

CONSTRUCTION NOTES

- ① LIMIT OF TRENCH. IF THE LIMIT OF TRENCH IS WITHIN 3' FROM A JOINT, REPLACE THE ENTIRE SEGMENT FROM THE LIMIT OF TRENCH TO THE JOINT. SPECIFIC LIMITS OF RECONSTRUCTION TO BE DETERMINED BY THE CITY ENGINEER.
- MATCH EXISTING PAVEMENT SECTION (CONVENTIONAL OR RUBBERIZED ASPHALT) AS DIRECTED BY THE CITY ENGINEER AND AS FOLLOWS:

STREET TYPE	AC MINIMUM PAVEMENT THICKNESS
LOCAL	6"
INDUSTRIAL	10"
COLLECTOR	12"
ARTERIAL	AS DIRECTED BY CITY ENGINEER

- ② SEE STANDARD PLAN SHEET 4 FOR MATERIALS AND REQUIREMENTS.
- ③ SEE STANDARD PLAN 1151 FOR LIMITS OF PAVEMENT REPAIR FOR STREETS UNDER MORATORIUM AS DESCRIBED IN SAMC 33-54.

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 CITY ENGINEER

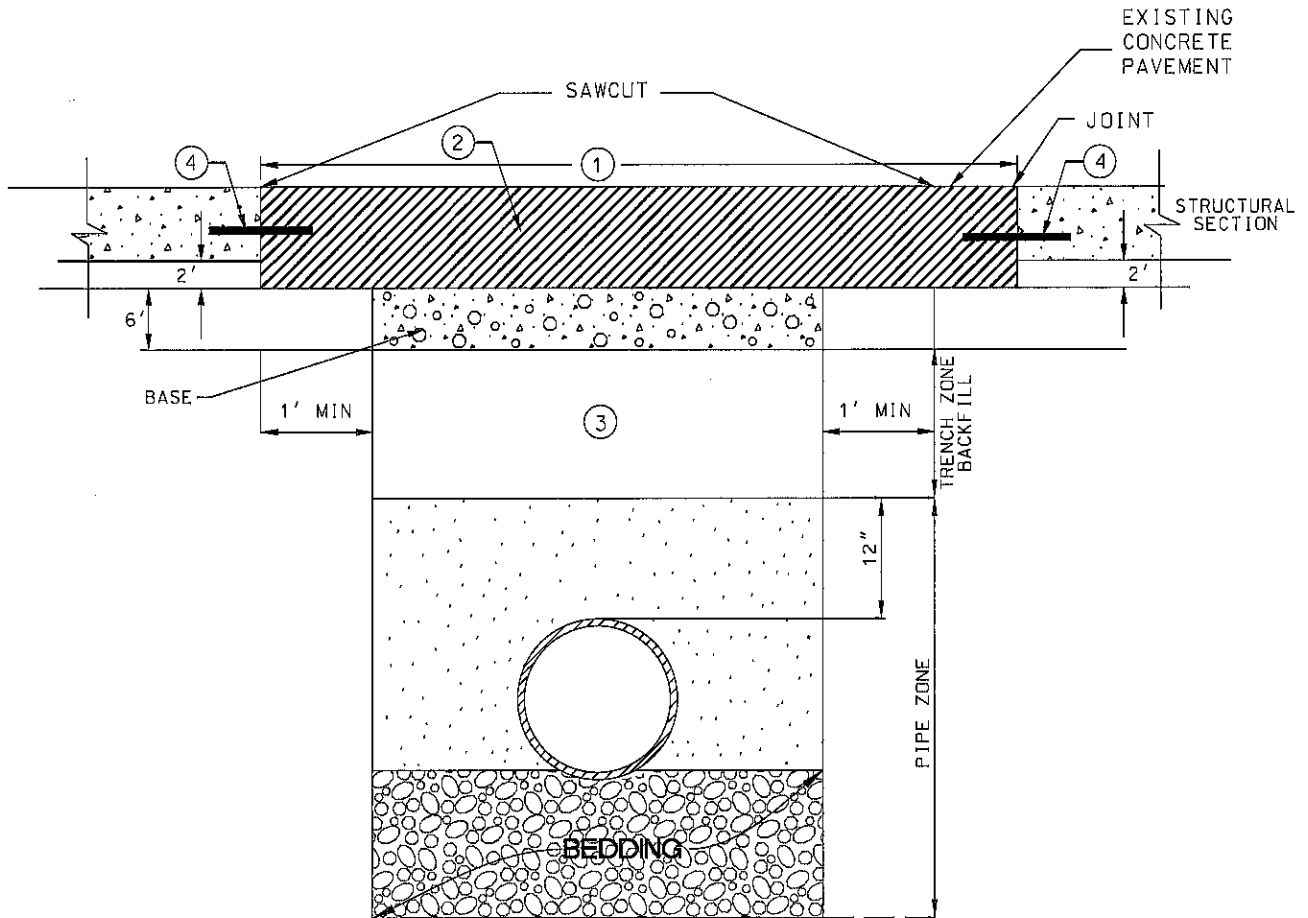
CITY OF SANTA ANA
 PUBLIC WORKS AGENCY



DATE	REVISION
12/14/00	REVISED STANDARD PLAN NUMBER

UTILITY TRENCH DETAIL
 ASPHALT PAVEMENT
 TRENCH PAVEMENT REQUIREMENTS

STD. PLAN NUMBER
 1150
 SHEET 1 OF 5



CONSTRUCTION NOTES

- ① REMOVE AND REPLACE THE EXISTING STRUCTURAL SECTION TO A MINIMUM WIDTH OF 1' BEYOND LIMIT OF TRENCH ON EACH SIDE OR TO NEAREST JOINT, WHICHEVER IS GREATER. SPECIFIC LIMITS OF PAVEMENT RECONSTRUCTION TO BE DETERMINED BY THE CITY ENGINEER.
- ② REPLACEMENT CONCRETE THICKNESS SHALL BE A MINIMUM OF 2" GREATER THAN EXISTING CONCRETE SECTION AND SHALL HAVE A MINIMUM THICKNESS OF 8" PCC OVER 6" AGGREGATE BASE.
- ③ SEE SHEET 4 OF 5 FOR MATERIALS AND REQUIREMENTS.
- ④ DOWELS FOR CONTACT JOINTS SHALL BE #4 BARS, 18" LONG AND SPACED @ 24" ON CENTER.

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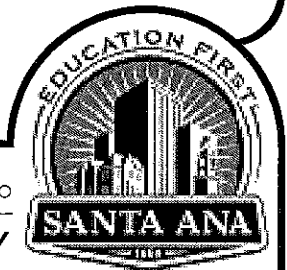
DATE	SA	REVISION
12/16/96	SA	ADDITIONAL NOTE #5
06/01/00	SA	REVISED NOTES AND DETAIL
12/14/00		REVISED STANDARD PLAN NUMBER

UTILITY TRENCH DETAIL
 PCC PAVEMENT
 TRENCH PAVEMENT REQUIREMENTS

STD. PLAN NUMBER
 1150
 SHEET 2 OF 5

GENERAL NOTES

- A. CONTRACTOR SHALL USE A VACUUM TO ABSORB SEDIMENTS DURING SAWCUTTING OPERATION AND DISPOSE OFFSITE.
- B. CONTRACTOR SHALL REMOVE ANY GEOTEXTILE MATERIALS (INCLUDING CEMENT TREATED BASE) AND DISPOSE OFFSITE.
- C. WHEN ALLOWED PLACEMENT OF SLURRY BACKFILL, THE CONTRACTOR SHALL NOT BASE PAVE FOR A MINIMUM OF 24 HOURS. BASE PAVING SHALL BE DONE 1" BELOW FINISHED GRADE USING TYPE III-B3-AR-4000 ASPHALT AND THE EDGES SHALL BE RAMPED TO EXISTING USING COLD MIX AT (1:12) SLOPE. FINAL PAVING SHALL BE DONE IMMEDIATELY AFTER THE BASE PAVING USING TYPE III-C3-AR-4000 ASPHALT.
- D. PCC (PORTLAND CEMENT CONCRETE) USED FOR STREET PAVEMENT SHALL BE MINIMUM CLASS 560-A-3250.
- E. REFER TO THE CITY'S MUNICIPAL CODE FOR THE EXCAVATION RESTRICTIONS UNDER PAVEMENT MORATORIUM.
- F. TEMPORARY PAVING:
 - i. ALL TRENCHES SHALL BE BACKFILLED AND HAVE TEMPORARY PAVEMENT CONSTRUCTED OR COVERED WITH STEEL RECESSED TRAFFIC PLATES AT THE END OF EACH WORKING DAY.
 IN THE EVENT STEEL PLATES CANNOT BE RECESSED, THE MINIMUM ASPHALT TAPER (COLD MIX) SHALL BE (12:1) RATIO, AS DETERMINED BY THE CITY ENGINEER.
 - ii. WITHIN FOUR CONSECUTIVE CALENDAR DAYS FOLLOWING INSTALLATION OF THE CONDUIT, OR AFTER COMPACTION IS APPROVED BY THE CITY ENGINEER, WHICHEVER COMES FIRST STEEL TRAFFIC PLATES SHALL BE REMOVED AND THREE INCHES OF TEMPORARY PAVEMENT SHALL BE CONSTRUCTED FLUSH WITH EXISTING PAVEMENT.
 - iii. CROSS STREETS ARE TO BE PAVED WITH TEMPORARY PAVEMENT ON THE SAME DAY OF EXCAVATION. TEMPORARY PAVEMENT SHALL BE MAINTAINED SO THAT A SMOOTH TRAVERSABLE SURFACE IS AVAILABLE AT ALL TIMES FOR VEHICULAR TRAFFIC AND SHALL BE FREE FROM RUTS, DEPRESSIONS, HOLES AND LOOSE GRAVELS.
 - iv. TEMPORARY PAVING SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR BEFORE THE PERMANENT RESURFACING IS PLACED.
- G. PERMANENT PAVING:
 - i. PERMANENT PAVEMENT RESTORATION SHALL BE COMPLETED IMMEDIATELY AFTER THE TRENCH IS BACKFILLED, AND COMPACTION HAS BEEN APPROVED BY THE CITY ENGINEER.
 - ii. TACK COAT IS REQUIRED FOR ALL AC PAVEMENT TRENCHING OPERATIONS.
 - iii. DENSITY AND SMOOTHENESS SHALL BE DONE PER THE "GREENBOOK" SECTION 302-5.6.2.
- H. USE OF ROCKWHEEL IS NOT PERMITTED ON PCC PAVEMENT AND ON TRENCHES GREATER THAN 10" UNLESS WITH PRIOR APPROVAL BY THE CITY ENGINEER.



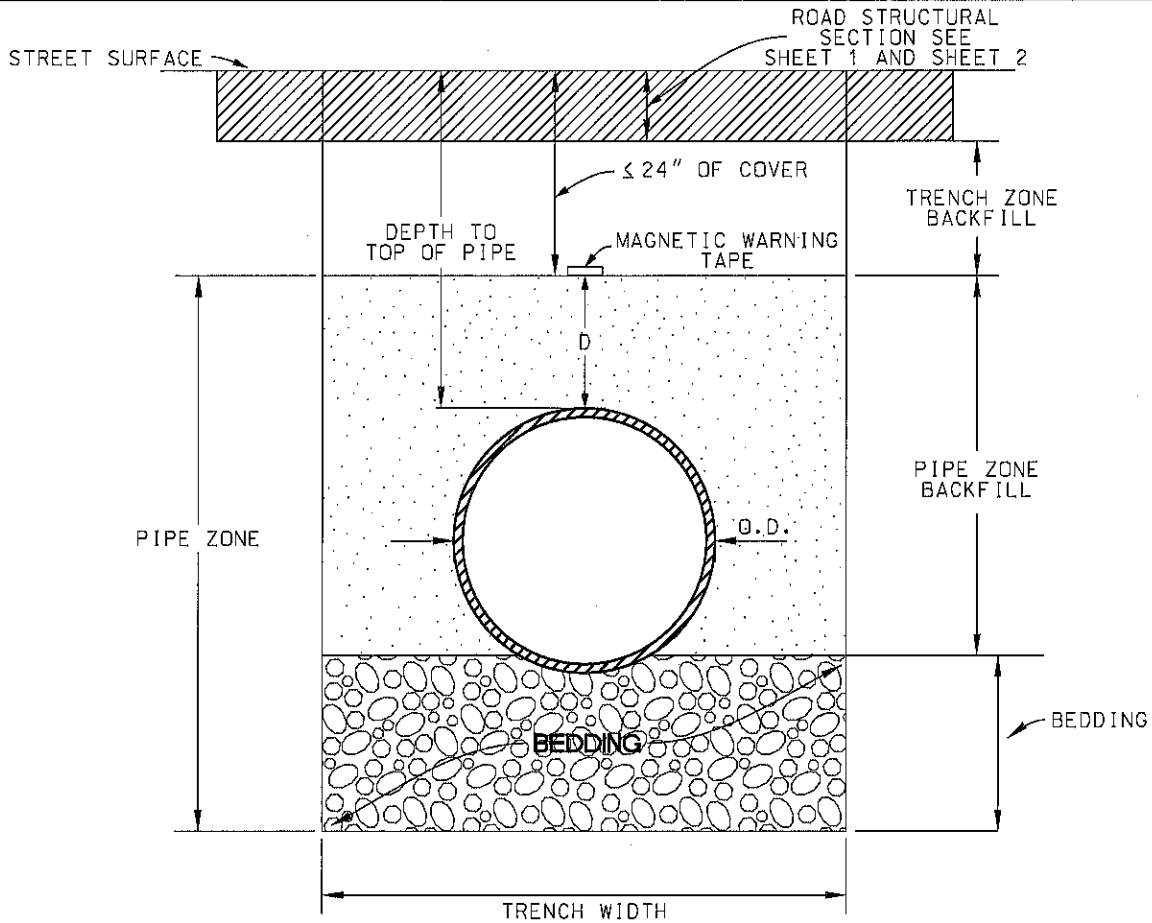
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DATE	REVISION
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UTILITY TRENCH DETAIL
 ASPHALT CONCRETE PAVEMENT
 TRENCH PAVEMENT REQUIREMENTS

STD. PLAN
 NUMBER
 1150
 SHEET 3 OF 5



UTILITY	BEDDING MATERIAL THICKNESS	D	PIPE ZONE BACKFILL	TRENCH ZONE BACKFILL	TRENCH WIDTH	DEPTH TO TOP OF PIPE
WATER	IMPORTED MATERIAL SAND EQUIVALENT ≥ 30 6"	12"	SAND EQUIVALENT ≥ 30	SAND EQUIVALENT ≥ 30	MIN. 24" O.D. + 20"	36" MIN.
SEWER	1/2" CRUSHED ROCK 6"	12"	1/2" CRUSHED ROCK		MIN. 24" O.D. + 12"	36" MIN.
STORM DRAIN	1/2" CRUSHED ROCK D/4, MIN. 6"	VARIES	IMPORTED MATERIAL SAND EQUIVALENT ≥ 30		O.D. + 16"	30" MIN. LOCAL 36" MIN. ARTERIAL
OTHER	VARIES VARIES	VARIES	SAND EQUIVALENT ≥ 30 OR ENGINEERED SECTION		VARIES	30" MIN. LOCAL 36" MIN. ARTERIAL

NOTE: ANY DEVIATION FROM THESE REQUIREMENTS NEED PRIOR APPROVAL FROM CITY ENGINEER. COMPACTION OF 90% MUST BE MET FOR ALL MATERIALS IN THE TABLE.



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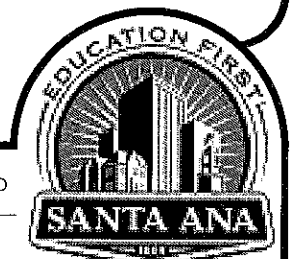
DATE	REVISION
12/14/00	REVISED STANDARD PLAN NUMBER

UTILITY TRENCH DETAIL
TRENCH MATERIALS
AND BACKFILL REQUIREMENTS

STD. PLAN NUMBER
1150
SHEET 4 OF 5

GENERAL NOTES:

1. IF TRENCH WALLS SLOUGH SO AS TO REMOVE FIRM SUPPORT TO ADJACENT PAVEMENT, SUCH PAVEMENT SHALL BE REMOVED BACK TO WHERE UNDISTURBED IS AVAILABLE. THE REMOVAL OF PAVEMENT UNDER SUCH CONDITIONS SHALL BE FOR A MINIMUM DISTANCE OF 10 FEET ALONG THE TRENCH, AND THE WIDTH OF REMOVAL SHALL BE CONSTANT AND EQUAL TO THE GREATEST DIMENSION REQUIRED FOR REMOVAL TO FIRM SUPPORT.
2. PAVEMENT REPLACEMENT SHALL BE DONE ACCORDING TO CITY OF SANTA ANA STANDARD PLAN NUMBERS 1150 SHEET 1, 2 AND 1151.
3. COMPACT THE SAND BEDDING USING THE JETTING METHODS PER THE "GREENBOOK".
4. INSTALL DETECTABLE UTILITY MARKING TAPE - (COLOR CODED PER DIG ALERT SUGGESTED MARKING GUIDELINES.)
5. ALL TRENCHING AND CONSTRUCTION OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE STATE'S DEPARTMENT OF INDUSTRIAL RELATIONS.
6. UTILITY PIPE SHALL BE INSTALLED IN THE CENTER OF THE TRENCH.
7. ALL TRENCH ZONE BACKFILL MUST CONFORM TO SECTION 200 OF THE "GREENBOOK" AND SHALL BE PLACED ACCORDING TO SECTION 306-1.3. IN ADDITION, WHEN NATIVE BACKFILL MATERIAL IS ALLOWED, THE CONTRACTOR SHALL TEST THE MATERIAL TO SHOW THAT THE MATERIAL IS SUITABLE FOR BACKFILL. SUITABLE NATIVE BACKFILL MATERIAL MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER. THE MATERIAL IS NOT SUITABLE IF SAND EQUIVALENT IS LESS THAN 30 OR IF THE MOISTURE CONTENT EXCEEDS THE OPTIMUM.
8. USE 1/2 SACK SAND/CEMENT SLURRY BACKFILL FOR TRENCHES LESS THAN 10" WIDE. SLURRY IS ALLOWED IN CITY OWNED UTILITIES WITH PRIOR APPROVAL BY THE CITY ENGINEER.



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UTILITY TRENCH DETAIL
 TRENCH MATERIALS
 AND BACKFILL REQUIREMENTS

STD. PLAN
 NUMBER
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 SHEET 5 OF 5