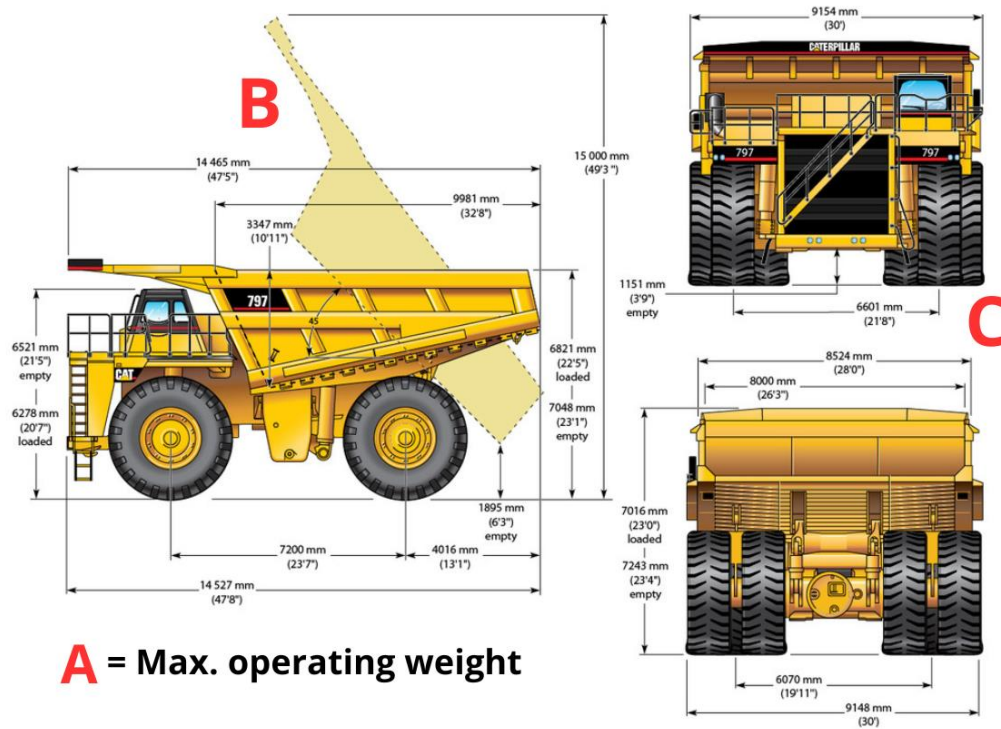


Lampiran 4. 1 Dimensi dari Alat Angkut



Lampiran 4. 2 Karakteristik Material

Parameter	Nama Material		
	Timbunan	Tanah	Batuan Dasar
Pemuatan Elemen Awal	Tegangan yang Ditimbulkan dan Kekuatan Fisik	Tegangan yang Ditimbulkan dan Kekuatan Fisik	Tegangan yang Ditimbulkan dan Kekuatan Fisik
Berat Satuan (kN/m ³)	18	18	20
Jenis Elastis	Isotropis	Isotropis	Isotropis
Modulus Young (kPa)	50000	50000	50000
Rasio Poisson	0,4	0,4	0,4
Kriteria Kegagalan	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Jenis Bahan	Plastis	Plastis	Plastis
Kekuatan Tarik (puncak) (kPa)	60	16	0
Sudut Gesekan (puncak) (derajat)	20	6	35
Sudut Gesekan (sis) (deg)	20	6	0
Kohesi (puncak) (derajat)	60	16	10,5
Kohesi (sis) (deg)	60	16	0
Garis Piezo	2	2	Tidak Ada

Lampiran 4. 3 Perhitungan Beban Tambahan dari Alat Angkut

a. Beban Statis

$$\begin{aligned} DD &= 1/2 \times \frac{A}{BC} \\ &= 1/2 \times \frac{324.319}{6,926 \times 5,700} \\ &= 1/2 \times \frac{324.319}{39,4782} \\ &= 1/2 \times 8.215,14 \\ &= 4.107,57 \text{ kg/m}^2 \\ DD &= 41,08 \text{ kPa} \end{aligned}$$

b. Beban Dinamis

$$\begin{aligned} IM &= 133\% \times DD \\ &= 133\% \times 41,08 \\ &= 54,6364 \text{ kPa} \\ IM &= 54,63 \text{ kNm}^2 \end{aligned}$$

Lampiran 4. 4 Perhitungan Nilai a_{max} dari Peledakan

a. Gelombang Transversal

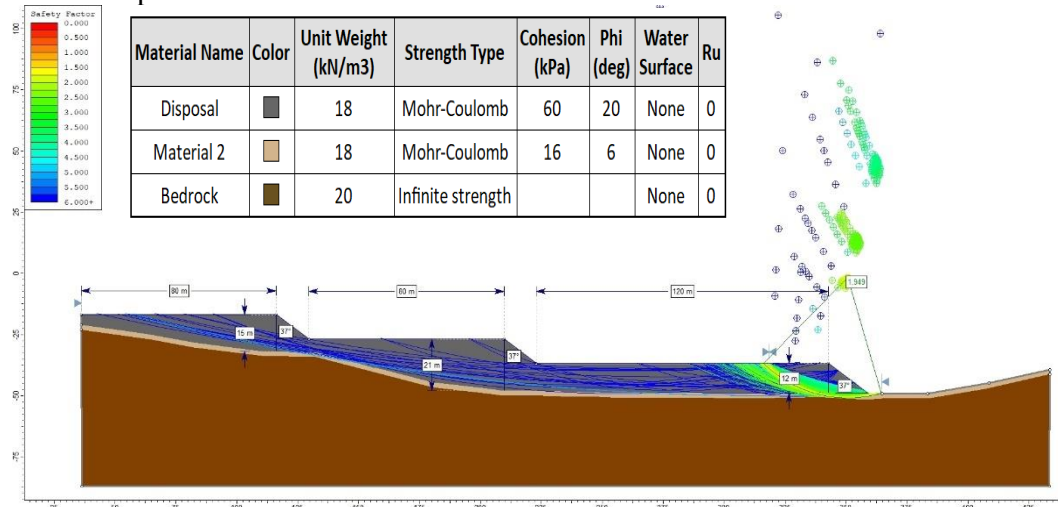
$$\begin{aligned}a_{max} &= Z \times PPA_{trans} \\&= 0,65 \times 0,203 \\&= 0,13195 \text{ g} \\a_{max} &= 0,132 \text{ g}\end{aligned}$$

b. Gelombang Vertikal

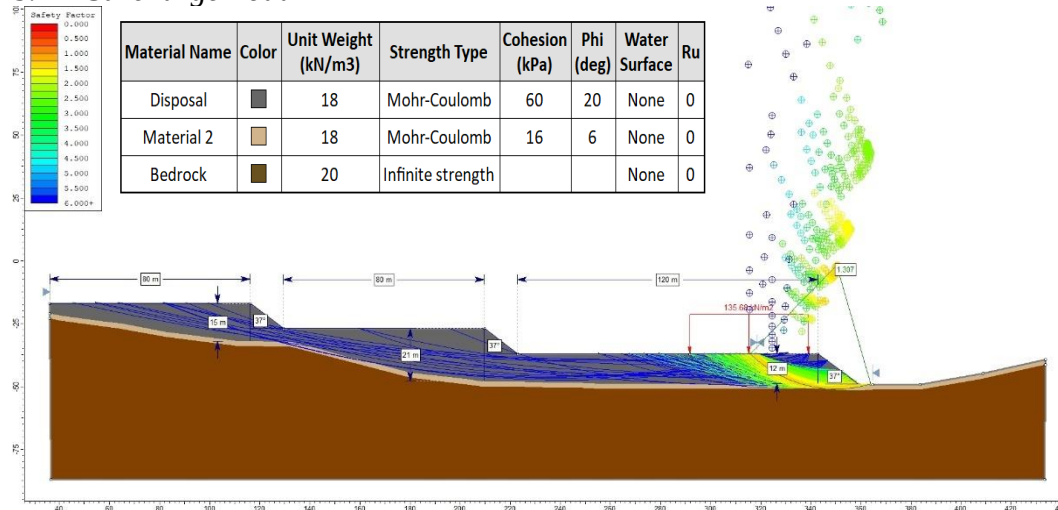
$$\begin{aligned}a_{max} &= Z \times PPA_{vert} \\&= 0,65 \times 0,133 \\&= 0,08645 \text{ g} \\a_{max} &= 0,086 \text{ g}\end{aligned}$$

Lampiran 4. 5 Nilai FK Lereng Timbunan dengan Metode Bishop

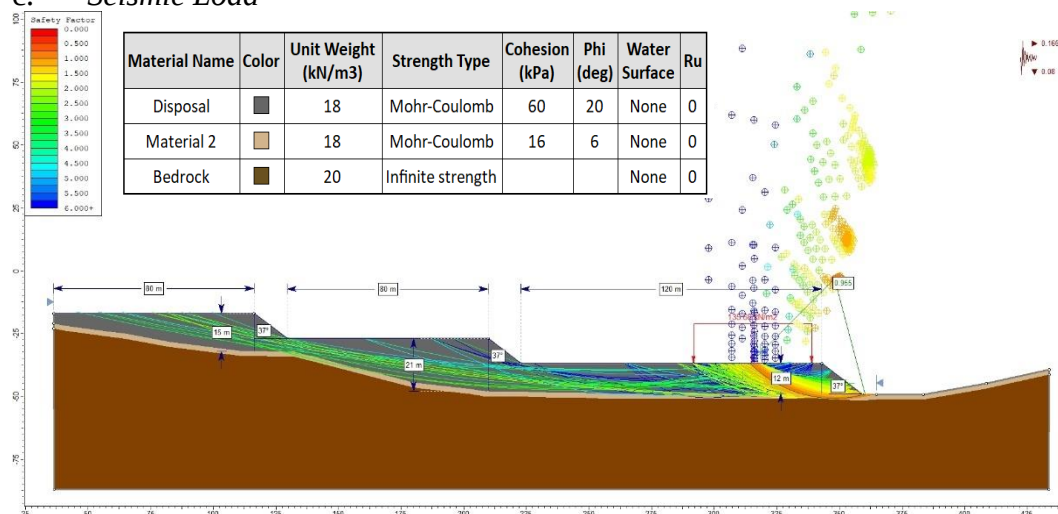
a. Tanpa Beban



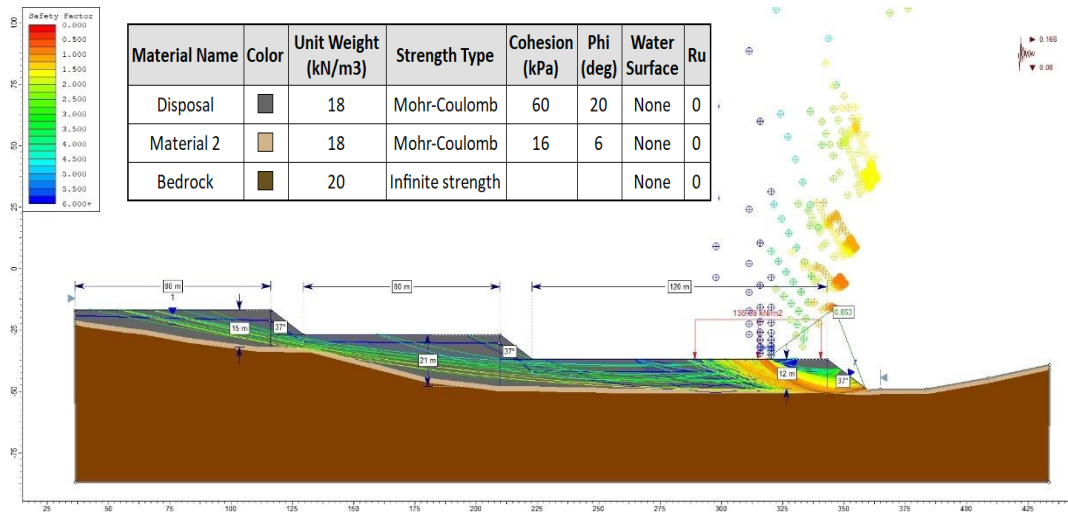
b. Surcharge Load



c. Seismic Load

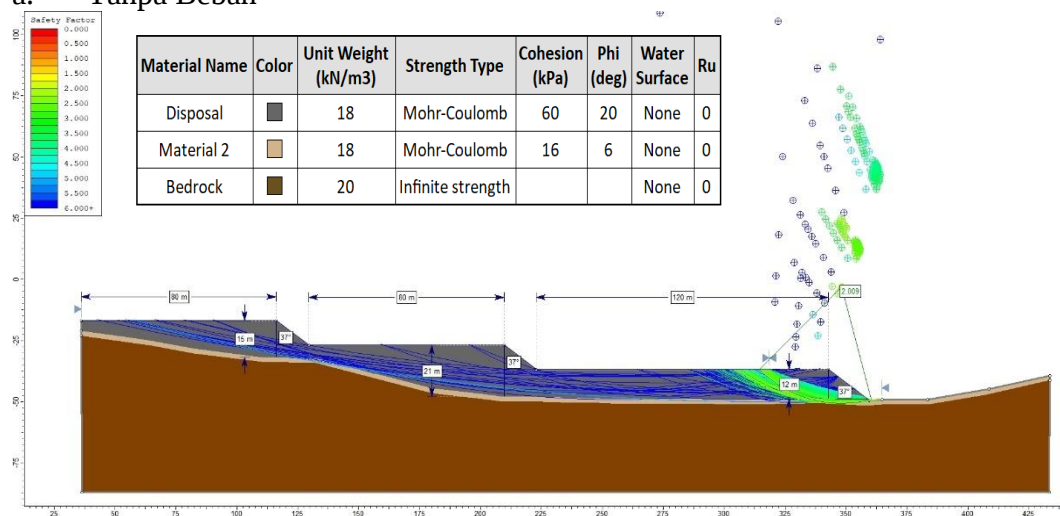


d. Water Pressure

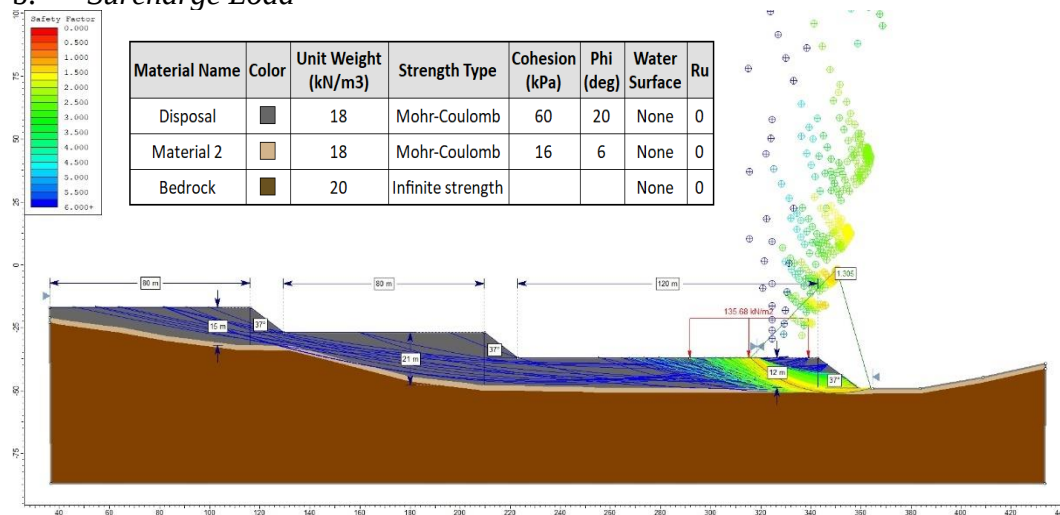


Lampiran 4. 6 Nilai FK Lereng Timbunan dengan Metode Morgenstern-Price

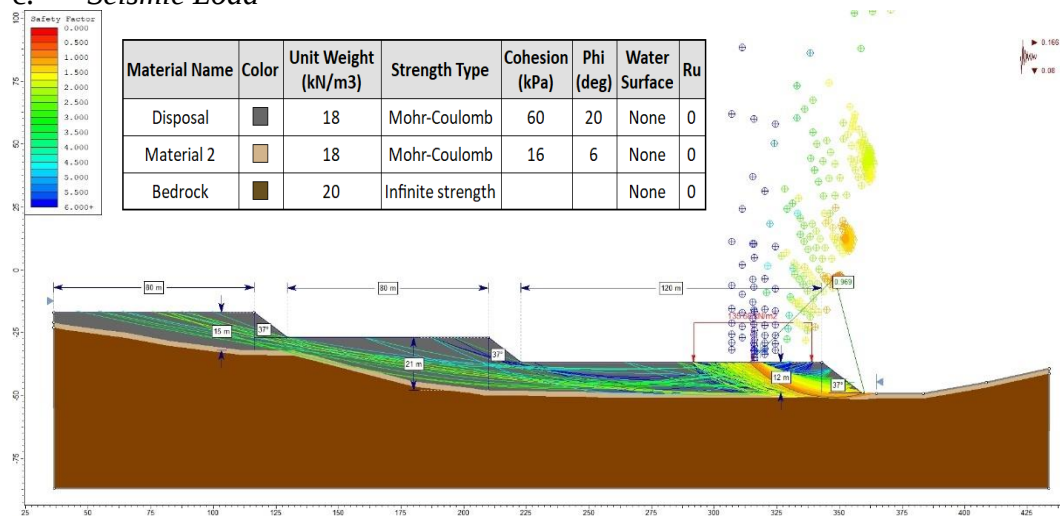
a. Tanpa Beban



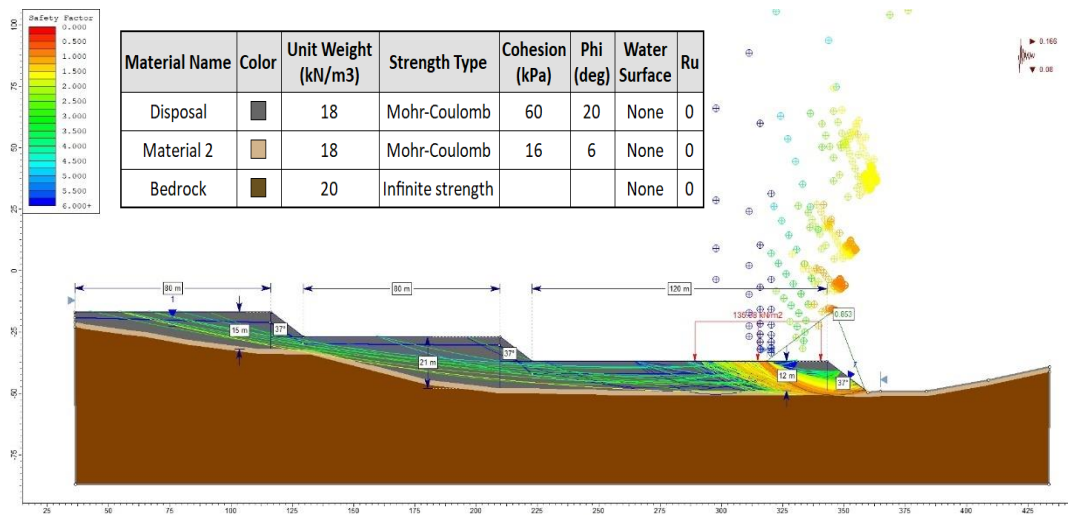
b. Surcharge Load



c. Seismic Load

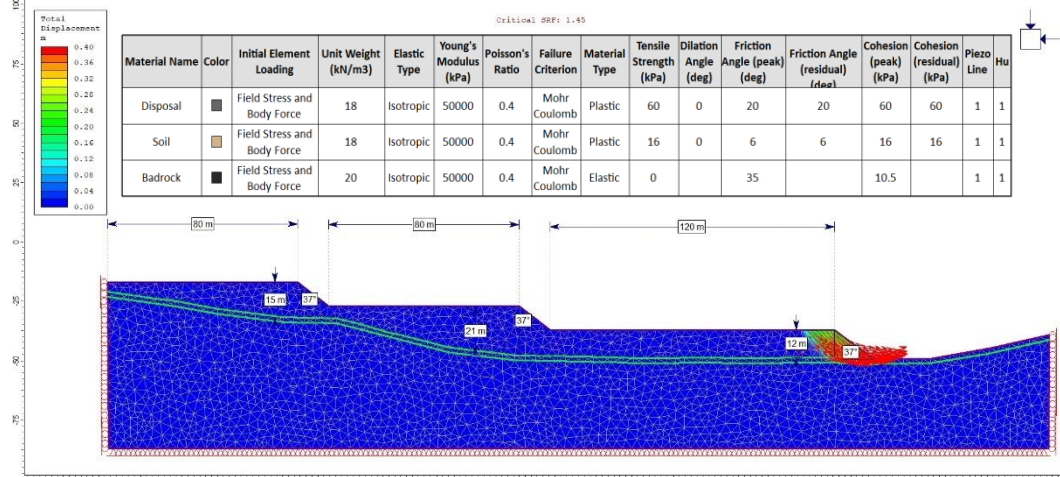


d. Water Pressure

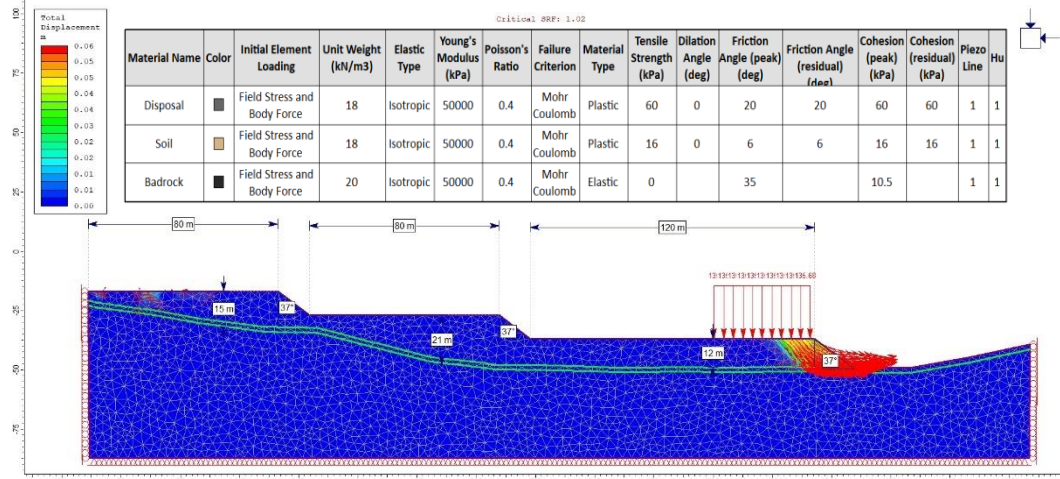


Lampiran 4. 7 Nilai FK Menggunakan Metode FEM

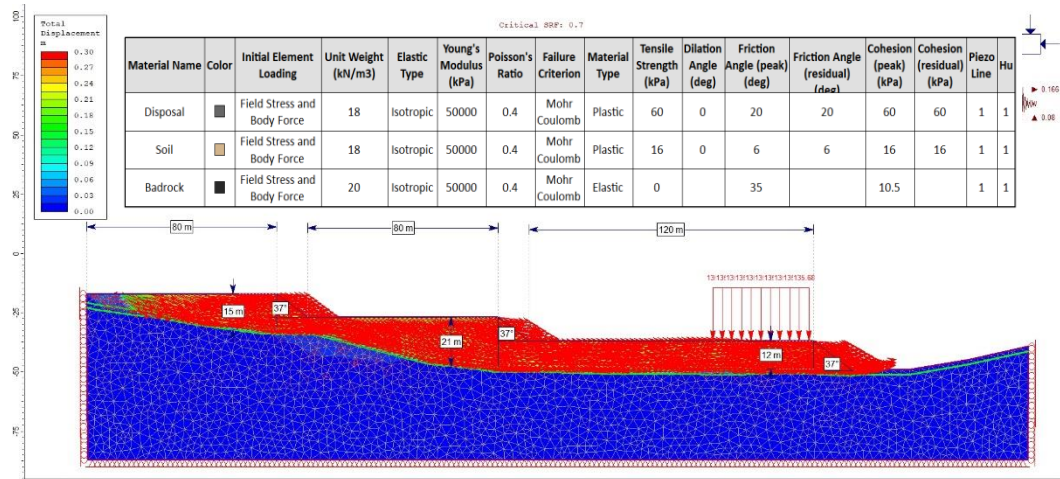
a. Tanpa Beban



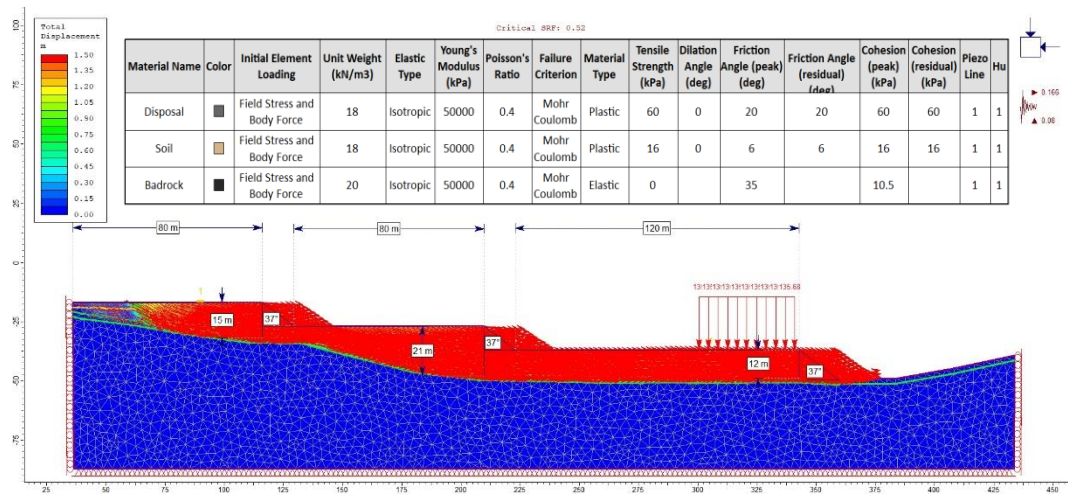
b. Surcharge Load



c. Seismic Load

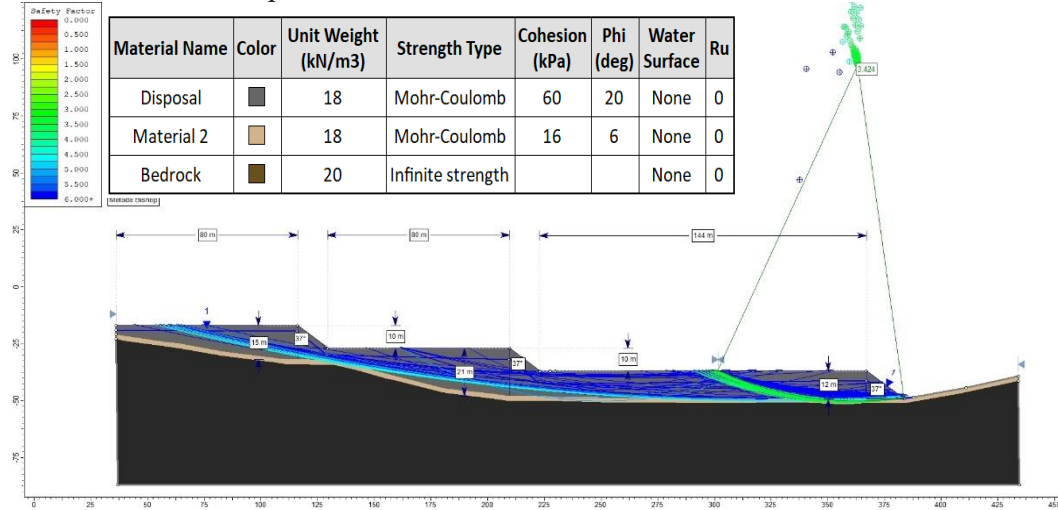


d. Water Pressure

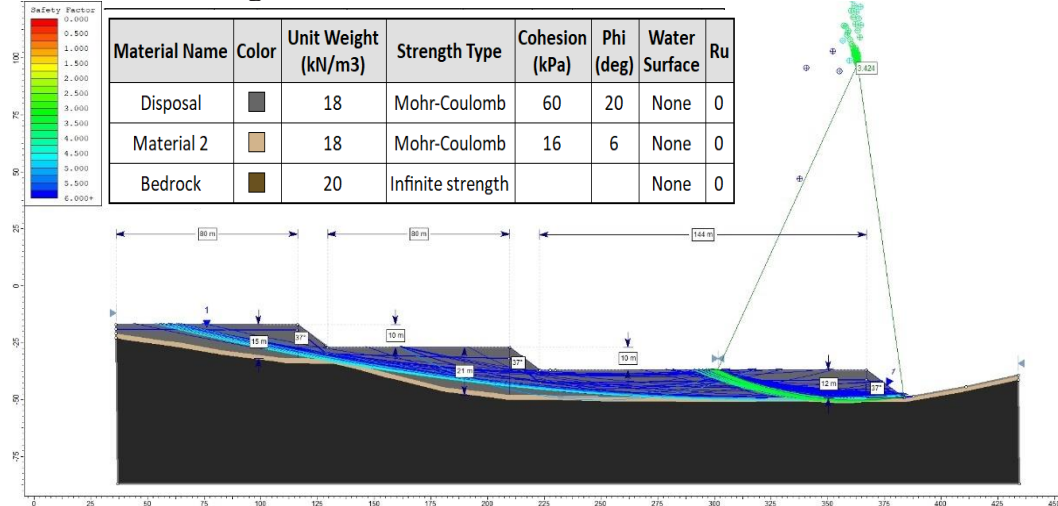


Lampiran 4. 8 Hasil Pemodelan Ulang Lereng Timbunan

a. Metode Bishop dalam Kondisi Basah



b. Metode Morgenstern-Price dalam Kondisi Basah



c. Metode FEM dalam Kondisi Basah

