INSTALLATION TYPE 1:
The haunch and outer bedding shall be compacted to a minimum 90 percent relative compaction. In addition, the minimum sand equivalent in these areas shall be 25, and the material shall not contain roots, broken concrete, or other solid material exceeding 5" in greatest dimension.

INSTALLATION TYPE 2:
The haunch and outer bedding shall be compacted to a minimum 85 percent relative compaction. Sand equivalent shall be required where the fill over the pipe is less than 4'-0" or 1/3 OD. In addition, the minimum sand equivalent in these areas shall be 25.

INSTALLATION TYPE 3:
The haunch and outer bedding shall be compacted to a minimum 80 percent relative compaction. Sand equivalent shall be required where the fill over the pipe is less than 4'-0" or 1/3 OD. In addition, the minimum sand equivalent in these areas shall be 25.

NOTES:
1. Unless otherwise shown on the plans or specified in the special provisions, the Contractor shall have the option of selecting the class of RCP and the type of Installation to be used, provided that the height of Cover does not exceed the value shown for the RCP selected.
2. The class of RCP and Installation Type selected shall be the same throughout the length of any given culvert.
3. The "length of any culvert" is defined as the culvert between a) successive drainage structures (intakes, junction boxes, headwalls, etc.), b) a drainage structure and the inlet or outlet end of the culvert, or c) The inlet and outlet end of the culvert when there are no intervening drainage structures.
4. Oval and arch shaped RCP shall not be used.
5. Bedding depths of 0' 00" Min, not less than 3'.
6. Slurry cement backfill may be substituted for backfill in the outer bedding and haunch areas. If slurry is used, the outer and middle bedding shall be omitted. Prior to installation, the soil shall be softened by scarifying or other means to a minimum depth of 6" OD, but not less than 3' for the installation of RCP covered by soils exceeding 3' in greatest dimension.
7. Backfill shall be placed full width of excavation except where dimensions are shown for backfill width or thickness. Dimensions shown are minimum.
8. Lower side shall be suitable material as determined by the Engineer. Otherwise it shall be considered unsuitable as set forth in the Special Specifications, See Note 5.
9. Where the pipe is placed in a trench, if the trench walls are sloped at 5 vertical to 1 horizontal or steeper for at least 90 percent of the trench height or up to not less than 12" from the grading plane, the firmness of the soil in the lower side need not be considered.
10. Non-reinforced prestressed concrete pipe sizes 3'-0" or smaller may be placed under installation Types 2 or 3.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
EXCAVATION AND BACKFILL
CONCRETE PIPE CULVERTS
INDIRECT DESIGN METHOD
NO SCALE

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NOTES:
- Each advance warning sign in each direction of travel shall be equipped with at least one flag for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Floating beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A C0-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a longer project's limits.
- If the W0-1 sign would follow within 2000' of a stationary W0-1 or W0-1 ROAD WORK NEXT, use a W0-1 sign for the first advance warning sign.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable definitions, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagger-station and flagger shall be placed at the position of the traffic control area. The illumination footprint of the lighting on the ground shall be not less than 30 feet. A minimum of four cones at 50' intervals in advance of flagger station as shown.

TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL

1. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
2. When a pilot car is used, place a C31(CA) TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at least 3 rumble strips.
3. Either traffic cones or barricades shall be placed on the end of work area and shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Floating beacons shall be placed at the locations indicated for lane closure during hours of darkness.
4. A C0-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a longer project's limits.
5. If the W0-1 sign would follow within 2000' of a stationary W0-1 or W0-1 ROAD WORK NEXT, use a W0-1 sign for the first advance warning sign.
6. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.