The Christoffel symbols, $\begin{Bmatrix} i \\ \alpha\beta \end{Bmatrix}$, are obtained from the definitions shown in the next two equations, along with equations Eq 2 and Eq 5. The coefficients, h^{ki} are obtained by inverting the matrix with elements defined by Eq 5. The results are shown below, and the unknown function symbols, y_0 and y_1, have replaced, respectively $x_0 = r$, and $x_1 = \theta$.

Eq 16: $$\begin{Bmatrix} i \\ \alpha\beta \end{Bmatrix} \equiv h^{ik}[\alpha\beta,k] = h^{i0}[\alpha\beta,0] + h^{i1}[\alpha\beta,1] + h^{i2}[\alpha\beta,2]$$

Eq 17: $$[\alpha\beta,k] \equiv \frac{1}{2}\left(\frac{\partial h_{\alpha k}}{\partial x^{\beta}} + \frac{\partial h_{\beta k}}{\partial x^{\alpha}} - \frac{\partial h_{\alpha\beta}}{\partial x^{k}}\right)$$

Let the function F_{cs} be defined by

Eq 18: $$F(E,k,r) \equiv \frac{\frac{Er}{k} + \frac{1}{2}}{\frac{Er}{k} + 1} = \frac{\frac{Ey_0}{k} + \frac{1}{2}}{\frac{Ey_0}{k} + 1} \equiv F_{cs}(E,k,y_0)$$

Then the non-zero Christoffel symbols are as follows:

Eq 19: $$\begin{Bmatrix} 0 \\ 00 \end{Bmatrix} = -\left[2y_0\left(\frac{Ey_0}{k} + 1\right)\right]^{-1}$$

Eq 20: $$\begin{Bmatrix} 0 \\ 11 \end{Bmatrix} = -y_0 Fcs(E,k,y_0)$$

Eq 21: $$\begin{Bmatrix} 0 \\ 22 \end{Bmatrix} = -y_0 \sin^2(y_1) Fcs(E,k,y_0)$$

Eq 22: $$\begin{Bmatrix} 1 \\ 01 \end{Bmatrix} = \frac{1}{y_0} Fcs(E,k,y_0)$$

Eq 23: $$\begin{Bmatrix} 1 \\ 22 \end{Bmatrix} = -\sin(y_1)\cos(y_1)$$

Eq 24: $$\begin{Bmatrix} 2 \\ 02 \end{Bmatrix} = \frac{1}{y_0} Fcs(E,k,y_0)$$

Eq 25: $$\begin{Bmatrix} 2 \\ 12 \end{Bmatrix} = \cot(y_1)$$