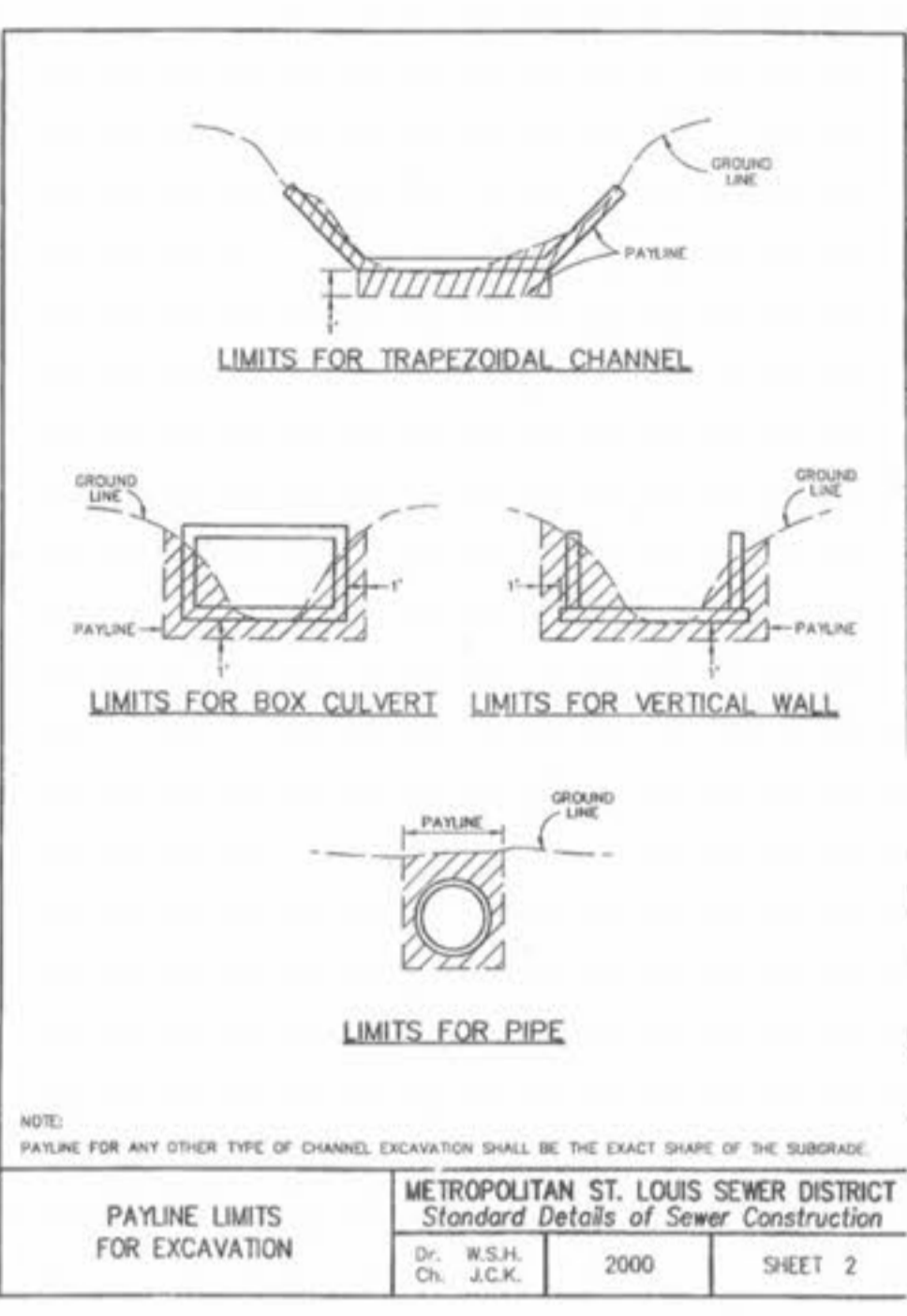
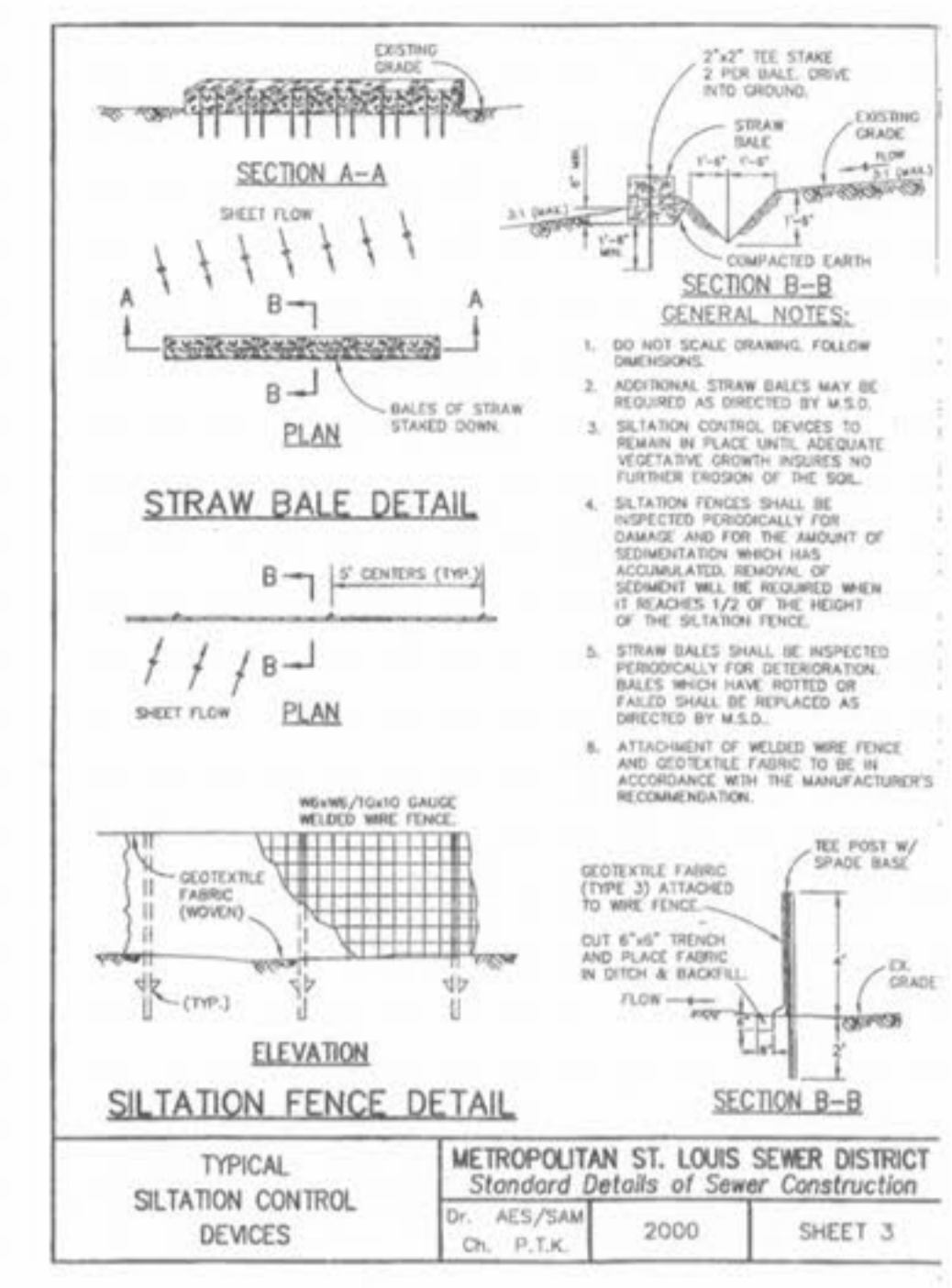


| ROUND PIPE                       |                                      |                                      |   | HORIZONTAL ELLIPTICAL PIPE         |                                    |                                    |   |
|----------------------------------|--------------------------------------|--------------------------------------|---|------------------------------------|------------------------------------|------------------------------------|---|
| INSIDE DIAMETER OF PIPE (INCHES) | "W" PAYLINE WIDTH OF TRENCH (INCHES) | "M" PAYLINE WIDTH OF TRENCH (INCHES) | PAY-VOLUMES Q.U. FT. PER FT. OF TRENCH CONCRETE ENCASUREMENT (FEET) | INSIDE DIMENSIONS OF PIPE (INCHES) | "W" PAYLINE WIDTH OF TRENCH (FEET) | "M" PAYLINE WIDTH OF TRENCH (FEET) | PAY-VOLUMES Q.U. FT. PER FT. OF TRENCH CONCRETE ENCASUREMENT (FEET) |
| 4                                | 30                                   | 2.50                                 | 3.28  |                                    |                                    |                                    |   |
| 6                                | 30                                   | 2.50                                 | 3.99  |                                    |                                    |                                    |   |
| 8                                | 30                                   | 2.50                                 | 3.87  |                                    |                                    |                                    |   |
| 10                               | 30                                   | 2.50                                 | 4.08  |                                    |                                    |                                    |   |
| 12                               | 30                                   | 2.50                                 | 4.25  |                                    |                                    |                                    |   |
| 15                               | 36                                   | 3.00                                 | 5.55  |                                    |                                    |                                    |   |
| 18                               | 36                                   | 3.00                                 | 5.77  | 14 x 23                            | 41                                 | 3.42                               | 5.94  |
| 21                               | 36                                   | 3.25                                 | 6.61  |                                    |                                    |                                    |   |
| 24                               | 42                                   | 3.50                                 | 7.39  | 19 x 30                            | 49                                 | 4.08                               | 7.68  |
| 27                               | 45                                   | 3.75                                 | 8.18  | 22 x 34                            | 53                                 | 4.42                               | 8.61  |
| 30                               | 45                                   | 4.08                                 | 9.30  | 24 x 38                            | 58                                 | 4.83                               | 9.70  |
| 33                               | 53                                   | 4.42                                 | 10.53   | 27 x 42                            | 62                                 | 5.17                               | 10.71   |
| 36                               | 56                                   | 4.67                                 | 11.43   | 29 x 45                            | 66                                 | 5.50                               | 11.72   |
| 39                               | 56                                   | 4.67                                 | 11.43   | 32 x 49                            | 71                                 | 5.92                               | 13.14   |
| 42                               | 63                                   | 5.25                                 | 13.36   | 34 x 53                            | 75                                 | 6.25                               | 14.05   |
| 45                               | 70                                   | 5.83                                 | 15.87   | 36 x 60                            | 83                                 | 6.92                               | 16.18   |
| 54                               | 77                                   | 6.42                                 | 18.15   | 43 x 68                            | 92                                 | 7.57                               | 18.81   |
| 60                               | 84                                   | 7.00                                 | 20.73   | 48 x 76                            | 101                                | 8.42                               | 21.59   |
| 66                               | 91                                   | 7.58                                 | 23.45   | 53 x 83                            | 109                                | 9.08                               | 24.30   |
| 72                               | 96                                   | 8.17                                 | 26.37   | 58 x 91                            | 118                                | 9.83                               | 27.45   |
| 78                               | 105                                  | 8.75                                 | 29.39   | 63 x 98                            | 126                                | 10.50                              | 30.50   |
| 84                               | 112                                  | 9.33                                 | 32.57   | 68 x 106                           | 135                                | 11.25                              | 33.91   |
| 90                               | 118                                  | 9.92                                 | 35.90   | 72 x 113                           | 143                                | 11.92                              | 36.99   |
| 96                               | 126                                  | 10.50                                | 39.37   | 77 x 121                           | 152                                | 12.67                              | 40.89   |
| 102                              | 133                                  | 11.08                                | 42.99   | 82 x 129                           | 160                                | 13.32                              | 44.45   |
| 108                              | 140                                  | 11.67                                | 46.75   | 87 x 136                           | 168                                | 14.00                              | 47.78   |
| 114                              | 147                                  | 12.25                                | 50.66   | 92 x 143                           | 176                                | 14.67                              | 51.70   |
| 120                              | 154                                  | 12.83                                | 54.72   | 97 x 151                           | 185                                | 15.42                              | 56.01   |
| 126                              | 161                                  | 13.42                                | 58.92   |                                    |                                    |                                    |   |
| 132                              | 168                                  | 14.00                                | 63.27   | 108 x 186                          | 202                                | 16.83                              | 64.48   |
| 144                              | 182                                  | 15.17                                | 72.40   | 116 x 190                          | 218                                | 18.17                              | 73.59   |

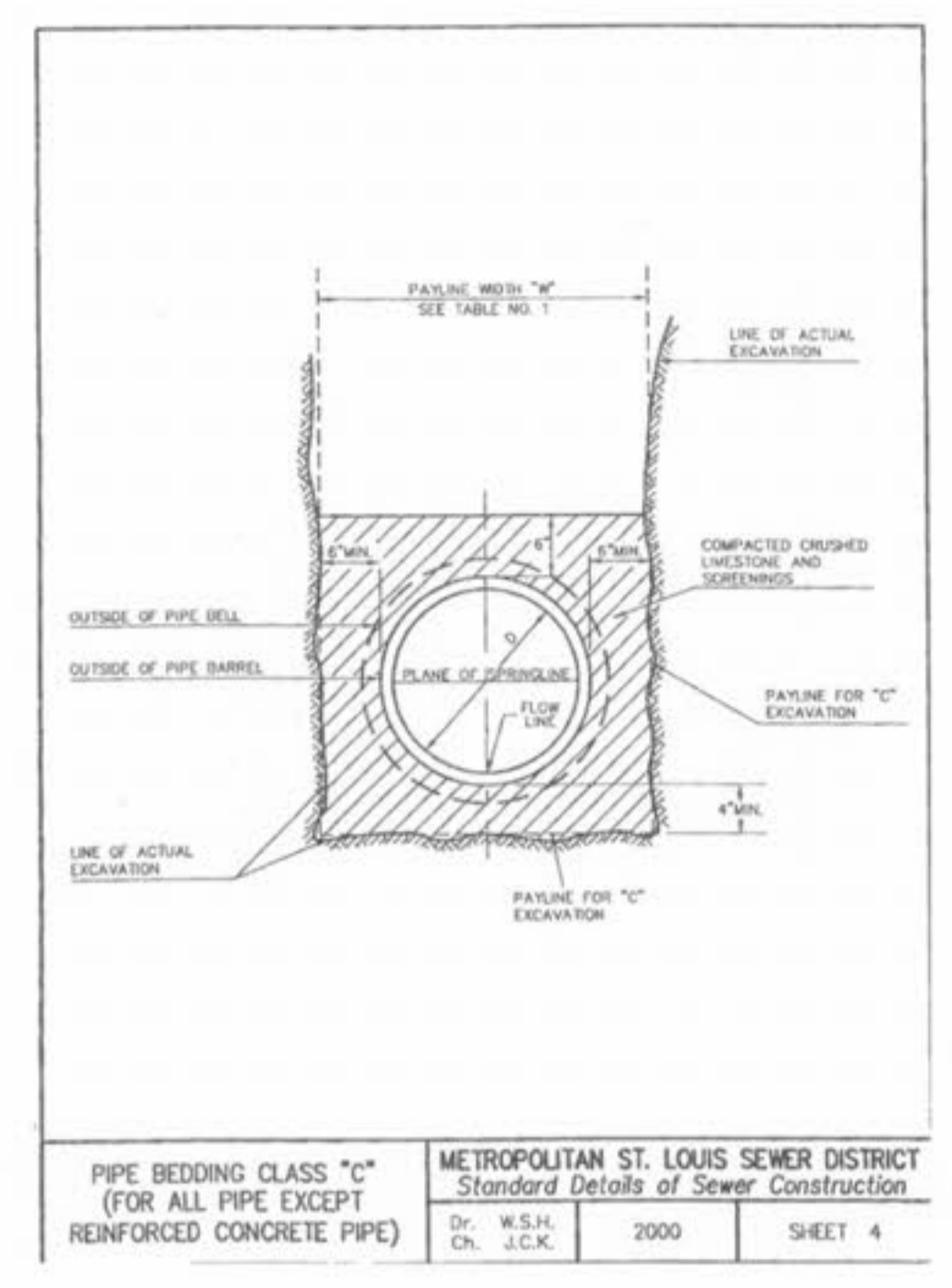
TABLE 1  
 PAYLINE WIDTHS OF TRENCH AND PAY-QUANTITIES OF CONCRETE  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. S.E.B. Ch. J.C.K. 2000 SHEET 1



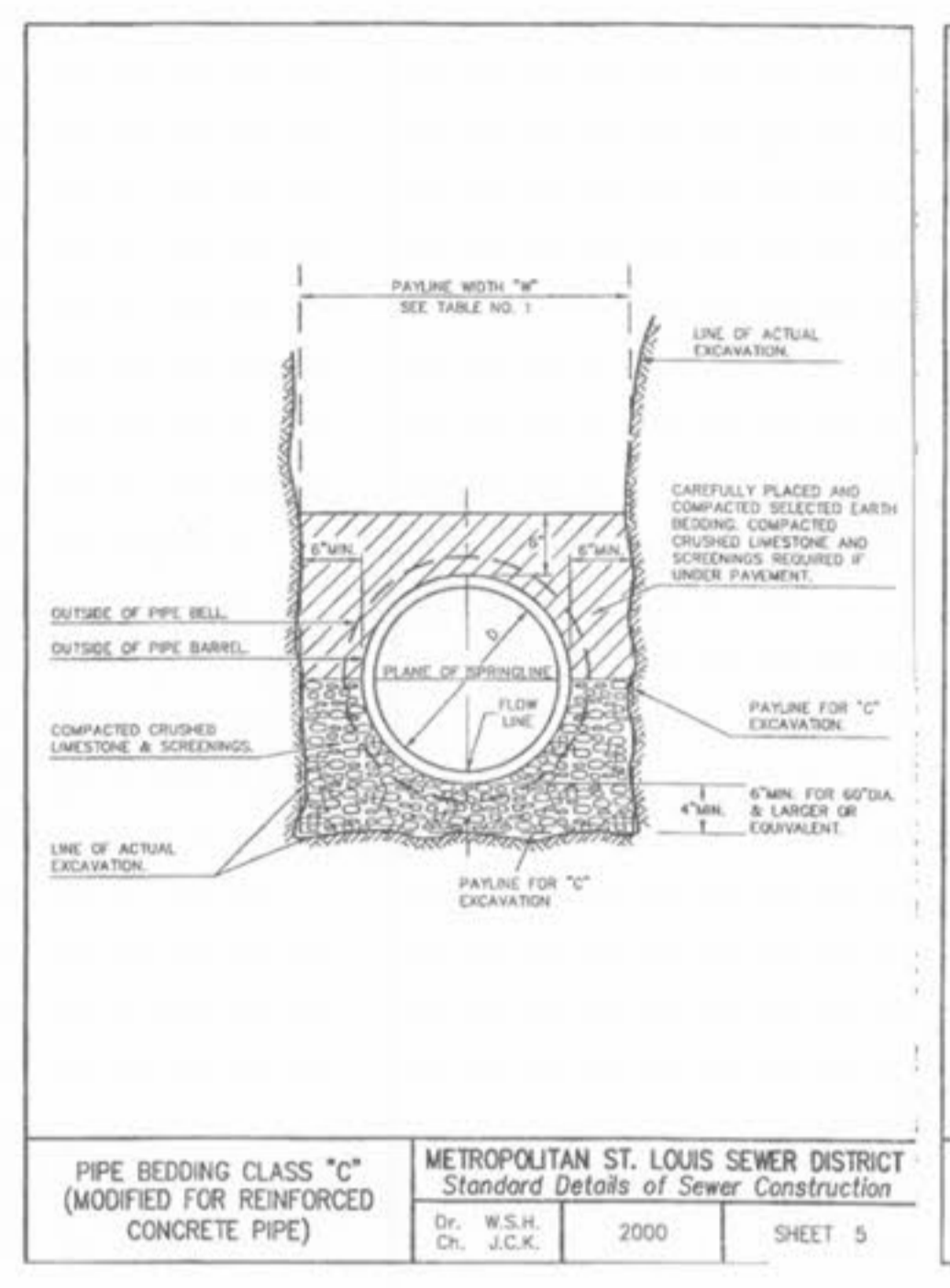
PAYLINE LIMITS FOR EXCAVATION  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H. Ch. J.C.K. 2000 SHEET 2



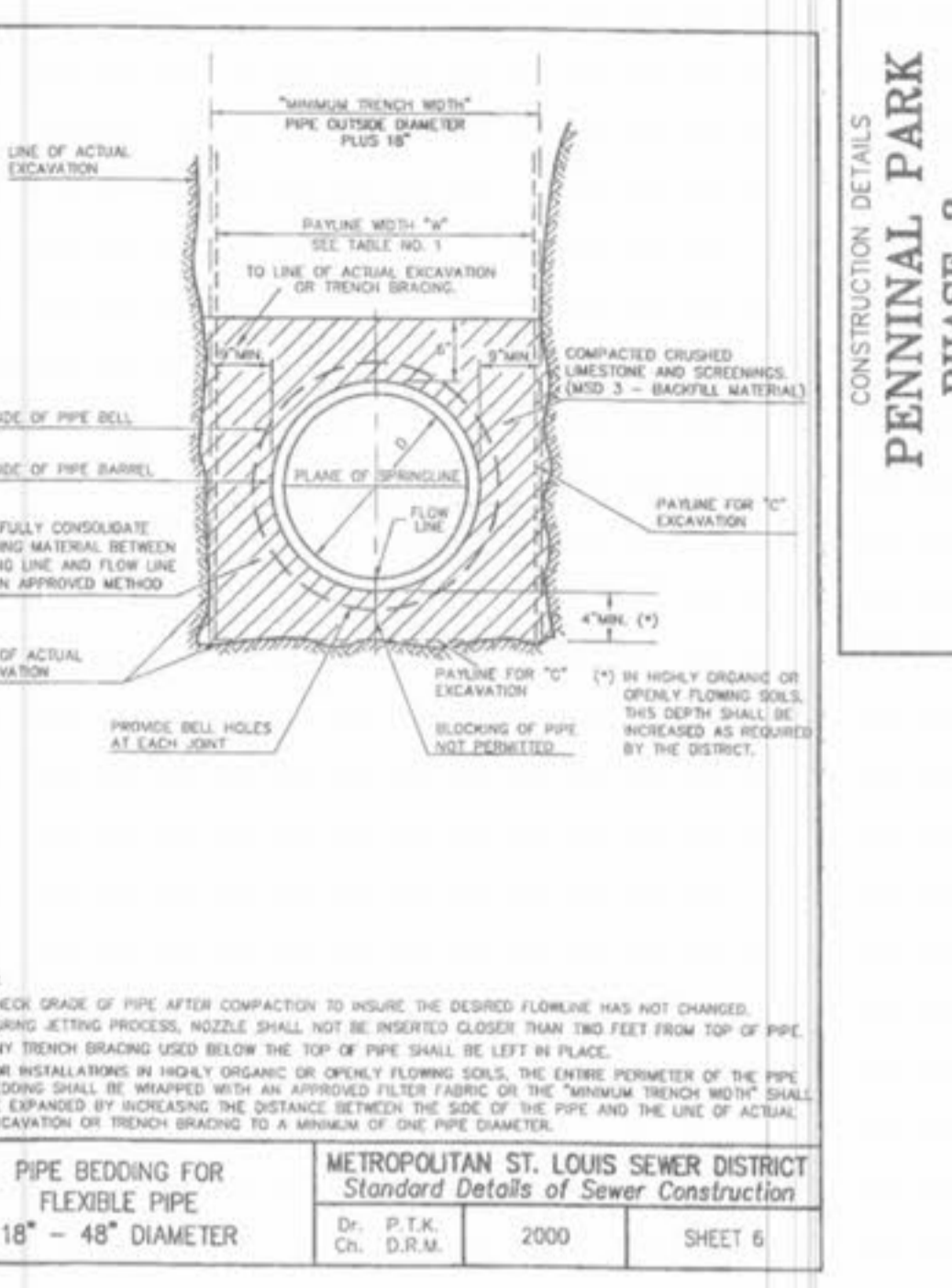
TYPICAL SILTATION CONTROL DEVICES  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. P.C.S./S.A.M. Ch. J.P.T.A. 2000 SHEET 3



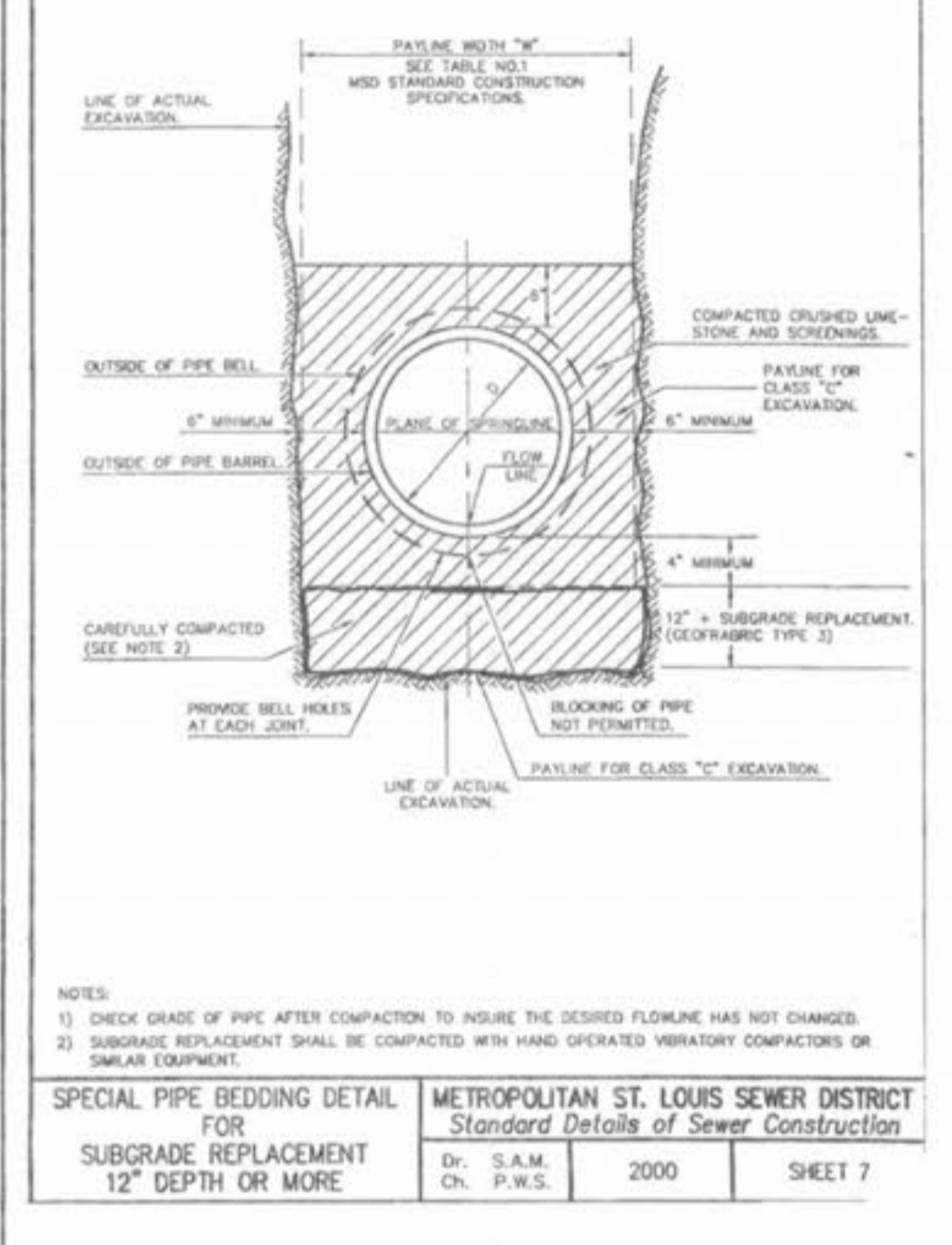
PIPE BEDDING CLASS "C" (FOR ALL PIPE EXCEPT REINFORCED CONCRETE PIPE)  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H. Ch. J.C.K. 2000 SHEET 4



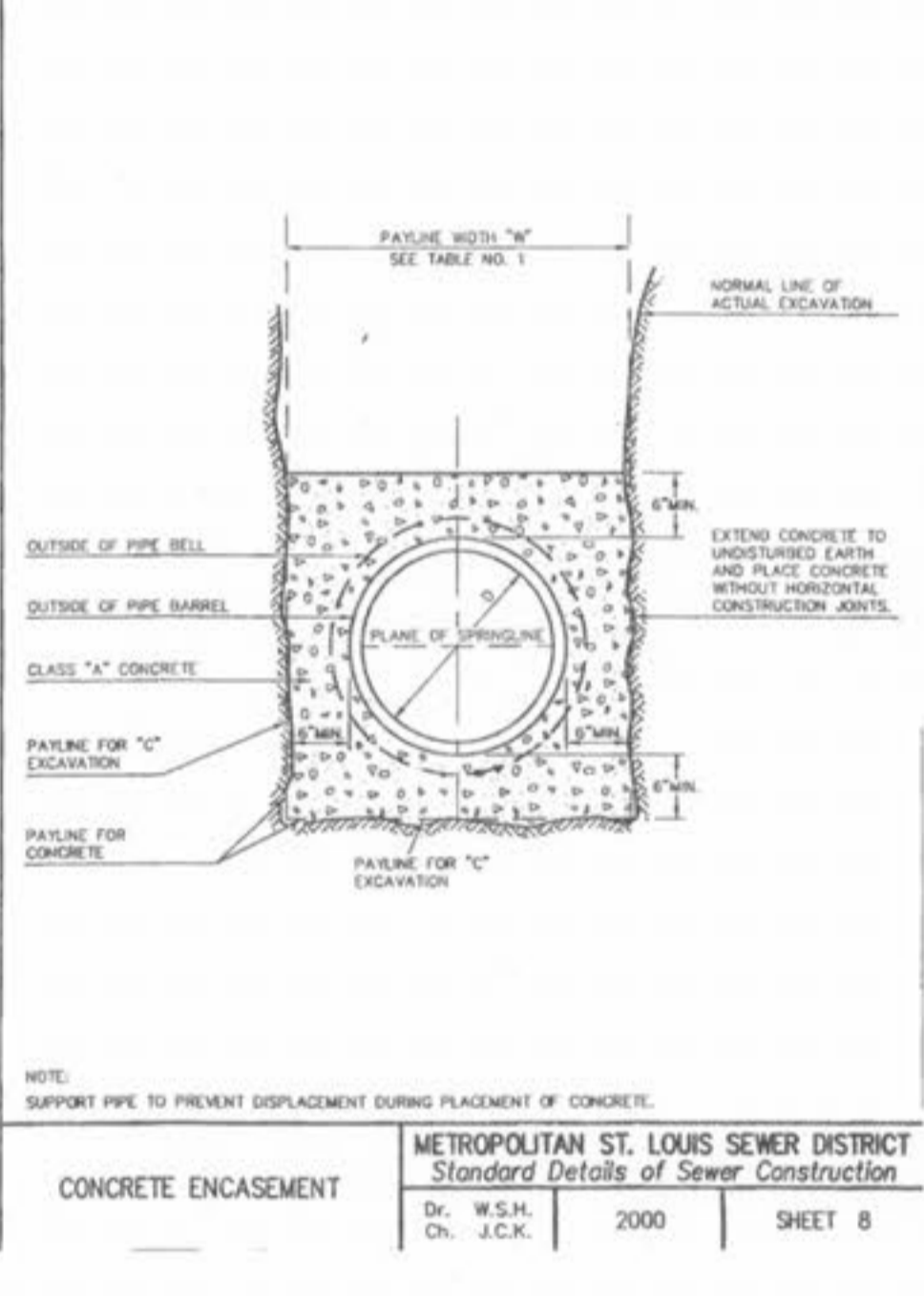
PIPE BEDDING CLASS "C" (MODIFIED FOR REINFORCED CONCRETE PIPE)  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H. Ch. J.C.K. 2000 SHEET 5



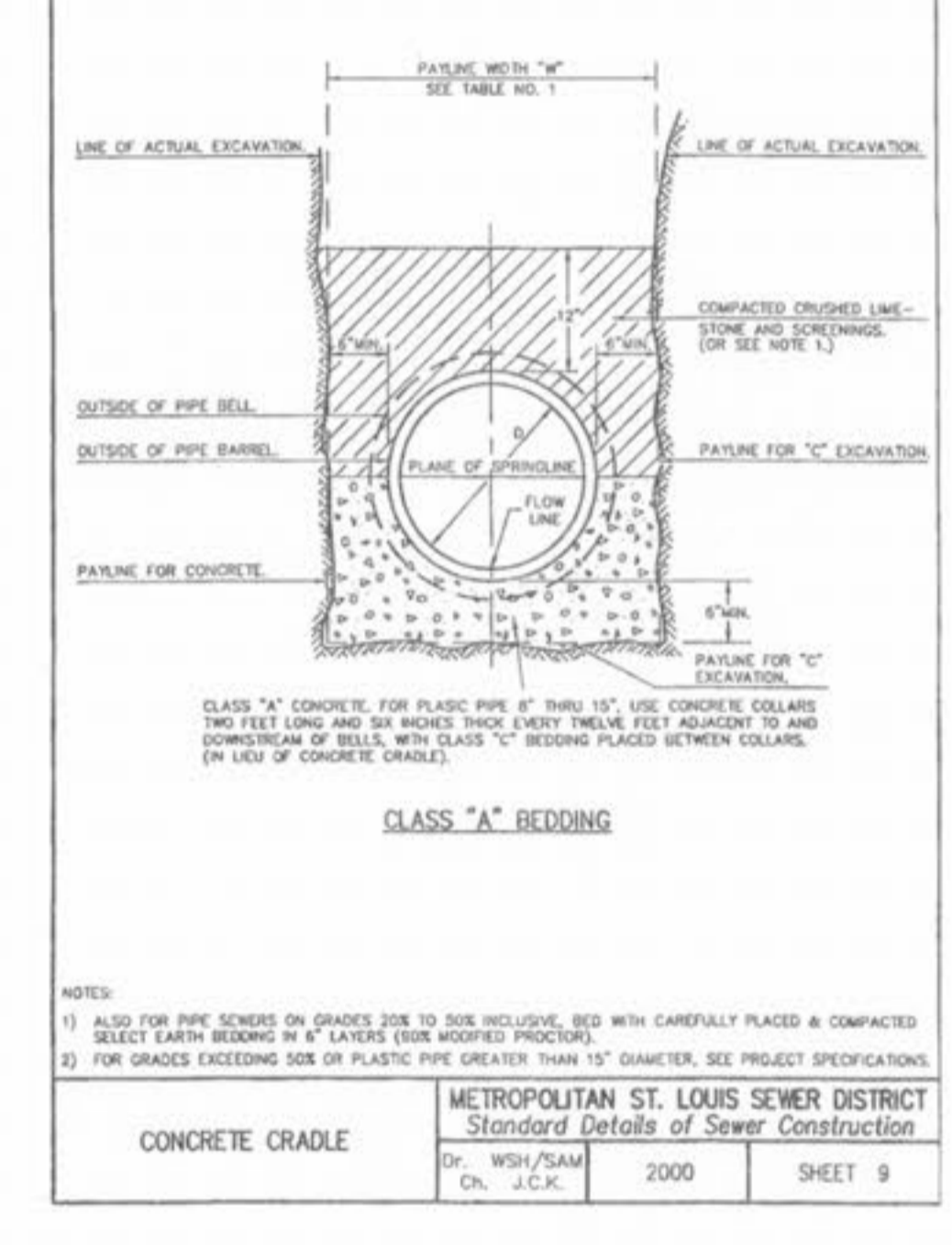
PIPE BEDDING FOR FLEXIBLE PIPE 18" - 48" DIAMETER  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. P.T.K. Ch. D.P.M. 2000 SHEET 6



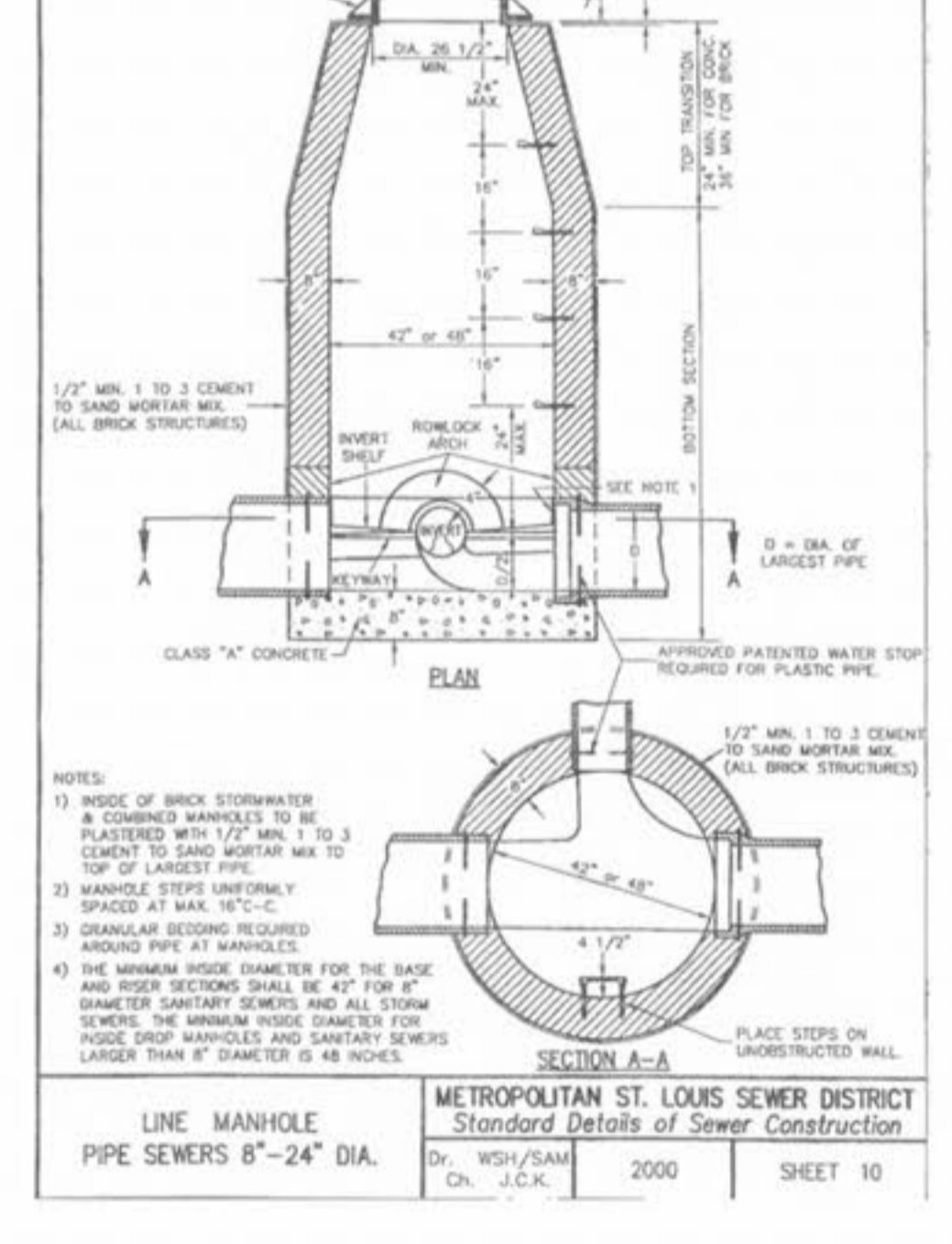
SPECIAL PIPE BEDDING DETAIL FOR SUBGRADE REPLACEMENT 12" DEPTH OR MORE  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. S.A.M. Ch. P.W.S. 2000 SHEET 7



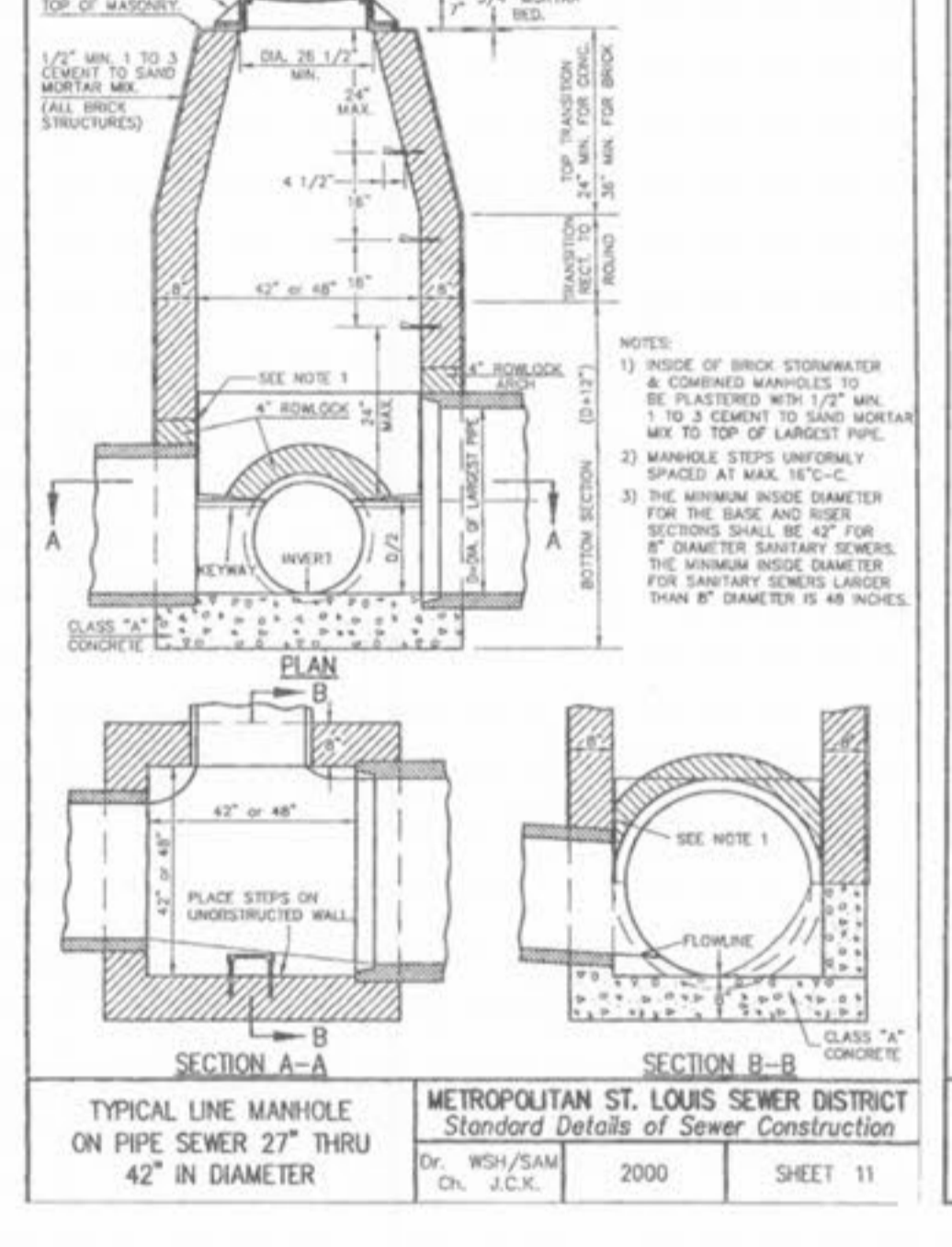
CONCRETE ENCASUREMENT  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H. Ch. J.C.K. 2000 SHEET 8



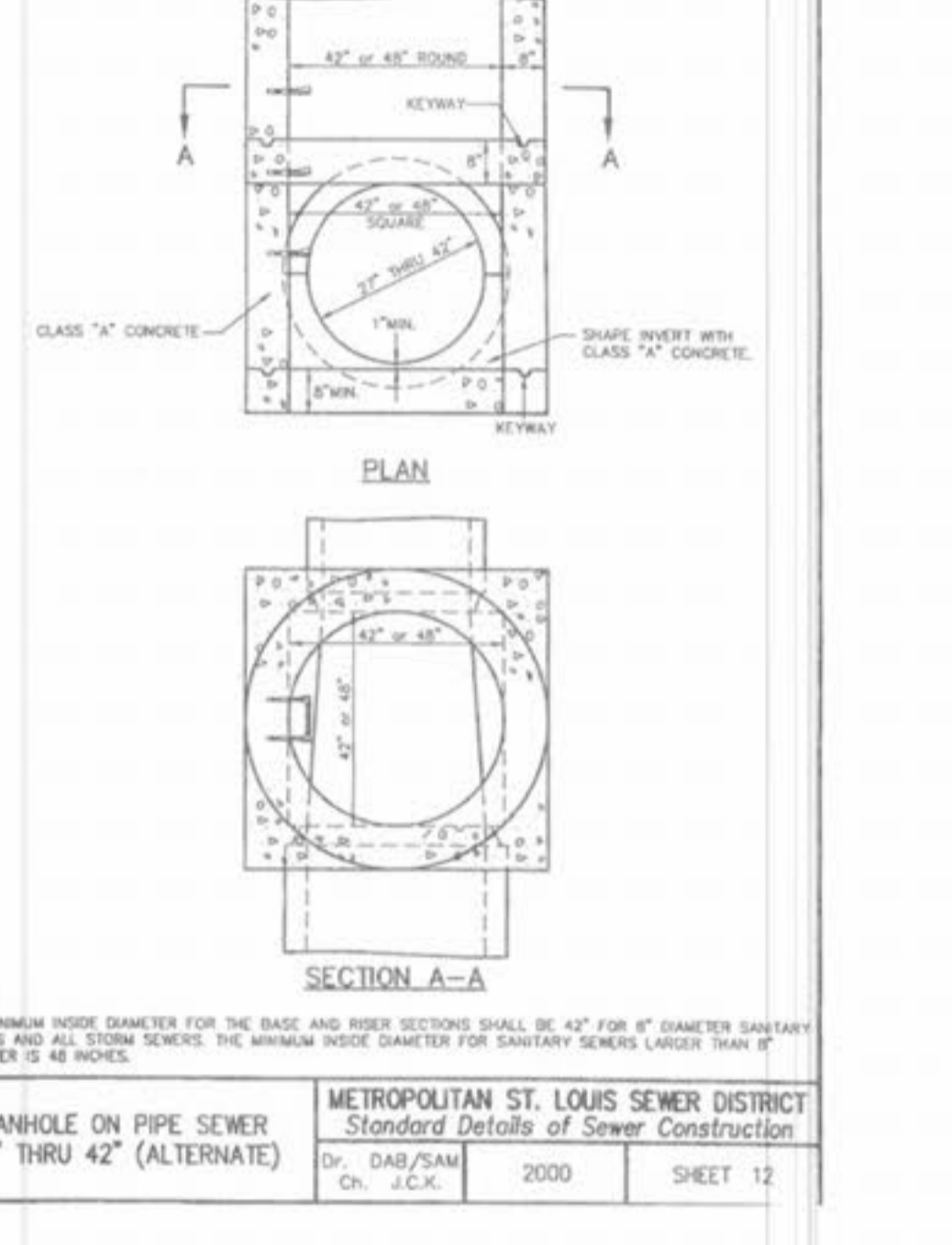
CONCRETE CRADLE  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 9



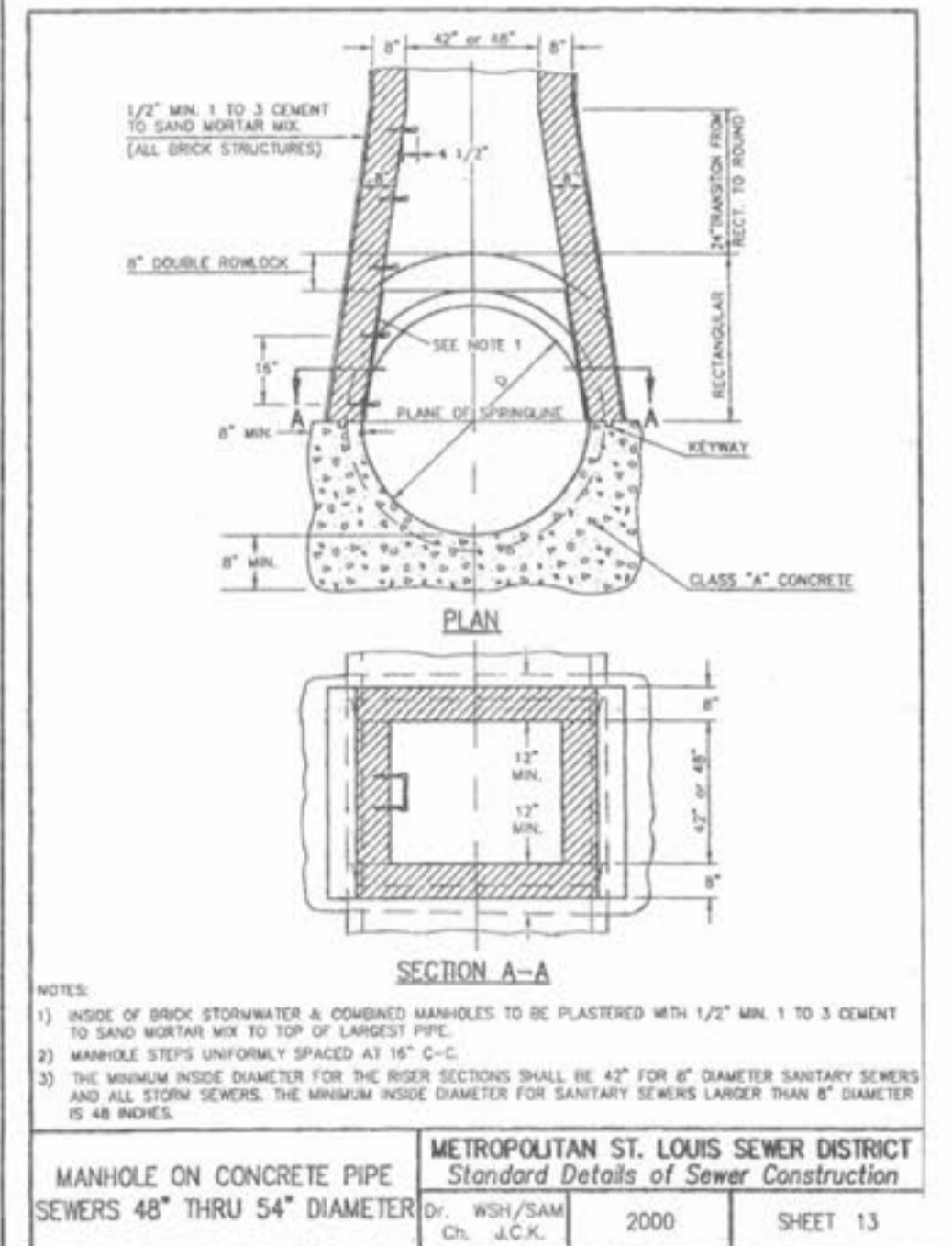
LINE MANHOLE PIPE SEWERS 8"-24" DIA.  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 10



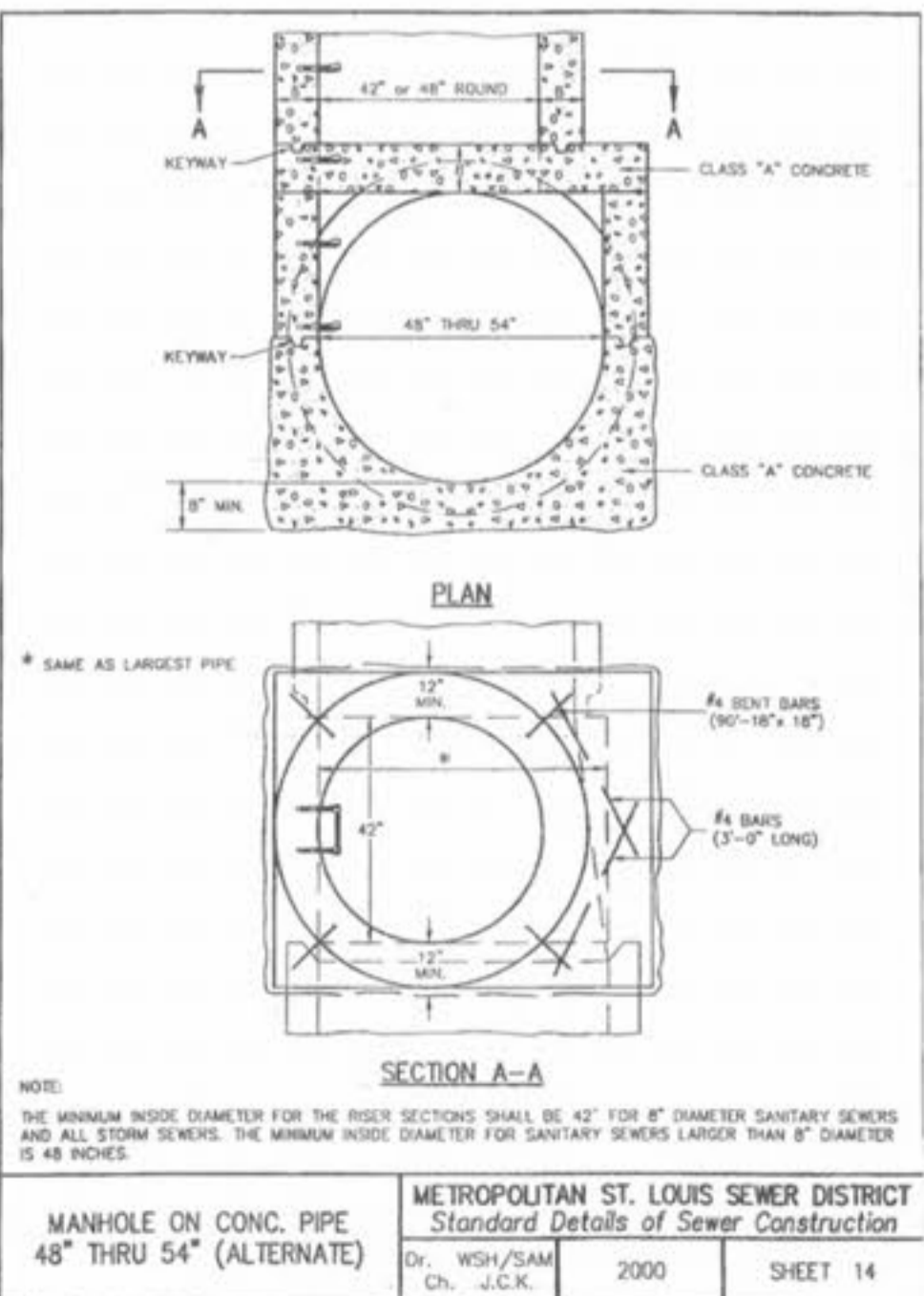
TYPICAL LINE MANHOLE ON PIPE SEWER 27" THRU 42" IN DIAMETER  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 11



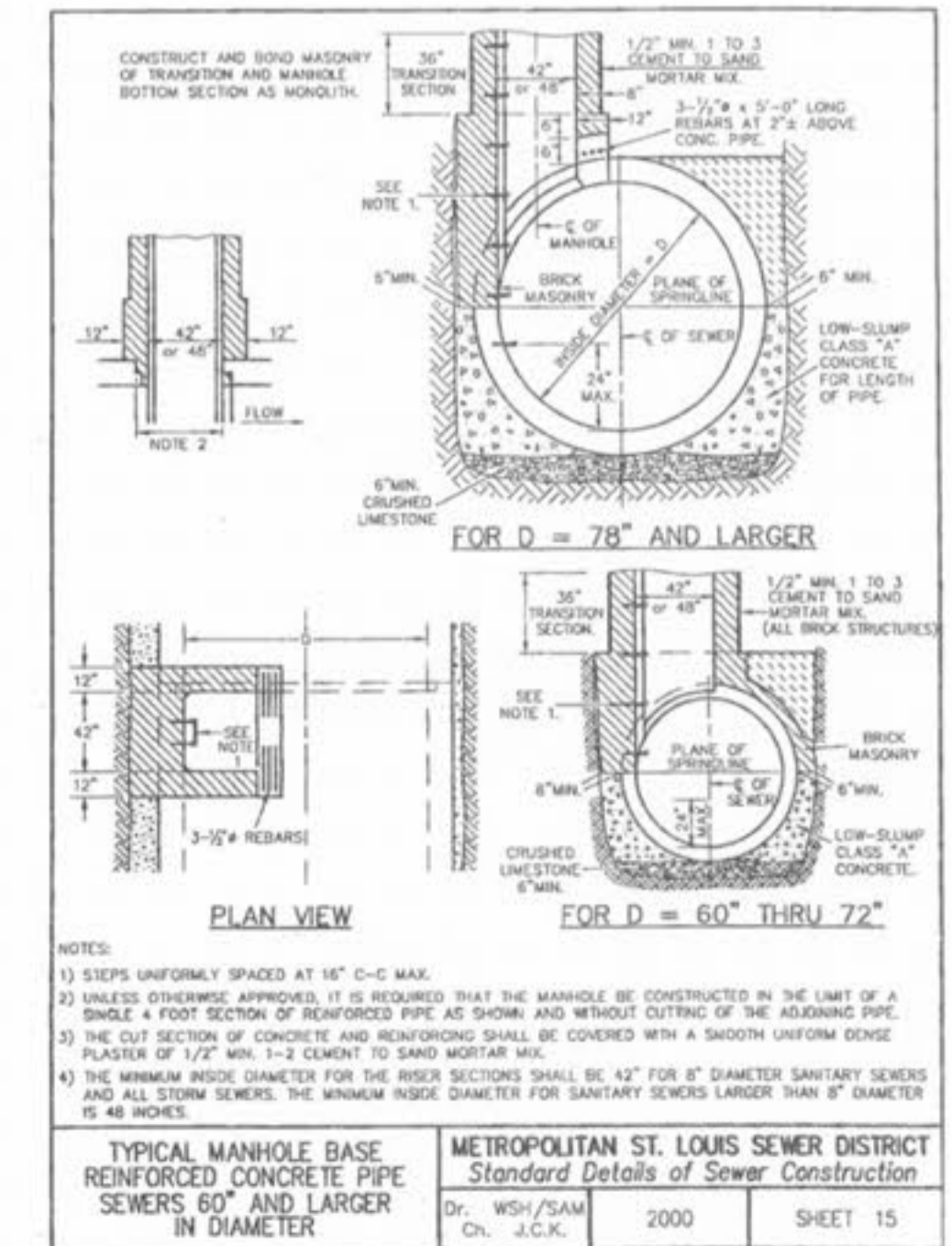
MANHOLE ON PIPE SEWER 27" THRU 42" (ALTERNATE)  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. D.A.B./S.A.M. Ch. J.C.K. 2000 SHEET 12



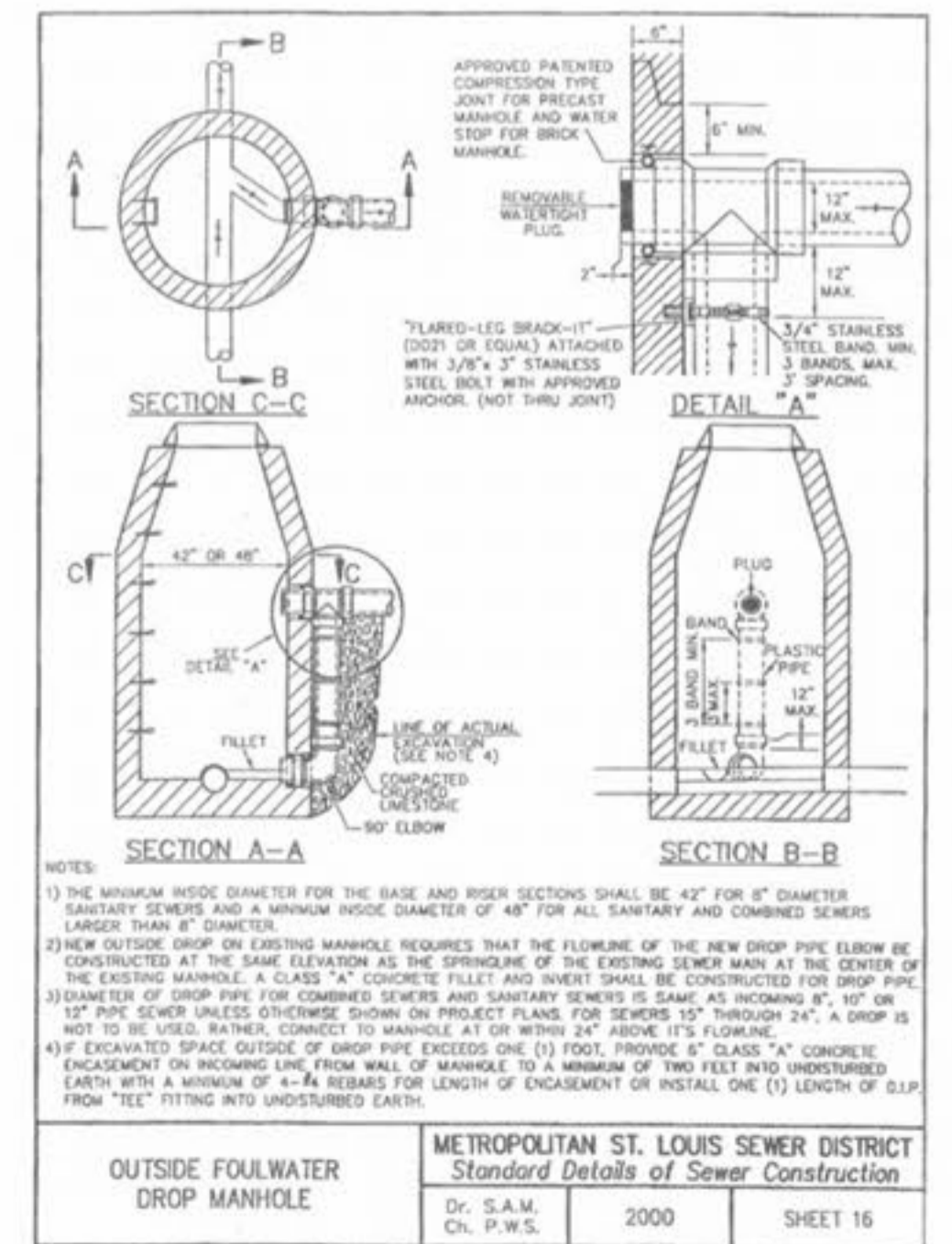
MANHOLE ON CONCRETE PIPE SEWERS 48" THRU 54" DIAMETER  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 13



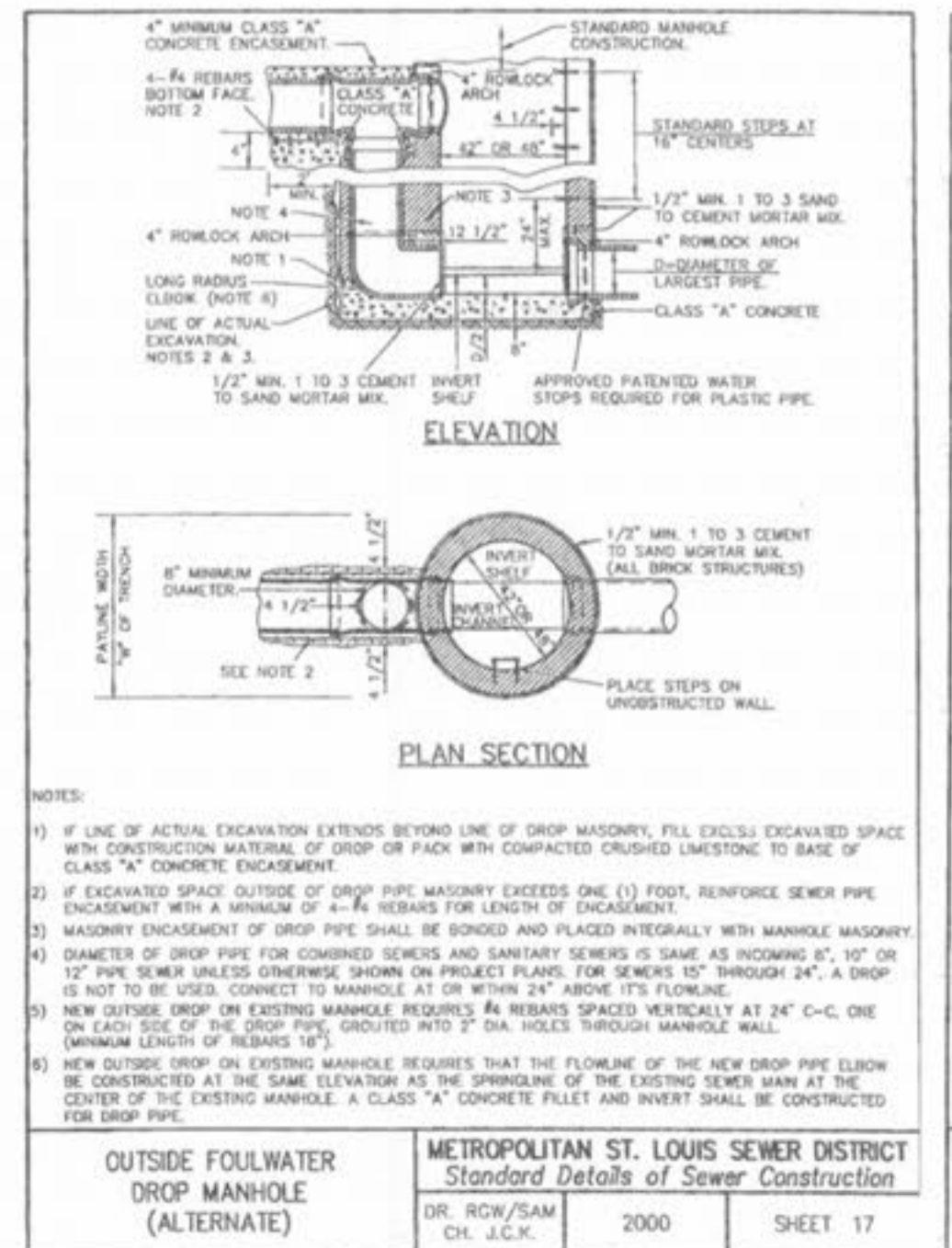
MANHOLE ON CONC. PIPE 48" THRU 54" (ALTERNATE)  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 14



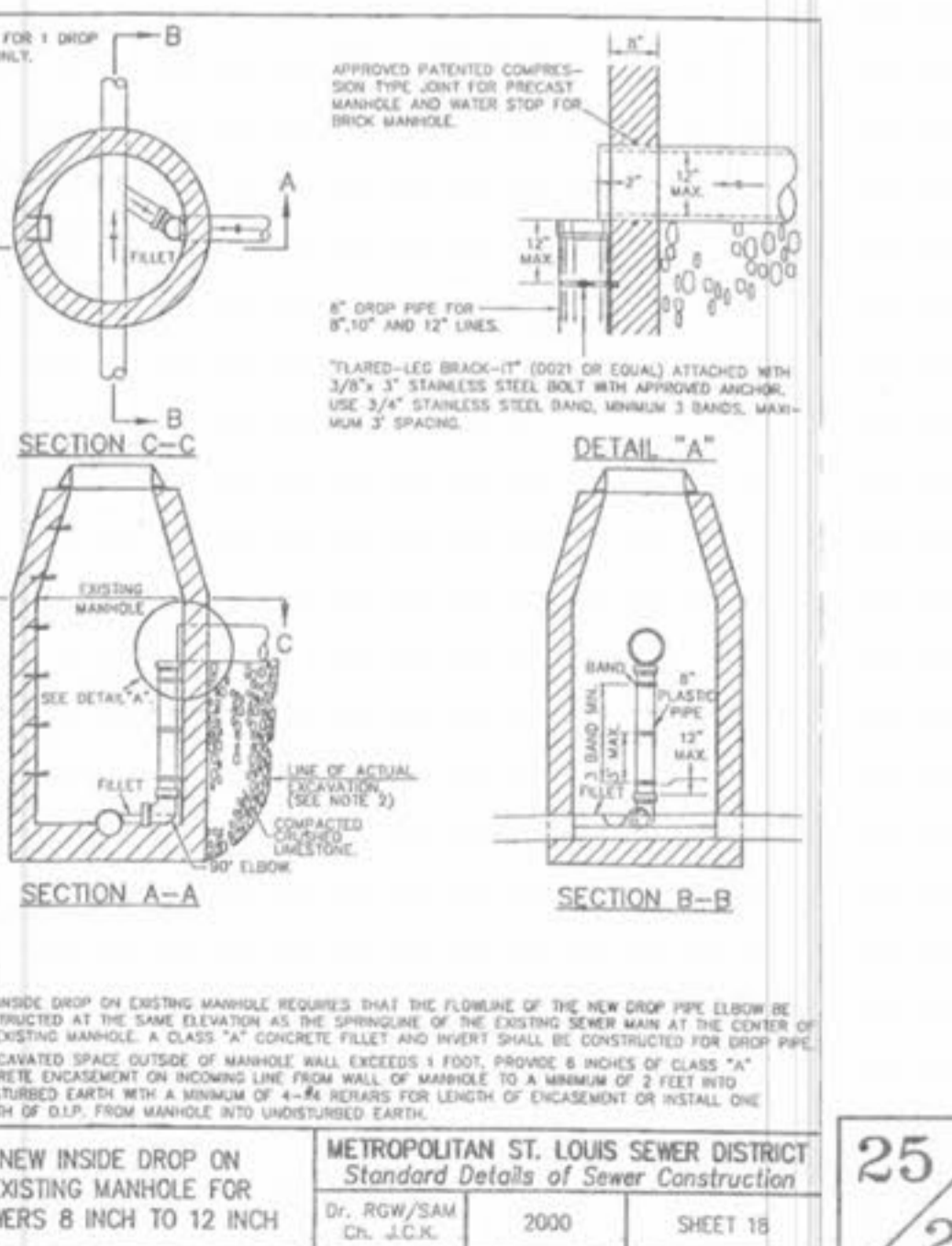
TYPICAL MANHOLE BASE REINFORCED CONCRETE PIPE SEWERS 60" AND LARGER IN DIAMETER  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. W.S.H./S.A.M. Ch. J.C.K. 2000 SHEET 15



OUTSIDE FOULWATER DROP MANHOLE  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. S.A.M. Ch. P.W.S. 2000 SHEET 16



OUTSIDE FOULWATER DROP MANHOLE (ALTERNATE)  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. R.O.W./S.A.M. Ch. J.C.K. 2000 SHEET 17



NEW INSIDE DROP ON EXISTING MANHOLE FOR SEWERS 8 INCH TO 12 INCH  
 METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction  
 Dr. R.O.W./S.A.M. Ch. J.C.K. 2000 SHEET 18