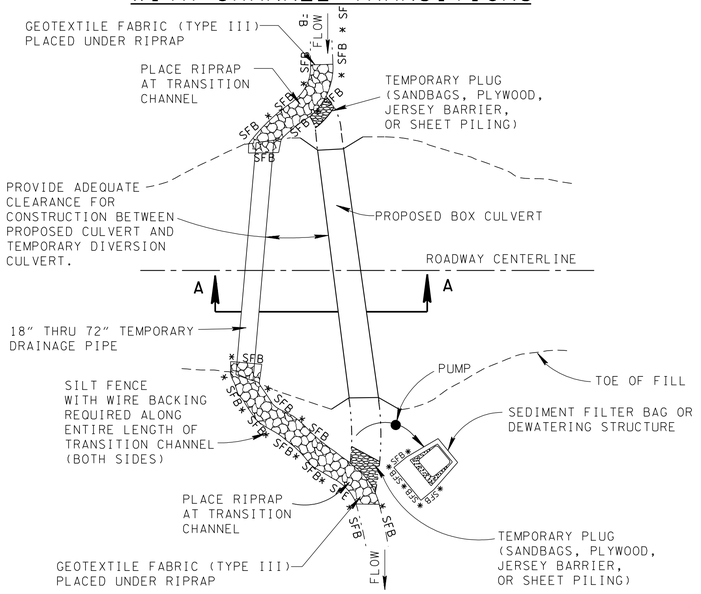
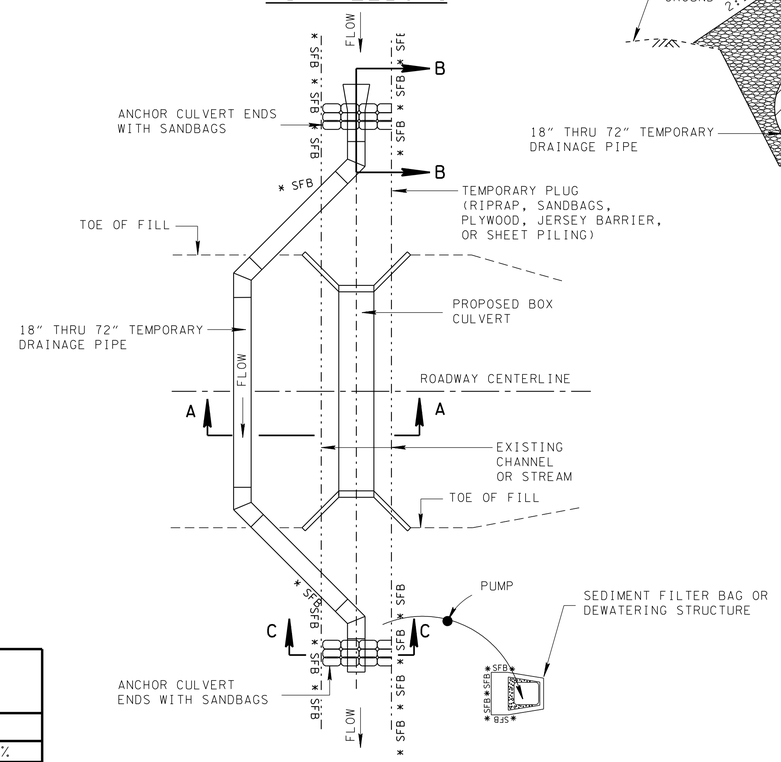
- REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
- REV. 4-1-08: REVISED GENERAL NOTES, ADDED NOTE N, MISC. EDITS TO DRAWING, AND CHANGED STANDARD SYMBOL.

TEMPORARY DIVERSION CULVERT WITH CHANNEL TRANSITIONS

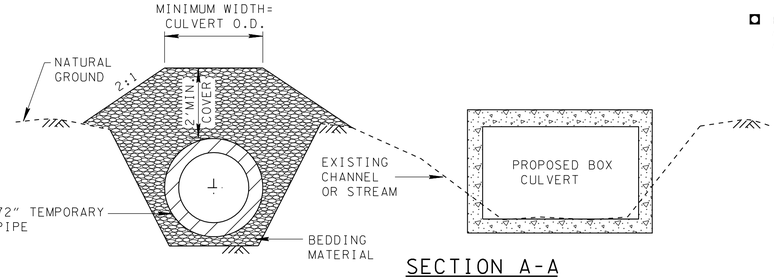


PLAN VIEW

TEMPORARY DIVERSION CULVERT WITH ELBOWS



PLAN VIEW



SECTION A-A

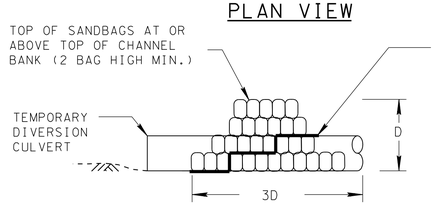
TEMPORARY DIVERSION CULVERT SELECTION

FLOW CAPACITY IN CFS OF A GIVEN PIPE AT A GIVEN CHANNEL SLOPE

PIPE DIAMETER (INCHES)	AVERAGE CHANNEL SLOPE					
	0.5%	1%	1.5%	2.0%	2.5%	3.0%
18	8.5	9.1	9.8	10.4	11.0	11.3
24	17.4	18.8	20.0	21.4	21.5	21.7
30	30.1	32.3	33.9	34.1	33.5	33.0
36	46.8	50.4	49.5	47.8	46.6	45.8
42	67.7	69.0	65.5	62.8	61.0	59.6
48	92.6	88.1	76.8	78.6	75.8	73.7
54	127.2	107.0	91.9	94.9	91.1	88.1
60	146.5	121.1	118.4	111.1	106.1	101.9
72	194.9	142.2	153.6	141.3	133.3	127.9
RIPRAP	B	B	B	B	B/C	B/C

NOTES: FLOW RATES BASED ON 2.5-FOOT INCREASE IN WATER SURFACE ELEVATION ABOVE NORMAL LEVEL FOR THE 2-YEAR, 24 HOUR STORM EVENT

ASSUMES CORRUGATED PIPE (n = 0.024)



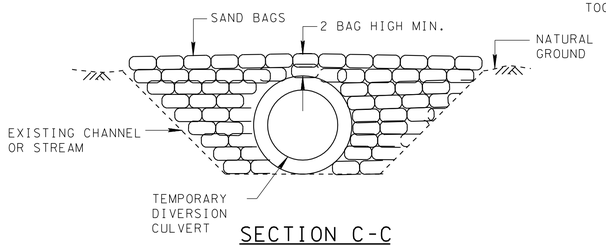
SECTION B-B

EXAMPLE:

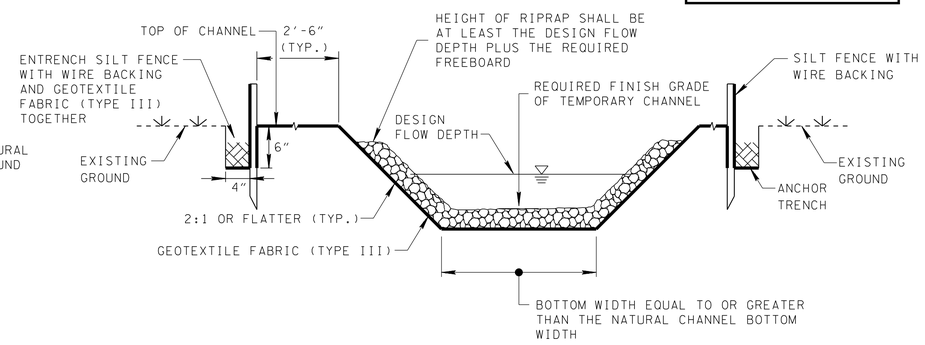
Q2 = 87.6 CFS
CHANNEL SLOPE 1%

SELECT EITHER:

SINGLE 48-INCH PIPE OR TWIN 36-INCH PIPES



SECTION C-C



TRANSITION CHANNEL CROSS-SECTION

TEMPORARY DIVERSION CULVERTS GENERAL NOTES

(A) TEMPORARY DIVERSION CULVERTS ARE GENERALLY CONSTRUCTED UNDER AN EXISTING ROADWAY, WHERE IT IS NECESSARY TO MAINTAIN TRAFFIC, TO CONVEY STREAM FLOW AROUND IN-STREAM CONSTRUCTION. THIS ALLOWS IN-STREAM WORK TO BE COMPLETED IN THE DRY, SEPARATED FROM FLOWING WATER.

(B) EXAMPLE SHOWN IS FOR CULVERT REPLACEMENT OR NEW CONSTRUCTION. OTHER PROJECTS WOULD BE CONSTRUCTED IN A SIMILAR MANNER.

(C) TEMPORARY DIVERSION CULVERTS SHALL BE DESIGNED USING A 2-YEAR FREQUENCY STORM FLOW RATE. AT SITES WHICH INVOLVE HIGH-QUALITY OR SEDIMENT-IMPAIRED STREAM, THE PIPE SHALL BE ADEQUATE TO CONVEY THE 5-YEAR, PEAK FLOW. THE TABLE "TEMPORARY DIVERSION CULVERT SELECTION" MAY BE USED AS A GUIDELINE FOR DETERMINING THE PIPE SIZE. FOR ANY SITE WHERE Q_{50} EXCEEDS 500 CFS, THE DESIGN OF THIS MEASURE SHOULD BE COMPLETED BY THE HYDRAULICS SECTION OF THE STRUCTURES DIVISION.

(D) THE DESIGNER SHALL PROVIDE CULVERT SECTIONS FOR TEMPORARY CULVERT CROSSINGS. MINIMUM COVER FOR CONSTRUCTION LOADS IS 2 FEET.

(E) THE RIPRAP TRANSITION AT THE INLET AND THE DIVERSION CULVERT SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED TDOT METHODS.

(F) WHERE EXCAVATION FOR A DIVERSION TRANSITION EXPOSES BEDROCK, GEOTEXTILE FABRIC AND RIPRAP SHALL BE USED ONLY ON THE SIDES OF THE CHANNEL.

(G) IN ORDER TO PROVIDE THE BEST POSSIBLE SEAL, THE POLYETHYLENE SHEETING USED IN AN UPSTREAM PIPE ANCHOR SHOULD BE FITTED AROUND THE PIPE. SANDBAGS ON THE DOWNSTREAM SIDE OF THE SHEETING SHOULD BE PLACED FIRST, AND THE SHEETING PLACED ON THESE BAGS. THE REMAINING SANDBAGS WOULD THEN BE PLACED ON THE SHEETING. WHERE MULTIPLE SHEETS ARE USED, THEY SHOULD OVERLAP A MINIMUM OF 18 INCHES.

(H) DURING CONSTRUCTION OF THE TEMPORARY DIVERSION CULVERT, DAMAGE TO THE EXISTING STREAM AND CANOPY SHALL BE MINIMIZED. ALL EXISTING VEGETATION OUTSIDE THE CUT AND FILL LINES BUT INSIDE THE RIGHT-OF-WAY SHALL NOT BE DISTURBED UNLESS IT INTERFERES WITH SAFETY STANDARDS. THE TEMPORARY CULVERT SHOULD BE LOCATED SO AS TO MINIMIZE THE LENGTH OF ANY TRANSITIONS REQUIRED.

(I) DIVERSION CULVERT CONSTRUCTION SHALL BE COMPLETED IN THE DRY BEFORE DIVERTING WATER FROM THE EXISTING CHANNEL. WHERE THIS IS NOT FEASIBLE, TEMPORARY FLOW DIVERSION STRUCTURES CAN BE USED UNTIL WORK IS COMPLETE. THESE STRUCTURES CAN BE ANY NON-ERODIBLE MATERIAL.

(J) CONSTRUCTION SHALL PROCEED AS FOLLOWS:

1. CONSTRUCT THE TEMPORARY CULVERT ADJACENT TO THE PROPOSED PROJECT. ISOLATE THE TEMPORARY CHANNEL FROM THE EXISTING CHANNEL WITH TEMPORARY PLUGS.
2. DIVERT FLOW BY MOVING THE TEMPORARY PLUGS FROM THE TEMPORARY CHANNEL TO THE EXISTING CHANNEL. A COFFER DAM MAY BE USED UPSTREAM TO PREVENT STREAM FLOW DURING THIS OPERATION.
3. CONSTRUCT THE PROJECT IN THE EXISTING STREAM AND PLACE PERMANENT EROSION CONTROL ON THE EXISTING STREAM BANKS.
4. WHERE A TEMPORARY PLUG IS REQUIRED AT THE DOWNSTREAM END OF THE DIVERSION, IT SHOULD BE REMOVED FIRST. THEN REMOVE THE UPPER PLUG IN ORDER TO RELEASE FLOW INTO THE RECONSTRUCTED CHANNEL.
5. REMOVE LINING MATERIALS FROM THE DIVERSION TRANSITIONS, RESTORE THE AREA TO GRADE AND STABILIZE EXPOSED SOILS.

(K) DIVERSION CULVERT, SANDBAG ANCHORS AND TRANSITIONS SHALL BE INSPECTED WEEKLY OR AFTER EVERY RAIN EVENT. ANY NEEDED REPAIRS SHALL BE DONE IMMEDIATELY.

(L) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.

(M) FOR INSTALLATION DETAILS AND ITEM NUMBERS FOR DEWATERING STRUCTURES (EC-STR-1), SEDIMENT FILTER BAGS (EC-STR-2), AND SILT FENCE WITH WIRE BACKING (EC-STR-3C), SEE THEIR RESPECTIVE STANDARD DRAWINGS.

(N) TEMPORARY DIVERSION CULVERTS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:

203-01	ROAD AND DRAINAGE EXCAVATION (UNCLASSIFIED) PER CUBIC YARD
209-09.01	SAND BAGS PER BAG
209-20.03	POLYETHYLENE SHEETING (6 MIL. MINIMUM) PER SQUARE YARD
621-03.02 THRU 621-03.11	__ "TEMPORARY DRAINAGE PIPE PER LINEAR FOOT.
709-05.06	MACHINED RIP-RAP (CLASS A-1) PER TON
709-05.08	MACHINED RIP-RAP (CLASS B) PER TON
709-05.09	MACHINED RIP-RAP (CLASS C) PER TON
740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL) PER SQUARE YARD.

DEWATERING STRUCTURES, SEDIMENT FILTER BAGS, AND SILT FENCE WITH WIRE BACKING SHALL BE PAID FOR ACCORDING TO THEIR RESPECTIVE STANDARD DRAWINGS.

TEMPORARY PLUGS SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEM NUMBERS.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY DIVERSION CULVERTS.

EROSION CONTROL PLAN LEGEND: TEMPORARY DIVERSION CULVERT (DESCRIBE NUMBER AND SIZE OF PIPES)

- MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TEMPORARY DIVERSION CULVERTS

1-20-06 | EC-STR-32