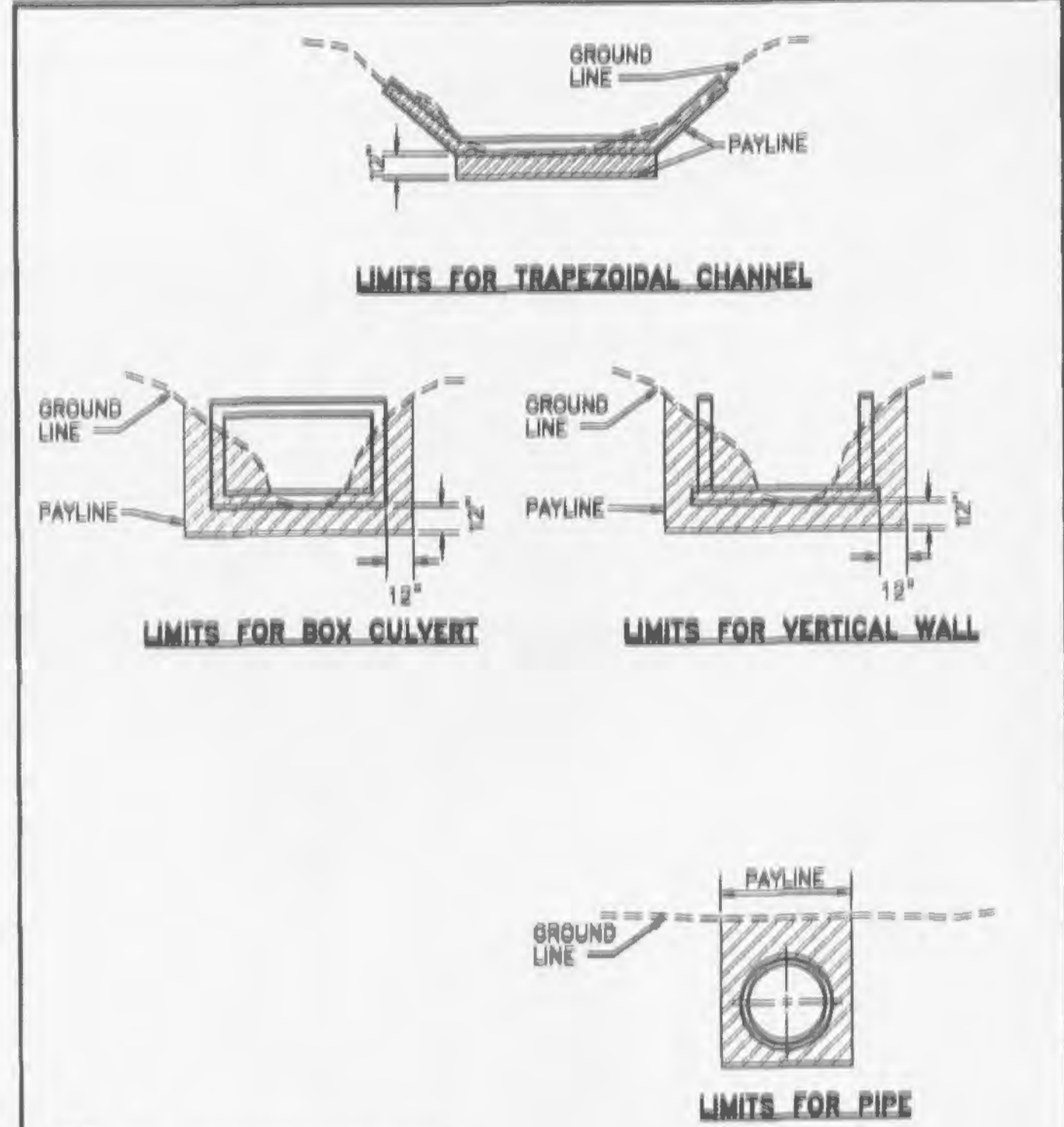


| ROUND PIPE                       |                                      |                                    |   | HORIZONTAL ELLIPTICAL PIPE       |                                      |                                    |   |
|----------------------------------|--------------------------------------|------------------------------------|---|----------------------------------|--------------------------------------|------------------------------------|---|
| INSIDE DIAMETER OF PIPE (INCHES) | "W" PAYLINE WIDTH OF TRENCH (INCHES) | "W" PAYLINE WIDTH OF TRENCH (FEET) | PAY-VOLUMES CU. FT. PER FT. CONCRETE ENGAGEMENT | INSIDE DIAMETER OF PIPE (INCHES) | "W" PAYLINE WIDTH OF TRENCH (INCHES) | "W" PAYLINE WIDTH OF TRENCH (FEET) | PAY-VOLUMES CU. FT. PER FT. CONCRETE ENGAGEMENT |
| 4                                | 30                                   | 2.50                               | 3.28  |                                  |                                      |                                    |   |
| 6                                | 30                                   | 2.50                               | 3.59  |                                  |                                      |                                    |   |
| 8                                | 30                                   | 2.50                               | 3.87  |                                  |                                      |                                    |   |
| 10                               | 30                                   | 2.50                               | 4.09  |                                  |                                      |                                    |   |
| 12                               | 30                                   | 2.50                               | 4.26  |                                  |                                      |                                    |   |
| 15                               | 36                                   | 3.00                               | 5.55  |                                  |                                      |                                    |   |
| 18                               | 36                                   | 3.00                               | 5.77  | 14 x 23                          | 41                                   | 3.42                               | 5.94  |
| 21                               | 39                                   | 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                               | 49                                   | 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                               | DISCONTINUED                         |                                    |   | 32 x 49                          | 71                                   | 5.92                               | 13.14   |
| 42                               | 63                                   | 5.25                               | 13.38   | 34 x 53                          | 75                                   | 6.25                               | 14.06   |
| 48                               | 70                                   | 5.83                               | 15.67   | 38 x 60                          | 83                                   | 6.92                               | 16.18   |
| 54                               | 77                                   | 6.42                               | 18.15   | 43 x 68                          | 92                                   | 7.67                               | 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                               | 24.35   |
| 72                               | 98                                   | 8.17                               | 26.37   | 58 x 91                          | 118                                  | 9.83                               | 27.45   |
| 78                               | 105                                  | 8.75                               | 29.39   | 63 x 98                          | 126                                  | 10.60                              | 30.50   |
| 84                               | 112                                  | 9.33                               | 32.57   | 68 x 106                         | 135                                  | 11.25                              | 33.91   |
| 90                               | 119                                  | 9.92                               | 35.90   | 72 x 113                         | 143                                  | 11.92                              | 36.99   |
| 96                               | 126                                  | 10.50                              | 39.37   | 77 x 121                         | 152                                  | 12.67                              | 40.69   |
| 102                              | 133                                  | 11.08                              | 42.99   | 82 x 128                         | 160                                  | 13.33                              | 44.45   |
| 108                              | 140                                  | 11.67                              | 46.75   | 87 x 136                         | 168                                  | 14.00                              | 47.79   |
| 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                              | 55.01   |
| 126                              | 161                                  | 13.42                              | 58.92   |                                  |                                      |                                    |   |
| 132                              | 168                                  | 14.00                              | 63.27   | 106 x 166                        | 202                                  | 16.83                              | 64.48   |
| 144                              | 182                                  | 15.17                              | 72.40   | 116 x 180                        | 218                                  | 18.17                              | 73.59   |

**DUCKETT CREEK SANITARY DISTRICT**

PAYLINE WIDTHS OF TRENCH AND PAY-QUANTITIES OF CONCRETE

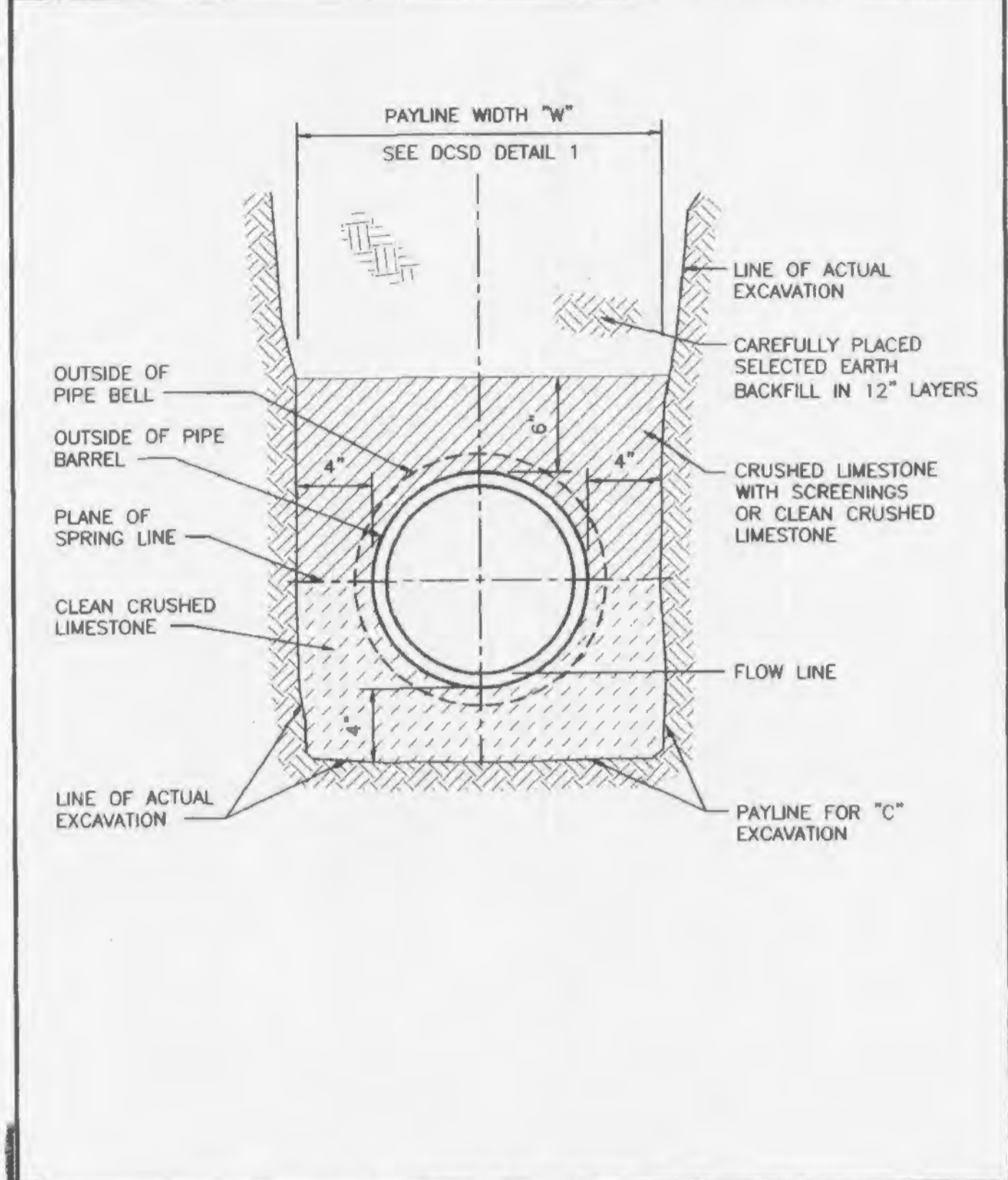
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|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 1 |
| Chk. By: MDOB | Date: 12-21-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

PAYLINE LIMITS FOR EXCAVATION

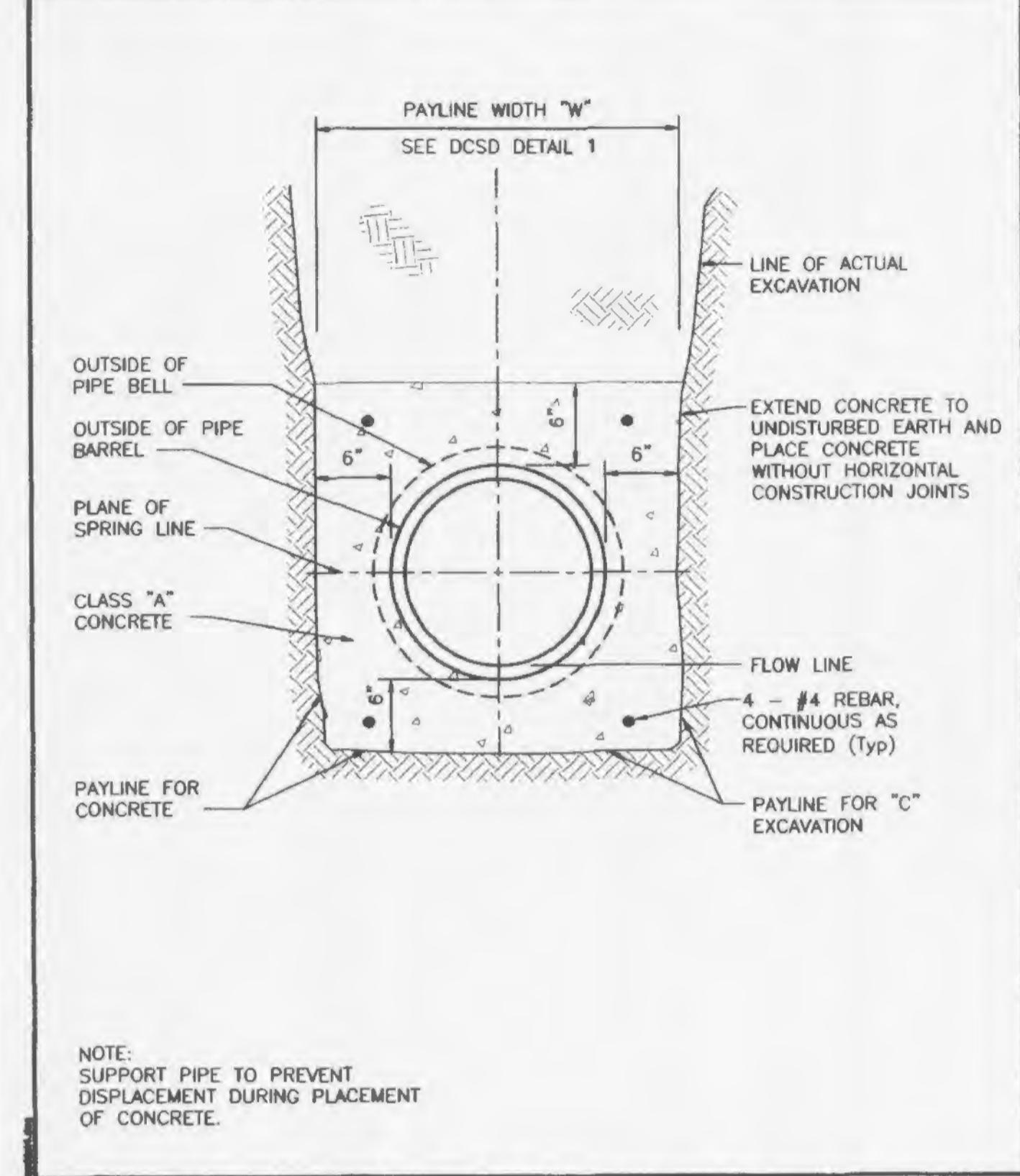
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|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 2 |
| Chk. By: MDOB | Date: 12-21-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

PIPE BEDDING CLASS "C" (FOR ALL PIPE EXCEPT REINFORCED CONCRETE PIPE)

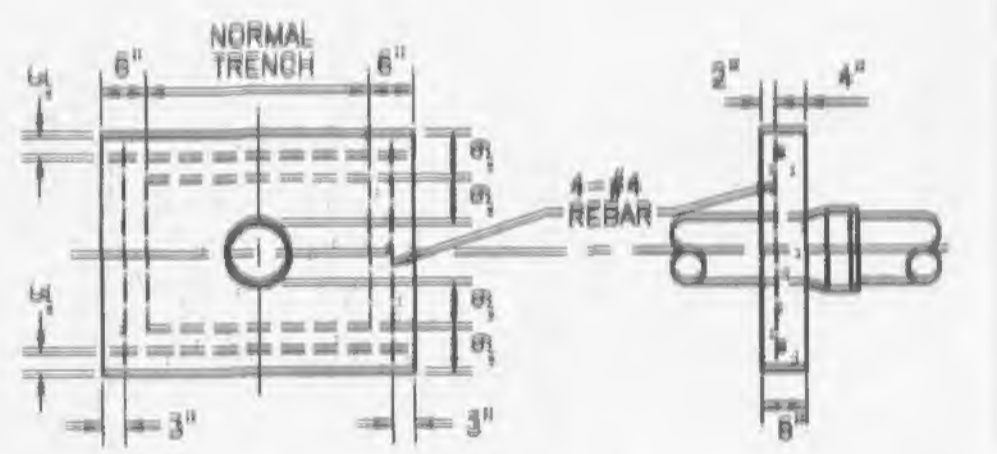
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|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 3 |
| Chk. By: MDOB | Date: 12-21-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

TYPICAL CONCRETE ENCASUREMENT

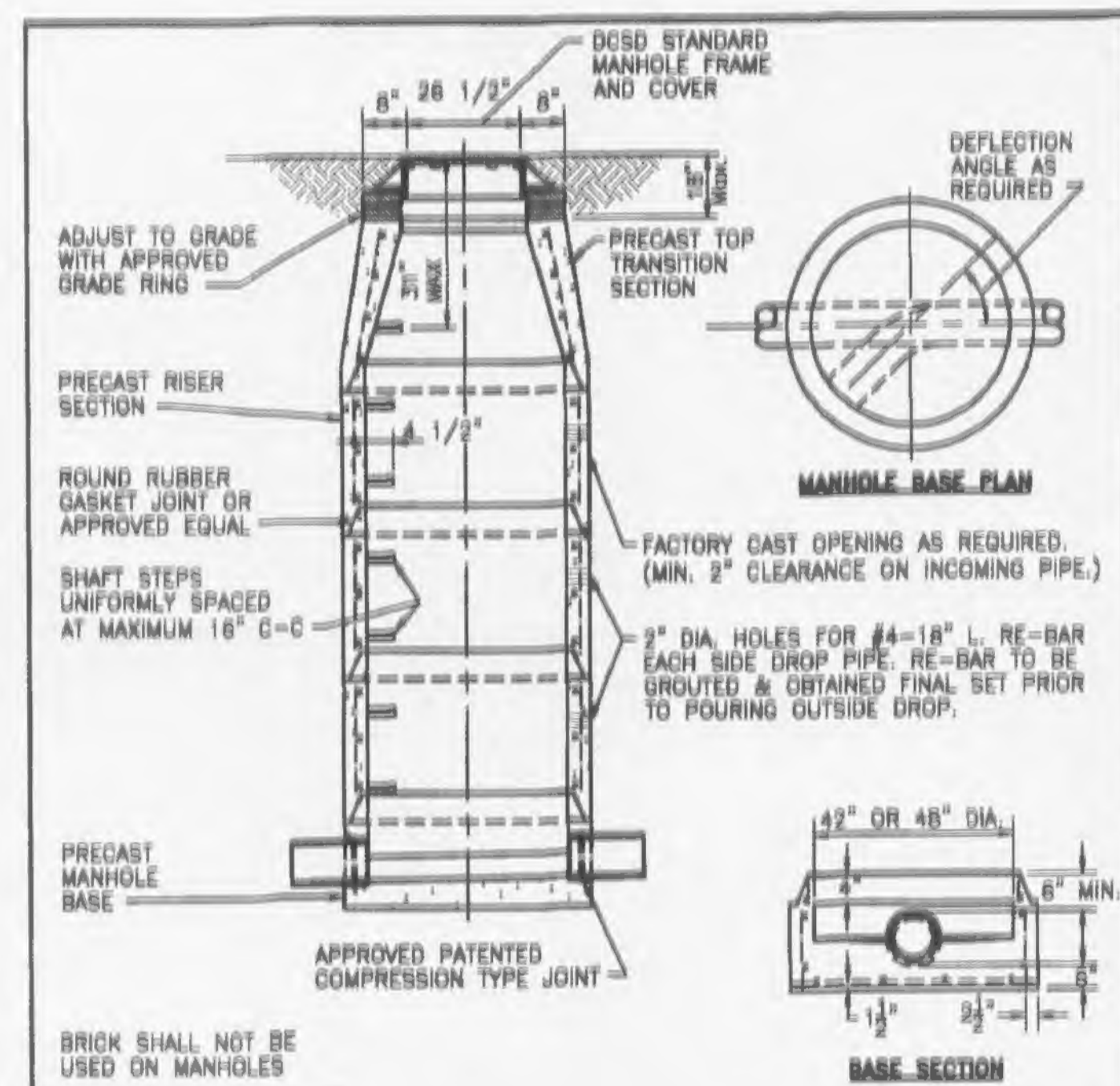
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|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 4 |
| Chk. By: MDOB | Date: 12-21-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

CONCRETE ANTI-SLIP COLLAR FOR PVC PIPE ON PIPE SLOPES FROM 15% TO 50%

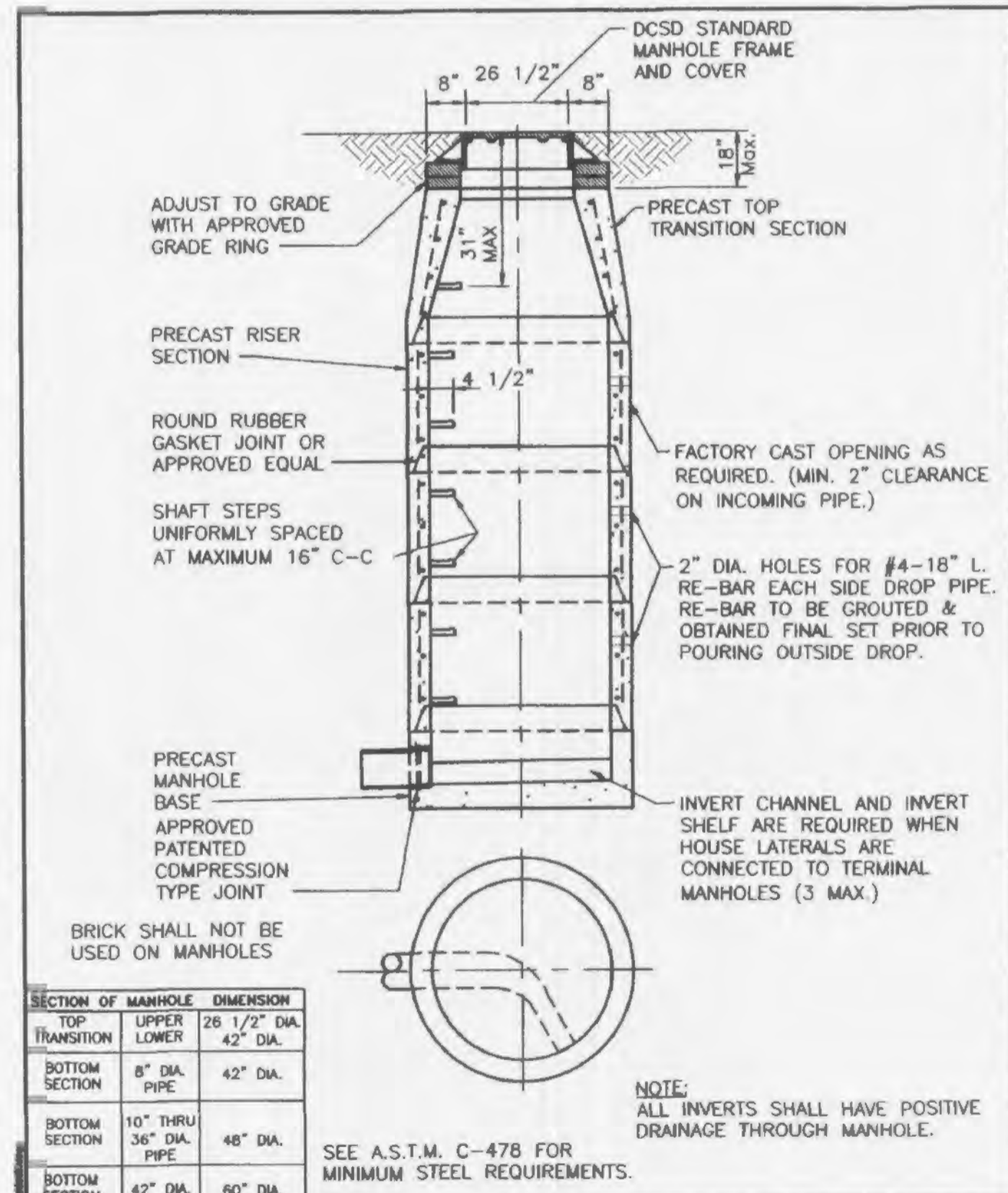
|               |                |              |
|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 5 |
| Chk. By: MDOB | Date: 12-21-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

PRE-CAST CONCRETE MANHOLE FOR SEWERS 8" THROUGH 18"

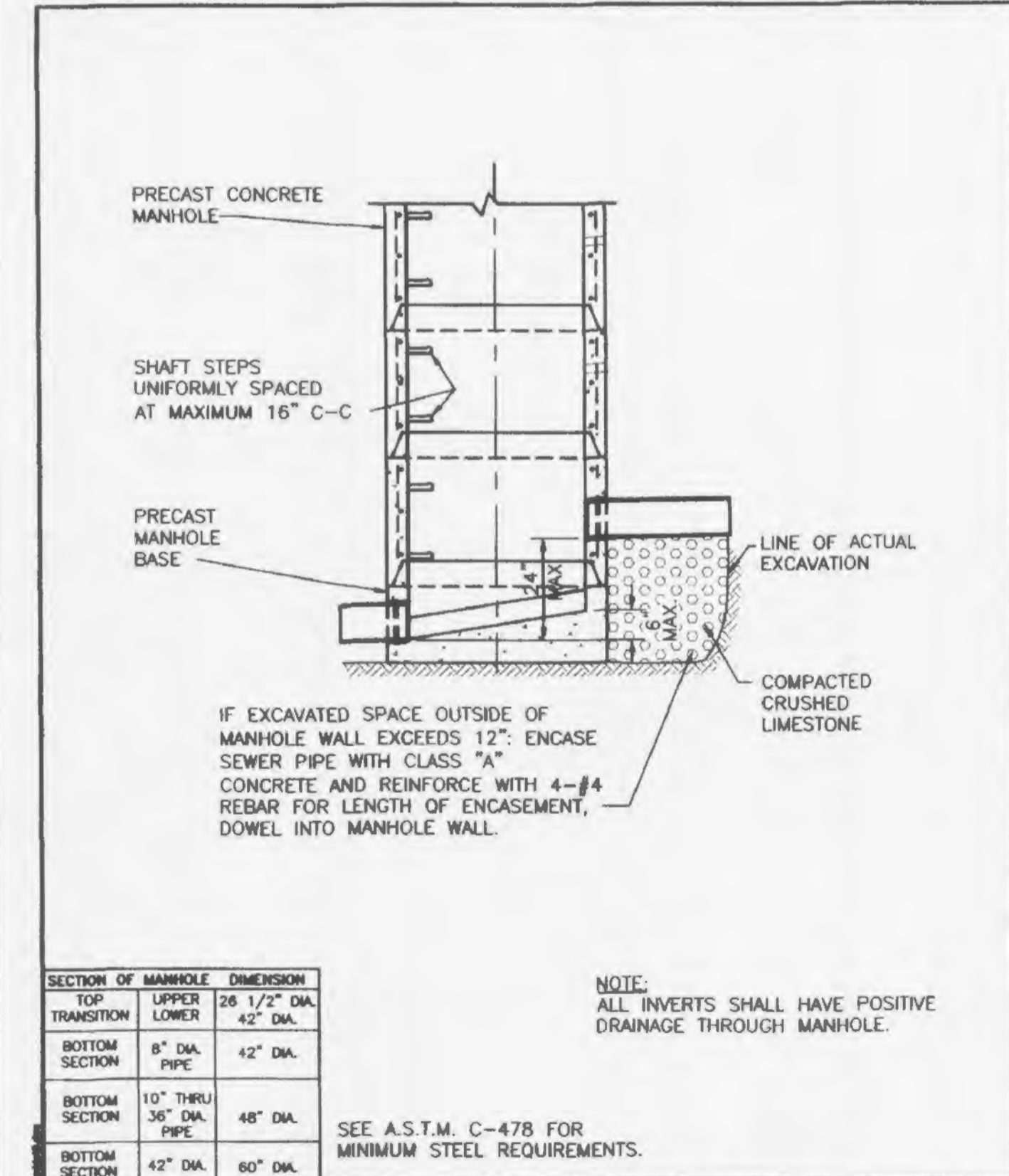
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|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 7 |
| Chk. By: MDOB | Date: 12-30-99 |              |



**DUCKETT CREEK SANITARY DISTRICT**

TERMINAL MANHOLE FOR SEWERS 8" THROUGH 18"

|               |                |              |
|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 8 |
| Chk. By: MDOB | Date: 01-03-00 |              |



**DUCKETT CREEK SANITARY DISTRICT**

INSIDE FOULWATER DROP MANHOLE (SWEEP INVERT)

|               |                |              |
|---------------|----------------|--------------|
| Des. By: BSM  | App. By: KLA   | Detail No. 9 |
| Chk. By: MDOB | Date: 01-04-00 |              |

**PRESTON WOODS PHASE 7 IMPROVEMENT PLANS**  
 SANITARY SEWER DETAILS

**COLE**  
 CIVIL ENGINEERING / SURVEYING / PLANNING / LANDSCAPE ARCHITECTURE  
 1300 S. Fifth Street, Suite 307, St. Charles, MO 63303  
 636.975.7508 fax

DESIGN/CALC BY: MTS  
 DRAWN BY: MTS  
 CHECKED BY: JFH  
 DRAWING SCALE: -  
 DATE: 01/07/2013  
 Job Number: 13-0109  
 Sheet Number: C9.6

DEVELOPER/OWNER: RULTE GROUP  
 17107 CHESTERFIELD AIRPORT RD. SITE 120  
 CHESTERFIELD, MO 63005  
 PHONE: (636) 537-7129

CITY COMMENTS:  
 1. CITY, DCSO, & WATER & FIRE COMMENTS  
 2. CITY, DCSO, & WATER & FIRE COMMENTS  
 3. CITY, DCSO, & WATER & FIRE COMMENTS

DATE: 5/21/14  
 5/27/14  
 3/29/14

THE PROFESSIONAL SEAL AND PERSONAL SEAL APPEAR HEREON IN CONNECTION WITH THIS PROJECT. THE PROFESSIONAL SEAL IS REQUIRED FOR ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS PREPARED BY OR UNDER THE SUPERVISION OF THE ENGINEER TO WHICH THIS SEAL APPLIES. ANY OTHER DOCUMENTS PREPARED BY OR UNDER THE SUPERVISION OF THE ENGINEER TO WHICH THIS SEAL APPLIES SHALL BE VOID.

CIVIL ENGINEERS:  
 JOHN F. HARSHBARGER  
 ENGINEERING CERTIFICATE #00116  
 PE NO. E-29716

DATE: 5/22/14