

Rancho Seco
Final Status Survey Summary Report
March 18, 2008
Acid Waste Piping system
Survey Unit F8990521

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FINAL STATUS SURVEY SUMMARY REPORT

Survey Unit:

F8990521, Acid Waste Piping system

Survey Unit Description:

Operating History: This system transported radioactive waste water. This system was designed to be contaminated. Operating records and the HSA support its status as radioactively contaminated system piping.

Site Characterization: Direct measurements were made of the interior surfaces of the system piping which confirmed the presence of plant-derived radionuclides. Direct measurements of the interior showed a mean gross activity level of 2,450,000 dpm/100 cm² and a maximum value of 74,600,000 dpm/100 cm². Based on the classification procedure (DSIP-0020) and levels of gross activity reported, the system was determined to be a Class 1 system.

HSA Events: N/A Radioactive by design.

Survey Unit Design Information:

The Survey Unit Design Parameters are presented in Table 1 below. The survey unit and measurement locations are depicted on the maps in Attachment 1. Direct measurement locations were spaced at 15cm intervals and 29.6 m² were scanned for 100% coverage. The instrumentation used for the survey along with the MDC values are listed in Tables 2-1 and 2-2 in Attachment 2.

Table 1. Survey Unit Design Parameters

Survey Design Parameter	Value	Comment
Survey Area:	F899	Acid Waste Piping system Structure Surface LTP Table 5-4
Survey Unit:	0521	
Class:	1	
SU Area (m ²):	29.6	
Evaluator:	Erin L. Brown	
DCGL (dpm/100 cm ²):	100000	Gross Activity DCGL
Area Factor:	1	Class 1
Design DCGL _{me} (dpm/100 cm ²):	100000	Class 1
LBGR (dpm/100 cm ²):	50000	Default = 50% DCGL
Design Sigma (dpm/100 cm ²):	13000	
Type I Error:	0.05	
Type II Error:	0.05	
Predominant Nuclide:	Cs-137	
Sample Area (m ²):	N/A	Class 1
Scan Area (m ²):	29.6	
Scan Coverage (%):	100%	Class 1
Z _{1-α} :	1.645	
Z _{1-β} :	1.645	
Sign P:	0.99865	
Calculated Relative Shift:	3.9	
Relative Shift Used:	3	Uses 3.0 if Relative Shift is >3
N-Value:	11	
Design N-Value + 20%:	14	NUREG-1575 Table 5-5
Design Min Samples N:	14	Class 1
Grid Spacing L:	1.4	Class 1

Survey Results:

A total of 918 direct measurements were made in F8990521. The results including mean, median, standard deviation and range are shown in Table 2. All direct measurements were less than the DCGL. None of the scan measurements indicated areas of elevated activity. Scan activity ranged from 1267 to 75621 dpm/100 cm², based on the pipe detector efficiency.

Table 2. Direct Measurement Results

Measurement ID	Gross Activity (dpm/100 cm ²)
F8990521-M0001GI	1961
F8990521-M0002GI	2336
F8990521-M0003GI	7009
F8990521-M0004GI	7134
F8990521-M0005GI	3661
F8990521-M0006GI	2148
F8990521-M0007GI	1869
F8990521-M0008GI	1965
F8990521-M0009GI	1994
F8990521-M0010GI	2201
F8990521-M0011GI	2009
F8990521-M0012GI	2486
F8990521-M0013GI	17042
F8990521-M0014GI	3025
F8990521-M0015GI	2620
F8990521-M0016GI	3892
F8990521-M0017GI	2640
F8990521-M0018GI	3603
F8990521-M0019GI	2760
F8990521-M0020GI	2250
F8990521-M0021GI	2211
F8990521-M0022GI	2028
F8990521-M0023GI	2105
F8990521-M0024GI	2221
F8990521-M0025GI	2211
F8990521-M0026GI	3724
F8990521-M0027GI	2254
F8990521-M0028GI	2038
F8990521-M0029GI	1835
F8990521-M0030GI	2018
F8990521-M0031GI	1980
F8990521-M0032GI	1975
F8990521-M0033GI	2013
F8990521-M0034GI	1893
F8990521-M0035GI	2095
F8990521-M0036GI	5833
F8990521-M0037GI	2047
F8990521-M0038GI	17269
F8990521-M0039GI	4080
F8990521-M0040GI	1922

F8990521-M0041GI	1802
F8990521-M0042GI	1835
F8990521-M0043GI	1667
F8990521-M0044GI	1864
F8990521-M0045GI	2009
F8990521-M0046GI	1883
F8990521-M0047GI	1883
F8990521-M0048GI	2047
F8990521-M0049GI	1975
F8990521-M0050GI	2153
F8990521-M0051GI	2062
F8990521-M0052GI	1961
F8990521-M0053GI	1768
F8990521-M0054GI	1936
F8990521-M0055GI	3444
F8990521-M0056GI	1932
F8990521-M0057GI	1956
F8990521-M0058GI	2033
F8990521-M0059GI	1961
F8990521-M0060GI	1797
F8990521-M0061GI	1802
F8990521-M0062GI	1628
F8990521-M0063GI	1936
F8990521-M0064GI	1961
F8990521-M0065GI	4335
F8990521-M0066GI	1821
F8990521-M0067GI	1941
F8990521-M0068GI	1917
F8990521-M0069GI	1797
F8990521-M0070GI	1927
F8990521-M0071GI	1908
F8990521-M0072GI	2057
F8990521-M0073GI	1912
F8990521-M0074GI	2066
F8990521-M0075GI	8974
F8990521-M0076GI	1941
F8990521-M0077GI	2331
F8990521-M0078GI	5250
F8990521-M0079GI	2038
F8990521-M0080GI	2938
F8990521-M0081GI	5140
F8990521-M0082GI	1888
F8990521-M0083GI	1777
F8990521-M0084GI	1893
F8990521-M0085GI	1667
F8990521-M0086GI	2115
F8990521-M0087GI	2018
F8990521-M0088GI	1493
F8990521-M0089GI	1633
F8990521-M0090GI	2042
F8990521-M0091GI	1965
F8990521-M0092GI	1912
F8990521-M0093GI	2129
F8990521-M0094GI	1758
F8990521-M0095GI	2047
F8990521-M0096GI	2066

F8990521-M0097GI	1806
F8990521-M0098GI	1869
F8990521-M0099GI	1864
F8990521-M0100GI	2081
F8990521-M0101GI	2197
F8990521-M0102GI	1888
F8990521-M0103GI	1912
F8990521-M0104GI	2119
F8990521-M0105GI	2187
F8990521-M0106GI	1975
F8990521-M0107GI	1744
F8990521-M0108GI	1633
F8990521-M0109GI	1932
F8990521-M0110GI	1368
F8990521-M0111GI	1922
F8990521-M0112GI	1787
F8990521-M0113GI	1614
F8990521-M0114GI	1768
F8990521-M0115GI	1985
F8990521-M0116GI	1850
F8990521-M0117GI	1961
F8990521-M0118GI	1585
F8990521-M0119GI	1975
F8990521-M0120GI	1855
F8990521-M0121GI	1830
F8990521-M0122GI	1806
F8990521-M0123GI	1821
F8990521-M0124GI	1830
F8990521-M0125GI	1739
F8990521-M0126GI	1912
F8990521-M0127GI	1792
F8990521-M0128GI	1440
F8990521-M0129GI	1874
F8990521-M0130GI	1888
F8990521-M0131GI	1989
F8990521-M0132GI	2052
F8990521-M0133GI	1898
F8990521-M0134GI	1787
F8990521-M0135GI	1681
F8990521-M0136GI	1267
F8990521-M0137GI	1806
F8990521-M0138GI	1729
F8990521-M0139GI	1917
F8990521-M0140GI	1932
F8990521-M0141GI	1941
F8990521-M0142GI	1830
F8990521-M0143GI	1922
F8990521-M0144GI	1936
F8990521-M0145GI	1816
F8990521-M0146GI	1561
F8990521-M0147GI	1850
F8990521-M0148GI	1787
F8990521-M0149GI	1753
F8990521-M0150GI	1570
F8990521-M0151GI	1402
F8990521-M0152GI	1623

F8990521-M0153GI	1397
F8990521-M0154GI	2042
F8990521-M0155GI	2033
F8990521-M0156GI	1912
F8990521-M0157GI	1898
F8990521-M0158GI	1811
F8990521-M0159GI	1676
F8990521-M0160GI	1980
F8990521-M0161GI	1965
F8990521-M0162GI	1758
F8990521-M0163GI	1855
F8990521-M0164GI	1917
F8990521-M0165GI	1763
F8990521-M0166GI	1830
F8990521-M0167GI	1961
F8990521-M0168GI	1792
F8990521-M0169GI	1729
F8990521-M0170GI	1700
F8990521-M0171GI	1999
F8990521-M0172GI	1879
F8990521-M0173GI	1816
F8990521-M0174GI	1893
F8990521-M0175GI	1821
F8990521-M0176GI	1826
F8990521-M0177GI	1768
F8990521-M0178GI	1551
F8990521-M0179GI	1792
F8990521-M0180GI	1922
F8990521-M0181GI	1908
F8990521-M0182GI	1989
F8990521-M0183GI	1965
F8990521-M0184GI	1787
F8990521-M0185GI	1908
F8990521-M0186GI	1859
F8990521-M0187GI	1797
F8990521-M0188GI	2013
F8990521-M0189GI	1681
F8990521-M0190GI	1917
F8990521-M0191GI	1946
F8990521-M0192GI	1903
F8990521-M0193GI	1835
F8990521-M0194GI	1638
F8990521-M0195GI	1879
F8990521-M0196GI	2023
F8990521-M0197GI	1850
F8990521-M0198GI	1517
F8990521-M0199GI	1806
F8990521-M0200GI	2124
F8990521-M0201GI	1941
F8990521-M0202GI	2042
F8990521-M0203GI	1845
F8990521-M0204GI	2013
F8990521-M0205GI	1936
F8990521-M0206GI	1811
F8990521-M0207GI	1777
F8990521-M0208GI	1513

F8990521-M0209GI	1826
F8990521-M0210GI	1888
F8990521-M0211GI	1835
F8990521-M0212GI	1888
F8990521-M0213GI	1999
F8990521-M0214GI	1941
F8990521-M0215GI	1912
F8990521-M0216GI	1768
F8990521-M0217GI	1917
F8990521-M0218GI	1850
F8990521-M0219GI	1821
F8990521-M0220GI	1864
F8990521-M0221GI	1768
F8990521-M0222GI	1879
F8990521-M0223GI	1845
F8990521-M0224GI	1792
F8990521-M0225GI	1956
F8990521-M0226GI	1980
F8990521-M0227GI	2071
F8990521-M0228GI	1941
F8990521-M0229GI	1883
F8990521-M0230GI	1729
F8990521-M0231GI	1855
F8990521-M0232GI	1927
F8990521-M0233GI	1845
F8990521-M0234GI	1816
F8990521-M0235GI	1782
F8990521-M0236GI	1855
F8990521-M0237GI	1975
F8990521-M0238GI	1758
F8990521-M0239GI	2004
F8990521-M0240GI	2905
F8990521-M0241GI	1903
F8990521-M0242GI	1903
F8990521-M0243GI	1821
F8990521-M0244GI	1604
F8990521-M0245GI	1941
F8990521-M0246GI	2066
F8990521-M0247GI	2023
F8990521-M0248GI	1932
F8990521-M0249GI	2168
F8990521-M0250GI	2278
F8990521-M0251GI	2457
F8990521-M0252GI	2274
F8990521-M0253GI	2471
F8990521-M0254GI	2548
F8990521-M0255GI	2428
F8990521-M0256GI	2514
F8990521-M0257GI	2514
F8990521-M0258GI	2423
F8990521-M0259GI	2486
F8990521-M0260GI	2592
F8990521-M0261GI	2664
F8990521-M0262GI	2307
F8990521-M0263GI	2221
F8990521-M0264GI	2442

F8990521-M0265GI	2452
F8990521-M0266GI	2327
F8990521-M0267GI	2476
F8990521-M0268GI	2722
F8990521-M0269GI	2712
F8990521-M0270GI	2558
F8990521-M0271GI	2620
F8990521-M0272GI	2062
F8990521-M0273GI	2177
F8990521-M0274GI	2375
F8990521-M0275GI	2539
F8990521-M0276GI	2408
F8990521-M0277GI	2495
F8990521-M0278GI	2418
F8990521-M0279GI	2452
F8990521-M0280GI	2423
F8990521-M0281GI	2654
F8990521-M0282GI	2375
F8990521-M0283GI	2331
F8990521-M0284GI	2553
F8990521-M0285GI	2452
F8990521-M0286GI	2688
F8990521-M0287GI	2606
F8990521-M0288GI	2919
F8990521-M0289GI	2611
F8990521-M0290GI	2529
F8990521-M0291GI	2433
F8990521-M0292GI	2654
F8990521-M0293GI	2543
F8990521-M0294GI	2447
F8990521-M0295GI	2408
F8990521-M0296GI	2572
F8990521-M0297GI	2500
F8990521-M0298GI	3112
F8990521-M0299GI	60808
F8990521-M0300GI	11541
F8990521-M0301GI	4515
F8990521-M0302GI	1922
F8990521-M0303GI	1775
F8990521-M0304GI	1801
F8990521-M0305GI	1689
F8990521-M0306GI	1768
F8990521-M0307GI	1673
F8990521-M0308GI	2244
F8990521-M0309GI	3378
F8990521-M0310GI	21390
F8990521-M0311GI	2882
F8990521-M0312GI	2711
F8990521-M0313GI	10292
F8990521-M0314GI	33976
F8990521-M0315GI	13562
F8990521-M0316GI	4371
F8990521-M0317GI	3845
F8990521-M0318GI	1972
F8990521-M0319GI	1683
F8990521-M0320GI	1584

F8990521-M0321GI	1719
F8990521-M0322GI	1775
F8990521-M0323GI	2422
F8990521-M0324GI	1952
F8990521-M0325GI	2060
F8990521-M0326GI	1643
F8990521-M0327GI	1479
F8990521-M0328GI	1561
F8990521-M0329GI	2902
F8990521-M0330GI	20046
F8990521-M0331GI	7542
F8990521-M0332GI	3105
F8990521-M0333GI	2028
F8990521-M0334GI	1952
F8990521-M0335GI	1568
F8990521-M0336GI	1814
F8990521-M0337GI	3651
F8990521-M0338GI	13684
F8990521-M0339GI	17736
F8990521-M0340GI	7010
F8990521-M0341GI	1913
F8990521-M0342GI	1679
F8990521-M0343GI	1623
F8990521-M0344GI	1640
F8990521-M0345GI	1686
F8990521-M0346GI	1640
F8990521-M0347GI	2241
F8990521-M0348GI	30546
F8990521-M0349GI	3148
F8990521-M0350GI	1758
F8990521-M0351GI	1554
F8990521-M0352GI	1748
F8990521-M0353GI	1903
F8990521-M0354GI	7821
F8990521-M0355GI	35879
F8990521-M0356GI	3322
F8990521-M0357GI	2057
F8990521-M0358GI	1830
F8990521-M0359GI	2668
F8990521-M0360GI	3664
F8990521-M0361GI	3447
F8990521-M0393GI	4282
F8990521-M0394GI	2042
F8990521-M0395GI	1975
F8990521-M0396GI	6262
F8990521-M0397GI	1729
F8990521-M0398GI	1908
F8990521-M0399GI	2129
F8990521-M0400GI	1768
F8990521-M0401GI	1883
F8990521-M0402GI	1811
F8990521-M0403GI	1859
F8990521-M0404GI	1792
F8990521-M0405GI	2052
F8990521-M0406GI	6575
F8990521-M0407GI	2274

F8990521-M0408GI	1917
F8990521-M0409GI	2023
F8990521-M0410GI	1777
F8990521-M0411GI	1749
F8990521-M0412GI	1850
F8990521-M0413GI	1879
F8990521-M0414GI	2038
F8990521-M0415GI	2259
F8990521-M0416GI	6643
F8990521-M0417GI	2250
F8990521-M0418GI	5934
F8990521-M0419GI	2052
F8990521-M0420GI	1773
F8990521-M0421GI	1715
F8990521-M0422GI	1903
F8990521-M0423GI	1864
F8990521-M0424GI	2076
F8990521-M0425GI	1705
F8990521-M0426GI	1792
F8990521-M0427GI	1893
F8990521-M0428GI	7871
F8990521-M0429GI	3314
F8990521-M0430GI	1479
F8990521-M0431GI	2110
F8990521-M0432GI	1883
F8990521-M0433GI	1845
F8990521-M0434GI	1835
F8990521-M0435GI	1859
F8990521-M0436GI	1927
F8990521-M0437GI	1551
F8990521-M0438GI	1623
F8990521-M0439GI	1594
F8990521-M0440GI	1768
F8990521-M0441GI	1729
F8990521-M0442GI	1821
F8990521-M0443GI	1753
F8990521-M0444GI	1826
F8990521-M0445GI	1855
F8990521-M0446GI	2457
F8990521-M0447GI	1912
F8990521-M0448GI	1667
F8990521-M0449GI	2004
F8990521-M0450GI	1806
F8990521-M0451GI	1797
F8990521-M0452GI	1710
F8990521-M0453GI	1705
F8990521-M0454GI	1744
F8990521-M0455GI	1686
F8990521-M0456GI	1753
F8990521-M0457GI	1835
F8990521-M0458GI	1773
F8990521-M0459GI	2447
F8990521-M0460GI	1802
F8990521-M0461GI	1594
F8990521-M0462GI	1845
F8990521-M0463GI	2206

F8990521-M0464GI	2842
F8990521-M0465GI	2818
F8990521-M0466GI	3131
F8990521-M0467GI	2866
F8990521-M0468GI	4846
F8990521-M0469GI	4196
F8990521-M0470GI	4610
F8990521-M0471GI	5366
F8990521-M0472GI	9302
F8990521-M0473GI	8752
F8990521-M0474GI	8487
F8990521-M0489GI	2038
F8990521-M0490GI	2009
F8990521-M0491GI	1729
F8990521-M0492GI	1700
F8990521-M0493GI	1734
F8990521-M0494GI	1821
F8990521-M0495GI	2023
F8990521-M0496GI	1922
F8990521-M0497GI	1859
F8990521-M0498GI	1378
F8990521-M0499GI	1349
F8990521-M0500GI	1888
F8990521-M0501GI	1874
F8990521-M0502GI	1898
F8990521-M0503GI	1951
F8990521-M0504GI	1623
F8990521-M0505GI	1484
F8990521-M0506GI	2023
F8990521-M0507GI	1898
F8990521-M0508GI	2052
F8990521-M0509GI	2013
F8990521-M0510GI	1980
F8990521-M0511GI	1980
F8990521-M0512GI	1450
F8990521-M0513GI	1792
F8990521-M0514GI	2023
F8990521-M0515GI	2115
F8990521-M0516GI	1922
F8990521-M0517GI	1908
F8990521-M0518GI	1936
F8990521-M0519GI	2139
F8990521-M0520GI	1898
F8990521-M0521GI	1888
F8990521-M0522GI	1522
F8990521-M0523GI	1855
F8990521-M0524GI	1903
F8990521-M0525GI	1460
F8990521-M0526GI	2057
F8990521-M0527GI	1378
F8990521-M0528GI	1917
F8990521-M0529GI	1908
F8990521-M0530GI	1893
F8990521-M0531GI	1787
F8990521-M0532GI	1782
F8990521-M0533GI	1888

F8990521-M0534GI	1850
F8990521-M0535GI	1946
F8990521-M0536GI	2004
F8990521-M0537GI	2018
F8990521-M0538GI	2013
F8990521-M0539GI	2317
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F8990521-M0961GI	2223
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F8990521-M0963GI	2254
Mean:	3327
Median:	2086
Standard Deviation:	5275
Range:	1267 - 75621

Survey Unit Data Assessment:

The survey design required 918 direct measurements for the Sign Test. The critical value and the results of the Sign Test are presented in Table 4. The sample mean and median values were less than the DCGL. The sample standard deviation was less than the design standard deviation so no additional samples were required.

Table 4. Data Assessment Results

Survey Results Parameter	Value	Comment
Material Background Used (dpm/100 cm ²):	N/A	
Ambient Background Used (dpm/100 cm ²):	N/A	Average Ambient BKG = 0
Actual Direct Measurements (N):	918	
Median (dpm/100 cm ²):	2086	
Mean (dpm/100 cm ²):	3327	
Direct Measurement Standard Deviation	5275	
(dpm/100 cm ²):		
Total Standard Deviation (dpm/100 cm ²):	5275	Based on samples and backgrounds.
Maximum (dpm/100 cm ²):	75621	
Material Type:	N/A	Background Subtract Not Applied
Sign Test Final N Value:	918	
S+ Value:	918	
Critical Value:	484	
Sufficient Samples Collected:	Yes	
Maximum Value < DCGL:	Yes	
Median Value < DCGL:	Yes	
Mean Value < DCGL:	Yes	
Maximum Value < DCGL_{emc}:	Yes	Class 1
Total Standard Deviation <= Sigma:	Yes	
Pass the Sign Test?	Yes	
Reject the Null Hypothesis?	Yes	
Does the Survey Unit Pass All Criteria?	Yes	

Survey Unit Investigations and Results:

No investigations were required and no investigation results are reported.

ALARA Statement:

As stated in Chapter 4 of the LTP, as long as the residual activity within the survey unit is less than the DCGL (i.e. the survey unit average activity is less than the DCGL), the ALARA criterion has been met.

Changes in Initial Survey Unit Assumptions:

The survey unit was designed as a Class 1 structure survey and the sample results are consistent with that classification. The variability of the survey results was less than the characterization data used for survey design. No potential areas of elevated activity were detected.

Conclusion:

The FSS of this survey unit was properly designed as a Class 1 survey based on Table 5-4 of the LTP. The required number of direct measurements was made and the scan coverage met the requirement of Table 5-6 of the LTP for pipe surveys. No direct measurements exceeded the DCGL of 100000 dpm/100 cm². This system will be grouted. No investigations were required.

The direct measurement data support rejection of the null hypothesis, providing high confidence that the survey unit satisfied the release criteria and that the data quality objectives were met.

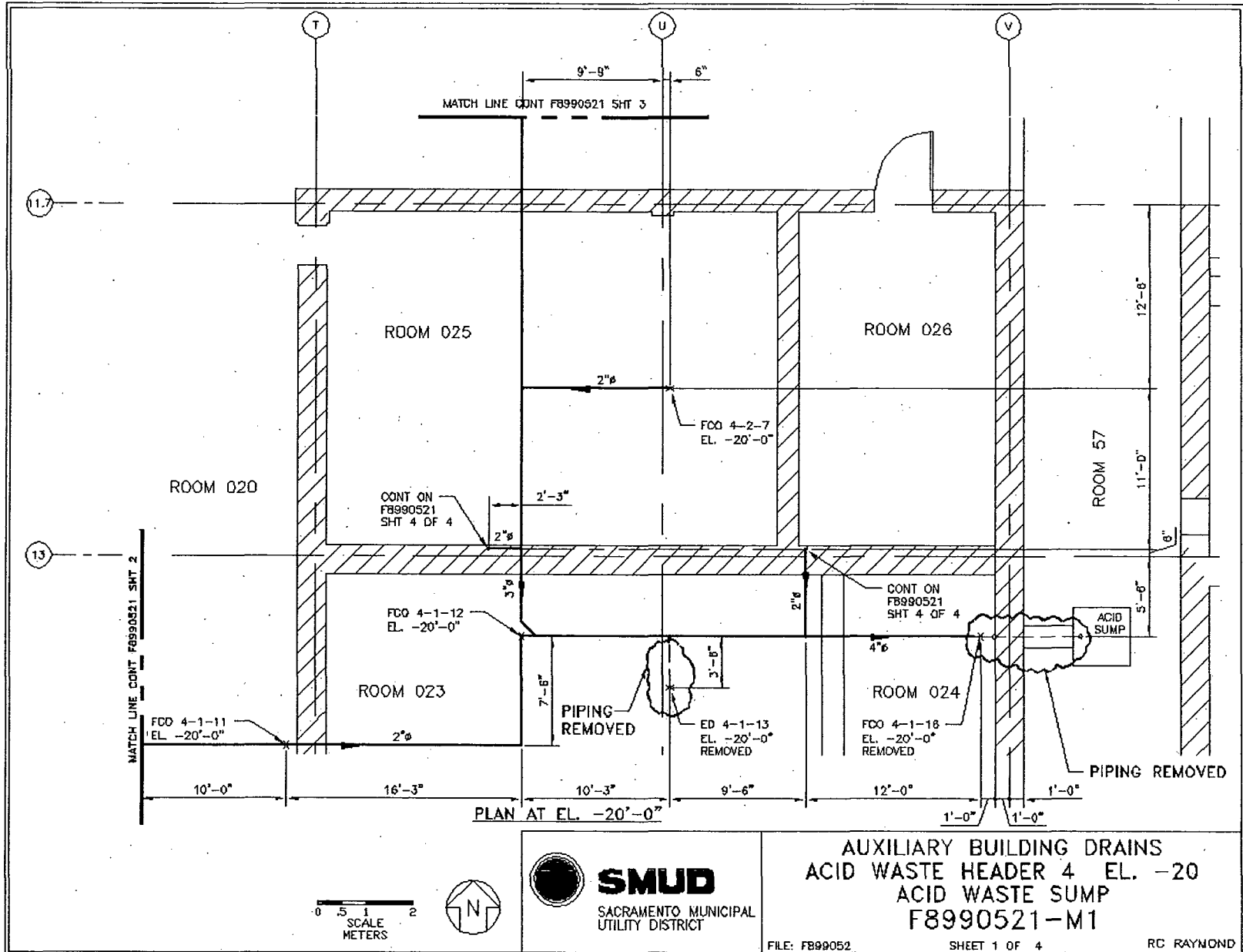
It is concluded that survey unit F8990521 meets the release criteria of 10CFR20.1402.

Attachment 1

Maps

March 18, 2008

Survey Unit F8990521



SMUD

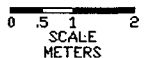
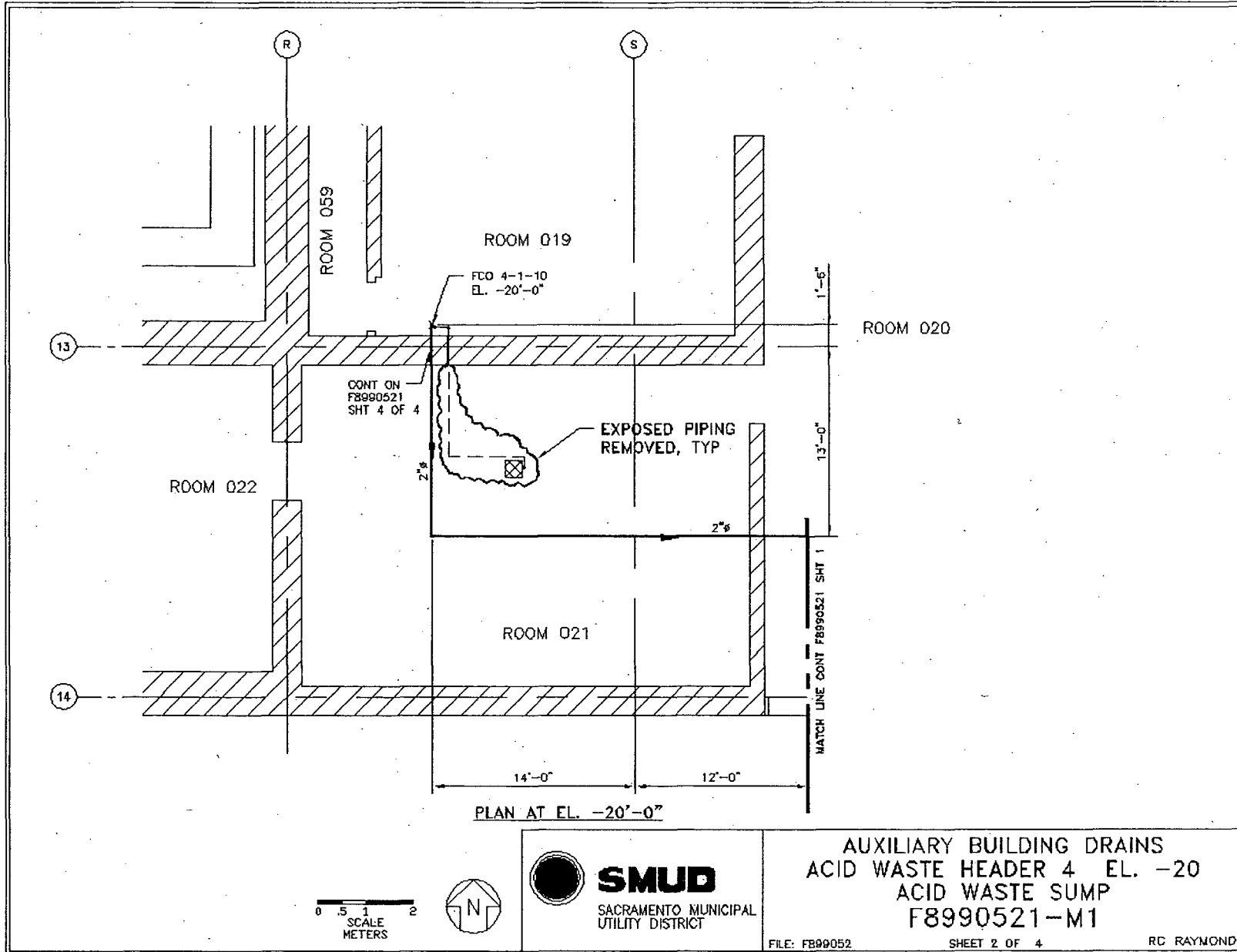
SACRAMENTO MUNICIPAL
UTILITY DISTRICT

AUXILIARY BUILDING DRAINS
ACID WASTE HEADER 4 EL. -20
ACID WASTE SUMP
F8990521-M1

FILE: F899052

SHEET 1 OF 4

RC RAYMOND



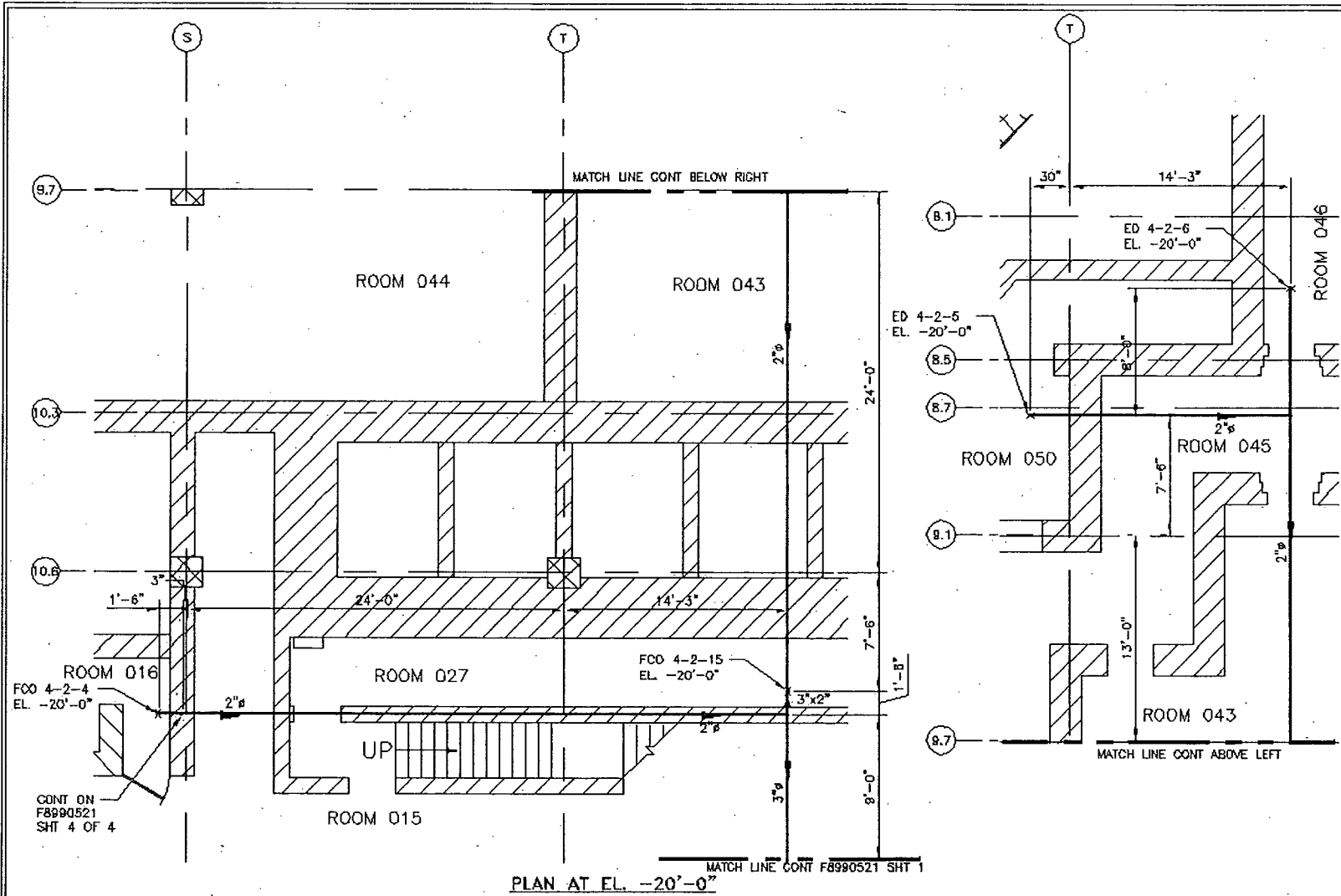
SMUD
SACRAMENTO MUNICIPAL
UTILITY DISTRICT

AUXILIARY BUILDING DRAINS
ACID WASTE HEADER 4 EL. -20
ACID WASTE SUMP
F8990521-M1

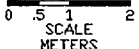
FILE: F899052

SHEET 2 OF 4

RC RAYMOND



PLAN AT EL. -20'-0"

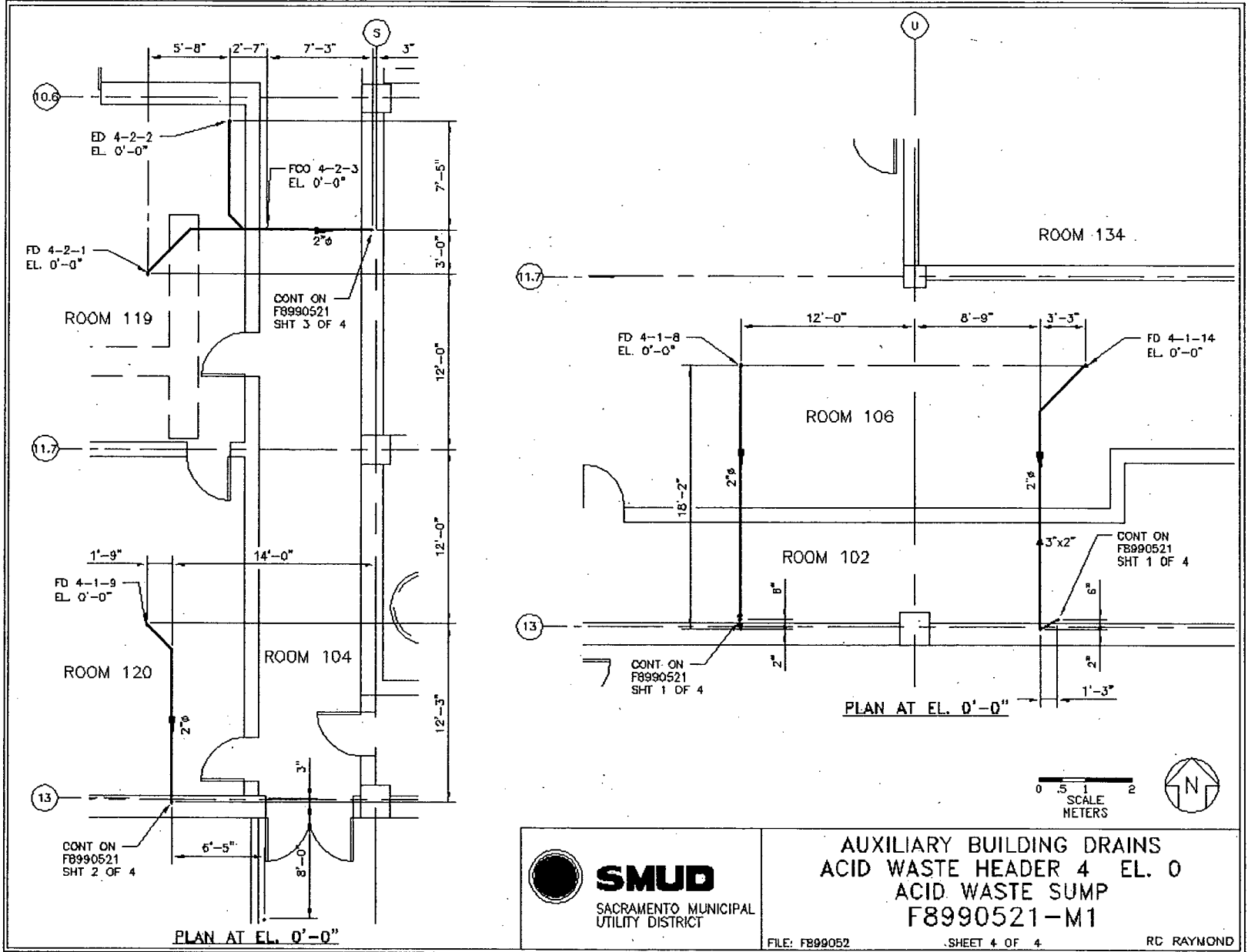


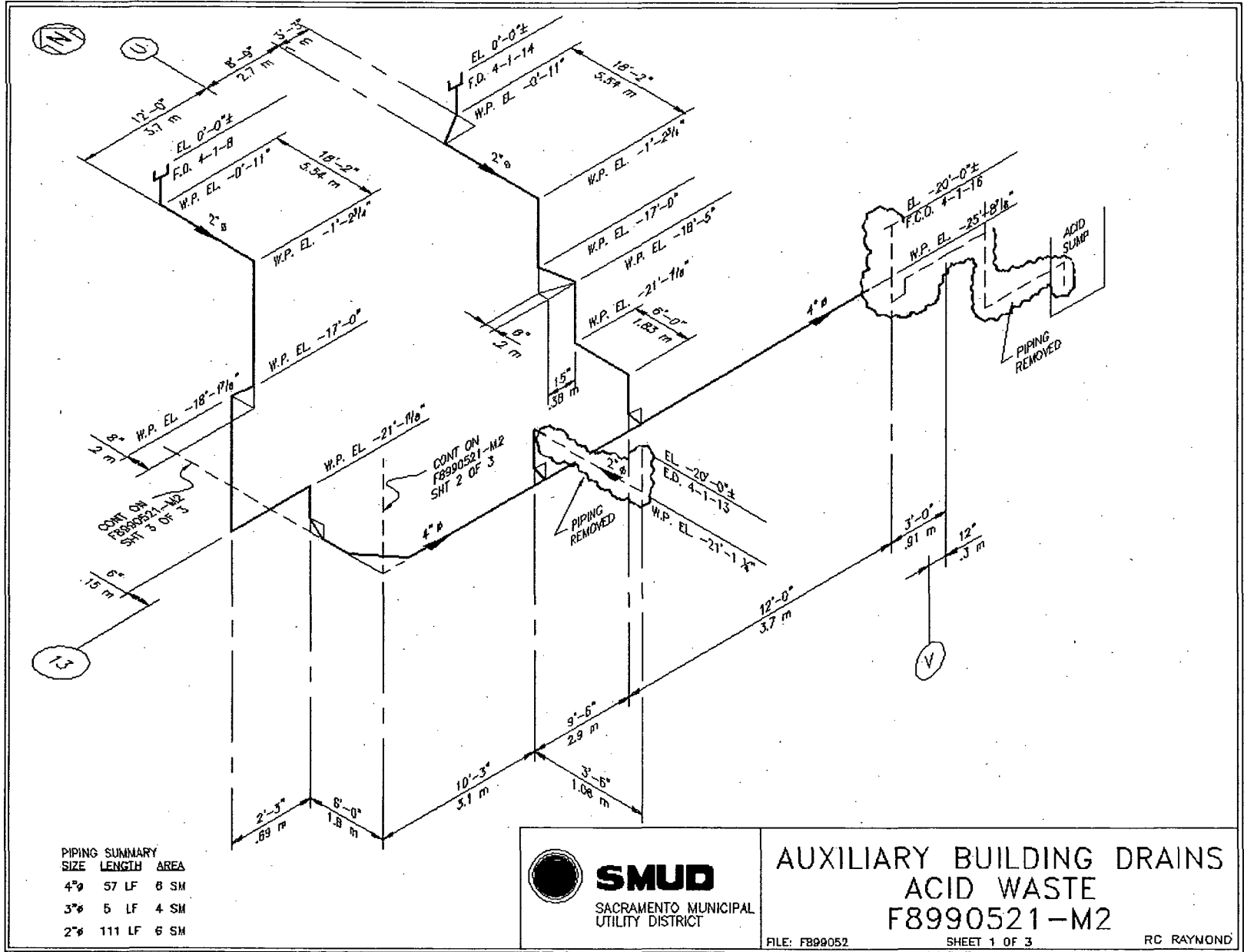
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ACID WASTE HEADER 4 EL. -20
ACID WASTE SUMP
F8990521-M1

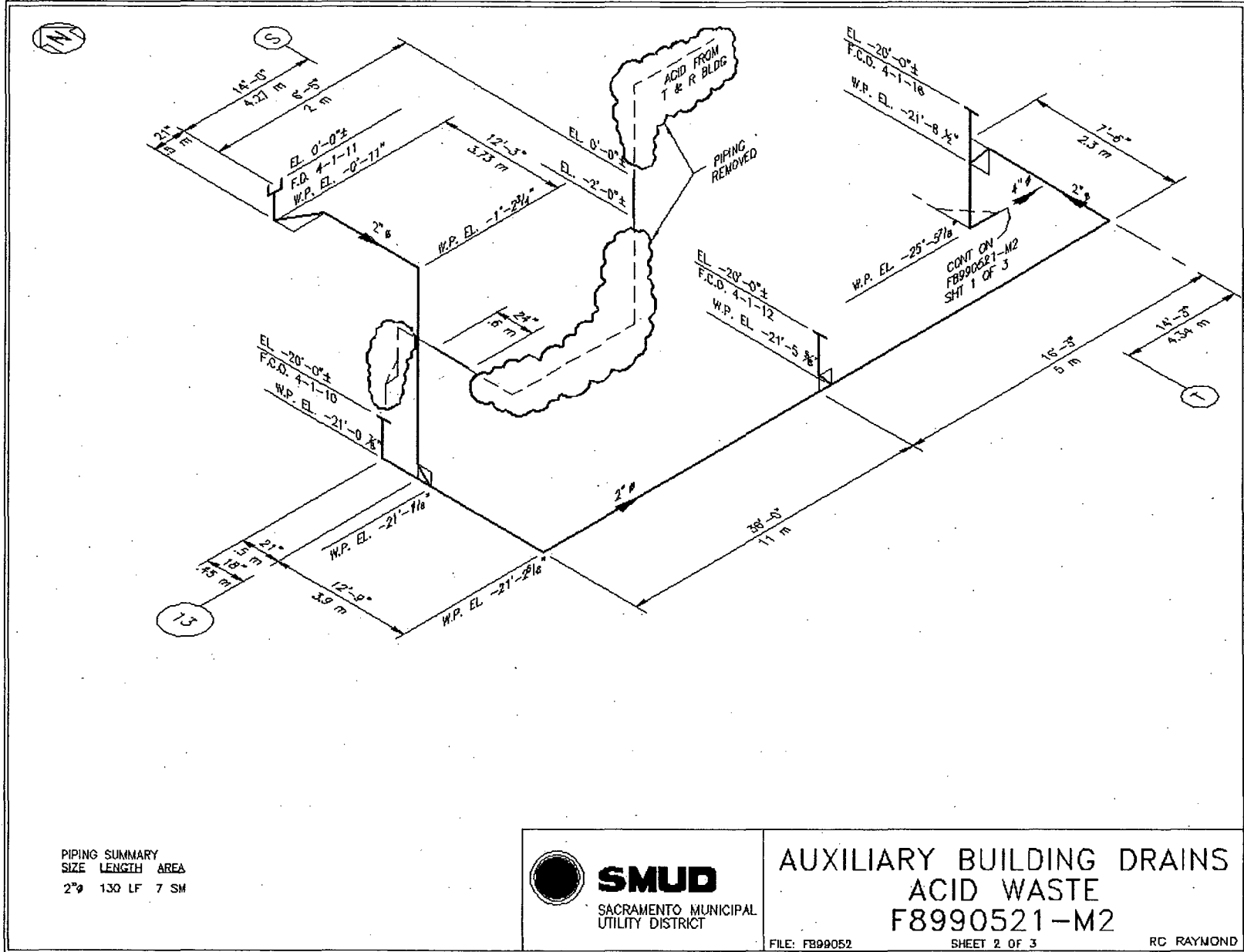
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SHEET 3 OF 4

RC RAYMOND







SMUD

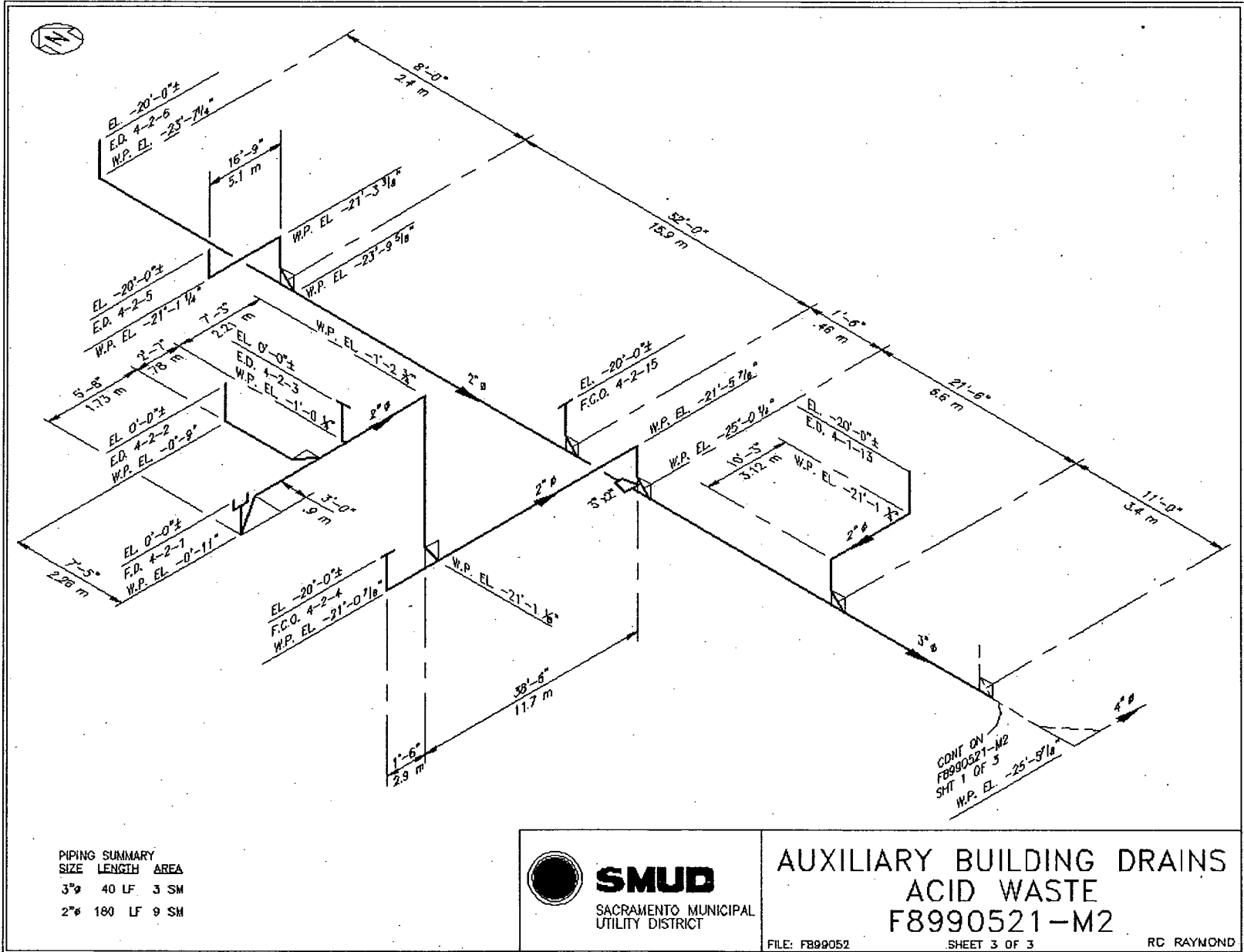
SACRAMENTO MUNICIPAL
UTILITY DISTRICT

**AUXILIARY BUILDING DRAINS
ACID WASTE
F8990521-M2**

FILE: F899052

SHEET 2 OF 3

RC RAYMOND



PIPING SUMMARY

SIZE	LENGTH	AREA
3"ø	40 LF	3 SM
2"ø	180 LF	9 SM



SMUD

SACRAMENTO MUNICIPAL
UTILITY DISTRICT

**AUXILIARY BUILDING DRAINS
ACID WASTE
F8990521-M2**

FILE: FB99052

SHEET 3 OF 3

RC RAYMOND

Attachment 2

Instrumentation

March 18, 2008

Survey Unit F8990521

Table 2-1. Survey Unit Instrumentation

Instrument Model; Serial No.	Detector Model; Serial No.	MDC Static (dpm/100 cm²)	MDC Scan (dpm/100 cm²)
M2350; 203484	44-159; 215855	5720	N/A
M2350; 142512	44-159; 201637	5720	N/A

The MDC noted for the detector model 44-159 is for the 3" diameter piping which is the most conservative.

Table 2-2. Investigation Criteria and DCGL

Parameter	Value (dpm/100 cm²)
Investigation Criteria - Direct	100000
Investigation Criteria - Scan	N/A
DCGL _w	100000
DCGL _{EMC}	N/A

Attachment 3

Investigation

March 18, 2008

Survey Unit F8990521

(none required)

Attachment 4

Data Assessment

March 18, 2008

Survey Unit F8990521

