

INDEX OF STRUCTURE PLANS

| <u>SHEET NO.</u> | <u>SHEET DESCRIPTION</u>               |
|------------------|----------------------------------------|
| B-01             | KEY SHEET                              |
| B-02             | SIGNATURE SHEET                        |
| B-03             | GENERAL NOTES (1 OF 2)                 |
| B-04             | GENERAL NOTES (2 OF 2)                 |
| B-05             | SUMMARY OF QUANTITIES                  |
| B-06             | STANDARD CONCRETE SPALL REPAIR DETAILS |
| B-07             | PLAN AND ELEVATION                     |
| B-08             | TYPICAL SECTION                        |
| B-09             | MISCELLANEOUS REPAIR DETAILS           |
| B-10             | DEFICIENCY PHOTOGRAPHS (1 OF 5)        |
| B-11             | DEFICIENCY PHOTOGRAPHS (2 OF 5)        |
| B-12             | DEFICIENCY PHOTOGRAPHS (3 OF 5)        |
| B-13             | DEFICIENCY PHOTOGRAPHS (4 OF 5)        |
| B-14             | DEFICIENCY PHOTOGRAPHS (5 OF 5)        |

STANDARD PLANS

| <u>SHEET NO.</u> | <u>SHEET DESCRIPTION</u>                                   |
|------------------|------------------------------------------------------------|
| 102-600          | GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES |
| 102-602          | TWO-LANE AND MULTILANE, WORK ON SHOULDER                   |

GOVERNING DESIGN STANDARDS:

Florida Department of Transportation, FY 2024-25 Standard plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website:  
<http://www.fdot.gov/design/Standardplans>

Standard Plans for Bridge Construction are included in the Structures Plans Component.

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY 2024-25 Standard Specifications for Road and Bridge Construction (as amended by the contract documents) at the following website:  
<http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

CHARLOTTE COUNTY, FLORIDA

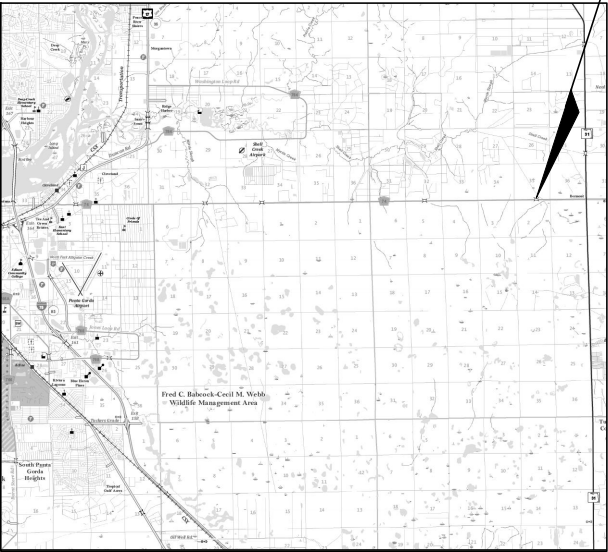
CONTRACT PLANS

CHARLOTTE COUNTY PUBLIC WORKS  
DESIGN-REHABILITATION & REPAIRS  
BERMONT ROAD over BABCOCK DRAINAGE  
BRIDGE No. 010017

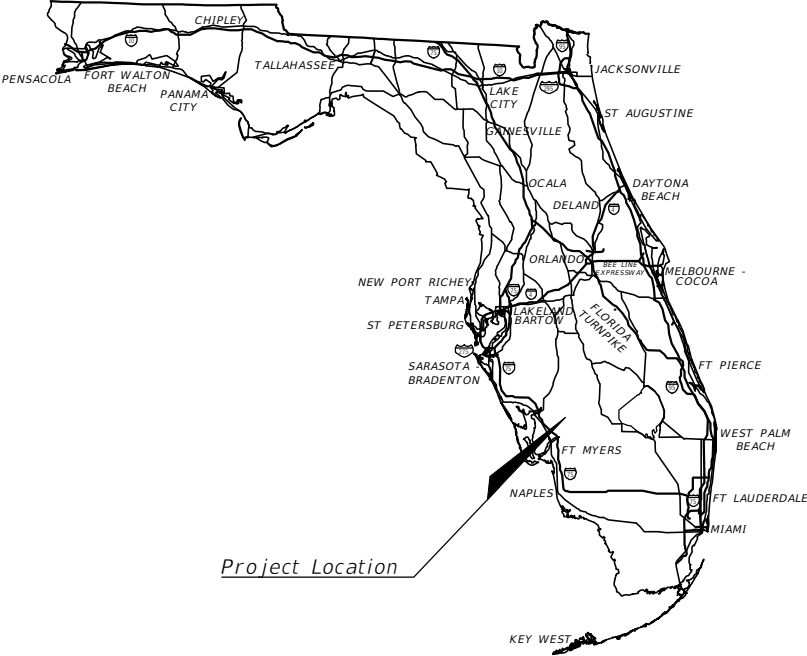
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STRUCTURE PLANS

FINAL PLANS  
FOR CONSTRUCTION



BRIDGE NO. 010017  
CLICK [HERE](#) FOR  
GOOGLE MAP LOCATION



STRUCTURE SHOP DRAWINGS TO BE  
SUBMITTED TO:

ROLANDO CORSA, PE, CBI  
ARCOS BRIDGE, INC.  
8112 CHAMPIONS FOREST WAY  
TAMPA, FL 33635  
[rcorsa@arcosbridge.com](mailto:rcorsa@arcosbridge.com)

PLANS PREPARED BY:

ARCOS BRIDGE, INC.  
8112 CHAMPIONS FOREST WAY  
TAMPA, FL 33635  
(813) 767-0538

NOTE: THE SCALE OF THESE PLANS  
MAY HAVE CHANGED DUE TO  
REPRODUCTION.

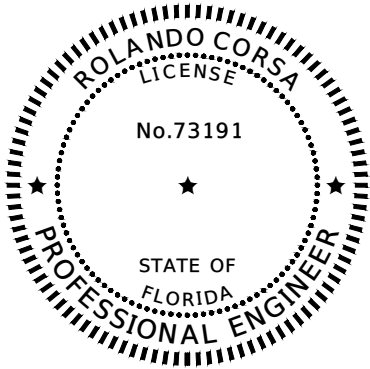
STRUCTURE PLANS ENGINEER OF  
RECORD:

ROLANDO CORSA, PE, CBI  
NO.: 73191

COUNTY PROJECT MANAGER: KELLY SLAUGHTER

| CONSTRUCTION<br>CONTRACT NO. | FISCAL<br>YEAR | SHEET<br>NO. |
|------------------------------|----------------|--------------|
| N/A                          | 24             | B-01         |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



THIS ITEM HAS BEEN DIGITALLY SIGNED  
AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE  
NOT CONSIDERED SIGNED AND SEALED  
AND THE SIGNATURE MUST BE VERIFIED  
ON ANY ELECTRONIC COPIES.

ARCOS BRIDGE, INC.  
ROLANDO CORSA, PE, CBI  
PE LICENSE NUMBER 73191  
8112 CHAMPIONS FOREST WAY  
TAMPA, FL 33635

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE  
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

STRUCTURE PLANS

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BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div><br/>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorosa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-----------|-----------------------|------------------------------------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                           | CHECKED BY:<br>JMV 10-24  |                               |           |                       | PROJECT NAME:                      | SHEET NO.     |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                           | DESIGNED BY:<br>JMV 10-24 | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. |                                    |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                           | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-02          |

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 9TH EDITION, INCLUDING ALL INTERIMS THERETO. FLORIDA DEPARTMENT OF TRANSPORTATION "STRUCTURES MANUAL", DATED 2024.

DESIGN LOADS:

1. ORIGINAL LIVE LOAD:
2. DEAD LOADS:
- HS20-44
- REINFORCED CONCRETE
- 150 PCF

DRAWINGS AND DIMENSIONS:

1. DO NOT SCALE DRAWINGS FOR DIMENSIONS NOT GIVEN.
2. VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING REPAIRS OR ORDERING ANY MATERIALS. NOTIFY ENGINEER OF ANY DISCREPANCIES FOUND.
3. ALL DIMENSIONS ARE IN FEET AND INCHES.
4. ALL DIMENSIONS IN THESE PLANS ARE GIVEN EITHER HORIZONTALLY OR VERTICALLY, UNLESS OTHERWISE NOTED. DECK JOINT OPENINGS ARE GIVEN FOR A MEAN TEMPERATURE OF 70°F.
5. THE DIMENSIONS, ELEVATIONS, AND INTERSECTION ANGLES SHOWN ARE BASED ON INFORMATION AS DETAILED IN THE LATEST FDOT BRIDGE INSPECTION REPORT (UNLESS OTHERWISE NOTED) AND A TAPE MEASURE SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE DATA BEFORE CONSTRUCTION OR ORDERING MATERIALS.

REINFORCING STEEL:

1. ALL REINFORCING STEEL SHALL BE ASTM A615-96, GRADE 60.
2. ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCEMENT ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.
3. REINFORCEMENT DETAIL DIMENSIONS ARE OUT-TO-OUT OF BARS.

ENVIRONMENT CLASSIFICATION:

LOCATION = MARINE STRUCTURE  
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE  
SUBSTRUCTURE: EXTREMELY AGGRESSIVE

CONCRETE:

CONCRETE AND CONSTITUENT MATERIALS SHALL MEET THE REQUIREMENTS OF SECTION 346 AND 400 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".

CAST-IN-PLACE:

FINAL MIX DESIGN SHALL BE SUBMITTED TO ARCOS BRIDGE, INC. FOR APPROVAL PRIOR TO POURING CAST-IN-PLACE CONCRETE.

CONCRETE STRESSES:

| CONCRETE INFORMATION TABLE |                                |                                   |
|----------------------------|--------------------------------|-----------------------------------|
| CLASS                      | APPLICATION                    | MIN. 28 DAY<br>COMPRESSIVE STRESS |
| IV                         | CULVERT, HEADWALL,<br>WINGWALL | 5,500 PSI                         |

CONCRETE COVER:

BOX CULVERT, HEADWALL AND WINGWALL: 3"

JOINTS IN CONCRETE:

CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT LOCATIONS INDICATED ON THE PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE APPROVAL OF THE ENGINEER.

EXISTING PLANS:

EXISTING PLANS ARE NOT AVAILABLE.

DATUM:

NO DESIGN SURVEY PERFORMED.

UTILITIES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES (INCLUDING SUBAQUEOUS CHANNEL CROSSINGS) PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT SUNSHINE AT (800) 432-4770 AND ANY OTHER LOCAL UTILITIES TO VERIFY EXISTING UTILITIES AT SITE OF CONSTRUCTION IF ANY EXISTING UTILITIES CONFLICT WITH PROPOSED CONSTRUCTION METHODS, MATERIALS, OR EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

CHARLOTTE COUNTY UTILITIES - SW (941) 764-4309  
FLORIDA POWER & LIGHT - CHARLOTTE (386) 586-6403  
FLORIDA POWER & LIGHT - SUBAQUEOUS (386) 586-6403  
COMCAST (239) 253-7642  
CENTURYLINK (850) 599-1444

INCIDENTAL ITEMS:

PAYMENT FOR INCIDENTAL ITEMS NOT SPECIFICALLY COVERED IN THE INDIVIDUAL PAY ITEMS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR BID ITEMS CONTAINED IN THIS CONTRACT.

ANY DISTURBED AREAS SHALL BE RESTORED & TOPPED WITH SOD AT THE ENGINEER'S DIRECTION AND TO THE ENGINEER'S SATISFACTION. THE SOD SHALL BE MAINTAINED BY THE CONTRACTOR THROUGH FINAL ACCEPTANCE. THE SOD SHALL BE INCIDENTAL TO THE PAY ITEM FOR WHICH THE DISTURBED AREA WAS CREATED.

MATERIAL PRODUCTS:

MATERIAL MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED MANUFACTURER'S RECOMMENDATIONS.

TRAFFIC CONTROL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS (102-600 SERIES). MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION.
2. THE CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY AND RESCUE AGENCIES LOCATED IN THE PROJECT VICINITY INCLUDING BUT NOT LIMITED TO THOSE AGENCIES LISTED BELOW AS WELL AS THE ENGINEER 14 DAYS IN ADVANCE OF ANY TEMPORARY LANE CLOSURES OR RESTRICTIONS, AND AGAIN 24 HOURS IN ADVANCE OF EACH SERIES OF TEMPORARY LANE CLOSURES.

CHARLOTTE COUNTY FIRE/EMS STATION 7: (941) 575-0034  
CHARLOTTE COUNTY SHERIFF'S OFFICE: (941) 639-2101

BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div></div> <div>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorsa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-----------|-----------------------|------------------------------------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                                 | CHECKED BY:<br>JMV 10-24  |                               |           |                       | GENERAL NOTES (1 OF 2)             |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 | DESIGNED BY:<br>JMV 10-24 | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. | PROJECT NAME:                      | SHEET NO.     |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-03          |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 |                           |                               |           |                       |                                    |               |

GENERAL NOTES (CONTINUED)

PROTECTION OF WATER RESOURCES:

THE CONTRACTOR SHALL CONDUCT HIS ACTIVITIES IN A MANNER TO AVOID POLLUTION OF SURFACE AND GROUND WATER AND WETLANDS. THE CONTRACTOR'S CONSTRUCTION METHODS SHALL PROTECT WETLAND AND SURFACE WATER AREAS FROM DAMAGE DUE TO MECHANICAL GRADING, EROSION, SEDIMENTATION VEHICULAR TRAFFIC, AND TURBID DISCHARGES. NO STORAGE OR STOCKPILING OF EQUIPMENT SHALL BE ALLOWED WITHIN ANY WETLAND AREA UNLESS SPECIFICALLY AUTHORIZED UNDER PERMIT. WATER DIRECTLY DERIVED FROM CONSTRUCTION ACTIVITIES SHALL BE COLLECTED IN RETENTION AREAS TO ALLOW SETTLING OF SUSPENDED MATERIALS. ALL MONITORING OF ANY WATER AREAS THAT ARE AFFECTED BY CONSTRUCTION ACTIVITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

OIL, FUEL AND HAZARDOUS SUBSTANCE SPILL PREVENTION:

THE CONTRACTOR SHALL PREPARE A SPILL CONTINGENCY PLAN IN ACCORDANCE WITH 40CFR, PART 109. THE CONTRACTOR SHALL PREVENT OIL, FUEL OR OTHER HAZARDOUS SUBSTANCES FROM ENTERING THE AIR, GROUND, DRAINAGE, AND LOCAL BODIES OF WATER OR WETLANDS. IN THE EVENT THAT A SPILL OCCURS, DESPITE DESIGN AND PROCEDURAL CONTROLS, THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION TO CONTAIN AND CLEANUP THE SPILL AND REPORT THE SPILL IMMEDIATELY TO THE COUNTY'S REPRESENTATIVE. A WRITTEN REPORT PROVIDING CERTIFICATION OF COMMITMENT OF MANPOWER, EQUIPMENT AND MATERIALS NECESSARY TO PREVENT THE SPREAD AND EFFECT EXPEDITIOUS CLEANUP AND DISPOSAL SHALL BE SUBMITTED.

FISH AND WILDLIFE RESOURCE PROTECTION:

THE CONTRACTOR SHALL CONTROL AND MINIMIZE INTERFERENCE WITH, DISTURBANCE TO, AND DAMAGE OF FISH AND WILDLIFE RESOURCES. IF APPROPRIATE, THREATENED AND ENDANGERED SPECIES THAT REQUIRE SPECIFIC PROTECTION MEASURES SHALL BE LISTED IN THE ENVIRONMENTAL PROTECTION PLAN. THE PERSON DESIGNATED AS RESPONSIBLE FOR THE ENVIRONMENTAL PROTECTION PLAN SHALL BE ABLE TO IDENTIFY THE THREATENED AND ENDANGERED SPECIES LISTED IN THE ENVIRONMENTAL PROTECTION PLAN. ANY ACTIVITY OBSERVED BY THE CONTRACTOR THAT MAY RESULT IN ADVERSE IMPACT TO THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE COUNTY AND THE COUNTY'S REPRESENTATIVE, WHO SHALL HAVE SOLE AUTHORITY FOR ANY WORK STOPPAGES, CREATION OF A BUFFER AREA, OR RESTART OF CONSTRUCTION ACTIVITIES. IN THE EVENT THAT THE COUNTY'S REPRESENTATIVE DETERMINES THAT AN ADVERSE IMPACT TO THREATENED OR ENDANGERED SPECIES MAY OCCUR AS A RESULT OF THE CONSTRUCTION ACTIVITIES, THE COUNTY SHALL NOTIFY THE CORPS OF ENGINEERS AND THE FISH AND WILDLIFE SERVICE. ADVERSE IMPACT IS DEFINED AS TO HARASS, HARM, PURSUE, HUNT, SHOOT, WOUND, KILL, TRAP, CAPTURE, COLLECT, OR TO ATTEMPT TO ENGAGE IN ANY SUCH CONDUCT.

BRIDGE NO. 010017

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|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-04      |               |

| PAY ITEMS FOR BRIDGE NO. 010017 |                                   |      |          |
|---------------------------------|-----------------------------------|------|----------|
| ITEM NO. (NOTE NO.)             | DESCRIPTION                       | UNIT | QUANTITY |
| 101-1 (1)*                      | MOBILIZATION                      | LS   | 1        |
| 102-1 (2)*                      | MAINTENANCE OF TRAFFIC            | LS   | 1        |
| 104-11 (3)*                     | FLOATING TURBIDITY BARRIER        | LF   | 100      |
| 110-1-1 (4)*                    | CLEARING AND GRUBBING             | LS   | 1        |
| 120-6 (5)*                      | EMBANKMENT                        | LS   | 1        |
| 401-70-4 (6)*                   | RESTORE SPALLED AREAS             | CF   | 1        |
| 401-70-5 (7)*                   | RELINE CULVERT SCALE DAMAGE       | CF   | 80       |
| 411-2 (8)*                      | CRACKS INJECT & SEAL              | LF   | 114      |
| 430-950 (9)                     | DESILTING CONCRETE BOX CULVERT    | CY   | 178      |
| 530-3-4 (10)*                   | RIPRAP, RUBBLE, F&I, DITCH LINING | TN   | 106      |
| 570-1-2 (11)*                   | PERFORMANCE TURF, SOD             | SY   | 3        |

\* NOTE: TECHNICAL SPECIAL PROVISION PROVIDED.

PAY ITEM NOTES:

1. MOBILIZATION - THIS PAY ITEM IS LIMITED TO 5% OF THE TOTAL BID AMOUNT. ANY ADDITIONAL MOBILIZATION COSTS BEYOND THE 5% LIMIT SHALL BE INCLUDED IN OTHER PAY ITEMS THAT REQUIRE THE MOBILIZATION OF EQUIPMENT AND/OR LABOR.
2. MAINTENANCE OF TRAFFIC - CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT, ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH THE FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS AND APPROVED BY CHARLOTTE COUNTY. THE CONTRACTOR SHALL MAINTAIN BERMONT ROAD OPEN AT ALL TIMES. LANE CLOSURES ARE NOT PERMITTED FOR THIS PROJECT. THE CONTRACTOR MAY, AT THE CONTRACTOR'S OPTION, PROPOSE TO INSTITUTE TEMPORARY SHOULDER CLOSURE PER FDOT INDEX 102-602, FOR APPROVAL BY THE COUNTY ENGINEER.
3. FLOATING TURBIDITY BARRIER - INSTALL AND MAINTAIN TURBIDITY BARRIERS TO AVOID OR MINIMIZE THE DEGRADATION OF THE WATER QUALITY OF THE SURROUNDING WATERS AND MINIMIZE DAMAGE TO AREAS WHERE THE FLOATING BARRIERS ARE INSTALLED.
4. CLEARING AND GRUBBING - REMOVE AND DISPOSE OF VEGETATION, OBSTRUCTIONS, ETC., UP TO 10 FT BEYOND THE CULVERT/WINGWALL FASCIAS (BOTH), AND WITHIN THE LONGITUDINAL LIMITS OF THE NORTH (LEFT) GUARDRAIL. PERFORM ALL CLEARING AND GRUBBING IN ACCORDANCE WITH FDOT SPECIFICATION ITEM NO. 110.
5. EMBANKMENT - RESTORE MINOR 3FT. X 2FT. X 2FT. AREAS OF EROSION BEHIND THE ENDS OF THE RIGHT-SIDE WINGWALLS PER FDOT SPECIFICATIONS 120.
6. RESTORE SPALLED AREAS - CONSISTS OF RESTORING SPALLED AREAS IN CULVERT, HEAD WALLS, AND WING WALLS AS NECESSARY PER THE STANDARD CONCRETE SPALL REPAIR DETAILS ON SHEET B-06. TOTAL REPAIR QUANTITY ASSUMES 50% ADDITIONAL MATERIAL TO ACCOUNT FOR UNKNOWN DEFICIENCY EXTENTS:

6.1 NORTHWEST WINGWALL, WEST END, HAS A 5IN. X 4IN. X 1/2IN. SPALL WITH EXPOSED TIMBER, 1FT. DOWN FROM THE TOP.

6.2 NORTHWEST WINGWALL, ADJACENT TO WALL 1 TRANSITION AND NEAR THE GROUNDLINE, HAS A 12IN. X 8IN. X 1/2IN. SPALL/DELAMINATION.

6.3 SOUTHWEST WINGWALL, SOUTH FACE, HAS A 9IN. X 6IN. X 1/2IN. SPALL, 3FT. FROM THE WEST END.

6.4 SOUTHWEST WINGWALL HAS AN 8IN. DIAMETER DELAMINATION IN THE TOP EDGE AT THE JUNCTURE TO THE HEADWALL.

6.5 SOUTHEAST WINGWALL, SOUTH FACE, HAS A 5IN. X 4IN. X 3/4IN. SPALL WITH EXPOSED REBAR, 14IN. FROM THE WALL 3 JOINT AND NEAR THE GROUNDLINE.

6.6 CELL 1 CEILING, BOTTOM EDGE SOUTH END, HAS A 24IN. X 3IN. X 1-1/2IN. SPALL.

6.7 WALL 1, SOUTH WIDENING JOINT HAS A 12IN. X 6IN. X 1IN. SPALL WITH EXPOSED REBAR NEAR THE CEILING.

6.8 CELL 1, WALL 2 HAS A 30IN. PIECE OF EXPOSED REBAR DUE TO LACK OF CONCRETE COVER NEAR THE NORTH WIDENING JOINT.

6.9 WALL 2 AT 1FT., 8FT. AND 13FT. FROM THE SOUTH END HAS EXPOSED REBAR DUE TO LACK OF COVER.

6.10 WALL 2, NORTH AND SOUTH ENDS, HAVE UP TO 14IN. X 8IN. X 1IN. SPALLS, 1FT. ABOVE THE FLOOR SLAB.

6.11 WALL 3, AT THE NORTH WIDENING JOINT HAS A 2FT. X 18IN. UNSOUND PATCH NEAR THE CEILING.

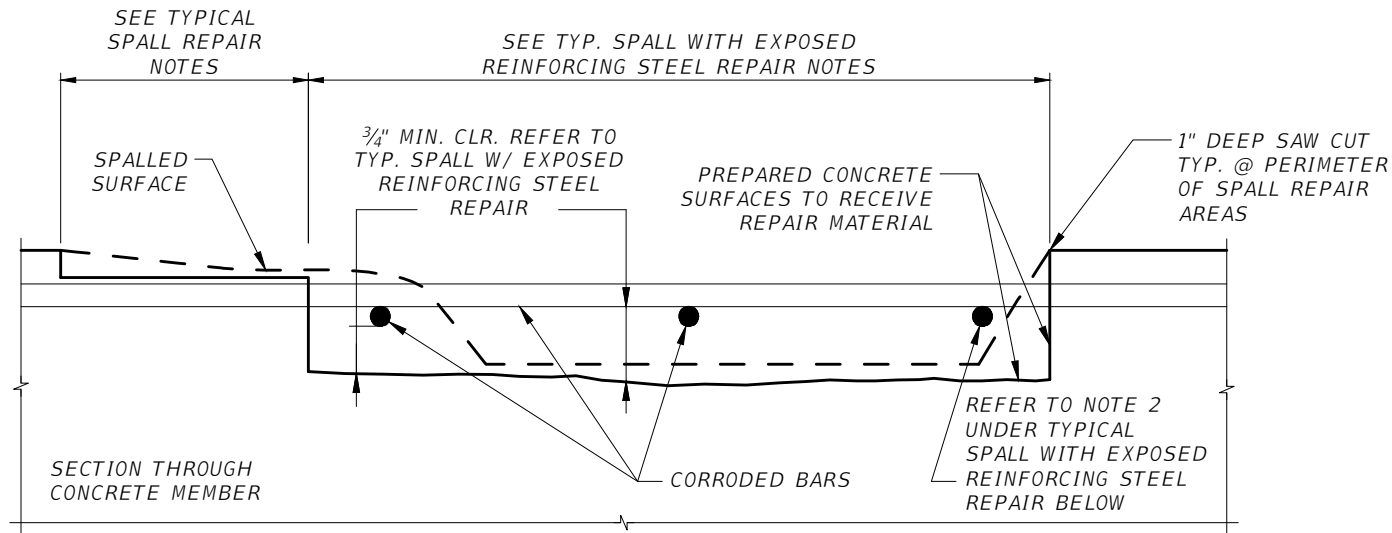
6.12 WALL 3, AT THE NORTH WIDENING JOINT HAS TWO SPALLS WITH EXPOSED REBAR UP TO 7IN. X 7IN. X 1IN.
7. RELINE CULVERT SCALE DAMAGE - THERE IS SCALE DAMAGE (LOSS OF AGGREGATE) UP TO 1/2IN. IN THE LOWER 4'-0". OF THE CULVERT SIDEWALLS. RESTORE CONCRETE SURFACES PER FDOT SPECIFICATION 450-12.3.1.4 AND 450-13.3. CONTRACTOR SHALL USE A HIGH-QUALITY POLYMER-MODIFIED REPAIR MORTAR THAT CAN BE HAND TROWELED, ENSURING PROPER COMPACTION AND BONDING. THE SELECTED REPAIR MORTAR SHALL BE LISTED ON FDOT'S APPROVED PRODUCTS LIST (APL). BOTH PLANITOP XS AND EUCOREPAIR V100 ARE REPAIR MORTARS LISTED ON THE APL THAT MAY BE USED FOR THIS PURPOSE.
8. CRACKS INJECT & SEAL - INJECT AND SEAL CRACKS AT THE FOLLOWING LOCATIONS PER FDOT SPECIFICATION 411. PAYMENT SHALL BE PER LINEAR FOOT OF CRACKS REPAIRED AND MATERIALS SHALL BE INCIDENTAL. TOTAL REPAIR QUANTITY ASSUMES 50% ADDITIONAL MATERIAL TO ACCOUNT FOR UNKNOWN DEFICIENCY EXTENTS. CONTRACTOR SHALL SUBMIT A REPAIR PROCEDURE FOR APPROVAL:

8.1 BOTH HEADWALLS AND WINGWALLS HAVE VERTICAL CRACKS LESS THAN 1/64IN.

8.2 THE WIDENING JOINTS HAVE CRACKS UP TO 1/16IN. WITH LIGHT EFFLORESCENCE.
9. DESILTING CONCRETE BOX CULVERT - THERE IS UP TO 3FT. OF SEDIMENT BUILDUP IN BOTH CELLS. DESILT BOX CULVERT CELLS OF SEDIMENT BUILDUP PER FDOT SPECIFICATION 430-10, INCLUDING 10 FT BEYOND THE CULVERT FASCIAS, RESTORING THE ORIGINALLY DESIGNED HYDRAULIC OPENING.
10. RIPRAP, RUBBLE, F&I, DITCH LINING - PLACE RIPRAP UP TO 10 FT BEYOND THE CULVERT/WINGWALL FASCIAS UP TO THE WINGWALL ENDS, IN ACCORDANCE WITH FDOT SPECIFICATION ITEM NO. 530.
11. PERFORMANCE TURF, SOD - INSTALL PER FDOT SPECIFICATION NO. 570. SEE NOTE 5 FOR AREAS.

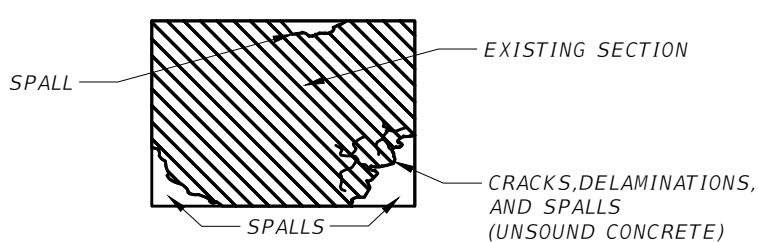
BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div></div> <div>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorosa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       |           | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-----------|-----------------------|------------------------------------|-----------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                                  | CHECKED BY:<br>JMV 10-24  |                               |           |                       | SUMMARY OF QUANTITIES              |           |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  | DESIGNED BY:<br>JMV 10-24 | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. | PROJECT NAME:                      | SHEET NO. |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-05      |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  |                           |                               |           |                       |                                    |           |               |

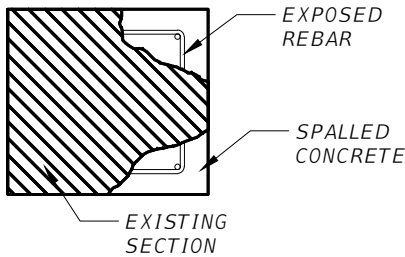


CONCRETE SPALL REPAIR DETAIL

APPLICABLE TO HORIZONTAL, VERTICAL AND OVERHEAD LOCATIONS



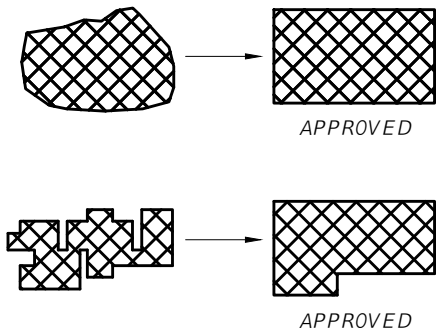
TYPICAL DELAMINATION AND SPALLS



TYPICAL SPALL WITH EXPOSED REBARS

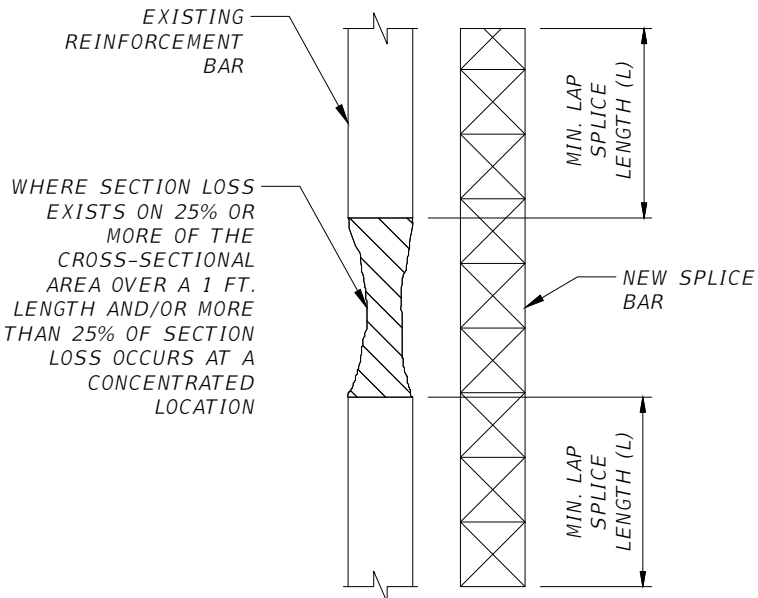
| LAP SPLICE TABLE |                   |
|------------------|-------------------|
| REBAR SIZE       | LAP SPLICE LENGTH |
| 3                | 12 INCHES         |
| 4                | 16 INCHES         |
| 5                | 20 INCHES         |
| 6                | 24 INCHES         |
| 7                | 33 INCHES         |
| 8                | 43 INCHES         |
| 9                | 54 INCHES         |
| 10               | 68 INCHES         |
| 11               | 84 INCHES         |

MIN. SPLICE LENGTHS (L)



SIMPLE PATCH CONFIGURATION

AT CORNER LOCATIONS PROVIDE RIGHT ANGLE CUTS. PATCH CONFIGURATIONS SHALL BE KEPT AS SIMPLE AS POSSIBLE. INDIVIDUAL REPAIR AREAS WITHIN 2 FEET SHALL BE JOINED AT THE DIRECTION OF THE ENGINEER.



LAP LENGTH DETAIL

GENERAL NOTES

1. IN THE PRESENCE OF THE ENGINEER, CLEARLY OUTLINE ALL AREAS IN NEED OF REPAIR WITH AN APPROVED PAINT OR MARKER PRIOR TO DEMOLITION. NO DEMOLITION OF ANY AREA OR MEMBER OF THE BRIDGE SHALL BE PERFORMED UNTIL APPROVAL FROM THE ENGINEER. INFORM THE ENGINEER IF A REMOVAL AREA EXCEEDS HALF THE THICKNESS OF THE SECTION.
2. THE ESTIMATED CONCRETE REPAIR QUANTITIES INCLUDED IN THE BID FORM WERE DETERMINED BY INCREASING THE REPAIR AREAS DOCUMENTED IN THE FDOT BRIDGE INSPECTION REPORT BY APPROXIMATELY 50% TO PROVIDE FOR CONTINGENCIES. THE ACTUAL REPAIR AREAS WILL BE DETERMINED IN THE FIELD BY THE CONTRACTOR AND AS APPROVED BY THE ENGINEER. THE INTENT IS TO REMOVE THE DELAMINATED CONCRETE AND OLD PATCHES AND INSTALL NEW PATCHING REPAIRS USING SAW CUTS AT THE PERIMETER OF THE REPAIR AREAS AS SHOWN ON THIS SHEET.
3. PROVIDE AND INSTALL STAINLESS STEEL TAPCONS ON A 6" BY 6" GRID WITH STAINLESS STEEL WIRE IN BETWEEN EACH ADJACENT TAPCON WITHIN THE PATCHES AT ALL REPAIR AREAS THAT ARE NOT MECHANICALLY BONDED TO EXISTING REBAR.
4. USE A METAL DETECTOR TO AVOID IMPACTING THE PRESTRESS WIRES WHEN INSTALLING THE TAPCONS ON THE BEAM UNDERSIDE DURING THE CONCRETE REMOVAL OPERATIONS.
5. APPLY SIKA MASTEREMACO P 124 BONDING AGENT, OR APPROVED EQUAL, TO EXISTING CONCRETE SURFACES PRIOR TO PLACING THE FRESH REPAIR MATERIAL.
6. USE SIKA MASTEREMACO N 425 REPAIR MORTAR, OR APPROVED EQUAL, FOR ALL HORIZONTAL, VERTICAL AND OVERHEAD SPALLS.
7. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.

EXPOSED REINFORCING STEEL NOTES

1. REMOVE RUST FROM EXPOSED REINFORCING STEEL BY ABRADING TO "WHITE METAL CONDITION" AND PREPARE SURFACES IN ACCORDANCE WITH ICRI TECHNICAL GUIDE 03730 "GUIDE FOR SURFACE PREPARATION" OF DETERIORATED CONCRETE RESULTING FROM REINFORCING STEEL CORROSION".
2. WHERE EXISTING REINFORCING STEEL HAS GREATER THAN 25% LOSS IN CROSS-SECTIONAL AREA DUE TO CORROSIVE DETERIORATION OR DAMAGE, SUPPLEMENT REINFORCING WITH ADDITIONAL REINFORCING AS SHOWN IN THE LAP LENGTH DETAIL AND MIN. SPLICE LENGTHS.

CONCRETE REMOVAL AND SURFACE PREPARATION NOTES

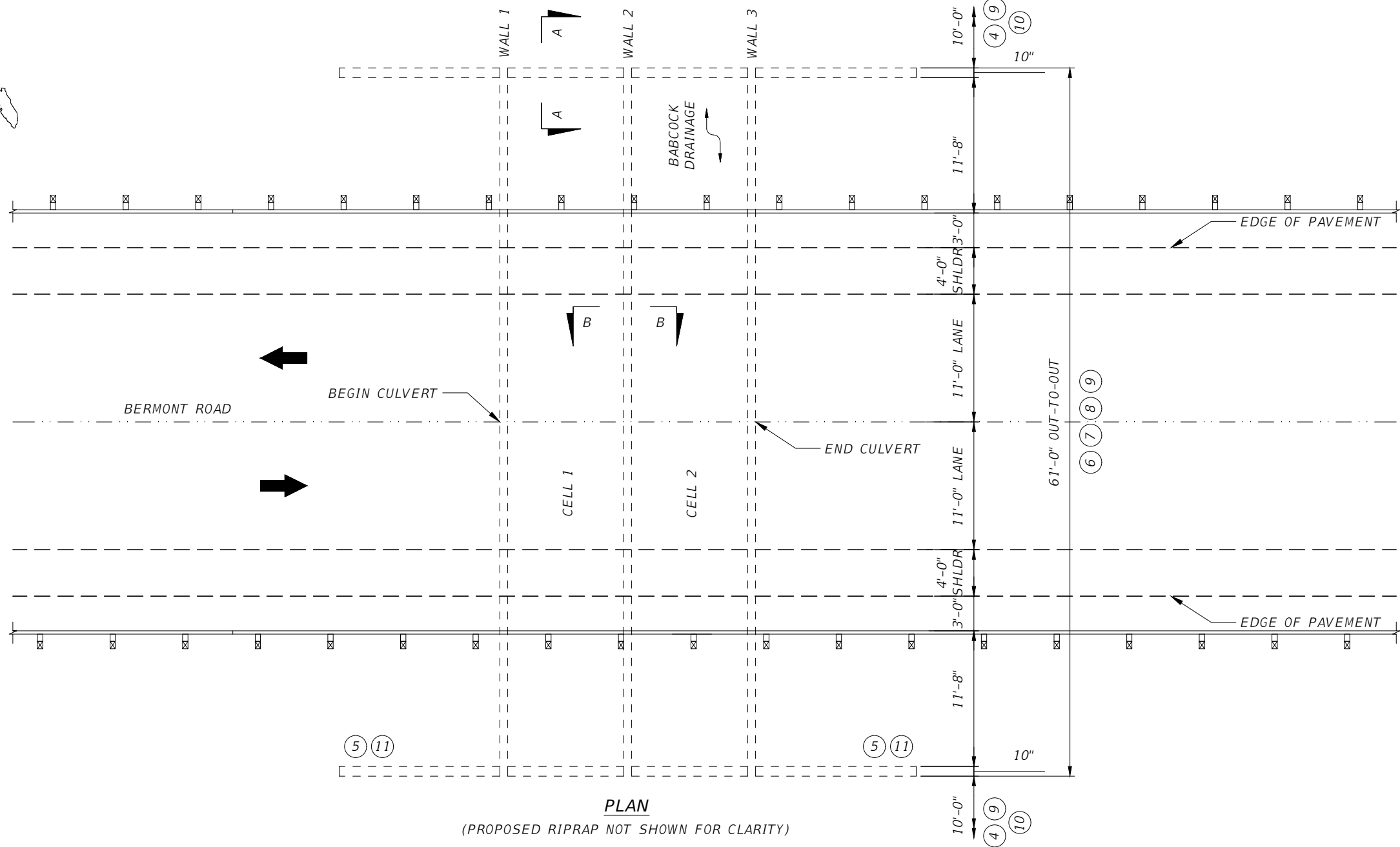
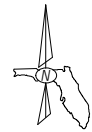
1. REMOVE ALL UNSOUND CONCRETE AND PREPARE SURFACES FOR REPAIR IN ACCORDANCE WITH ICRI TECHNICAL GUIDELINES 03730 "GUIDE FOR SURFACE PREPARATION" OF DETERIORATED CONCRETE RESULTING FROM REINFORCING STEEL CORROSION".
2. ALL REPAIR AREAS SHALL HAVE SQUARE EDGES AROUND THE PERIMETER OF THE SPALL DEFINED BY 3/4" DEEP SAW CUT LINES. CHIP THE REPAIR EDGES CLEAN TO FORM 45 TO 90 DEGREE CORNERS ALONG THE EDGES AND CORNERS OF THE REPAIR AREA. THE DEPTH OF THE CHIPPED EDGE SHALL BE 3/4" OR GREATER. FEATHERED EDGES WILL NOT BE ACCEPTABLE.
3. REMOVE UNSOUND CONCRETE USING MECHANICAL ABRASION, BUT DO NOT USE EXCESSIVE FORCE, WHICH MAY CAUSE MICRO-FRACTURING OF THE SOUND CONCRETE.
4. CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING REINFORCEMENT.
5. PREPARED SURFACES SHALL BE INTENTIONALLY ROUGHENED TO A MINIMUM PROFILE OF 1/4" TO PROVIDE MECHANICAL LOCK FOR THE REPAIR.
6. CONCRETE SURFACES SHALL BE STRUCTURALLY SOUND AND FREE OF BOND INHIBITING SURFACES.
7. WHERE THE BOND BETWEEN EXISTING CONCRETE AND REINFORCEMENT HAS BEEN DESTROYED OR WHERE MORE THAN HALF THE DIAMETER OF THE BAR IS EXPOSED TO A DEPTH THAT WILL PERMIT THE CONCRETE MORTAR TO BOND TO THE ENTIRE PERIPHERY OF THE BAR. PROVIDE A MINIMUM DEPTH BEHIND THE REINFORCEMENT OF 3/4" FOR THIS PURPOSE.
8. APPLY A TYPE A EPOXY COMPOUND IN ACCORDANCE WITH SECTION 926 OF THE SPECIFICATION TO THE EXISTING CONCRETE SURFACES PRIOR TO PLACING THE FRESH REPAIR MATERIAL.

CONCRETE SPALL REPAIR NOTES

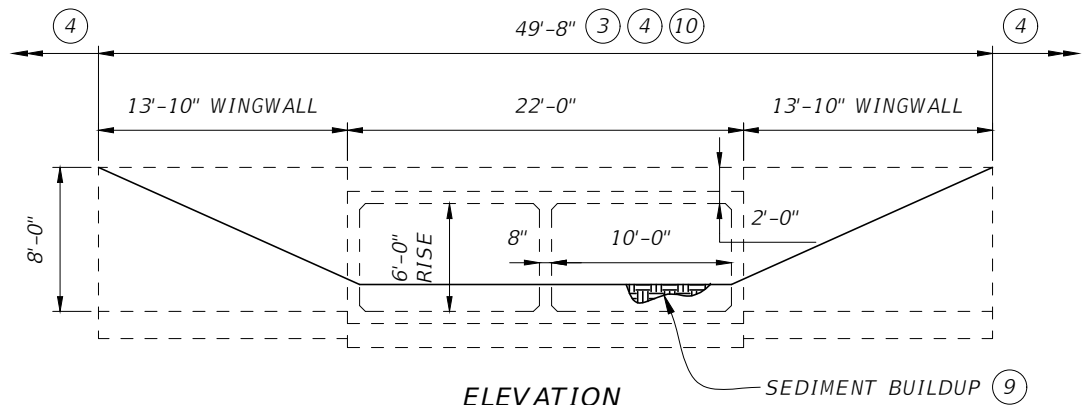
1. RESTORE CONCRETE SURFACES USING APPROVED MATERIALS IN ACCORDANCE WITH SECTION 926 OR SECTION 930 OF THE SPECIFICATIONS.
2. FOR SPALLS WITH AN AVERAGE DEPTH OF 1" OR LESS, REPAIR USING A TYPE F-1 OR TYPE F-2 EPOXY REPAIR MORTAR, FOR SPALLS WITH AN AVERAGE DEPTH GREATER THAN 1", REPAIR USING A RAPID HARDENING CONCRETE MORTAR.
3. SELECT MATERIALS SUITABLE FOR APPLICATION INCLUDING ORIENTATION (E.G. HORIZONTAL, VERTICAL OR OVERHEAD APPLICATION) AND THICKNESS.
4. MIX, PLACE AND CURE REPAIR MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. FINISH REPAIR MATERIALS FLUSH WITH THE ORIGINAL CONCRETE SURFACE (U.N.O). THE SURFACE FINISH SHALL MEET THE REQUIREMENTS FOR A GENERAL SURFACE FINISH PER SECTION 400 OF THE SPECIFICATIONS.
6. COMPLETION OF CLEANING OPERATIONS AND REPAIR SHALL OCCUR WITHIN THE SAME DAY AND SHALL NOT EXCEED THE BONDING AGENT WINDOW OF APPLICATION.
7. SAW-CUT 1" AT THE AREA OF THE DAMAGED CONCRETE. THE CONCRETE SHALL BE REMOVED FROM 3/4" TO 1" DEPTH BEHIND THE REINFORCING BAR BY MECHANICAL MEANS. THE CONTRACTOR SHALL NOT DAMAGE THE EXISTING REINFORCING.

BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <br>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br>(813) 767-0538 • rcorosa@arcosbridge.com | DRAWN BY:<br>DB 10-24<br>CHECKED BY:<br>JMV 10-24<br>DESIGNED BY:<br>JMV 10-24<br>CHECKED BY:<br>RC 10-24 |           |                       | CHARLOTTE COUNTY PUBLIC WORKS |  |  | SHEET TITLE:<br>STANDARD CONCRETE SPALL REPAIR DETAILS |  | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------|-----------------------|-------------------------------|--|--|--------------------------------------------------------|--|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                             | ROAD NO.                                                                                                  | COUNTY    | FINANCIAL PROJECT ID. |                               |  |  | PROJECT NAME:<br>BERMONT ROAD OVER BABCOCK DRAINAGE    |  | SHEET NO.     |
|           |    |             |      |    |             |                                                                                                                                                                                                                                             | N/A                                                                                                       | CHARLOTTE | N/A                   |                               |  |  |                                                        |  | B-06          |



**PLAN**  
(PROPOSED RIPRAP NOT SHOWN FOR CLARITY)

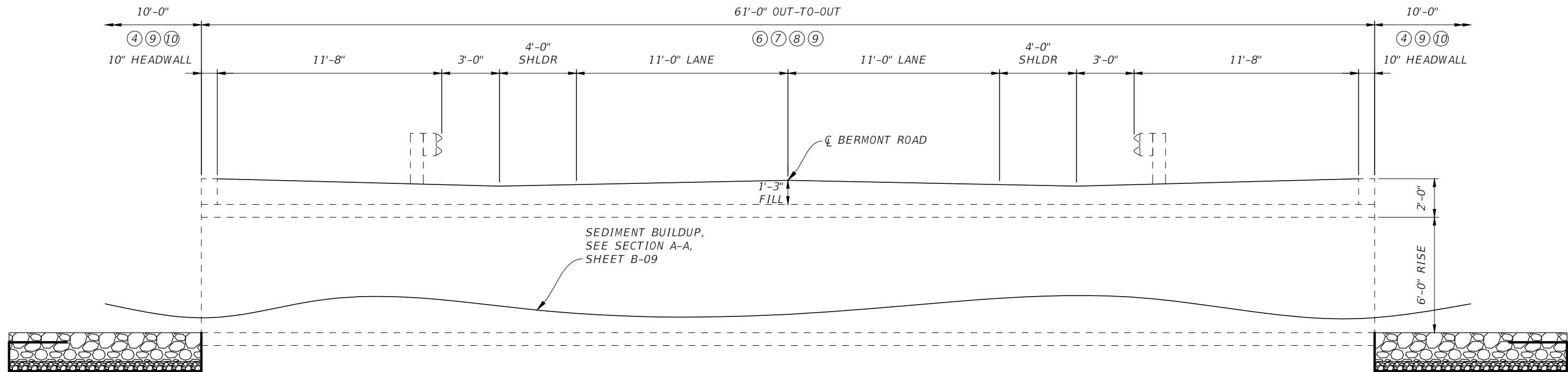


**ELEVATION**  
(PROPOSED RIPRAP NOT SHOWN FOR CLARITY)

- NOTES:
- 1. WORK THIS SHEET WITH B-05.
  - 2. SEE SHEET B-08 FOR PROPOSED RIPRAP DETAIL.
  - 3. SEE SHEET B-09 FOR SECTIONS A-A AND B-B.

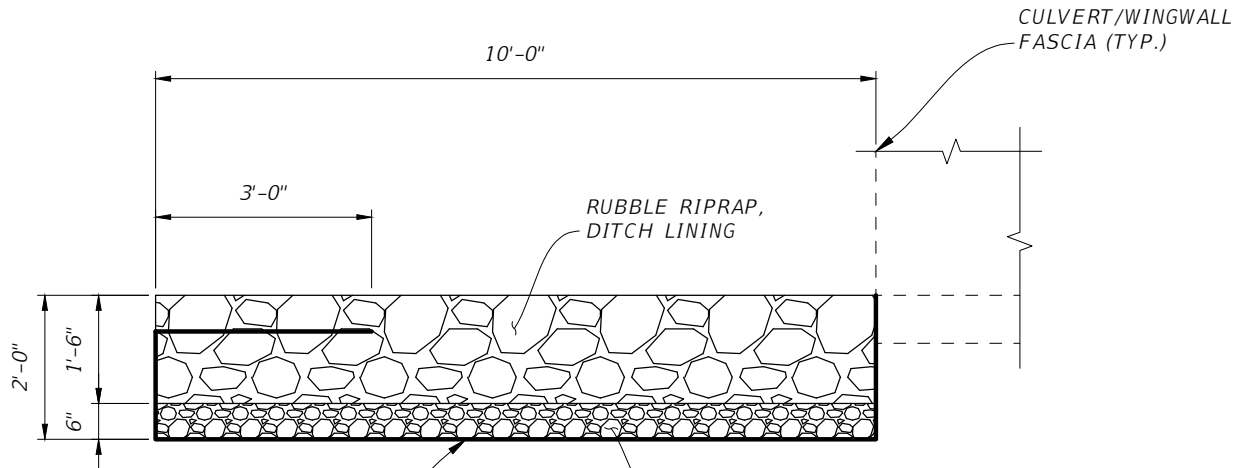
BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div><br/><br/>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPION FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorosa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     |                       |  | CHARLOTTE COUNTY PUBLIC WORKS      |  |           | SHEET TITLE: |  | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|--|------------------------------------|--|-----------|--------------|--|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                               | PLAN AND ELEVATION        |                       |  |                                    |  |           |              |  |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | CHECKED BY:<br>JMV 10-24  |                       |  |                                    |  |           |              |  |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | DESIGNED BY:<br>JMV 10-24 |                       |  | PROJECT NAME:                      |  | SHEET NO. |              |  |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | CHECKED BY:<br>RC 10-24   |                       |  | BERMONT ROAD OVER BABCOCK DRAINAGE |  | B-07      |              |  |               |
|           |    |             |      |    |             | ROAD NO.                                                                                                                                                                                                                                                      | COUNTY                    | FINANCIAL PROJECT ID. |  |                                    |  |           |              |  |               |
|           |    |             |      |    |             | N/A                                                                                                                                                                                                                                                           | CHARLOTTE                 | N/A                   |  |                                    |  |           |              |  |               |



TYPICAL SECTION  
(LOOKING UPSTATION)

NOTE: WORK THIS SHEET WITH B-05.



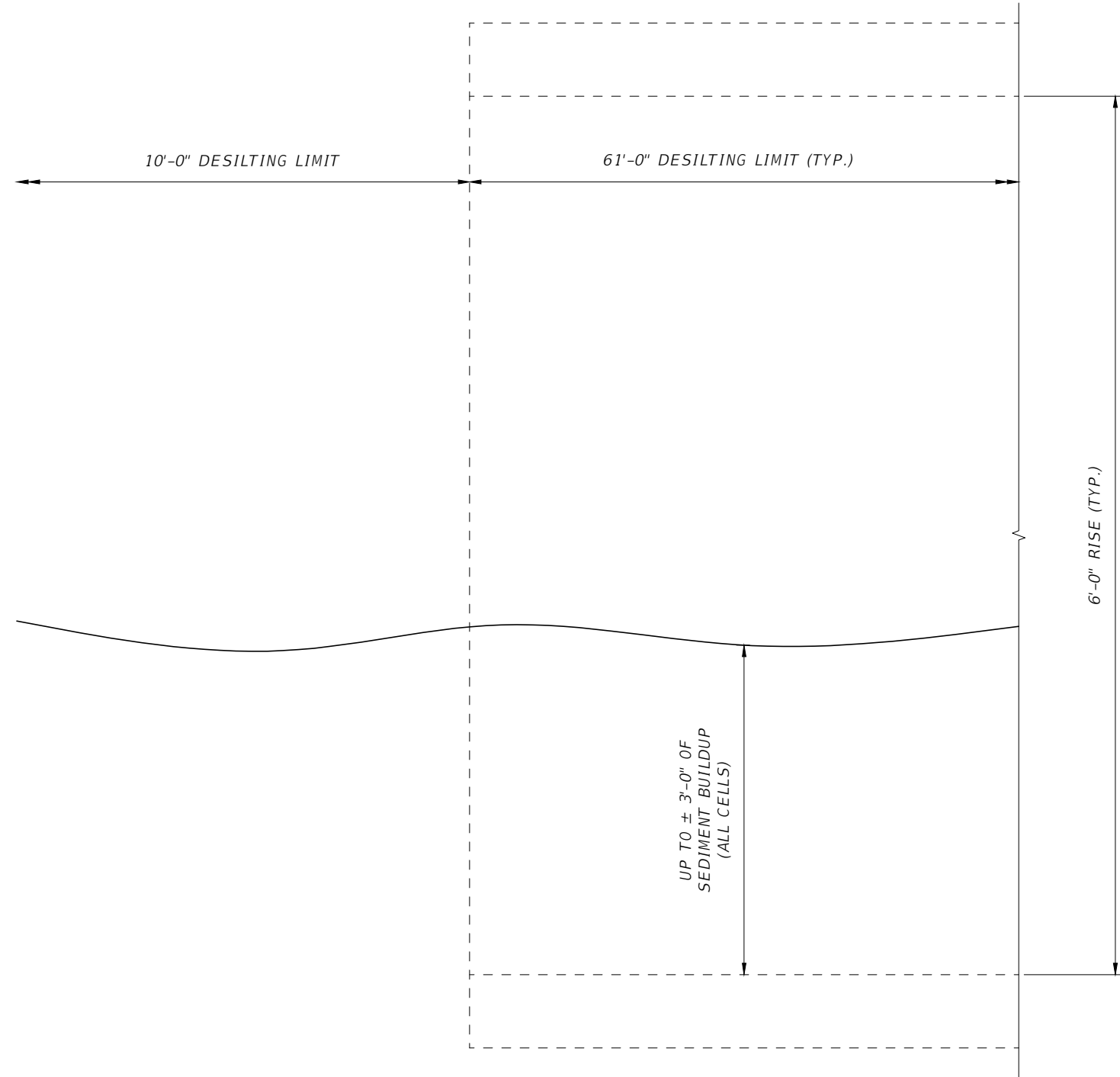
TYPE D-2 FILTER FABRIC, IN ACCORDANCE WITH SPECIFICATIONS SECTION 985. SPLICE LENGTHS AND INSTALLATION PROCEDURE IS TO BE IN ACCORDANCE WITH SPECIFICATIONS SECTION 514 AND 530

RIPRAP DETAIL

BRIDGE NO. 010017

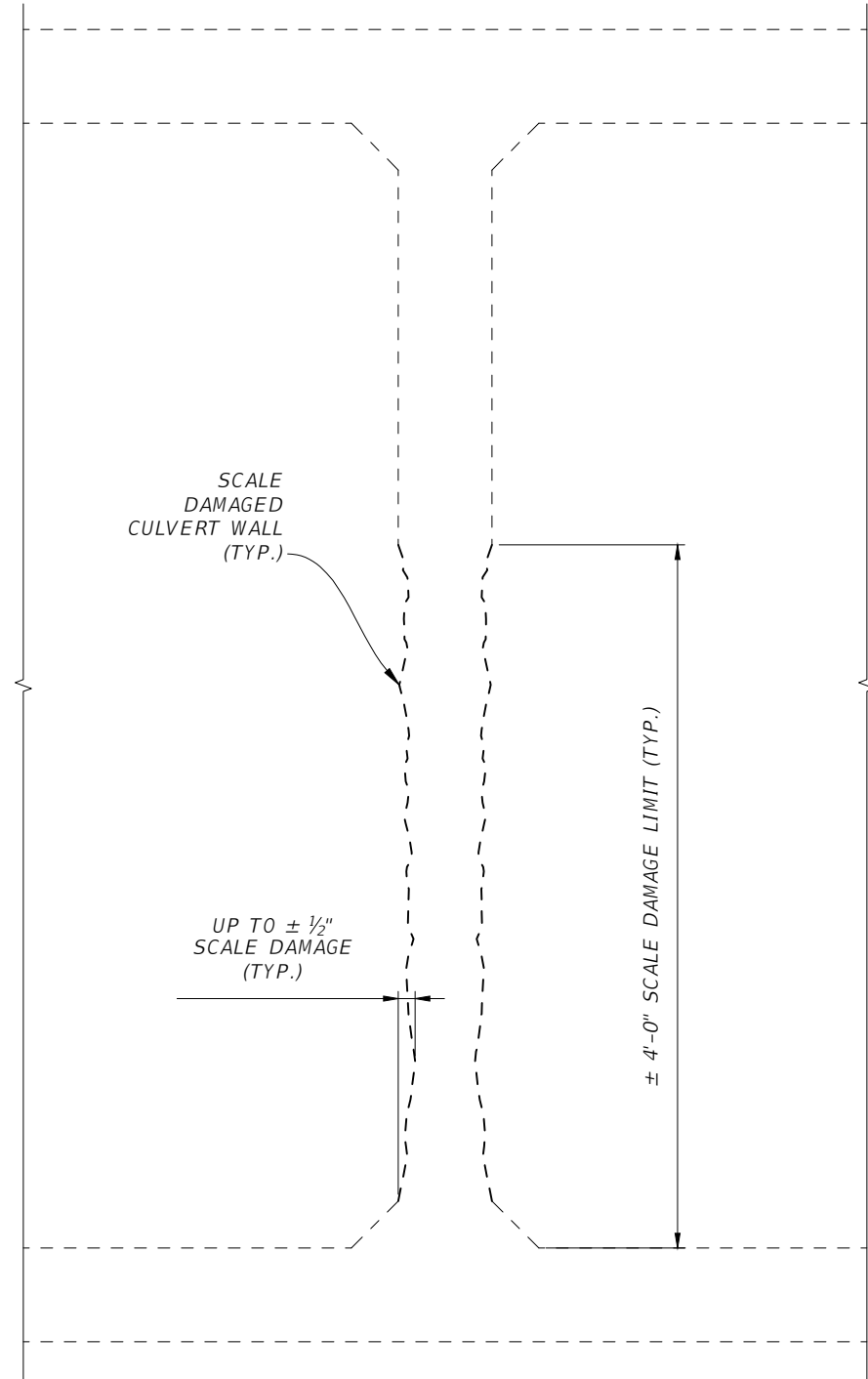
| REVISIONS |    |             |      |    |             | <div></div> <div>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorosa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     |  |  | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       |           | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--|--|-------------------------------|-----------|-----------------------|------------------------------------|-----------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                                  | TYPICAL SECTION           |  |  |                               |           |                       |                                    |           |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  | CHECKED BY:<br>JMV 10-24  |  |  | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. | PROJECT NAME:                      | SHEET NO. |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                  | DESIGNED BY:<br>JMV 10-24 |  |  | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-08      |               |
|           |    |             |      |    |             | CHECKED BY:<br>RC 10-24                                                                                                                                                                                                                                          |                           |  |  |                               |           |                       |                                    |           |               |

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**SECTION A-A**

DESILT BOX CULVERT CELLS OF SEDIMENT BUILDUP PER FDOT SPECIFICATION 430-10, INCLUDING 10 FT BEYOND THE CULVERT FASCIAS, RESTORING THE ORIGINALLY DESIGNED HYDRAULIC OPENING. PROPOSED RIPRAP NOT SHOWN FOR CLARITY.



**SECTION B-B**

RESTORE CULVERT WALL SURFACES PER FDOT SPECIFICATION 450-12.3.1.4 AND 450-13.3. CONTRACTOR SHALL USE A HIGH-QUALITY POLYMER-MODIFIED REPAIR MORTAR THAT CAN BE HAND TROWELED, ENSURING PROPER COMPACTION AND BONDING. THE SELECTED REPAIR MORTAR SHALL BE LISTED ON FDOT'S APPROVED PRODUCTS LIST (APL). BOTH PLANITOP XS AND EUCOREPAIR V100 ARE REPAIR MORTARS LISTED ON THE APL THAT MAY BE USED FOR THIS PURPOSE.

**BRIDGE NO. 010017**

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|-----------|----|-------------|------|----|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|-----------|-----------------------|------------------------------------|-----------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                               | MISCELLANEOUS REPAIR DETAILS |                               |           |                       |                                    |           |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | CHECKED BY:<br>JMV 10-24     |                               |           |                       |                                    |           |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | DESIGNED BY:<br>JMV 10-24    | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. | PROJECT NAME:                      | SHEET NO. |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                               | CHECKED BY:<br>RC 10-24      | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-09      |               |



HEAVY  
VEGETATION

PHOTO 1 - RIGHT FASCIA



HEAVY  
VEGETATION

PHOTO 2 - LEFT FASCIA



SPALL

PHOTO 3 - BEGIN, LEFT WINGWALL END



SPALL

PHOTO 4 - BEGIN, LEFT WINGWALL AT WALL 1

BRIDGE NO. 010017

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|-----------|----|-------------|------|----|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|-----------|-------------------------------|------------------------------------|--|--------------|-----------------------|---------------------------------|--|---------------|--|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                                | CHECKED BY:<br>JMV 10-24  | ROAD NO. |           |                               |                                    |  | COUNTY       | FINANCIAL PROJECT ID. | PROJECT NAME:                   |  | SHEET NO.     |  |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                | DESIGNED BY:<br>JMV 10-24 | N/A      | CHARLOTTE | N/A                           | BERMONT ROAD OVER BABCOCK DRAINAGE |  | B-10         |                       |                                 |  |               |  |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                | CHECKED BY:<br>RC 10-24   |          |           |                               |                                    |  |              |                       |                                 |  |               |  |

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PHOTO 5 - BEGIN, RIGHT WINGWALL



PHOTO 6 - BEGIN, RIGHT WINGWALL



PHOTO 7 - END, RIGHT HEADWALL



PHOTO 8 - END, RIGHT WINGWALL

BRIDGE NO. 010017

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|-----------|----|-------------|------|----|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------|-----------------------|------------------------------------|--------------|-----------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                          | DEFICIENCY PHOTOGRAPHS (2 OF 5) |                               |                       |                                    |              |           |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                          | ROAD NO.                        | COUNTY                        | FINANCIAL PROJECT ID. | PROJECT NAME:                      |              | SHEET NO. |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                          |                                 |                               |                       | BERMONT ROAD OVER BABCOCK DRAINAGE |              | B-11      |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                          |                                 |                               |                       |                                    |              |           |               |

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EROSION

PHOTO 9 - BEGIN, RIGHT WINGWALL



TYPICAL SCALE DAMAGE

PHOTO 10 - TYPICAL SIDE WALLS



SCALE DAMAGE

PHOTO 11 - TYPICAL SIDEWALL ENDS



EDGE SPALLS

PHOTO 12 - CELL 1, RIGHT END, CEILING

BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div></div> <div>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPIONS FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorsa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       |           | REF. DWG. NO. |  |
|-----------|----|-------------|------|----|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-----------|-----------------------|------------------------------------|-----------|---------------|--|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                                 | CHECKED BY:<br>JMV 10-24  |                               |           |                       | DEFICIENCY PHOTOGRAPHS (3 OF 5)    |           |               |  |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 | DESIGNED BY:<br>JMV 10-24 | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. | PROJECT NAME:                      | SHEET NO. |               |  |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-12      |               |  |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                                 |                           |                               |           |                       |                                    |           |               |  |



PHOTO 13 - WALL 1, RIGHT WIDENING JOINT



PHOTO 14 - CELL 1, WALL 2, LEFT WIDENING JOINT



PHOTO 15 - CELL 2, WALL 2, RIGHT END



PHOTO 16 - TYPICAL, WALL 2, LEFT/RIGHT ENDS

BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             | <div><br/><br/>ARCOS BRIDGE, INC. • ROLANDO CORSA, PE, CBI (No. 73191)<br/>8112 CHAMPION FOREST WAY • TAMPA, FL 33635<br/>(813) 767-0538 • rcorsa@arcosbridge.com</div> | DRAWN BY:<br>DB 10-24     | CHARLOTTE COUNTY PUBLIC WORKS |           |                       | SHEET TITLE:                       | DEFICIENCY PHOTOGRAPHS (4 OF 5) | REF. DWG. NO. |
|-----------|----|-------------|------|----|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|-----------|-----------------------|------------------------------------|---------------------------------|---------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |                                                                                                                                                                                                                                                              | CHECKED BY:<br>JMV 10-24  |                               |           |                       | PROJECT NAME:                      |                                 |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                              | DESIGNED BY:<br>JMV 10-24 | ROAD NO.                      | COUNTY    | FINANCIAL PROJECT ID. |                                    | SHEET NO.                       |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                              | CHECKED BY:<br>RC 10-24   | N/A                           | CHARLOTTE | N/A                   | BERMONT ROAD OVER BABCOCK DRAINAGE | B-13                            |               |
|           |    |             |      |    |             |                                                                                                                                                                                                                                                              |                           |                               |           |                       |                                    |                                 |               |

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PHOTO 17 - WALL 3, LEFT WIDENING JOINT



PHOTO 18 - TYPICAL WIDENING JOINTS

SEDIMENT  
BUILDUP



PHOTO 19 - TYPICAL CELLS

BRIDGE NO. 010017

| REVISIONS |    |             |      |    |             |
|-----------|----|-------------|------|----|-------------|
| DATE      | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
|           |    |             |      |    |             |



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|                           |
|---------------------------|
| DRAWN BY:<br>DB 10-24     |
| CHECKED BY:<br>JMV 10-24  |
| DESIGNED BY:<br>JMV 10-24 |
| CHECKED BY:<br>RC 10-24   |

CHARLOTTE COUNTY PUBLIC WORKS

| ROAD NO. | COUNTY    | FINANCIAL PROJECT ID. |
|----------|-----------|-----------------------|
| N/A      | CHARLOTTE | N/A                   |

|                                                         |               |
|---------------------------------------------------------|---------------|
| SHEET TITLE:<br><br>DEFICIENCY PHOTOGRAPHS (5 OF 5)     | REF. DWG. NO. |
|                                                         |               |
| PROJECT NAME:<br><br>BERMONT ROAD OVER BABCOCK DRAINAGE | SHEET NO.     |
|                                                         | B-14          |

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10/3/2023 10:53:44 AM

| SHEET | TABLE OF CONTENTS                                                                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | General Notes, TTC Tables                                                                                                                                                                 |
| 2     | Definitions<br>Temporary Traffic Control Devices<br>Overhead Work<br>Railroads<br>Sight Distance<br>Above Ground Hazard                                                                   |
| 3     | Clear Zone Widths For Work Zones<br>Superelevation<br>Length Of Lane Closures<br>Overweight/Oversize Vehicles<br>Lane Widths<br>High-Visibility Safety Apparel<br>Speed Reduction Signing |
| 4     | Flagger Control<br>Survey Work Zones<br>Signs                                                                                                                                             |
| 5     | Work Zone Sign Supports                                                                                                                                                                   |
| 6     | Commonly Used Warning and Regulatory Signs In Work Zones                                                                                                                                  |
| 7     | Manholes/Crosswalks/Joints<br>Truck Mounted Attenuators<br>Signals<br>Channelizing Devices<br>Channelizing Devices Consistency<br>Advanced Warning Arrow Boards                           |
| 8     | Drop-Offs In Work Zones                                                                                                                                                                   |
| 9     | Business Entrance<br>Temporary Asphalt Separator                                                                                                                                          |
| 10    | Channelizing Devices Notes<br>Temporary Barrier Notes                                                                                                                                     |
| 11    | Pavement Markings                                                                                                                                                                         |

GENERAL NOTES:

1. This Index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets on the State Highway System. Certain requirements in this Index are based on the high volume nature of State Highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.
2. Use this Index in accordance with the Plans and Indexes 102-601 through 102-680. Indexes 102-601 through 102-680 are Department-specific typical applications of commonly encountered situations. Adjust device location or number thereof as recommended by the Worksite Traffic Supervisor and approved by the Engineer. Devices include, but are not limited to, flaggers, portable temporary signals, signs, pavement markings, and channelizing devices. Comply with MUTCD or applicable Department criteria for any changes and document the reason for the change.
3. Except for emergencies, any road closure on State Highway System must comply with Section 335.15, F.S.

| TABLE 1<br>CHANNELIZING DEVICE SPACING |                                    |         |                                                                  |         |
|----------------------------------------|------------------------------------|---------|------------------------------------------------------------------|---------|
| Work Zone Speed (mph)                  | Max. Spacing (feet)                |         |                                                                  |         |
|                                        | Cones or Temporary Tubular Markers |         | Type I Barricades, Type II Barricades, Vertical Panels, or Drums |         |
|                                        | Taper                              | Tangent | Taper                                                            | Tangent |
| ≤ 45                                   | 25                                 | 50      | 25                                                               | 50      |
| ≥ 50                                   | 25                                 | 50      | 50                                                               | 100     |

| TABLE 2<br>TAPER LENGTH "L"                            |                       |
|--------------------------------------------------------|-----------------------|
| Work Zone Speed (mph)                                  | Min. Length (feet)    |
| ≤ 40                                                   | $L = \frac{WS^2}{60}$ |
| ≥ 45                                                   | $L = WS$              |
| Where: W = width of offset in feet<br>S = speed in mph |                       |

| TABLE 3<br>WORK ZONE SIGN SPACING "X"                                                                                                                         |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Road Type                                                                                                                                                     | Min. Spacing (feet) |
| Arterials and Collectors with Work Zone Speed ≤ 40 mph                                                                                                        | 200                 |
| Arterials and Collectors with Work Zone Speed ≥ 45 mph                                                                                                        | 500                 |
| Limited Access Roadways *                                                                                                                                     | 1,500               |
| * For Limited access roadways with work zone speed ≤ 55 mph, the minimum spacing may be reduced in accordance with the MUTCD and as approved by the Engineer. |                     |

| TABLE 4<br>BUFFER LENGTH "B"                                                                                                                |                    |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Work Zone Speed (mph)                                                                                                                       | Min. Length (feet) |
| 25                                                                                                                                          | 155                |
| 30                                                                                                                                          | 200                |
| 35                                                                                                                                          | 250                |
| 40                                                                                                                                          | 305                |
| 45                                                                                                                                          | 360                |
| 50                                                                                                                                          | 425                |
| 55                                                                                                                                          | 495                |
| 60                                                                                                                                          | 570                |
| 65                                                                                                                                          | 645                |
| 70                                                                                                                                          | 730                |
| Note: When Buffer Length "B" cannot be attained due to geometric constraints, use the greatest length possible, but not less than 155 feet. |                    |

| SYMBOLS:                                                                              |                                              |
|---------------------------------------------------------------------------------------|----------------------------------------------|
|  | Work Area                                    |
|  | Channelizing Device                          |
|  | Work Zone Sign                               |
|  | Type III Barricade                           |
|  | Lane Identification and Direction of Traffic |



FY 2024-25  
STANDARD PLANS

GENERAL INFORMATION FOR TRAFFIC  
CONTROL THROUGH WORK ZONES

INDEX  
102-600

SHEET  
1 of 11

LAST  
REVISION  
11/01/23

REVISION

DESCRIPTION:

DEFINITIONS:

## Regulatory Speed (In Work Zones)

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

### Advisory Speed

*The maximum recommended travel speed through a curve or a hazardous area.*

*Travel Way*

*The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.*

- a. *Travel Lane: The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.*
- b. *Auxiliary Lane: The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.*

### Detour, Lane Shift, and Diversion

*A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.*

### Aboveground Hazard

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

TEMPORARY TRAFFIC CONTROL DEVICES:

1. All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.
2. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered. Do not store temporary traffic control devices on the shoulder, sidewalk, or other roadway facility not affected by the work when work is suspended.
3. Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a channelizing device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

OVERHEAD WORK:

Work is only allowed over a traffic lane when one of the following options is used:

OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. *Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.*
- b. *Work operations are 60 minutes or less.*
- c. *Speed limit is 45 mph or less.*
- d. *No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.*
- e. *Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.*
- f. *Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.*
- g. *Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.*
- h. *Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.*

### OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

OVERHEAD WORK: (Cont.)

OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO  
ENCROACHMENT BELOW THE OVERHEAD WORK AREA)

*Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:*

- Beam, girder, segment, and bent/pier cap placement.
- Form and falsework placement and removal.
- Concrete placement.
- Railing construction located at edge of deck.
- Structure demolition.

**OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)**

*Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Index or temporary traffic control plan.*

*Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.*

*On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:*

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

RAILROADS:

*Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.*

SIGHT DISTANCE:

1. *Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.*
2. *Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.*

ABOVEGROUND HAZARD:

1. Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.
2. For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

CLEAR ZONE WIDTHS FOR WORK ZONES:

The term 'clear zone' describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals; where roadside canals are present, clear zone widths are to conform with the distances to canals as described in the FDOT Design Manual 215.2.

| TABLE 5<br>CLEAR ZONE WIDTHS FOR WORK ZONES                                                                                    |                                       |                                            |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------|
| WORK ZONE SPEED (MPH)                                                                                                          | TRAVEL LANES & MULTILANE RAMPS (feet) | AUXILIARY LANES & SINGLE LANE RAMPS (feet) |
| 60-70                                                                                                                          | 30                                    | 18                                         |
| 55                                                                                                                             | 24                                    | 14                                         |
| 45-50                                                                                                                          | 18                                    | 10                                         |
| 30-40                                                                                                                          | 14                                    | 10                                         |
| ALL SPEEDS CURB & GUTTER                                                                                                       | 4' BEHIND FACE OF CURB                | 4' BEHIND FACE OF CURB                     |
| NOTE: For temporary conditions where existing curb has been removed but not reconstructed, curb and gutter values may be used. |                                       |                                            |

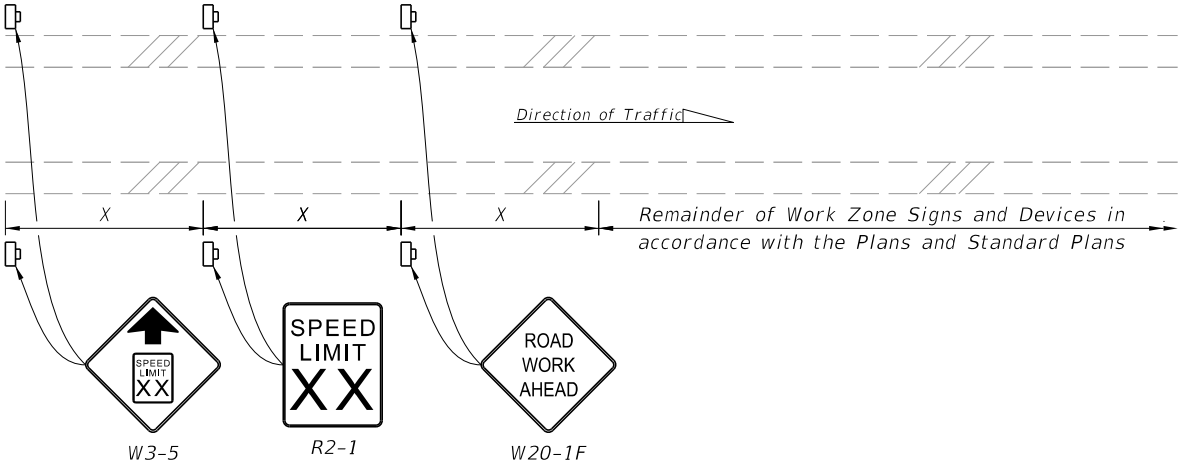
SUPERELEVATION:

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal crown controls curvature, the minimum radii that can be applied are listed in the table below.

| TABLE 6<br>MINIMUM RADII FOR NORMAL CROWN |                |
|-------------------------------------------|----------------|
| WORK ZONE POSTED SPEED                    | MINIMUM RADIUS |
| MPH                                       | feet           |
| 70                                        | 4090           |
| 65                                        | 3130           |
| 60                                        | 2400           |
| 55                                        | 1840           |
| 50                                        | 1390           |
| 45                                        | 1080           |
| 40                                        | 820            |
| 35                                        | 610            |
| 30                                        | 430            |
| Superelevate When Smaller Radii is Used   |                |

LENGTH OF LANE CLOSURES:

For interstates and state highways with a posted speed of 55MPH or greater, lane closures must not exceed 3 miles (includes taper, buffer, and work zone) in any given direction and must not close two consecutive interchanges.



NOTES:

1. X = Work Zone Sign Spacing
2. When called for in the Plans, use this detail in accordance with the Plans and Standard Plans. Place the speed reduction signs (W3-5 and R2-1) in advance of the "Road Work Ahead" sign (W20-1F) as shown.
3. Do not use this detail in conjunction with the Motorist Awareness System.
4. For speed reductions greater than 10 MPH, reduce the speed in 10 MPH increments of 'X' distance. Do not reduce the speed below the minimum statutory speed for the class of facility.
5. Place additional "Speed Limit" signs (R2-1) at intervals of no more than one mile for rural conditions and 1,000 feet for urban conditions.
6. For undivided roadways, omit the signs shown in the median.
7. Remove temporary regulatory speed signs as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect.

SPEED REDUCTION SIGNING

OVERWEIGHT/OVERSIZE VEHICLES:

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

LANE WIDTHS:

Lane widths of through roadways should be maintained through work zone travel ways wherever practical. Provide minimum widths for work zone travel lanes as follows: 11' for Interstate with at least one 12' lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for all other limited access roadways; and 10' for all other facilities.

HIGH-VISIBILITY SAFETY APPAREL:

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or newer. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

WORKERS: All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear fitted high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

UTILITIES: When other industry apparel safety standards require utility workers to wear apparel that is inconsistent with FDOT requirements such as NFPA, OSHA, ANSI, etc., the other standards for apparel may prevail.

FLAGGERS: For daytime activities, Flaggers shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, Flaggers shall wear ANSI/ISEA Class 3 apparel.

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FLAGGER CONTROL:

Regulatory Speed (In Work Zones)

Where flaggers are used, a FLAGGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color contrast between the Flagger's high-visibility safety apparel and equipment and the work area background.

Hand-Signaling Devices

STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, must not be less than 6 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflectorized.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

Flagger Stations

Flagger stations shall be located far enough in advance of the work area so that approaching road users will have sufficient distance to stop before entering the work area. When used at nighttime, the flagger station shall be illuminated.

SURVEY WORK ZONES:

The SURVEY CREW AHEAD symbol or legend sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur, at the discretion of the Party Chief.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign as called for on certain 102 Series of Indexes should be omitted.

Survey Between Active Traffic Lanes or Shared Left Turn Lanes

The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

- (A) A STAY IN YOUR LANE (MOT-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.
- (B) Elevation Surveys-Cones may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50' intervals along the break line throughout the work zone.

SURVEY WORK ZONES: (Cont.)

(C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' towards the flow of traffic.

(D) Horizontal Control-With traffic flow in opposite directions, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' in both directions towards the flow of traffic.

SIGNS:

SIGN MATERIALS

Mesh signs and non-retroreflectice vinyl signs may only be used for daylight operations. Non-retroreflectice vinyl signs must meet the requirements of Specifications Section 994.

Retroreflective vinyl signs meeting the requirements of Specification Section 994 may be used for daylight or night operations not to exceed 1 day except as noted in the Indexes.

Rigid or Lightweight sign panels may be used in accordance with the vendor APL drawing for the sign stand to which they are attached.

INTERSECTING ROAD SIGNING

Signing for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. When Work operations exceed 60 minutes, place the ROAD WORK AHEAD sign on the side street entering the work zone.

ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases other areas within their traffic control zones. Where such restraints or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedure applied:

- (A) For scheduled projects the engineer in responsible charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.
- (B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.

(C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.

(D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance works; between routine maintenance work, unscheduled work and/or permitted work; and, between unit controlled maintenance works and highway construction projects.

SIGNS: (Cont.)

SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING

Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS

Detours should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

EXTENDED DISTANCE ADVANCE WARNING SIGN

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

UTILITY WORK AHEAD SIGN

The UTILITY WORK AHEAD (W21-7) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

LENGTH OF ROAD WORK SIGN

The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT \_\_\_\_\_ MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at begin construction points.

GROOVED PAVEMENT AHEAD SIGN

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

END ROAD WORK SIGN

The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted where the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless other distance is called for in the plans. When other Construction or Maintenance Operations occur within 1 mile this sign should be omitted and signing coordinated in accordance with Index 102-600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

|                              |          |              |                                                                                                                    |                                                               |                  |                  |
|------------------------------|----------|--------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|------------------|
| LAST<br>REVISION<br>11/01/20 | REVISION | DESCRIPTION: |  FY 2024-25<br>STANDARD PLANS | GENERAL INFORMATION FOR TRAFFIC<br>CONTROL THROUGH WORK ZONES | INDEX<br>102-600 | SHEET<br>4 of 11 |
|------------------------------|----------|--------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|------------------|

NOTES:

1. All signs shall be post mounted when work operations exceed one day except for:
- a. Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the APL.

b. Pedestrian and bicycle advanced warning or pedestrian regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.

c. Median barrier mounted signs per Index 700-013.

d. Bridge mounted signs per Index 700-012.
2. Unless shielded with barrier or outside of the Clear Zone, signs mounted on temporary supports or barricades, and barricade/sign combination must be crashworthy in accordance with NCHRP 350 requirements and included on the Approved Products List (APL).
3. Use only approved systems listed on the Department's Approved Products List (APL).
4. Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.
5. Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in³ for 60 ksi steel, a minimum section modulus of 0.37 in³ for 70 ksi steel, or a minimum section modulus of 0.34 in³ for 80 ksi steel.
6. Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.56 in³ for 60 ksi steel, or a minimum section modulus of 0.47 in³ for 70 ksi or 80 ksi steel.
7. U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.
8. Sign attachment bolts, washers, nuts, and spacers shall conform with ASTM A307 or A 36.
9. Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
10. The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
11. Install all posts plumb.
12. The contractor may set posts in preformed holes to the specified depth with suitable backfill tamped securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer's detail shown on the APL.

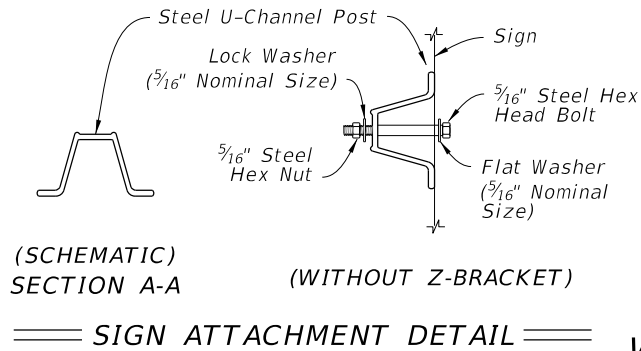
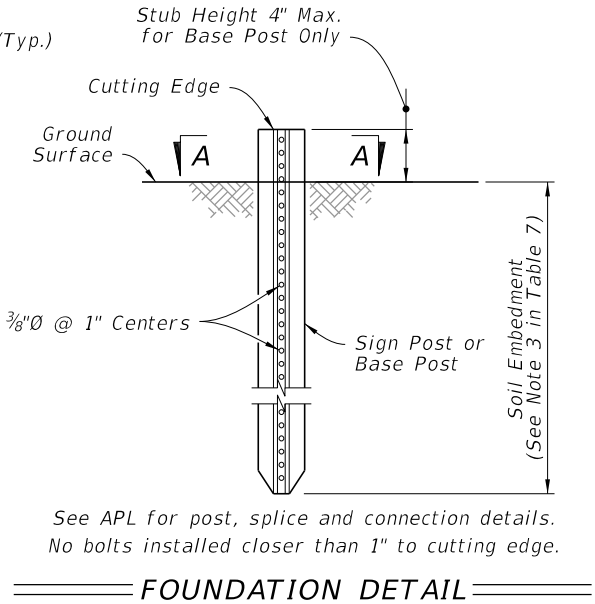
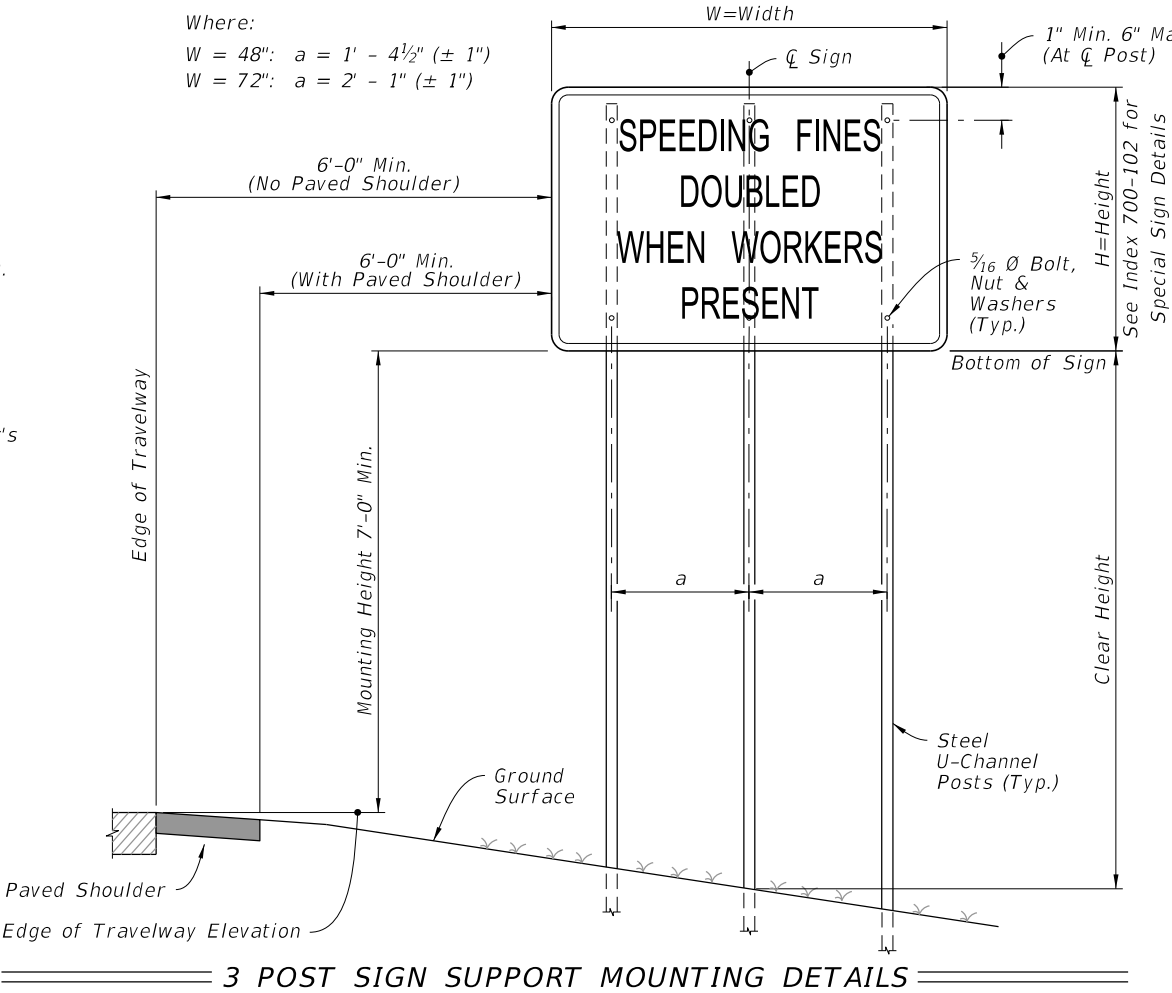
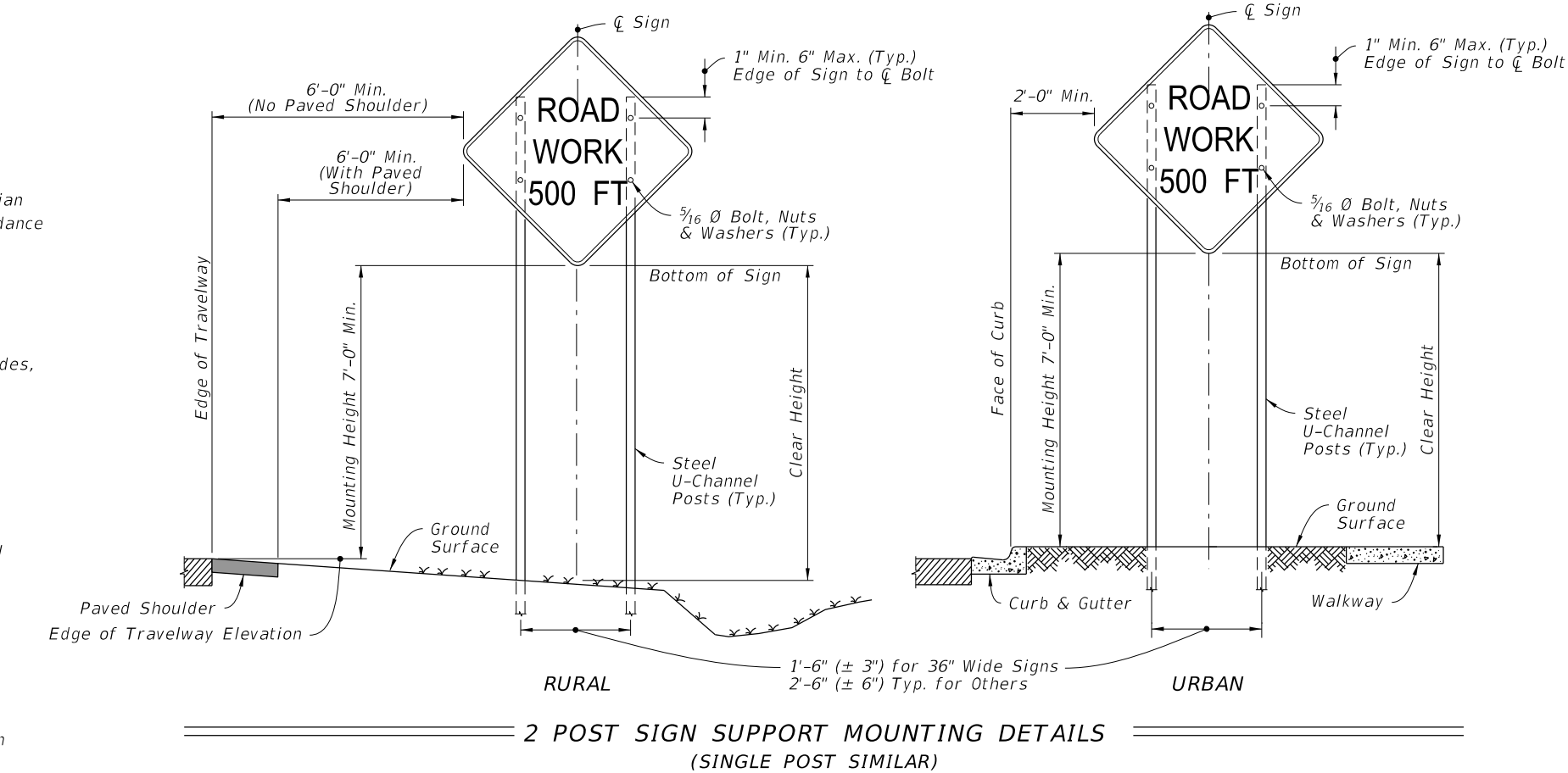


TABLE 7  
POST AND FOUNDATION  
TABLE FOR  
WORK ZONE SIGNS

| SIGN SHAPE        | SIGN SIZE (inches) | NUMBER OF STEEL U CHANNEL POSTS |
|-------------------|--------------------|---------------------------------|
| Octagon           | 30x30              | 1                               |
|                   | 36x36x36           | 1                               |
|                   | 48x48x48           | 1                               |
| Triangle          | 48x48x48           | 1                               |
|                   | 60x60x60           | 2                               |
| Rectangle (W x H) | 24x18              | 1                               |
|                   | 24x30              | 1                               |
|                   | 30x24              | 1                               |
|                   | 36x18              | 1                               |
|                   | 36x24              | 1                               |
|                   | 48x18              | 1                               |
|                   | 48x24              | 1                               |
|                   | 36x48              | 2                               |
|                   | 48x30              | 2                               |
|                   | 48x36              | 2                               |
|                   | 54x36              | 2                               |
|                   | 48x60              | 3                               |
| Square            | 72x48              | 3                               |
|                   | 30x30              | 1                               |
|                   | 36x36              | 2                               |
|                   | 48x48              | 2                               |
| Diamond           | 48x48              | 2                               |
| Circle            | 36Ø                | 2                               |

Notes For Table:

1. Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
2. Minimum foundation depth is 4.0' for 3 lb/ft posts and 4.5' for 4 lb/ft posts.
3. For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
4. The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in Note 3), asphalt roadway, shoulder pavement or soil under sidewalk.
5. For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).

WORK ZONE SIGN SUPPORTS

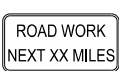
|                           |          |              |                              |                                                            |                  |                  |
|---------------------------|----------|--------------|------------------------------|------------------------------------------------------------|------------------|------------------|
| LAST REVISION<br>11/01/21 | REVISION | DESCRIPTION: | FY 2024-25<br>STANDARD PLANS | GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES | INDEX<br>102-600 | SHEET<br>5 of 11 |
|---------------------------|----------|--------------|------------------------------|------------------------------------------------------------|------------------|------------------|



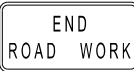
E5-2  
B/O



E5-2a  
B/O



G20-1  
B/O



G20-2  
B/O



G20-4  
B/O



M4-8  
B/O



M4-8A  
B/O



M4-9L  
B/O



M4-9R  
B/O



M4-10L  
O/B



M4-10R  
O/B



OM-3R  
B/Y



R1-1  
W/R



R1-2  
RW/R



R2-1  
B/W



R4-1  
B/W



R4-2  
B/W



R4-5  
B/W



R4-7  
B/W



R4-8  
B/W



R4-7AL  
B/W



R4-7AR  
B/W



R4-7BL  
B/W



R4-7BR  
B/W



R4-11  
B/W



R5-1  
WR/W



R9-8  
B/W



R9-9  
B/W



R9-10  
B/W



R9-11  
B/W



R9-11a  
B/W



R11-2  
B/W



W1-1R  
B/O



W1-2R  
B/O



W1-3R  
B/O



W1-4R  
B/O



W1-4b  
B/O



W1-4c  
B/O



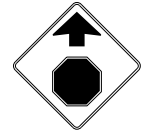
W1-6  
B/O



W1-7  
B/O



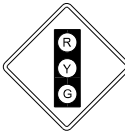
W1-8  
B/O



W3-1  
RB/O



W3-2  
RB/O



W3-3  
B(RYG)/O



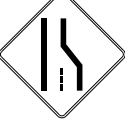
W3-4  
B/O



W3-5  
B/O



W4-1  
B/O



W4-2  
B/O



W5-1  
B/O



W5-2  
B/O



W5-3  
B/O



W6-1  
B/O



W6-2  
B/O



W6-3  
B/O



W8-1  
B/O



W8-2  
B/O



W8-3  
B/O



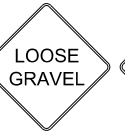
W8-4  
B/O



W8-5  
B/O



W8-6  
B/O



W8-7  
B/O



W8-8  
B/O



W8-9  
B/O



W8-9a  
B/O



W8-11  
B/O



W8-15P  
B/O



W9-1L  
B/O



W9-1R  
B/O



W9-2L  
B/O



W9-2R  
B/O



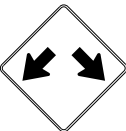
W10-1  
B/O



W11-1  
B/O



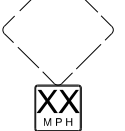
W11-2  
B/O



W12-1  
B/O



W12-2  
B/O



W13-1  
B/O



W13-1  
B/O



W16-1P  
B/O



W16-2P  
B/O



W16-7P  
B/O



W20-1A  
B/O



W20-1B  
B/O



W20-1C  
B/O



W20-1D  
B/O



W20-1E  
B/O



W20-1F  
B/O



W20-2A  
B/O



W20-2B  
B/O



W20-2C  
B/O



W20-2D  
B/O



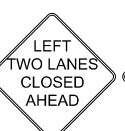
W20-2E  
B/O



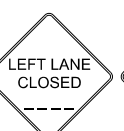
W20-3  
B/O



W20-4  
B/O



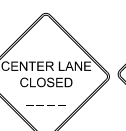
W20-5a  
B/O



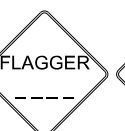
W20-5L  
B/O



W20-5R  
B/O



W20-5C  
B/O



W20-7A  
B/O



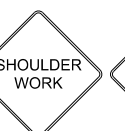
W20-7  
B/O



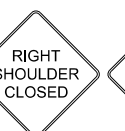
W21-1A  
B/O



W21-1  
B/O



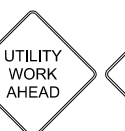
W21-5  
B/O



W21-5a  
B/O



W21-6  
B/O



W21-7  
B/O



W22-1  
B/O



W22-2  
B/O



W22-3  
B/O

NOTES:

- The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" X 48".
- Fluorescent orange shall be used for all orange colored work zone signs.
- The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 102 Series of Indexes and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer.

The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel).

The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans.

See Index 700-102 for MOT sign details.

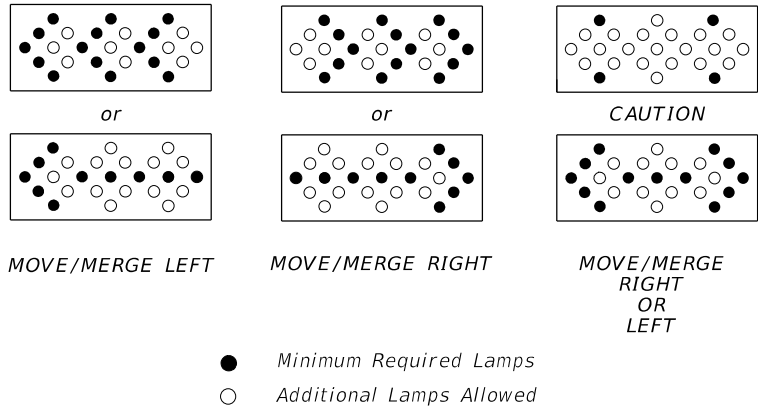
COLOR CODES:

Legend and/or  
Symbol Background

R-Red (Reflectorized)  
Y-Yellow (Reflectorized)  
G-Green (Reflectorized)  
O-Orange (Reflectorized)  
B-Black (Non-Reflectorized)  
W-White (Reflectorized)

COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES

|                              |          |              |                                                                                                                            |                                                                       |                         |                         |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|-------------------------|
| LAST<br>REVISION<br>11/01/20 | REVISION | DESCRIPTION: |  <b>FY 2024-25<br/>STANDARD PLANS</b> | <b>GENERAL INFORMATION FOR TRAFFIC<br/>CONTROL THROUGH WORK ZONES</b> | INDEX<br><b>102-600</b> | SHEET<br><b>6 of 11</b> |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|-------------------------|



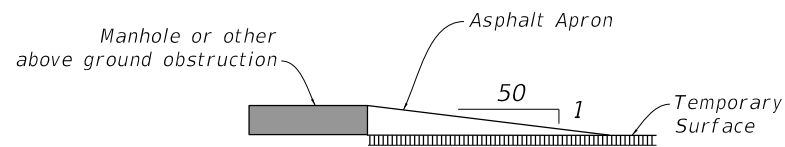
**NOTES:**  
An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.

A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.

When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

ADVANCE WARNING ARROW BOARDS

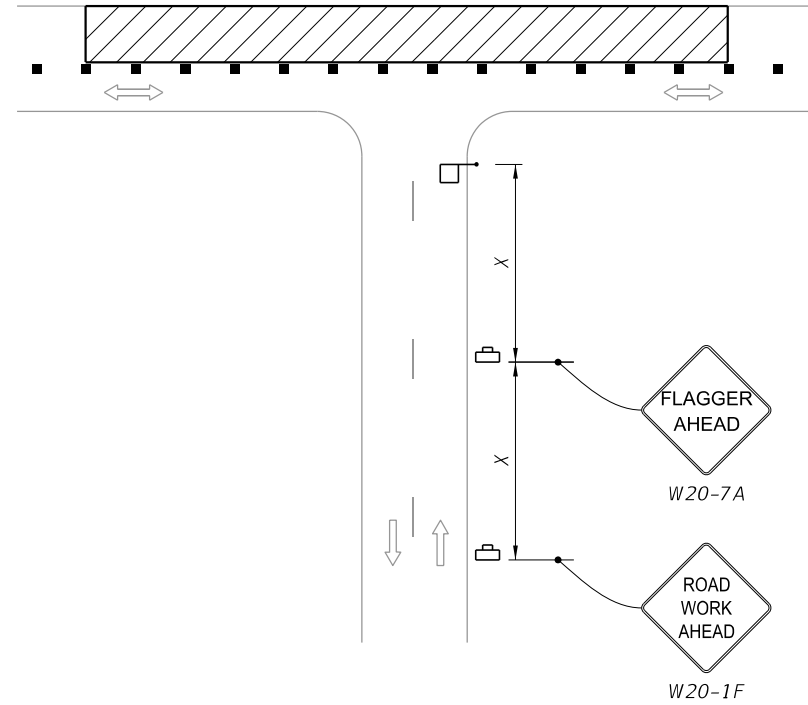


**NOTES:**  
Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4" shall have a temporary asphalt apron constructed as shown above.

All transverse joints that have a difference in elevation of 1" or more shall have a temporary asphalt apron constructed as shown above.

The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

MANHOLES/CROSSWALKS/JOINTS



**NOTE:**  
Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).

SIDE ROAD INTERSECTING THE WORK ZONE

**SIGNALS:**  
Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the Plans and be approved by the District Traffic Operations Engineer.

Refer to Specification 102-9 for additional information.

**CHANNELIZING DEVICES:**  
Channelizing devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and the 102 Series of Indexes. Lighting Devices must not be used to supplement channelization. Omit tapers and channelizing devices for paved shoulders less than 4' in width.

**CHANNELIZING DEVICE CONSISTENCY:**  
Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

**TRUCK/TRAILER-MOUNTED ATTENUATORS:**  
Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index 102-607. For short-term, stationary operations, see Part VI of the MUTCD.

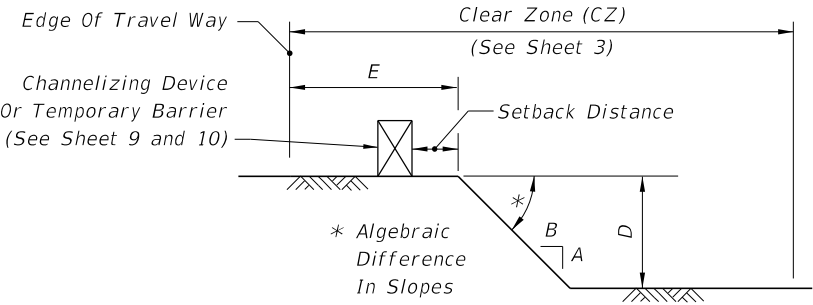
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|                              |          |              |                                                                                                                            |                                                                       |                         |                         |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|-------------------------|
| LAST<br>REVISION<br>11/01/21 | REVISION | DESCRIPTION: |  <b>FY 2024-25<br/>STANDARD PLANS</b> | <b>GENERAL INFORMATION FOR TRAFFIC<br/>CONTROL THROUGH WORK ZONES</b> | INDEX<br><b>102-600</b> | SHEET<br><b>7 of 11</b> |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|-------------------------|

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DROP-OFF CONDITION NOTES

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 8). A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4. In superelevated sections, the algebraic difference in slopes should not exceed 0.25 (See Drop-off Condition Detail).
3. Drop-offs may be mitigated by placement of slopes with optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LS. Use of this treatment in lieu of a temporary barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.
4. For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
5. For Conditions 1 and 3 provided in Table 8, any drop-off condition that is created and restored within the same work period will not be subject to use of temporary barriers; however, channelizing devices will be required.
6. When permanent curb heights are ≥ 6", no channelizing device will be required. For curb heights < 6", see Table 8.

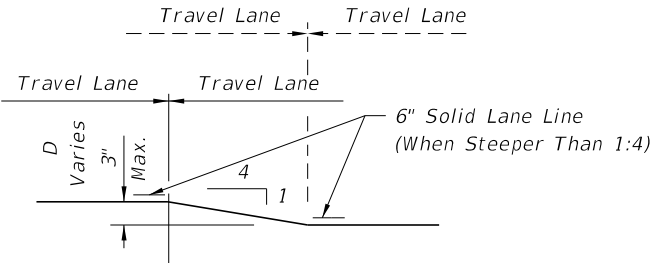


DROP-OFF CONDITION DETAIL

| Table 8<br>Drop-off Protection Requirements |                                             |            |                     |
|---------------------------------------------|---------------------------------------------|------------|---------------------|
| Condition                                   | E<br>(ft)                                   | D<br>(in.) | Device<br>Required  |
| 1                                           | 0-12                                        | > 3        | Temporary Barrier   |
| 2                                           | > 12-CZ                                     | > 3 to ≤ 5 | Channelizing Device |
| 3                                           | 0-CZ                                        | > 5        | Temporary Barrier   |
| 4                                           | Removal of Bridge or Retaining Wall Barrier |            | Temporary Barrier   |
| 5                                           | Removal of portions of Bridge Deck          |            | Temporary Barrier   |

TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of ½ mile maximum.
3. If D is 1½" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL

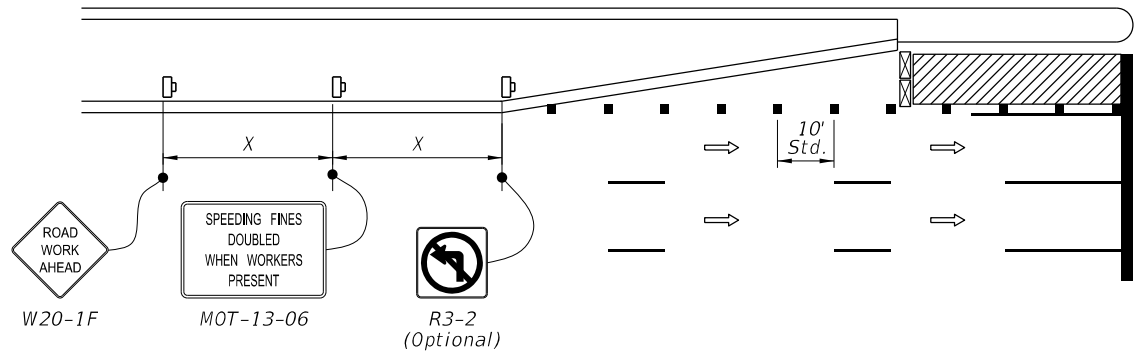
PEDESTRIAN WAY DROP-OFF CONDITION NOTES

1. A pedestrian way drop-off is defined as:

a. a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian way

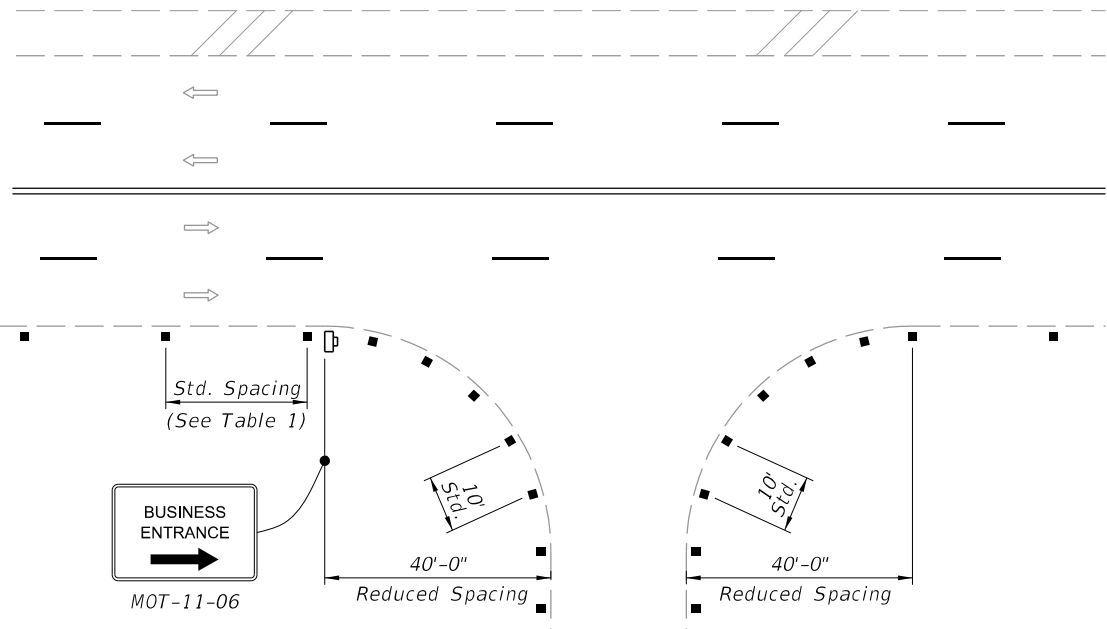
b. a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian way when the total drop-off is greater than 60"
2. Protect any drop-off adjacent to a pedestrian way with pedestrian longitudinal channelizing devices, temporary barrier wall, or approved handrail.

DROP-OFFS IN WORK ZONES



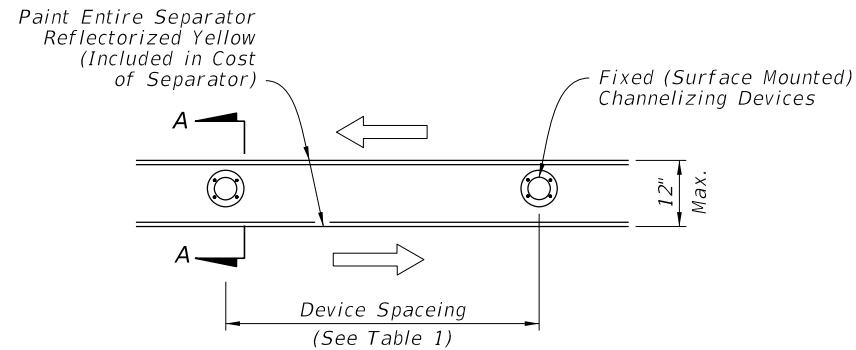
- NOTES:**
1. X = Work Zone Sign Spacing (See Table 3).
  2. The *SPEEDING FINES DOUBLE WHEN WORKERS PRESENT* sign (MOT-13-06) may be omitted when work operation will be in place for 24 hours or less.

### AUXILIARY LANE CLOSURE

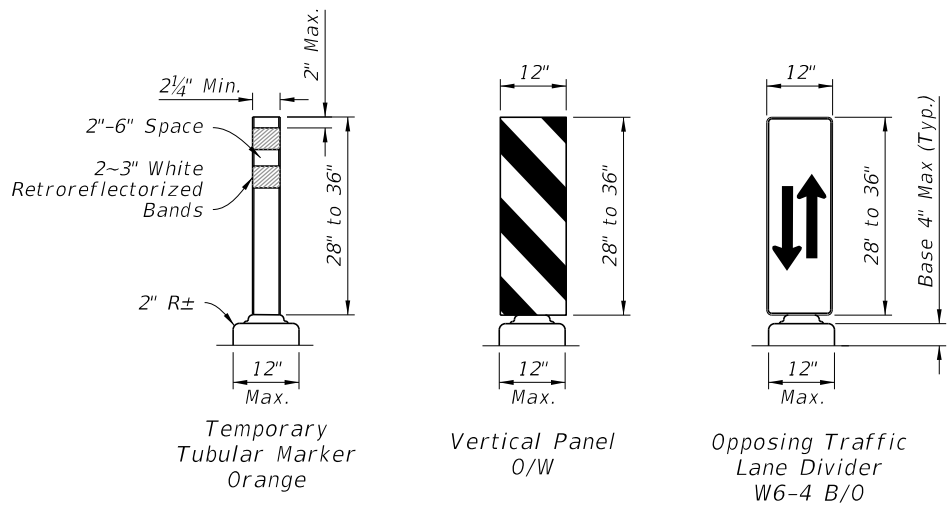


- NOTES:**
1. For single business entrances, place one 24" x 36" *BUSINESS ENTRANCE* sign (MOT-11-06) showing the specific business name for each affected driveway entrance. Logos may be provided by business owners. Standard *BUSINESS ENTRANCE* sign (MOT-11-06) may be used when approved by the Engineer.
  2. When several businesses share a common driveway entrance, place one 24" x 36" standard *BUSINESS ENTRANCE* sign (MOT-11-06) in accordance with Index 700-102 at the common driveway entrance.
  3. Channelizing devices shall be placed at a reduced spacing on each side of the driveway entrance, but shall not restrict sight distance for the driveway users.
  4. Business entrance signs are intended to guide motorist to business entrances moved/modified or disturbed during construction projects. Business entrance signs are not required where there is minimal disruption to business driveways which is often the case with resurfacing type projects.

### BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES PLACEMENT AT BUSINESS ENTRANCE



### PLAN



### SECTION A-A

- NOTES:**
1. Temporary lane separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: temporary tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels (W6-4) shall only be used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation. Temporary Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used. The connection between the channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.
  2. ReflectORIZED materials shall have a smooth sealed outer surface which will display the same approximate color day and night. Furnish channelizing devices having retroreflective sheeting meeting the requirements of Section 990.
  3. 12" openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25' in areas with grades of 1% or less or 50' in areas with grades over 1% as directed by the Engineer.
  4. Tapered ends shall be used at the beginning and end of each run of the temporary lane separator to form a gradual increase in height from the pavement level to the top of the temporary lane separator.
  5. The Contractor has the option of using portable temporary lane separators containing fixed channelizing devices in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet. The portable temporary lane separator shall come in portable sections that can be connected to maintain continuous alignment between the separate curb sections. Each temporary lane separator section shall be 36 inches to 48 inches in total length. Portable temporary lane separators shall duplicate the color of the pavement marking. Portable temporary lane separators shall be one of those listed on the Approved Products List.

### FIXED CHANNELIZING DEVICES (Temporary Lane Separators)



FY 2024-25  
STANDARD PLANS

GENERAL INFORMATION FOR TRAFFIC  
CONTROL THROUGH WORK ZONES

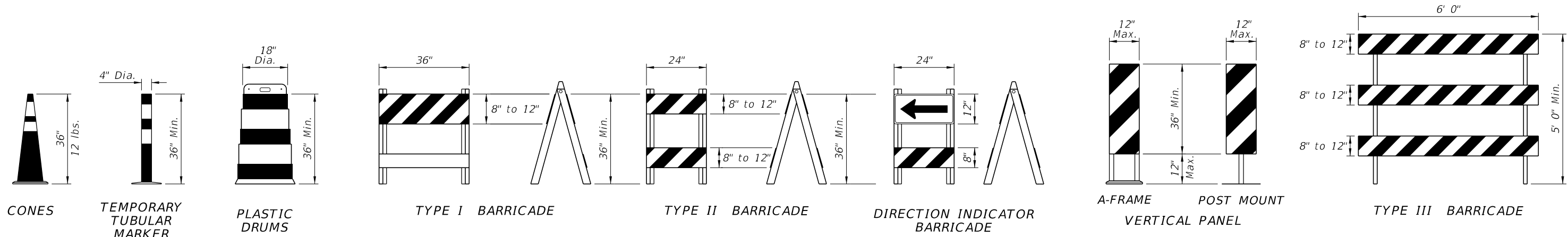
INDEX  
102-600

SHEET  
9 of 11

LAST  
REVISION  
11/01/23

DESCRIPTION:

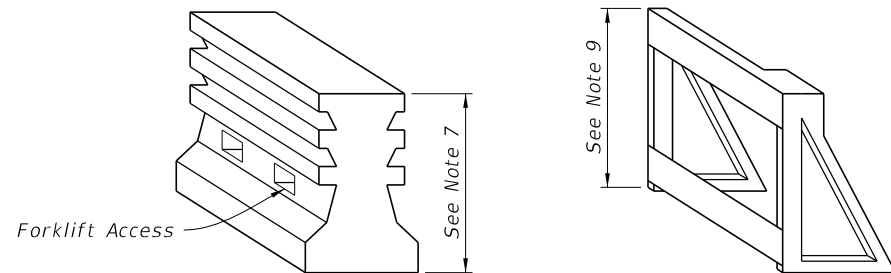
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CHANNELIZING DEVICES

CHANNELIZING DEVICE NOTES:

- The details shown on this sheet are for the following purposes:
  - For ease of identification and
  - To provide information that supplements or supersedes that provided by the MUTCD.
- The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.
- No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the Approved Products List (APL).
- Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
- The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
- The splicing of sheeting is not permitted on channelizing devices or MOT signs.
- For rails less than 3'-0" long, 4" stripes shall be used.
- Cones shall:
  - Be used only in active work zones where workers are present.
  - Be reflectorized as per the MUTCD with Department-approved reflective collars when used at night.
- For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have a 1/8" or less difference in any plane at all connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.



PEDESTRIAN LONGITUDINAL CHANNELIZING DEVICES

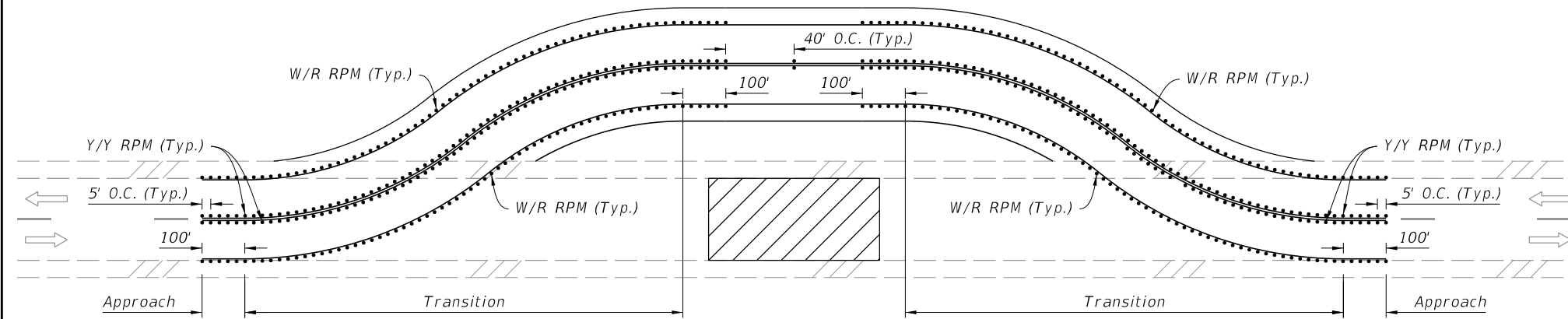
TEMPORARY BARRIER NOTES:

- Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

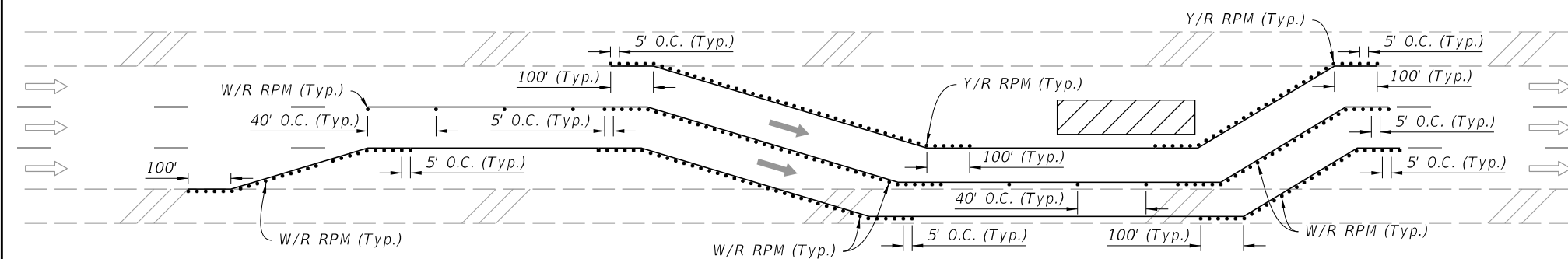
| Index   | Description         |
|---------|---------------------|
| 102-100 | Temporary Barrier   |
| 102-120 | Low Profile Barrier |
| 536-001 | Guardrail           |
- Trailer Mounted Barriers may be used to provide positive protection for workers within the work areas. APL drawings may be used as a guide to develop project specific Temporary Traffic Control Plans that are signed and sealed by the Contractor's Engineer.

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|                              |          |              |                                                                                                                            |                                                                       |                         |                          |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|--------------------------|
| LAST<br>REVISION<br>11/01/20 | REVISION | DESCRIPTION: |  <b>FY 2024-25<br/>STANDARD PLANS</b> | <b>GENERAL INFORMATION FOR TRAFFIC<br/>CONTROL THROUGH WORK ZONES</b> | INDEX<br><b>102-600</b> | SHEET<br><b>10 of 11</b> |
|------------------------------|----------|--------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------|--------------------------|



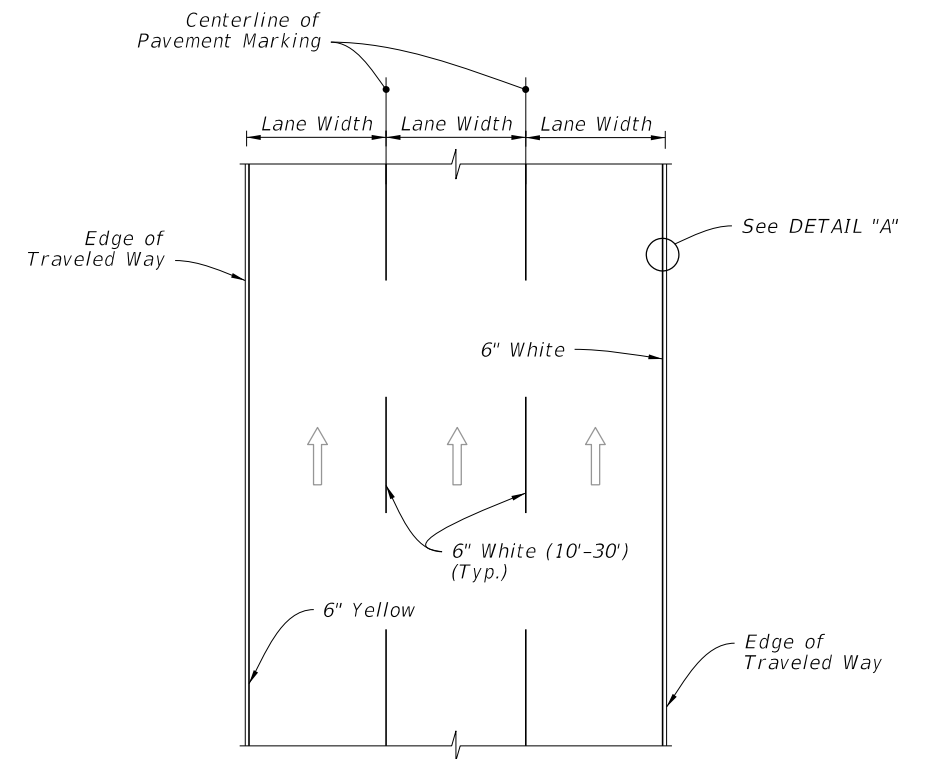
RPM PLACEMENT ON TWO-LANE ROADWAYS



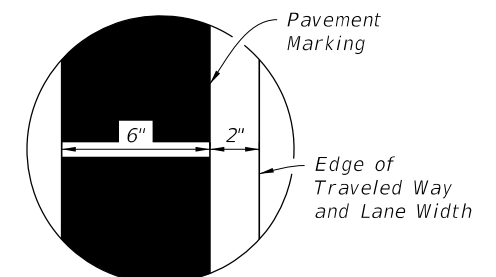
RPM PLACEMENT ON MULTILANE ROADWAYS  
(Lane Shift Shown, Other Multilane Typical Applications Similar)

**NOTES:**

1. Install RPMs as a supplement to:
  - a. All lane lines
  - b. Edge lines in transitions (e.g., merges, diversions, lane shifts)
  - c. Edge lines of gore areas
2. Extend pavement marking and 5' RPM spacing by 100' in each direction for all transitions regardless of the line type.
3. Place RPMs in accordance with this detail and Index 706-001.



PLAN VIEW



DETAIL "A"

RPM PLACEMENT IN WORK ZONES

PAVEMENT MARKINGS PLACEMENT

**WORK ZONE PAVEMENT MARKINGS**

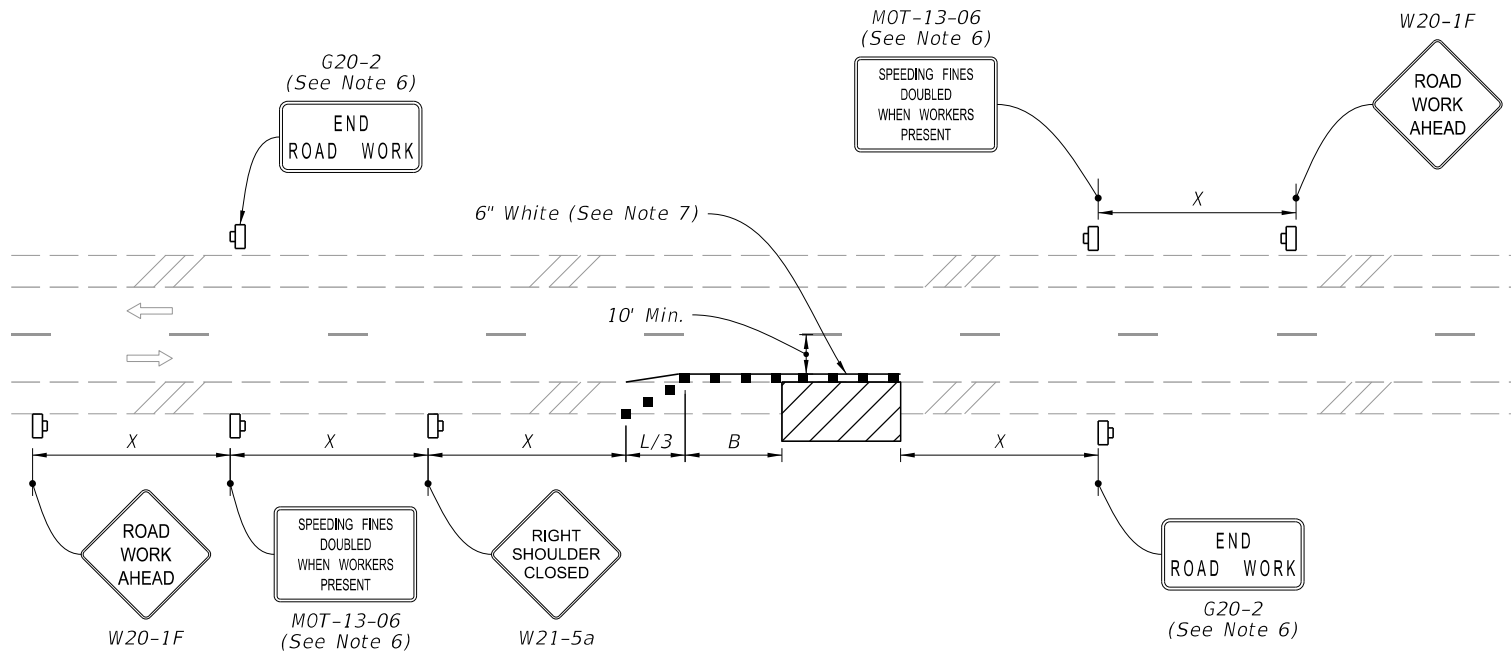
|                              |          |              |                                                                                                                    |                                                               |                  |                   |
|------------------------------|----------|--------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|-------------------|
| LAST<br>REVISION<br>11/01/23 | REVISION | DESCRIPTION: |  FY 2024-25<br>STANDARD PLANS | GENERAL INFORMATION FOR TRAFFIC<br>CONTROL THROUGH WORK ZONES | INDEX<br>102-600 | SHEET<br>11 of 11 |
|------------------------------|----------|--------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------|-------------------|

NOTE:

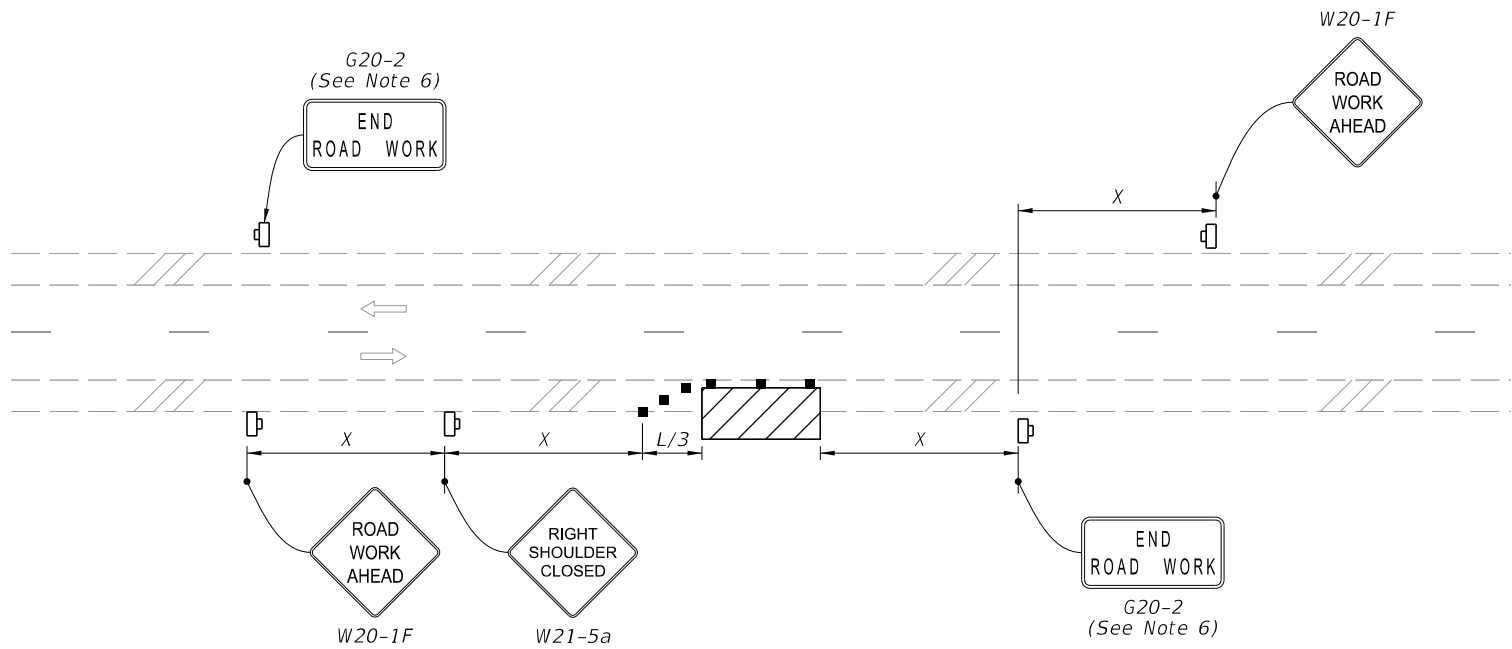
1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2.  $L$  = Taper Length  
 $X$  = Work Zone Sign Spacing  
 $B$  = Buffer Length  
See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (M0T-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).

SYMBOLS:

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Lane Identification and Direction of Traffic

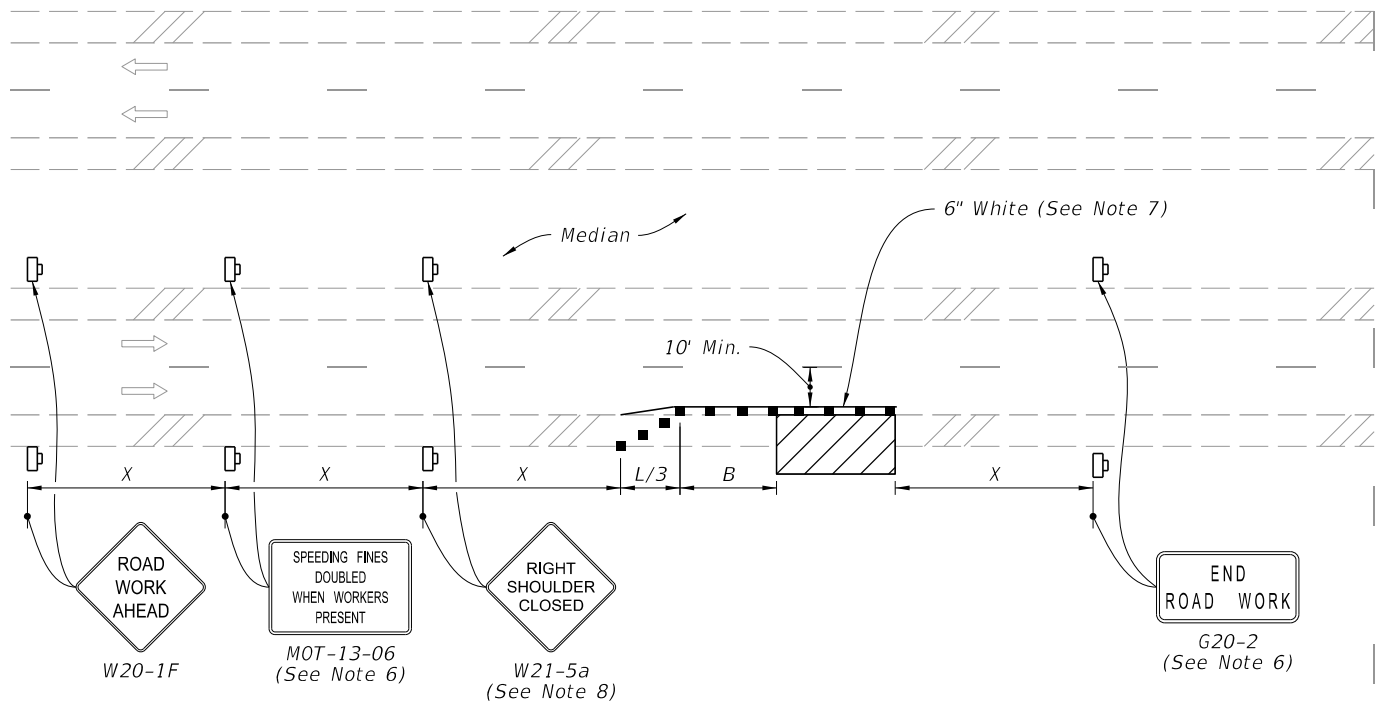


TWO-LANE ROADWAY  
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY  
WITH WORK ZONE SPEED OF 45 MPH OR LESS

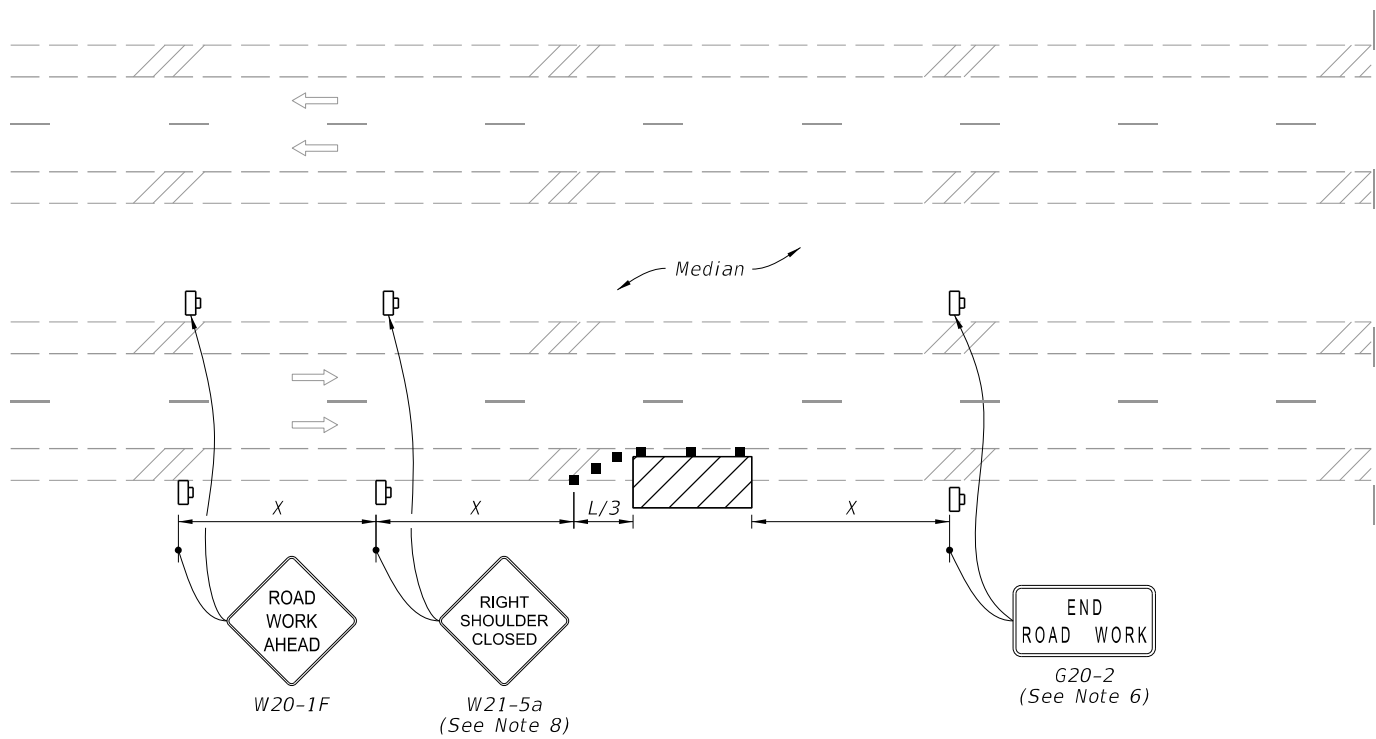


TWO-LANE ROADWAY  
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

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MULTILANE ROADWAY  
SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY  
WITH WORK ZONE SPEED OF 45 MPH OR LESS



MULTILANE ROADWAY  
SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Lane Identification and Direction of Traffic



FY 2024-25  
STANDARD PLANS

TWO-LANE AND MULTILANE, WORK ON SHOULDER

INDEX  
102-602

SHEET  
2 of 2

LAST  
REVISION  
11/01/20

REVISION