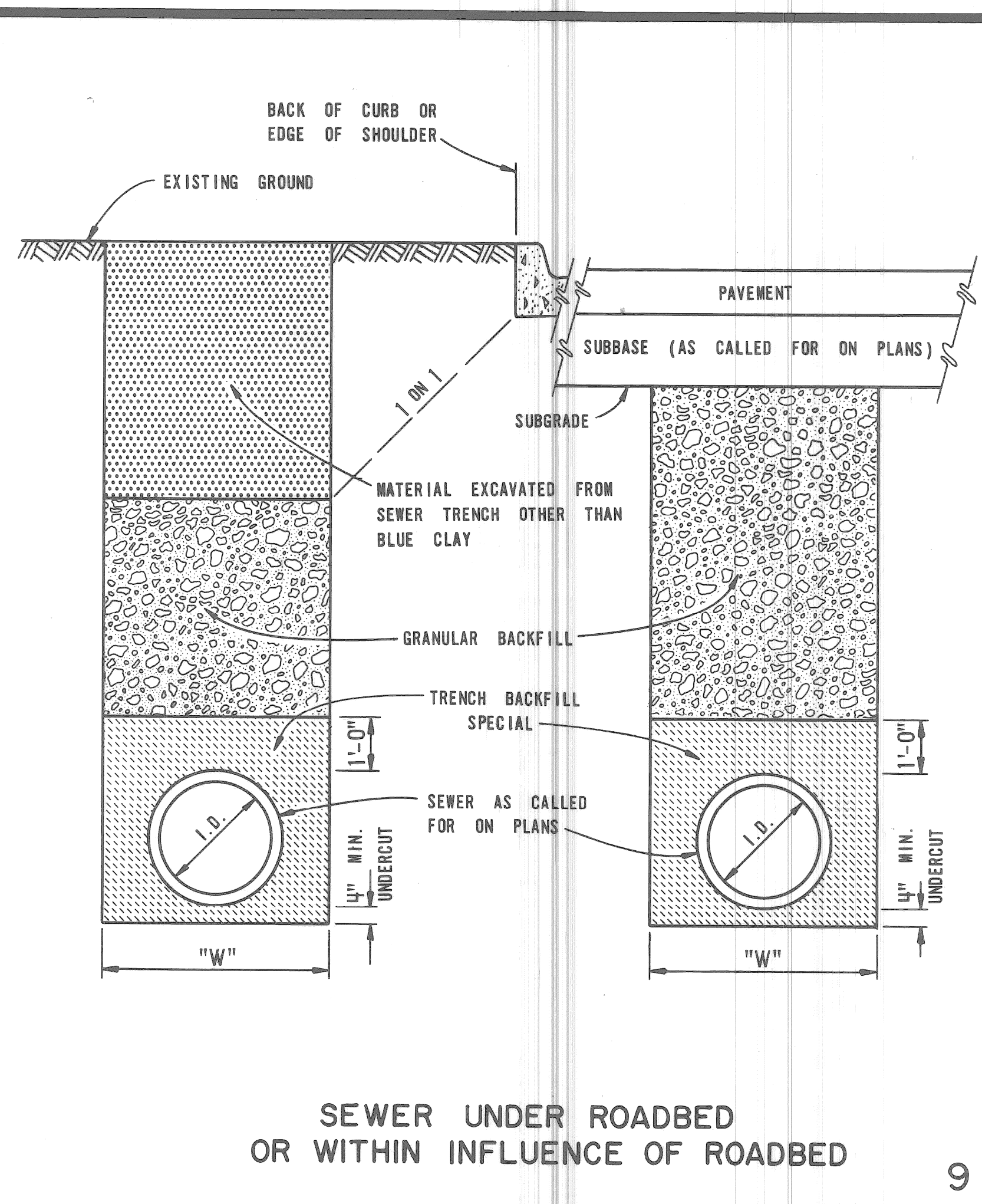
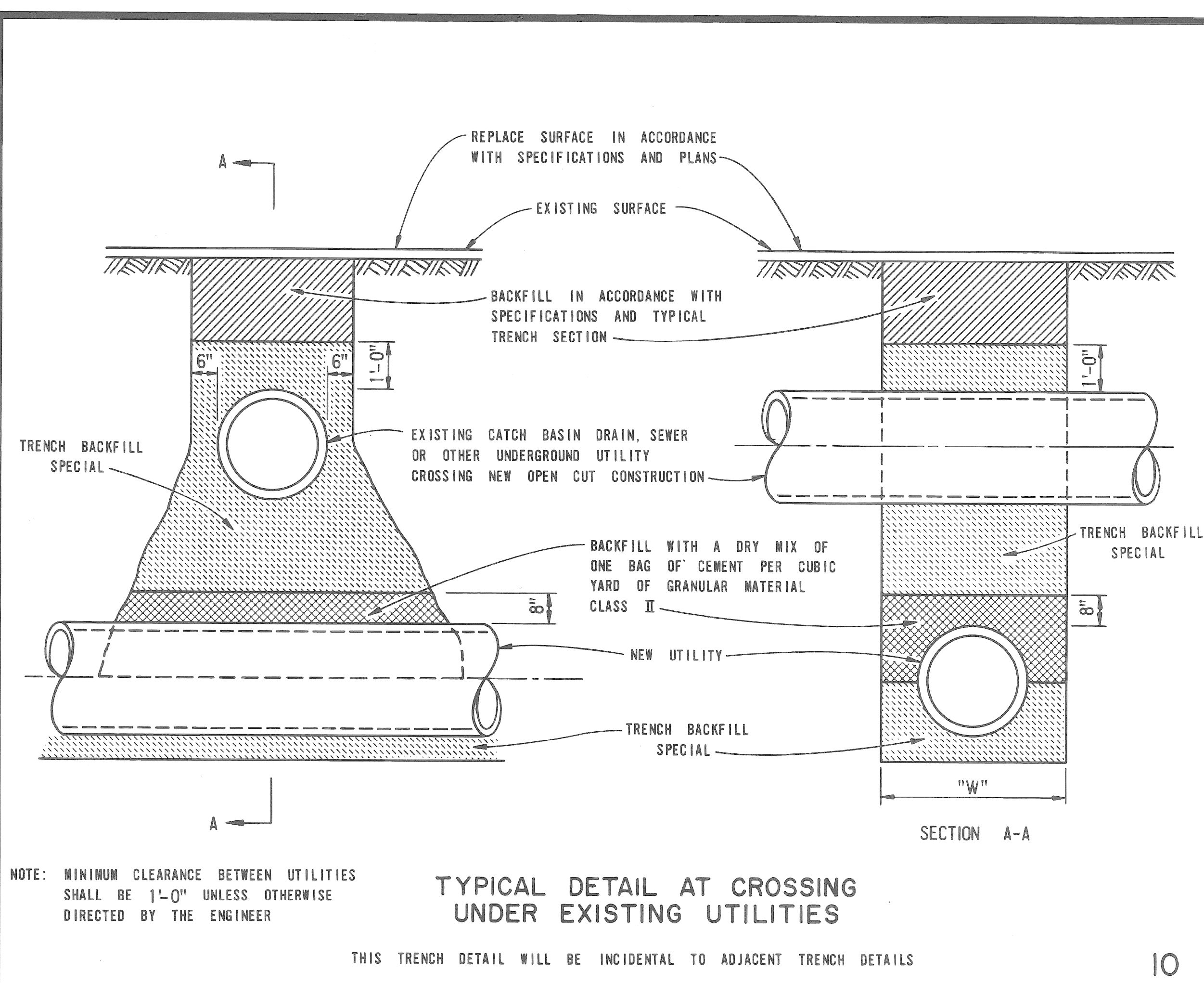


SEWER - NOT UNDER ROADBED  
8



SEWER UNDER ROADBED  
OR WITHIN INFLUENCE OF ROADBED  
9



NOTE: MINIMUM CLEARANCE BETWEEN UTILITIES SHALL BE 1'-0" UNLESS OTHERWISE DIRECTED BY THE ENGINEER

TYPICAL DETAIL AT CROSSING  
UNDER EXISTING UTILITIES

THIS TRENCH DETAIL WILL BE INCIDENTAL TO ADJACENT TRENCH DETAILS

10

NOTES:

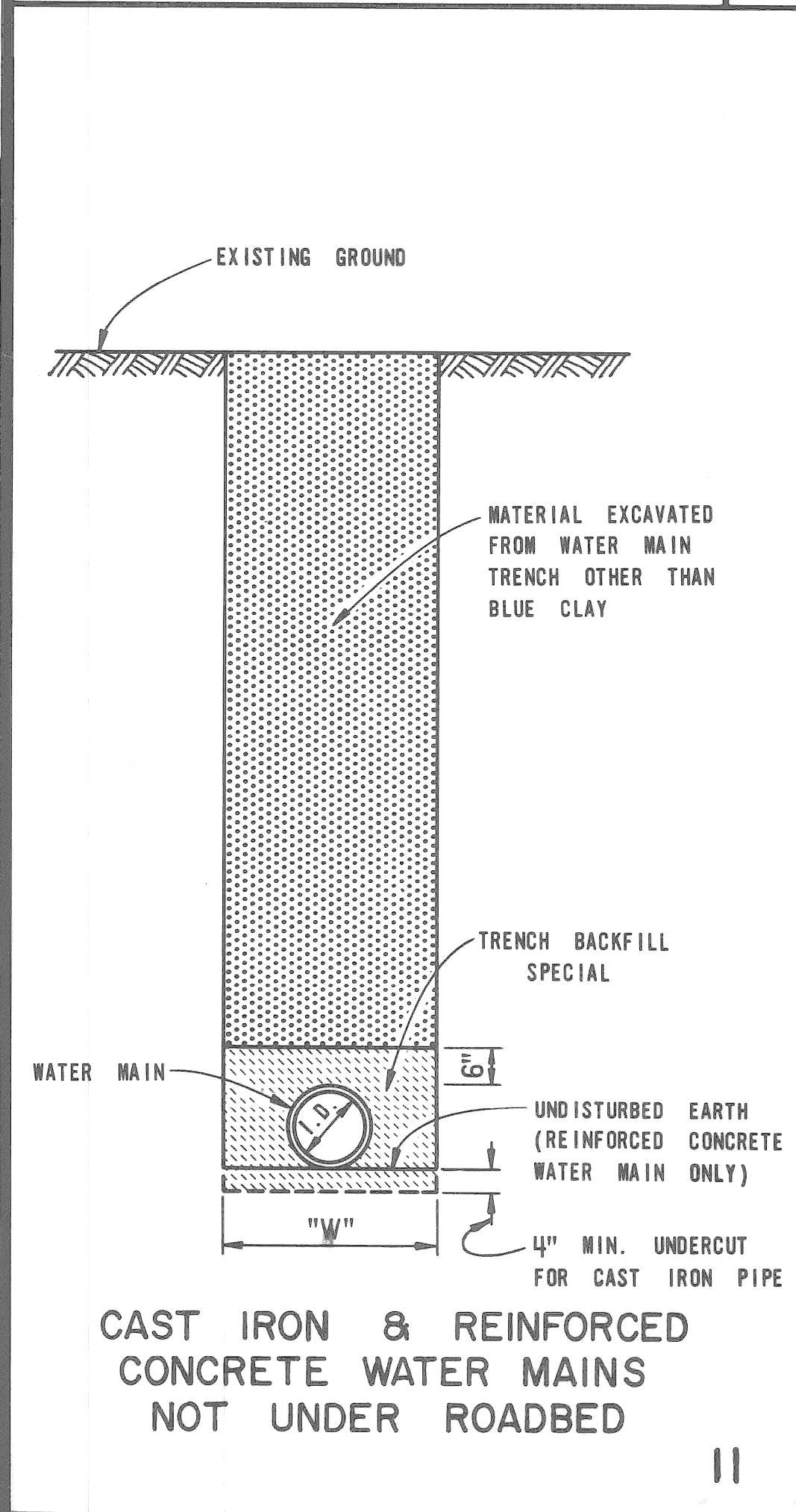
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.
- GRANULAR MATERIAL CLASS I, II OR III MAY BE USED WHERE GRANULAR BACKFILL IS CALLED FOR ON PLANS.
- BEDDING UNDER THE UTILITY SHALL BE AS SHOWN OR THE TRENCH MAY BE UNDERCUT BELOW THE UTILITY AND THE UNDERCUT MATERIAL REPLACED WITH TRENCH BACKFILL - SPECIAL. BACKFILLING SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS. ALL WORK AND MATERIALS NECESSARY IN UNDERCUTTING AND BACKFILLING SHALL BE INCIDENTAL TO LAYING THE UTILITY.
- BACKFILL FOR UTILITY TRENCHES ABOVE TRENCH BACKFILL - SPECIAL SHALL BE AS FOLLOWS:
- (A) GRANULAR MATERIAL SHALL BE USED TO BACKFILL UTILITY TRENCHES UNDER ROADBED.
  - (B) GRANULAR MATERIAL SHALL BE USED TO BACKFILL UTILITY TRENCHES OUTSIDE THE ROADBED BUT WITHIN THE 1 ON 1 ZONE OF INFLUENCE SHOWN. IT WILL ALSO BE USED ON BACKFILL UNDER SIDEWALKS, SURFACED AREAS, AND MISCELLANEOUS STRUCTURES, AND COMPACTED TO NOT LESS THAN 95% OF UNIT WEIGHT.
  - (C) MATERIAL EXCAVATED FROM THE UTILITY TRENCHES SHALL BE USED TO BACKFILL UTILITY TRENCHES OUTSIDE THE LIMITS OF THE 1 ON 1 ZONE OF INFLUENCE AND SHALL BE COMPACTED TO NOT LESS THAN 90% OF UNIT WEIGHT.
- SUFFICIENT TRENCH WIDTH SHALL BE PROVIDED TO ALLOW FREE WORKING SPACE AND TO PERMIT COMPACTING THE BACKFILL AROUND THE PIPE.
- THE FOLLOWING TRENCH WIDTHS ARE TO BE USED AS A GUIDE ONLY:

| I.D. PIPE SIZE (INCHES) | LESS THAN 18 | 21   | 24   | 27   | 30   | 33   | 36   | 42   | 48   |      |
|-------------------------|--------------|------|------|------|------|------|------|------|------|------|
| "W" TRENCH WIDTH (FEET) | 3.0          | 3.5  | 4.0  | 4.5  | 5.0  | 5.5  | 6.0  | 7.0  | 8.0  |      |
| I.D. PIPE SIZE (INCHES) | 54           | 60   | 66   | 72   | 78   | 84   | 90   | 96   | 102  | 108  |
| "W" TRENCH WIDTH (FEET) | 9.5          | 10.0 | 10.5 | 11.0 | 11.5 | 12.0 | 12.5 | 13.0 | 13.5 | 14.0 |

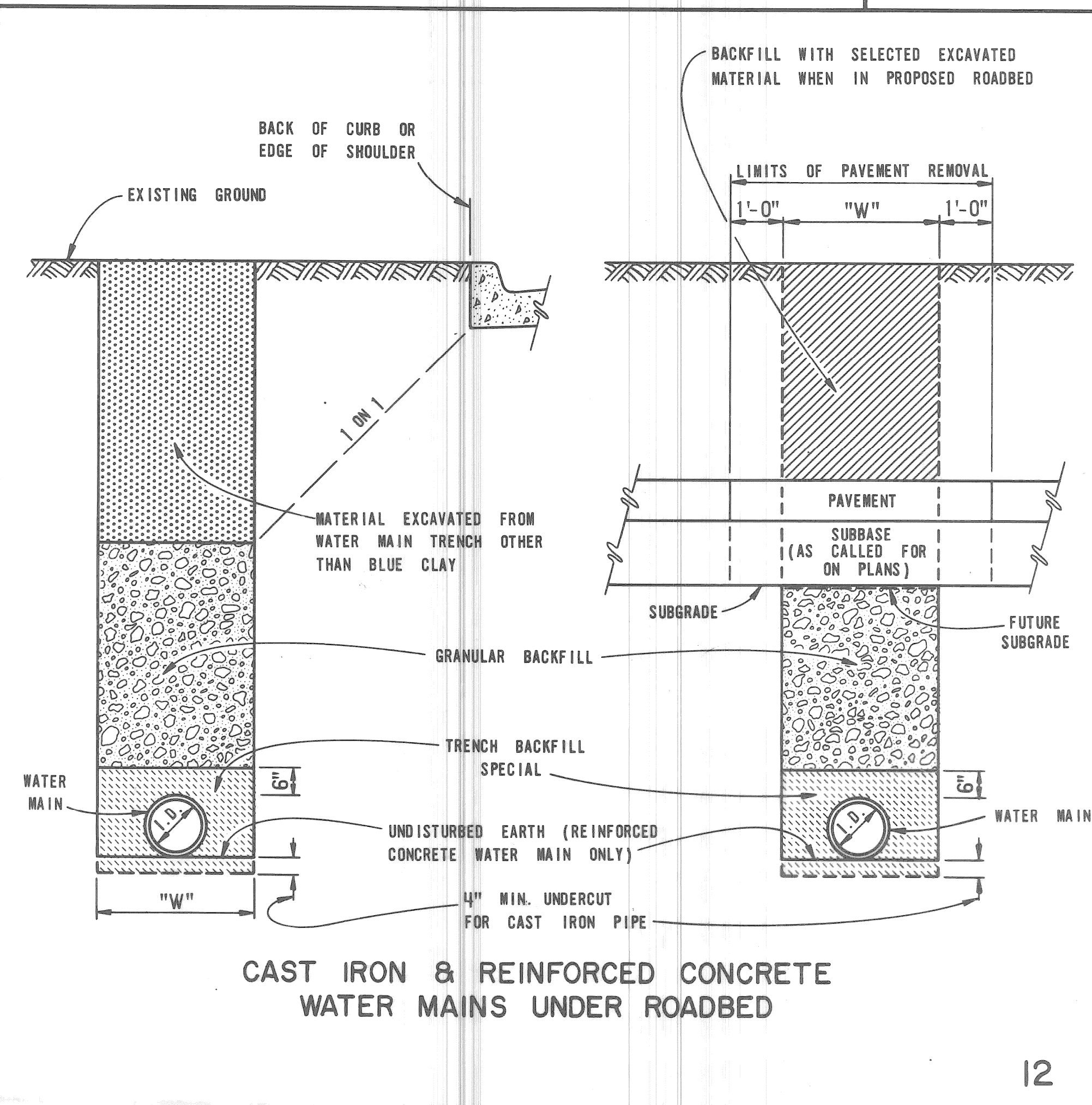
PAVEMENT REMOVAL WIDTH IS ESTIMATED TO BE TRENCH WIDTH "W" PLUS 1'-0" EACH SIDE OF THE TRENCH.

REMOVAL AND REPLACEMENT OF PAVEMENT, CURB, CURB & GUTTER AND SIDEWALK WILL BE PAID FOR SEPARATELY.

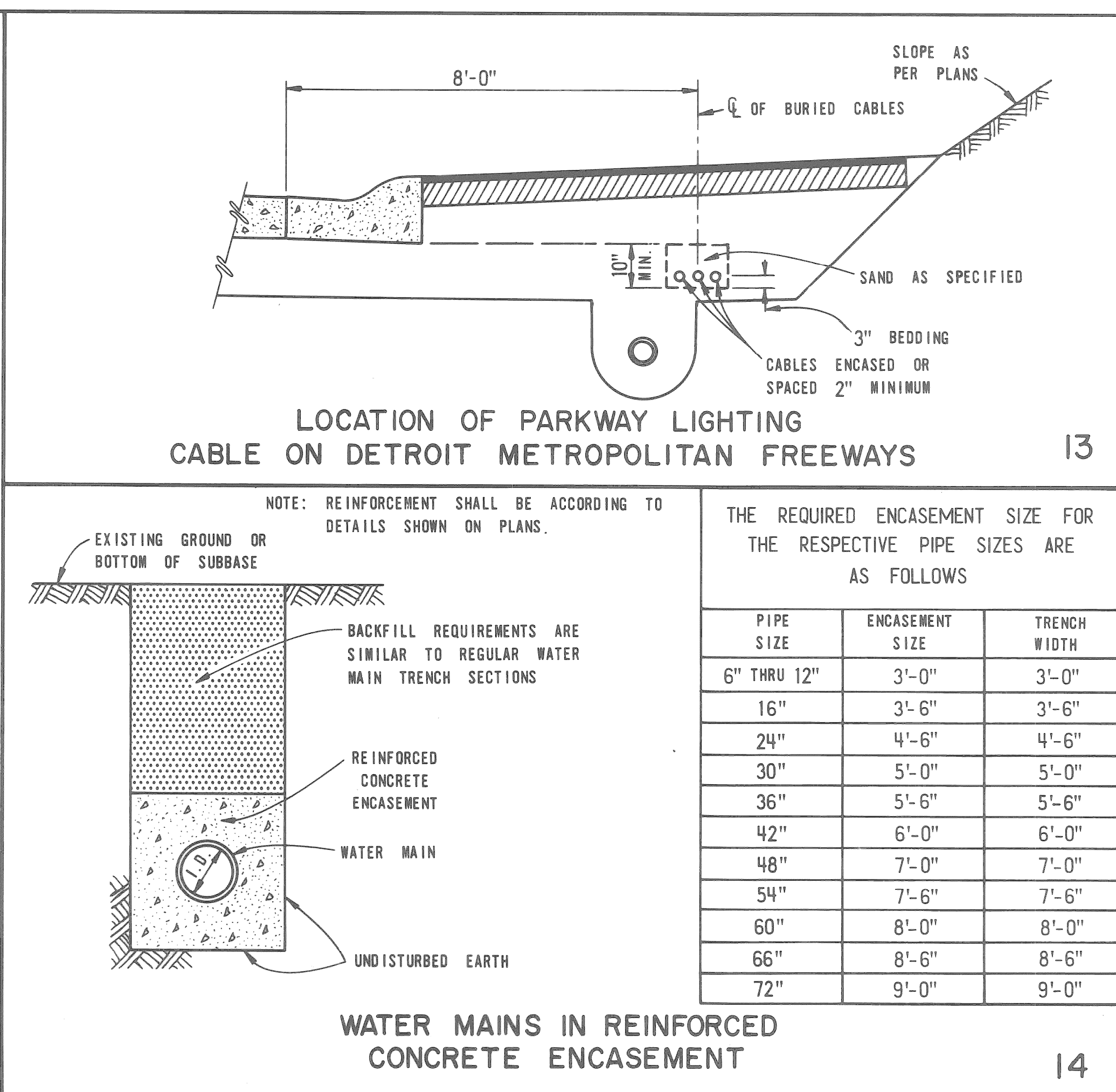
ALL EXCAVATION, DISPOSAL OF SURPLUS EXCAVATED MATERIALS AND ALL TYPES OF BACKFILL MATERIAL (TRENCH BACKFILL-SPECIAL, SELECTED EXCAVATED MATERIAL, GRANULAR BACKFILL, SAND-LIME MIXTURE, DRY MIX INCLUDING CEMENT, ETC.) REQUIRED FOR THE UTILITY CONSTRUCTION WILL NOT BE PAID FOR SEPARATELY.



CAST IRON & REINFORCED  
CONCRETE WATER MAINS  
NOT UNDER ROADBED  
11



CAST IRON & REINFORCED CONCRETE  
WATER MAINS UNDER ROADBED  
12



LOCATION OF PARKWAY LIGHTING  
CABLE ON DETROIT METROPOLITAN FREEWAYS  
13

NOTE: REINFORCEMENT SHALL BE ACCORDING TO DETAILS SHOWN ON PLANS.

THE REQUIRED ENCASEMENT SIZE FOR THE RESPECTIVE PIPE SIZES ARE AS FOLLOWS

| PIPE SIZE   | ENCASEMENT SIZE | TRENCH WIDTH |
|-------------|-----------------|--------------|
| 6" THRU 12" | 3'-0"           | 3'-0"        |
| 16"         | 3'-6"           | 3'-6"        |
| 24"         | 4'-6"           | 4'-6"        |
| 30"         | 5'-0"           | 5'-0"        |
| 36"         | 5'-6"           | 5'-6"        |
| 42"         | 6'-0"           | 6'-0"        |
| 48"         | 7'-0"           | 7'-0"        |
| 54"         | 7'-6"           | 7'-6"        |
| 60"         | 8'-0"           | 8'-0"        |
| 66"         | 8'-6"           | 8'-6"        |
| 72"         | 9'-0"           | 9'-0"        |

WATER MAINS IN REINFORCED  
CONCRETE ENCASEMENT  
14

STATE OF MICHIGAN  
DEPARTMENT OF STATE HIGHWAYS  
STANDARD PLAN FOR

UTILITY TRENCHES

TRENCH DETAILS 8,9,10,11,12 & 13 TO APPLY  
ON CITY OF DETROIT UTILITIES

| APPROVALS   |                      |            |         |
|---|----------------------|------------|---------|
| CHECKED   | <i>J. G. Cook</i>    | 5-30-72    | DATE    |
| RECOMMENDED FOR APPROVAL  | <i>D. B. Belskin</i> | 5-31-72    | DATE    |
| RECOMMENDED FOR APPROVAL  | <i>Max N. Clyde</i>  | 6-6-72     | DATE    |
| RECOMMENDED FOR APPROVAL  | <i>W. H. ...</i>     | 6/8/72     | DATE    |
| RECOMMENDED FOR APPROVAL  | <i>W. B. Jones</i>   | 6/6/72     | DATE    |
| DEPARTMENT OF STATE HIGHWAYS<br>HENRIK E. STAFSETH - STATE HIGHWAY DIRECTOR |                      |            |         |
| BY  | <i>J. H. ...</i>     | 6/8/72     | DATE    |
| DRAWN BY  | H. A. W.             | CHECKED BY | V. R.   |
| APPROVED  | F. H. W. A.          | DATE       | 5-11-72 |