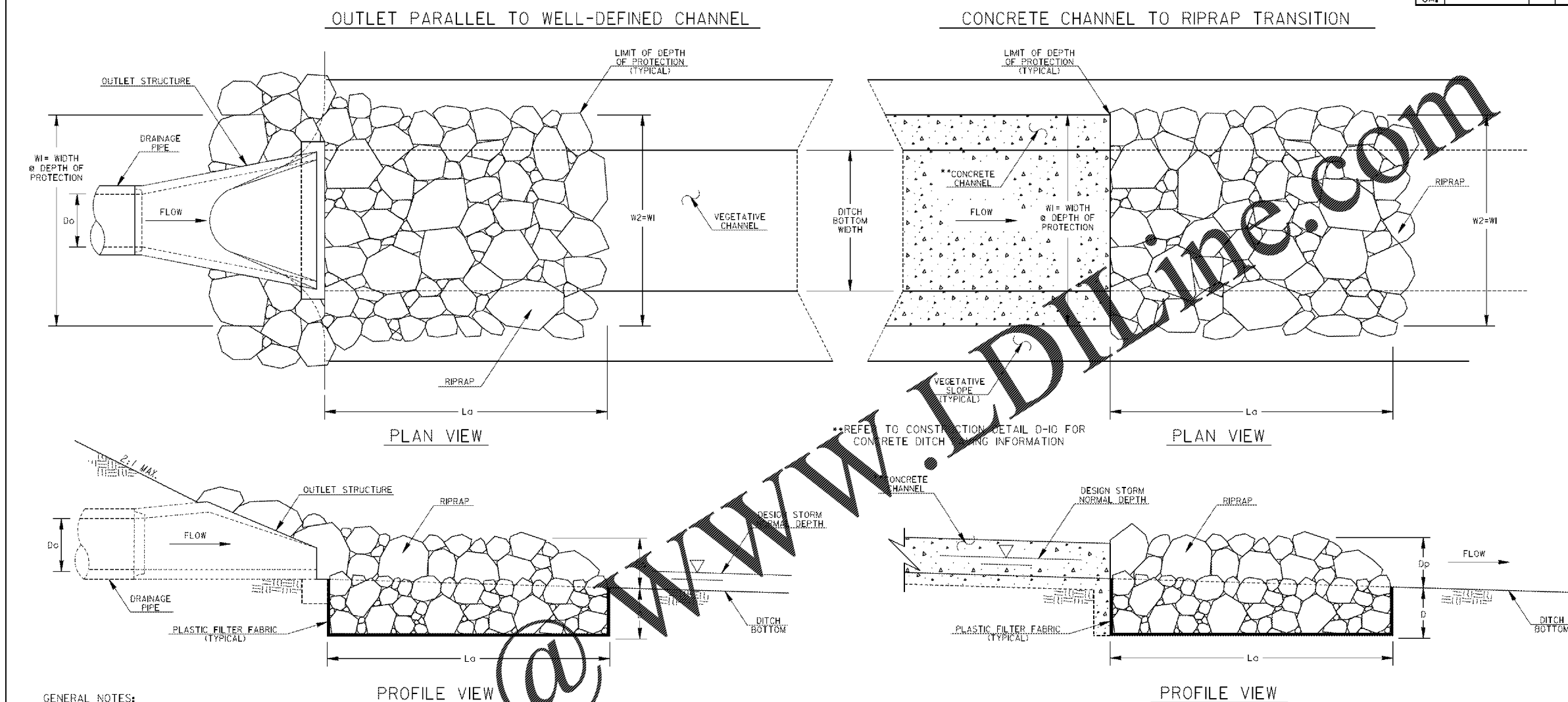


| STATE | PROJECT NUMBER | SHEET NO. | TOTAL SHEETS |
|-------|----------------|-----------|--------------|
| GA.   |                |           |              |



GENERAL NOTES:

1. RIPRAP OUTLET PROTECTION SHOULD BE USED TO REDUCE A DRAINAGE STRUCTURE'S DISCHARGE VELOCITY. RIPRAP OUTLET PROTECTION IS SHOWN FOR GEORGIA STANDARD 1120, BUT IS APPLIED SIMILARLY FOR OTHER DRAINAGE OUTLET STRUCTURES. RIPRAP OUTLET PROTECTION IS SHOWN FOR A CONCRETE DITCH, BUT IS INSTALLED SIMILARLY TO TRANSITION FROM OTHER CHANNEL LIMBS.
2. RIPRAP OUTLET PROTECTION SHALL BE DESIGNED IN ACCORDANCE WITH THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. THE DESIGNER SHALL PROVIDE THE FOLLOWING: THE PIPE DIAMETER (Dp), FLOW RATE OF DESIGN STORM (Q), TAILWATER CONDITION (TW), APRON LENGTH (Lo), APRON WIDTH AT DRAINAGE STRUCTURE (W1), APRON WIDTH DOWNSTREAM (W2), AVERAGE STONE DIAMETER (d50), INSTALLATION DEPTH (D), AND TYPE OF RIPRAP (W) QUANTITY.  
  
THE MINIMUM DESIGN FOR RIPRAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM EVENT, BUT LARGER STORMS ARE RECOMMENDED.
3. THE APRON WIDTHS SHALL BE THE SAME WHEN THE DRAINAGE STRUCTURE DISCHARGES PARALLEL INTO A WELL-DEFINED CHANNEL. THE APRON WIDTHS IN THIS CASE SHALL REPRESENT THE WIDTH AT THE DEPTH OF PROTECTION. THE RIPRAP SHALL BE INSTALLED TO THE TOP OF CHANNEL OR 1-FOOT ABOVE THE NORMAL DEPTH OF THE CHANNEL'S DESIGN STORM (WHICHEVER IS LESS). THE DESIGNER SHALL PROVIDE THE DEPTH OF PROTECTION (Dp). IF THE RIPRAP SHOULD NOT BE INSTALLED TO THE TOP OF THE CHANNEL, RIPRAP SHOULD ALSO BE INSTALLED TO ARMOR CHANNEL CORNER AT THE OUTLET STRUCTURE.
4. IF THE OUTLET HYDRAULICS REQUIRE A d50<0.70 FEET, TYPE-3 RIPRAP MAY BE USED.  
IF THE OUTLET HYDRAULICS REQUIRE A d50<1.20 FEET, TYPE-1 RIPRAP SHOULD BE USED.  
IF THE OUTLET HYDRAULICS REQUIRE A d50>1.20 FEET, THE DESIGNER SHALL DESIGN AND PROVIDE A SPECIAL DETAIL FOR APPROPRIATE OUTLET PROTECTION.
5. PLASTIC FILTER FABRIC IS REQUIRED UNDERNEATH RIPRAP APRON.  
  
PAYMENT FOR RIPRAP SHALL BE MEASURED IN SQUARE YARDS FOR SPECIFIED INSTALLATION DEPTH. PAYMENT FOR PLASTIC FILTER FABRIC SHALL BE MEASURED IN SQUARE YARDS CONSISTENT WITH RIPRAP QUANTITY AND PAID FOR SEPARATELY.

- Dp = PIPE DIAMETER
- Q = DESIGN STORM FLOW RATE
- V = DESIGN STORM VELOCITY
- Tw = TAILWATER CONDITION/DESIGN STORM NORMAL DEPTH
- Lo = APRON LENGTH
- W1 = APRON WIDTH UPSTREAM AT DEPTH OF PROTECTION
- W2 = APRON WIDTH DOWNSTREAM AT DEPTH OF PROTECTION
- d50 = AVERAGE STONE DIAMETER
- D = INSTALLATION DEPTH
- Dp = DEPTH OF PROTECTION

| RIPRAP TYPE | REQUIRED d50 (FT) | MIN. DEPTH "D" (IN) |
|-------------|-------------------|---------------------|
| 1           | ≤1.20             | 36                  |
| 3           | ≤0.67             | 18                  |

|   |                 |
|---|-----------------|
| DEPARTMENT OF TRANSPORTATION<br>STATE OF GEORGIA                            |                 |
| CONSTRUCTION DETAILS  |                 |
| RIPRAP OUTLET PROTECTION<br>(SHEET 2 OF 2)                                  |                 |
| NO SCALE  | 4-22-2016       |
| By: _____<br>DESIGNED: JLE<br>DRAWN: JLE<br>TRACED: _____<br>CHECKED: _____ | NUMBER<br>D-55B |

REVISION DATES

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |
|     |      |             |

**EROSION CONTROL CONSTRUCTION DETAILS**  
**SR 18 BRIDGE REPLACEMENT @ LONG CANE CREEK**  
**TROUP COUNTY**

|                    |             |             |
|--------------------|-------------|-------------|
| CHECKED: _____     | DATE: _____ | DRAWING No. |
| BACKCHECKED: _____ | DATE: _____ | 56-0011     |
| CORRECTED: _____   | DATE: _____ |             |
| VERIFIED: _____    | DATE: _____ |             |