

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD. 3	64

GENERAL NOTES

- ORIGINAL PLAN

SURVEY PLOTTED BY

DRAWN BY

NOTED BY

QUANTITIES BY

CHECKED BY

DATE

1.

The scope of work for this project consists of cold planing, resurfacing, reconstructing weakened pavement areas, replacing existing damaged curb, gutter, and sidewalk, installing new concrete bus pads, installing loop detectors and traffic signal head back plates, adjusting utility manholes and pullboxes, pavement markings and striping, extension of left turn lanes, and landscaping.

2.

The Contractor is reminded of the requirements of Subsection 105.16 - Subcontracts, which requires him to perform work to not less than 30 percent of the total contract cost less deductible items. Non-compliance with this Subsection may be grounds for rejection of bid.

3.

The Contractor's attention is directed to the following Sections of the Special Provisions: Subsection 104.09 Maintenance of Traffic; Subsection 104.11 - Utilities and Services; Subsection 107.06 - Contractor Duty Regarding Public Convenience; and Section 645 - Work Zone Traffic Control.

4.

At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

5.

The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data, but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the State.

6.

The Contractor shall verify the presence of existing aerial and underground utilities which may conflict with construction activities and shall coordinate with the utility company for temporary relocation as necessary. All cost associated with the temporary relocations shall be borne by the Contractor.

7.

The exact locations and limits of areas to be reconstructed and cold planed shall be determined in the field by the Engineer.

8.

The Contractor shall notify in writing, the Oahu Transit Services Inc. Roads Supervision Office, 811 Middle Street, Honolulu, Hawaii 96819 (ph. no. 848-4571), seven (7) days prior to any paving operations, informing them of location, scope of work, and closure of Vineyard Boulevard and/or traffic lanes and dates of closure.

9.

The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting construction operations.

10.

The Contractor shall obtain all necessary permits prior to start of work at his own cost.

11.

The Contractor shall submit maintenance plans and schedules, including traffic detours, road or lane closures, lane switches, and the placement of temporary traffic control devices, to the Engineer for acceptance prior to Construction.

12.

The Contractor shall schedule construction to begin at Olomea Street/Halona Street so as to avoid conflict with the construction of other planned projects within the vicinity. The Contractor shall coordinate with the Contractors of those projects as listed in Subsection 108.01 - Notice to Proceed.

13.

The Contractor shall remove and dispose of all existing raised pavement markers and traffic tapes prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to HMA Pavement, Mix No. IV and will not be paid for separately.

14.

All holes, depressions and wheel ruts shall be filled and compacted with Asphalt Concrete, Mix No. IV prior to resurfacing. This work will be paid for under HMA Pavement, Mix No. IV.

15.

Smooth riding connections shall be constructed at all limits of project, including the beginning and end of project, connecting approaches, side streets, walkways and driveways as shown on the plans and/or as directed by the Engineer.

16.

Existing drainage system shall be kept functional at all times during construction. The Contractor shall furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to the various contract items and will not be paid for separately.

17.

The Contractor shall provide and maintain for access to and from all existing driveways, sidewalks and ADA access routes complying with ADAAG Section 403, and side streets and cross streets at all times. This work shall be considered incidental to the various contract items and will not be paid for separately.

18.

All saw cutting will not be measured or paid for separately, but shall be incidental to the various contract items.

19.

Contractor shall dispose or deliver any removed material at no cost to the State.

20.

Prior to his resurfacing operations, the Contractor shall be responsible for locating, preserving and marking all utility and highway facilities that will require adjustments to the new finished pavement grade. Additionally, the Contractor shall submit to the Engineer a list of all items, including water, drainage, sewer, electrical, telephone, and cable utilities to be adjusted to the new finished grade. This work shall be considered incidental to the various contract items.

21.

After completion of resurfacing, the Contractor and the Engineer will test for, and determine ponding areas (i.e. low spots within the resurfaced area). It shall be the responsibility of the Contractor to correct and resurface and/or repair all such ponding areas. Corrective measures shall be approved by the Engineer.

22.

No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way except at locations designated in writing and approved by the Engineer. If use of location is approved by the Engineer, the Contractor shall obtain a permit to use the property within the highway right-of-way from the State Highways Right-of-Way Branch at telephone no. 692-7332.

23.

Tack coat shall be incidental to the various Asphalt Concrete Pavement items.

24.

The Contractor is to take special measures to reduce dust from cold planing operations including but not limited to use of water misters on cold planing equipment and vacuum sweepers. Use of power brooms to sweep road is not allowed if a dust nuisance is created.

25.

All work specified in the Contract but not listed separately in the proposal schedule shall be considered incidental to other various contract items and shall not be paid for separately.

26.

Existing concrete sidewalk shall be saw cut at scorelines prior to reconstructing the sidewalk. Actual location of the shoreline shall be determined in the field. Saw cutting shall be considered incidental to reconstructing the sidewalk. The exact locations and limits of concrete sidewalk to be reconstructed shall be determined in the field by the Engineer. Demolition and disposal of existing sidewalk shall be considered incidental to new sidewalk.

27.

Demolition and disposal of existing curb and gutter, driveways, and any debris shall be considered incidental to the various contract items.

28.

The Contractor might encounter Portland Cement Concrete Pavement when cold planing over left turn lanes. If P.C.C. pavement is encountered, the Contractor shall cold plane to the top of the P.C.C. pavement and put back the same A.C. thickness. Any additional costs shall be considered incidental to the various contract items.

29.

The Contractor shall replace damaged detectable warnings and install new detectable warnings at curb ramps as shown on the plans and/or as directed by the Engineer. This work will be paid for under Item No. 650.1000.

30.

Existing facilities and/or pavement to remain which has been damaged by the Contractor shall be restored to its original condition at no cost to the State.

31.

The Contractor shall be held liable for any damages incurred to the existing landscaping as a result of his operations.

32.

All utilities on sidewalk shall be adjusted to the new finished sidewalk grade. This work shall be considered incidental to new sidewalk.

2

33.

The Contractor shall be responsible for all survey monuments (Highway, City and County and Survey Office Brass Disks) in the project site. Any survey monuments that will be disturbed or destroyed during construction shall notify Highways Surveyor immediately and provide a minimum of 30 days to have the survey monument referenced. If lane closure is needed, the Contractor shall provide the surveyor a safe zone to work on the road.

1/10/13	Added General Note No. 33.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GENERAL NOTES AND LEGEND VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On-and-off Ramp Federal Aid Project No. STP-098-1(011) Date: November, 2012	

SHEET No. 1 OF 2 SHEETS


























































ADD. 3

PAVING AROUND MANHOLES:

1. The Contractor shall first lower manholes more than 3" prior to cold planing. The work shall be considered incidental to the various paving contract items. Upon final paving, the manhole shall be raised and paid under various contract items pertaining to manhole adjustments.
2. The Contractor shall place hot asphalt concrete around manholes and compact properly with a vibrating plate compactor.
3. If a plate compactor is not used, the Contractor shall use a pneumatic roller to roll the area around the manhole which is not rolled by the steel roller.
4. The Contractor shall fog seal or brush emulsion seal on the material placed as backfill on the area around the manhole that was not compacted by the roller. Black sand shall be used to blot out the area if the fog is too heavy.

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LEGEND

	Reconstruction Areas		Existing 5/8" Gas Line
	Resurfacing Limits		Existing 3/4" Gas Line
	New PCC Bus Pad Pavement		Existing 1" Gas Line
	Existing Electrical Line		Existing 1 1/4" Gas Line
	Existing Power Pole		Existing 2" Gas Line
	Existing Guywire		Existing 3" Gas Line
	Existing Electric Manhole		Existing 6" Gas Line
	Adjusted Elec. MH Frame/Cover		Existing Monument
	Existing Electric Pullbox		Adjusted Monument
	Existing Telephone Manhole		Existing Storm Drain Manhole
	Adjusted Tele. MH Frame/Cover		Adjusted Storm Drain MH Frame/Cover
	Existing Telephone Pullbox		Existing Grated Drop Inlet
	Existing Telephone Cabinet		Existing Catch Basin
	Existing TV Cable		Existing Traffic Sign
	Existing 2 1/2" Water Line		Existing Highway Lighting Standard
	Existing 6" Water Line		Existing Highway Lighting Pullbox
	Existing 8" Water Line		Existing Traffic Signal Pole
	Existing 12" Water Line		Existing Traffic Signal Pullbox
	Existing 24" Water Line		Relocate Existing Traffic Pullbox
	Existing 42" Water Line		Existing Traffic Signal Cabinet
	Existing Water Manhole		Existing Telephone Pullbox
	Adjusted Water MH Frame/Cover		Existing Utility Pullbox
	Existing Water Valve Box		Relocate Existing Utility Pullbox
	Adjusted Water Valve Box		Existing Utility Cabinet
	Existing Water Meter		Existing Metal Guardrail
	Existing Fire Hydrant		
	Existing 6" Sewer Line		
	Existing 8" Sewer Line		
	Existing 10" Sewer Line		
	Existing 12" Sewer Line		
	Existing Sewer Manhole		
	Adjusted Sewer MH Frame/Cover		

SURVEY PLOTTED BY	DATE
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ORIGINAL PLAN	NOTE BOOK
343	343
343	343

<div>2</div>	2/8/13	Removed HECO and Hawaii Gas Notes.
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
<u>GENERAL NOTES AND LEGEND</u>		
<u>VINEYARD BOULEVARD RESURFACING</u>		
<u>Vicinity of Palama St. to End of H-1 On- and Off-Ramp</u>		
<u>Federal Aid Project No. STP-098-1(011)</u>		
Date: November, 2012		
SHEET No. 2 OF 2 SHEETS		

FED. ROAD DIST. NO.	STATE	FED. RD PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(K011)	2012	ADD.4S-1	64

HECO NOTES:

1. LOCATION OF HECO FACILITIES

The location of HECO'S overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall verify in the field the locations of the facilities and shall exercise proper care in excavating and working in the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the Contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The Contractor shall be responsible for any damages to HECO'S facilities whether shown or not shown on the plans.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

The Contractor shall comply with the State of Hawaii's Occupational Safety and Health laws and regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. EXCAVATION CLEARANCE

The Contractor shall obtain an excavation clearance from HECO'S The Planning and Design Section of the Customer Installations Department (543-5654) located at 820 Ward Avenue, 4th floor, a minimum of ten (10) working days prior to starting construction.

4. CAUTION!!! ELECTRICAL HAZARD!!!

Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. OVERHEAD LINES

State law (OSHA 1910.269 (K)(2B)) requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50kV and below. For each additional 10kV above 50kV, an additional 4 inches shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirements is provided as a convenience, and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate or de-energize HECO lines) can be investigated. HECO may also be able to blanket its distribution (12kV and below) lines to provide a visual aid in preventing accidental contact. HECO's cost of safeguarding or identifying its lines will be charged to the Contractor.

Contact HECO's Customer Installations Department at 543-7846 for assistance in identifying and safeguarding overhead power lines.

6. POLE BRACING

A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure, and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all pole bracing designs and structural calculations, as well as the associated costs to brace, repair, or straighten poles. All means of structural support for the pole and/or anchor system proposed by the Contractor shall be submitted to HECO's Customer Installations Department (543-7846) for review a minimum of ten (10) working days prior to implementation. The cost of HECO's review/assistance in providing proper support and protection of its poles will be charged to the Contractor.

7. UNDERGROUND LINES

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. For assistance/coordination in providing proper support and protection of these lines, the Contractor shall call HECO'S Customer Installations Department at 543-7846 a minimum of ten (10) working days in advance.

Special precautions are required when excavating near HECO's 138kV underground lines (See HECO Instructions to Consultants/Contractor's on "Excavation near HECO's Underground 138kV Lines" for detailed requirements).

For verification of underground lines, the Contractor shall call the Hawaii One Call Center at 866-423-7287 minimum of five (5) working days in advance.

8. UNDERGROUND FUEL PIPELINES

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of HECO's underground fuel oil pipelines. Special precautions are required when excavating near HECO's underground fuel oil pipelines (see HECO's specific fuel pipeline "Guidelines" to consultants/contractors on excavation near HECO's underground fuel pipelines for detailed requirements).

9. EXCAVATIONS

When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:

- Arranging for HECO standby personnel to observe work at Contractor's cost.
- Sheeting, bracing or otherwise supporting the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
- Properly supporting existing structures or facilities with beams, struts, under-pinnings, or other necessary methods to fully protect it from damage.
- Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

10. RELOCATION OF HECO FACILITIES

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not be limited to, staking of pole/anchor locations, identifying right of way and property lines, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

11. CONFLICTS

Any redesign or relocation of HECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECO should be notified immediately upon discovery or identification of such conflict.

12. DAMAGE TO HECO FACILITIES

The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages or any hazardous conditions related to HECO's lines to HECO's Trouble Dispatcher at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's supervision. Costs for damages to HECO's facilities shall be borne by the Contractor.

In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Honolulu Power Plant Shift Supervisor at 533-2102 (a 24-hour number) so HECO personnel can secure the damaged section and report any oil spills to the proper authorities. In case of damage or suspected damage to the Waiiau or Kahe fuel pipelines, the Contractor shall also notify Chevron at 682-2227. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

13. HECO STAND-BY PERSONNEL

The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

The Contractor shall call HECO's Customer Installations Department at 543-7846 a minimum of five (5) working days in advance to arrange for HECO stand-by personnel.

14. CLEARANCES

The following clearances shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench:

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES HORIZONTAL (PARALLEL)

UTILITY BEING INSTALLED	EXISTING DIRECT BURIED CABLE	EXISTING DIRECT BURIED IN CONDUIT (no concrete encasement)	EXISTING 3" CONCRETE ENCASEMENT	APPLICABLE NOTES
HECO DB Conduits	12"	3"	0"	
HECO 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	5
Traffic Signal	12"	12"	12"	
Water DB	36"	36"	36"	1, 4
Water Service Laterals	12"	12"	12"	
Water (Concrete Jacketed)	36"	36"	36"	1, 4
Gas DB	12"	12"	12"	1
Gas (Concrete Jacketed)	12"	12"	12"	1
Sewer DB	36"	36"	36"	1, 2
Sewer (Concrete Jacketed)	36"	36"	36"	1, 2
Drain	12"	12"	12"	1
Fuel Pipelines	48"	48"	48"	3

Notes:

- Where space is available, parallel clearance to other utilities, or foreign structures other than communication or traffic signal shall be 36".
- If 36" clearance cannot be met:
 - If clearance is less than 12", Jacket sewer line with reinforced concrete (per HECO's std. 30-1030) for a distance of 5' plus pipe diameter.
 - If clearance is between 12" and 36", jacket sewer line with plain concrete.
- Electrical conduit crossings of fuel lines should be kept a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.
- 5 feet clear to water mains 16" and larger.
- For situations with 0" minimum separation, a 6" separation is recommended.
- Clearances measured from outer edges or diameters of utilities.

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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UTILITY NOTES
<u>VINEYARD BOULEVARD RESURFACING</u>
<u>Vicinity of Palama St. to End of H-1 On-and-off Ramp</u>
<u>Federal Aid Project No. STP-098-1(K011)</u>
Date: February 2013
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ADD. 4S-1

HECO NOTES: (Continued)

MINIMUM SEPARATION CLEARANCES TO EXISTING UNDERGROUND DUCTLINES VERTICAL (CROSSING)				
UTILITY BEING INSTALLED	EXISTING DIRECT BURIED CABLE	EXISTING DIRECT BURIED IN CONDUIT (no concrete encasement)	EXISTING 3" CONCRETE ENCASEMENT	APPLICABLE NOTES
HECO DB Conduits	6"	3"	0"	
HECO 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"		6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	5
Traffic Signal	12"	12"	6"	
Water Service Laterals	6"	6"	6"	
Water DB	6"	6"	6"	2
Water (Concrete Jacketed)	6"	6"	6"	2
Gas DB	12"	12"	12"	
Gas (Concrete Jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	1
Sewer (Concrete Jacketed)	24"	24"	24"	1
Drain	12"	12"	12"	
Fuel Pipelines	48"	48"	48"	3

Notes:

- If clearance cannot be met:
 - If clearance is less than 12", Jacket sewer line with reinforced concrete (per HECO's std. 30-1030) for a distance of 5' plus pipe diameter.
 - If clearance is between 12" and 24", jacket sewer line with plain concrete.
- 12" vertical clearance for pipe diameters greater than 16".
- Electrical conduit crossings of fuel lines should be kept a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.
- 5 feet clear to water mains 16" and larger.
- For situations with 0" minimum separation, a 6" separation is recommended.
- Clearances measured from outer edges or diameters of utilities.

The Contractor shall notify the Construction Manager and HECO of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

15. INDEMNITY

The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions, including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortious acts caused or contributed to by Contractor or anyone acting under its direction or control or on its behalf; provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

Additional Notes When Work Involves Construction of HECO Facilities

16. SCHEDULE

Contractor shall furnish his construction shedule six (6) months prior to starting work on HECO facilites. Contractor shall give HECO, in writing, three (3) months notice to proceed with HECO's portion of work.

17. AUTHORITY

All construction, restoration work, and inspection shall be subject to whichever governmental agency has authority over the work.

18. SPECIFICATIONS

Construction of HECO's underground facilities shall be constructed in accordance with the latest revisions of HECO Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and applicable HECO Standards.

19. CONSTRUCTION

Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by HECO prior to excavation and prior to placing concrete. Contractor shall notify HECO's Inspection Division at 543-7520 at least 48 hours prior to placing concrete.

Contractor to coordinate work to break into HECO's existing electrical facilities with HECO's Inspection Division at 543-7520 at least ten (10) working days in advance.

20. STAKEOUT

The Contractor shall arrange for toneouts of all underground facilities and shall stakeout all proposed HECO facilities within the project area so as to not conflict with any utility (existing or proposed) and any proposed construction or improvement work for verification by HECO before proceeding with HECO work.

21. DUCTLINES

All ductline installations shall be PVC Schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be mandrel tested by the Contractor in the presence of HECO's inspector using HECO's standard practice. The Contractor shall install a 1/8" polyolefin pull line in all completed ductlines after mandrel testing is complete.

22. JOINT POLE REMOVAL

The last joint pole occupant off the poles shall remove the poles.

23. AS-BUILT PLANS

The Contractor shall provide HECO with two sets of as-built reproducible tracings showing the offsets, stationing, and vertical elevation of the duct line(s) constructed.

Excavation Near Heco's 138kV Underground Lines

24. HECO's 138 kV High Pressure Fluid Filled (HPFF) underground cables are installed in specially coated, cathodically protected steel pipes and are surrounded by a special low strength (approx. 100 psi) Fluidized Thermal Backfill (FTB). FTB is a backfill engineered to meet specific thermal resistivity, thermal stability, strength, and flowability requirements as well as provide construction advantages. FTB is a concrete-like backfill consisting of a coarse and/or medium stone aggregate, sand, and a small amount of cement for strength. The proportions are selected to minimize thermal resistivity, and maximize flowability without segregation of the components. FTB will flow readily to fill all the voids yet harden quickly to a uniform density. It provides mechanical protection for the cable system and support for underground and surface facilities. FTB is supplied as a ready-mix in concrete trucks and may be installed by pouring or pumping.

25. The following precautions must be taken when excavating near HECO's 138kV underground lines:

- The Contractor shall call The Hawaii One Call Center at 866-423-7287 for field verification of HECO's underground lines a minimum of 5 working days prior to excavation.
- The Contractor is responsible for properly supporting and protecting the 138kV cable pipes and FTB ductbank at all times.
- A HECO stand-by inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding the 138kV cable pipes. The cost of such inspection will be charged to the Contractor. To coordinate this stand-by inspector, please contact HECO's Underground Supervisor at 543-7395, at least 7 days prior to excavation.
- Once the Contractor reaches the FTB surrounding the 138kV cable pipes, the Contractor shall use only hand tools to further excavate and remove the FTB.

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- The Contractor shall take great care when excavating near the FTB and nearing the 138kV cable pipes to prevent damage to the protective coating on the cable pipes. Only HECO personnel are to handle these cable pipes and erect temporary guards to protect these cable pipes from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. The Contractor shall exercise due care and precautions to avoid disturbing any energized cables and temporary guards and shall work cautiously at all times to avoid accidents.
 - The Contractor shall be responsible for any damages to HECO's facilities and all costs associated with the damage and repair as a result of his operations. Repair work shall be done by the Contractor under HECO's supervision.
 - If the coating is damaged in any way, it is imperative that the HECO stand-by inspector on-site be notified as soon as possible such that the coating may be repaired before backfilling. Even a nick or pinhole puncture in the protective coating can jeopardize the integrity and reliable operation of the underground cable system.
 - The 138kV lines will remain energized at all times. However, in the event that the 138kV lines are damaged, depending on the extent of the damage, the 138kV line may be instantaneously de-energized as a result of sophisticated relay protection equipment operating, or it may need to be manually de-energized by following a system operational protocol.
 - If any portion of the FTB is removed during excavation, the FTB must be replaced per HECO specifications. The base design mix ID# for FTB is XX67N015 per the Ameron Hawaii Concrete Mix Submittal Number 2388 dated 4/25/02. Please note: Do not use any other additives such as air entraining agent, water reducing agent, etc., in the above mixture.
26. Please contact the Hawaii One Call Center at 866-423-7287 at least 5 working days prior to any trenching and/or backfilling near the existing HECO 138kV underground transmission lines.
27. In case of damage or suspected damage, please immediately contact HECO Trouble Dispatcher at ph. 548-7961 (this phone number is manned 24-hours a day).
28. The Contractor shall exercise extreme caution when adjusting the two (2) HECO manholes located after the Liliha Street intersection near Sta. 104+75± Lt. A HECO stand-by inspector must be on-site when these manholes are adjusted. The cost of such inspection will be charged to the Contractor.

Excavation Near HECO's Underground Fuel Pipelines

29. HECO's fuel oil pipelines are of carbon steel construction with specialized corrosion protective coatings, insulation coverings, cathodic protection, and specific backfill material. Any excavation work which affects these components on HECO's fuel oil pipeline requires careful reconstruction to insure pipeline integrity, structural strength, and corrosion protection.
- The following precautions must be taken when excavating near HECO's underground fuel pipelines:
- The Contractor shall call USA North at 1-800-227-2600 for field verification of HECO's underground fuel pipelines a minimum of two (2) working days prior to trenching.

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HECO NOTES: (Continued)

- b) The Contractor is responsible for properly supporting and protecting the underground fuel pipes, coatings, cathodic protection, and insulation at all times. When trench excavation is adjacent to or beneath HECO's existing underground fuel pipelines, the Contractor is responsible for:
- i) Sheeting and bracing the excation to prevent slides, cave-ins, and settlements.
- ii) Supporting and protecting existing structures or facilities with beams, struts, or underpinnings.
- c) A HECO stand-by inspector must be on-site anytime the excavation is near the underground fuel pipelines. The cost of such inspection will be charged to the Contractor.
- d) Once the Contractor reaches the pipeline backfill material, the Contractor shall use only hand tools to further excavate and remove the remaining backfill.
- e) The Contractor shall take great care when excavating the pipeline backfill and nearing the fuel oil pipelines to prevent damage to the insulation and protective coating on the pipelines. Any handling or work on these pipelines shall be by HECO personnel or by the Contractor under HECO's supervision. The cost of HECO's assistance in providing proper support, protection, and testing of its underground fuel oil pipelines will be charged to the Contractor. The Contractor shall exercise due care and precautions to avoid disturbing any fuel pipelines, pipe supports, expansion joints and temporary guards and shall work cautiously at all times to avoid accidents.
- f) The Contractor shall be responsible for any damages to HECO's facilities and all costs associated with the damage, repair, and oil spill cleanup as a result of his operations. Repair work shall be done by HECO or by the Contractor under HECO's supervision.
- g) If the coating is damaged in any way, it is imperative that the HECO stand-by inspector on-site be notified as soon as possible such that the coating may be repaired before backfilling. Even a nick or pinhole puncture in the protective coating can jeopardize the integrity and reliable operation of the underground fuel pipe system.
- h) The underground fuel pipelines may or may not be in use during construction. However, the pipelines contain fuel oil at all times. In the event that the pipelines, its coatings, cathodic protection, or insulation are damaged, the Honolulu Power Plant Shift Supervisor must be immediately notified so HECO personnel can, depending on the extent of the damage, secure the damaged section and report any oil spills to the proper authority.
- i) If any portion of the pipeline backfill is removed during excavation, the replacement backfill shall be "crusher run" material which is non-native to the surrounding soil and free of oils, salts, and other deleterious material. The backfill shall be compacted 6" lifts around the pipe to ensure the stability of the new backfill.
30. Please contact the following individual at least 48 hours prior to any trenching and/or backfilling near the existing HECO Underground Fuel Pipelines: Colin Higa (HECO Senior Shift Supervisor) - Ph: 543-4540.
31. In case of pipeline damage or suspected damage, please immediately contact: Honolulu Power Plant Shift Supervisor at Ph: 533-2102 (this phone number is manned 24-hours a day).

Planting Trees Near HECO Facilities Guidelines

32. HECO's primary responsibility is to provide reliable electrical service in a reasonably safe manner. Because trees spread as they grow and are effective conductors of electricity, steps must be taken to minimize chances that tree branches and roots will get close enough to energized lines and equipment to cause electrical outages or safety hazards. HECO is also committed to preserving the health and appearance of trees. The intent of these guidelines is to reasonably balance these interests and goals.

HECO is happy to help you plant the right tree in the right place, so that both communities and individuals can take advantage of their natural cooling, shade, reduction of unwanted noise and other environmental advantages. Prior to planting, contact HECO's System Arborists at 543-7836 with questions regarding the correct type of tree to plant.

33. Planting Trees Near Overhead Lines
- Tall trees that can contact wires, poles or equipment should not be planted near overhead lines. Trees contacting overhead electric lines can cause electric service outages and may pose safety hazards. Trees and shrubs also block physical and visual access to poles and equipment for inspection, maintenance and repair. As a result, tall trees must occasionally be pruned, which increases operating and maintenance costs.
- Use the following guide to help select the right trees for planting near overhead lines:
- a) Trees that mature at heights below 20' may be planted under lines;
- b) Trees that mature at heights 20' to 30' should be planted at least 10' horizontally from overhead lines;
- c) Taller, columnar trees (e.g. palms, Formosa koa (Acacia confusa)) should not be planted closer than 15' horizontally from overhead lines;
- d) Taller trees with spreading crowns that mature at heights greater than 30' should be planted at least 30' horizontally from overhead lines.

34. Planting Trees Near Underground Lines
- Large trees and/or trees with invasive roots must not be planted over or near underground lines. Invasive roots can infiltrate electrical conduits and create electrical service outages and hazards. The weight of large trees over underground lines can crush the electrical conduit, thus resulting in costly repairs and interruption or disturbance of electric service to customers and the general public. Future maintenance and/or excavation of the underground lines can result in severe tree damage or may require the removal of the trees planted too close to the lines. In addition, irrigation water can transport salt from fertilizers and corrode underground line connections resulting in electric service outages.

Use the following planting guide to help select the right tree for planting near underground lines:

- a) Always locate and identify all underground utilities prior to performing any digging. Do so by contacting the Hawaii One Call Center at 811;
- b) Do not plant any trees or shrubs directly over underground electric lines;
- c) As a rule, plant the tree or shrub far away from the underground line so that the tree or shrub crown, at maturity, does not extend over the underground line.

The following trees may be planted not less than five (5) feet from an underground line:

Areca palm	<i>Chrysalidocarpus lutescens</i>
Dwarf Date palm	<i>Phoenix roebelenii</i>
Dragon tree	<i>Dracaena marginata</i>
MacArthur palm	<i>Ptychosperma macarthurii</i>
Ma'o	<i>Gossypium tomentosum</i>
Ho-awa	<i>Pittosporum hosmeri</i>
Kolea	<i>Myrsine lessertiana</i>
Awa	<i>Piper methysticum</i>
Tree Jasmine	<i>Pasadenia latifolia</i>
Kolomana	<i>Cassia suratsensis</i>
Bottle palm	<i>Mascarena lagenicaulis</i>
Blue Latan palm	<i>Lantania loddigesii</i>
Manila palm	<i>Veitchia merrillii</i>
Thrinax palm	<i>Thrinax parviflora</i>
Crepe Myrtle	<i>Lagerstroemia indica</i>
Alahe'e	<i>Canthium odoratum</i>
Winim palm	<i>Veitchia winim</i>
Oleander	<i>Nerium oleander</i>
Yellow Jasmine	<i>Jasminum mesnyi</i>
Naupaka	<i>Scaevola sericea</i>
Panax	<i>Polyscias guilfoylei</i>

The following trees may be planted not less than seven (7) feet from an underground line:

Candle bush	<i>Senna alata</i>
Plumeria	<i>Plumeria rubra</i>
Tiare	<i>Gardenia taitensis</i>
Traveler's tree	<i>Ravenala madagascariensis</i>
Silver bush	<i>Sophora tomentosa</i>
Dwarf Poinciana	<i>Caesalpinia pulcherrima</i>
Yellow Bells	<i>Stenolobium stans</i>
Jathropha	<i>Jathropha integrerrima</i>
Golden Dewdrop	<i>Duranta erecta</i>
Nanu	<i>Gardenia brighamii</i>
Noni	<i>Morinda citrifolia</i>
Mamane	<i>Sophora chrysophylla</i>
Papa Kepau	<i>Pisonia sandwicensis</i>
Aulu	<i>Pisonia umbellifera</i>
Keahi	<i>Nasolima polynesicum</i>
Rhodesian Wisteria	<i>Bolusanthus speciosus</i>
Bottle Brush	<i>Callistemon citrinus</i>
Kou	<i>Cordia subcordata</i>
Allspice	<i>Pimenta dioica</i>
Palmer's Tecoma	<i>Tabebuia palmeri</i>
Lechoso	<i>Stemmadenia littoralis</i>
Olopua	<i>Nestegis sandwicensis</i>
Lama	<i>Diospyros sandwicensis</i>
Podocarpus	<i>Podocarpus gracilior</i>
Loulu palm	<i>Prichardia hillebrandii</i>
Joannis palm	<i>Veitchia joannis</i>
Montgomery palm	<i>Veitchia montgomeryana</i>
Mock orange	<i>Murraya paniculata</i>

The following trees may be planted not less than ten (10) feet from an underground line:

Cotoneaster	<i>Cotoneaster pannosa</i>
Coconut	<i>Cocos nucifera</i>
Partridge Wood	<i>Andira inermis</i>
Carob	<i>Ceratonia siliqua</i>
Koki'o	<i>Hibiscus drynarioides</i>
Silver Buttonwood	<i>Conocarpus erectus</i>
Shower Tree	<i>Cassia spp.</i>
St. Thomas tree	<i>Bauhinia monandra</i>
Silver Trumpet	<i>Tabebuia aurea</i>
False olive	<i>Cassine orientalis</i>
Calabash Tree	<i>Crascentia cujete</i>
Ohia Lehua	<i>Metrosideros polymorpha</i>
Fern tree	<i>Filicium decipiens</i>

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UTILITY NOTES
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35. Alternatives

HECO understands that it may be difficult in certain circumstances to maintain the clearances recommended above. If so, during plan design, consider relocating the underground electrical conduit to increase lateral distances. Alternatively, electrical conduits placed at least 5 feet below grade should provide sufficient vertical clearance to avoid root invasion (but the rootball of the tree still must not be planted directly over the conduit).

In addition, mitigation measures such as a root barrier may also be used to allow for somewhat reduced planting distance from the underground facilities. In these instances, have the underground facilities located by the local utility company thru the Hawaii One Call Center. Then excavate to approximately one foot adjacent to the utility conduit and at least three feet deep. Place an appropriate root barrier product (comparable to "DeepRoot" barrier) to a depth of no less than three feet deep and approximately one foot from the conduit for the entire length of excavation or two times the estimated crown spread at maturity of any trees planted adjacent to the underground facilities, or whatever is greater. Trees should then be planted at least one foot off of the root barrier, but it is recommended that trees be planted as far away from the root barrier as practical. The amount of roots on the side of the root barrier will be greatly reduced and may cause the tree to be unstable as it grows because, without an even amount of supporting roots around a tree, it is more susceptible to falling over from high winds, heavy rain or excessive tree lean.

Large tree species like Monkeypod, Albizia, Eucalyptus, and Banyan will require an onsite investigation by a HECO System Arborist to determine an appropriate planting distance from any underground electrical facilities. As a guide, the recommended planting distance will be the estimated radius from the trunk of the tree at maturity to the farthest extent of the branches.

36. Reservation of Rights

These guidelines are an attempt to help you understand and address risks inherent in planting trees and shrubs near electric facilities. However, these guidelines are not intended to be a substitute for your own independent judgment. You are advised that, especially with regard to alternative measures discussed above, your plantings may nevertheless cause present or future damage to HECO electrical facilities, equipment or property, and nothing herein, including HECO's review and consent to plans or actions taken, if any, shall be construed as a waiver by HECO of any of its rights, including those rights pursuant to Section 269-32, Hawaii Revised Statutes, to seek damages from any person or entity who injures or destroys any facility, equipment or property of HECO, or who causes or contributes to an interruption or disturbance of electrical service to HECO customers. In addition, without limitation, HECO reserves the right to seek removal, at your or the property owner's cost, of any vegetation or root barrier whenever such removal, as determined in HECO's sole discretion, is required for the proper operation and maintenance of, or access to, any HECO electrical facility, equipment or property.

37. Prior to planting, please contact HECO's System Arborists at 543-7836 with questions regarding the correct type of tree to plant.

HAWAII GAS NOTES:

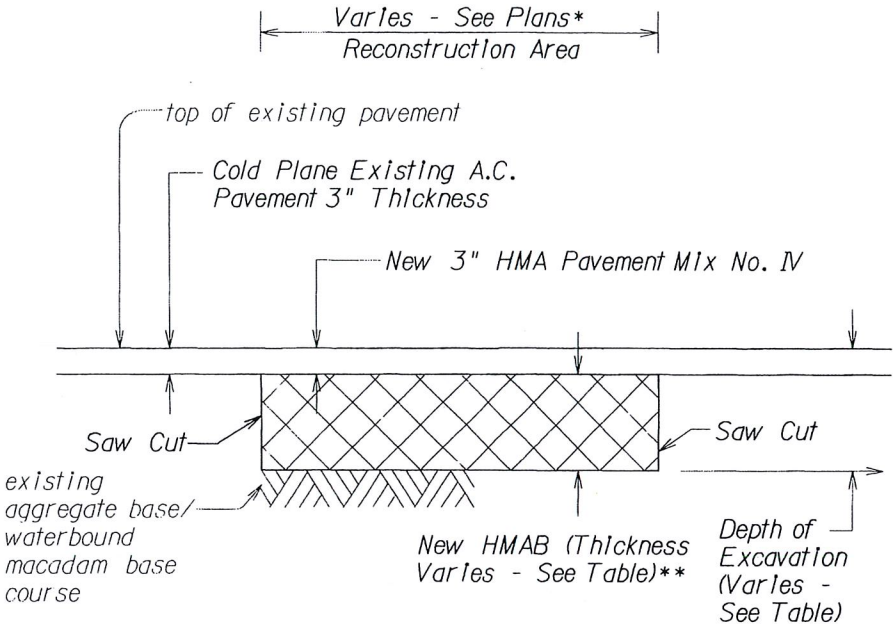
1. The Contractor shall call the Hawaii One Call Center at 811 prior to commencement of excavation to avoid accidental damage to gas pipelines. Information on the location of Hawai'i Gas' pipelines is available by contacting Hawaii Gas Maps & Records Department for Oahu at 808-594-5575.

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SHEET No. 4 OF 4 SHEETS

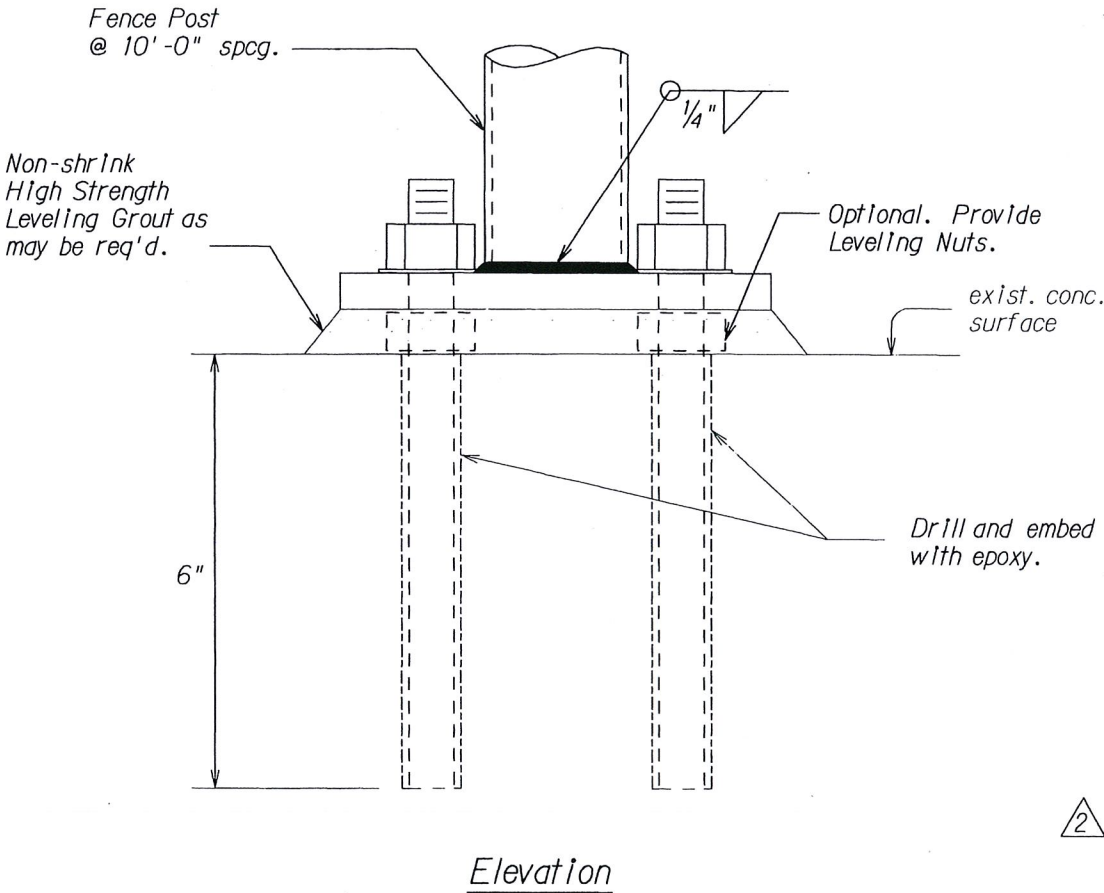
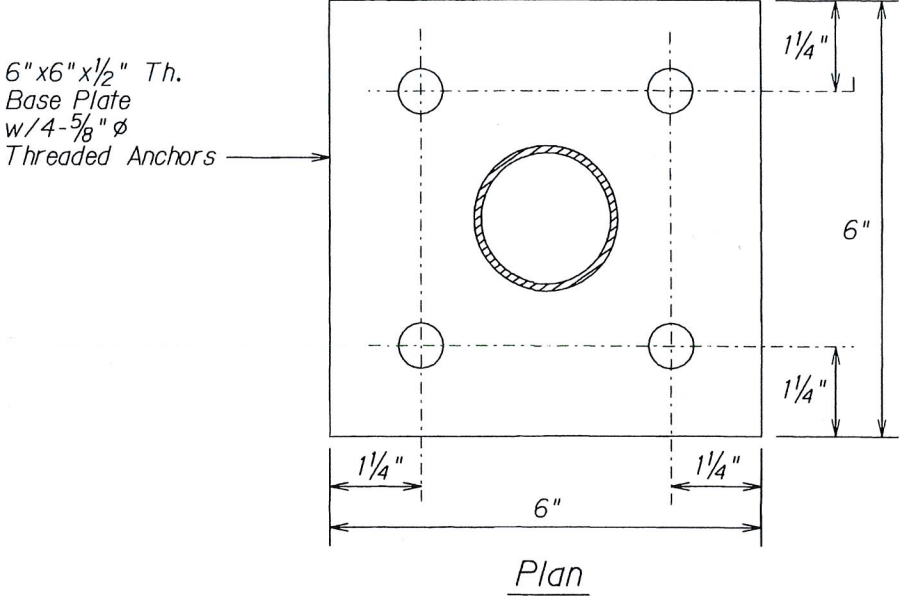
ADD. 4S-4



A.C. PAVEMENT RECONSTRUCTION DETAIL
Not to Scale

- * Note: For Reconstruction Area Schedule, see Plan Sheet No. 12.
- ** Note: Prior to placement of asphalt concrete base, the exposed waterbound macadam base course or aggregate base course should be recompacted to flat unyielding ground condition. Filler materials consisting of aggregate for Type 3 slurry seal may be required for the disturbed waterbound macadam base course to facilitate the required compaction. This work shall be considered incidental to the various pavement items.

PAVEMENT DESIGN FOR RECONSTRUCTION AREAS				
WITHIN STATIONING		HMA Pavement Mix No. IV (IN.)	HMAB (IN.)	DEPTH OF EXCAVATION (IN.)
FROM	TO			
Halona St. 9+60 Ramp "R-3" 4+19.50 Olomea St. 19+00	103+00	3.0	5.0	8.0
103+00	127+00	3.0	6.0	9.0
127+00	145+90	3.0	8.5	11.5
145+90	168+10 O.B. 169+05.61 I.B.	3.0	5.0	8.0



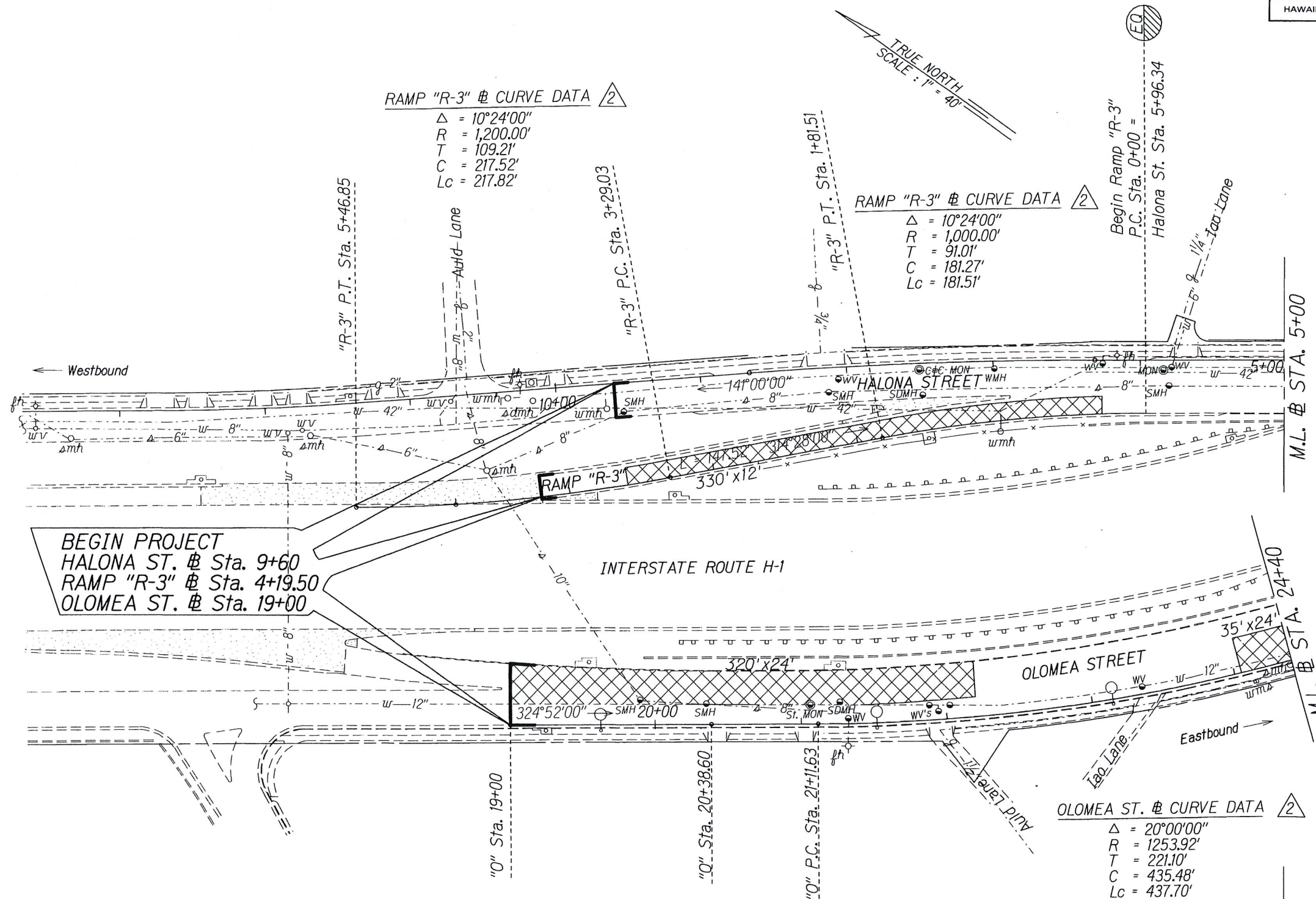
2 FENCE POST BASE PLATE DETAIL
Not to Scale

- Notes:
1. Do not cut/damage existing reinforcing steel.
 2. Use stainless steel threaded anchors (Type 316) including nuts and washers.
 3. Assembly shall be hot-dipped galvanized.

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
N.	

1/31/13	Added Fence Post Base Plate Detail.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL SECTIONS VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On-and-off Ramp Fed. Aid Project No. STP-098-1(011) Scale: As Shown Date: November, 2012 SHEET No. 5 OF 5 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.17	64



BEGIN PROJECT
HALONA ST. @ Sta. 9+60
RAMP "R-3" @ Sta. 4+19.50
OLOMEA ST. @ Sta. 19+00

INTERSTATE ROUTE H-1

OLOMEA STREET

OLOMEA ST. CURVE DATA 2
 $\Delta = 20^{\circ}00'00''$
 $R = 1253.92'$
 $T = 221.10'$
 $C = 435.48'$
 $Lc = 437.70'$

2/12/2013	Added Ramp "R-3" and Olomea St. Baseline Curve Data.
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DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

VINEYARD BOULEVARD RESURFACING
Vicinity of Palama St. to End of H-1 On- and Off Ramp
Federal-Aid Project No. STP-098-1(011)

Scale: 1"=40' Date: November, 2012

SHEET No. 1 OF 7 SHEETS

ADD. 17

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
DESIGNED BY	CHECKED BY	
NO.		

Halona St. @ Sta. 3+44± Lt. to @ Sta. 3+16± Lt.

Reconstruct Concrete Driveway. For details, see standard plan D-06 and Plan Sheet No. 13.

Halona St. @ Sta. 3+20± Lt. to @ Sta. 2+88± Lt.
Halona St. @ Sta. 1+75± Lt. to @ Sta. 0+45± Lt.

Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

Median (Halona St. @ Sta. 0+54± to @ Sta. 0+35±)

Demolish and dispose of existing curb ramp and concrete island. Reconstruct Concrete Island with New Type 2D Curb. Match top of New Concrete Island to top of New Type 2D Curb. This work shall be considered incidental to New PCC Sidewalk and New Type 2D Curb.

Median (@ Sta. 87+05± to @ Sta. 93+37±)

Reconstruct Type 2D Curb. Provide smooth transition into existing curb.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.18	64

CURVE	STATIONING TO BEGIN CURVE	OFFSET	CURVE DATA				
			Δ	R	T	C	Lc
①	Olomea St. @ Sta. 26+73.50	50.53' Lt.	17°56'35.17"	689.59'	108.87'	215.07'	215.96'
②	Halona St. @ Sta. 0+35.15	41.00' Rt.	165°28'57.71"	2.61'	20.49'	5.81'	7.53'

@ Sta. 87+03± Lt. to @ Sta. 89+76± Lt.
@ Sta. 92+69± Lt. to @ Sta. 93+50± Lt.
Reconstruct Type 2DG Curb & Gutter.
Match new curb and gutter into existing curb and gutter.

@ Sta. 87+05± Lt. to @ Sta. 88+40± Lt.
@ Sta. 88+65± Lt. to @ Sta. 89+30± Lt.
@ Sta. 90+00± Lt. to @ Sta. 91+15± Lt.
Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 92+45± Lt. to @ Sta. 92+69± Lt.

Reconstruct Concrete Driveway. For details, see standard plan D-06 and Plan Sheet No. 13.

Install New Detectable Warning.*

VINEYARD BLVD. @ Sta. 86+47.80 =
Beg. HALONA ST. @ Sta. 0+00 =
PALAMA ST. @ Sta. 0+48.09

VINEYARD BLVD. @ Sta. 86+50.69 =
PALAMA ST. @ Sta. 0+00

Install New Detectable Warning.*
PALAMA ST. @ Sta. -0+48.30 =
VINEYARD BLVD. @ Sta. 86+56.07 =
OLOMEA ST. @ Sta. 29+61.56 =

Install New Detectable Warning.*

@ Sta. 90+60± Rt. to @ Sta. 91+00± Rt.
@ Sta. 91+20± Rt. to @ Sta. 91+60± Rt.
@ Sta. 91+70± Rt. to @ Sta. 92+30± Rt.
@ Sta. 92+65± Rt. to @ Sta. 93+15± Rt.

Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 92+30± Rt. to @ Sta. 93+00± Rt.

Construct New P.C.C. Bus Pad with Modified Type 2DG Curb and Gutter. For details, see Plan Sheet No. 16.

OLOMEA ST. @ CURVE DATA
Δ = 20°00'00"
R = 600.00'
T = 105.80'
C = 208.38'
Lc = 209.44'

Olomea St. @ Sta. 25+11.05± to @ Sta. 28+73.37±

Construct extension of left turn lane with New Type 2D Curb. For pavement details, see Plan Sht. No. 8. Removal of existing curb shall be considered incidental to New Type 2D Curb.

Median
Olomea St. @ Sta. 28+73.37± to @ Sta. 29+01.70±
Halona St. @ Sta. 0+80± to @ Sta. 0+52±

Reconstruct Type 2D Curb.

Olomea St. @ Sta. 27+00± to @ Sta. 27+70±

Construct New P.C.C. Bus Pad with Modified Type 2DG Curb and Gutter. For details, see Plan Sheet No. 16.

②

2/12/2013 Added Note, Olomea St. Baseline Curve Data, Relocation of Existing Utility and City & County DTS Pullbox, and HECO lines, and Revised Median Curve Data.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

VINEYARD BOULEVARD RESURFACING
Vicinity of Palama St. to End of H-1 On- and Off Ramp
Federal-Aid Project No. STP-098-1(011)

Scale: 1"=40' Date: November, 2012

SHEET No. 2 OF 7 SHEETS

ADD. 18

SURVEY PLOTTED BY	DATE
DRAWN BY	
NOTED BY	
CHECKED BY	

Begin taper & Type 2D Curb
Olomea St. @ Sta. 25+11.05±
o/s 38.68' Lt.

*NOTE: ②

1. Removal and disposal of existing detectable warning mat shall be considered incidental to New Detectable Warning. For details, see Plan Sheet No. 15.
2. The cost of relocating existing utility and traffic signal pullbox shall include full compensation for furnishing, installing, splicing, and taping the cable; making the connections; providing turn-on service; and furnishing equipments; tools, labor, materials and other incidentals necessary to complete the work.

Olomea St. @ Sta. 26+49.03± ②
Relocate existing City & County DTS Pullbox to 55± os. Lt. of @. Removal of existing pullbox shall be considered incidental to the various contract items. See Note on this sheet for the cost of relocation.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.19	64

Median @ Sta. 93+37± to @ Sta. 93+49±
Reconstruct curb ramp with New Type C Curb Ramp. Demolition and disposal of existing curb ramp shall be considered incidental to New Type C Curb Ramp. For details, see Plan Sheet No. 14.

@ Sta. 94+45± Lt. to @ Sta. 94+70± Lt.
@ Sta. 94+85± Lt. to @ Sta. 95+40± Lt.
@ Sta. 95+65± Lt. to @ Sta. 95+95± Lt.
@ Sta. 96+20± Lt. to @ Sta. 96+45± Lt.
@ Sta. 100+60± Lt. to @ Sta. 101+00± Lt.

Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

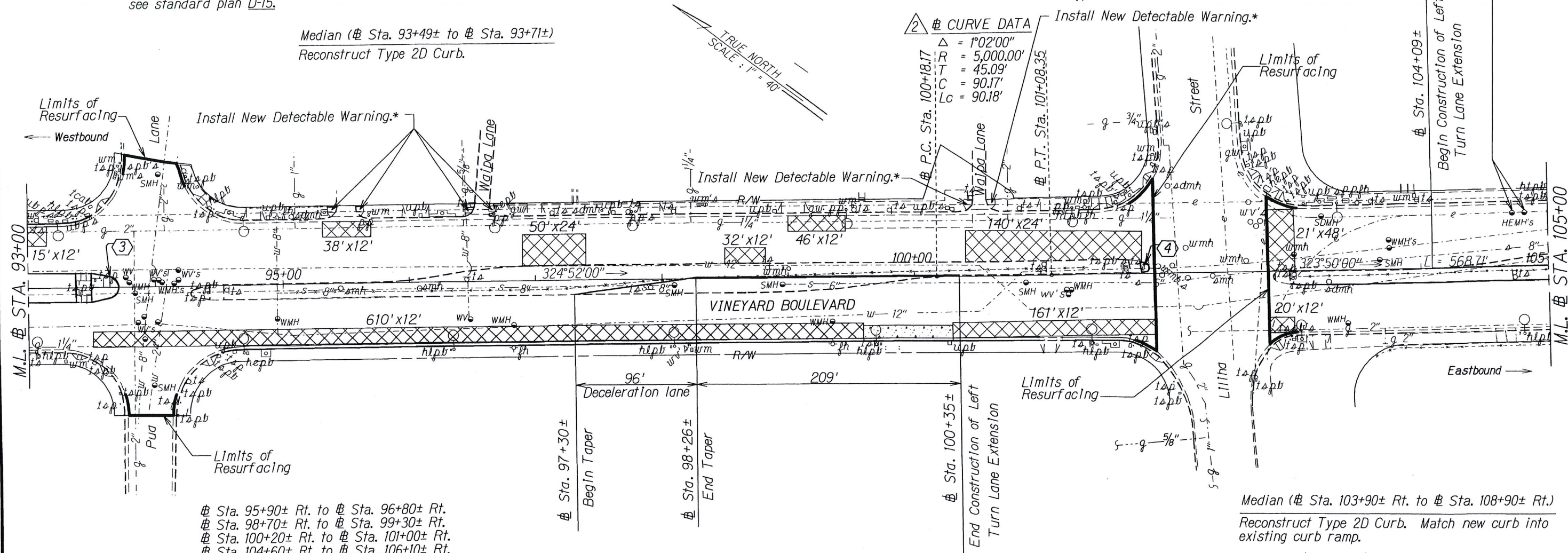
Median (@ Sta. 101+78± to @ Sta. 101+86±)
Reconstruct Concrete Island with New Type 2D Curb. Match top of New Concrete Island to top of New Type 2D Curb. This work shall be considered incidental to New PCC Sidewalk and New Type 2D Curb.

Median (@ Sta. 93+49± to @ Sta. 93+71±)
Reconstruct Type 2D Curb.

CURVE	STATIONING TO BEGIN CURVE	OFFSET	CURVE DATA				
			Δ	R	T	C	Lc
③	@ Sta. 93+63.50	8.63' Lt.	161°27'54.73"	8.79'	53.87'	17.35'	24.77'
④	@ Sta. 101+83.69	8.18' Rt.	135°53'20.98"	3.77'	9.31'	6.99'	8.94'

② See HECO Notes No. 12 # 28 on Plan Sheets Nos. ADD. 4S-1 and ADD. 4S-2.

@ Sta. 104+09± Lt. to @ Sta. 106+55± Lt.
Construct extension of left turn lane with New Type 2D Curb. For pavement details, see Plan Sht. No. 8. Removal of existing curb shall be considered incidental to New Type 2D Curb.



@ Sta. 95+90± Rt. to @ Sta. 96+80± Rt.
@ Sta. 98+70± Rt. to @ Sta. 99+30± Rt.
@ Sta. 100+20± Rt. to @ Sta. 101+00± Rt.
@ Sta. 104+60± Rt. to @ Sta. 106+10± Rt.
Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 94+50± Rt. to @ Sta. 99+60± Rt.
@ Sta. 100+30± Rt. to @ Sta. 100+95± Rt.
@ Sta. 101+23± Rt. to @ Sta. 101+80± Rt.
Reconstruct Type 2DG Curb & Gutter. Match new curb and gutter into existing curb and gutter.

@ Sta. 97+30± Rt. to @ Sta. 100+35± Rt.
Construct extension of left turn lane with New Type 2D Curb. For pavement details, see Plan Sht. No. 8. Removal of existing curb shall be considered incidental to New Type 2D Curb.

@ Sta. 100+95± Rt. to @ Sta. 101+23± Rt.
Reconstruct Concrete Driveway. For details, see standard plan D-06 and Plan Sheet No.13.

@ Sta. 99+60± Rt. to @ Sta. 100+30± Rt.
Construct New P.C.C. Bus Pad with Modified Type 2DG Curb and Gutter. For details, see Plan Sheet No.16.

Median (@ Sta. 103+90± Rt. to @ Sta. 108+90± Rt.)
Reconstruct Type 2D Curb. Match new curb into existing curb ramp.

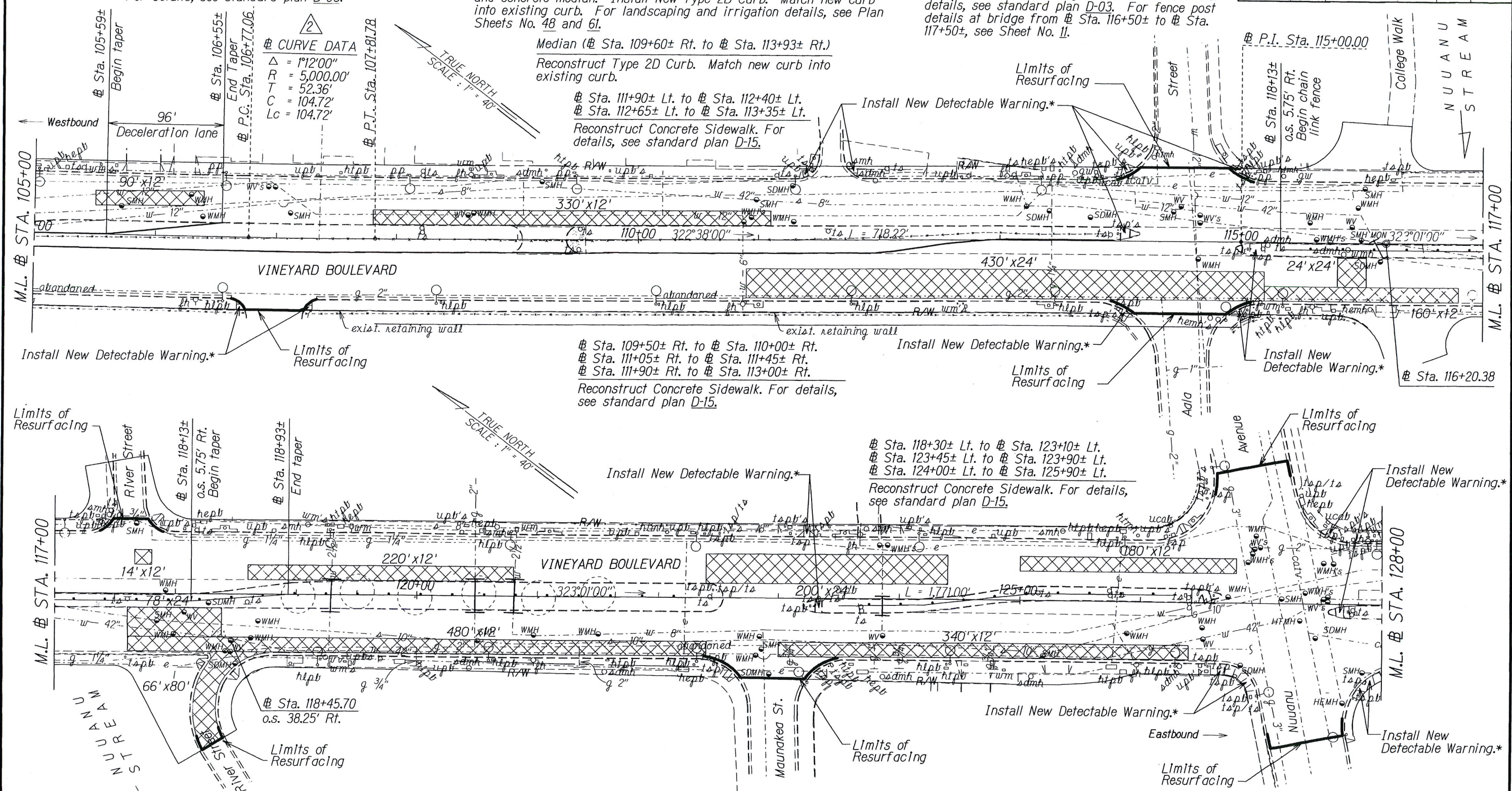
2/12/2013	Added Vineyard Blvd. Baseline Curve Data and HECO lines, and revised median curve data and note.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY PLAN VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On- and Off Ramp Federal-Aid Project No. STP-098-1(011) Scale: 1"=40' Date: November, 2012	
SHEET No. 3 OF 7 SHEETS	

Median (Sta. 108+96± to Sta. 109+66±)
Replace 70 L.F. of 6' height chainlink fence.
For details, see standard plan D-03.

Median (Sta. 108+90± to Sta. 109+60±)
Sawcut and remove existing concrete curb, AC curb, AC pavement, and concrete median. Install New Type 2D Curb. Match new curb into existing curb. For landscaping and irrigation details, see Plan Sheets No. 48 and 61.

Median (Sta. 115+33± to Sta. 122+33±)
Install 700 L.F. of 6' height chainlink fence. For details, see standard plan D-03. For fence post details at bridge from Sta. 116+50± to Sta. 117+50±, see Sheet No. 11.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.20	64



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	

*Note: Removal and disposal of existing detectable warning mat shall be considered incidental to New Detectable Warning. For details, see Sheet No. 15.

2 LEGEND:
Verify utility crossing prior to construction. Provide 2' minimum clearance from fence post foundation.

2 Median (Sta. 123+50± to Sta. 126+30±)
Install 280 L.F. of 6' height chainlink fence. For details, see standard plan D-03.

2 2/12/2013 Added Vineyard Blvd. Baseline Curve Data, Installation of Chain Link Fence, Legend, and HECO lines.

DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

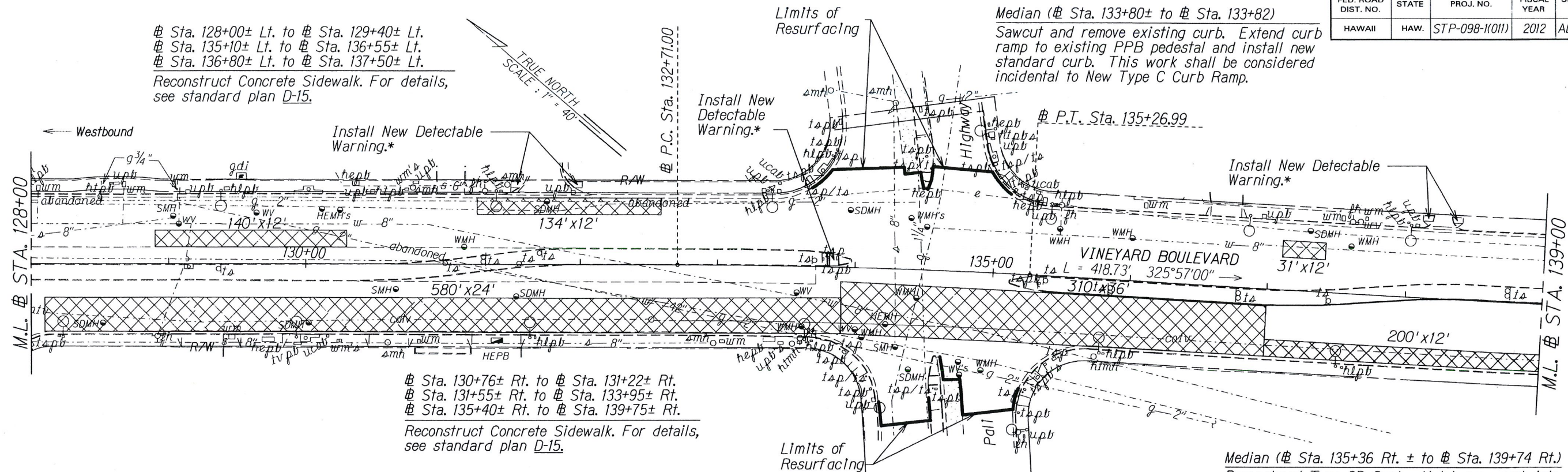
VINEYARD BOULEVARD RESURFACING
Vicinity of Palama St. to End of H-1 On- and Off-Ramp
Federal-Aid Project No. STP-098-1(011)

Scale: 1"=40' Date: November, 2012

SHEET No. 4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.21	64

@ Sta. 128+00± Lt. to @ Sta. 129+40± Lt.
 @ Sta. 135+10± Lt. to @ Sta. 136+55± Lt.
 @ Sta. 136+80± Lt. to @ Sta. 137+50± Lt.
 Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

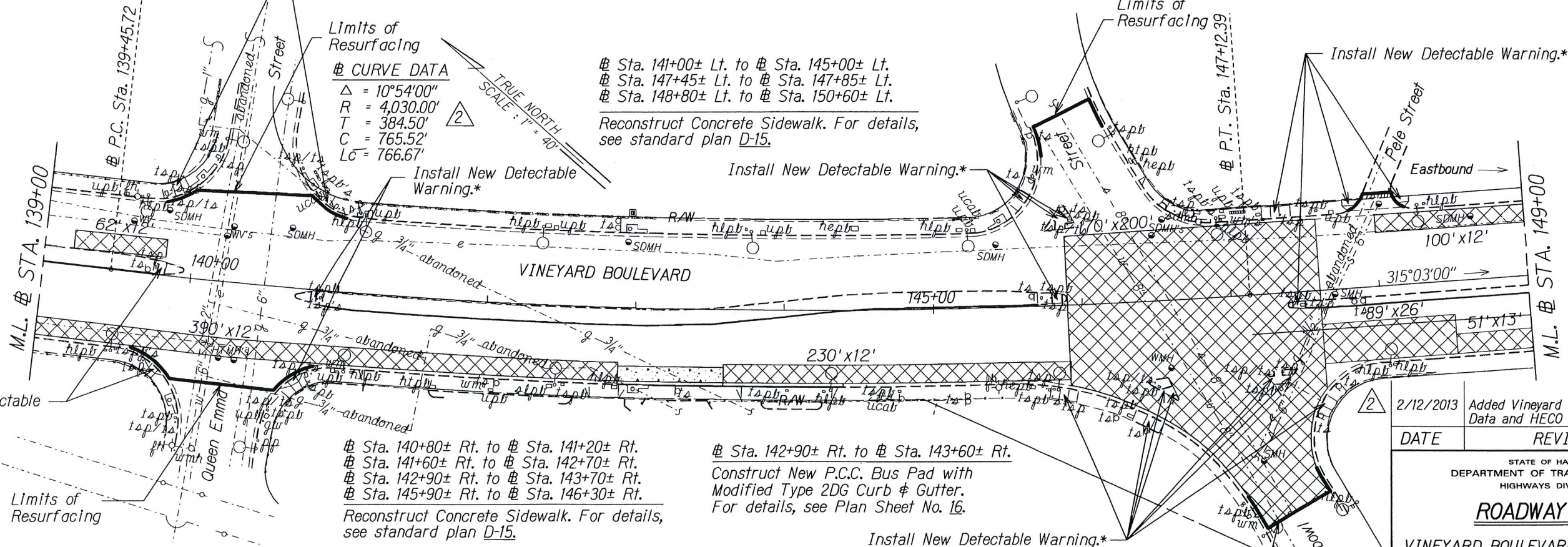


@ Sta. 130+76± Rt. to @ Sta. 131+22± Rt.
 @ Sta. 131+55± Rt. to @ Sta. 133+95± Rt.
 @ Sta. 135+40± Rt. to @ Sta. 139+75± Rt.
 Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 131+17± Rt. to @ Sta. 131+61± Rt.
 Reconstruct Concrete Driveway. For details, see standard plan D-06 and Plan Sheet No. 13.

Median @ Sta. 135+36 Rt. ± to @ Sta. 139+74 Rt.
 Reconstruct Type 2D Curb. Match new curb into existing curb.

Install New Detectable Warning.*



@ Sta. 141+00± Lt. to @ Sta. 145+00± Lt.
 @ Sta. 147+45± Lt. to @ Sta. 147+85± Lt.
 @ Sta. 148+80± Lt. to @ Sta. 150+60± Lt.
 Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 142+90± Rt. to @ Sta. 143+60± Rt.
 Construct New P.C.C. Bus Pad with Modified Type 2DG Curb & Gutter. For details, see Plan Sheet No. 16.

@ Sta. 140+80± Rt. to @ Sta. 141+20± Rt.
 @ Sta. 141+60± Rt. to @ Sta. 142+70± Rt.
 @ Sta. 142+90± Rt. to @ Sta. 143+70± Rt.
 @ Sta. 145+90± Rt. to @ Sta. 146+30± Rt.
 Reconstruct Concrete Sidewalk. For details, see standard plan D-15.

@ Sta. 143+60± Rt. to @ Sta. 144+40± Rt.
 Reconstruct Type 2DG Curb & Gutter. Match new curb and gutter into existing curb and gutter.

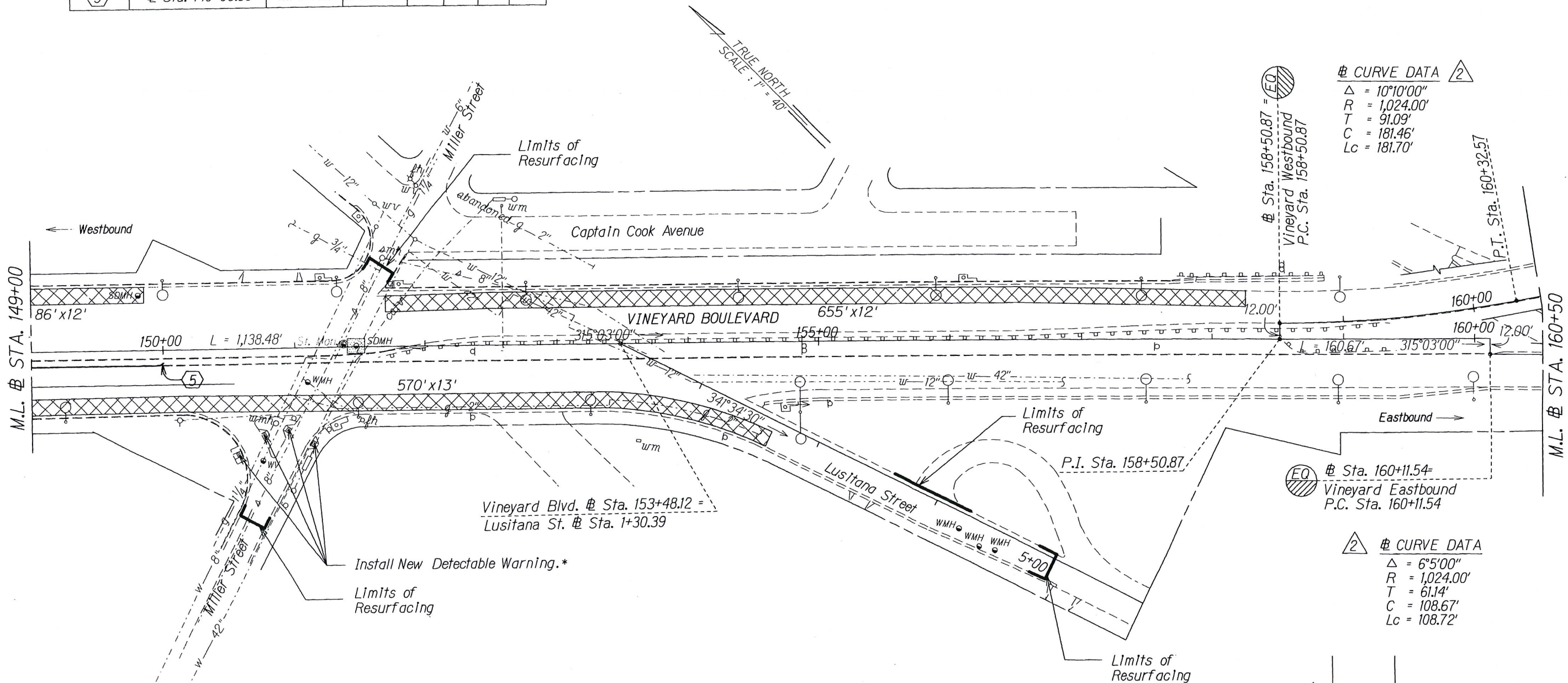
Median
 @ Sta. 140+90± Rt. to @ Sta. 145+72± Rt.
 @ Sta. 147+50± Rt. to @ Sta. 155+00± Rt.
 Reconstruct Type 2D Curb. Match new curb into existing curb.

Install New Detectable Warning.*

*Note: Removal and disposal of existing detectable warning mat shall be considered incidental to New Detectable Warning. For details, see Sheet No. 15.

2/12/2013	Added Vineyard Blvd. Baseline Curve Data and HECO lines.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY PLAN VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On- and Off-Ramp Federal-Aid Project No. STP-098-1(011) Scale: 1"=40' Date: November, 2012 SHEET No. 5 OF 7 SHEETS	

CURVE	# STATIONING TO BEGIN CURVE	OFFSET	CURVE DATA				
			Δ	R	T	C	Lc
(5)	# Sta. 149+96.36	11.74' Rt.	51°51'0.79"	5.50'	2.67'	4.81'	4.98'



DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

*Note: Removal and disposal of existing detectable warning mat shall be considered incidental to New Detectable Warning. For details, see Sheet No. 15.

2/12/2013	Added Vineyard Blvd. Baseline Curve Data and HECO lines, and revised median curve data.
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DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

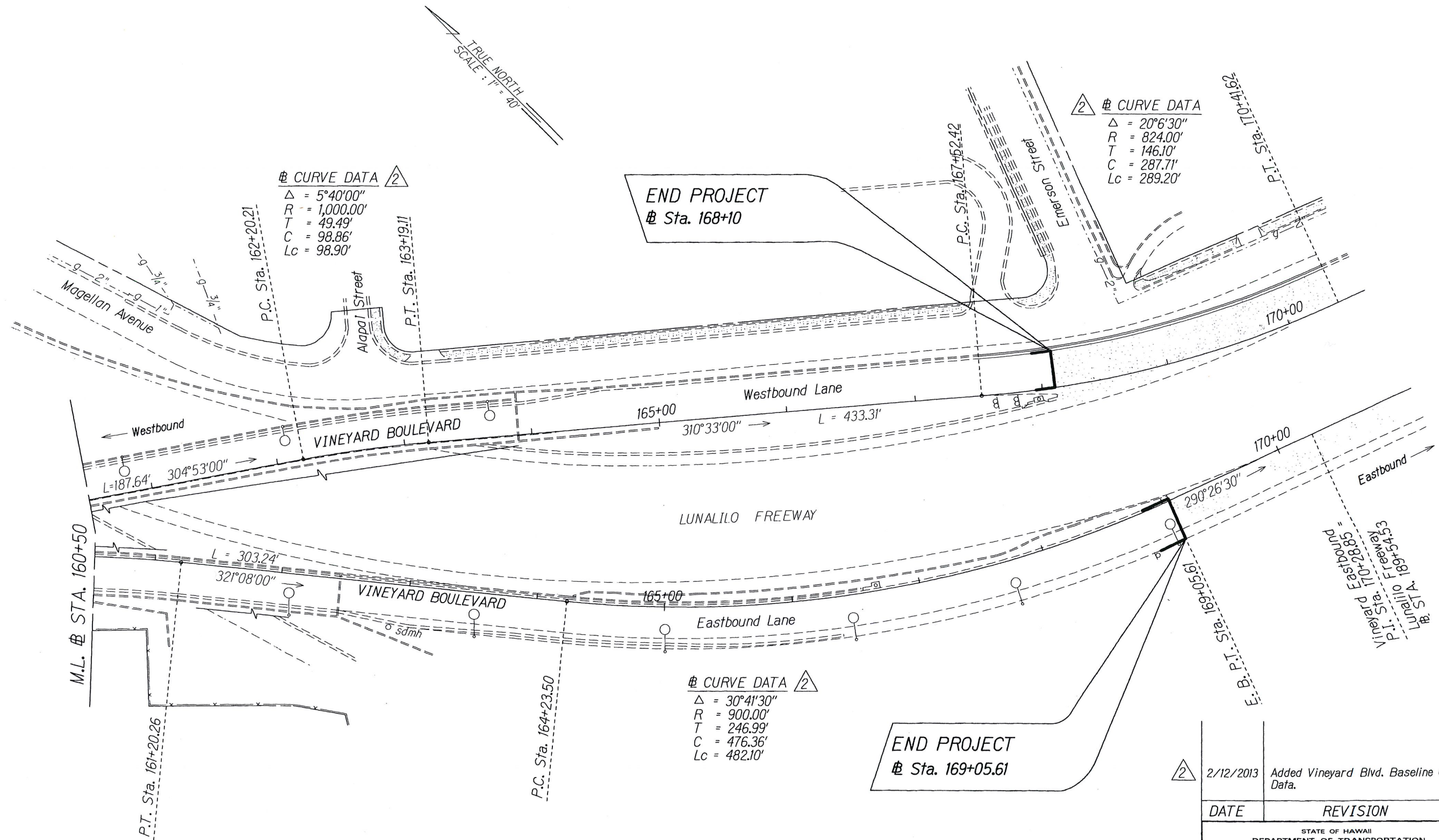
VINEYARD BOULEVARD RESURFACING
Vicinity of Palama St. to End of H-1 On- and Off-Ramp
Federal-Aid Project No. STP-098-1(011)

Scale: 1"=40' Date: November, 2012

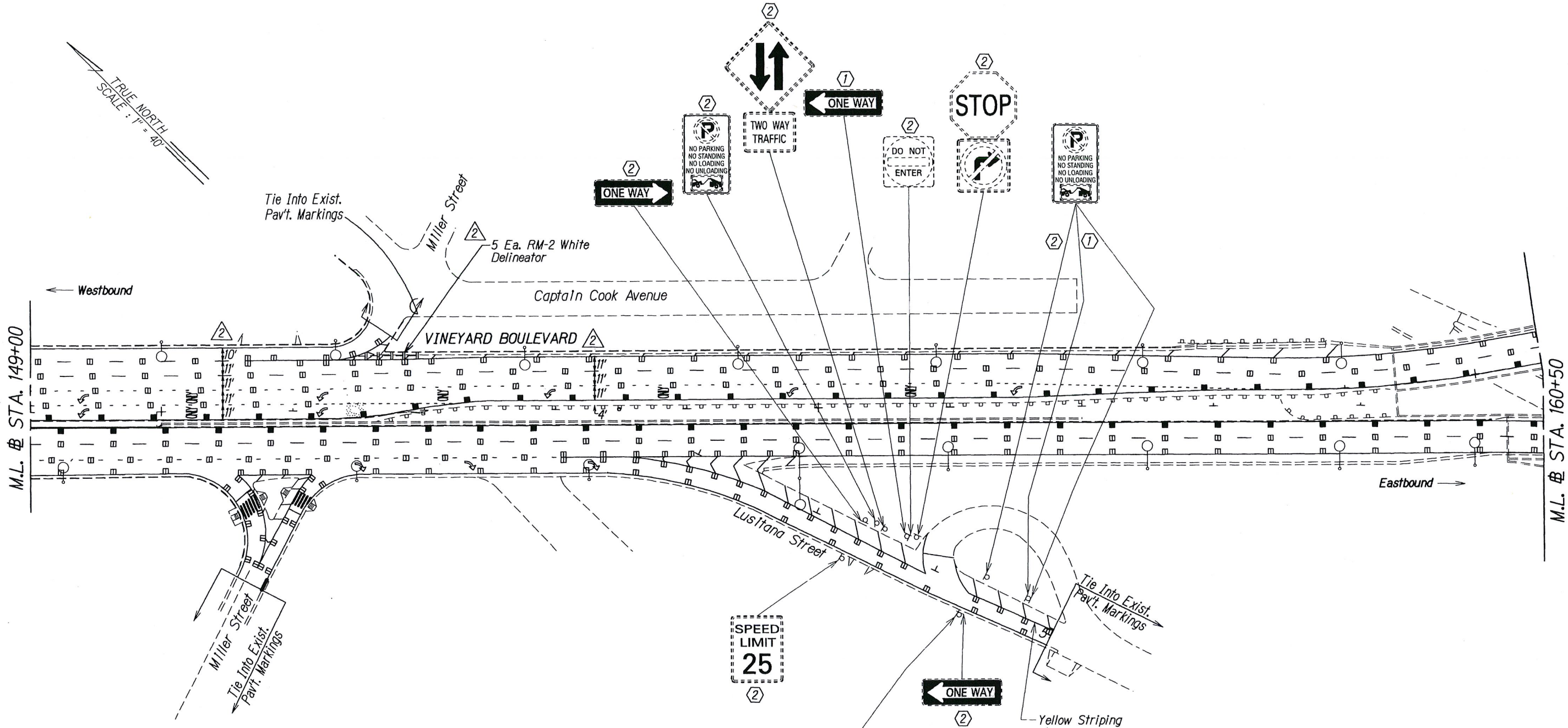
SHEET No. 6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-098-1(011)	2012	ADD.23	64

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	



2/12/2013	Added Vineyard Blvd. Baseline Curve Data.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ROADWAY PLAN	
VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On- and Off-Ramp Federal-Aid Project No. STP-098-1(011)	
Scale: 1"=40'	Date: November, 2012
SHEET No. 7 OF 7 SHEETS	



KEY:

- ① Exist. Sign(s) to Remain
- ② Exist. Sign(s) & Post(s) to Remain
- ③ Exist. Sign(s) on Exist. Hwy. Light Pole to Remain
- ④ Exist. Sign(s) on Exist. Traffic Signal Pole to Remain
- ⑤ Install New Sign(s)
- ⑥ Install New Sign(s) & Post(s)
- ⑦ Remove Exist. Sign(s)
- ⑧ Relocate Exist. Sign(s) w/ New Post(s)

②	1/31/13	Added Lane Dimensions. Added RM-2 White Delineators.
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DATE	REVISION
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION PAVEMENT MARKING & SIGNING PLAN VINEYARD BOULEVARD RESURFACING Vicinity of Palama St. to End of H-1 On- and Off Ramp Federal Aid Project No. STP-098-1(011) Scale: 1"=40' Date: March 2012

SHEET No. 77 OF 20 SHEETS

ADD. 30

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

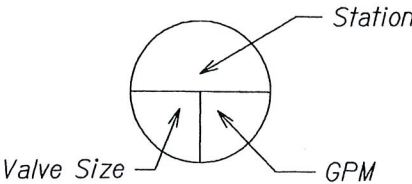
IRRIGATION NOTES:

- Contractor shall install controllers, lines, wires, valves and heads per specifications. Existing gate valves, point of connection, etc. are derived from the best available information and on-site inspection. The Contractor shall verify those points of connection noted and report any discrepancies to the Engineer.
- This plan is diagrammatic. Irrigation system is subject to field adjustments due to unanticipated site conditions. Locate all mainlines, laterals, valves and sprinkler heads within planting areas, unless otherwise noted. Place mainline in planting areas where no sleeves are shown. Avoid any conflict between underground utilities, structures and plantings. The Contractor shall be responsible for locating and protecting all existing utilities.
- This irrigation system was designed with a minimum static water pressure of 75 psi at the point of connection. Notify the Project Engineer if water pressure is less than 50 psi or greater than 100 psi.
- Contractor shall secure all necessary permits and observe all local codes and regulations. The Contractor shall confirm all site's dimensions and conditions, and report any discrepancies to the Engineer.
- Contractor shall coordinate the installation of all sleeves, conduits, mainlines and laterals under pavement and through walls. Contractor shall assure that these items are laid prior to placement of pavement or wall structures.
- Locate and install all sprinkler heads 6" from sidewalks, curbs, driveways, building and wall unless otherwise noted. Adjust all sprinkler heads and flow control for maximum coverage and minimum overthrow and misting. Operate only one valve at a time per controller.
- Within 30 days after award of the contract, submit for the Engineer's acceptance six (6) copies of detailed scaled drawings and wiring diagrams for permanent. No proposed deviations from the contract. Include samples of materials, if required by contract.
- Perform hydrostatic test by applying continuous static pressure of 60 psi for one (1) hour. Notify the Engineer at least three (3) days in advance of test. Repair leaks that develop and repeat test. Do not backfill until there is no further sign of leakage.
- Perform operability test by opening remote control valve and test circuits for leaks around barbed and threaded PVC fittings. Repair leaks and repeat tests. Notify the Engineer at least three (3) days in advance of test. Do not backfill until there is no further sign of leakage.
- Perform coverage test. Before planting period, run automatic controller through all its cycles. Check watering for coverage and uniformity in company of the Engineer. Run system until there are puddles or there is sheet flow to determine initial irrigation time and number of cycles per week needed to water requirements of plants.
- If plans do not specify depth of excavation, provide minimum cover to finish grade as follows:
 - 18 inches for irrigation main.
 - 10 inches for irrigation lateral.
 - for controller wires and conduits in unpaved areas, depth equal to that of pressure irrigation pipe.
- All valve boxes shall be plastic rectangular Valve Boxes with cover. All valve box covers shall be Cast Iron covers. Plastic valve boxes will not be accepted.
- Contractor at final acceptance to program all controllers with 3 programs for maximum water conservation - Dry Season Program, Wet Season Program, and Transition Season Program.
- The new trees should be watered with water bag system.

IRRIGATION SCHEDULE:

SYMBOL	QUANTITY	DESCRIPTION	P.S.I.	RADIUS	G.P.M.
	152	Rainbird 6" Pop-Up 1806-SAM-PRS-UI0H	30	10'	0.82
	14	Rainbird 6" Pop-Up 1812-SAM-PRS-5H-B	50	5'	1.0
	143	Rainbird 6" Pop-Up 1806-SAM-PRS-UI2H	30	12'	1.30
	54	Rainbird 12" Pop-Up 1812SAM-PRS-U8H	30	8'	0.52
	3	Rainbird 100-GB-PRS-D w/actuator and plastic adapter (1")			
	3	Rainbird 125-GB-PRS-D w/actuator and plastic adapter (1 1/4")			
	1	Rainbird 150-GB-PRS-D w/actuator and plastic adapter (1 1/2")			
	3	Rainbird 200-GB-PRS-D w/actuator and plastic adapter (2")			
	3	Rainbird 44-RC 1" quick coupler valve w/Leemco Stabilizer LS-120. Provide a minimum of one per median island			
	3	2" Reduced pressure principle backflow preventer Wilkins model 975XL-2 with Wilkins model 600 pressure reducing valve on downpipe in security enclosure Strongbox SBBC-45SS			
	3	2" U.S. Bronze Nibco T-113-2" Gate Valve			
	3	DIG LEIT 4 Station Solar Controller Model 4004 in Stainless Steel Security Enclosure ENC 4000 with Rain Sensor Hunter Model Miniclik in Stainless Steel Security Enclosure with Sensor Kit Skit8821. Controller on Mounting Column MC0L4000.			
		Main Line PVC Irrigation Type			
		Lateral Line PVC Irrigation Pipe			

LEGEND:



2	1/29/13	Revised Irrigation Note No. 12.
	DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
IRRIGATION DETAILS & NOTES		
VINEYARD BOULEVARD RESURFACING		
Vicinity of Palama Street to End of H-1 On-and-off Ramp		
Federal-Aid Project No. STP-098-1(011)		
Not to Scale Date: November, 2012		
SHEET No. 1 OF 8 SHEETS		