

MEMORANDUM

RSD-25-2003

TO: Charles Allen, P.E.
T.E.B.M. for Pre-Construction
District 10, Jackson

cc: David Jones
Vaughn & Melton

FROM: William Broyles, P.E.
Geotechnical Engineering
Branch Manager
Division of Materials

BY: Christian Wallover *CW*
Geotechnical Branch

DATE: October 20, 2003

SUBJECT: Perry County
FD04 097 0015 016-021 049D
KY 15
Mars No. 4829101D
Item 10-269.02
Stations 14+00 to 230+00
Cut Slope Recommendations

A rock core inspection was held on October 15, 2003 at the Geotechnical Branch in Frankfort. Present at the meeting were Aaron Niehoff, Corbett Caudill, Chris Slone, Richard Wilson, and Christian Wallover from the Department. After reviewing the plans, cross sections and rock cores the group agreed to the following recommendations:

1/. Cut limits from station 14+00 to station 22+00.

A)	Station 14+00	Right Side
	Groundline to grade	2:1 Slope

The base of the rock disintegration zone extends 15.8 feet below groundline, 125 feet right of station 14+00.

B)	Station 18+50	Right Side
	Groundline to grade	3:1 Slope

The base of the rock disintegration zone exceeds 54 feet below groundline, 115 feet right of station 18+55.

2/. Cut limits from station 32+50 to station 37+50.

A)	Station 35+50	Left Side
	Groundline to elev. 1147	2:1 Slope
	Elev. 1147 to elev. 1128	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1128 to elev. 1092	1¾:1 Slope w/a 18' Intermediate Bench
	Elev. 1092 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 4 feet below groundline, 210 feet left of station 35+50; and 13.6 feet below groundline, 115 feet left of station 35+50.

3/. Cut limits from station 40+00 to station 41+50.

A)	Station 40+50	Left Side
	Groundline to grade	2:1 Slope

The base of the rock disintegration zone is estimated to be 10 feet below groundline, 80 feet left of station 40+50.

4/. Cut limits from station 42+50 to station 50+50.

A)	Station 43+50	Left and Right Side
	Groundline to grade	2:1 Slope

The base of the rock disintegration zone extends 19.7 feet below groundline, 70 feet right of station 43+50.

B)	Station 46+50	Left Side
	Groundline to elev. 1247	2:1 Slope
	Elev. 1247 to elev. 1236	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1236 to elev. 1192	½:1 Presplit Slope w/a 25' Intermediate Bench
	Elev. 1192 to elev. 1156	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1156 to elev. 1124	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1124 to grade	½:1 Presplit Slope

	Right Side
Groundline to elev. 1156	20' Intermediate Bench
Elev. 1156 to elev. 1124	½:1 Presplit Slope w/a
	20' Intermediate Bench
Elev. 1124 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 14.6 feet below groundline, 230 feet left of station 46+50; and 10.7 feet below groundline, 75 feet left of station 46+50.

5/. Cut limits from station 50+50 to station 56+50.

A) Station 51+00	Left Side
Groundline to grade	2½:1 Slope

The base of the rock disintegration zone extends 9.3 feet below groundline, 90 feet left of station 51+00.

B) Station 53+00	Left Side
Groundline to elev. 1240	2:1 Slope
Elev. 1240 to elev. 1220	½:1 Presplit Slope w/a
	18' Intermediate Bench
Elev. 1220 to elev. 1190	½:1 Presplit Slope w/a
	25' Intermediate Bench
Elev. 1190 to elev. 1158	½:1 Presplit Slope w/a
	20' Intermediate Bench
Elev. 1158 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 10.1 feet below groundline, 190 feet left of station 53+00; and 15.5 feet below groundline, 80 feet left of station 53+00.

6/. Cut limits from station 62+50 to station 76+00.

A) Station 64+50	Left Side
Groundline to elev. 1261	2:1 Slope
Elev. 1261 to elev. 1254	½:1 Presplit Slope w/a
	20' Intermediate Bench
Elev. 1254 to elev. 1231	½:1 Presplit Slope w/a
	18' Intermediate Bench
Elev. 1231 to grade	¼:1 Presplit Slope

	Right Side
Groundline to elev. 1307	2:1 Slope
Elev. 1307 to elev. 1289	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1289 to elev. 1254	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1254 to elev. 1231	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1231 to grade	¼:1 Presplit Slope

The base of the rock disintegration zone extends 4.5 feet below groundline, 200 feet right of station 64+50; and 19.2 feet below groundline, 75 feet right of station 64+50.

B)	Station 69+00	Left Side
	Groundline to elev. 1481	2:1 Slope
	Elev. 1481 to elev. 1477	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1477 to elev. 1444	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1444 to elev. 1410	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1410 to elev. 1383	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1383 to elev. 1360	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1360 to elev. 1338	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1338 to elev. 1314	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1314 to elev. 1289	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1289 to elev. 1260	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1260 to elev. 1231	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1231 to grade	¼:1 Presplit Slope
		Right Side
	Groundline to elev. 1382	2:1 Slope
	Elev. 1382 to elev. 1360	¼:1 Presplit Slope w/a 18' Intermediate Bench

Elev. 1360 to elev. 1338	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1338 to elev. 1314	¼:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1314 to elev. 1289	¼:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1289 to elev. 1260	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1260 to elev. 1231	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1231 to grade	¼:1 Presplit Slope

The base of the rock disintegration zone extends 18.1 feet below groundline, 135 feet left of station 68+80.

B) Station 74+00	Left Side
Groundline to elev. 1377	1:1 Slope
Elev. 1337 to elev. 1354	¼:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1354 to elev. 1338	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1338 to elev. 1314	¼:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1314 to elev. 1289	¼:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1289 to elev. 1268	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1268 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 6 feet below groundline, 295 feet left of station 74+12; and 6 feet below groundline, 85 feet left of station 74+00.

7/. Cut limits from station 86+50 to station 97+50.

A) Station 91+00	Left Side
Groundline to elev. 1493	3:1 Slope
Elev. 1493 to elev. 1485	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1485 to elev. 1450	½:1 Presplit Slope w/a 20' Intermediate Bench

Elev. 1450 to elev. 1422	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1422 to elev. 1394	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1394 to elev. 1378	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1378 to elev. 1345	¼:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1345 to elev. 1321	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1321 to grade	¼:1 Presplit Slope

	Right Side
Groundline to elev. 1460	2:1 Slope
Elev. 1460 to elev. 1450	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1450 to elev. 1422	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1422 to elev. 1394	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1394 to elev. 1378	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1378 to elev. 1345	¼:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1345 to elev. 1321	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1321 to grade	¼:1 Presplit Slope

The base of the rock disintegration zone extends 30.7 feet below groundline, 75 feet left of station 91+00.

B) Station 95+50	Left Side
Groundline to elev. 1384	1½:1 Slope
Elev. 1384 to elev. 1375	½:1 Presplit Slope w/a 15' Overburden Bench
Elev. 1375 to elev. 1345	¼:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1345 to elev. 1321	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1321 to grade	¼:1 Presplit Slope

	Right Side
Groundline to elev. 1383	1¾:1 Slope
Elev. 1383 to elev. 1375	½:1 Presplit Slope w/a 15' Overburden Bench
Elev. 1375 to elev. 1345	¼:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1345 to elev. 1321	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1321 to grade	¼:1 Presplit Slope

The base of the rock disintegration zone extends 6.3 feet below groundline, 220 feet left of station 95+50; and 15 feet below groundline, 70 feet left of station 95+50.

8/. Cut limits from station 100+50 to station 103+50.

A) Station 102+00	Right Side
Groundline to existing highwall	3:1 Slope
Existing highwall to grade	3:1 Slope

The base of the rock disintegration zone extends 39.6 feet below groundline, 608.71 feet right of station 101+60.92; exceeds 60 feet below groundline, 401.2 feet right of station 101+99.48; exceeds 65 feet below groundline, 259.65 feet right of station 102+04.93; and exceeds 27 feet below groundline, 100 feet right of station 102+00.

9/. Cut limits from station 105+25 to station 108+75.

A) Station 107+00	Right Side
Groundline to elev. 1426	1½:1 Slope
Elev. 1426 to elev. 1398	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1398 to elev. 1363	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1363 to elev. 1329	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1329 to elev. 1300	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1300 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 7 feet below groundline, 275 feet right of station 107+00; and is estimated to be 4 feet below groundline, 80 feet right of station 107+00.

10/. Cut limits from station 112+25 to station 116+75.

A)	Station 115+00	Right Side
	Groundline to elev. 1433	1½:1 Slope
	Elev. 1434 to elev. 1411	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1411 to elev. 1393	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1393 to elev. 1357	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1357 to elev. 1319	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1319 to elev. 1282	½:1 Presplit Slope w/a 20' Intermediate bench

The base of the rock disintegration zone extends 8 feet below groundline, 300 feet right of station 115+00; and 5 feet below groundline, 145 feet right of station 115+00.

11/. Cut limits from station 120+25 to station 121+50.

A)	Station 120+50	Right Side
	Groundline to elev. 1395	1½:1 Slope
	Elev. 1395 to elev. 1384	½:1 Presplit Slope w/a 15' Overburden Bench
	Elev. 1384 to elev. 1355	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1355 to elev. 1329	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1329 to elev. 1288	½:1 Presplit Slope w/a 20 Intermediate Bench
	Elev. 1288 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 5 feet below groundline, 235 feet right of station 120+50; and 6 feet below groundline, 100 feet right of station 120+50.

12/. Cut limits from station 126+00 to station 133+50.

A)	Station 128+50	Left Side
	Groundline to elev. 1342	Daylight Slope
	Elev. 1342 to elev. 1317	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1317 to elev. 1297	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1297 to grade	½:1 Presplit Slope
		Right Side
	Groundline to elev. 1432	Daylight Slope
	Elev. 1432 to elev. 1408	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1408 to elev. 1375	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1375 to elev. 1343	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1343 to elev. 1317	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1317 to elev. 1297	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1297 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends zero feet below groundline, 150 feet right of station 128+50; and 6 feet below groundline, 80 feet left of station 128+50.

B)	Station 133+00	Left Side
	Groundline to elev. 1331	1½:1 Slope
	Elev. 1331 to elev. 1317	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1317 to elev. 1292	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1292 to grade	½:1 Presplit Slope
		Right Side
	Groundline to elev. 1331	2:1 Slope
	Elev. 1331 to elev. 1317	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1317 to elev. 1292	¼:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1292 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 5 feet below groundline, 100 feet right of station 133+00.

13/. Cut limits from station 148+50 to station 150+00.

A)	Station 149+00	Left and Right Side
	Groundline to grade	3:1 Slope

The base of the rock disintegration zone extends 25.7 feet below groundline, 100 feet left of station 149+00.

14/. Cut limits from station 152+00 to station 162+00.

A)	Station 157+50	Left Side
	Groundline to grade	2:1 Slope
		Right Side
	Groundline to elev. 1290	1½:1 Slope w/a 20' Intermediate Bench
	Elev. 1290 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 6.3 feet below groundline, 280 feet right of station 157+50; and 15.7 feet below groundline, 100 feet right of station 157+50.

15/. Cut limits from station 162+00 to station 183+00.

A)	Station 166+00	Right Side
	Groundline to Existing Highwall	1¼:1 Slope
	Existing Highwall to grade	3:1 Slope

The base of the rock disintegration zone extends 6.4 feet below groundline, 320 feet right of station 166+00; and 55 feet below groundline, 110 feet right of station 166+00.

B)	Station 171+00	Right Side
	Groundline to elev. 1353	2:1 Slope
	Elev. 1353 to elev. 1347	½:1 Presplit Slope w/a 15' Overburden Bench

Elev. 1347 to elev. 1310	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1310 to elev. 1286	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1286 to elev. 1265	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1265 to elev. 1233	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1233 to elev. 1209	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1209 to elev. 1184	½:1 Presplit Slope w/a 5' Intermediate Bench
Elev. 1184 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 6.7 feet below groundline, 280 feet right of station 171+70; and 34.8 feet below groundline, 90 feet right of station 171+00.

C) Station 176+00	Right Side
Groundline to elev. 1209	3:1 Slope w/a 18' Intermediate Bench
Elev. 1209 to elev. 1184	½:1 Presplit Slope w/a 25' Intermediate Bench
Elev. 1184 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 43.5 feet below groundline, 190 feet right of station 176+00; and 10 feet below groundline, 80 feet right of station 176+00.

D) Station 181+00	Right Side
Groundline to elev. 1209	3:1 Slope w/a 18' Intermediate Bench
Elev. 1209 to elev. 1184	½:1 Presplit Slope w/a 25' Intermediate Bench
Elev. 1184 to elev. 1155	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1155 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 18.4 feet below groundline, 190 feet right of station 181+00; and 7 feet below groundline, 40 feet right of station 181+00.

16/. Cut limits from station 189+00 to station 191+50.

A)	Station 190+00	Left Side
	Groundline to elev. 1129	1½:1 Slope
	Elev. 1129 to elev. 1101	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1101 to grade	1½:1 Slope

The base of the rock disintegration zone extends 9.8 feet below groundline, 100 feet left of station 190+00.

17/. Cut limits from station 199+00 to station 219+00.

A)	Station 202+00	Left Side
	Groundline to elev. 1104	20' Intermediate Bench
	Elev. 1104 to grade	½:1 Presplit Slope
		Right Side
	Groundline to elev. 1184	2:1 Slope
	Elev. 1184 to elev. 1178	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1178 to elev. 1142	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1142 to elev. 1104	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1104 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 10 feet below groundline, 380 feet right of station 202+00; 9 feet below groundline, 255 feet right of station 202+00; and 19.4 feet below groundline, 80 feet right of station 202+00.

B)	Station 9+12.30	Southwest Ramp
	Groundline to elev. 1087	Left Side 2:1 Slope w/a 15' Overburden Bench
	Elev. 1087 to elev. 1053	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1053 to grade	½:1 Presplit Slope

	Right Side
Elev. 1090	Daylight Slope
Elev. 1090 to elev. 1053	½:1 Presplit Slope w/a 20' Intermediate Bench
Elev. 1053 to grade	½:1 Presplit Slope

	Mainline
Station 207+00	Left Side
Elev. 1090	Daylight Slope
Elev. 1090 to grade	½:1 Presplit Slope

	Right Side
Grade to Southeast Ramp	1½:1 Slope

	Southeast Ramp
Station 7+00.00	Left Side
Mainline ditch to grade	1½:1 Slope

	Right Side
Groundline to elev. 1080	1½:1 Presplit Slope w/a 15' Overburden Bench
Elev. 1080 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 7.5 feet below groundline, 100 feet left of station 207+00; and 20.7 feet below groundline, 50 feet right of station 0+00 of the Northeast Ramp.

	Northwest Ramp
C) Station 3+90.12	Left Side
Groundline to elev. 1074	2:1 Slope
Elev. 1074 to grade	½:1 Presplit Slope

	Northeast Ramp
Station 3+92.72	Right Side
Groundline to elev. 1210	1¾:1 Slope
Elev. 1210 to elev. 1195	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1195 to elev. 1168	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1168 to elev. 1147	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1147 to elev. 1117	½:1 Presplit Slope w/a 18' Intermediate Bench

Elev. 1117 to elev. 1090	½:1 Presplit Slope w/a 18' Intermediate Bench
Elev. 1090 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 7 feet below groundline, 230 feet right of station 212+00; 26 feet below groundline, 80 feet right of station 212+00; and 25.7 feet below groundline, 250 feet right of station 3+50 of the Northeast Ramp.

		Northeast Ramp
D)	Station 8+26.38	Right Side
	Groundline to elev. 1211	2:1 Slope
	Elev. 1211 to elev. 1195	½:1 Presplit Slope w/a 10' Overburden Bench
	Elev. 1195 to elev. 1062	Remove along the RDZ
	Elev. 1062 to elev. 1168	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1168 to elev. 1147	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1147 to elev. 1117	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1117 to elev. 1090	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1090 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 10.5 feet below groundline, 200 feet right of station 216+50 of mainline.

18/. Cut limits from station 224+50 to station 228+50.

A)	Station 226+50	Left Side
	Groundline to elev. 1099	2:1 Slope
	Elev. 1099 to elev. 1095	½:1 Presplit Slope w/a 15' Overburden Bench
	Elev. 1095 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 28 feet below groundline, 186 feet left of station 226+40; and is estimated to be 3 feet below groundline, 80 feet left of station 226+50.

Approach @ Station 28+99

19/. Cut limits from station 0+50 to station 3+00.

A)	Station 1+00	Left Side
	Groundline to elev. 1060	2:1 Slope
	Elev. 1060 to elev. 1050	½:1 Presplit Slope w/a 15' Overburden Bench
	Elev. 1050 to grade	½:1 Presplit Slope w/a 14' Road Side Ditch Bench

The base of the rock disintegration zone extends 17.4 feet below groundline, 55 feet left of station 1+00.

B)	Station 2+00	Left Side
	Groundline to elev. 1080	3:1 Slope
	Elev. 1080 to elev. 1069	½:1 Presplit Slope w/a 18' Intermediate Bench
	Elev. 1069 to grade	½:1 Presplit Slope w/a 14' Road Side Ditch Bench
		Right Side
	Groundline to grade	Daylight Slope

The base of the rock disintegration zone extends 17.5 feet below groundline, 50 feet left of station 2+00.

Approach @ Station 31+26

20/. Cut limits from station 0+50 to station 4+74.

A)	Station 4+00	Left Side
	Groundline to grade	2:1 Slope
		Right Side
	Groundline to elev. 1069	3:1 Slope
	Elev. 1069 to grade	2:1 Slope

The base of the rock disintegration zone extends 28.2 feet below groundline, 120 feet left of station 4+00; and 10.5 feet below groundline, 24 feet left of station 4+00.

Approach @ Station 86+21

21/. Cut limits from station 0+50 to station 8+00.

A)	Station 4+50	Left Side
	Groundline to grade	3:1 Slope

The base of the rock disintegration zone exceeds 38 feet below groundline, 95 feet left of station 4+50; and 35 feet below groundline, 28 feet left of station 4+50.

Approach @ Station 152+03

22/. Cut limits from station 0+00 to station 5+00.

A)	Station 2+00	Right Side
	Groundline to existing highwall	1½:1 Slope
	Existing highwall to grade	3:1 Slope

The base of the rock disintegration zone exceeds 45.8 feet below groundline, 75 feet right of station 1+88; and exceeds 21 feet below groundline, 25 feet right of station 2+00.

South West Ramp

23/. Cut limits from station 0+00 to station 12+00.

A)	Station 10+00	Left Side
	Groundline to elev. 1093	2:1 Slope w/a 18' Intermediate Bench
	Elev. 1093 to elev. 1053	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1053 to grade	½:1 Presplit Slope
		Right Side
	Groundline to elev. 1073	2:1 Slope
	Elev. 1073 to elev. 1053	½:1 Presplit Slope w/a 20' Intermediate Bench
	Elev. 1053 to grade	½:1 Presplit Slope

The base of the rock disintegration zone extends 15 feet below groundline, 50 feet left of station 10+00.

Interchange Approach

24/. Cut limits from station 5+00 to station 13+00.

A)	Station 6+50	Left Side
	Groundline to grade	2:1 Slope
		Right Side
	Groundline to elev. 1056	1¼:1 Slope
	Elev. 1056 to elev. 1038	½:1 Presplit Slope w/a 15' Overburden Bench
	Elev. 1038 to grade	½:1 Presplit Slope

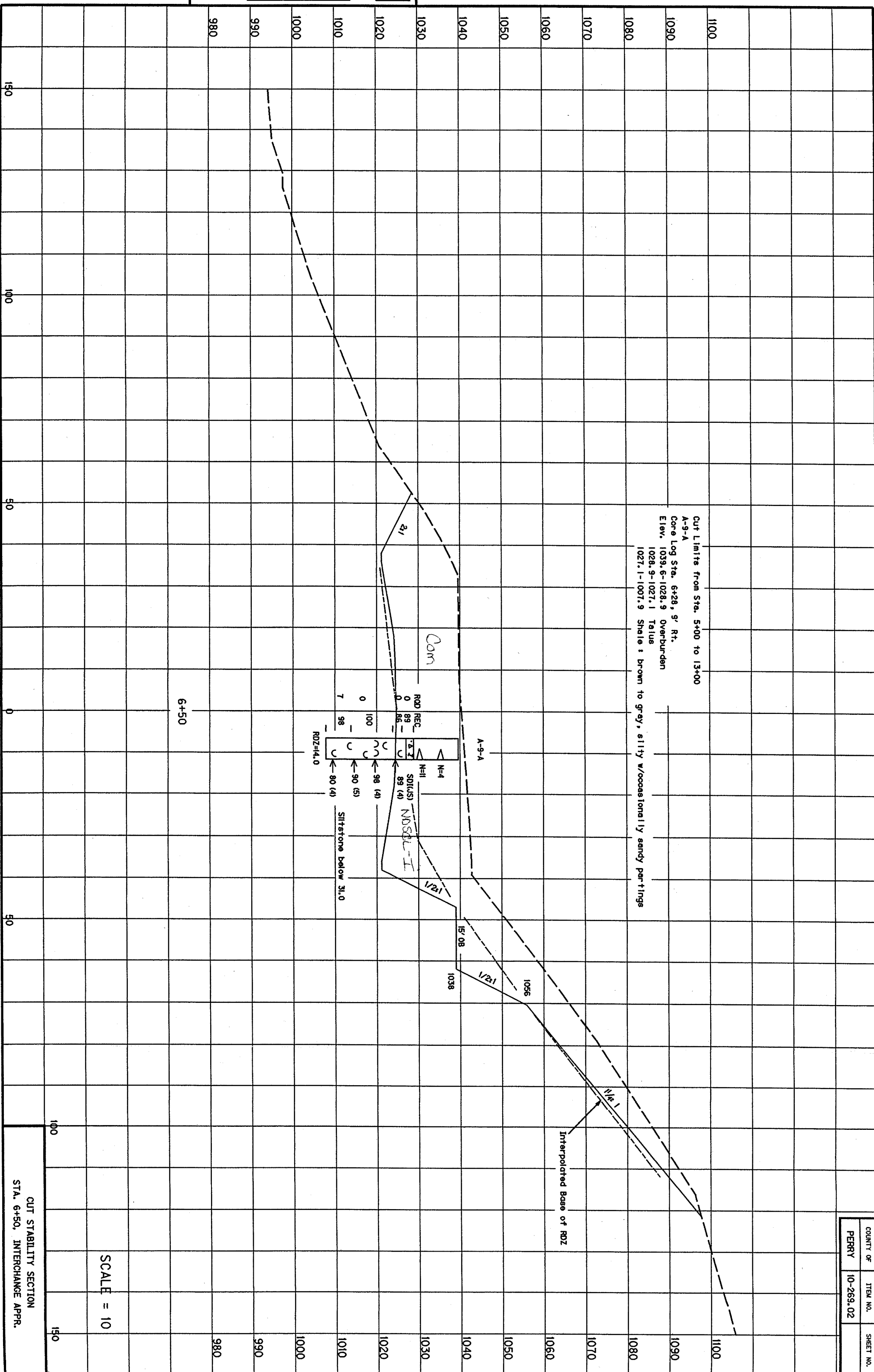
The base of the rock disintegration zone extends 14 feet below groundline, 9 feet right of station 6+28.

The rock swell for this project is estimated to be 10 percent

Attached is a reduced copy of the cut slope configurations for the subject project with the lithologic divisions drawn on them. The lithologic divisions are drawn in blue on the cut sections and are to be used to calculate the select rock quantities. The abbreviations are as follows:

Sandstone...SS
Non Durable Sandstone...NON-SS
Durable Shale...DS
Non Durable Shale Class I...NDSCL-I
Non Durable Shale Class II...NDSCL-II
Non Durable Shale Class III...NDSCL-III
Unclassified Excavation...Common

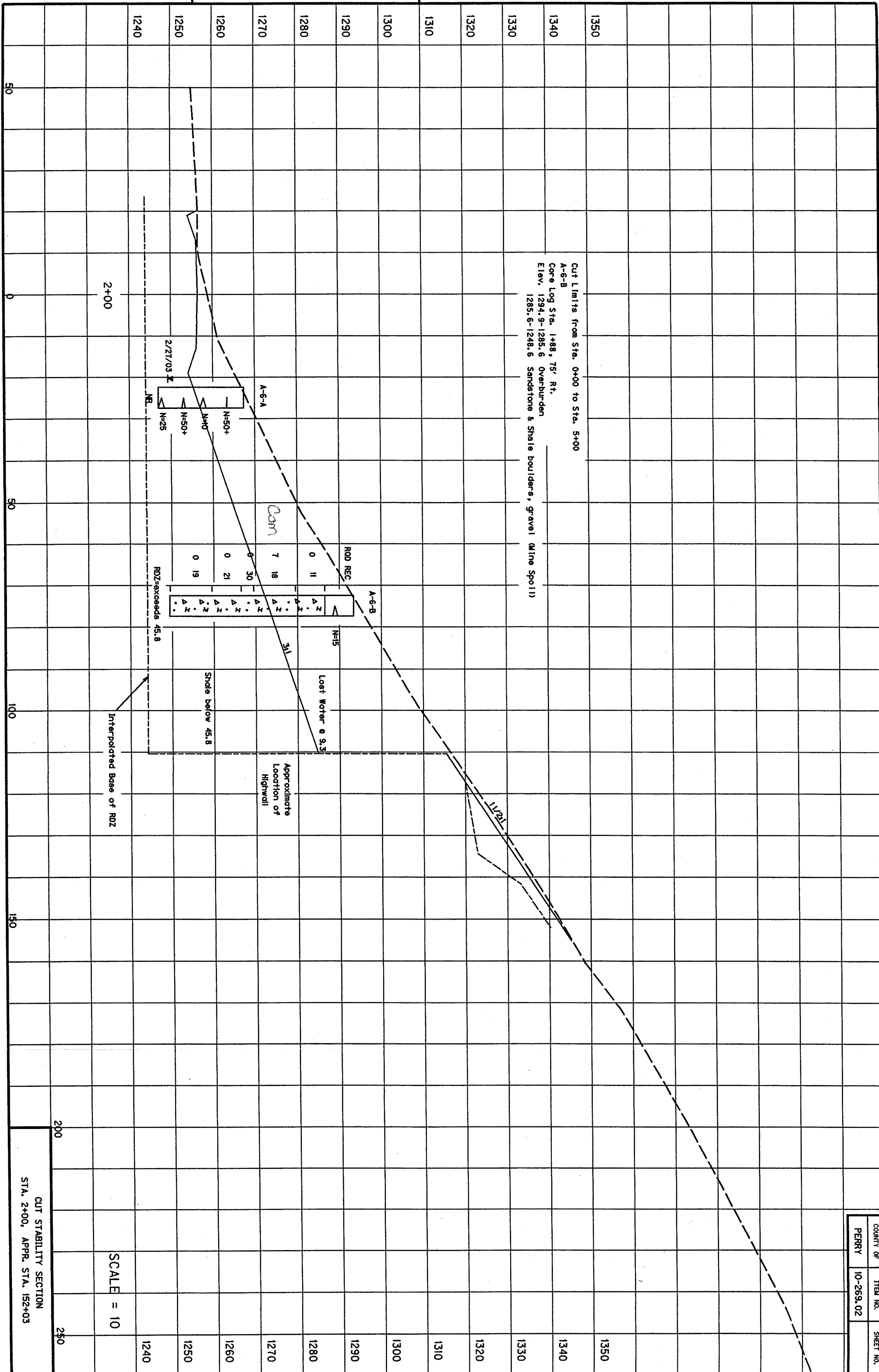
If there are any questions, please advise.



SCALE = 10

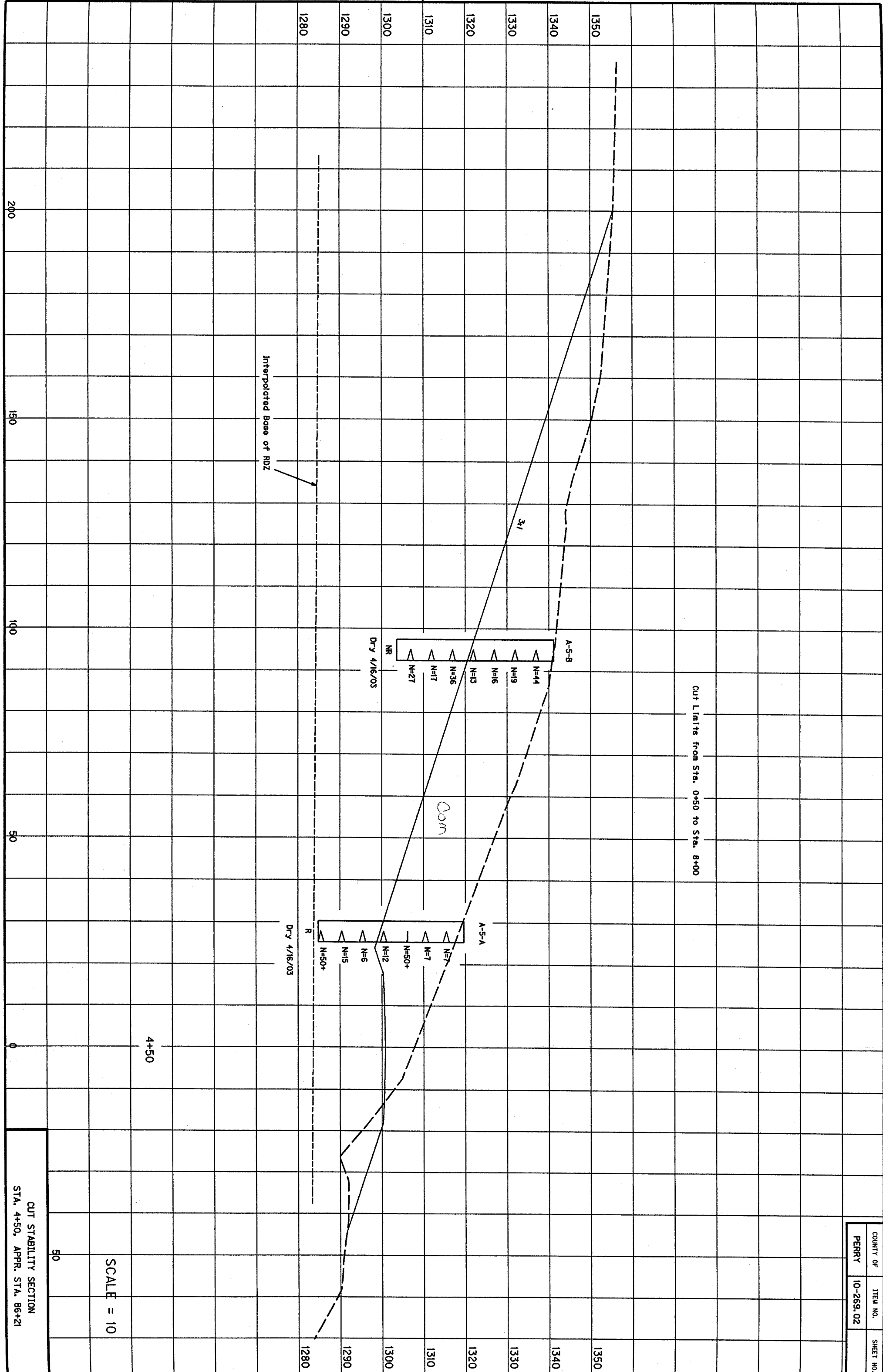
CUT STABILITY SECTION
STA. 6+50, INTERCHANGE APPR.

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.02	



SCALE = 10

CUT STABILITY SECTION
 STA. 2+00, APPR. STA. 152+03



Cut Limits from Sta. 0+50 to Sta. 8+00

Interpolated Base of RDZ

Dam

A-5-B

A-5-A

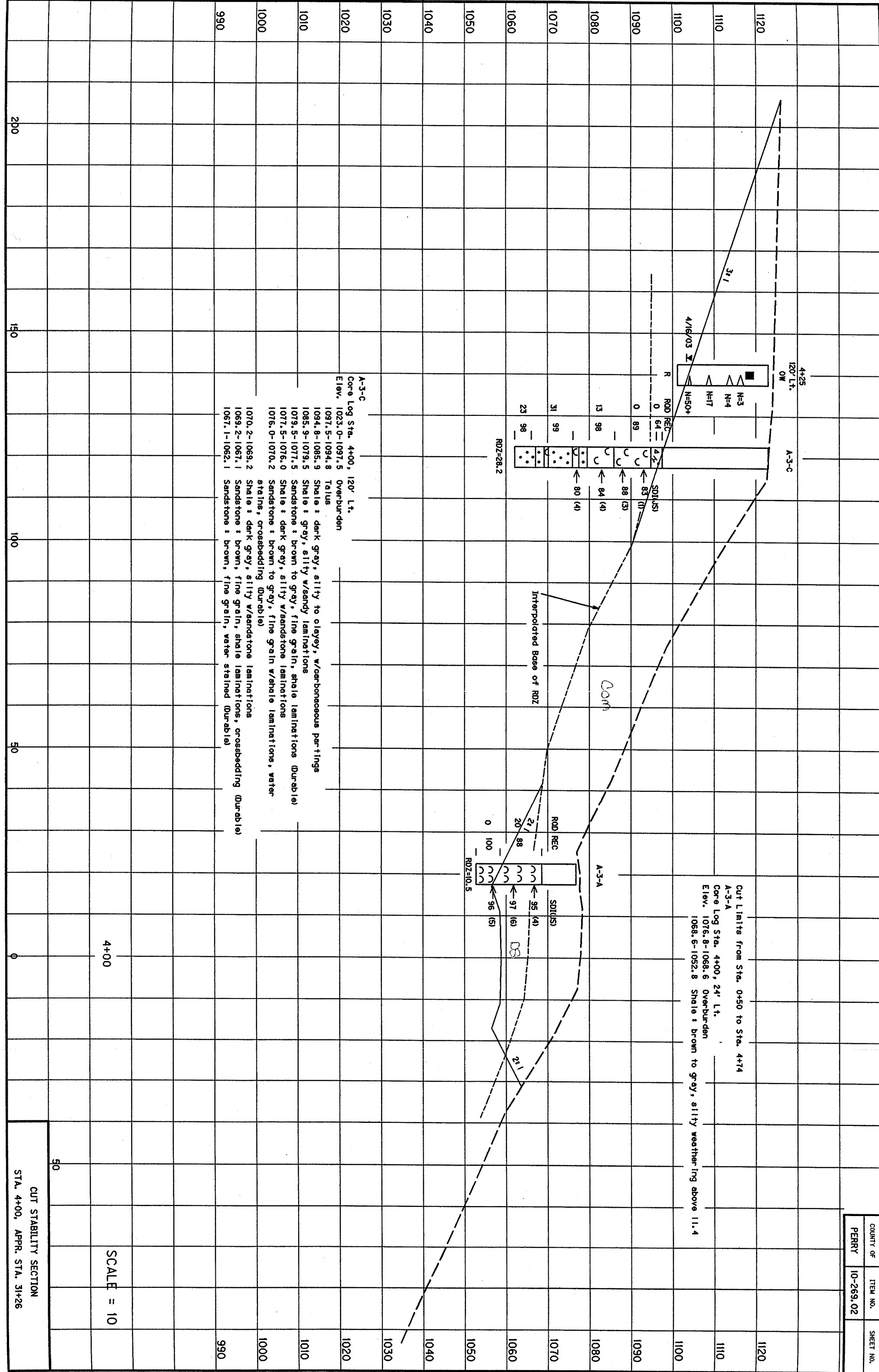
NR
Dry 4/16/03

R
Dry 4/16/03

4+50

SCALE = 10

CUT STABILITY SECTION
STA. 4+50, APPR. STA. 86+21



Cut Limits from Sta. 4+00 to Sta. 4+74
 A-3-A
 Core Log Sta. 4+00, 24' Lt.
 Elev. 1076.8-1088.6 Overburden
 1088.6-1052.8 Shale : brown to grey, silty weathering above 11.4

A-3-C
 Core Log Sta. 4+00, 120' Lt.
 Elev. 1023.0-1097.5 Overburden
 1097.5-1094.8 Talus
 1094.8-1085.9 Shale : dark grey, silty to oleyey, w/carbonaceous partings
 1085.9-1079.5 Shale : grey, silty w/sandy laminations
 1079.5-1077.5 Sandstone : brown to grey, fine grain, shale laminations (Durable)
 1077.5-1076.0 Shale : dark grey, silty w/sandstone laminations
 1076.0-1070.2 Sandstone : brown to grey, fine grain w/shale laminations, water stains, crossbedding (Durable)
 1070.2-1069.2 Shale : dark grey, silty w/sandstone laminations
 1069.2-1067.1 Sandstone : brown, fine grain, shale laminations, crossbedding (Durable)
 1067.1-1062.1 Sandstone : brown, fine grain, water stained (Durable)

4+00

SCALE = 10

CUT STABILITY SECTION
 STA. 4+00, APPR. STA. 31+26

