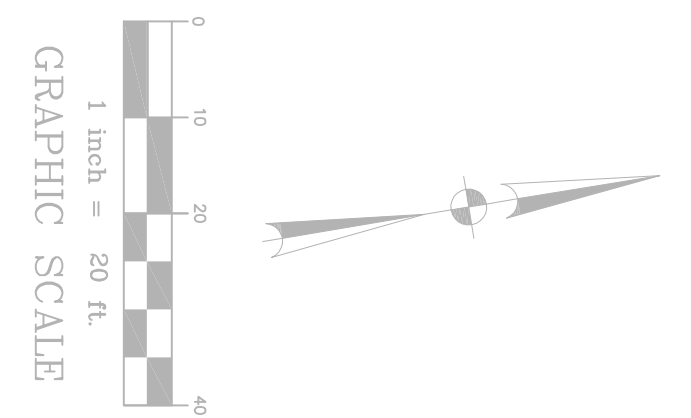
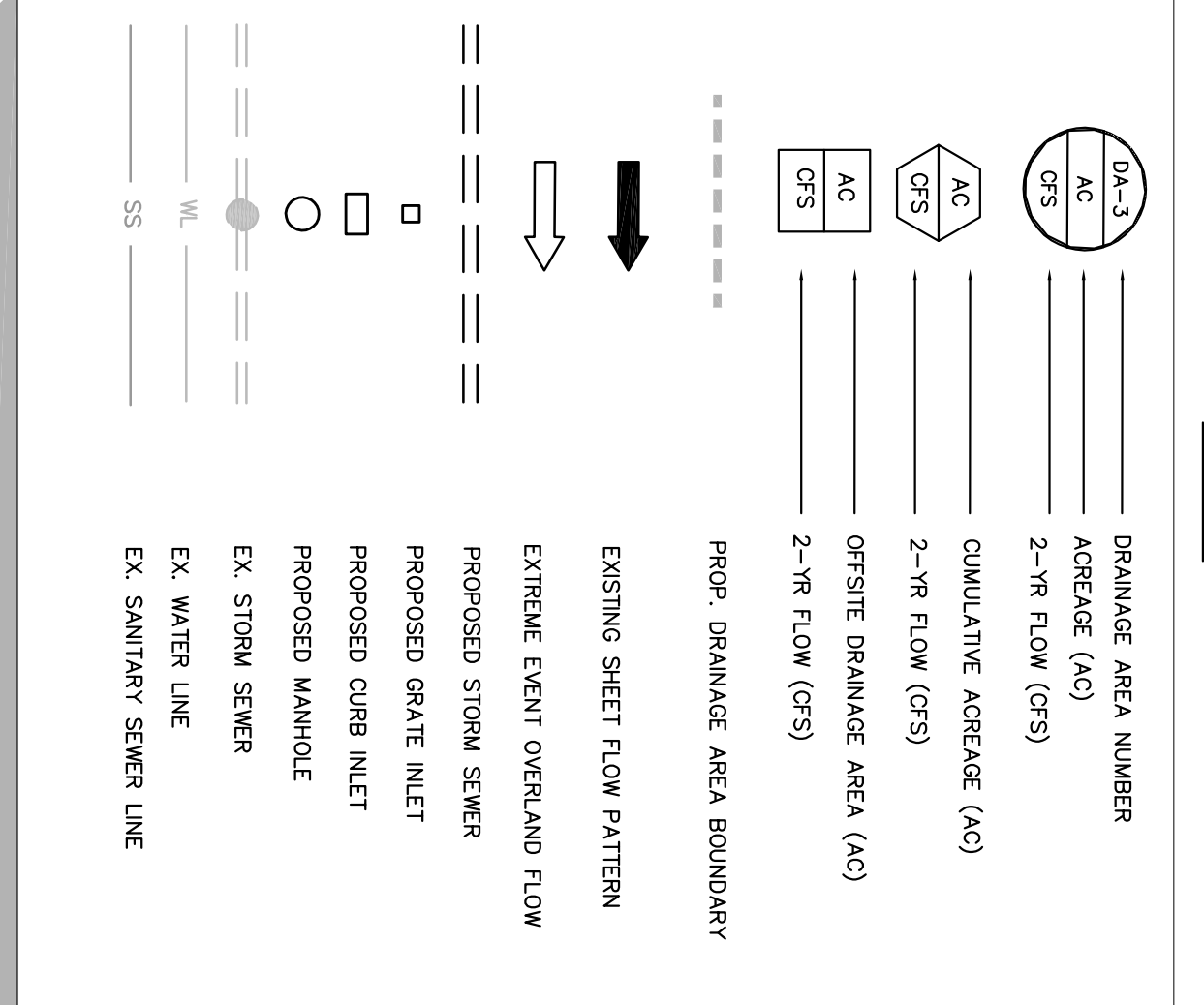


BENCHMARK PUBLISHED ELEVATION - 41.84'
 FLOODPLAIN REFERENCE MARK NO. 210055, BRASS DISK
 STAMPED 210055 ON BRIDGE AT SOUTH HEIGHTS BLVD AND
 BUFFALO BAYOU LOCATED ON NORTHEAST CORNER OF
 DOWNSTREAM CONCRETE WALK IN KEM MAP 492M IN THE
 BUFFALO WATERSHED NEAR STREAM W100-00-00 (NAVD 1988,
 2001 ADJUSTMENT).
 TEMPORARY BENCHMARK "A" ELEVATION - 50.40'
 CUT BOX ON "88" INLET LOCATED ON THE SOUTHERLY SIDE OF
 WEST GRAY AVENUE AT THE INTERSECTION OF WEST GRAY
 AVENUE AND COLUMBUS STREET.
 TEMPORARY BENCHMARK "B" ELEVATION - 52.68'
 MOST NORTHERLY FLANGE BOLT ON FIRE HYDRANT LOCATED AT
 THE SOUTHEASTERLY CORNER OF THE INTERSECTION OF WEST
 GRAY AVENUE AND MONTROSE BOULEVARD.



LEGEND



RESTRICTOR CALCULATIONS

AREA = 20,880 SQ. FT. = 0.478 AC.
 $C_x = 1/2088 \times 1,000 \times 3,714 \times 0.18 = 0.85$
 $Q(00)(EX) = 2.9 \text{ CFS}$
 RESTRICTOR SIZE = 8 INCHES
 AREA OF RESTRICTOR = 0.349 SQ. FT
 $Q = CA(2gh)^{1/2}$, THEREFORE
 $H = (\frac{2.9}{\sqrt{0.349}})^2 \times \frac{1}{64}$
 $H = 2.97 \text{ FT}$
 REQUIRED DEPTH OF FLOODING = 51.50*
 CENTER OF RESTRICTOR - FL + $\frac{H}{2}$ = 45.35 + 4*
 MAX WSE = 45.68 + 2.97 = 48.62
 45.68 + 2.97 = 48.62
 MAX WSE = 48.62 < 51.50 => NEED SMALLER RESTRICTOR
 MIN RESTRICTOR = 6" => USE 6"

* ALL DETENTION CAPACITY CONTAINED WITHIN EX INLETS AND PIPES. MAXIMUM FLOODING DEPTH TAKEN AS HIGHEST INLET/WH ELEVATION

DETENTION CALCULATIONS

EXISTING IMPERVIOUS COVER 17,088 SQ. FT.
 NET IMPERVIOUS COVER 1,804 SQ. FT.
 DETENTION REQUIRED 0.20 AC-FT/AC
 DETENTION REQUIRED = OVERSIZED 32" DIA. PAPER SYSTEM
 DETENTION PROVIDED 371+ CU. FT.
 *MINIMUM PIPE SIZES FOR 2-YR STORM EVENT VARY FROM 6" TO 12" INLETS/MANHOLE IS 83 CU. FT.

CROSSING TABLE

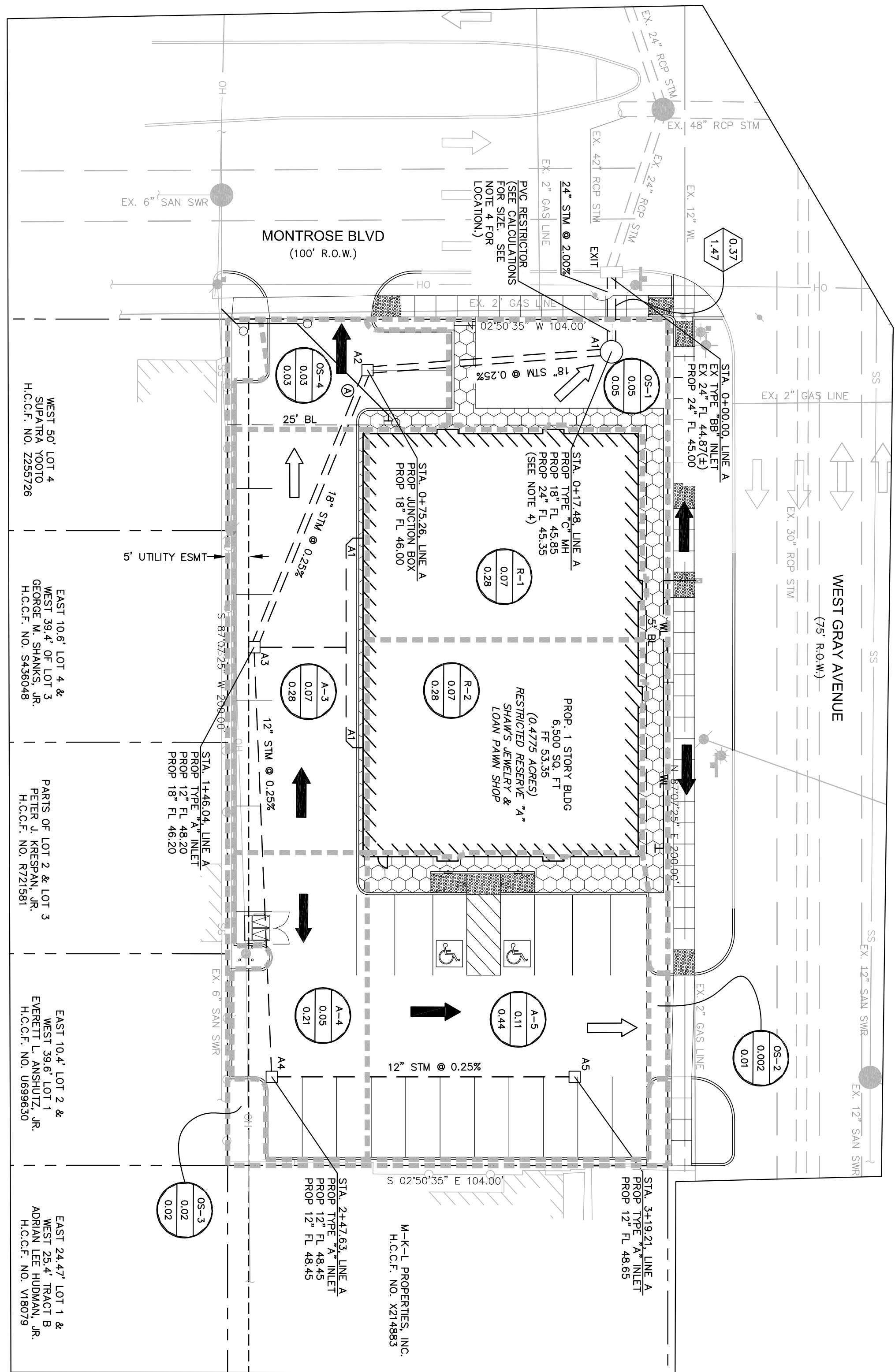
18" STM FL	6" SAN FL	CLR
46.01'	48.51'	1.00'

CUMULATIVE STORM SEWER CALCULATIONS

Upstream	Downstream	Area	Total Area	C	Total C*	TC	Cumulative Flow			
Dmg No.	Dmg No.						I(2)	Q(2)	I(100)	Q(100)
A5	A4	0.110	0.110	0.8	0.09	10.00	4.96	0.44	9.36	0.82
A4	A3	0.050	0.160	0.8	0.13	10.00	4.96	0.64	9.36	1.20
A3	A2	0.070	0.370	0.8	0.30	10.00	4.96	1.47	9.36	2.77
A2	A1	0.000	0.370	0.8	0.30	10.00	4.96	1.47	9.36	2.77
A1	EXIT	0.000	0.370	0.8	0.30	10.00	4.96	1.47	9.36	2.77
R1	A3	0.070	0.070	0.8	0.06	10.00	4.96	0.28	9.36	0.52
R2	A3	0.070	0.070	0.8	0.06	10.00	4.96	0.28	9.36	0.52

*THE DRAINAGE CALCULATIONS LISTED ABOVE ARE BASED ON THE 2-YEAR AND 100-YEAR STORM EVENTS PER THE HOUSTON INFRASTRUCTURE DESIGN MANUAL.

CALL BEFORE YOU DIG
 TEXAS ONE CALL PARTICIPANTS REQUEST
 72 HOURS NOTICE BEFORE YOU DIG, DRILL
 OR BLAST - STOP CALL
 TEXAS ONE CALL SYSTEM
 1-800-245-4545



- GENERAL NOTES**
1. REFER TO STORM SEWER NOTES SHEET 2 FOR PIPE MATERIAL REQUIREMENTS.
 2. REFERENCE WEP PLANS FOR EXACT CONTINUATION OF PROPOSED ROOF DRAINS INSIDE OF BUILDING.
 3. FOR CITY OF HOUSTON TYPE "A" INLET, COH TYPE "C" MH, AND BACKFILL DETAILS, SEE SHEETS 12.
 4. CONTRACTOR TO INSTALL RESTRICTOR AT UPSTREAM END OF 24" RCP. NEAR PROPOSED MANHOLE, RESTRICTOR SHALL NOT EXTEND INTO RIGHT-OF-WAY. SEE DETAIL SHEET 13.

Shaw's Jewelers
 1014 West Gray Street
 Houston, Texas 77019

DATE: 1.4.2012
 PROJECT NO.: 1102100
 DRAWN BY: DD
 CHECKED BY: KEM



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4 JANUARY 2011

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**STORM SEWER
 PLAN AND
 DRAINAGE
 AREA MAP**