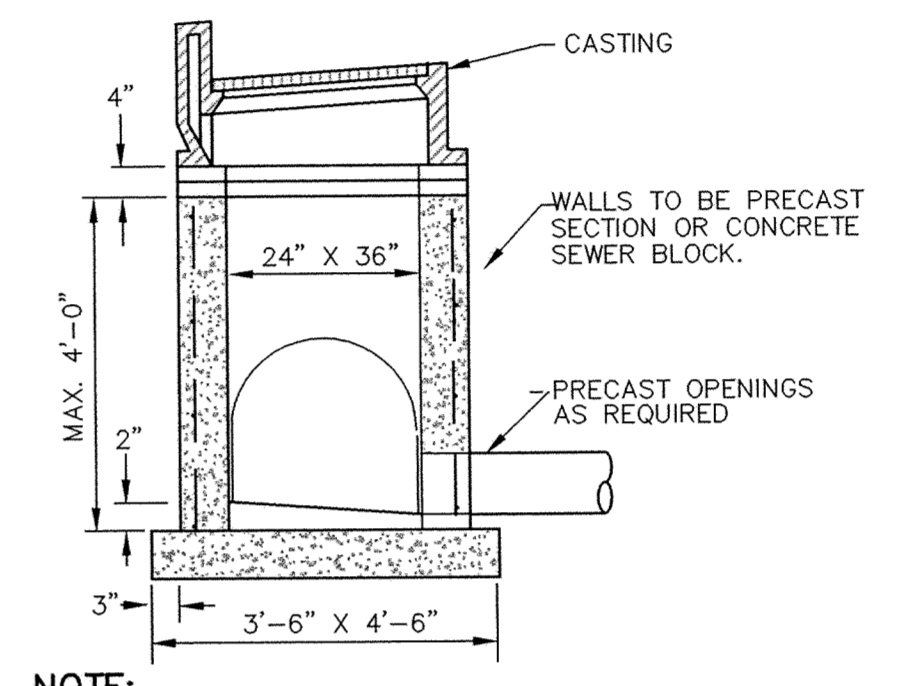


| STRUCTURE | A   | B      | C      | D      | E   | F   | G      | H      |
|-----------|-----|--------|--------|--------|-----|-----|--------|--------|
| MH 104    | 15" | 934.00 | 933.00 | 936.60 | 48" | 12" | 932.00 | 935.00 |
|           |     | 934.03 | 936.93 | 936.03 |     |     | 932.04 |        |

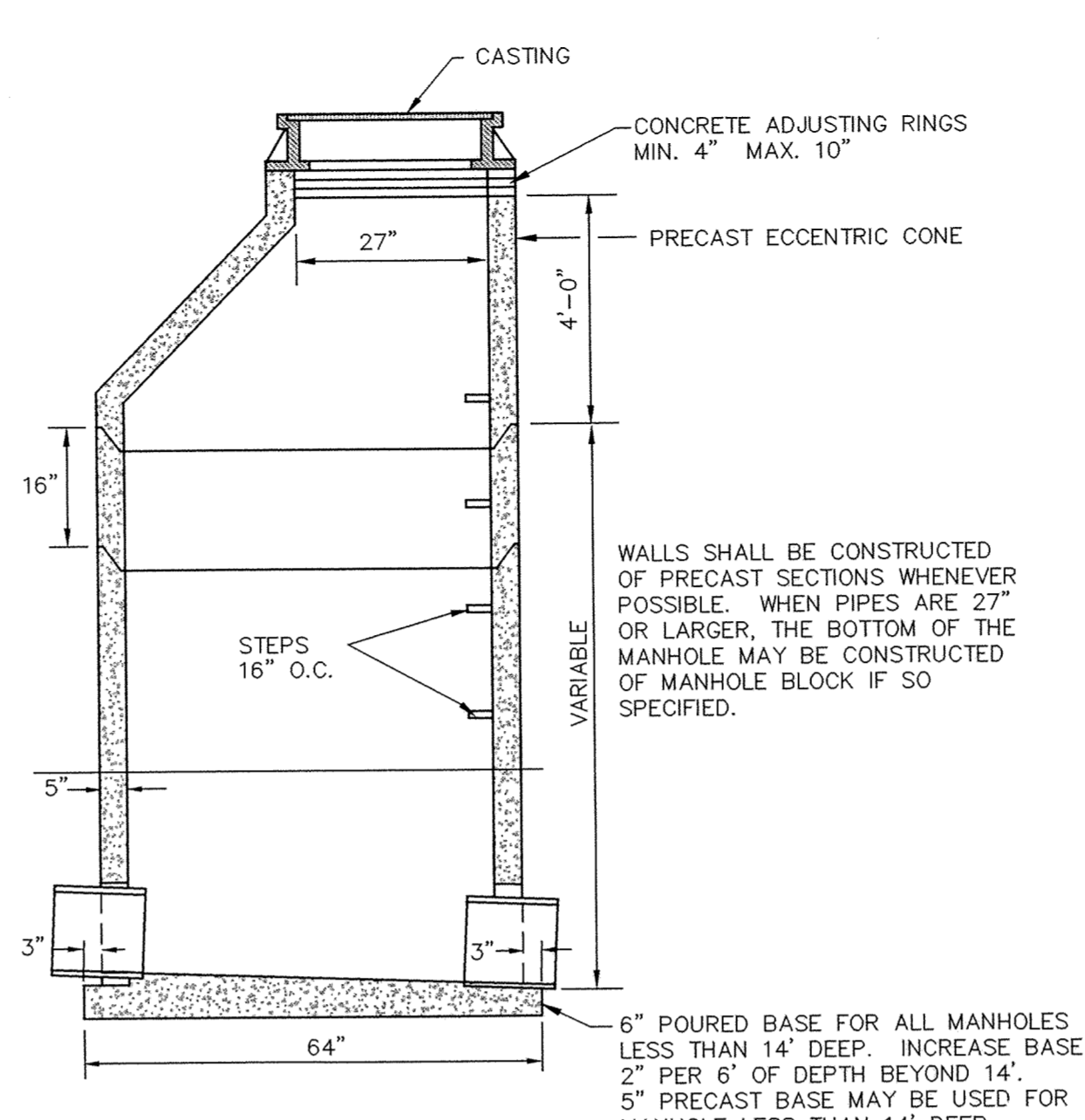
TYPICAL DIVERSION STRUCTURE

**RECORD DRAWING**



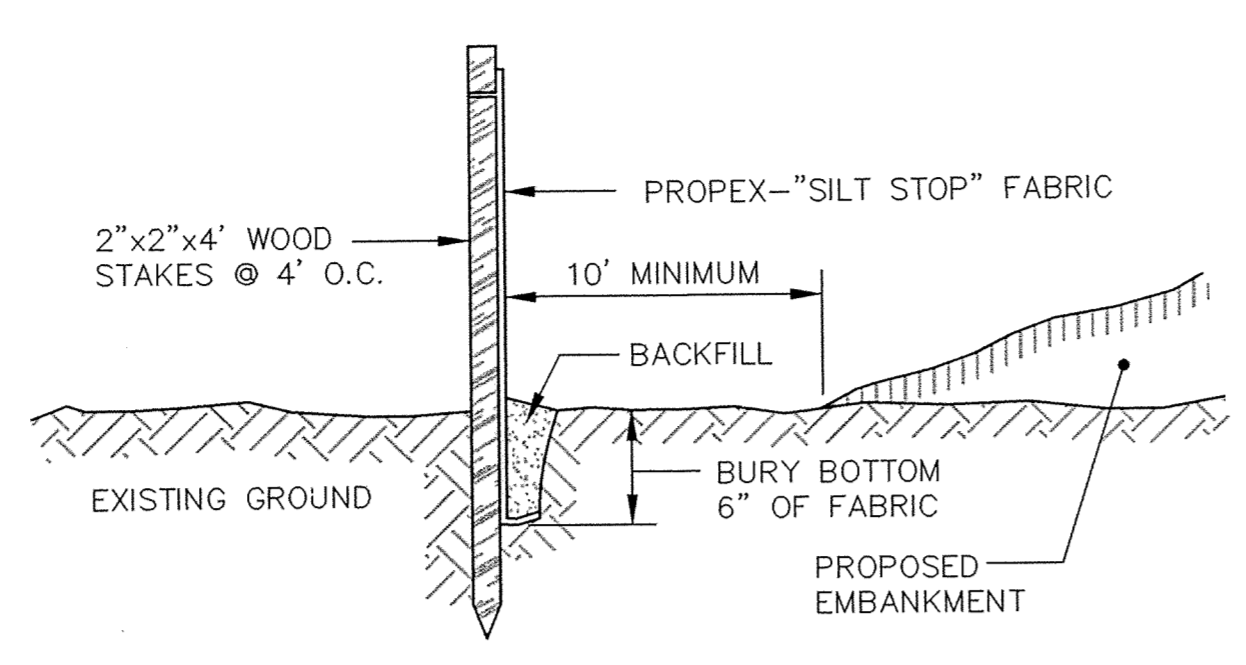
- NOTE:**
1. CONCRETE ADJUSTING RINGS, MIN. 4" MAX 10" NO MINIMUM WITH FINAL ADJUSTMENT.
  2. CONCRETE BASE SLAB 6" POURED IN PLACE OR 5" PRECAST SLAB.

SHALLOW MANHOLE OR CATCH BASIN - STORM SEWER (D-03)

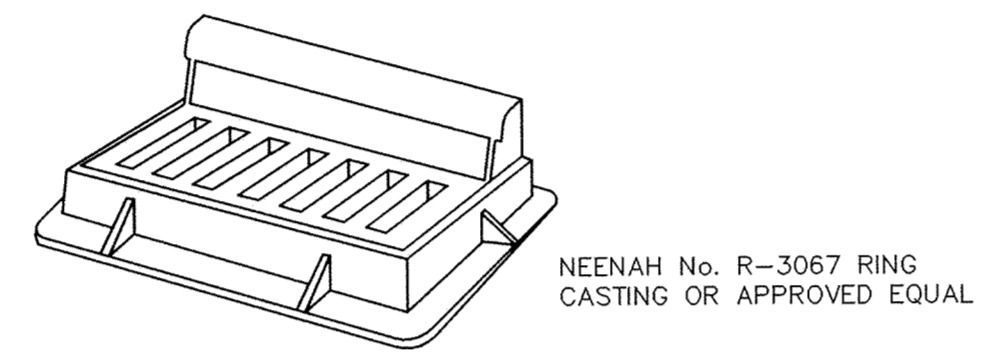


- NOTES:**
1. WHEN MANHOLE DEPTH IS LESS THAN 8' OR CASTING IS RECTANGULAR, A SLAB TOP SHALL BE USED IN PLACE OF THE CONE. THE SLAB SHALL BE SUITABLE FOR AASHTO HS 20 HIGHWAY LOADINGS. THE SLAB SHALL BE ON A MORTAR BED.
  2. MANHOLE INVERT SHALL BE SLOPED TO PROVIDE SMOOTH FLOW FROM INLET TO OUTLET.
  3. MANHOLE JOINTS MAY BE MADE WITH CEMENT MORTAR INSIDE AND OUT.

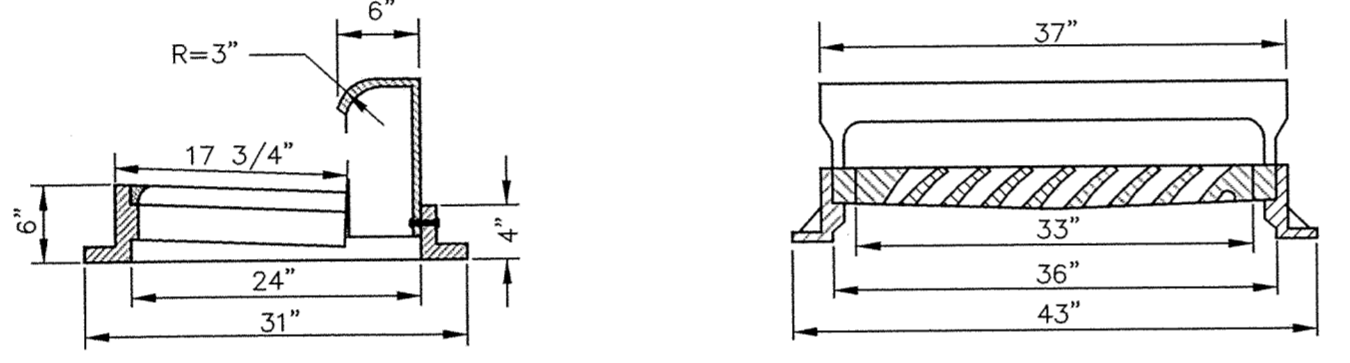
STANDARD STORM SEWER MANHOLE (D-01)



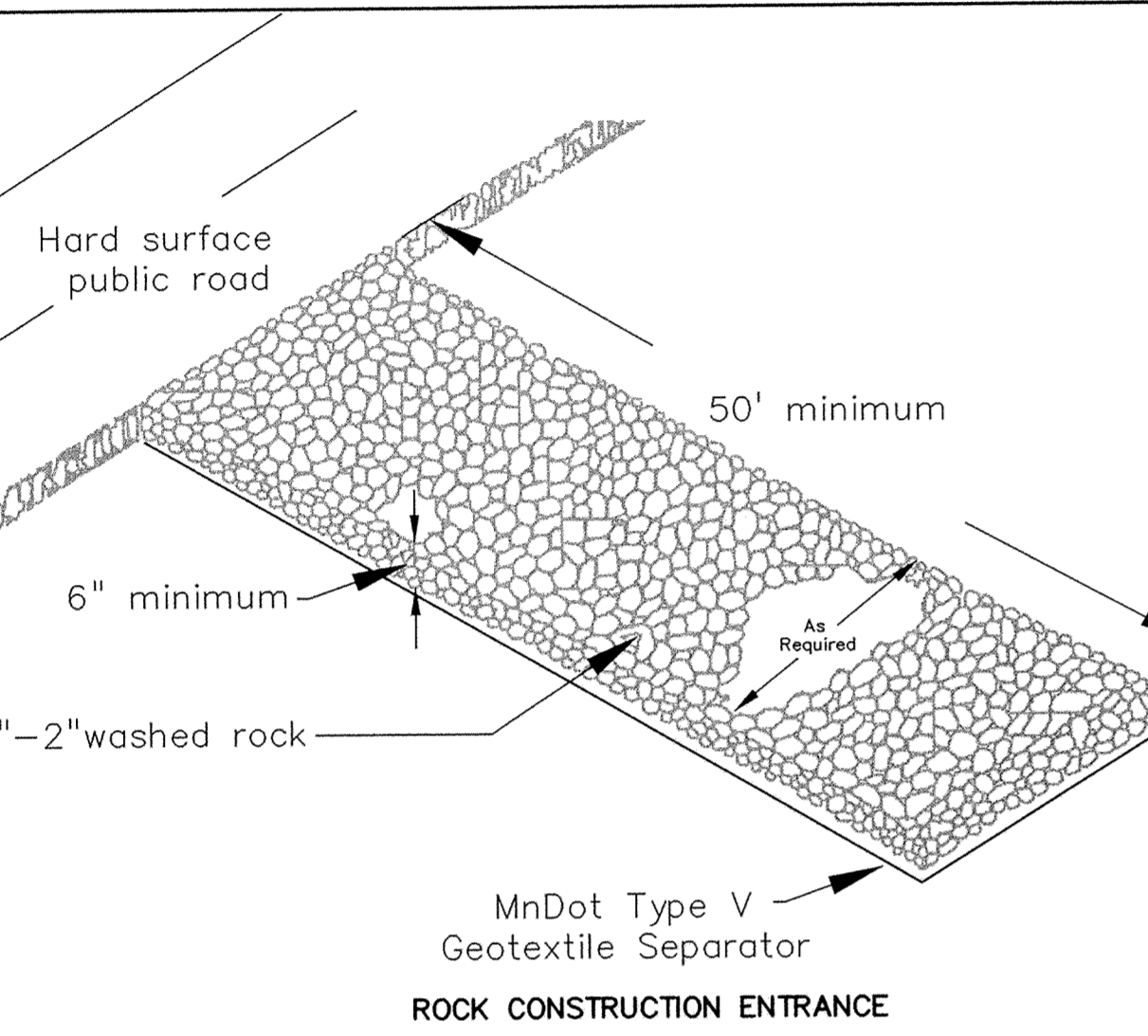
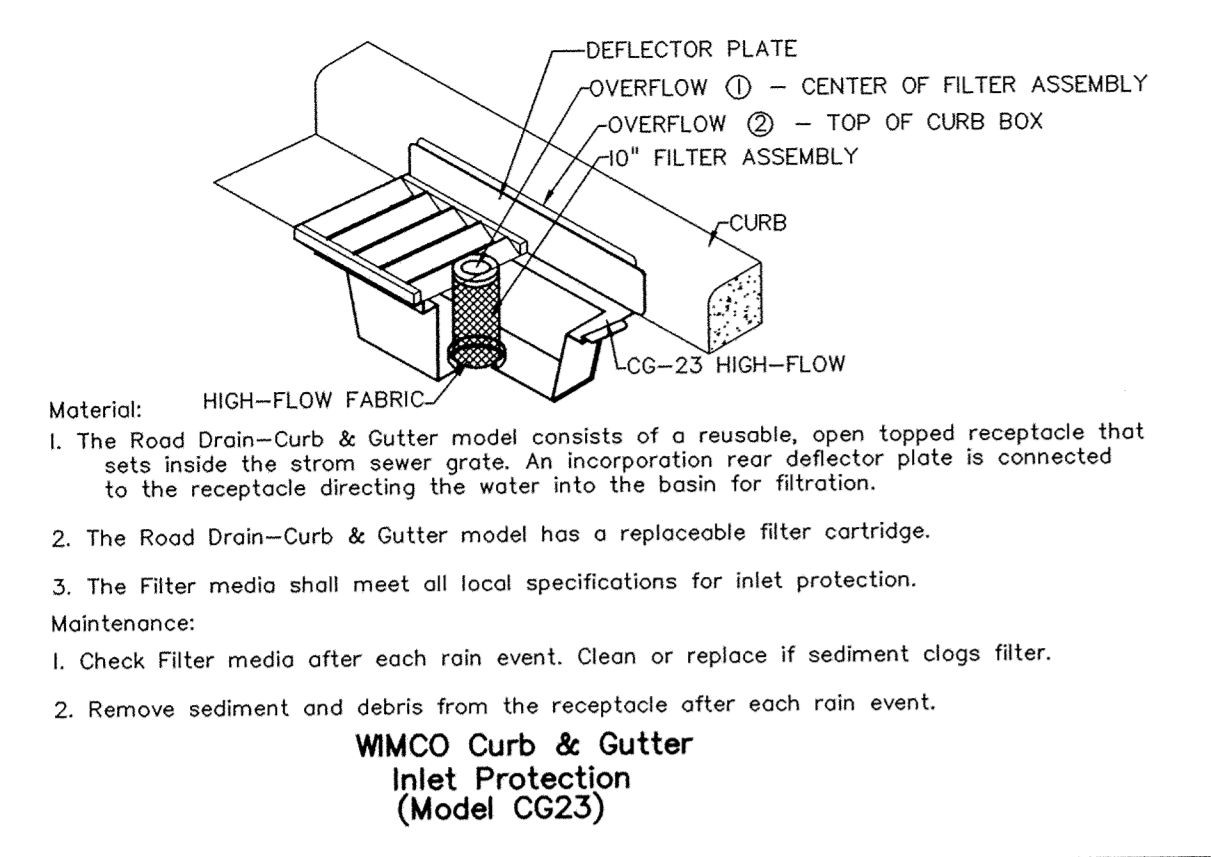
EROSION CONTROL SILT FENCE



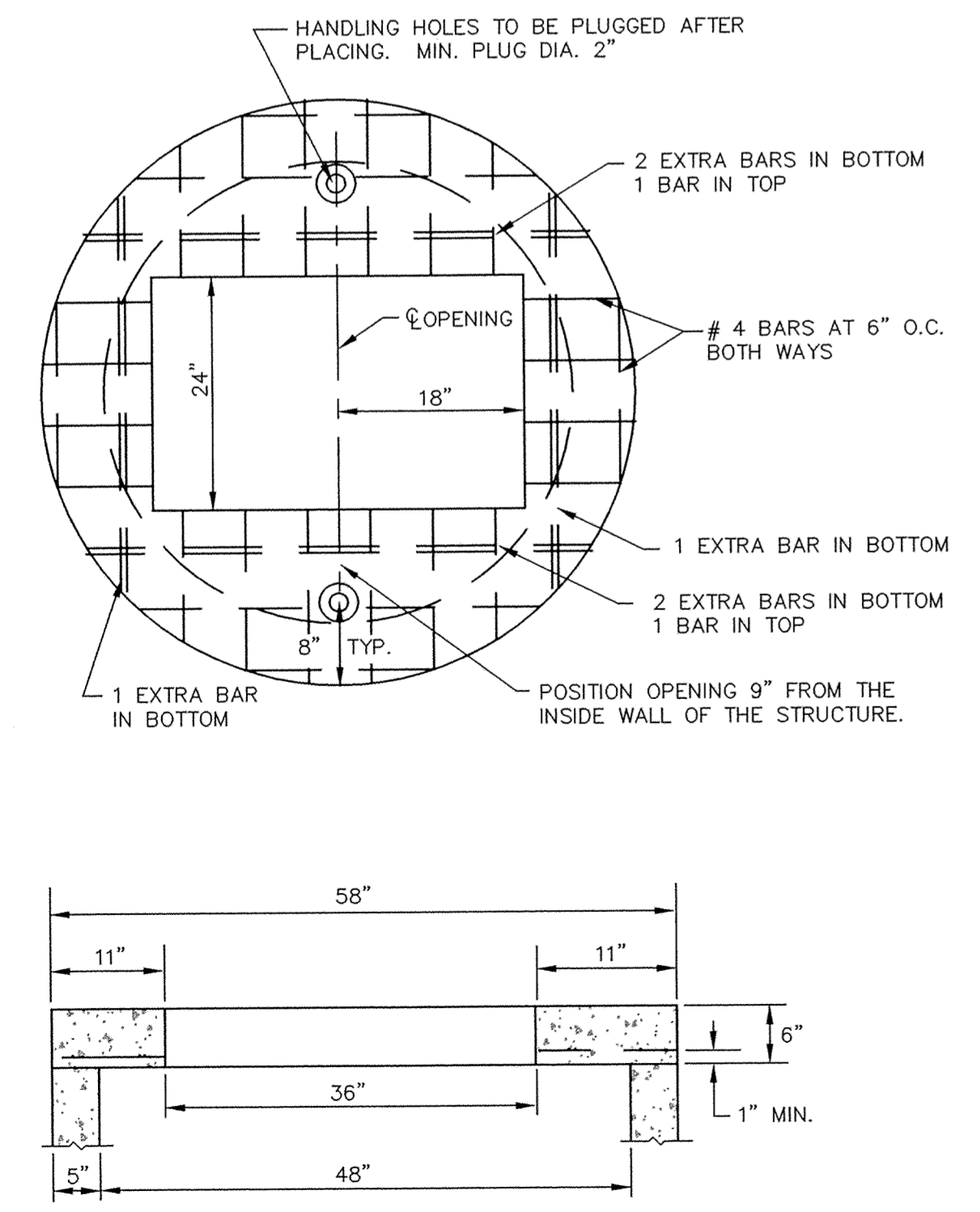
TYPE V GRATE



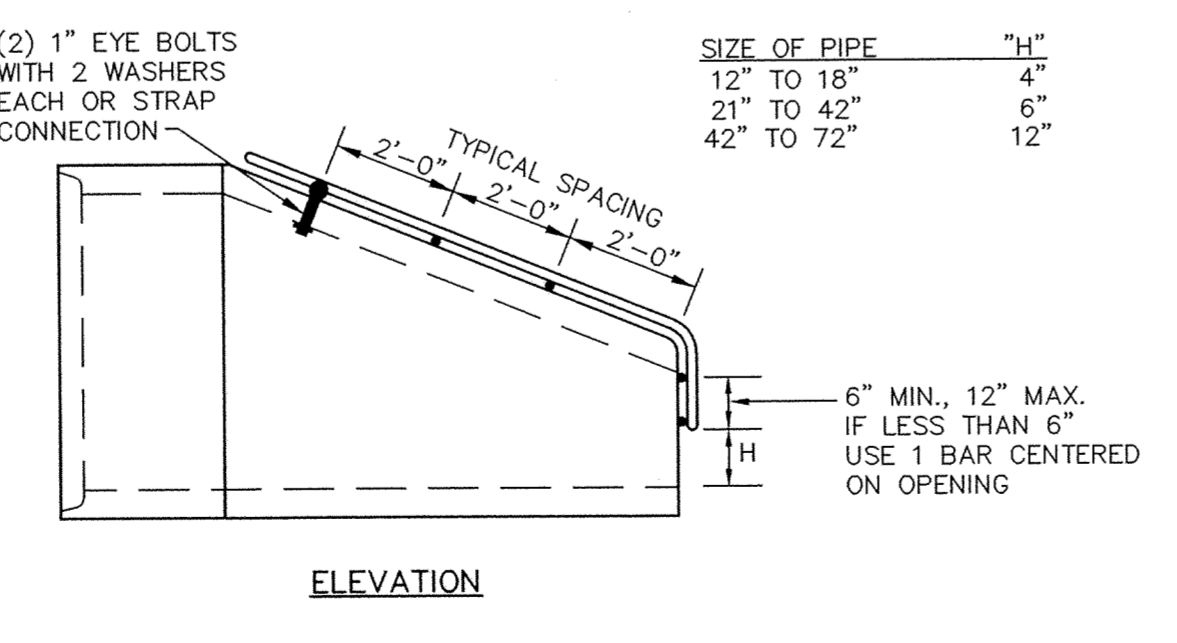
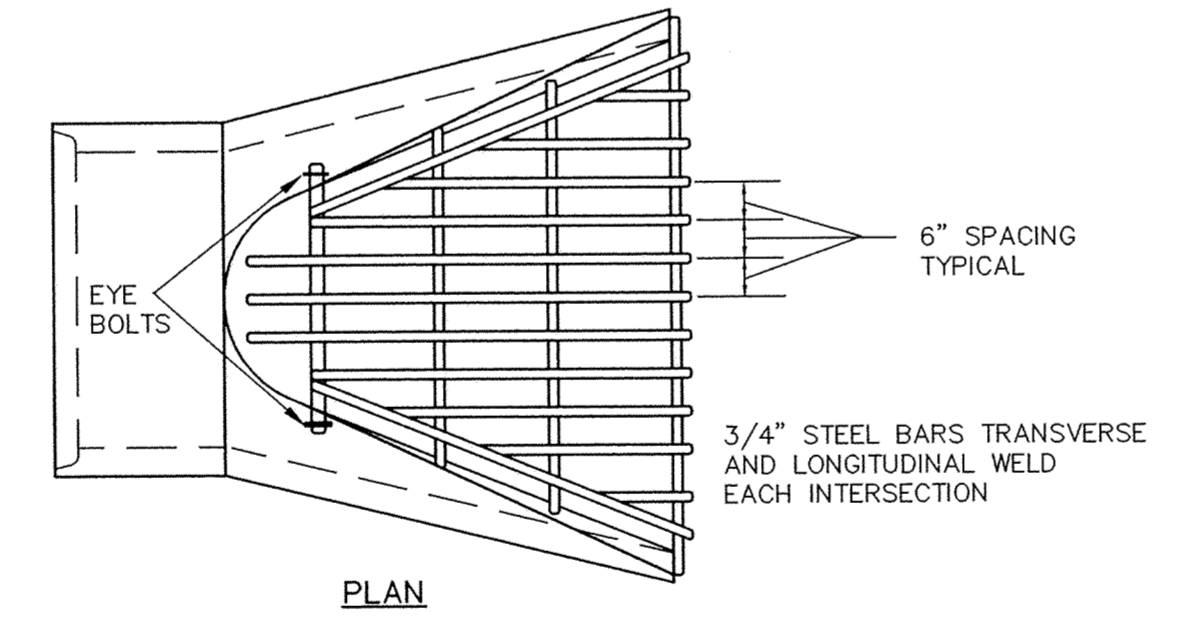
STANDARD INLET CASTINGS



ROCK CONSTRUCTION ENTRANCE



STANDARD RECTANGULAR MANHOLE SLAB TOP (D-05)

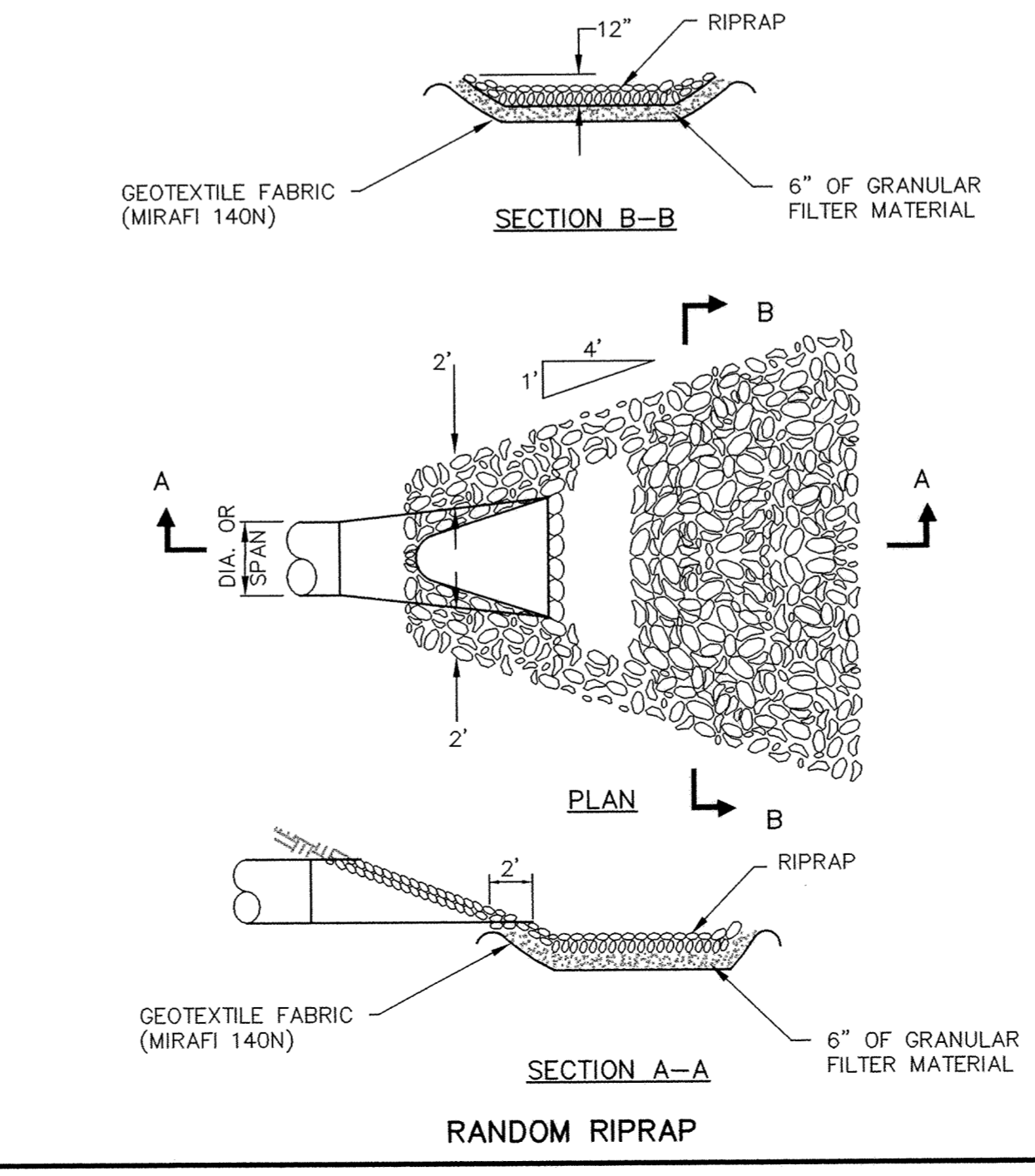


- NOTES:**
1. TRASH GUARD TO BE GALVANIZED AFTER FABRICATION.
  2. THE SIZE OF EACH TRASH GUARD WILL VARY TO FIT APRON.
  3. THE LAST 3 PIPE JOINTS SHALL BE TIED.

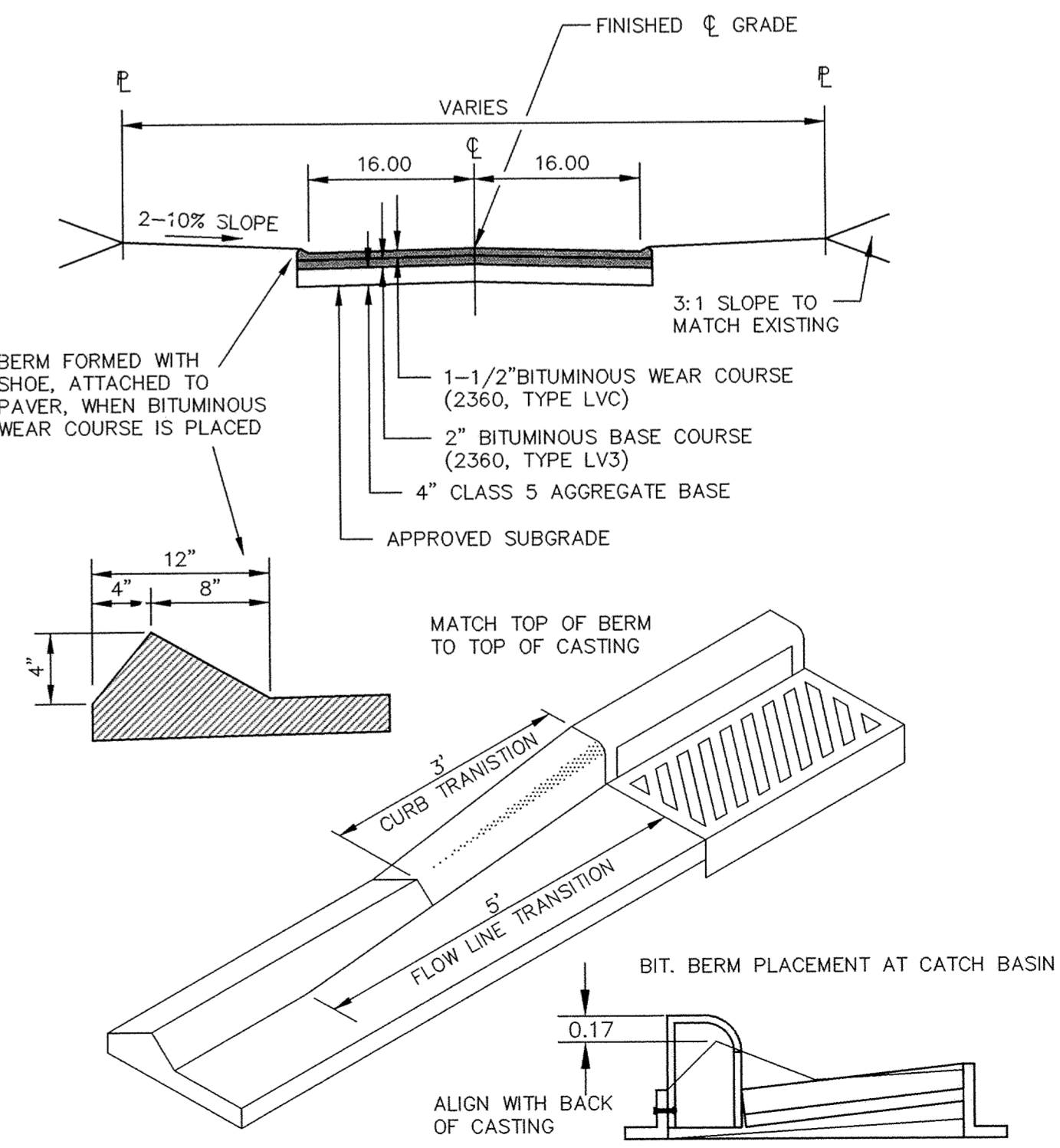
TRASH GUARD FOR CONCRETE PIPE

MINIMUM RIPRAP REQUIRED

| DIA. OF PIPE (IN.) | L (FT.) | QUANTITY (C.Y.) | CLASS |
|--------------------|---------|-----------------|-------|
| 12                 | 8       | 5               | III   |
| 15                 | 8       | 5               | III   |
| 18                 | 10      | 6               | III   |
| 24                 | 12      | 8               | III   |
| 30                 | 14      | 12              | III   |
| 44                 | 16      | 14              | III   |
| 42                 | 18      | 22              | IV    |
| 48                 | 20      | 26              | IV    |
| >48                | 22-28   | 30-40           | IV    |



RANDOM RIPRAP



STREET SECTION WITH INTEGRAL BITUMINOUS BERM (R-04)

**John Oliver & Associates, Inc.**  
 Civil Engineering, Land Surveying, and Planning  
 580 Dodge Avenue  
 Elk River, Minnesota 55330  
 763-441-2072 FAX 763-441-5665  
 Offices in: Elk River, Burnsville  
 and Brooklyn Center, Minnesota

**THE MEADOWS OF ELK RIVER**  
 ELK RIVER, MN  
 FOR  
**AULIK AND ASSOCIATES INC.**

DATE: 12/22/05  
 DESIGN BY: MCB  
 DRAWN BY: KGA  
 CHECKED BY: MCB  
 DWG FILE: 6635-22-DET  
 TEXT FILE: NONE  
 FILE NO: 6635-22-03  
 Lic. No. 42661

DATE: 01/16/06  
 CITY COMMENTS: MCB  
 DATE: 01/27/06  
 CITY COMMENTS: KGA  
 DATE: 02/16/06  
 CITY COMMENTS: MCB  
 DATE: 08/28/06  
 ASBUILT: MCB

DESCRIPTION: MH 104

DATE: 12/22/05  
 REV NO. 1  
 DATE: 01/16/06  
 REV NO. 2  
 DATE: 01/27/06  
 REV NO. 3  
 DATE: 02/16/06  
 REV NO. 4  
 DATE: 08/28/06  
 REV NO. 5

DATE: 12/22/2005  
 Lic. No. 42661

SHEET NO. 6 OF 6