Field Reconnaissance on the Damage of Transportation Facilities in the 2007 Niigata Chuetsu-oki Earthquake

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Global Location of Toyota Bridge
Toyota Bridge (Curved Bridge)

3 span continuous curved bridge
- Length: 160m
- Width: 12m
- Skewed angle: 65 degree

Kashiwazaki City

Route 8 National Highway
Toyota Bridge (Curved Bridge)
Toyota Bridge

Sliding of Abutment

Settlement of backfill soil
Toyota Bridge

Settlement of the backfill soil
Sliding of Abutment 1

Gap closed at the expansion joint

Settlement of the backfill soil

40cm
Toyota Bridge

Sliding of Abutment A1

Deck moves on the abutment A1

20cm
Toyota Bridge

Abutment 1

Pier 1

Permanently Deformed Elastomeric Bearing

Longitudinal Direction

Transverse Direction
Estimation of the Global Deformation of Toyota Bridge
Global Location of Nagomi Bridge
Damage of Expansion joint of Nagomi Bridge

Gap closed at the Expansion Joint

Rubber among the Expansion Joint has squeezed out due to the closure of gap
Sliding of Embankment and Cracking of Concrete at the Abutment
Global Location of Sabaishi River Side Park
Liquefaction at the Parking Area
Liquefaction and Soil boiling
Settlement of Backfill Soil

Settlement and Sliding of Embankment

Settlement of the Backfill Soil
Global Location of Kashiwazaki City
Kashiwazaki City Local Government Office Building
Kashiwazaki City (Chu-Ou Chou)
Kashiwazaki City (Kashiwazaki High School)

Disaster relief activity by Military Service
Kashiwazaki City (Public space)
Damage observed in Market Street, Kashiwazaki
Settlement of Ground

30cm
Old Market Street (Most Damaged Area)
Old Market Street (Most Damaged Area)
Inspector check the safety of building and houses
Kashiwazaki Hospital

Hospital is still open. Is this really safe?
Residential Area
Seaside Park (Supply Base of Disaster Relief Activity by Military Service)
Seaside Bridge

Settlement of backfill soil

Sliding of Slope
Route 8 National Highway

Kashiwazaki City

Settlement of backfill soil

Renewed Pavement
Route 8 National Highway

Settlement of backfill soil
Kariwa Village

Nuclear Power Plant

Route 116 National Highway

Kariwa Village

Volunteer Activity by Citizens

Settlement of Soil Foundation
Kariwa Village

Nuclear Power Plant

Route 116 National Highway