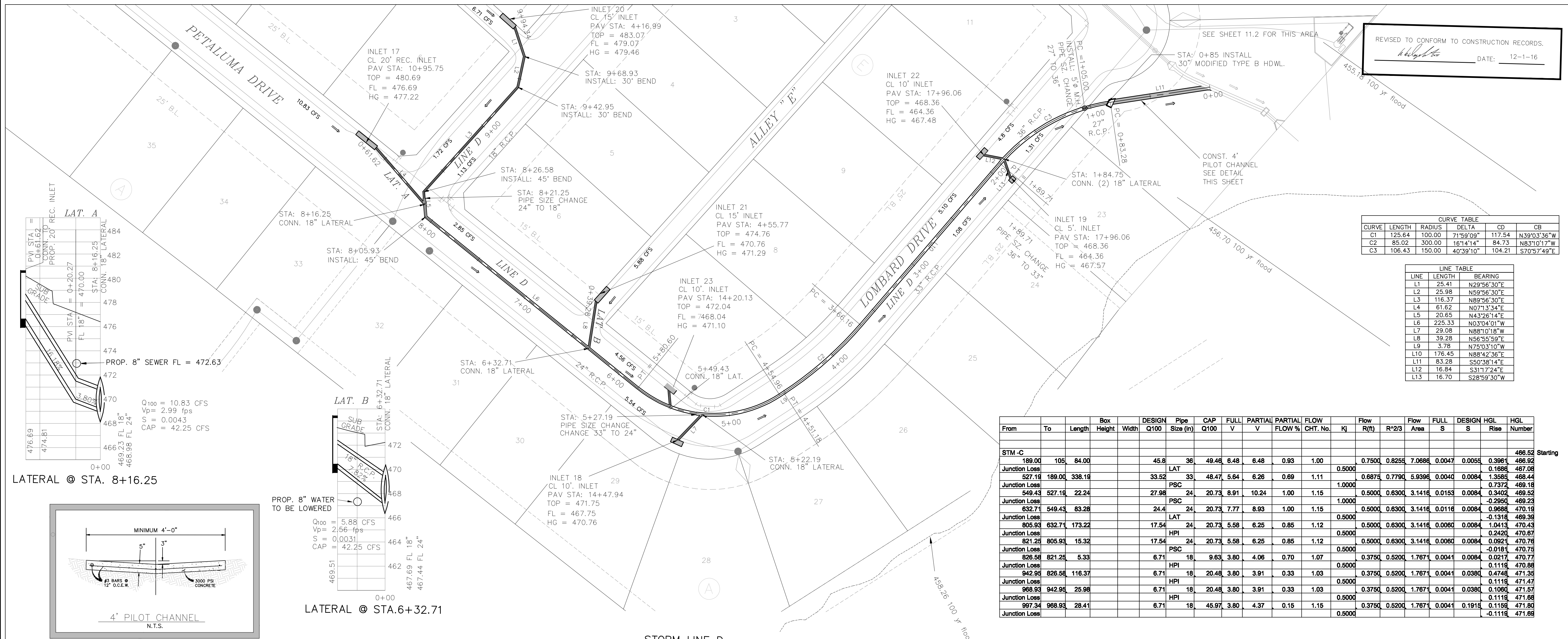


DOUPHRADE & ASSOCIATES, INC.
 ENGINEERING • PROJECT MANAGEMENT • SURVEYING
 2235 RIDGE RD., # 200 ROCKWALL, TEXAS 75087
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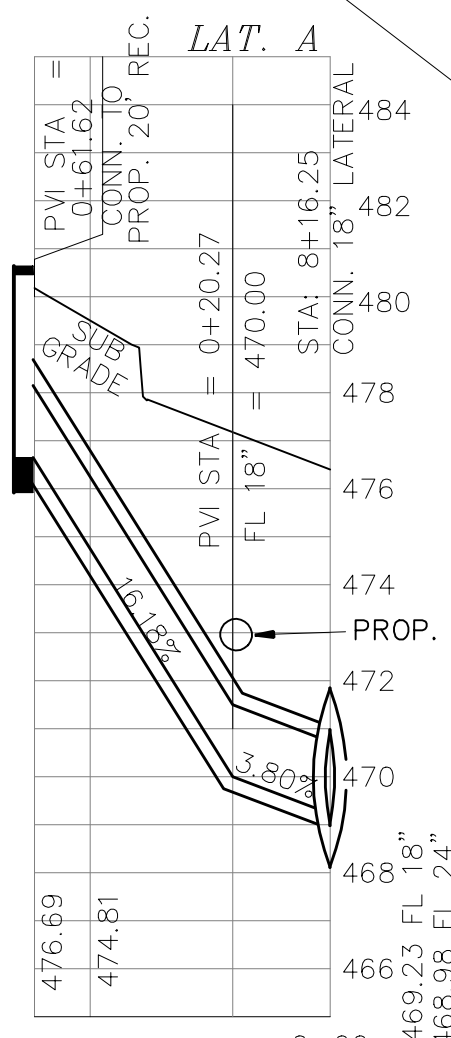
REVISED TO CONFORM TO CONSTRUCTION RECORDS.
 DATE: 12-1-16



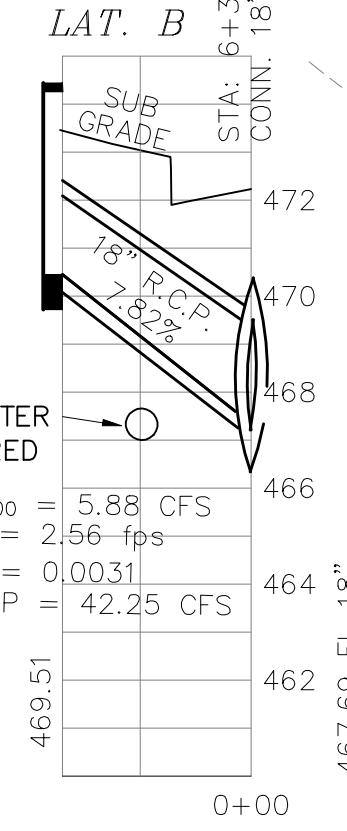
| CURVE | LENGTH | RADIUS | DELTA | CD | CB |
|-------|--------|--------|------------|--------|-------------|
| C1 | 125.64 | 100.00 | 71°59'09" | 117.54 | N39°03'36"W |
| C2 | 85.02 | 300.00 | 161°14'14" | 84.73 | N83°10'17"W |
| C3 | 106.43 | 150.00 | 40°39'10" | 104.21 | S70°57'49"E |

| LINE | LENGTH | BEARING |
|------|--------|-------------|
| L1 | 25.41 | N29°56'30"E |
| L2 | 25.98 | N59°56'30"E |
| L3 | 116.37 | N89°56'30"E |
| L4 | 61.62 | N071°3'34"E |
| L5 | 20.65 | N43°26'14"E |
| L6 | 225.33 | N03°04'01"W |
| L7 | 29.05 | N88°10'18"W |
| L8 | 39.28 | N56°55'59"E |
| L9 | 3.78 | N75°03'10"W |
| L10 | 176.45 | N88°42'36"E |
| L11 | 83.28 | S50°38'14"E |
| L12 | 16.84 | S31°17'24"E |
| L13 | 16.70 | S28°59'30"W |

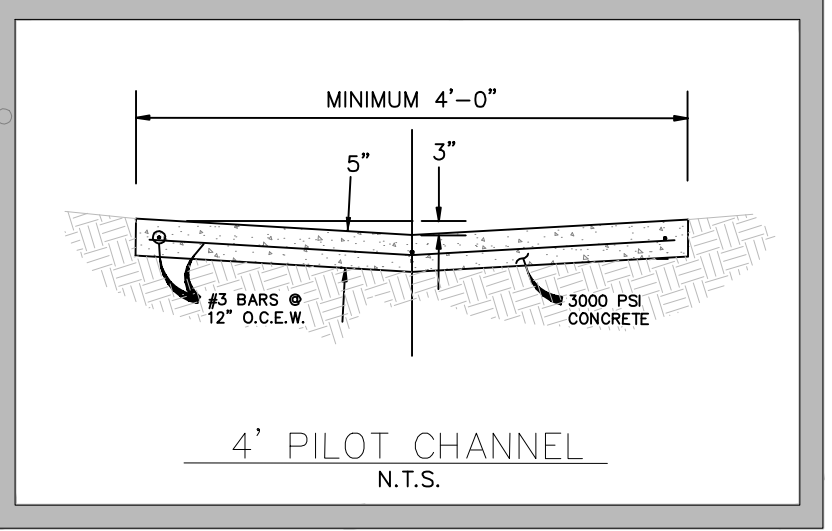
| From | To | Length | Box Height | Width | DESIGN Q100 | Pipe Size (in) | CAP Q100 | FULL V | PARTIAL V | FLOW % | CHT. No. | Kj | Flow R(t) | Flow R²/3 | Flow Area | FULL S | DESIGN HGL | HGL Rise | HGL Number | |
|---------------|--------|--------|------------|-------|-------------|----------------|----------|--------|-----------|--------|----------|--------|-----------|-----------|-----------|--------|------------|----------|------------|----------|
| STM-C | | | | | | | | | | | | | | | | | | | | |
| | 189.00 | 105 | 84.00 | | 45.8 | 36 | 49.48 | 6.48 | 6.48 | 0.93 | 1.00 | | 0.7500 | 0.8255 | 7.0686 | 0.0047 | 0.0058 | 0.3961 | 466.92 | Starting |
| Junction Loss | 527.18 | 169.00 | 338.18 | | 33.52 | 33 | 48.47 | 5.64 | 6.26 | 0.89 | 1.11 | 0.5000 | 0.6875 | 0.7790 | 5.9396 | 0.0040 | 0.0084 | 0.1688 | 467.08 | |
| Junction Loss | 549.43 | 527.19 | 22.24 | | 27.98 | 24 | 20.73 | 8.91 | 10.24 | 1.00 | 1.15 | 1.0000 | 0.5000 | 0.6300 | 3.1416 | 0.0153 | 0.0084 | 0.3402 | 469.18 | |
| Junction Loss | 632.71 | 549.43 | 83.28 | | 24.4 | 24 | 20.73 | 7.77 | 8.93 | 1.00 | 1.15 | 1.0000 | 0.5000 | 0.6300 | 3.1416 | 0.0116 | 0.0084 | 0.9688 | 470.19 | |
| Junction Loss | 805.93 | 632.71 | 173.22 | | 17.54 | 24 | 20.73 | 5.58 | 6.25 | 0.85 | 1.12 | 0.5000 | 0.5000 | 0.6300 | 3.1416 | 0.0060 | 0.0084 | 1.0413 | 469.38 | |
| Junction Loss | 821.25 | 805.93 | 15.32 | | 17.54 | 24 | 20.73 | 5.58 | 6.25 | 0.85 | 1.12 | 0.5000 | 0.5000 | 0.6300 | 3.1416 | 0.0060 | 0.0084 | 0.2420 | 470.67 | |
| Junction Loss | 826.58 | 821.25 | 5.33 | | 6.71 | 18 | 9.63 | 3.80 | 4.06 | 0.70 | 1.07 | 0.5000 | 0.3750 | 0.5200 | 1.7671 | 0.0041 | 0.0084 | 0.0217 | 470.77 | |
| Junction Loss | 942.95 | 826.58 | 116.37 | | 6.71 | 18 | 20.48 | 3.80 | 3.91 | 0.33 | 1.03 | 0.5000 | 0.3750 | 0.5200 | 1.7671 | 0.0041 | 0.0380 | 0.4748 | 471.35 | |
| Junction Loss | 968.93 | 942.95 | 25.98 | | 6.71 | 18 | 20.48 | 3.80 | 3.91 | 0.33 | 1.03 | 0.5000 | 0.3750 | 0.5200 | 1.7671 | 0.0041 | 0.0380 | 0.1118 | 471.47 | |
| Junction Loss | 997.34 | 968.93 | 28.41 | | 6.71 | 18 | 45.97 | 3.80 | 4.37 | 0.15 | 1.15 | 0.5000 | 0.3750 | 0.5200 | 1.7671 | 0.0041 | 0.1915 | 0.1060 | 471.80 | |
| Junction Loss | | | | | | | | | | | | | 0.5000 | | | | | -0.1118 | 471.68 | |



Q₁₀₀ = 10.83 CFS
 V_p = 2.99 fps
 S = 0.0043
 CAP = 42.25 CFS



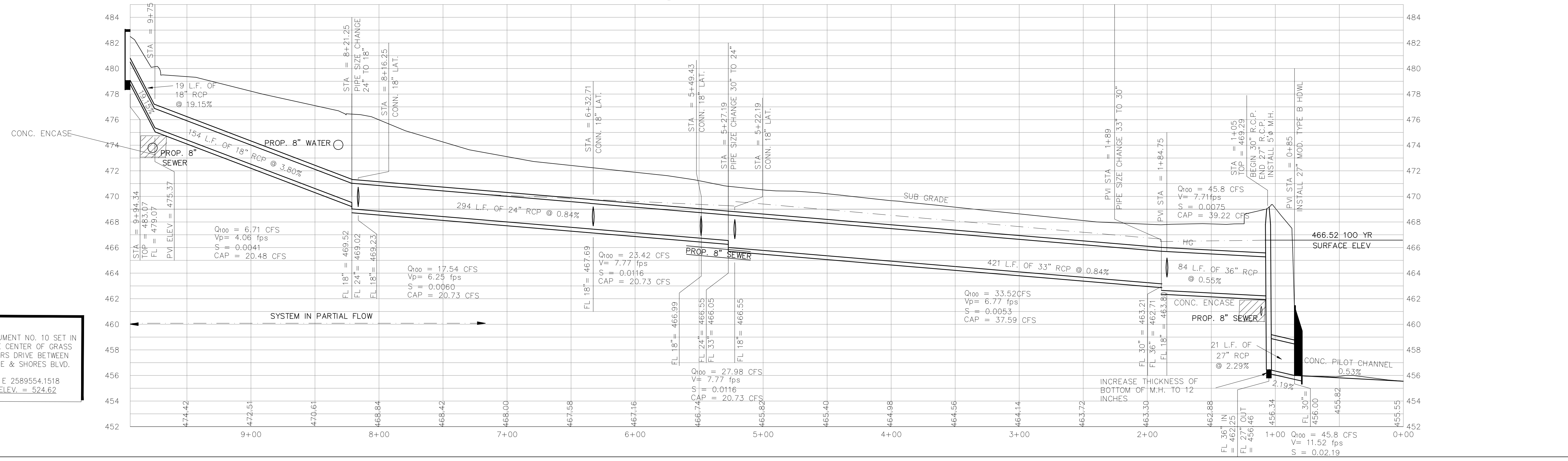
Q₁₀₀ = 5.88 CFS
 V_p = 2.56 fps
 S = 0.0031
 CAP = 42.25 CFS



LATERAL @ STA. 8+16.25

LATERAL @ STA. 6+32.71

STORM LINE D



BENCHMARKS:
 BRASS CAP MONUMENT NO. 10 SET IN CONCRETE IN THE CENTER OF GRASS MEDIAN IN MASTERS DRIVE BETWEEN NORTH LAKESHORE & SHORES BLVD.
 N 7032464.6317, E 2589554.1518
 ELEV. = 524.62

STORM SEWER PLAN AND PROFILE
 LINE D, LAT. A & LAT. B
 LAKEVIEW SUMMIT, PHASE IV
 CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

| REVISION |
|--------------------|
| W.L.D. CHECKED |
| K.E.B. DRAWN |
| 10/14 DATE |
| 9919-4STM4 PROJECT |
| 113 OF |