"T" TRENCH & PAVEMENT RESTORATION
ASPHALT CONCRETE STREETS

(12" MIN ABOVE PIPE)
WARNING TAPE
HAUNCHING ZONE
(1/2 PIPE O.D.)
TRENCH BACKFILL (VARYERS)
SUBGRADE
PIPE O.D.
6" MIN
6" BEDDING

TRENCH BACKFILL
(THICKNESS VARIES)
UTILITY PIPE / CONDUIT
TRACE WIRE

TRENCH WIDTH
12" MIN
12" MIN
12" MIN

TRENCH "T" SECTION (T-CUT)
24" MIN
24" MIN

GRIND & RESURFACE (T-CAP)
(FULL LANE WIDTH FOR PROHIBITION STREETS)

(N) ASPHALT CONCRETE PAVEMENT (2 LIFTS MIN)
(E) PAVEMENT (THICKNESS VARIES)
(E) BASE MATERIAL (THICKNESS VARIES)
(N) BASE MATERIAL (THICKNESS VARIES)

NATIVE SOIL
TACK COAT

MATCH EXISTING
(MATCH EXISTING (12" MIN))

M-10.1 (1 of 3)
GENERAL NOTES:
1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY AND CALTRANS STANDARDS.
2. COMPATMENT TESTS SHALL BE ORDERED AND PAID BY THE CONTRACTOR IN EACH LAYER (LIFT), TYPE OR CLASS OF BACKFILL THAT REQUIRES COMPACTION, AT 50 FOOT INTERVALS. COPIES OF THE FIELD TEST RESULTS SHALL BE SUBMITTED TO THE CITY PRIOR TO PAVING. TESTS SHALL BE PERFORMED BY AND INDEPENDENT GEOTECHNICAL ENGINEERING FIRM ACCEPTABLE TO THE CITY ENGINEER.
3. THE CONTRACTOR SHALL ADEQUATELY SHORE THE EXCAVATION TO PREVENT THE TRENCH WALLS FROM SLOUGHING INTO THE TRENCH. NO ADDITIONAL PAYMENT WILL BE MADE BY THE CITY TO THE CONTRACTOR FOR ADDITIONAL BACKFILL THAT MAY BE REQUIRED DUE TO SLOUGHING TRENCH WALLS.
4. #10 INSULATED COPPER TRACE WIRE (TAPE IN PLACE AT 5' INTERVALS) SHALL BE COLORED AS FOLLOWS:
   - WATER MAINS & SERVICES - BLUE INSULATION
   - SEWER MAINS & LATERALS - GREEN INSULATION
   - STORM DRAIN MAINS - GREEN INSULATION
5. ALL WATER MAIN FITTINGS SHALL HAVE ALL EXPOSED NUTS AND BOLTS COMPLETELY COVERED WITH SPRAY-ON RUBBERIZED UNDERCOATING, AND ALL FITTINGS SHALL BE WRAPPED WITH 6 MIL POLYETHYLENE PLASTIC PRIOR TO TRENCH BACKFILL.
6. FULL DEPTH PAVEMENT REMOVAL SHALL BE BY SAW CUTTING OR GRINDING AND SHALL BE NEAT, STRAIGHT, VERTICAL CUTS WITH NO BROKEN EDGES.
7. ALL LONGITUDINAL PAVEMENT CUTS SHALL BE UNINTERRUPTED AND APPROXIMATELY PARALLEL TO THE TRENCH. CHANGES IN DIRECTION SHALL RESULT IN 90 DEGREE ANGLES, OR LARGER.

T-CUT PAVEMENT REMOVAL:
6. FULL DEPTH PAVEMENT REMOVAL SHALL BE BY SAW CUTTING OR GRINDING AND SHALL BE NEAT, STRAIGHT, VERTICAL CUTS WITH NO BROKEN EDGES.
7. ALL LONGITUDINAL PAVEMENT CUTS SHALL BE UNINTERRUPTED AND APPROXIMATELY PARALLEL TO THE TRENCH. CHANGES IN DIRECTION SHALL RESULT IN 90 DEGREE ANGLES, OR LARGER.

T-CAP PAVEMENT REMOVAL:
8. EXISTING ASPHALT CONCRETE SHALL BE GROUND DOWN 1-1/2 INCHES WITHIN THE LIMITS OF THE T-CAP AND SHALL BE NEAT, STRAIGHT, VERTICAL CUTS WITH NO BROKEN EDGES.
9. T-CAP LIMITS SHALL BE IN ACCORDANCE WITH FIGURE 1 (SHEET 3 OF THIS DETAIL), UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
10. T-CAP LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND THE TRENCH T-CUT LIMITS. MINIMUM T-CAP DIMENSIONS SHALL BE 6 FEET X 6 FEET.
11. FULL MULTIPLE EXCAVATIONS WITHIN 5 FEET OF EACH OTHER, THE T-CAP LIMITS SHALL ENCOMPASS ALL THE EXCAVATIONS WITHIN ONE RECTANGULAR AREA.
12. T-CAP LIMITS SHALL FULLY ENCOMPASS ANY BIKE OR PEDESTRIAN FACILITY (BIKE LANE, CROSSWALK, ETC.) IMPACTED BY THE TRENCH, AND SHALL HAVE A LENGTH THAT EXTENDS AT LEAST 2 FEET BEYOND THE T-CUT ASPHALT REMOVAL LIMITS IN THE DIRECTION OF THE BIKE OR PEDESTRIAN TRAFFIC.
13. IF PAVEMENT REMOVAL FALLS WITHIN 2 FEET OF AN EXISTING CURB, GUTTER OR EDGE OF PAVEMENT, THE ADDITIONAL PAVEMENT SHALL BE REMOVED AND RECONSTRUCTED.
14. T-CAP LIMITS FOR POT HOLES / CORE HOLES SHALL EXTEND 1 FOOT BEYOND THE POT HOLES/CORE HOLES.

ASPHALT CONCRETE PAVEMENT:
15. ASPHALT CONCRETE SHALL BE TYPE A.
16. THICKNESS WITHIN THE T-CUT SECTION SHALL MATCH (E) PAVEMENT THICKNESS (UP TO 6" MAX) AND BE PLACED IN UNIFORM LIFTS NO GREATER THAN 3".
17. THICKNESS WITHIN THE T-CAP SECTION SHALL BE 1-1/2" MIN (2.5" IN PROHIBITION STREETS).
18. IF (E) STREET IS SHOWING CONCRETE, NEW PAVEMENT SHALL BE 6" THICK AND CONSIST OF 3,000 PSI, 6-SACK CONCRETE, DOWELED AND EPOXIED INTO THE (E) CONCRETE PAVEMENT, BRUSHED (AND COLORED IF BLACK) TO MATCH. DOWELS SHALL BE #4 REBAR AT 24" O.C. WITH 6"-12" EMBEDMENT INTO THE (E) AND (N) CONCRETE.

BASE MATERIAL:
19. BASE MATERIAL SHALL BE 3" MAX CLASS 2 AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACTION.
20. FINISHED SURFACE SHALL BE FREE OF RUTS, BUMPS, DEPRESSIONS OR IRREGULARITIES AND ALLOW FOR A UNIFORM THICKNESS OF ASPHALT CONCRETE ACROSS THE FULL WIDTH OF THE TRENCH.

TRENCH BACKFILL:
21. TRENCH BACKFILL SHALL BE 3" MAX CLASS 2 AGGREGATE BASE PLACED IN LIFTS NO GREATER THAN 12" THICK. NATIVE SOIL OR SLURRY MIX MAY ONLY BE USED WITH CITY ENGINEER'S APPROVAL.
22. THE UPPER 18" OF MATERIAL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. SUBSEQUENT LAYERS SHALL MEET 90% RELATIVE COMPACTION. COMPACTION WITHIN THE HAUNCHING ZONE SHALL BE WITH 'J' BAR OR PNEUMATIC 'POGO' STICK.
23. TRENCH BACKFILL FOR SERVICE LATERALS AND PIPES 2" AND SMALLER IN DIAMETER MAY CONSIST OF SAND WITHIN THE PIPE ZONE AND UP TO 6" ABOVE THE PIPE, FOLLOWED WITH COMPACTED CLASS 2 AGGREGATE BASE AS SHOWN.

BEDDING:
24. BEDDING MATERIAL SHALL BE PLACED ON FIRM AND UNYIELDING SUBGRADE (NO SOFT, SPONGY, UNSTABLE OR UNSUITABLE MATERIAL).
25. TRENCH BEDDING SHALL BE 3" MAX CLASS 2 AGGREGATE BASE COMPACTED TO 95% RELATIVE COMPACION.
26. DURING THE PIPE INSTALLATION, THE BEDDING MATERIAL BENEATH FITTINGS/COUPLINGS SHALL BE REMOVED AS NECESSARY TO UNIFORMLY SUPPORT THE FULL LENGTH OF THE PIPE.

TEMPORARY TRENCH COVERS AND RESURFACING:
27. EVERY TRENCH MUST BE BACKFILLED OR COVERED WITH TRENCH PLATES THE SAME DAY. WHEN USED, PLATES SHALL BE SECURED FROM MOVEMENT AND SHALL INCLUDE TEMPORARY ASPHALT RAMPS SLOPED AT 1:20 (OR FLATTER). 
28. PAVEMENT SHALL BE RESTORED WITHIN FOURTEEN (14) CALENDAR DAYS FROM THE TIME THE TRENCH IS BACKFILLED, UNLESS DELAY IS EXCUSED DUE TO CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL, SUCH AS INCLEMENT WEATHER.
29. STEEL PLATES THAT WILL REMAIN IN PLACE FOR MORE THAN 14 CALENDAR DAYS SHALL BE INSET INTO THE (E) PAVED SURFACE (WHEN LOCATED WITHIN THE TRAVEL LANE, BICYCLE LANE OR PEDESTRIAN FACILITY).
MULTIPLE T-CUTS WITH LESS THAN 5’ SEPARATION WILL REQUIRE A SINGLE T-CAP SURROUNDING THE OUTER LIMITS (SEE NOTE 11)

24” T-CAP ALL AROUND (SEE NOTE 10)

IF T-CAP LIMITS ARE WITHIN 24” OF AND EXISTING CURB, GUTTER OR EDGE OF PAVEMENT, THE ADDITIOINAL PAVEMENT SHALL BE REMOVED AND RECONSTRUCTED (SEE NOTE 13)

NOTE: ALL PAVEMENT MARKINGS SHALL BE RESTORED WITHIN 14 CALENDAR DAYS OF T-CAP PAVING

LEGEND

T-CUT LIMITS (TRENCH "T" SECTION)

T-CAP LIMITS (GRIND & RESURFACE)

LIMITS OF PAVEMENT RESTORATION MEASUREMENT PER BLOCK

FIGURE 1: EXAMPLES OF GRIND AND RESURFACE T-CAP LIMITS