STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 2	35

STANDARD PLAN NO.	TITLE	DATE
B-01	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
	CAN DETAILS	
B-12A	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
	SPLICE CAN DETAILS & NOTES	
B-12B	PILE INTERACTION DIAGRAM	05/31/07
B-13	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07

D-01	CATTLE GATE	05/31/07
D-02	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04	WIRE FENCE WITH METAL POSTS	05/31/07
D-05	TYPICAL DETAILS OF CURBS AND/OR GUTTERS	05/31/07
D-06	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08	STREET SURVEY MONUMENT	05/31/07
D-15	CONCRETE SIDEWALK	05/31/07
D-16	P.C.C. BUS PAD	05/31/07
D-17	P.C.C. BUS PAD	05/31/07
D-18	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23	JOINTS	05/31/07

L-01	TREE PLANTING	08/16/06
L-02	TREE PLANTING	08/16/06
L-03	TREE TRANSPLANTING	08/16/06
L-04	PALM PLANTING	08/16/06
L-05	SHRUB PLANTING	08/16/06
L-06	LANDSCAPE DETAILS	08/16/06
L-07	LANDSCAPE DETAILS	08/16/06
L-08	LANDSCAPE DETAILS	08/16/06
L-09	LANDSCAPE DETAILS	08/16/06
L-10	LANDSCAPE DETAILS	08/16/06
L-11	PLANTING NOTES	08/16/06
L-12	IRRIGATION DETAILS	08/16/06
L-13	IRRIGATION DETAILS	08/16/06
L-14	IRRIGATION DETAILS	08/16/06
L-15	IRRIGATION DETAILS	08/16/06
L-16	IRRIGATION DETAILS	08/16/06
L-17	IRRIGATION DETAILS	08/16/06
L-18	IRRIGATION DETAILS	08/16/06
L-19	IRRIGATION DETAILS	08/16/06
L-20	IRRIGATION DETAILS	08/16/06
L-21	IRRIGATION DETAILS	08/16/06
L-22	IRRIGATION DETAILS	08/16/06
L-23	IRRIGATION DETAILS	08/16/06
L-24	IRRIGATION NOTES	08/16/06

STANDARD PLAN NO.	TITLE	DATE
H-01A	TYPE A CATCH BASIN	05/31/07
H-01B	TYPE B CATCH BASIN	05/31/07
H-01C	TYPE C CATCH BASIN	05/31/07
H-01D	TYPE D CATCH BASIN	05/31/07
H-01E	CATCH BASIN SECTIONS	05/31/07
H-02A	TYPE A1 CATCH BASIN	05/31/07
H-02B	TYPE B2 CATCH BASIN	05/31/07
H-02C	TYPE C1 CATCH BASIN	05/31/07
H-02D	TYPE D1 CATCH BASIN	05/31/07
H-02E	CATCH BASIN SECTION	05/31/07
H-03	TYPE A,B, AND C STORM DRAIN MANHOLE	05/31/07
H-04	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-06	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	CATCH BASIN AND MANHOLE CASTINGS	05/31/07
H-08	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	TYPE A-9 AND A-9P STEEL GRATES	05/31/07
H-12	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL	05/31/07
	FRAME AND GRATES	
H-16	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME	05/31/07
	AND GRATES	
H-17	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	TYPE 61214P STEEL GRATES	05/31/07
H-19	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	INLET/OUTLET STRUCTURE	05/31/07
H-23	INLET/OUTLET STRUCTURE	05/31/07
H-24	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	CONCRETE SPILLWAY INLET	05/31/07
H-27	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07

TE-01	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A	SIGN INSTALLATION	07/11/08
TE-02A	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04	REGULATORY SIGNS	07/11/08
TE-05	WARNING SIGNS	07/11/08
TE-06	MISCELLANEOUS SIGNS	07/11/08
TE-07 ●	CONSTRUCTION SIGNS	07/11/08
TE-08	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-09	BIKE ROUTE SIGN & SUPPLEMENTARY PLATES	07/11/08
TE-10	INTERSTATE ROUTE MARKER	07/11/08
TE-11	STATE ROUTE MARKER AND AUXILIARY MARKERS	07/11/08
TE-12	STATE ROUTE MARKER AND BORDER DETAIL FOR	07/11/08
	GUIDE SIGNS	
TE-12A	ROUTE SIGN ASSEMBLIES	07/11/08
TE-13	STREET NAME SIGN ON MAST ARM	07/11/08
TE-14 ●	MISCELLANEOUS REFLECTOR MARKERS	07/11/08
TE-15 ●	OBJECT MARKERS	07/11/08
TE-16 ●	MILE POSTS	r01/27/17
TE-17A	CANTILEVER OVERHEAD SIGN ELEVATION & DETAILS	05/31/07
TE-17B	CENTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	CENTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	CENTILEVER SIGN FRAME DETAILS	05/31/07
TE-18A	TWO POST OVERHEAD SIGN FRAME ELEVATIONS	05/31/07
TE-18B	TWO POST SIGN FRAMING PLAN SECTION	05/31/07
TE-18C	TWO POST SIGN FRAMING SECTIONS AND DETAILS	05/31/07
TE-18D	TWO POST SIGN FRAME DETAILS	05/31/07
TE-18E	TWO POST SIGN FRAME DETAILS	05/31/07
TE-19A	OVERHEAD SIGN FRAMING SCHEDULE	05/31/07
TE-19B	SIGN POST DRILLED SHAFT FOUNDATION	05/31/07
TE-19C	SPREAD FOOTING	05/31/07
TE-19D	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.1	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.2	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.3	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.4	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.5	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19E	ANCHORAGE DETAILS	05/31/07
TE-19F	ANCHORAGE DETAILS	05/31/07
TE-19G	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-19H	LUMINAIRE WALKWAY SUPPORT	05/31/07
TE-19J	FIXED MESSAGE LUMINAIRE SUPPORT	05/31/07
TE-19K	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19L	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19M	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-20	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20A	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20B	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20C	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-21A	SIGN BREAKAWAY MOUNTS	05/31/07
TE-21B	SIGN BREAKAWAY MOUNTS	05/31/07
TE-22	LAMINATED ALUMINUM SIGN PANELS (OVERHEAD)	05/31/07
TE-23	LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)	07/11/08
TE-24	SOLID ALUMINUM EXTRUDED SIGN PANEL AND	05/31/07
	ACCESSORY DETAILS	
TE-25	GUIDE SIGNS LUMINAIRE MOUNTINGS	05/31/07
TE-26	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-27	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-28	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A	MISCELLANEOUS PAVEMENT MARKINGS	07/11/08
TE-29	PAVEMENT ARROWS AND SYMBOLS	07/11/08
TE-30	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-31	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08
TE-32	TYPE I & II TRAFFIC SIGNAL SYSTEM MISC. DETAILS	05/31/07
TE-33	TYPE II TRAFFIC SIGNAL SYSTEM	08/16/06
TE-33A.1	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-33A.2	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-34	LOOP DETECTOR DETAILS	07/11/08
TE-35	LOOP DETECTORS & DUCT DETAILS	07/11/08
TE-36	TRAFFIC SIGNAL DETAILS	07/11/08
TE-37	PULLBOX & COVER DETAILS	07/11/08
TE-37A	TYPE "A" TRAFFIC PULLBOX	05/31/07
TE-37B	TYPE "A" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37C	TYPE "B" TRAFFIC PULLBOX	05/31/07
TE-37D	TYPE "B" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37E	TYPE "B" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37F	TYPE "C" TRAFFIC PULLBOX	05/31/07
TE-37G	TYPE "C" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37H	TYPE "C" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37J	TRAFFIC PULLBOX COVER AND DETAILS	05/31/07
TE-38	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.1	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.2	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-39	METAL GUARDRAIL CONNECTION TO CONCRETE BARRIER	07/11/08
TE-40	CONCRETE BARRIER TRANSITION	05/31/07
TE-40A	CONCRETE BARRIER TRANSITION SECTIONS	05/31/07
TE-41	GUARDRAIL TYPE 4 (RIGID BARRIER)	05/31/07
TE-42	PORTABLE CONCRETE BARRIER	05/31/07
TE-43	PORTABLE CONCRETE BARRIER	05/31/07
TE-44	GUARDRAIL TYPE 4 MISCELLANEOUS DETAILS	07/11/08
TE-45	BARRICADES	07/11/08
TE-46	DELINEATION & PAVEMENT MARKINGS AT NARROW BRIDGES	07/11/08
TE-47	HIGHWAY LIGHT STANDARD	05/31/07

NOTE:

STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A " ● " NEXT TO THE STANDARD PLAN NO. (FOR EXAMPLE: D-07 ●)

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

Omaopio Road to Sun Yat Sen Park

Federal-Aid Project No. STP-037-1(027)

Date: October, 2018

SHEET No. 1 OF 1 SHEETS

ADD. 2

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY X DATE 10/16
TRACED BY
DESIGNED BY alex r.
NOTE BOOK alex r.
QUANTITIES BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 3	35

GENERAL NOTES

1. The project includes installation of 1½ inch hot mix asphalt pavement under and behind guardrail, replace existing no MASH compliant terminal and reset guardrail post.
2. The Contractor's attention is directed to the following Sections Special Provisions: Section 107.13 - Public Convenience and Safety; Subsection 107.21 - Contractor's Responsibility for Utility Property and Services and Section 645 - Traffic Control.
3. 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.
4. Dressing of shoulder shall consists of clearing, grubbing, grading, reshaping, and compacting the unpaved shoulders with suitable excavated materials as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items.
5. All construction signs shall be left in place until all construction items have been completed. Contractor shall obtain prior approval from the Engineer to remove construction signs.
6. All lanes shall be open to traffic during the morning peak hours from 6:00 a.m. to 8:00 a.m. during afternoon peak hours from 4:00 p.m. to 6:00 p.m. off work hours. Only one lane of highway shall be closed at any other time.
7. The Contractor shall not leave more than 1½" drop-off at the edge of pavement, at the end of each work day. Whenever the Contractor leaves a 1½" drop-off, the Contractor shall install delineators and barricades along the edge of the pavement. This work, which includes furnishing, installing, cleaning, maintaining correct placement and removing when required, shall be considered incidental to various contract items.
8. 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.
9. The Contractor shall provide for access to and from all existing sideroads at all times.
10. The Contractor shall construct shoulder and install guardrail only one side at a time.
11. All new and existing guardrail paved in front, under, beyond and front of end terminals. Prior to installing HMA IV, level and remove vegetation and compact existing ground. Refer to Plan Sheet 7.
12. New end treatments shall be MASH compliant. Contractor will be required to submit shop drawing for approval during construction.

LEGEND

- Reconstruction Areas
- Resurfacing Limits
- epb — Existing Electrical Pull Box
- e — Existing Electrical Line
- jp — Existing Joint Pole
- pp — Existing Power Pole
- emh — Existing Electric Manhole
- t — Existing Telephone Line
- tp — Existing Telephone Pole
- tmh — Existing Telephone Manhole
- w — 12 — Existing 12" Water Line
- wmh — Existing Water Manhole
- av — Existing Water Air Valve
- wv — Existing Water Valve Box
- wm — Existing Water Meter
- fh — Existing Fire Hydrant
- sp — Existing Standpipe
- s — 12 — Existing Sewer Line
- smh — Existing Sewer Manhole
- mon. — Existing Monument
- d - 24 - — Existing 24" Drain Line
- dmh — Existing Storm Drain Manhole
- gdi — Existing Grated Drop Inlet
- cb — Existing Catch Basin
- Existing Traffic Sign
- New Traffic Sign
- New Traffic Sign With 2 Posts
- Existing Street Light
- Existing Metal Guardrail
- New Metal Guardrail

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES & LEGEND

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

Omaopio Road to Sun Yat Sen Park

Federal-Aid Project No. STP-037-1(027)

Date: September, 2018

SHEET No. 1 OF 1 SHEETS

ADD. 3

ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 4	35

WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

1. See Special Provisions Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.

2. Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.

3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.

4. The Engineer may assess liquidated damages of up to $27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.

5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.

6. If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.

7. Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 30 calendar days of contract execution. The Site-Specific BMP Review Checklist may be obtained from http://www.stormwaterhawaii.com.

B. WASTE DISPOSAL:

1. Waste Materials
Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form for Construction Sites to the Engineer within 30 calendar days of contract execution. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.

2. Hazardous Waste
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

3. Sanitary Waste
Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. For projects with an NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.

2. For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.

3. Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.

4. Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.

5. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.

6. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.

7. Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.

8. Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling material from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.

9. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

10. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

11. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 2/10/14
	DRAWN BY X	
NOTE BOOK dd.x Xdgn	TRACED BY	
	DESIGNED BY X	
No. Xdgn	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

Omaopio Road to Sun Yat Sen Park

Federal-Aid Project No. STP-037-1(027)

Date: September, 2018

SHEET No. 1 OF 3 SHEETS

ADD. 4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 5	35

WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

12. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.

13. For projects with an NPDES Permit for Construction Activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the SWPPP.

14. For projects without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan
   a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete	Cleaning Solvents
Detergents	Wood
Paints (enamel and latex)	Masonry Block
Metal Studs	Herbicides and Pesticides
Tar	Curing Compounds
Fertilizers	Adhesives
Petroleum Based Products	

   b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
   c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
   d. Keep products in their original containers with the original manufacturer's label.
   e. Do not mix substances with one another unless recommended by the manufacturer.
   f. Whenever possible, use a product up completely before disposing of the container.
   g. Follow manufacturer's recommendations for proper use and disposal.
   h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan
   a. Keep products in original containers unless they are not resealable.
   b. Retain original labels and Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS).
   c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan
   The following product specific practices shall be followed onsite:

   a. Petroleum Based Products:
      Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.

   b. Fertilizers:
      Apply fertilizers used only in the minimum amounts recommended by the manufacturer and federal, state, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth. Once applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

   c. Paints:
      Seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or State waters. Dispose properly according to manufacturers' instructions and State and local regulations.

   d. Concrete Trucks:
      Washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or State waters. Do not discharge water in the drainage system or State waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the Engineer.

4. Spill Control Plan
   a. Post a spill prevention plan to include measures to prevent and clean up each spill.
   b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the Engineer and in the office trailer onsite.
   c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.
   d. Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.
   e. Clean up all spills immediately after discovery.
   f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

   g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the Engineer as soon as the Contractor has knowledge of the discharge. The Engineer will notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at 586-4309, and the Hawaii State Hospital Operator at 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES

KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Date: September, 2018

SHEET No. 2 OF 3 SHEETS

ADD. 5

ORIGINAL PLAN
SURVEY PLOTTED BY _____ DATE 2/10/14
DRAWN BY X
TRACED BY
DESIGNED BY X
NOTE BOOK
QUANTITIES BY
CHECKED BY
d:\x
No. X.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 6	35

WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

E. PERMIT REQUIREMENTS:

1. The calculated land disturbance area for this project based on the construction plans is 0.00 acres not including Contractor Staging and Storage areas. If the total of the disturbed area and the Contractor Staging and Storage area is one acre or greater, the Contractor shall obtain the NPDES Construction Activities Permit using HDOT's latest SWPPP template. See Hawaii Administrative Rules Chapter 11-55, Appendix C for the definition of land disturbance. The Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit and complying with the requirements of HAR 11-55 including, but not limited to:

   a. Deadlines for initiating and completing initial stabilization
   b. Increased inspection frequency and installation of rain gage if applicable
   c. Deadlines to initiate and complete repairs to BMPs
   d. Reporting requirements and corrective action reports

2. Comply with all applicable State and Federal Permit conditions. Permits may include, but not limited to the following:

   a. NPDES Permit for Construction Activities

   b. NPDES Permit for Construction Dewatering

   c. NPDES Permit for Hydrotesting Waters

   d. Water Quality Certification

   e. Stream Channel Alteration Permit

   f. Section 404 Army Corps of Engineer Permit

F. SITE-SPECIFIC BMP REQUIREMENTS:
Each BMP below is referenced to the corresponding section of the current HDOT Construction Best Management Practices Field Manual and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at http://www.stormwaterhawaii.com/resources under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at http://stormwaterhawaii.com/contractors/contractors_BMPmanual.aspx under Concrete Curing and Irrigation Water.

The requirements for Water Pollution, Dust, and Erosion Control submittals are included in Section 209 of the Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions. A list of pollutant sources and corresponding BMP used to mitigate the pollutants are included in Section 209 of the Special Provisions under Appendix A.

Follow the requirements below:

1. Protect all Drainage Inlets receiving runoff from disturbed areas (SC-2).

2. Contain on-site runoff using Perimeter Sediment Controls
   a. SC-1 Silt Fence
   b. SC-5 Vegetated Filter Strips and Buffers
   c. SC-8 Compost Filter Berm
   d. SC-13 Sandbag Barrier
   e. SC-14 Brush or Rock Filter

3. Control offsite runoff from entering construction area
   a. EC-8 Run-On Diversion
   b. SC-6 Earth Dike
   c. SC-7 Temporary Drains and Swales

4. Incorporate applicable Site Management BMP
   a. SM-1 Employee Training
   b. SM-2 Material Delivery and Storage
   c. SM-3 Material Use
   d. SM-4 Protection of Stockpiles
   e. SM-6 Solid Waste Management
   f. SM-7 Sanitary/Septic Waste Management
   g. SM-9 Hazardous Waste Management
   h. SM-10 Spill Prevention and Control
   i. SM-11 Vehicle and Equipment Cleaning
   j. SM-12 Vehicle and Equipment Maintenance
   k. SM-13 Vehicle and Equipment Refueling
   l. SM-14 Scheduling
   m. SM-15 Location of Potential Sources of Sediment
   n. SM-16 Preservation of Existing Vegetation
   o. SM-18 Dust Control

5. Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (EC-2) for all areas which exit onto a paved street. Restrict vehicle access to these points.

6. Manage Concrete Waste including installing a Concrete Washout Area (SM-5) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).

7. Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES

KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Date: September, 2018

SHEET No. 3 OF 3 SHEETS

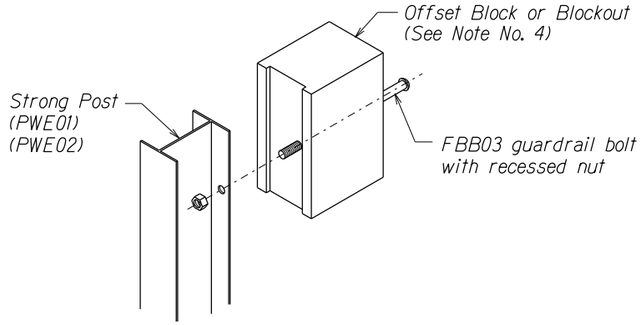
ADD. 6

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE 2/10/14
DRAWN BY X
TRACED BY
DESIGNED BY X
NOTE BOOK d6.x
QUANTITIES BY
No. X.dgn
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 7	35

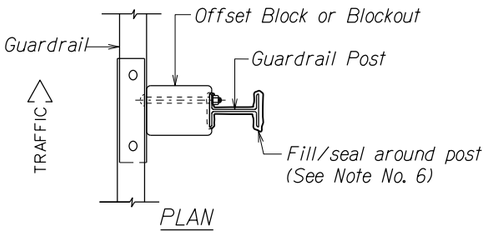
GENERAL NOTES

1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified by the Engineer.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM04b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
4. The Blockout or Offset Block shall be approved by the State.
5. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
7. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
8. Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
9. New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
10. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the guardrail system.

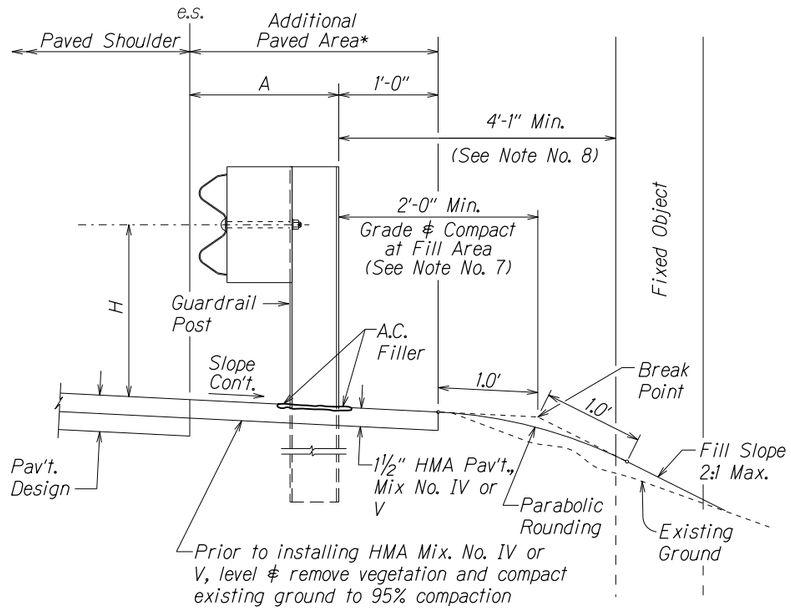


Exploded View
(Rail and washer not shown)

STEEL POST AND BLOCK DETAIL



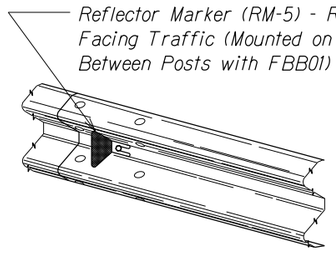
PLAN

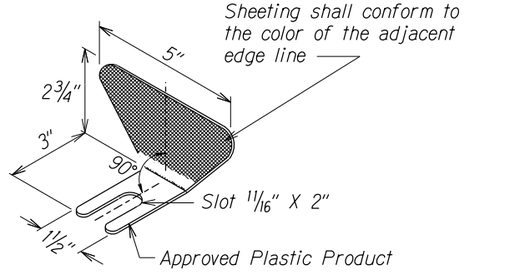


ELEVATION

TYPICAL GUARDRAIL INSTALLATION

GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ Standard 8" Offset Block	2'-1"	1'-6"
MGS w/ No Blockout	2'-7/8"	9¼"





REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: NTS Date: September, 2018

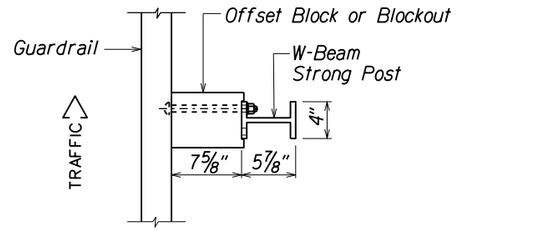
SHEET No. 1 OF 7 SHEETS

ADD. 7

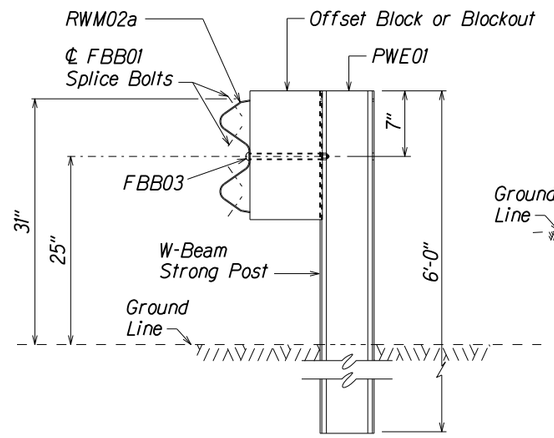
ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE ____
DRAWN BY X ____ ____
TRACED BY ____ X ____
NOTE BOOK DESIGNED BY X ____
QUANTITIES BY ____ ____
CHECKED BY ____ ____
No. ____

09/15/17 Dusr2/Ernest/Standards/Traffic Guardrail Standards/ml_te50rev.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 8	35

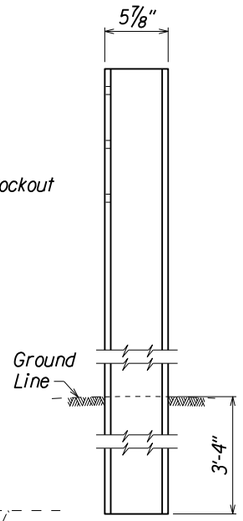


PLAN

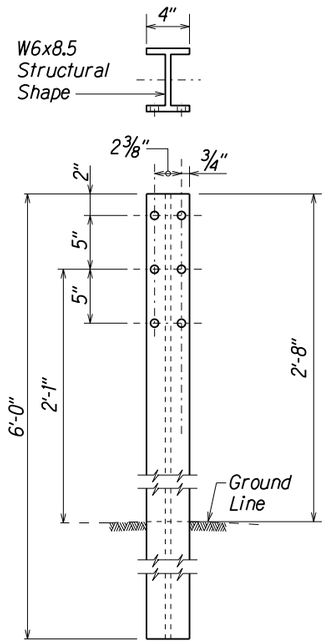


SECTION A-A

NOTE:
All Holes are 3/4" Dia.

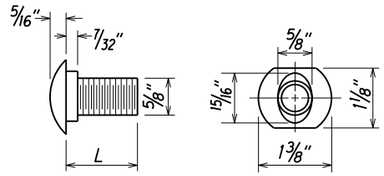


SIDE

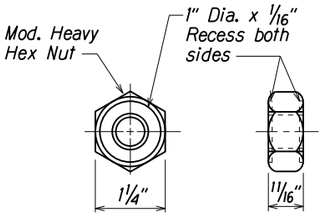


FRONT

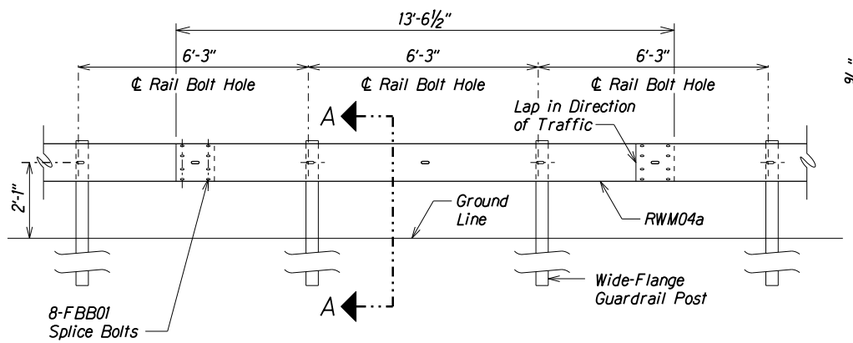
W-BEAM STRONG POST (PWE01)



DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"



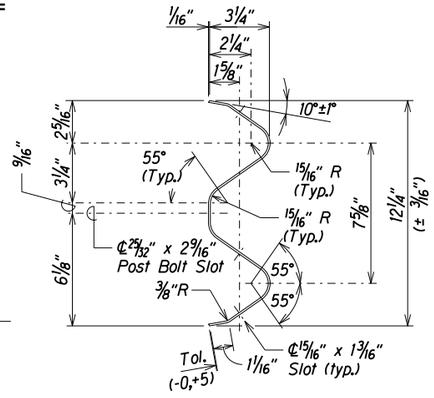
GUARDRAIL BOLTS AND RECESSED NUT

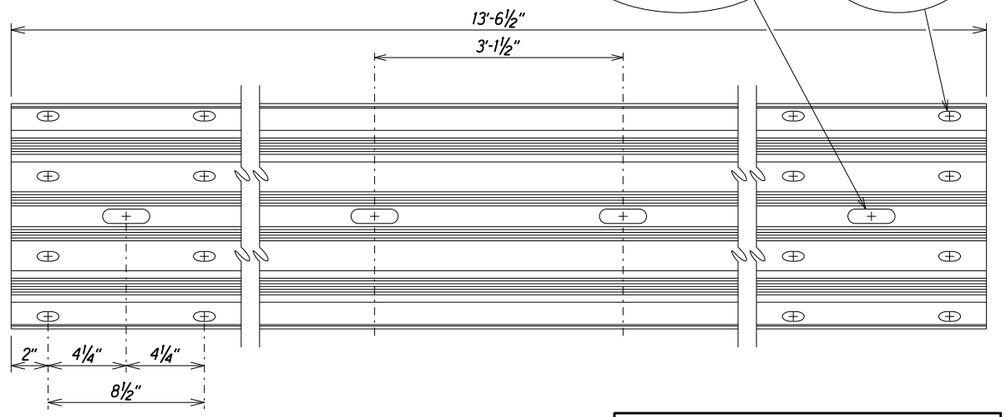


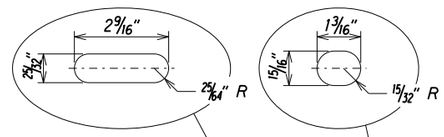
ELEVATION

MIDWEST GUARDRAIL SYSTEM WITH STANDARD 8" OFFSET BLOCK (SGR47)

DESIGNATOR	BASE METAL THICKNESS
RWM04a	12 Gauge







4 SPACE W-BEAM GUARDRAIL (RWM04a)

DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

31" W-BEAM GUARDRAIL WITH STANDARD 8" OFFSET BLOCK

KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: NTS Date: September, 2018

SHEET No. 2 OF 7 SHEETS

ADD. 8

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY X | TRACED BY | DESIGNED BY | NOTE BOOK | QUANTITIES BY | CHECKED BY | DATE | No.

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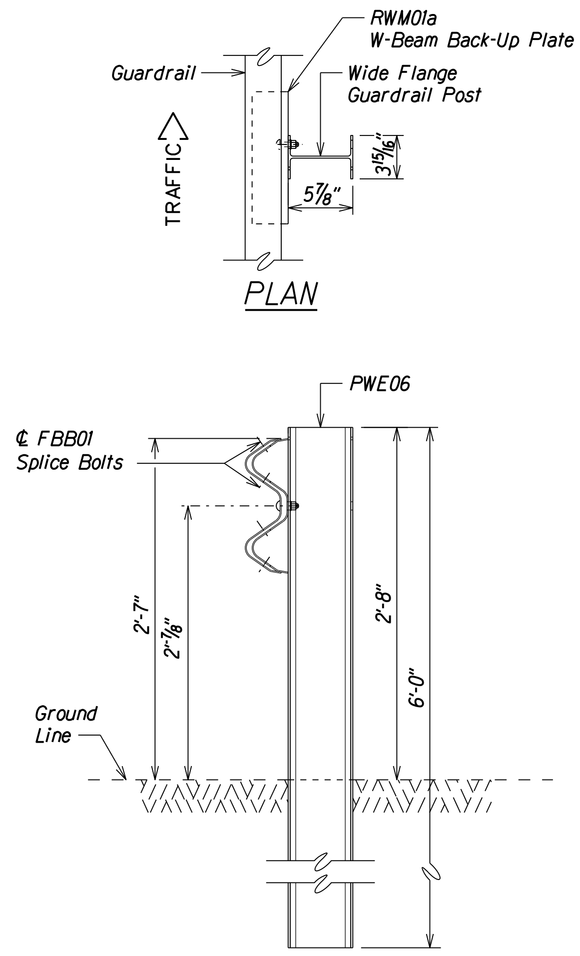
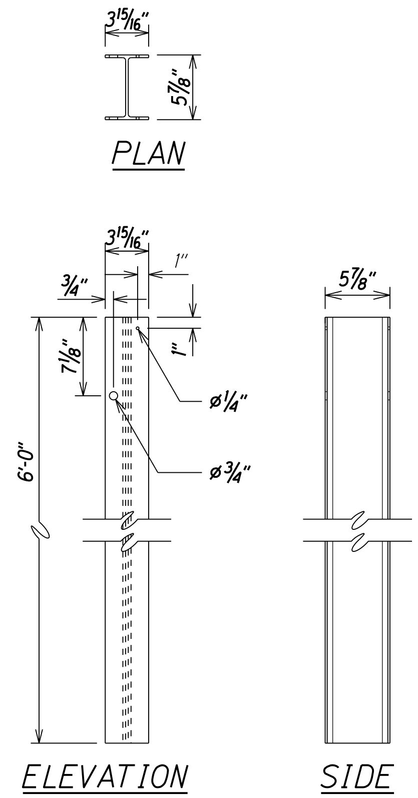
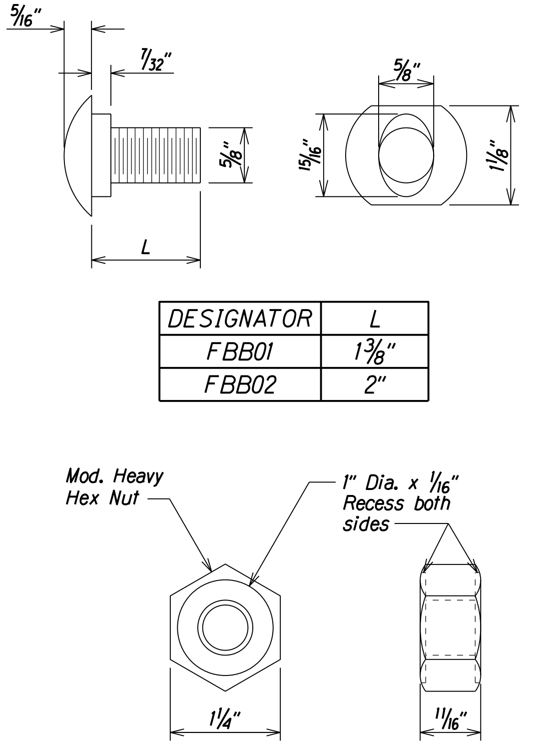
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 9	35



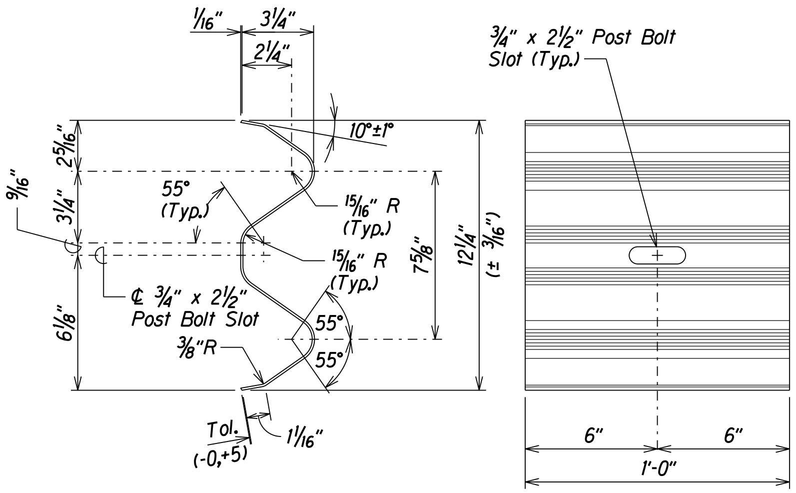


WIDE-FLANGE GUARDRAIL POST (PWE06)



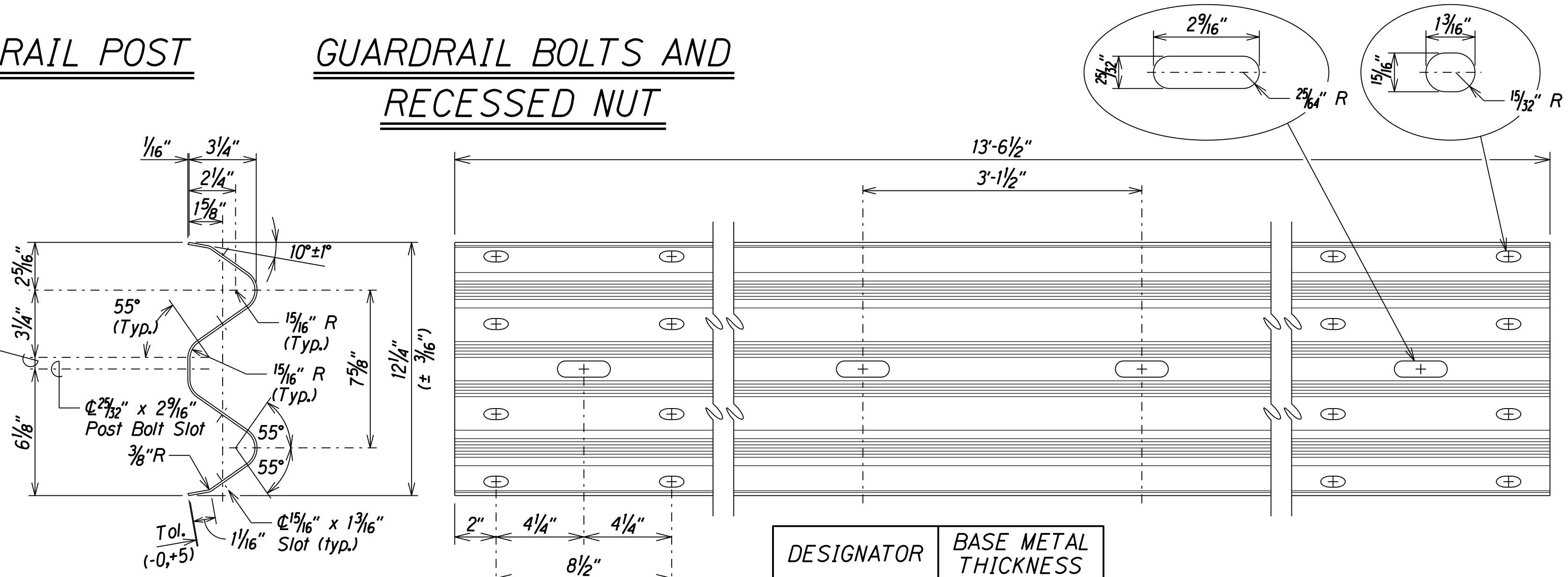
DESIGNATOR	L
FBB01	1⅜"
FBB02	2"

GUARDRAIL BOLTS AND RECESSED NUT



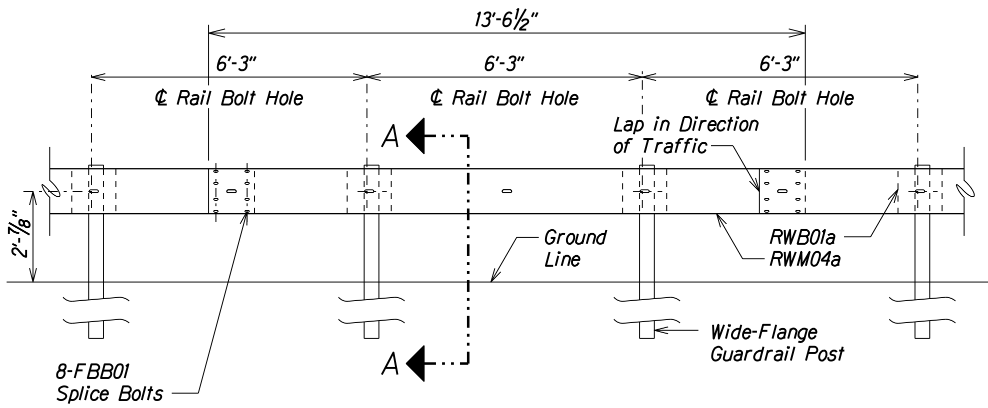
DESIGNATOR	BASE METAL THICKNESS
RWM01a	12 Gauge

W-BEAM BACK-UP PLATE (RWM01a)



DESIGNATOR	BASE METAL THICKNESS
RWM04a	12 Gauge

4 SPACE W-BEAM GUARDRAIL (RWM04a)



ELEVATION

MIDWEST GUARDRAIL SYSTEM WITH NO BLOCKOUTS (SGR41)

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MIDWEST GUARDRAIL SYSTEM WITH NO BLOCKOUTS

KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)
Scale: NTS Date: September, 2018

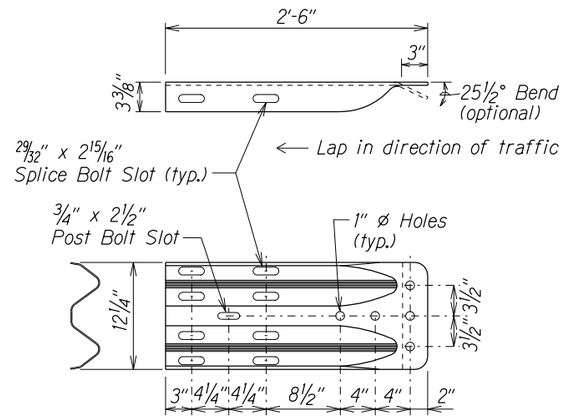
SHEET No. 3 OF 7 SHEETS

ADD. 9

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

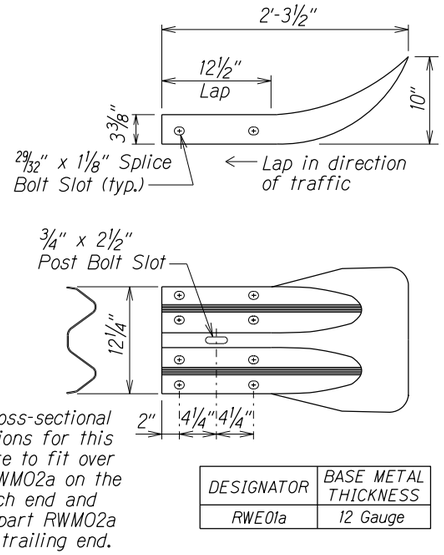
r07/28/17 Dusr2/Ernest/standards/Traffic Guardrail Standards/m3_mgswbeam2.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.10	35



DESIGNATOR	BASE METAL THICKNESS
RWE02b	10 Gauge

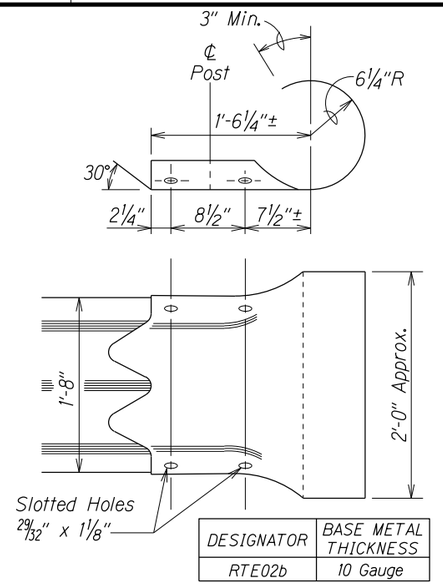
W-BEAM TERMINAL CONNECTOR (RWE02b)



The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

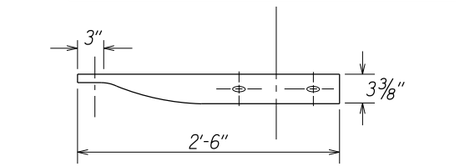
DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

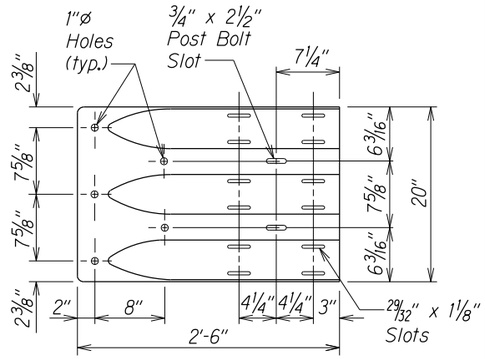
W-BEAM END SECTION (FLARED RWE01a)



DESIGNATOR	BASE METAL THICKNESS
RTE02b	10 Gauge

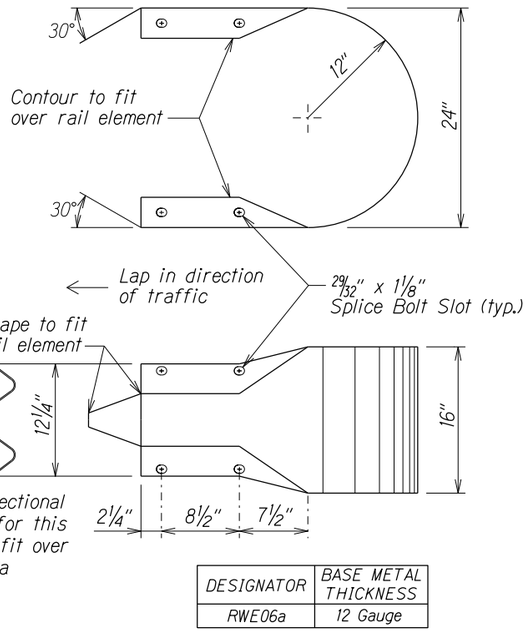
THRIE-BEAM SECTION (ROUNDED) (RTE02b)





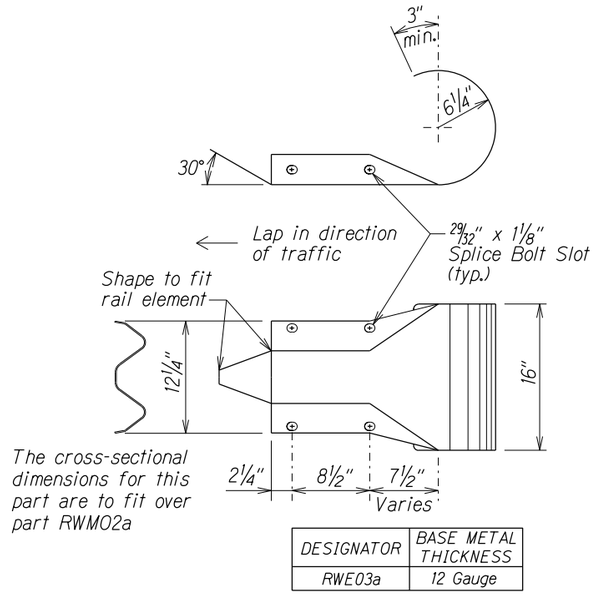
DESIGNATOR	BASE METAL THICKNESS
RTE01b	10 Gauge

THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



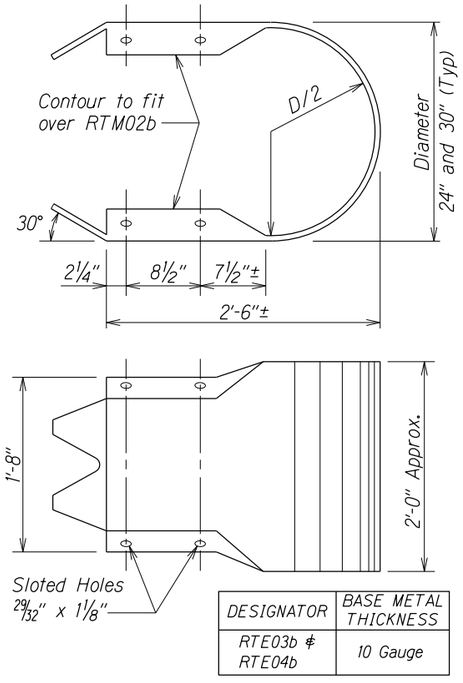
DESIGNATOR	BASE METAL THICKNESS
RWE06a	12 Gauge

W-BEAM END SECTION (BUFFER RWE06a)



DESIGNATOR	BASE METAL THICKNESS
RWE03a	12 Gauge

W-BEAM END SECTION (ROUNDED RWE03a)



DESIGNATOR	BASE METAL THICKNESS
RTE03b & RTE04b	10 Gauge

THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)

THRIE-BEAM TERMINAL CONNECTOR (RTE01b)

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL TERMINAL CONNECTORS AND END SECTIONS

KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: NTS Date: September, 2018

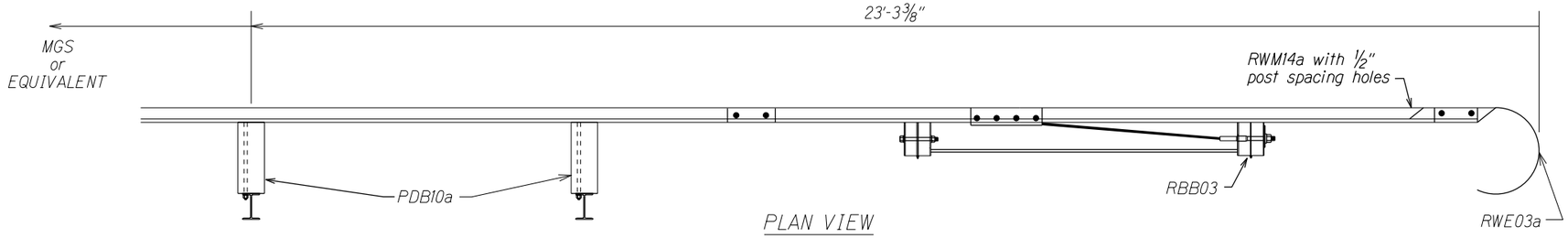
SHEET No. 4 OF 7 SHEETS

ADD. 10

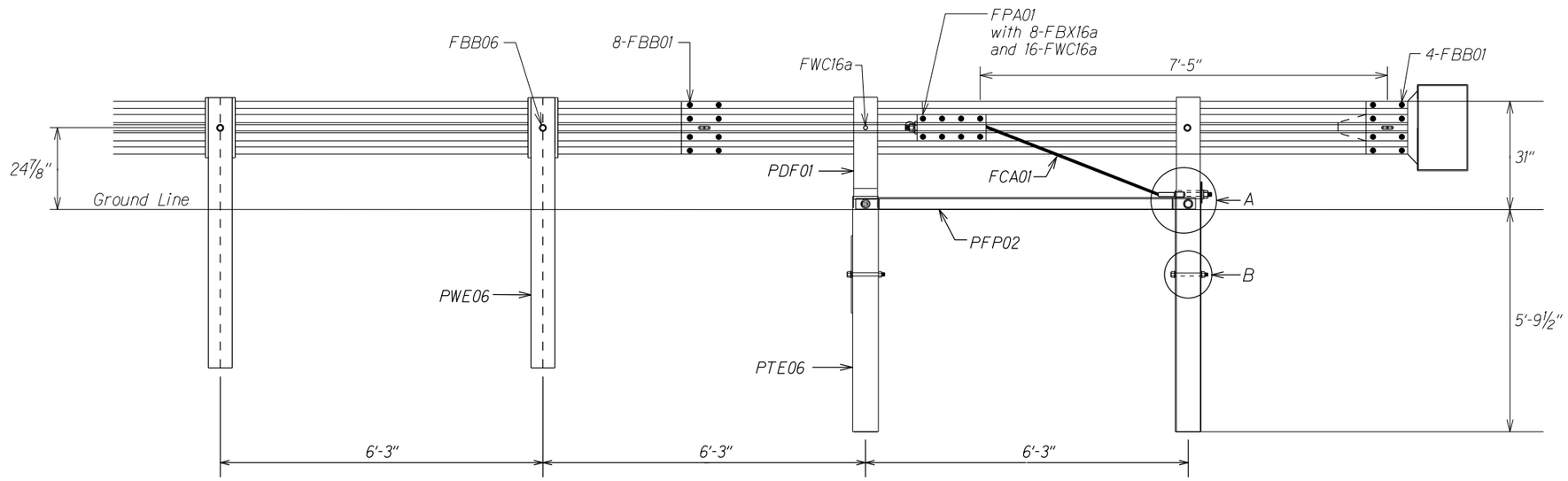
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | NOTE BOOK | QUANTITIES BY | CHECKED BY | DATE | No.

r07/28/17 Dust2/Ernest/standards/Traffic Guardrail Standards/m4_te5frev.dgn

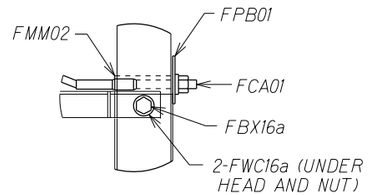
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD. 11	35



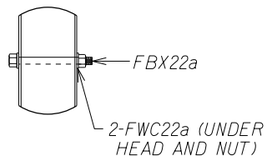
PLAN VIEW



ELEVATION VIEW
NON TRAFFIC SIDE

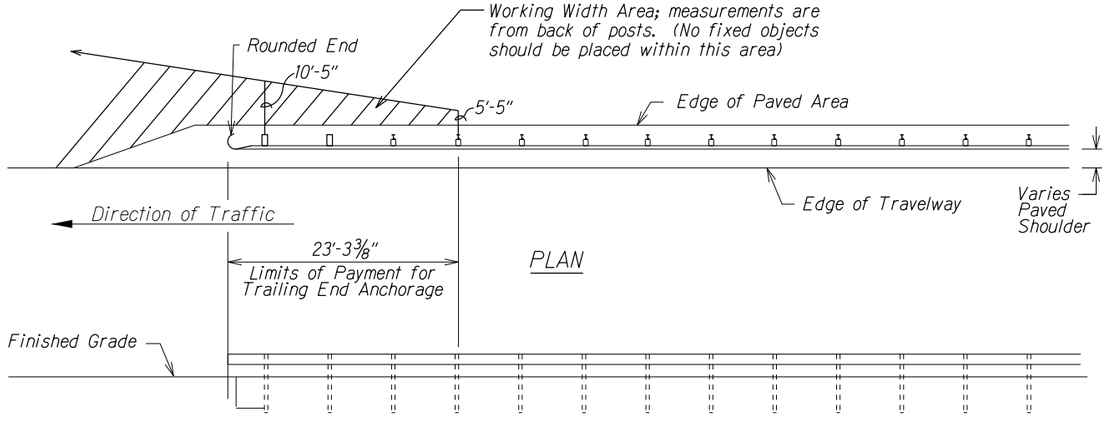


DETAIL A



DETAIL B

ITEM NO.	QTY	COMPONENTS
FBB01	12	Guardrail Bolt and Nut
FBB03	2	Guardrail Bolt and Nut
FBB06	1	Guardrail Bolt and Nut
FBX16a	2	Hex Head Bolt (10") and Nut
FBX16a	8	Hex Head Bolt (1 1/2") and Nut
FBX22a	2	Hex Head Bolt (7 1/2") and Nut
FCA01	1	BCT Anchor Cable Assembly
PDB10a	2	MGS Timber Blockout
PFP02	1	Strut and Yoke Assembly
PWE06	1	Wide-Flange Guardrail Post
FMM02	1	BCT Post Sleeve
FPA01	1	Anchor Bracket Assembly
FPB01	1	BCT Bearing Plate
FWC16a	22	Circular Washer
FWC22a	4	Circular Washer
PDF01	2	BCT Timber Post
PTE06	2	Foundation Tube
RWE03a	1	W-Beam Rounded End Section
RWM14a	1	W-Beam MGS End Section



PLAN

ELEVATION

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAILING-END ANCHORAGE SYSTEM

KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: NTS Date: September, 2018

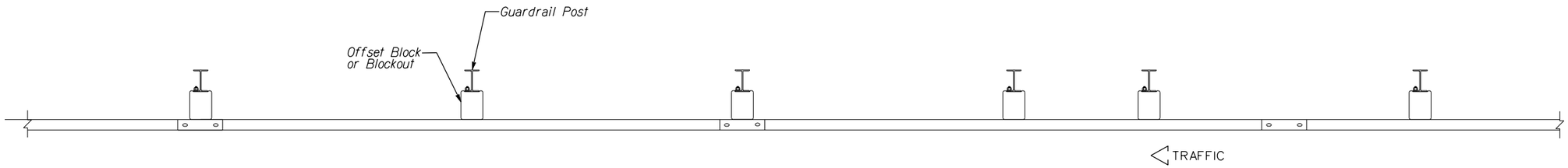
SHEET No. 5 OF 7 SHEETS

ADD. 11

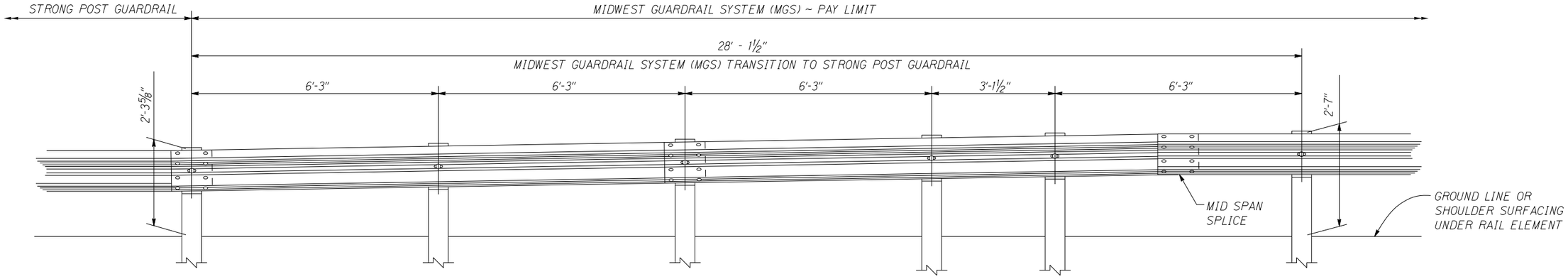
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | NOTE BOOK | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | No.

11/6/17 td2.m/guardrail/M-8

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.12	35



PLAN



ELEVATION

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE X
	DRAWN BY X	
NOTE BOOK dd.x	TRACED BY	
No. X.dgn	DESIGNED BY X	
	QUANTITIES BY	
	CHECKED BY	

r09/06/16 Dusr2/Ernest/Standards/Traffic Guardrail Standards/mlf_midwest.dgn

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MGS TRANSITION TO STRONG POST GUARDRAIL

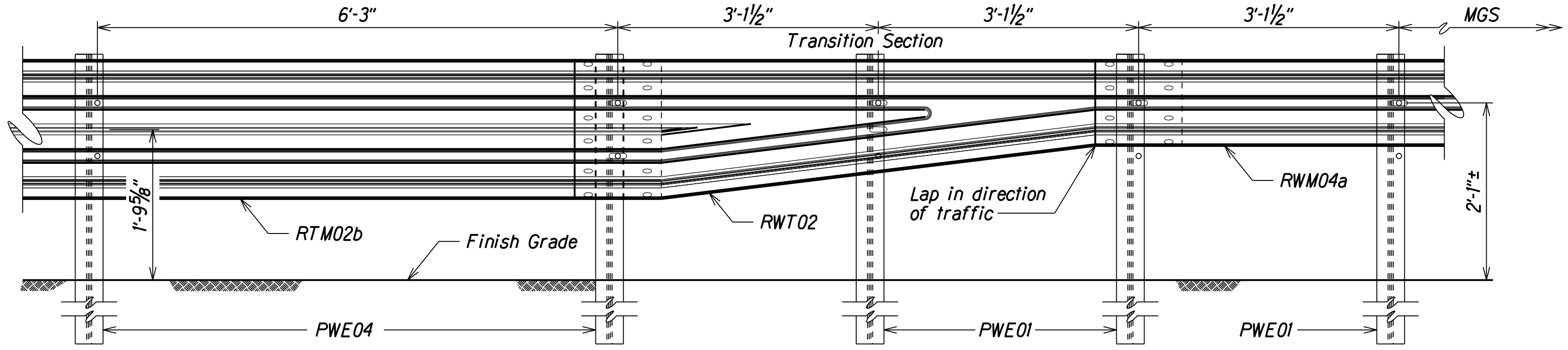
KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: NTS Date: September, 2018

SHEET No. 6 OF 7 SHEETS

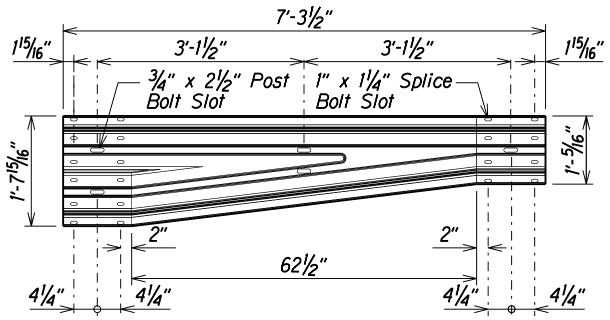
ADD. 12

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.13	35

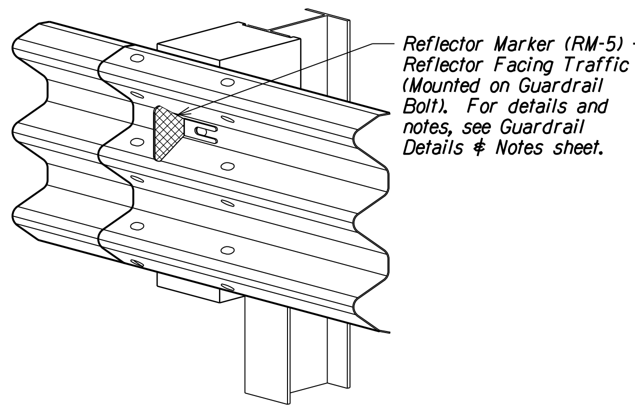


* Not to be used for Thrie Beam connection to structures.

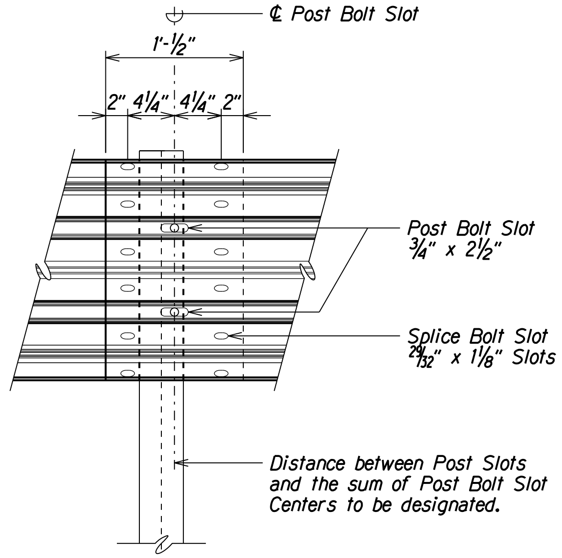
TRANSITION SECTION*



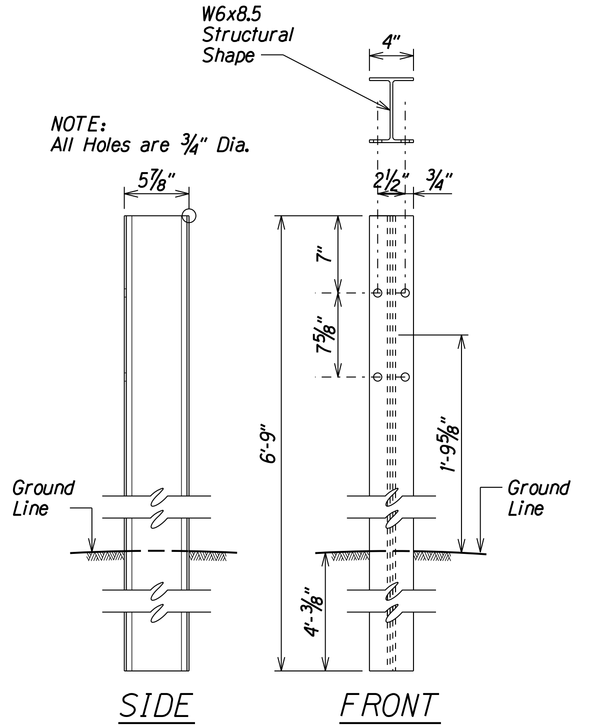
TRANSITION SECTION (RWT02)



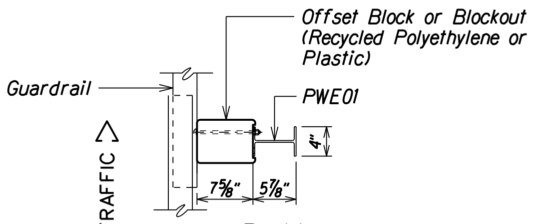
TYPICAL INSTALLATION OF REFLECTOR MARKER (RM-5)



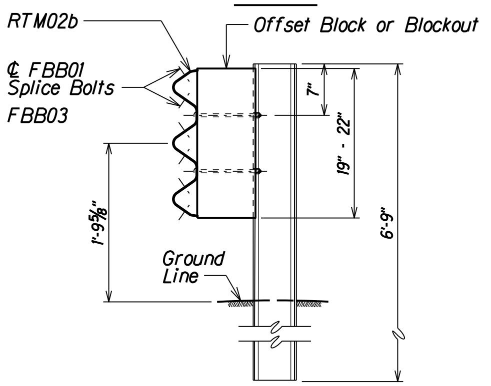
RAIL SPLICE



THRIE-BEAM STRONG POST FOR PLASTIC SPACER BLOCKS PWE04

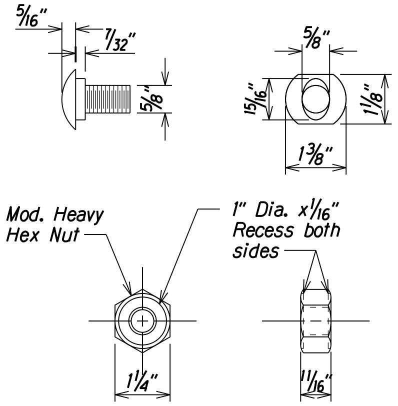


PLAN



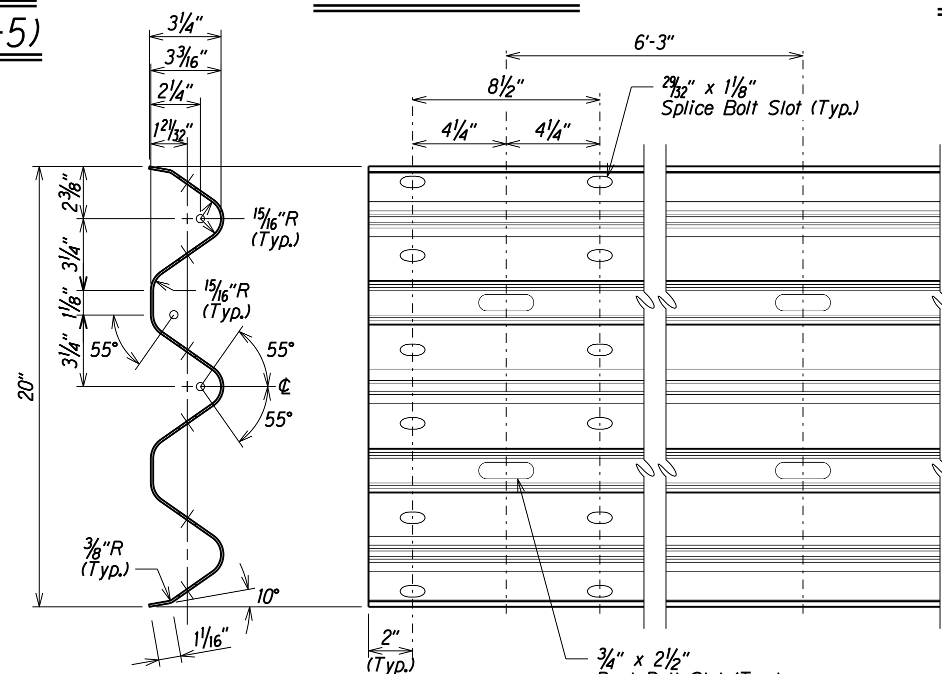
ELEVATION

STRONG POST THRIE-BEAM GUARDRAIL (SGR09a)



DESIGNATOR	L
FBB01	1⅜"
FBB02	2"
FBB03	10"

GUARDRAIL BOLTS AND RECESSED NUT



1 & 2 SPACE THRIE-BEAM GUARDRAIL (RTM02b)

DATE	REVISION
8/30/19	Issuing sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST THRIE-BEAM GUARDRAIL

KULA HIGHWAY GUARDRAIL & SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)
Scale: NTS Date: September, 2018

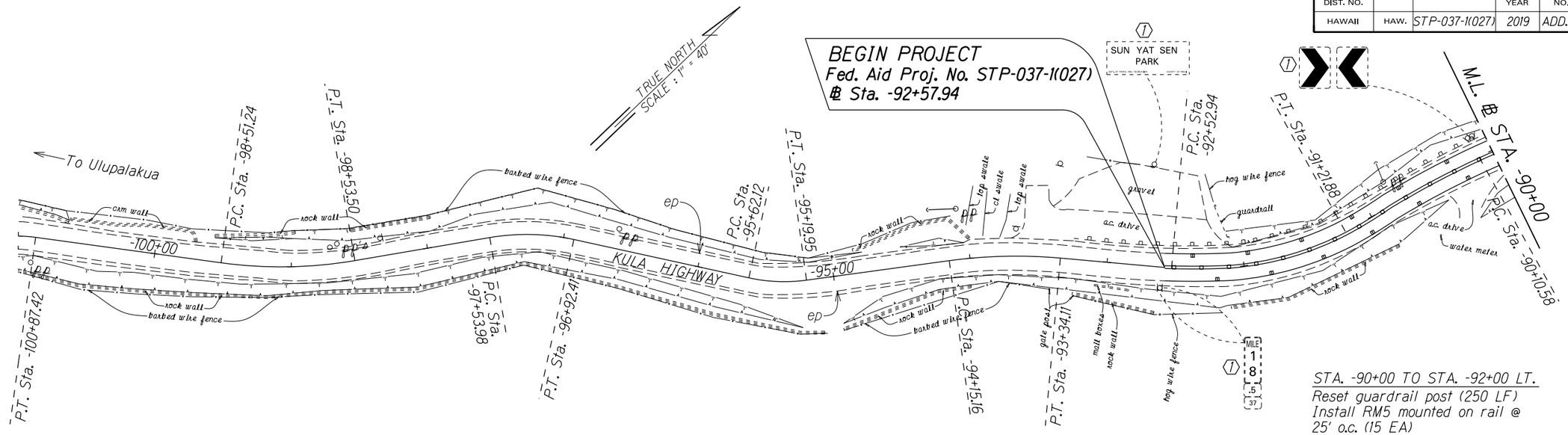
SHEET No. 7 OF 7 SHEETS

ADD. 13

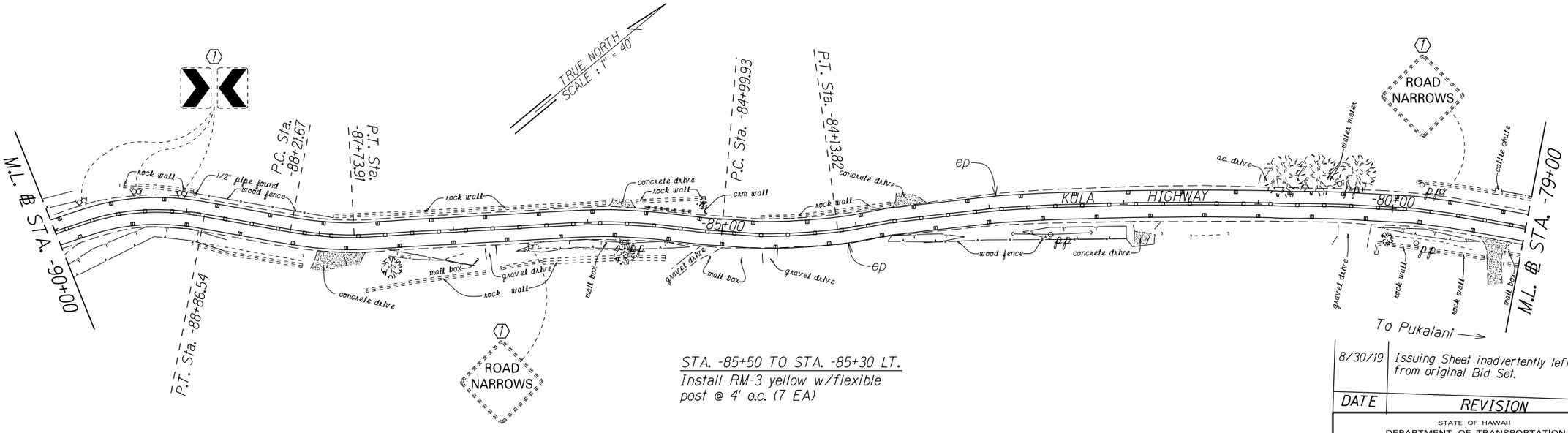
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY χ | TRACED BY χ | DESIGNED BY χ | QUANTITIES BY | CHECKED BY | DATE χ
NOTE BOOK No.

r11/30/17 td.Ernest/standards/Traffic Guardrail Standards/thriebeam_B-58.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.14	35



STA. -90+00 TO STA. -92+00 LT.
Reset guardrail post (250 LF)
Install RM5 mounted on rail @ 25' o.c. (15 EA)



STA. -85+50 TO STA. -85+30 LT.
Install RM-3 yellow w/flexible post @ 4' o.c. (7 EA)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Sheet TE-14.

KEY:
⟨1⟩ Exist. Sign(s) ℄ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ℄ Post(s)
⟨3⟩ Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
⟨4⟩ Install New Sign(s) ℄ Post(s)

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY X	
NOTE BOOK dd.x	TRACED BY	
No. X.dgn	DESIGNED BY X	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ℄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

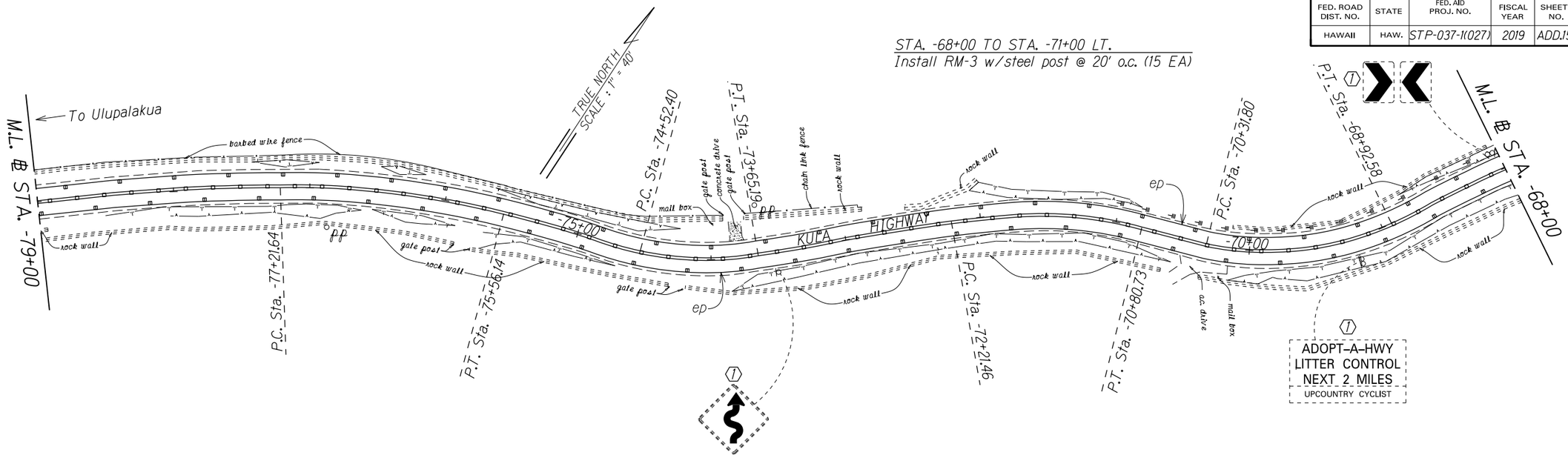
Scale: 1" =40' Date: September, 2018

SHEET No. 1 OF 22 SHEETS

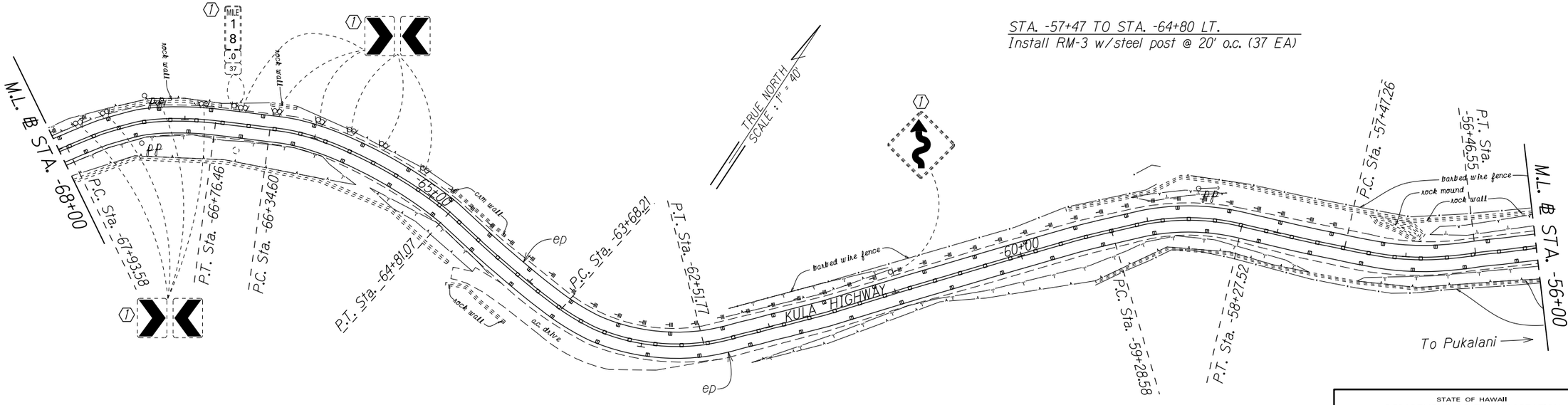
ADD. 14

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.15	35

STA. -68+00 TO STA. -71+00 LT.
Install RM-3 w/steel post @ 20' o.c. (15 EA)



STA. -57+47 TO STA. -64+80 LT.
Install RM-3 w/steel post @ 20' o.c. (37 EA)



KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

Omaopio Road to Sun Yat Sen Park

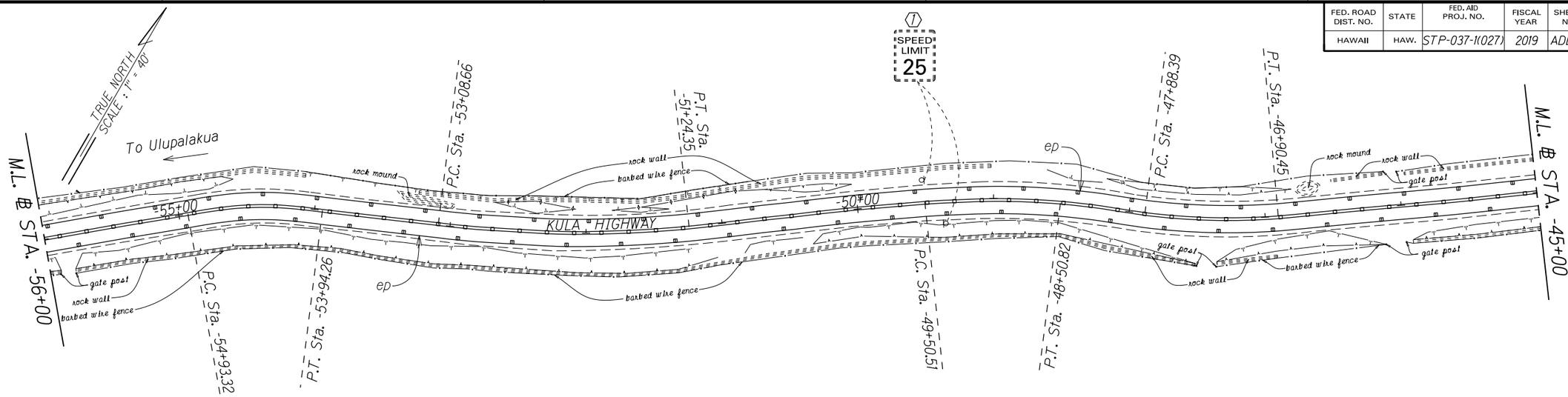
Scale: 1" =40' Date: September, 2018

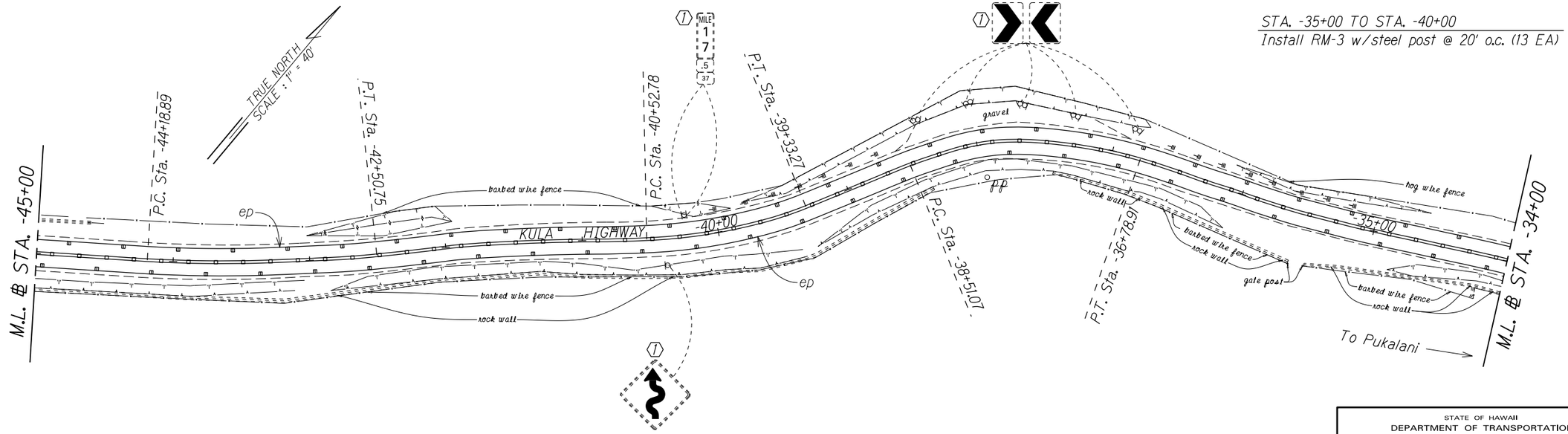
SHEET No. 2 OF 22 SHEETS

ADD. 15

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY X	X
	TRACED BY	
NOTE BOOK dd.x.x	DESIGNED BY X	
No. X.dgn	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.16	35





STA. -35+00 TO STA. -40+00
Install RM-3 w/steel post @ 20' o.c. (13 EA)

KEY:

1. Exist. Sign(s) ⊄ Post(s) to Remain
2. Remove Exist. Sign(s) ⊄ Post(s)
3. Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
4. Install New Sign(s) ⊄ Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY X	. . . . .
	TRACED BY	
NOTE BOOK	DESIGNED BY X	
d/x.x	QUANTITIES BY	
No. X.dgn	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

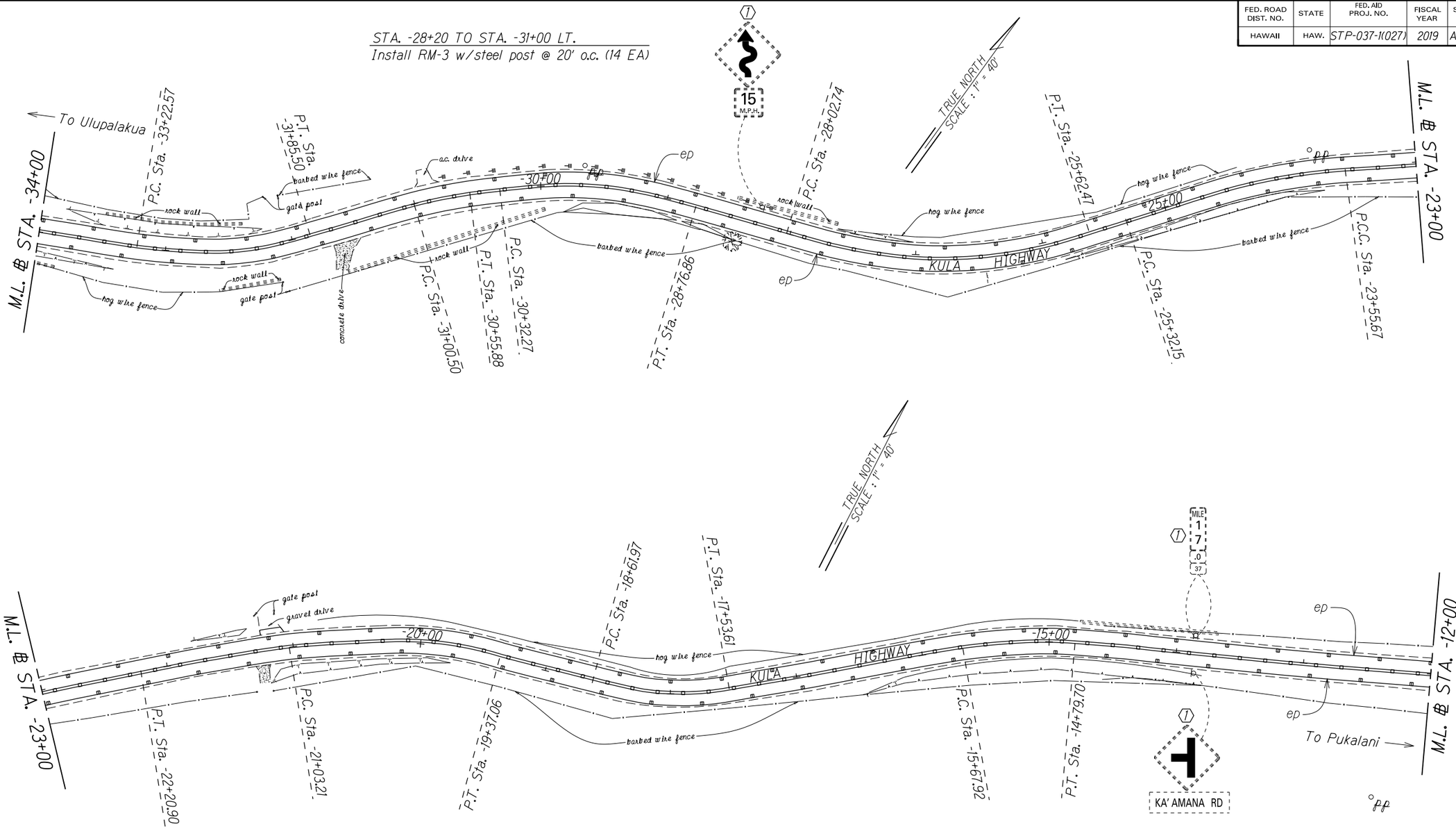
Scale: 1" =40' Date: September, 2018

SHEET No. 3 OF 22 SHEETS

ADD. 16

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.17	35

STA. -28+20 TO STA. -31+00 LT.
Install RM-3 w/steel post @ 20' o.c. (14 EA)



KEY:

⟨1⟩ Exist. Sign(s) ⅋ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ⅋ Post(s)
⟨3⟩ Remove Exist. ⅋ Install New Sign(s) ⅋ Post(s)
⟨4⟩ Install New Sign(s) ⅋ Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE ____
DRAWN BY X
TRACED BY ____
DESIGNED BY X
QUANTITIES BY ____
CHECKED BY ____
NOTE BOOK dd.x
No. X.dgn

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ⅋ PAVEMENT MARKING PLAN

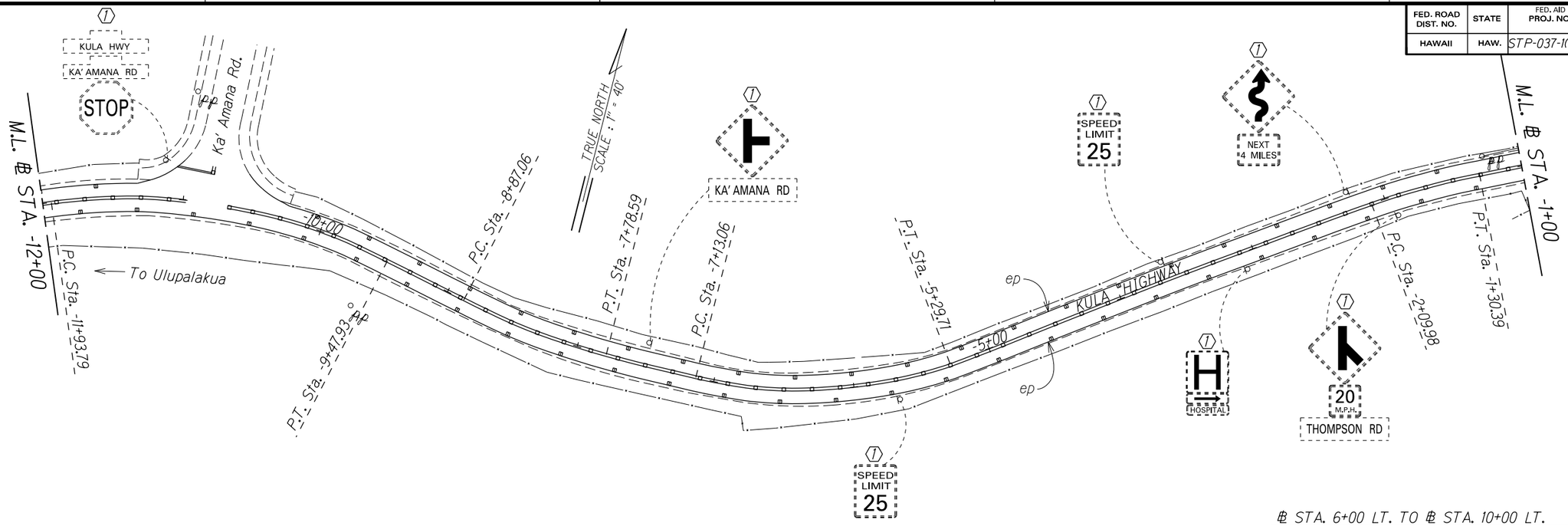
KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

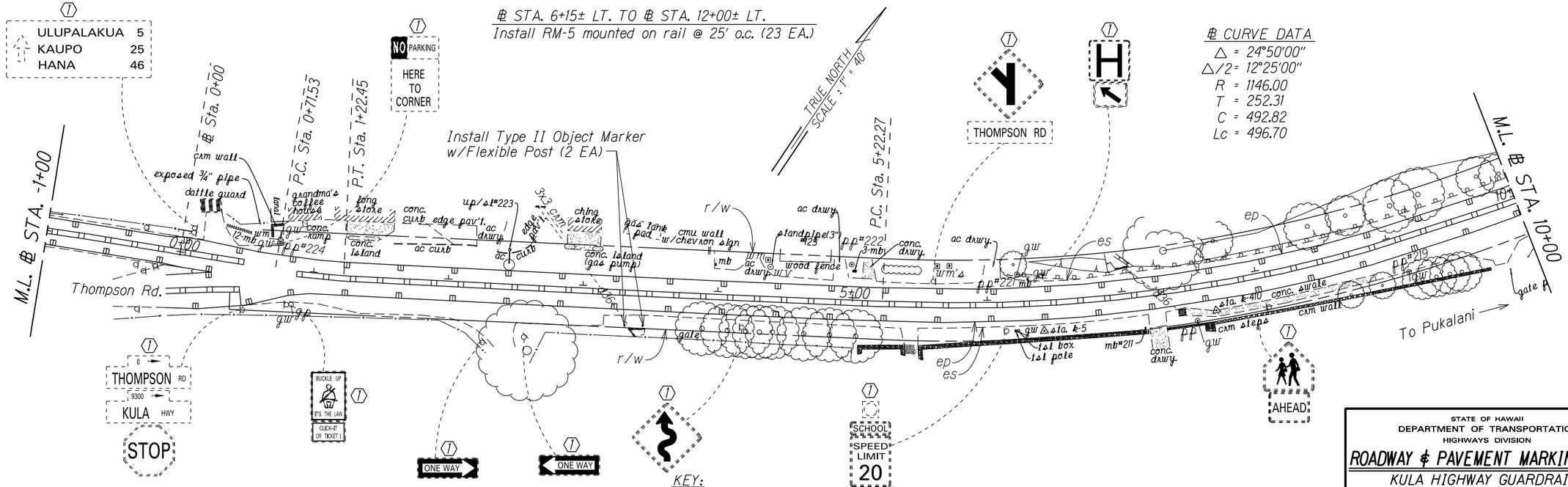
SHEET No. 4 OF 22 SHEETS

ADD. 17

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.18	35



℄ STA. 6+00 LT. TO ℄ STA. 10+00 LT.
Install RM-5 mounted on rail @ 25' o.c. (16 EA.)



℄ CURVE DATA
△ = 24°50'00"
△/2 = 12°25'00"
R = 1146.00
T = 252.31
C = 492.82
Lc = 496.70

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
① Exist. Sign(s) ⊄ Post(s) to Remain
② Remove Exist. Sign(s) ⊄ Post(s)
③ Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
④ Install New Sign(s) ⊄ Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY X
TRACED BY
DESIGNED BY X
QUANTITIES BY
CHECKED BY
DATE X
NOTE BOOK dd.x
No. X.dgn

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ⊄ PAVEMENT MARKING PLAN

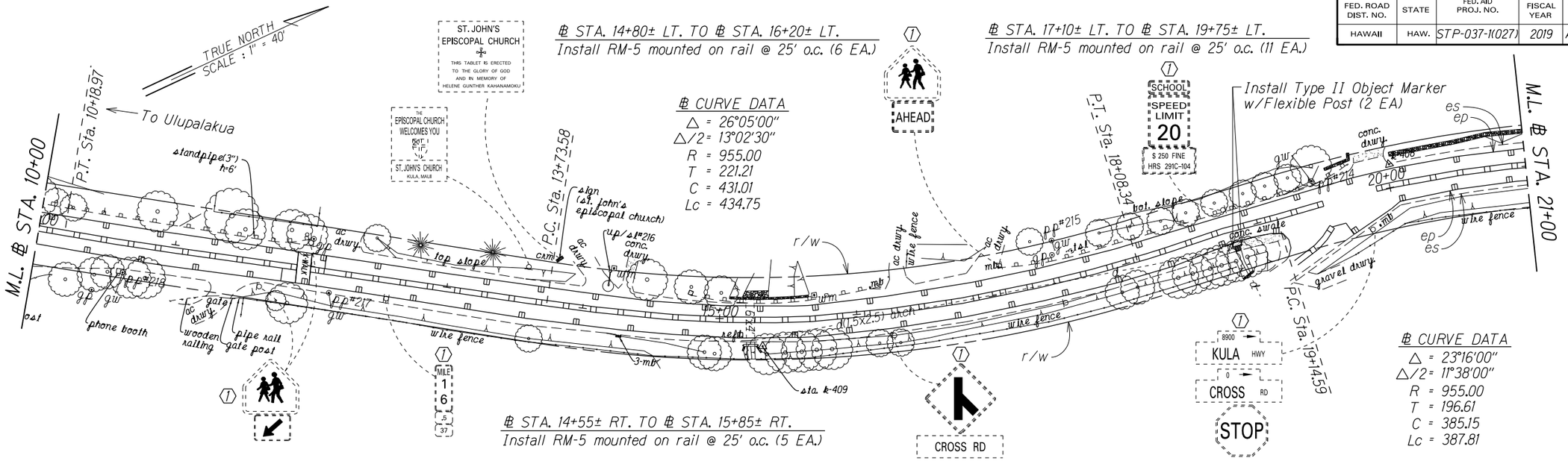
KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 5 OF 22 SHEETS

ADD. 18

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.19	35



NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
DATE
No.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

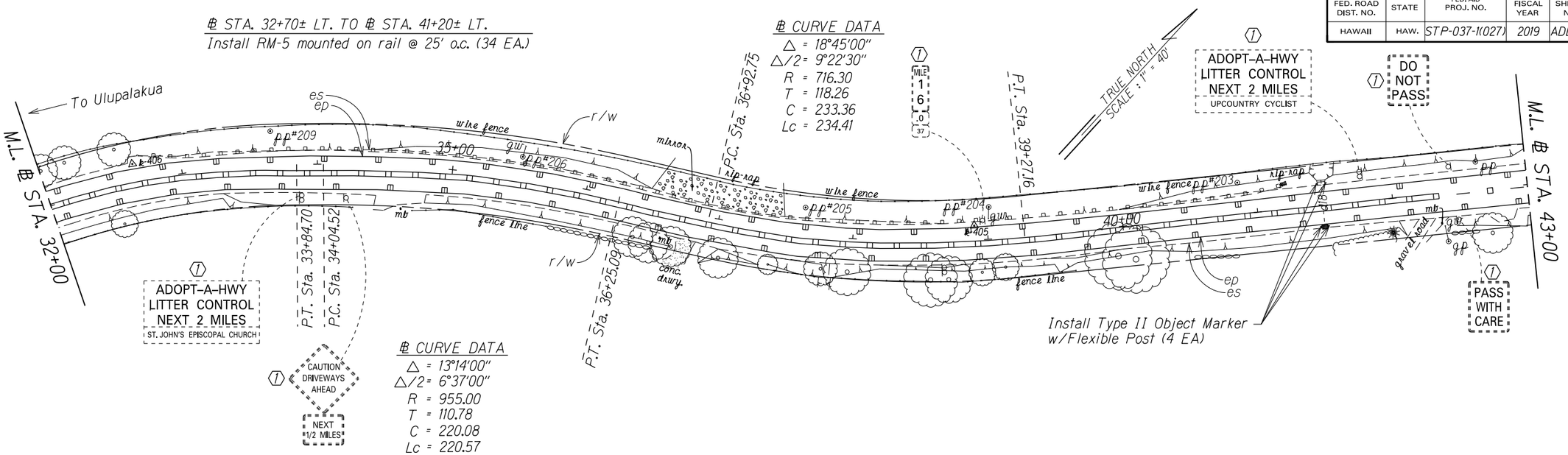
Scale: 1" =40' Date: September, 2018

SHEET No. 6 OF 22 SHEETS

ADD. 19

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.20	35

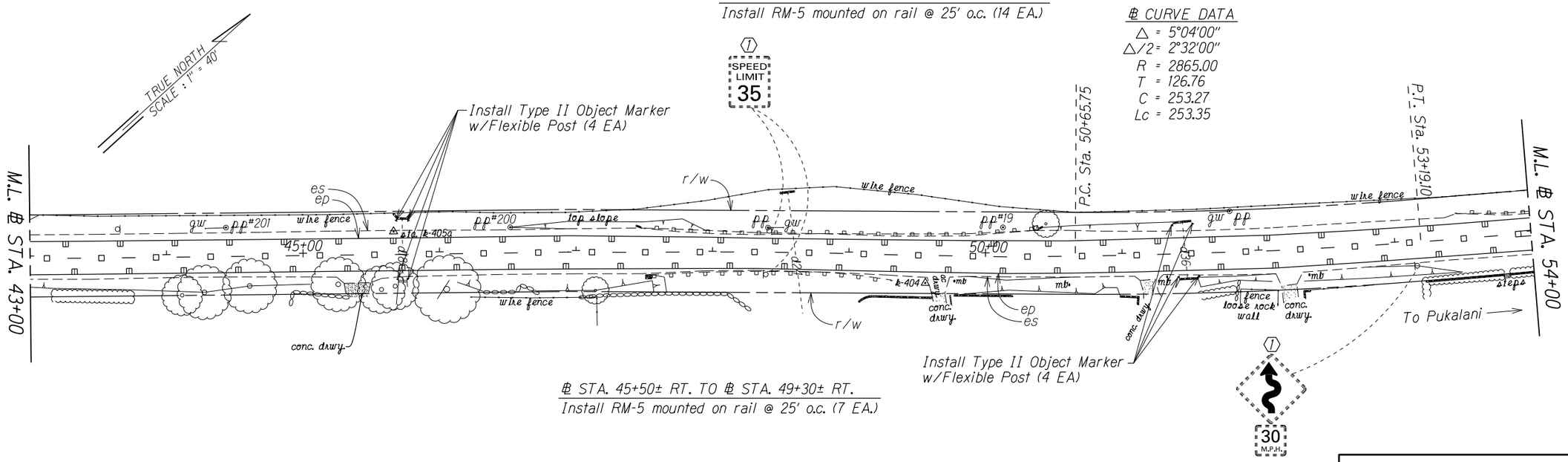
℄ STA. 32+70± LT. TO ℄ STA. 41+20± LT.
Install RM-5 mounted on rail @ 25' o.c. (34 EA.)



℄ CURVE DATA
△ = 18°45'00"
△/2 = 9°22'30"
R = 716.30
T = 118.26
C = 233.36
Lc = 234.41

℄ CURVE DATA
△ = 13°14'00"
△/2 = 6°37'00"
R = 955.00
T = 110.78
C = 220.08
Lc = 220.57

℄ STA. 45+50± LT. TO ℄ STA. 51+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (14 EA.)



℄ CURVE DATA
△ = 5°04'00"
△/2 = 2°32'00"
R = 2865.00
T = 126.76
C = 253.27
Lc = 253.35

℄ STA. 45+50± RT. TO ℄ STA. 49+30± RT.
Install RM-5 mounted on rail @ 25' o.c. (7 EA.)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
1. Exist. Sign(s) ℄ Post(s) to Remain
2. Remove Exist. Sign(s) ℄ Post(s)
3. Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
4. Install New Sign(s) ℄ Post(s)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ℄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

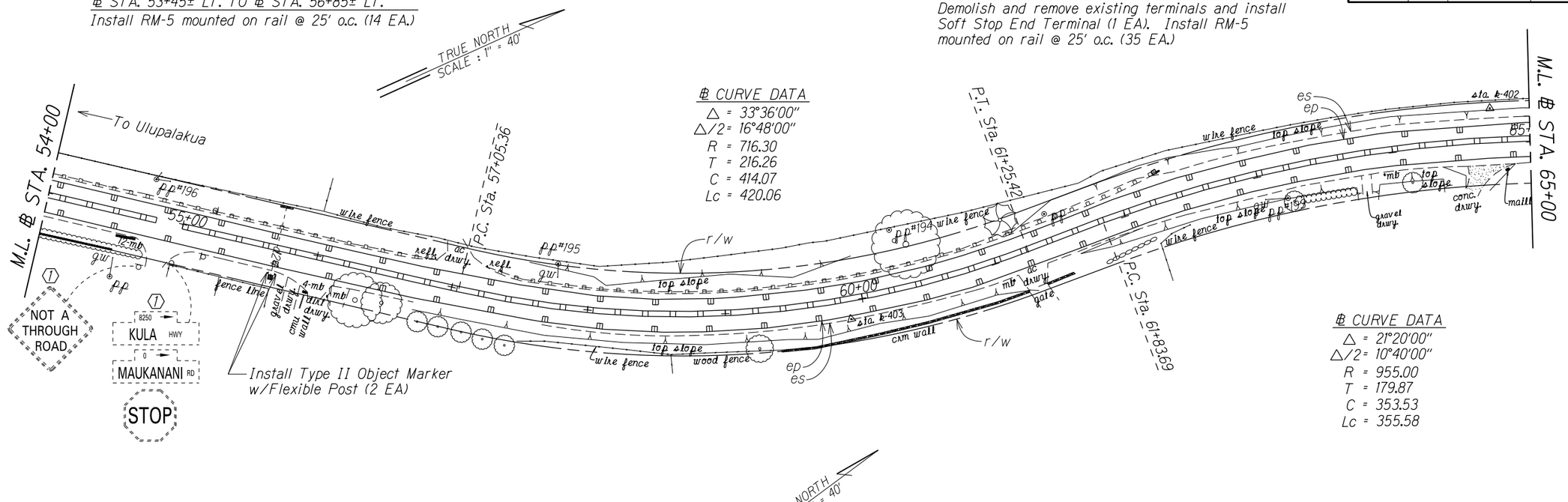
SHEET No. 7 OF 22 SHEETS

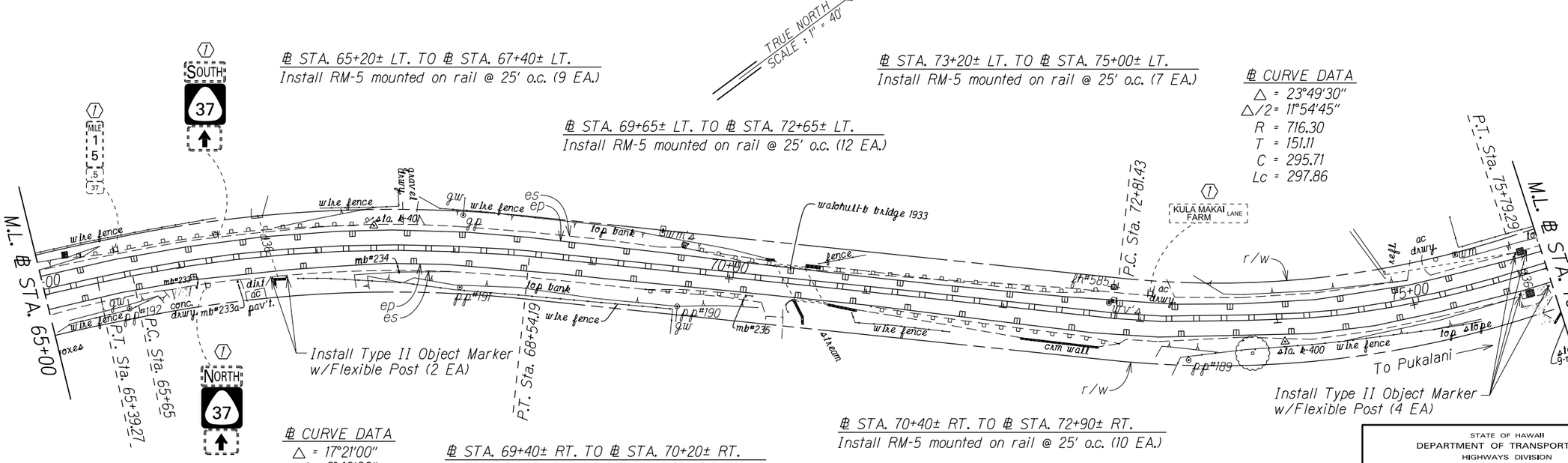
ADD. 20

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.21	35

℄ STA. 53+45± LT. TO ℄ STA. 56+85± LT.
Install RM-5 mounted on rail @ 25' o.c. (14 EA.)

℄ STA. 62+00± LT. TO ℄ STA. 65+87.5± LT.
Demolish and remove existing terminals and install Soft Stop End Terminal (1 EA). Install RM-5 mounted on rail @ 25' o.c. (35 EA.)





℄ CURVE DATA
△ = 17°21'00"
△/2 = 8°40'30"
R = 955.00
T = 145.71
C = 288.08
Lc = 289.19

℄ STA. 69+40± RT. TO ℄ STA. 70+20± RT.
Install RM-5 mounted on rail @ 25' o.c. (3 EA.)

℄ STA. 70+40± RT. TO ℄ STA. 72+90± RT.
Install RM-5 mounted on rail @ 25' o.c. (10 EA.)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

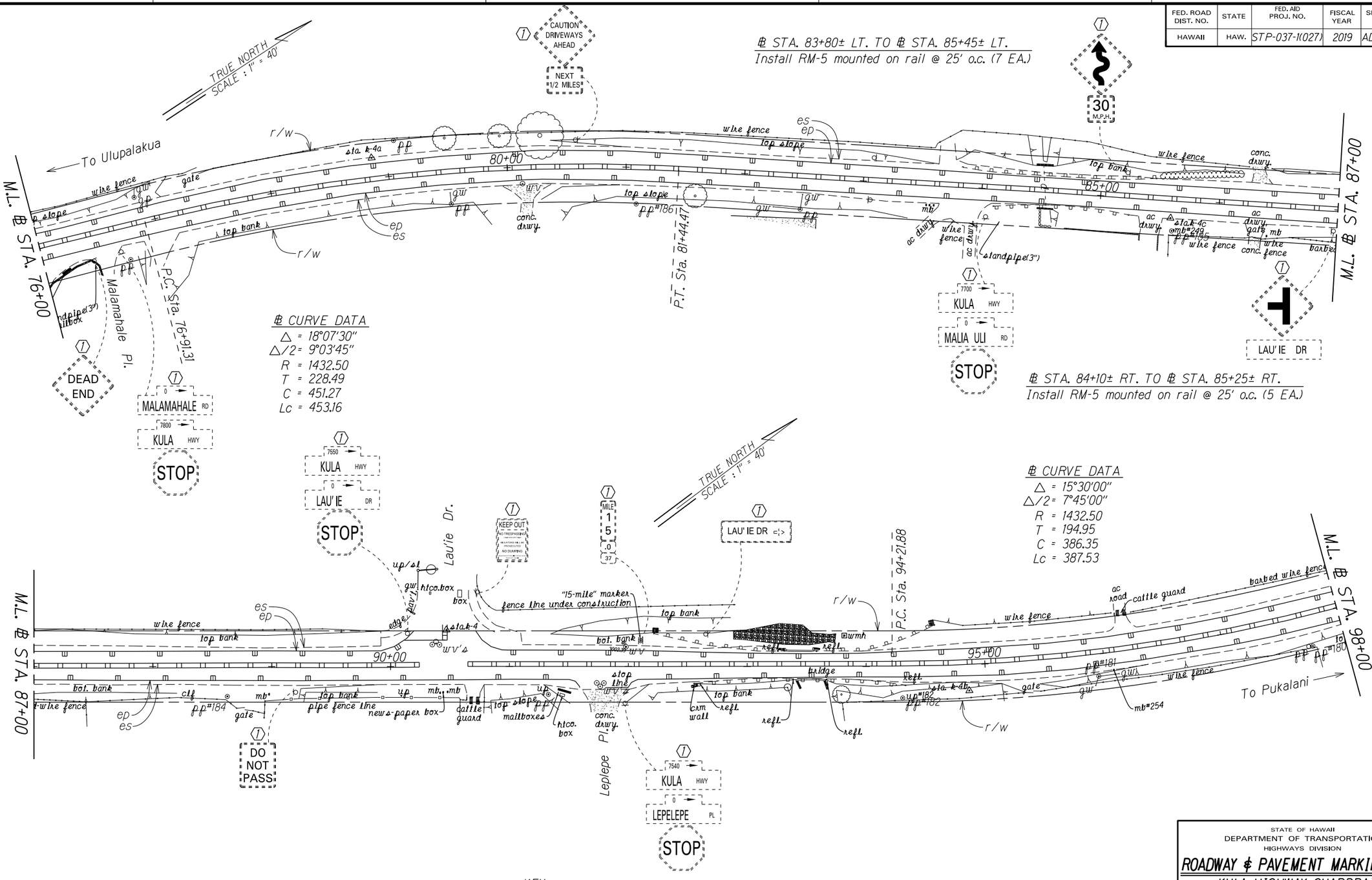
KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 8 OF 22 SHEETS

ADD. 21

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.22	35



NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

⟨1⟩ Exist. Sign(s) & Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) & Post(s)
⟨3⟩ Remove Exist. & Install New Sign(s) & Post(s)
⟨4⟩ Install New Sign(s) & Post(s)

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ORIGINAL PLAN
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

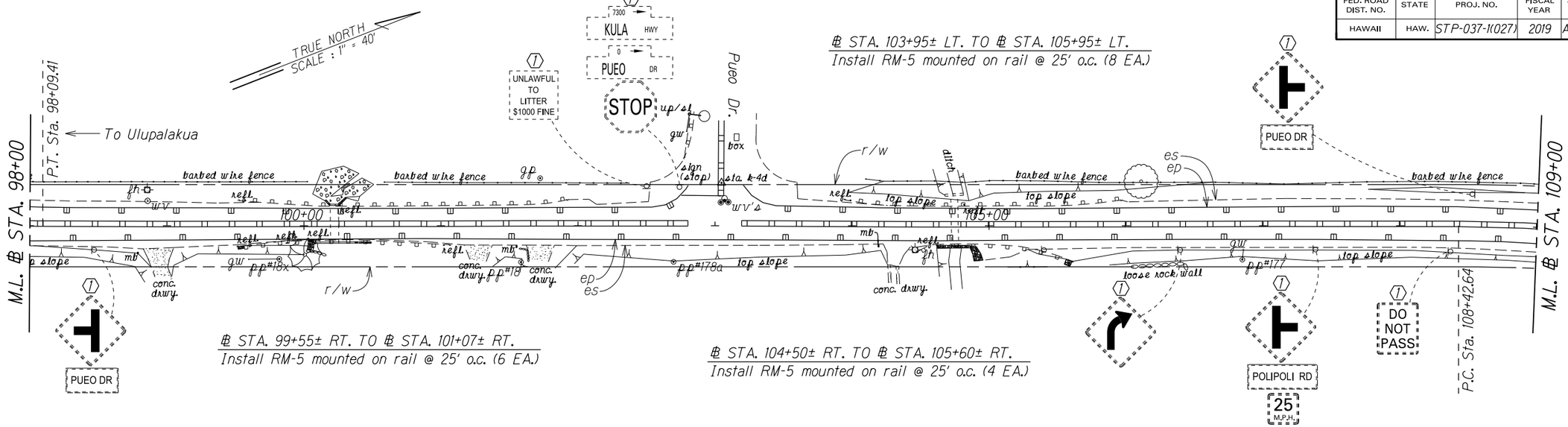
KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 9 OF 22 SHEETS

ADD. 22

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.23	35



℄ CURVE DATA
△ = 16°35'00"
△/2 = 8°17'30"
R = 1432.50
T = 208.71
C = 413.17
Lc = 414.61

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
1. Exist. Sign(s) ℄ Post(s) to Remain
2. Remove Exist. Sign(s) ℄ Post(s)
3. Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
4. Install New Sign(s) ℄ Post(s)

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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ROADWAY ℄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

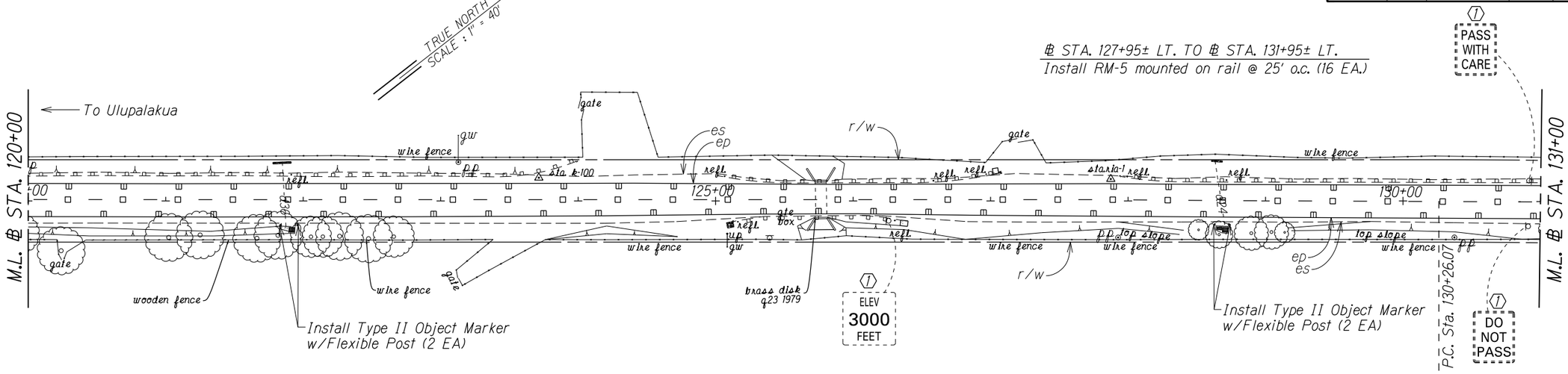
SHEET No. 10 OF 22 SHEETS

ADD. 23

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.24	35

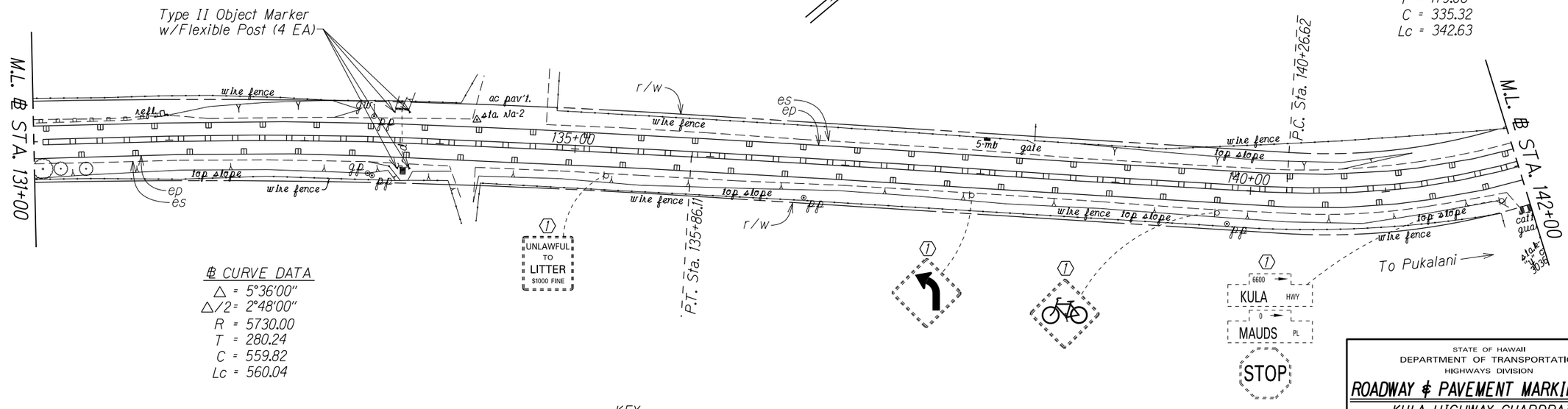
TRUE NORTH
SCALE : 1" = 40'

℄ STA. 127+95± LT. TO ℄ STA. 131+95± LT.
Install RM-5 mounted on rail @ 25' o.c. (16 EA.)



TRUE NORTH
SCALE : 1" = 40'

℄ CURVE DATA
△ = 41°06'44"
△/2 = 20°33'22"
R = 477.50
T = 179.06
C = 335.32
Lc = 342.63



℄ CURVE DATA
△ = 5°36'00"
△/2 = 2°48'00"
R = 5730.00
T = 280.24
C = 559.82
Lc = 560.04

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
⟨1⟩ Exist. Sign(s) ⊄ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ⊄ Post(s)
⟨3⟩ Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
⟨4⟩ Install New Sign(s) ⊄ Post(s)

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ORIGINAL PLAN
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STATE OF HAWAII
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HIGHWAYS DIVISION

ROADWAY ⊄ PAVEMENT MARKING PLAN

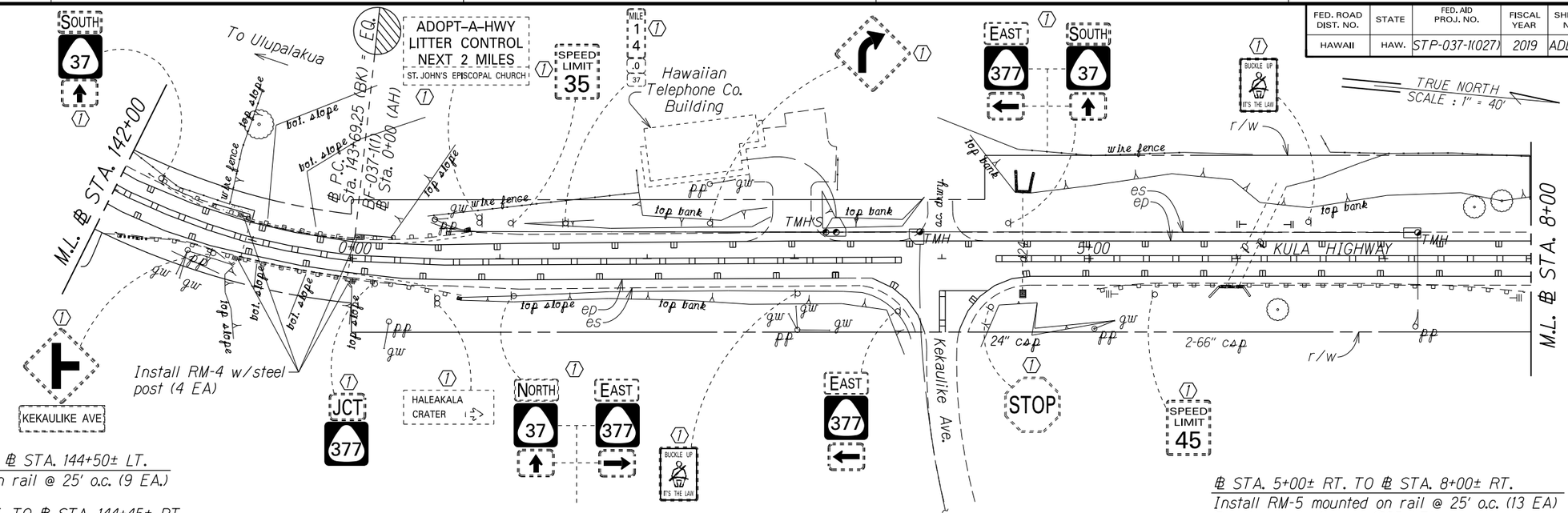
KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 11 OF 22 SHEETS

ADD. 24

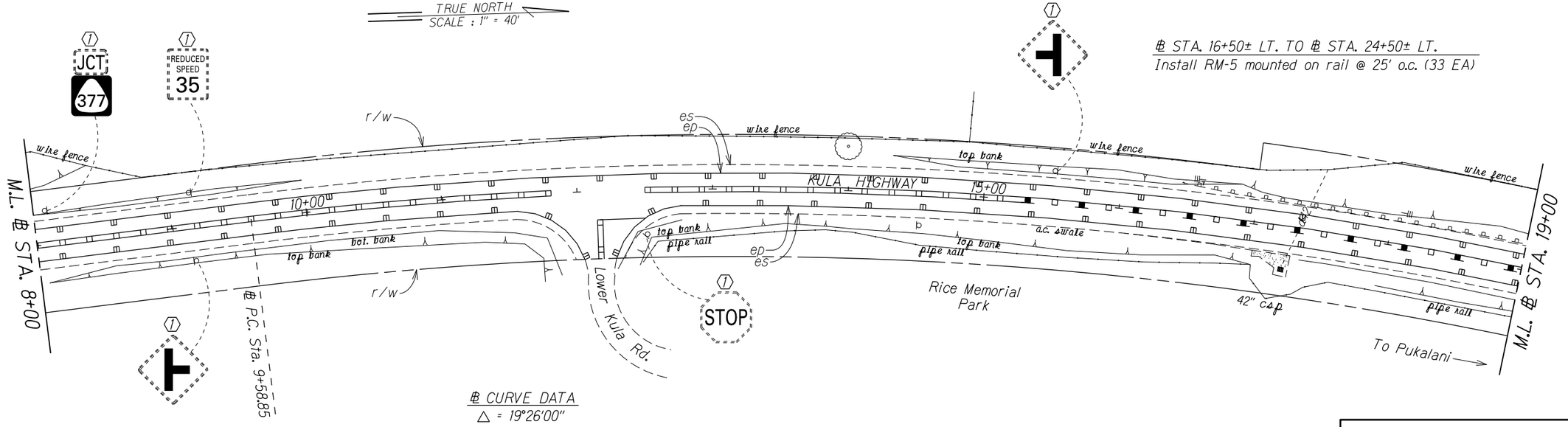
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.25	35



℄ STA. 142+20± LT. TO ℄ STA. 144+50± LT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA.)

℄ STA. 142+15± RT. TO ℄ STA. 144+45± RT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA.)

℄ STA. 5+00± RT. TO ℄ STA. 8+00± RT.
Install RM-5 mounted on rail @ 25' o.c. (13 EA)
Reset guardrail post (325 LF)



℄ STA. 16+50± LT. TO ℄ STA. 24+50± LT.
Install RM-5 mounted on rail @ 25' o.c. (33 EA)

℄ CURVE DATA
△ = 19°26'00"
R = 2864.79
T = 490.55
C = 967.02
Lc = 971.67
S. E. = 0.046 ft/ft

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

ORIGINAL PLAN
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STATE OF HAWAII
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HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

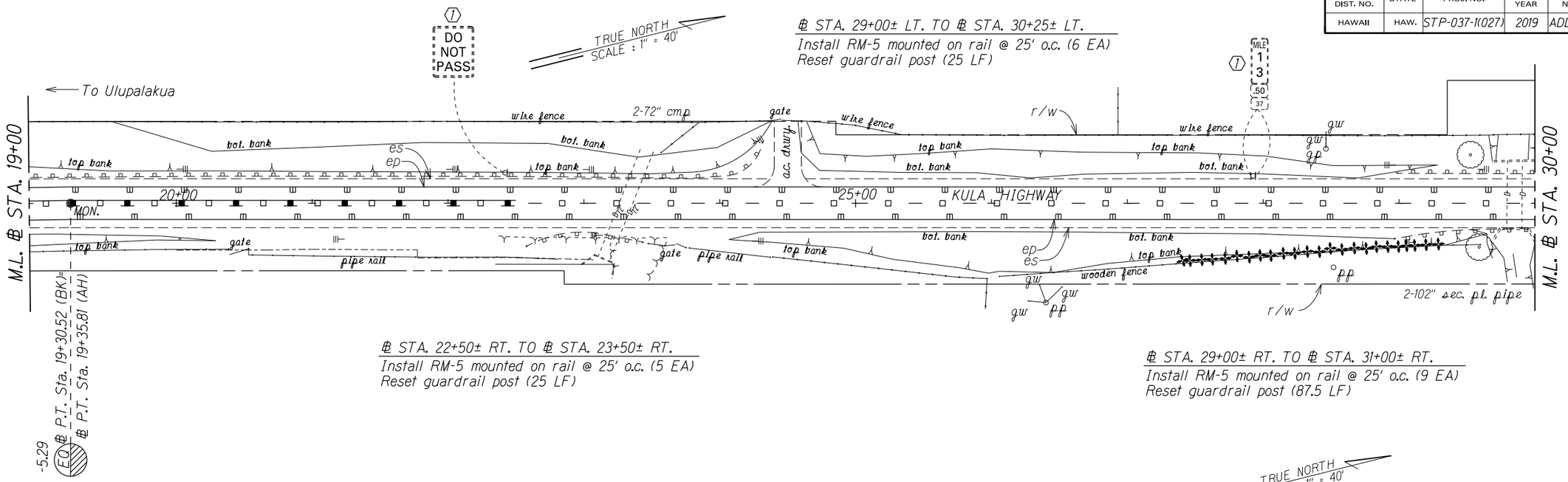
KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 12 OF 22 SHEETS

ADD. 25

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.26	35



NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

1. Exist. Sign(s) ⊄ Post(s) to Remain
2. Remove Exist. Sign(s) ⊄ Post(s)
3. Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
4. Install New Sign(s) ⊄ Post(s)

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ROADWAY ⊄ PAVEMENT MARKING PLAN

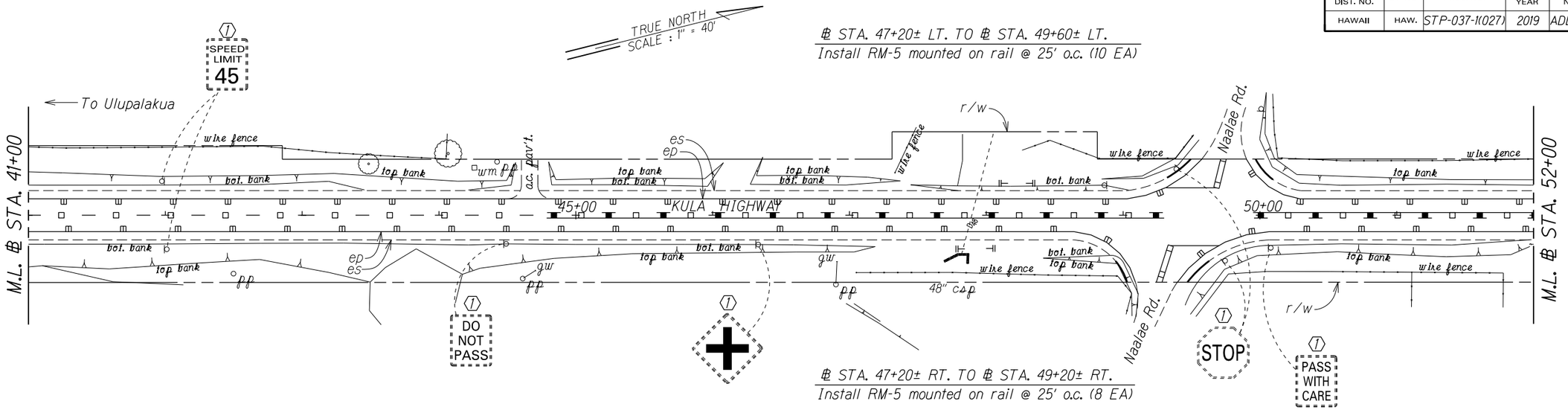
KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

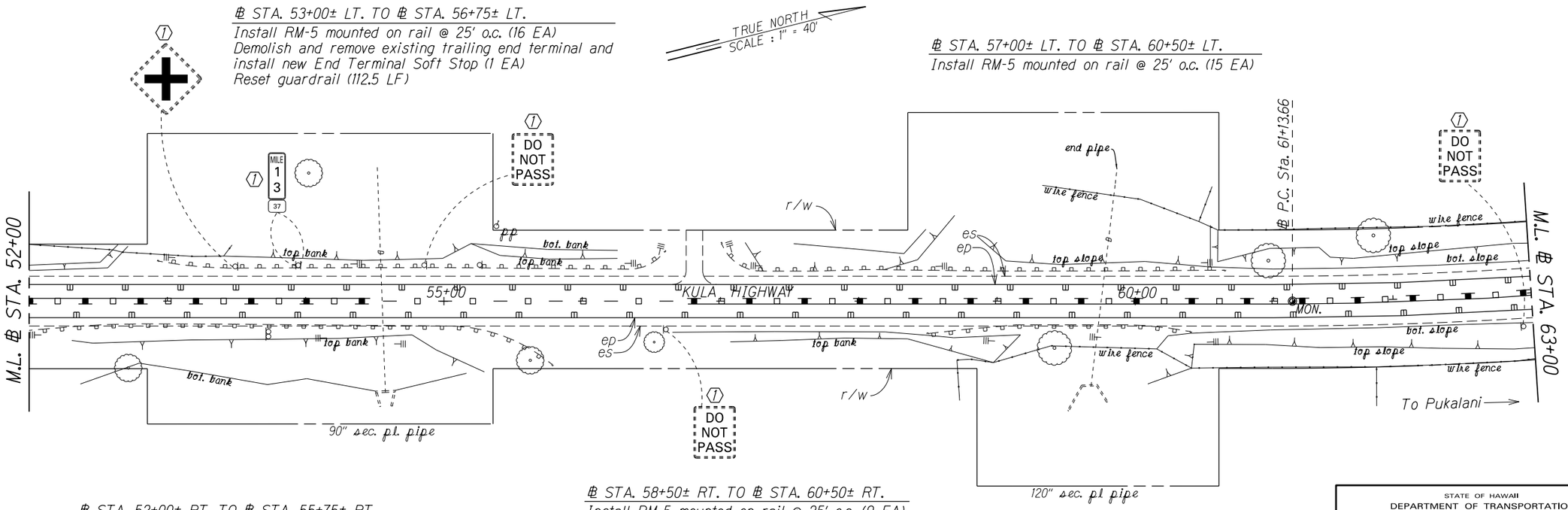
Scale: 1" =40' Date: September, 2018

SHEET No. 13 OF 22 SHEETS

ADD. 26

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.27	35





NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

1. Exist. Sign(s) ℄ Post(s) to Remain
2. Remove Exist. Sign(s) ℄ Post(s)
3. Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
4. Install New Sign(s) ℄ Post(s)

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ROADWAY ℄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 14 OF 22 SHEETS

ADD. 27

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.28	35

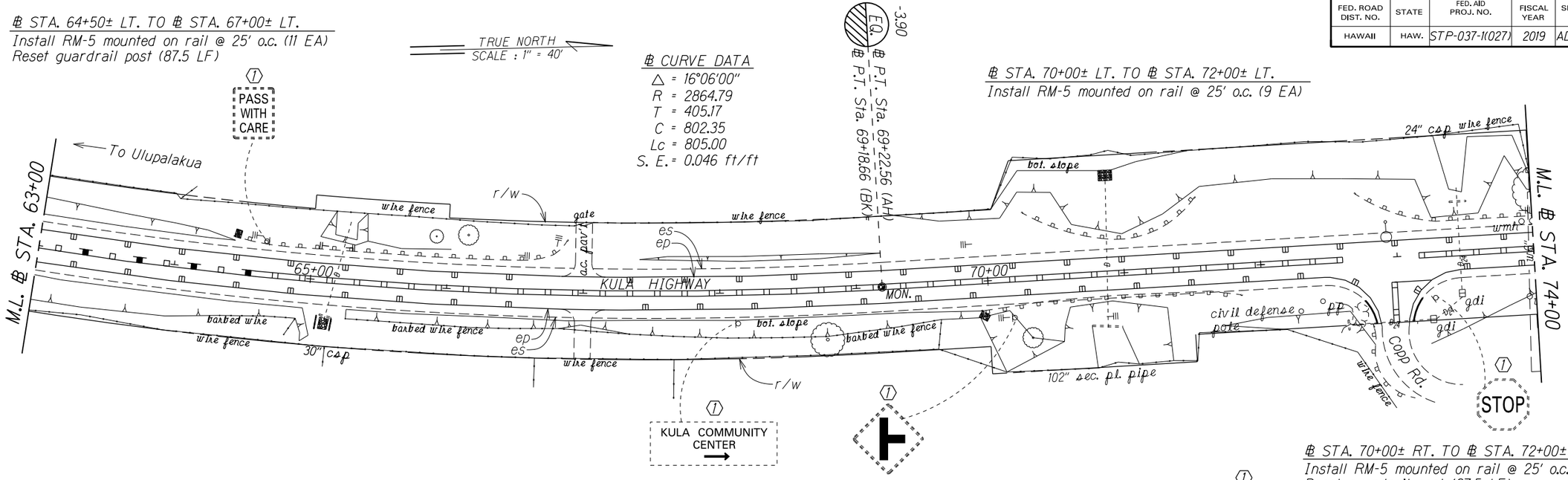
℄ STA. 64+50± LT. TO ℄ STA. 67+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (11 EA)
Reset guardrail post (87.5 LF)

TRUE NORTH
SCALE : 1" = 40'

℄ CURVE DATA
△ = 16°06'00"
R = 2864.79
T = 405.17
C = 802.35
Lc = 805.00
S. E. = 0.046 ft/ft

℄ P.T. Sta. 69+22.56 (AH)
℄ P.T. Sta. 69+18.66 (BK)
-3.90
EQ.

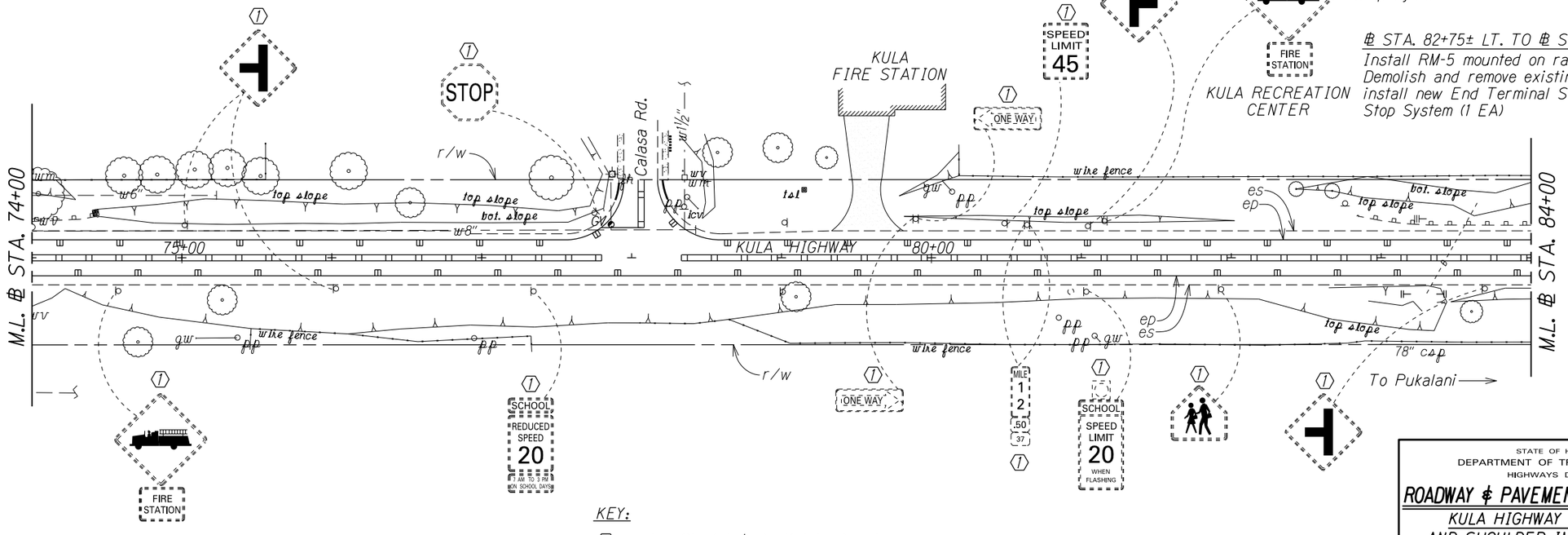
℄ STA. 70+00± LT. TO ℄ STA. 72+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA)



℄ STA. 70+00± RT. TO ℄ STA. 72+00± RT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA)
Reset guardrail post (87.5 LF)
Demolish and remove existing trailing end and install new End Terminal Section Type Soft Stop System (1 EA)

℄ STA. 72+50± LT. TO ℄ STA. 74+50± LT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA)

TRUE NORTH
SCALE : 1" = 40'



℄ STA. 82+75± LT. TO ℄ STA. 86+50± LT.
Install RM-5 mounted on rail @ 25' o.c. (16 EA)
Demolish and remove existing trailing end and install new End Terminal Section Type Soft Stop System (1 EA)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
① Exist. Sign(s) ℄ Post(s) to Remain
② Remove Exist. Sign(s) ℄ Post(s)
③ Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
④ Install New Sign(s) ℄ Post(s)

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ROADWAY ℄ PAVEMENT MARKING PLAN

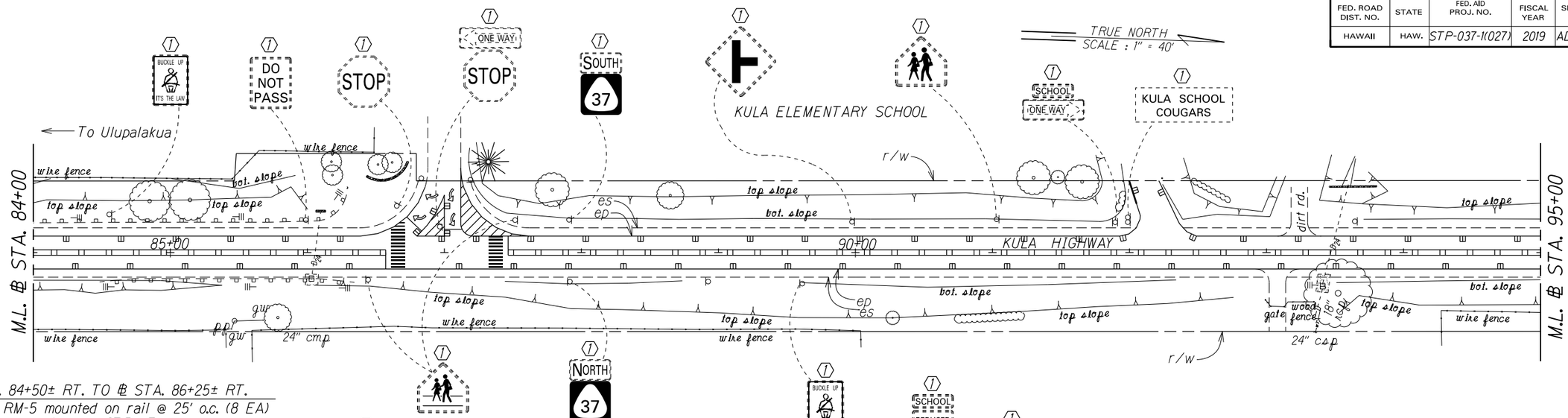
KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 15 OF 22 SHEETS

ADD. 28

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.29	35



℄ CURVE DATA

Δ = 15°04'00"
R = 2864.79
T = 378.85
C = 751.17
Lc = 753.33
S. E. = 0.046 ft/ft

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

⟨1⟩ Exist. Sign(s) ⅋ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ⅋ Post(s)
⟨3⟩ Remove Exist. ⅋ Install New Sign(s) ⅋ Post(s)
⟨4⟩ Install New Sign(s) ⅋ Post(s)

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ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
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TRACED BY ____
DESIGNED BY ____
NOTE BOOK ____ QUANTITIES BY ____
CHECKED BY ____
No. ____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ⅋ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

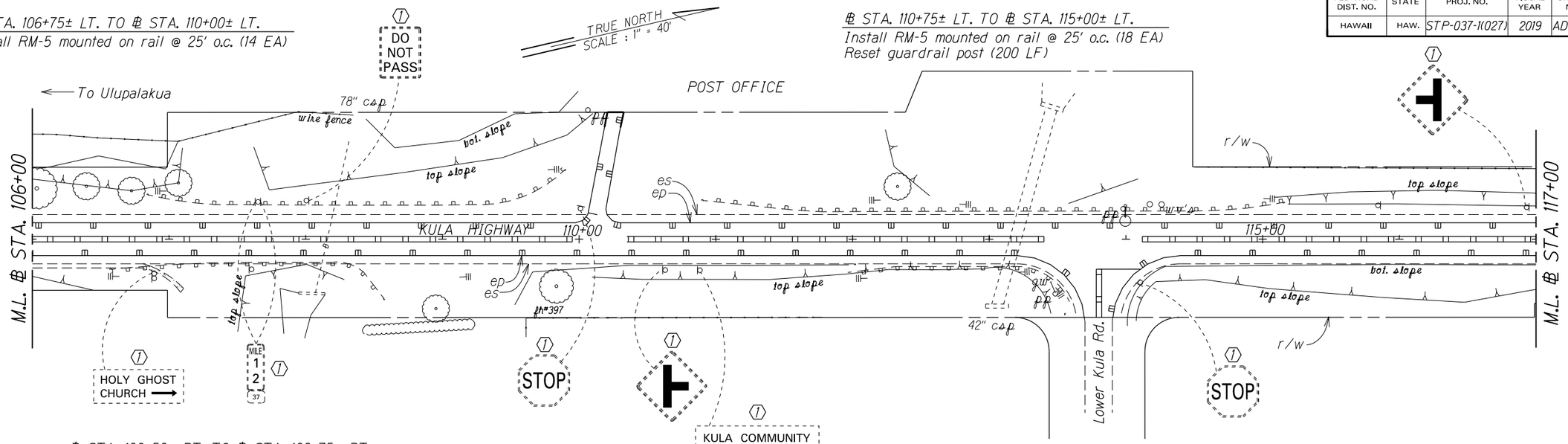
SHEET No. 16 OF 22 SHEETS

ADD. 29

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.30	35

℄ STA. 106+75± LT. TO ℄ STA. 110+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (14 EA)

℄ STA. 110+75± LT. TO ℄ STA. 115+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (18 EA)
Reset guardrail post (200 LF)

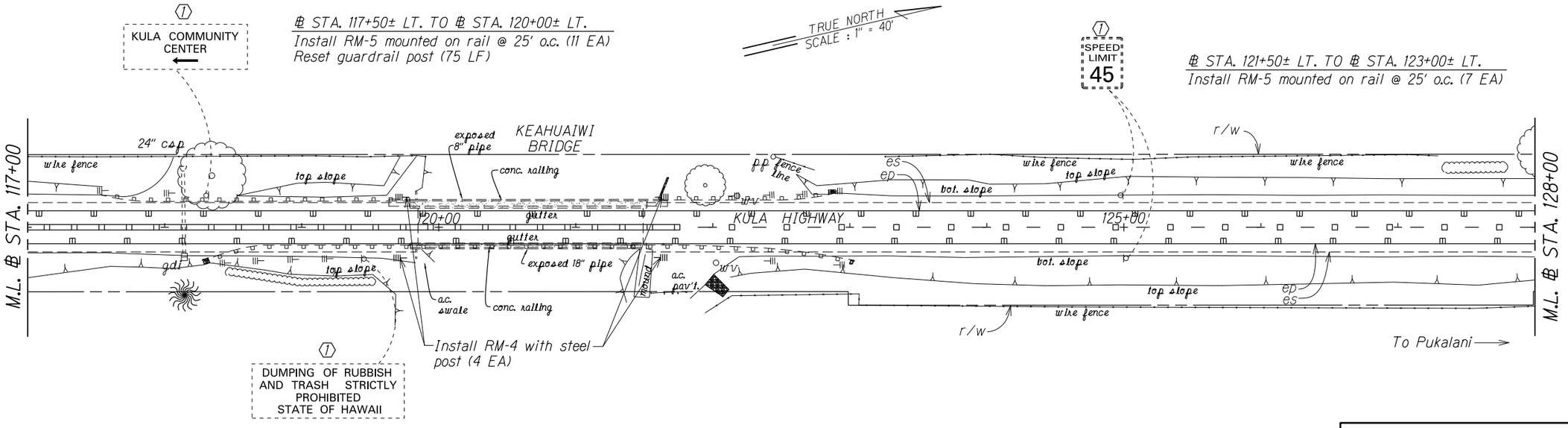


℄ STA. 106+50± RT. TO ℄ STA. 108+75± RT.
Install RM-5 mounted on rail @ 25' o.c. (11 EA)
Reset guardrail post (100 LF)

℄ STA. 112+00± RT. TO ℄ STA. 113+75± RT.
Install RM-5 mounted on rail @ 25' o.c. (8 EA)
Reset guardrail post (75 LF)

℄ STA. 117+50± LT. TO ℄ STA. 120+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (11 EA)
Reset guardrail post (75 LF)

℄ STA. 121+50± LT. TO ℄ STA. 123+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (7 EA)



℄ STA. 118+25± RT. TO ℄ STA. 123+00± RT.
Install RM-5 mounted on rail @ 25' o.c. (20 EA)
Reset guardrail post (75 LF)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
⟨1⟩ Exist. Sign(s) ⊄ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ⊄ Post(s)
⟨3⟩ Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
⟨4⟩ Install New Sign(s) ⊄ Post(s)

DATE	REVISION
8/30/19	Issuing Sheet inadvertently left out from original Bid Set.

ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ⊄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

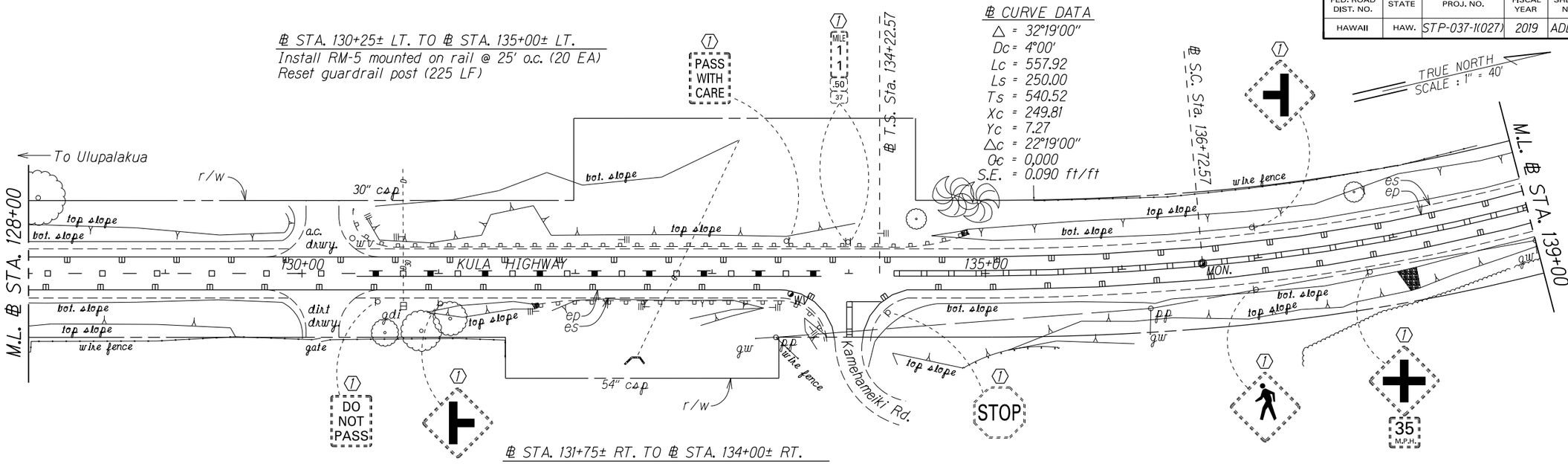
SHEET No. 17 OF 22 SHEETS

ADD. 30

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.31	35

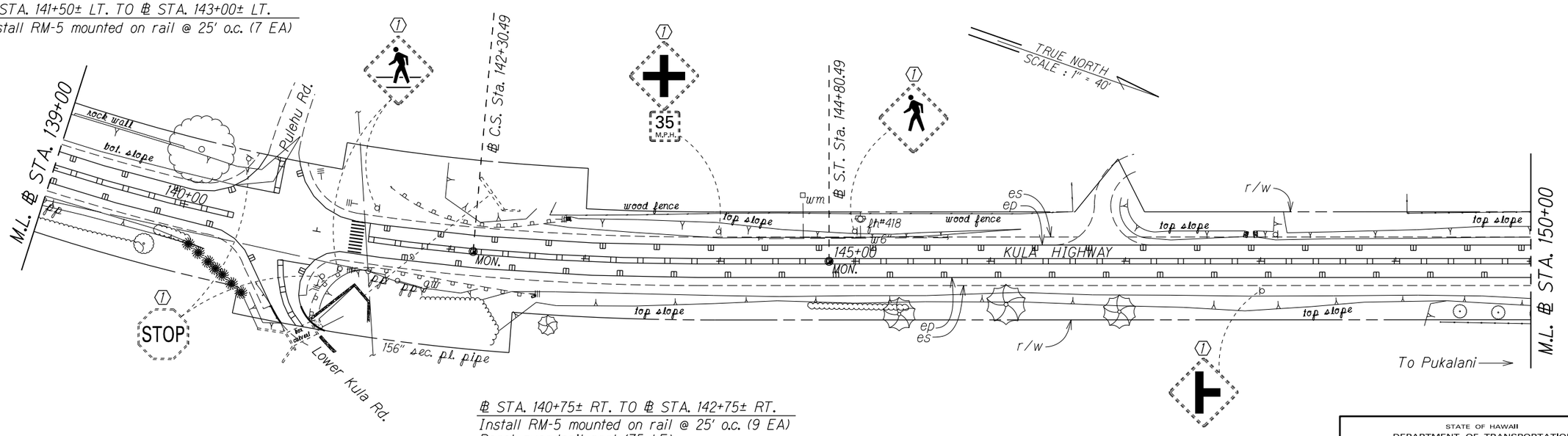
℄ STA. 130+25± LT. TO ℄ STA. 135+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (20 EA)
Reset guardrail post (225 LF)

℄ CURVE DATA
△ = 32°19'00"
Dc = 4°00'
Lc = 557.92
Ls = 250.00
Ts = 540.52
Xc = 249.81
Yc = 7.27
△c = 22°19'00"
Oc = 0.000
S.E. = 0.090 ft/ft



℄ STA. 131+75± RT. TO ℄ STA. 134+00± RT.
Install RM-5 mounted on rail @ 25' o.c. (10 EA)
Reset guardrail post (75 LF)

℄ STA. 141+50± LT. TO ℄ STA. 143+00± LT.
Install RM-5 mounted on rail @ 25' o.c. (7 EA)



℄ STA. 140+75± RT. TO ℄ STA. 142+75± RT.
Install RM-5 mounted on rail @ 25' o.c. (9 EA)
Reset guardrail post (75 LF)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:
⟨1⟩ Exist. Sign(s) ⊄ Post(s) to Remain
⟨2⟩ Remove Exist. Sign(s) ⊄ Post(s)
⟨3⟩ Remove Exist. ⊄ Install New Sign(s) ⊄ Post(s)
⟨4⟩ Install New Sign(s) ⊄ Post(s)

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
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DESIGNED BY ____
NOTE BOOK ____ QUANTITIES BY ____
CHECKED BY ____
No. ____

DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ⊄ PAVEMENT MARKING PLAN

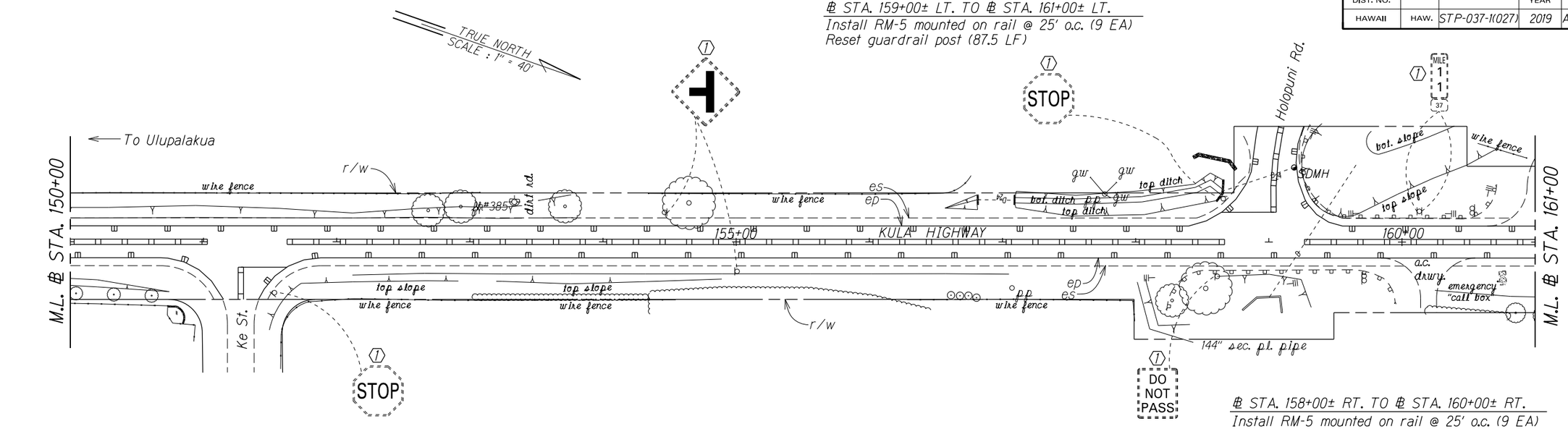
KULA HIGHWAY GUARDRAIL
AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 18 OF 22 SHEETS

ADD. 31

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.32	35



NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

1. Exist. Sign(s) ℄ Post(s) to Remain
2. Remove Exist. Sign(s) ℄ Post(s)
3. Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
4. Install New Sign(s) ℄ Post(s)

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY ℄ PAVEMENT MARKING PLAN

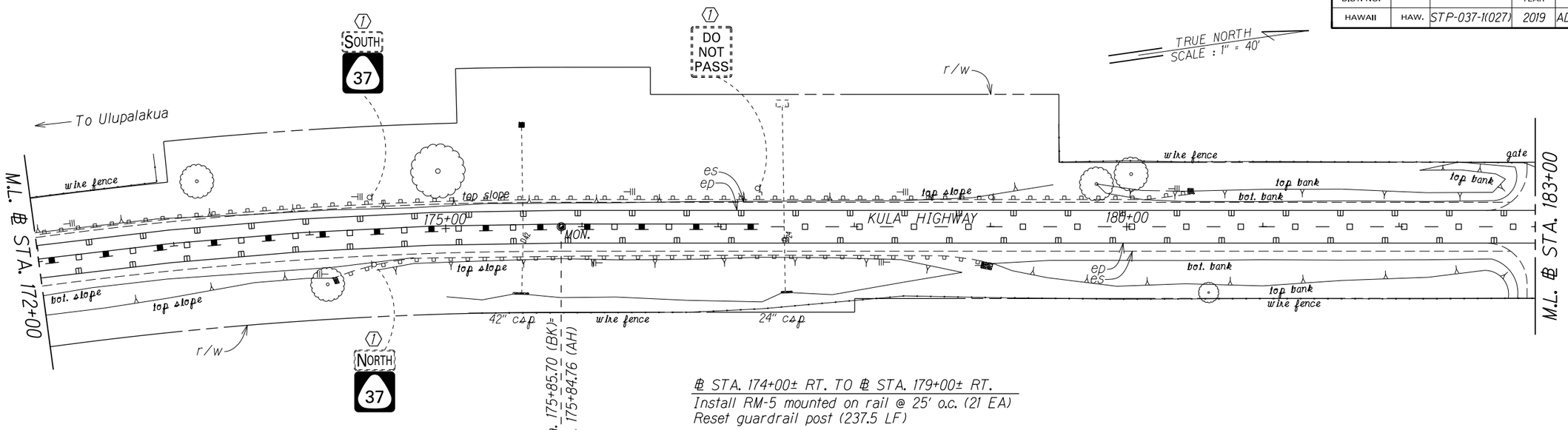
KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

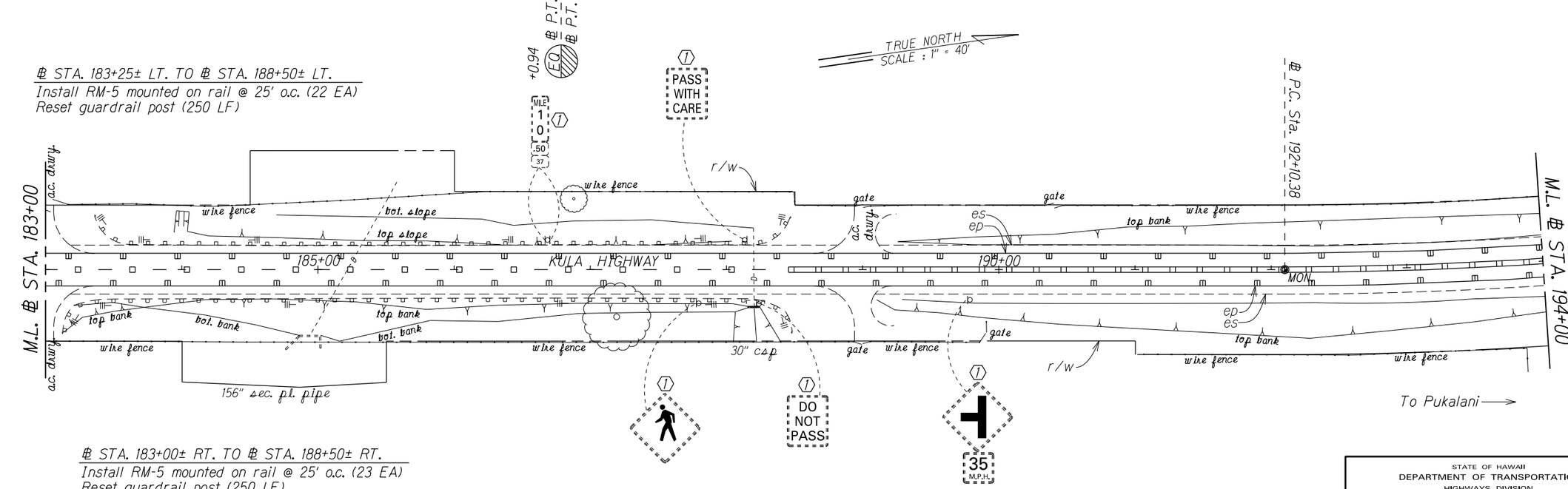
SHEET No. 19 OF 22 SHEETS

ADD. 32

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.33	35



℄ STA. 174+00± RT. TO ℄ STA. 179+00± RT.
Install RM-5 mounted on rail @ 25' o.c. (21 EA)
Reset guardrail post (237.5 LF)



℄ STA. 183+25± LT. TO ℄ STA. 188+50± LT.
Install RM-5 mounted on rail @ 25' o.c. (22 EA)
Reset guardrail post (250 LF)

℄ STA. 183+00± RT. TO ℄ STA. 188+50± RT.
Install RM-5 mounted on rail @ 25' o.c. (23 EA)
Reset guardrail post (250 LF)

NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

1. Exist. Sign(s) ℄ Post(s) to Remain
2. Remove Exist. Sign(s) ℄ Post(s)
3. Remove Exist. ℄ Install New Sign(s) ℄ Post(s)
4. Install New Sign(s) ℄ Post(s)

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ROADWAY ℄ PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

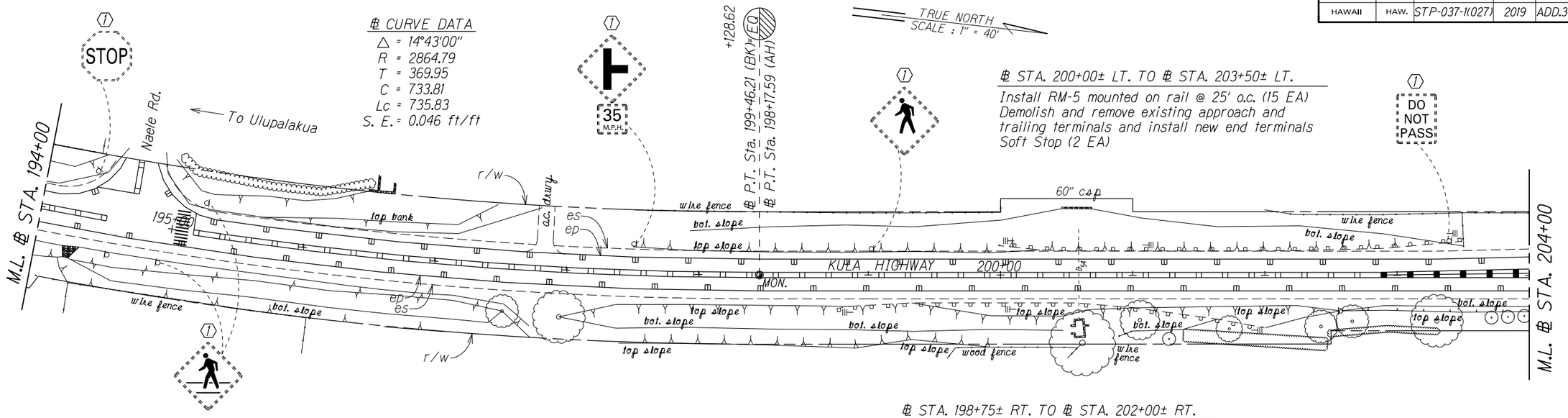
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

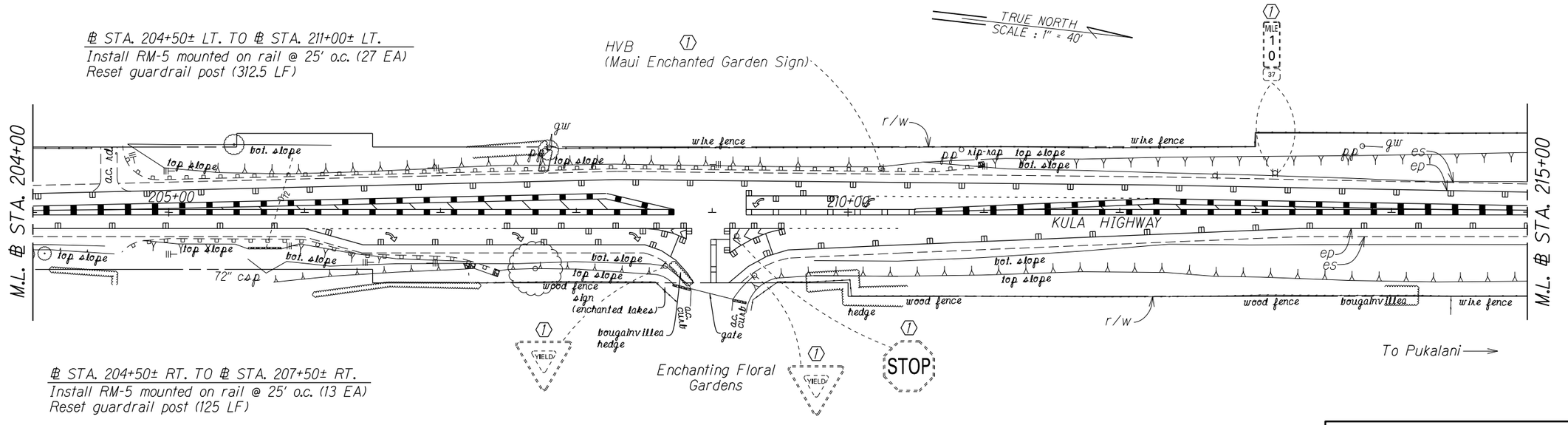
Scale: 1" =40' Date: September, 2018

SHEET No. 20 OF 22 SHEETS

ADD. 33

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.34	35





KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

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ORIGINAL PLAN
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STATE OF HAWAII
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HIGHWAYS DIVISION

ROADWAY & PAVEMENT MARKING PLAN

KULA HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS

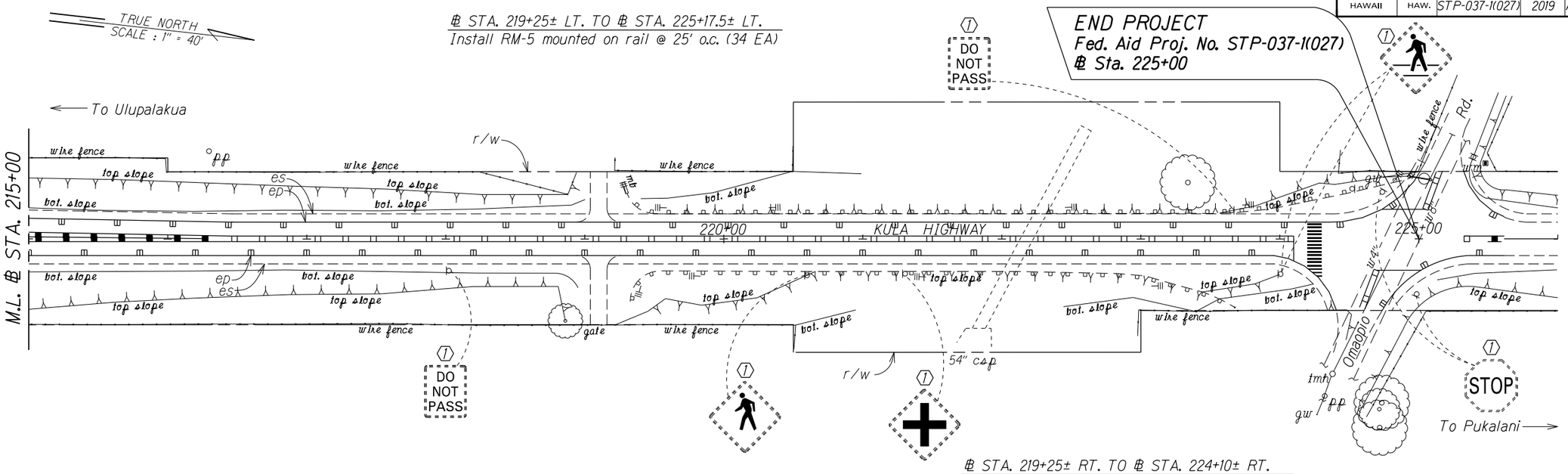
Omaopio Road to Sun Yat Sen Park
Federal-Aid Project No. STP-037-1(027)

Scale: 1" =40' Date: September, 2018

SHEET No. 21 OF 22 SHEETS

ADD. 34

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-037-1(027)	2019	ADD.35	35



NOTE:
Install RM-3 yellow with steel post behind existing guardrail @ 150 ft. o.c.. Refer to Standard Plan Sheet TE-14.

KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. Sign(s) & Post(s)
3. Remove Exist. & Install New Sign(s) & Post(s)
4. Install New Sign(s) & Post(s)

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SHEET No. 22 OF 22 SHEETS

ADD. 35