CHAPTER 5 – PROOF/VERIFICATION TESTING

SNAP can assist a wall designer or engineer with verification and proof testing of soil nails during construction. The *Proof/Verification Testing tab* at the top of the screen (the same level as the main SNAP tab) is divided up into three sub-tabs: *Design Test Load, Test Loading Data*, and *Report*.

DESIGN TEST LOAD

The *Design Test Load tab* will determine the appropriate design test load for proof testing or for verification testing. The user must select *Verification Test* or *Proof Test* at the top of the tab by selecting one of the radio buttons. The user must enter the grout/ground pullout strength, the drill hole diameter, the appropriate pullout bond strength factor of safety, the nail tendon yield strength, the cross-sectional area of the nail tendon, and the actual nail bond length for the nail being tested. None of this information is taken from the other tabs of the SNAP program, since field testing is often done completely independent of the wall design process.
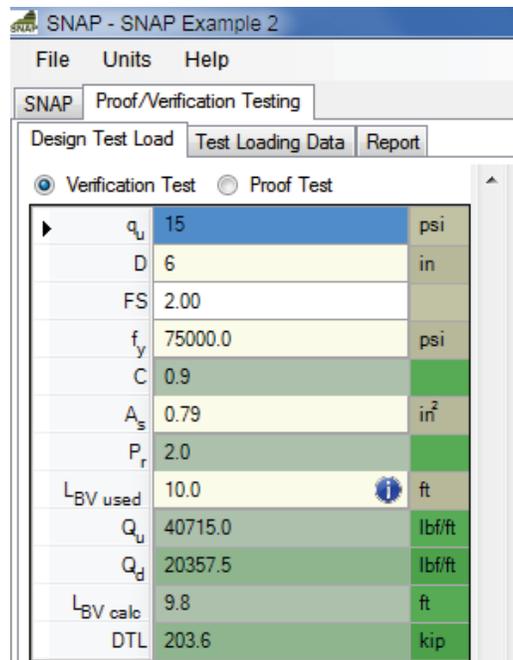
Figure 83. Screen Shot. Proof/Verification Testing, Design Test Load calculation tab.

The program will select the appropriate nail yield strength factor, C, based on the user-entered nail bar yield strength (0.8 for yield strength less than 75,000 psi or 0.9 for a yield strength greater than 75,000 psi). The program also selects the appropriate pullout resistance factor, P_r, based on whether a Verification Test or a Proof Test is chosen. The ultimate and allowable pullout resistance per foot of nail length are calculated and shown as Q_u and Q_d, respectively. The maximum test bond length to avoid overstressing the nail, L_{BVcalc}, is calculated, and checked

against the user-input actual as-built bond length, L_{BVused}. The design test load for the current test is calculated based on the actual as-built bond length, L_{BVused}.

TEST LOADING DATA

On the *Test Loading Data* tab, the user may enter actual test data from a proof or verification test. The design test load from the *Design Test Load tab* is used, and the user must enter the bond length of the nail, the unbonded (free) length of the nail, the cross-sectional area of the nail bar, and the elastic modulus of the nail bar steel. The user then enters all of the test load and average dial gage data, and the program will produce a graph and determine if the nail passes creep and total movement acceptance criteria, which are calculated and shown in the upper left frame.
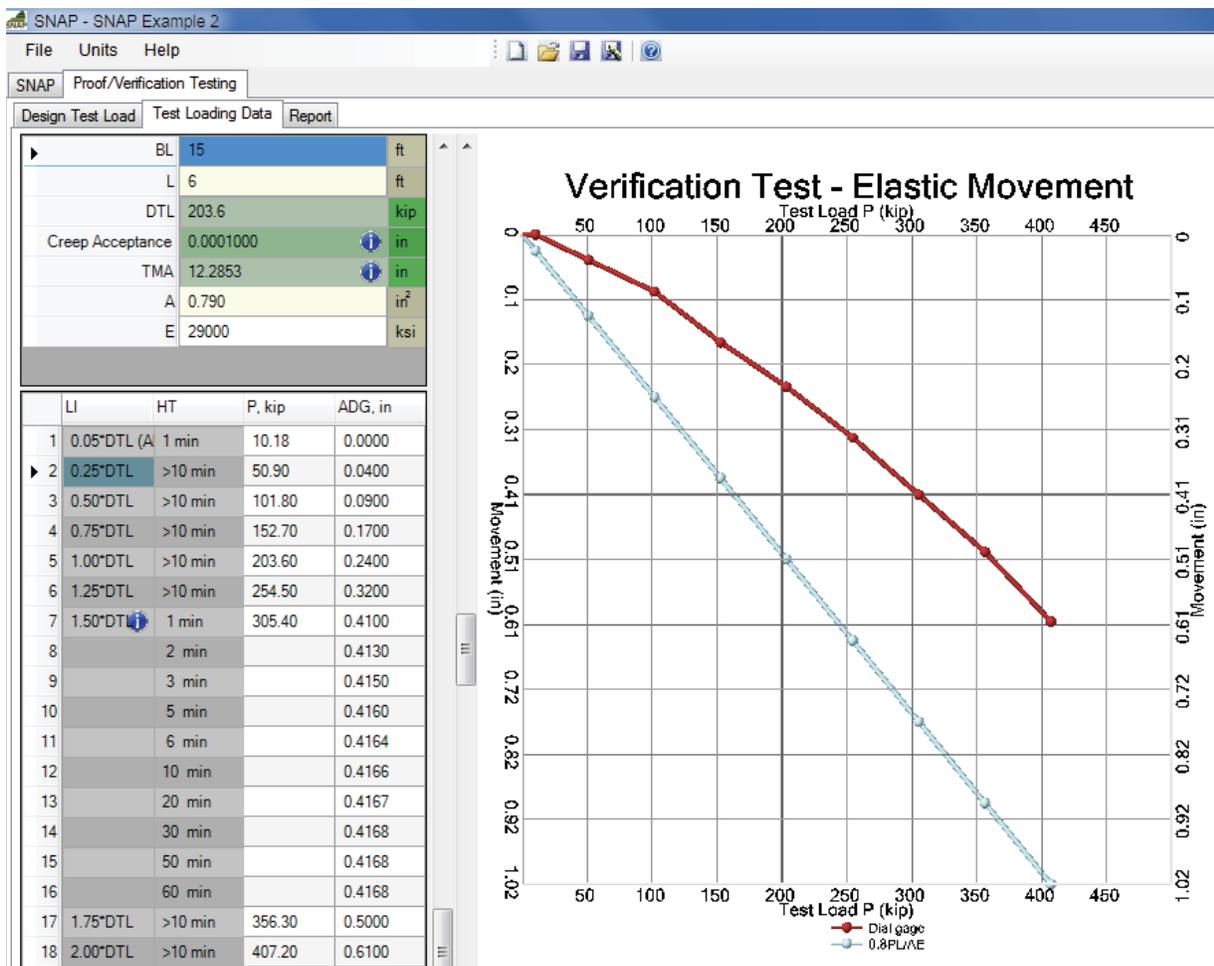
Figure 84. Screen Shot. Proof/Verification Testing, Test Loading Data tab.

PROOF/VERIFICATION TESTING REPORT

Clicking *Generate* on the *Report tab* under the *Proof/Verification Testing tab* will generate a report for the single test currently entered on the first two tabs. The report will be approximately 4 pages long which can be sent directly to a printer, or the information in the report can be copied and pasted into another program for presentation purposes.
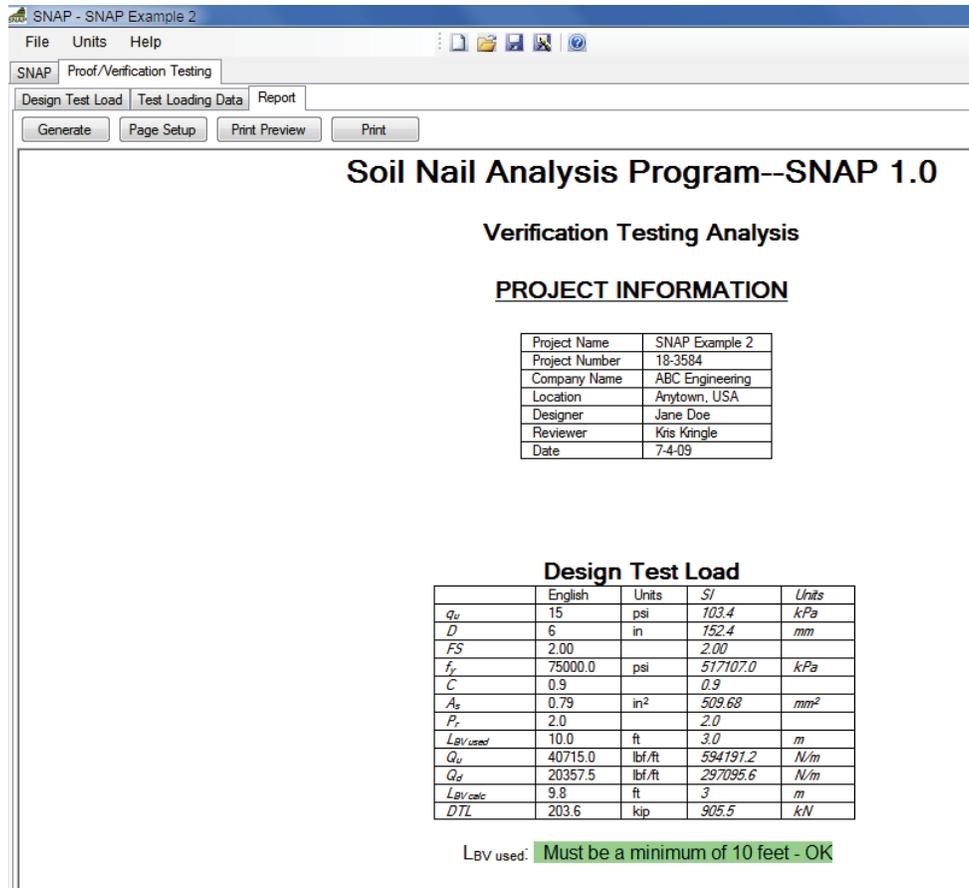
Figure 85. Screen Shot. Proof/Verification Testing Report.