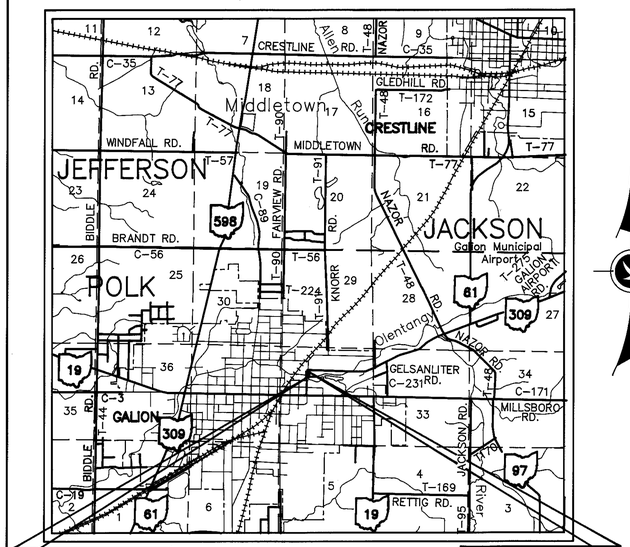
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CRA-61-4.936
(EAST STREET)
CITY OF GALION
CRAWFORD COUNTY

metric units



BEGIN PROJECT STA. 4+885.000

LOCATION MAP

END PROJECT STA. 4+948.000

LATITUDE: N 40°-44'-11" LONGITUDE: W 82°-46'-41"

SCALE IN KILOMETERS

0 5

PORTION TO BE IMPROVED
STATE & FEDERAL ROUTES 103 224
COUNTY & TOWNSHIP ROUTES C-000 T-000

DESIGN DESIGNATION

CURRENT ADT (1999)	9210
DESIGN YEAR ADT (2019)	12450
DESIGN HOURLY VOLUME (2019)	1245
DIRECTIONAL DISTRIBUTION	55%
TRUCKS (24 HOUR B&C)	5%
DESIGN SPEED	60 km/h
LEGAL SPEED	35 m.p.h.

DESIGN FUNCTIONAL CLASSIFICATION – URBAN PRINCIPAL ARTERIAL

DESIGN EXCEPTIONS: NONE

PROJECT DESCRIPTION

IMPROVING 0.073 km OF S.R. 61 (EAST STREET) BY REPLACING THE EXISTING CONCRETE ARCH BRIDGE OVER THE OLENTANGY RIVER WITH A PRESTRESSED CONCRETE BOX BEAM BRIDGE WITH CAPPED PILE SUBSTRUCTURE INCLUDING APPROACH PAVEMENT RECONSTRUCTION, STORM SEWER WORK, DRIVE APPROACHES AND NEW SIDEWALKS.

1997 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND A DETOUR WILL BE PROVIDED AS INDICATED ON SHEET NO. 4.

APPROVED Mary Ellen Dinkelacker
DATE 9-24-98 DISTRICT DEPUTY DIRECTOR

APPROVED Gordon Proctor, Jr.
DATE 2-10-99 DIRECTOR, DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS:

SPECIAL PROVISIONS
WATERWAY PERMIT NWP# 34 14
DATED: 1-28-98

STRUCTURE PLANS REVIEWED by URS GREINER

Thomas L. Seitz 6-19-98
THOMAS L. SEITZ, P.E. # 24757 DATE

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

STATE OF OHIO THOMAS L. SEITZ 24757 REGISTERED PROFESSIONAL ENGINEER

PREPARED AND RECOMMENDED BY
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
CONSULTING ENGINEERS – SURVEYORS
MANSFIELD OHIO WOOSTER
EM-1281

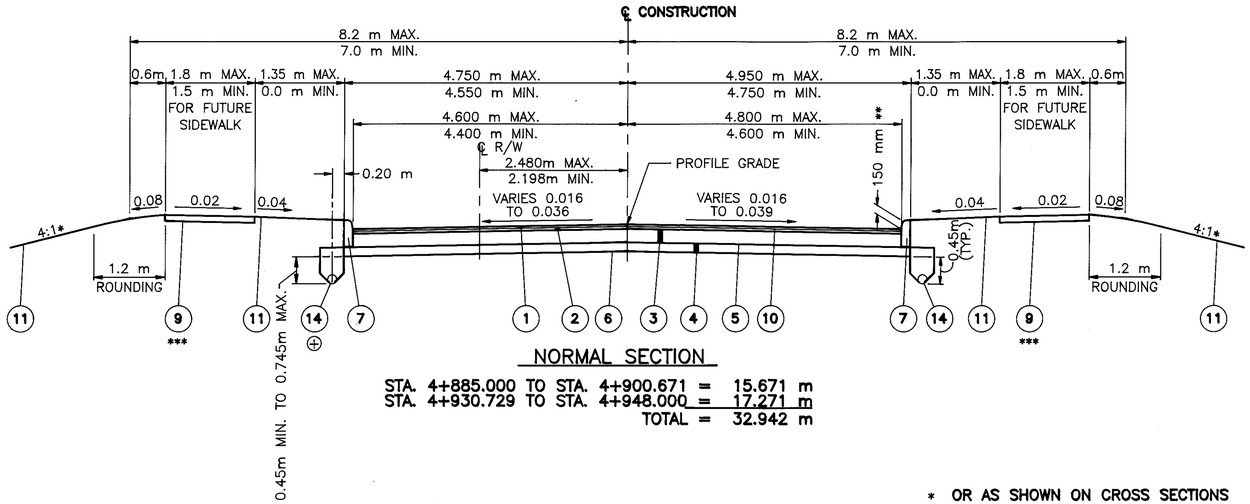
STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	
BP-1.1M 10-28-94	LA-1.1M 9-6-95	AS-1-81M 10-25-94			
BP-2.1M 4-8-97		BR-2-82M 12-19-94		806	9-9-97
BP-2.2M 10-21-97	RM-1.1M 4-8-97	EXJ-3-82M 2-18-97		814	6-2-98
BP-3.1M 10-28-94	RM-2.1M 7-12-95	PSBD-1-93M 12-19-94			
BP-4.1M 10-28-94				849	6-14-95
BP-5.1M 10-28-94				865	1-6-98
BP-7.1M 10-28-94	MH-1.2M 9-6-95		TC-41.10M 3-31-94		
			TC-41.20M 7-1-94	949	6-14-95
F-1.1M 4-8-97	DM-1.1M 10-21-97		TC-52.10M 7-29-94		
	DM-1.2M 10-21-97		TC-52.20M 7-29-94	904	5-5-98
CB-2.2M 7-12-95		MT-101.60M 4-25-94		905	4-1-98
		MT-105.10M 4-25-94		906	5-5-98
HW-2.1M 7-12-95	DM-4.3M 6-30-95	MT-105.11M 4-25-94			
HW-2.2M 7-12-95	DM-4.4M 6-30-95			842	1-6-99
				899	10-21-98

FEDERAL PROJECT NO. TE21-G990(40)
PID NO. 13015
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
CRA-61-4.936
1 / 28

CRA-61-4.936
990279
DIST. 03
05-12-99
PID# 13015

metric units

TYPICAL SECTIONS



NORMAL SECTION

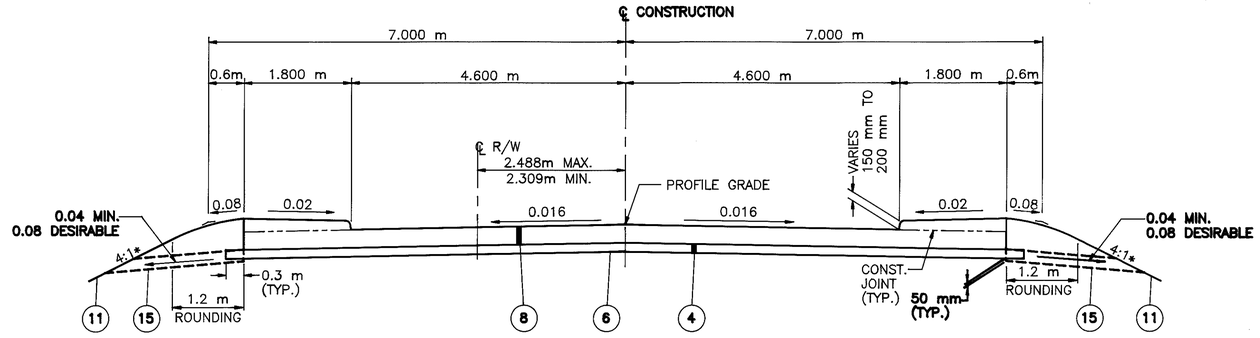
STA. 4+885.000 TO STA. 4+900.671 = 15.671 m
STA. 4+930.729 TO STA. 4+948.000 = 17.271 m
TOTAL = 32.942 m

⊕ 100mm UNCLASSIFIED PIPE UNDERDRAIN FROM STA. 4+926.525 TO STA. 4+948.000 LT.

* OR AS SHOWN ON CROSS SECTIONS

** TYPE 6 CURB VARIES FROM 150 mm HEIGHT AT APPROACH SLAB TO EXISTING CURB HEIGHT (OR 50mm) IN 3.0 m. (TYP.)

*** CONCRETE WALK, T=100 SHALL ONLY BE CONSTRUCTED FOR NORMAL SECTION STA. 4+930.729 TO 4+948.000

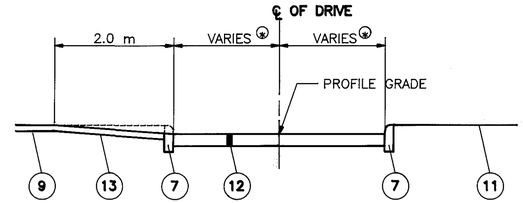


APPROACH SLAB

STA. 4+900.671 TO STA. 4+905.271 = 4.600 m
STA. 4+926.129 TO STA. 4+930.729 = 4.600 m
TOTAL = 9.200 m

BRIDGE LIMITS

STA. 4+905.271 TO STA. 4+926.129 = 20.858 m



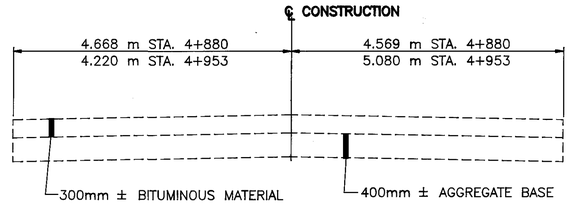
DRIVEWAY APPROACH SECTION

STA. 4+936.600 LT.
STA. 4+936.989 RT.

⊛ SEE SHEET NO.7 FOR DRIVEWAY DIMENSIONS

EDGE OF PAVEMENT TRANSITION

	LEFT EDGE ELEV.	CORR. FROM PROFILE GRADE	DIST. FROM ℄	℄ & PROFILE GRADE ELEV.	℄ STATION	DIST. FROM ℄	CORR. FROM PROFILE GRADE	RIGHT EDGE ELEV.	
165:1	EX.350.590	−0.165m	4.600m	350.755	4+885.000	4.600m	−0.146m	EX.350.609	208:1
	350.556	−0.135m	4.600m	350.691	4+890.000	4.600m	−0.122m	350.569	
	350.480	−0.074m	4.600m	350.554	4+900.000	4.600m	−0.074m	350.480	
262:1	350.177	−0.074m	4.600m	350.251	4+930.800	4.600m	−0.074m	350.177	165:1
	349.932	−0.074m	4.600m	350.006	4+940.000	4.600m	−0.130m	349.876	
	EX.349.788	−0.100m	4.400m	349.888	4+948.000	4.800m	−0.186m	EX.349.702	



TYPICAL SECTION ADJOINING PAVEMENT

ITEM LEGEND

①	448	32 mm	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64−22
②	448	45 mm	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64−22
③	301	225 mm	BITUMINOUS AGGREGATE BASE, PG64−22
④	304	150 mm	AGGREGATE BASE
⑤	408		BITUMINOUS PRIME COAT APPLIED AT THE RATE OF 1.8 L/m²
⑥	203		SUBGRADE COMPACTION
⑦	609		CURB, TYPE 6
⑧	611		REINFORCED CONCRETE APPROACH SLAB, AS PER PLAN (T=305 mm)
⑨	608		CONCRETE WALK, T=100mm
⑩	407		TACK COAT FOR INTERMEDIATE COURSE (SEE GENERAL NOTE)
⑪	660		SODDING (SEE GENERAL NOTE)
⑫	452	210 mm	PLAIN CONCRETE PAVEMENT
⑬	608		CURB RAMPS
⑭	605		100 mm SHALLOW PIPE UNDERDRAINS
⑮	605		AGGREGATE DRAINS

CRA−61−4.936

EM−1281Y.DWG

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS
THE ROUNDING AT SLOPE BREAK POINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN.

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

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

ELECTRIC
CITY OF GALION
ELECTRIC LINE DEPT.
700 PRIMROSE AVE.
GALION, OHIO 44833
(419) 468-5639

TELEPHONE
GTE TELEPHONE OPERATIONS
83 TOWNSEND AVE.
NORWALK, OHIO 33857
(419) 744-3619

GAS
COLUMBIA GAS OF OHIO
1120 W. FOURTH ST.
P.O. BOX 1326
MANSFIELD, OHIO 44901
(419) 528-1114

WATER & SEWER
CITY OF GALION
WATER & SEWER DEPT.
6374 HOSFORD ROAD
GALION, OHIO 44833
(419) 468-5010

CABLE TELEVISION
MEDIA ONE
21 PUBLIC SQUARE
GALION, OHIO 44833
(419) 468-2000

PAY PHONE
AMERITECH
1020 BOLIVAR - ROOM 258
CLEVELAND, OH 44115
(216) 822-5785

CONTINGENCY QUANTITIES
THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

ITEM 659, SEEDING AND MULCHING AND ITEM 660, SODDING
SEEDING AND MULCHING ON CHANNEL AREAS AND SODDING, ELSEWHERE, SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT OF WAY LINES, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT OF WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS, FOR ITEM 659, SEEDING AND MULCHING AND ITEM 660 SODDING ARE BASED ON THESE LIMITS.

WATERING PERMANENT SEEDED AREAS
THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS PER 659.09:

ITEM 659	WATER	2	CU. METER

ELEVATION DATUM
ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

WORK LIMITS
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

MONUMENTS
MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS AS SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1M. FOR LOCATIONS SEE SHEET NO 25.

ITEM 407 - TACK COAT AND ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENTS AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF:

407, TACK COAT	0.45	LITER PER SQ. METER
407, TACK COAT FOR INTERMEDIATE COURSE	0.23	LITER PER SQ. METER

EROSION CONTROL
ITEM 601 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE THIS ITEM. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL
THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207	FILTER FABRIC FENCE	100 METER
ITEM 207	STRAW OR HAY BALES	50 EACH

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS
EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

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 PS46 MIN.

603, 100mm CONDUIT, TYPE F,	FOR DRAINAGE CORRECTION	15 METER
603, 150mm CONDUIT, TYPE F,	FOR DRAINAGE CORRECTION	15 METER

TEMPORARY PAVEMENT MARKINGS
A QUANTITY OF 0.15 KILOMETER OF ITEM 614 TEMPORARY CENTER LINE, CLASS II HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

THIS ITEM MAY BE NON-PERFORMED IF THE ITEM 642 PAVEMENT MARKINGS ARE IN PLACE PRIOR TO OPENING THE ROAD TO TRAFFIC.

CLEARING AND GRUBBING
ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE WORK LIMITS SHALL BE REMOVED UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS	TOTAL
0.5 m	3	0	3
0.8 m	0	0	0
1.2 m	0	0	0
1.5 m	0	0	0

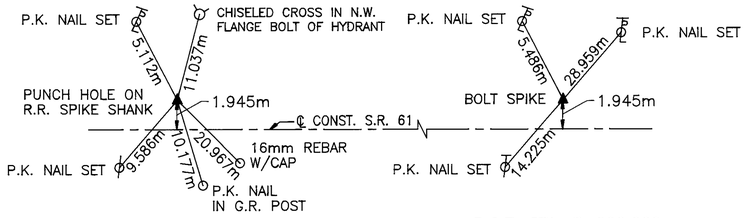
608-TEMPORARY BITUMINOUS WALK, AS PER PLAN
THIS ITEM SHALL CONSIST OF CONSTRUCTING, MAINTAINING AND SUBSEQUENTLY REMOVING A BITUMINOUS WALK. UPON REMOVAL OF THE WALK THE SURROUNDING AREA SHALL BE RETURNED TO ITS ORIGINAL CONDITION. THE WALK SHALL BE 1.500 METERS WIDE AND CONSIST OF 50mm OF ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1 ON 125mm OF ITEM 304 AGGREGATE BASE. SEEDING, EXCAVATION, BACKFILL, BASE COURSE MATERIAL AND ALL OTHER RELATED MISCELLANEOUS ITEMS WILL NOT BE PAID FOR SEPARATELY, BUT THE COST THEREOF SHALL BE INCLUDED IN THE COST OF THE TEMPORARY BITUMINOUS WALK.

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

ITEM 608	TEMPORARY BITUMINOUS WALK, AS PER PLAN	55 SQ METER

ITEM 611 REINFORCED CONCRETE APPROACH SLAB (T=305mm), AS PER PLAN
TWO SEPARATE THICKNESSES OF CLEAR OR OPAQUE POLYETHYLENE FILM, 705.06, SHALL BE PLACED ON THE PREPARED SUBBASE AND WHERE THE APPROACH SLAB IS TO BE CONSTRUCTED. THE POLYETHYLENE FILMS SHALL COMPLETELY COVER THE FULL LENGTH AND WIDTH OF THE SUBBASE BETWEEN THE SIDEWALL FORMS FOR THE APPROACH SLAB.

MATERIALS, LABOR AND INSTALLATION SHALL BE INCLUDED WITH APPROACH SLABS FOR PAYMENT.



P.O.T. STA. 4+850.000 — P.O.T. STA. 5+000.000

CENTERLINE REFERENCES

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

ITEM 616	CALCIUM CHLORIDE	1 METRIC TON
ITEM 616	WATER	40 CU. METER

TEMPORARY SIDEWALK EARTHWORK
THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE PLAN FOR INFORMATION ONLY.

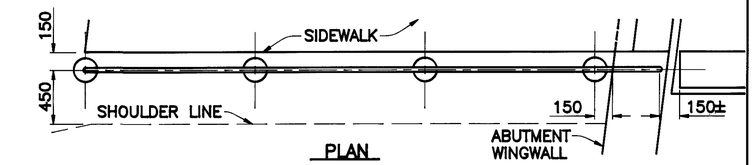
TEMPORARY EARTHWORK EXCAVATION	47 CU. METERS
TEMPORARY EARTHWORK EMBANKMENT	0 CU. METERS

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES
WHERE THE PLANS PROVIDE FOR 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.

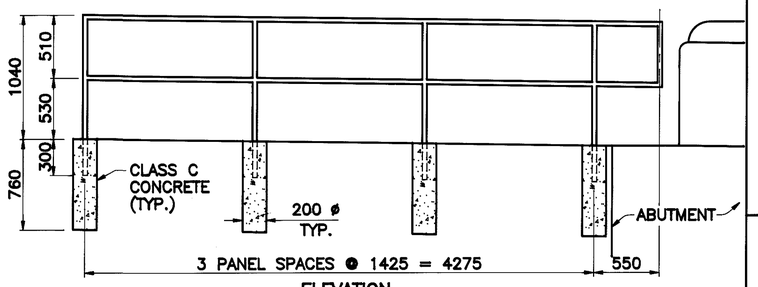
IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.



PLAN

ALL DIMENSIONS IN MILLIMETERS



ELEVATION

ITEM 517, RAILING, PIPE, AS PER PLAN

ITEM 517, RAILING, PIPE, AS PER PLAN
SEE STANDARD CONSTRUCTION DRAWING RM-2.1M FOR RAILING AND POST SPECIFICATIONS NOT SHOWN.

POSTS SHALL BE CAST IN PLACE.

BASIS OF PAYMENT: ITEM 517, RAILING, PIPE, AS PER PLAN, WILL BE MEASURED BY THE METER FROM CENTER TO CENTER OF END POSTS, COMPLETE IN PLACE.

COST FOR CLASS C CONCRETE SHALL BE INCLUDED IN THE PRICE FOR ITEM 517, RAILING, PIPE, AS PER PLAN.

PAYMENT WILL BE MADE UNDER:

ITEM 517	RAILING, PIPE, AS PER PLAN	METER

GENERAL NOTES

CRA-61-4.936

E-1281N1.DWG

ENVIRONMENTAL COMMITMENTS

BANK STABILIZATION WILL BE LIMITED TO WITHIN 45 METERS (148 FEET) UPSTREAM AND DOWNSTREAM OF THE EXISTING STRUCTURE. BANK STABILIZATION WILL BE LIMITED TO REGRADING OF THE BANKS FOR THE TOE-OF-SLOPE (IN-STREAM) TO THE TOP OF THE BANK AND WILL INCLUDE PLACEMENT OF ROCK CHANNEL PROTECTION WHERE REQUIRED. THIS WILL EXCLUDE WORK SUCH AS WIDENING, DEEPENING OR RELOCATION. THIS STABILIZATION WILL BE KEPT TO A MINIMUM.

IN-STREAM WORK WILL BE LIMITED WHERE PRACTICABLE AND ONLY CLEAN NON-ERODIBLE MATERIAL WILL BE USED FOR FORDS AND COFFERDAMS. THIS TEMPORARILY PLACED MATERIAL WILL BE REMOVED AND THE STREAM BOTTOM RESTORED TO NEAR NATURAL CONDITIONS WHEN THE WORK IS COMPLETED.

WRITTEN PERMISSION WILL BE OBTAINED FROM THE CHIEF OF ODNR'S DIVISION OF WILDLIFE FOR ANY NECESSARY IN-STREAM BLASTING.

THE SPECIFICATIONS SET FORTH IN THE MOST CURRENT VERSION OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LOCATION AND DESIGN MANUAL AND THE STANDARD DRAWINGS WILL BE USED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION.

IF THIS PROJECT IS LOCATED WITHIN FLOOD PLAINS, IT WILL COMPLY WITH NECESSARY FLOOD PLAIN CRITERIA. THOSE PROJECT IN FEMA DESIGNATED FLOOD PLAINS WILL BE COORDINATED WITH THE APPROPRIATE AUTHORITIES.

ASBESTOS NOTIFICATION

An asbestos survey of the bridge(s) schedules for demolition or renovation was conducted by a certified asbestos hazard evaluation specialist. The survey determined that no asbestos is present on the bridge(s).

A copy of the Ohio Environmental Protection Agency (OEPA) Notification of Demolition and Renovation form, partially completed and signed by the bridge owner, will be provided to the successful bidder at the preconstruction meeting. The contractor shall complete the form and return it to the District Construction Engineer. The completion of this form may be performed at the preconstruction meeting. The District Construction Engineer shall submit it to (OEPA District Office or the Local Air Authority) at least ten (10) working days prior to the start of the demolition of the bridge. The District Construction Engineer shall provide a copy of the completed form to the contractor. The contractor shall not commence demolition of the structure until the above requirements are met.

Information required on the form will include:
- The contractors name and address
- The scheduled dates for the start and completion of the bridge removal or renovation
- A description of the planned demolition or renovation work and the method(s) to be used

A copy of the OEPA form is available for inspection at the ODOT District 3 Office, 906 N. Clark Street, Ashland, Ohio, 44805.

Basis for Payment
The contractor shall furnish all fees, labor, and material necessary to complete and submit the OEPA Notification form. Payment for this work shall be included in the bid item 202-Structure Removed.

ITEM SPECIAL- MISC.: GROUND WATER MONITORING WELL ABANDONED

THE MONITORING WELL(S) SHALL BE ABANDONED IN ACCORDANCE WITH OHIO DEPARTMENT OF NATURAL RESOURCE'S (ODNR'S) TECHNICAL GUIDELINES FOR SEALING UNUSED WELLS.

THIS ITEM SHALL CONSIST OF, BUT NOT LIMITED TO, THE REMOVAL AND DISPOSAL OF THE EXISTING WELL CASING BY THE METHOD OF OVERDRILLING, AND FILLING OF THE WELL HOLE WITH A MATERIAL APPROVED BY ODNR. ANY ADDITIONAL MATERIALS REQUIRED BY ODNR SHALL BE CONSIDERED INCIDENTAL. THE FINAL 300 MM (12 INCHES) SHALL CONSIST OF CONCRETE.

THE OHIO REVISED CODE 1521.05(B) REQUIRES THAT A WELL SEALING REPORT BE FILED WITH ODNR ON FORMS SUPPLIED BY THAT DEPARTMENT. ODNR'S DIVISION OF WATER TELEPHONE NUMBER IS (614) 265-6739.

A COUNTY ISSUED PLUGGING PERMIT MAY ALSO BE REQUIRED.

THE CONTRACT UNIT PRICE FOR ITEM SPECIAL, MISC.: GROUND WATER MONITORING WELL ABANDONED SHALL INCLUDE PAYMENT FOR ALL LABOR, TOOLS, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

SURVEY DISC ON STRUCTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST ONE (1) WEEK IN ADVANCE OF POURING THE CONCRETE FOR COMPLETION OF THE HEADWALL/ABUTMENT. THE ENGINEER WILL PROVIDE THE CONTRACTOR ONE (1) SURVEY DISC FOR EACH STRUCTURE (OBTAINED FROM THE DISTRICT SURVEYOR) WHICH THE CONTRACTOR SHALL PLACE IN THE SURFACE OF THE FRESH CONCRETE. THE LOCATION OF THE DISC SHALL BE ON THE HEADWALL/ABUTMENT, AND ON A FLAT, HORIZONTAL SURFACE BEYOND THE EDGE OF DECK AND GUARDRAIL OR PARAPET. THE BENCHMARK SHALL BE ACCESSIBLE TO A SURVEYOR'S ROD WITHOUT ANY OBSTRUCTIONS. COST OF THIS WORK IS CONSIDERED INCIDENTAL TO THE CONCRETE BID ITEM.

UNSUITABLE SOIL CONDITIONS

IF UNSUITABLE FOUNDATION SOILS ARE ENCOUNTERED IN THE AREAS OF THE PROPOSED ROADBED, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL MEETING THE REQUIREMENTS OF 203.08. THE LOCATIONS AND DIMENSIONS SHALL BE AS DETERMINED BY THE ENGINEER.

THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 203	100	CUBIC METERS	EMBANKMENT
ITEM 203	100	CUBIC METERS	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION

ADDITIONAL ENVIRONMENTAL COMMITMENTS:

STREAM CHANNEL EXCAVATION

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGES ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIAL FROM THE STREAM CHANNEL. THIS PERTAINS TO ANY EXCAVATION OPERATIONS SUCH AS, FOUNDATION PIER OR ABUTMENT EXCAVATION, CHANNEL CLEAN OUT, EXCAVATION FOR ROCK CHANNEL PROTECTION AND REMOVAL OF ANY TEMPORARY FILL ASSOCIATED WITH CONSTRUCTION OPERATIONS.

DEMOLITION DEBRIS

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO AVOID AND/OR LIMIT DEMOLITION DEBRIS FROM ENTERING THE STREAM. ANY MATERIAL THAT DOES FALL INTO THE STREAM SHALL BE REMOVED AS SOON AS POSSIBLE.

metric units

614 MAINTAINING TRAFFIC

DETOUR LIMITATION AND INTERIM COMPLETION DATE:
TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 60 CONSECUTIVE CALENDAR DAYS. THROUGH TRAFFIC WILL BE DETOURED AS SHOWN.

THE CONTRACTOR SHALL NOTIFY THE DISTRICT ROADWAY SERVICES MANAGER (419-281-0513 EXT.341) IN WRITING A MINIMUM OF FOURTEEN (14) DAYS IN ADVANCE OF THE DATE THE DETOUR IS NEEDED. THE STATE OF OHIO WILL INSTALL, MAINTAIN, AND SUBSEQUENTLY REMOVE THE DETOUR SIGNING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING THE GATES AND BARRICADES AT THE APPROXIMATE WORK LIMITS OF THE PROJECT AND THE ADVANCE WARNING SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-101.60M.

THE 60 CONSECUTIVE CALENDAR DAYS SHALL BE CONSIDERED AS AN INTERIM COMPLETION DATE. THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1500 FOR EACH CALENDAR DAY THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE 60 CONSECUTIVE CALENDAR DAY LIMIT.

ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC BETWEEN NOVEMBER 15 & APRIL 15.

NOTICE OF CLOSURE SIGNS
THESE SIGNS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE LOCATED IN THE FIELD SO AS NOT TO INTERFERE WITH ANY PERMANENT SIGNS. ON THIS PROJECT THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

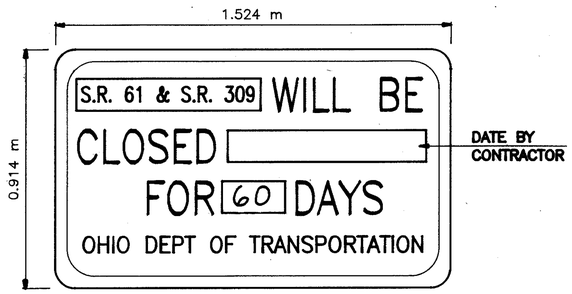
PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC AND SHALL INCLUDE FURNISHING, ERECTING, MAINTAINING AND REMOVING THE SIGNS INCLUDING SUPPORTS.

PROJECT DETOUR LIMITATIONS
THE ROADWAY SHALL NOT BE CLOSED TO TRAFFIC FOR THE REMOVAL OR MODIFICATION OF THE EXISTING STRUCTURE OR CONDUIT UNTIL ALL NEW STEEL BEAMS AND\OR PRECAST STRUCTURE MATERIALS (EG.:PRESTRESSED BOX BEAMS, PRECAST BOX CULVERTS, CONDUITS, ETC.) NECESSARY TO PLACE THE ROADWAY BACK INTO SERVICE HAVE BEEN TESTED, APPROVED AND ARE READY FOR DELIVERY TO THE PROJECT SITE.
SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES IN THE AMOUNT OF $1500 PER DAY.

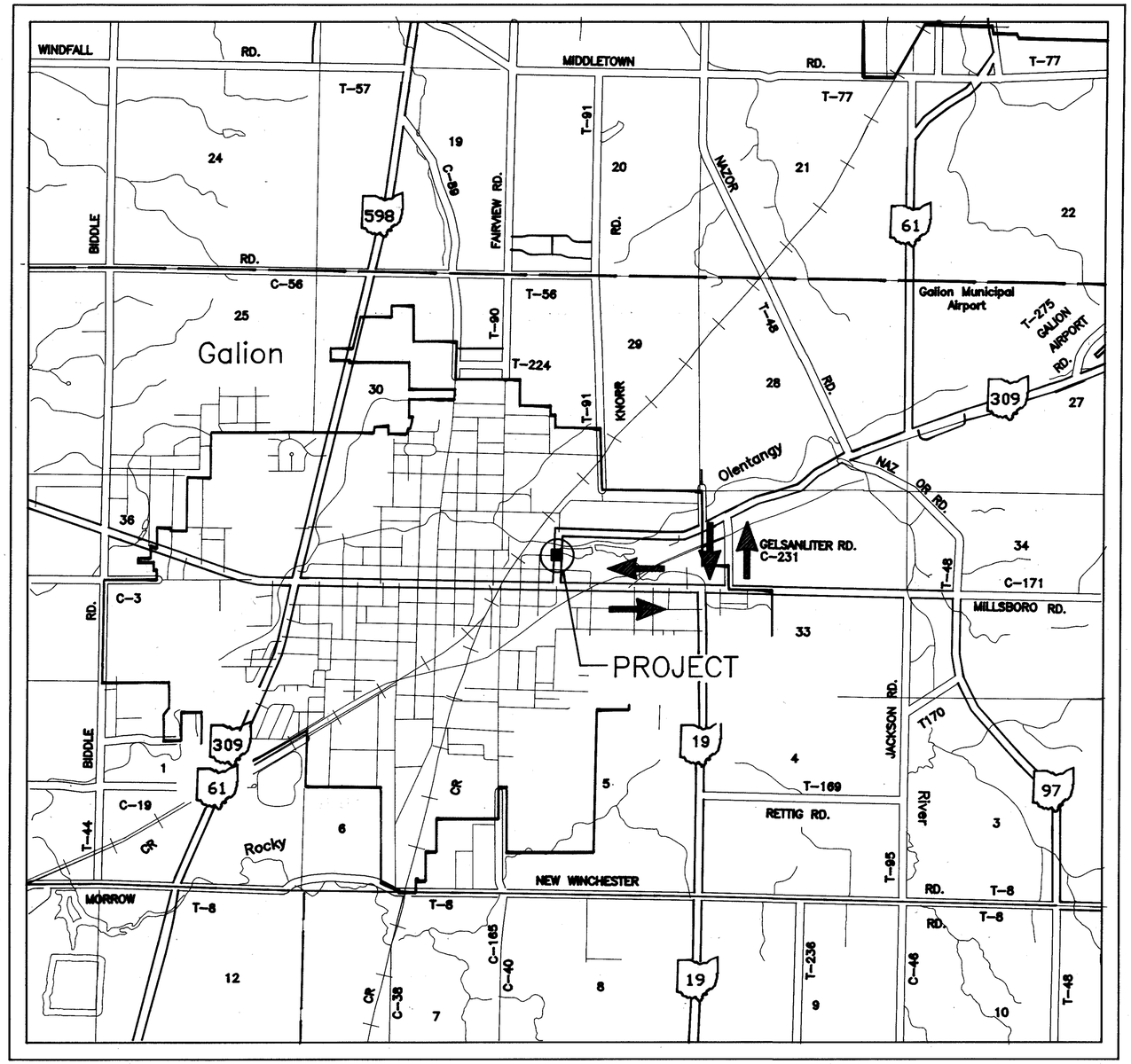
ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES AS PER 614.02 (a).

THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR MAINTAINING LOCAL TRAFFIC.

410	TRAFFIC COMPACTED SURFACE, TYPE A OR B	40 CU METER
616	WATER	10 CU METER
616	CALCIUM CHLORIDE	1 METRIC TON



OC-60B



PROJECT

DETOUR ROUTE

MAINTENANCE OF TRAFFIC
DETOUR MAP

EM-1281M.DWG 1 SCALE

CALCULATED KAA CHECKED TLS

MAINTENANCE OF TRAFFIC
DETOUR FOR S.R. 61

CRA-61-4.936

4
28

FROM SHEET NO.												ITEM	ITEM EXT.	QUAN.	UNIT	DESCRIPTION	SEE SHEET NO.
3	3A	4	6	7	8	9	10	11	12		25					ROADWAY	
LUMP												201	11000	LUMP		CLEARING AND GRUBBING	
			96									202	23000	96	SQ METER	PAVEMENT REMOVED	
			92									202	23500	92	SQ METER	WEARING COURSE REMOVED	
					21							202	35100	21	METER	PIPE REMOVED, 600mm AND UNDER	
					2							202	58100	2	EACH	CATCH BASIN REMOVED	
	100					110	121	59	118			203	12000	508	CU METER	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
	100					17	4	3	9			203	20000	133	CU METER	EMBANKMENT	
			421									203	50000	421	SQ METER	SUBGRADE COMPACTION	
					17							517	73501	17	METER	RAILING, PIPE, AS PER PLAN	3
											3	604	38500	3	EACH	MONUMENT ASSEMBLY	
			22									607	20000	22	METER	FENCE, TYPE CL	
			19									608	10000	19	SQ METER	100mm CONCRETE WALK	
55												608	21201	55	SQ METER	TEMPORARY BITUMINOUS WALK, AS PER PLAN	3
				2								608	51000	2	EACH	CURB RAMP, TYPE 2	
					1							638	10800	1	EACH	VALVE BOX ADJUSTED TO GRADE	
					1							SPECIAL	63098000	1	EACH	MISC.: GROUNDWATER MONITORING WELL ABANDONED	3A
																EROSION CONTROL	
100												207	30000	100	METER	FILTER FABRIC FENCE	
50												207	70000	50	EACH	STRAW OR HAY BALES	
					163							601	32104	163	CU METER	ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER	
								90	141			659	10000	231	SQ METER	SEEDING AND MULCHING	
			92									659	20000	92	KILOGRAM	COMMERCIAL FERTILIZER	
2												659	35000	2	CU METER	WATER	
						563	123					660	30000	686	SQ METER	SODDING UNSTAKED	
																DRAINAGE	
					0.6							602	20000	0.6	CU METER	CONCRETE MASONRY	
15												603	00406	15	METER	100mm CONDUIT, TYPE F, FOR DRAINAGE CONNECTION	
15												603	01500	15	METER	150mm CONDUIT, TYPE F, FOR DRAINAGE CONNECTION	
					5							603	04600	5	METER	300mm CONDUIT, TYPE C	
					12							603	07400	12	METER	450mm CONDUIT, TYPE B	
					20							603	07600	20	METER	450mm CONDUIT, TYPE C	
					8							603	09100	8	METER	525mm CONDUIT, TYPE C	
					3							604	00800	3	EACH	CATCH BASIN, NO. 3A	
					1							604	31500	1	EACH	MANHOLE, NO. 3	
			44									605	05100	44	METER	100mm SHALLOW PIPE UNDERDRAIN	
			24									605	05200	24	METER	100mm UNCLASSIFIED PIPE UNDERDRAIN	
				9								605	31100	9	METER	AGGREGATE DRAIN	
																SANITARY SEWER	
					3							604	34500	3	EACH	MANHOLE ADJUSTED TO GRADE	
																PAVEMENT	
			68									301	46000	68	CU METER	BITUMINOUS AGGREGATE BASE, PG 64-22	
			65									304	20000	65	CU METER	AGGREGATE BASE	
			41									407	10000	41	LITER	TACK COAT	
			70									407	14000	70	LITER	TACK COAT FOR INTERMEDIATE COURSE	
			546									408	10000	546	LITER	BITUMINOUS PRIME COAT	
			14									448	46050	14	CU METER	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22	
			13									448	47020	13	CU METER	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22	
			95									452	12000	95	SQ METER	210mm PLAIN CONCRETE PAVEMENT	
			79									609	26000	79	METER	CURB, TYPE 6	
			118									611	10001	118	SQ METER	REINFORCED CONCRETE APPROACH SLAB (T=305mm), AS PER PLAN	3 & 15
																TRAFFIC CONTROL	
			0.07									642	00302	0.07	KILOMETER	CENTER LINE, TYPE 2	
																MAINTENANCE OF TRAFFIC	
		40										410	12000	40	CU METER	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
0.15												614	21400	0.15	KILOMETER	TEMPORARY CENTER LINE, CLASS II	
40		10										616	10000	50	CU METER	WATER	
1		1										616	20000	2	METRIC TON	CALCIUM CHLORIDE	
																FOR ESTIMATED QUANTITIES STRUCTURES 6 METER SPAN AND OVER	18
		LUMP										614	11000	LUMP		MAINTAINING TRAFFIC	
												623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
												624	10000	LUMP		MOBILIZATION	
												806	16000	3	MONTH	FIELD OFFICE, TYPE A	

STATE OF UTAH DEPARTMENT OF TRANSPORTATION

metric units

CALCULATED KAA CHECKED TLS

GENERAL SUMMARY

CRA-61-4.936

EM-1281A.DWG

C A L C U L A T I O N S

LINE	DESCRIPTION			QUANTITY	UNIT
	202-WEARING COURSE REMOVED				
1	4+880.000 TO 4+885.000 = 5.000m X (9.237m + 9.247m)/2	=	46.210 SQ METER		
2	4+948.000 TO 4+953.000 = [5.000m X (9.295m + 9.300m)/2]-[0.575mX0.965m]	=	45.933 SQ METER		
3	SUM LINES 1 AND 2 = 92.143 SQ METER		TO SHEET NO. 5	92	SQ METER
	202-PAVEMENT REMOVED				
4	4+929.562 TO 4+948.000 LT. = 96.483 SQ METER (COMPUTER)	=	96.483 SQ METER TO SHEET NO. 5	96	SQ METER
	203-SUBGRADE COMPACTION				
5	4+885.000 TO 4+900.671 = 15.671m X 9.200m	=	144.173 SQ METER		
6	4+900.671 TO 4+905.271 = 4.600m X 12.800m	=	58.880 SQ METER		
7	4+926.129 TO 4+930.729 = 4.600m X 12.800m	=	58.880 SQ METER		
8	4+930.729 TO 4+948.000 = 17.271m X 9.200m	=	158.893 SQ METER		
9	SUM LINES 5 THROUGH 8 = 420.826 SQ METER		TO SHEET NO. 5	421	SQ METER
	301-BITUMINOUS AGGREGATE BASE, PG64-22				
10	4+885.000 TO 4+900.671 = 15.671m X 9.200m	=	144.173 SQ METER		
11	4+930.729 TO 4+948.000 = 17.271m X 9.200m	=	158.893 SQ METER		
12	SUM LINES 10 AND 11 = 303.066 SQ METER X 0.225m	=	68.190 CU METER TO SHEET NO. 5	68	CU METER
	304-AGGREGATE BASE				
13	4+885.000 TO 4+900.671 = 15.671m X 9.500m	=	148.875 SQ METER		
14	4+900.671 TO 4+905.271 = 4.600m X 13.400m	=	61.640 SQ METER		
15	4+926.129 TO 4+930.729 = 4.600m X 13.400m	=	61.640 SQ METER		
16	4+930.729 TO 4+948.000 = 17.271m X 9.500m	=	164.075 SQ METER		
17	SUM LINES 13 THROUGH 16 = 436.230 SQ METER X 0.150m	=	65.435 CU METER TO SHEET NO. 5	65	CU METER
	407-TACK COAT				
18	SUM LINES 1 AND 2 = 92.143 SQ METER X 0.450 LITERS/SQ METER	=	41.464 LITER TO SHEET NO. 5	41	LITER
	407-TACK COAT FOR INTERMEDIATE COURSE				
19	SUM LINES 10 AND 11 = 303.066 SQ METER X 0.230 LITER/SQ METER	=	69.705 LITER TO SHEET NO. 5	70	LITER
	408-BITUMINOUS PRIME COAT				
20	SUM LINES 10 AND 11 = 303.066 SQ METER X 1.8 LITER/SQ METER	=	545.519 LITER TO SHEET NO. 5	546	LITER
	448-ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22				
21	SUM LINES 10 AND 11 = 303.066 SQ METER X 0.045m	=	13.638 CU METER TO SHEET NO. 5	14	CU METER
	448-ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22				
22	SUM LINES 1, 2, 10 AND 11 = 395.209 SQ METER X 0.032m	=	12.647 CU METER TO SHEET NO. 5	13	CU METER
	452-210mm PLAIN CONCRETE PAVEMENT				
23	DRIVE AT STA. 4+936.600 LT. = 57.295 SQ METER (COMPUTER)	=	57.295 SQ METER		
24	DRIVE AT STA. 4+936.989 RT. = 37.998 SQ METER (COMPUTER)	=	37.998 SQ METER		
25	SUM LINES 23 AND 24 = 95.293 SQ METER		TO SHEET NO. 5	95	SQ METER
	601-ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER				
26	4+906.027 TO 4+910.353 LT.&RT.=[(4.7mX21.7m)-(1.328mX0.450m)]x1.118X0.750m=85.018 CU METER		TO SHEET NO. 8 (1-RCP)	85	CU METER
27	4+921.607 TO 4+925.373 LT.&RT.=[(4.2mX{22.4m+21.9m}/2)-(1.328mX0.450m)]X1.118=103.339 SQ METER				
28	FROM LINE 27 =103.339 SQ METER X 0.750m = 77.505 CU METER		TO SHEET NO. 8 (2-RCP)	78	CU METER
	605-100mm SHALLOW PIPE UNDERDRAIN				
29	4+885.000 TO 4+899.000 LT. = 14.000m				
30	4+885.000 TO 4+899.000 RT. = 14.000m				
31	4+932.752 TO 4+948.000 RT. = 16.000m				
32	SUM LINES 29 THROUGH 31 = 44.000 METER		TO SHEET NO. 5	44	METER
	605-100mm UNCLASSIFIED PIPE UNDERDRAIN				
33	4+926.525 TO 4+948.000 LT. = 24.000m		TO SHEET NO. 5	24	METER
	607-FENCE, TYPE CL				
34	0+027.340 TO 0+032.855 = 5.515m X 2	=	11.030 METER		
35	0+054.955 TO 0+060.193 = 5.238m X 2	=	10.476 SQ METER		
36	SUM LINES 34 AND 35 = 21.506 METER		TO SHEET NO. 5	22	METER
	608-100mm CONCRETE WALK				
37	4+930.044 TO 4+931.673 RT. = 1.629m				
38	4+931.414 TO 4+934.481 LT. = 3.067m				
39	4+942.182 TO 4+948.000 RT. = 5.820m				
40	SUM LINES 37 THROUGH 39 = 10.516 METER X 1.800m	=	18.929 SQ METER TO SHEET NO. 5	19	SQ METER
	608-TEMPORARY BITUMINOUS WALK				
41	0+000.000 TO 0+032.145 = 32.145m X 1.500m	=	48.218 SQ METER		
42	0+055.665 TO 0+060.193 = 4.528m X 1.500m	=	6.792 SQ METER		
43	SUM LINES 41 AND 42 = 55.010 SQ METER		TO SHEET NO. 3	55	SQ METER
	609-CURB, TYPE 6				
44	4+885.000 TO 4+901.245 LT. = 16.245m				
45	4+885.000 TO 4+900.097 RT. = 15.097m				
46	4+930.155 TO 4+948.000 RT. = 17.845m				
47	4+931.303 TO 4+948.000 RT. = 16.697m				
48	4+930.728 TO 4+933.164 RT. = 4.925m (DRIVE)				
49	4+932.631 TO 4+938.757 LT. = 7.957m (DRIVE)				
50	SUM LINES 44 THROUGH 49 = 78.766 METER		TO SHEET NO. 5	79	METER
	611-REINFORCED CONCRETE APPROACH SLAB (T=305mm), AS PER PLAN				
51	4+900.671 TO 4+905.271 = 4.600m X 12.800m	=	58.880 SQ METER		
52	4+926.129 TO 4+930.729 = 4.600m X 12.800m	=	58.880 SQ METER		
53	SUM LINES 51 AND 52 = 117.760 SQ METER		TO SHEET NO. 5	118	SQ METER
	614-TEMPORARY CENTER LINE, CLASS II				
54	4+880.000 TO 4+953.000 ℄ = (73.000m/1000) X 2 APPLICATIONS = 0.15 KILOMETER		TO SHEET NO. 3	0.15	KILOMETER
	642-CENTER LINE, TYPE 2				
	DOUBLE, SOLID				
55	4+880.000 TO 4+953.000 ℄ = 73.000m/1000 = 0.07 KILOMETER		TO SHEET NO. 5	0.07	KILOMETER
	659-COMMERCIAL FERTILIZER				
56	FROM SHEET NO. 5 = 231 SQ METER (659 SEEDING & MULCHING)				
57	FROM SHEET NO. 5 = 686 SQ METER (660 SODDING)				
58	SUM LINES 56 AND 57 = 917 SQ METER X 0.100 KILOGRAM/SQ METER = 91.7 KILOGRAM		TO SHEET NO. 5	92	KILOGRAM
	659-WATER				
59	FROM LINE 56 = 231 SQ METER X 5.000 CU METER/1000 SQ METER X 2 APPL. = 2.31 CU METER		TO SHEET NO. 3	2	CU METER

metric units

B.M.: CHISELED CROSS IN N.W. FLANGE BOLT OF HYDRANT STA. 4+853.1, 12.3m LT. ELEV. 352.157

B.M.: R.R. SPIKE IN POWER POLE STA. 5+028.9, 2.4m LT. ELEV. 350.624

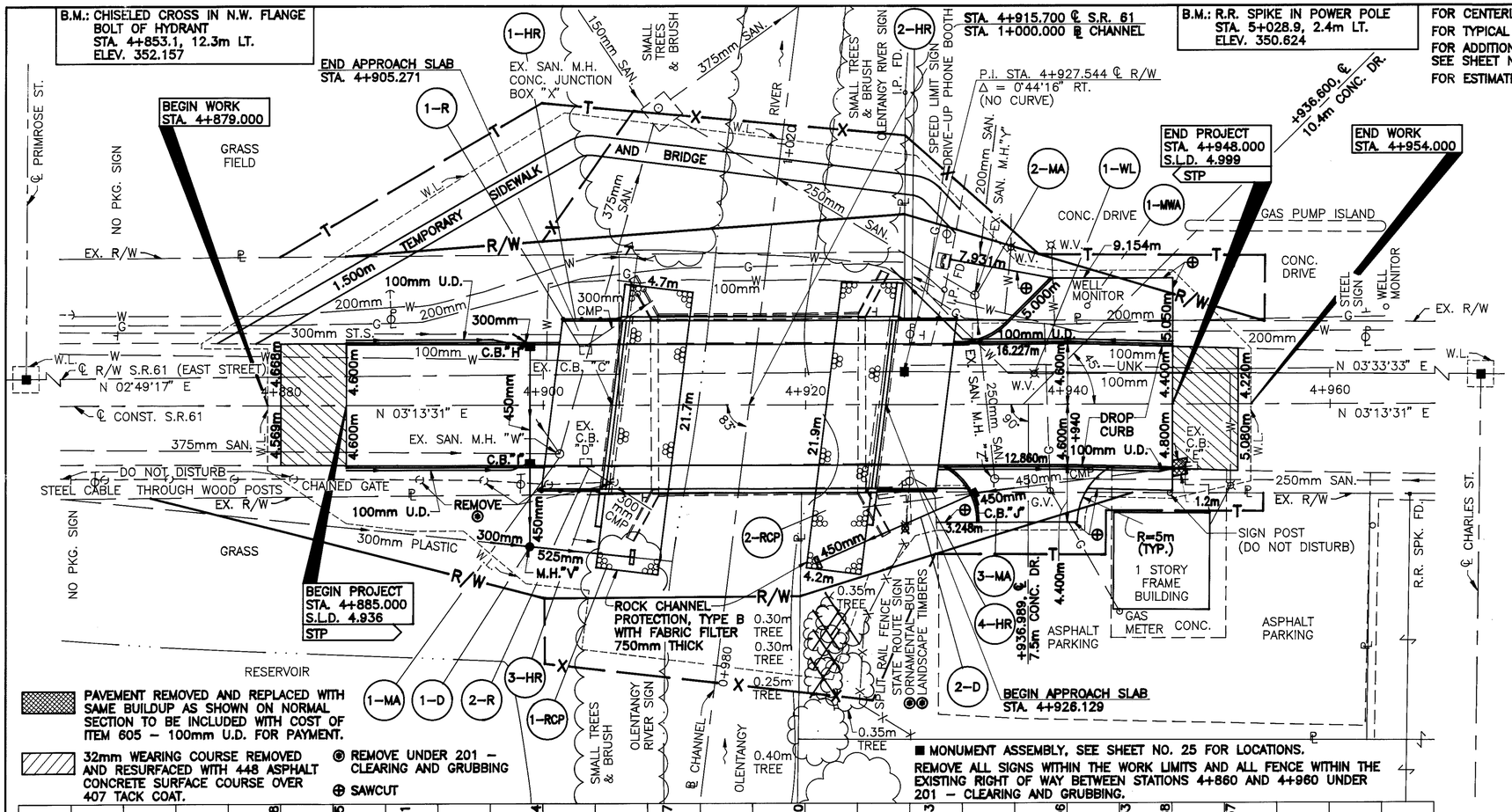
STA. 4+915.700 ℄ S.R. 61
STA. 1+000.000 ℄ CHANNEL

FOR CENTERLINE REFERENCES, SEE SHEET NO. 3
FOR TYPICAL SECTION OF ADJOINING PAVEMENT, SEE SHEET NO. 2
FOR ADDITIONAL DETAILS OF TEMPORARY SIDEWALK AND BRIDGE, SEE SHEET NO'S. 13 AND 14.
FOR ESTIMATED QUANTITIES, SEE SHEET NO. 8

metric units

HORIZONTAL SCALE IN METERS 0 5 10

CALCULATED KAA CHECKED TLS



PAVEMENT REMOVED AND REPLACED WITH SAME BUILDUP AS SHOWN ON NORMAL SECTION TO BE INCLUDED WITH COST OF ITEM 605 – 100mm U.D. FOR PAYMENT.

32mm WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE OVER 407 TACK COAT.

Ⓡ REMOVE UNDER 201 – CLEARING AND GRUBBING

⊕ SAWCUT

■ MONUMENT ASSEMBLY, SEE SHEET NO. 25 FOR LOCATIONS.

REMOVE ALL SIGNS WITHIN THE WORK LIMITS AND ALL FENCE WITHIN THE EXISTING RIGHT OF WAY BETWEEN STATIONS 4+860 AND 4+960 UNDER 201 – CLEARING AND GRUBBING.

* NORMAL TO ℄ CHANNEL

EXISTING CATCH BASINS

EX. C.B. "A" (DO NOT DISTURB)
STA. 4+836.531, 4.727m LT.
351.677 T.G.
350.957 ℄ 300mm TO N

EX. C.B. "B" (DO NOT DISTURB)
STA. 4+836.551, 4.015m RT.
351.671 T.G.
350.621 ℄ 300mm TO N

EX. C.B. "C" (TO BE REMOVED)
STA. 4+903.227, 4.178m LT.
350.405 T.G.
349.725 ℄ 300mm TO NW

EX. C.B. "D" (TO BE REMOVED)
STA. 4+903.247, 4.375m RT.
350.459 T.G.
349.739 ℄ 300mm TO NE

EX. C.B. "E" (SAVE)
STA. 4+949.457, 4.716m RT.
349.647 T.G.
349.047 SILTED IN BOTTOM
348.896 ℄ 100mm FR. S (U.D.)

EX. C.B. "F" (DO NOT DISTURB)
STA. 4+982.770, 4.751m RT.
349.583 T.G.
348.813 ℄ 250mm TO E

EX. C.B. "G" (DO NOT DISTURB)
STA. 4+982.627, 3.503m LT.
349.621 T.G.
348.381 ℄ 250mm TO N

EXISTING MANHOLES

EX. SAN. M.H. "W" (ADJUST TO GRADE)
STA. 4+901.254, 3.693m RT.
350.506 T.R.
348.116 ℄ 300mm FR. SW
346.736 ℄ 375mm FR. S TO NW
350.478 PROPOSED T.R.

EX. SAN. JUNCTION BOX "X" (DO NOT DISTURB)
STA. 4+908.744, 22.603m LT.
349.620 T.R.
348.920 ℄ 150mm FR. SW
346.520 ℄ 375mm FR. SE
346.210 ℄ 250mm FR. NE
345.620 ℄ 375mm TO NW

EX. SAN. M.H. "Y" (ADJUST TO GRADE)
STA. 4+932.890, 8.336m LT.
350.221 T.R.
347.081 ℄ 200mm FR. W.
346.351 ℄ 250mm FR. E TO SW
349.943 PROPOSED T.R.

EX. SAN. M.H. "Z" (ADJUST TO GRADE)
STA. 4+934.430, 5.664m RT.
349.984 T.R.
346.454 ℄ 250mm FR. N TO W
349.998 PROPOSED T.R.

PROPOSED CATCH BASINS

C.B. "H"
STA. 4+899.000, 4.600m LT.
350.437 T.G.
349.587 ℄ 100mm FR. S (U.D.)
349.412 ℄ 300mm FR. W
349.262 ℄ 450mm TO E

C.B. "I"
STA. 4+899.000, 4.600m RT.
350.439 T.G.
349.589 ℄ 100mm FR. S (U.D.)
348.813 ℄ 300mm FR. W TO E

C.B. "J"
STA. 4+932.752, 6.847m RT.
349.931 T.G.
347.383 ℄ 450mm FR. N TO S

PROPOSED MANHOLES

STORM M.H. "V"
STA. 4+899.000, 10.784m RT.
350.610 T.R.
348.635 ℄ 300mm FR. S
348.485 ℄ 450mm FR. W
348.410 ℄ 525mm TO N

605 – AGGREGATE DRAIN

STA. 4+902 RT. = 2.3 m
STA. 4+904 LT. = 2.3 m
STA. 4+927 RT. = 2.3 m
STA. 4+929 LT. = 2.3 m
TOTAL = 9.2 m

608 – CURB RAMP, TYPE 2

STA. 4+931.882 RT. = 1 EACH
STA. 4+934.741 LT. = 1 EACH
TOTAL = 2 EACH

EXISTING STRUCTURE

BRIDGE NO. CRA-61-0308
TYPE: Concrete Arch on Concrete Gravity Substructure
SPAN: 15 240± (Clear)
ROADWAY: 8890± F/F Curbs with 1575± Sidewalks
LOADING: H-15
SKEW: 0°
WEARING SURFACE: Bituminous
APPROACH SLABS: None
ALIGNMENT: Tangent
DATE BUILT: 1927
STRUCTURE FILE NO. 1701894

PROPOSED STRUCTURE

TYPE: Composite Prestressed Concrete Box Beam with Capped Pile Substructure
SIZE: 19 800 C/C Bearings
ROADWAY: 9200 F/F Curbs with 1800 Sidewalks
LOADING: MS18 and the Alternate Military Loading
SKEW: 7°-00' L.F.
WEARING SURFACE: Monolithic Concrete
APPROACH SLABS: AS-1-81M (4600 Long)
ALIGNMENT: Tangent
AVERAGE DAILY TRAFFIC: 9210 (1999) 12450 (2019)
AVERAGE DAILY TRUCK TRAFFIC: 623 (2019)
CROWN: 0.016
STRUCTURE FILE NO. 1701908

PLAN AND PROFILE
STA. 4+860 TO STA. 4+960

CRA-61-4.936

7
28

EM-1281L.DWG 200 SCALE

metric units

CALCULATED KAA
CHECKED TLS

REFERENCE NO.	SHEET NO.	SIDE	STATION FROM	STATION TO	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 600mm & UNDER METER		517 RAILING, PIPE, AS PER PLAN METER			601 ROCK CHANNEL PROTECTION TYPE B WITH FABRIC FILTER CU METER		602 CONCRETE MASONRY CU METER		603 300mm CONDUIT, TYPE C METER	603 450mm CONDUIT, TYPE B METER	603 450mm CONDUIT, TYPE C METER	603 525mm CONDUIT, TYPE C METER		604 CATCH BASIN, NO. 3A EACH	604 MANHOLE, NO. 3 EACH	604 MANHOLE, ADJUSTED TO GRADE EACH			638 VALVE BOX, ADJUSTED TO GRADE EACH				SPECIAL MISC.: GROUNDWATER MONITORING WELL ABANDONED EACH	
1–R	7	LT.	4+903.227	4+905.893	1	3.4																								
2–R	7	RT.	4+903.247	4+904.449	1	1.6																								
1–D	7	LT.&RT.	4+896.016	4+906.957		8.3							0.33		4.5	9.0	6.5	8.0		2	1									
2–D	7	RT.	4+920.831	4+935.929		7.5							0.28			3.0	13.0			1										
1–MA	7	RT.	4+901.254																			1								
2–MA	7	LT.	4+932.890																			1								
3–MA	7	RT.	4+934.430																			1								
1–RCP	7	LT.&RT.	4+906.027	4+910.353							85																			
2–RCP	7	LT.&RT.	4+921.607	4+925.373							78																			
1–WL	7	LT.	4+937.432																							1				
1–HR	7	LT.	4+901.499	4+905.774				4.275																						
2–HR	7	LT.	4+927.198	4+931.473				4.275																						
3–HR	7	RT.	4+899.891	4+904.166				4.275																						
4–HR	7	RT.	4+925.663	4+929.938				4.275																						
I–MWA	7	LT.	4+941.479																										1	
TOTALS					2	20.8		17.100			163		0.61		4.5	12.0	19.5	8.0		3	1	3			1				1	

ESTIMATED QUANTITIES

STA. 4+860 TO STA. 4+960

CRA–61–4.936

EM–1281L.DWG 200 SCALE

18 16 14 12 10 8 6 4 2 ℄ CONST 2 4 6 8 10 12 14 16

SEEDING END WIDTH	SEEDING SQUARE METER	
0	0	STA. 4+926.129 BK. X COS 7
0 21.4	89	STA. 4+900.671 AH. X COS 7 BK.
17.4 21.3	97	ADJUST FOR SKEW AND AREA BEYOND SECTIONS LT.
19.9	220	NOTE: PROPOSED STORM SEWER PROFILE AS SHOWN TO THE RIGHT OCCURS AT STA. 4+899.000 SEE SHEET NO. 7 FOR ELEVATIONS
15.6	89	
11.7	68	STA. 4+880.000 AH.
	563	SHEET TOTAL

℄ R/W 2.488m
℄ R/W 2.361m
℄ R/W 2.328m
℄ R/W 2.234m
℄ R/W 2.198m
℄ R/W 2.163m

351 350 349 348

2:1 NORMAL
348.84
EX. GAS
AH. ONLY
350.196
4+926.129 SKEWED 7' L.F.
350.345
EX. 200mm WATER
EX. 100mm WATER
EX. 375mm SAN.
BRIDGE LIMITS
STA. 4+905.271 TO STA. 4+926.129
450mm TYPE C
EX. 450mm CMP (TO BE REMOVED)
STA. 4+926.129 BK. X COS 7

BK. ONLY
EX. 300mm CMP (TO BE REMOVED)
EX. C.B. "C" STA. 4+903.227 4.178m LT. 350.405 T.G. 349.725 FL 300mm TO NW (TO BE REMOVED)
350.482
4+905.271 SKEWED 7' L.F.
350.594
EX. 300mm CMP (TO BE REMOVED)
EX. C.B. "D" STA. 4+903.247 4.375m RT. 350.459 T.G. 349.739 FL 300mm TO NE (TO BE REMOVED)
349.11
EX. 300mm PLASTIC (TO BE REMOVED)
525mm TYPE C
STA. 4+905.271 AH. X COS 7 BK.

CHANNEL
4:1 NORMAL
AH.
BK.
EX. 300mm ST.S. (TO BE REMOVED)
350.545
4+900.671 SKEWED 7' L.F.
350.619
EX. SAN. M.H. "W" STA. 4+901.254 3.693m RT. 350.506 T.R. 348.116 FL 300mm FR. SW 346.736 FL 375mm FR. S TO NW (ADJUST TO GRADE) 350.478 PROPOSED T.R.
525mm TYPE C
STA. 4+900.671 AH. X COS 7 BK.
ADJUST FOR SKEW

TEMP
R/W
EX. R/W
350.590
350.609
4:1
EX. 300mm ST.S.
STA. 4+897.716, 5.375m LT. CONNECT TO EX. 300mm, EL. 349.529±
100mm U.D.
9.0m OF 450mm TYPE B AT 5.12%
6.5m OF 450mm TYPE C AT 5.12%
1.5m OF 300mm TYPE C AT 7.80%
C.B. "H" SEE SHEET NO. 7
C.B. "I" SEE SHEET NO. 7
350.691
4+890
350.691
300mm TYPE C
525mm TYPE C
M.H. "V" SEE SHEET NO. 7
BK. & AH.
STA. 4+885.000 AH. BK.
AH. ONLY
350.755
4+885
350.755
BEGIN PROJECT & BEGIN PAVEMENT STA. 4+885.000
REMOVE 32mm WEARING COURSE AND RESURFACE WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22. (TYP.)
EX. 300mm PLASTIC
350.818
4+880
350.818
BEGIN WORK STA. 4+879.000
STA. 4+880.000 AH.
SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
0	0	0	0
12.06	0.15		
6.36	0.24		
4.46	0.93	42	1
0	0	0	−1
		46	12
4.12	1.26		
		21	4
4.26	0.21		
0.01	0.21		
		1	1
0	0		
		110	17

CALCULATED KAA
CHECKED TLS

metric units

CROSS SECTIONS
STA. 4+880 TO STA. 4+926.129

CRA-61-4.936

9
28

EM=1269X.DWG

CROSS SECTIONS
STA. 4+930.729 TO STA. 4+960

CALCULATED KAA
CHECKED TLS

SEEDING END WIDTH	SEEDING SQUARE METER	STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		STA. 4+948.000 AH.	0	0		
		BK.	4.25	0		
0		STA. 4+940.000 BK.	4.08	0	33	0
-1	50	ADJUST FOR SKEW & DRIVES AT STA. 4+936.600 LT. & STA. 4+936.989 RT.			-1	-1
		ADJUST FOR DRIVES STA. 4+936.600 LT. & STA. 4+936.989 RT.			45	2
		ADJUST FOR SKEW			-1	0
10.8	74	STA. 4+930.729 X COS 7 AH.	5.54	0.39	45	3
		STA. 4+930.729 X COS 7 BK.	7.54	0.14		
21.4	123	STA. 4+926.129 AH. X COS 7	11.97	1.17		
		SHEET TOTAL			121	4

18 16 14 12 10 8 6 4 2 ℄ CONST. 2 4 6 8 10 12 14 16

GAS PUMP ISLAND
EX. R/W
℄ R/W 2.309m
CONC.
EX. GAS
EX. 200mm WATER
4+960
349.786
END WORK
STA. 4+954.000
EX. 100mm WATER
TEMP
R/W
℄ R/W 2.350m
349.837
4+953
349.837
REMOVE 32mm WEARING COURSE AND RESURFACE WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22.
END PROJECT & END PAVEMENT STA. 4+948.000
349.788
DROP CURB
℄ R/W 2.379m
349.888
4+948
349.888
100mm U.D.
BK. ONLY 100mm U.D.
349.702
1 STORY FRAME BUILDING
ASPHALT
EX. C.B. "E"
STA. 4+949.457, 4.716m RT.
349.647 T.C.
349.047 SILTED IN BOTTOM
(DO NOT DISTURB)
349.902
℄ R/W 2.426m
-1.28%
-3.34%
349.876
EX. 450mm CMP
EX. MONITORING WELL
STA. 4+941.479, 7.498m LT.
EX. TOP WELL ELEV. 349.967
(ABANDON)
PROP. TOP DRIVE ELEV. 349.997
350.006
4+940
350.006
DRIVE PROFILE
L=4.250m W=7.500m
349.936
-4.15%
ADJUST FOR SKEW & DRIVES AT STA. 4+936.600 LT. & STA. 4+936.989 RT.
DRIVE PROFILE
L=6.906m
349.910
-0.55%
℄ R/W 3.438m
350.047
4+936.989 DRIVE RT.
350.086
C.B. "F" SEE SHEET NO. 7
450mm TYPE C
CHANNEL
8:1 NORMAL
SAW CUT
4:1 NORMAL
AH.
BK.
349.91
350.053
4+936.600 DRIVE LT. SKEWED 45° L.F.
350.096
℄ R/W 2.496m
EX. SAN. M.H. "Z"
STA. 4+934.430, 5.664m RT.
349.984 T.R.
346.454 FL 250mm FR. N TO W
ADJUST TO GRADE
349.998 PROPOSED T.R.
350.133
4+930.729 SKEWED 7° L.F.
350.253
EX. SAN. M.H. "Y"
STA. 4+932.890, 8.336m LT.
350.221 T.R.
347.081 FL 200mm FR. W.
346.351 FL 250mm FR. E. TO SW
ADJUST TO GRADE
349.943 PROPOSED T.R.
EX. 250mm SAN.
EX. 450mm CMP (TO BE REMOVED)

CRA-61-4.936

10/28

SM-1269X.DWG

SEEDING				END AREA		VOLUME	
END WIDTH	SQUARE METER			CUT	FILL	CUT	FILL
0	0	0+994.4	346.69	7.01	0.67	18	1
0	0	0+991.892	346.68	7.22	0		
0.3	1	0+989.478	346.65	3.75	0	13	0
0.6 5.7	1	0+988.2	346.63	4.74 4.74	0 0.15	5	0
5.9 12.3	11	0+986.3	346.61	4.38	0.04	9	1
12.2	77	0+980	346.61	0	0	14	1
	90	SHEET TOTAL				59	3

STA. 0+988.200 AH. BK.

STA. 0+986.300 AH. BK.

STA. 0+988.2 AH. BK.

EX. 300mm CMP

450mm TYPE C SEE SHEET NO. 7

AH. ONLY

BEGIN ROCK CHANNEL PROTECTION STA. 0+988.200 RT.

525mm TYPE C SEE SHEET NO. 7

EX. 300mm PLASTIC (REMOVE)

ELEV. 347.08 (TYP.)

HW-2.1M OR HW-2.2M HEADWALL

AH. ONLY

BEGIN ROCK CHANNEL PROTECTION STA. 0+986.300 LT.

MATCH LINE STA. 4+905.271 SEE SHEET NO. 9

MATCH LINE STA. 4+926.129 SEE SHEET NO. 9

BEGIN CHANNEL WORK STA. 0+980.000

SHEET TOTAL

CALCULATED KAA

CHECKED TLS

metric units

CHANNEL CROSS SECTIONS

STA. 0+980 TO STA. 0+994.4

CRA-61-4.936

11
28

EM-1269X.DWG

SEEDING END WIDTH	SEEDING SQUARE METER
14.8	87
14.6	23
14.6	15
14.6 6.9	16
6.6 0	0
0	0
0	141

STA. 1+010.472 AH. BK.

STA. 1+008.058 AH. BK.

STA. 0+994.4

SHEET TOTAL

MATCH LINE STA. 4+905.271 SEE SHEET NO. 9

MATCH LINE STA. 4+926.129 SEE SHEET NO. 9

END CHANNEL WORK
STA. 1+019.000

1+019
346.57

1+013.1
346.57

1+011.5
346.57

1+010.472
346.57

1+008.058
346.57

1+006
346.58

END ROCK CHANNEL PROTECTION
STA. 1+010.472 RT.

END ROCK CHANNEL PROTECTION
STA. 1+008.058 LT.

EX. 375mm SAN.

EX. 250mm SAN.

EX. 250mm SAN.

EX. 200mm WATER

EX. 200mm GAS

EX. 200mm GAS

EX. 200mm GAS

EX. 100mm WATER

EX. 300mm CMP

ELEV. 347.08 (TYP.)

100mm U.D.

BK. ONLY

5:1

2:1

8:1

4.4:1

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		7	1
2.53	0.31		
		5	1
3.83	0.32		
		4	1
3.68	0.29		
		12	1
6.30	0.72		
6.30	0		
		13	1
6.31	0.10		
		77	4
7.01	0.67		
		118	9

CALCULATED KAA
CHECKED TLS

maine DOT

CHANNEL CROSS SECTIONS
STA. 1+006 TO STA. 1+019

CRA-61-4.936

12
28

SM-1269X.DWG

B.M.: CHISELED CROSS IN N.W. FLANGE BOLT OF HYDRANT
STA. 4+853.1, 12.3m LT.
ELEV. 352.157

B.M.: R.R. SPIKE IN POWER POLE
STA. 5+028.9, 2.4m LT.
ELEV. 350.624

metric units

① CURVE DATA
P.I.Sta. 0+030.409
R=2.500m
T=0.837m
L=1.615m
E=0.136m
Δ=37°00'47" Rt.

② CURVE DATA
P.I.Sta. 0+056.659
R=2.500m
T=0.894m
A=1.718m
E=0.155m
Δ=39°22'06" Rt.

END SIDEWALK
STA. 0+032.145 ℄ SIDEWALK
=STA. 4+904.781 ℄ S.R.61,
19.616 m LT.

℄ BRG., REAR ABUTMENT
STA. 0+033.135

℄ BRG., FWD. ABUTMENT
STA. 0+054.675

21.54 m

BEGIN SIDEWALK
STA. 0+055.665 ℄ SIDEWALK
=STA. 4+928.118 ℄ S.R.61,
16.687 m LT.

P.I. STA. 4+927.544 ℄ R/W
Δ = 0°44'16" RT.
(NO CURVE)

END PROJECT
STA. 4+948.000
S.L.D. 4.999
G 990 (40)

END WORK
STA. 4+954.000

END SIDEWALK
STA. 0+060.193 ℄ SIDEWALK
=STA. 4+931.585 ℄ S.R.61,
13.948 m LT.

BEGIN SIDEWALK
STA. 0+000.000 ℄ SIDEWALK
=STA. 4+876.628 ℄ S.R.61,
4.699 m LT.

P.C. STA. 0+029.572
P.T. STA. 0+031.187
P.C. STA. 0+055.765
P.T. STA. 0+057.483

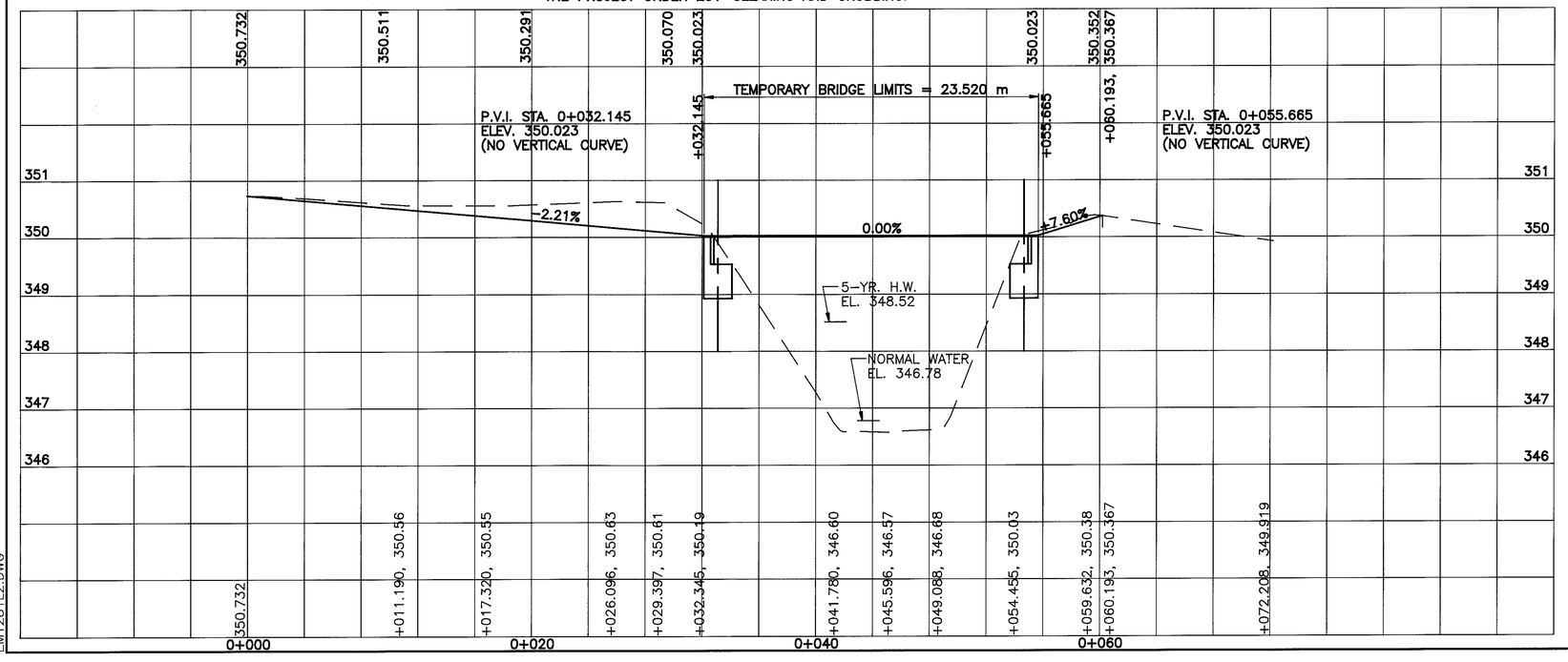
150mm SAN.
EX. SAN. M.H. CONC. "X" JUNCTION BOX
375mm SAN.
RIVER
SMALL TREES & BRUSH
1.500m (TYP.)
0+040
0+020
0+060
GRASS FIELD
SMALL TREES & BRUSH
OLENTANGY
250mm SAN.
SAN. M.H. "Y"
CONC. DRIVE
GAS PUMP ISLAND
W.V.
EX. R/W
℄ PRIMROSE ST.
R/W
100mm U.D.
200mm
300mm
300mm ST.S.
300mm CMP
100mm
EX. C.B. "C"
450mm
200mm SAN.
EX. SAN.
WELL MONITOR
STEEL SIGN
100mm UNK
W.L.
℄ R/W S.R.61
℄ CONST. S.R.61 (EAST STREET)
4+880
4+900
4+920
4+940
4+960
N 02°49'17" E
N 03°13'31" E
N 03°33'33" E
250mm SAN.
℄ CHARLES ST.

BEGIN WORK
STA. 4+879.000

BEGIN PROJECT
STA. 4+885.000
S.L.D. 4.936
G 990 (40)

NOTE: CONSTRUCT ITEM 607 FENCE, TYPE CL AT EACH CORNER OF THE PEDESTRIAN BRIDGE WITH A MAXIMUM 50 mm CLEAR DISTANCE BETWEEN THE FENCE AND STRUCTURE RAILING. ALL FENCE SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT UNDER 201–CLEARING AND GRUBBING.

FOR FENCE QUANTITIES, SEE SHEET NO. 6.
FOR WALK QUANTITIES SEE SHEET NO. 6.
FOR PEDESTRIAN BRIDGE DETAILS, SEE SHEET NO. 24.



PROPOSED TEMPORARY STRUCTURE

TYPE: "Acrow Panel Bridge," "Mabey Universal Bridge" or Approved Equal Bridging System with Reinforced Concrete Substructure
SPAN: 21.54 m C/C Bearings
WALK: 1.5 m F/F Fence
LOADING: 4.1 kN/m²
SKEW: 0°–00'
WEARING SURFACE: Asphalt Concrete
CROWN: 0.021
ALIGNMENT: Tangent

CALCULATED KAA
CHECKED TLS

HORIZONTAL SCALE IN METERS
0 5 10

PLAN AND PROFILE
TEMPORARY PEDESTRIAN BRIDGE

CRA–61–4.936

13
28

EM12811.2.DWG

SEEDING END WIDTH	SEEDING SQUARE METER	CUT	FILL
4.0	25	0.32	0
7.2	18	0.86	0
6.0	0	0	0
0	0	0	0
6.0	19	0	0
7.4	56	1.03	0
8.4	47	2.61	0
8.3	82	1.70	0
8.0	70	0.64	0
6.0	317	0.52	0
		47	0

END FENCE STA. 0+060.193

END TEMPORARY SIDEWALK
STA. 0+060.193

CHANNEL

BK. ONLY

350.367
0+060.193 SKEWED 36°02'41" R.F.
350.367

STA. 0+060.193 BK.

CHANNEL

2:1 2:1 2:1 2:1

AH. ONLY

BK. ONLY

350.023
0+055.665
350.13

CHANNEL

STA. 0+035.000 AH.
BK.

0+053
349.09

TEMPORARY BRIDGE LIMTS
STA. 0+032.145 TO STA. 0+055.665

CHANNEL

STA. 0+035.000 AH.
BK.

0+035
349.20

FENCE, TYPE CL (TYP.)

TEMP

CHANNEL

2:1 2:1 2:1 2:1

BEGIN FENCE STA. 0+027.340

BK. ONLY

AH. ONLY

350.023
0+032.145
350.22

TEMP

CHANNEL

350.180
0+025
350.62

TEMP

R/W

350.291
0+020
350.57

TEMP

EX. R/W

2:1 2:1 2:1 2:1

350.511
0+010
350.58

BEGIN TEMPORARY SIDEWALK
STA. 0+000.000

AH. ONLY

EARTHWORK AND SEEDING QUANTITIES ARE GIVEN FOR INFORMATIONAL PURPOSES ONLY.

STA. 0+000 AH.

350.732
0+000 SKEWED 59°37'00" R.F.
350.732

SHEET TOTAL

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		3	0
		1	0
		0	0
		1	0
		13	0
		11	0
		12	0
		6	0
		47	0

CALCULATED KAA
CHECKED TLS

main lines

TEMPORARY SIDEWALK CROSS SECTIONS
STA. 0+000 TO STA. 0+060.193

CRA-61-4.936

14
28

EM=1269X.DWG

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST LETTER IDENTIFIES THE BAR LOCATION. THE NEXT TWO DIGITS AND LETTER INDICATE THE METRIC BAR SIZE DESIGNATION. THE REMAINING DIGITS INDICATE THE SEQUENCE NUMBER.

EXAMPLE: B16M01
B = LOCATION OF THE BAR IN THE STRUCTURE
16M = METRIC BAR SIZE DESIGNATION
01 = SEQUENCE NUMBER

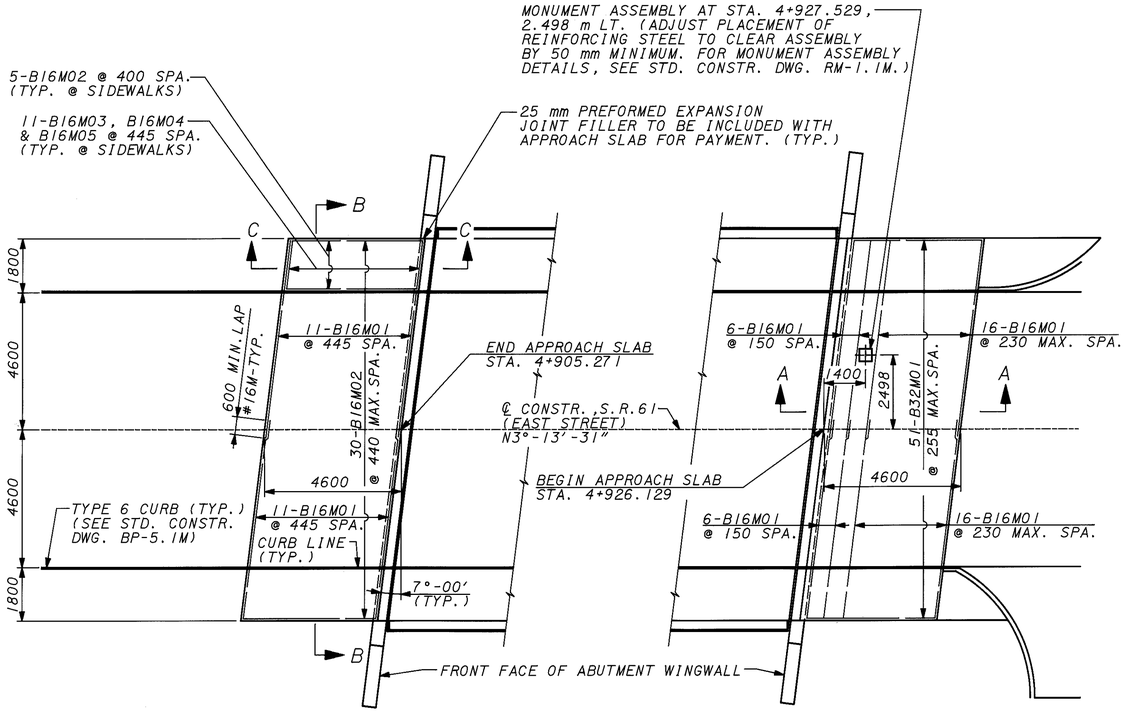
BAR DIMENSIONS SHOWN ARE OUT-TO-OUT UNLESS NOTED. ALL REINFORCING STEEL TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "S".

metric units

CALCULATED JSK | CHECKED KAA

GRADE 400 EPOXY COATED REINFORCING STEEL-APPROACH SLABS

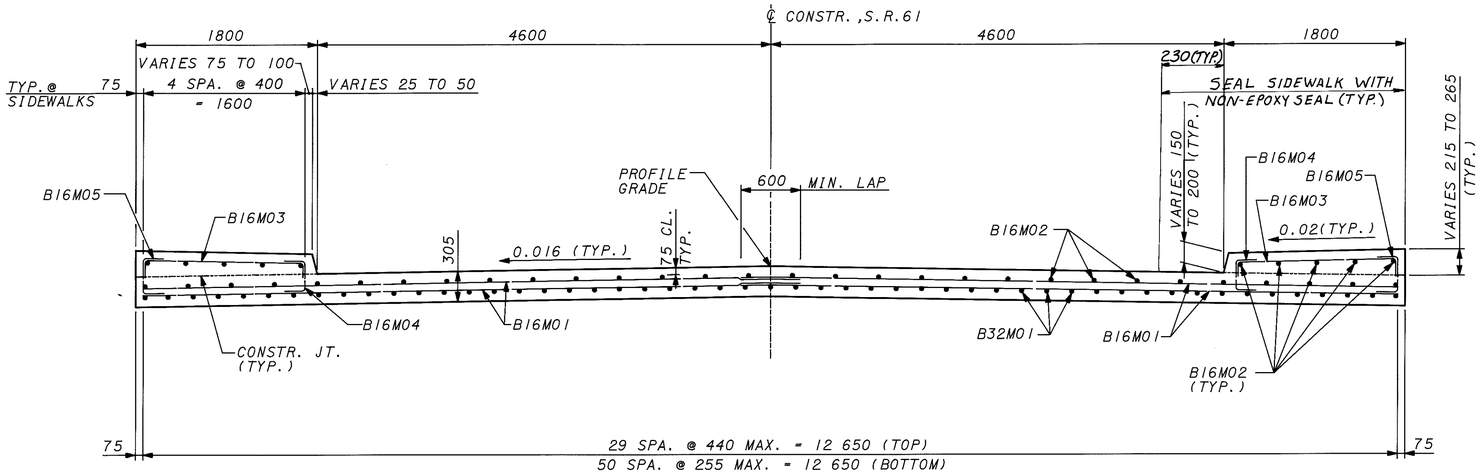
MARK	NUMBER			LENGTH (mm)	TYPE	DIMENSIONS (mm)				
	REAR ABUT.	FWD. ABUT.	TOTAL			A	B	C	D	INC.
B16M01	66	66	132	6675	S					
B16M02	40	40	80	4450	S					
	2	2	4	1725			125	75		
B16M03	SERIES OF	SERIES OF	SERIES OF	TO	1	1600	TO	TO	32	5
	11	11	11	1825			175	125		
	2	2	4	700		275				
B16M04	SERIES OF	SERIES OF	SERIES OF	TO	2	TO				5
	11	11	11	750		325				
	2	2	4	750		325				
B16M05	SERIES OF	SERIES OF	SERIES OF	TO	2	TO				5
	11	11	11	800		375				
B32M01	51	51	102	4900	3	4450				



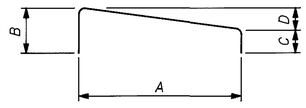
PLAN

REAR APPROACH SLAB SHOWS TOP MAT OF REINFORCING STEEL

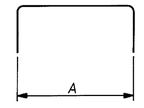
FORWARD APPROACH SLAB SHOWS BOTTOM MAT OF REINFORCING STEEL



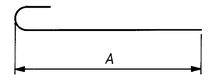
SECTION B-B



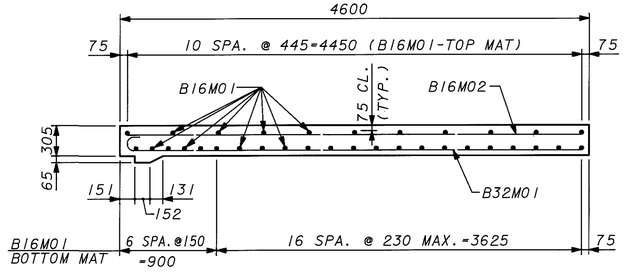
TYPE 1



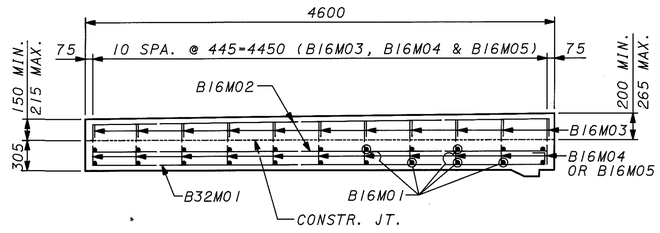
TYPE 2



TYPE 3



SECTION A-A



SECTION C-C

NOTES:

REINFORCING STEEL IS INCLUDED IN ITEM 611.

FOR DESIGN DATA AND SPECIFICATIONS, SEE STANDARD DRAWING AS-1-81M.

ALL DIMENSIONS IN MILLIMETERS AND STATIONS IN METERS, UNLESS NOTED.

MONUMENT ASSEMBLY WILL BE PLACED BEFORE APPROACH SLAB REINFORCING STEEL IS PLACED AND CONCRETE IS POURED.

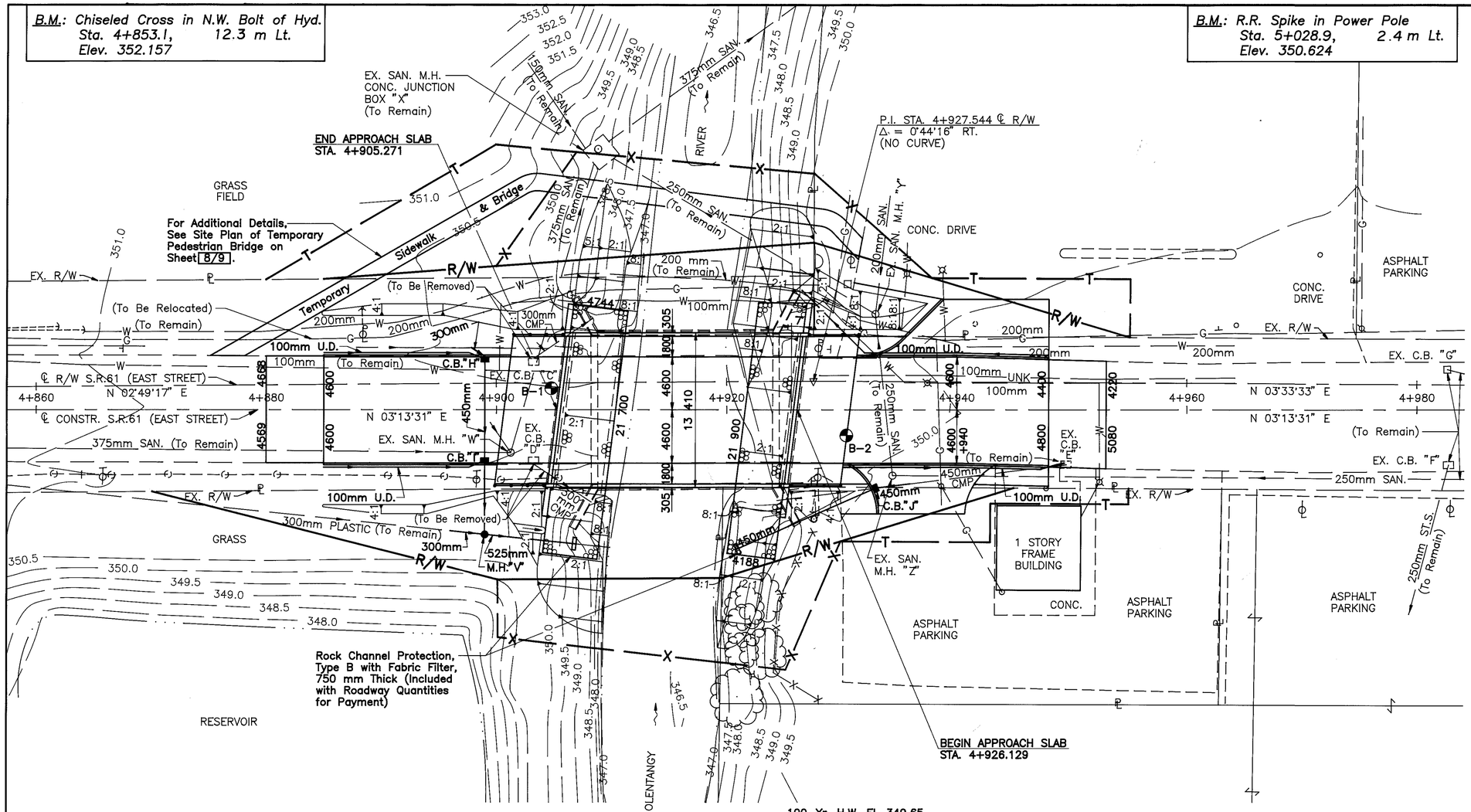
SIDEWALK CONCRETE TO BE INCLUDED WITH APPROACH SLAB FOR PAYMENT. SIDEWALK SEALING TO BE PAID UNDER ITEM SPECIAL SEALING OF CONCRETE SURFACES(NON-EPOXY)

APPROACH SLAB & SIDEWALK DETAILS
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

CRA-61-4.936

15
28

EM128IAS.DGN 1:100 SCALE



STRUCTURE PLANS REVIEWED BY URS CONSULTANTS,
LJL DATE 7/7/18

All elevations and stationing are in meters and all dimensions are in millimeters, unless noted otherwise.

EARTHWORK limits shown are approximate. Actual slopes shall conform to plan cross sections.

DRAINAGE AREA = 28.05 km²

Q_{25} = 45.9 m³/s	Q_{100} = 62.3 m³/s
V_{25} = 1.20 m/s	V_{100} = 1.62 m/s
HW_{25} El. 349.21	HW_{100} El. 349.65

FOUNDATION INVESTIGATION LEGEND

⊕ – *Indicates core boring location*

Average Daily Traffic: 9210 (1999)
12450 (2019)
Average Daily Truck Traffic: 623 (2019)

EXISTING STRUCTURE

BRIDGE NO. CRA-61-0308
TYPE: Concrete Arch on Concrete Gravity Substructure
SPAN: 15 240± (Clear)
ROADWAY: 8890± F/F Curbs with 1575± Sidewalks
LOADING: H-15
SKEW: 0°
WEARING SURFACE: Bituminous
APPROACH SLABS: None
ALIGNMENT: Tangent
DATE BUILT: 1927
STRUCTURE FILE NO. 1701894

PROPOSED STRUCTURE

TYPE: Composite Prestressed Concrete Box Beam with Capped Pile Substructure
SPAN: 19 800 C/C Bearings
ROADWAY: 9200 F/F Curbs with 1800 Sidewalks
LOADING: MS18 and the Alternate Military Loading
SKEW: 7°-00' L.F.
WEARING SURFACE: Monolithic Concrete
APPROACH SLABS: AS-1-81M (4600 Long)
ALIGNMENT: Tangent
CROWN: 0.016
LATITUDE: N 40°-44'-11"
LONGITUDE: W 82°-46'-41"

metric units

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST., P.O. BOX 3598, MARION, OH 43307
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN KAA | REVIEWED TLS | DATE 12-97
CHECKED RLS | REVISED | STRUCTURE FILE NUMBER 1701908

CRAWFORD COUNTY
STA. 4+905.271
STA. 4+926.129

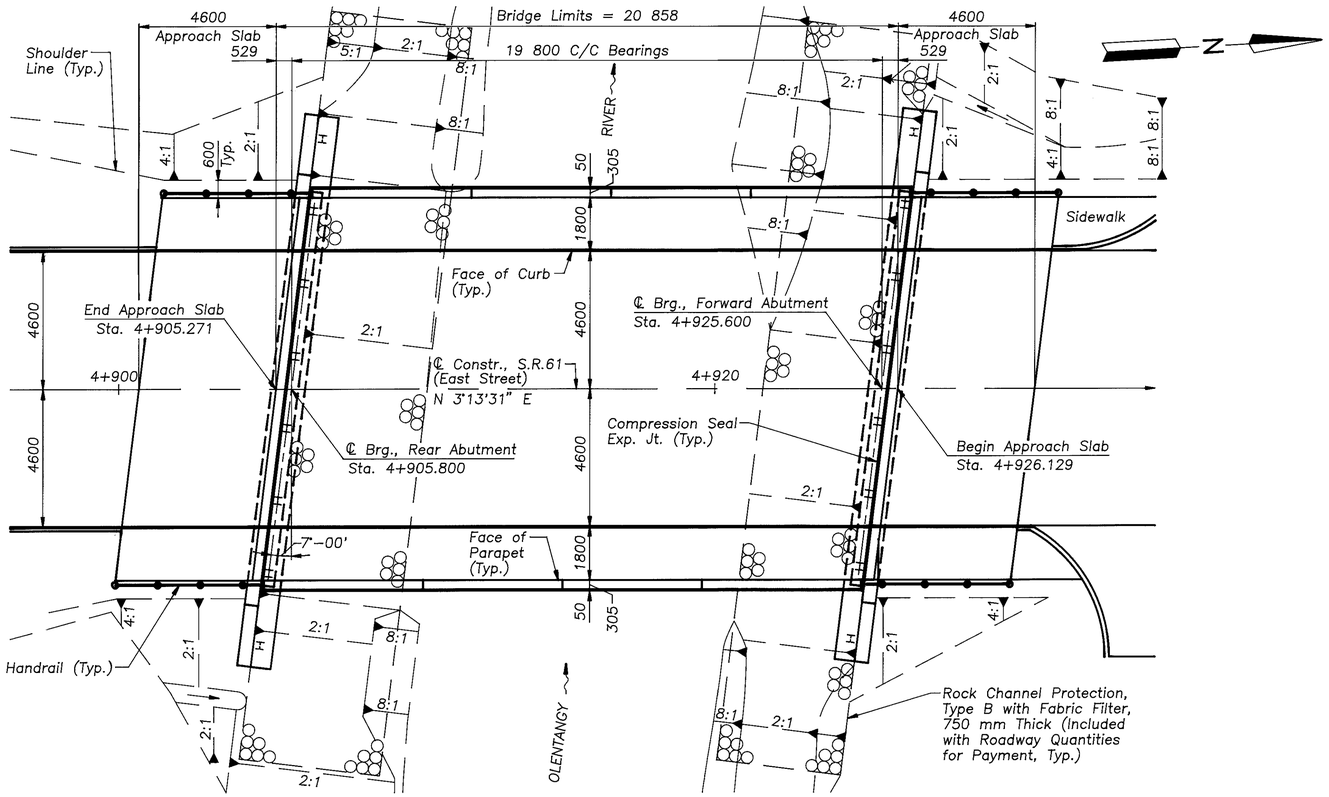
SITE PLAN
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

CRA-61-4.936

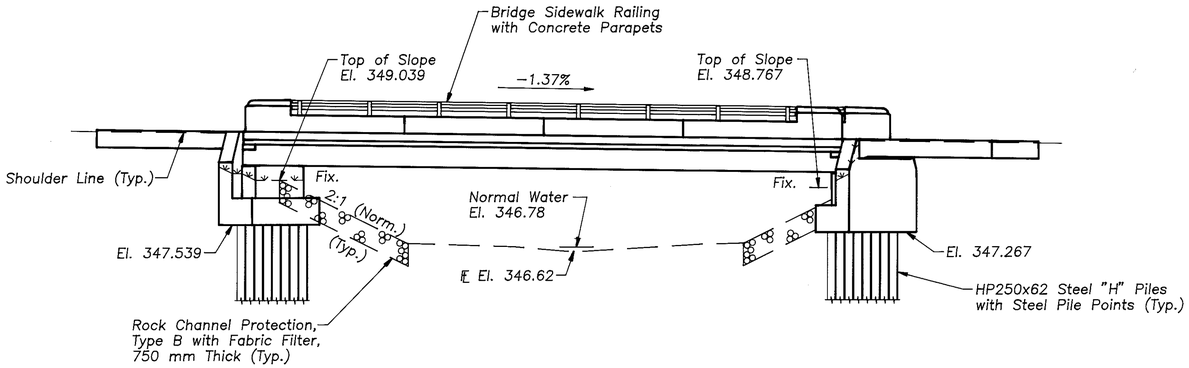
1 / 9

16 / 28

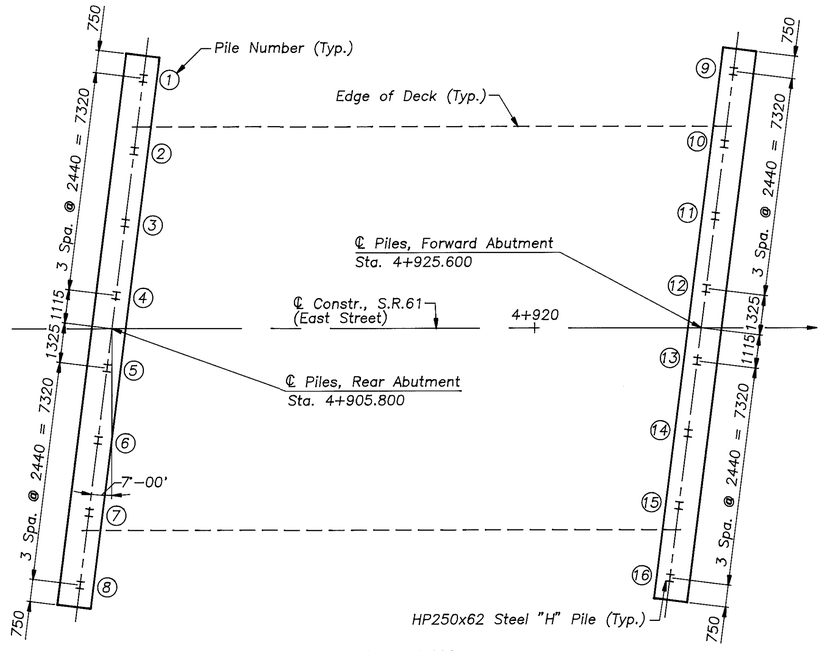
metric units



PLAN



ELEVATION



PILE PLAN

DESIGN AGENCY
SHAFER-JOHNSTON-LICHTENWALTER & ASSOCIATES, INC.
CONSULTING ENGINEERS – SURVEYORS
MANSFIELD OHIO WOOSTER

DESIGNED JSK
DRAWN JSK
REVIEWED TLS
DATE 12-97
CHECKED RAK
REVISED
STRUCTURE FILE NUMBER 1701908

GENERAL PLAN, ELEVATION AND PILE PLAN
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

CRA-61-4.936

2 / 9

17 / 28

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81M, DATED 10-25-94
BR-2-82M, DATED 12-19-94
EXJ-3-82M, REVISED 2-18-97
PSBD-1-93M, DATED 12-19-94

AND TO SUPPLEMENTAL SPECIFICATIONS:
849, DATED 6-14-95
949, DATED 6-14-95
865, DATED 1-6-98

DESIGN SPECIFICATIONS:
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, AND THE O.D.O.T. BRIDGE DESIGN MANUAL.

DESIGN LOADING:
MS18 AND THE ALTERNATE MILITARY LOADING.

DESIGN DATA:
CONCRETE CLASS S – COMPRESSIVE STRENGTH 31.0 MPa (SUPERSTRUCTURE)
CONCRETE CLASS C – COMPRESSIVE STRENGTH 27.5 MPa (SUBSTRUCTURE)
REINFORCING STEEL – A.S.T.M. A615M, A616M OF A617M GRADE 400, MINIMUM YIELD STRENGTH 400 MPa.
CONCRETE FOR PRESTRESSED BEAMS:
COMPRESSIVE STRENGTH – 38.0 MPa
UNIT STRESS – 15.2 MPa COMPRESSION
– 3.1 MPa TENSION

PRESTRESSING STRAND A.S.T.M. A416M
f's = 1860 MPa
INITIAL STRESS = 0.75 f's (LOW RELAXATION STRANDS)

DECK PROTECTION METHOD – EPOXY COATED REINFORCING STEEL, 65 mm CONCRETE COVER AND SEALING OF CONCRETE SURFACES.

REMOVAL OF EXISTING STRUCTURE:
WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING STRUCTURE SHALL BE REMOVED UPON RECEIVING PERMISSION FROM THE ENGINEER.

METRIC UNITS: ALL DIMENSIONS ARE IN MILLIMETERS AND ALL ELEVATIONS AND STATIONING ARE IN METERS UNLESS NOTED.

GENERAL NOTES

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN:
UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 MATERIAL PLACED IN 150 mm LIFTS AND COMPACTED IN ACCORDANCE WITH 304.04.

PILES TO BEDROCK: PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS OBTAINED BY PENETRATING SOFT BEDROCK FOR SEVERAL MILLIMETERS WITH A MINIMUM RESISTANCE OF 20 BLOWS PER 25 mm OR AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE ULTIMATE BEARING VALUE IS 984 kN PER PILE FOR THE HP250x62 ABUTMENT PILES.

ABUTMENT PILES:
16 PILES 9 m LONG, ESTIMATED LENGTH
16 PILES OF ORDER LENGTH 9 m LONG
8 SPLICES

ITEM 511, CLASS C AND S CONCRETE, AS PER PLAN:
COARSE AGGREGATE SHALL BE No.8 LIMESTONE.

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

BEARING PAD SHIMS:
3 mm THICK PREFORMED BEARING PAD SHIMS, PLAN AREA 215 mm BY 215 mm, SHALL BE PLACED UNDER THE ELASTOMERIC BEARING PADS WHERE REQUIRED FOR PROPER BEARING. THE AMOUNT SUPPLIED IS SUFFICIENT FOR TWO SHIMS PER BEAM. PAYMENT WILL BE MADE AT THE CONTRACT BID PRICE FOR ITEM 516, 3 mm PREFORMED BEARING PADS. ANY UNUSED SHIMS SHALL BECOME THE PROPERTY OF THE STATE.

ITEM 865, PRESTRESSED CONCRETE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB685-915 & CB685-1220:
SEE PROPOSAL NOTE "HIGH EARLY STRENGTH KEYWAY GROUT FOR PRESTRESSED/POST TENSIONED CONCRETE MEMBERS."

ITEM 516, STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL, AS PER PLAN:
SEE PROPOSAL NOTE "FABRICATED MEMBERS."

ITEM 517, RAILING (CONCRETE PARAPET WITH DOUBLE PIPE RAIL):
SEE PROPOSAL NOTE "FABRICATED MEMBERS."

REINFORCING STEEL LIST:
SEE SHEET 7/9.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
SEE PROPOSAL NOTE "SEALING OF CONCRETE SURFACES." EPOXY-URETHANE SHALL BE TINTED TO A "BUFF" COLOR MEETING FEDERAL COLOR STANDARD NO. 37722

ITEM SPECIAL, SEALING OF CONCRETE SURFACES (NON-EPOXY):
SEE PROPOSAL NOTE "SEALING OF CONCRETE SURFACES."

metric units

ESTIMATED QUANTITIES

CALC'D. JSK 8-29-97 CHK'D. RAK 12-20-97

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	GEN'L.	SHEET
202	11002	LUMP		STRUCTURE REMOVED, OVER 6 METER SPAN			LUMP	
502	12201	LUMP		TEMPORARY STRUCTURE (PEDESTRIAN), AS PER PLAN			LUMP	9/9
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN		LUMP		3/9
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION		LUMP		
507	00100	144	METER	STEEL PILES HP250x62, FURNISHED		144		
507	00150	144	METER	STEEL PILES HP250x62, DRIVEN		144		
507	50500	8	EACH	STEEL PILE SPLICES		8		
507	93300	16	EACH	STEEL POINT (OR SHOE)		16		
842	31601	64.8	CU.METER	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN	64.8			3/9
842	43501	82.6	CU.METER	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING, AS PER PLAN		82.6		3/9
SPECIAL	51267510	18	SQ.METER	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		18		
SPECIAL	51267504	277	SQ.METER	SEALING OF CONCRETE SURFACES (NON-EPOXY)	210	67		
865	12060	1	EACH	PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB685-915	1			
865	12070	10	EACH	PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB685-1220	10			
516	10501	27	METER	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL, AS PER PLAN	27			7/9
516	13600	19	SQ.METER	25 mm PREFORMED EXPANSION JOINT FILLER		19		
516	13800	5	SQ.METER	38 mm PREFORMED EXPANSION JOINT FILLER		5		
516	41200	1	SQ.METER	3 mm PREFORMED BEARING PAD, 711.21		1		
516	43101	44	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE), AS PER PLAN, 25X215X215mm (60 DUROMETER)		44		7/9
517	71500	40.08	METER	RAILING (CONCRETE PARAPET WITH DOUBLE PIPE RAIL)	40.08			
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		LUMP		5/9
518	40000	37	METER	150 mm PERFORATED CORRUGATED PLASTIC PIPE		37		
518	40010	16	METER	150 mm NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		16		

DESIGN AGENCY
SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
CONSULTING ENGINEERS – SURVEYORS
WOOSTER OHIO MANSFIELD

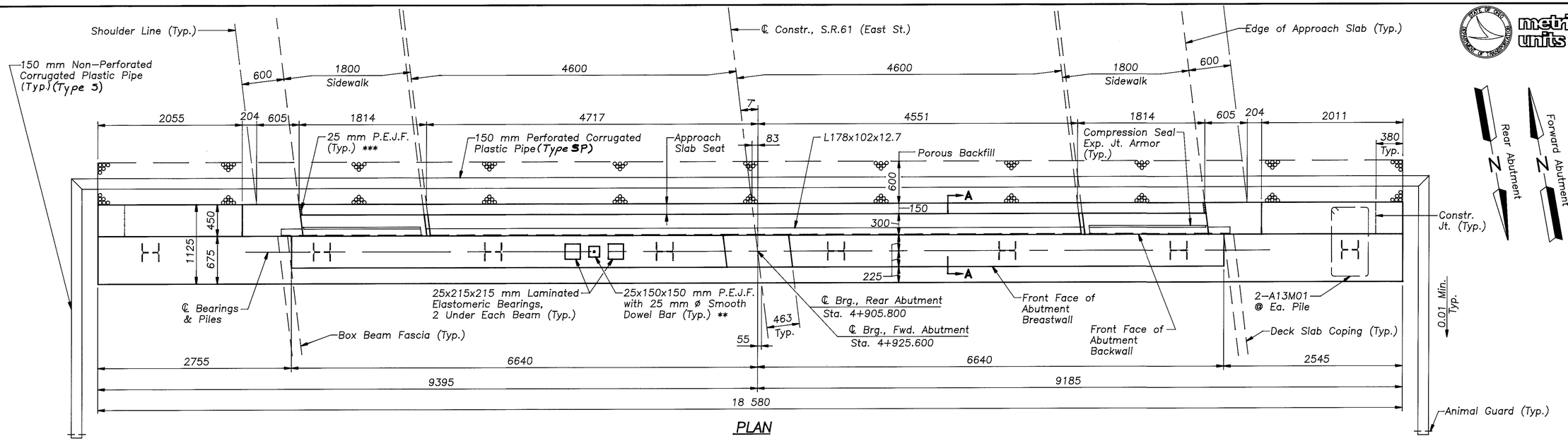
DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 12-97
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 1701908

GENERAL NOTES AND ESTIMATE OF QUANTITIES
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

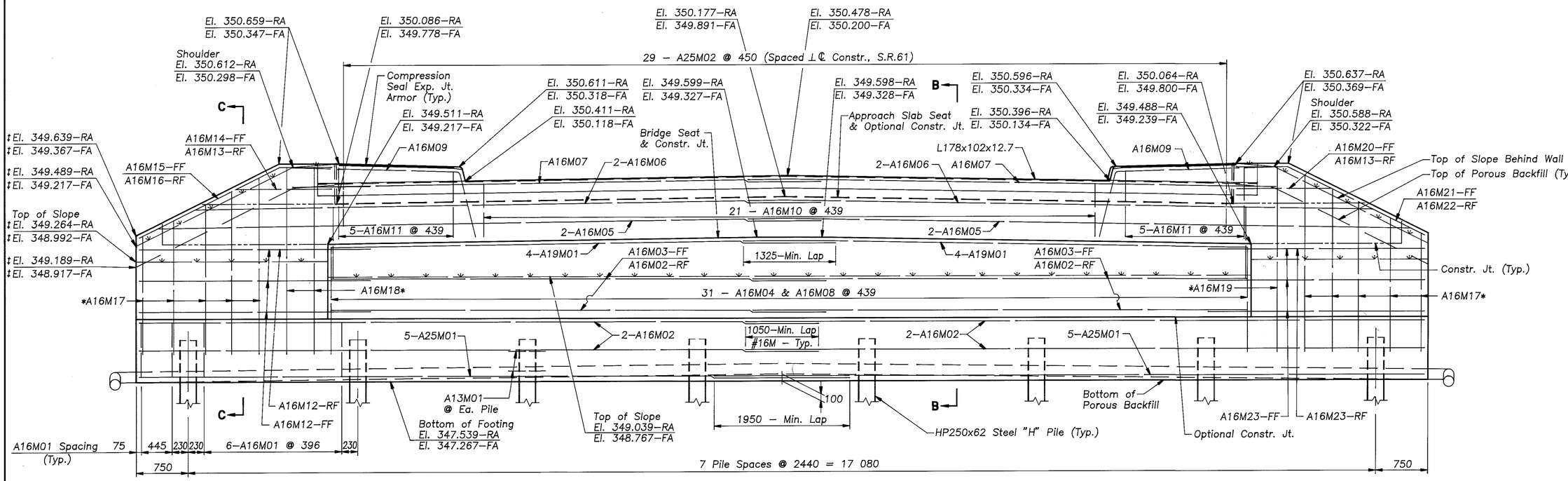
CRA-61-4.936

3/9

18/28



PLAN



ELEVATION

Rear Abutment - Looking Back
Forward Abutment - Looking Ahead

NOTATION:
P.E.J.F. - Preformed Expansion Joint Filler
FA - Forward Abutment
RA - Rear Abutment
FF - Front Face
RF - Rear Face
* - To be spaced with A16M01 bars.
** - To be included with Item 865 for payment.
*** - To be included with Approach Slab for payment.
‡ - Typical at each wing.

For Sections A-A, B-B, C-C and Abutment Notes, see sheet 5/9 .

metric units

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OH 44907
(419) 756-7302
CONSULTING ENGINEERS - SURVEYORS

DESIGNED JSK
DRAWN JSK
CHECKED RAK
REVIEWED TLS
DATE 12-97
STRUCTURE FILE NUMBER 1701908
REVISED

ABUTMENTS
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

CRA-61-4.936

ABUTMENT NOTES

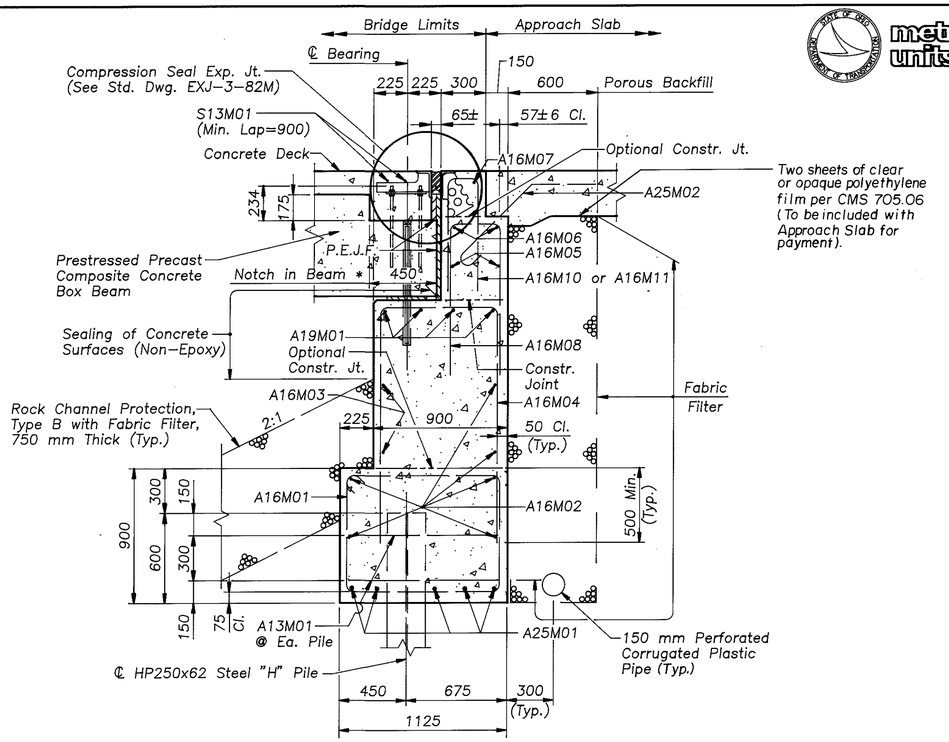
POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN, 600 mm thick shall extend up to the plane of the subgrade, to 300 mm below the embankment surface, and laterally to the ends of the wingwalls. Geotextile fabric shall conform with 712.09, Type A and shall be included with porous back-fill for payment. Material shall be according to 518.02 and shall be No. 57 gravel.

ABUTMENT CONCRETE above the bridge seat construction joint shall not be placed until the prestressed box beams have been erected.

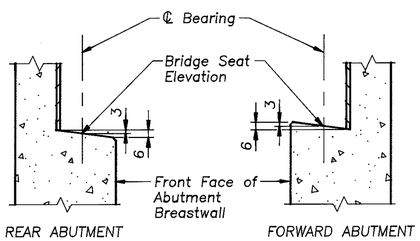
BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.

REINFORCING STEEL: See sheet 7/9.

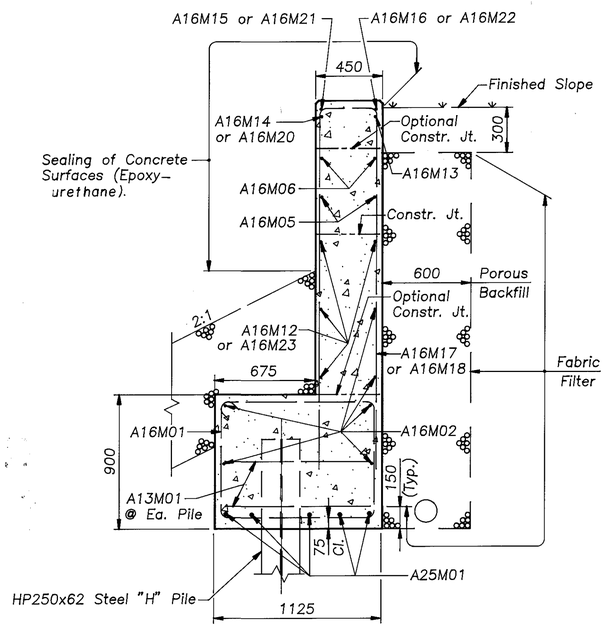
NOTATION:
P.E.J.F. – Preformed Expansion Joint Filler
* – Measured parallel to ℄ beams.



SECTION B–B



SECTION A–A



SECTION C–C

metric units

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909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OH 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

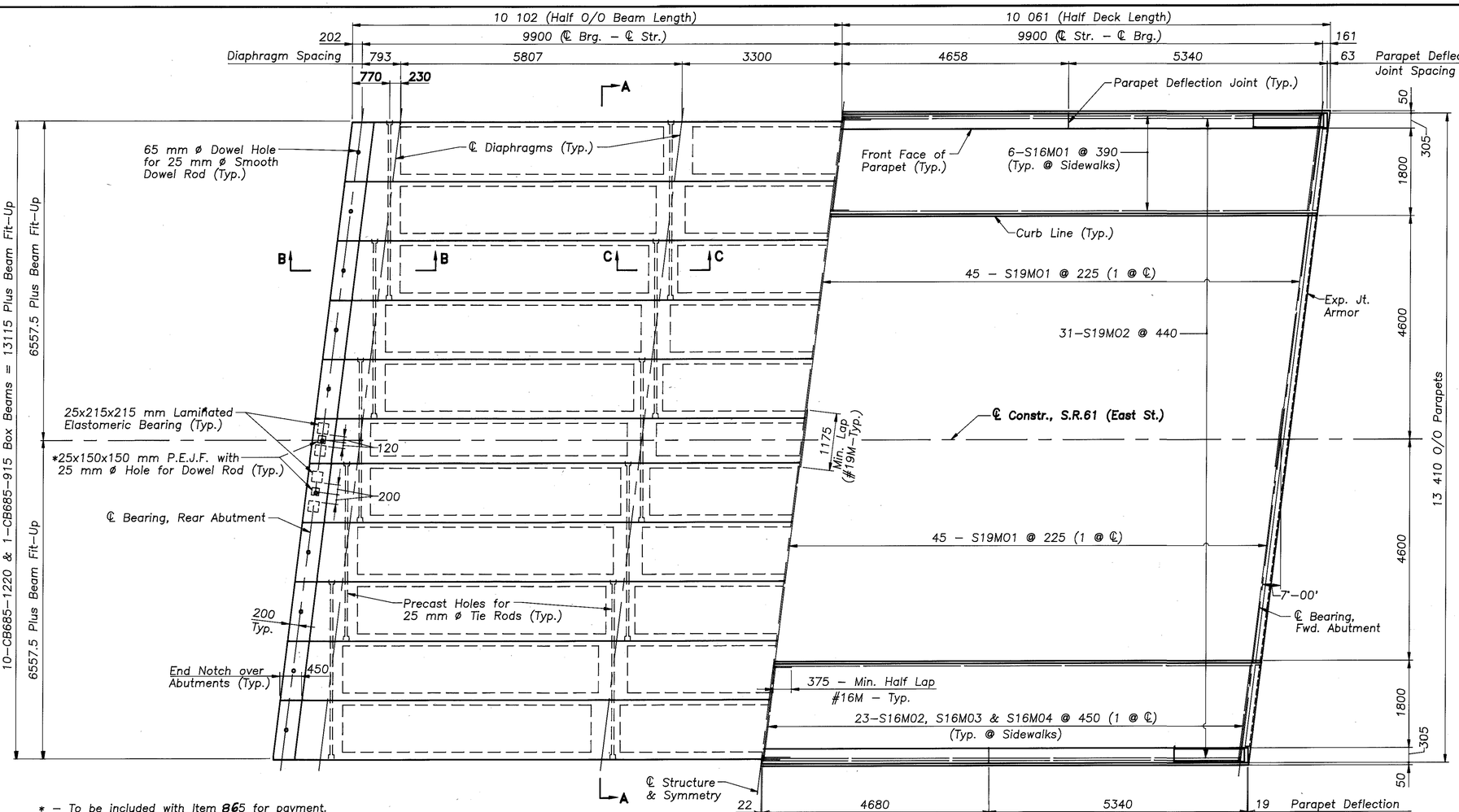
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	12-97
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		1701908	

ABUTMENT DETAILS
BRIDGE NO. CRA-61-04956
OVER OLENTANGY RIVER

CRA-61-4.936

5/9

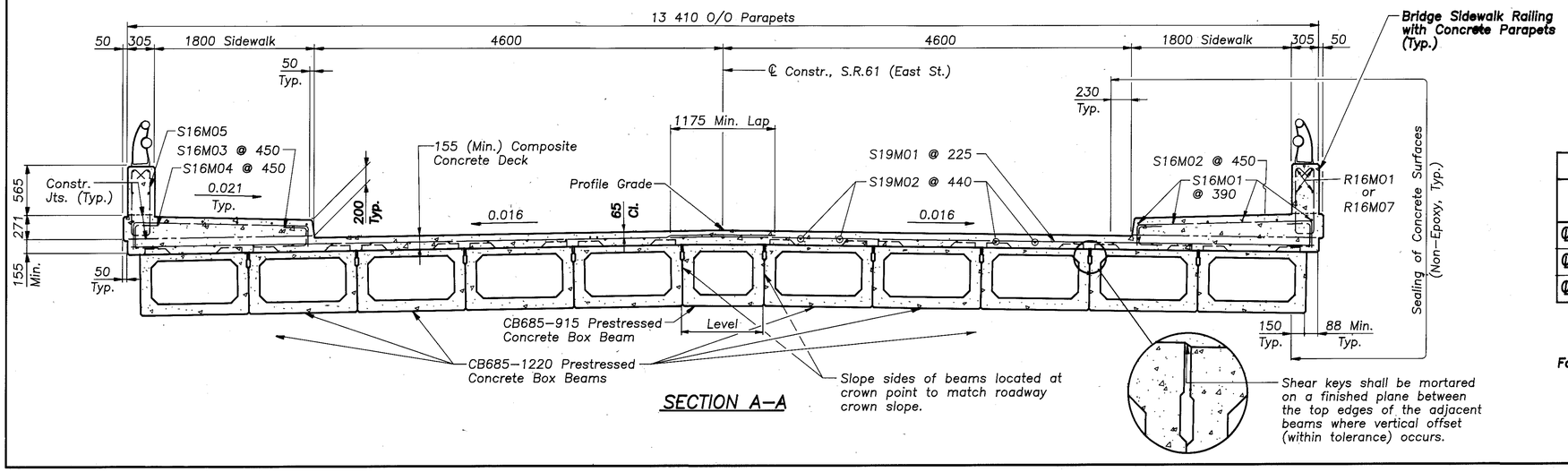
20/28



* – To be included with Item **865** for payment.

HALF DECK PLAN

HALF SLAB PLAN



SECTION A–A

TABLE OF DECK ELEVATIONS			
LOCATION	LT. CURB LINE	PROFILE GRADE	RT. CURB LINE
℄ BRGS., REAR ABUTMENT	350.393	350.475	350.408
℄ STRUCTURE	350.257	350.343	350.273
℄ BRGS., FWD. ABUTMENT	350.122	350.203	350.137

For Superstructure Notes, Reinforcing Steel List, Sections B–B & C–C, and additional details, see sheet 779 .

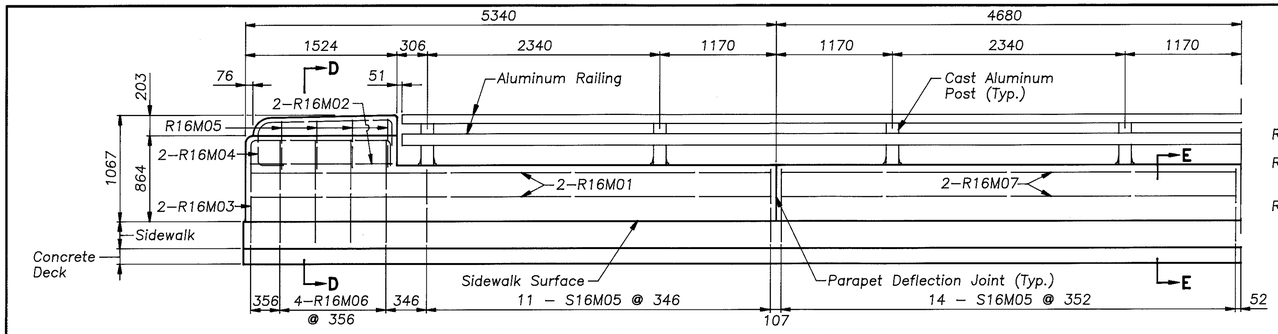
metric units

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. P.O. BOX 3598
MANSFIELD, OH 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

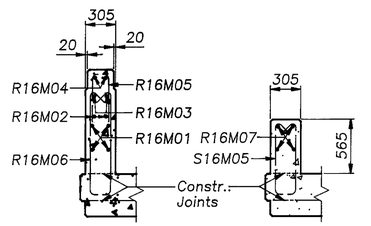
DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	12–97
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		1701908	

SUPERSTRUCTURE – 1
BRIDGE NO. CRA–61–04956
OVER OLENTANGY RIVER

CRA–61–4.936



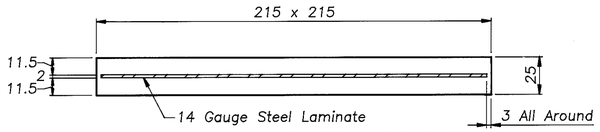
PART RAILING AND PARAPET ELEVATION



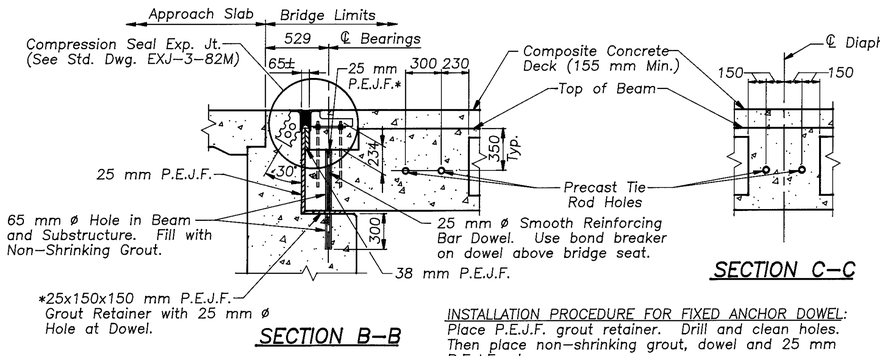
SECTION D–D SECTION E–E

ELASTOMERIC BEARINGS shall comply with Item 516 and Articles 18.2.5 through 18.2.8 of Section 18, Bearing Devices, Division II, Construction of the A.A.S.H.T.O. Standard Specifications for Highway Bridges. Bearings shall be Grade 3, 60 Durometer elastomer, and shall be subjected to the load testing requirements corresponding Design Method A. Testing shall be included in the unit price bid for the bearings, each.

BASIS OF PAYMENT: The unit bid price shall include all materials, labor and incidentals necessary to furnish and install laminated elastomeric bearings. Payment will be made at the contract price for Item 516, Each, Elastomeric Bearing with Internal Laminates Only (Neoprene), As Per Plan, 2.5 X 215 X 215 mm (60 Durometer)



LAMINATED ELASTOMERIC BEARING

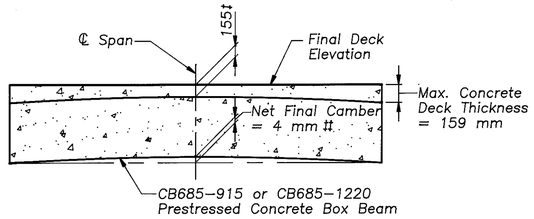


SECTION B–B SECTION C–C

INSTALLATION PROCEDURE FOR FIXED ANCHOR DOWEL: Place P.E.J.F. grout retainer. Drill and clean holes. Then place non–shrinking grout, dowel and 25 mm P.E.J.F. plug.

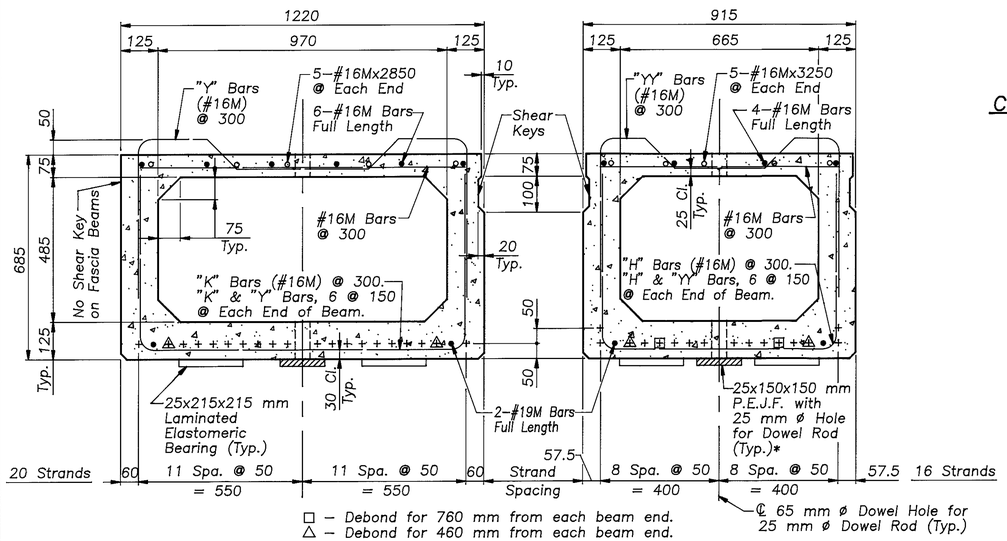
BEARING DESIGN LOADS

D.L. = 101.95 kN
L.L. = 35.67 kN
TOTAL = 137.62 kN



‡ Use 154 mm for CB685–915 Box Beam.
‡‡ Use 5 mm for CB685–915 Box Beam.

CONCRETE DECK THICKNESS DIAGRAM



□ – Debond for 760 mm from each beam end.
△ – Debond for 460 mm from each beam end.

CB685–1220 BEAM DETAIL CB685–915 BEAM DETAIL

SUPERSTRUCTURE NOTES

PRESTRESSED CONCRETE BOX BEAM DETAILS: See Standard Drawing PSBD–1–93M.

RAILING AND PARAPETS: See Standard Drawing BR–2–82M.

PRESTRESSING STEEL shall be A.S.T.M. A416M Grade 270, 12.7 mm ø, seven wire, uncoated, low–relaxation strands with an ultimate strength of 1860 MPa and initial tension load of 138 kN per strand.

CALCULATED CAMBER at time of deck placement, including allowance for camber growth due to creep, is 44 mm (48 mm for CB685–915). Calculated deflection due to weight of concrete deck, sidewalks, parapets and future wearing surface is 40 mm (43 mm for CB685–915). Net final camber of beams is 4 mm (5 mm for CB685–915). This is 4 mm (5 mm for CB685–915) in excess of the amount required to place the top of the beam parallel to the profile grade. This excess amount shall be compensated for by thickening the concrete deck from 155 mm (154 mm for CB685–915) at the center of the span to 159 mm at the ends of the span.

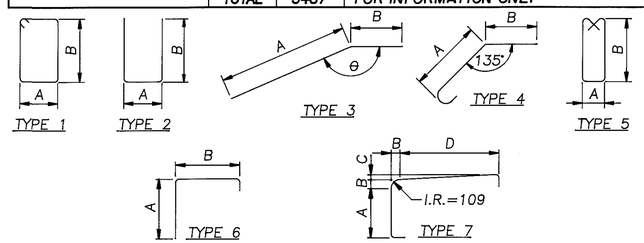
NOTATION:
P.E.J.F. – Preformed Expansion Joint Filler
FA – Forward Abutment
RA – Rear Abutment
LP – Left Parapet
RP – Right Parapet
* – To be included with Item 865 for payment.
** – To be included with Item 517 for payment.

GRADE 400 EPOXY COATED REINFORCING STEEL – ABUTMENTS

MARK	NUMBER RA	FA	TOTAL	LENGTH (mm)	MASS (kg)	TYPE	DIMENSIONS (mm) A	B	θ	INC.
A13M01	16	16	32	3200	102	1	1000	525		
A16M01	46	46	92	3775	539	1	1025	775		
A16M02	12	12	24	9775	364	S				
A16M03	4	4	8	7125	88	S				
A16M04	31	31	62	3975	382	2	800	1625		
A16M05	4	4	8	9550	119	S				
A16M06	4	4	8	9000	112	S				
A16M07	2	2	4	7600	47	S				
A16M08	31	31	62	2375	229	2	350	1050		
A16M09	2	2	4	3325	21	3	2400	950	105°	
A16M10	21	21	42	1625	106	2	200	750		
A16M11	10	10	20	2100	65	2	125	1025		
A16M12	4	4	8	3325	41	S				
A16M13	2	2	4	1375	9	S				
A16M14	1	1	2	1425	4	S				
A16M15	1	1	2	3050	9	3	2250	800	153°–30'	
A16M16	1	1	2	3000	9	3	2250	750	153°–30'	
	2	2	4	3675				1700		
A16M17	Series of 5	Series of 5	Series of 5	to 5325	140	2	350	to 2525		206
A16M18	3	3	6	5625	52	2	350	2675		
A16M19	1	1	2	1325	4	S				
A16M20	1	1	2	2900	9	3	2200	700	153°–30'	
A16M21	1	1	2	2950	9	3	2200	750	153°–30'	
A16M22	4	4	8	3125	39	S				
A19M01	8	8	16	7275	260	S				
A25M01	10	10	20	10 225	812	S				
A25M02	29	29	58	1400	181	4	700	425		
				TOTAL	3752	FOR INFORMATION ONLY				

GRADE 400 EPOXY COATED REINFORCING STEEL – SUPERSTRUCTURE

MARK	NUMBER LP	RP	TOTAL	LENGTH (mm)	MASS (kg)	TYPE	DIMENSIONS (mm) A	B	C	D
S13M01			8	7175	57	S				
S16M01			24	10 275	383	S				
S16M02			90	2375	332	2	1950	250		
S16M03			90	675	94	2	250	250		
S16M04			90	725	101	2	300	250		
S16M05	28	28	56	1850	161	5	200	725		
R16M01	8	8	16	5250	**	S				
R16M02	4	4	8	1425	**	S				
R16M03	4	4	8	2675	**	6	1075	1425		
R16M04	4	4	8	2150	**	7	300	125	25	1225
R16M05	8	8	16	1025	**	2	150	475		
R16M06	8	8	16	2450	**	5	200	1025		
R16M07	8	8	16	4600	**	S				
S19M01			178	7300	2904	S				
S19M02			62	10 500	1455	S				
				TOTAL	5487	FOR INFORMATION ONLY				



Bar size is indicated in the bar mark. The first letter identifies the bar location. The next two digits and letter indicate the metric bar size designation. The remaining digits indicate the sequence number.
Example: A16M01
A=Location of the bar in the structure
16M=Metric Bar Size Designation
01=Sequence Number
Bar dimensions shown are out–to–out unless noted. All reinforcing steel to be epoxy coated. Straight bars are indicated by "S."

metric units

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
P.O. BOX 3598
909 S. MAIN STREET
MANSFIELD, OH 44907
(419) 756-7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED JSK | DRAWN JSK | REVIEWED TLS | DATE 12-97
CHECKED RAK | REVISED | STRUCTURE FILE NUMBER 1701908

SUPERSTRUCTURE–2 AND REINFORCING STEEL
BRIDGE NO. CRA–61–04956
OVER OLENTANGY RIVER

CRA–61–4.936

7 / 9

22 / 28

B.M.: Chiseled Cross in N.W. Bolt of Hyd.
Sta. 4+853.1, 12.3 m Lt.
Elev. 352.157

B.M.: R.R. Spike in Power Pole
Sta. 5+028.9, 2.4 m Lt.
Elev. 350.624

metric units

(1)
CURVE DATA
P.I.Sta. 0+030.409
R=2.500m
T=0.837m
L=1.615m
E=0.136m
Δ=37°00'47" Rt.

(2)
CURVE DATA
P.I.Sta. 0+056.659
R=2.500m
T=0.894m
A=1.718m
E=0.155m
Δ=39°22'06" Rt.

END SIDEWALK
STA. 0+032.145 ℄ SIDEWALK
=STA. 4+904.781 ℄ S.R.61,
19.616 m LT.

℄ BRG., REAR ABUTMENT
STA. 0+033.135

℄ BRG., FWD. ABUTMENT
STA. 0+054.675

BEGIN SIDEWALK
STA. 0+055.665 ℄ SIDEWALK
=STA. 4+928.118 ℄ S.R.61,
16.687 m LT.

21 540

P.C. STA. 0+029.572

P.T. STA. 0+031.187

P.C. STA. 0+055.765

P.T. STA. 0+057.483

P.I. STA. 4+927.544 ℄ R/W
Δ = 0°44'16" RT.
(NO CURVE)

END SIDEWALK
STA. 0+060.193 ℄ SIDEWALK
=STA. 4+931.585 ℄ S.R.61,
13.948 m LT.

BEGIN SIDEWALK
STA. 0+000.000 ℄ SIDEWALK
=STA. 4+876.628 ℄ S.R.61,
4.699 m LT.

EX. SAN. M.H.
CONC. JUNCTION
BOX "X"

1500 (Typ.)

RIVER

375mm SAN. (TO REMAIN)

150mm SAN. (TO REMAIN)

250mm SAN. (TO REMAIN)

200mm SAN.

GRASS FIELD

CONC. DRIVE

ASPHALT PARKING

EX. R/W

(TO BE RELOCATED)

(TO REMAIN)

(TO BE REMOVED)

℄ R/W S.R.61 (EAST STREET)
N 2°49'17" E

℄ Constr., S.R.61 (EAST STREET)
N 3°13'31" E

N 3°33'33" E

300mm ST.S.

100mm (TO REMAIN)

100mm UNK

200mm

300mm

EX. SAN. M.H. "W"

EX. SAN. M.H. "Z"

EX. C.B. "F"

EX. C.B. "G"

250mm SAN.

450mm CMP

300mm PLASTIC (TO REMAIN)
(TO BE REMOVED)

OLENTANGY

1 STORY FRAME BUILDING

CONC.

B-1

B-2

4+860 4+880 4+900 4+920 4+940 4+960 4+980

350.5 350.0 349.5 349.0 348.5 348.0

PLAN

100-Yr. H.W. El. 349.57
5-Yr. (Design) H.W. El. 348.52

P.V.I. STA. 0+032.145
ELEV. 350.023
(NO VERTICAL CURVE)

Temporary Bridge Limits = 23 520

P.V.I. STA. 0+055.665
ELEV. 350.023
(NO VERTICAL CURVE)

The proposed temporary structure clears the 5-Yr. (design) H.W. by 1.004 m.

Existing Grade

Proposed Grade

-2.21%

0.00%

+7.60%

El. 348.912

El. 348.912

Normal Water El. 346.78

	350.732	350.511	350.291	350.070	350.023	350.023	350.352	349.933	349.919	
					+032.145	+055.665	+060.193,		+072.208,	
355										355
350										350
345										345
		+011.190, 350.56	+017.320, 350.55	+026.096, 350.63	+029.397, 350.61	+032.345, 350.19	+041.780, 346.60	+045.596, 346.57	+049.088, 346.68	+054.455, 350.03	+059.632, 350.38	+060.193, 350.367	+072.208, 349.919	
	350.732													

0+000 0+020 0+040 0+060 0+080

PROFILE ALONG ℄ SIDEWALK & TEMPORARY PEDESTRIAN BRIDGE

All elevations and stationing are in meters and all dimensions are in millimeters, unless noted otherwise.

EARTHWORK limits shown are approximate. Actual slopes shall conform to plan cross sections.

DRAINAGE AREA = 28.05 km²

Q_5 = 27.2 m³/s Q_{100} = 62.3 m³/s
V_5 = 1.08 m/s V_{100} = 2.01 m/s
HW_5 El. 348.52 HW_{100} El. 349.57

FOUNDATION INVESTIGATION LEGEND
⊕ – Indicates core boring location

PROPOSED TEMPORARY STRUCTURE
TYPE: "Acrow Panel Bridge," "Mabey Universal Bridge" or Approved Equal Bridging System with Reinforced Concrete Substructure
SPAN: 21 540 C/C Bearings
WALK: 1500 F/F Fence
LOADING: 4.1 kN/m²
SKEW: 0°
WEARING SURFACE: Asphalt Concrete
CROWN: 0.021
ALIGNMENT: Tangent

EM12811TP.DWG

SHAFFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST., P.O. BOX 3598
MANSFIELD, OH 44901
(419) 756-7302
CONSULTING ENGINEERS — SURVEYORS

DESIGNED JSK
DRAWN KAA
REVIEWED TLS
DATE 12-97
CHECKED RAK
REVISED
STRUCTURE FILE NUMBER 1701908

CRAWFORD COUNTY
STA. 0+032.145
STA. 0+055.665

SITE PLAN
TEMPORARY PEDESTRIAN BRIDGE
OVER OLENTANGY RIVER

CRA-61-4.936

8 / 9

23 / 28

DESIGN DATA

DESIGN LOADING – 4.1 kN/m²

CONCRETE CLASS C – COMPRESSIVE STRENGTH 27.5 MPa

REINFORCING STEEL – A.S.T.M. A615M, A616M OR A617M GRADE 400, MINIMUM YIELD STRENGTH 400 MPa.

STRUCTURAL STEEL – A.S.T.M. A572M, YIELD STRENGTH 350 MPa

ITEM 502, TEMPORARY STRUCTURE (PEDESTRIAN) AS PER PLAN

DESCRIPTION:
THIS ITEM SHALL CONSIST OF PREPARING PLANS, PROVIDING, MAINTAINING AND SUBSEQUENTLY REMOVING A FULLY ENGINEERED TEMPORARY PEDESTRIAN STRUCTURE OF THE SPAN AND WIDTH SPECIFIED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT AS MODIFIED HEREIN AND IN REASONABLY CLOSE CONFORMITY WITH THE ALIGNMENT, PROFILE, LOCATION AND DETAILS SHOWN IN THE PLANS.

THREE (3) COPIES OF THE CONTRACTOR'S PLANS FOR THE PROPOSED TEMPORARY STRUCTURE AND TWO (2) COPIES OF THE DESIGN COMPUTATIONS SHALL BE SUBMITTED TO THE DIRECTOR AT LEAST 30 DAYS BEFORE ITS SCHEDULED CONSTRUCTION. SUCH CONSTRUCTION SHALL NOT BEGIN UNTIL AFTER APPROVAL HAS BEEN RECEIVED. THE PLANS SHALL BE PREPARED, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER.

SUPERSTRUCTURE:
THE SUPERSTRUCTURE SHALL BE AS DESIGNED AND SUPPLIED BY ACROW CORPORATION OF AMERICA, 396 WASHINGTON AVE., P.O. BOX 812, CARLSTADT, NEW JERSEY 07072–0812, TELEPHONE (800) 524–1363; MABEY BRIDGE INC., 921–A BALTIC AVE., BALTIMORE, MARYLAND 21225, TELEPHONE (410) 379–2800; OR AN APPROVED ALTERNATE.

THE SUPERSTRUCTURE SHALL BE COMPRISED OF INTERCHANGEABLE MODULAR, STEEL TRUSS PANEL UNITS, PINNED TOGETHER, DESIGNED SPECIFICALLY FOR RAPID INSTALLATION AND CAPABLE OF DISASSEMBLY AND REUSE. MATERIALS THAT HAVE BEEN PREVIOUSLY USED ARE ACCEPTABLE UPON INSPECTION BY THE ENGINEER.

THE DECK SHALL BE ORTHOTROPIC STEEL DECK PANELS OR TIMBER AND DESIGNED TO SUPPORT A LIVE LOAD OF 4.1 kN PER SQUARE METER. ALL COMPONENTS OF THE DECKING WILL BE NEW AND UNUSED. THE WALKING SURFACE WILL BE MADE NON–SKID BY USE OF A BINDER AND GRIT SOLUTION.

HEAVY DUTY CHAIN LINK FENCING SHALL BE PROVIDED FOR THE PROTECTION OF PEDESTRIAN TRAFFIC.

THE BRIDGE SHALL BE DESIGNED IN ACCORDANCE WITH A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 AND ALL INTERIMS. MEMBERS SHALL BE DESIGNED SO THAT THE MAXIMUM STRESS DOES NOT EXCEED THE BASIC ALLOWABLE STRESSES GIVEN IN THE SPECIFICATIONS. THE ALLOWABLE STRESS LEVEL MUST REFLECT THE CONSTRUCTION OF THE TRUSS MEMBERS AS A SERIES OF PIN CONNECTED SECTIONS. DEFLECTION, DUE TO SERVICE LIVE LOAD PLUS IMPACT, SHALL NOT EXCEED 1/800 OF THE SPAN.

ALL MATERIALS SHALL CONFORM TO O.D.O.T. CMS 711. ALL COMPONENTS NECESSARY FOR THE ASSEMBLY AND INSTALLATION OF THE BRIDGE SHALL BE DELIVERED TO THE SITE WITH READY TO BE ASSEMBLED INSTRUCTIONS.

ALL STRUCTURAL COMPONENTS SHALL BE HOT–DIPPED GALVANIZED, IN ACCORDANCE WITH A.S.T.M. A123 OR EQUIVALENT. ALL NUTS AND BOLTS SHALL BE SPUN GALVANIZED. PINS SHALL BE ELECTROPLATED USING A ZINC COATING OR SUITABLE EQUIVALENT. ANCHOR BOLTS AND BEARING PLATE SHALL BE PROVIDED COMPLETE WITH THE PANEL BRIDGE.

MAIN LOAD CARRYING MEMBER COMPONENTS, SUBJECTED TO TENSILE STRESS, REQUIRE SUPPLEMENTAL IMPACT PROPERTIES AS DESCRIBED IN 711.01.

ALL TRUSS MEMBERS WILL BE OF A DESIGN SO THAT ALL SURFACE AREAS OF THE MEMBERS CAN BE EASILY INSPECTED AND MAINTAINED.

NO FIELD WELDING WILL BE ALLOWED ON THE SUPERSTRUCTURE.

A QUALIFIED REPRESENTATIVE OF THE BRIDGE MANUFACTURER SHALL BE AVAILABLE TO PROVIDE TECHNICAL ASSISTANCE DURING THE INITIAL ERECTION AND INSTALLATION OF THE BRIDGE. THIS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE STATE OF OHIO.

SUBSTRUCTURE:
THE CONTRACTOR SHALL VERIFY THE DESIGNS OF THE ABUTMENTS AS SHOWN IN THE PLANS AND SHALL MAKE ANY ADJUSTMENTS IN THE DESIGNS TO MAKE THEM COMPATIBLE WITH THE PROPOSED SUPERSTRUCTURE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY REDESIGN OF THE SUBSTRUCTURE AND SHALL ENSURE THAT THE SUBSTRUCTURE DESIGNS ARE ADEQUATE TO CARRY THE DESIGN LOADS, IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

PAYMENT:
THE ERECTION, MAINTENANCE AND SUBSEQUENT REMOVAL OF THE TEMPORARY STRUCTURE WILL BE PAID FOR AT THE CONTRACT PRICE FOR ITEM 502, TEMPORARY STRUCTURE (PEDESTRIAN), AS PER PLAN.

GRADE 400 REINFORCING STEEL – ABUTMENTS

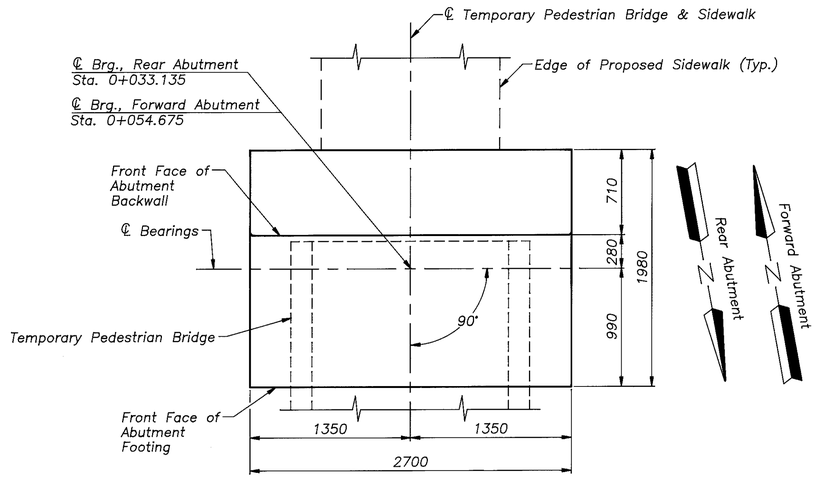
MARK	NUMBER			LENGTH (mm)	MASS (kg)	TYPE	DIMENSIONS (mm)	
	RA	FA	TOTAL				A	B
A16M01	14	14	28	2550	111	S		
A16M02	14	14	28	1825	79	S		
A16M03	7	7	14	2450	53	1	575	975
				TOTAL	243	FOR INFORMATION ONLY		

TYPE 1

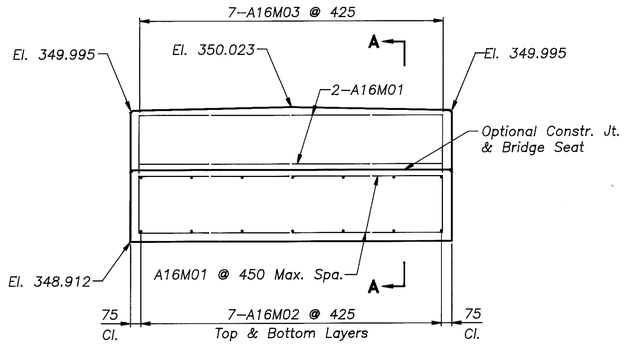
The bar size number is specified on the plans in the bar mark column. The first letter identifies the bar location. The next two digits and letter indicate the metric bar size designation. The remaining digits indicate the sequence number.
Example: A16M01
A=Location of the bar in the structure
16M=Metric Bar Size Designation
01=Sequence Number
Bar dimensions shown are out–to–out unless noted. Straight bars are indicated by "S."

ESTIMATED QUANTITIES (FOR INFORMATION ONLY)

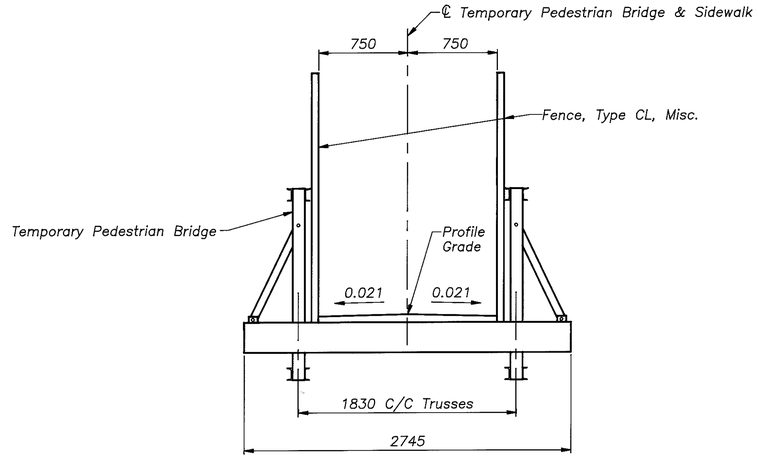
TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER.
15	CU.METER	UNCLASSIFIED EXCAVATION	15	
8.3	CU.METER	CLASS C CONCRETE, ABUTMENT INCLUDING FOOTING	8.3	
22	METER	TEMPORARY SUPERSTRUCTURE (PEDESTRIAN)		22
44	METER	FENCE, TYPE CL, MISC. (2085 mm)		44
243	KILOGRAM	REINFORCING STEEL, GRADE 400	243	



ABUTMENT PLAN

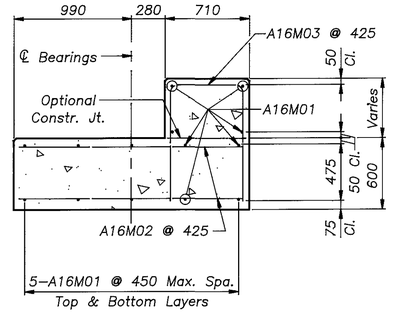


ABUTMENT ELEVATION



TRANSVERSE SECTION

"Acrow Panel Bridge" shown but contractor can use "Mabey Universal Bridge" or an approved equal bridging system.



SECTION A–A

metric units

SHAFER, JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.
909 S. MAIN ST. – P.O. BOX 3598
MANSFIELD, OHIO 44907
(419) 756–7302
CONSULTING ENGINEERS – SURVEYORS

DESIGNED	DRAWN	REVIEWED	DATE
JSK	JSK	TLS	12–97
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RAK		1701908	

DETAILS, NOTES & ESTIMATED QUANTITIES
TEMPORARY PEDESTRIAN BRIDGE
OVER OLENTANGY RIVER

CRA–61–4.936

9 / 9

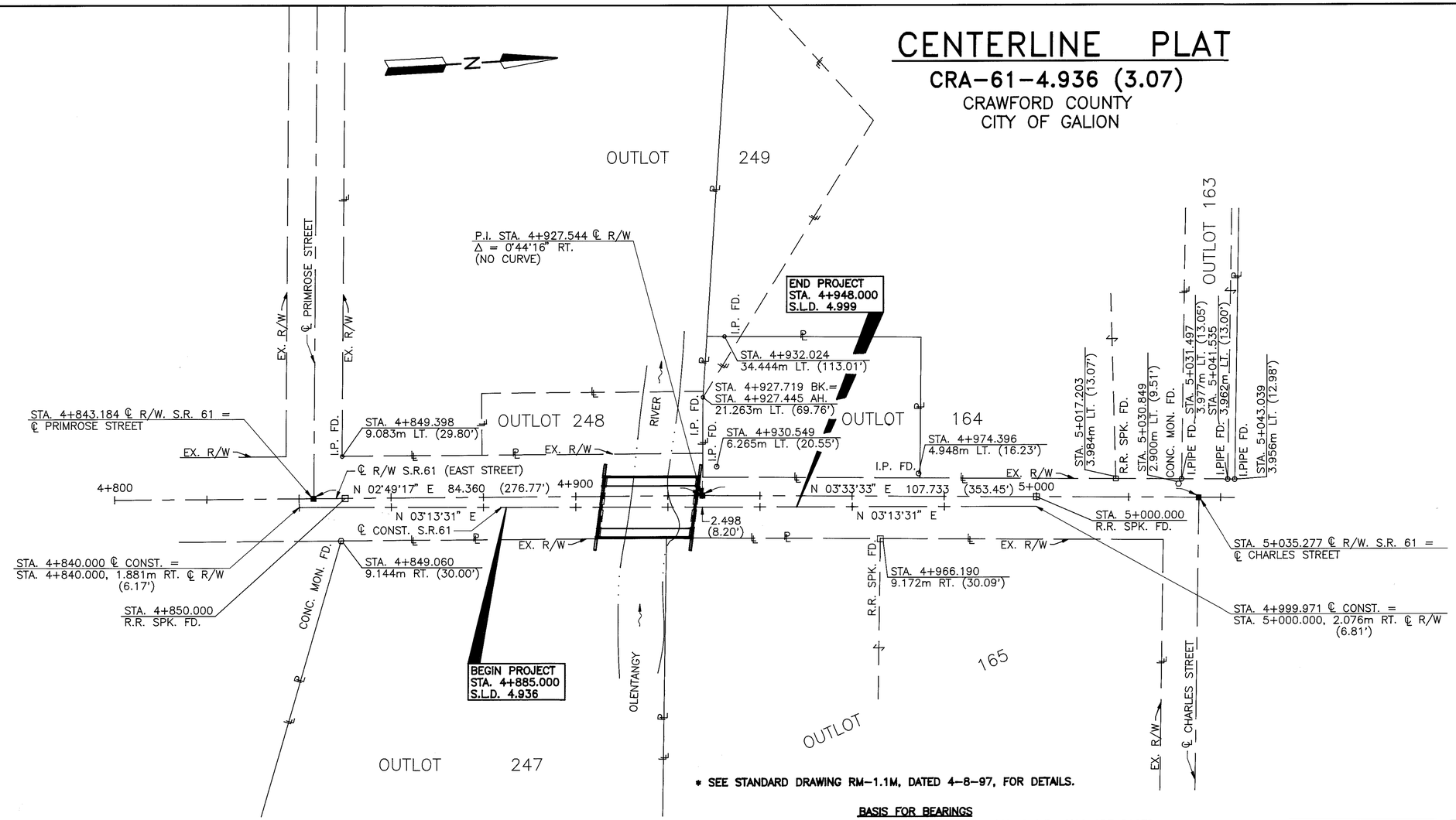
24 / 28

CENTERLINE PLAT

CRA-61-4.936 (3.07)

CRAWFORD COUNTY
CITY OF GALION

metric units



* SEE STANDARD DRAWING RM-1.1M, DATED 4-8-97, FOR DETAILS.

BASIS FOR BEARINGS

ALL BEARINGS SHOWN ARE FOR PROJECT USE ONLY. THESE BEARINGS ARE BASED ON AN ASSUMED MERIDIAN AND ARE USE TO EXPRESS ANGLES ONLY.

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:

- EXISTING PROPERTY LINE MONUMENTATION FOUND
- SURVEY OF PART OF OUTLOTS 163, 164 AND 249 RECORDED IN PLAT BOOK 29, PAGE 469.
- SURVEY OF PART OF OUTLOT 165 RECORDED IN PLAT BOOK 27, PAGE 471.
- RIGHT OF WAY WIDTH OBTAINED FROM CRAWFORD COUNTY TAX MAPS.

NOTE: ALL DIMENSIONS, UNLESS OTHERWISE SPECIFIED, ARE IN METERS WITH ENGLISH EQUIVALENTS IN (FEET).

THE METRIC TO ENGLISH CONVERSION FACTOR IS BASED ON THE U.S. SURVEY FOOT. (1 FOOT=1200/3937 METERS = 0.3048006096 METERS) AND IS: 1 METER = 3.28083333335 FEET.

MONUMENT LEGEND

- ■ MONUMENT ASSEMBLY SET
- ● 19mm REINFORCING BAR SET W/ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC."
- ▲ RAILROAD SPIKE SET
- ○ MONUMENT FOUND
- ○ IRON PIN FOUND
- □ RAILROAD SPIKE FOUND
- ✖ P.K. NAIL SET

* MONUMENT ASSEMBLY ■

QUAN.	STATION	LOCATION	REMARKS
1	4+843.184	℄ R/W	P.O.T.
1	4+927.544	℄ R/W	P.I.
1	5+035.277	℄ R/W	P.O.T.
3	TOTAL (QUANTITY CARRIED TO SHEET NO. 5)		

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY FOR THE OHIO DEPARTMENT OF TRANSPORTATION IN 1997 BY SHAFFER JOHNSTON, LICHTENWALTER & ASSOCIATES, INC.

THE ESTABLISHMENT OF THE PROPERTY LINES AND EXISTING RIGHT OF WAY LINES SHOWN ON THIS PLAN AS OF THIS DATE WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

STATE OF OHIO ROGER L. STEVENS 7052 REGISTERED SURVEYOR

BY Roger L. Stevens
ROGER L. STEVENS
REGISTERED SURVEYOR NO. 7052 DATE 6-5-98

RECEIVED _____ AT _____
RECORDED _____
PLAT BOOK _____ PAGE _____
SIGNED _____ RECORDER, CRAWFORD COUNTY
FEE _____

MONUMENT ASSEMBLIES AS SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1M (REVISED 4-8-97) OF THE DEPARTMENT OF TRANSPORTATION ARE TO BE PLACED AT THE LOCATIONS SHOWN.

THE PLACING OF THE MONUMENTS SHALL BE UNDER THE DIRECTION OF A REGISTERED SURVEYOR AND MONUMENTS ARE TO BE SET AS SHOWN BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION, AND ANY ALTERATIONS SHALL BE NOTED AND THE COUNTY ENGINEER AND THE OHIO DEPARTMENT OF TRANSPORTATION SHALL BE NOTIFIED OF THE NEW LOCATIONS.

HORIZONTAL SCALE IN METERS
0 10 20

FEDERAL PROJECT NO. STP

STATE JOB NO. 030800

CENTERLINE PLAT

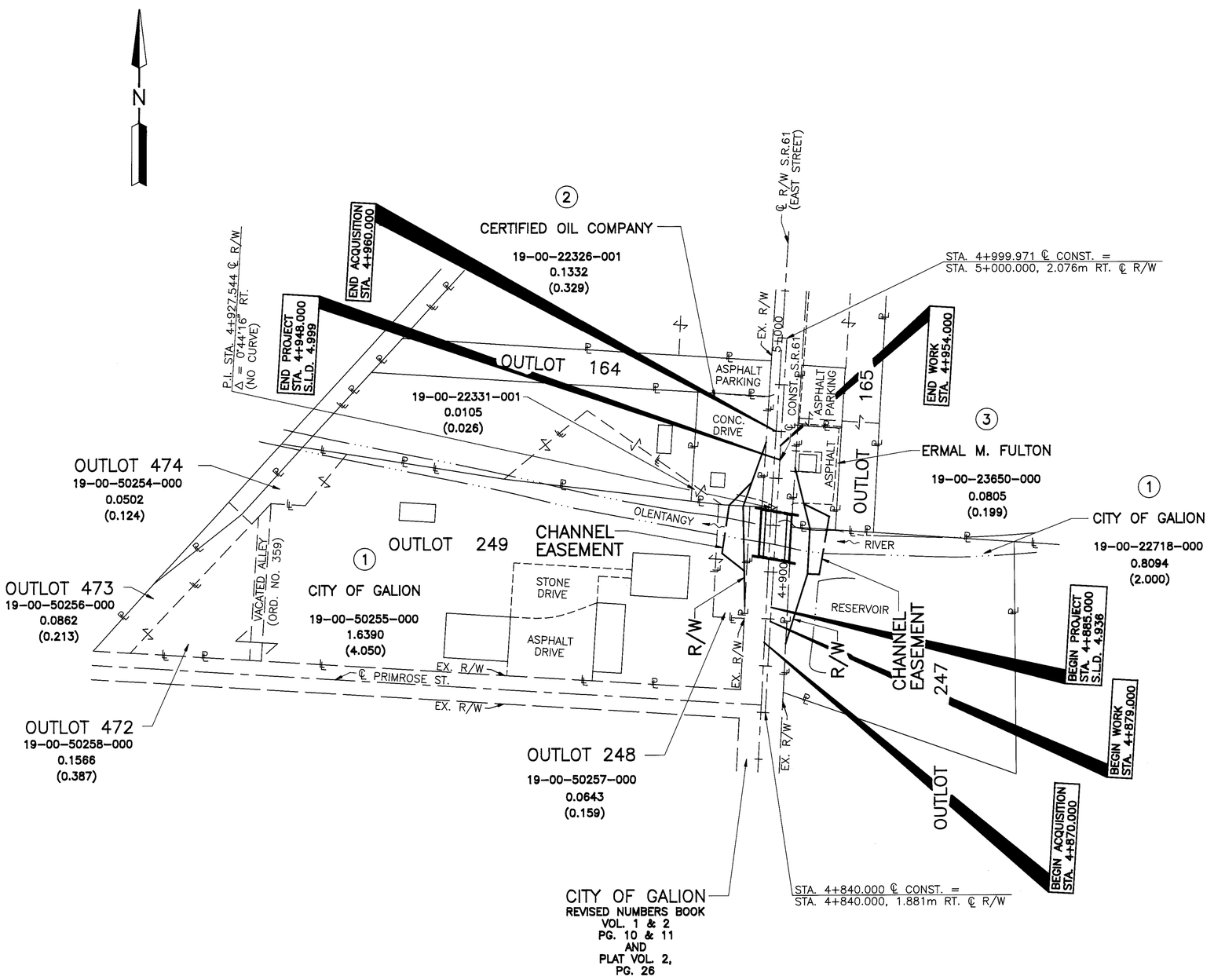
CRA-61-4.936 (3.07)

1/1
1/4
25/28

PROPERTY MAP
CRA-61-4.936 (3.07)

CRAWFORD COUNTY
CITY OF GALION

metric units



CONVENTIONAL SIGNS

County Line	Limited Access (only) —LA—
Township Line	Right of Way (only) —R/W—
Section Line	Limited Access & Right of Way —LA-R/W—
Corporation Line —or—	Existing Right of Way —EX. R/W—
Fence Line(existing) (proposed)	Property Line ℄ (in existing fence)
Center Line	Railroad —or—
Trees, Stumps, (to be removed)	Guardrail (existing) (proposed)
Utility Poles: Telephone, Power, Light	Work Limits
Underground Telephone —T—	Lot Line

UTILITY OWNERS

GAS
COLUMBIA GAS OF OHIO
1120 W. FOURTH ST.
P.O. BOX 1326
MANSFIELD, OHIO 44901
(419) 528-1114

ELECTRIC
CITY OF GALION
ELECTRIC LINE DEPT.
700 PRIMROSE AVE.
GALION, OHIO 44833
(419) 468-5639

WATER & SEWER
CITY OF GALION
WATER & SEWER DEPT.
6374 HOSFORD ROAD
GALION, OHIO 44833
(419) 468-5010

TELEPHONE
GTE TELEPHONE OPERATIONS
83 TOWNSEND AVE.
NORWALK, OHIO 33857
(419) 744-3619

CABLE TELEVISION
MEDIA ONE
21 PUBLIC SQUARE
GALION, OHIO 44833
(419) 468-2000

UNDERGROUND UTILITIES

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

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR.

ALL TEMPORARY PARCELS TO BE OF 18 MONTHS DURATION.

NOTE: UNLESS SPECIFIED OTHERWISE, AREAS ARE STATED IN HECTARES WITH ENGLISH EQUIVALENTS IN (ACRES).

1.000 HECTARE = 2.471044 ACRES

STRUCTURES KEY:
- ■ RESIDENTIAL BUILDING
- □ COMMERCIAL BUILDING OR GARAGE

REV.	DATE	DESCRIPTION

DATE OF COMPLETION 6-5-98

N

0 20 40 HORIZONTAL SCALE IN METERS

FEDERAL PROJECT NO. STP

P.I.D. NO. 13015

STATE JOB NO. 030800

PROPERTY MAP

CRA-61-4.936 (3.07)

2/4

26/28

SUMMARY OF ADDITIONAL RIGHT OF WAY

TOTAL NO. OF OWNERS = 3 | TOTAL NO. OF TOTAL TAKES = 0 | TOTAL NO. OF OWNERS WITH STRUCTURES = 0 | TOTAL NO. OF OWNERS WITH PERSONALTY ITEMS = 0

PARCEL NO.	OWNER	AUDITOR'S PARCEL	TYPE FUND	OWNERS RECORD BOOK	OWNERS RECORD PAGE	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	SHEET NO.	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1WDV	CITY OF GALION	19-00-50257-000	STATE	221	112	0.0643	0.0000	0.0061	0.0000	0.0061	NO			4			
						(0.159)	(0.000)	(0.015)	(0.000)	(0.015)							
1XV								0.0192		0.0192		0.0390	———	4			
								(0.047)		(0.047)		(0.097)	———				
1TV								0.0145		0.0145				4	TO CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE.		
								(0.036)		(0.036)							
1WDV-1		19-00-22718-000	STATE	395	815	0.8094	0.0000	0.0272	0.0000	0.0272				4			
						(2.000)	(0.000)	(0.067)	(0.000)	(0.067)							
1XV-1								0.0120		0.0120		———	0.7702	4			
								(0.030)		(0.030)		———	(1.903)				
		19-00-50254-000		137	211	0.0502	0.0000					0.0502	———				
						(0.124)	(0.000)					(0.124)	———				
		19-00-50255-000				1.6390	0.0000					1.6390	———				
						(4.050)	(0.000)					(4.050)	———				
		19-00-50256-000				0.0862	0.0000					0.0862	———				
						(0.213)	(0.000)					(0.213)	———				
		19-00-50258-000				0.1566	0.0000					0.1566	———				
						(0.387)	(0.000)					(0.387)	———				
	TOTALS					2.8057	0.0000		0.0000			1.9710	0.7702				
						(6.933)	(0.000)		(0.000)			(4.871)	(1.903)				
2WDV	CERTIFIED OIL COMPANY	19-00-22326-001	STATE	438	815	0.1332	0.0000	0.0110	0.0000	0.0110	NO			4			
						(0.329)	(0.000)	(0.027)	(0.000)	(0.027)							
2XV								0.0031		0.0031		0.1191	———	4			
								(0.008)		(0.008)		(0.294)	———				
2TV								0.0043		0.0043				4	TO CONSTRUCT DRIVE		
								(0.011)		(0.011)							
		19-00-22331-001				0.0105	0.0000					0.0105	———				
						(0.026)	(0.000)					(0.026)	———				
	TOTALS					0.1437	0.0000					0.1283	———				
						(0.355)	(0.000)					(0.320)	———				
3WDV	ERMAL M. FULTON	19-00-23650-000	STATE	419	512	0.0805	0.0000	0.0100	0.0000	0.0100	NO			4			
						(0.199)	(0.000)	(0.025)	(0.000)	(0.025)							
3XV								0.0071		0.0071		———	0.0634	4			
								(0.018)		(0.018)		———	(0.156)				
3TV								0.0042		0.0042				4	TO CONSTRUCT DRIVE		
								(0.010)		(0.010)							

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR.

ALL TEMPORARY PARCELS TO BE OF 18 MONTHS DURATION.

GRANTEE: ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE CITY OF GALION.

NET RESIDUE = RECORD AREA – TOTAL PRO – NET TAKE.

NOTE: UNLESS SPECIFIED OTHERWISE, AREAS ARE STATED IN HECTARES WITH ENGLISH EQUIVALENTS IN (ACRES).

1.000 HECTARE = 2.471044 ACRES

REV.	DATE	DESCRIPTION

DATE OF COMPLETION 6-5-98

metric units

FEDERAL PROJECT NO. STP

P.I.D. NO. 13015

STATE JOB NO. 030800

SUMMARY OF ADDITIONAL RIGHT OF WAY

CRA-61-4.936 (3.07)

3/4

27/28

CRA-61-4.936 (3.07)

CRAWFORD COUNTY
CITY OF GALION

metric units

OUTLOT 249
REVISED NUMBERS BOOK VOL. 1 & 2, PG. 10 & 11

① CITY OF GALION
1.9963 HECTARES (4.933 ACRES)
19-00-50255-000
1.6390
(4.050)

② CERTIFIED OIL COMPANY
0.1437 HECTARES (0.355 ACRES)
19-00-22326-001
0.1332
(0.329)

OUTLOT 164
RIBLETS 2nd ADDITION
PLAT VOL. 2, PG. 26

OUTLOT 248
19-00-50257-000
0.0643
(0.159)

19-00-22331-001
0.0105
(0.026)

P.I. STA. 4+927.544 ℄ R/W
Δ = 0°44'16" RT.
(NO CURVE)

BEGIN ACQUISITION
STA. 4+870.000

END PROJECT
STA. 4+948.000
S.L.D. 4.999

PRIMROSE STREET

BEGIN PROJECT
STA. 4+885.000
S.L.D. 4.936

END ACQUISITION
STA. 4+960.000

BEGIN WORK
STA. 4+879.000

END WORK
STA. 4+954.000

STA. 4+840.000 ℄ CONST. =
STA. 4+840.000, 1.881m RT. ℄ R/W

CHARLES ST.

① CITY OF GALION
0.8094 HECTARES (2.000 ACRES)
19-00-22718-000

OUTLOT 247
REVISED NUMBERS BOOK VOL. 1 & 2, PG. 10 & 11

③ ERMAL M. FULTON
0.0805 HECTARES (0.199 ACRES)
19-00-23650-000

OUTLOT 165
RIBLETS 2nd ADDITION
PLAT VOL. 2, PG. 26

REMOVE ALL SIGNS WITHIN THE WORK LIMITS AND ALL FENCE WITHIN THE R/W LIMITS BETWEEN STATIONS 4+880 AND 4+953 UNDER 201 – CLEARING AND GRUBBING.

BASIS FOR BEARINGS

ALL BEARINGS SHOWN ARE FOR PROJECT USE ONLY. THESE BEARINGS ARE BASED ON AN ASSUMED MERIDIAN AND ARE USE TO EXPRESS ANGLES ONLY.

NOTE: ALL DIMENSIONS, UNLESS OTHERWISE SPECIFIED, ARE IN METERS WITH ENGLISH EQUIVALENTS IN (FEET).

THE METRIC TO ENGLISH CONVERSION FACTOR IS BASED ON THE U.S. SURVEY FOOT. (1 FOOT=1200/3937 METERS = 0.3048006096 METERS) AND IS: 1 METER = 3.28083333335 FEET.

NOTE: EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM:

- EXISTING PROPERTY LINE MONUMENTATION FOUND
- SURVEY OF PART OF OUTLOTS 163, 164 AND 249 RECORDED IN PLAT BOOK 29, PAGE 469.
- SURVEY OF PART OF OUTLOT 165 RECORDED IN PLAT BOOK 27, PAGE 471.
- RIGHT OF WAY WIDTH OBTAINED FROM CRAWFORD COUNTY TAX MAPS.

MONUMENT LEGEND

- ■ MONUMENT ASSEMBLY SET, SEE SHEET NO. 25 FOR LOCATIONS.
- ● 19mm REINFORCING BAR SET W/ALUMINUM CAP STAMPED "ODOT R/W, S.J.L. INC."
- ▲ RAILROAD SPIKE SET
- ○ MONUMENT FOUND
- ○ IRON PIN FOUND
- □ RAILROAD SPIKE FOUND
- ✖ P.K. NAIL SET
- ◉ DRILL HOLE SET IN CONCRETE

REV.	DATE	DESCRIPTION

DATE OF COMPLETION 6-5-98

HORIZONTAL SCALE IN METERS 0 5 10

FEDERAL PROJECT NO. STP

STATE JOB NO. 030800

RIGHT OF WAY PLAN
STA. 4+840 TO STA. 4+970

CRA-61-4.936 (3.07)

4 / 4

28 / 28

GEOLOGY OF THE SITE

THE PROJECT SITE LIES ON THE GLACIATED, GENTLY ROLLING MISSISSIPPI VALLEY PLAIN OVER THE OLENTANGY RIVER. BOTH THE ILLINOIAN AND WISCONSIN ICE SHEETS PASSED OVER THE AREA BUT IN GENERAL LEFT A THIN COATING OF GLACIAL DRIFTS. THE UNDERLYING BEDROCK IS OF THE BEREA SANDSTONE, APPROXIMATELY 10 METERS IN THICKNESS AND FINE AND DENSE IN TEXTURE. BENEATH THE SANDSTONE, THE ROCKS ARE OF THE BEDFORD AND OHIO SHALES.

EXPLORATION

TWO (2) STRUCTURE TEST BORINGS, DESIGNATED AS B-1 AND B-2, WERE DRILLED IN THE VICINITY OF THE PROPOSED STRUCTURE TO DEPTHS OF 17.34 AND 14.84 METERS, RESPECTIVELY. THE TEST BORINGS WERE ADVANCED THROUGH THE SOIL OVERBURDEN BY MEANS OF A TRUCK MOUNTED ROTARY DRILLING MACHINE UTILIZING HOLLOW STEM AUGERS (HSA) ON MAY 27 AND 28, 1997. ROCK CORING WAS PERFORMED IN BOTH BORINGS USING AN NX SIZE, DOUBLE TUBE CORE BARREL AND DIAMOND BIT.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE TEST BORINGS EXHIBITED A PAVEMENT STRUCTURE CONSISTING OF 292 TO 318 MM OF ASPHALT CONCRETE OVER 392 TO 470 MM OF GRANULAR BASE COURSE. BENEATH THE PAVEMENT, TEST BORING B-1 ENCOUNTERED DARK GRAY, SOFT SANDY SILT FILL OVER A 1.13 METER THICK CONCRETE FOOTING OVER GLACIAL DEPOSITS TO A DEPTH OF 9.75 METERS. THE GLACIAL DEPOSITS CONSIST OF GRAY SANDY SILT TILLS AND GRANULAR OUTWASH OF A-1-A TO A-4A SOIL CATEGORIES. BORING B-2 ENCOUNTERED DARK GRAY CHANGING TO BROWN AND GRAY CLAYEY SILT SOILS OVER A LAYER OF RIVER SEDIMENTS LOCATED BETWEEN DEPTHS OF 3.57 METERS AND 4.36 METERS. BELOW, SILT AND CLAY SOILS (A-6A) OVER GLACIAL TILL (A-4A TO A-4B) AND GRANULAR OUTWASH DEPOSITS WERE ENCOUNTERED OVER SANDSTONE BEDROCK.

THE BEDROCK ENCOUNTERED IN BOTH BORINGS CONSISTS OF SOFT, GRAY, HIGHLY DECOMPOSED, WEATHERED SANDSTONE TO DEPTHS RANGING BETWEEN 15.82 METERS IN B-1 TO 13.32 METERS IN B-2, CORRESPONDING TO ELEVATION 334.77 AND 336.93, RESPECTIVELY. BELOW, COREABLE GRAY, FINE GRAINED, WEATHERED SANDSTONE ROCK WAS ENCOUNTERED TO THE DRILLED DEPTHS.

GROUNDWATER WAS RECORDED DURING THE FIELD INVESTIGATION AT DEPTHS OF 4.39 AND 3.96.

D50 VALUES WHICH HAVE BEEN CALCULATED FOR THE SCOUR ANALYSIS ARE PROVIDED ON PAGE 3.

LEGEND

- AUGER BORING LOCATION
- PRESS SAMPLE, DRIVE SAMPLE, AND/OR CORE BORING LOCATION
- TR — TOP OF ROCK
- W— — INDICATES FREE WATER ELEVATION
- ▼— — INDICATES STATIC WATER ELEVATION
- ⊢ — HORIZONTAL BAR ON BORING INDICATES THE DEPTH THE SAMPLE WAS TAKEN - PROFILE VIEW
- X/Y/Z — FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
  - X = NUMBER OF BLOWS FOR FIRST 0.15 m
  - Y = NUMBER OF BLOWS FOR SECOND 0.15 m
  - Z = NUMBER OF BLOWS FOR THIRD 0.15 m

SYMBOLS OF ROCK TYPES

- Coal
- Fire Clay or Underclay
- Weathered Mudstone
- Mudstone
- Weathered Shale
- Shale
- Weathered Clay-Shale
- Clay-Shale
- Boulders or Cobbles
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

SYMBOLS OF ROCK TYPES

300 mm	75 mm	2.0 mm		0.42 mm		0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand	Silt	Clay
		No. 10 SIEVE		No. 40 SIEVE		No. 200 SIEVE	

NOTES

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATIONS SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTORS OFFICE, THE OFFICE OF MATERIALS MANAGEMENT AT 1600 WEST BROAD STREET, THE OFFICE OF ROADWAY ENGINEERING OR THE OFFICE OF STRUCTURAL ENGINEERING AT 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215.

GENERAL INFORMATION

DRIVE SAMPLES

DRIVE SAMPLE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED ROTARY-TYPE DRILL RIG, EMPLOYING A 50.80 mm O.D., 34.93 mm I.D. SPLIT SPOON SAMPLING DEVICE, AT 0.76 m AND/OR 1.52 m DEPTH INTERVALS, DRIVEN BY MEANS OF A 63.5 kg HAMMER WITH A FREE FALL OF 0.76 m. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLING DEVICE THREE 0.15 m INCREMENTS IS CONSIDERED THE STANDARD PENETRATION TEST.

PRESS SAMPLES

PRESS SAMPLES ARE TAKEN BY MEANS OF MECHANICALLY-POWERED ROTARY-TYPE DRILLING MACHINE, EMPLOYING A 76 mm O.D. THIN WALL PRESS SAMPLING TUBE. THE PRESS SAMPLING TUBE IS ADVANCED BY CONTINUOUS UNIFORM PRESSURE APPLIED BY THE DRILLING MACHINE.

CORE BORINGS

CORE BORINGS ARE MADE BY MEANS OF A MECHANICALLY-POWERED ROTARY-TYPE DRILLING MACHINE, EMPLOYING AN NQ CORE BARREL WITH INDUSTRIAL DIAMOND CUTTING HEAD.

SAMPLING AND TESTING

THE BORING LOG SHEETS DISPLAY A GRAPHIC PLOT OF THE INFORMATION OBTAINED, INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, TYPE OF SAMPLE, THE STANDARD PENETRATION TEST READINGS IN THREE 0.15m INCREMENTS, DEPTH AND ELEVATION OF PRESS SAMPLES, FIELD NUMBER ASSIGNED TO SAMPLE, SAMPLE DESCRIPTION-BASED ON LABORATORY TESTS UTILIZING GRADATION, PLASTICITY AND MOISTURE CONTENT DETERMINATIONS. RESULTS OF STRENGTH AND CONSOLIDATION TESTING, IF PERFORMED ON UNDISTURBED SAMPLES, WILL APPEAR GRAPHICALLY ON SEPARATE ENCLOSURES. ROCK SAMPLES ARE DISPLAYED ON THE LOG SHEETS INCLUDING DEPTH AND ELEVATION OF THE SAMPLE, AMOUNT OF RECOVERY AND A VISUAL CLASSIFICATION BASED ON TYPE, COLOR, DEGREE OF HARDNESS, GRAIN SIZE, DETERIORATION, BEDDING ACID REACTION AND OTHER QUALIFYING FACTORS.

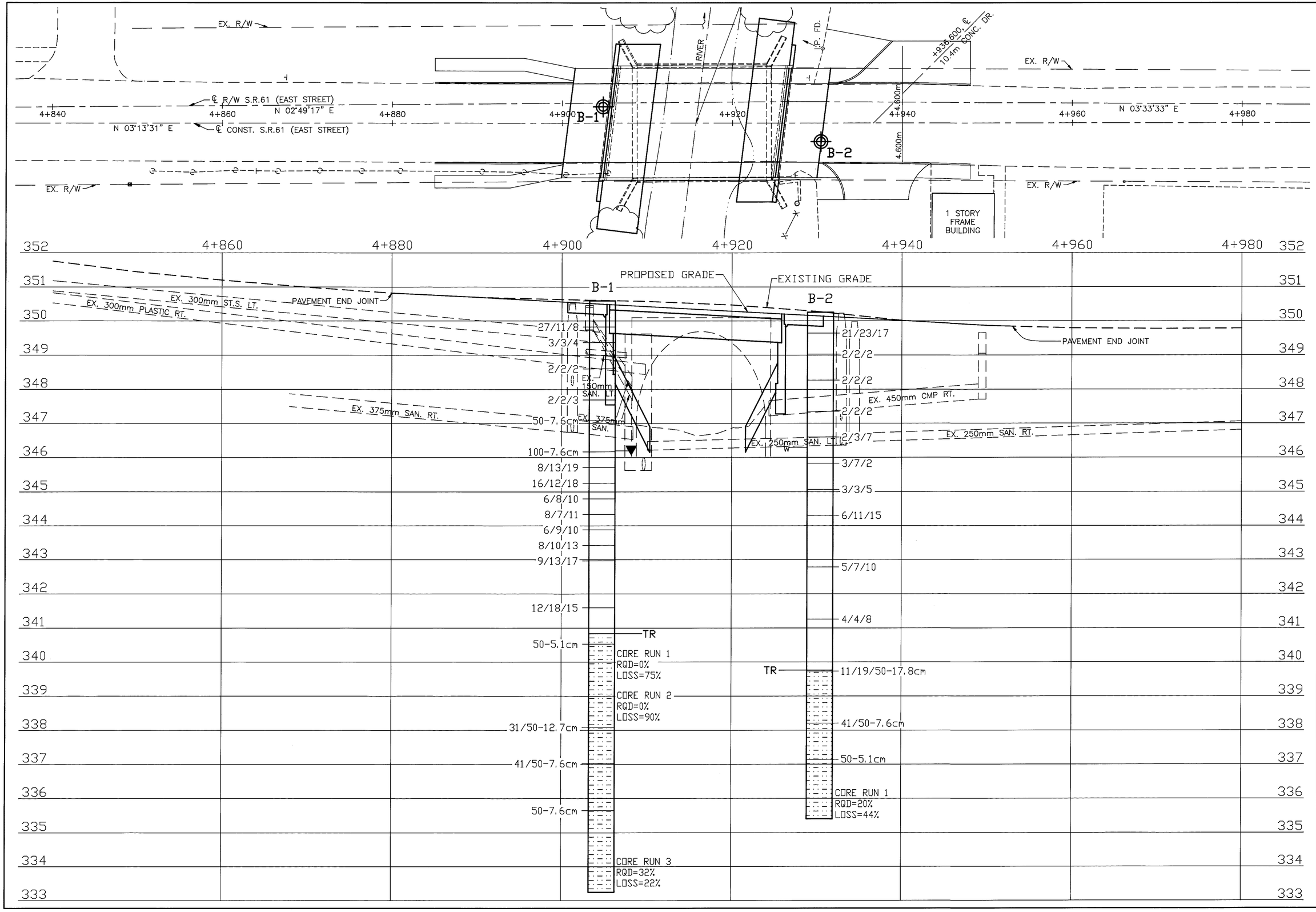
AT DEPTH WHERE MATERIALS ARE BOULDERY OR GRAVELLY TO THE EXTENT THAT THE SAMPLER CAN NOT BE UTILIZED, A WASH SAMPLE IS PROCURED AND VISUALLY CLASSIFIED, IN ORDER TO DETERMINE THE GENERAL CHARACTERISTICS OF THE MATERIAL. THESE SAMPLES ARE NOT CONSIDERED SUFFICIENTLY REPRESENTATIVE TO WARRANT LABORATORY TESTING.

CTL ENGINEERING, INC.
2860 FISHER ROAD
COLUMBUS, OHIO 43204
PHONE: 614/276-8123 FAX: 614/276-6377

DRAWN M.R.G. | REVIEWED | DATE 6-25-97 | CALCULATED | CHECKED

STRUCTURE FOUNDATION INVESTIGATION
CRA-61-04956 OVER OLENTANGY RIVER

CRA-61-4.936



0 5 7.5 10
HORIZONTAL SCALE IN METERS

DRAWN	REVIEWED	DATE	CALCULATED	CHECKED
M.T.		6-25-97		

STRUCTURE FOUNDATION INVESTIGATION
CRA-61-04956 OVER OLENTANGY RIVER

CRA-61-4.936

2/3

DATE STARTED 5-27-97 SAMPLER'S TYPE SS DIA. 35 mm WATER ELEV. 346.20m

DATE COMPLETED 5-27-97

BORING NO. B-1 STATION & OFFSET 4+904.76 1.88m LT. SURFACE ELEV. 350.59m

ELEV. (m)	DEPTH (m)	STD. PEN. / RQD	REC. (m)	LOSS (m)	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS								
							% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
350.59	0														
350.13					ASPHALT CONCRETE (318mm) OVER BASE COURSE (392mm)										
349.68	1.0	27/11/8			DARK GRAY SANDY SILT (FILL)	1	-	-	-	-	-	-	-	4	VIS.
348.91		3/3/4			DARK GRAY SANDY SILT (FILL)	2	-	-	-	-	-	-	-	15	VIS.
	2.0	2/2/2			DARK GRAY SANDY SILT (FILL)	3	10	9	24	35	22	27	10	17	A-4a
348.00															
347.54	3.0	2/2/3			DARK GRAY SANDY SILT (FILL)	4	-	-	-	-	-	-	-	20	VIS.
		50-7.6cm			CONCRETE FOOTING	5	-	-	-	-	-	-	-	8	VIS.
346.48	4.0														
346.02		100-7.6cm			CONCRETE FOOTING	6	-	-	-	-	-	-	-	6	VIS.
345.56	5.0	8/13/19			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	7	-	-	-	-	-	-	-	14	VIS.
345.10		16/12/18			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	8	-	-	-	-	-	-	-	10	VIS.
344.65	6.0	6/8/10			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	9	50	7	12	17	14	26	10	15	A-2-4
344.19		8/7/11			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	10	-	-	-	-	-	-	-	12	VIS.
343.73	7.0	6/9/10			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	11	19	11	15	31	24	27	10	14	A-4a
343.27		8/10/13			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	12	-	-	-	-	-	-	-	11	VIS.
	8.0	9/13/17			GRAY SANDY SILT TO SAND AND GRAVEL (TILL)	13	-	-	-	-	-	-	-	10	VIS.
341.90															
	9.0	12/18/15			GRAY SANDY SILT (TILL)	14	62	14	10	10	4	NP	NP	13	A-1-a
340.38	10.0	50-5.1cm			TOP OF ROCK	15	-	-	-	-	-	-	-	-	VIS.
	11.0		0.10	0.30	SANDSTONE, GRAY, HIGHLY DECOMPOSED, WEATHERED RQD = 0 %										
	12.0		0.15	1.37	SANDSTONE, GRAY, HIGHLY DECOMPOSED, WEATHERED RQD = 0 %										
338.40	13.0	31/50-12.7cm			SANDSTONE, GRAY, HIGHLY DECOMPOSED, WEATHERED	16	-	-	-	-	-	-	-	17	VIS.
337.33	14.0	41/50-7.6cm			SANDSTONE, GRAY, HIGHLY DECOMPOSED, WEATHERED	17	-	-	-	-	-	-	-	22	VIS.
335.81	15.0	50-7.6cm			SANDSTONE, GRAY, HIGHLY DECOMPOSED, WEATHERED	18	-	-	-	-	-	-	-	18	VIS.
	16.0		1.22	0.30	SANDSTONE, GRAY, FINE GRAINED, WEATHERED, HIGHLY BROKEN, RQD = 32 %										
	17.0				BOTTOM OF BORING										

DATE STARTED 5-28-97 SAMPLER'S TYPE SS DIA. 35 mm WATER ELEV. 346.29m

DATE COMPLETED 5-28-97

BORING NO. B-2 STATION & OFFSET 4+930.40 2.20m RT. SURFACE ELEV. 350.25m

ELEV. (m)	DEPTH (m)	STD. PEN. / RQD	REC. (m)	LOSS (m)	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS								
							% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
350.25	0														
349.95					ASPHALT CONCRETE (292 mm) OVER BASE COURSE (470mm)										
349.34	1.0	21/23/17				1	-	-	-	-	-	-	-	3	VIS.
348.57		2/2/2			DARK GRAY CLAYEYSILT	2	-	-	-	-	-	-	-	20	VIS.
	2.0	2/2/2			DARK GRAY CLAYEYSILT	3	-	-	-	-	-	-	-	25	VIS.
347.66															
	3.0	2/2/2			BROWN & GRAY CLAYEYSILT	4	-	-	-	-	-	-	-	25	VIS.
346.90															
346.14	4.0	2/3/7			GRAY SILT WITH WOOD FRAGMENTS (RIVER SEDIMENTS)	5	-	-	-	-	-	-	-	20	VIS.
345.37		3/7/2			GRAY SILT WITH WOOD FRAGMENTS (RIVER SEDIMENTS)	6	2	2	8	64	24	24	6	80	A-4b
	5.0	3/3/5			GRAY SILTY CLAY	7	0	1	10	49	40	31	13	17	A-6a
344.61															
	6.0	6/11/15			GRAY SANDY SILT (TILL)	8	-	-	-	-	-	-	-	10	VIS.
343.09	7.0														
		5/7/10			GRAY SANDY SILT (TILL)	9	20	11	15	30	24	27	10	-	A-4a
	8.0														
341.56															
	9.0	4/4/8			GRAY SILT TO CLAYEY SILT WITH SILT SEAMS	10	1	3	16	55	25	22	6	14	A-4b
340.04	10.0														
	11.0	11/19/ 50-17.8cm			GRAY FINE TO COARSE SAND & GRAVEL	11	-	-	-	-	-	-	-	12	VIS.
338.52	12.0	41/50-7.6cm			GRAY HIGHLY DECOMPOSED, WEATHERED, SANDSTONE (TOP OF ROCK)	12	-	-	-	-	-	-	-	20	VIS.
336.99	13.0	50-5.1cm			GRAY HIGHLY DECOMPOSED, WEATHERED, SANDSTONE	13	-	-	-	-	-	-	-	-	VIS.
	14.0		0.85	0.67	SANDSTONE, GRAY, FINE GRAINED, BROKEN AND WEATHERED RQD = 20 %										
					BOTTOM OF BORING										

D_{50} VALUES
TEST BORING B-1
SAMPLE NO. 3 = 0.041mm
SAMPLE NO. 9 = 1.50mm
SAMPLE NO. 11 = 0.051mm
SAMPLE NO. 14 = 4.9mm

D_{50} VALUES
TEST BORING B-2
SAMPLE NO. 2 = 0.02mm
SAMPLE NO. 7 = 0.0075mm
SAMPLE NO. 9 = 0.05mm
SAMPLE NO. 10 = 0.022mm

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