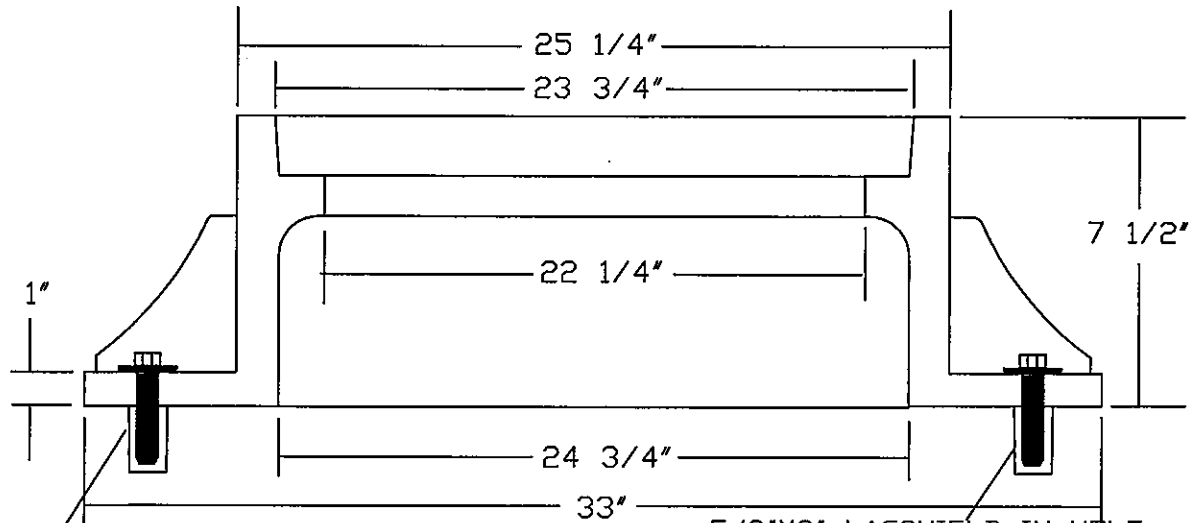
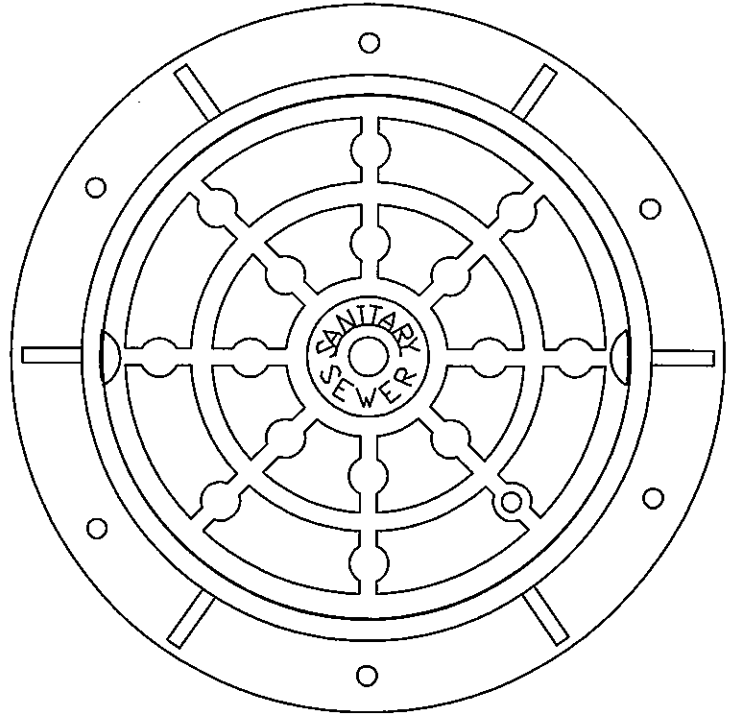
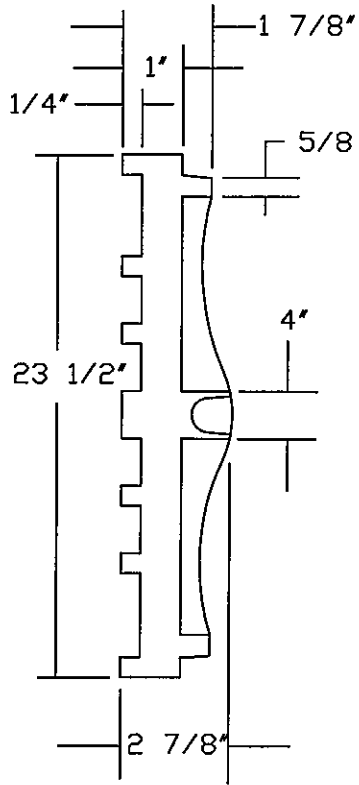


MANHOLE FRAME AND COVER

COVER 120 LBS. MINIMUM



FRAME 182 LBS.

LAGSHIELDS ONLY MAY BE USED IN ROADWAY APPLICATIONS.

OR

5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 5/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

SGWASA

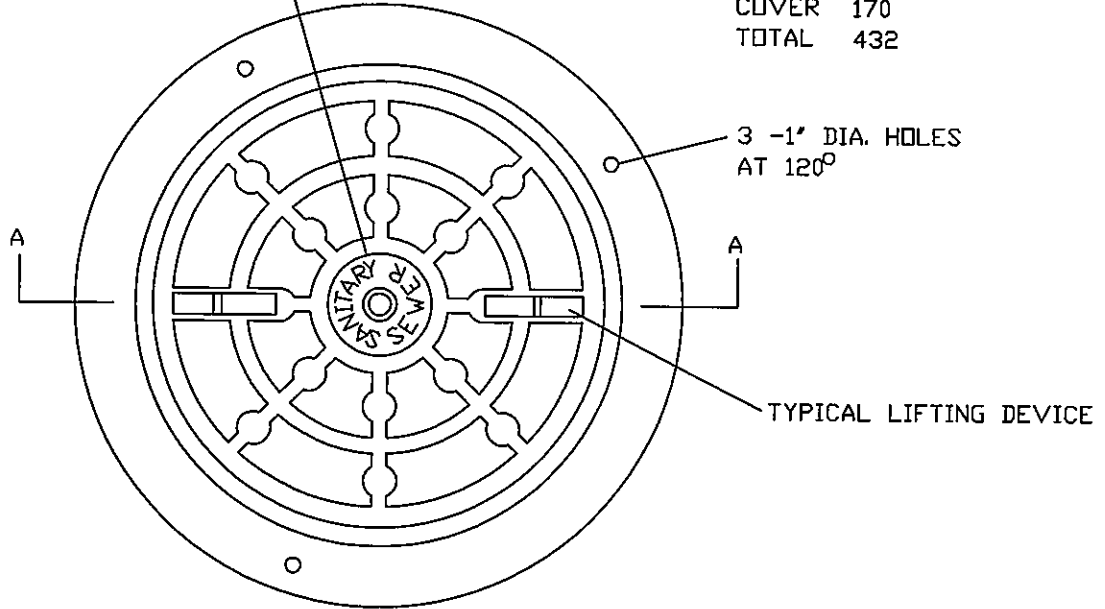
UTILITY DEPARTMENT

STANDARD MANHOLE COVER

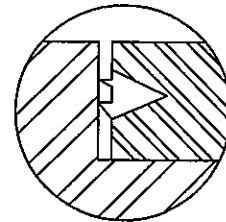
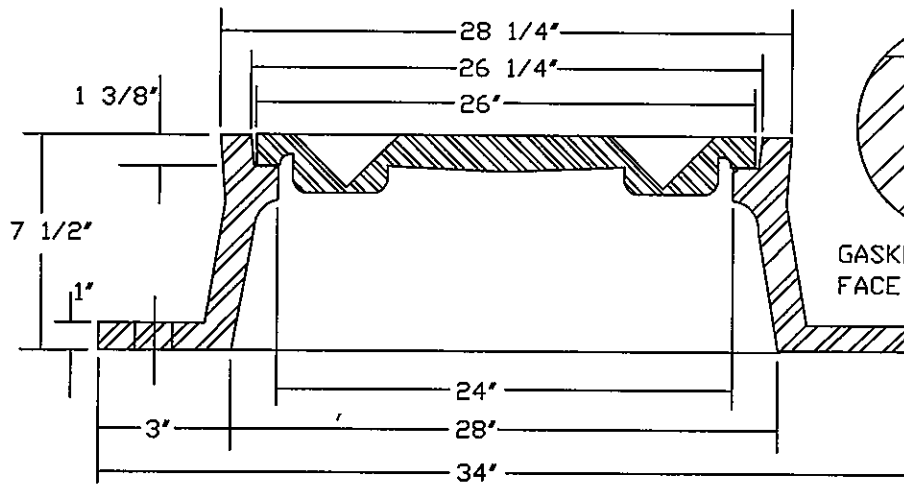
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25				

1" LETTERING
RECESSED FLUSH

MINIMUM A/G WEIGHT
FRAME 262
COVER 170
TOTAL 432

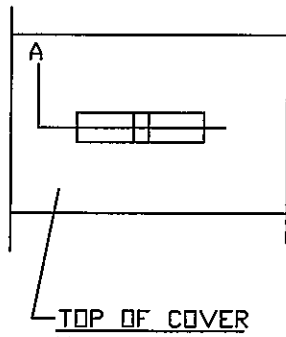


PLAN

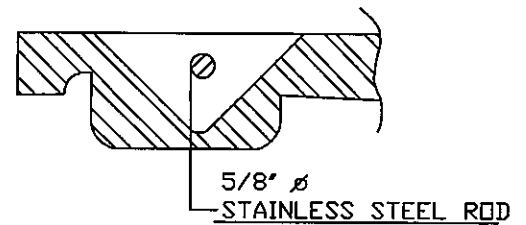


GASKET IN VERTICAL
FACE OF COVER

RING MUST BE
ANCHORED IN
ACCORDANCE
WITH S-25

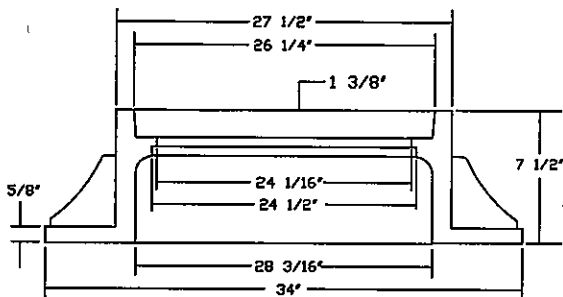


TOP OF COVER

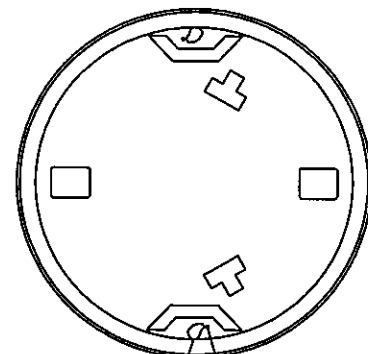


TYPICAL LIFTING DEVICE SECTION A

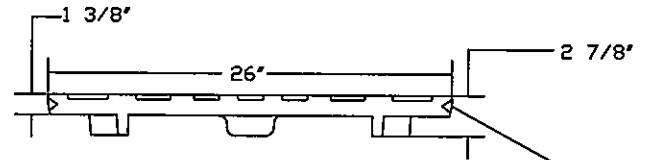
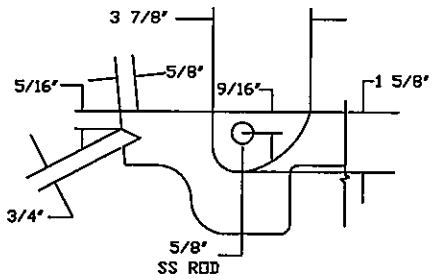
SGWASA				
UTILITY DEPARTMENT				
MANHOLE FRAME AND WATERTIGHT COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-26				



FRAME SECTION



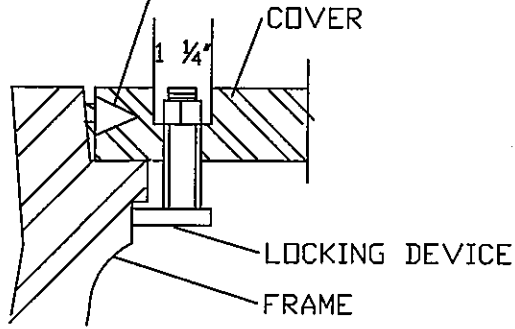
(2) CAM LOCKS
(2) SS ROLL PINS
1/2" DIA x 1 3/4"



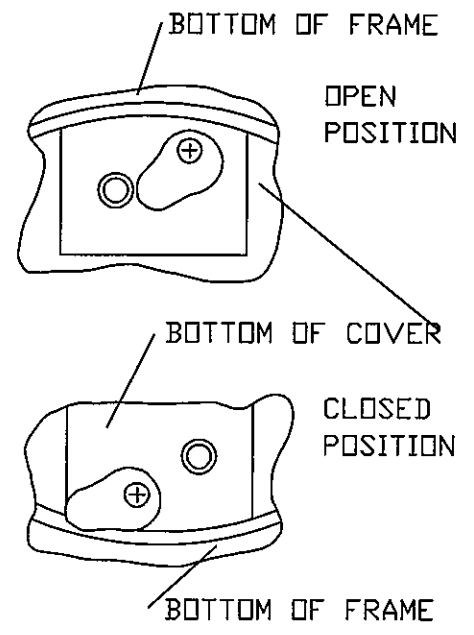
WIPER GASKET

TYPICAL CAM LOCK MANHOLE

FINNED GASKET IN VERTICAL FACE OF COVER TO MAKE WATERTIGHT.



STANDARD - PENTAGON HEAD S.S.
OPTIONAL - S.S. HEX HEAD BOLT

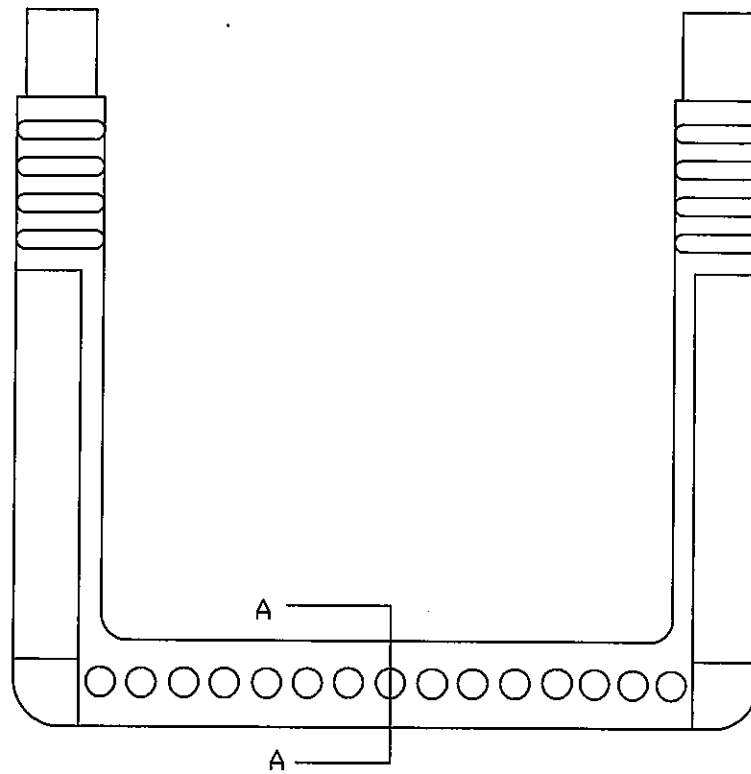


TYPICAL LOCKING DEVICE

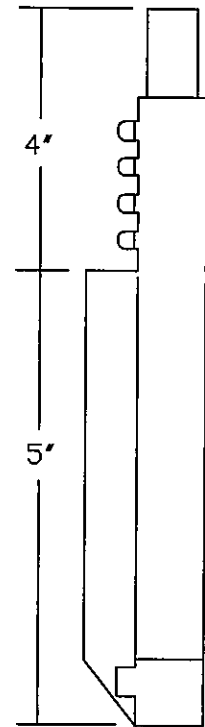
NOTE: DEWEY BROS. OR APPROVED EQUAL

RING MUST BE ANCHORED IN ACCORDANCE WITH S-25

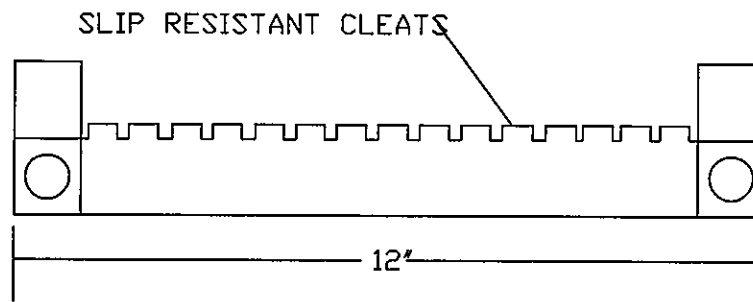
SGWASA				
UTILITY DEPARTMENT				
WATER-TIGHT MANHOLE FRAME WITH CAM LOCK COVER				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-27				



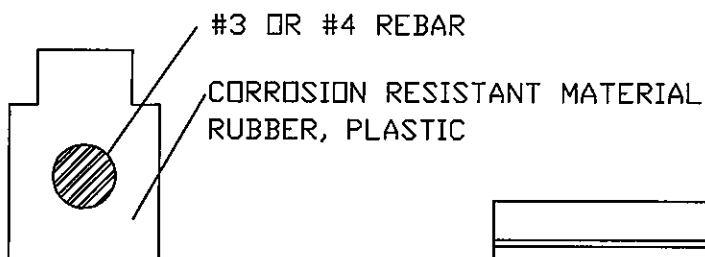
PLAN



SIDE ELEVATION

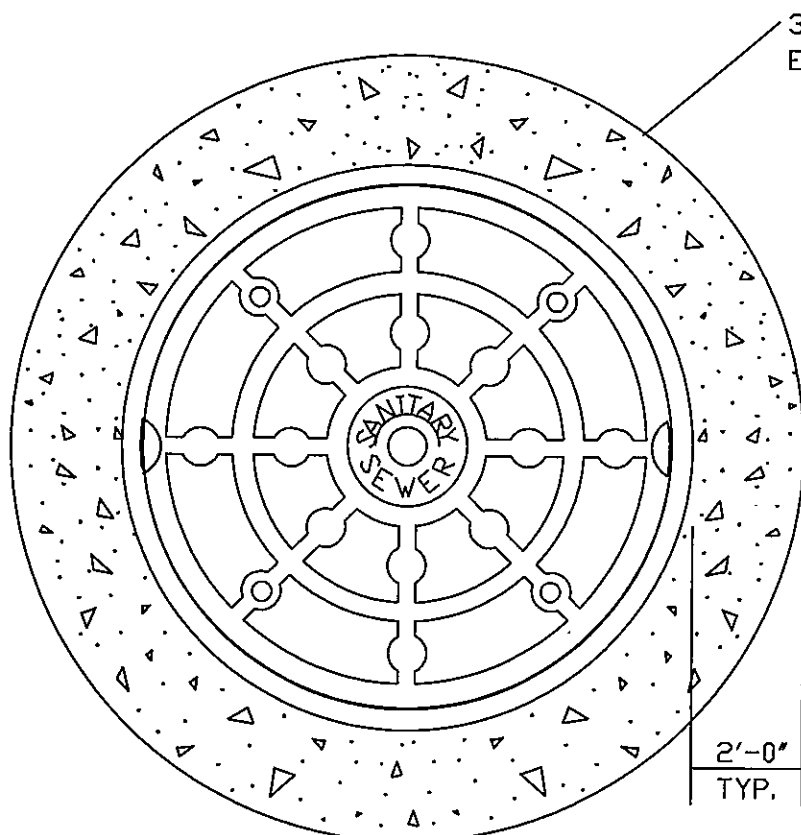


ELEVATION

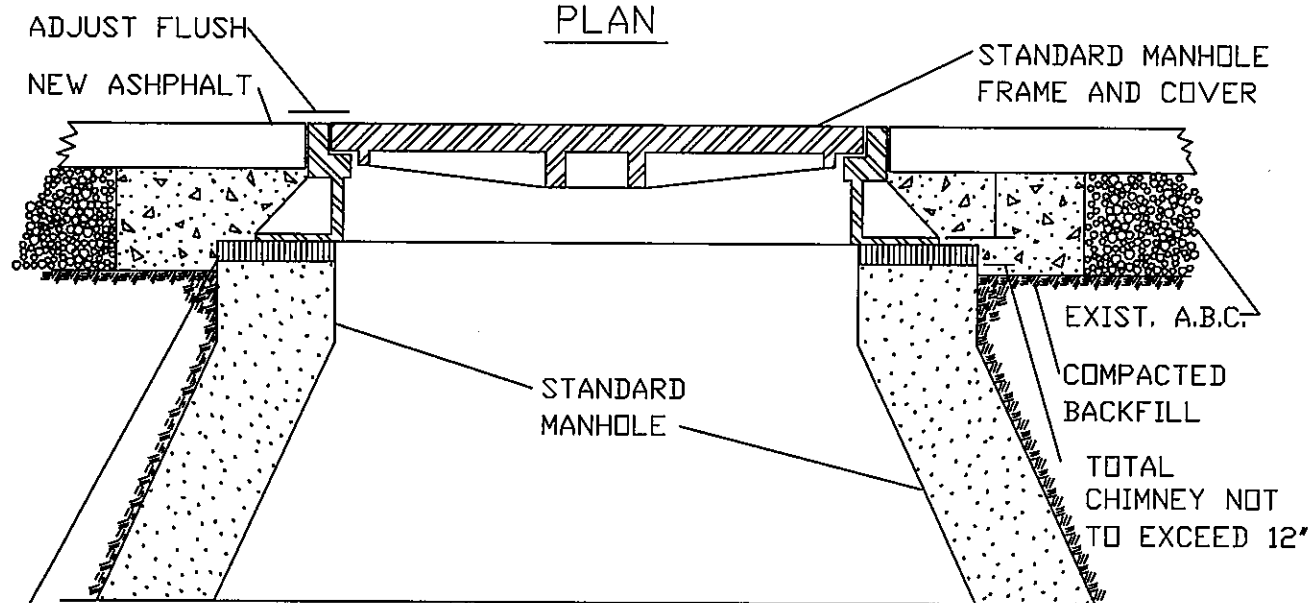


SECTION A - A

SGWASA				
UTILITY DEPARTMENT				
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28				



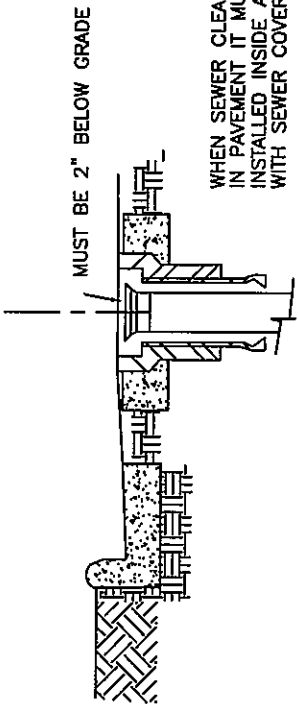
PLAN



SECTION

PRECAST CONCRETE SPACER (DONUT RINGS) OR CONC. BRICK IN TRAFFIC AREAS ONLY. DONUT RINGS NOT ALLOWED IN EASEMENTS.

SGWASA				
UTILITY DEPARTMENT				
STANDARD MANHOLE FRAME AND COVER RAISING DETAILS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29				

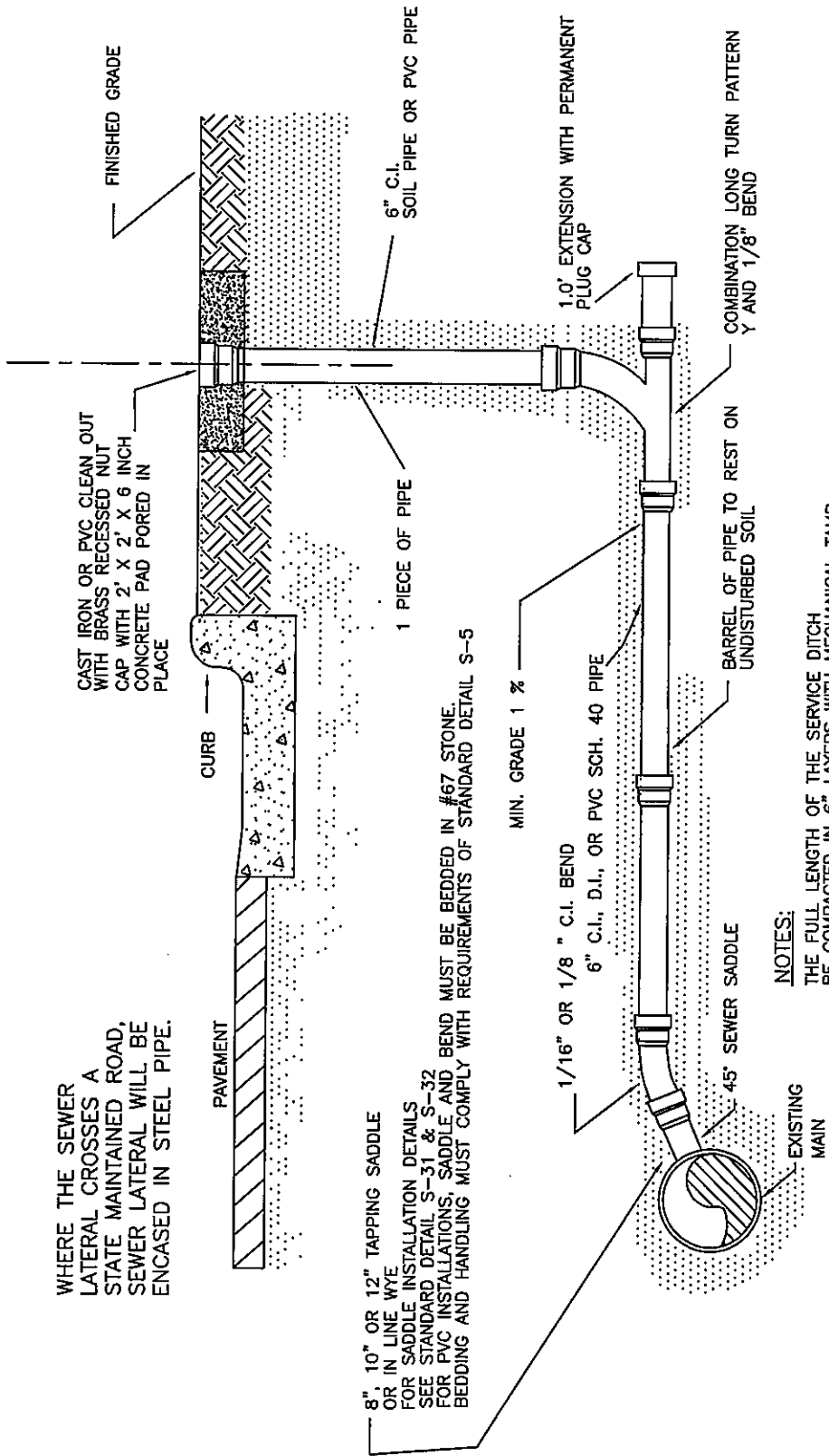


WHEN SEWER CLEAN OUT IS IN PAVEMENT IT MUST BE INSTALLED INSIDE A VALVE BOX WITH SEWER COVER.

PROPERTY LINE OR EDGE OF EASEMENT

PAVEMENT OPTION

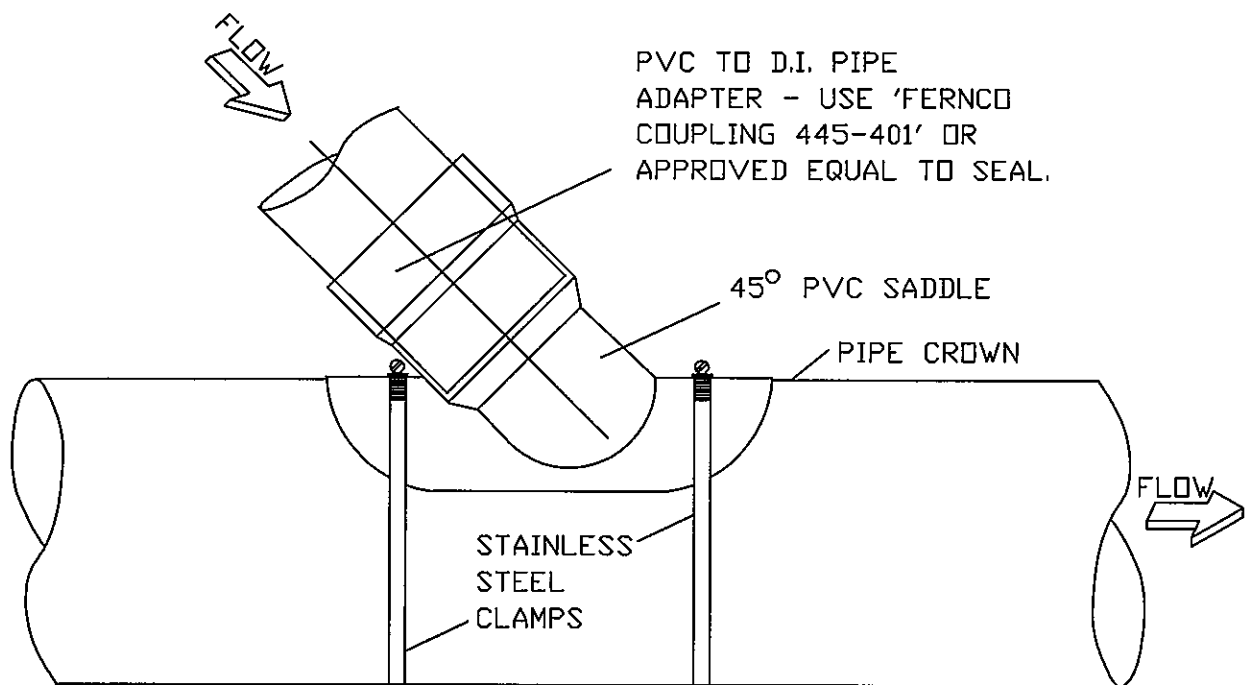
WHERE THE SEWER LATERAL CROSSES A STATE MAINTAINED ROAD, SEWER LATERAL WILL BE ENCASED IN STEEL PIPE.



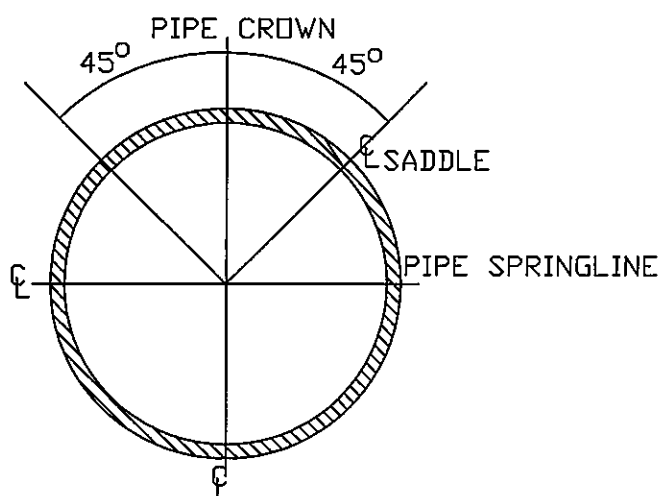
NOTES:
THE FULL LENGTH OF THE SERVICE DITCH BE COMPACTED IN 6" LAYERS WITH MECHANICAL TAMP.

SGWASA TYPICAL SANITARY SEWER LATERAL CONNECTION

SGWASA			
UTILITY DEPARTMENT			
TYPICAL SANITARY SEWER LATERAL CONNECTION			
DRW. NO.			
S-30			

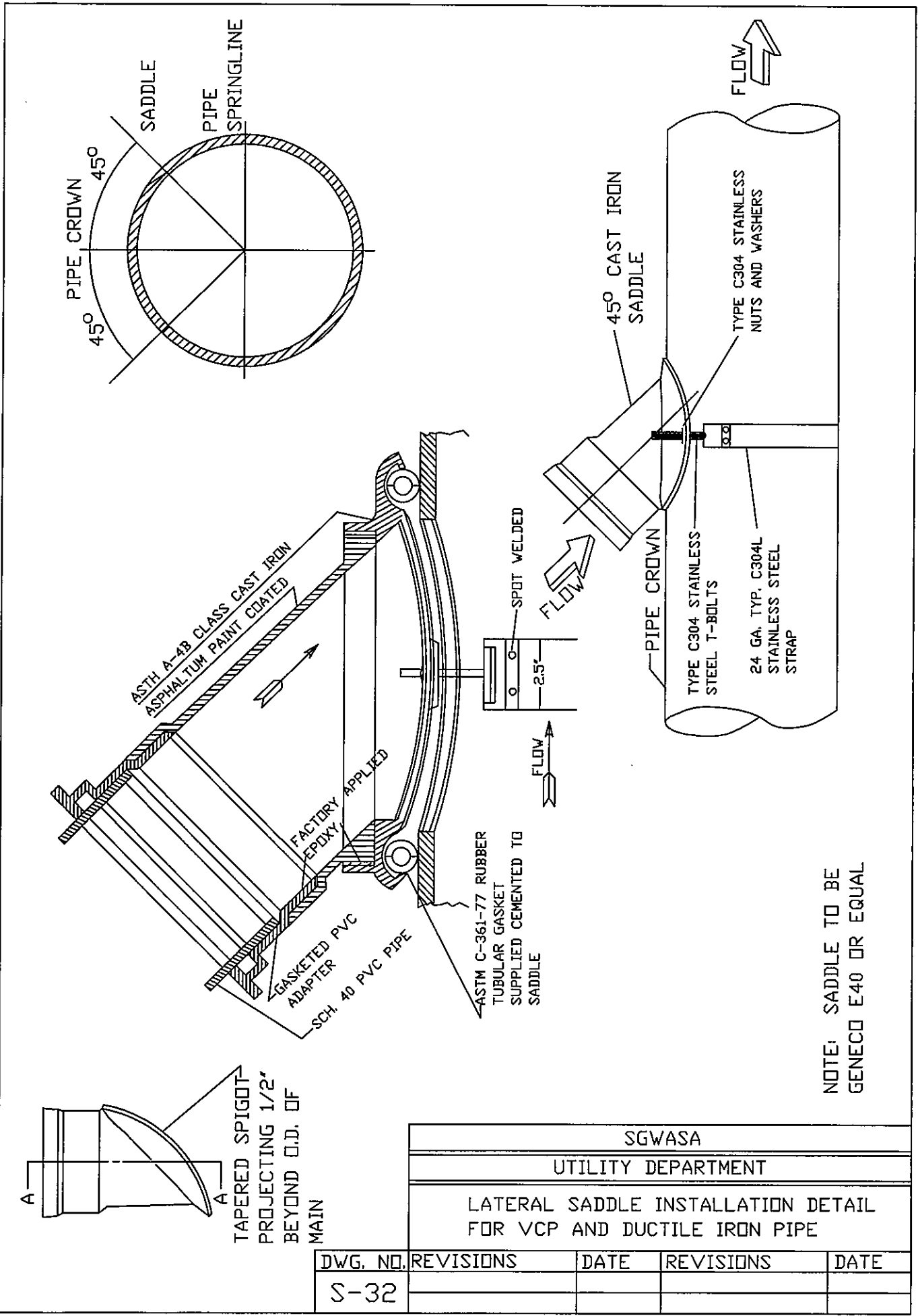


BACKFILL UNDER PVC SADDLE,
ADAPTOR, AND CAST IRON BEND
WITH #67 STONE AS SHOWN ON
S-4.



SADDLE INSTALLATION LIMITS

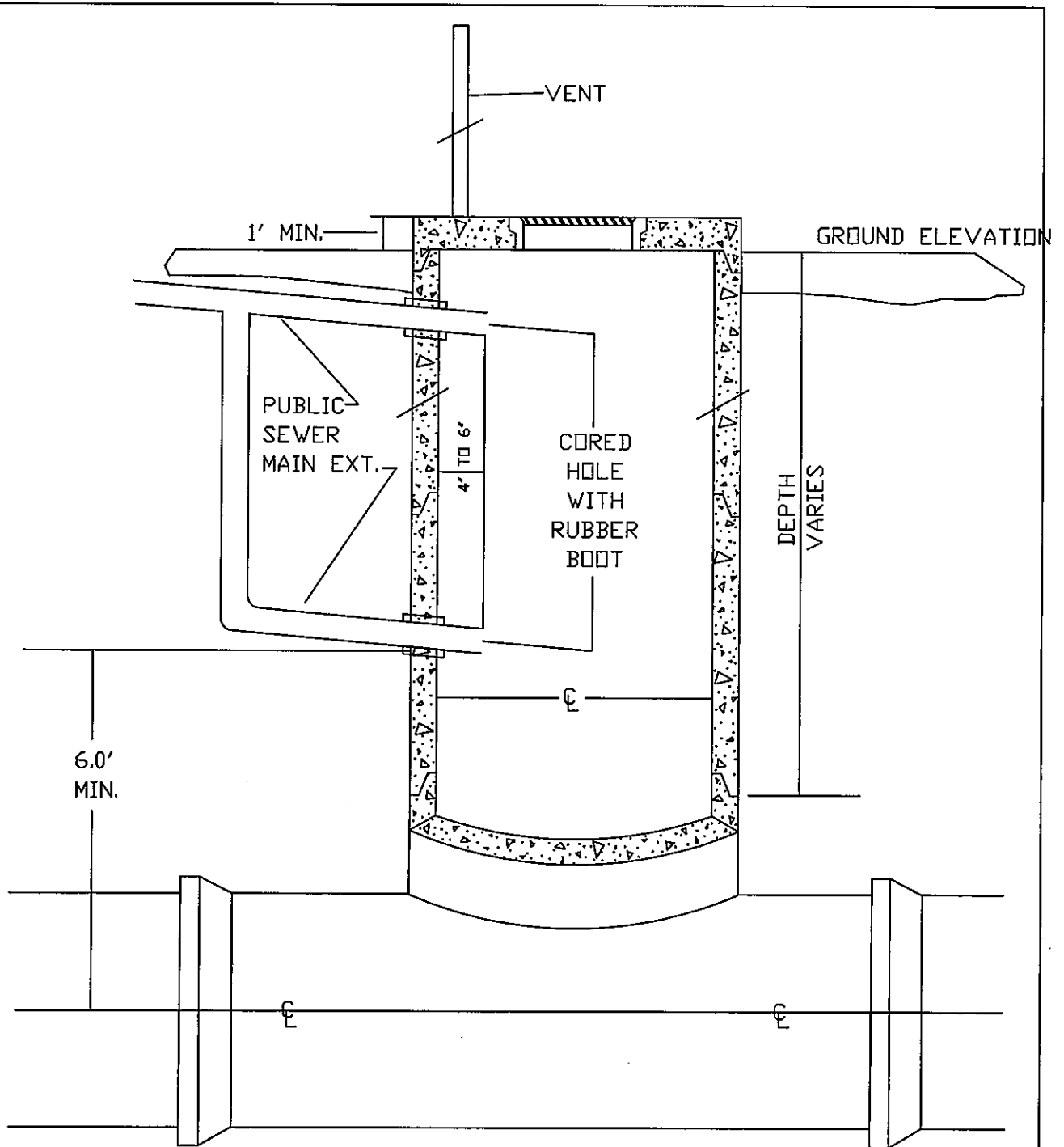
SGWASA				
UTILITY DEPARTMENT				
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-31				



A
 TAPERED SPIGOT
 PROJECTING 1/2"
 BEYOND O.D. OF
 MAIN

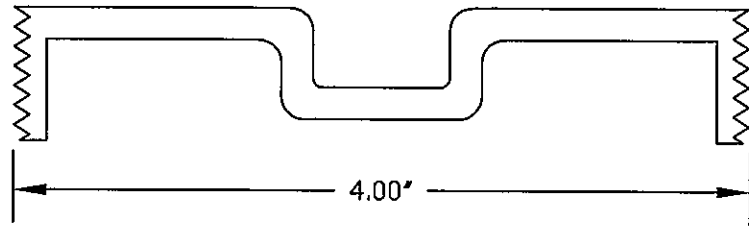
SGWASA				
UTILITY DEPARTMENT				
LATERAL SADDLE INSTALLATION DETAIL FOR VCP AND DUCTILE IRON PIPE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-32				

NOTE: SADDLE TO BE
 GENECO E40 OR EQUAL

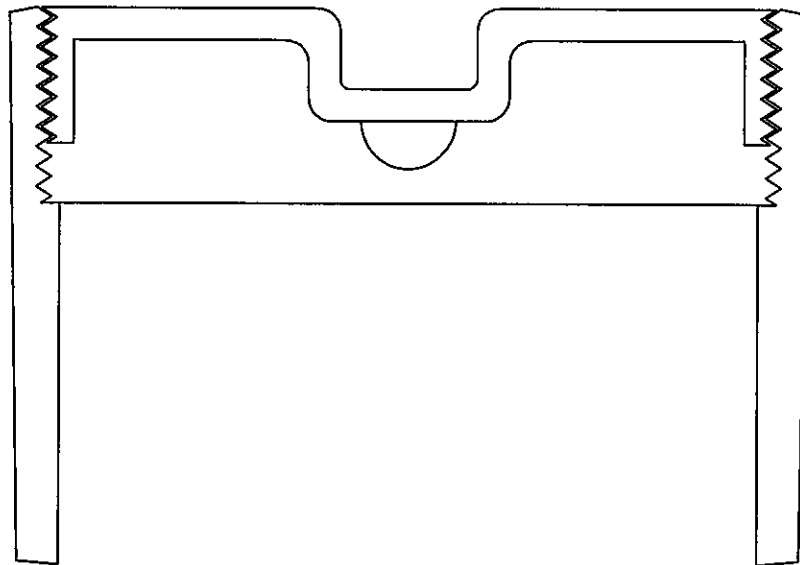


1. HOLE SHALL BE CORED IN RISER SECTION FOR PUBLIC SERVICE MAIN EXTENSION.
2. RUBBER BOOT IN BOTH CORES
3. CORES SHALL BE IN CENTER OF RISER SECTION
4. CONNECTION TO TEE MANHOLE MUST BE MADE UNDER DIRECT SUPERVISION OF SGWASA.

SGWASA				
UTILITY DEPARTMENT				
MAIN EXTENSION TO TIE INTO TEE MANHOLE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-33				



STANDARD 4" BRONZE CLEANOUT PLUG



CLEANOUT FERRULE WITH PLUG

STYLES ACCEPTED:

- INVERTED NUT
- RAISED NUT

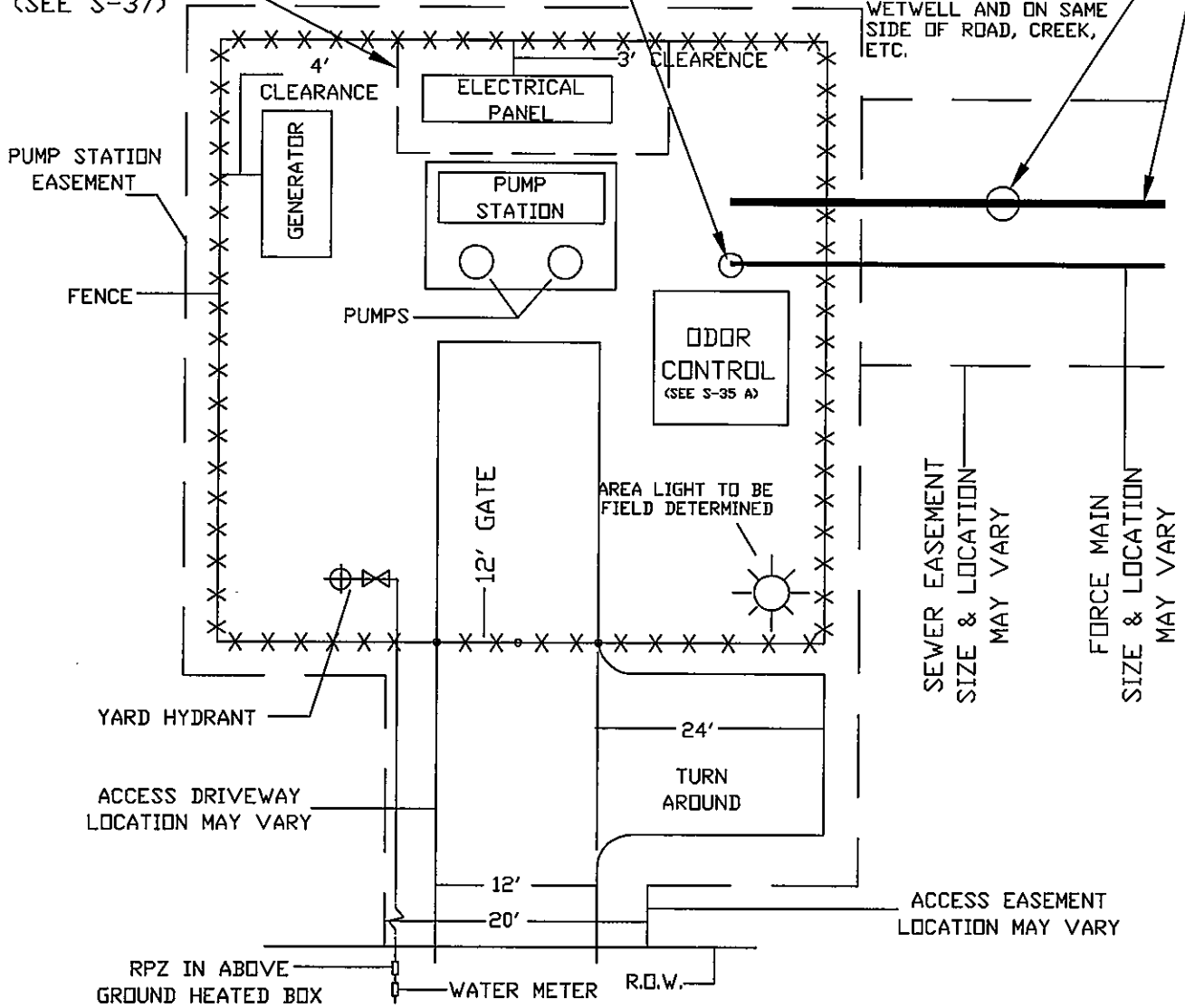
SGWASA				
UTILITY DEPARTMENT				
4" CLEANOUT PLUG				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-34				

ELEC. PANEL SHALL HAVE AN A-FRAME FOOT COVERING - SIZE MAY VARY (SEE S-37)

AUX. PUMP CONNECTION LOCATION INSIDE FENCE MAY VARY

GRAVITY MAIN SIZE & LOCATION MAY VARY

LAST GRAVITY MANHOLE SHALL BE NO FURTHER THAN 50 FEET FROM WETWELL AND ON SAME SIDE OF ROAD, CREEK, ETC.



NOTES:

1. PUMP STATION MUST MEET ALL ZONING SET-BACK REQUIREMENTS
2. PUMP STATION MUST MEET ALL LANDSCAPING REQUIREMENTS
3. WATER SERVICE FOR YARD HYDRANT MUST HAVE RPZ BACKFLOW PROTECTION. SIZE OF SERVICE MAY VARY
4. PUMP STATION EASEMENT TO BE 50'x 50' MINIMUM
5. EQUIPMENT LOCATIONS MAY VARY

* FOR ELECTRICAL PANEL REFER TO DETAILS S-36

SGWASA				
UTILITY DEPARTMENT				
MINIMUM REQUIREMENTS FOR PUMP STATIONS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-35				

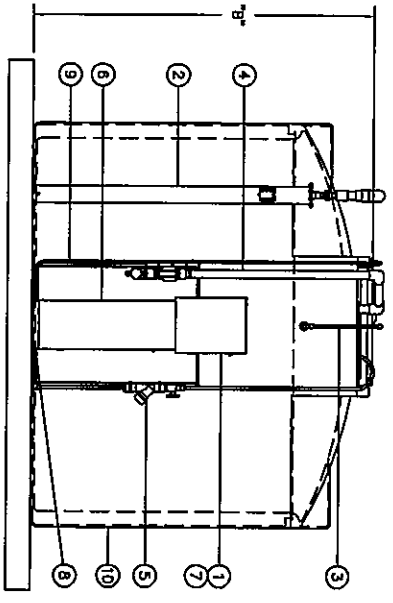
CHEMICAL STORAGE TANK OPTIONS

TANK GALLONAGE	"A"-TANK DIAMETER	"B"-TANK HEIGHT	"C"-PAD DIMENSIONS
1,550	6'-0"	10'-3"	10'-0"
3,050	8'-0"	11'-6"	12'-0"
4,050	8'-0"	14'-8"	12'-0"

NOTE: DIMENSIONS ARE NOMINAL. THEY ARE ±5%.

NOTES

- OWNER/CONTRACTOR TO FURNISH CONCRETE PAD WITH ALL IN-SLAB PIPING AND CONDUIT
- ALL PIPING AND APPURTENANCES PFG, SCH 80
- ALL ELECTRICAL CONDUIT AND WIRING BY OWNER
- UTILIZE SWEEPS ONLY (NO ELBOWS) FOR CONDUIT DIRECTIONAL CHANGES
- OWNER/CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY SLAB OPENINGS, SLEEVES AND SEALANT
- OWNER/CONTRACTOR TO FURNISH AND INSTALL ALL NECESSARY HANGERS, SUPPORTS, AND BLOCKING FOR PIPING
- ALL HARDWARE REQUIRED FOR INSTALLATION SHALL BE STAINLESS STEEL, FURNISHED AND INSTALLED BY OWNER
- SEE SUPPLEMENTAL STANDARD DETAILS FOR CHEMICAL FEED SYSTEM CONNECTION, FEEDS, PIPING SUPPORT, STORAGE TANK, LEVEL GAUGE AND VARIOUS OTHER COMPONENTS

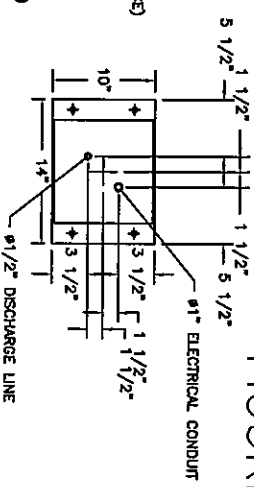


ELEVATION VIEW

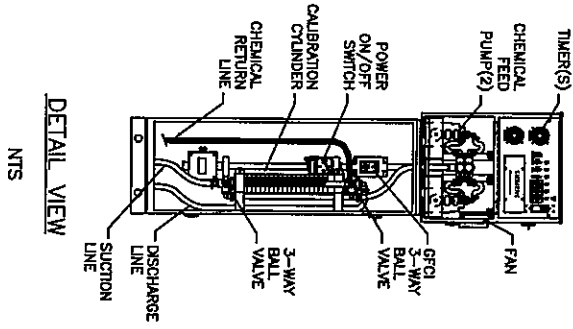
PAD & EQUIPMENT LAYOUT IS ONLY SUGGESTED
 PAD DOES NOT INCLUDE ANY CONTAINMENT CURBING
 CAUTION—CALIBRATION STAND DOOR EXTENDS PAST PAD DIMENSIONS

FIGURE S-35A

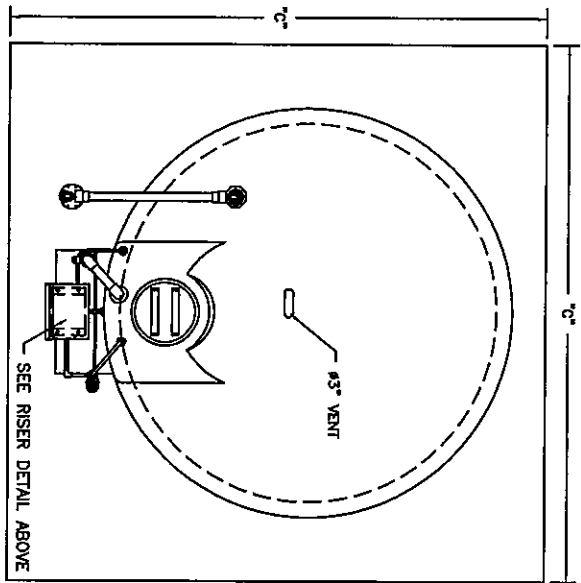
- ### NOMENCLATURE
- CONTROL BOX ASSEMBLY W/PUMPS
 - MECHANICAL LEVEL INDICATOR ASSEMBLY
 - #1/2" OVERFILL LEVEL ASSEMBLY
 - #2" FILL PIPING ASSEMBLY
 - SUCTION PIPING ASSEMBLY (1/2" OR 3/4" DEPENDING ON PUMP CHOICE)
 - MULTI OPTION CALIBRATION STAND ASSEMBLY
 - PUMPS
 - 14" X 10" SS PIPE STAND RISER
 - 36" X 24" X 48" SS PIPE/UTILITY TANK STAND
 - DOUBLE WALLED TANK: (SEE DIMENSION POSSIBILITIES IN BOX AT LEFT)



RISER/SLAB PENETRATION DETAIL



DETAIL VIEW

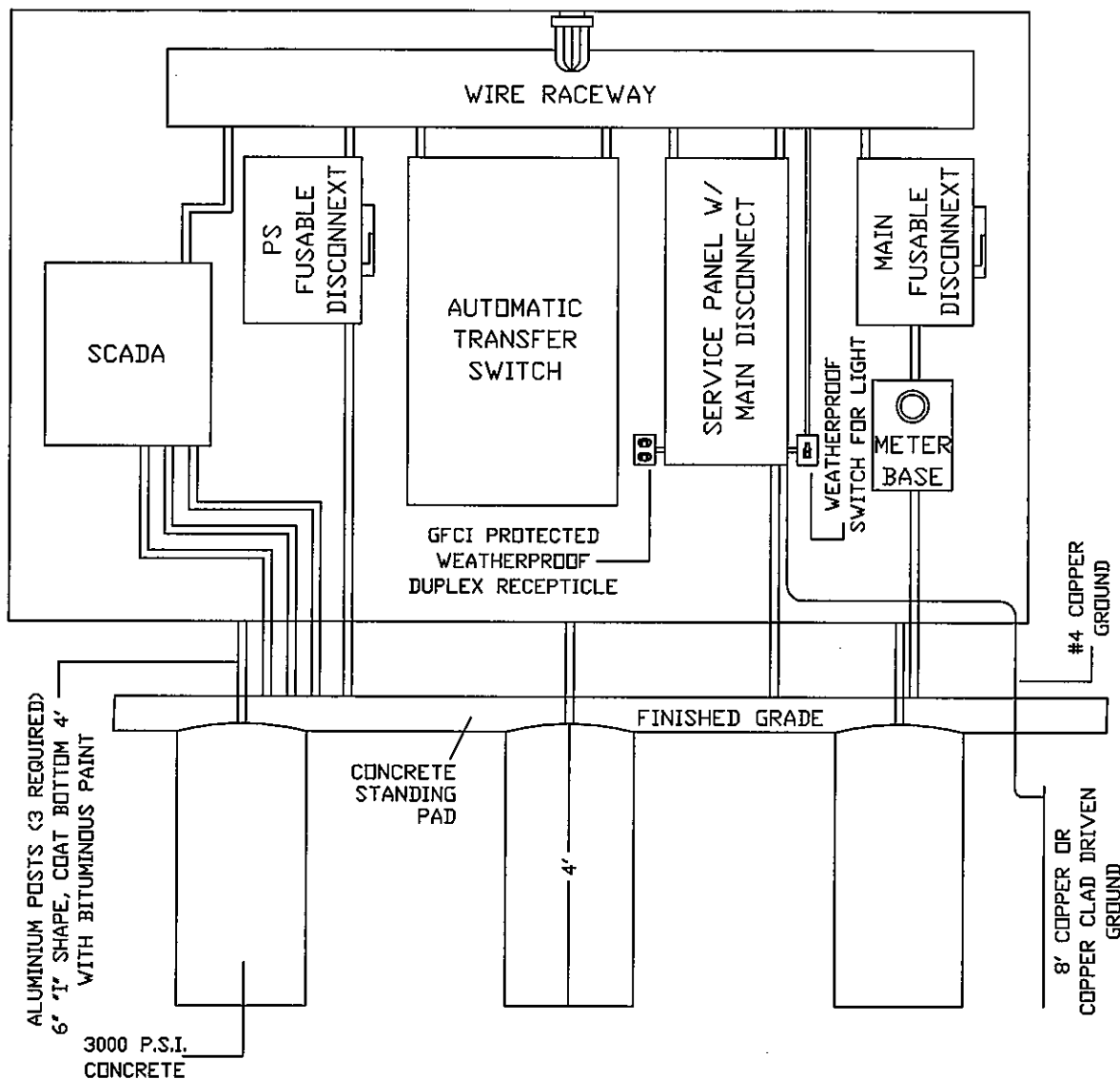


PLAN VIEW

REV	DESCRIPTION	BY	DATE

NO.	DATE	BY	DESCRIPTION
1	09/21/2007		
2			

SIEMENS WATER TECHNOLOGIES
 3991-555-2871
 SOUTH GRAYVILLE WATER AND SEWER AUTHORITY

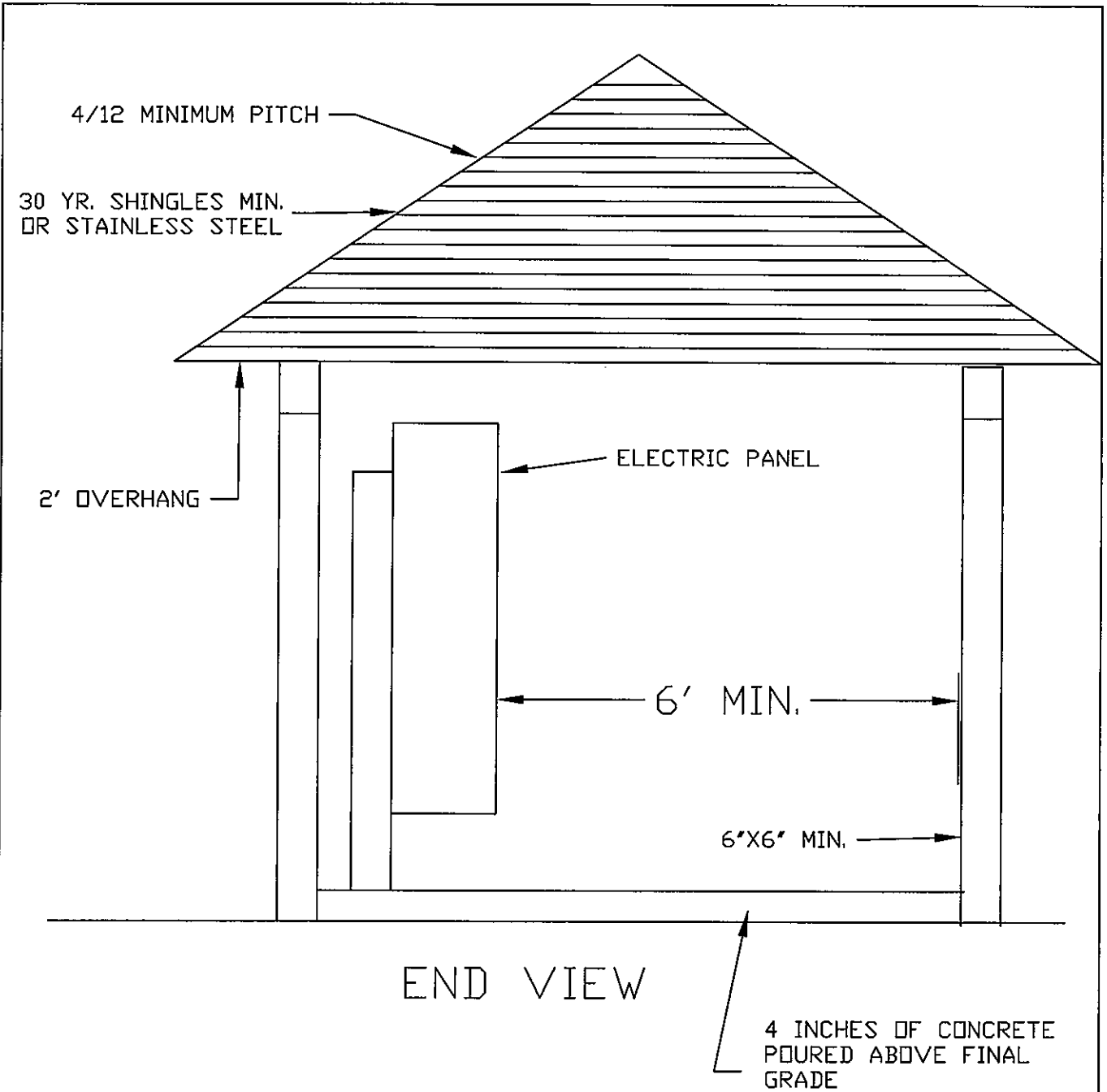


NOTES

1. BACKING PLATE TO BE 1/4" ALUMINUM. MOUNT TO "I" BEAM POSTS WITH STAINLESS STEEL NUT, BOLTS, AND WASHERS.
2. ALL ELECTRICAL WORK SHALL CONFORM TO LATEST NATIONAL, STATE AND LOCAL CODES AND REQUIREMENTS.
3. SHOW CONDUIT SIZE AND NUMBER WITH WIRE SIZE AND NUMBER ON PUMP STATION PLANS.
4. PANEL LAYOUT IS SCHEMATIC ONLY. ADJUST AS NEEDED TO ACCOMMODATE EQUIPMENT.
5. ALL ENCLOSURES SHALL BE NEMA 4 RATED AND LOCKABLE.
6. ENCLOSURES SHALL BE MOUNTED TO ALUMINUM BACKING PLATE WITH NYLON SPACERS & STAINLESS STEEL NUTS, BOLTS & WASHERS.
7. ALL CONDUITS SHALL BE SEALED TO PREVENT MOISTURE, SEWER GASES, ETC. FROM ENTERING EQUIPMENT ENCLOSURES.
8. NO EQUIPMENT SHALL BE MOUNTED LESS THAN 36" ABOVE FINISHED GRADE.

* FOR WEATHER HOOD REFER TO DETAIL S-37

SGWASA				
UTILITY DEPARTMENT				
PUMP STATION ELECTRICAL PANEL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-36				

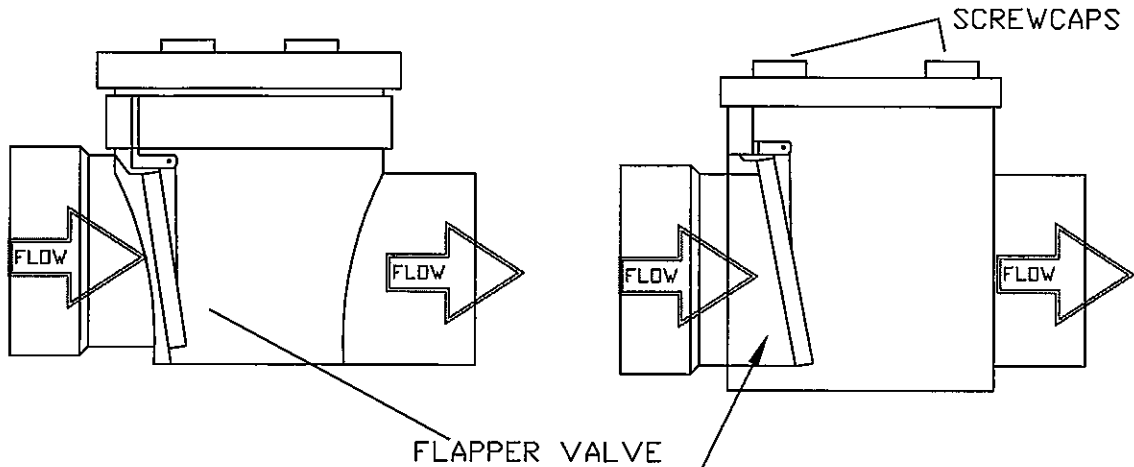


NOTES:

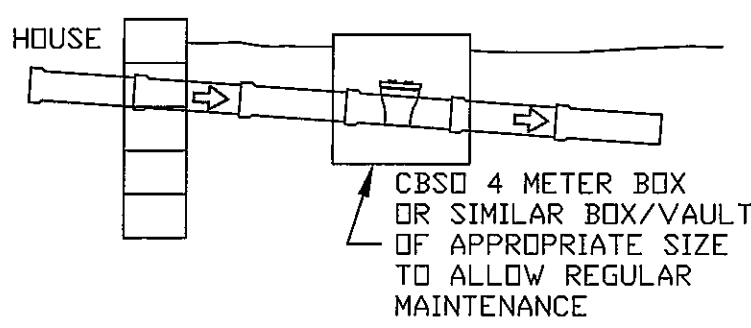
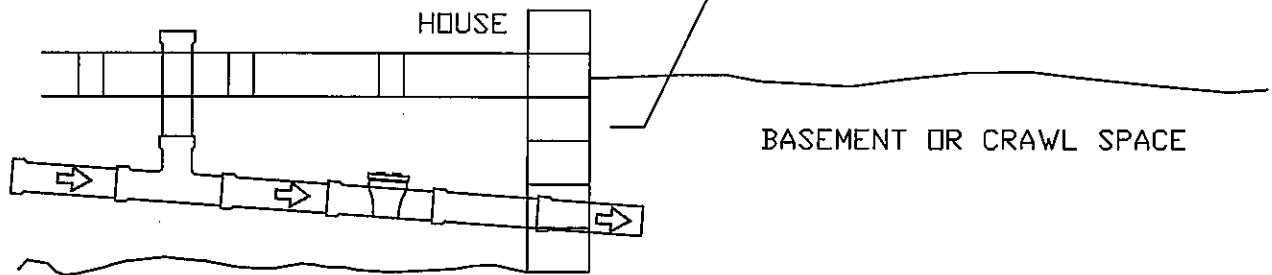
1. ALL MATERIAL SHALL BE WOOD TREATED FOR GROUND CONTACT
OR STAINLESS STEEL
2. MATERIALS SHALL BE IN ACCORDANCE TO BUILDING CODE

SGWASA				
UTILITY DEPARTMENT				
WEATHER HOOD FOR ELECTRICAL EQUIPMENT PANEL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-37				

TYPICAL SANITARY SEWER SERVICE BACKWATER VALVE STYLES:



TYPICAL BACKWATER VALVE INSTALLATIONS:

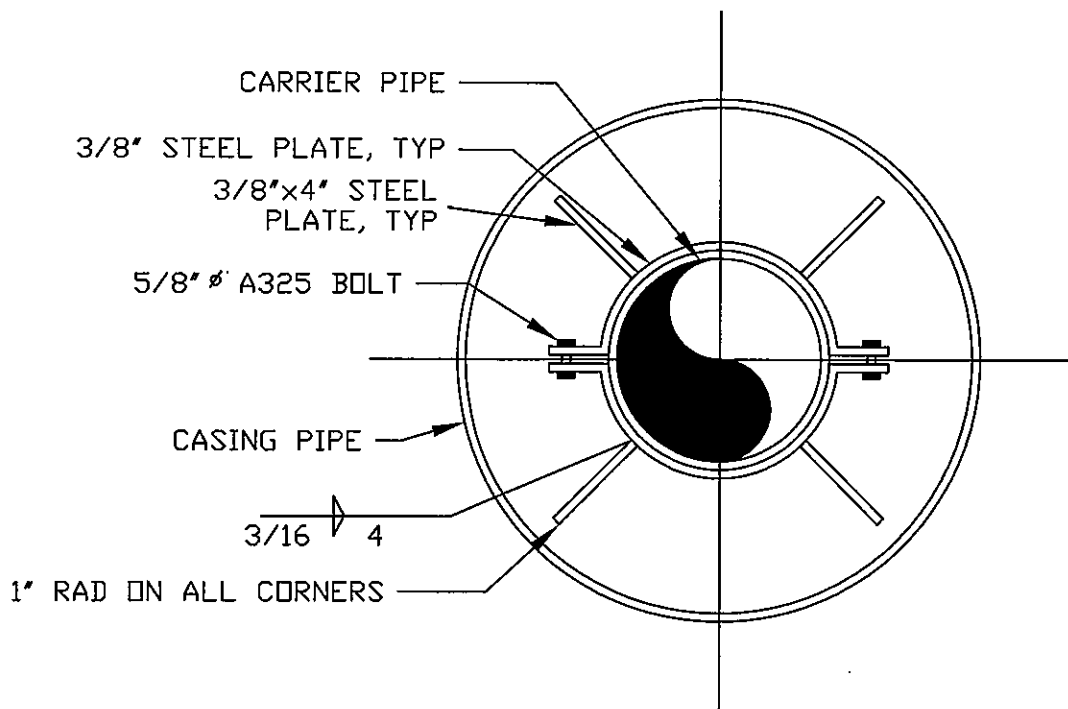


YARD/VAULT INSTALLATION FOR BUILDINGS BUILT ON SLAB AND OTHER LOCATIONS WHERE VALVE CANNOT BE INSTALLED IN BASEMENT OR CRAWL SPACE.

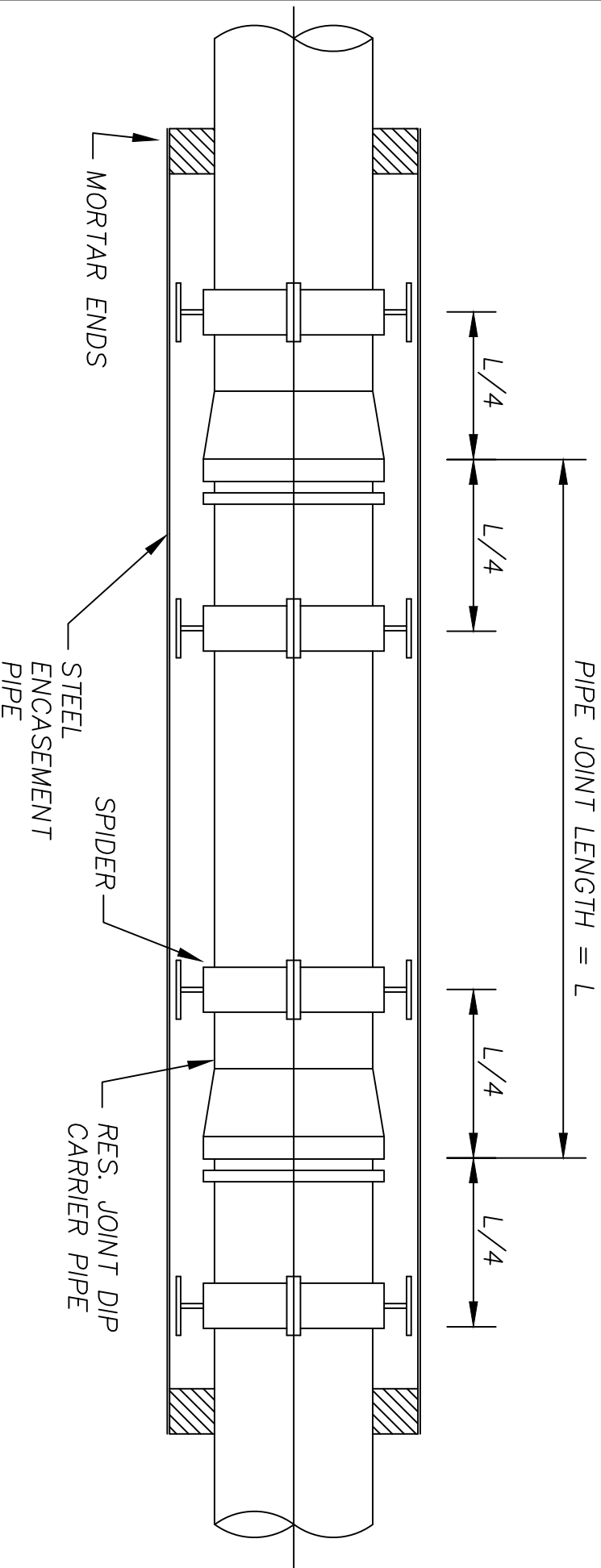
NOTES:

1. INSTALLATIONS OF GREATER THAN 4' IN DEPTH MAY REQUIRE MANHOLE.
2. VALVES MUST BE INSTALLED IN A LOCATION AT WHICH THEY CAN BE CLEANED AND SERVICED REGULARLY.

SGWASA				
UTILITY DEPARTMENT				
TYPICAL SANITARY SEWER SERVICE BACK- WATER VALVE INSTALLATION				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-38				



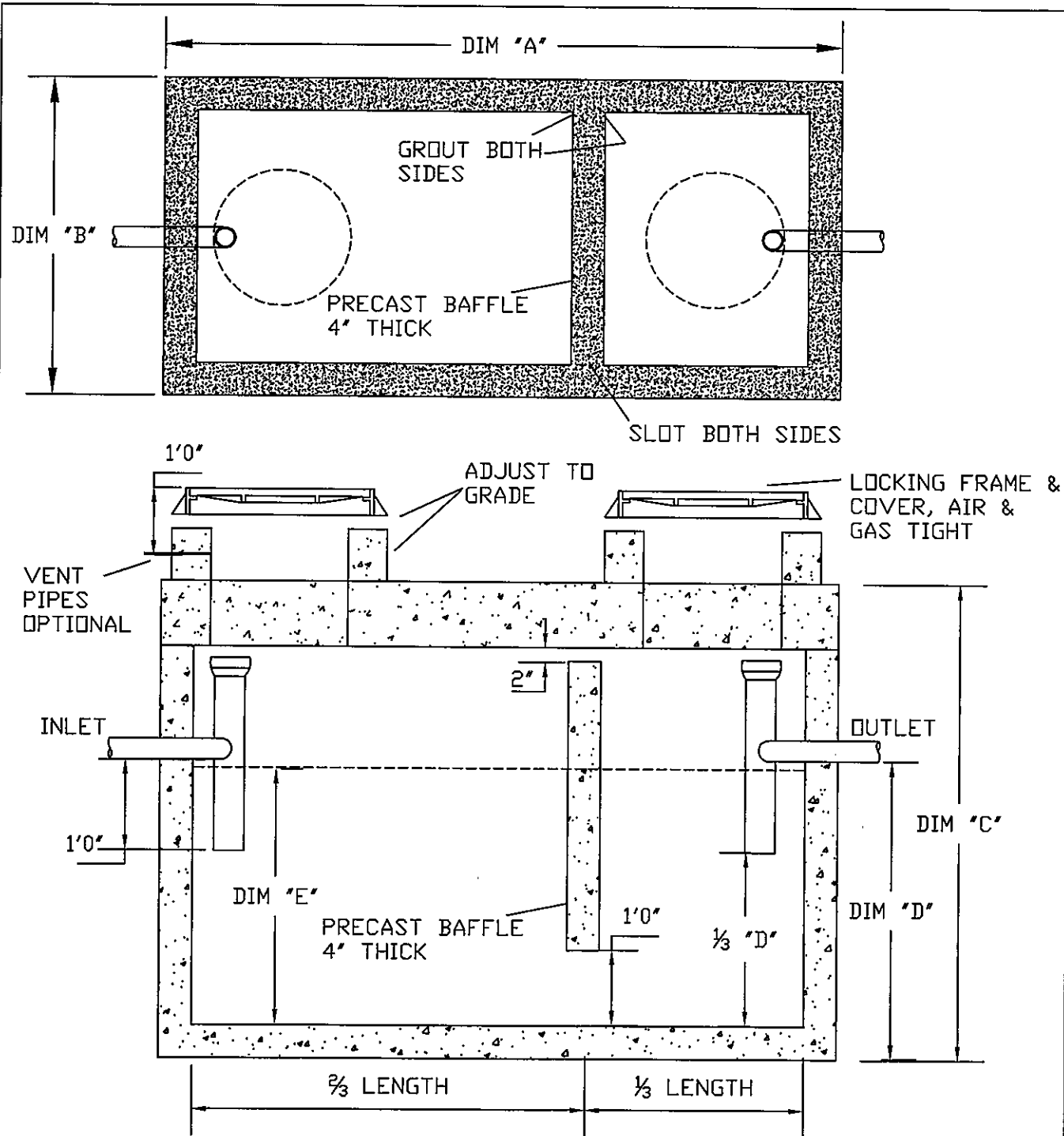
SGWASA				
UTILITY DEPARTMENT				
PIPE ALIGNMENT GUIDE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-39				



- NOTES:**
1. SEE SGWASA PIPE ALIGNMENT GUIDE DETAIL S-39 FOR SPIDER DIMENSIONS.
 2. ENCASEMENT PIPE SHALL BE HIGH STRENGTH STEEL, SPIRAL WELDED OR SMOOTH-WALL SEAMLESS PER ASTM A 139 AND ASTM A 283, GRADE "B" STEEL WITH A MIN. YIELD STRENGTH OF 35,000-PSI, MIN. WALL THICKNESS OF 0.375-IN.
 3. EXTERIOR OF ENCASEMENT PIPE SHALL BE COATED WITH TWO COATS OF A COMPATIBLE BLACK EPOXY WITH A TOTAL DRY FILM THICKNESS OF 10 MILS PER COAT. EPOXY COATING SHALL BE TNEMEC HI-BUILD TNEME-TAR SERIES 46H-413, OR APPROVED EQUAL. PIPE SHALL BE COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH AWWA C203 AND ANY ADDITIONAL REQUIREMENTS OF THE NCDOT.
 4. METAL "SPIDER" PIPE ALIGNMENT GUIDE DEVICES SHALL BE INSTALLED IN ALL CASINGS WITH A MINIMUM OF TWO SPIDERS PER CARRIER PIPE JOINT LOCATED 1/4 OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

BORE & JACK DETAIL

SGWASA	
UTILITY DEPARTMENT	
BORE & JACK	
DETAIL	
DWG. NO.	REVISION
S-39A	DATE



DETAIL 40A CONTAINS THE SIZING CHART FOR THE OIL/GREASE TRAP

SGWASA				
UTILITY DEPARTMENT				
OIL AND GREASE TRAP SIZING				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-40				

SIZING CHART

CAP (GAL.)	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
600	7'0"	4'8"	7'0"	3'6"	3'2"
750	7'0"	4'8"	7'0"	4'3"	3'11"
1000	9'0"	5'0"	7'2"	4'2"	3'10"
1250	9'0"	5'0"	7'2"	5'2"	4'10"
1500	11'2"	5'8"	7'2"	4'4"	4'0"
1750	11'2"	5'8"	7'2"	4'11"	4'7"
2000	12'8"	6'8"	8'0"	4'7"	3'10"
2500	12'8"	6'8"	8'0"	5'6"	4'9"
2750	12'8"	6'8"	8'0"	6'0"	5'3"
3000	15'7"	9'7"	8'6.5"	5'0"	3'9"
4000	15'7"	9'7"	8'6.5"	6'3"	5'0"
5000	19'11"	9'11"	8'11"	6'2"	4'9"
6000	19'11"	9'11"	10'5"	7'2"	5'9"

NOTES:

1. CONCRETE: 28 DAY $f'_{c}=4500$ psi
2. REBAR: ASTM A-615 GRADE 60
3. MESH: ASTM A-185 GRADE 65
4. DESIGN: ACI318-83 BUILDING CODE
 ASTM C-857 MINIMUM STRUCTURAL DESIGN
 LOADING FOR UNDERGROUND PRECAST
 CONCRETE UTILITY STRUCTURES
5. LOADS: H-20 TRUCK WHEEL WITH 30% IMPACT PER AASHTO
6. FILL WITH CLEAN WATER PRIOR TO START UP OF SYSTEM
7. CONTRACTOR TO SUPPLY AND INSTALL ALL PIPING AND
 SANITARY TEES, 4 CLEAN OUTS FOR CLEANING TOWARD
 TRAP, AND FOR CLEANING AWAY FROM TRAP ON BOTH THE
 INLET AND OUTLET/ALT. DUAL SWEEP CLEAN OUTS.
8. GRAY WATER ONLY, BLACK WATER SHALL BE CARRIED
 BY SEPARATE SEWER.

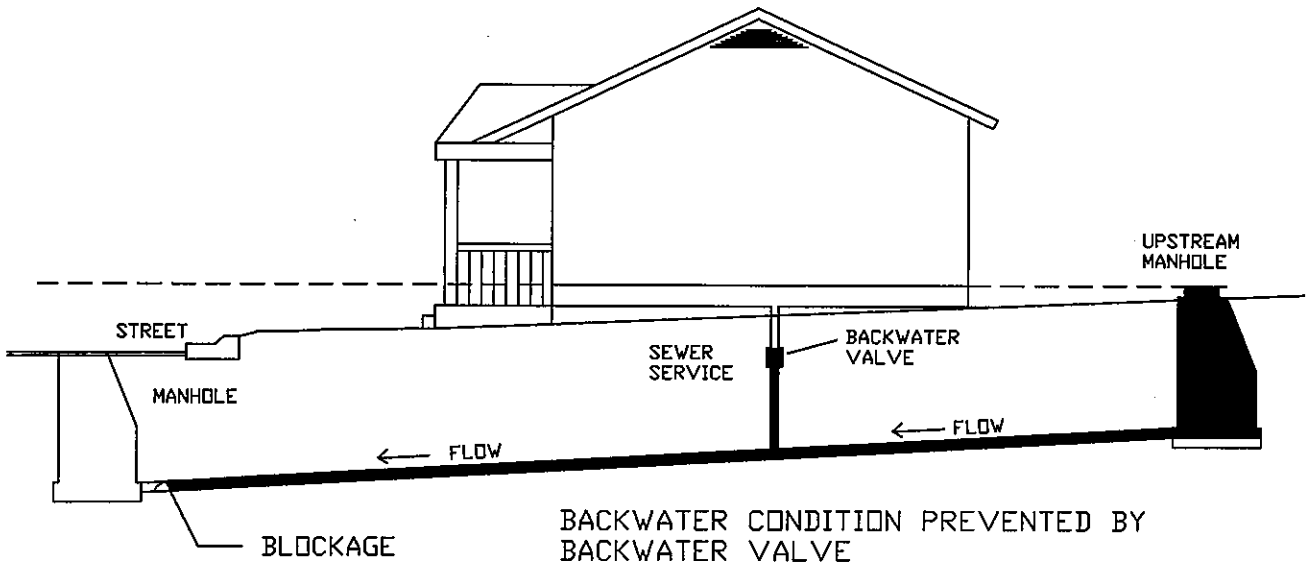
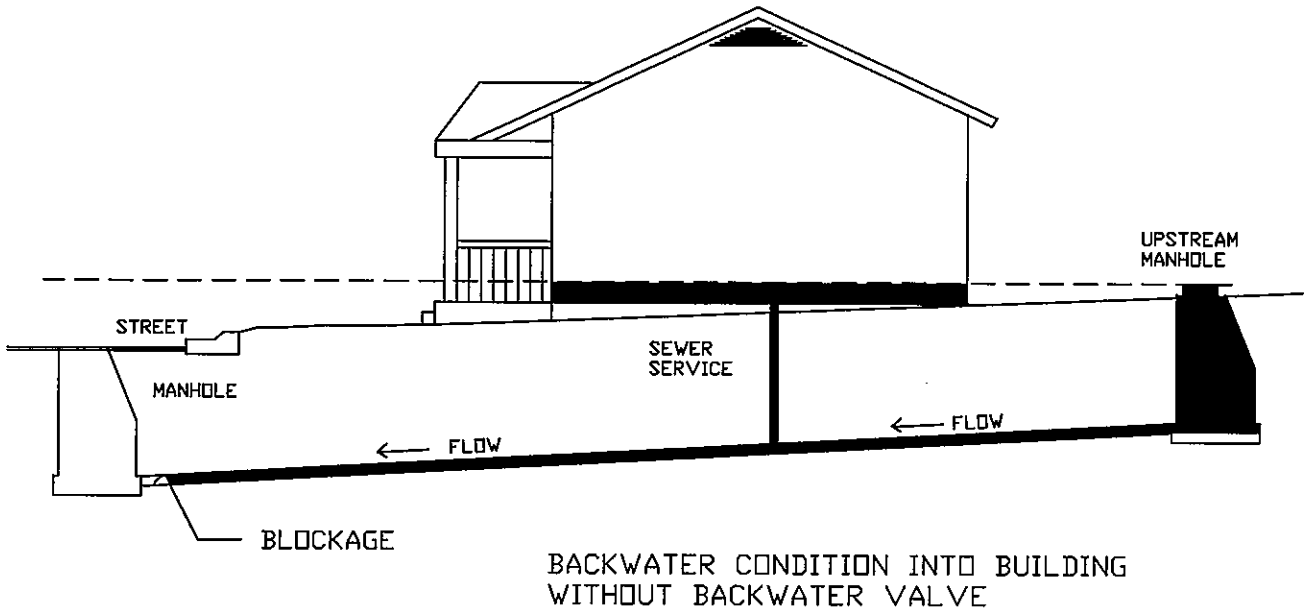
SGWASA

UTILITY DEPARTMENT

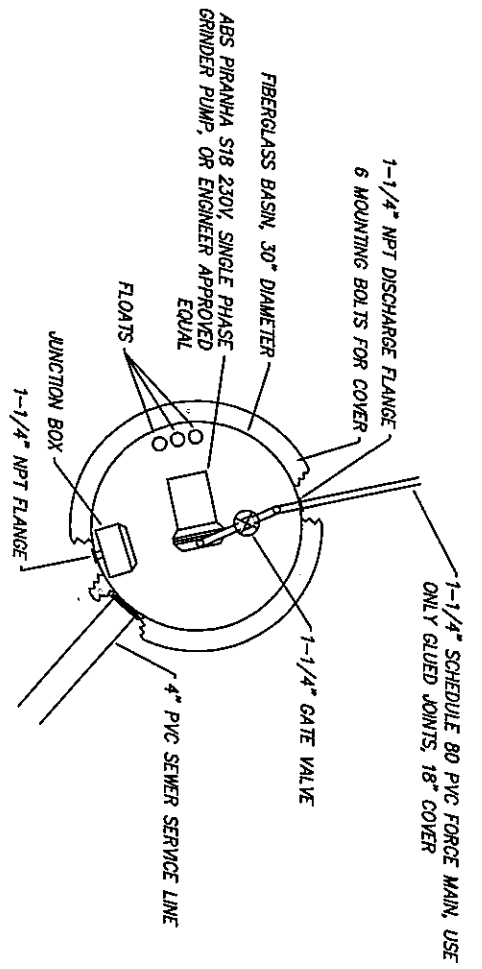
OIL AND GREASE TRAP SIZING

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-40A				

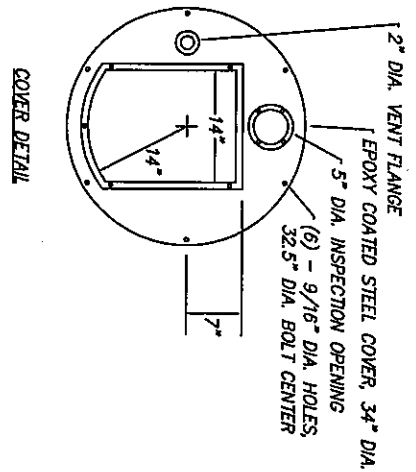
BUILDING WITH NEXT UPSTREAM MANHOLE HIGHER THAN THE LOWEST DRAIN AND BLOCKAGE IN SEWER MAIN



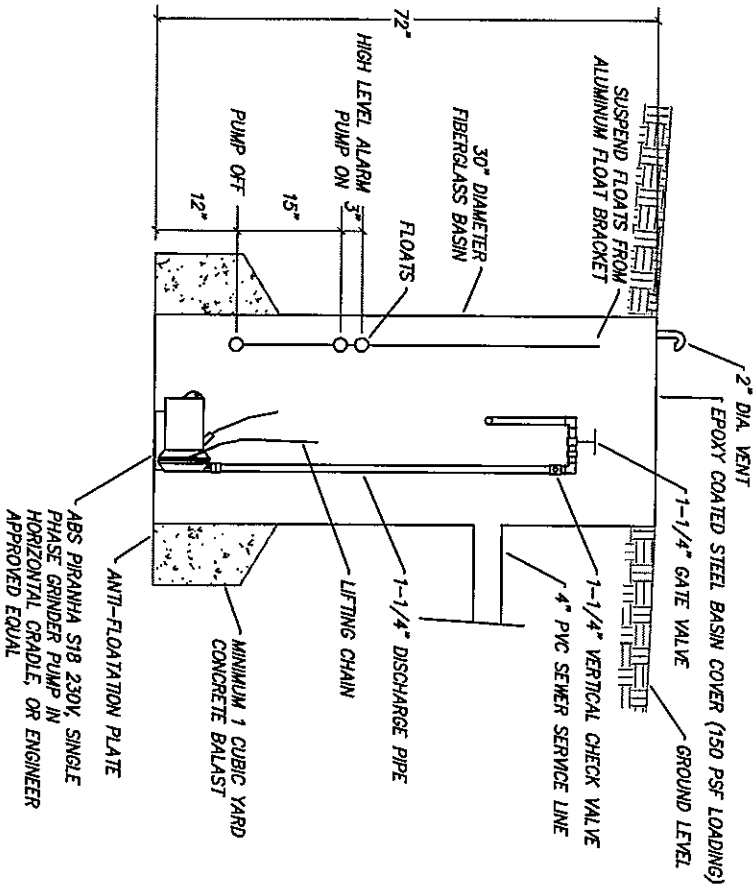
SGWASA				
UTILITY DEPARTMENT				
TYPICAL SEWER SERVICE REQUIRING BACKWATER VALVE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-41				



PLAN - COVER REMOVED

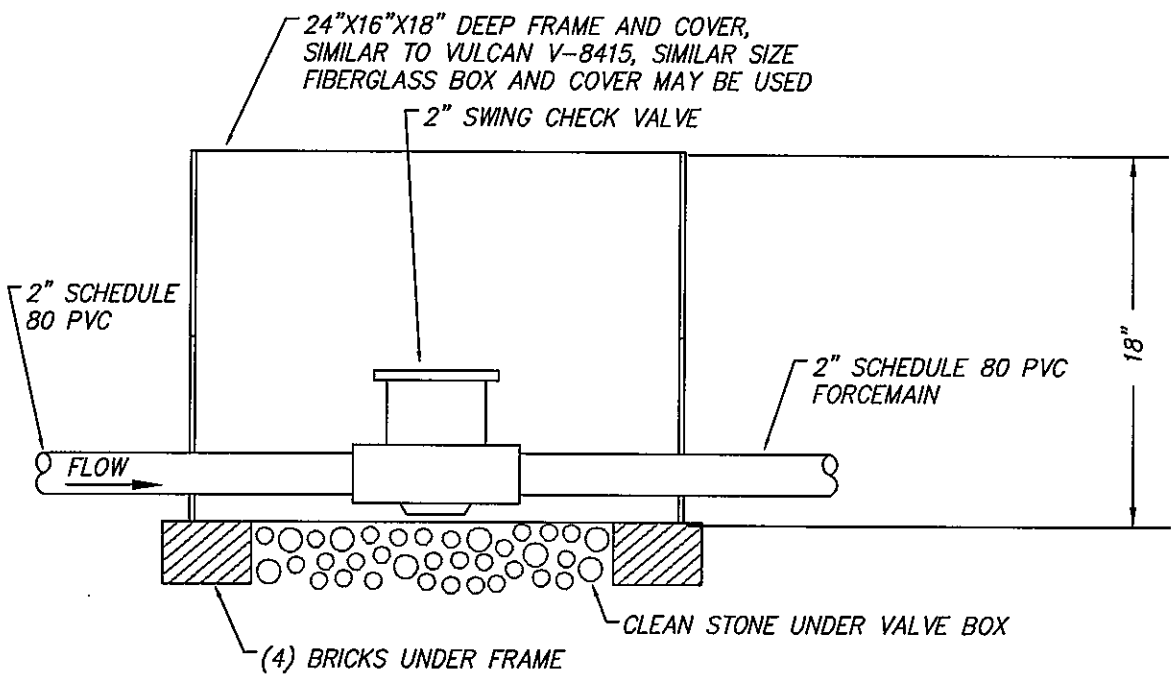
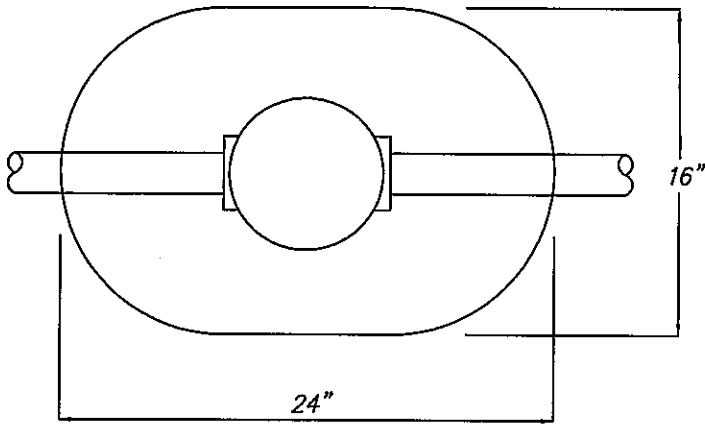


COVER DETAIL



SECTION

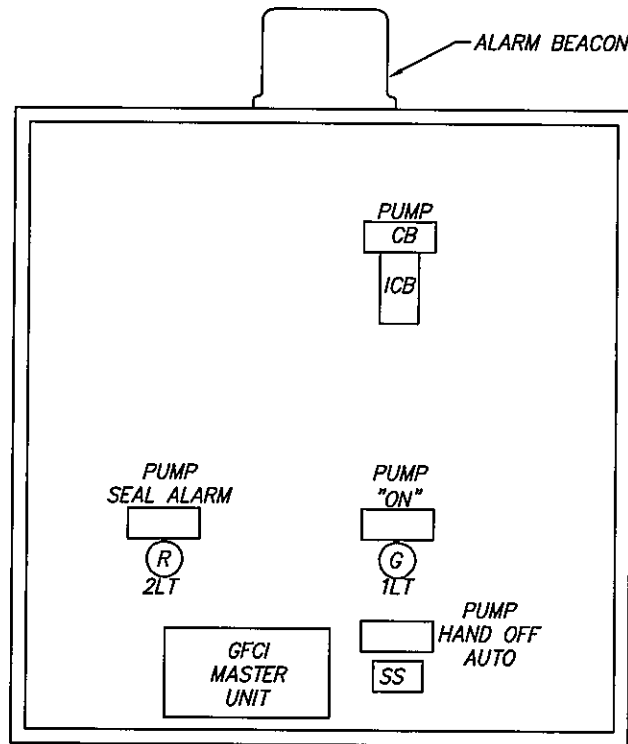
SGWASA			
UTILITIES DEPARTMENT			
TYPICAL RES. PUMP STATION			
PUMP STATION DETAIL			
DWG. NO.	REVISIONS	DATE	REVISIONS
S-42A			



2" SWING CHECK VALVE DETAIL

SGWASA
 UTILITIES DEPARTMENT
 TYPICAL RES. PUMP STATION
 SWING CHECK VALVE DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-42B				



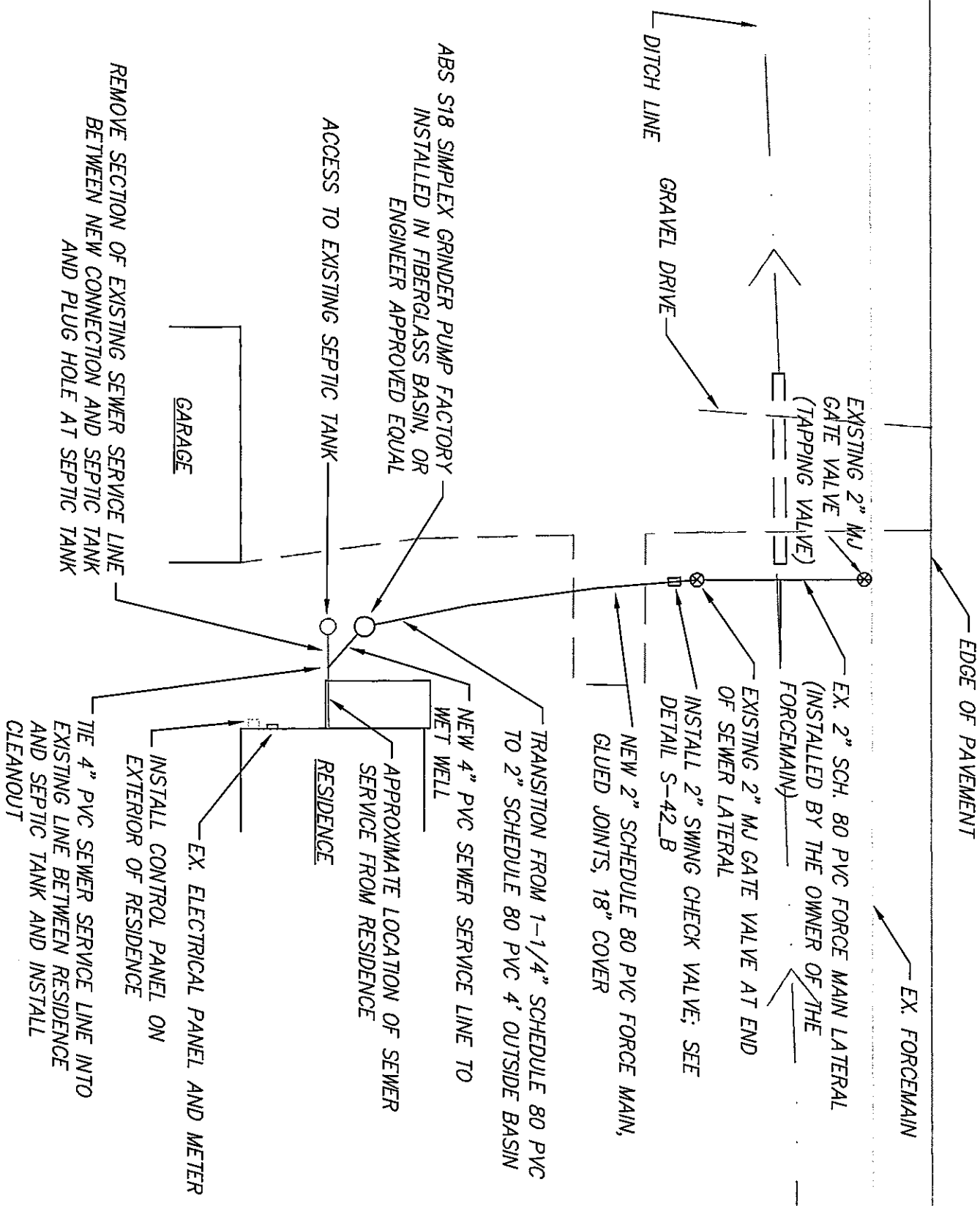
DEADFRONT LAYOUT

NOTES:

- * NEMA 4X FIBERGLASS ENCLOSURE (18" HIGH X 16" WIDE) WITH ALUMINUM INNER DEADFRONT.
- * EXTERIOR LOCKABLE HASP.
- * UL 508 LISTED INDUSTRIAL CONTROL PANEL.
- * THERMAL MAGNETIC CIRCUIT BREAKER FOR PUMP.
- * IEC RATED CONTACTOR, AMBIENT COMPENSATED THERMAL OVERLOAD RELAY FOR PUMP.
- * KLIXON (INTERNAL MOTOR THERMAL PROTECTION) WIRED TO AUTOMATICALLY SHUTDOWN PUMP UPON AN OVERTEMP CONDITION.
- * START CAPACITORS, RUN CAPACITORS, AND START RELAYS AS REQUIRED FOR SINGLE PHASE APPLICATION.
- * HAND-OFF-AUTO SELECTOR SWITCH.
- * GREEN PUMP ON INDICATOR LIGHT.
- * RED SEAL FAILURE INDICATOR LIGHT.
- * SOLID STATE SEALMINDER WATER SENSING RELAYS.
- * FLASHING HIGH LEVEL ALARM BEACON AND ALARM HORN WITH SILENCE SWITCH.
- * FUSE FOR PROTECTION OF 120VAC CONTROL CIRCUIT.
- * 600 VOLT RATED TERMINALS FOR FIELD WIRING OF PANEL.

CONTROL PANEL DETAIL

SGWASA				
UTILITIES DEPARTMENT				
TYPICAL RES. PUMP STATION CONTROL PANEL DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-42C				



SGWASA
 UTILITIES DEPARTMENT
 TYPICAL RESIDENTIAL FORCEMAIN PUMPSTATION
 SEWER SERVICE DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-42D				