FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	ER-16(009)	2012	5	13

STRUCTURAL GENERAL NOTES:

1. General:

A. Workmanship and materials shall conform to the AASHTO LRFD Bridge Design Specification, 5th Edition and the Hawaii Standard Specifications for Bridge and Road Construction, as modified by the State of Hawaii Department of Transportation.
B. The Contractor shall compare the Civil and Structural drawings with each other and report in writing to the Engineer, inconsistencies or omissions.
C. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing the work. Report in writing to the Engineer all inconsistencies or omissions.
D. The Contractor shall be responsible for methods of construction, workmanship and job safety. The Contractor shall provide temporary shoring and bracing as required for stability of embankments, structural members, and systems.
E. Details noted as typical on structural drawings shall apply in all conditions unless specifically shown or noted otherwise.
F. The Contractor shall be responsible for coordinating the work of all trades.
G. The Contractor shall be responsible for protection of the adjacent properties, structures, streets, and utilities during the construction period. Any damage or deteriorated property shall be restored to the same or better condition at no cost to the State.

2. Design Criteria:

A. Active Earth Pressure: -- 40 pcf
B. Dynamic Active Earth Pressure: ---------------------------- $16H^2$
C. Bond Stress for Tiebacks and Micropiles: -------------- 1000 psf
D. Railing Test Level -- TL-1

3. Foundation:

A. Retaining system design values are based on geotechnical investigations by Hirata and Associates, dated June XX, 20XX.
B. Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary for personnel safety and to preserve excavations and earth banks, and adjacent structures and property for damage.
C. Excavation boundaries and grade elevations for wall shall be approved by the Engineer prior to placing the concrete and reinforcing.
D. Fill and backfill shall consist of non-expansive granular material such as crushed coral or basalt. The select granular fill shall be well graded from coarse to fine with no particles larger than 3 inches in largest dimension. The material also shall contain less than 15 percent particles passing the No. 200 sieve. The material shall have a laboratory CBR value of 25 or more and shall have a maximum swell value of 1 percent or less.
E. Controlled Low-Strength Material (CLSM) shall be in accordance with entire section 314 of the Hawaii Standard Specifications for Road and Bridge Construction, 2005 Edition. The CLSM shall be placed as shown in the drawings or as approved by the Engineer in writing.

4. Reinforcing Steel:

A. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
B. Clear concrete coverage for reinforcing bars shall be as follows, unless otherwise noted:
a. Footing, Wall, etc. cast against earth: ------------------------------- 3"
b. Footing, Wall, etc. formed and exposed to earth: ---------------- 2"
c. Wall faces exposed to each or weather: --------------------------- 2"
C. Splices:
a. Reinforcing steel shall be spliced only where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise noted.
D. Bar bends and hook shall be "standard hooks" in accordance with AASHTO 5.11.2. or as shown in Detail 1/S-2, whichever is greater.

5. Concrete:

A. Concrete shall be regular weight hard rock concrete and shall have a minimum 28-day compressive strength of 4000 psi.
B. All inserts, anchor bolts, plates, etc. embedded in concrete shall be hot-dip galvanized unless otherwise noted.
C. Conduits, pipes, and sleeves passing through a wall not conforming to typical details shall be located and submitted to the Engineer for approval.
D. Construction joints may be located by the Contractor and submitted to the Engineer for approval. Construction joints shall be made and located as not to impair the strength of the structure and to minimize shrinkage stresses. All construction joints shall be cleaned, laitance removed and wetted. See typical details for specific requirements.
E. Non-shrink grout shall be a premixed compound consisting of non-staining, non-metallic aggregate, cement, water reducing and plasticizing agents capable of developing minimum compressive strength of 4,000 psi in 3 days and 7,000 psi in 28 days.
F. Unless otherwise noted, chamfer all concrete edges 3/4".
G. Concrete delivery tickets shall record all free water in the mix: at batching by plant, for consistency by driver, and any additional request by Contractor if permitted by the mix design.
H. Reinforcing bars, anchor bolts, inserts and other items to be cast in the concrete shall be secured in position prior to placement of concrete.

7. Geocomposite Drain:

A. Submit manufacturer's literature and product data for geocomposite drain for Engineer's approval prior to placing the order.
B. Submit manufacturer's installation instruction for geocomposite drain for Engineer's review and approval.
C. Geocomposite drains shall be installed to ensure that the drains are hydraulically connected from the top to bottom of the retaining wall.
D. Geocomposite drains shall be attached to excavation surface by placing geotextile fabric directly against cut surface.
E. Geocomposite drains shall be placed in strips and connected in accordance with manufacturer's instructions to maintain continuity of flow channel through the drain.
F. Geocomposite drain strips shall be 2 feet wide and placed as shown in plans.
G. Geocomposite drain shall be suitably wrapped and protected from exposure to direct sunlight.
H. If the geotextile cover fabric become damaged during installation by tearing or puncturing, the damaged section shall be completely cut out and replaced. If, in the judgment of the engineer, the damage is not serious enough to warrant removal, the damaged area shall be repaired by overlaying with a piece of fabric, large enough to cover the damaged area and provide a 4 inch overlap on all sides, and taping it in place with 3 inch wide strips of waterproof, plastic tape.
I. Geocomposite drains shall be protected from damage and deleterious contamination where drains must remain exposed until they are covered with embankment or backfill material.
J. The cost for all components shall be considered incidental to various structural items. This includes, but not limited to, geocomposite drain strip, filter materials, geotextile fabric, PVC weep holes, and drain grates.

LEGEND FOR AS-BUILT POSTINGS

~~^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

HANA HIGHWAY EMERGENCY REPAIRS
MILEPOST 14.0
FEDERAL AID PROJECT No. ER-16(009)

Scale: As Noted   Date: June 2012

SHEET No. S-1 OF 6 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY		DATE
	DRAWN BY	R. Yamamoto	6/30/06
NOTE BOOK	TRACED BY		
	DESIGNED BY	L. Chan	
No.	QUANTITIES BY	L. Chan	
	CHECKED BY	L. Chan	

"AS-BUILT"