

1 Make the following Section a part of the Standard Specifications:  
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3 **"SECTION 660 – FORMLINERS**  
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5 **660.01 Description.** Work of this section shall consist of the construction of  
6 formliners for the exterior concrete surfaces of the cast-in-place concrete barrier.  
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8 **660.02 Materials.** The formliners shall be acrylonitrile butadiene styrene  
9 (ABS) rigid plastic.  
10

11 The liners shall be attached to the form using self-drilling screws  
12 conforming with ASTM C 954.  
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14 The liners shall have a rock pattern of 5/8" average depth, and similar to  
15 existing Lumahai Phase 1 and 2, as determined by the Engineer.  
16

17 The liners shall have a tensile rating of 5300 according to ASTM D638, a  
18 flexural rating of 9,300 according to ASTM D790 and a hardness rating of 105  
19 according to ASTM D786 unless otherwise permitted by the Engineer.  
20

21 The Contractor shall submit six copies of test certificates, indicating  
22 conformance of all materials to the standards referenced herein.  
23

24 **660.03 Construction Requirements.** The concrete shall have very good  
25 workability such that when properly vibrated the risk of air bubbles,  
26 honeycombing, and surface blemishes will be reduced or eliminated.  
27

28 The proposed formliner system must possess a certification that states it  
29 is crash tested and approved for TL-2 applications by the Federal Highway  
30 Administration, or other recognized government transportation agency, solely  
31 determined by the Engineer.  
32

33 All formliners shall be stripped with an equal time interval from concrete  
34 placement to stripping so as to prevent inconsistent coloring from different levels  
35 of moisture loss.  
36

37 A neutral, non-staining and no-reactive release agent shall be applied to  
38 the formliners before each concrete placement and the formliners shall be  
39 cleaned after each use.  
40

41 Reveals or rustications shall be used at butt joints. The joints shall be  
42 made along the patterns main features and at the valley of the concrete so that  
43 the joint is less visible. All butted joints shall be taped and caulked to reduce  
44 grout leakage.  
45

46 All work shall be done in accordance with the manufacturer's  
47 recommendations. A manufacturer's representative shall be on-site to insure  
48 that the work is properly done unless or until otherwise authorized by the  
49 Engineer.

50  
51 **660.04 Method of Measurement.** The Engineer will not measure formliners  
52 for payment.

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54 **660.05 Basis of Payment.** The Engineer will not pay for formliners  
55 separately. The Engineer will consider the cost for formliners as included in the  
56 contract price of various contract items in Section 507 – Textured and Stained  
57 Concrete Railing.”

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59  
60  
61  
62 **END OF SECTION 660**