

Table A1 Information for the selected eight natural ground motion records

| Record name                 | Earthquake name       | Station name                    | Epicentre distance (km) | Vs30 (m/s) | PGA (g) | T0.300S (g) | T1.000S (g) | T3.000S (g) |
|-----------------------------|-----------------------|---------------------------------|-------------------------|------------|---------|-------------|-------------|-------------|
| SanFernando_NO_68           | San Fernando          | LA - Hollywood Stor FF          | 39.49                   | 316.46     | 0.217   | 0.859       | 0.268       | 0.098       |
| Coalinga-03_NO_393          | Coalinga-03           | Sulphur Baths (temp)            | 15.76                   | 617.43     | 0.041   | 0.221       | 0.085       | 0.038       |
| SuperstitionHills-02_NO_719 | Superstition Hills-02 | Brawley Airport                 | 29.91                   | 208.71     | 0.126   | 0.552       | 0.342       | 0.070       |
| Erzican,Turkey_NO_821       | Erzican, Turkey       | Erzincan                        | 8.97                    | 352.05     | 0.445   | 1.845       | 1.004       | 0.412       |
| BigBear-01_NO_909-PW        | Big Bear-01           | Indio - Riverside Co Fair Grnds | 78.7                    | 282.14     | 0.065   | 0.330       | 0.121       | 0.065       |
| HectorMine_NO_1768          | Hector Mine           | Barstow                         | 78.44                   | 370.08     | 0.064   | 0.418       | 0.122       | 0.070       |
| Chi-Chi,Taiwan-03_NO_2474   | Chi-Chi, Taiwan-03    | CHY050                          | 74.19                   | 538.93     | 0.022   | 0.125       | 0.051       | 0.021       |
| TH1TG055                    | San Fernando          | C&GS Station 172                | 42.23                   | -          | 0.130   | 0.349       | 0.198       | 0.048       |

Vs30: time-averaged shear-wave velocity in the top 30 m at the recording sites.

T0.300S, T1.000S, and T3.000S: pseudo spectral accelerations (5%-damped) at 0.3, 1.0, and 3.0s.