

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BRO-221-5.47

PLEASANT AND LEWIS TOWNSHIPS

BROWN COUNTY

FEDERAL PROJECT NUMBER

E190(526)

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

BRIDGE REPLACEMENT AND RELOCATION ALONG SR-221 OVER WHITE OAK CREEK WITH ROADWAY APPROACH WORK. WORK ALSO INCLUDES CONSTRUCTING A RETAINING WALL, GUARDRAIL REPLACEMENT, EROSION CONTROL, AND DRIVE RELOCATION.

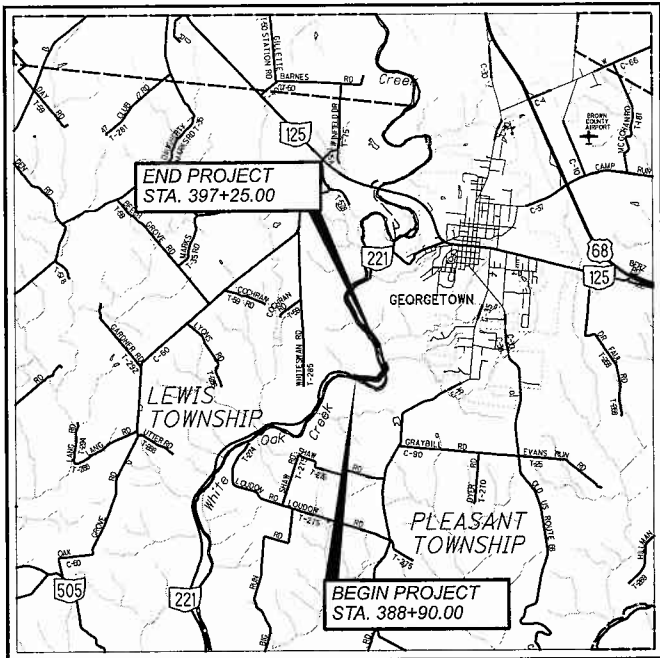
EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 1.53 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.125 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.90 ACRES

2019 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 8, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.



LOCATION MAP

LATITUDE: 38°50'41" N LONGITUDE: 83°55'17" W



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

DESIGN DESIGNATION

| | |
|-----------------------------------|-----|
| CURRENT ADT (2021) | 200 |
| DESIGN YEAR ADT (2041) | 200 |
| DESIGN HOURLY VOLUME (2041) | 20 |
| DIRECTIONAL DISTRIBUTION | 50% |
| TRUCKS (24 HOUR B&C) | 4% |
| DESIGN SPEED | 55 |
| LEGAL SPEED | 55 |
| DESIGN FUNCTIONAL CLASSIFICATION: | |
| 06 MINOR COLLECTOR (RURAL) | |
| NHS PROJECT | NO |

DESIGN EXCEPTIONS

| DESIGN FEATURE | APPROVAL DATE | SHEET NUMBERS |
|-------------------------|---------------|---------------|
| HORIZONTAL CURVE RADIUS | 12/21/2020 | 2 |
| SUPERELEVATION RATE | 12/21/2020 | 3-4 & 27 |

INDEX OF SHEETS:

| | |
|-------------------------|-------|
| TITLE SHEET | 1 |
| SCHEMATIC PLAN | 2 |
| TYPICAL SECTIONS | 3-4 |
| GENERAL NOTES | 5-6 |
| MAINTENANCE OF TRAFFIC | 7-9 |
| GENERAL SUMMARY | 10-12 |
| SUBSUMMARY | 13 |
| PROJECT SITE PLAN | 14 |
| PLAN AND PROFILE | 15-17 |
| CROSS SECTIONS | 18-26 |
| SUPERELEVATION TABLES | 27 |
| DRIVE DETAILS | 28 |
| RETAINING WALL | 29-38 |
| TRAFFIC CONTROL | 39-40 |
| STRUCTURES 20' AND OVER | |
| BRO-221-0554 | 41-73 |
| RIGHT OF WAY | 74-86 |
| SOIL PROFILE | |

BRO - SR 221-05.47
210534 PID - 105113
Dist 9 10/14/2021

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

BRO-221-05.47-122-0-B

UNDERGROUND UTILITIES

**Contact Two Working Days
Before You Dig**

OHIO811.org
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

WOOLPERT
 ARCHITECTURE | ENGINEERING | GEOSPATIAL
 ONE EASTON OVAL
 SUITE 400
 COLUMBUS, OH 43219
 T 614-476-6000
 F 614-476-6225

ENGINEER'S SEAL:

FOR STRUCTURES

SIGNED: *Thomas M. Less*
DATE: 4/30/2021

ENGINEER'S SEAL:

FOR ENTIRE PLAN EXCEPT STRUCTURES

SIGNED: *Changallyn Goodright*
DATE: 4/30/2020

| STANDARD CONSTRUCTION DRAWINGS | | | | | | | | SUPPLEMENTAL SPECIFICATIONS | | SPECIAL PROVISIONS | |
|--------------------------------|---------|---------|---------|-----------|---------|-----------|----------|-----------------------------|----------|--|--|
| BP-3.1 | 1/17/20 | MGS-1.1 | 1/19/18 | AS-1-15 | 7/17/15 | MT-97.10 | 4/19/19 | 800-2020 | 7/16/20 | WATERWAY PERMIT CONDITIONS DATED 9/22/21 | |
| BP-4.1 | 7/19/13 | MGS-2.1 | 1/19/18 | AS-2-15 | 1/18/19 | MT-101.60 | 1/17/20 | 832 | 10/19/18 | | |
| | | MGS-3.1 | 1/19/18 | GSD-1-19 | 1/15/21 | MT-101.70 | 1/17/20 | 894 | 4/16/20 | | |
| | | | | | | MT-101.75 | 1/17/20 | 902 | 7/19/18 | | |
| DM-1.1 | 7/17/20 | MGS-4.2 | 7/19/13 | HW-2.1 | 7/20/18 | MT-101.90 | 7/17/20 | | | | |
| DM-4.1 | 7/17/20 | MGS-5.2 | 7/15/16 | HW-2.2 | 7/20/18 | MT-105.10 | 1/17/20 | | | | |
| DM-4.2 | 7/20/12 | MGS-5.3 | 7/15/16 | SBR-1-20 | 7/17/20 | | | | | | |
| DM-4.3 | 1/15/16 | MGS-6.1 | 1/19/18 | SICD-1-96 | 7/18/14 | | | | | | |
| DM-4.4 | 1/15/16 | | | SICD-2-14 | 1/15/21 | TC-41.20 | 10/18/13 | | | | |
| | | RM-1.1 | 1/15/21 | | | TC-41.30 | 10/18/13 | | | | |
| | | RM-4.2 | 4/17/20 | | | TC-42.20 | 10/18/13 | | | | |
| F-2.1 | 7/20/18 | | | | | TC-61.30 | 7/19/19 | | | | |
| F-3.3 | 7/19/13 | | | | | | | | | | |
| F-3.4 | 7/19/13 | | | | | | | | | | |

APPROVED *Michael J. Gumbert*
DATE 06-25-2021 DISTRICT DEPUTY DIRECTOR

APPROVED *Jack Marchbanks*
DATE 8/25/21 DIRECTOR, DEPARTMENT OF TRANSPORTATION

TITLE SHEET

DESIGN AGENCY
WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000

DESIGNER
CAG

REVIEWER
MS 04/26/21

PROJECT ID
105113

SHEET TOTAL
1 86

ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 7 CONSECUTIVE CALENDAR DAYS FOR EACH SIDE OF ROADWAY TIE-IN WORK, AND 30 CONSECUTIVE CALENDAR DAYS FOR BEAM PLACEMENT WORK WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET 8. ALL CLOSURES ARE OPTIONAL BUT SHALL OCCUR DURING THE SUMMER MONTHS WHEN LOCAL SCHOOLS ARE NOT IN SESSION UNLESS APPROVED BY THE ENGINEER.

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

THE DETOUR SIGNING SHALL BE PERFORMED BY ODOT. CONTACT THE BROWN COUNTY MAINTENANCE GARAGE AT 740-774-9011 AT LEAST 14 DAYS PRIOR TO THE ROAD CLOSURE FOR ERECTION OF DETOUR SIGNING.

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW. AT THE APPROVAL OF THE ENGINEER, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLATSHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE.

NOTICE OF CLOSURE SIGN TIME TABLE

| ITEM | DURATION OF CLOSURE SIGN | DISPLAYED TO PUBLIC |
|---------------|--------------------------|-----------------------------------|
| ROAD CLOSURES | ≥ 2 WEEKS | 14 CALENDAR DAYS PRIOR TO CLOSURE |
| | > 12 HOURS & < 2 WEEKS | 7 CALENDAR DAYS PRIOR TO CLOSURE |
| | ≤ 12 HOURS | 2 BUSINESS DAYS PRIOR TO CLOSURE |

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

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE LOCATIONS SHOWN ON SHEET 8 DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES OF THE TYPE AND LOCATION AS SHOWN ON THE DETOUR MAP SHEET.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DETERMINED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 3 CU. YD.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DUST CONTROL

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

ITEM 616, WATER 9 M. GAL.

DELINEATION OF PERMANENT GUARDRAIL

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. BARRIER REFLECTORS SHALL CONFORM TO C&MS 626 AND THE SPACING SHALL BE APPROXIMATELY 50 FEET.

OBJECT MARKERS SHALL BE INSTALLED ON ALL PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. GUARDRAIL-MOUNTING OF OBJECT MARKERS SHALL BE MADE BY INSTALLING THE OBJECT MARKERS ON THE EXTENSION BLOCKS RATHER THAN DIRECTLY ONTO THE GUARDRAIL ITSELF. OBJECT MARKERS SHALL CONFORM TO C&MS 614.03 AND THE SPACING SHALL BE APPROXIMATELY 50 FEET WITH A 25 FOOT OFFSET FROM THE BARRIER REFLECTORS.

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

ITEM 626, BARRIER REFLECTOR, TYPE 3, BI-DIRECTIONAL 15 EACH
ITEM 614, OBJECT MARKER, 1-WAY 6 EACH

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

DELINEATION OF PORTABLE AND PERMANENT BARRIER

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

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

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

PRIVATE DRIVEWAY ACCESS

WHERE PRIVATE DRIVES EXIST WITHIN THE WORK AREA, ACCESS TO THE DRIVES SHALL BE MAINTAINED. IT MAY BE NECESSARY TO ADJUST THE WORK PROCEDURES TO WORK AROUND THE DRIVES AS MUCH AS POSSIBLE AND TO PROVIDE TEMPORARY ACCESS TO THE DRIVES WHEN NORMAL ACCESS CANNOT BE PROVIDED.

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

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

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

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

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

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

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

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

SEQUENCE OF CONSTRUCTION

PHASE 1: ALL APPLICABLE WORK WITHIN AREA DESIGNATED ON SHEET 9 WHILE TRAFFIC IS MAINTAINED IN BOTH DIRECTIONS ON EXISTING BRIDGE. WHILE ROADWAY IS OPEN PRIOR TO SHORT TERM CLOSURE, THE FOLLOWING SHALL BE COMPLETED.

-CONSTRUCT RETAINING WALL.

-CONSTRUCT BRIDGE AND APPROACH SLABS.

-NEW PAVEMENT OUTSIDE THE LIMITS OF EXISTING PAVEMENT PREPARED PRIOR TO CLOSURE.



PHASE 2: UNDER CLOSURE AND WHILE TRAFFIC IS DETOURED AS SHOWN ON SHEET 8 FOR 7 DAYS. WHILE ROADWAY IS CLOSED THE FOLLOWING SHALL BE COMPLETED.

-PAVEMENT WORK TO TIE IN NEWLY CONSTRUCTED BRIDGE WITH ROADWAY.

-CONSTRUCT NEW DRIVEWAY WHILE MAINTAINING ACCESS.

-GUARDRAIL ON ALL FOUR CORNERS OF THE BRIDGE SHALL BE CONSTRUCTED BEFORE REOPENING TO TRAFFIC. WORK WILL INCLUDE REMOVING EXISTING CONFLICTING GUARDRAIL.

PHASE 3: WHILE TRAFFIC IS MAINTAINED IN BOTH DIRECTIONS ON NEWLY CONSTRUCTED BRIDGE, THE FOLLOWING SHALL BE COMPLETED.

-DEMOLITION OF EXISITING BRIDGE AND PAVEMENT.

-FINAL GRADING.

-BMP INSTALLATION.

REVISION 2: NOTE UPDATE



DESIGN AGENCY

ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-0300

DESIGNER
CAG

REVIEWER
MS 4/26/21

PROJECT ID
105113

SHEET TOTAL
7 86

2

2

1

| ESTIMATED QUANTITIES | | | | | CALC BY: JYM | DATE: 1/11/2021 |
|----------------------|-------|----------|------|---|---------------|-----------------|
| | | | | | CHECK BY: PJP | DATE: 1/14/2021 |
| ITEM | EXT | QUANTITY | UNIT | DESCRIPTION | SHEET | |
| 203 | 10000 | 7 | CY | EXCAVATION | | |
| 203 | 20000 | 49 | CY | EMBANKMENT | | |
| 503 | 31120 | 37 | CY | SHALE EXCAVATION | | |
| 507 | 00400 | 396 | FT | STEEL PILES, MISC.: SOLDIER PILES, W12X72 | | 2/10 |
| 507 | 00400 | 250 | FT | STEEL PILES, MISC.: SOLDIER PILES W18x97 | | 2/10 |
| 509 | 10000 | 16429 | LB | EPOXY COATED REINFORCING STEEL | | |
| 511 | 46012 | 111 | CY | CLASS QC1 CONCRETE WITH QC/QA, RETAINING WALL NOT INCLUDING FOOTING | | |
| 512 | 10100 | 247 | SY | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) | | |
| 512 | 33001 | 42 | SY | TYPE 2 WATERPROOFING, AS PER PLAN | | 2/10 |
| 513 | 20000 | 944 | EACH | WELDED SHEAR STUD CONNECTOR | | |
| 516 | 13600 | 40 | SF | 1" PREFORMED EXPANSION JOINT FILLER | | |
| 518 | 20000 | 331 | SY | PREFABRICATED GEOCOMPOSITE DRAIN | | 2/10 |
| 518 | 21100 | 18 | CY | POROUS BACKFILL | | |
| 518 | 39900 | 37 | FT | 4" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS | | |
| 518 | 40000 | 240 | FT | 6" PERFORATED CORRUGATED PLASTIC PIPE | | |
| 518 | 40012 | 10 | FT | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE | | |
| 524 | 94503 | 117 | FT | DRILLED SHAFTS, 24" DIAMETER, ABOVE BEDROCK, AS PER PLAN | | 2/10 |
| 524 | 94505 | 289 | FT | DRILLED SHAFTS, 24" DIAMETER, INTO BEDROCK, AS PER PLAN | | 2/10 |
| 524 | 94603 | 63 | FT | DRILLED SHAFTS, 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN | | 2/10 |
| 524 | 94605 | 192 | FT | DRILLED SHAFTS, 30" DIAMETER, INTO BEDROCK, AS PER PLAN | | 2/10 |
| 530 | 13000 | 2000 | SF | SPECIAL - FORM LINER | | 2/10 |
| 530 | 51020 | 2585 | SF | SPECIAL - RETAINING WALL, TIMBER LAGGING | | 2/10 |
| 601 | 32200 | 103 | CY | ROCK CHANNEL PROTECTION, TYPE C WITH FILTER | | |

NOTES:

1. THE FOLLOWING ITEM(S) HAVE BEEN CARRIED TO THE ROADWAY OR EROSION CONTROL QUANTITIES OF THE GENERAL SUMMARY AND COST ESTIMATE. SEE SHEET 10/84.

ITEM 203 - EXCAVATION
 ITEM 203 - EMBANKMENT
 ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH FILTER

REVISION 1: ITEM CHANGE

REVISION 2: ITEM ADDED, QUANTITY CHANGE

1

2

SFN

DESIGN AGENCY



DESIGNER CHECKER

JYM PJP

REVIEWER

MAA 01/11/21

PROJECT ID

105113

SUBSET TOTAL

3 10

SHEET TOTAL

31 86

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

- AS-1-15 REVISED 7/17/2015
- AS-2-15 REVISED 1/18/2019
- GSD-1-19 DATED 1/15/2021
- SBR-1-20 REVISED 7/17/2020
- SICD-1-96 REVISED 7/18/2014
- SICD-2-14 DATED 1/15/2021

AND THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

- 800 DATED 10/16/2020
- 846 DATED 4/17/2015
- 894 DATED 10/16/2020

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE 9TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL
 2 1/2" CONCRETE COVER

OPERATIONAL IMPORTANCE

A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

VEHICULAR LIVE LOAD: HL-93
 FUTURE WEARING SURFACE (FWS) = 0.060 KSF

DESIGN DATA:

- CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE)
- CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
- CONCRETE CLASS QC5 - COMPRESSIVE STRENGTH 4.0 KSI (DRILLED SHAFTS), MAX. COARSE AGGREGATE SIZE OF 1 INCH
- REINFORCING STEEL - MINIMUM YIELD STRENGTH 60 KSI
- STRUCTURAL STEEL
 - ASTM A709 GRADE 50W - YIELD STRENGTH 50 KSI
 - ASTM A709 GRADE HPS70W - YIELD STRENGTH 70 KSI
- STRUCTURAL TIMBER - SOUTHERN YELLOW PINE, GRADE NO. 2, OR BETTER
 - FACTORED LRFD COMPRESSIVE STRENGTH 0.695 KSI
- AASHTO M 168 AND SUPPLEMENT 1072 OR GRADED AND STAMPED UNDER THE RULES OF THE NORTHEAST LUMBER MANUFACTURERS ASSOCIATION.

MONOLITHIC WEARING SURFACE:

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

EXISTING STRUCTURE VERIFICATION:

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

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

DRILLED SHAFTS

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 671.4 KIPS AT THE ABUTMENTS. THIS LOAD IS RESISTED BY TIP RESISTANCE. THE FACTORED TIP RESISTANCE IS 8576.0 KIPS.

THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT ARE 35.0 KIPS, AND 957.5 KIP-FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 1650.0 KIP-FT, AND A MAXIMUM FACTORED SHEAR OF 401.2 KIPS, WITHIN THE DRILLED SHAFT.

THE SHAFTS HAVE BEEN DESIGNED AS UNSUPPORTED TO A DESIGN SCOUR ELEVATION OF 571.30 (R.A.) AND 558.70 (F.A.).

DECK PLACEMENT DESIGN ASSUMPTIONS:

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

AN EIGHT WHEEL FINISHING MACHINE WITH A MAXIMUM WHEEL LOAD OF 2.26 KIPS.

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

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 IN.

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

CONCRETE SEALING:

SEAL THE ABUTMENTS AND DECK EDGES WITH EPOXY-URETHANE SEALER PER C&MS 512. THE COLOR SHALL BE FEDERAL COLOR NO. 17778.

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

THE WORK CONSISTS OF THE REMOVAL OF THE EXISTING BRIDGE. REMOVE EXISTING SUPERSTRUCTURE WITH WEARING SURFACE IN ITS ENTIRETY. REMOVE EXISTING ABUTMENT TO THE LIMITS SHOWN IN TYPICAL EXCAVATION DETAIL. REMOVE PIERS AND PIER PILES TO A MINIMUM OF 1 FOOT BELOW GRADE. THE PROVISIONS OF ITEM 202 APPLY EXCEPT AS SPECIFIED BY THE FOLLOWING NOTES. THE USE OF EXPLOSIVES AND/OR HEADACHE BALLS IS PROHIBITED. HOE RAM TYPE EQUIPMENT IS ACCEPTABLE OUTSIDE OF THE STREAM. SUBMIT CONSTRUCTION PLANS ACCORDING TO C&MS 501.05.

THE CONTRACTOR MUST REVIEW THE STRUCTURE WHEN PREPARING HIS BID. THE CONTRACTOR WILL REVIEW THE CONDITION OF THE STRUCTURE TO DETERMINE WHAT DEBRIS WILL FALL FROM THE STRUCTURE DURING REMOVAL AND WILL DETERMINE THE CORRESPONDING COST TO CLEAN UP ANY AND ALL DEBRIS WHICH FALLS FROM THE STRUCTURE DURING AND ALL REMOVAL OPERATIONS. THE COST TO CLEAR AND CLEAN UP ALL DEBRIS DURING REMOVAL SHALL BE INCLUDED WITH THE BID FOR THIS ITEM OF WORK. NO ADDITIONAL COST WILL BE RECOGNIZED TO CLEAN DEBRIS RESULTING FROM THE STRUCTURE REMOVAL OPERATION.

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

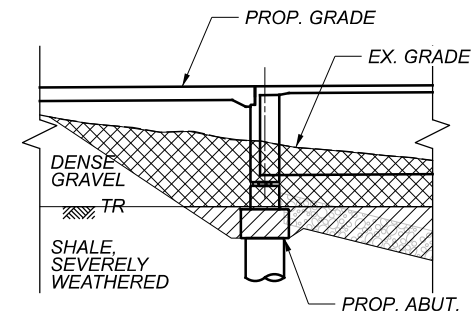
ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

PROVIDE COFFERDAMS AND/OR TEMPORARY ACCESS FILL AS NOTED IN THE WATERWAY PERMIT REQUIREMENTS.

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING. THE DEPARTMENT WILL NOT MAKE ADDITIONAL PAYMENT FOR PROVIDING AN ALTERNATE DESIGN.

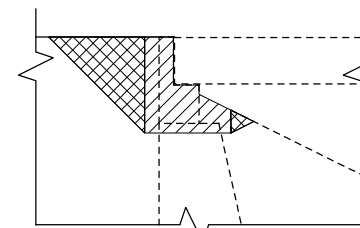
ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN:

IN ADDITION TO THE LIMITS PROVIDED IN CMS 503, THIS ITEM SHALL INCLUDE ANY LAYBACKS REQUIRED TO REMOVE THE EXISTING ABUTMENT AND PIER FOUNDATIONS AT THE STRUCTURE TO ONE FOOT BELOW EXISTING GRADE.



- 203 - EXCAVATION
- 503 - SHALE EXCAVATION
- 601 - RIP RAP

TYPICAL EXCAVATION DETAIL, PROP. ABUTMENT



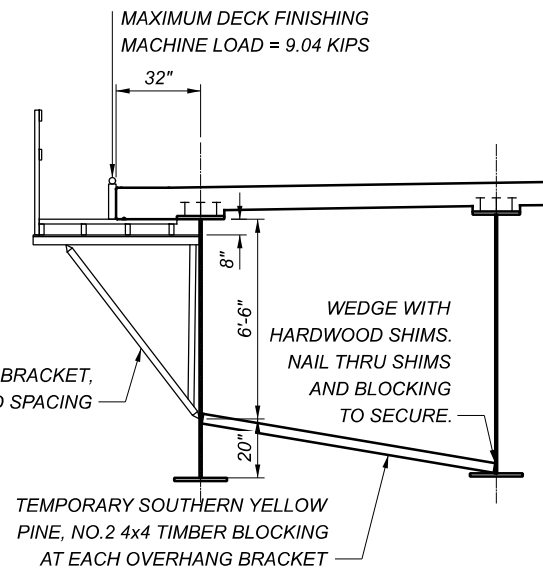
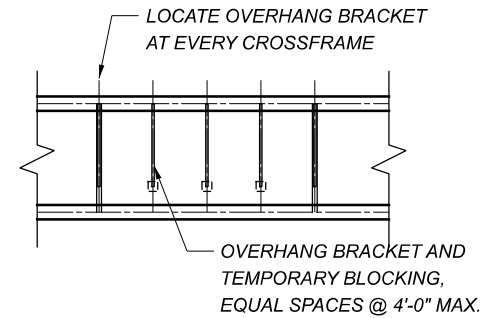
- 203 - EXCAVATION
- 503 - UNCLASSIFIED EXCAVATION

TYPICAL EXCAVATION DETAIL, EX. ABUTMENT

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

LOCATE THE LOWER CONTACT POINT OF THE OVERHANG FALSEWORK AT LEAST 20 INCHES ± 2 IN. ABOVE THE TOP OF THE GIRDER'S BOTTOM FLANGE. THE BRACKET CONTACT POINT LOCATION REQUIREMENTS OF C&MS 508 DO NOT APPLY.

PROVIDE TIMBER BLOCKING AS SHOWN IN THE DETAIL BELOW. INCLUDE THE COST TO FURNISH, REMOVE, AND DISPOSE OF TEMPORARY TIMBER BLOCKING IN THE UNIT PRICE PID FOR ITEM 511 - CLASS QC2 CONCRETE, BRIDGE DECK, AS PER PLAN.



| | |
|---|---------|
| SFN 0802914 | |
| DESIGN AGENCY | |
| | |
| <small>ONE EASTON OVAL SUITE 400 COLUMBUS, OH 43219 T 614-476-6000</small> | |
| DESIGNER | CHECKER |
| JYM | PES |
| REVIEWER | |
| TML 01/11/21 | |
| PROJECT ID | |
| 105113 | |
| SUBSET | TOTAL |
| 2 | 33 |
| SHEET | TOTAL |
| 42 | 86 |

REVISION 2: NOTE CHANGE

2

2

| ESTIMATED QUANTITIES | | | | | CALC BY: PES/JYM | DATE: 1/8/2021 |
|----------------------|------------------|----------------|-----------------|--|------------------|-----------------|
| | | | | | CHECK BY: TML | DATE: 1/11/2021 |
| ITEM | EXT | QUANTITY | UNIT | DESCRIPTION | SHEET | |
| 202 | 11003 | 1 | LS | STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN | 2/33 | |
| 202 | 22900 | 82 | SY | APPROACH SLAB REMOVED | | |
| 203 | 10000 | 1,641 | CY | EXCAVATION | | |
| 503 | 11101 | 1 | LS | COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN | 2/33 | |
| 503 | 21301 | 1 | LS | UNCLASSIFIED EXCAVATION, AS PER PLAN | 2/33 | |
| 503 | 31120 | 2,325 | CY | SHALE EXCAVATION | | |
| 509 | 10000 | 107,367 | LB | EPOXY COATED REINFORCING STEEL | | |
| 509 | 30020 | 7,439 | FT | NO. 4 GFRP DEFORMED BARS | | |
| 511 | 33500 | 2 | EACH | SEMI-INTEGRAL DIAPHRAGM GUIDE | | |
| 511 | 34447 | 291 | CY | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN | 2/33 | |
| 511 | 34450 | 86 | CY | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET) | | |
| 511 | 44112 | 99 | CY | CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING | | |
| 511 | 46512 | 83 | CY | CLASS QC1 CONCRETE WITH QC/QA, FOOTING | | |
| 512 | 10100 | 855 | SY | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) | | |
| 513 | 10280 | 36,372 | LB | STRUCTURAL STEEL MEMBERS, LEVEL 4 | | |
| 513 | 10401 | 439,543 | LB | STRUCTURAL STEEL MEMBERS, HYBRID GIRDER, LEVEL SIX (6) FABRICATION, AS PER PLAN | 3/33 | |
| 513 | 20000 | 1,596 | EACH | WELDED STUD SHEAR CONNECTORS | | |
| 516 | 13600 | 21 | SF | 1" PREFORMED EXPANSION JOINT FILLER | | |
| 516 | 13900 | 186 | SF | 2" PREFORMED EXPANSION JOINT FILLER | | |
| 516 | 14020 | 127 | FT | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL | | |
| 516 | 44100 | 8 | EACH | ELASTOMERIC BEARINGS WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), (16"x24"x3.25") | | |
| 518 | 21200 | 141 | CY | POROUS BACKFILL WITH GEOTEXTILE FABRIC | | |
| 518 | 40600 | 139 | FT | 6" PERFORATED CORRUGATED PLASTIC PIPE | | |
| 518 | 40010 | 50 | FT | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS | | |
| 524 | 94804 | 95 | FT | DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK | | |
| 524 | 94904 | 199 | FT | DRILLED SHAFTS, 48" DIAMETER, INTO BEDROCK | | |
| 526 | 30010 | 223 | SY | REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17") | | |
| 526 | 90010 | 71 | FT | TYPE A INSTALLATION | | |
| 601 | 12000 | 630 | SY | RIPRAP, WITH GROUT | | |
| 613 | 41200 | 810 | CY | LOW STRENGTH MORTAR BACKFILL | | |
| 894 | 10000 | 4 | EA | THERMAL INTEGRITY PROFILING (TIP) TEST | | |

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NOTES:

1. THE FOLLOWING ITEM(S) HAVE BEEN CARRIED TO THE ROADWAY OR EROSION CONTROL QUANTITIES OF THE GENERAL SUMMARY AND COST ESTIMATE. SEE SHEET 10/84.

ITEM 203 - EXCAVATION
 ITEM 601 - RIPRAP, WITH GROUT

REVISION 2: ITEM REMOVED, QUANTITY CHANGES

2

ESTIMATED QUANTITIES
 BRIDGE NO. BRO-221-0554
 SR-221 OVER WHITE OAK CREEK

| | |
|---|----------|
| SFN | 0802914 |
| DESIGN AGENCY | |
|  ONE EASTON OVAL SUITE 400 COLUMBUS, OH 43219 T 614-476-6000 | |
| DESIGNER | CHECKER |
| PES | TML |
| REVIEWER | |
| MAA | 01/11/21 |
| PROJECT ID | 105113 |
| SUBSET | TOTAL |
| 4 | 33 |
| SHEET | TOTAL |
| 44 | 86 |