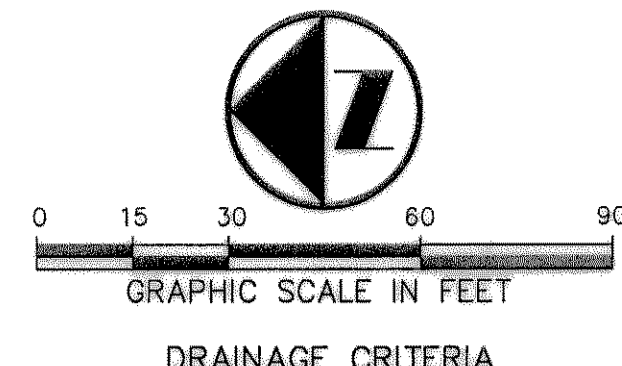


GRADING & DRAINAGE GENERAL NOTES

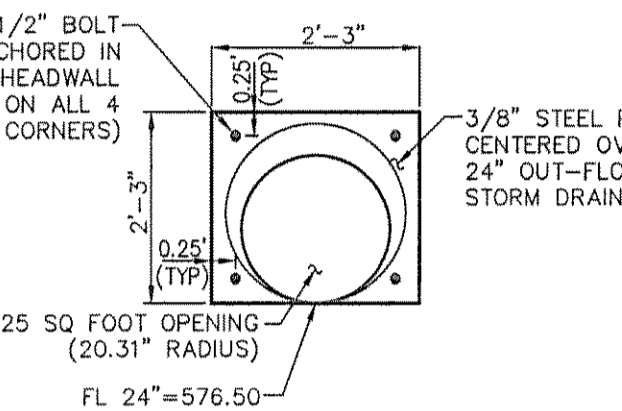
- Refer to geotechnical report for requirements regarding fill compaction and moisture content.
- Unless noted, all fill is to be compacted to a minimum of 95% Standard Proctor Density within 3% of optimum moisture content. Fill to be placed in a maximum of 6' lifts.
- All walks to have a maximum cross slope of 2%.
- Grading of all handicapped spaces and routes to conform to State, Local and Federal Guidelines.
- Unless noted, storm drain lines may be of the following materials:
 - RCP C-75, Class III
 - ADS H-12
 - Hancor H-Q
 Installed in accordance with Manufacturer's Specifications.
- Unless noted, grate inlet to be "American Industrial Pre-cast Products, Inc." precast catch basins, sized as shown, of approved equal.
- Final paving, curb and sidewalk elevations will be placed at plus or minus 0.03 foot.
- Refer to landscape specification for seeding and sodding requirements.
- Any concrete, rock or material deemed unsuitable for subgrade, by engineer, shall be disposed of offsite at Contractor's expense.
- Trench backfill material shall conform to the requirements of NCTCOG Item 6.2.10, and shall be mechanically compacted in accordance with NCTCOG Item 6.2.9 to a minimum of 95 percent Standard Proctor Density unless otherwise shown on these plans or stated in the Standard City Specifications.
- Embedment shall conform to the requirements of NCTCOG Item 6.2.9 unless otherwise shown on these plans or stated in the Standard City Specifications.
- A round manhole cover meeting City Specifications shall be placed in all inlet tops. The manhole cover shall be placed near the outlet pipe.
- All concrete for inlets and drainage structures shall conform to Standard City Specifications 4200 psi inlets, 3000 psi Class A flums.
- Crushed stone bedding or approved equal shall be provided by the Contractor when rock is encountered in trenches. There shall be no additional pay item of the crushed stone bedding.
- If required due to construction, power poles to be braced or relocated at Contractor's expense.
- Refer to Architects and MEP Plans for roof drain connections.
- Elevations as well as contours for Discovery Boulevard are based on paving plans for Rockwall Technology Park by War and Associates.
- Off-site drainage calculations were based off of a Rockwall Technology Park Drainage Area Map (Sheet No. 7 Dated 01-08-99) by War and Associates.



DRAINAGE CRITERIA

Q=cfs
C=0.90
Tc=10
I=9.8

DA	AREA	C ₁₀₀	I ₁₀₀	Tc	Q (cfs)
1	0.15	0.7	9.8	10	1.09
2	0.17	0.7	9.8	10	1.13
3	0.25	0.7	9.8	10	1.73
4	0.31	0.7	9.8	10	2.13
5	0.27	0.7	9.8	10	1.85
6	0.25	0.7	9.8	10	1.68
7	0.11	0.7	9.8	10	0.80
8	0.82	0.7	9.8	10	5.65
9	0.14	0.7	9.8	10	0.94
10	0.15	0.7	9.8	10	1.02
11	2.04	0.7	9.8	10	13.99
12	0.10	0.7	9.8	10	0.70
13	2.22	0.5	9.8	10	10.89



FLOW REDUCER PLATE DETAIL

STEEL PLATE OPENING CALCULATIONS
 $Q = CA\sqrt{2gh}$ $Q = 20.68 \text{ cfs}$
 $C = 0.7$ (discharge coefficient) $C = 0.65$
 $A = \text{AREA OPENING (sq ft)}$ $A = 2.25 \text{ sq ft}$
 $g = 32.2 \text{ ft/sec}$ $g = 32.2 \text{ ft/sec}$
 $h = (\text{depth of water})$ $h = 3.1 \text{ feet}$

REQUIRED DETENTION VOLUME:
 (USING CITY OF DALLAS DETENTION VOLUME PROCEDURE)
 Allowable Q out = 23.32 cfs
 Q bypass = 2.66 cfs
 Allowable Q out Detention = 20.68 cfs
 REQUIRED DETENTION VOLUME = 16,831 cubic feet
 PROVIDED DETENTION VOLUME = 18,991 cubic feet

INLET SIZE CALCULATIONS
 $Q = CA\sqrt{2gh}$
 $C = 0.65$ (discharge coefficient)
 $A = \text{AREA INLET OPENING (sq ft)}$
 $g = 32.2 \text{ ft/sec}$
 $h = 0.25'$ (depth of water)
 AREA GRATE INLET No.30 = 4.23 sq ft
 MAX Q GRATE INLET No.30 = 5.52 cfs

HYDRAULIC CALCULATIONS

LINE	PIPE SIZE	BEGINNING STA.-END STA.	Sf ft/ft	V ₁₀₀ fps	C	V ² /2s	Q ₁₀₀
"ST-1"	24"	0 - 2+12.53	.002101	3.30	16.0	0.17	10.37
"ST-1"	24"	2+12.53 - 2+71.06	.002101	3.30	16.0	0.17	10.37
"ST-1"	24"	2+71.06 - 4+72.07	.002101	3.30	16.0	0.17	10.37
"ST-1"	24"	4+72.07 - 5+18.23	.001790	3.05	16.0	0.14	9.57
"ST-1"	24"	5+18.23 - 5+63.46	.001790	3.05	16.0	0.14	9.57
"ST-1"	24"	5+63.46 - 5+91.72	.001790	3.05	16.0	0.14	9.57
"ST-1"	24"	5+91.72 - 6+24.16	.002101	2.50	16.0	0.10	7.84
"ST-1"	24"	6+24.16 - 6+28.16	.000742	1.96	16.0	0.06	6.16
"ST-1"	18"	6+28.16 - 6+98.99	.003439	3.49	7.43	0.19	6.16
"ST-1"	18"	6+98.99 - 7+82.15	.00917	1.80	7.43	0.05	3.18
"ST-1"	18"	7+82.15 - 8+30.43	.00417	1.21	7.43	0.02	2.13
"ST-2"	30"	0 - 0+20.37	.002542	4.80	25.94	0.43	20.68
"ST-2"	24"	0+20.37 - 0+67.89	.008357	6.58	20.95	0.67	20.68
LAT "1-A"	12"	0 - 0+28.80	.002697	2.36	6.47	0.09	1.05
LAT "1-B"	18"	0 - 0+07.57	.000805	1.69	29.07	0.04	2.98
LAT "1-B"	18"	0+07.57 - 0+13.70	.000310	1.05	29.07	0.02	1.85
LAT "1-C"	12"	0 - 0+21.59	.002358	2.20	9.51	0.08	1.73
LAT "1-D"	12"	0 - 0+33.32	.000504	1.02	11.76	0.02	0.80

RECORD DRAWING

THIS DRAWING HAS BEEN REVISED TO REFLECT CONSTRUCTION RECORDS MAINTAINED AND PROVIDED BY THE CONTRACTOR FOR THIS PROJECT.

CONTRACTOR: VANTAGE COMPANIES
 1231 W. CAMPBELL ROAD
 RICHARDSON, TX 75080

DATE REVISED: JULY 21, 2000

- REVISION 11/12/99
- REVISION 07/21/00
- REVISION 12/08/99

Pacheco Koch Consulting Engineers
 9401 LBJ FREEWAY SUITE 300 DALLAS, TEXAS 75243 972.235.3031

DRAINAGE PLAN
 FALCON FINE WIRE CO.
 SITE IMPROVEMENTS
 ROCKWALL TECHNOLOGY PARK
 CITY OF ROCKWALL, TEXAS

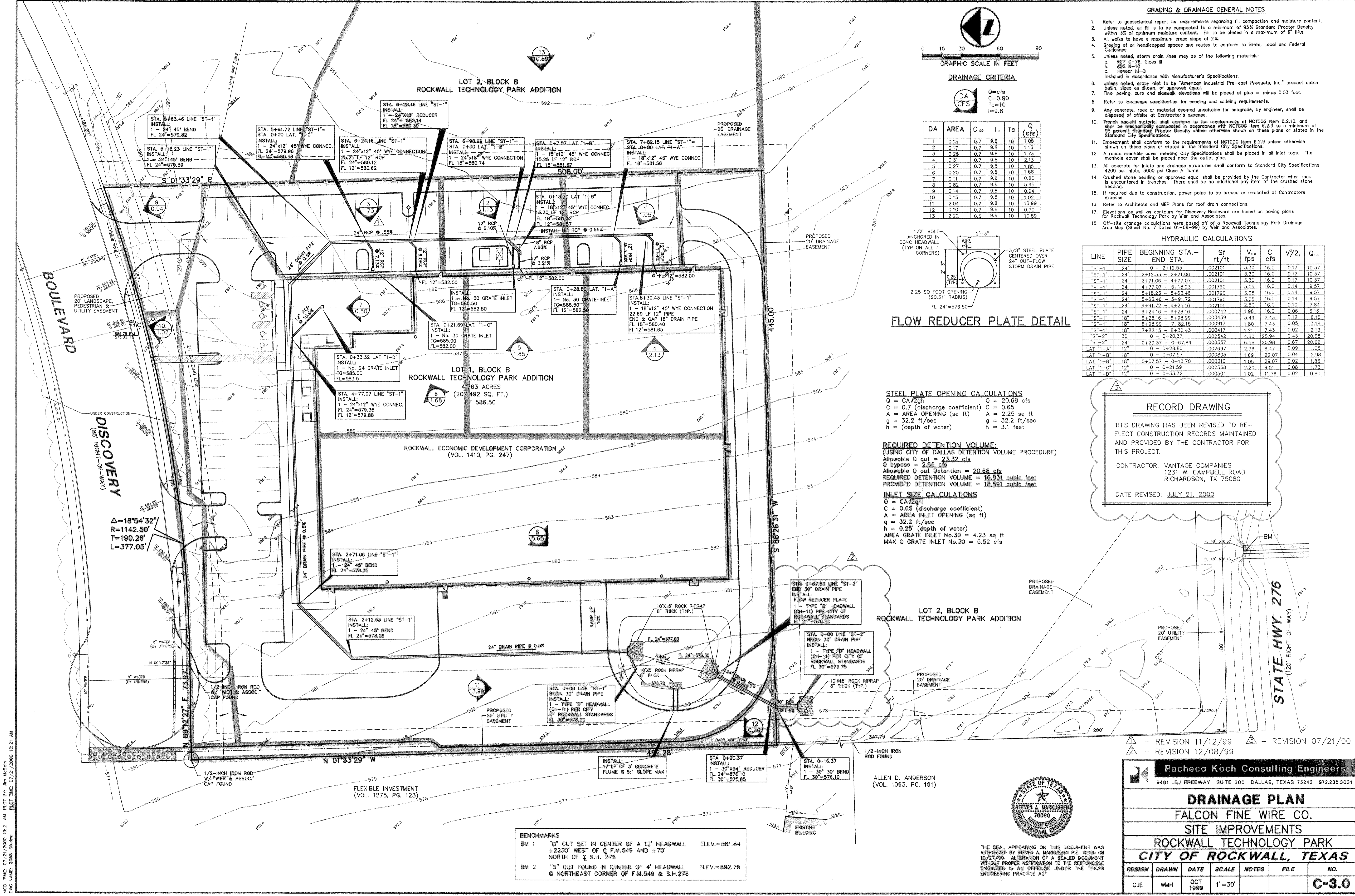
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
CJE	WMH	OCT 1999	1"=30'			C-3.0



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY STEVEN A. MARKUSSEN P.E. 70990 ON 10/27/99. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

BENCHMARKS

BM 1	"d" CUT SET IN CENTER OF A 12' HEADWALL ±2230' WEST OF Q.F.M.549 AND ±70' NORTH OF Q.S.H. 276	ELEV.=581.84
BM 2	"d" CUT FOUND IN CENTER OF 4' HEADWALL @ NORTHEAST CORNER OF F.M.549 & S.H.276	ELEV.=592.75



MOD. TIME: 07/21/2000 10:21 AM PLOT BY: Jim McBurn
 DWG NAME: 2058-05.dwg PLOT TIME: 07/21/2000 10:21 AM