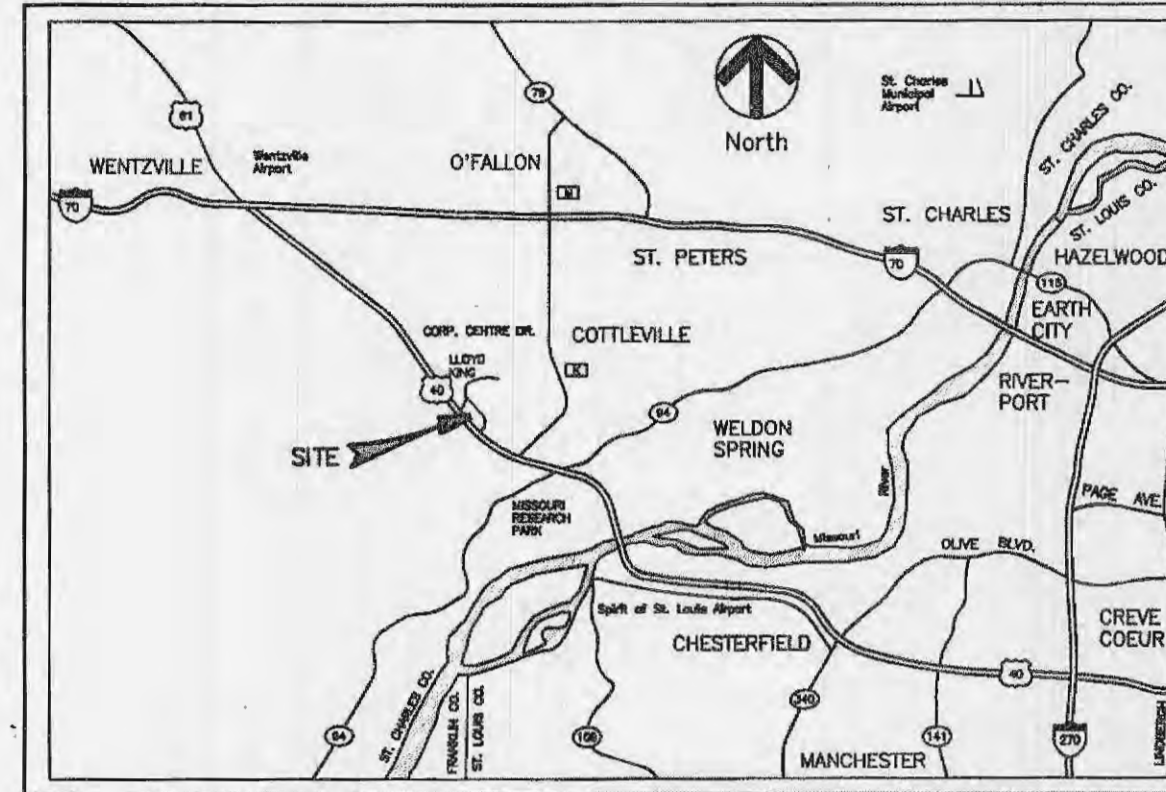


APC Lab Facility

A tract of land being all of Lot 2 of O'Fallon Corporate Centre, a subdivision according to the plat thereof recorded in Plat Book 33 Pages 28 through 32 of the Recorder of Deeds Office in St. Charles County, Missouri and being located in the City of O'Fallon, St. Charles County, Missouri



LOCATION MAP
(n.t.s.)

PERTINENT DATA:

SITE ACREAGE	= 14.60 ACRES ±
OWNER	= SYSTEMS ENHANCEMENT CORPORATION
EXISTING ZONING	= HTCD
SCHOOL DISTRICT	= FRANCIS HOWELL
WATER SHED AREA	= SCHOTE CREEK
FIRE DISTRICT	= COTTLEVILLE FIRE PROTECTION DISTRICT P.O. BOX 385 COTTLEVILLE, MO 63338 PH. (636) 447-6655 FAX (636) 441-1742 ATTN: MARK BOEHLE
SEWER DISTRICT	= DUCKETT CREEK SEWER DISTRICT 3550 HIGHWAY K O'FALLON, MO 63368-8616 PH. (636) 441-1244 FAX (636) 498-8150 ATTN: CHRISTINE BEASLEY
WATER SERVICE	= ST. CHARLES CO. WATER NO.2 100 WATER DRIVE O'FALLON, MO 63366 PH. (636) 561-3737 ATTN: BRIAN PIEPER
GAS SERVICE	= LACLEDE GAS CO. 1999 TRADE CENTER EAST ST. PETERS, MO 63376 PH. (636) 978-2663 x103 FAX (636) 342-9577 ATTN: MIKE LANGAN
ELECTRIC SERVICE	= AMEREN U.E. 200 CALLAHAN RD. WENTZVILLE, MO 63385 PH. (636) 639-8312 ATTN: DAVID GRAVIETT
PHONE SERVICE	= SBC 402 N. 3RD STREET ST. CHARLES, MO 63301 PH. (636) 949-1324 ATTN: TERRY ROGERS
SITE ADDRESS	= 801 CORPORATE CENTRE DRIVE (PHASE 1) = 807 CORPORATE CENTRE DRIVE (PHASE 2) O'FALLON, MO 63304-8685
PLANNING DEPT. FILE #	= 3105.02

STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. AND THE UNDERSIGNED ENGINEER HAVE NO RESPONSIBILITY FOR SERVICES PROVIDED BY OTHERS TO IMPLEMENT THE IMPROVEMENTS SHOWN ON THIS PLAN AND ALL OTHER DRAWINGS WHERE THE UNDERSIGNED ENGINEER'S SEAL APPEARS. THE CONSTRUCTION MEANS AND METHODS ARE THE SOLE RESPONSIBILITY OF THE OWNER AND CONTRACTOR. STOCK AND ASSOCIATES CONSULTING ENGINEERS, INC. HAS NO RESPONSIBILITY TO VERIFY FINAL IMPROVEMENTS AS SHOWN ON THIS PLAN UNLESS SPECIFICALLY ENGAGED AND AUTHORIZED TO DO SO BY THE OWNER OR CONTRACTOR.

UTILITY NOTE.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON-EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo.

LEGEND

EXISTING CONTOURS	----- 450
PROPOSED CONTOURS	----- 450
EXISTING SANITARY SEWERS	—○—
EXISTING STORM SEWERS	—□—
PROPOSED SANITARY SEWERS	—●—
PROPOSED STORM SEWERS	—■—
CENTERLINE	-----
EASEMENT	-----
CONCRETE PAVEMENT	[Pattern]
EXISTING TREES	[Tree Symbol]
EXISTING SPOT ELEVATION	+ 698.25
PROPOSED SPOT ELEVATION	+ 698.10
SWALE	[Swale Symbol]
TO BE REMOVED	TBR
TO BE REMOVED & RELOCATED	TBR & R
TO BE REMOVED & RELOCATED BY OTHERS	TBR & RBO
TO BE USED IN PLACE	UIP
BACK OF CURB	BC
FACE OF CURB	FC
ADJUST TO GRADE	ATG
GAS MAIN	G
WATER MAIN	W
FIRE HYDRANT	[Hydrant Symbol]
POWER POLE	[Pole Symbol]
TRAFFIC FLOW	[Arrow Symbol]

SITE BENCH MARK

"0" IN OPEN ON FIRE HYDRANT NORTH SIDE OF NATOLI DRIVE,
THIRD FIRE HYDRANT EAST OF LLOYD KING DRIVE.
ELEV. 553.35 (NGVD 1929)

INDEX

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C2	SPECIFICATION SHEET
C3	DEMOLITION PLAN
C4	SITE AND GRADING PLAN
C5	SITE GEOMETRIC PLAN
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C7	HYDRAULIC DATA AND DETAIL SHEET
C8	DRAINAGE AREA MAP
C9	DETAIL SHEET
C10	WARPING AND DETAIL SHEET
C11	UTILITY DETAILS
C12	EROSION AND SEDIMENT CONTROL PLAN

AS-BUILT

SEWER AND WATER LINE MEASUREMENTS

THE EXISTING WATER MAIN (PER STAKED OUT LOCATION), EXISTING SEWER LENGTHS, SIZES, FLOWLINES, DEPTHS OF STRUCTURES AND SEWERS AND LOCATIONS WITH RESPECT TO EXISTING OR PROPOSED EASEMENTS HAVE BEEN MEASURED. THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS. SINCE THE WYE LOCATIONS HAVE BEEN PLOTTED FROM INFORMATION PROVIDED BY THE SEWER CONTRACTOR OR OTHER SOURCES, I DISCLAIM ANY RESPONSIBILITY FOR THAT SPECIFIC INFORMATION.

ALL PUBLIC SEWERS AND WATER MAINS ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS EXCEPT AS FOLLOWS:



Randall S. Rosson 11-19-07
RANDALL S. ROSSON, MISSOURI P.L.S. NO. 2006000171 DATE

12-18-08
APPROVED

- ▲ - 11/05/07 CITY OF O'FALLON AS-BUILTS
- ▲ - 06/09/06 REVISED AmerenUE COMMENTS.
- ▲ - 05/15/06 REVISED PER SEWER DISTRICT COMMENTS.
ADDED ABANDONMENT NOTES TO SHEETS C3 and C4, REVISED LATERAL STATIONING, ADDED CONCRETE ENCASUREMENT.
- ▲ - 05/03/06 REVISED PER CITY COMMENTS
- ▲ - 04/25/06 REVISED PER CITY, SEWER DISTRICT AND CLIENT COMMENTS
- ▲ - 03/22/06 REVISED PER CITY AND CLIENT COMMENTS

APC LAB FACILITY
TITLE SHEET

Stock & Associates
Consulting Engineers, Inc.

257 Chesterfield Business Parkway
St. Louis, MO 63005
PH. (636) 530-9100
FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

DRAWN BY: G.M.S. DATE: 01/23/06 CHECKED BY: D.P.B. DATE: 01/23/06 JOB NUMBER: 205-3635.1 SHEET: C1 of C12

Owner/Developer
Systems Enhancement Corporation
801 Corporate Centre Drive
O'Fallon, MO. 63304-8685
Phone (636) 300-2300 ext 11233
Fax (636) 300-2333
Contacts: Mr. Rollie Johnson
Ms. Karen L. Cooper (314) 277-1135

C:\DRAWING\2005\3635\2053635.1\armey\As-Built\C-01_TITLE-AS.dwg
Nov 19, 2007 - 2:34pm

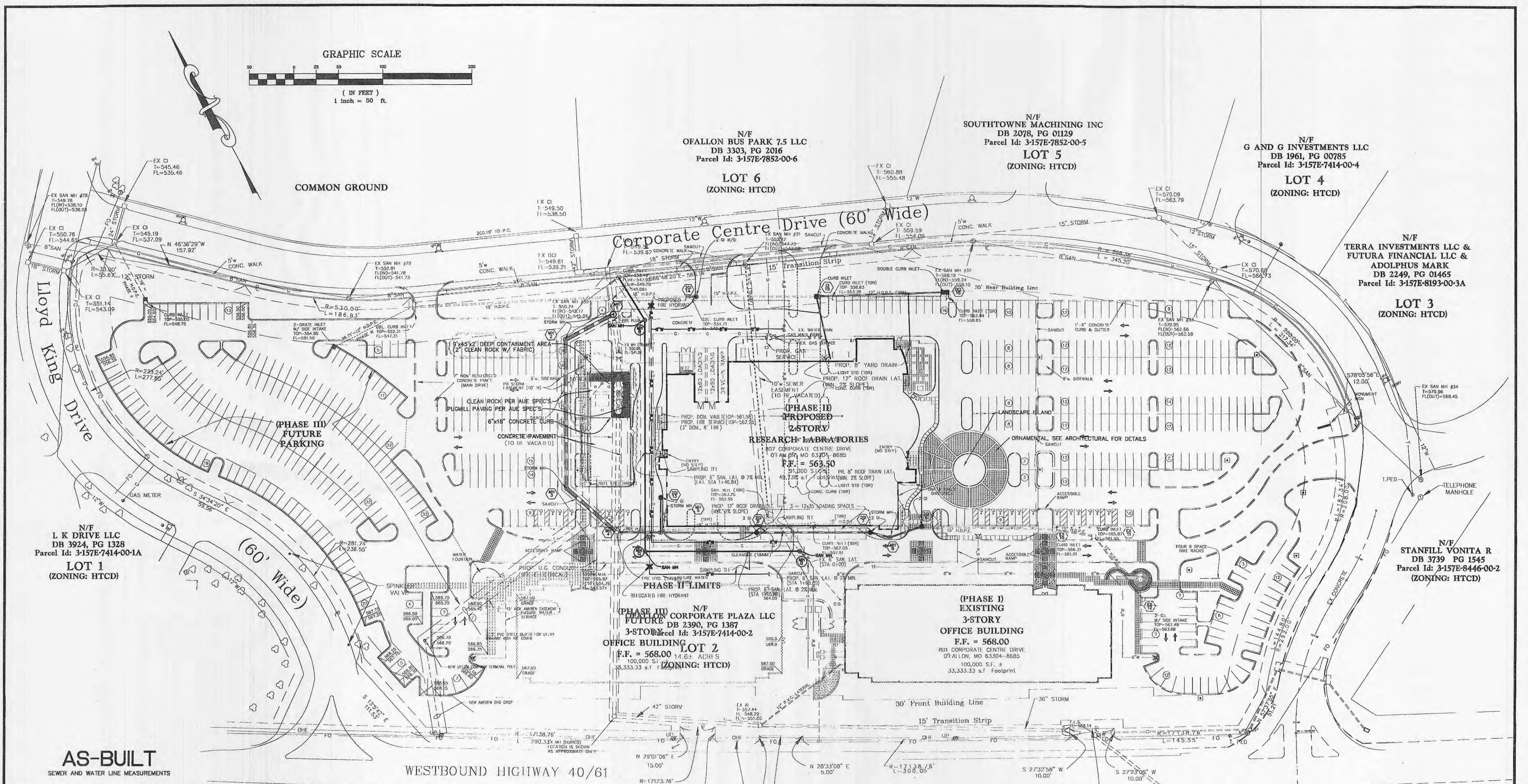
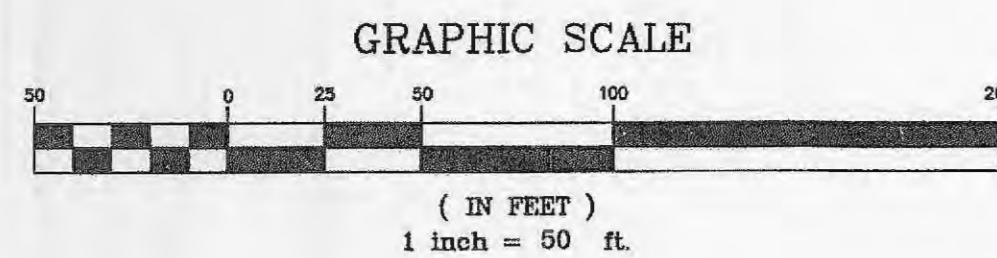
CITY OF O'FALLON, MISSOURI PLANNING AND ENGINEERING DEPT. FILE NO. 3105.02
APPROVED BY PLANNING & ZONING COMMISSION ON 03/26/2006



MoDOT LOCATE (314) 340-4100

GEORGE M. STOCK E-25116

File



AS-BUILT
SEWER AND WATER LINE MEASUREMENTS

THE EXISTING WATER MAIN (PER STAKED OUT LOCATION), EXISTING SEWER LENGTHS, SIZES, FLOWLINES, DEPTHS OF STRUCTURES AND SEWERS AND LOCATIONS WITH RESPECT TO EXISTING OR PROPOSED EASEMENTS HAVE BEEN MEASURED. THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS. SINCE THE WYE LOCATIONS HAVE BEEN PLOTTED FROM INFORMATION PROVIDED BY THE SEWER CONTRACTOR OR OTHER SOURCES, I DISCLAIM ANY RESPONSIBILITY FOR THAT SPECIFIC INFORMATION.

ALL PUBLIC SEWERS AND WATER MAINS ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS EXCEPT AS FOLLOWS:

Randall S. Rosson 11-19-07
RANDALL S. ROSSON, MISSOURI P.L.S. NO. 2008000171 DATE

DUCKETT CREEK SANITARY SEWER ABANDONMENT NOTICE

1. EXISTING SANITARY SEWER SERVICE SHALL NOT BE INTERRUPTED.
2. DUCKETT CREEK SANITARY SEWER DISTRICT (DCSD) INSPECTION, COORDINATION AND APPROVAL IS REQUIRED FOR ABANDONMENT OF EXISTING SANITARY SEWER MAIN.
3. EXISTING SANITARY SEWER MAIN SHALL NOT BE ABANDONED UNTIL REPLACEMENT SANITARY SEWER MAIN IS INSTALLED, INSPECTED AN APPROVED BY DCSD FIELD INSPECTOR.
4. EASEMENT VACATION AND DEDICATION EXHIBITS WILL BE RECORDED AT SUCH TIME AS THE REPLACEMENT SANITARY SEWER IS IN PLACE AND APPROVED.
5. EXISTING SEWER MAIN TO BE ABANDONED SHALL BE GROUT FILLED AND PLUGGED AT EACH TERMINUS OF ABANDONED PIPE.
6. EXISTING MANHOLES TO BE ABANDONED SHALL BE REMOVED.

- 11/08/2006 - UPDATES PER ARCHITECT
- 07/12/2006 - ADDITIONAL SPOT GRADES ON NORTHWEST BUILDING FACE

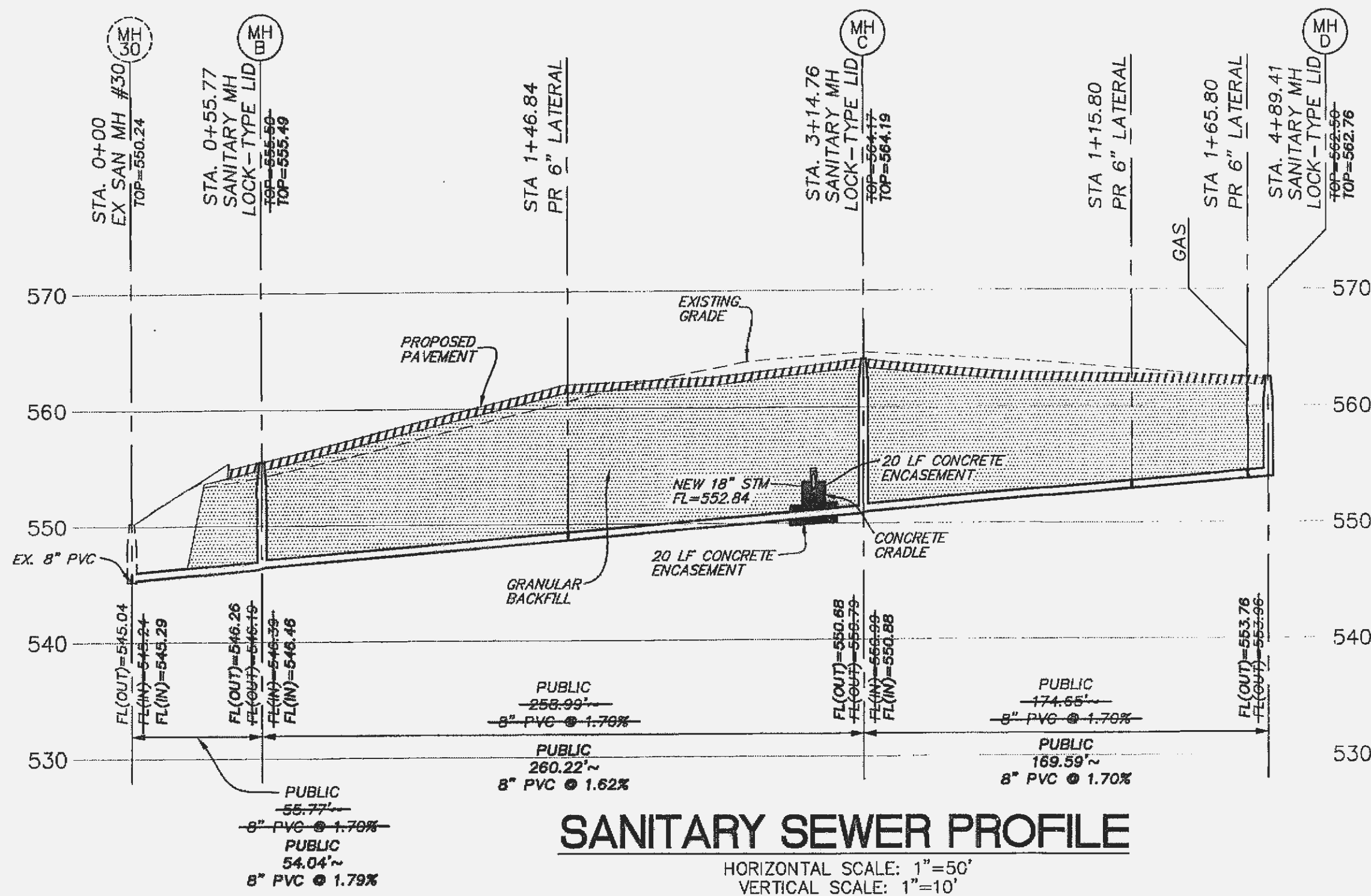
- ▲ - 11/05/07 CITY OF O'FALLON AS-BUILTS
- ▲ - 06/09/06 REVISED AMEREN/UE COMMENTS.
- ▲ - 05/15/06 REVISED PER SEWER DISTRICT COMMENTS. ADDED ABANDONMENT NOTES TO SHEETS C3 and C4, REVISED LATERAL STATIONING, ADDED CONCRETE ENCASUREMENT.
- ▲ - 05/03/06 REVISED PER CITY COMMENTS
- ▲ - 04/25/06 REVISED PER CITY, SEWER DISTRICT AND CLIENT COMMENTS
- ▲ - 03/27/06 REVISED PER CITY AND CLIENT COMMENTS

APC LAB FACILITY
SITE AND GRADING PLAN

STOCK & ASSOCIATES
Consulting Engineers, Inc.

257 Chesterfield Business Parkway
St. Louis, MO 63005
PH. (636) 530-9100
FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

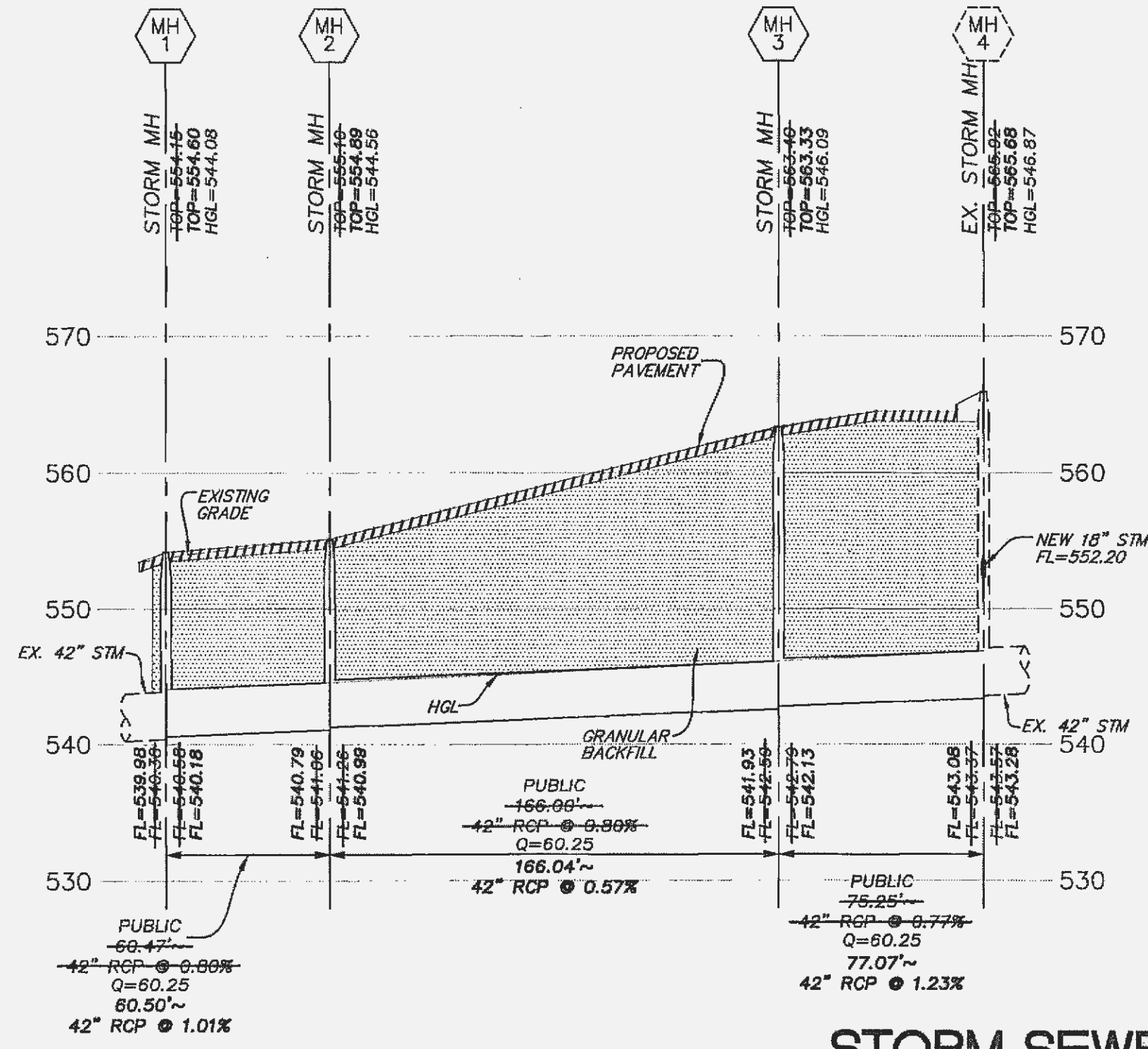
DRAWN BY: GEORGE M. STOCK E-25116 DATE CHECKED BY: A.C.D. 01/23/06 D.P.B. DATE: JOB NUMBER: 205-3635.1 SHEET: C4 of C12



SANITARY SEWER PROFILE

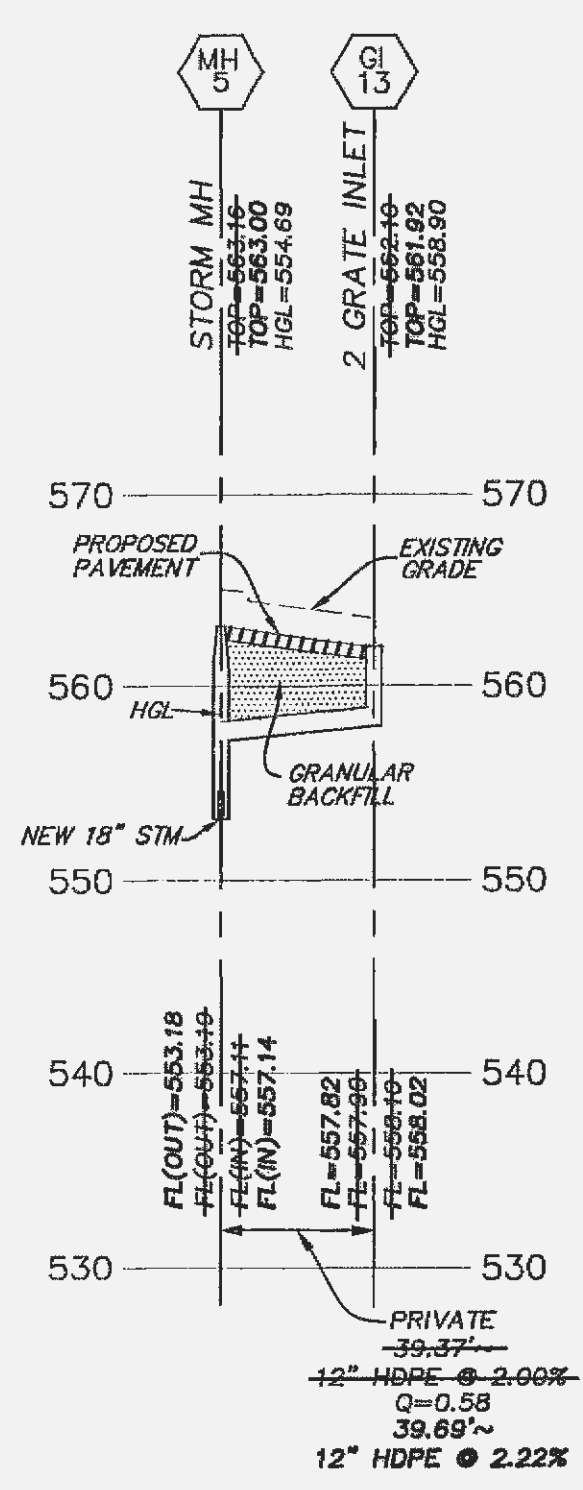
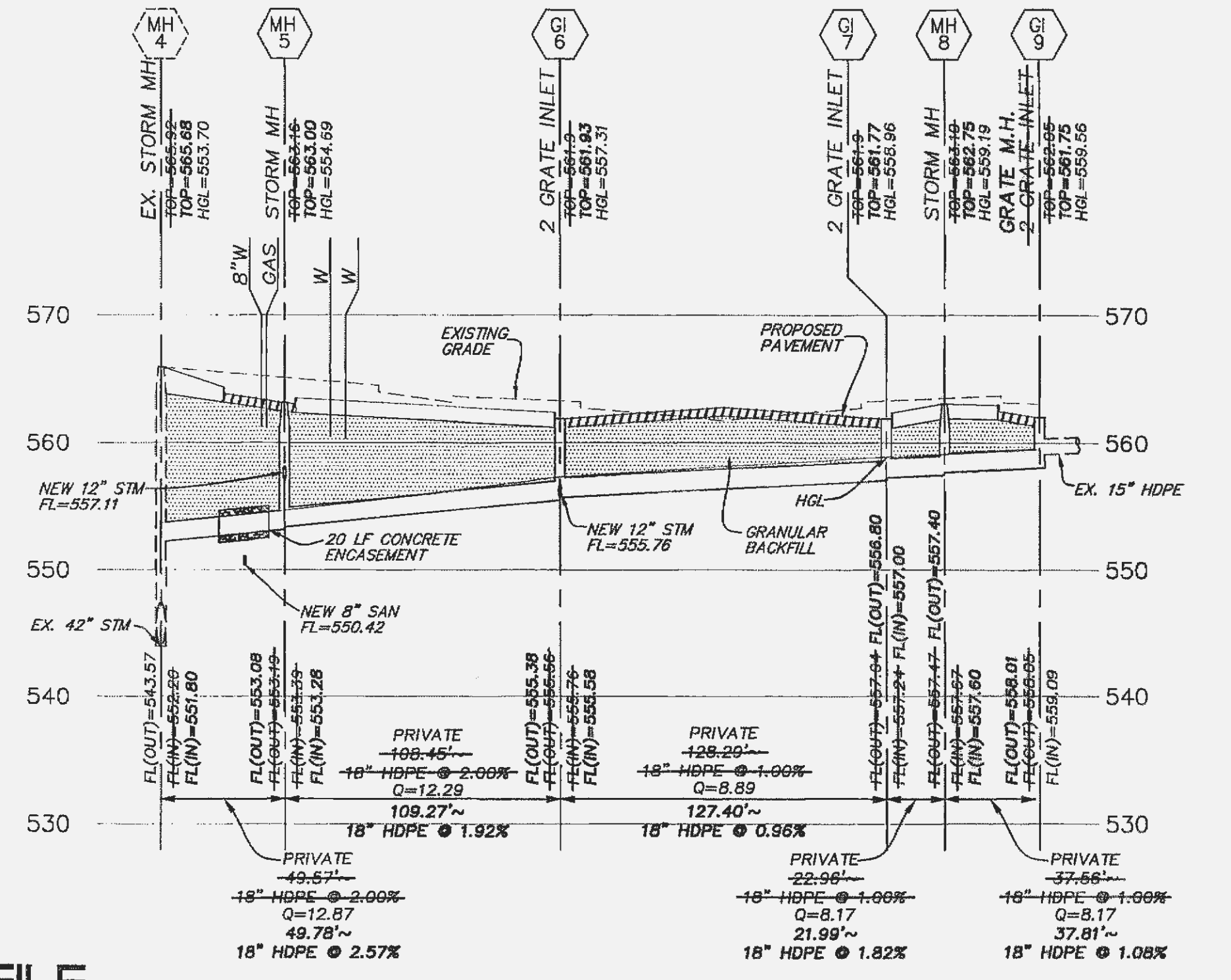
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

NOTE: EXISTING SANITARY SEWER SERVICE SHALL NOT BE INTERRUPTED.



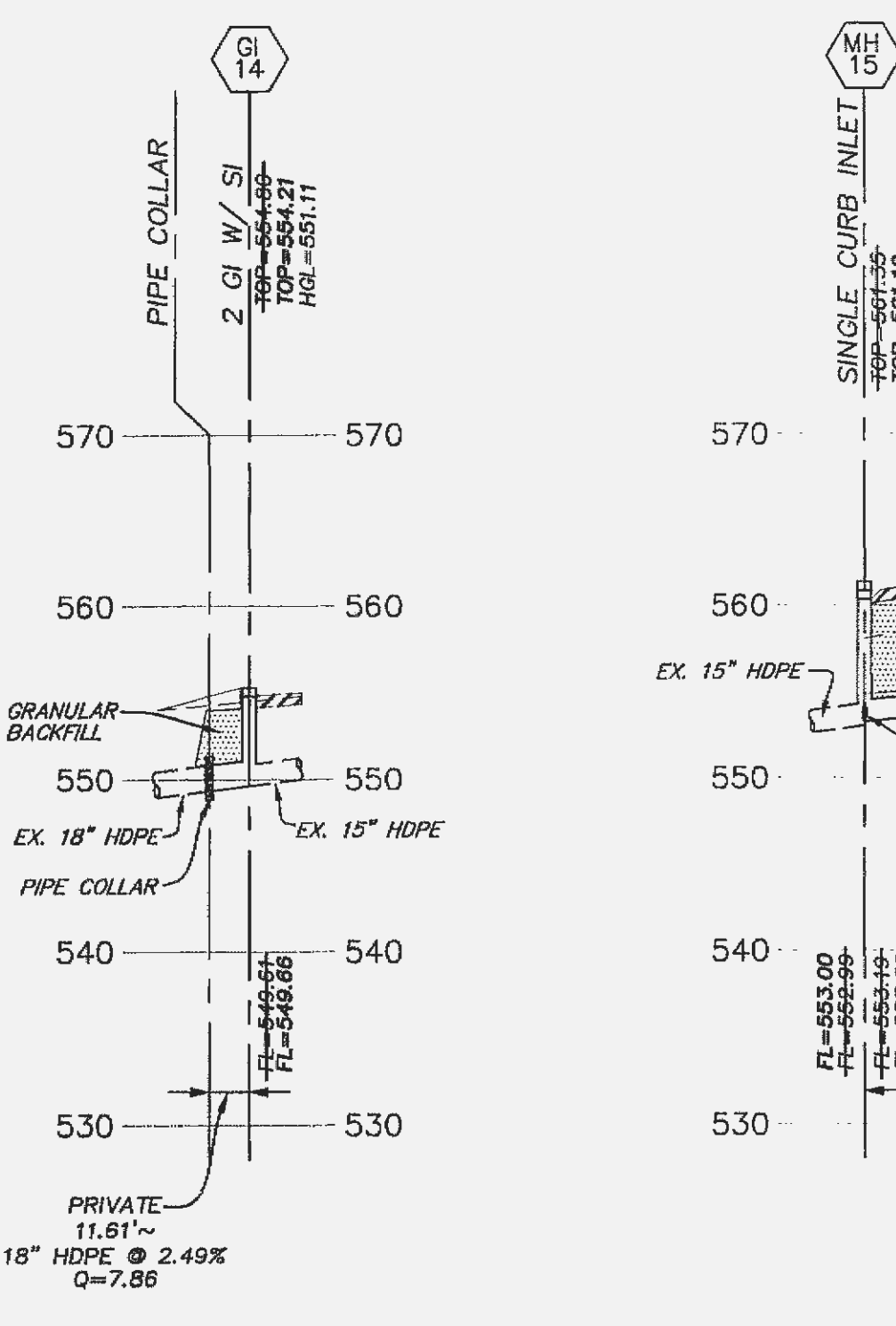
STORM SEWER PROFILE

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'



AS-BUILT

SEWER AND WATER LINE MEASUREMENTS

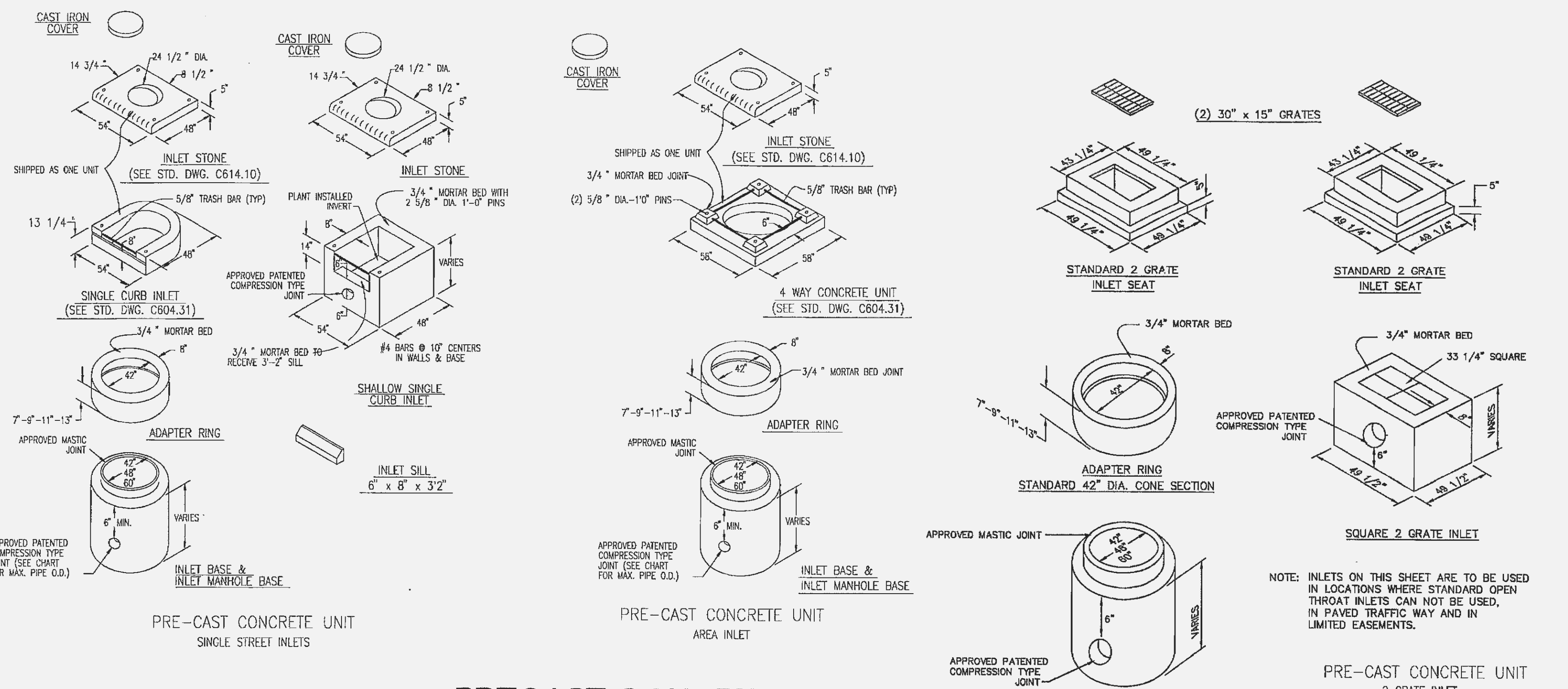


STORM SEWER PROFILE

HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

NOTE: PROVIDE STORM SEWER INLET MARKINGS PER FOLLOWING:

Manufacturer	Size	Adhesive	Style	Message (Part #)	Website
ACP International	3"	Epoxy	Crystal Cap	No Dumping Drains To Waterways (SD-W-CC)	www.acpinternational.com
DAS Manufacturing, Inc.	4"	Epoxy	Standard Style	No Dumping Drains To Stream (#SDS)	www.dasmanufacturing.com



PRE-CAST CONCRETE STORMWATER STRUCTURES

(n.t.s.)

NOTE: PRE-CAST CONCRETE STRUCTURES ARE TO BE USED UNLESS OTHERWISE APPROVED BY THE CITY.

PRE-CAST CONCRETE STORMWATER STRUCTURES

MINIMUM DISTANCE FLOWLINE TO TOP OF STONE OR GRATE

PIPE ID NOMINAL INCHES	AREA INLET CIRCULAR BASE DIA.			2 GRADE INLET CIRCULAR BASE DIA. SQUARE			SINGLE STREET INLET CIRCULAR BASE DIA. RECTANGLE		
	42"	48"	60"	42"	48"	60" (MAX)	42"	48"	60" (MAX)
12"	45"			38"	31"		48"	48"	41"
15"	48"			41"	34"	51"	51"	51"	44"
18"	52"			44"	37"	55"	55"	55"	48"
21"	55"			47"	40"	58"	58"	58"	51"
24"		58"			51"	44"	61"	61"	54"
27"			78"		71"	NA	81"	81"	NA
30"			82"		74"	NA	85"	85"	NA
33"			85"		77"	NA	88"	88"	NA

NOTE: 1. 48" DIA. BASE REQUIRES 7" HIGH TRANSITION SECTION TO 42" DIA. SIMILAR TO "ADAPTER RING".
2. 60" DIA. BASE REQUIRES 24" HIGH CONCENTRIC REDUCER TRANSITION TO 42" DIA. SIMILAR TO "ADAPTER RING".

GENERAL NOTES

- Do not scale drawing. Follow dimensions.
- The details shown are adapted from the "Revised Standard Construction Details for Sewer and Drainage Facilities" of the Metropolitan St. Louis Sewer District dated 2000.
- The standard specification section noted refer to the "Standard Construction Specifications for Sewers and Drainage Facilities" of the Metropolitan St. Louis Sewer District dated 2000.
- Class A concrete refers to the Metropolitan St. Louis Sewer District requirements.

- 11/05/07 CITY OF O'FALLON AS-BUILTS
- 05/09/06 REVISED AmericanUE COMMENTS.
- 05/15/06 REVISED PER SEWER DISTRICT COMMENTS. ADDED ABANDONMENT NOTES TO SHEETS C3 AND C4, REVISED LATERAL STATIONING, ADDED CONCRETE ENCASUREMENT.
- 05/03/06 REVISED PER CITY COMMENTS
- 04/25/06 REVISED PER CITY, SEWER DISTRICT AND CLIENT COMMENTS
- 03/22/06 REVISED PER CITY AND CLIENT COMMENTS

APC LAB FACILITY SEWER PROFILE AND DETAIL SHEET

Stock & Associates
Consulting Engineers, Inc.

257 Chesterfield Business Parkway
St. Louis, MO 63005
PH: (636) 530-9100
FAX: (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

DRAWN BY: A.C.D. DATE: 01/23/06 CHECKED BY: D.P.B. DATE: 01/23/06 DATE: 01/23/06 JOB NUMBER: 205-3635.1 SHEET: C6 of C12

includes minor losses at drop structure
check for multiple incoming lines for additional junction losses

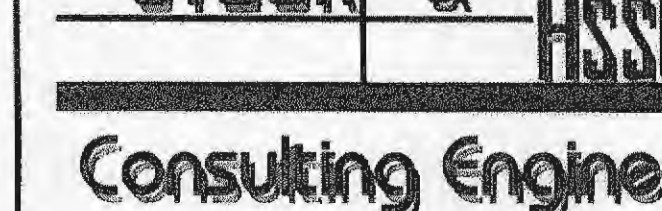
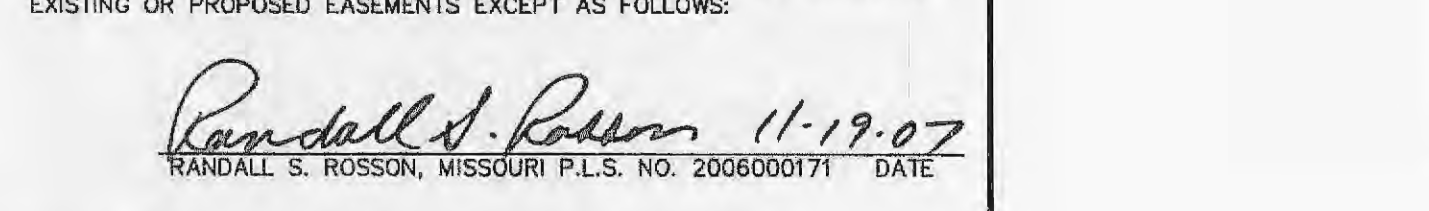
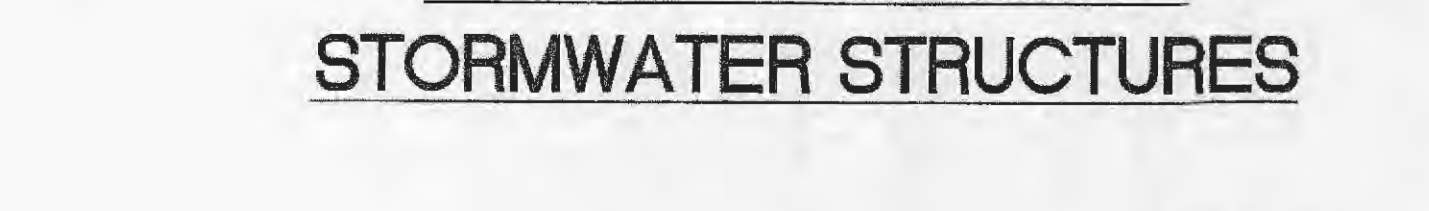
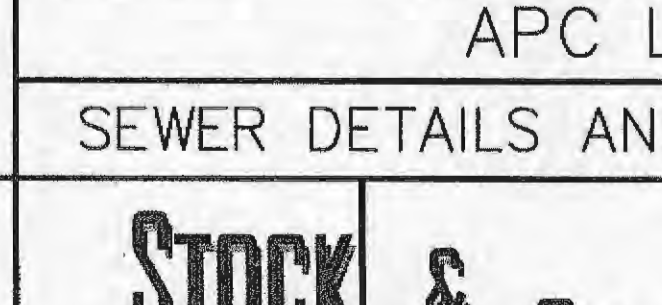
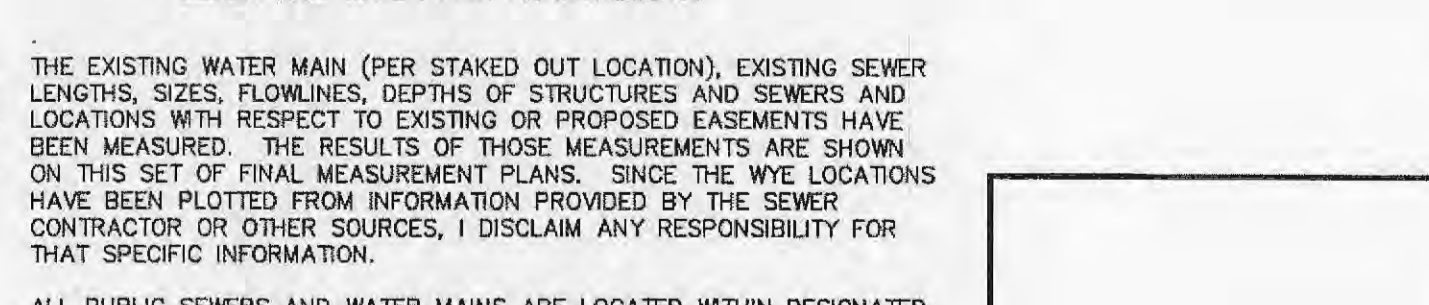
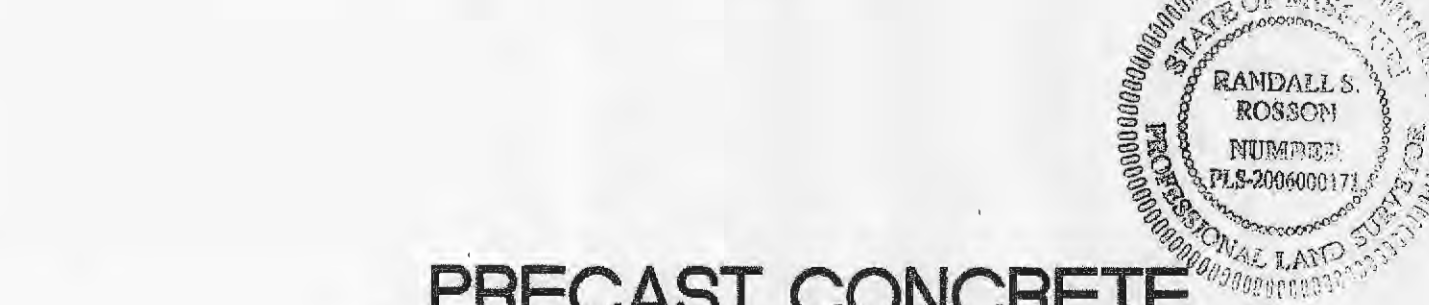
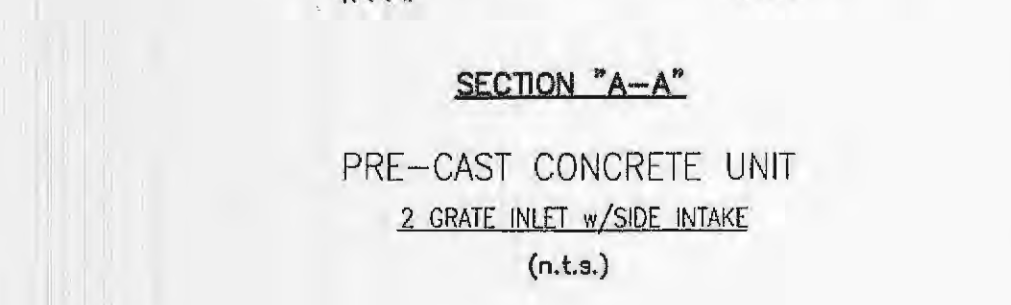
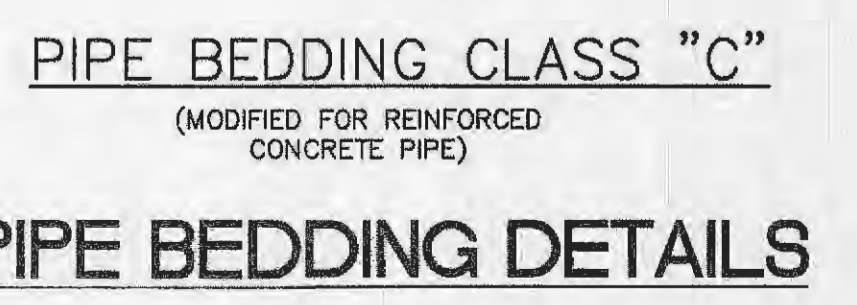
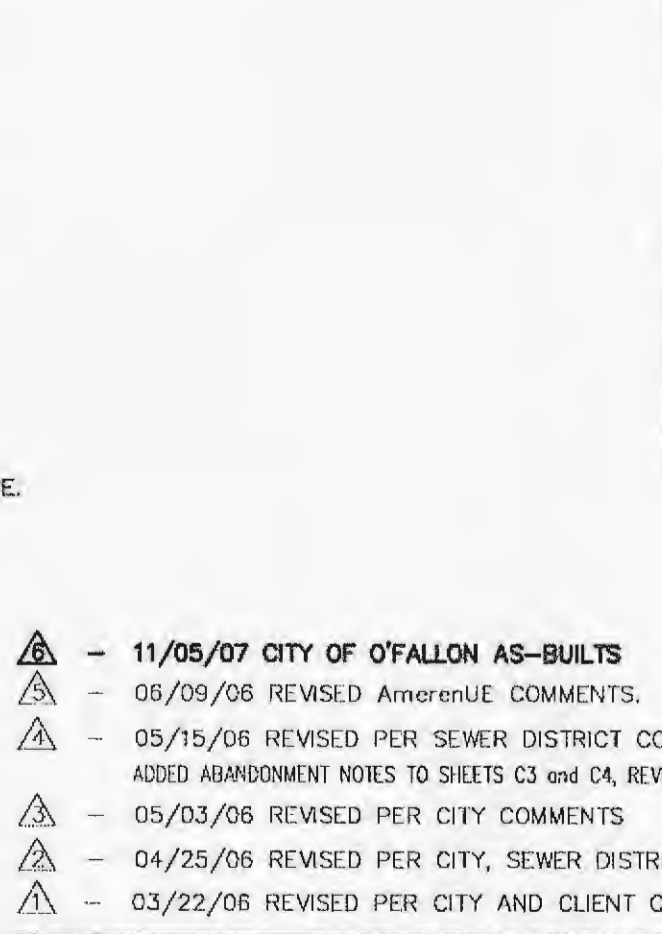
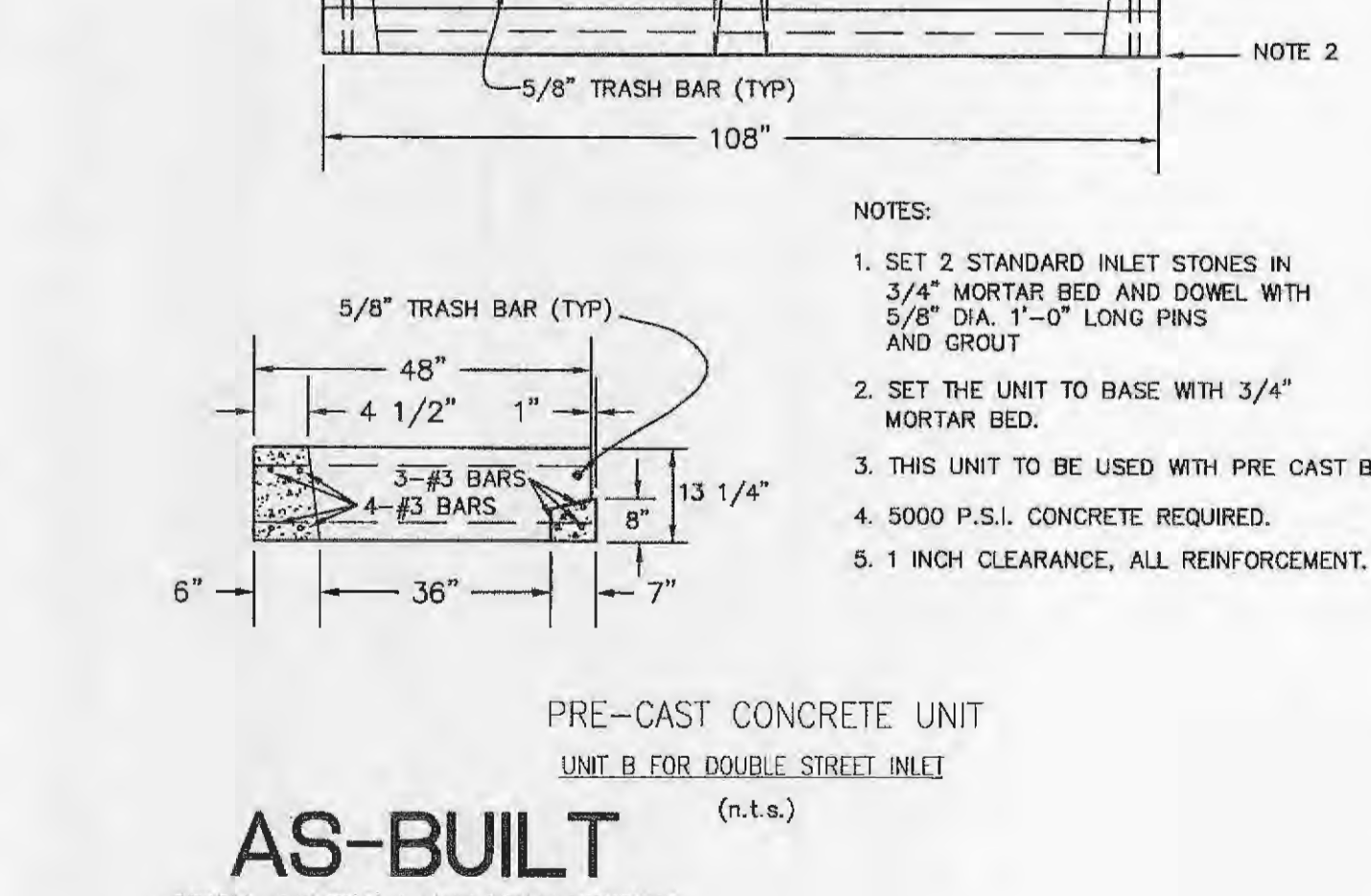
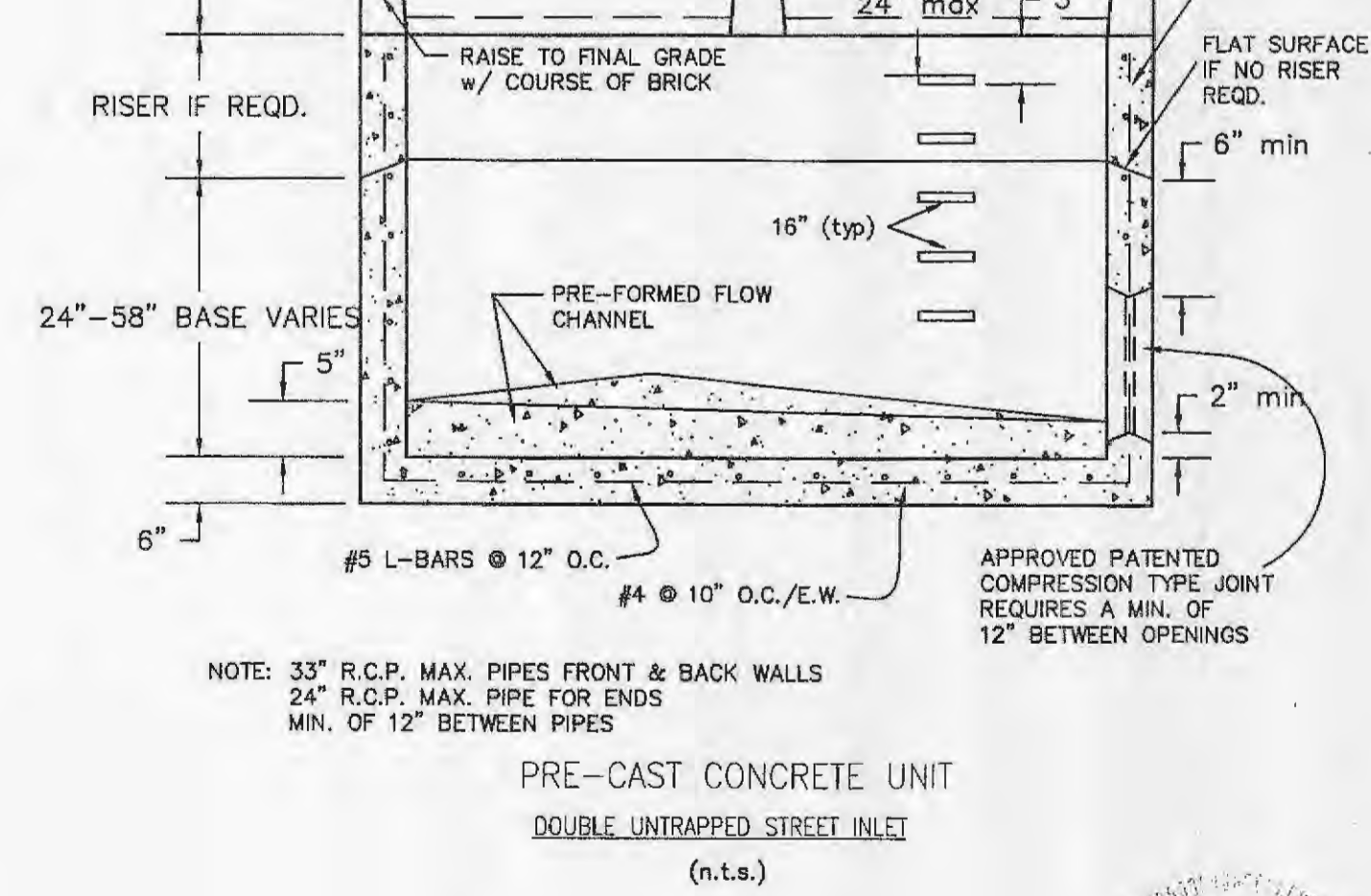
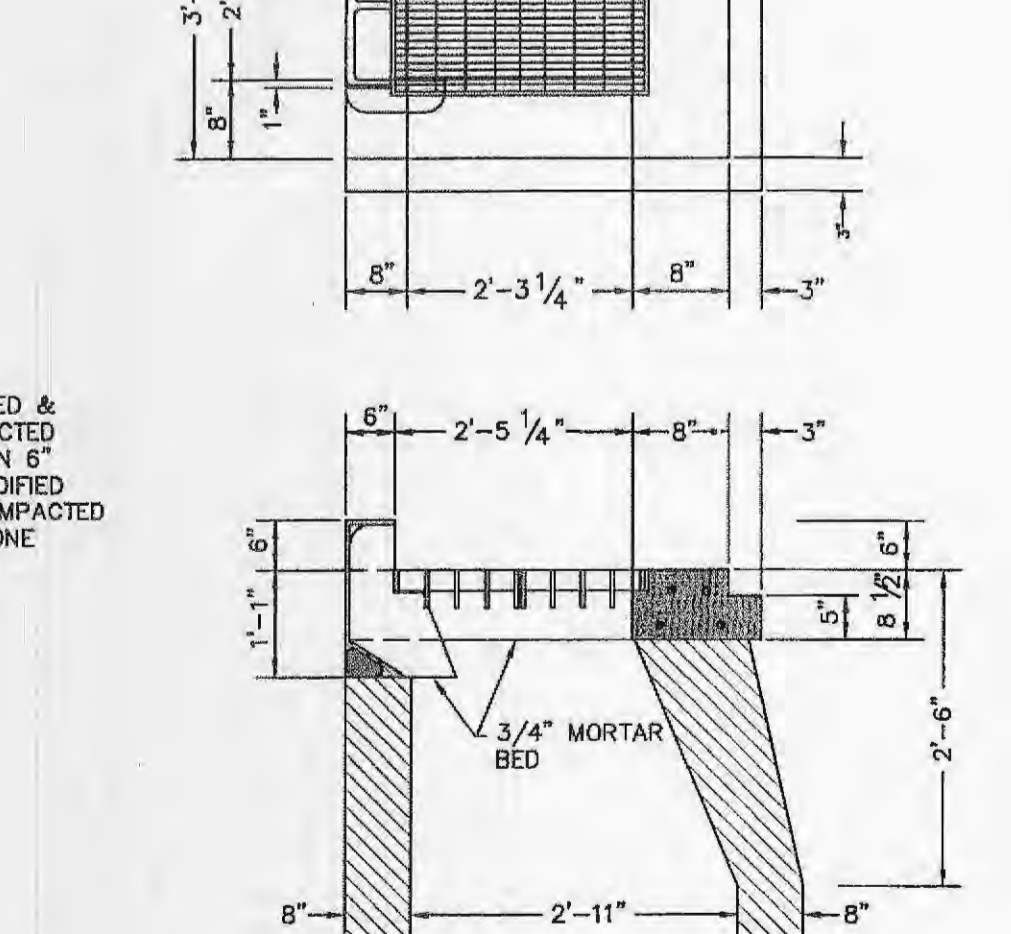
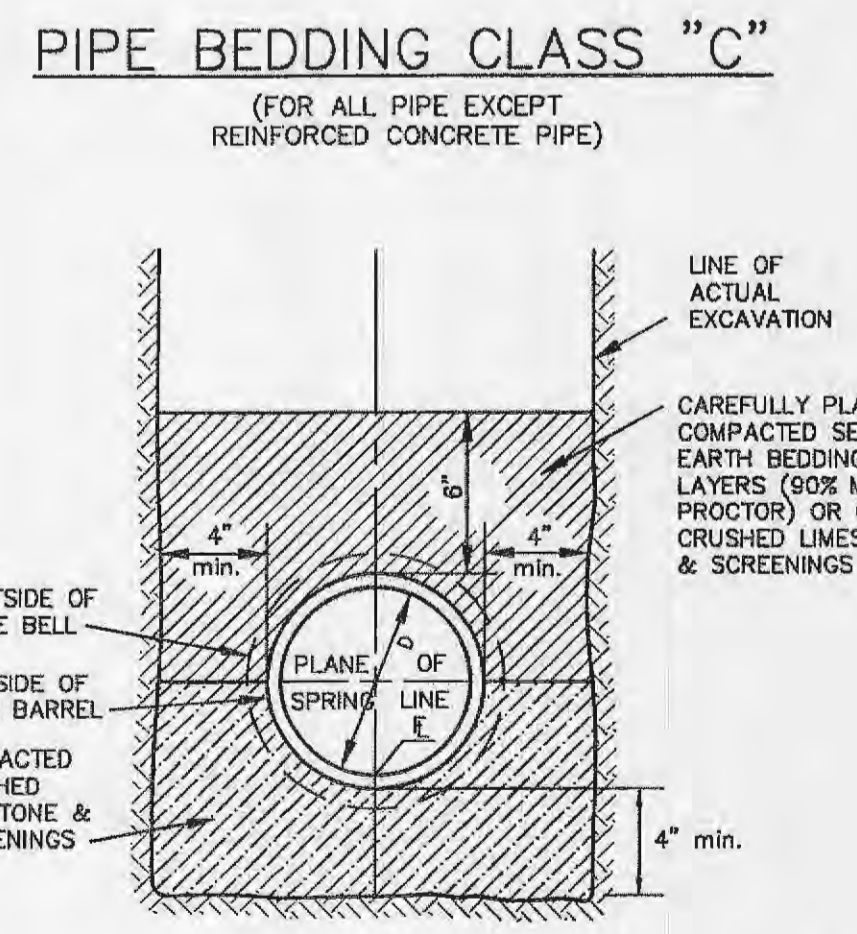
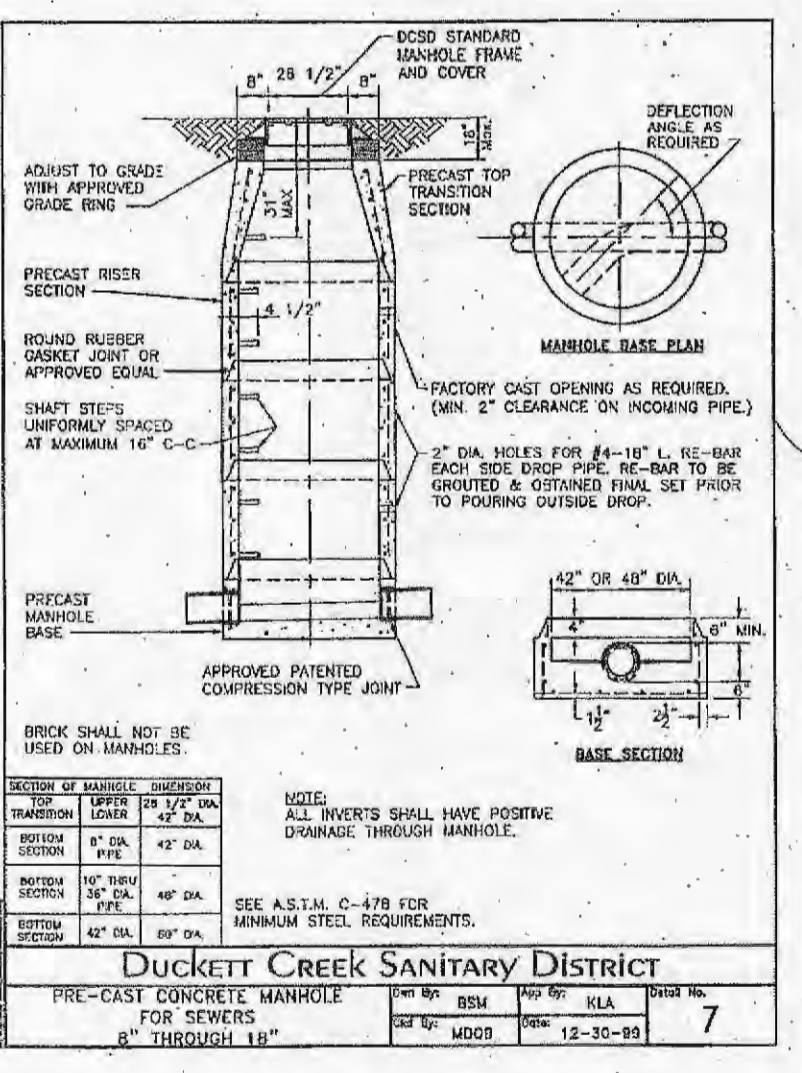
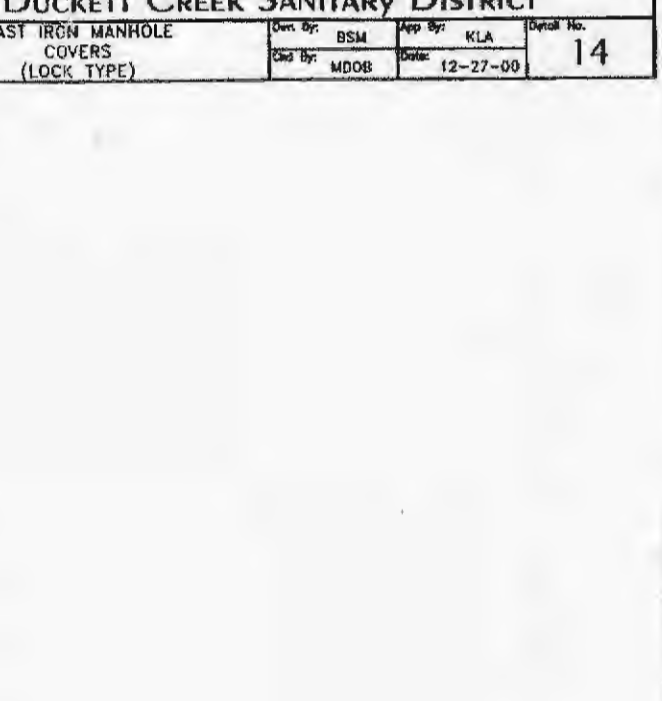
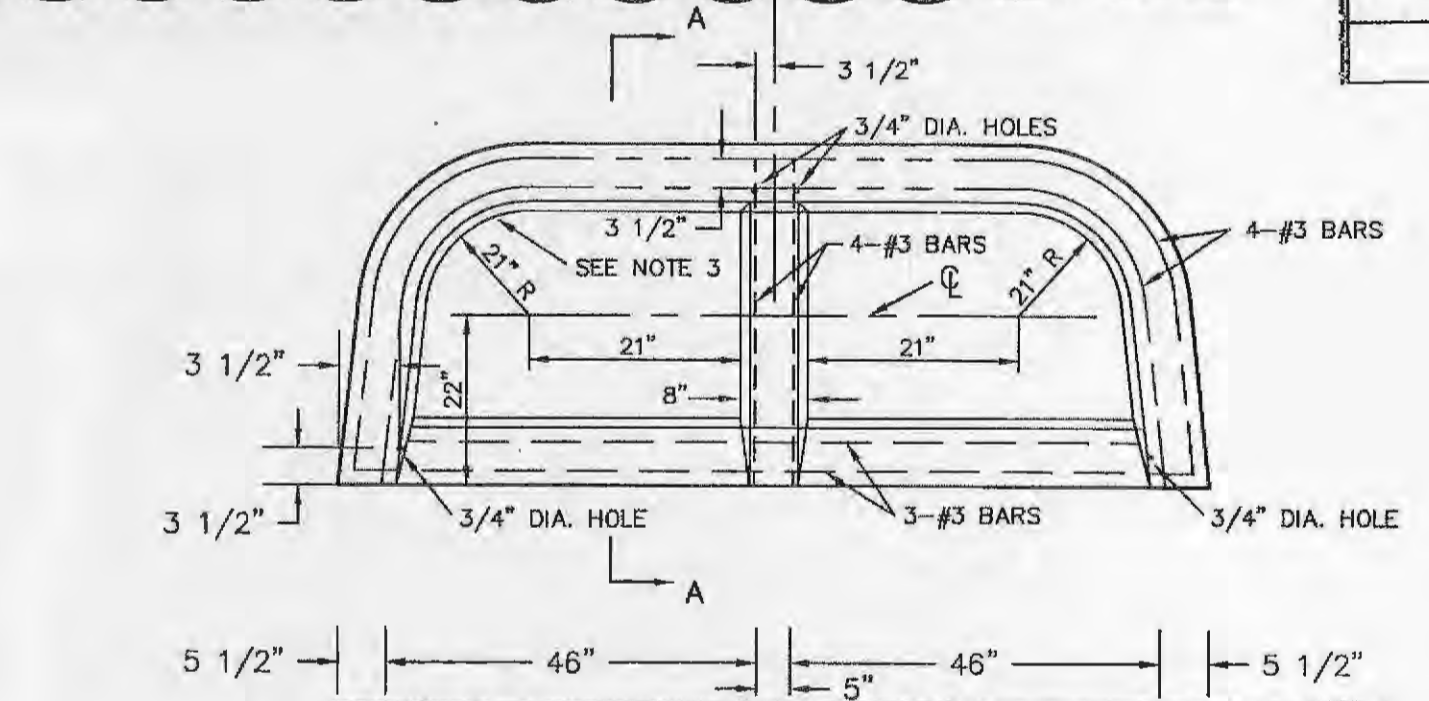
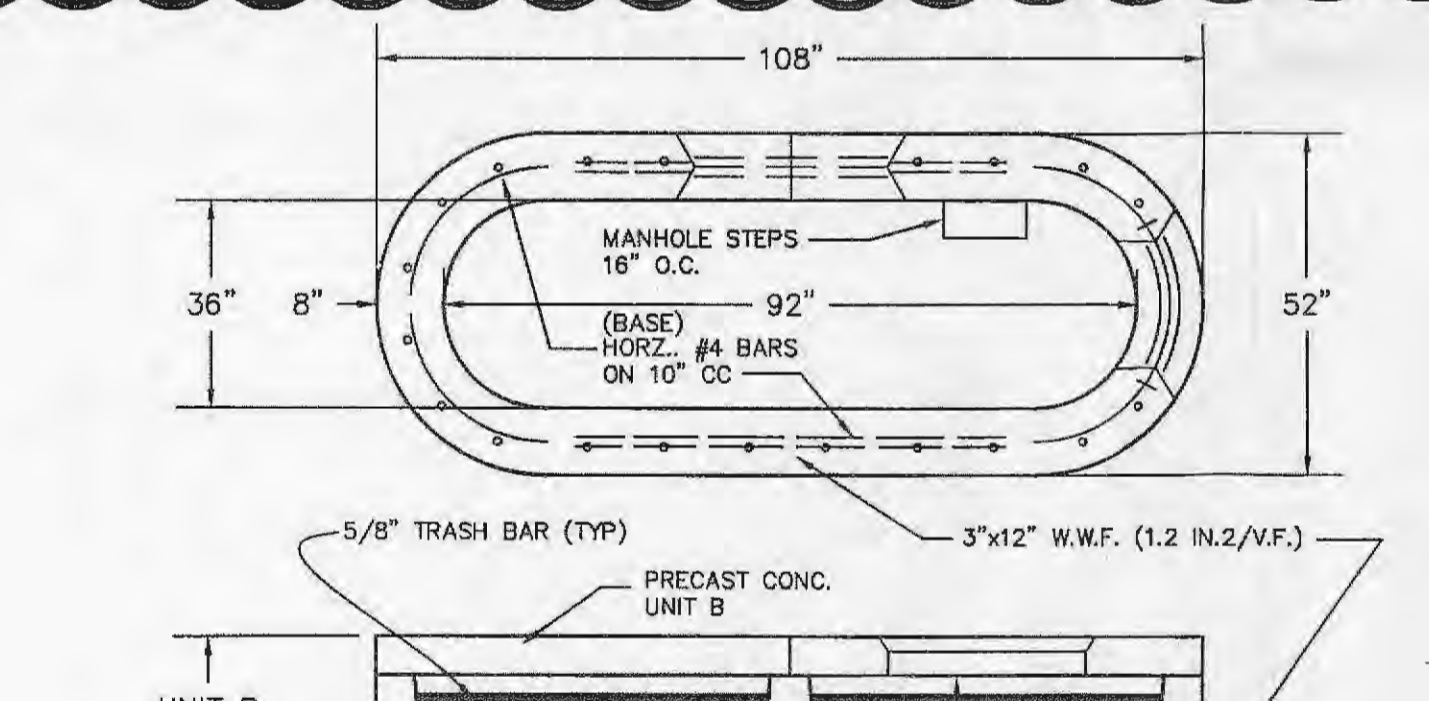
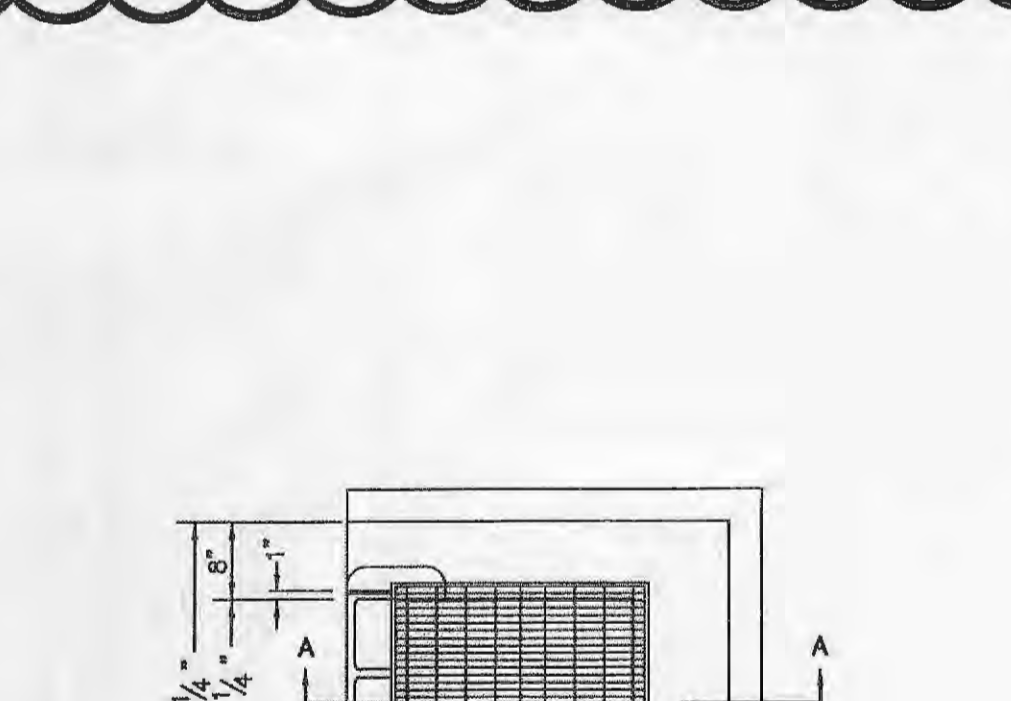
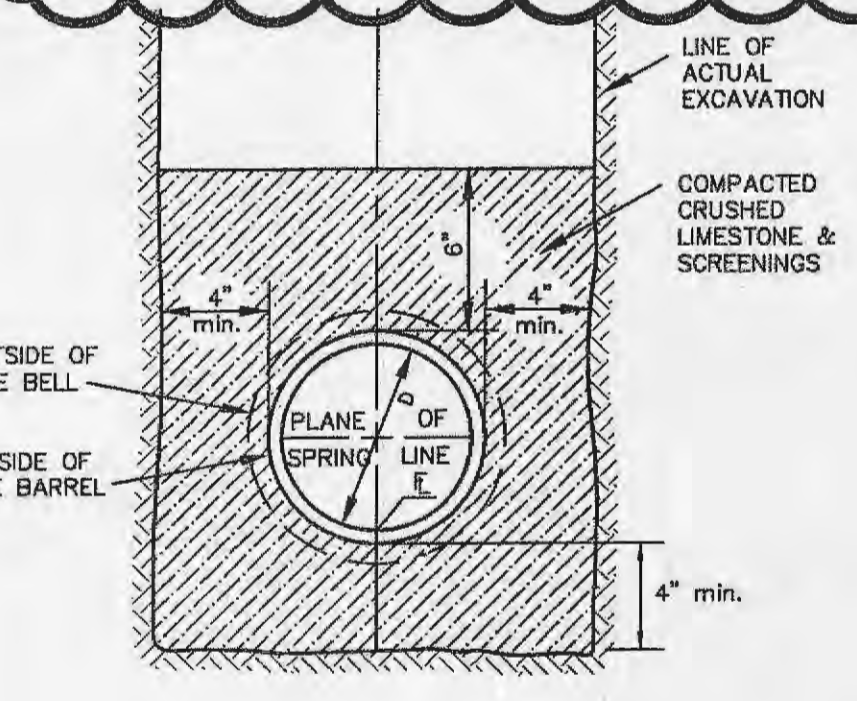
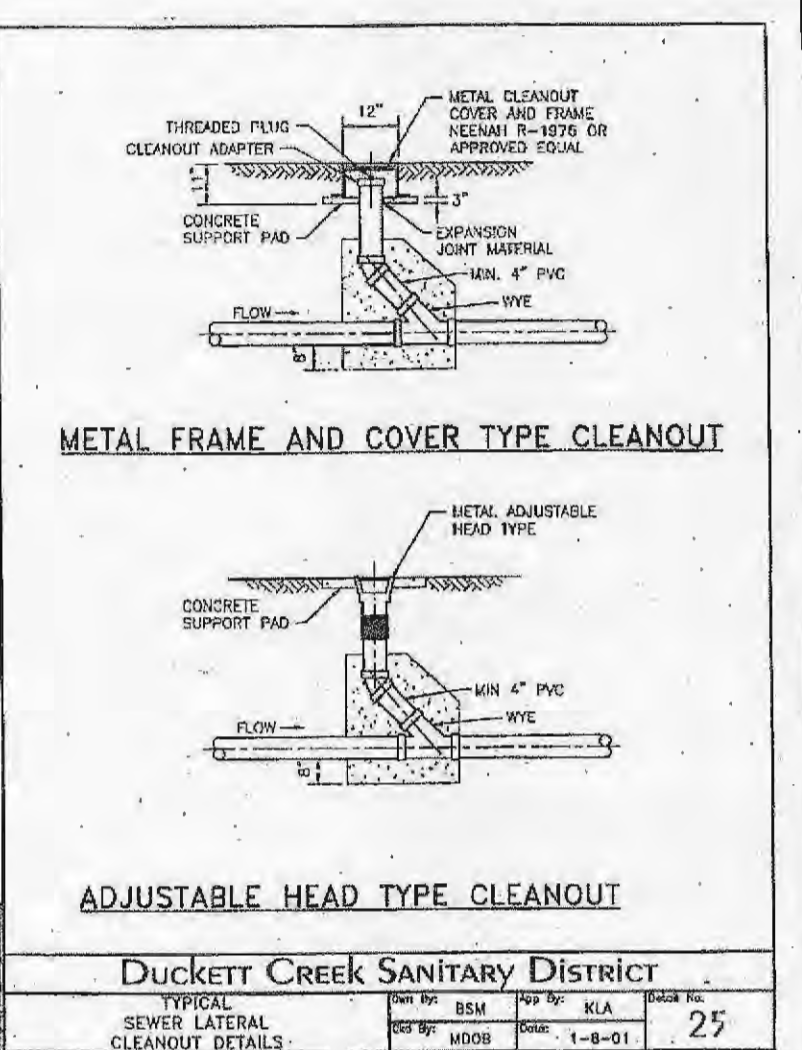
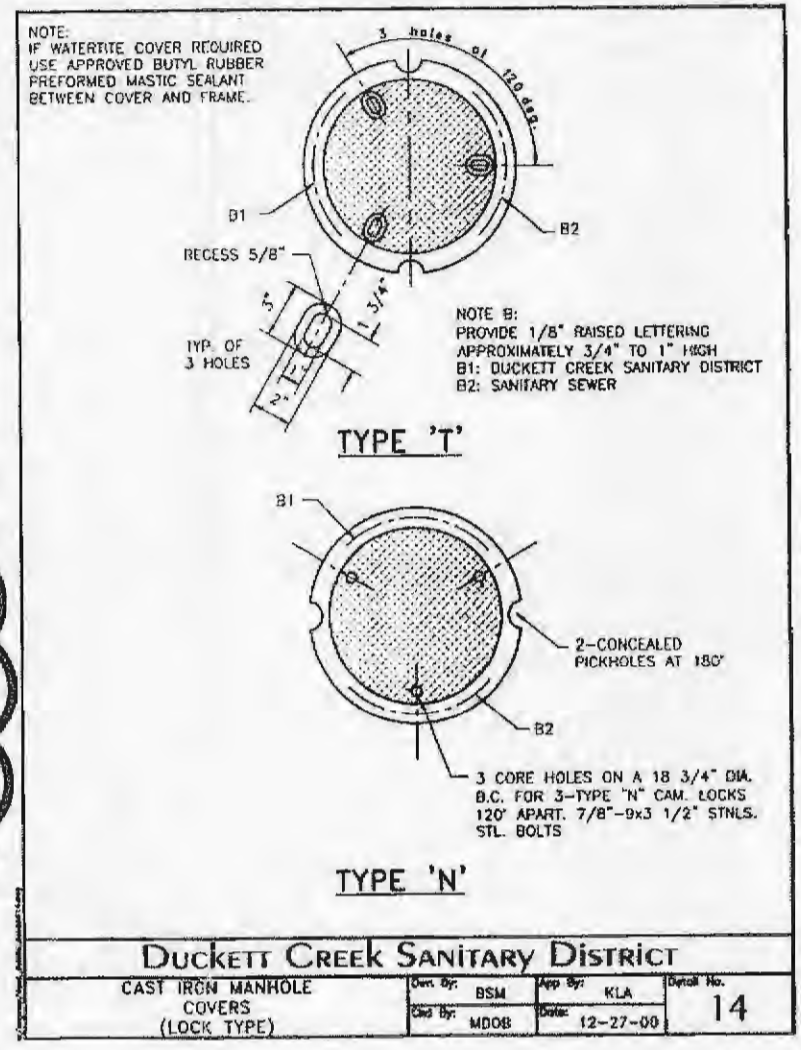
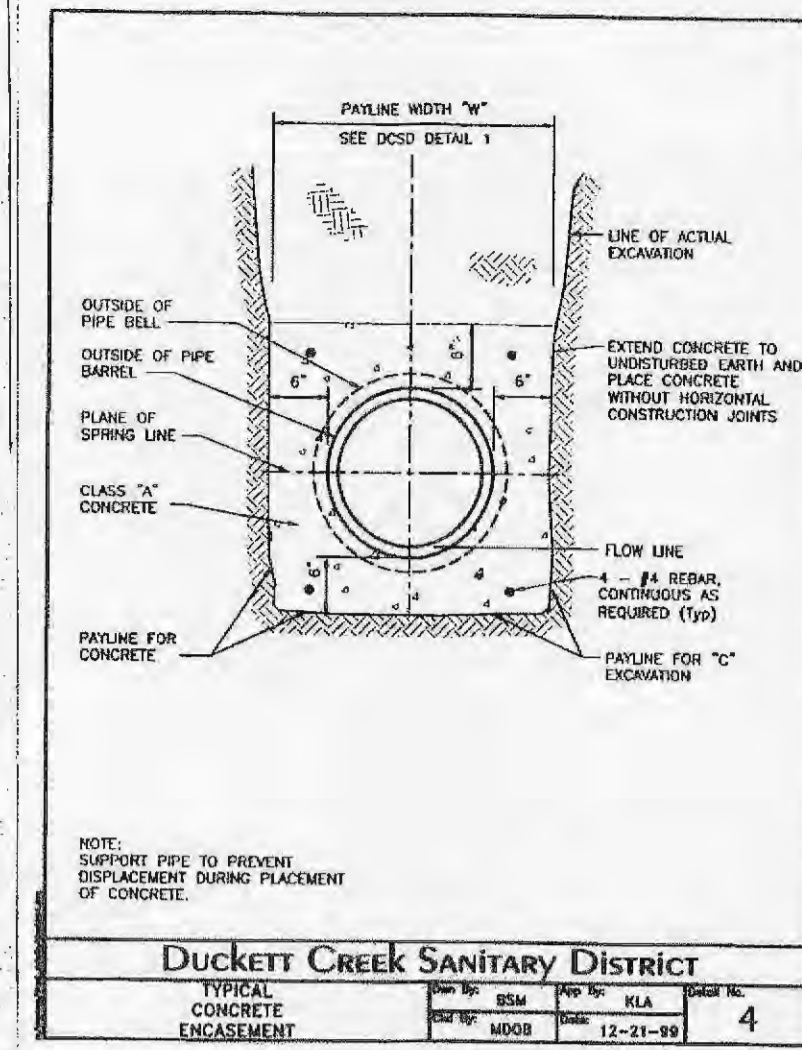
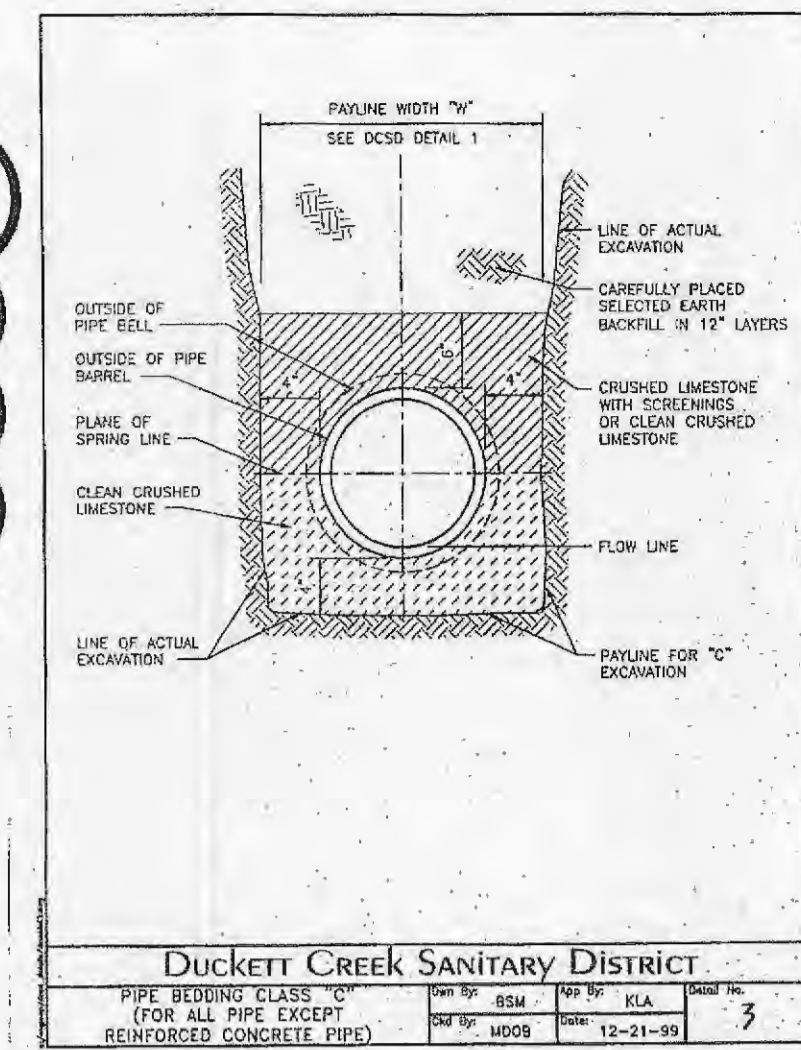
partial flow

structure number	line	reach	flowline elevation		length (feet)	slope (ft/ft)	pipe size (in)	drainage area (ac)	coeff (cfs/ac)	flow (cfs)	flow vel (ft/sec)	hydraulic radius (in)	vel head Vh (ft)	Q x Vh (ft ⁴ /sec)	pipe hf	friction losses		losses total (hmt)	hydraulic elevations			top of structure	freeboard (ft)	roughness coeff	pipe capacity	drop structure			
			upper	lower												upper	lower		upper	lower	upper reach HE + hmt						entering HGL top of pipe in drop struc.	top of structure	
16	16	15	555.78	553.20	147.21		15	x	x	5.79	7.53	4.17	0.83	5.10	2.59	0.00	0.00	0.00	557.03	557.97	556.37	557.97	550.86	580.50	2.53	0.013	8.57	0.20	
15	15	14	553.00	549.66	135.38		15	x	x	8.10	9.22	4.38	1.32	10.69	3.35	0.92	0.00	0.92	554.25	554.45	551.11	555.37	554.45	581.35	5.98	0.013	10.17	0.20	
14	14	EXCI	549.61	547.92	96.24		18	x	x	8.58	7.95	4.56	0.86	8.42	1.68	0.00	0.00	0.00	551.11	550.80	549.12	551.11	549.42	554.80	3.69	0.013	13.96	0.05	
EXCI	EXCI		547.92																										

structure number	line	reach	flowline elevation		length (feet)	slope (ft/ft)	pipe size (in)	drainage area (ac)	coeff (cfs/ac)	flow (cfs)	flow vel (ft/sec)	hydraulic radius (in)	vel head Vh (ft)	Q x Vh (ft ⁴ /sec)	pipe hf	friction losses		losses total (hmt)	hydraulic elevations			top of structure	freeboard (ft)	roughness coeff	pipe capacity	drop structure			
			upper	lower												upper	lower		upper	lower	upper reach HE + hmt						entering HGL top of pipe in drop struc.	top of structure	
13	13	5	557.82	557.14	39.69		12	x	x	0.72	4.56	1.79	0.32	0.23	0.79	0.00	0.00	0.00	558.82	0.79	0.00	558.82	553.50	562.10	3.28	0.013	4.63	3.96	
5	5		553.18																										

structure number	line	reach	flowline elevation		length (feet)	slope (ft/ft)	pipe size (in)	drainage area (ac)	coeff (cfs/ac)	flow (cfs)	flow vel (ft/sec)	hydraulic radius (in)	vel head Vh (ft)	Q x Vh (ft ⁴ /sec)	pipe hf	friction losses		losses total (hmt)	hydraulic elevations			top of structure	freeboard (ft)	roughness coeff	pipe capacity	drop structure			
			upper	lower												upper	lower		upper	lower	upper reach HE + hmt						entering HGL top of pipe in drop struc.	top of structure	
4	4	3	543.08	542.13	77.07		42	x	x	62.09	9.87	11.72	1.51	93.92	0.59	0.00	0.00	0.00	546.58	546.26	545.57	546.58	545.63	565.92	19.34	0.013	112.00	0.20	
3	3	2	541.93	540.99	166.04		42	x	x	62.09	10.02	11.65	1.56	96.80	1.32	0.00	0.00	0.00	545.43	545.07	544.35	545.07	544.49	563.40	17.73	0.013	75.90	0.20	
2	2	1	540.79	540.18	60.50		42	x	x	62.09	9.97	11.67	1.54	95.84	0.47	0.00	0.00	0.00	544.29	544.35	543.88	544.35	543.88	555.10	10.75	0.013	101.29	0.20	
1	1		539.98																										

structure number	line	reach	flowline elevation		length (feet)	slope (ft/ft)	pipe size (in)	drainage area (ac)	coeff (cfs/ac)	flow (cfs)	flow vel (ft/sec)	hydraulic radius (in)	vel head Vh (ft)	Q x Vh (ft ⁴ /sec)	pipe hf	friction losses		losses total (hmt)	hydraulic elevations			top of structure	freeboard (ft)	roughness coeff	pipe capacity	drop structure			
			upper	lower												upper	lower		upper	lower	upper reach HE + hmt						entering HGL top of pipe in drop struc.	top of structure	
9	9	8	558.01	557.80	37.81		18	x	x	8.78	6.68	5.32	0.88	6.08	0.38	0.00	0.00	0.00	559.51	559.37	558.99	559.37	558.63	562.05	2.68	0.013	10.97	0.00	
8	8	7	557.40	557.00	21.99		18	x	x	8.78	6.65	5.33	0.89	6.03	0.22	0.00	0.00	0.00	558.90	558.99	558.77	558.99	558.50	563.10	4.11	0.013	14.21	0.20	
7	7	6	556.80	555.58	127.4		18	x	x	9.56	6.74	5.43	0.71	6.74	1.26	0.15	0.23	0.38	558.30	558.39	557.13	558.77	557.08	561.90	3.13	0.013	10.31	0.20	
6	6	5	555.38	553.28	109.27		18	x	x	13.23	9.50	5.41	1.40	18.54	2.17	0.00	0.25	0.25	556.88	556.75	554.69	557.13	554.78	561.90	4.77	0.013	14.60	0.20	
5	5	EX4	553.08	551.80	49.78		18	x	x	13.95	9.56	5.46	1.42	19.80	0.99	0.00	0.00	0.00	554.58	549.06	542.07	554.58	553.30	563.16	8.58	0.013	16.89	8.23	
EX4	EX4		543.57																										



PIPE BEDDING DETAILS

SECTION "A-A" PRE-CAST CONCRETE UNIT 2 GRAFIT INLET w/SIDE INTAKE (n.t.a.)

PRECAST CONCRETE STORMWATER STRUCTURES

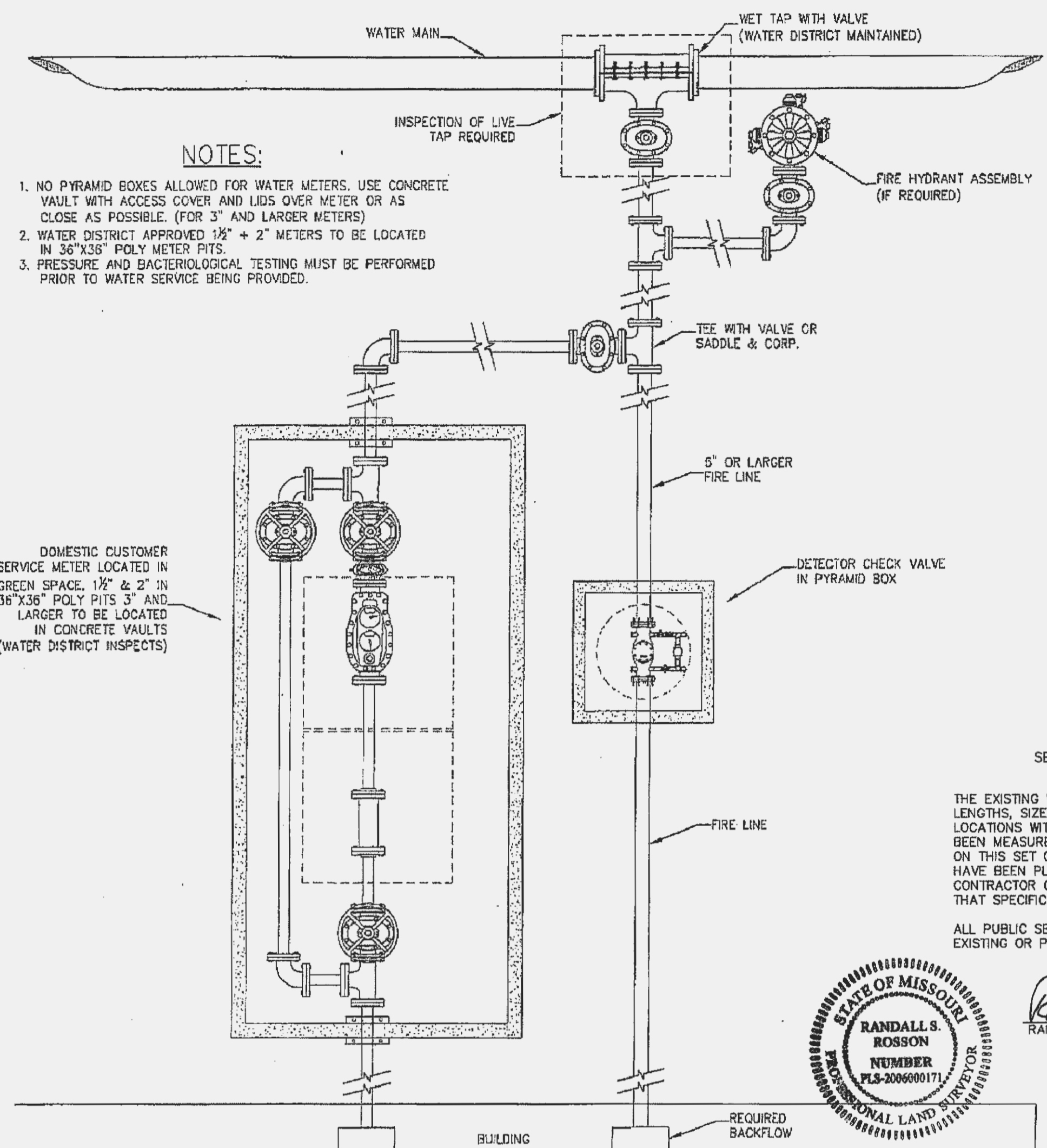
AS-BUILT SEWER AND WATER LINE MEASUREMENTS

APC LAB FACILITY SEWER DETAILS AND HYDRAULIC CALCULATIONS

STOCK & ASSOCIATES Consulting Engineers, Inc. 257 Chesterfield Business Parkway St. Louis, MO 63005 PH: (636) 530-9100 FAX: (636) 530-9130 e-mail: general@stockassoc.com Web: www.stockassoc.com

WATER LINE NOTES

- ALL MATERIALS AND METHODS OF CONSTRUCTION FOR WATER MAINS TO MEET REQUIREMENTS OF THE ST. CHARLES COUNTY PUBLIC WATER SUPPLY DISTRICT NO. 2 "WATER DISTRIBUTION SYSTEM SPECIFICATIONS".
- WATER MAINS SHALL BE POLY VINYL CHLORIDE (PVC) CLASS 200, SDR 21 PIPE CONFORMING TO A.S.T.M. SPECIFICATION D2241. THE PIPE SHALL BE PRESSURE RATED FOR A HYDROSTATIC WORKING PRESSURE OF 200 PSI AT 73.4 DEGREES F AND SHALL MEET ALL APPLICABLE REQUIREMENTS AS SET FORTH UNDER COMMERCIAL STANDARD (CS) 256-63.
- DUCTILE IRON PIPE MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL THE REQUIREMENTS OF U.S.A. STANDARD A2151 (A.W.W.A. C-151-65). THE PIPE SHALL BE FURNISHED WITH MECHANICAL, PUSH ON, OR FLANGE JOINTS AS REQUIRED. THE INTERIOR SURFACE OF PIPE SHALL BE COATED WITH A CEMENT-MORTAR LINING IN ACCORDANCE WITH U.S.A. STANDARD A 21.4 (A.W.W.A. C 104). AFTER DRYING, THE CEMENT LINING SHALL BE SEAL COATED WITH SIMILAR A.W.W.A. APPROVED BITUMINOUS VARNISH. ALL FITTINGS AND BENDS SHALL BE CONSTRUCTED OF CAST OR DUCTILE IRON.
- WATER MAIN TRACER TAPE TO BE INSTALLED WITH ALL WATER MAIN AND SHALL CONSIST OF THREE INCH WIDE TAPE MADE OF BONDED LAYER PLASTIC WITH A METALLIC FOIL CORE. TAPE SHALL BE "TERRA TAPE D" AS MANUFACTURED BY THE GRIFFOLYN COMPANY OF HOUSTON, TEXAS, OR APPROVED EQUAL.
- WATER MAIN LOCATOR WIRE SHALL BE INSTALLED WITH ALL WATER MAIN, FITTINGS, AND VALVE INSTALLATION AND SHALL CONSIST OF A STANDARD ELECTRIC SERVICE WIRE, A SINGLE NO. 12 U.L. APPROVED COPPER WIRE OF THE SOLID OR STRAND TYPE WITH INSULATION FOR 600 VOLTS.
- ALL VALVES FOR EXTERIOR USE SHALL BE BURIED GATE VALVES WITH A VALVE BOX AND TWO INCH SQUARE NUT ATTACHMENT FOR MANUAL OPERATION WITH STANDARD VALVE WRENCH. GATE VALVES SHALL BE IRON BODIED WITH BRASS OR BRONZE MOUNTED DOUBLE DISC GATE. GATE VALVES SHALL BE OF THE NON-RISING STEM TYPE, OPENED BY TURNING COUNTER-CLOCKWISE. THE VALVE STEM SHALL HAVE DOUBLE "O" RING SEALS AND TERMINATE AT TOP WITH TWO INCH SQUARE NUT. GATE VALVE CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE LATEST GOVERNING SPECIFICATIONS OF THE A.S.T.M. AND A.W.W.A. ALL GATE VALVES FOR USE SHALL BE "MUELLER" OR APPROVED EQUAL.
- VALVE BOXES FOR USE SHALL BE THE SCREW-TYPE, EXTENSION SLEEVE KIND, OR P.V.C. PIPE. ALL BOXES SHALL BE FITTED WITH A RECESSED COVER HAVING THE WORD "WATER" CAST IN THE TOP.
- FIRE HYDRANTS SHALL BE MUELLER "CENTURION" OR THE AMERICAN DARLING MODEL NO. "B-84-B". HYDRANTS SHALL BE TRAFFIC MODEL TYPE WITH A WORKING PRESSURE OF 150 PSI IN FULL COMPLIANCE WITH A.W.W.A. STANDARD SPECIFICATIONS C-502 OF THE LATEST REVISION. HYDRANTS TO BE THREE-WAY WITH TWO HOSE CONNECTIONS AND ONE PUMPER CONNECTION AND SHALL HAVE 5 1/4" VALVE OPENINGS. HYDRANTS TO BE YELLOW IN COLOR.
- CONCRETE FOR THRUST BLOCKING AT BENDS, TEES, VALVES, HYDRANTS, ETC., SHALL BE 3,500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- BEFORE WATER MAINS SHALL BE ACCEPTED AND PUT INTO SERVICE THEY SHALL BE TESTED FOR TWO HOURS ON EACH SEGMENT BETWEEN END POINTS AT A TEST PRESSURE OF AT LEAST 50% IN EXCESS OF NORMAL MAXIMUM OPERATING PRESSURE, NOT TO EXCEED 200 PSI. WATER MAINS SHALL BE STERILIZED AND FLUSHED IN ACCORDANCE WITH ST. CHARLES COUNTY PUBLIC WATER SUPPLY DISTRICT NO. 2 "WATER DISTRIBUTION SYSTEM SPECIFICATIONS".
- ALL WATER LINES AND SERVICE LINES SHALL HAVE A MINIMUM OF 42" OF COVERAGE.
- VERTICAL CLEARANCE BETWEEN SEWERS AND WATER MAINS SHALL BE A MINIMUM OF 2' - 0".



NOTES:

- NO PYRAMID BOXES ALLOWED FOR WATER METERS. USE CONCRETE VAULT WITH ACCESS COVER AND LIDS OVER METER OR AS CLOSE AS POSSIBLE. (FOR 3" AND LARGER METERS)
- WATER DISTRICT APPROVED 1 1/2" x 2" METERS TO BE LOCATED IN 36"X36" POLY METER PITS.
- PRESSURE AND BACTERIOLOGICAL TESTING MUST BE PERFORMED PRIOR TO WATER SERVICE BEING PROVIDED.

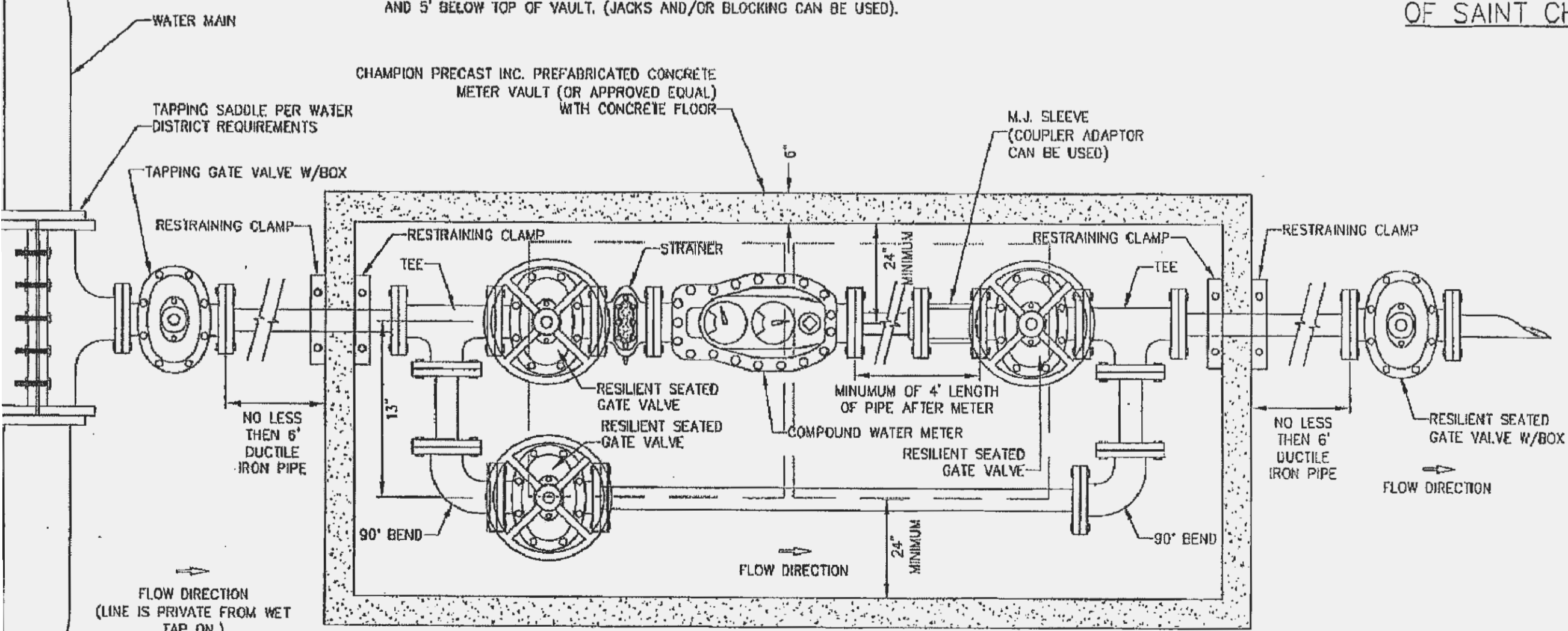
DOMESTIC CUSTOMER SERVICE METER LOCATED IN GREEN SPACE. 1 1/2" x 2" IN 36"X36" POLY PITS 3" AND LARGER TO BE LOCATED IN CONCRETE VAULTS (WATER DISTRICT INSPECTS)

PLAN VIEW
NOT TO SCALE

TYPICAL COMMERCIAL SERVICE CONNECTION WITH FIRE PROTECTION DETAIL "H"
PUBLIC WATER SUPPLY DISTRICT #2 OF SAINT CHARLES COUNTY

NOTES:

- VAULT LIDS ARE REQUIRED TO HAVE ACCESS FRAME AND COVER TO BE PLACED DIRECTLY OVER METER TO PROVIDE AMPLE SPACE FOR SERVICING OR REMOVING METER.
- IF FIRE FLOW METER IS NECESSARY, LARGER VAULT MAY BE REQUIRED.
- ALL FITTINGS AND VALVES WILL BE FLANGED.
- ALL METERS, GASKETS, BOLTS, AND NUTS WILL BE SUPPLIED BY THE WATER DISTRICT.
- ALL DUCTILE IRON PIPE ENTERING AND LEAVING VAULT SHALL BE RESTRAINED.
- MINIMUM OF 3 JACK STANDS ON PIPING IN VAULT.
- PIPE ENTERING AND EXITING THE VAULT WALLS SHALL BE SEALED WITH NON SHRINKING GROUT OR MASTIC.
- VAULTS TO BE INSTALLED IN "GREEN SPACE" AND MADE EASILY ACCESSIBLE AT ANY TIME (VERIFIED AND APPROVED BY WATER DISTRICT PERSONNEL).
- VAULT LIDS TO BE FLUSH TO FINISH GRADE. (METER BOX CHIMNEYS AND OTHER MEANS OF RAISING VAULTS ARE PROHIBITED).
- TWO FOOT (24") MINIMUM DISTANCE BETWEEN CENTER OF PIPING AND VAULT WALLS.
- PIPING AND EQUIPMENT TO BE PLACED AT A MINIMUM OF 18" ABOVE CONCRETE FLOOR AND 5" BELOW TOP OF VAULT. (JACKS AND/OR BLOCKING CAN BE USED).



TYPICAL 3" OR LARGER SERVICE METER BOX DETAIL "C"
NOT TO SCALE

PUBLIC WATER SUPPLY DISTRICT #2 OF SAINT CHARLES COUNTY

PIPE DIA. IN.	PLUG	45° WYE	TEE CONNECTION	UP TO 22.5'	UP TO 45'	UP TO 90'
	A (SQ. FT.)	A (SQ. FT.)	A (SQ. FT.)	A (SQ. FT.)	A (SQ. FT.)	A (SQ. FT.)
4" and smaller	0.5	1.4	2.6	1.8	2.2	2.0
6"	1.5	3.0	6.0	4.0	4.5	4.5
8"	2.5	5.0	9.5	6.5	9.5	8.0
10"	4.1	8.0	13.0	9.5	12.5	12.5
12"	5.5	11.5	19.0	13.5	16.0	16.0
16"	9.0	18.0	33.0	23.0	27.0	33.0
20"	14.0	28.0	51.0	36.0	42.0	50.5

- NOTES:
- BEARING AREAS ARE BASED ON UNDISTURBED SOIL WITH A BEARING CAPACITY OF 1,000 POUNDS PER SQUARE FOOT. FOR A LESSER SOIL BEARING CAPACITY THESE AREAS SHALL BE INCREASED ACCORDINGLY.
 - ALL CONCRETE THRUST BLOCKS SHALL BE 3000 P.S.I. CONCRETE.
 - THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH.
 - NO JOINT SHALL BE COVERED WITH CONCRETE.
 - JOINTS THAT LOCATED AGAINST THRUST BLOCKS ARE TO BE WRAPPED IN A CLOTH MATERIAL.
 - APPROVED MECHANICAL JOINT RESTRAINTS ARE REQUIRED AT ALL VERTICAL BENDS AND MAY BE USED IN LIEU OF THRUST BLOCKS AT HORIZONTAL BENDS AT THE OPTION OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

AS-BUILT

SEWER AND WATER LINE MEASUREMENTS

THE EXISTING WATER MAIN (PER STAKED OUT LOCATION), EXISTING SEWER LENGTHS, SIZES, FLOWLINES, DEPTHS OF STRUCTURES AND SEWERS AND LOCATIONS WITH RESPECT TO EXISTING OR PROPOSED EASEMENTS HAVE BEEN MEASURED. THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS. SINCE THE WYE LOCATIONS HAVE BEEN PLOTTED FROM INFORMATION PROVIDED BY THE SEWER CONTRACTOR OR OTHER SOURCES, I DISCLAIM ANY RESPONSIBILITY FOR THAT SPECIFIC INFORMATION.

ALL PUBLIC SEWERS AND WATER MAINS ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS EXCEPT AS FOLLOWS:



Randall S. Rosson 11-19-07
RANDALL S. ROSSON, MISSOURI P.L.S. NO. 2006000171 DATE

DERO BIKE RACKS, INC.
221 ARTHUR AVE. SE
MINNEAPOLIS, MN 55414
1-888-337-6729
PHONE: (612) 359-0689
FAX: (612) 331-2731
www.dero.com

SELECT DESIRED MOUNT
 FOOT MOUNT
 IN GROUND MOUNT
 SELECT DESIRED UNIT

2H - 4 BIKES

4H - 8 BIKES

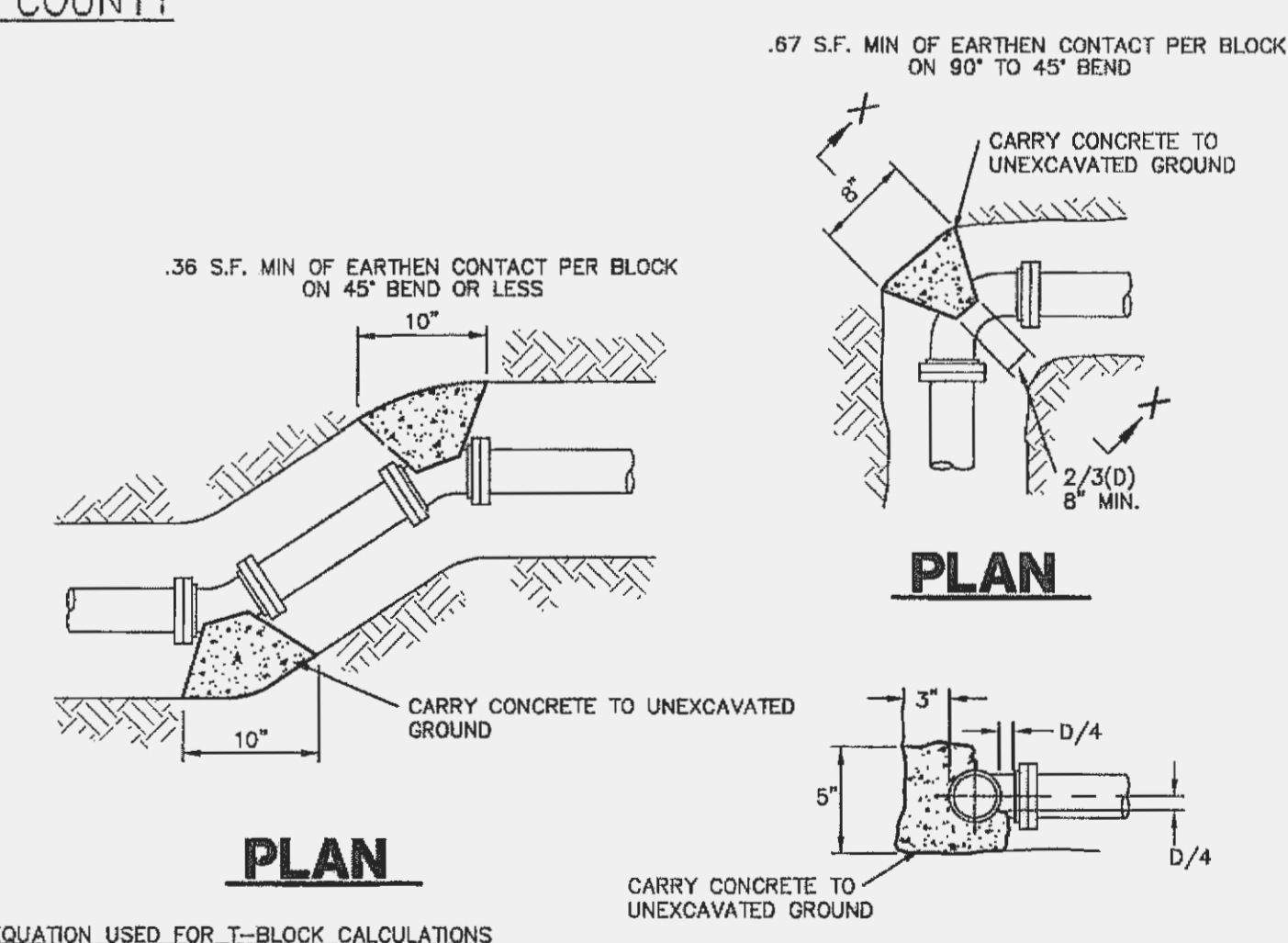
3H - 6 BIKES

5H - 10 BIKES

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. CONTRACTORS NOTE: FOR PRODUCT AND PURCHASING INFORMATION VISIT www.PROJECTmarketsite.com REFERENCE NUMBER 118-003

DERO ROLLING RACK
2H, 3H, 4H AND 5H

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EQUATION USED FOR T-BLOCK CALCULATIONS
T=2(PA SIN θ/2) x f.o.s. of 1.5
ASSUMED PRESSURE OF 150 PSI AND
AND SOIL BEARING CAPACITY OF 1500 PSF

THRUST BLOCK DETAIL

SCALE: 1"=1'

BIKE RACK DETAIL

SCALE = N.T.S.

- △ - 11/05/07 CITY OF O'FALLON AS-BUILTS
- △ - 06/09/06 REVISED AmeronUE COMMENTS.
- △ - 05/15/06 REVISED PER SEWER DISTRICT COMMENTS. ADDED ABANDONMENT NOTES TO SHEETS C3 and C4, REVISED LATERAL STATIONING, ADDED CONCRETE ENCASUREMENT.
- △ - 05/03/06 REVISED PER CITY COMMENTS
- △ - 04/25/06 REVISED PER CITY, SEWER DISTRICT AND CLIENT COMMENTS
- △ - 03/22/06 REVISED PER CITY AND CLIENT COMMENTS

APC LAB FACILITY UTILITY DETAILS

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Web: www.stockassoc.com

DRAWN BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER:	SHEET:
GEORGE M. STOCK	01/23/06	D.P.B.	01/23/06	205-3635.1	C11 of C12