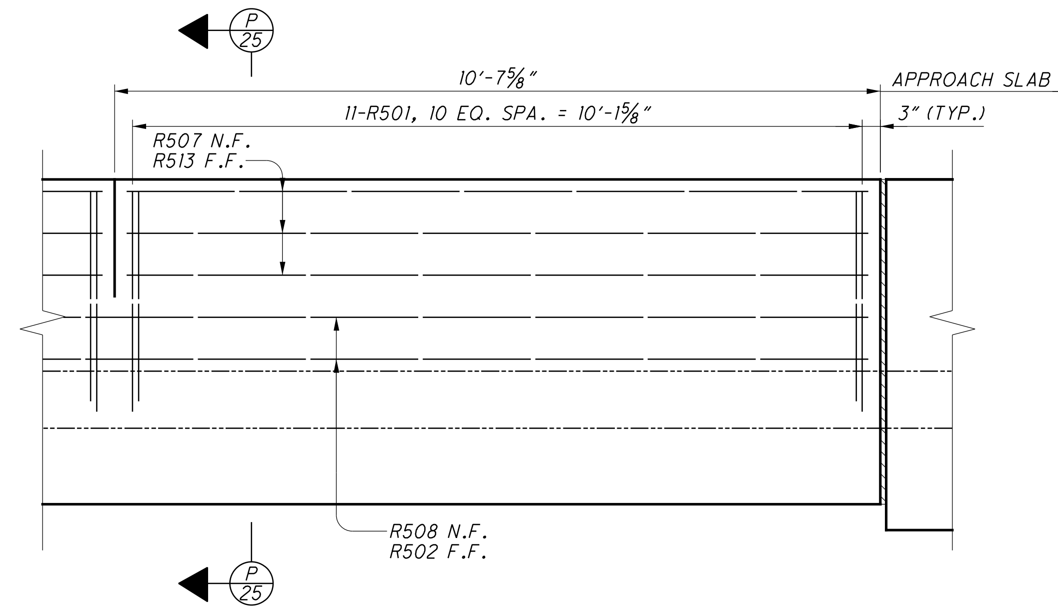
TYPICAL 13'-0" PANEL
VIEWED ALONG BACK FACE



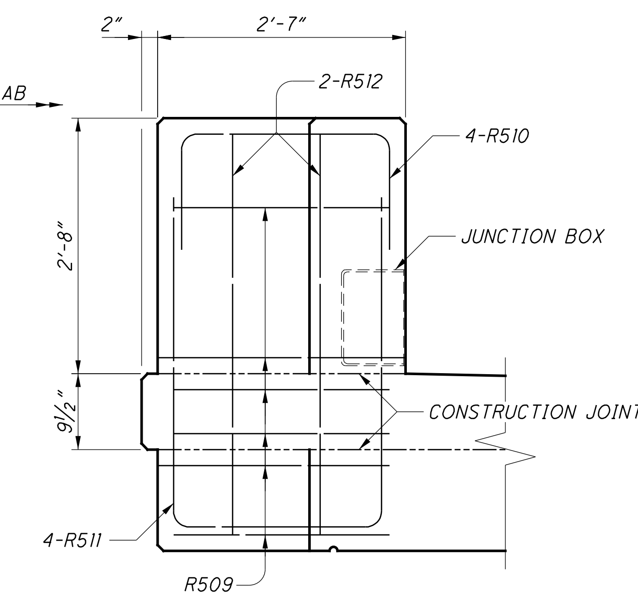
SAWCUT DETAIL AT DEFLECTION JOINTS



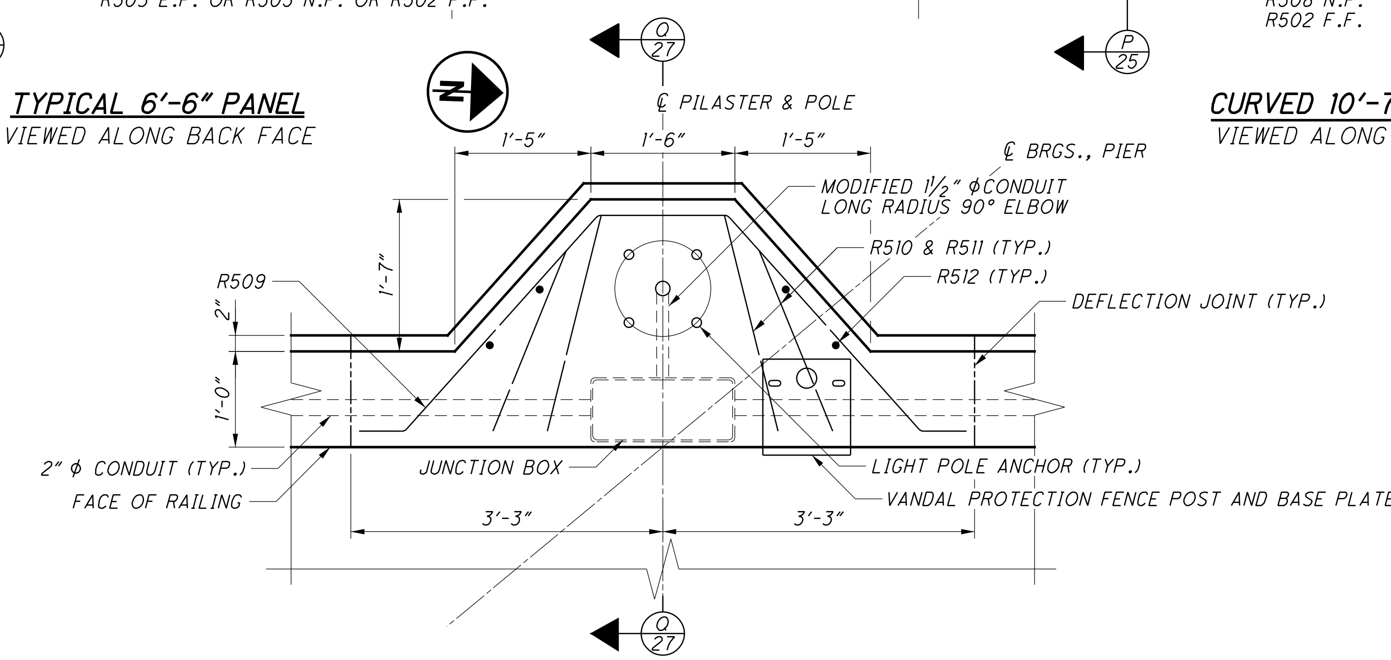
TYPICAL 6'-6" PANEL
VIEWED ALONG BACK FACE



CURVED 10'-7⅝" PANEL
VIEWED ALONG BACK FACE



Q/27 SECTION



LIGHT PILASTER PLAN
STA. 5+55.43 (LEFT SIDE ONLY)

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. BR-2-15 AND HL-20.14.
2. MINIMUM LAP LENGTH:
   #5 BAR = 29 INCHES
3. SEE SHEET 25/39 FOR SIDEWALK DETAILS
4. VANDAL PROTECTION FENCE NOT SHOWN, SEE SHEET 26/39 FOR DETAILS.
5. RAILING CONCRETE AND REINFORCING STEEL TO BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING, CONCRETE, AS PER PLAN.
6. PAYMENT FOR LIGHT POLE PILASTER CONCRETE TO BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING, CONCRETE, AS PER PLAN.

LEGEND

E.F. - EACH FACE
N.F. - NEAR FACE
F.F. - FAR FACE

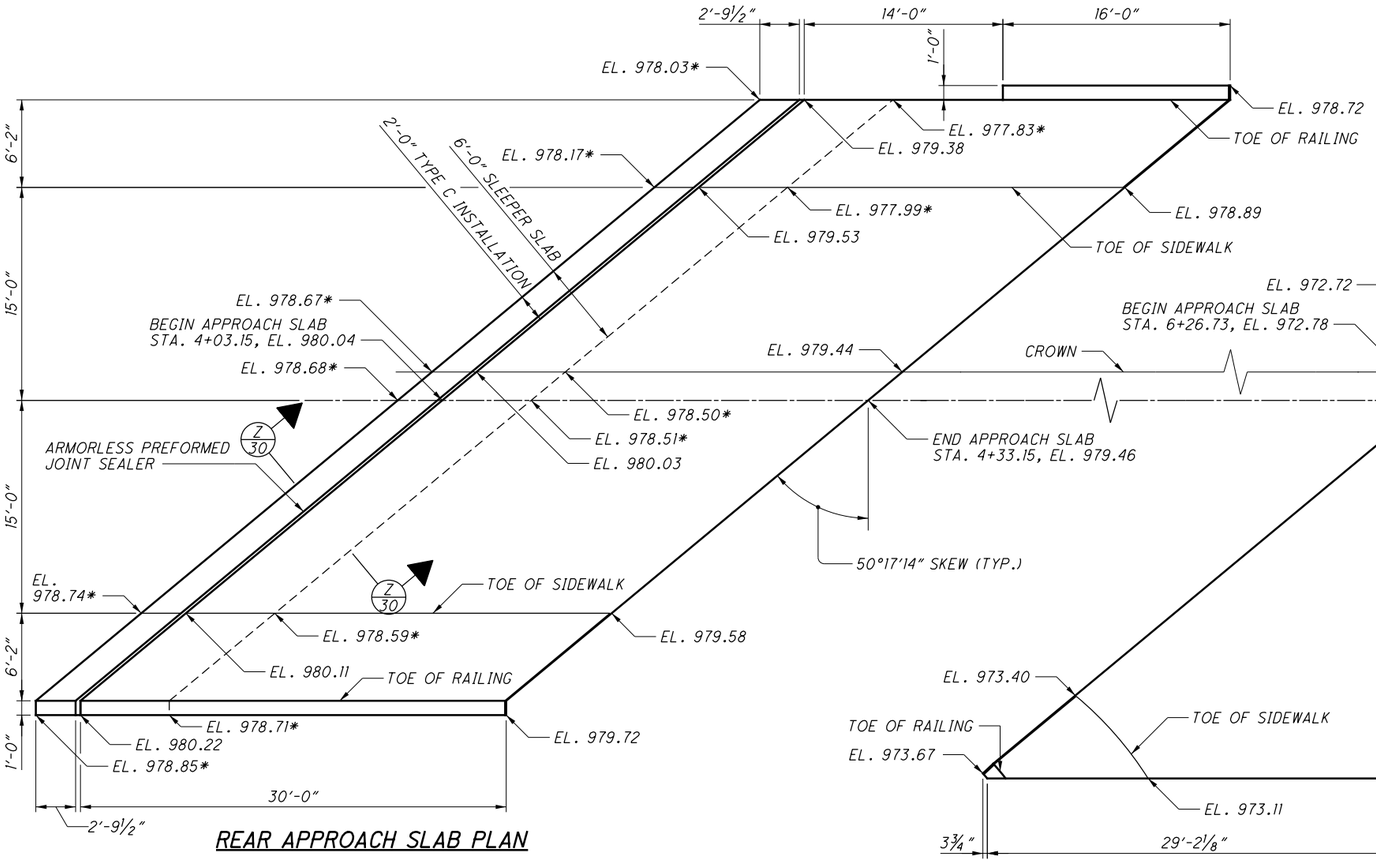
DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

RAILING DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

27/39



LEGEND

* - SLEEPER SLAB ELEVATION

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. AS-1-15 AND AS-2-15.
2. SLEEPER SLAB ELEVATIONS ARE TAKEN AT THE TOP OF THE SLEEPER SLAB.
3. SEE SHEET 31/39 FOR SIDEWALK DETAILS.
4. APPROACH SLAB ELEVATIONS LISTED ARE TAKEN AT THE BOTTOM OF THE SIDEWALK AND TOP OF THE APPROACH SLAB.
5. CONSTRUCTION JOINT BETWEEN SIDEWALK AND TOP OF THE APPROACH SLAB IS LEVEL.

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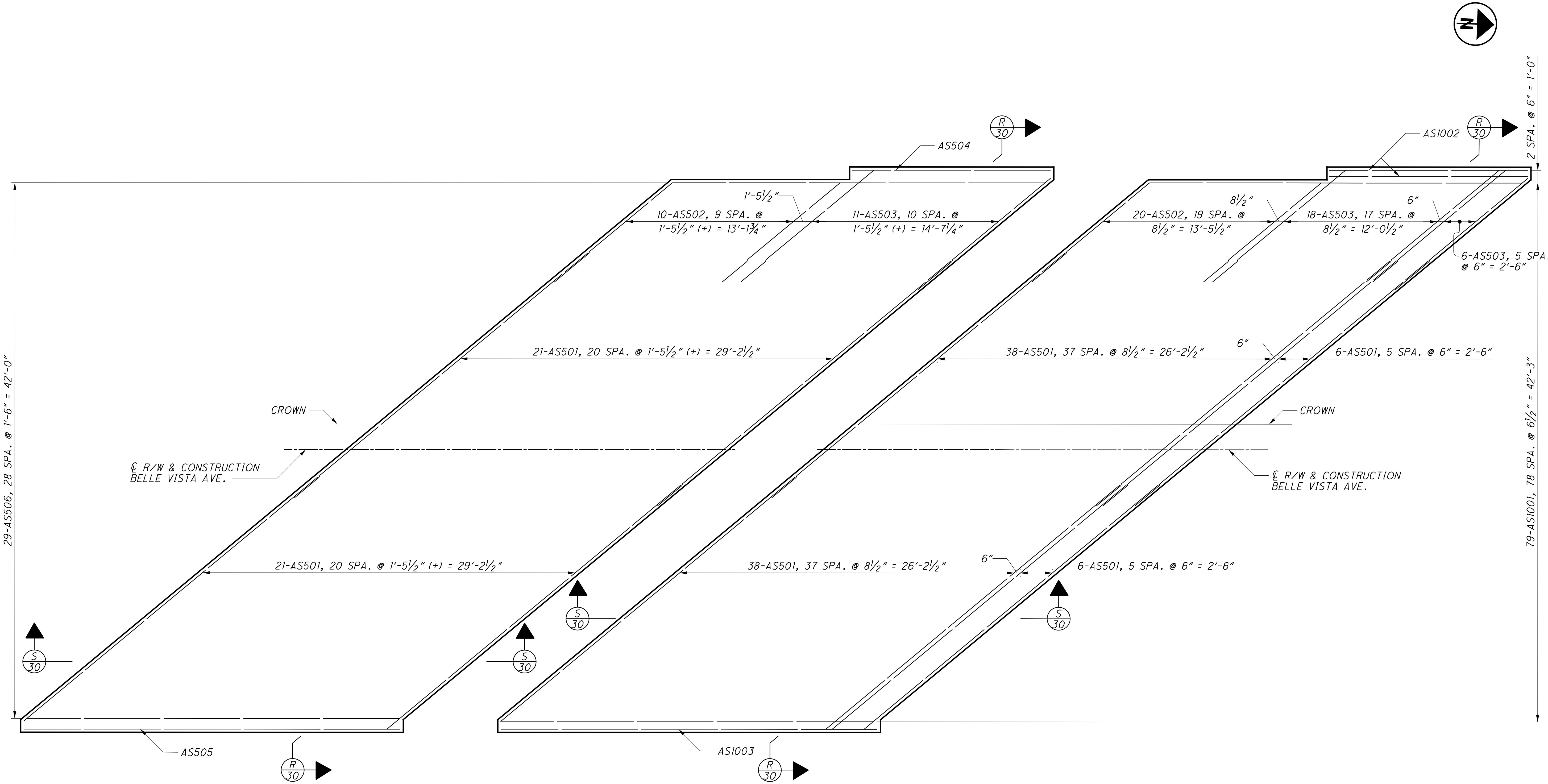
DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

APPROACH SLAB DETAILS

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857



PLAN - TOP REINFORCING

PLAN - BOTTOM REINFORCING

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWGS. AS-1-15 AND AS-2-15.

2. MINIMUM LAP SPLICE LENGTH:
   #5 BAR: 30 INCHES

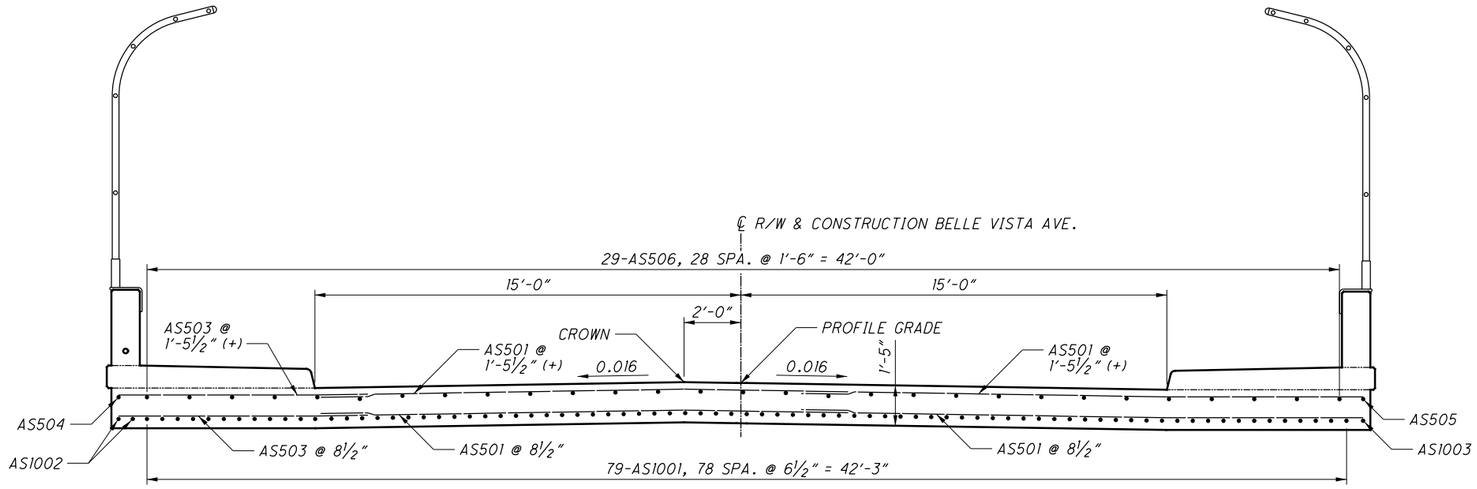
DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

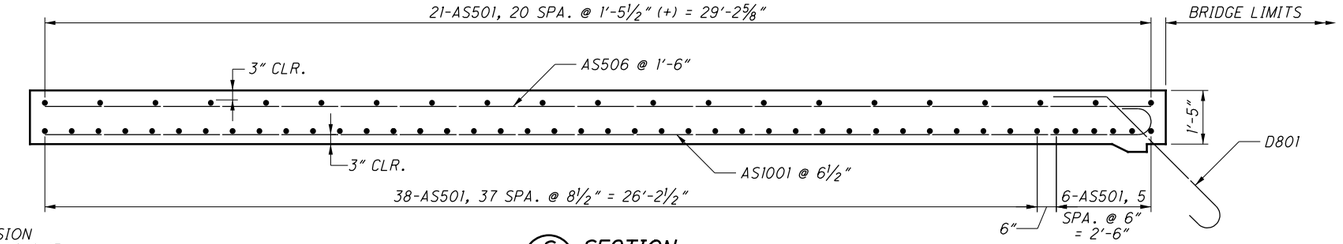
REAR ABUTMENT APPROACH SLAB REINFORCING

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



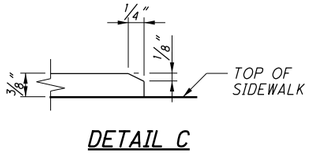
R/29 SECTION



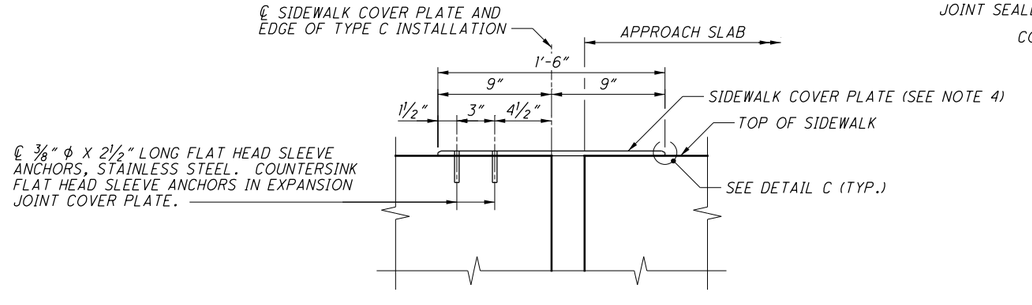
S/29 SECTION

NOTES

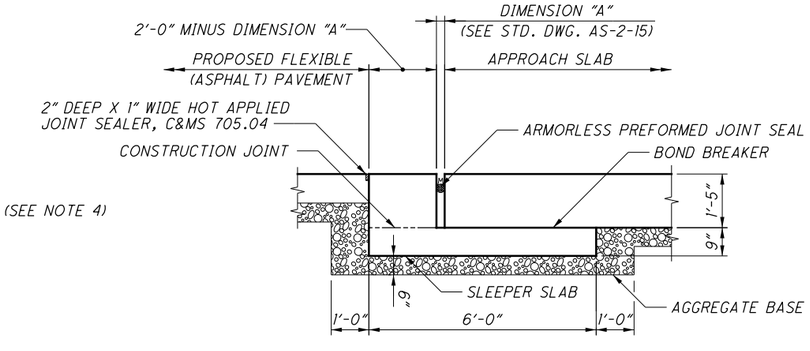
1. FOR ADDITIONAL NOTES AND DETAILS INCLUDING EXPANSION JOINT OPENING DIMENSION SEE STD. DWGS. AS-1-15 AND AS-2-15.
2. SEE SHEET 31/39 FOR SIDEWALK DETAILS.
3. MINIMUM LAP SPLICE LENGTH:
   #5 BAR = 30 INCHES
4. SEE STD. DWG. EXJ-6-17 SH. 3/5 FOR SIDEWALK COVERPLATE NOTES.



DETAIL C



Y/31 SECTION
TYPE C INSTALLATION
SIDEWALK PLATE



Z/28 SECTION
TYPE C INSTALLATION

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DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

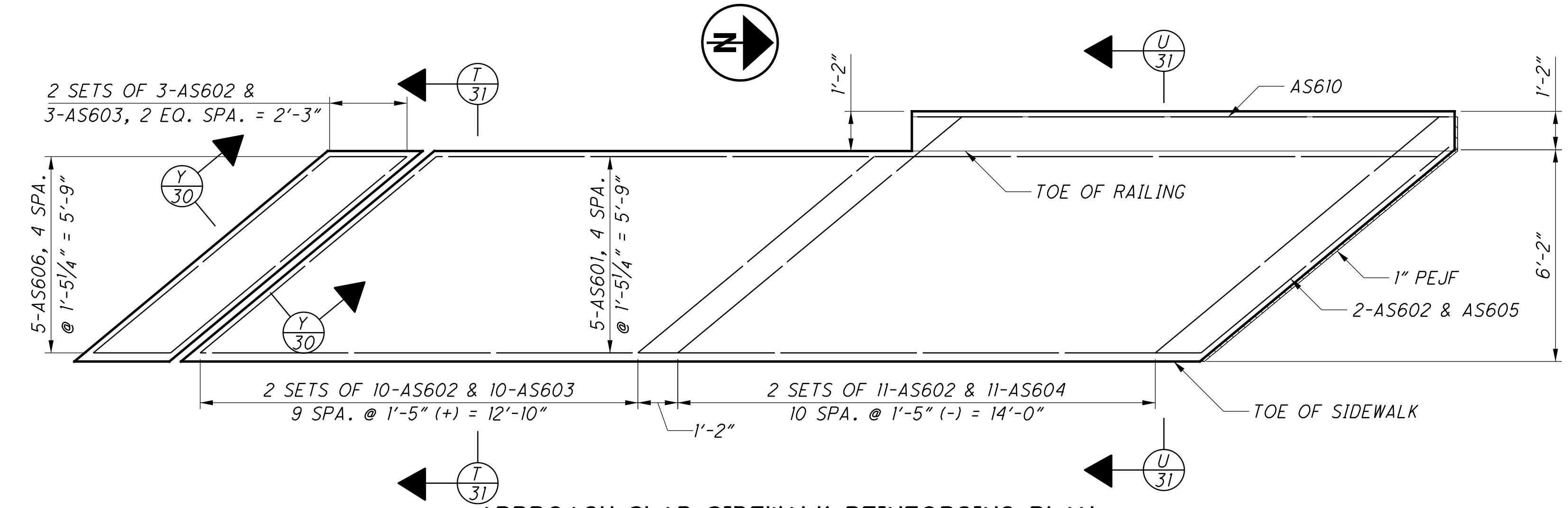
DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

REAR APPROACH SLAB DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

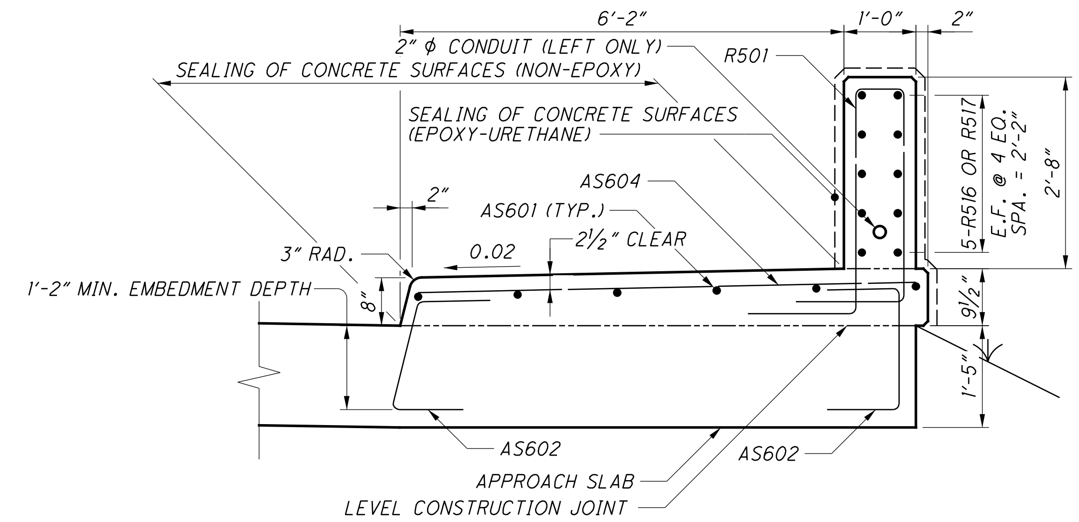
30/39

109/126

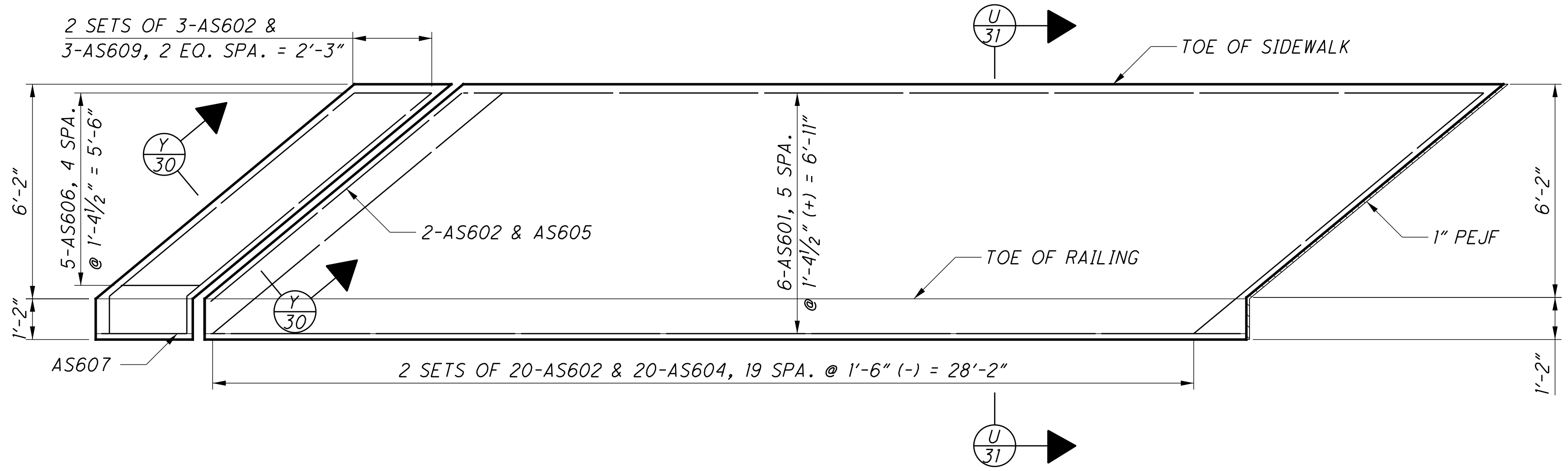


APPROACH SLAB SIDEWALK REINFORCING PLAN

REAR LEFT SHOWN

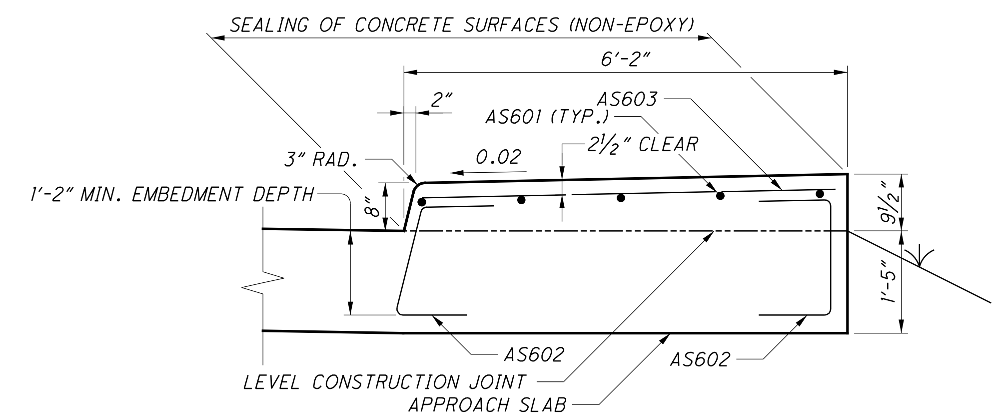


U/31 U/32 SECTION

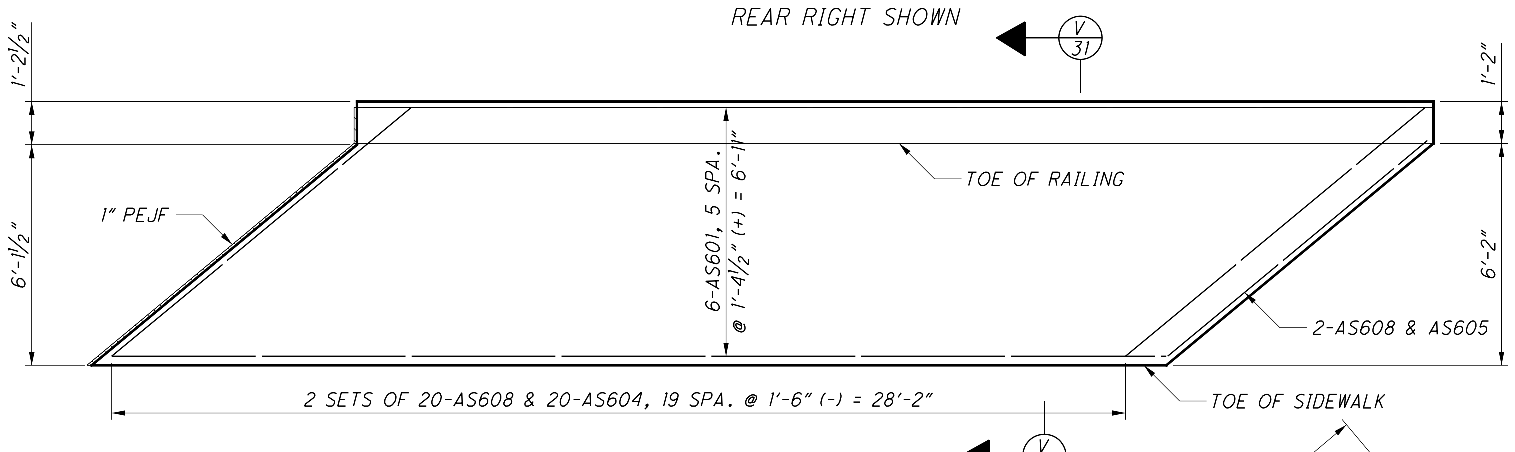


APPROACH SLAB SIDEWALK REINFORCING PLAN

REAR RIGHT SHOWN

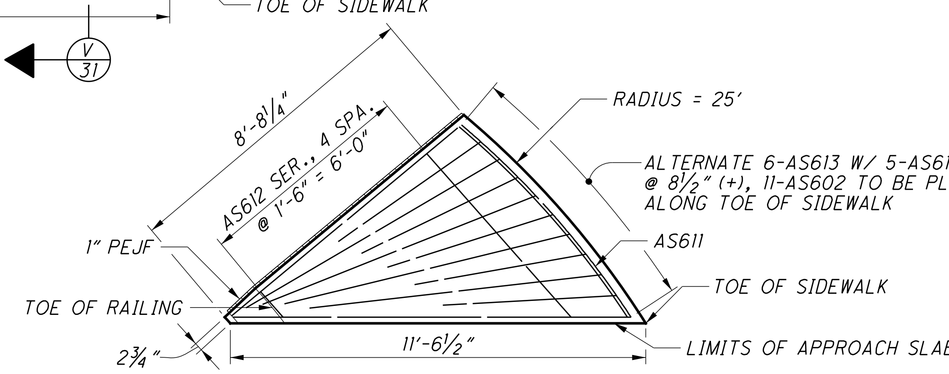


T/31 T/32 SECTION



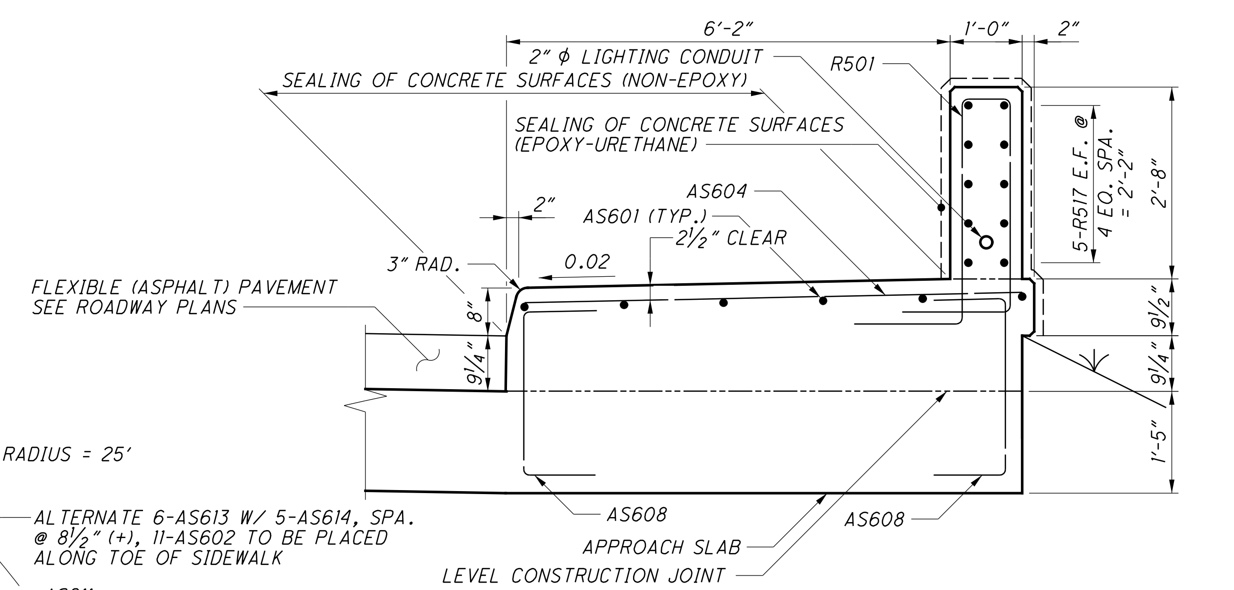
APPROACH SLAB SIDEWALK REINFORCING PLAN

FORWARD LEFT SHOWN



APPROACH SLAB SIDEWALK REINFORCING PLAN

FORWARD RIGHT SHOWN



V/31 V/32 SECTION

NOTE

1. SIDEWALK CONCRETE AND REINFORCING STEEL ON APPROACH SLABS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 526, REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN.
2. RAILING CONCRETE AND REINFORCING STEEL ON APPROACH SLABS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING, CONCRETE, AS PER PLAN.
3. SIDEWALK REINFORCING TIED TO APPROACH SLAB SHALL BE INSTALLED WITH APPROACH SLAB REINFORCING.

DESIGN AGENCY: CARPENTER MARTY transportation, 6612 SINGLETREE DR. COLUMBUS, OH 43229, 614.656.2424 CMTRANS.COM

DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

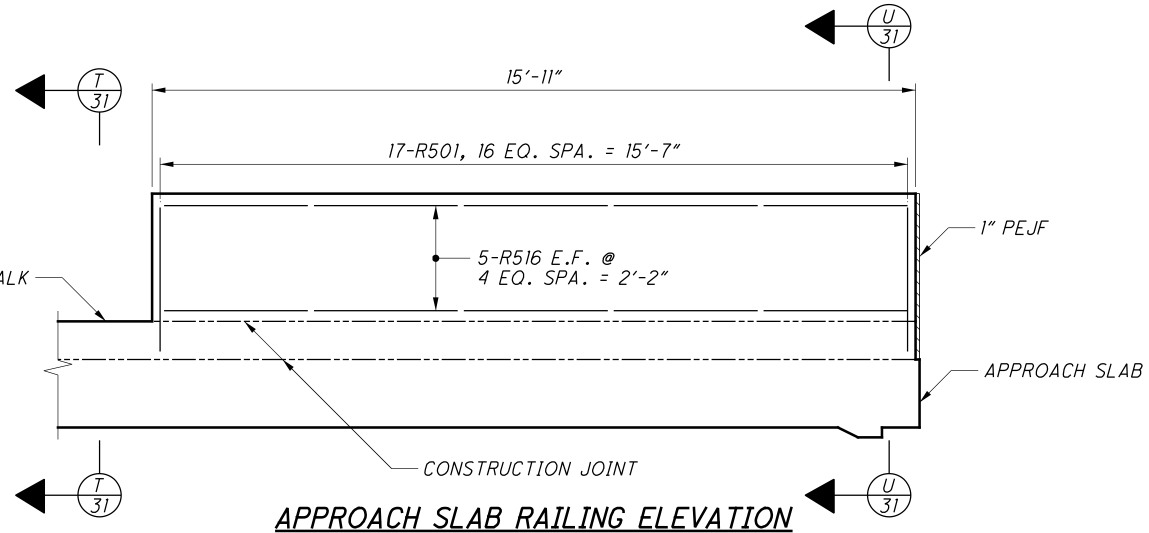
APPROACH SLAB SIDEWALK AND RAILING DETAILS

BRIDGE NO. MAH-680-0373

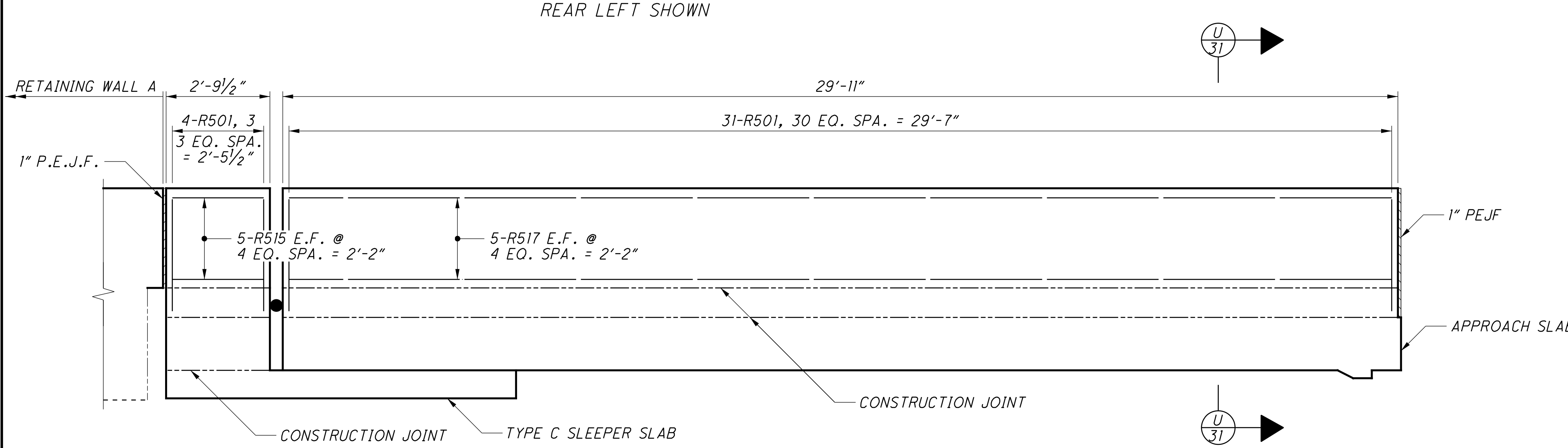
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

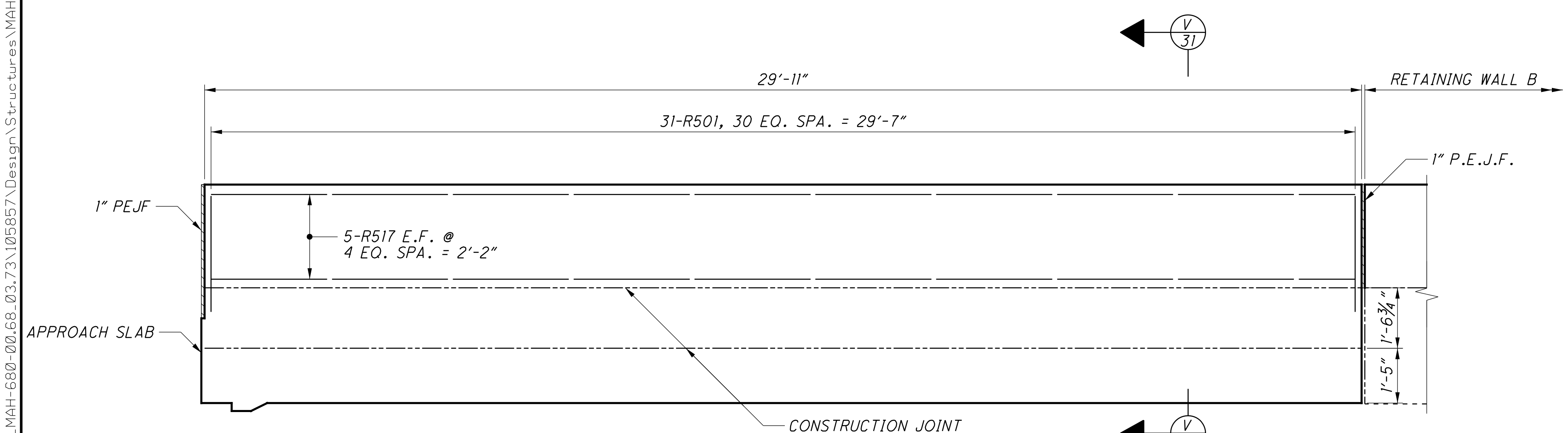
PID No. 105857



APPROACH SLAB RAILING ELEVATION
REAR LEFT SHOWN



APPROACH SLAB RAILING ELEVATION
REAR RIGHT SHOWN



APPROACH SLAB RAILING ELEVATION
FORWARD LEFT SHOWN

NOTE

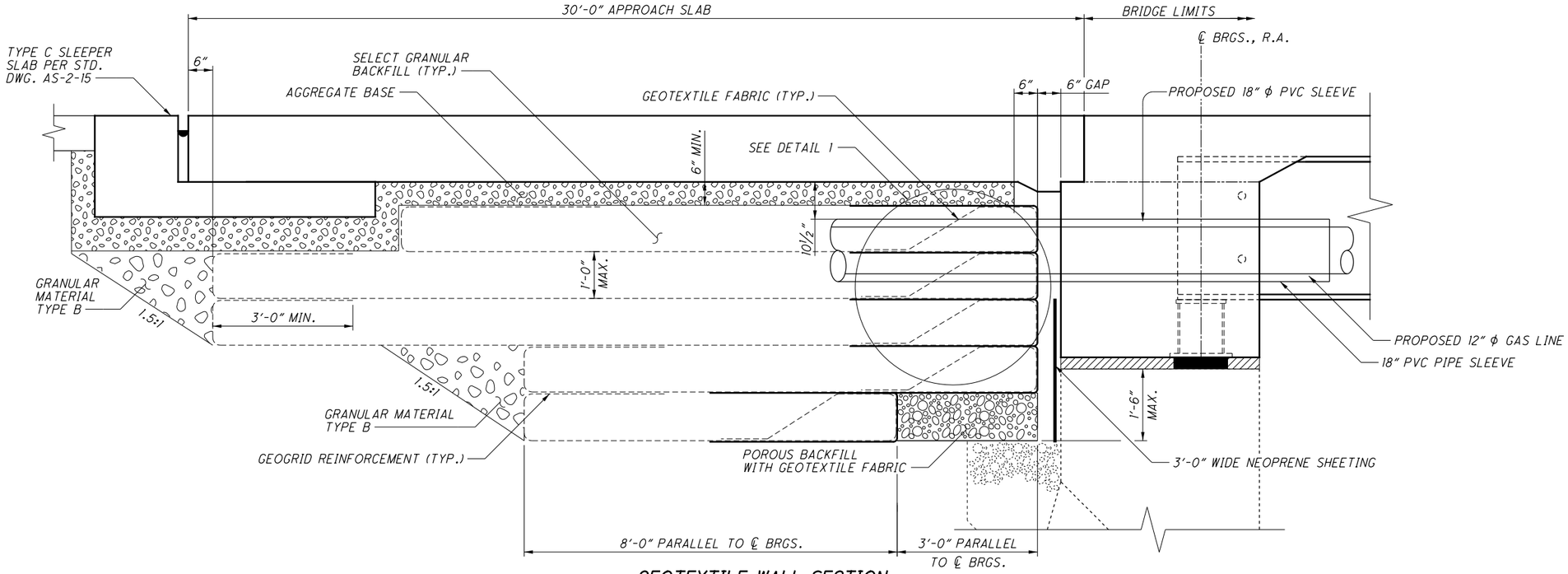
RAILING CONCRETE AND REINFORCING STEEL ON APPROACH SLABS SHALL BE INCLUDED FOR PAYMENT WITH ITEM 517, RAILING, CONCRETE, AS PER PLAN.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

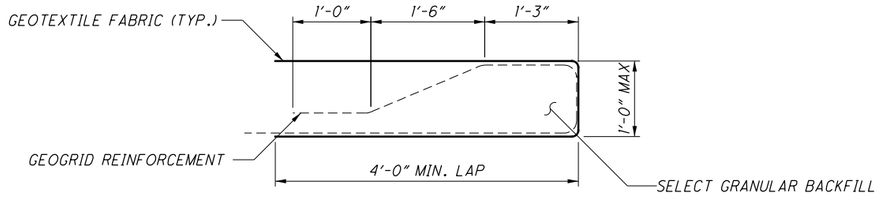
DESIGNED	DRAWN	REVIEWED	DATE
GDJ	GDJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
ERK		5006759	

APPROACH SLAB RAILING DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



GEOTEXTILE WALL SECTION



DETAIL 1

ITEM	EXTENSION	DESCRIPTION	QUANTITY	UNIT
203	10000	EXCAVATION	201	CY
204	30010	GRANUALR MATERIAL, TYPE B	17	CY
204	50001	GEOTEXTILE FABRIC, AS PER PLAN	350	SY
840	23000	SELECT GRANULAR BACKFILL	184	CY
863	00300	GEOGRID, TYPE P3	987	SY

QUANTITIES CARRIED TO ESTIMATED QUANTITIES TABLE

NOTES

1. INSTALL GEOTEXTILE FABRIC DIRECTLY BELOW THE SELECT GRANULAR BACKFILL AND THE AGGREGATE BASE.
2. MINIMUM GEOTEXTILE FABRIC LAP LENGTH IS 4'-0", REFER TO DETAIL 1.
3. COMPACT GRANULAR BACKFILL AND SUBGRADE ACCORDING TO CMS 204.
4. FURNISH SELECT GRANULAR BACKFILL (SGB) ACCORDING TO SUPPLEMENTAL SPECIFICATION 840 USING THE REQUIREMENTS APPROPRIATE FOR GEOSYNTHETIC SOIL REINFORCEMENT. PLACE AND COMPACT THE SGB ACCORDING TO CMS 204.
5. REFER TO ITEM 204 FOR MATERIAL SPECIFICATIONS OF THE GEOTEXTILE FABRIC AND TYPE B GRANULAR MATERIAL.

CONSTRUCTION SEQUENCE

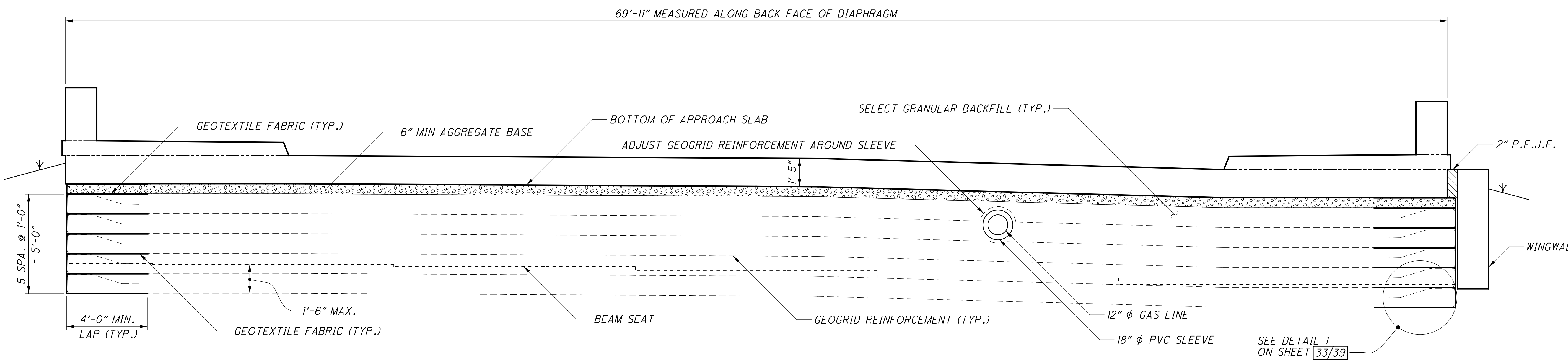
1. CONTRACTOR TO COORDINATE INSTALLATION OF GAS LINE AND SLEEVE WITH DOMINION GAS.
2. PERFORM EXCAVATION FOR THE ABUTMENT AND GEOTEXTILE FABRIC WALL.
3. REMOVE EXISTING ABUTMENT TO SPECIFIED CUT LINE. PROTECT EXISTING POROUS BACKFILL FROM BECOMING PLUGGED.
4. SET THE ELASTOMERIC BEARING PADS, POLYSTYRENE, AND BEAMS, THEN CONSTRUCT THE SEMI-INTEGRAL DIAPHRAGM AND DECK.
5. ATTACH NEOPRENE SHEETING TO THE BACK OF THE ABUTMENT WALL TO PROTECT THE HORIZONTAL EXPANSION JOINT.
6. CONSTRUCT FORMWORK TO MAINTAIN 6" GAP.
7. CONSTRUCT THE GEOTEXTILE FABRIC WALL IN 1 FOOT LIFTS.
8. PLACE THE AGGREGATE BASE ON TOP OF THE GEOTEXTILE FABRIC WALL.
9. REMOVE FORMWORK FROM 6" GAP. TAKE CARE NOT TO DAMAGE GEOTEXTILE FABRIC.
10. CONSTRUCT THE APPROACH SLAB AND SLEEPER SLAB.

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECTS · ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
ERK	MTJ	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

GEOTEXTILE FABRIC WALL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



REAR ABUTMENT ELEVATION

NOTE

FOR ADDITIONAL NOTES AND DETAILS SEE SHEET 33/39.

DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE	STRUCTURE FILE NUMBER
ERK	GDJ	MTJ		STK	7-29-20	5006759

GEOTEXTILE FABRIC WALL DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

34/39

113/126

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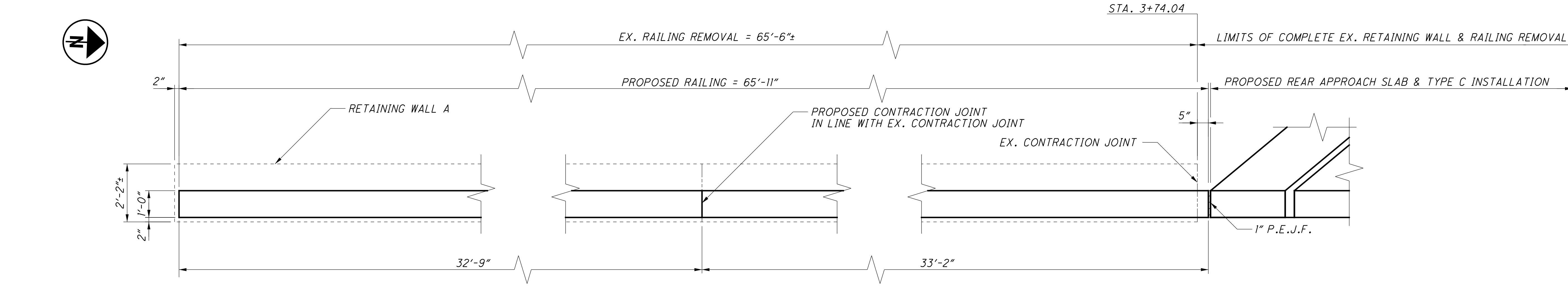
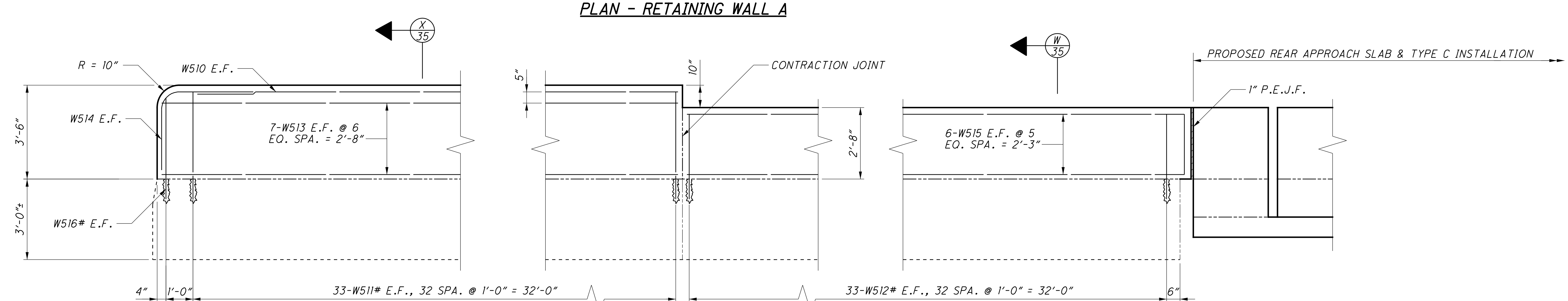
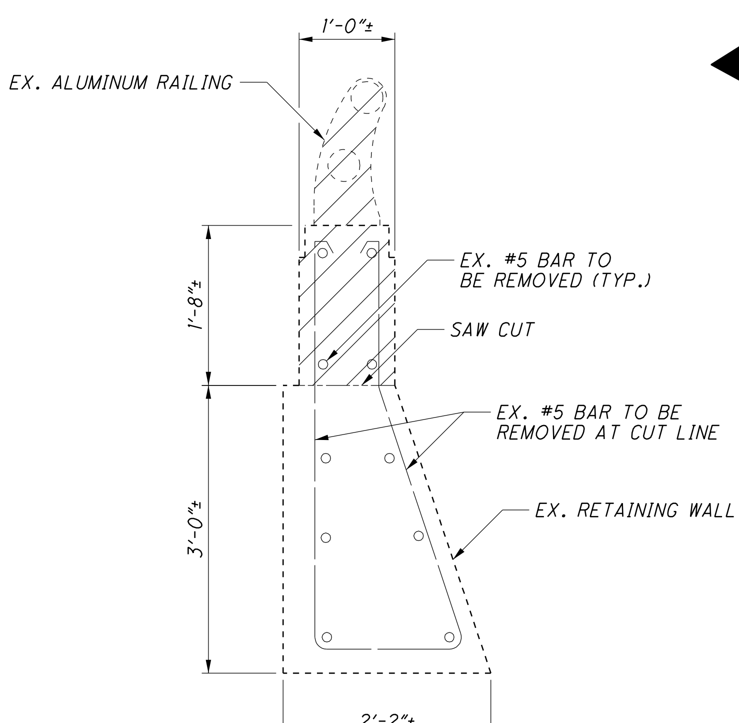


PLAN - RETAINING WALL A



ELEVATION

VIEWED ALONG OUTSIDE FACE



RAILING REMOVAL DETAIL

NOTES

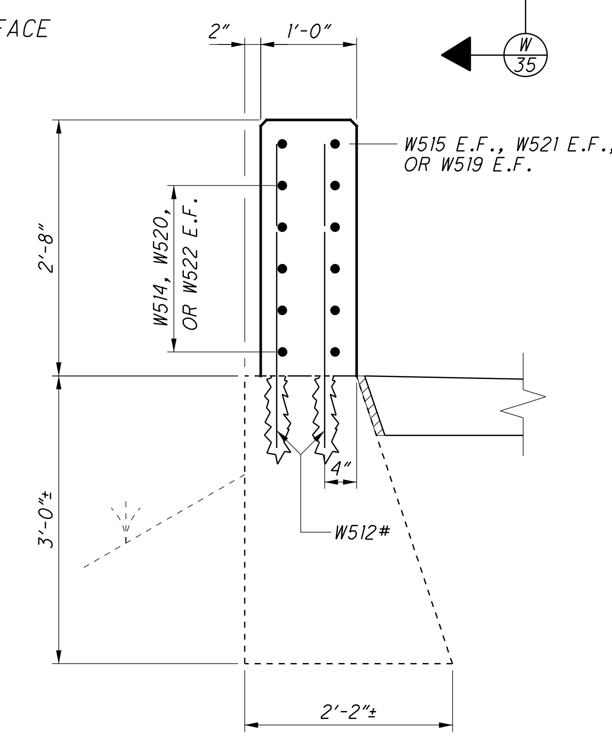
1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. BR-2-15.
2. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS: #5 BAR = 8 INCHES
3. SEE SHEET 32/39 FOR TYPE C AND APPROACH SLAB RAILING DETAILS.
4. VANDAL PROTECTION FENCE NOT SHOWN. SEE SHEET 26/39 FOR LOCATION.
5. CONCRETE TO BE CLASS QC2 WITH QC/QA CONCRETE AND INCLUDED FOR PAYMENT WITH ITEM 511, CLASS QC2 CONCRETE, MISC.: RETAINING WALLS.

LEGEND

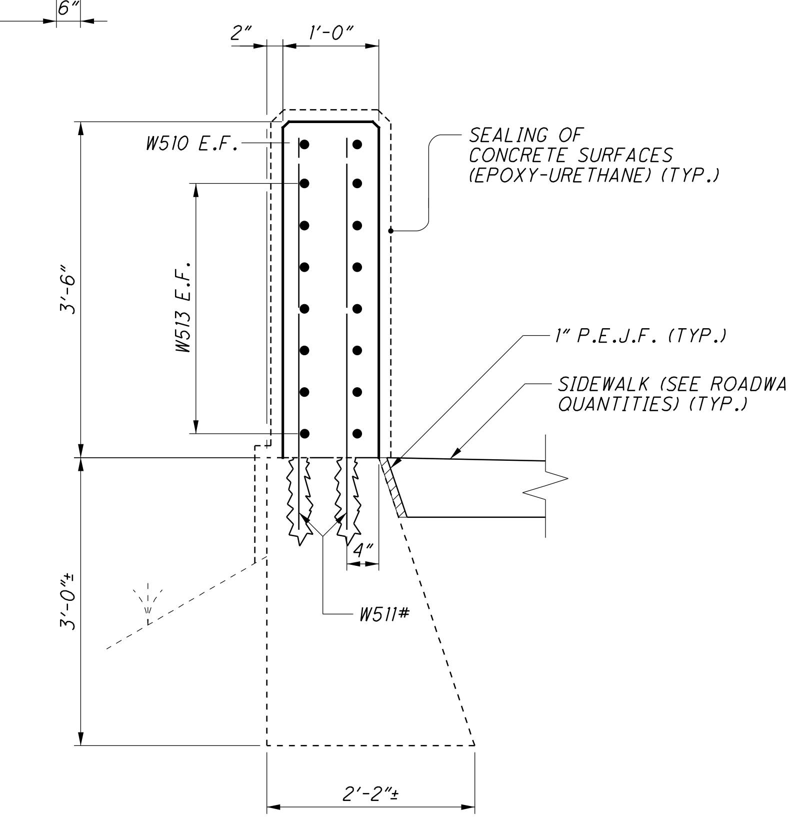
ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

E.F. - EACH FACE

- BAR TO BE DOWELED



W/35 W/36 SECTION
VPF NOT SHOWN



X/35 SECTION

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRAN.COM

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE
AMR	GDJ	AMR		STK	7-29-20

STRUCTURE FILE NUMBER 5006759

RETAINING WALL A DETAILS

BRIDGE NO. MAH-680-0373

BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73

PID No. 105857

35/39

114/126

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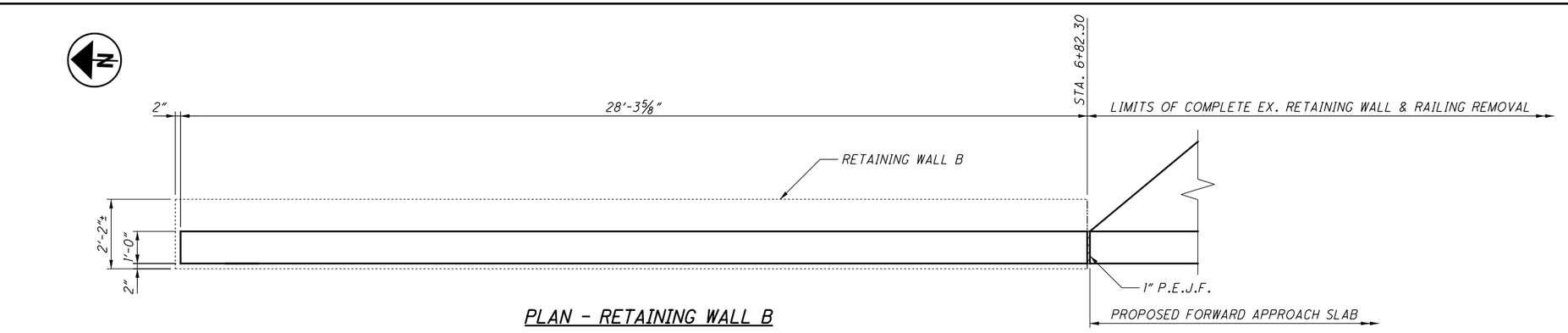
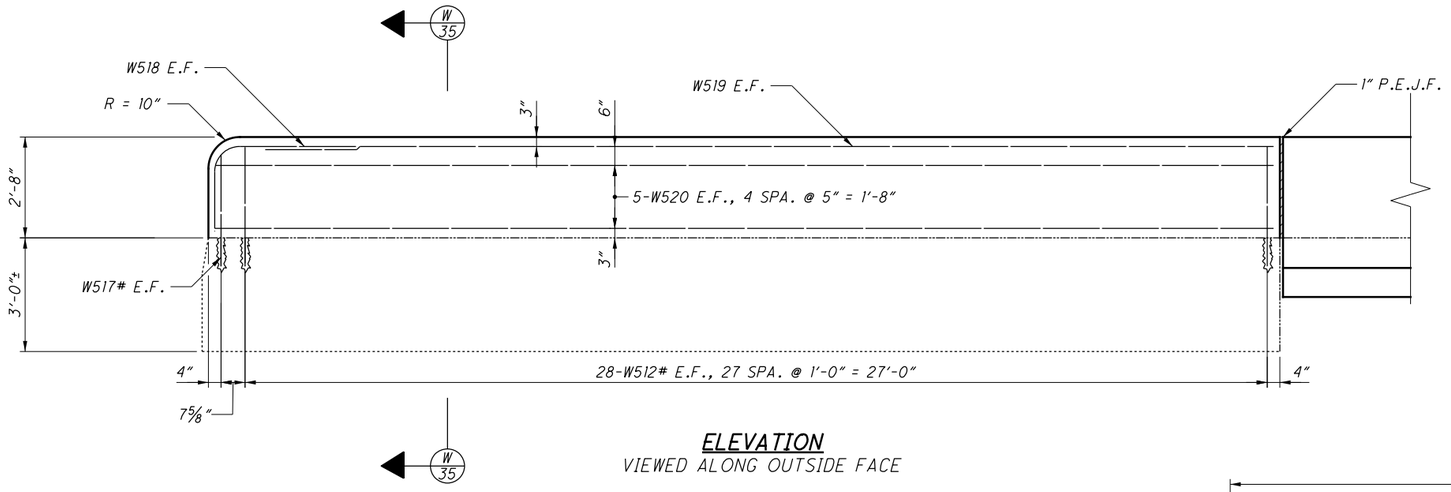
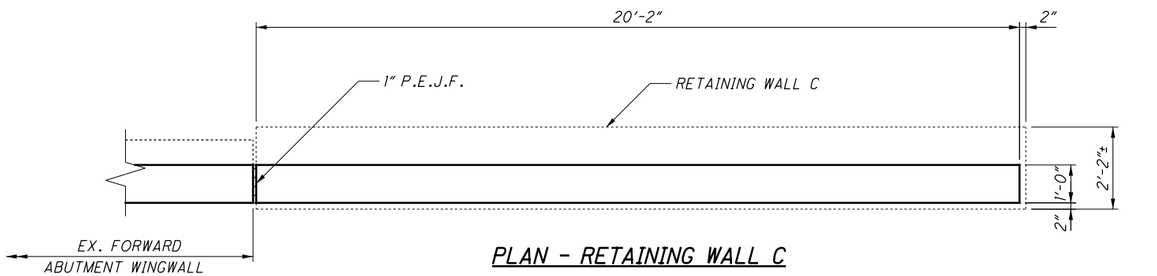


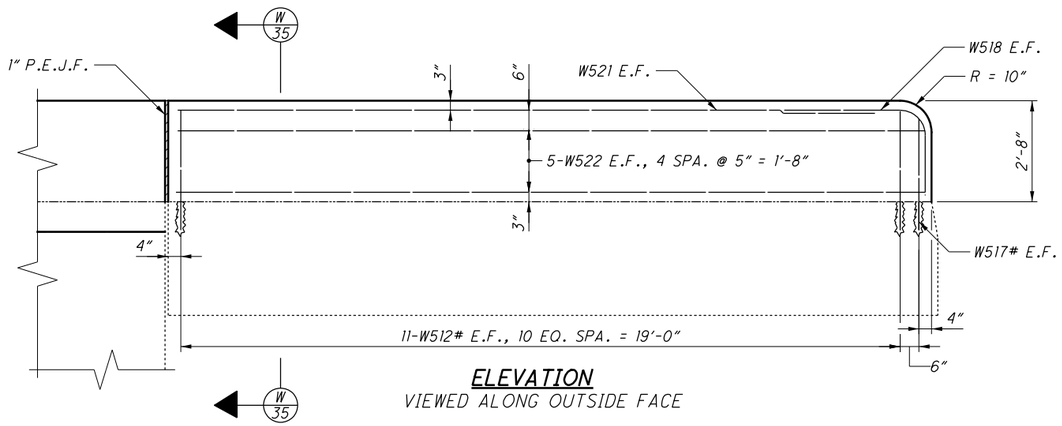
PLAN - RETAINING WALL B



ELEVATION
VIEWED ALONG OUTSIDE FACE



PLAN - RETAINING WALL C



ELEVATION
VIEWED ALONG OUTSIDE FACE

NOTES

1. FOR ADDITIONAL NOTES AND DETAILS SEE STD. DWG. BR-2-15.
2. MINIMUM EMBEDMENT DEPTH FOR DOWEL BARS:
   #5 BAR = 8 INCHES
3. SEE SHEET 35/39 FOR RAILING REMOVAL DETAIL.
4. SEE SHEET 32/39 FOR APPROACH SLAB RAILING DETAILS.
5. SEE SHEET 13/39 FOR WINGWALL RAILING DETAILS.
6. VANDAL PROTECTION FENCE NOT SHOWN.
7. CONCRETE TO BE CLASS QC2 WITH QC/OA CONCRETE AND INCLUDED FOR PAYMENT WITH ITEM 511, CLASS QC2 CONCRETE, MISC.: RETAINING WALLS.

NOTES

E.F. - EACH FACE

- BAR TO BE DOWELED

DESIGN AGENCY
CARPENTER MARTY transportation
6812 SINGLETREE DR. COLUMBUS, OH 43229
ARCHITECT CONSULTANTS

DESIGNED	DRAWN	REVIEWED	DATE
AMR	AMR	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

RETAINING WALL B & C DETAILS
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68/3.73
PID No. 105857

36/39

115/126

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MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS			
	R.A.	F.A.	TOTAL				A	B	C	INC
DIAPHRAGM										
D401	2	2	4	6'-1"	17	STR				
D501	44		44	10'-3"	471	2	2'-7"	5'-4"	2'-7"	
D502	82		82	12'-2"	1041	2	3'-2"	6'-1"	3'-2"	
D503	1		1	9'-4"	10	2	2'-7"	4'-5"	2'-7"	
D504	2		2	10'-11"	23	2	3'-0"	5'-2"	3'-0"	
D505	1		1	10'-8"	12	2	2'-7"	5'-9"	2'-7"	
D506	2		2	12'-7"	27	2	3'-2"	6'-6"	3'-2"	
D507	6		6	9'-0"	57	2	1'-7"	6'-1"	1'-7"	
D508		45	45	11'-9"	552	2	3'-4"	5'-4"	3'-4"	
D509		90	90	11'-8"	1096	2	2'-11"	6'-1"	2'-11"	
D510		1	1	10'-10"	12	2	3'-4"	4'-5"	3'-4"	
D511		2	2	10'-7"	23	2	2'-10"	5'-2"	2'-10"	
D512		4	4	8'-0"	34	2	1'-1"	6'-1"	1'-1"	
D513		1	1	9'-2"	10	2	3'-4"	2'-9"	3'-4"	
D514		2	2	9'-1"	19	2	2'-11"	3'-6"	2'-11"	
D515		1	1	6'-11"	8	2	3'-4"	6"	3'-4"	
D516		2	2	6'-11"	15	2	2'-11"	1'-4"	2'-11"	
D517		2	2	11'-3"	24	2	3'-1"	5'-4"	3'-1"	
D801	31	33	64	6'-7"	1125	18	4'-5"	1'-0"	1'-0"	
D802	21	25	46	30'-0"	3685	STR				
D803	8		8	19'-1"	408	STR				
D804	4		4	27'-0"	289	STR				
D805	1		1	21'-1"	57	STR				
D806	4		4	22'-4"	239	1	1'-6"	21'-1"		
D807	2		2	22'-1"	118	STR				
D808	1		1	20'-5"	55	STR				
D809	5		5	20'-4"	272	1	1'-6"	19'-1"		
D810	10	10	20	7'-0"	374	18	4'-3"	1'-5"	1'-5"	
D811	1		1	20'-10"	56	STR				
D812	2		2	23'-6"	126	STR				
D813	8	8	16	3'-8"	157	STR				
D814	1	5	6	21'-4"	342	1	1'-6"	20'-0"		
D815	1	2	3	20'-0"	161	STR				
D816		1	1	23'-5"	63	STR				
D817		1	1	20'-10"	56	STR				
D818		8	8	25'-3"	540	STR				
D819		1	1	23'-2"	62	STR				
D820		1 SERIES OF 5	1 SERIES OF 5	24'-4" TO 28'-4"	352	1	1'-6"	23'-1" TO 27'-1"		1'-0"
D821		1	1	27'-0"	73	STR				
D822		1	1	19'-9"	53	STR				
D823		1	1	27'-4"	73	STR				
				SUB-TOTAL	12187					

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS		
					A	B	C
PIER							
P401	16	6'-6"	70	2	1'-6"	3'-8"	1'-6"
P501	22	33'-9"	775	STR			
P502	56	10'-1"	589	2	3'-4"	3'-8"	3'-4"
P503	2	30'-4"	64	STR			
P504	30	14'-3"	446	1	13'-5"	1'-0"	
P505	6	5'-2"	33	2	1'-0"	3'-5"	1'-0"
P506	2	21'-1"	44	STR			
P507	14	8'-11"	131	2	2'-9"	3'-8"	2'-9"
P601	24	34'-2"	1232	STR			
P901%	84	3'-0"	857	16	1'-9"		
		SUB-TOTAL	4241				

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS			
	R.A.	F.A.	TOTAL				A	B	C	INC
ABUTMENTS										
A501#	5	5	10	6'-8"	70	STR				
A502	2	2	4	5'-10"	25	STR				
A503	5	5	10	4'-0"	42	STR				
A504	5	5	10	3'-5"	36	1	2'-0"	1'-7"		
A505#	20		20	2'-2"	46	STR				
A506	2		2	18'-1"	38	19	15'-8"	7"	2'-5"	
A507	1 SERIES OF 10		1 SERIES OF 10	8'-8" TO 12'-6"	111	3	2'-10" TO 4'-9"	1'-2"		5" (+)
A508	4		4	20'-2"	85	STR				
A509	2		2	19'-3"	41	STR				
A510	2		2	14'-3"	30	STR				
A511#	10		10	11'-0"	115	1	9'-0"	2'-2"		
A512#	10		10	6'-0"	63	1	5'-4"	10"		
A513	10		10	6'-3"	66	2	2'-8"	1'-2"	2'-8"	
A514	8		8	8'-11"	75	STR				
				SUB-TOTAL	843					

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS			
					A	B	C	R
RETAINING WALL								
W501	16	5'-3"	88	2	2'-5"	8"	2'-5"	
W502#	32	4'-0"	134	STR				
W503	1	12'-6"	14	3	8"	5'-3"		
W504	3	7'-1"	23	98	7'-1"			13'-2"
W505	3	7'-5"	24	98	7'-5"			13'-9"
W506	3	8'-4"	27	99	5'-10"	2'-6"		13'-2"
W507	3	8'-5"	27	99	5'-10"	2'-7"		13'-9"
W508	5	15'-9"	83	99	5'-10"	9'-11"		13'-2"
W509	5	16'-2"	85	99	5'-10"	10'-4"		13'-9"
W510	2	30'-0"	63	STR				
W511#	66	4'-0"	276	STR				
W512#	144	3'-2"	476	STR				
W513	14	32'-5"	474	STR				
W514	2	7'-4"	16	97	4'-6"	3'-1"		8"
W515	12	32'-10"	411	STR				
W516#	2	3'-8"	8	STR				
W517#	4	2'-10"	12	STR				
W518	4	5'-9"	24	97	3'-9"	2'-3"		8"
W519	2	26'-8"	56	STR				
W520	10	28'-0"	293	STR				
W521	2	18'-5"	39	STR				
W522	10	19'-10"	207	STR				
		SUB-TOTAL	2860					

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS	
	R.A.	F.A.	TOTAL				A	B
DIAPHRAGM GUIDES								
DG601#	10	10	20	8'-6"	256	1	2'-7"	6'-1"
DG801#	14	14	28	5'-1"	381	1	2'-10"	2'-6"
				SUB-TOTAL	637			

LEGEND

\# - BARS TO BE DOWELED INTO EXISTING STRUCTURE
% - BARS TO UTILIZE A MECHANICAL COUPLER

NOTE

SEE SHEET 39/39 FOR NOTES.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 • CMTRAN.COM

DESIGNED	DRAWN	REVIEWED	DATE
ERK	ERK	STK	7-29-20
CHECKED	REVISED	STRUCTURE FILE NUMBER	
GDJ		5006759	

REINFORCING STEEL LIST

BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	R	INC.
SLAB									
S401	294	30'-0"	5892	STR					
S402	49	24'-9"	811	STR					
S403	1	9'-4"	7	STR					
S404	1	6'-11"	5	STR					
S405	1	4'-11"	4	STR					
S406	1	3'-2"	3	STR					
S407	1	1'-7"	2	STR					
S408	1	10'-7"	8	98	10'-7"			13'-2"	
S501	345	30'-7"	11005	16	30'-0"				
S502	651	30'-0"	20370	STR					
S503	256	17'-7"	4695	16	17'-0"				
S504	256	17'-0"	4540	STR					
S505	726	9'-4"	7068	2	7'-2"	8"	1'-9"		
S506	1 SERIES OF 62	4'-10" TO 30'-2"	1132	16	4'-3" TO 29'-7"				5" (-)
S507	1 SERIES OF 62	4'-3" TO 29'-7"	1094	STR					5" (-)
S508	1 SERIES OF 62	5'-1" TO 30'-4"	1146	16	4'-6" TO 29'-9"				5" (-)
S509	1 SERIES OF 62	4'-6" TO 29'-9"	1108	STR					5" (-)
S510	1 SERIES OF 17	17'-8" TO 21'-3"	346	16	17'-1" TO 20'-8"				3" (-)
S511	1 SERIES OF 17	9'-5" TO 16'-8"	232	2	7'-3" TO 10'-10"	8"	1'-9" TO 5'-5"		5" (+)
S512	1 SERIES OF 17	17'-1" TO 20'-8"	335	STR					3" (-)
S513	2 SERIES OF 43	3'-6" TO 21'-0"	1099	STR					5"
S514	2 SERIES OF 30	3'-8" TO 15'-8"	605	STR					5" (-)
S515	16	4'-5"	74	16	3'-10"				
S516	1	3'-2"	4	STR					
S517	1	1'-7"	2	STR					
S518	59	31'-3"	1924	STR					
S519	1	10'-7"	12	98	10'-7"			13'-2"	
S520	1	9'-4"	10	STR					
S521	1	6'-11"	8	STR					
S522	1	4'-11"	6	STR					
S601	48	30'-0"	2163	STR					
S602	48	34'-8"	2500	STR					
		SUB-TOTAL	68210						

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
SIDEWALK											
SW601	78	30'-0"	3515	STR							
SW602	1	16'-10"	26	STR							
SW603	375	6'-10"	3849	STR							
SW604	379	3'-3"	1898	25	1'-2"	3"	1'-2"	1'-0"	0"		
SW605	385	3'-2"	1832	2	1'-2"	1'-2"	1'-2"				
SW606	1 SERIES OF 5	2'-8" TO 6'-0"	33	STR							10"
SW607	1	25'-6"	39	99	14'-11"	10'-7"				13'-3"	
SW608	1	24'-7"	37	99	7'-8"	16'-11"				24'-8"	
SW609	1	6'-9"	11	STR							
SW610	1	2'-11"	5	STR							
SW611	1 SERIES OF 4	2'-7" TO 5'-1"	24	STR							10"
SW612	6	1'-8"	16	STR							
SW613	3	2'-6"	12	STR							
SW614	6	3'-1"	28	STR							
SW615	1	22'-2"	34	STR							
SW616	1	26'-2"	40	STR							
SW617	1	29'-8"	45	STR							
SW618	1 SERIES OF 5	2'-7" TO 5'-11"	32	STR							10"
		SUB-TOTAL	11476								

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	R
RAILING									
R501	473	9'-2"	4523	30	1'-6"	8"	3'-1"	2'-11"	
R502	2	23'-5"	49	99	12'-4"	11'-1"			13'-9"
R503	52	30'-0"	1628	STR					
R504	18	8'-8"	163	STR					
R505	114	12'-8"	1507	STR					
R506	90	6'-2"	579	STR					
R507	3	10'-6"	33	98	10'-6"				13'-3"
R508	2	23'-1"	49	99	12'-5"	10'-8"			13'-3"
R509	6	8'-0"	51	21	1'-4"	2'-1"	6"	2'-1"	
R510	4	3'-0"	13	2	7"	2'-1"	7"		
R511	4	10'-0"	42	2	4'-1"	2'-1"	4'-1"		
R512	4	4'-1"	18	STR					
R513	3	10'-11"	35	98	10'-11"				13'-9"
R514	4	25'-9"	108	STR					
R515	10	2'-5"	26	STR					
R516	10	15'-7"	163	STR					
R517	20	29'-7"	618	STR					
		SUB-TOTAL	9605						

LEGEND

- BARS TO BE DOWELED INTO EXISTING STRUCTURE

NOTE

SEE SHEET 39/39 FOR NOTES.

DESIGN AGENCY
CARPENTER MARTY transportation
6612 SINGLETREE DR. COLUMBUS, OH 43229
614.656.2424 CMTRANS.COM

DESIGNED ERK | CHECKED GDJ | DRAWN ERK | REVISED | REVIEWED STK | DATE 7-29-20 | STRUCTURE FILE NUMBER 5006759

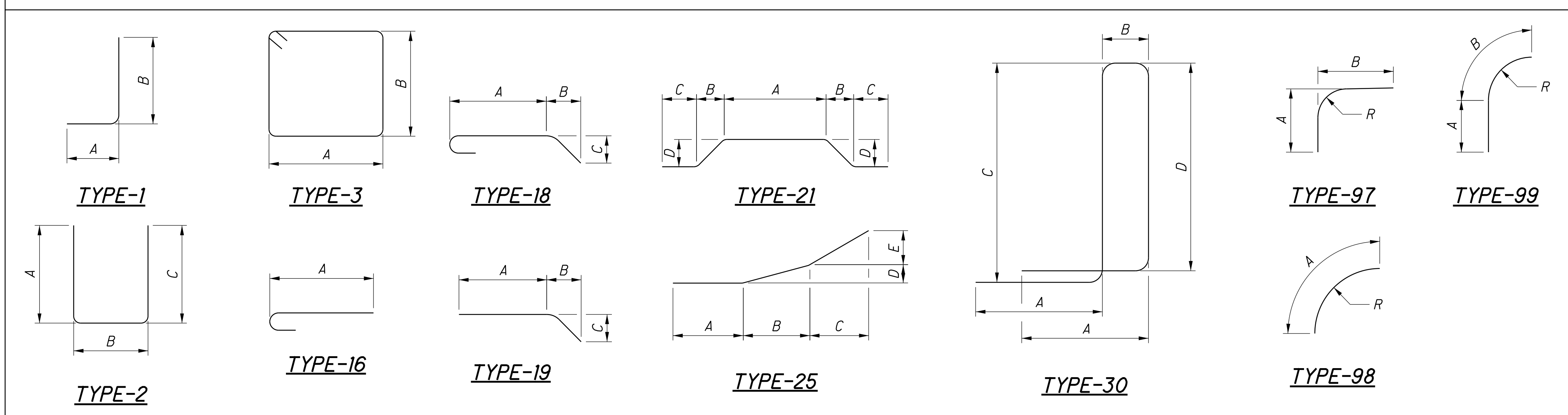
REINFORCING STEEL LIST
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	R	INC
REAR APPROACH SLAB										
AS501	130	30'-0"	4068	STR						
AS502	30	12'-1"	379	STR						
AS503	35	13'-8"	499	STR						
AS504	1	15'-6"	17	STR						
AS505	1	29'-6"	31	STR						
AS506	29	29'-2"	883	STR						
AS601	17	29'-2"	745	STR						
AS602	109	3'-7"	587	2	1'-2"	1'-7"	1'-2"			
AS603	13	8'-10"	173	STR						
AS604	51	10'-8"	818	STR						
AS605	3	9'-5"	43	STR						
AS606	10	2'-3"	34	STR						
AS607	1	2'-5"	4	STR						
AS608	42	4'-5"	279	2	1'-2"	2'-5"	1'-2"			
AS609	3	10'-1"	46	19	9'-1"	8"	10"			
AS610	1	15'-7"	24	STR						
AS611	1	7'-1"	11	98	7'-1"				24'-8"	
AS612	1 SERIES OF 5	11" TO 6'-1"	27	STR						1'-3 1/2"
AS613	6	8'-3"	75	STR						
AS614	5	4'-10"	37	STR						
AS1001	79	30'-7"	10397	16	29'-2"					
AS1002	2	16'-11"	146	16	15'-6"					
AS1003	1	30'-11"	134	16	29'-6"					
		SUB-TOTAL	19457							

NOTES

1. THE BAR NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, S501 IS A NO. 5 BAR. BAR DIMENSIONS ARE OUT TO OUT UNLESS OTHERWISE INDICATED.
2. ALL REINFORCING STEEL IS TO BE EPOXY COATED.
3. APPROACH SLAB REINFORCING STEEL SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 526, REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN.
4. DIAPHRAGM GUIDE REINFORCING STEEL SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 511, SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN.
5. PAYMENT FOR RAILING REINFORCING STEEL SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 517, RAILING CONCRETE, AS PER PLAN.
6. PAYMENT FOR MECHANICAL COUPLERS SHALL BE INCLUDED WITH ITEM 509, EPOXY COATED REINFORCING STEEL.

BENDING DIAGRAM

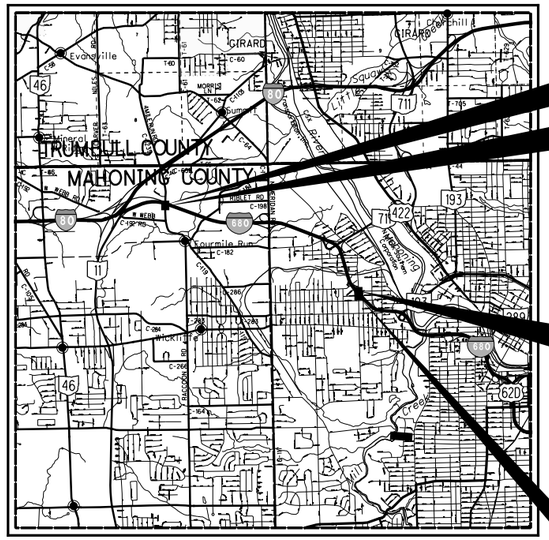


DESIGN AGENCY
CARPENTER MARTY transportation

DESIGNED ERK	DRAWN ERK	REVIEWED STK	DATE 7-29-20
CHECKED GDJ	REVISED	STRUCTURE FILE NUMBER 5006759	

REINFORCING STEEL LIST
BRIDGE NO. MAH-680-0373
BELLE VISTA AVE. OVER I.R. 680

MAH-680-0.68 / 3.73
PID No. 105857



RIGHT OF WAY LEGEND SHEET
MAH-680-0.68/3.73

(MAH-680-0.68)
MAHONING COUNTY
AUSTINTOWN TOWNSHIP
GREAT LOT NO. 3
T-2N, R-3W
(MAH-680-3.73)
MAHONING COUNTY
CITY OF YOUNGSTOWN

LOCATION MAP

SCALE IN MILES

0 1 2 3 4

PORTION TO BE IMPROVED

LOCATION	LATITUDE	LONGITUDE
1	41°07'35" N	80°44'15" W
2	41°06'30" N	80°41'20" W

CONVENTIONAL SYMBOLS

County Line
Township Line
Section Line
Corporation Line or
Fence Line (Ex) (Pr)
Center Line
Right of Way (Ex) Ex R/W
Right of Way (Pr) R/W
Standard Highway Ease.(Ex) Ex SH
Temporary Right of Way TMP
Channel Ease. (Pr) CH
Utility Ease. (Ex) Ex U
Railroad or
Guardrail (Ex) (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)

Ditch / Creek (Ex)
Ditch / Creek (Pr)
Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol ℞ , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Wetland (Pr) , Grass (Pr) , Aerial Target
Post (Ex) ⬡ , Mailbox (Ex) MB , Mailbox (Pr) MB
Light (Ex) , Telephone Marker (Ex) TEL
Fire Hydrant (Ex) , Water Meter (Ex) W
Water Valve (Ex) W , Utility Valve Unknown (Ex.) U
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

I, RICHARD F. MATHIAS, P.S. HAVE CONDUCTED A SURVEY OF THE EXISTING CONDITIONS FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN AUGUST, 2019. THE RESULTS OF THAT SURVEY ARE CONTAINED HEREIN FOR MAH-680-3.73 (LOCATION 2).

THE HORIZONTAL COORDINATES EXPRESSED HEREIN ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE) ON NAD 83 (2011) DATUM. THE PROJECT COORDINATES (US SURVEY FOOT) ARE RELATIVE TO STATE PLANE GRID COORDINATES BY A PROJECT ADJUSTMENT FACTOR OF 1.000100886 FOR MAH-680-3.73 (LOCATION 2).

AS A PART OF THIS PROJECT I HAVE REESTABLISHED THE LOCATIONS OF THE EXISTING PROPERTY LINES AND CENTERLINE OF EXISTING RIGHT OF WAY FOR PROPERTY TAKES CONTAINED HEREIN.

ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH THE OHIO ADMINISTRATIVE CODE CHAPTER 4733-37 STANDARDS FOR BOUNDARY SURVEYS, UNLESS NOTED OTHERWISE. THE WORDS "I" AND "MY" AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING UNDER MY DIRECT SUPERVISION.

RICHARD F. MATHIAS, PROFESSIONAL LAND SURVEYOR NO. 7798 DATE

INDEX OF SHEETS:

STRUCTURE KEY

□	RESIDENTIAL
■	COMMERCIAL
▨	OUT-BUILDING

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A DECK REPLACEMENT ON STRUCTURE MAH-680-0068 (FOUR MILE RUN ROAD) OVER I.R. 680 AND SUPERSTRUCTURE REPLACEMENT ON STRUCTURE MAH-680-0373 (BELLE VISTA AVENUE) OVER I.R. 680. ALSO INCLUDES MINIMAL APPROACH ROADWAY WORK.

THE EXISTING AND PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF RIGHT OF WAY.

PLANS PREPARED BY:

FIRM NAME : CARPENTER MARTY TRANSPORTATION INC.
R/W DESIGNER: ANDREW W. NIXON, CST
R/W REVIEWER: TONY W. GRIESHOP, P.E., P.S.
FIELD REVIEWER: LUCAS W. GUNKA, P.E.
PRELIMINARY FIELD REVIEW DATE: 01/02/2020
TRACINGS FIELD REVIEW DATE: 06/10/2020
OWNERSHIP VERIFIED BY: TONY W. GRIESHOP, P.E., P.S.
DATE COMPLETED: 06/03/2020
PLAN COMPLETION DATE: 06/12/2020

TYPES OF TITLE LEGEND:

WD = WARRANTY DEED
T = TEMPORARY EASEMENT
WA = WORK AGREEMENT

UTILITY OWNERS
SEE SHEET 2 FOR UTILITY OWNER LIST

I, TONY W. GRIESHOP, P.S., HAVE CONDUCTED A SURVEY OF THE EXISTING CONDITIONS FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN AUGUST, 2019. THE RESULTS OF THAT SURVEY ARE CONTAINED HEREIN FOR MAH-680-0.68 (LOCATION 1).

UNDERGROUND UTILITY LOCATIONS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THOUGH THEY ARE BELIEVED TO BE ACCURATE, THEIR LOCATION IS AS MARKED ON THE GROUND BY THE UTILITY COMPANY PER OHIO811 CONFIRMATION NUMBERS A817902457, A817902527, B819300571 AND B819300593 THOSE MARKINGS SUBSEQUENTLY BEING SURVEYED AS A PART OF THIS PROJECT.

THE HORIZONTAL COORDINATES EXPRESSED HEREIN ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE) ON NAD 83 (2011) DATUM. THE PROJECT COORDINATES (US SURVEY FOOT) ARE RELATIVE TO STATE PLANE GRID COORDINATES BY A PROJECT ADJUSTMENT FACTOR OF 1.00010543 FOR MAH-680-0.68 (LOCATION 1).

AS A PART OF THIS PROJECT I HAVE REESTABLISHED THE LOCATIONS OF THE EXISTING PROPERTY LINES AND CENTERLINE OF EXISTING RIGHT OF WAY FOR PROPERTY TAKES CONTAINED HEREIN FOR MAH-680-0.68 (LOCATION 1). AS A PART OF THIS PROJECT I HAVE ESTABLISHED THE PROPOSED PROPERTY LINES, CALCULATED THE GROSS TAKE, PRESENT ROAD OCCUPIED, NET TAKE AND NET RESIDUE; AS WELL AS PREPARED THE LEGAL DESCRIPTIONS NECESSARY TO ACQUIRE THE PARCELS SHOWN HEREIN. AS A PART OF THIS WORK I HAVE SET RIGHT OF WAY MONUMENTS AT PROPERTY CORNERS, PROPERTY LINE INTERSECTIONS, AND ANGLE POINTS ON THE RIGHT OF WAY AS SHOWN HEREIN FOR MAH-680-0.68 (LOCATION 1) AND MAH-680-3.73 (LOCATION 2).

ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH THE OHIO ADMINISTRATIVE CODE CHAPTER 4733-37 STANDARDS FOR BOUNDARY SURVEYS, UNLESS NOTED OTHERWISE. THE WORDS "I" AND "MY" AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING UNDER MY DIRECT SUPERVISION.

TONY W. GRIESHOP, PROFESSIONAL LAND SURVEYOR NO. 8487 DATE

FEDERAL PROJECT NO.
E171 (454)
PID NO.
105857
CALCULATED AWN
CHECKED TWG

RIGHT OF WAY LEGEND SHEET

MAH-680-0.68/3.73

1/8

P:\ODT\04\0022_MAH-680-00.68_03.73\105857\Design\RW\Sheets\105857_RL001.dgn Sheet 6/24/2021 2:48:14 PM CMT008

UTILITY OWNERS

TYPE	NAME & ADDRESS	TYPE	NAME & ADDRESS
ELECTRIC	FIRST ENERGY OHIO EDISON 730 SOUTH AVENUE YOUNGSTOWN, OH 44502 CONTACT: RAYMOND JENKINS PHONE: (330) 740-7625	TELEPHONE/ CABLE	AT&T THE OHIO BELL TELEPHONE CO. 50 W. BOWERY ST., 6TH FLOOR AKRON, OH 44308 CONTACT: HAROLD MAYNARD PHONE: (330) 384-8974
GAS	DOMINION EAST OHIO 320 SPRINGSIDE DRIVE SUITE 320 AKRON, OH 44333 CONTACT: MALLERIE STRASSER PHONE: 330-664-4601	TELEPHONE/ CABLE	ARMSTRONG CABLE 9328 WOODWORTH ROAD NORTH LIMA, OH 44452 CONTACT: GENO SHONCE PHONE: (330) 726-0115 EXT. 224
WATER	YOUNGSTOWN WATER DEPARTMENT 26 S. PHELPS STREET YOUNGSTOWN, OH 44503 CONTACT: DAN BLAKELY PHONE: (330) 743-5340	SANITARY	CITY OF YOUNGSTOWN WASTEWATER TREATMENT 725 POLAND AVENUE YOUNGSTOWN, OH 44502 CONTACT: DAVID J. PAULL PHONE: (330) 742-8820
TELEPHONE/ CABLE	SPECTRUM 4352 YOUNGSTOWN ROAD SE WARREN, OH 44484 CONTACT: GREG REITER PHONE: (330) 369-7115 CONTACT: FRANK DILLON PHONE: 330-369-7164	LIGHTING	CITY OF YOUNGSTOWN ENGINEERING & CONSTRUCTION DEPT. CITY HALL, 5TH FLOOR 26 SOUTH PHELPS STREET YOUNGSTOWN, OH 44503 CONTACT: CHUCK SHASHO PHONE: (330) 742-8800

NOTE: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

RIGHT OF WAY
LEGEND SHEET

CALCULATED AWN
CHECKED TWG

PID NO. 105857

FEDERAL PROJECT NO. E171 (454)

MAH-680-0.68/3.73

MAH-680-3.73

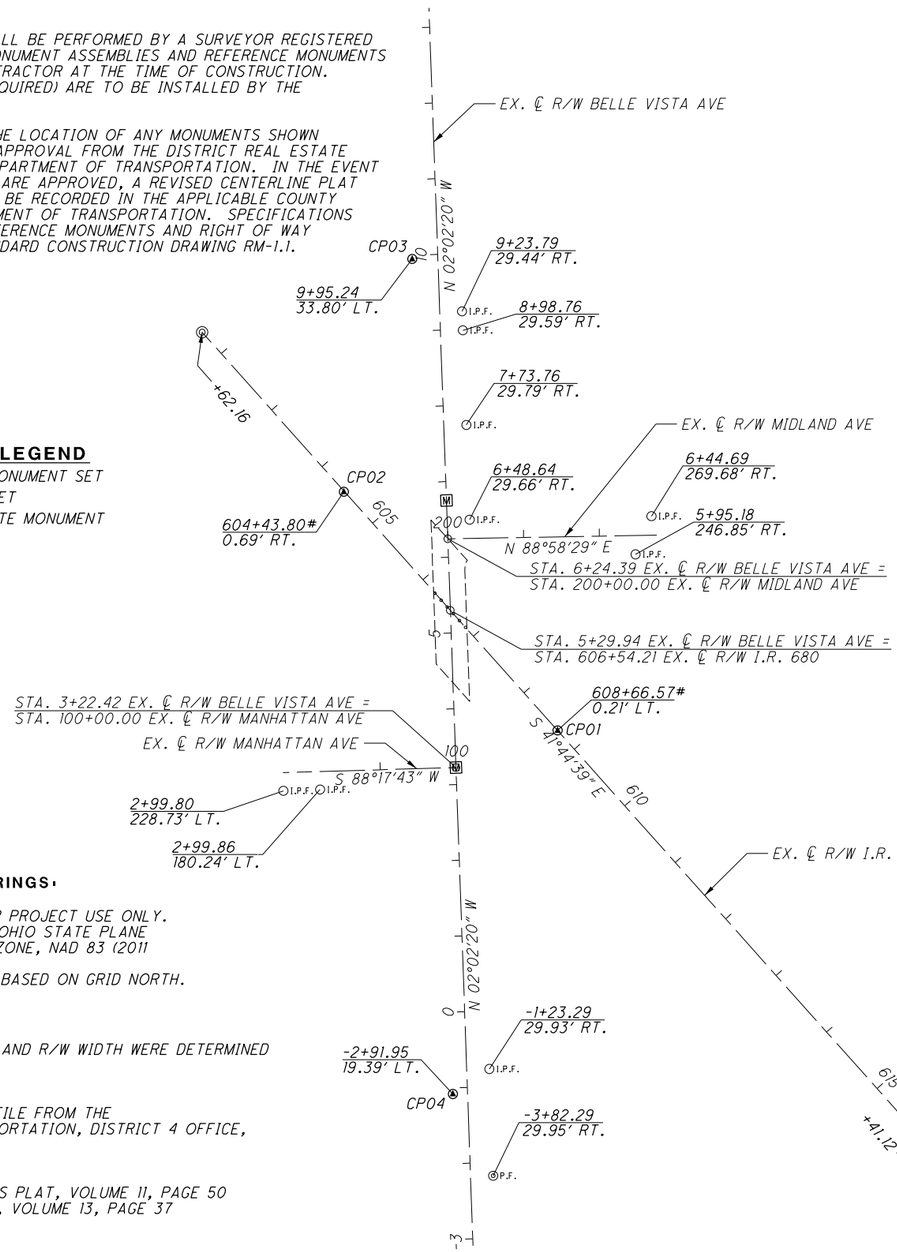
MAHONING COUNTY
CITY OF YOUNGSTOWN

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

MONUMENT LEGEND

- ODOT "TYPE B" MONUMENT SET
- MONUMENT BOX SET
- EXISTING CONCRETE MONUMENT
- I.P.F. IRON PIN FOUND
- P.F. IRON PIPE FOUND



BASIS FOR BEARINGS:

ALL BEARINGS SHOWN ARE FOR PROJECT USE ONLY. BEARINGS ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD 83 (2011 ADJUSTMENT). BEARINGS SHOWN HEREON ARE BASED ON GRID NORTH.

BASIS OF EXISTING ℄ OF R/W AND R/W WIDTH WERE DETERMINED FROM THE FOLLOWING:

RIGHT OF WAY PLANS:
ODOT PLAN MAH-18-15.50 ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 4 OFFICE, AKRON, OHIO.

PLATS:
WEST HEIGHTS LAND COMPANY'S PLAT, VOLUME 11, PAGE 50
THE UNION REALTY CO'S PLAT, VOLUME 13, PAGE 37

RECEIVED _____, 20___
RECORDED _____, 20___
BOOK _____ PAGE _____

_____
COUNTY RECORDER

NOTE: # STATION AND OFFSETS HEREIN ARE CALCULATED FROM THE ℄ EX. R/W I.R. 680

MONUMENT TABLE

℄ OF EX. RIGHT-OF-WAY BELLE VISTA AVE			PROJECT GROUND COORDINATES (SEE SURVEY CERTIFICATION)		ADJUSTABLE ℄ MONUMENTS	R/W MONUMENT	MONUMENT ASSEMBLY REMOVED AND RESET
POINT NUMBER	STATION	OFFSET	NORTH (Y) U.S. FT.	EAST (X) U.S. FT.	ITEM 623E 38500	ITEM 623E 40520	ITEM 623E 40000
EXISTING ℄ R/W STATION/OFFSETS TO EXISTING ℄ R/W							
	3+22.42	℄	530462.38	2467800.46	1		
	6+75.00	℄	530814.74	2467787.92	1		
TOTAL CARRIED TO GENERAL SUMMARY SHEET					2		
PROJECT CONTROL					DESCRIPTION		
CP01#	608+66.57	0.21' LT.	530511.47	2467934.63	TYPE 'B'		
CP02#	604+43.80	0.69' RT.	530826.31	2467652.47	TYPE 'B'		
CP03	9+95.24	33.80' LT.	531133.58	2467742.75	TYPE 'B'		
CP04	-2+91.95	19.39' LT.	530031.50	2467796.40	TYPE 'B'		
EXISTING ℄ R/W STATION/OFFSETS TO EXISTING ℄ R/W					DESCRIPTION		
CC10000	9+23.79	29.44' RT.	531064.42	2467808.49	IRON PIN FOUND		
CC10001	8+98.76	29.59' RT.	531039.41	2467809.53	IRON PIN FOUND		
CC10002	7+73.76	29.79' RT.	530914.49	2467814.17	IRON PIN FOUND		
CC10003	6+48.64	29.66' RT.	530789.46	2467818.49	IRON PIN FOUND		
CC10004	6+44.69	269.68' RT.	530794.04	2468058.51	IRON PIN FOUND		
CC10005	5+95.18	246.85' RT.	530743.75	2468037.45	IRON PIN FOUND		
CC10006	-1+23.29	29.93' RT.	530064.57	2467844.58	IRON PIN FOUND		
CC10007	-3+82.29	29.95' RT.	529923.66	2467849.61	IRON PIPE FOUND		
CC10008	2+99.86	180.24' LT.	530433.42	2467621.14	IRON PIN FOUND		
CC10009	2+99.80	228.73' LT.	530431.64	2467572.68	IRON PIN FOUND		
CC10013#	602+62.16	℄	531036.90	2467465.47	CONCRETE MONUMENT FOUND		
CC10018#	616+41.12	℄	529933.35	2468450.10	CONCRETE MONUMENT FOUND		

I, RICHARD F. MATHIAS, P.S. HAVE CONDUCTED A SURVEY OF THE EXISTING CONDITIONS FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN AUGUST, 2019. THE RESULTS OF THAT SURVEY ARE CONTAINED HEREIN.

THE HORIZONTAL COORDINATES EXPRESSED HEREIN ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM (NORTH ZONE) ON NAD 83 (2011) DATUM. THE PROJECT COORDINATES (US SURVEY FOOT) ARE RELATIVE TO STATE PLANE GRID COORDINATES BY A PROJECT ADJUSTMENT FACTOR OF 1.000100886 FOR MAH-680-3.73.

AS A PART OF THIS PROJECT I HAVE REESTABLISHED THE LOCATIONS OF THE EXISTING PROPERTY LINES AND CENTERLINE OF EXISTING RIGHT OF WAY FOR PROPERTY TAKES CONTAINED HEREIN.

ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH THE OHIO ADMINISTRATIVE CODE CHAPTER 4733-37 STANDARDS FOR BOUNDARY SURVEYS, UNLESS NOTED OTHERWISE. THE WORDS "I" AND "MY" AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING UNDER MY DIRECT SUPERVISION.

_____ _____
RICHARD F. MATHIAS, PROFESSIONAL LAND SURVEYOR NO. 7798 *DATE*

I, TONY W. GRIESHOP, P.S. HAVE ESTABLISHED THE PROPOSED PROPERTY LINES, CALCULATED THE GROSS TAKE, PRESENT ROAD OCCUPIED, NET TAKE AND NET RESIDUE; AS WELL AS PREPARED THE LEGAL DESCRIPTIONS NECESSARY TO ACQUIRE THE PARCELS SHOWN HEREIN. AS A PART OF THIS WORK I HAVE SET RIGHT OF WAY MONUMENTS AT PROPERTY CORNERS, PROPERTY LINE INTERSECTIONS, AND ANGLE POINTS ON THE RIGHT OF WAY AS SHOWN HEREIN.

ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH THE OHIO ADMINISTRATIVE CODE CHAPTER 4733-37 STANDARDS FOR BOUNDARY SURVEYS, UNLESS NOTED OTHERWISE. THE WORDS "I" AND "MY" AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING UNDER MY DIRECT SUPERVISION.

_____ _____
TONY W. GRIESHOP, PROFESSIONAL LAND SURVEYOR NO. 8487 *DATE*

HORIZONTAL SCALE IN FEET
0 50 100 200

PID NO. 105857

R/W DESIGNER AWN
R/W REVIEWER TWG

CENTERLINE PLAT

MAH-680-0.68/3.73

3 / 8

121
126

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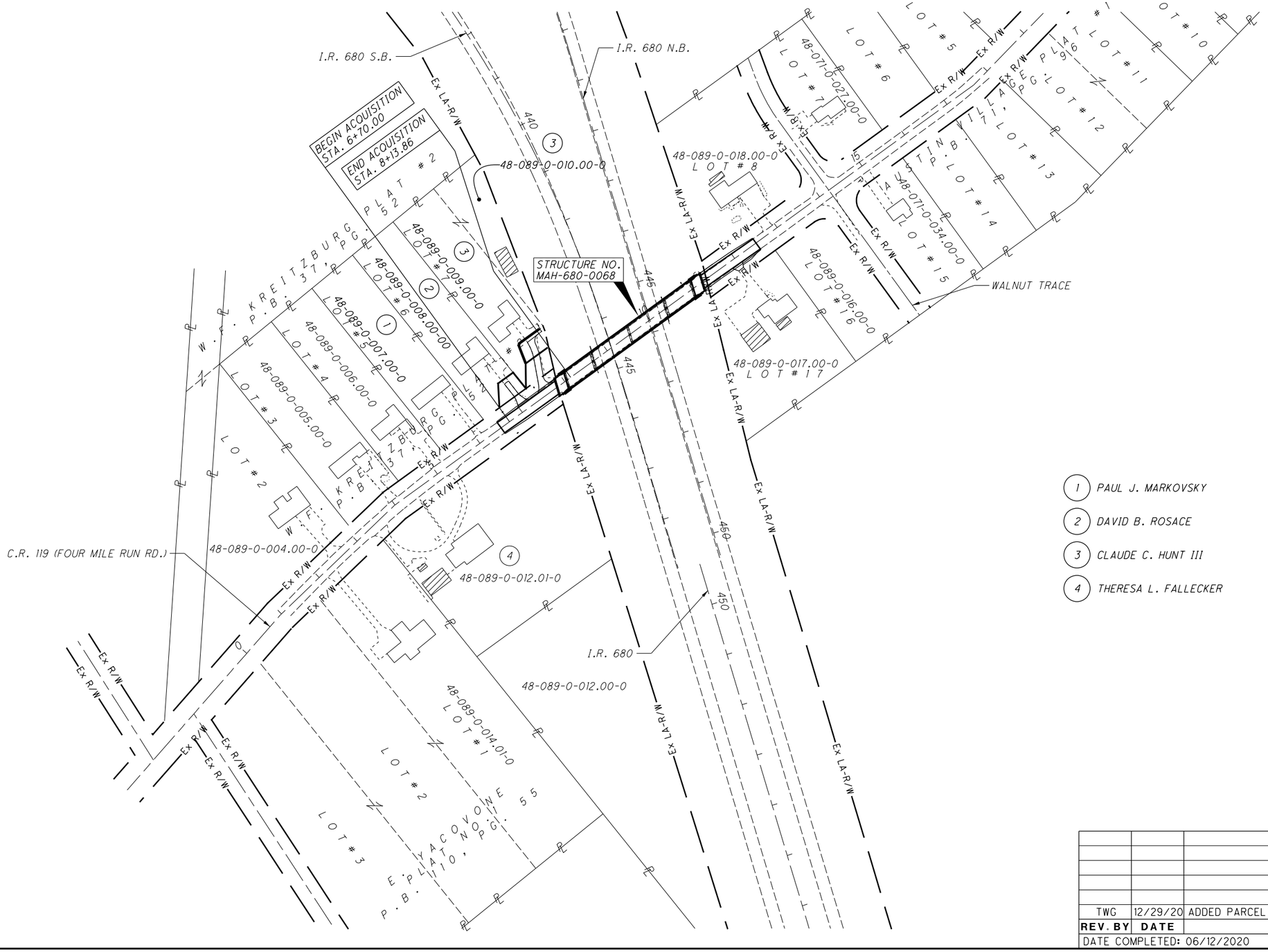
MAH-680-0.68

MAHONING COUNTY
AUSTINTOWN TOWNSHIP
GREAT LOT NO. 3
T-2N, R-3W



TWG	12/29/20	ADDED PARCEL 3-WA AND REVISED DRIVEWAY
REV. BY	**DATE**	**DESCRIPTION**

DATE COMPLETED: 06/12/2020

HORIZONTAL SCALE IN FEET
0 50 100 200

P.I.D. NO. 105857

R/W DESIGNER AWN
R/W REVIEWER TWG

PROPERTY MAP

MAH-680-0.68 / 3.73

4 / 8

122 / 126

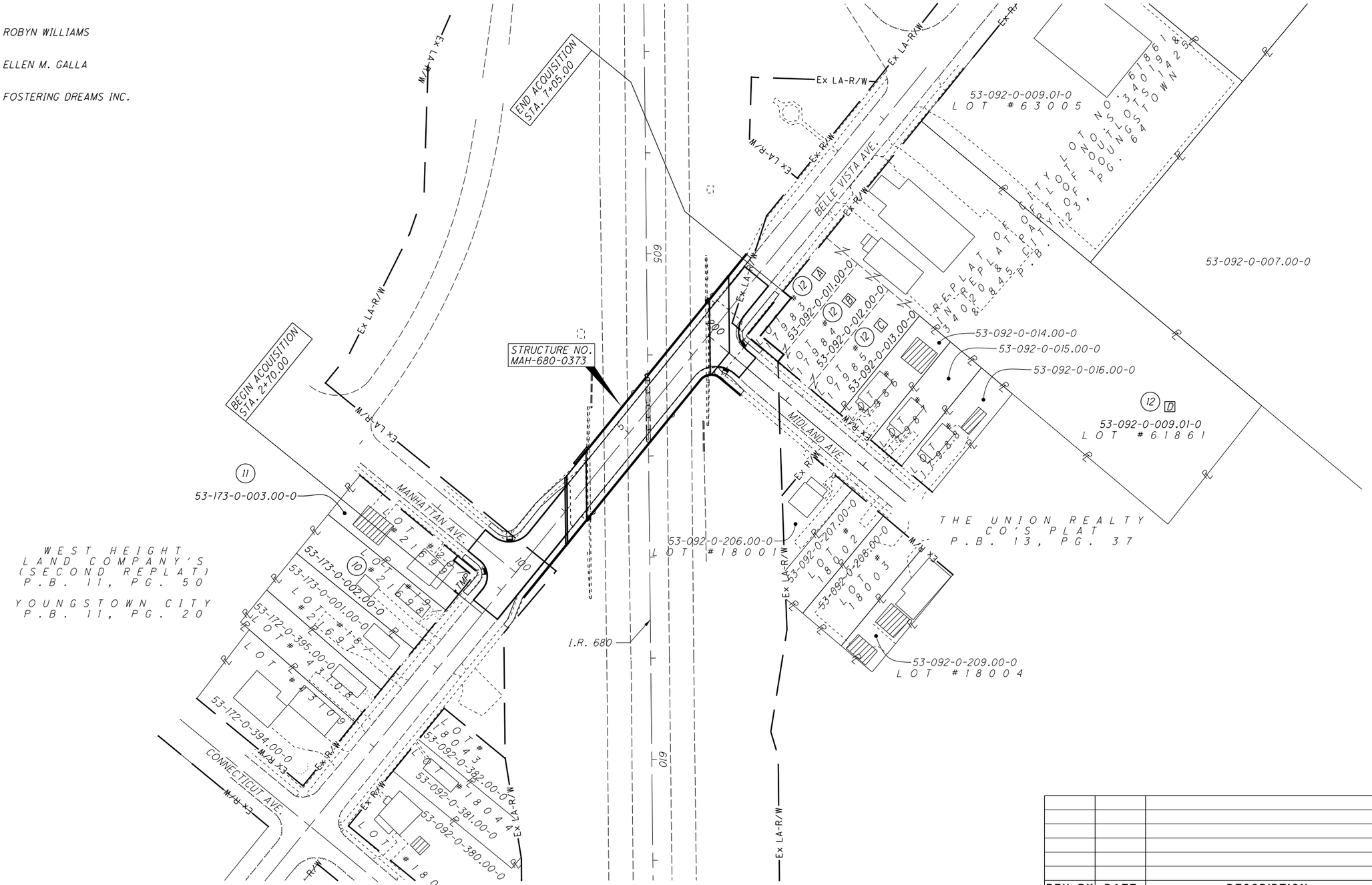
MAH-680-3.73

MAHONING COUNTY
CITY OF YOUNGSTOWN

(10) ROBYN WILLIAMS

(11) ELLEN M. GALLA

(12) FOSTERING DREAMS INC.



REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 06/12/2020

HORIZONTAL SCALE IN FEET
0 25 50 100

PID NO. 105857

R/W DESIGNER AWN
R/W REVIEWER TWG

PROPERTY MAP

MAH-680-0.68/3.73

5 / 8

123 / 126

P:\ODT\04\0022_MAH-680-00.68_03.73\105857\Design\RW Sheets\105857_RW002.dgn Sheet 6/24/2021 2:48:18 PM CMT008

TOTAL NUMBER OF :

4 OWNERSHIPS
4 PARCELS
0 TOTAL TAKES
0 OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

ALL AREAS IN ACRES

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF STATE OF OHIO, DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1	PAUL J. MARKOVSKY	7	DB. 5784, PG. 1506	48-089-0-007.00-0	0.910								STATE	LOT #5, NO TAKE		
2-T	DAVID B. ROSACE	7	DB. 1991, PG. 137	48-089-0-008.00-0	0.930	0.000	0.044	0.000	0.044	NO				LOT #6, FOR DRIVE CONSTRUCTION AND GRADING		
3-T	CLAUDE C. HUNT III	7	DB. 1980, PG. 253	48-089-0-009.00-0	0.910	0.000	0.053	0.000	0.053	NO				LOT #7, FOR DRIVE CONSTRUCTION AND GRADING		
	"	7	DB. 6174, PG. 1978	48-089-0-010.00-0	0.300	0.000	0.000	0.000	0.000	NO				NO TAKE		
				TOTAL	1.210	0.000	0.053	0.000	0.053							
3-WA	CLAUDE C. HUNT III	7	DB. 1980, PG. 253	48-089-0-009.00-0	0.910	0.000	0.050	0.000	0.050	NO				LOT #7, FOR DRIVE CONSTRUCTION AND GRADING		
4	THERESA L. FALLECKER	7	DB. 6312, PG. 2415	48-089-0-012.01-0	2.500									PARCEL NO. 1, NO TAKE		
5-9	(NOT USED)															
10	ROBYN WILLIAMS	8	DB. 6250, PG. 755	53-173-0-002.00-0	0.1733									OUT LOT #19/ CITY LOT #21698, NO TAKE		
11-T	ELLEN M. GALLA	8	DB. 1469, PG. 550 DB. 1413, PG. 944	53-173-0-003.00-0	0.1722	0.000	0.006	0.000	0.006	NO				OUT LOT #20/ CITY LOT #21699, FOR GRADING		
12-WD	FOSTERING DREAMS INC.	8	DB. 6163, PG. 1802 DB. 6089, PG. 1001	53-092-0-011.00-0	0.1150	0.000	0.019	0.000	0.019	NO		0.096		LOT #17983, (PARCEL #1 & #2)		
	"	8	"	53-092-0-012.00-0	0.1150	0.000	0.000	0.000	0.000	NO		0.1150		LOT #17984, (PARCEL #1 & #2), NO TAKE		
	"	8	DB. 6163, PG. 1802 DB. 6090, PG. 251	53-092-0-013.00-0	0.1150	0.000	0.000	0.000	0.000	NO		0.1150		LOT #17985, (PARCEL #3), NO TAKE		
	"	8	DB. 6133, PG. 137	53-092-0-009.01-0	1.506	0.000	0.000	0.000	0.000	NO		1.506		LOT #61861, NO TAKE		
				TOTAL:	1.851	0.000	0.019	0.000	0.019			1.832	STATE			

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

TYPES OF TITLE LEGEND:

WD = WARRANTY DEED
T = TEMPORARY EASEMENT
WA = WORK AGREEMENT

REV. BY	DATE	DESCRIPTION
TWG	12/29/20	ADDED PARCEL 3-WA

FIELD REVIEW BY: LUCAS W. GUNKA DATE: 06/10/2020
OWNERSHIP VERIFIED BY: TONY W. GRIESHOP DATE: 06/12/2020
DATE COMPLETED: 06/12/2020

FEDERAL PROJECT NO. E171 (454)
PID NO. 105857
STATE JOB NO. 442085
R/W DESIGNER AWN
R/W REVIEWER TWG

SUMMARY OF ADDITIONAL RIGHT OF WAY

MAH-680-0.68/3.73

6 / 8

124 / 126

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MAH-680-0.68
MAHONING COUNTY
AUSTINTOWN TOWNSHIP
GREAT LOT 3
T-2N, R-3W

W. F. KREITZBURG PLAT # 2
P.B. 37, PG. 52

JOSHUA THOMPSON
A.P.N. 48-089-0-005.00-0
DB. 6321, PG. 2083
0.90 AC. (LOT 3)
1040 N. FOUR
MILE RUN RD.

L O T # 3

THERESA LYDEN
A.P.N. 48-089-0-006.00-0
DB. 5543, PG. 1747
0.90 AC. (LOT 4)
1050 N. FOUR
MILE RUN RD.

L O T # 4

1
PAUL J. MARKOVSKY
A.P.N. 48-089-0-007.00-0
DB. 5784, PG. 1506
0.91 AC. (LOT 5)
1058 N. FOUR
MILE RUN RD.

L O T # 5

2
DAVID B. ROSACE
A.P.N. 48-089-0-008.00-0
DB. 1991, PG. 137
0.93 AC. (LOT 6)
1064 N. FOUR
MILE RUN RD.

L O T # 6

3
CLAUDE C. HUNT III
A.P.N. 48-089-0-009.00-0
DB. 1980, PG. 253
0.91 AC. (LOT 7)
1070 N. FOUR
MILE RUN RD.

L O T # 7

CLAUDE C. HUNT III
A.P.N. 48-089-0-010.00-0
DB. 6174, PG. 1978
0.30 AC.
1070 N. FOUR
MILE RUN RD.

1 STY. WOOD RES.
1 STY. BRICK RES.
BEGIN ACQUISITION STA. 6+70.00
END ACQUISITION STA. 8+13.86
CAR PORT
GRASS
WOODS
GRAVEL DRIVE
CONC. DRIVE
ASPHALT DRIVE
CONC. WALK
SHED
4' BOX WIRE FENCE
FENCE, TYPE 47
CONSTRUCTION LIMITS
DO NOT DISTURB
STRUCTURE NO. MAH-680-0068
8" PR. WATER
8" WATER
15" CPP
10" RCP
12" RCP
12" TYPE B
12" TYPE D
15" TYPE A
CB3A
Ex R/W
EX. ℄ R/W C.R. 119 (FOUR MILE RUN RD.)
Ex LA-R/W
4" BOX WIRE FENCE
WATER SERVICE
OH-Comb
TMP
3-WA
2-T
3-T
7+70.00 110.00' LT.
8+28.64 110.00' LT.
7+60.00 72.00' LT.
8+13.86 72.00' LT.
7+30.52 72.00' LT.
6+95.00 72.00' LT.
6+70.00 33.00' LT.
7+32.29 33.00' LT.
7+97.36 33.00' LT.
N 01°25'06" E 53.86'
N 01°25'06" E 39.04'
S 01°25'06" W 62.29'
S 01°25'06" W 65.07'
N 55°55'05" E 46.33'
N 53°11'01" E 41.84'
S 65°39'00" E 42.35'
Ø 35.52' SAVE
N 06°27'54" W
N 01°25'06" E
STA. 3+98.81 P.I.
STA. 9+9.78 EX. ℄ R/W FOUR MILE RUN RD.=
STA. 444+58.77 EX. ℄ R/W I.R. 680 S.B.
EX. ℄ R/W S.B. I.R. 680

△ EX. CURVE DATA
C.R. 119 (N. FOUR MILE RUN RD.)
P.I. STA. 3+98.81
Δ = 7°53'00" (RT.)
NO CURVE

4
THERESA L. FALLECKER
A.P.N. 48-089-0-012.01-0
DB. 6312, PG. 2415
2.50 AC.
1051 N. FOUR
MILE RUN RD.

REV. BY	DATE	DESCRIPTION
TWG	12/29/20	ADDED PARCEL 3-WA AND REVISED DRIVEWAY

DATE COMPLETED: 06/12/2020

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 105857

R/W DESIGNER AWN
R/W REVIEWER TWG

RIGHT OF WAY PLAN
MAH-680-0.68

MAH-680-0.68/3.73

7 / 8

125
126

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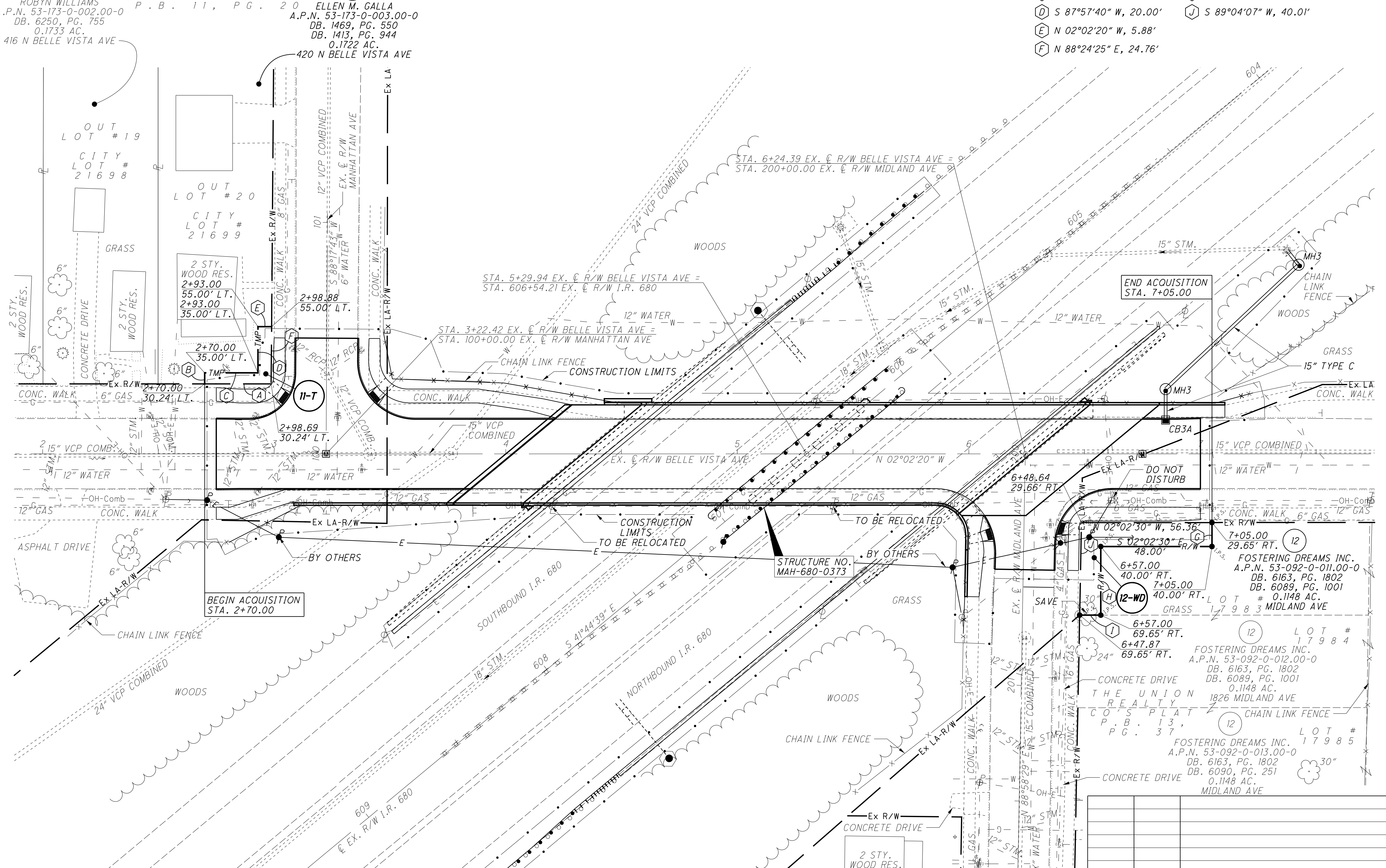
MAH-680-3.73
MAHONING COUNTY
CITY OF YOUNGSTOWN

(A) S 02°02'29" E, 28.69'	(G) N 87°57'30" E, 10.35'
(B) S 87°57'31" W, 4.77'	(H) N 87°57'40" E, 29.65'
(C) N 02°02'29" W, 23.00'	(I) S 02°02'27" E, 9.13'
(D) S 87°57'40" W, 20.00'	(J) S 89°04'07" W, 40.01'
(E) N 02°02'20" W, 5.88'	
(F) N 88°24'25" E, 24.76'	



WEST HEIGHT LAND COMPANY'S (SECOND REPLAT) P.B. 11, PG. 50
YOUNGSTOWN CITY P.B. 11, PG. 20
10
ROBYN WILLIAMS
A.P.N. 53-173-0-002.00-0
DB. 6250, PG. 755
0.1733 AC.
416 N BELLE VISTA AVE
11
ELLEN M. GALLA
A.P.N. 53-173-0-003.00-0
DB. 1469, PG. 550
DB. 1413, PG. 944
0.1722 AC.
420 N BELLE VISTA AVE
OUT LOT #19
CITY LOT # 21698
OUT LOT #20
CITY LOT # 21699
2 STY. WOOD RES.
2+93.00 55.00' LT.
2+93.00 35.00' LT.
2+98.88 55.00' LT.
2+70.00 35.00' LT.
2+70.00 30.24' LT.
2+98.69 30.24' LT.
11-T
BEGIN ACQUISITION STA. 2+70.00
STA. 3+22.42 EX. ℄ R/W BELLE VISTA AVE = STA. 100+00.00 EX. ℄ R/W MANHATTAN AVE
STA. 5+29.94 EX. ℄ R/W BELLE VISTA AVE = STA. 606+54.21 EX. ℄ R/W I.R. 680
STA. 6+24.39 EX. ℄ R/W BELLE VISTA AVE = STA. 200+00.00 EX. ℄ R/W MIDLAND AVE
EX. ℄ R/W BELLE VISTA AVE
N 02°02'20" W
CONSTRUCTION LIMITS
TO BE RELOCATED
BY OTHERS
STRUCTURE NO. MAH-680-0373
SOUTHBOUND I.R. 680
NORTHBOUND I.R. 680
S 41°44'39" E
℄ EX. R/W I.R. 680
END ACQUISITION STA. 7+05.00
DO NOT DISTURB
6+48.64 29.66' RT.
N 02°02'30" W, 56.36'
S 02°02'30" E, 48.00'
7+05.00 29.65' RT.
6+57.00 40.00' RT.
7+05.00 40.00' RT.
6+57.00 69.65' RT.
6+47.87 69.65' RT.
12-WD
12
FOSTERING DREAMS INC.
A.P.N. 53-092-0-011.00-0
DB. 6163, PG. 1802
DB. 6089, PG. 1001
0.1148 AC.
MIDLAND AVE
LOT # 17983
LOT # 17984
FOSTERING DREAMS INC.
A.P.N. 53-092-0-012.00-0
DB. 6163, PG. 1802
DB. 6089, PG. 1001
0.1148 AC.
1826 MIDLAND AVE
THE UNION REALTY CO'S PLAT P.B. 13, PG. 37
LOT # 17985
FOSTERING DREAMS INC.
A.P.N. 53-092-0-013.00-0
DB. 6163, PG. 1802
DB. 6090, PG. 251
0.1148 AC.
MIDLAND AVE
WOODS
GRASS
CHAIN LINK FENCE
CONCRETE DRIVE
CONC. WALK
12" WATER
12" GAS
15" VCP COMBINED
24" VCP COMBINED
15" TYPE C
MH3
CB3A

REV. BY	DATE	DESCRIPTION

DATE COMPLETED: 06/12/2020

HORIZONTAL SCALE IN FEET 0 10 20 40

PID NO. 105857

R/W DESIGNER AWN
R/W REVIEWER TWG

RIGHT OF WAY PLAN MAH-680-3.73

MAH-680-0.68/3.73

Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton

October 5, 2018

Mr. Bill Marty, P.E.
Principal
Carpenter Marty Transportation, Inc.
6612 Singletree Drive
Columbus, OH 43229
614-656-2415

Subject: **Asbestos Inspection of the MAH 00680 00670 (Four Mile Run Road) Bridge (SFN #5006392/PID#105857) over Interstate Route 680, Youngstown, Ohio 44509 (L&A 18-0290)**

Dear Mr. Marty:

On September 28, 2018 Mr. Aris Neace, Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (AHES OH #36144) and Mr. Matthew Geiger (AHES OH #35832) of Lawhon & Associates, Inc. (L&A) conducted an asbestos survey of MAH 00680 00670 (Four Mile Run Road) Bridge (SFN #5006392/PID#105857) over Interstate Route 680, Youngstown, Ohio 44509. The purpose of the survey was to determine the presence of asbestos-containing materials (ACM) located on the structure. The survey consisted of an inspection of all accessible areas of the bridge to determine the presence, location and quantities of asbestos-containing materials. Bulk samples were collected from suspect materials that could potentially be impacted during demolition/renovation work activities. A diagram of the bridge and asbestos bulk sampling locations can be found in **Appendix B**. All available bridge plans were reviewed for this bridge and no asbestos containing materials were listed.

Suspect Materials

The materials suspected of being asbestos-containing identified during the survey are presented in Table 1 along with an indication of their friability.

Table 1: Suspected Materials

Material	Locations	Friability
Parapet Wall Caulking	Above Deck – West and East Sides	Non Friable
Rail Pad	Above Deck – West and East Sides	Non Friable
Road Tar	Above Deck – Road Surface	Non Friable
White Paint	Above Deck - West and East Sides	Non Friable
Pipe Wrap	Below Deck – West Side	Non Friable
Blue Paint	Below Deck – Throughout	Non Friable

Sample Descriptions, Locations and Results

Sample descriptions, locations, and asbestos content as determined by Polarized Light Microscopy (PLM) are presented in Table 2.

Table 2: Sample Descriptions, Locations and Results

Sample #	Sample Description and Location	Asbestos %
1	Parapet Wall Caulking – West Side, North End	No Asbestos Detected
2	Parapet Wall Caulking – West Side, South End	No Asbestos Detected
3	Parapet Wall Caulking – East Side, Middle	No Asbestos Detected
4	**Rail Pad – West Side, North End**	**3.0% Chrysotile (PC)**
5	**Rail Pad – West Side, South End**	**5.3% Chrysotile (PC)**
6	**Rail Pad – East Side, Middle**	**2.6% Chrysotile (PC)**
7	Road Tar – West Side, North End	No Asbestos Detected
8	Road Tar – West Side, South End	No Asbestos Detected
9	Road Tar – East Side, Middle	No Asbestos Detected
10	White Paint – West Side, North End	No Asbestos Detected
11	White Paint – West Side, South End	No Asbestos Detected
12	White Paint – East Side, Middle	No Asbestos Detected
13	Pipe Wrap – South End, West Side	No Asbestos Detected
14	Pipe Wrap – South End, West Side	No Asbestos Detected
15	Pipe Wrap – North End, West Side	No Asbestos Detected
16	Blue Paint – South End, East Side	No Asbestos Detected
17	Blue Paint – South End, West Side	No Asbestos Detected
18	Blue Paint – South End, Middle	No Asbestos Detected

Materials Identified as Asbestos-Containing

Under the current EPA/NESHAP regulations, materials that contain greater than 1% asbestos are considered to be an asbestos-containing material (ACM). Three samples of the rail pad were found to be Asbestos Containing Material as defined by U.S. EPA/NESHAP regulations.

Any contractors disturbing this material must adhere to OSHA 29 CFR 1910 and 29 CFR 1926. The rail pad is located between the concrete parapet wall and the railing. This material is beige in color and encompasses a total of 88 square feet on the East and West sides of the bridge. An Image depicting the material can be found in **Appendix B**.

Attachments

Appendix A contains the Ohio Department of Health certifications for Mr. Aris Neace and Mr. Matt Geiger.

Appendix B contains the Bulk Sample Diagram.

Appendix C contains the laboratory results and chain-of-custody documentation for the asbestos bulk samples collected.

Appendix D contains the Ohio Environmental Protection Agency Notification of Demolition and Renovation.

Summary

On September 28, 2018 Mr. Aris Neace, Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (AHES OH #36144) and Mr. Matthew Geiger (AHES OH #35832) of Lawhon & Associates, Inc. (L&A) conducted an asbestos survey of MAH 00680 00670 (Four Mile Run Road) Bridge (SFN #5006392/PID#105857) over Interstate Route 680, Youngstown, Ohio 44509. Asbestos-containing materials (ACM) were identified in the course of the survey. Any contractors disturbing this material must adhere to OSHA 29 CFR 1910 and 29 CFR 1926. If you have any questions, please contact Jordan Mederer at (614) 481-8600.

Sincerely,

Matt Geiger, AHES 35832
Project Manager

Jordan Mederer, AHES 35005
HBM Department Manager

APPENDIX A
OHIO DEPARTMENT OF HEALTH CERTIFICATIONS

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

March 14, 2018

Michael A Neace
Lawhon & Associates, Inc.
1441 King Ave.
Columbus OH 43212

RE: Asbestos Hazard Evaluation Specialist
Certification Number: ES36144
Expiration Date: 03/24/2019

Dear Michael A Neace:

This letter and enclosed certification card approves your request to be certified as an Asbestos Hazard Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Environmental Protection Agency for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please call 614-644-0226.

Sincerely,

Mark Needham
Manager, Asbestos Program
Division of Air Pollution Control

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbu
epa.ohio.gov • (614) 644-3020 • (614) 644-318


State of Ohio
Environmental Protection Agency
Asbestos Program

Asbestos Hazard Evaluation Specialist

Michael A Neace
Lawhon & Associates, Inc.
1441 King Ave.
Columbus OH 43212

DOB: 10/05/1989

Certification Number
ES36144

Expiration Date
03/24/2019

This certification is issued pursuant to Revised Code Chapter 3710 and Administrative Code Chapter 3745-22.

This card is not valid if altered.

The InService Training Network

Asbestos Building Inspector and Management Planner Refresher Courses

Michael A. Neace

has successfully completed the Asbestos Building Inspector and Management Planner Refresher Courses and passed by at least 70% the course examinations for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2
Provided by: The InService Training Network, Inc., 6813 Flags Center, Columbus, OH 43229 (614) 895-9323

Course Dates: **February 21, 2018**

Course Director: _____
Kurt Varga

Expiration Date: **February 21, 2019**

Examination Date: **February 21, 2018**

Course Location: **Columbus, Ohio**

Certificate Numbers: **ITNIR-6341 & ITNMPR-6341**

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

September 05, 2018

Matthew A Geiger
Lawhon & Associates, Inc
1441 King Ave
Columbus OH 43212

RE: Asbestos Hazard Evaluation Specialist
Certification Number: ES35832
Expiration Date: 10/14/2019

Dear Matthew A Geiger:

This letter and enclosed certification card approves your request to be certified as an Asbestos Hazard Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Environmental Protection Agency for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please call 614-644-0226.

Sincerely,

Mark Needham
Manager, Asbestos Program
Division of Air Pollution Control

The InService Training Network

Asbestos Building Inspector and Management Planner Refresher Courses

Matthew Geiger

has successfully completed the Asbestos Building Inspector and Management Planner Refresher Courses and passed by at least 70% the course examinations for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2
Provided by: The InService Training Network, Inc., 6813 Flags Center, Columbus, OH 43229 (614) 895-9323

Course Dates: July 18, 2018

Course Director: /s/ K Varga
Kurt Varga

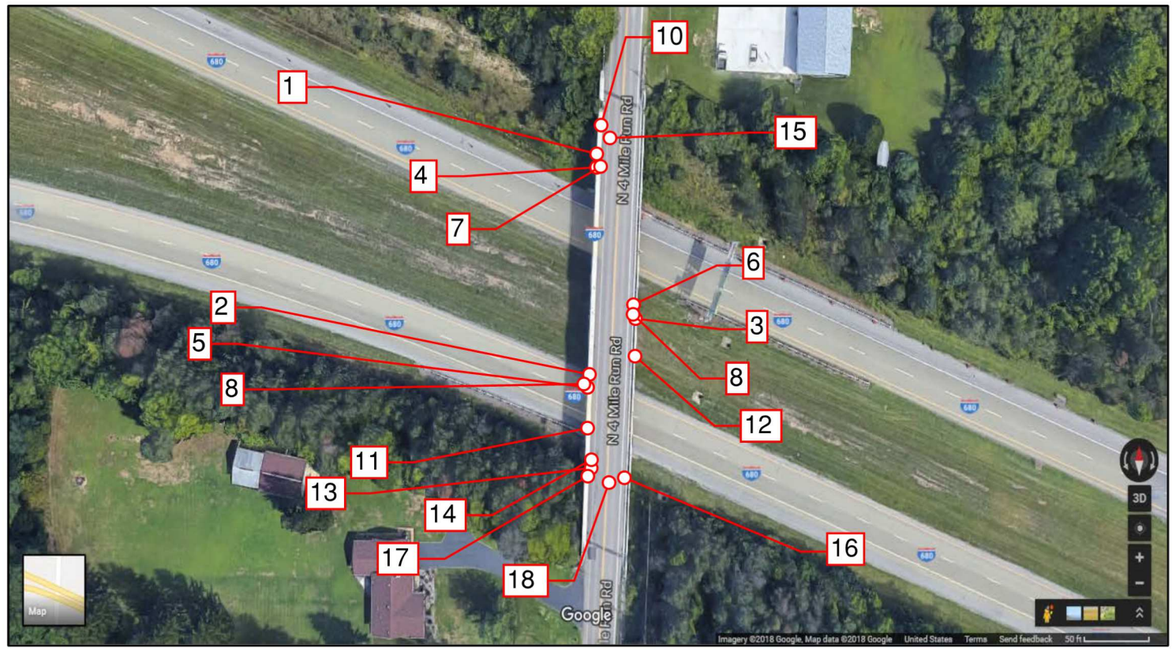
Expiration Date: July 18, 2019

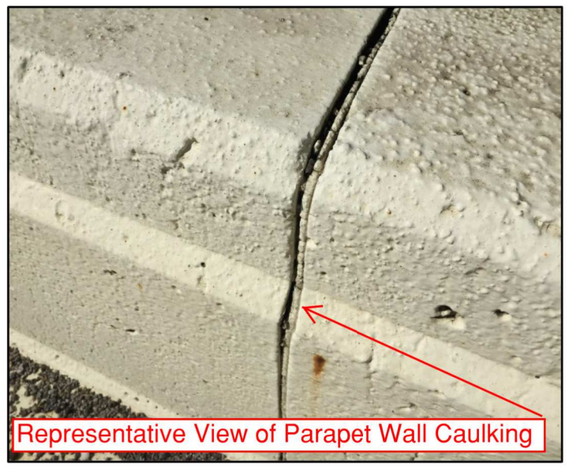
Examination Date: July 18, 2018

Course Location: Columbus, Ohio

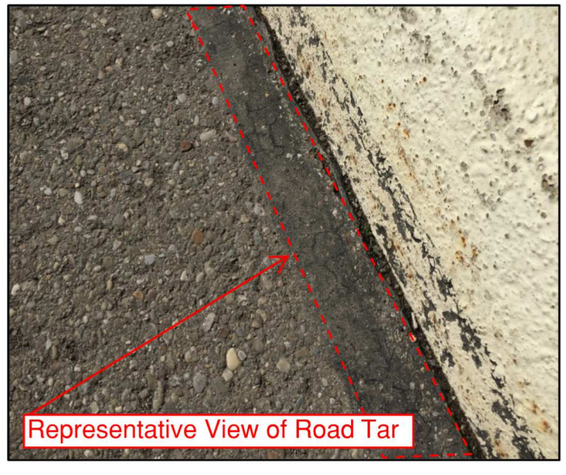
Certificate Numbers: ITNIR-6434 & ITNMPR-6434

APPENDIX B
BULK SAMPLE DIAGRAM




Representative View of Parapet Wall Caulking


Representative View of Rail Pad


Representative View of Road Tar

Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton

Bulk Sample Diagram

Inventory Bridge Number: MAR 00680 00670
Structure File Number: 5006392
Date Sampled: September 28, 2018
Surveyors: Matt Geiger, AHES 35832
Aris Neace, AHES 36144

Signatures: Matt K Geiger
Aris Neace

1441 King Avenue | Columbus, Ohio 43212 | P:614.481.8600 | F:614.481.8610 | www.lawhon-assoc.com

Representative View of Pipe Wrap

Representative View of Pipe Wrap

Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton

Bulk Sample Diagram

Inventory Bridge Number: MAR 00680 00670
Structure File Number: 5006392
Date Sampled: September 28, 2018
Surveyors: Matt Geiger, AHES 35832
Aris Neace, AHES 36144

Signatures: Matt K Geiger
Aris Neace

APPENDIX C
LABORATORY RESULTS AND CHAIN OF CUSTODY

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6617331
Client No.: 1
Analyst Observation: Grey Caulk
Client Description: Parapet Wall Caulking
Location: West Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617332
Client No.: 2
Analyst Observation: Grey Caulk
Client Description: Parapet Wall Caulking
Location: West Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617333
Client No.: 3
Analyst Observation: Grey Caulk
Client Description: Parapet Wall Caulking
Location: East Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617334
Client No.: 4
Analyst Observation: Grey Non-Fibrous
Client Description: Rail Pad
Location: West Side, North End
Facility:

Percent Asbestos:
PC 3.0 *Chrysotile*

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
97

Lab No.: 6617335
Client No.: 5
Analyst Observation: Grey Non-Fibrous
Client Description: Rail Pad
Location: West Side, South End
Facility:

Percent Asbestos:
PC 5.3 *Chrysotile*

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
94.7

Lab No.: 6617336
Client No.: 6
Analyst Observation: Grey Non-Fibrous
Client Description: Rail Pad
Location: East Side, Middle
Facility:

Percent Asbestos:
PC 2.6 *Chrysotile*

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
97.4

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/2/2018
Date Analyzed: 10/02/2018
Signature:
Analyst: Zach Schwartz

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6617337
Client No.: 7

Analyst Observation: Black Tar
Client Description: Road Tar

Location: West Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617338
Client No.: 8

Analyst Observation: Black Tar
Client Description: Road Tar

Location: West Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
1 Cellulose

Percent Non-Fibrous Material:
99

Lab No.: 6617339
Client No.: 9

Analyst Observation: Black Tar
Client Description: Road Tar

Location: East Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617340
Client No.: 10

Analyst Observation: White Paint
Client Description: White Paint

Location: West Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617341
Client No.: 11

Analyst Observation: White Paint
Client Description: White Paint

Location: West Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617342
Client No.: 12

Analyst Observation: White Paint
Client Description: White Paint

Location: East Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/2/2018
Date Analyzed: 10/02/2018
Signature:
Analyst: Zach Schwartz

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6617343
Client No.: 13

Analyst Observation: Black/White Insulation
Client Description: Pipe Wrap

Location: Below Deck, South End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
40 Cellulose

Percent Non-Fibrous Material:
60

Lab No.: 6617343(L2)
Client No.: 13

Analyst Observation: Black/White Tar Paper
Client Description: Pipe Wrap

Location: Below Deck, South End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
60 Cellulose

Percent Non-Fibrous Material:
40

Lab No.: 6617344
Client No.: 14

Analyst Observation: Black Tar
Client Description: Pipe Wrap

Location: Below Deck, South End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
50 Cellulose
1 Fibrous Glass

Percent Non-Fibrous Material:
49

Lab No.: 6617344(L2)
Client No.: 14

Analyst Observation: Black Tar Paper
Client Description: Pipe Wrap

Location: Below Deck, South End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
60 Cellulose

Percent Non-Fibrous Material:
40

Lab No.: 6617345
Client No.: 15

Analyst Observation: Black Tar
Client Description: Pipe Wrap

Location: Below Deck, North End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
40 Cellulose
1 Fibrous Glass

Percent Non-Fibrous Material:
59

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/2/2018
Date Analyzed: 10/02/2018
Signature:
Analyst: Zach Schwartz

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6617346
Client No.: 16

Analyst Observation: Blue/White Paint
Client Description: Blue Paint

Location: Below Deck, South End, East Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617347
Client No.: 17

Analyst Observation: Blue/White Paint
Client Description: Blue Paint

Location: Below Deck, South End, West Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6617348
Client No.: 18

Analyst Observation: Blue/White Paint
Client Description: Blue Paint

Location: Below Deck, South End, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/2/2018
Date Analyzed: 10/02/2018
Signature:
Analyst: Zach Schwartz

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

Appendix to Analytical Report

Customer Contact:
Method: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and it our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

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Columbus OH 43212

Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: “ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite.”

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

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Client: LAW411

Report Date: 10/2/2018
Report No.: 574206 - PLM
Project: MAR-00680-00670
Project No.: 18-0290

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Lawhon & Associates, Inc.

1441 King Avenue
Columbus, OH 43212
Phone: (614) 481-8600
Fax: (614) 481-8610

Sent To: IATL

VIA: Fed Ex

№ 11162

Page 1 of 1

Date: 9-28-2018

Turn around: 3-day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
MAR-00680-00670	18-0290	Matt Greiger	Matt Greiger	Matt Greiger

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks
1	1	Parapet wall Caulking	West side, North End	017331
2	1	〃	West side, South End	017332
3	1	〃	East side, Middle	017333
4	2	Rail Pad	West side, North End	017334
5	2	〃	West side, South End	017335
6	2	〃	East side, Middle	017336
7	3	Road TAR	West side, North End	017337
8	3	〃	West side, South End	017338
9	3	〃	East side, Middle	017339
10	4	White Paint	West side, North End	Dont Analyze Concrete 017340
11	4	〃	West side, South End	〃 017341
12	4	〃	East side, Middle	〃 017342
13	5	Pipe Wrap	Below Deck, South End, West side	017343
14	5	〃	〃 〃 〃	017344
15	5	〃	〃 North End, West side	017345
16	6	Blue Paint	Below Deck, South End, East side	017346
17	6	〃	〃 〃 West side	017347
18	6	〃	〃 〃 Middle	017348

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

☐ Stop 1st Positive ☒ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
Matt Greiger	10/1/18 11:37am						OCT 2 2018

25 10/2/18

10-4-18

Distribution: White - Lab; Yellow - File

APPENDIX D
OHIO ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF DEMOLITION AND RENOVATION

Notification of Demolition and Renovation/Abatement
Section 1: General Information
Division of Air Pollution Control

Work on projects cannot begin until 10 working days after a COMPLETE original notification form, **including payment**, is submitted to Ohio EPA. Instructions and a worksheet for fee calculation are available at ***epa.ohio.gov/asbestos***. This form can be completed, and payment made, at ***ebiz.epa.ohio.gov***. Questions? ***asbestos@epa.ohio.gov*** or (614) 466-0061.

Ohio EPA Use Only	Notification #:	Postmarked: / /	Received: / /	☐ Hand-Delivered

1) Notification Information (Check all that apply)

☒ Original	☐ Revision # (count):	☐ Installation	☐ Emergency	☐ Annual	☐ Cancellation	County:

2) Owner, Asbestos Abatement Contractor, Billing and Fire Department Information **Revised?** ☐

Owner		
Name: ODOT District 4		Is this a company? ☒ Yes ☐ No
Address: 2088 South Srlington Road	Contact Person:	
City: Akron	State: Ohio	Zip: 44306 -
Email:	Phone: (330) 786 - 3100	Fax: (330) 786 - 2226
Asbestos Abatement Contractor (if applicable)		
Name:	License #: AC	Expiration Date: / /
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Billing Contact		
Is this contact associated with the ☐ Owner, ☐ Asbestos Abatement Contractor, or ☐ Demolition Contractor (if not installation)?		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Fire Department (if applicable)		
Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

3) Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure **Revised?** ☐

Evaluation Specialist: Matt Geiger	Certification #: ES 35832	Expiration Date: 10 / 14 / 2018
Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II non-friable asbestos-containing material: ☒ PLM ☐ Point Count ☐ TEM ☐ Other Method (Explain Below):		

4) Procedures to be followed should unexpected RACM be discovered (check all that apply) **Revised?** ☐

☒ Stop work and keep wet	☒ Evacuate area	☒ Demarcate area	☒ Contact licensed abatement contractor
☒ Contact district office/local air authority			
☐ Other (Explain):			

5) Planned Demolition (check all that apply) **Revised?** ☐

Describe demolition work to be performed and method(s) to be employed, including demolition techniques to be used: ☐ Implosion ☐ Fire Training ☐ Wet Methods ☐ Manual Demolition ☐ Mechanical Demolition ☐ Other (Explain):
Description of affected facility components (include attachment if necessary):

Mail completed form and payment to:
Ohio EPA, DAPC – Asbestos
50 W. Town St., 7th Floor or P.O. Box 1049
Columbus, OH 43216-1049

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Continued

6) Asbestos Description and Engineering Controls (if asbestos is being abated) **Revised?** ☐

For the material listed in each project, describe the type(s) of ACM to be abated, engineering controls and work practices to be used to minimize emissions and ensure proper waste handling:					
Type of ACM to be abated:	☐ Surfacing	☐ Mechanical	☒ Other		
Engineering Controls:	☒ Wet Methods	☐ Glove Bag	☐ NPE	☐ AFD	☐ Other:
Work Practices:	☒ Intact Removal	☒ Manual	☐ Mechanical	☐ Other:	

7) Asbestos Waste Transporter (if applicable) **Revised?** ☐

Transporter #1 Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Transporter #2 Name (if applicable):		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

8) Asbestos Waste Disposal Site (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

9) Emergency Demolition (complete if you checked "Emergency" above and "Demolition" for any project) **Revised?** ☐

A copy of the issued order, including the following information, **must be attached** to this notification.	
Government Official Issuing Order:	Title:
Agency:	Authority of Order (Citation of Code):
Date of Order: / /	Demolition Date: / /

10) Emergency Renovation/Abatement (complete if you checked "Emergency" above and "Renovation/Abatement" for any project) **Revised?** ☐

Date of Emergency: / /	Time of Emergency: : ☐ a.m. ☐ p.m.
Description of Sudden, Unexpected Event:	
Explanation of how the event caused unsafe conditions or equipment damage:	

11) Attestation **Revised?** ☐

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification. I acknowledge that the submission of false or misleading statements is prohibited by law and I certify that facts contained in this notification are true, accurate, and complete.	
Signature:	Date: / /
Name:	Title:
Organization:	

Notification of Demolition and Renovation/Abatement
Section 2: Project Address Specific Information
Division of Air Pollution Control

Please complete Section 2 for the address included with this notification. If the project is an "Installation" per OAC 3745-20, complete a separate Section 2 page for each address associated with this notification.

Ohio EPA Use Only	Project ID #:

A. Facility Description **Revised?** ☐

Building Name (if applicable): MAH 00680 00670	Site Location (specific): 0.47 Mi E Of Ir 80	
Address: 41°07'36.4"N 80°44'14.3"W		County: Mahoning
City: Austintown	State: OH	Zip: 44515 -
Building Size (square feet): 10,500	No. of Floors:	Age: 51
Present Use: Bridge	Prior Use:	

B. Type of Operation (check all that apply) **Revised?** ☐

☐ Demolition ☒ Renovation/Abatement – Type: ☒ Removal ☐ Repair ☐ Encapsulation ☐ Enclosure

C. Asbestos Present (check one) **Revised?** ☐

☒ Yes ☐ No ☐ No, previously abated Year Abated:

D. Approximate Amount of Asbestos-Containing Materials (complete table below and Section 1 #6 if asbestos is present) **Revised?** ☐

	Material to be Removed			Material NOT to be Removed	
		Non-friable Asbestos-Containing Material		Non-friable Asbestos-Containing Material	
	RACM	Category I	Category II	Category I	Category II
Pipes (linear feet)					
Surface area on other facility components (ft^2)			88		
Volume if length or area cannot be measured (ft^3)					

E. Asbestos Abatement Schedule and Abatement Specialist (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Setup Date: / /	Abatement Date: / /	Complete Date: / /

(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Abatement Specialist Name:	Certification #: AS	Expiration Date: / /

(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Abatement Specialist Name:	Certification #: AS	Expiration Date: / /

F. Demolition Contractor (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

G. Demolition Schedule (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Start Date: / /	Complete Date: / /

H. Project Hold **Revised?** ☐

Hold Begin Date: / /	Work Resume Date: / /

Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton

September 25, 2018

Mr. Bill Marty, P.E.
Principal
Carpenter Marty Transportation, Inc.
6612 Singletree Drive
Columbus, OH 43229
614-656-2415

Subject: **Asbestos Inspection of the MAH 00680 03730 (Belle Vista Avenue) Bridge (SFN #5006759/PID#105857) over Interstate Route 680, Youngstown, Ohio 44509 (L&A 18-0290)**

Dear Mr. Marty:

On September 6, 2018 Mr. Aris Neace, Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (AHES OH #36144) and Mr. Matthew Geiger (AHES OH #35832) of Lawhon & Associates, Inc. (L&A) conducted an asbestos survey of MAH 00680 03730 (Belle Vista Avenue) Bridge (SFN #5006759/PID#105857) over Interstate Route 680, Youngstown, Ohio 4509. The purpose of the survey was to determine the presence of asbestos-containing materials (ACM) located on the structure.

The survey consisted of an inspection of all accessible areas of the bridge to determine the presence, location and quantities of asbestos-containing materials. Bulk samples were collected from suspect materials that could potentially be impacted during demolition/renovation work activities. A diagram of the bridge and asbestos bulk sampling locations can be found in **Appendix B**. All available bridge plans were reviewed for this bridge and no asbestos containing materials were listed.

Suspect Materials

The materials suspected of being asbestos-containing identified during the survey are presented in Table 1 along with an indication of their friability.

Table 1: Suspected Materials

Material	Locations	Friability
Grey Caulking	Above Deck, East and West Sides	Non Friable
Old Rail Pad Caulking	Above Deck, East and West Sides	Non Friable
Parapet Expansion Pad	Above Deck, East and West Sides	Non Friable
Fence Rail Caulking	Above Deck, East and West Sides	Non Friable
Roadway Sealant to Curb	Above Deck, East and West Sides	Non Friable
White Paint on Concrete	Above and Below Deck	Non Friable
Blue Paint on Steel	Below Deck	Non Friable
Pipe Rack Cover	Below Deck, East Side	Non Friable
Drain Pipe	Below Deck, North and South Ends	Non Friable

Sample Descriptions, Locations and Results

Sample descriptions, locations, and asbestos content as determined by Polarized Light Microscopy (PLM) are presented in Table 2.

Table 2: Sample Descriptions, Locations and Results

Sample #	Sample Description and Location	Asbestos %
1	Grey Caulking (Rail Pad) – East Side, North End	No Asbestos Detected
2	Grey Caulking (Bolt) – East Side, North End	No Asbestos Detected
3	Grey Caulking (Bolt) – East Side, Middle	No Asbestos Detected
4	**Old Rail Pad Caulking– East Side, North End**	**2.4% Chrysotile (PC)**
5	**Old Rail Pad Caulking – West Side, North End**	**1.4% Chrysotile (PC)**
6	**Old Rail Pad Caulking – West Side, South End**	**1.5% Chrysotile (PC)**
7	Parapet Expansion Pad – East Side, South End	No Asbestos Detected
8	Parapet Expansion Pad – East Side, Middle	No Asbestos Detected
9	Parapet Expansion Pad – West Side, Middle	No Asbestos Detected
10	Fence Rail Caulking – East Side, North End	No Asbestos Detected
11	Fence Rail Caulking – East Side, Middle	No Asbestos Detected
12	Fence Rail Caulking – East Side, South End	No Asbestos Detected
13	Roadway Sealant to Curb – West Side, North End	No Asbestos Detected
14	Roadway Sealant to Curb – West Side, Middle	No Asbestos Detected
15	Roadway Sealant to Curb – West Side, South End	No Asbestos Detected
16	White Paint on Concrete – West Side, North End	No Asbestos Detected
17	White Paint on Concrete – South End	No Asbestos Detected
18	White Paint on Concrete – South End	No Asbestos Detected
19	Blue Paint on Steel Pipe – South End, East Side	No Asbestos Detected
20	Blue Paint on Steel Support – South End, East Side	No Asbestos Detected
21	Blue Paint on Steel Support – South End, East Side	No Asbestos Detected
22	Pipe Rack Cover – South End, East Side	No Asbestos Detected
23	Pipe Rack Cover– South End, East Side	No Asbestos Detected
24	Pipe Rack Cover– South End, East Side	No Asbestos Detected
25	Drain Pipe – South End, East Side	No Asbestos Detected
26	Drain Pipe – South End, Middle Side	No Asbestos Detected
27	Drain Pipe – South End, West Side	No Asbestos Detected

Materials Identified as Asbestos-Containing

Under the current EPA/NESHAP regulations, materials that contain greater than 1% asbestos are considered to be an asbestos-containing material (ACM). Three samples of the old rail pad caulking were found to be Asbestos Containing Material as defined by U.S. EPA/NESHAP regulations.

Any contractors disturbing this material must adhere to OSHA 29 CFR 1910 and 29 CFR 1926. The rail pad caulking is located between the concrete parapet wall and the railing. This material is beige in color and encompasses a total of 35 square feet on the East and West sides of the bridge. An Image depicting the material can be found in **Appendix B**.

Attachments

Appendix A contains the Ohio Department of Health certifications for Mr. Aris Neace and Mr. Matt Geiger.

Appendix B contains the Bulk Sample Diagram.

Appendix C contains the laboratory results and chain-of-custody documentation for the asbestos bulk samples collected.

Appendix D contains the Ohio Environmental Protection Agency Notification of Demolition and Renovation.

Summary

On September 6, 2018 Mr. Aris Neace, Ohio Department of Health (ODH) Certified Asbestos Hazard Evaluation Specialist (AHES OH #36144) and Mr. Matthew Geiger (AHES OH #35832) of Lawhon & Associates, Inc. (L&A) conducted an asbestos survey of MAH 00680 03730 (Belle Vista Avenue) Bridge (SFN #5006759/PID#105857) over Interstate Route 680, Youngstown, Ohio 44509. Asbestos-containing materials (ACM) were identified in the course of the survey. Any contractors disturbing this material must adhere to OSHA 29 CFR 1910 and 29 CFR 1926. If you have any questions, please contact Jordan Mederer at (614) 481-8600.

Sincerely,

Matt Geiger, AHES 35832
Project Manager

Jordan Mederer, AHES 35005
HBM Department Manager

APPENDIX A
OHIO DEPARTMENT OF HEALTH CERTIFICATIONS

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

March 14, 2018

Michael A Neace
Lawhon & Associates, Inc.
1441 King Ave.
Columbus OH 43212

RE: Asbestos Hazard Evaluation Specialist
Certification Number: ES36144
Expiration Date: 03/24/2019

Dear Michael A Neace:

This letter and enclosed certification card approves your request to be certified as an Asbestos Hazard Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Environmental Protection Agency for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please call 614-644-0226.

Sincerely,

Mark Needham
Manager, Asbestos Program
Division of Air Pollution Control

50 West Town Street • Suite 700 • P.O. Box 1049 • Columbu
epa.ohio.gov • (614) 644-3020 • (614) 644-318


State of Ohio
Environmental Protection Agency
Asbestos Program

Asbestos Hazard Evaluation Specialist

Michael A Neace
Lawhon & Associates, Inc.
1441 King Ave.
Columbus OH 43212

DOB: 10/05/1989

Certification Number
ES36144

Expiration Date
03/24/2019

This certification is issued pursuant to Revised Code Chapter 3710 and Administrative Code Chapter 3745-22.

This card is not valid if altered.

The InService Training Network

Asbestos Building Inspector and Management Planner Refresher Courses

Michael A. Neace

has successfully completed the Asbestos Building Inspector and Management Planner Refresher Courses and passed by at least 70% the course examinations for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2
Provided by: The InService Training Network, Inc., 6813 Flags Center, Columbus, OH 43229 (614) 895-9323

Course Dates: **February 21, 2018**

Course Director: _____
Kurt Varga

Expiration Date: **February 21, 2019**

Examination Date: **February 21, 2018**

Course Location: **Columbus, Ohio**

Certificate Numbers: **ITNIR-6341 & ITNMPR-6341**

Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

September 05, 2018

Matthew A Geiger
Lawhon & Associates, Inc
1441 King Ave
Columbus OH 43212

RE: Asbestos Hazard Evaluation Specialist
Certification Number: ES35832
Expiration Date: 10/14/2019

Dear Matthew A Geiger:

This letter and enclosed certification card approves your request to be certified as an Asbestos Hazard Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Environmental Protection Agency for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please call 614-644-0226.

Sincerely,

Mark Needham
Manager, Asbestos Program
Division of Air Pollution Control

The InService Training Network

Asbestos Building Inspector and Management Planner Refresher Courses

Matthew Geiger

has successfully completed the Asbestos Building Inspector and Management Planner Refresher Courses and passed by at least 70% the course examinations for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2
Provided by: The InService Training Network, Inc., 6813 Flags Center, Columbus, OH 43229 (614) 895-9323

Course Dates: July 18, 2018

Course Director: /s/ K Varga
Kurt Varga

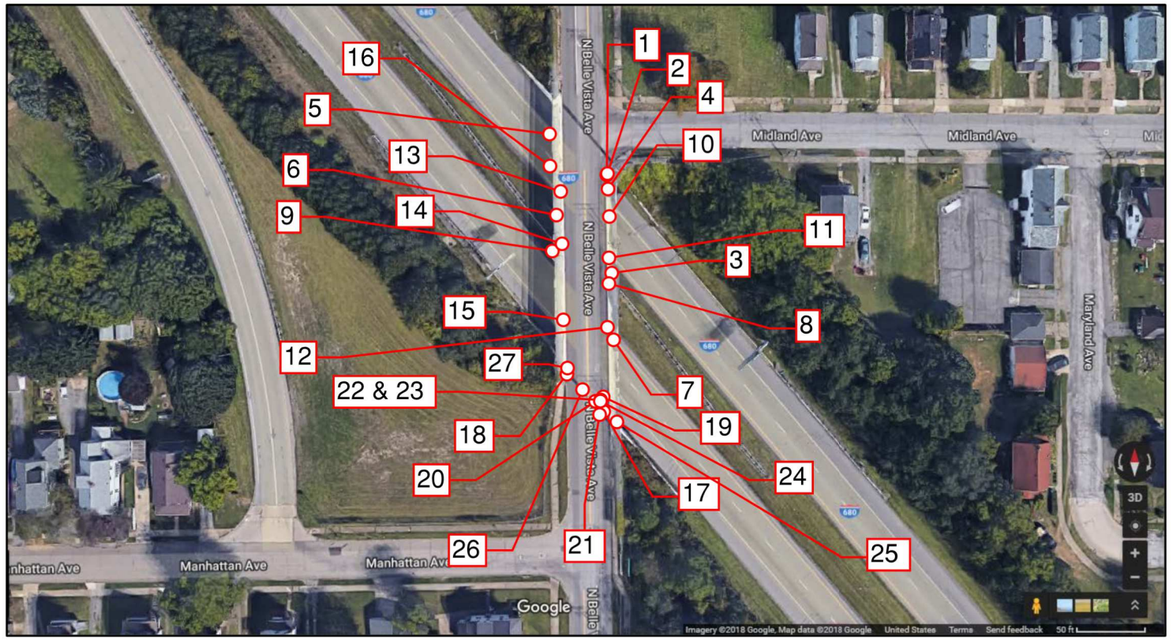
Expiration Date: July 18, 2019

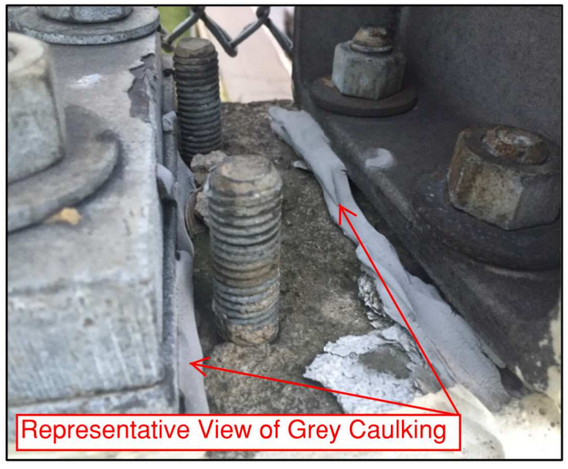
Examination Date: July 18, 2018

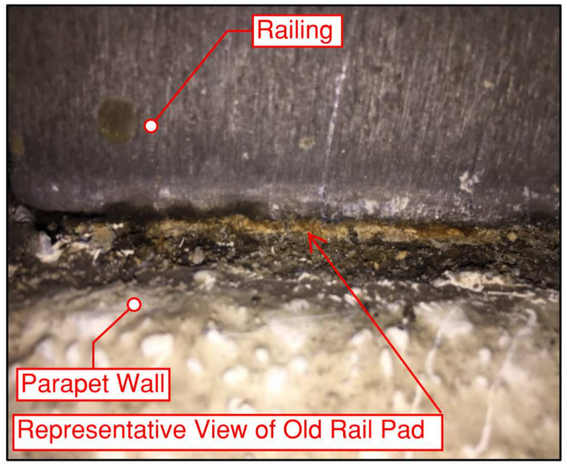
Course Location: Columbus, Ohio

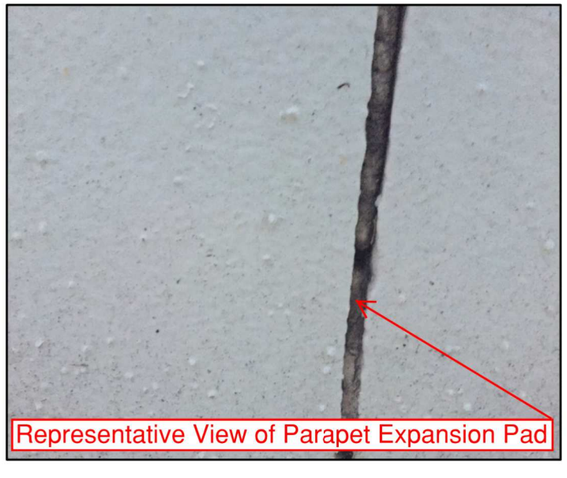
Certificate Numbers: ITNIR-6434 & ITNMPR-6434

APPENDIX B
BULK SAMPLE DIAGRAM









Lawhon & Associates, Inc.
ENVIRONMENTAL CONSULTING AND ENGINEERING SERVICES

Columbus
Cleveland
Dayton

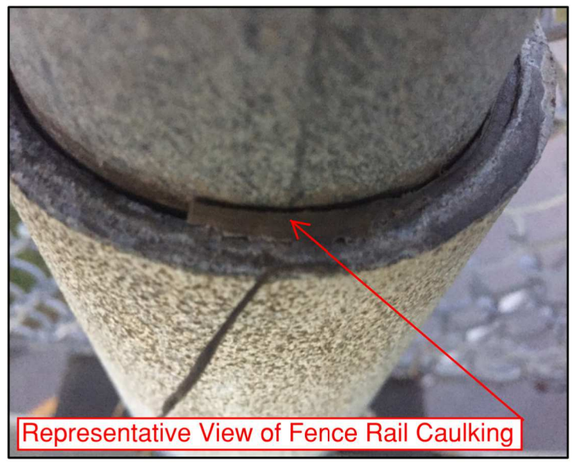
Bulk Sample Diagram

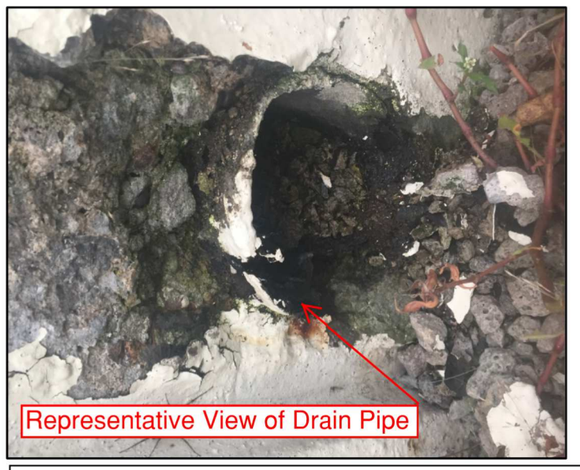
Inventory Bridge Number: MAH 00680
03730 **Structure File Number:** 5006759
Date Sampled: September 6, 2018
Surveyors: Matt Geiger, AHES 35832
Aris Neace, AHES 36144

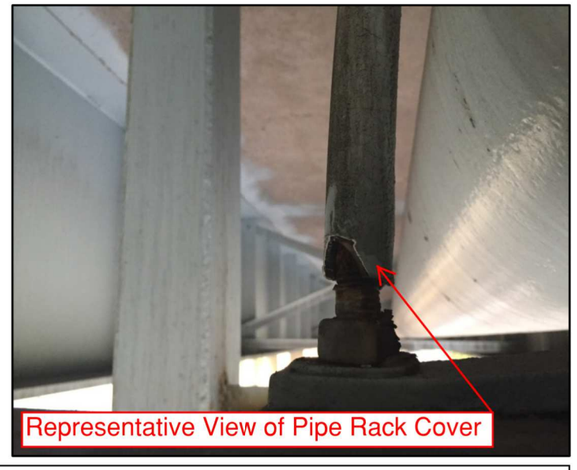
Signatures:

Matt Geiger Aris Neace

1441 King Avenue | Columbus, Ohio 43212 | P:614.481.8600 | F:614.481.8610 | www.lawhon-assoc.com







Inventory Bridge Number: MAH 00680 03730 | **SFN**: 5006759 | **Date Sampled**: September 6, 2018
Surveyors: Matt Geiger (AHES 35832) & Aris Neace (AHES 36144) Matt K Geiger Aris Neace

APPENDIX C
LABORATORY RESULTS AND CHAIN OF CUSTODY

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6600953
Client No.: 1
Analyst Observation: Grey Caulk
Client Description: Grey Caulking (Rail Pad)
Location: East Side, North End
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6600954
Client No.: 2
Analyst Observation: Grey Caulk
Client Description: Grey Caulking (Bolt)
Location: East Side, North End
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6600955
Client No.: 3
Analyst Observation: Grey Caulk
Client Description: Grey Caulking (Bolt)
Location: East Side, Middle
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 6600956
Client No.: 4
Analyst Observation: Lt Tan Caulk
Client Description: Old Raid Pad
Location: East Side, North End
Facility:
Percent Asbestos: ***PC 2.4*** *Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 97.6

Lab No.: 6600957
Client No.: 5
Analyst Observation: Lt Tan Caulk
Client Description: Old Raid Pad
Location: West Side, North End
Facility:
Percent Asbestos: ***PC 1.4*** *Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 98.6

Lab No.: 6600958
Client No.: 6
Analyst Observation: Lt Tan Caulk
Client Description: Old Raid Pad
Location: West Side, South End
Facility:
Percent Asbestos: ***PC 1.5*** *Chrysotile*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 98.5

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/10/2018
Date Analyzed: 09/12/2018
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6600959
Client No.: 7

Analyst Observation: Lt Green Expansion Joint
Client Description: Parapet Wall Expansion Pad

Location: East Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600960
Client No.: 8

Analyst Observation: Lt Green Expansion Joint
Client Description: Parapet Wall Expansion Pad

Location: East Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600961
Client No.: 9

Analyst Observation: Lt Green Expansion Joint
Client Description: Parapet Wall Expansion Pad

Location: West Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600962
Client No.: 10

Analyst Observation: Lt Grey Caulk
Client Description: Fence Rail Caulking

Location: East Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600963
Client No.: 11

Analyst Observation: Lt Grey Caulk
Client Description: Fence Rail Caulking

Location: East Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600964
Client No.: 12

Analyst Observation: Lt Grey Caulk
Client Description: Fence Rail Caulking

Location: East Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/10/2018
Date Analyzed: 09/12/2018
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6600965
Client No.: 13

Analyst Observation: Black Sealant
Client Description: Roadway Sealant To Curb

Location: West Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600966
Client No.: 14

Analyst Observation: Black Sealant
Client Description: Roadway Sealant To Curb

Location: West Side, Middle
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600967
Client No.: 15

Analyst Observation: Black Sealant
Client Description: Roadway Sealant To Curb

Location: West Side, South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600968
Client No.: 16

Analyst Observation: Off-White Paint
Client Description: White Paint On Concrete

Location: Above Deck West Side, North End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600969
Client No.: 17

Analyst Observation: Off-White Paint
Client Description: White Paint On Concrete

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600970
Client No.: 18

Analyst Observation: Off-White Paint
Client Description: White Paint On Concrete

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/10/2018
Date Analyzed: 09/12/2018
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6600971
Client No.: 19

Analyst Observation: Lt Blue Paint
Client Description: Blue Paint On Steel (Pipe)

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600972
Client No.: 20

Analyst Observation: Lt Blue Paint
Client Description: Blue Paint On Steel (Support)

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600973
Client No.: 21

Analyst Observation: Lt Blue Paint
Client Description: Blue Paint On Steel (Support)

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600974
Client No.: 22

Analyst Observation: Tan Covering Material
Client Description: Pipe Rack Cover

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600975
Client No.: 23

Analyst Observation: Tan Covering Material
Client Description: Pipe Rack Cover

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 6600976
Client No.: 24

Analyst Observation: Tan Covering Material
Client Description: Pipe Rack Cover

Location: Below Deck South End
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/10/2018
Date Analyzed: 09/12/2018
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6600977
Client No.: 25

Analyst Observation: Black Fibrous
Client Description: Drain Pipe

Location: South End, East Side Below Deck
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
45 Cellulose

Percent Non-Fibrous Material:
55

Lab No.: 6600978
Client No.: 26

Analyst Observation: Black Fibrous
Client Description: Drain Pipe

Location: South End, Middle Below Deck
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
45 Cellulose

Percent Non-Fibrous Material:
55

Lab No.: 6600979
Client No.: 27

Analyst Observation: Black Fibrous
Client Description: Drain Pipe

Location: South End, West Side Below Deck
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
55 Cellulose

Percent Non-Fibrous Material:
45

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 9/10/2018
Date Analyzed: 09/12/2018
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

Appendix to Analytical Report

Customer Contact:
Method: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Shirley Clark
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and it our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Lawhon & Associates Inc.
1441 King Avenue
Columbus OH 43212

Client: LAW411

Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: “ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite.”

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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1441 King Avenue
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Report Date: 9/12/2018
Report No.: 572483 - PLM
Project: MAH-00680-03730
Project No.: 18-0290

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Lawhon & Associates, Inc.

1441 King Avenue
Columbus, OH 43212
Phone: (614) 481-8600
Fax: (614) 481-8610

Sent To: LATL

VIA: FedEx

№ 11160

Page 1 of 2

Date: 9-6-2018

Turn around: 3-day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
MAH-00680-03730	18-0290	Matt Geiger	Matt Geiger	Matt A Geiger

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks
1	1	grey Caulking (Rail Pad)	East Side, North End	6600953
2	1	(Bolt)	East Side, North End	6600954
3	1	(Bolt)	East Side, Middle	6600955
4	2	old Rail Pad	East Side, North End	6600956
5	2	"	West Side, North End	6600957
6	2	"	West Side, South End	6600958
7	3	Parapet Wall Expansion Pad	East Side, ~~Mid~~ South End	6600959
8	3	"	East Side, Middle	
9	3	"	West Side, Middle	6600960
10	4	Fence Rail Caulking	East Side, North End	6600961 6600962
11	4	"	" Middle	6600963
12	4	"	" South End	6600964
13	5	Roadway Sealant to Curb	West Side, North End	6600965
14	5	"	" Middle	6600966
15	5	"	" South End	6600967
16	6	White Paint on Concrete	Above Deck, West Side, North End	6600968
17	6	"	Below Deck, South End	Dont Analyze Concrete 6600969
18	6	"	Below Deck, "	" 6600970

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

❑ Stop 1st Positive ☒ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
Matt A Geiger	9-7-18 1028	Debbie 9-13-18			9/12/2018		SEP 10 2018

Distributor: White - Lab; Yellow - File

Lawhon & Associates, Inc.

1441 King Avenue
Columbus, OH 43212
Phone: (614) 481-8600
Fax: (614) 481-8610

Sent To: ATL

VIA: FedEx

№ 11161

Page 2 of 2

Date: 9-6-2018

Turn around: 3-day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
MAH-00680-03730	18-0290	Matt Grigger		Matt Grigger

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks	
19	7	Blue Paint on Steel (Pipe)	Below Deck, South End		6600971
20	7	〃 (Support)	〃		6600972
21	7	〃	〃		6600973
22	8	Pipe Rack Cover	Below Deck, South End	Dont Analyze Paint	6600974
23	8	〃	〃	〃	6600975
24	8	〃	〃	〃	6600976
25	9	Drain Pipe	South End, East Side, Below Deck		6600977
26	9	〃	〃, Middle, 〃		6600978
27	9	〃	〃, West Side, 〃		6600979

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

☐ Stop 1st Positive ☑ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
Matt Grigger	9-7-18 1028						

Distributor: White - Lab; Yellow - File

APPENDIX D
OHIO ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF DEMOLITION AND RENOVATION

Notification of Demolition and Renovation/Abatement
Section 1: General Information
Division of Air Pollution Control

Work on projects cannot begin until 10 working days after a COMPLETE original notification form, **including payment**, is submitted to Ohio EPA. Instructions and a worksheet for fee calculation are available at ***epa.ohio.gov/asbestos***. This form can be completed, and payment made, at ***ebiz.epa.ohio.gov***. Questions? ***asbestos@epa.ohio.gov*** or (614) 466-0061.

Ohio EPA Use Only	Notification #:	Postmarked: / /	Received: / /	☐ Hand-Delivered

1) Notification Information (Check all that apply)

☒ Original	☐ Revision # (count):	☐ Installation	☐ Emergency	☐ Annual	☐ Cancellation	County:

2) Owner, Asbestos Abatement Contractor, Billing and Fire Department Information **Revised?** ☐

Owner		
Name: ODOT District 4		Is this a company? ☒ Yes ☐ No
Address: 2088 South Srlington Road	Contact Person:	
City: Akron	State: Ohio	Zip: 44306 -
Email:	Phone: (330) 786 - 3100	Fax: (330) 786 - 2226
Asbestos Abatement Contractor (if applicable)		
Name:	License #: AC	Expiration Date: / /
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Billing Contact		
Is this contact associated with the ☐ Owner, ☐ Asbestos Abatement Contractor, or ☐ Demolition Contractor (if not installation)?		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Fire Department (if applicable)		
Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

3) Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure **Revised?** ☐

Evaluation Specialist: Matt Geiger	Certification #: ES 35832	Expiration Date: 10 / 14 / 2018
Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II non-friable asbestos-containing material: ☒ PLM ☐ Point Count ☐ TEM ☐ Other Method (Explain Below):		

4) Procedures to be followed should unexpected RACM be discovered (check all that apply) **Revised?** ☐

☒ Stop work and keep wet	☒ Evacuate area	☒ Demarcate area	☒ Contact licensed abatement contractor
☒ Contact district office/local air authority			
☐ Other (Explain):			

5) Planned Demolition (check all that apply) **Revised?** ☐

Describe demolition work to be performed and method(s) to be employed, including demolition techniques to be used: ☐ Implosion ☐ Fire Training ☐ Wet Methods ☐ Manual Demolition ☐ Mechanical Demolition ☐ Other (Explain):
Description of affected facility components (include attachment if necessary):

Mail completed form and payment to:
Ohio EPA, DAPC – Asbestos
50 W. Town St., 7th Floor or P.O. Box 1049
Columbus, OH 43216-1049

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Continued

6) Asbestos Description and Engineering Controls (if asbestos is being abated) **Revised?** ☐

For the material listed in each project, describe the type(s) of ACM to be abated, engineering controls and work practices to be used to minimize emissions and ensure proper waste handling:					
Type of ACM to be abated:	☒ Surfacing	☐ Mechanical	☐ Other		
Engineering Controls:	☒ Wet Methods	☐ Glove Bag	☐ NPE	☐ AFD	☐ Other:
Work Practices:	☒ Intact Removal	☒ Manual	☐ Mechanical	☐ Other:	

7) Asbestos Waste Transporter (if applicable) **Revised?** ☐

Transporter #1 Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -
Transporter #2 Name (if applicable):		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

8) Asbestos Waste Disposal Site (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

9) Emergency Demolition (complete if you checked "Emergency" above and "Demolition" for any project) **Revised?** ☐

A copy of the issued order, including the following information, **must be attached** to this notification.	
Government Official Issuing Order:	Title:
Agency:	Authority of Order (Citation of Code):
Date of Order: / /	Demolition Date: / /

10) Emergency Renovation/Abatement (complete if you checked "Emergency" above and "Renovation/Abatement" for any project) **Revised?** ☐

Date of Emergency: / /	Time of Emergency: : ☐ a.m. ☐ p.m.
Description of Sudden, Unexpected Event:	
Explanation of how the event caused unsafe conditions or equipment damage:	

11) Attestation **Revised?** ☐

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification. I acknowledge that the submission of false or misleading statements is prohibited by law and I certify that facts contained in this notification are true, accurate, and complete.	
Signature:	Date: / /
Name:	Title:
Organization:	

Notification of Demolition and Renovation/Abatement
Section 2: Project Address Specific Information
Division of Air Pollution Control

Please complete Section 2 for the address included with this notification. If the project is an "Installation" per OAC 3745-20, complete a separate Section 2 page for each address associated with this notification.

Ohio EPA Use Only	Project ID #:

A. Facility Description **Revised?** ☐

Building Name (if applicable): MAH 00680 03730	Site Location (specific): 0.94 Mi E Of Sr 711	
Address: 41°06'31.9"N 80°41'19.9"W		County: Mahoning
City: Youngstown	State: OH	Zip: 44509 -
Building Size (square feet): 6,360	No. of Floors:	Age: 51
Present Use: Bridge	Prior Use:	

B. Type of Operation (check all that apply) **Revised?** ☐

☐ Demolition ☒ Renovation/Abatement – Type: ☒ Removal ☐ Repair ☐ Encapsulation ☐ Enclosure

C. Asbestos Present (check one) **Revised?** ☐

☒ Yes ☐ No ☐ No, previously abated Year Abated:

D. Approximate Amount of Asbestos-Containing Materials (complete table below and Section 1 #6 if asbestos is present) **Revised?** ☐

	Material to be Removed			Material NOT to be Removed	
		Non-friable Asbestos-Containing Material		Non-friable Asbestos-Containing Material	
	RACM	Category I	Category II	Category I	Category II
Pipes (linear feet)					
Surface area on other facility components (ft^2)			35		
Volume if length or area cannot be measured (ft^3)					

E. Asbestos Abatement Schedule and Abatement Specialist (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Setup Date: / /	Abatement Date: / /			Complete Date: / /			
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	

F. Demolition Contractor (if applicable) **Revised?** ☐

Name:		
Address:	Contact Person:	
City:	State:	Zip: -
Email:	Phone: ( ) -	Fax: ( ) -

G. Demolition Schedule (original notification is required 10 working days prior to the start of work) **Revised?** ☐

Start Date: / /	Complete Date: / /

H. Project Hold **Revised?** ☐

Hold Begin Date: / /	Work Resume Date: / /