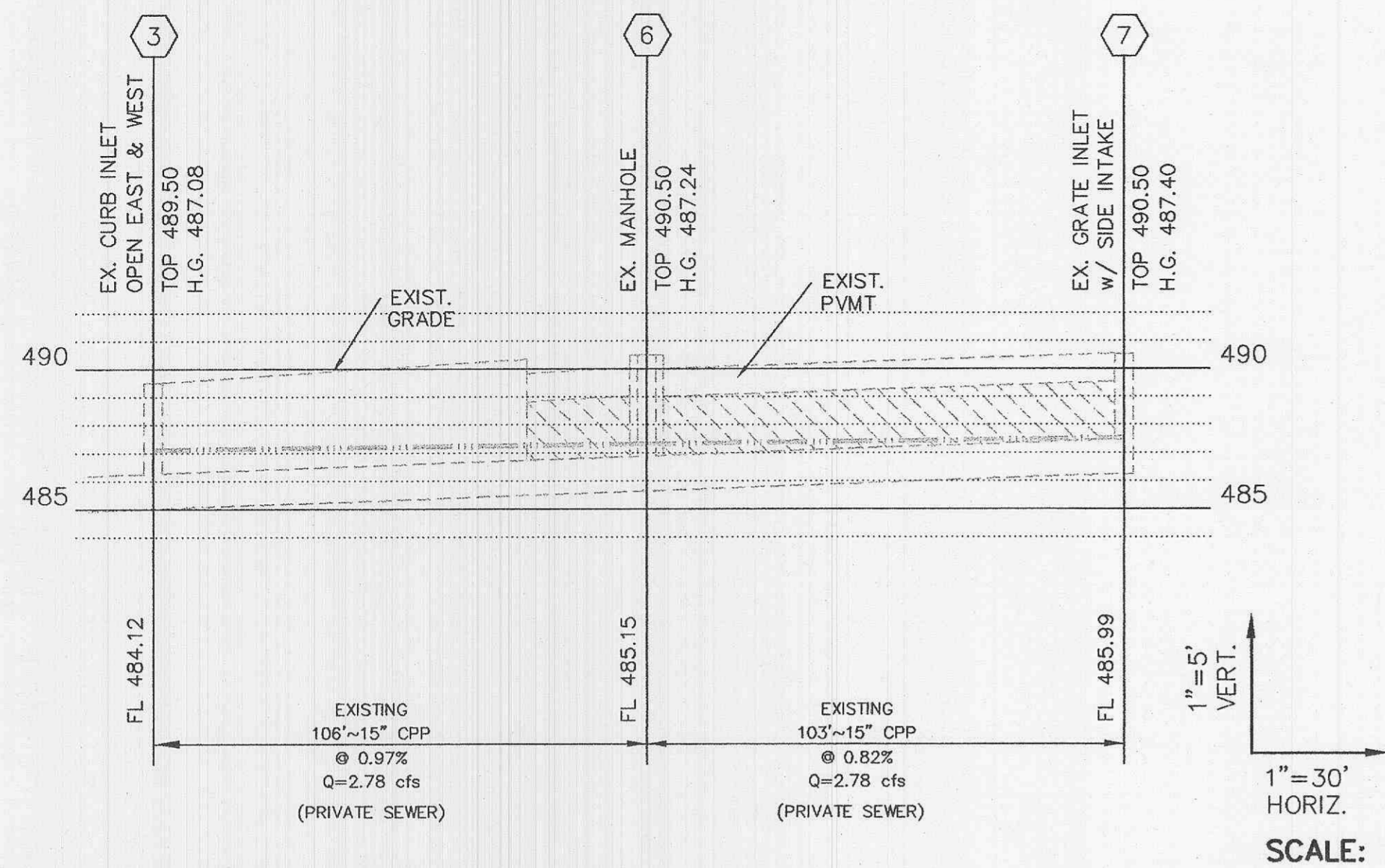


**J.R. GRIMES
CONSULTING ENGINEERS, INC.**

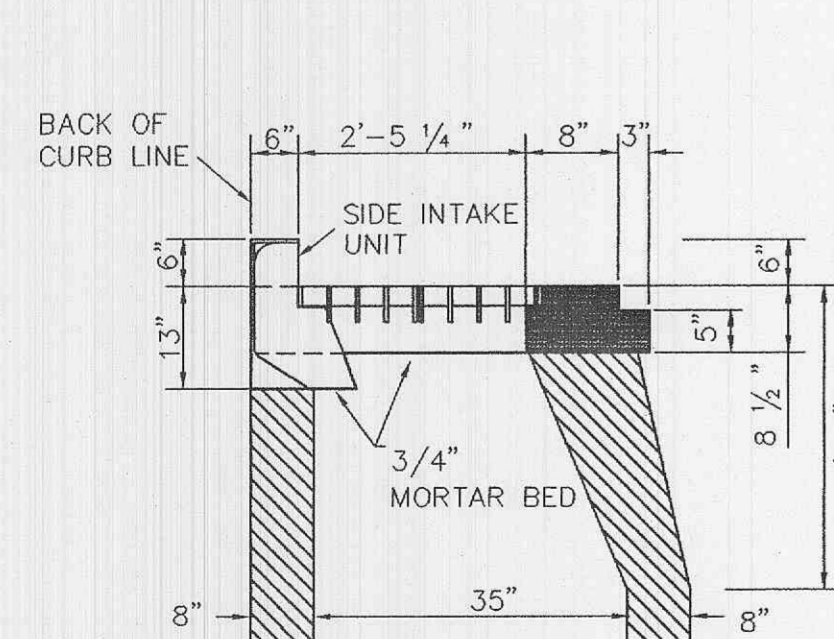
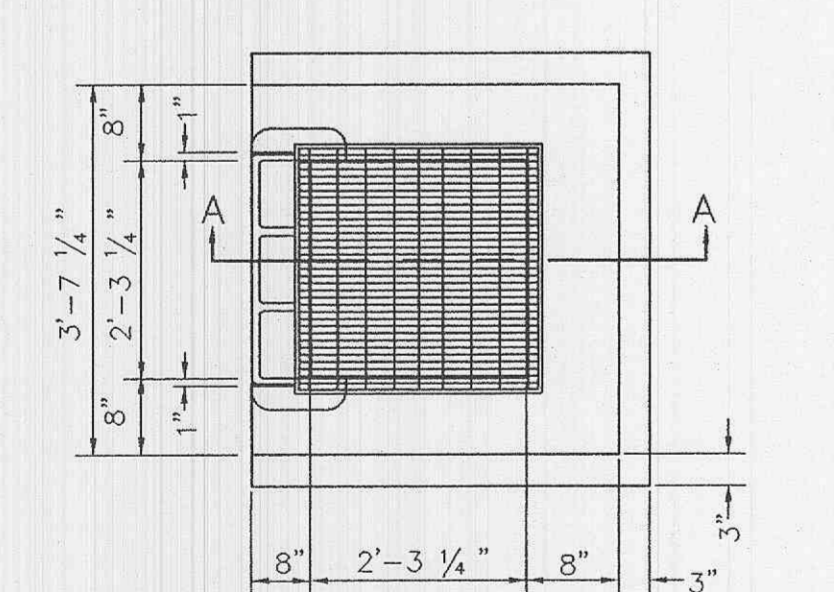
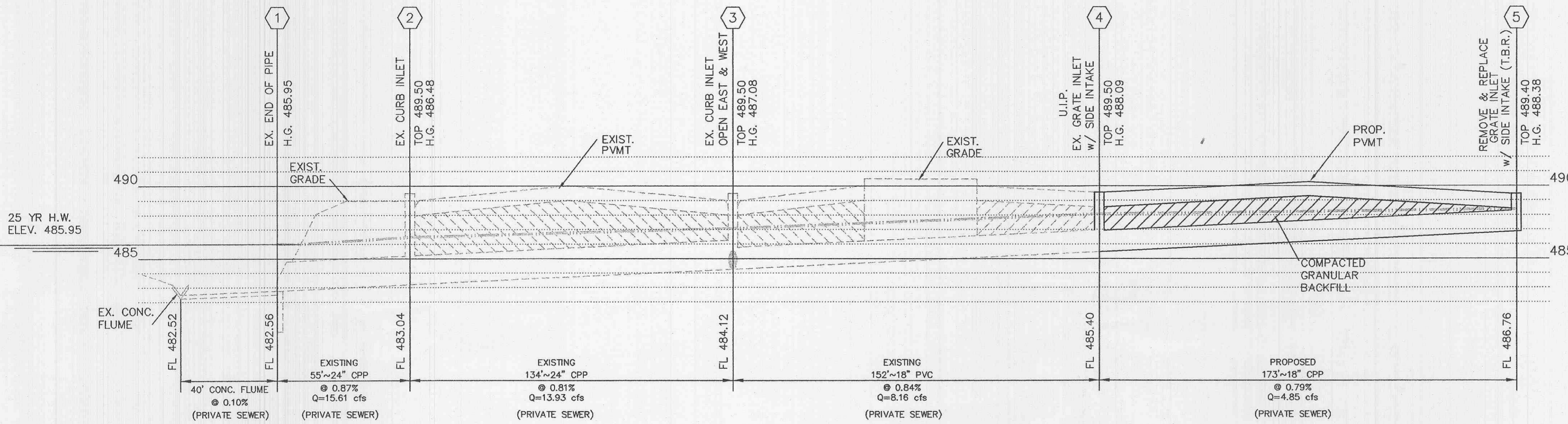
HYDRAULIC DATA 25 YEAR STORM
VER. 2.0

CALC. BY: D. MARTIN
DATE: 06/22/2001
REVISED:

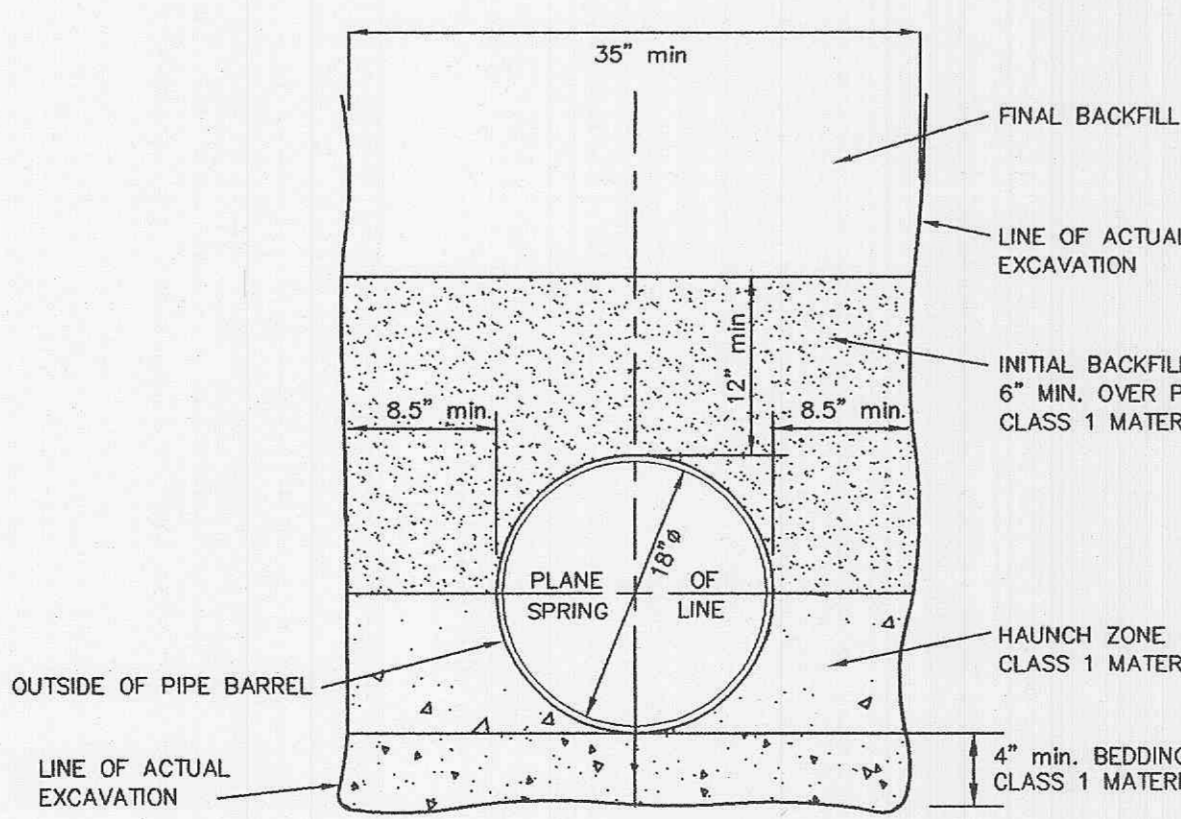
STRUCTURE	FLOWLINE	LENGTH	GRADE	PIPE	"n"	Q	TOTAL	V	Vh	QxVh	PIPE LOSSES (ft.)			STRUCTURE	LOSSES (ft.)	HYD. ELEV		HYD	LOWEST	FREEBOARD	PIPE	DEPTH	FULL FLOW	GIVEN				
											FRICT.	CURVE	TOTAL PIPE			JUNC. BEND	TOTAL STRUC.								UPPER	LOWER	ft. / ft.	OPENING
2	1	483.04	482.56	55	0.0087	24	0.01	1.68	15.61	5.12	0.41	6.35	0.16	0.00	0.16	0.24	0.12	0.36	486.48	485.95	0.003	489.50	3.02	27.47	0.57	1.06	4.97	485.95
3	2	484.12	483.04	134	0.0081	24	0.01	2.99	13.93	4.48	0.31	4.34	0.31	0.00	0.31	0.07	0.22	0.29	487.08	486.48	0.0023	488.58	1.50	26.40	0.53	1.02	4.43	
4	3	485.40	484.12	152	0.0084	18	0.01	3.31	8.16	4.92	0.38	3.06	0.62	0.00	0.62	0.34	0.05	0.39	488.09	487.08	0.0041	489.50	1.41	12.53	0.65	0.87	4.62	
5	4	486.76	485.40	173	0.0079	18	0.01	4.85	4.85	2.58	0.10	0.50	0.19	0.00	0.19	0.10	0.00	0.10	488.38	488.09	0.0011	489.40	1.02	12.11	0.40	0.66	2.74	
6	3	485.15	484.12	106	0.0097	15	0.01	0.00	2.78	2.00	0.06	0.17	0.09	0.00	0.09	0.03	0.04	0.07	487.24	487.08	0.0009	490.50	3.26	8.28	0.34	0.49	2.27	
7	6	485.99	485.15	103	0.0082	15	0.01	2.78	2.78	2.07	0.07	0.19	0.09	0.00	0.09	0.07	0.00	0.07	487.40	487.24	0.0009	490.50	3.10	7.58	0.37	0.52	2.27	



1" = 5' VERT.
1" = 30' HORIZ.
SCALE:



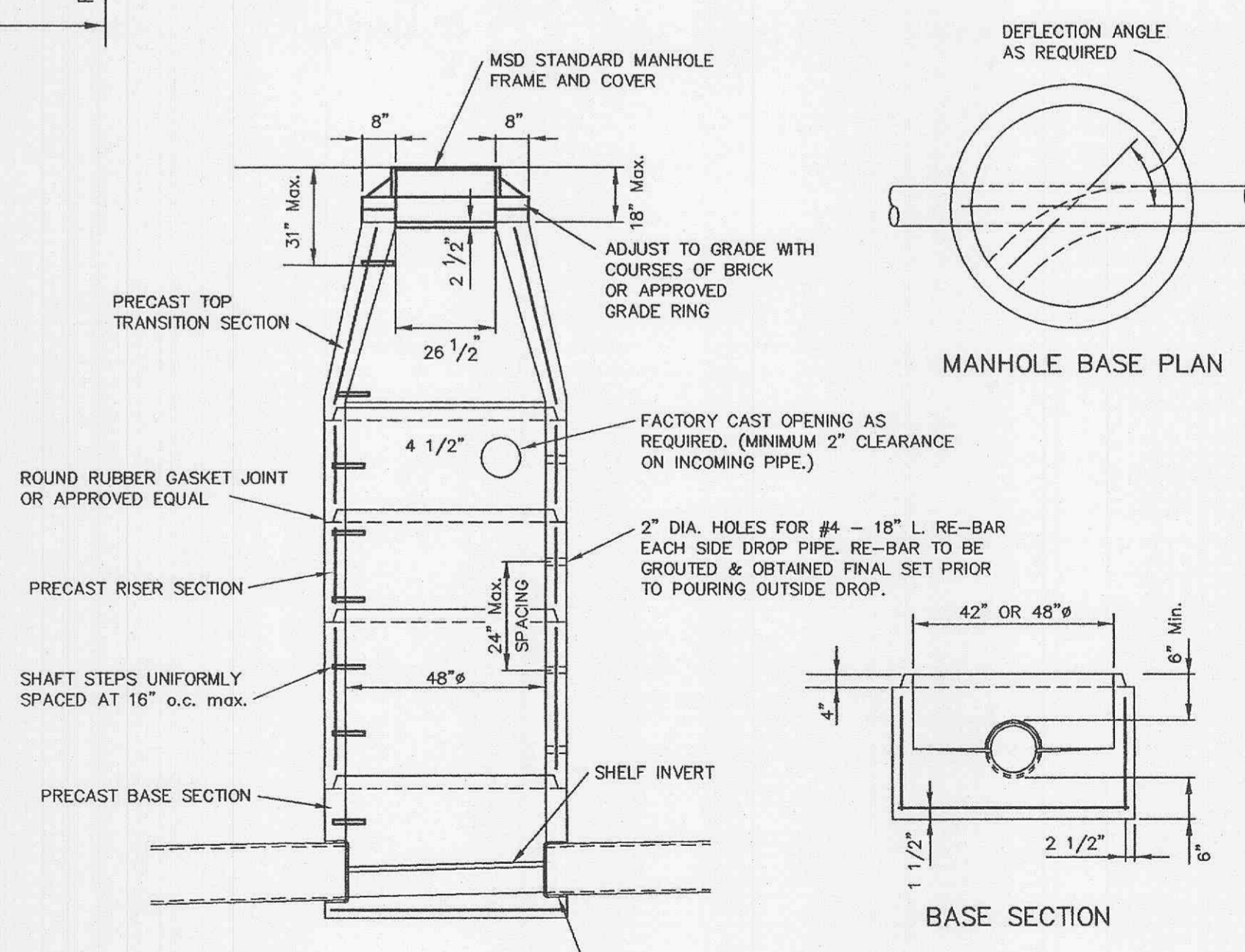
**2 GRATE INLET
WITH SIDE INTAKE**



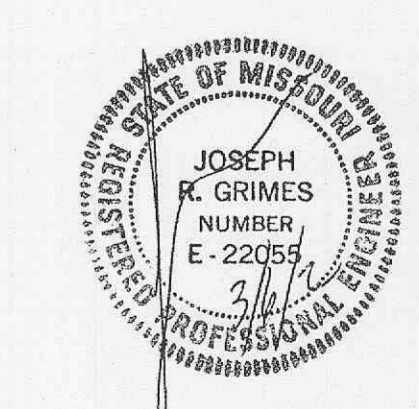
BEDDING NOTES

- The use of High Density Polyethylene Corrugated pipe A.D.S. N12 or Equal will be permitted as an acceptable alternative to reinforced concrete pipe, per City approval, in all areas outside City right-of-way. Pipe shall meet A.S.T.M. D-2321 and AASHTO M-294-921. Concrete flared end sections and inlet structures shall be required. Pipe must have smooth interior wall and is not to be used inside City of St. Peters Public Right-of-Way.
- All concrete pipe or HDPE pipe shall be installed with a-ringing rubber type gaskets per M.S.D. Standard Construction Specifications or Manufacture.
- In typical conditions the minimum trench width is determined by the size of the pipe and the ability to get compaction equipment between the pipe and the trench walls. The minimum trench width should not be less than the outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches; whichever is greater. High speed trenchers may enable satisfactory installation of pipe in narrower trenches. Poor instu soil conditions such as peat, muck, running sands, or expansive clays will require substantially wider backfill as well as deeper foundation and bedding. Trench width and foundation depth should be based on a thorough site investigation.
- Backfill in the area up to the springline should be carefully placed and compacted to achieve a minimum E value of 1,000 psi as detailed in ASTM D2321. A minimum of 12" of backfill should be placed and compacted above the crown of the pipe. It is typical for trenches to be backfilled entirely with Type I or Type II materials when under pavement.
- Flexible pipe should never be installed in a concrete cradle, as done for rigid pipe in a Class A installation. This type of installation could create concentrated forces at the ends of the cradle when pipe has deformed.

PIPE BEDDING DETAIL



**PRECAST MANHOLE
SEWERS 8"-18"**



Mackey Mitchell Associates
Architecture
Planning
Interiors
800 St. Louis Union Station
Suite 210
St. Louis, Missouri
63102-2227
514.421.1815
Fax 314.421.3566

YMCA of Greater St. Louis
OFallon YMCA
3451 Pheasant Meadows Drive
OFallon, Missouri 63366

NO.	DATE	REVISIONS
1.	2/12/02	PER CITY
2.	3/06/02	PER CITY

DRAWN BY: DCM
JOB NO. 333
SHEET NO.

CHECKED BY: JRG
DATE: 01-04-02

C5

SEWER DETAILS