

GENERAL NOTES

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.3 | 38 |

1. The scope of work for this project consists of resurfacing existing pavement with a 2" Hot Mix Asphalt (HMA) pavement overlay; reconstructing weakened pavement areas; cold planing; adjusting water valves, manhole covers, survey monuments; installation of pavement marking and striping; installation of reflector markers on existing guardrails; replacing traffic signs; updating guardrail terminal ends and repairing damaged guardrails; cleaning of existing culverts and drainage structures; and all incidental work.

2. The Contractor's attention is directed to Subsection 107.13 - Public Convenience and Safety: Section 645 - Traffic Control and Subsection 104.04 Maintenance of Traffic.

3. 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.

4. 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.

5. All holes, depressions, and wheel ruts and leveling areas as shown on the plans shall be filled and compacted with Asphalt Concrete Pavement, Mix No. V leveling course prior to resurfacing. The exact locations and limits or areas to be filled with leveling course, reconstructed, cold planed and crack sealed shall be determined in the field by the Engineer. All loop detectors that are disturbed by reconstruction or cold planing shall be replaced and considered incidental to the various traffic signal system items.

6. Prior to resurfacing, the existing surface shall be cleaned as described in Section 310 of the Standard Specifications and as amended. Additionally, all cracks and joints must be sealed as described in Section 401 of the Special Provisions. Payment shall be considered incidental to Item No. 401.1000 - Hot Mix Asphalt (HMA) Pavement, Mix No. IV.

7. The Contractor shall notify the State in writing, two (2) weeks prior to starting paving operations.

8. The Contractor shall remove and dispose of all existing raised pavement markers prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to Hot Mix Asphalt (HMA) Pavement and will not be paid for separately.

9. Reflector markers (RM-2) with steel posts shall be installed behind guardrails at the start and end of guardrail systems and at culvert ends. Reflector markers (RM-2) with flexible post shall be installed at culvert ends unprotected by guardrails. Type II object markers shall be installed on utility poles and trees within State right of way.

10. Unless directed by the Engineer, connections shall be cold planed at all limits of resurfacing including the beginning and end of project, connecting approaches, side streets and driveways.

11. Dressing shoulder, shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable excavated material as shown on the plans and/or as directed by the Engineer. Shoulder areas without guardrails shall be dressed at 6:1 slope (max.) unless shown on plans or directed by the Engineer.

12. Existing drainage system will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow, the cost of which shall be considered incidental to the various contract items.

13. The Contractor shall provide for safe access to and from all existing driveways and streets at all times.

14. All saw cutting of existing pavement shall not be measured or paid for separately, but shall be considered incidental to various contract items.

15. Unless directed or approved by the Engineer, staggered paving resulting in longitudinal dropoff will not be permitted. In case of emergency, transition wedge with 10:1 slope shall be constructed along the longitudinal joint. Furthermore, temporary markings consisting of double, 4-inch yellow reflective tape with Type "D" markers at 20' o.c. shall be installed. Prior to resuming paving, the transition wedge shall be removed by saw cutting. Furnishing, paving and removing the transition wedge will not be paid for separately but will be considered incidental to Hot Mix Asphalt (HMA) Pavement.

16. At the end of each paving day, transverse joint must be constructed to provide a smooth riding connection. Transition wedge shall be constructed at 10:1 slope or flatter. Prior to resuming paving, the transition wedge shall be removed by saw cutting. Furnishing, paving and removing the transition wedge will not be paid for separately but will be considered incidental to Hot Mix Asphalt (HMA) Pavement.

17. Resetting or adjusting of existing guardrail heights shall include adjustment of terminal sections including foundations, etc. to required height.

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

19. In cold planing the pavement over the structure, the Contractor shall exercise care not to damage any portion of the structure, specially the structure deck, joints, drain pipes or reinforcement. Any damage to the structure during the cold planing operation shall be repaired by the Contractor at his own expense. Repair work shall be as directed by the Engineer. The Contractor shall verify the existing pavement thickness by hand digging at various locations. This work shall be considered incidental to Cold Planing.

20. Contractor shall adjust pipe casings of existing centerline survey monument whether shown or not on the plans, in accordance with Standard Plan D-07 or any other method as directed by the Engineer to suit field condition. Contractor to verify existing conditions prior to construction. Adjustment of centerline monument will be paid for at the Contract Unit Price regardless of method used. Contractor shall clean existing monuments to expose survey pins.

21. Along Honoapiilani Highway construction work may be done at night and on weekends. See Special Provisions Section 645 (Work Zone Traffic Control).

22. If nighttime construction occurs then the following measures, as required by the U.S. Fish and Wildlife Service, must be implemented:

a. No nighttime construction will occur during the seabird fledging period, September 15 through December 15.

b. All lighting should be shielded and directed toward the ground.

c. All construction personnel will be required to attend seabird awareness training program prior to the initiation of construction.

d. A pet carrier will be on site at all times to temporarily hold any downed seabird recovered in the general project area. In the case that a downed seabird is found, it will be retrieved and placed in the pet carrier in a shady area until Hawaii Division of Forestry and Wildlife (DOFAW, 808-984-8100) or National Park personnel retrieve the bird.

e. Contact the U.S. Fish and Wildlife Service or DOFAW personnel immediately upon the recovery of any downed seabird.

LEGEND

- Reconstruction Areas

Cold Planing Areas

Resurfacing Limits

Leveling Course Areas

Existing Guy Pole

Existing Joint Pole

Existing Power Pole

Existing Drain Line

Existing Electrical Line

Existing Sewer Line

Existing Force Main

Existing Sewer Manhole Air Valve

Adjusted Sewer Manhole Air Valve

Existing Telephone Line

Adjusted Water Valve

Adjusted Water MH Frame/Cover

Adjusted Water MH Frame/Cover

Existing Fire Hydrant

Adjusted Storm Drain Manhole

Existing Telephone Pullbox

Existing Storm Drain Catch Basin

Existing 12" Water Line

Existing 16" Water Line

Existing Fiber Optic Manhole

Adjusted Cable TV Pull Box

6-9-11 Revised General Notes No. 5, 9, & 11.

6-9-11 Added Leveling Course Areas symbol to Legend.

DATE

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

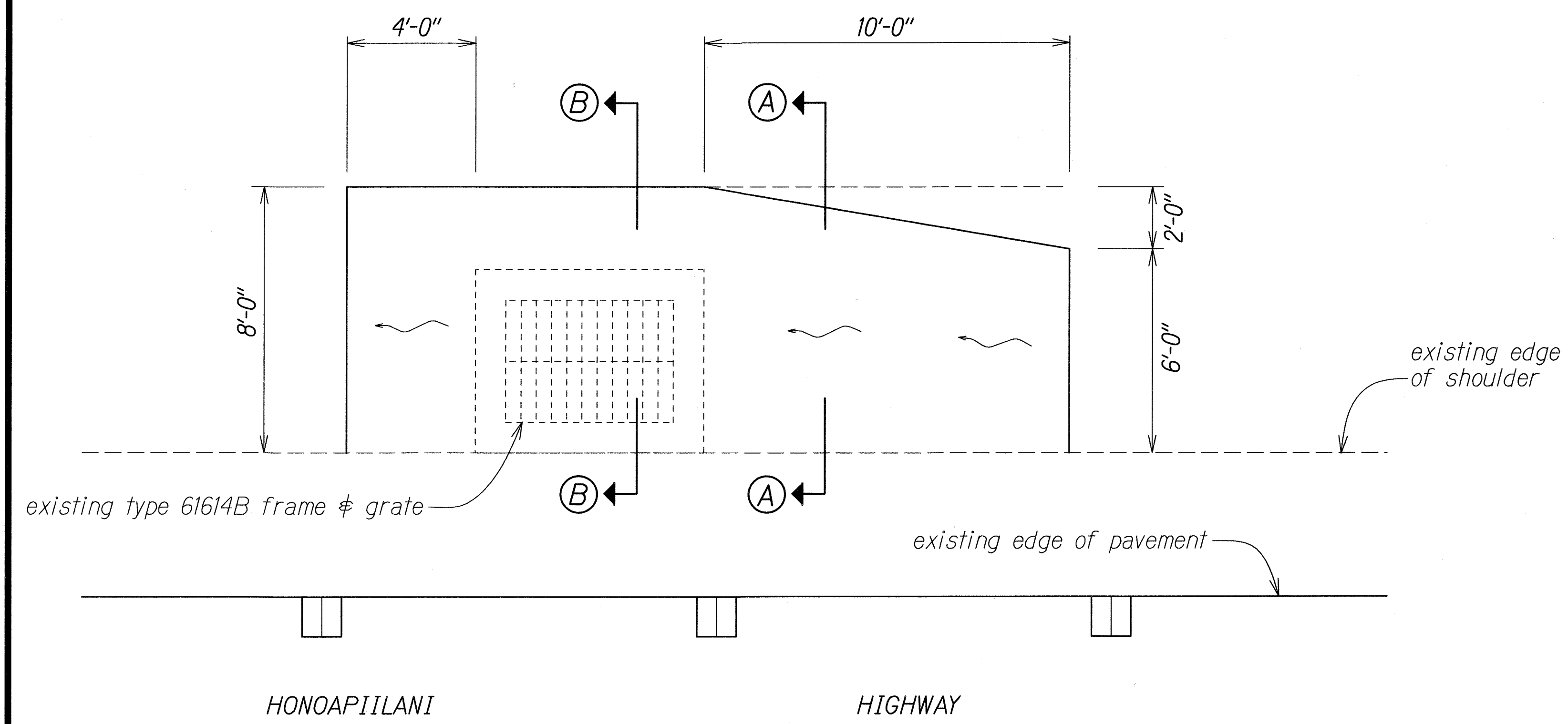
GENERAL NOTES & LEGEND

KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)
Date: July, 2009

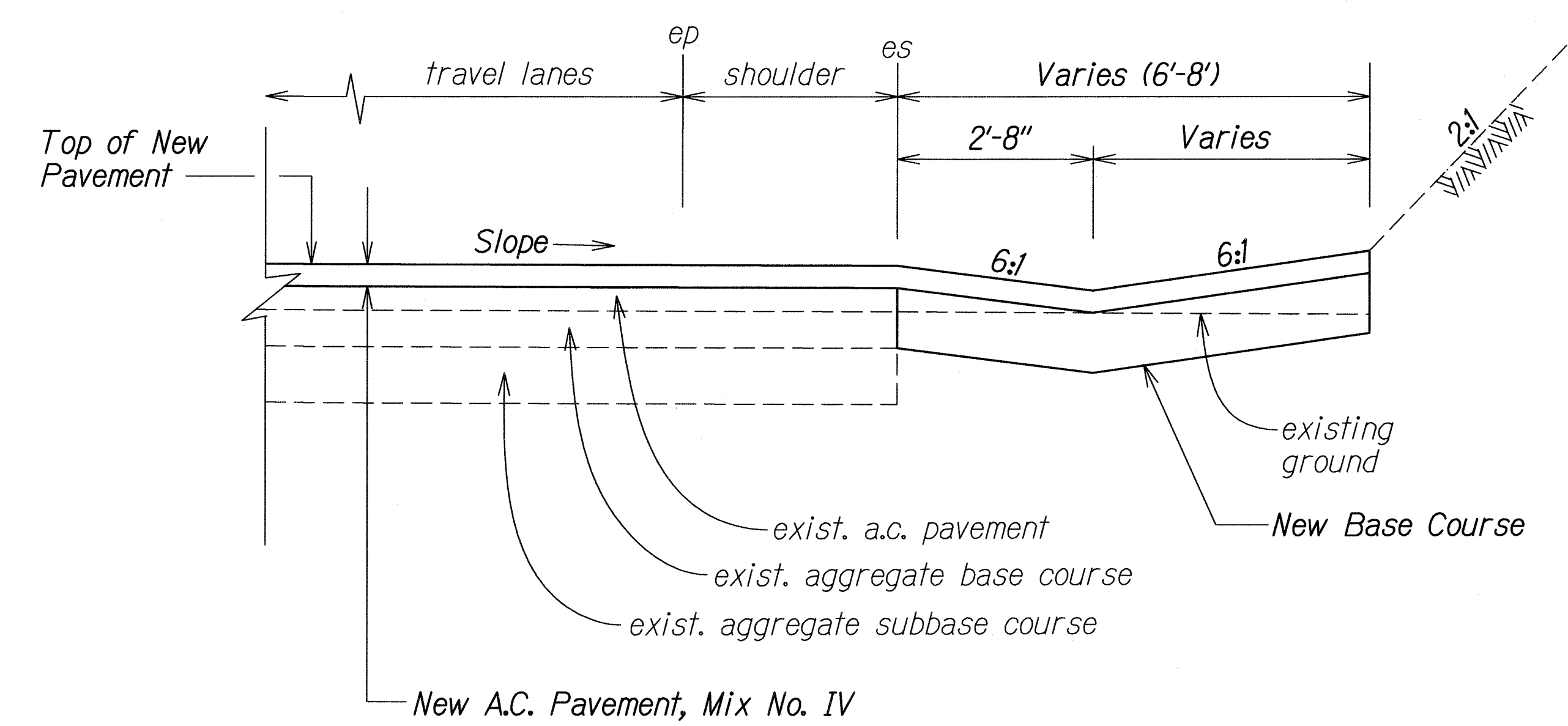
SHEET No. 1 OF 1 SHEETS

ADD. 3

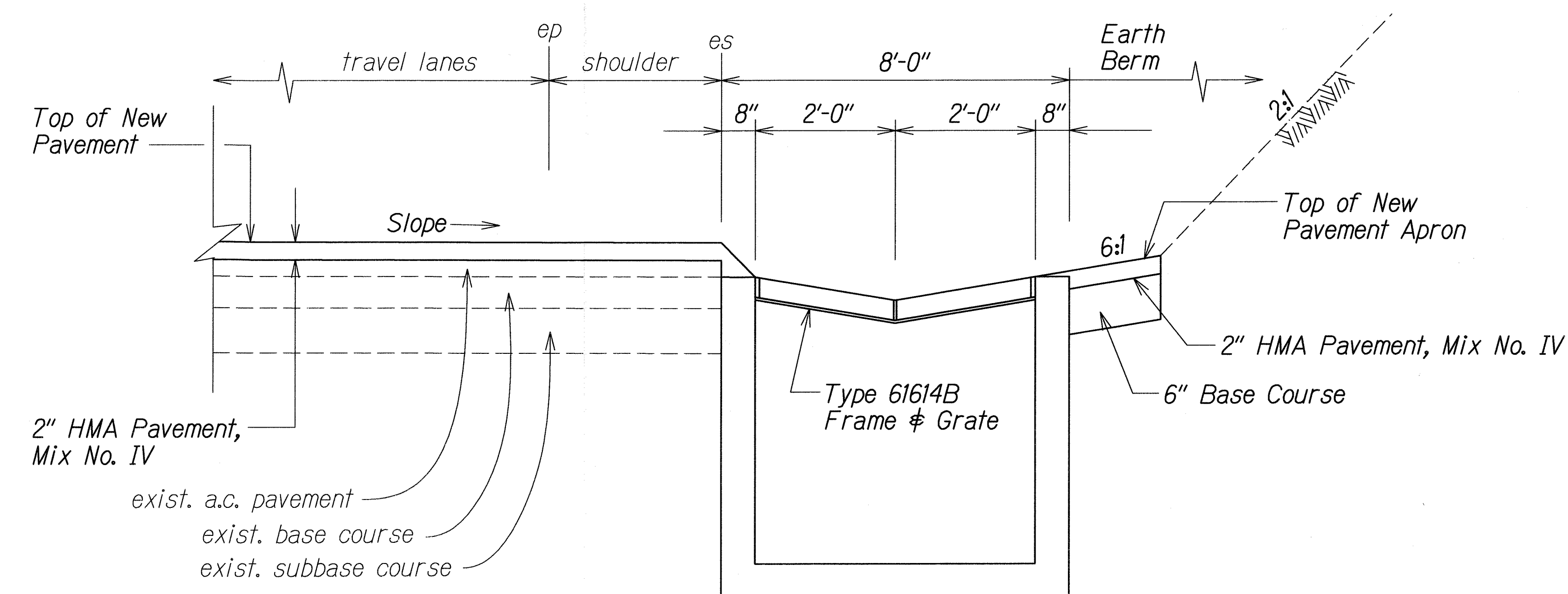
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|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.9S-1 | 38 |



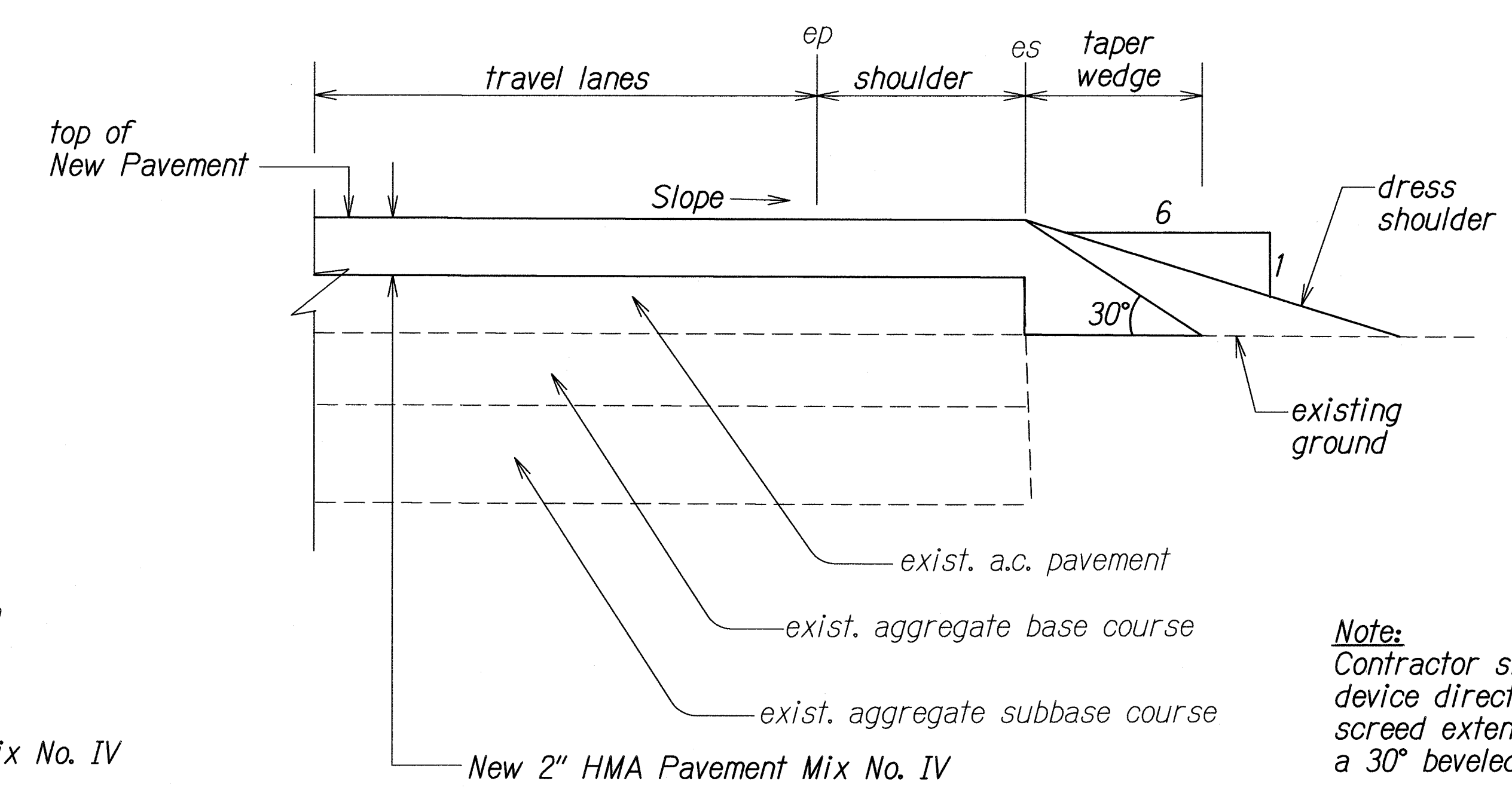
PAVING DETAIL AROUND EXISTING GDI
Not To Scale



SECTION A-A
Not To Scale



SECTION B-B
Not To Scale



TYPICAL PAVEMENT EDGE DETAIL
Not To Scale

Note:
Contractor shall mount a device directly on the paver screed extension to provide a 30° beveled shoulder edge.

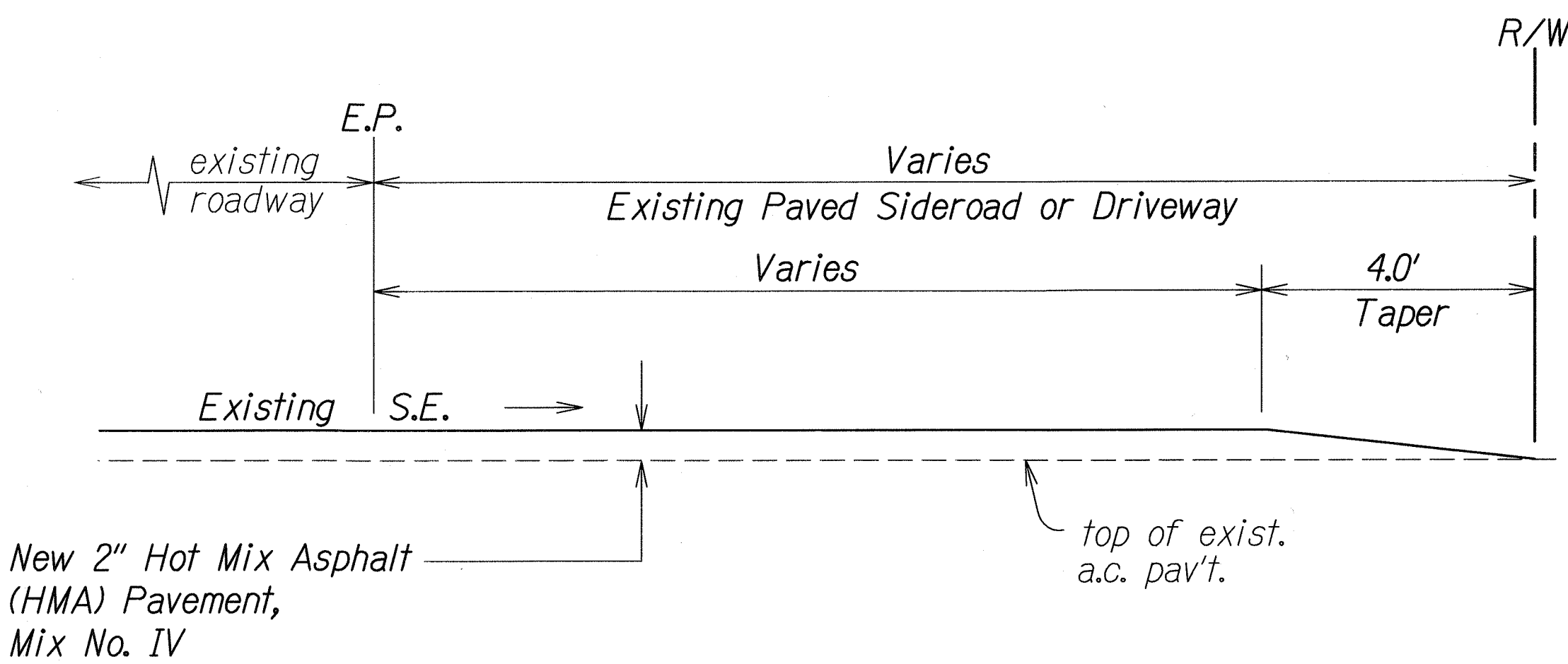
| | | |
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| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DESIGNED BY | |
| QUANTITIES BY | CHECKED BY | |

6-8-11 Added Detail Sheet.

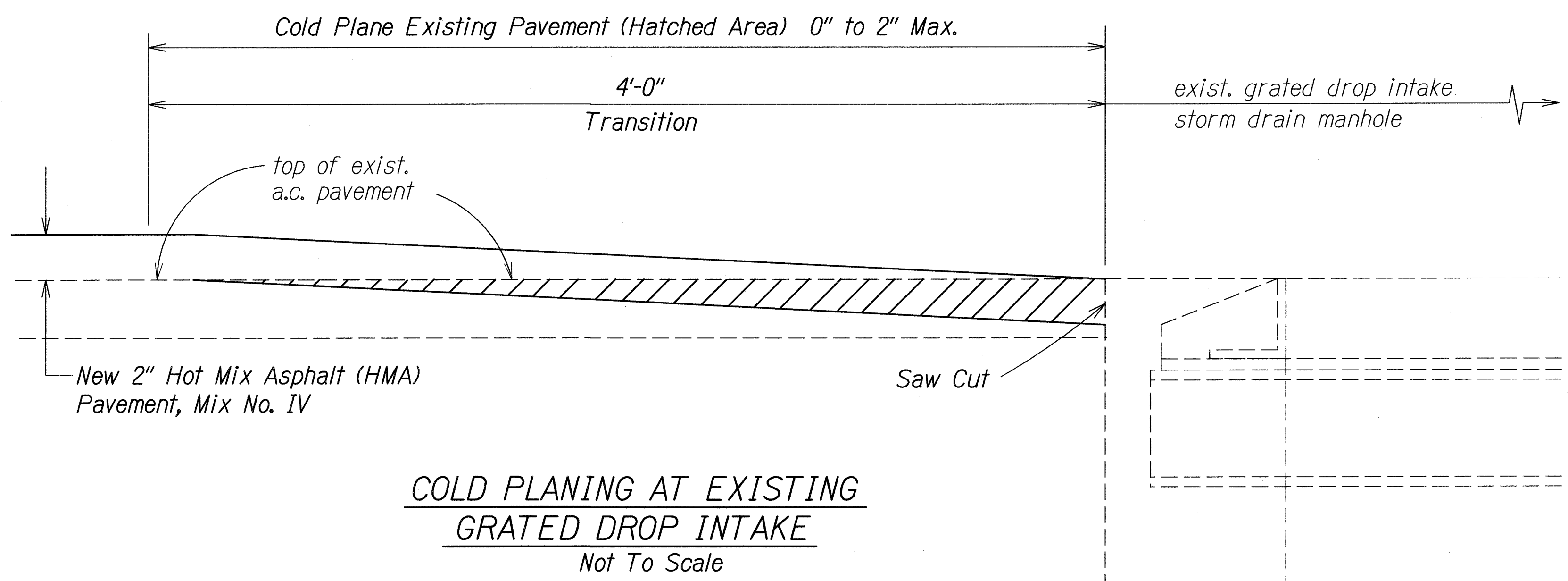
DATE REVISION

| |
|---|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION |
| TYPICAL SECTIONS & DETAILS |
| KULA HIGHWAY RESURFACING Haakakai Bridge towards Old Lower Kula Rd. and HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) |
| Scale: As Shown Date: July, 2009 |
| SHEET No. 1 OF 1 SHEETS |

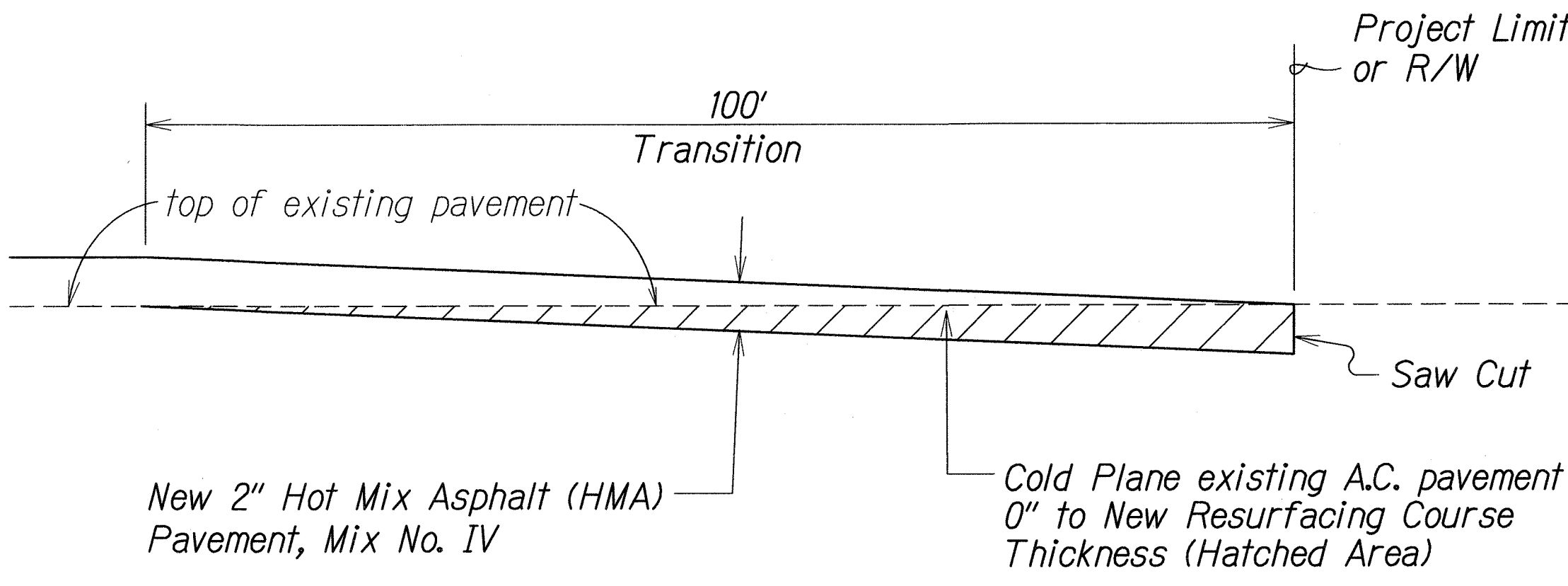
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.9 | 38 |



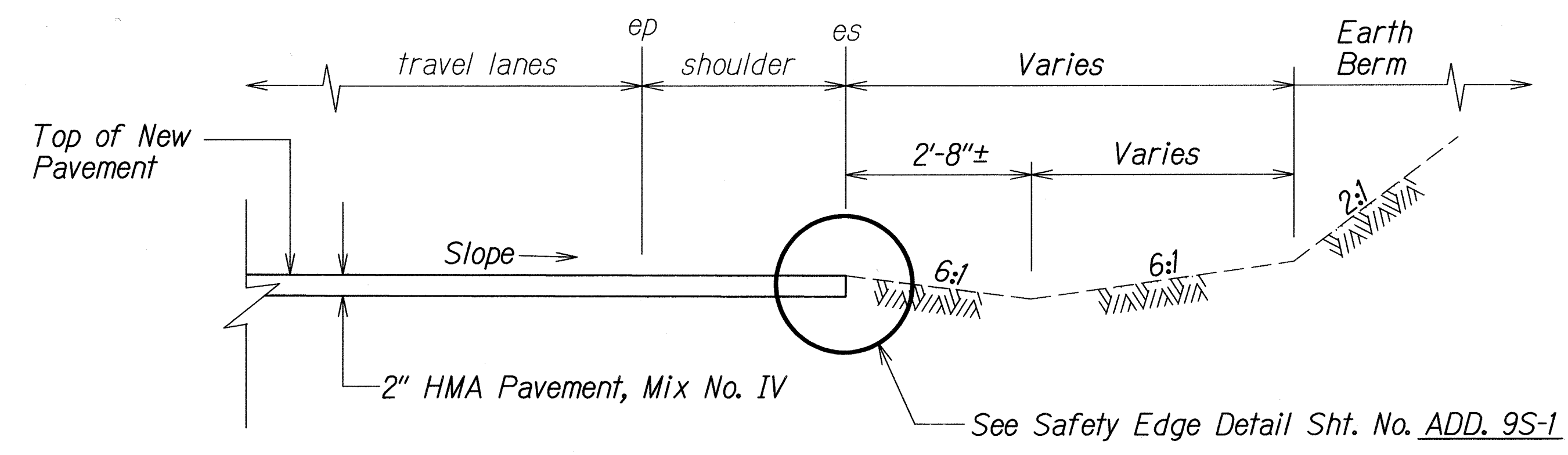
A.C. RESURFACING AT PAVED SIDEROAD OR PAVED DRIVEWAY DETAIL
Not To Scale



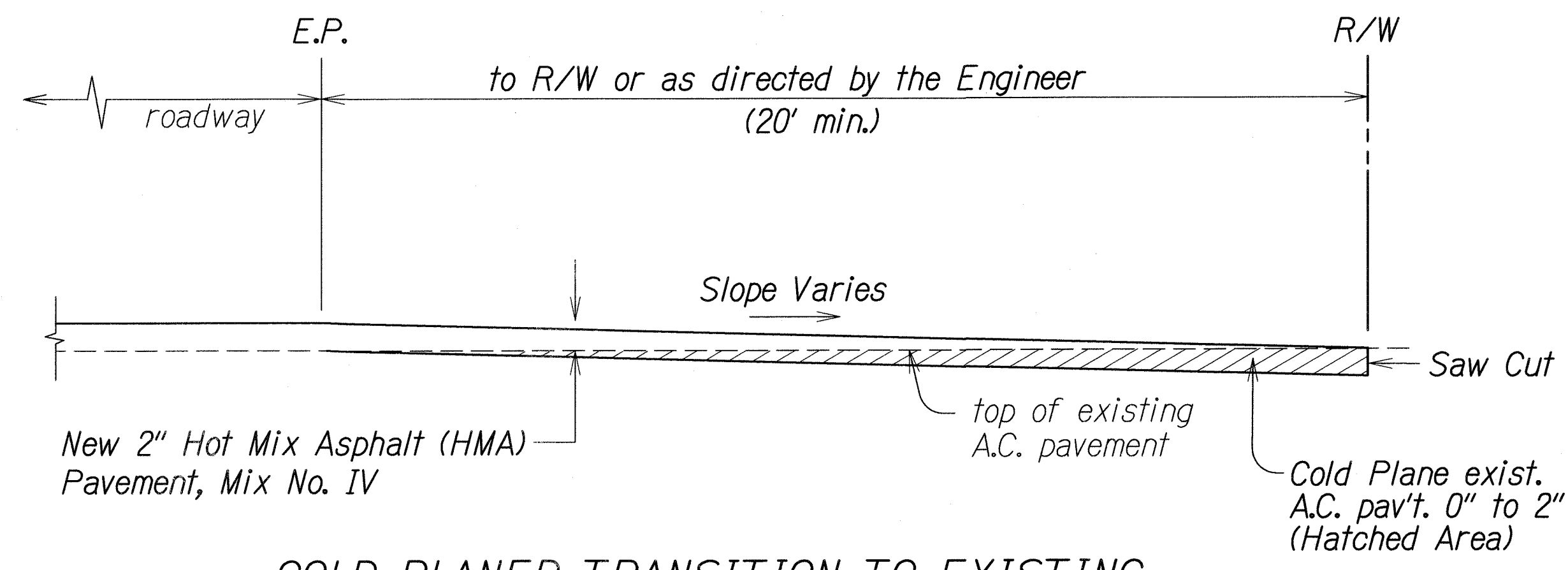
COLD PLANING AT EXISTING GRATED DROP INTAKE
Not To Scale



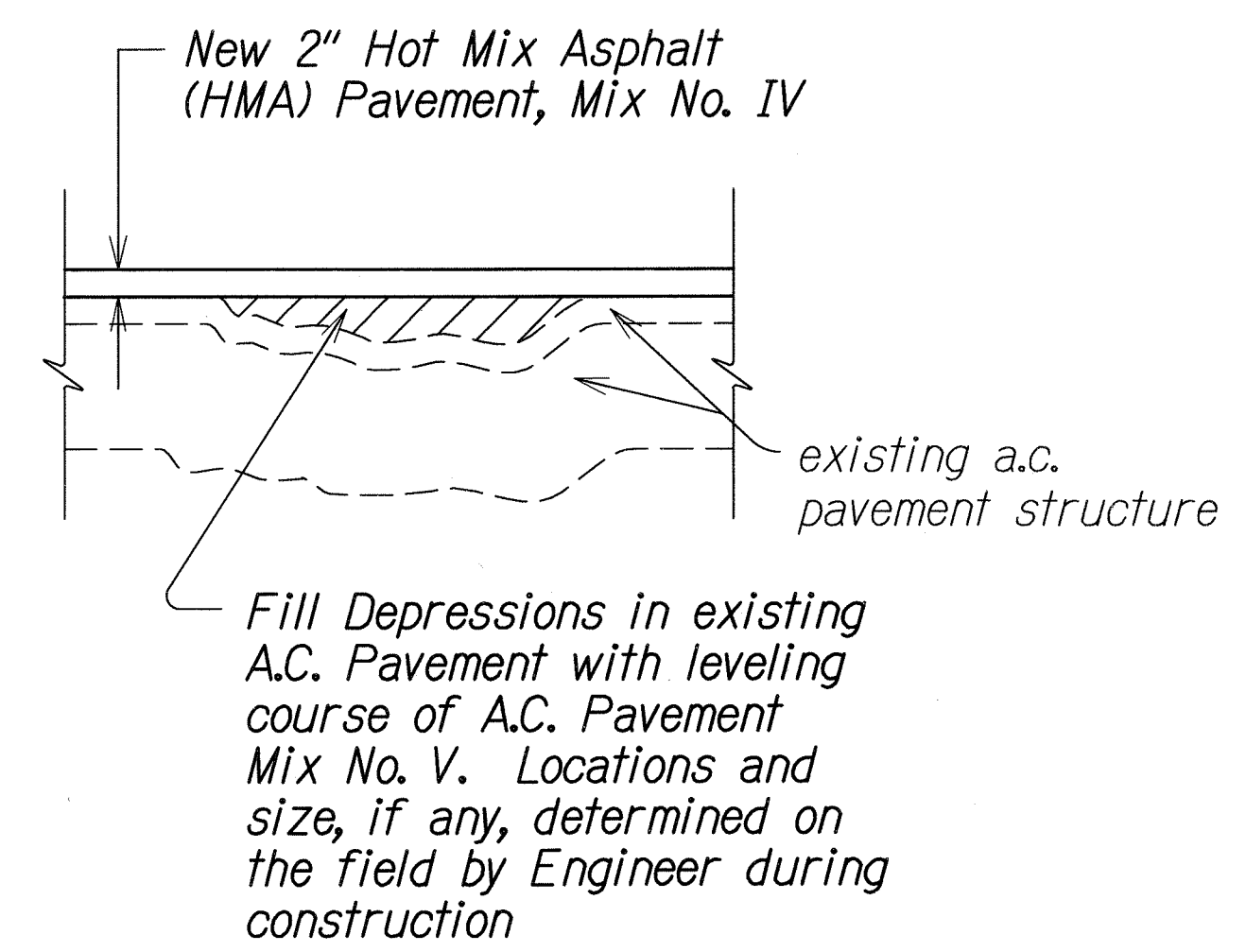
COLD PLANED TRANSITION TO EXISTING A.C. PAVEMENT DETAIL BEGIN AND END OF PROJECT
Not To Scale



TYPICAL UNPAVED SHOULDER SECTION - HONOAPIILANI HIGHWAY (STA. 21+00± RT. TO STA. 35+00± RT.)
Not To Scale



COLD PLANED TRANSITION TO EXISTING PAVED SIDE ROAD DETAIL
Not To Scale

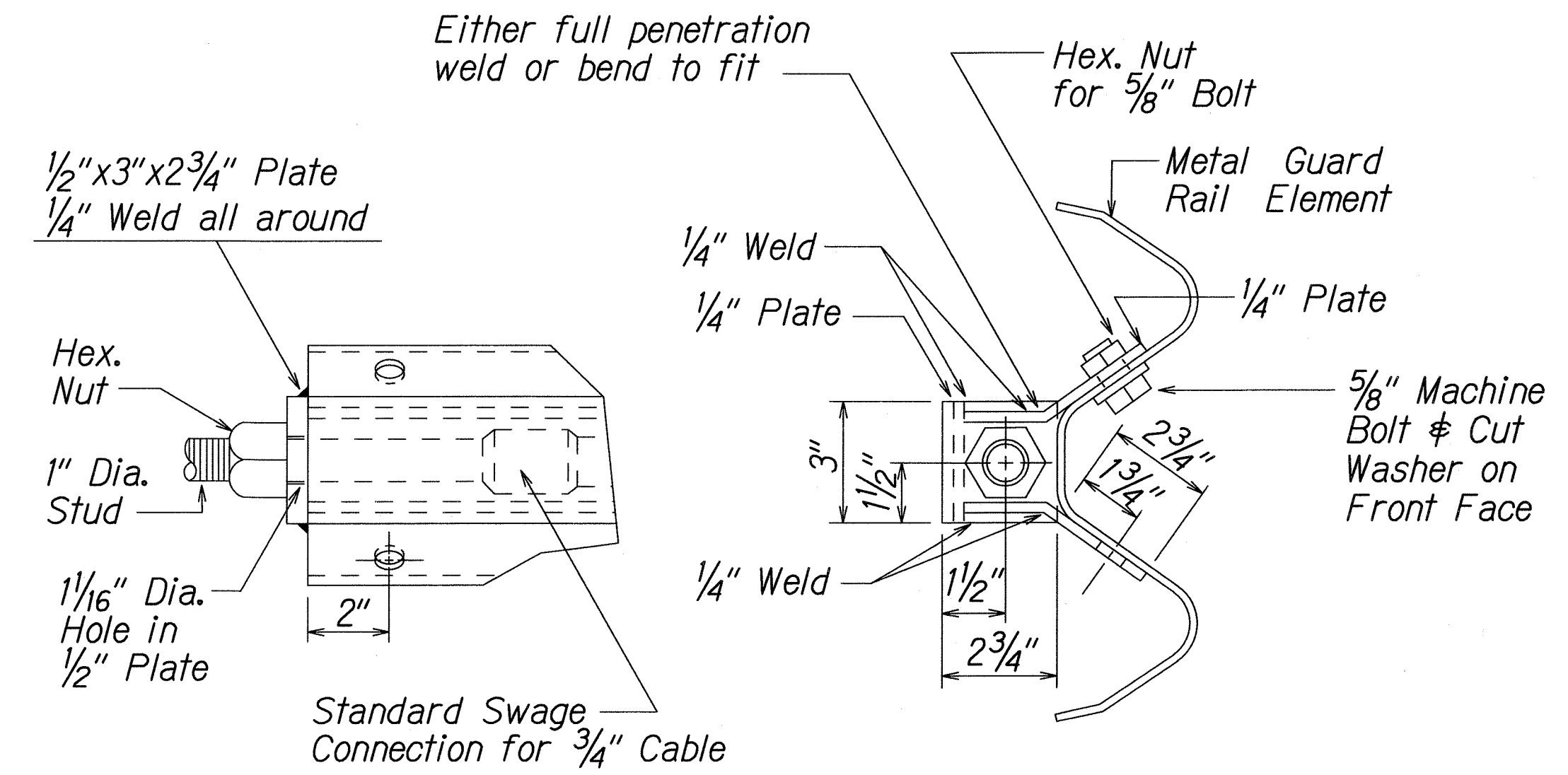


LEVELING COURSE DETAIL
Not To Scale

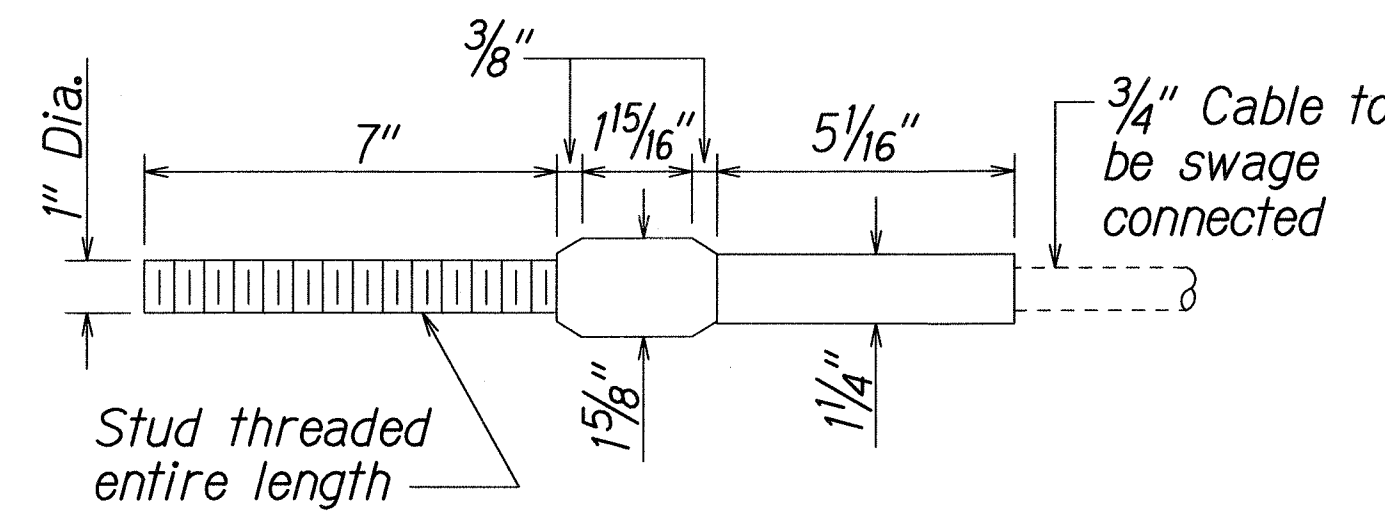
| 6-6-11 | Added Typical Unpaved Shoulder Section Detail. |
|---|--|
| 6-6-11 | Delete cold planing of existing a.c. pavement @ concrete curb or swale or gutter detail. |
| DATE | REVISION |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL SECTIONS & DETAILS KULA HIGHWAY RESURFACING Haakakai Bridge towards Old Lower Kula Rd. and HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) Scale: As Shown Date: July, 2009 | |
| SHEET No. 4 OF 4 SHEETS | |

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| SURVEY PLOTTED BY | DATE |
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| ORIGINAL PLAN | |
| NOTE BOOK | |
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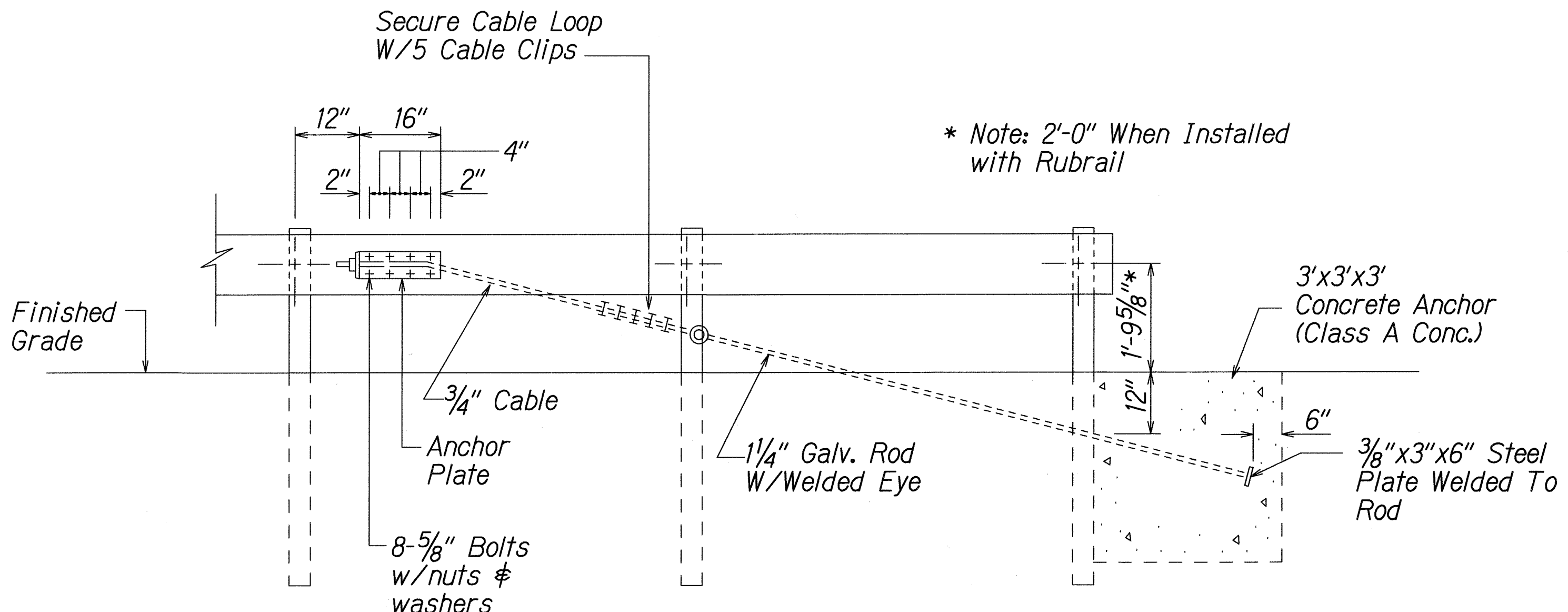
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.13S-1 | 38 |



ANCHOR PLATE DETAILS

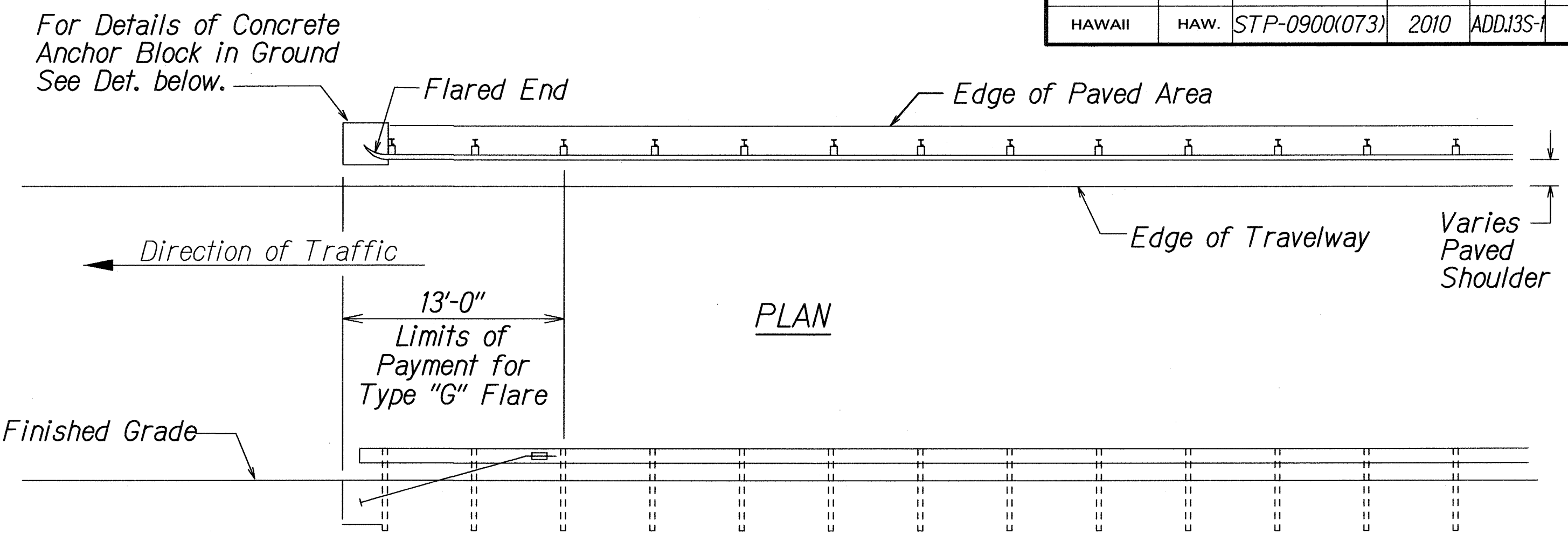


STANDARD SWAGED FITTING AND STUD



ANCHOR BLOCK DETAIL

1. Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.



ELEVATION

TYPE "G" FLARE END TERMINAL

NOTE:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval.

The taper (flare rate) of the guardrail shall follow the latest edition of AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition).

The radius of the radial termini is an Engineer's judgement based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier/contractor); posted speed limit; angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal.

During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

| | |
|--------|-------------------------------|
| 6-6-11 | Added Guardrail Detail Sheet. |
|--------|-------------------------------|

| DATE | REVISION |
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPE "G" FLARED END TERMINAL
KULA HWY. RESURF. Haakakai Brid. towards Old Lower Kula Rd.
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)

Not to Scale Date: July, 2009

SHEET No. 1 OF 1 SHEETS

ADD. 13S-1

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| NOTED BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NOTE BOOK | |
| QUANTITIES BY | |
| CHECKED BY | |

13/13/02 101001y/guardrail/1659radp (standard plan TE-59 r1/103.09)

The figure consists of three diagrams illustrating the placement of traffic signs and pavement markings for a two-lane highway with a centerline rumble strip.

- Top Diagram:** Shows the layout of signs (A and B) and pavement markings (rumble strip and centerline) relative to the direction of traffic. The distance between signs is 40 feet. The distance between the rumble strip and the centerline is 10 feet. The distance between the centerline and the edge of pavement (EP) is 15 feet. The distance between the edge of pavement and the centerline is 15 feet. The distance between the centerline and the edge of pavement is 10 feet.
- Bottom Left Diagram:** Shows the layout of signs (A and B) and pavement markings (rumble strip and centerline) relative to the direction of traffic. The distance between signs is 40 feet. The distance between the rumble strip and the centerline is 10 feet. The distance between the centerline and the edge of pavement (EP) is 15 feet. The distance between the edge of pavement and the centerline is 15 feet. The distance between the centerline and the edge of pavement is 10 feet.
- Bottom Right Diagram:** Shows the layout of signs (A and B) and pavement markings (rumble strip and centerline) relative to the direction of traffic. The distance between signs is 40 feet. The distance between the rumble strip and the centerline is 10 feet. The distance between the centerline and the edge of pavement (EP) is 15 feet. The distance between the edge of pavement and the centerline is 15 feet. The distance between the centerline and the edge of pavement is 10 feet.

Diagram illustrating the dimensions and layout of a pavement marking:

- Spacing:** 20' o.c. (Typ.)
- Width:** 16'
- Marking Dimensions:** 6" Min. to 9" Max.
- Height:** 2"
- Label:** Raised pavement marker (where applicable)

Technical drawing of a base plate with the following dimensions:

- Overall width: 20" o.c.
- Distance from centerline to center of each hole: 6" Min. 9" Max.
- Distance from centerline to edge of each hole: 1/2" Min. - 5/8" Max.

The diagram illustrates the placement of a Milled Centerline Rumble Strip on a road surface. The road surface is shown with a centerline and sloping shoulders. The rumble strip is a rectangular feature with a width of 16 inches. The distance from the centerline to the edge of the rumble strip is 8 inches. The rumble strip is 6 inches wide on each side of the centerline. The rumble strip is 1/2 inch deep and 5/8 inch high. The rumble strip is placed on the road surface, and the sloping shoulders are indicated by arrows labeled "Slope".

SECTION A

Shoulder Milled Rumble Strip

20'

Centerline Milled Rumble Strip

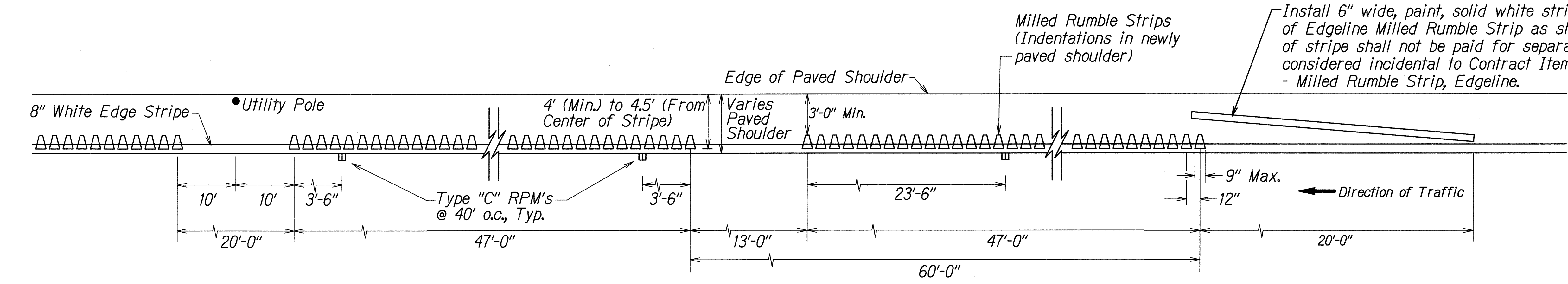
2'

Shoulder Milled Rumble Strip

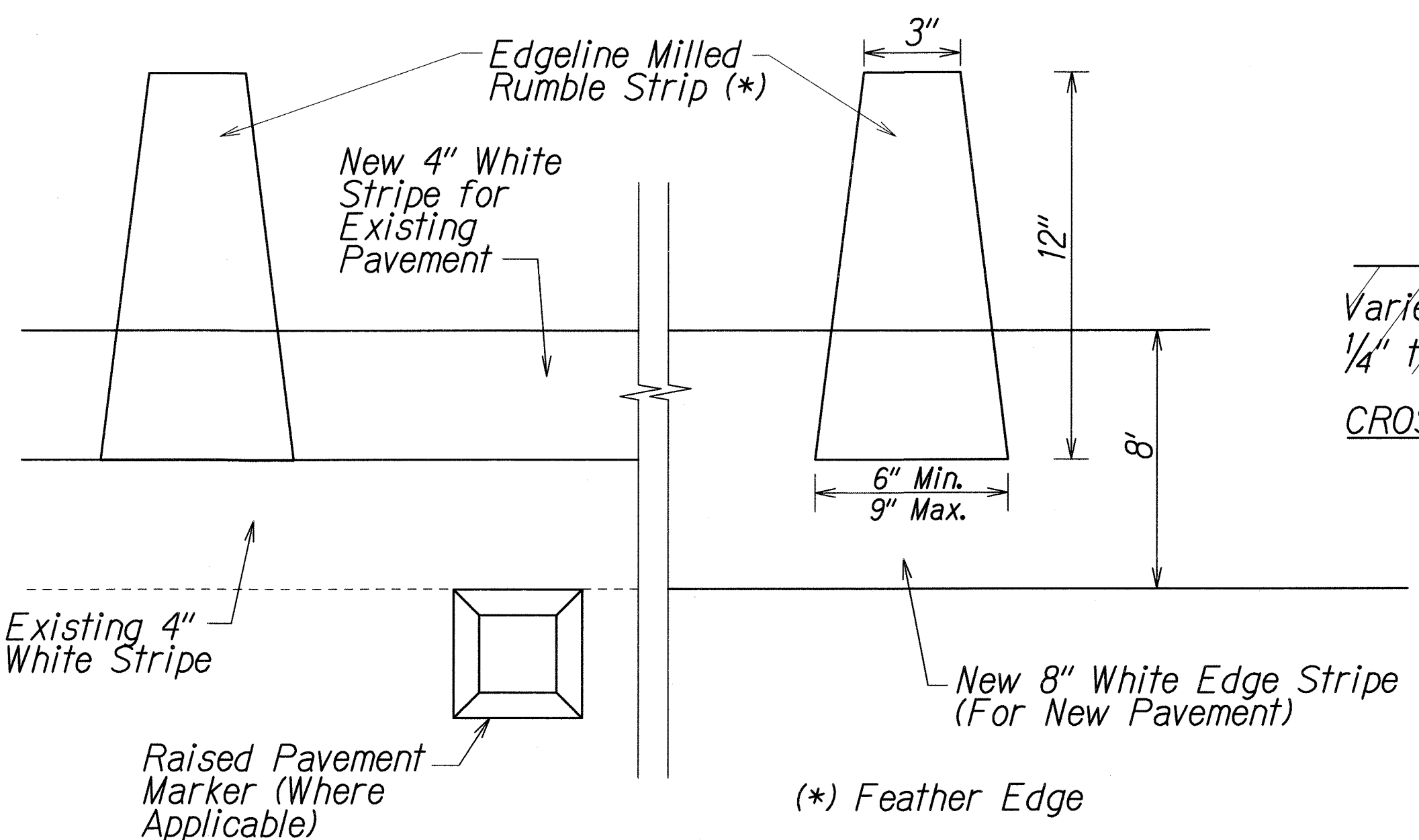
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ADD. 15

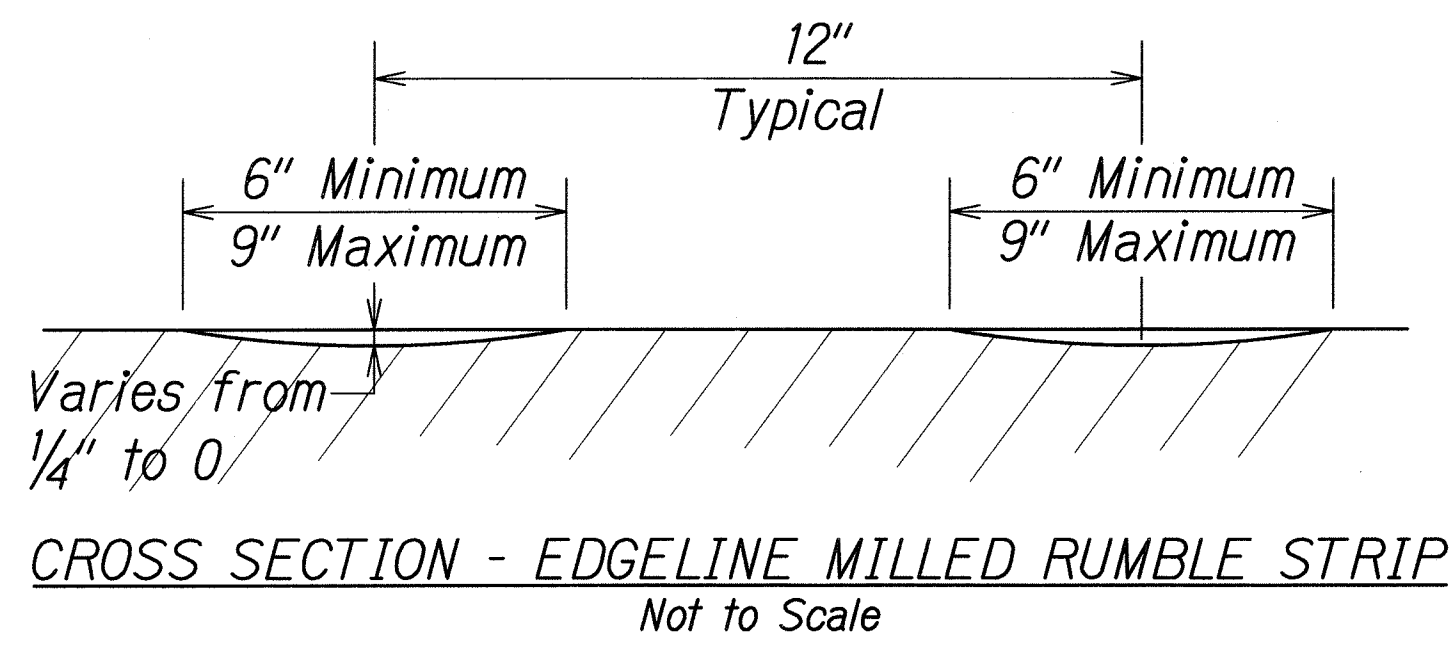
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.16 | 38 |



PLAN - EDGE LINE MILLED RUMBLE STRIP
Not to Scale



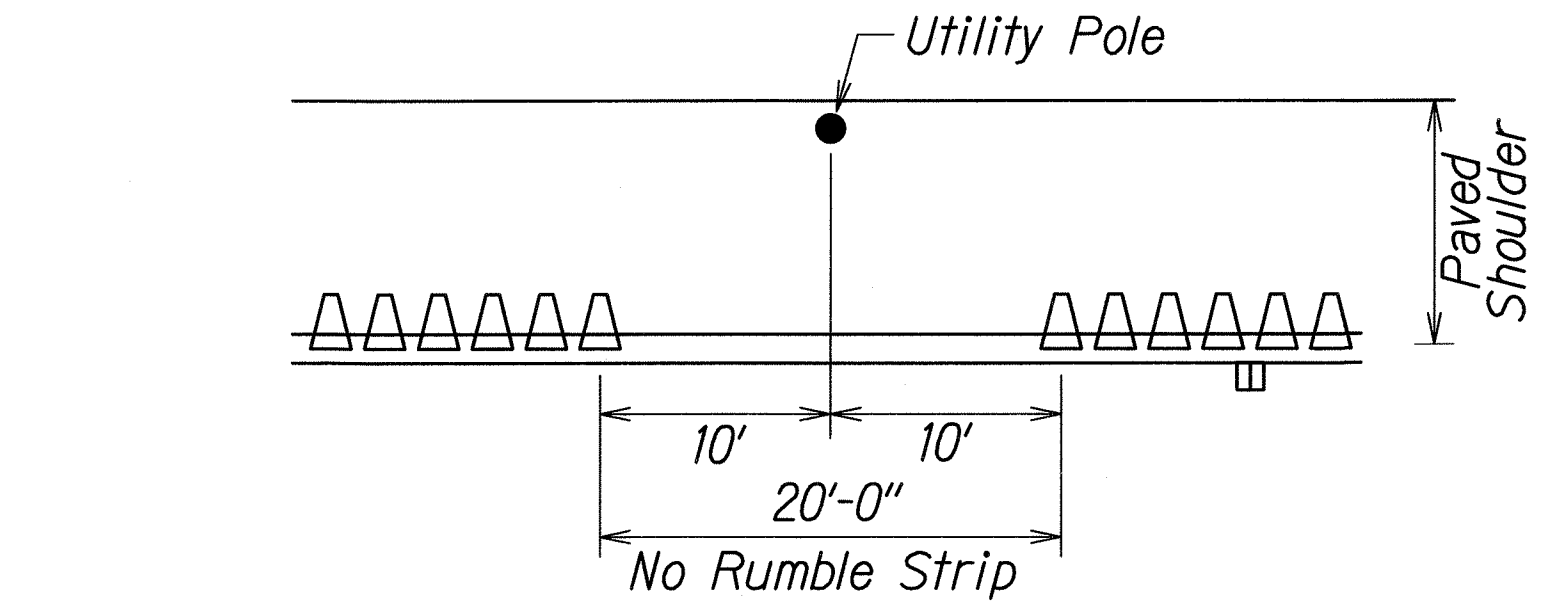
DETAIL - EDGE LINE MILLED RUMBLE STRIP
Not to Scale



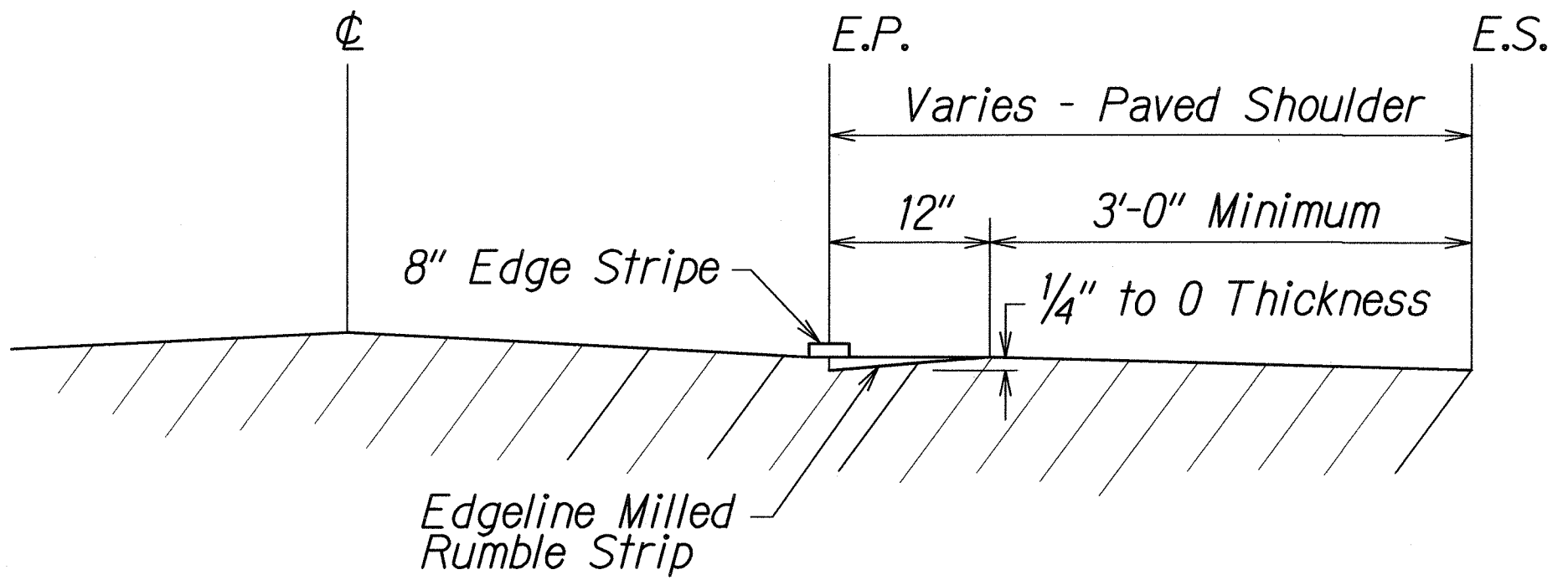
CROSS SECTION - EDGE LINE MILLED RUMBLE STRIP
Not to Scale

NOTES:

- Edgeline milled rumble strips shall be installed where the existing condition of the shoulder are 4' to 4.5' from center of edge stripe.
- The method of constructing the edgeline milled rumble strip shall be submitted to the Engineer for acceptance prior to the actual work.
- Dimensions shown are approximate. Adjust rumble strip spacing to coordinate with pavement marking prior to installation.
- Raised pavement markers shall be installed on level surface between the rumble strips. Do not install raised pavement markers inside the milled area.
- The construction of the edgeline milled rumble strip and 13-foot gaps shall be paid for under Item No. 615.0200 - Milled Rumble Strip, Edgeline. The milling apparatus, 20 L.F. - 6" white stripe, and removal of existing pavement markings will not be paid for separately and shall be considered incidental to Item 615.0200 - Milled Rumble Strip, Edgeline.
- Rumble strips shall be installed along all shoulders, except at right turn deceleration and acceleration lanes, as noted on the plans.
- Do not place Type "C" Raised Pavement markers within 2 ft. of the 13 ft. Rumble Strip opening.
- Do not install edgeline rumble strips on bridge decks.
- Where at-grade bridges are present, rumble strips shall end/begin 20 L.F. beyond the existing bridge deck joints/concrete approach slab.
- Rumble Strips are to be installed after the edge of pavement stripe and before the installation of the Type "C" raised pavement markers.
- Hot spray thermoplastic shall be used for solid line markings within the edgeline milled rumble strip area.



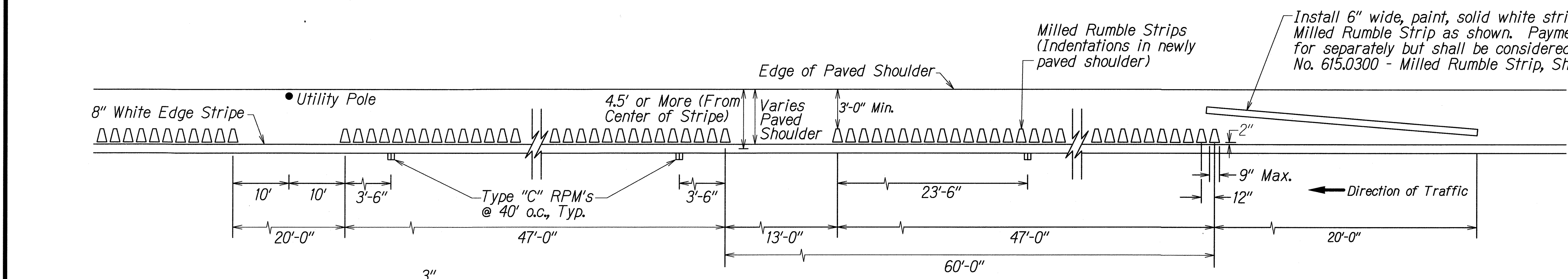
DETAIL - CONDITION WHERE UTILITY POLE EXISTS
Not to Scale



LONGITUDINAL SECTION - EDGE LINE MILLED RUMBLE STRIP
Not to Scale

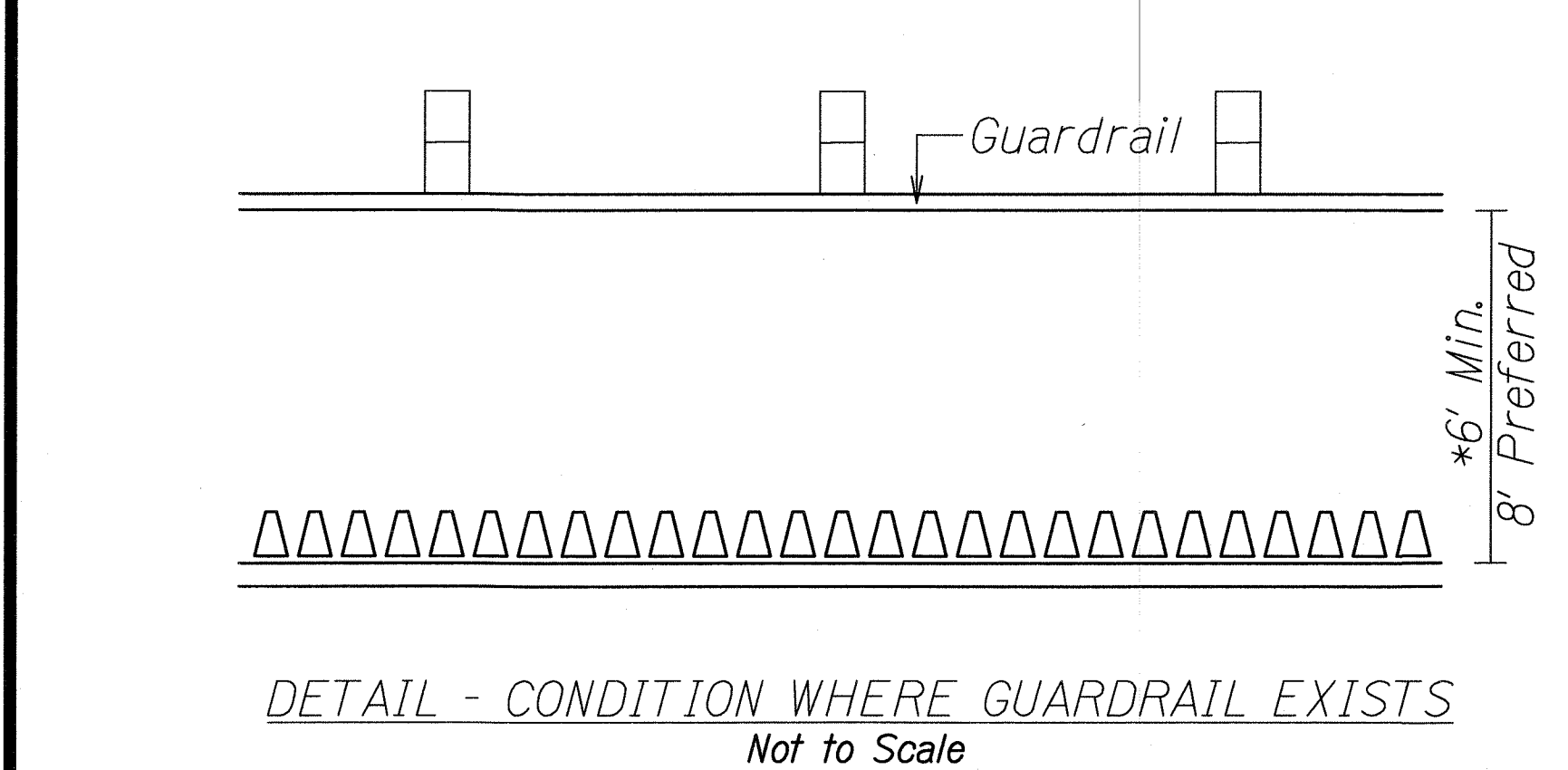
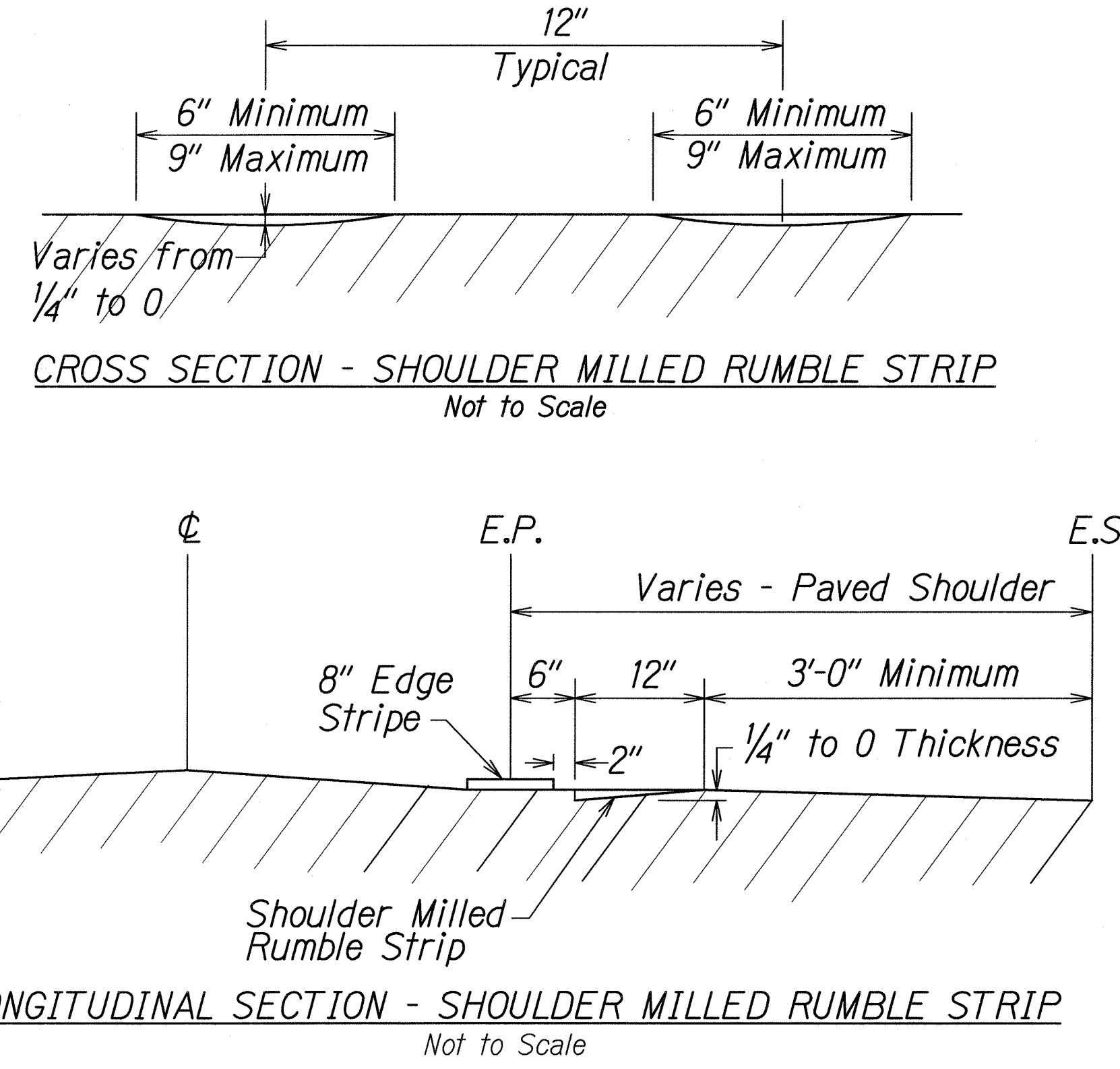
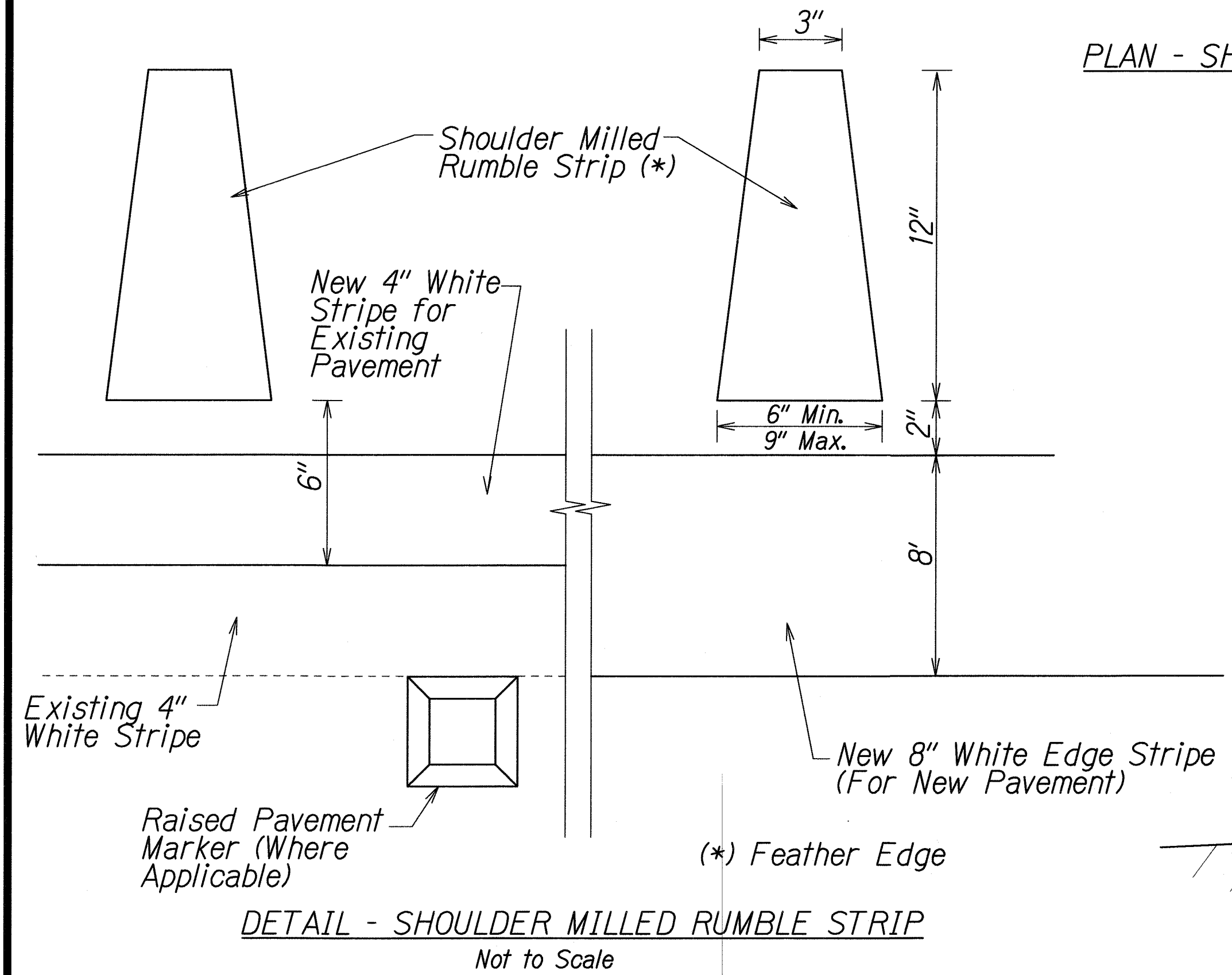
| 6-6-11 | Revise Note No. 11. |
|---|---------------------|
| DATE | REVISION |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION EDGE LINE MILLED RUMBLE STRIP DETAIL FOR SHOULDER 4' TO 4.5' KULA HWY. RESURF. Haakakai Brid. towards Old Lower Kula Rd. HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) Scale: As Shown Date: July, 2009 | |
| SHEET No. 2 OF 3 SHEETS | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.17 | 38 |

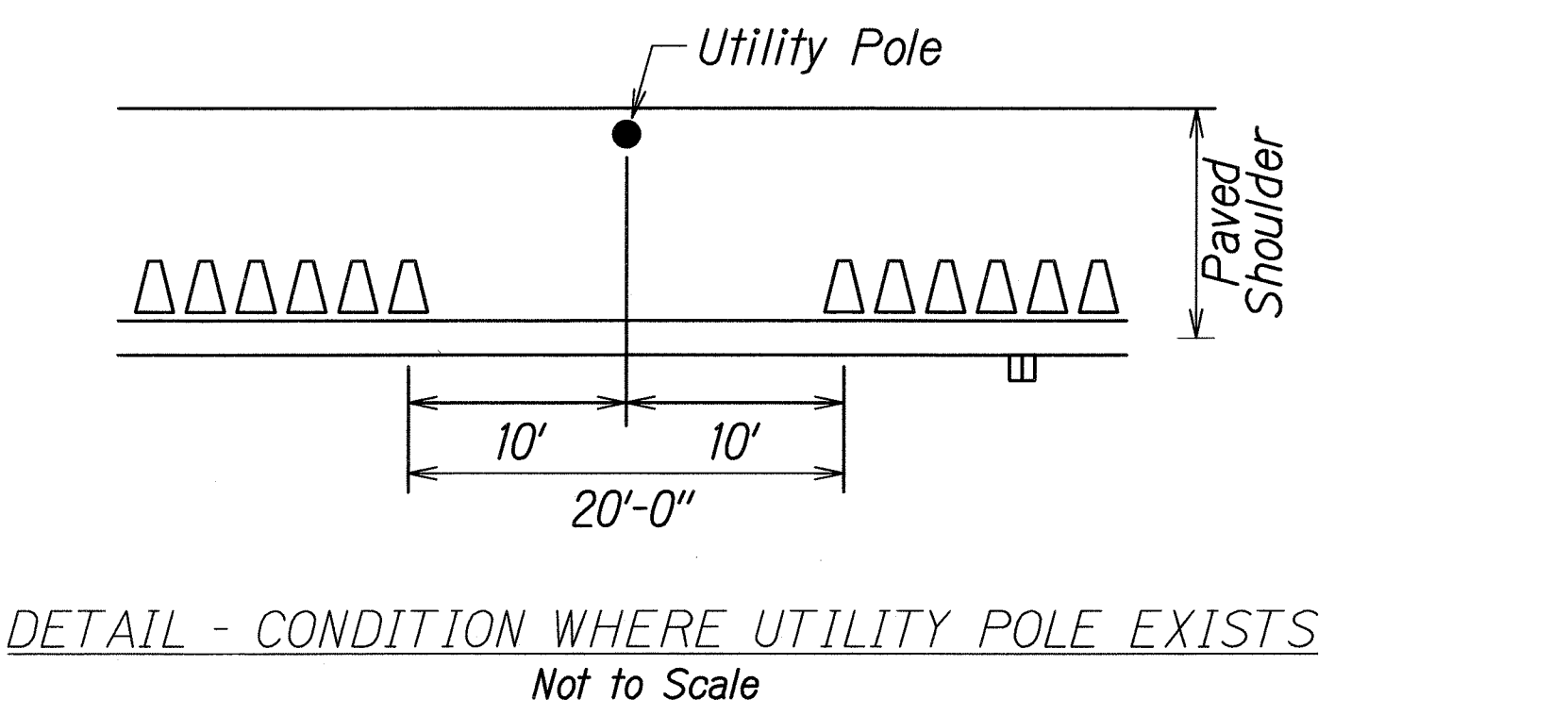


NOTES:

- Shoulder milled rumble strips shall be installed where the existing condition of the shoulder are 4.5' or more from center of edge stripe.
- The method of constructing the shoulder milled rumble strip shall be submitted to the Engineer for acceptance prior to the actual work.
- Dimensions shown are approximate. Adjust rumble strip spacing to coordinate with pavement marking prior to installation.
- Raised pavement markers shall be installed on level surface between the rumble strips. Do not install raised pavement markers inside the milled area.
- The construction of the edgeline milled rumble strip and 13-foot gaps shall be paid for under Item No. 615.0300 - Milled Rumble Strip, Shoulder. The milling apparatus, 20 L.F. - 6" white stripe, and removal of existing pavement markings will not be paid for separately and shall be considered incidental to Item 615.0300 - Milled Rumble Strip, Shoulder.
- Rumble strips shall be installed along all shoulders, except at right turn deceleration and acceleration lanes, as noted on the plans.
- Do not place Type "C" Raised Pavement markers within 2 ft. of the 13 ft. Rumble Strip opening.
- Do not install edgeline rumble strips on bridge decks.
- Where at-grade bridges are present, rumble strips shall end/begin 20 L.F. beyond the existing bridge deck joints/concrete approach slab.
- Rumble Strips are to be installed after the edge of pavement stripe and before the installation of the Type "C" raised pavement markers.
- Hot spray thermoplastic shall be used for solid line markings within the shoulder milled rumble strip area.



*If shoulder width is less than 6', do not install shoulder rumble strip where guardrail exists.



| DATE | REVISION |
|--------|---------------------|
| 6-6-11 | Revise Note No. 11. |

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

SHOULDER MILLED RUMBLE STRIP

DETAIL FOR SHOULDER 4.5' OR MORE

KULA HWY. RESURF. Haakakai Brid. towards Old Lower Kula Rd.

HONOAPIILANI HIGHWAY RESURFACING

Kapoli St. to Kaheawa Wind Farm Access Rd.

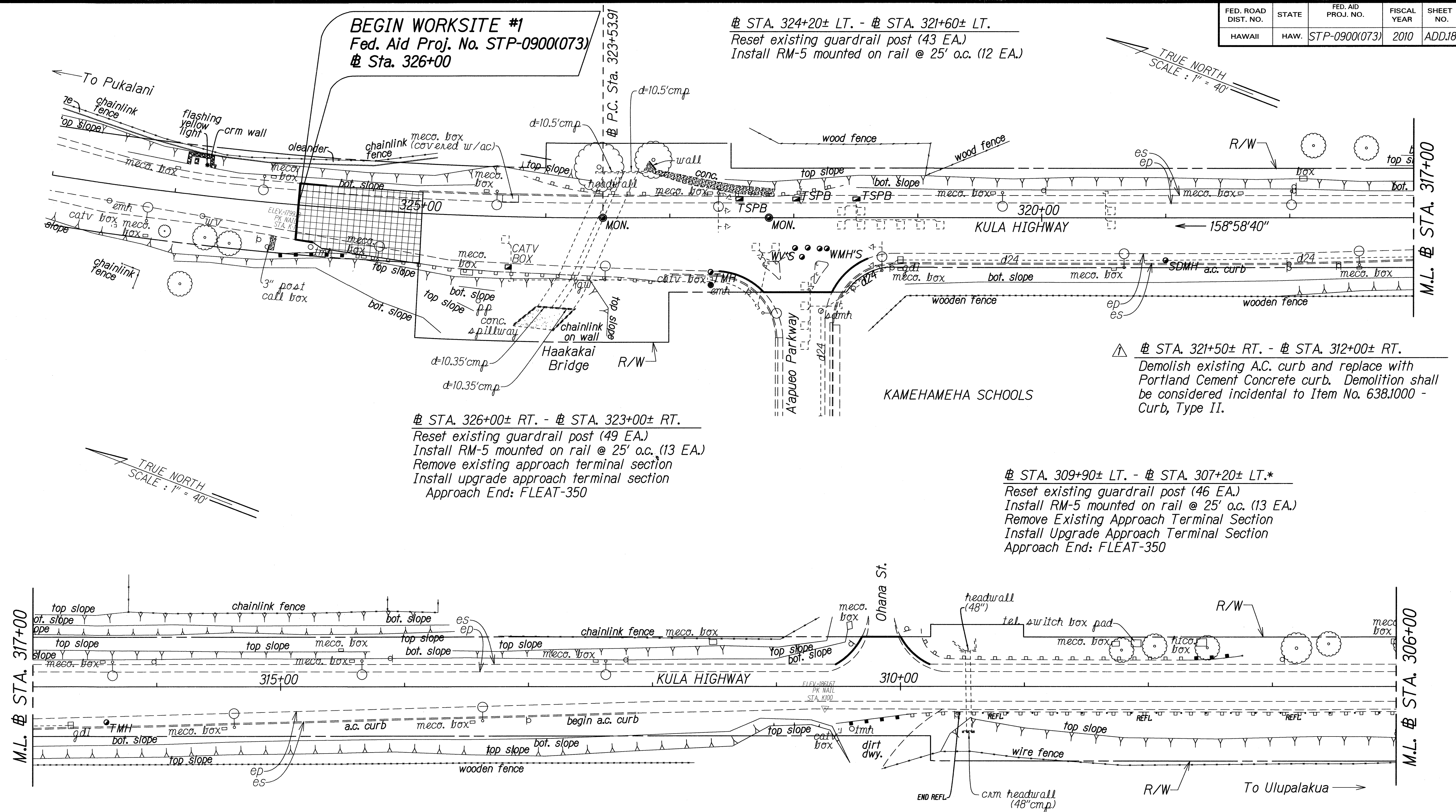
Federal-Aid Project No. STP-0900(073)

Scale: As Shown Date: July, 2009


SHEET No. 3 OF 3 SHEETS

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| ORIGINAL PLAN | DATE |
| DESIGNED BY | DATE |
| CHECKED BY | DATE |
| NOTED BY | DATE |
| QUANTITIES BY | DATE |
| CHECKED BY | DATE |

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| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.18 | 38 |



*Extend pavement from existing edge of pavement to back of guardrail post. See Sht. 8.

| | | |
|---|-------------|---|
|  | 6-9-11 | Added Replacement of A.C. curb with PCC curb. |
| | DATE | REVISION |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

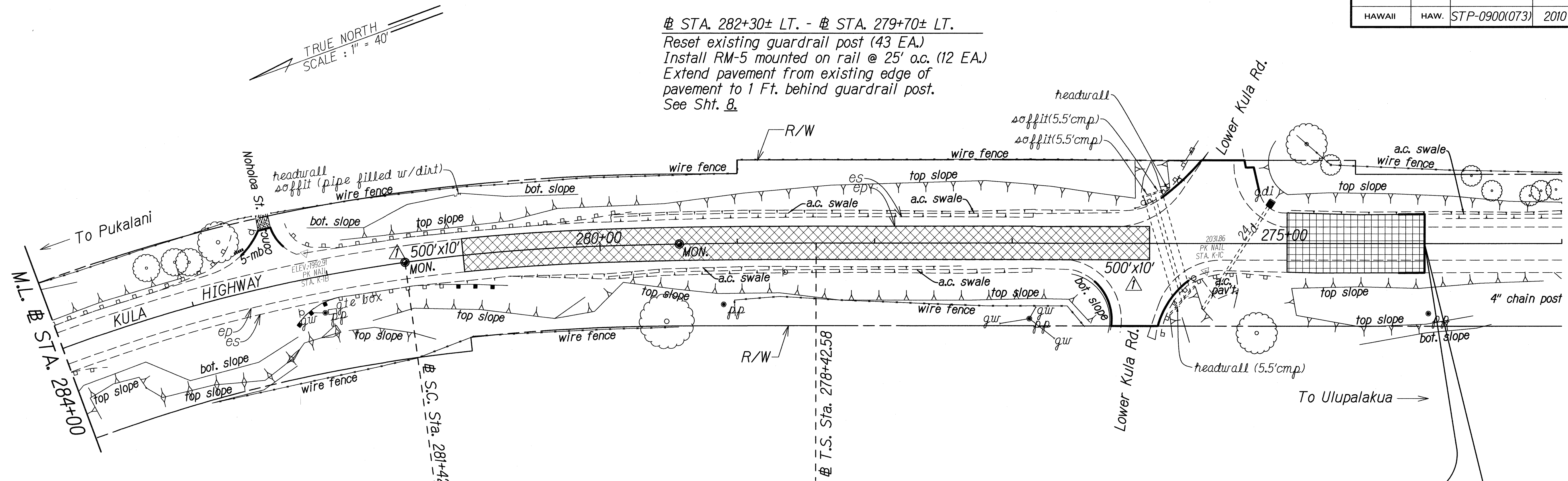
ROADWAY PLAN

KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheewa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)

Scale: 1" = 40' Date: May, 2009

SHEET No. **1** OF **7** SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.20 | 38 |



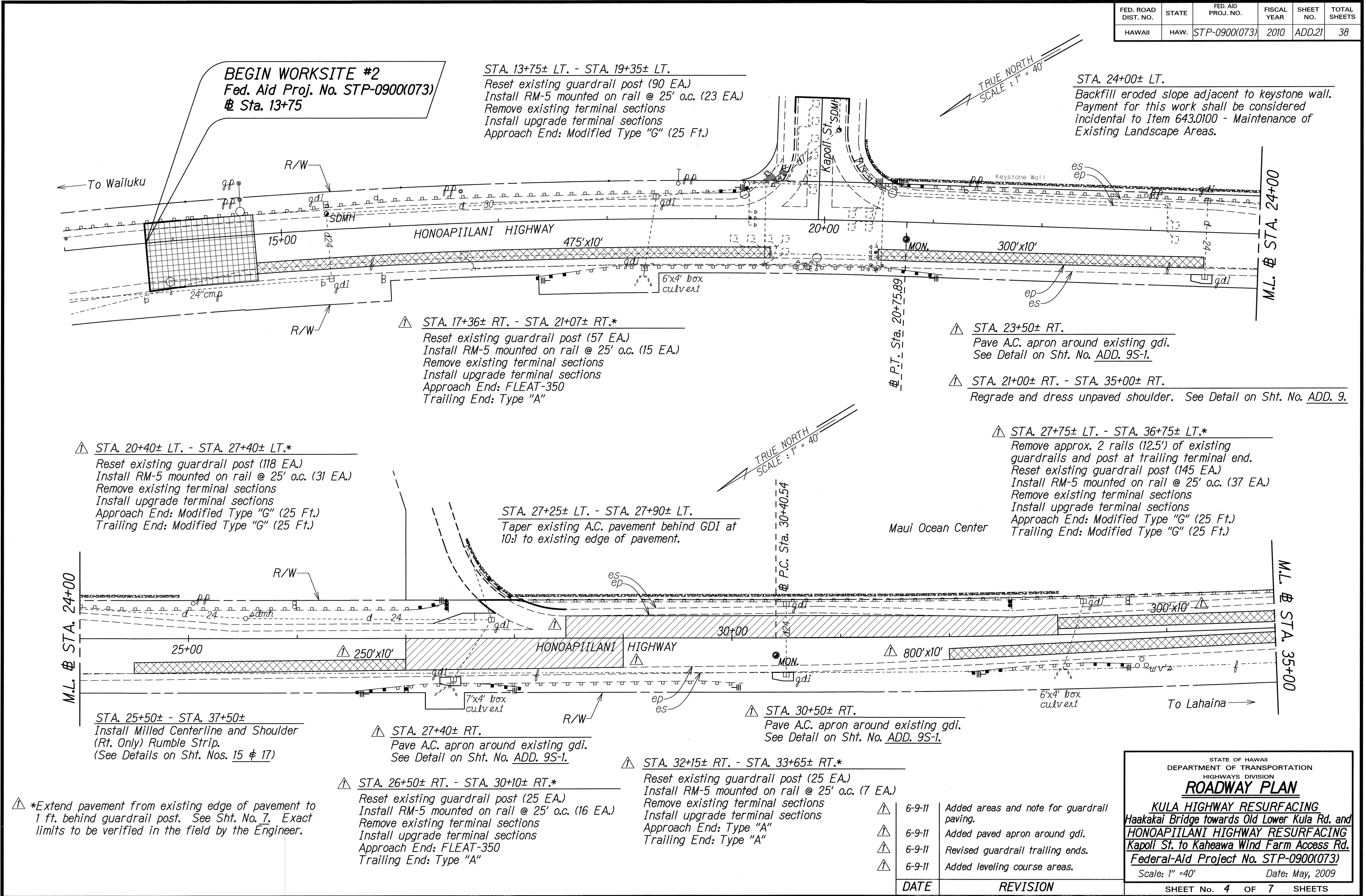
| | |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY | |
| TRACED BY | |
| NOTE BOOK | |
| QUANTITIES BY | |
| CHECKED BY | |

6-9-11 Increased Reconstruction Areas.

DATE REVISION

| |
|--|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY PLAN KULA HIGHWAY RESURFACING Haakakai Bridge towards Old Lower Kula Rd. and HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) Scale: 1" = 40' Date: May, 2009 SHEET No. 3 OF 7 SHEETS |
|--|

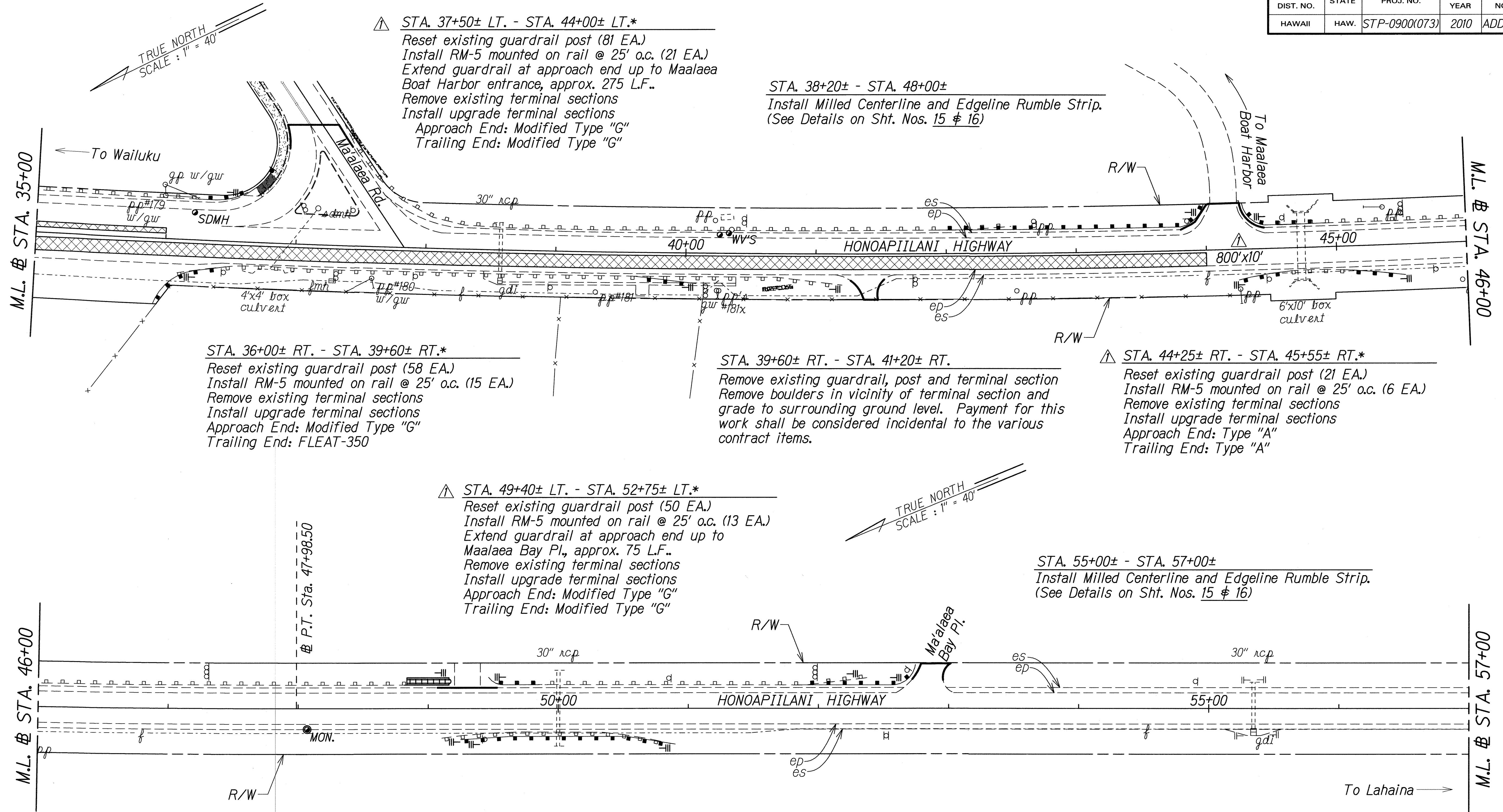
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.21 | 38 |



| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DESIGNED BY | |
| TRACED BY | |
| NOTE BOOK | |
| QUANTITIES BY | |
| CHECKED BY | |
| DATE | |

*Extend pavement from existing edge of pavement to 1 ft. behind guardrail post. See Sht. No. 7. Exact limits to be verified in the field by the Engineer.

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.22 | 38 |



STA. 44+50± LT. - STA. 49+20± LT.*
 Reset existing guardrail post (76 EA.)
 Install RM-5 mounted on rail @ 25' o.c. (20 EA.)
 Remove existing terminal sections
 Install upgrade terminal sections
 Approach End: Terminal Attenuator System (See Detail Sht. 14)
 Trailing End: Modified Type "G" (R=30 Ft.)

STA. 49+10± RT. - STA. 50+90± RT.
 Remove existing guardrails, posts and terminal sections.
 Grade embankment at approach terminal section to surrounding ground level.

STA. 49+25± RT. - STA. 50+90± RT.*
 Install 165± L.F. guardrail Strong Post W-Beam with 6 ft. steel post 2 ft. behind existing guardrail post.
 Install RM-5 mounted on rail @ 25' o.c. (8 EA.)
 Install upgrade terminal sections
 Approach End: FLEAT-350
 Trailing End: Type "A"

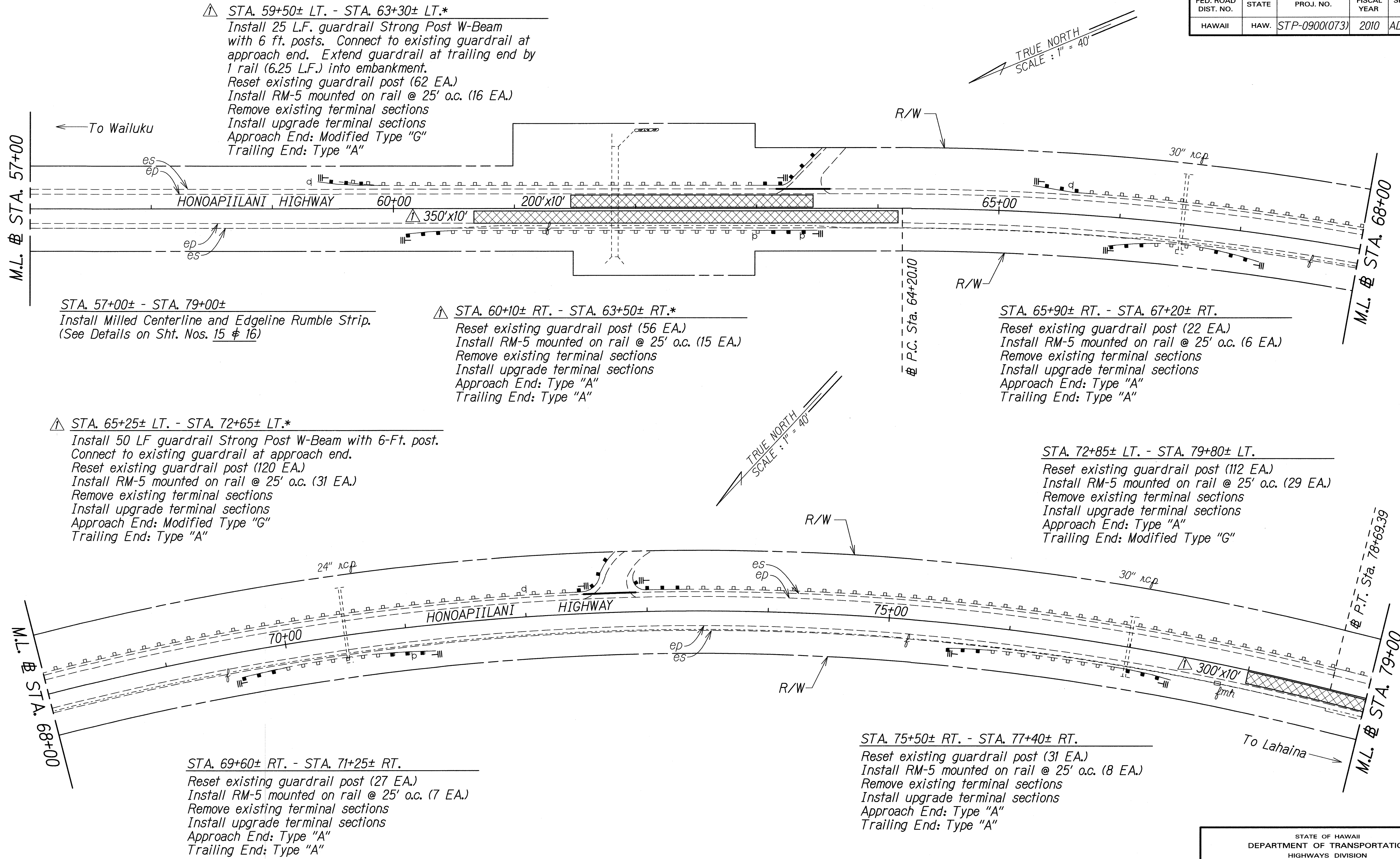
*Extend pavement from existing edge of pavement to 1 ft. behind guardrail post. See Sht. 7.
 Exact limits to be verified in the field by the Engineer.

| 6-9-11 | Added areas and note for guardrail paving. |
|--------|--|
| 6-9-11 | Increase Reconstruction Areas. |
| DATE | REVISION |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY PLAN
KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)
Scale: 1" = 40' Date: May, 2009

SHEET No. 5 OF 7 SHEETS
ADD. 22

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.23 | 38 |



△ *Extend pavement from existing edge of pavement to 1 ft. behind guardrail post. See Sht. No. 7.
Exact limits to be verified in the field by the Engineer.

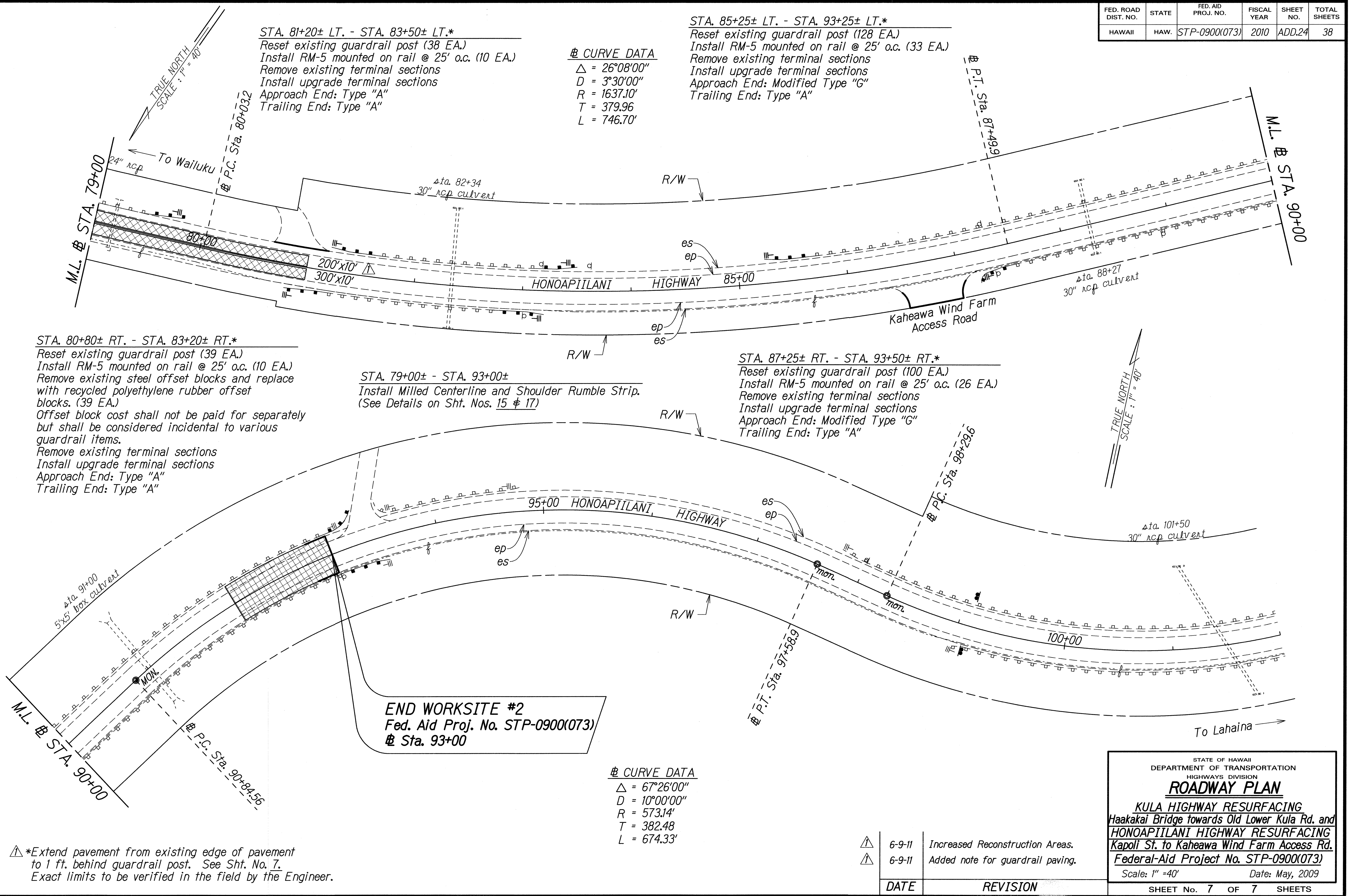
| △ | 6-9-11 | Added areas and note for guardrail paving. |
|------|----------|--|
| △ | 6-9-11 | Added installation of new guardrails. |
| △ | 6-9-11 | Increased Reconstruction Areas. |
| DATE | REVISION | |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY PLAN
KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)
Scale: 1" = 40' Date: May, 2009

SHEET No. 6 OF 7 SHEETS
ADD. 23

| | |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY | |
| TRACED BY | |
| NOTED BY | |
| CHECKED BY | |
| DATE | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.24 | 38 |



| | |
|---------------|------|
| ORIGINAL PLAN | DATE |
| NOTED BY | DATE |
| DESIGNED BY | DATE |
| CHECKED BY | DATE |

| DATE | REVISION |
|--------|----------------------------------|
| 6-9-11 | Increased Reconstruction Areas. |
| 6-9-11 | Added note for guardrail paving. |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)

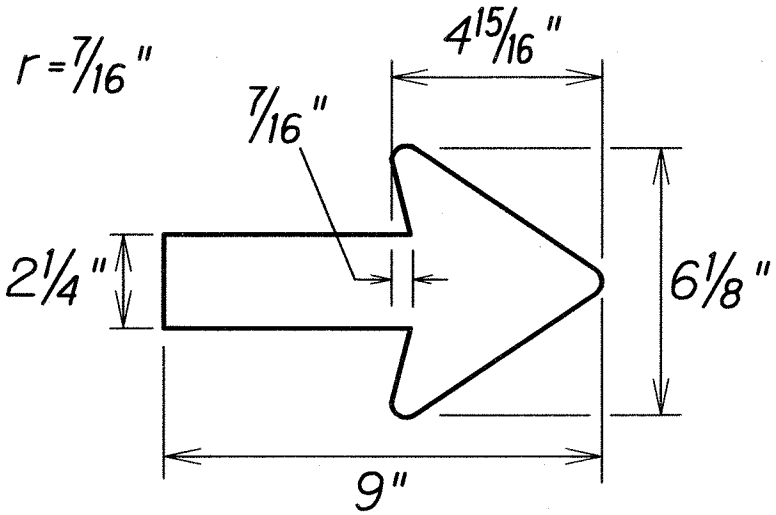
Scale: 1" = 40' Date: May, 2009

SHEET No. 7 OF 7 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.26 | 38 |

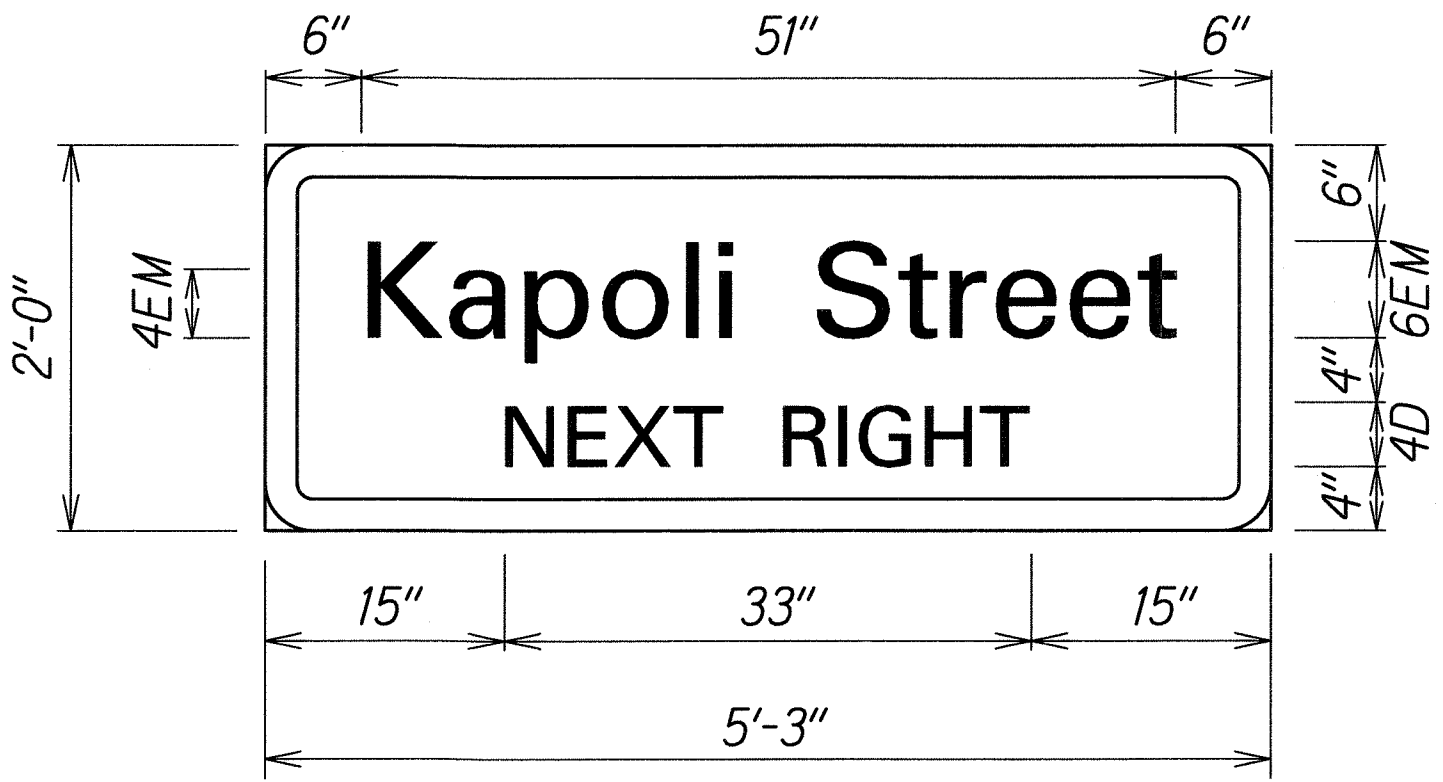
GENERAL NOTES

- The contractor shall verify the locations and dimensions of existing Signs Panels, supports, and framing.
- Letter Size:
 - When letters are all uppercase, use series D 2000.
 - When initial uppercase letter is used in conjunction with lowercase letters, use series "E" (M) for uppercase letter.
- Interstate Route Marker Symbols shall conform to details shown on the plans and as specified in the MUTCD.
- All signs shall conform to Section 630 of the Standard Specifications and the latest editions and amendments of the following FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
 - "Standard Highway Signs"
 - "Standard Alphabets for Highway Signs"
- Borders, messages, arrows, symbols and shield conform to details as shown on the plans and as specified in the MUTCD.
- Signs messages shall be as indicated on the plans.
- All panels shall be reflectorized in accordance with Section 712.20 of the Standard Specifications. Minimum width of panels shall be 2 feet. Abutting edges of panels shall be in only one direction if vertical abutting edges are used, no horizontal abutting edges shall be allowed and vice versa.
- Contractor shall submit all sign splicing details to the Engineer for approval. All backing for signs 4 feet by 6 feet or less shall be of one sheet.
- Signs shall be installed with 2 1/2" square tube posts, 3-post installation, unless shown otherwise on the plans.
- All signs shall be provided w/frame stiffeners in accordance with TE-03 of the Standard Plans.

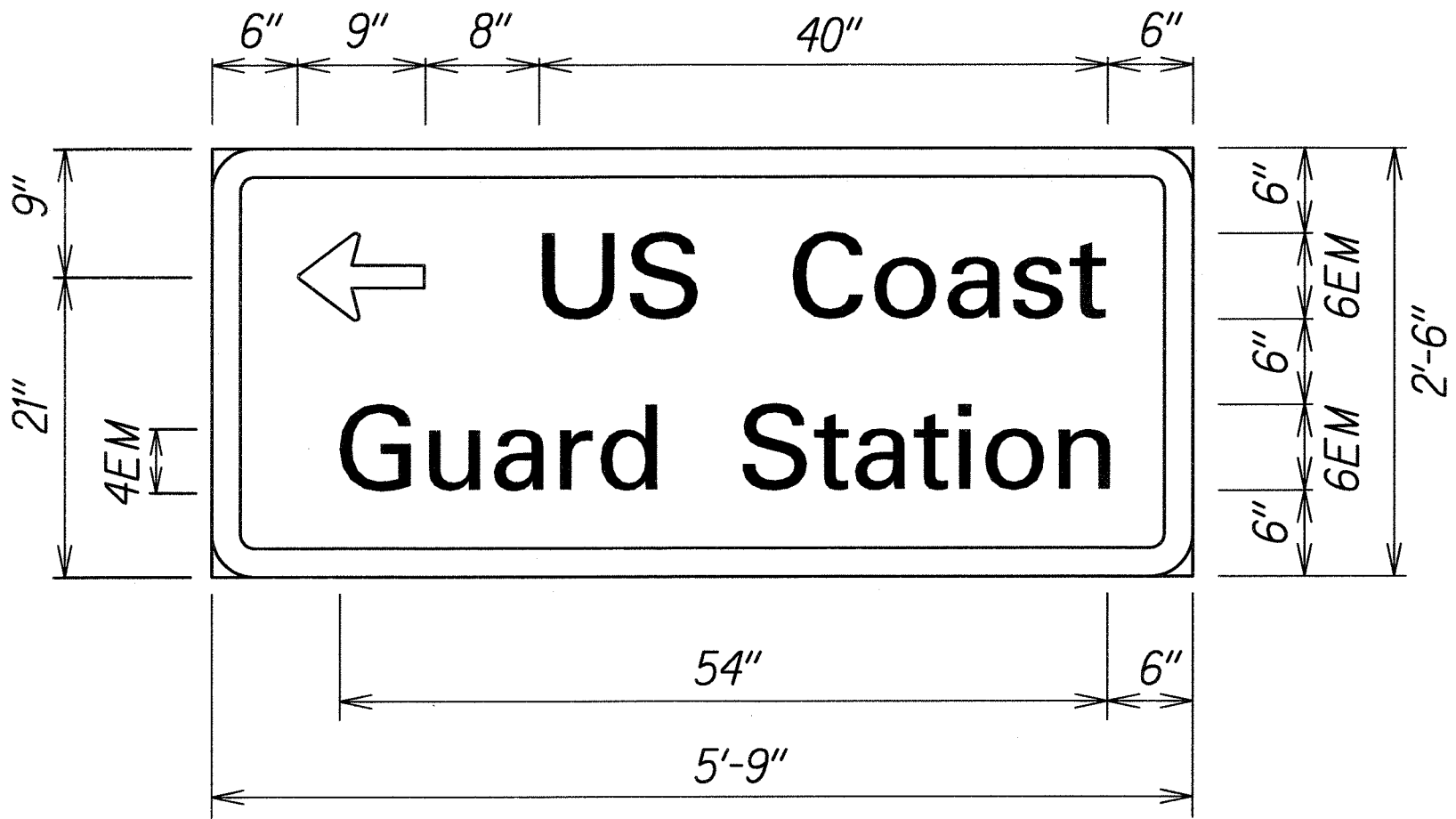


TYPICAL ARROW DETAIL
Not to Scale

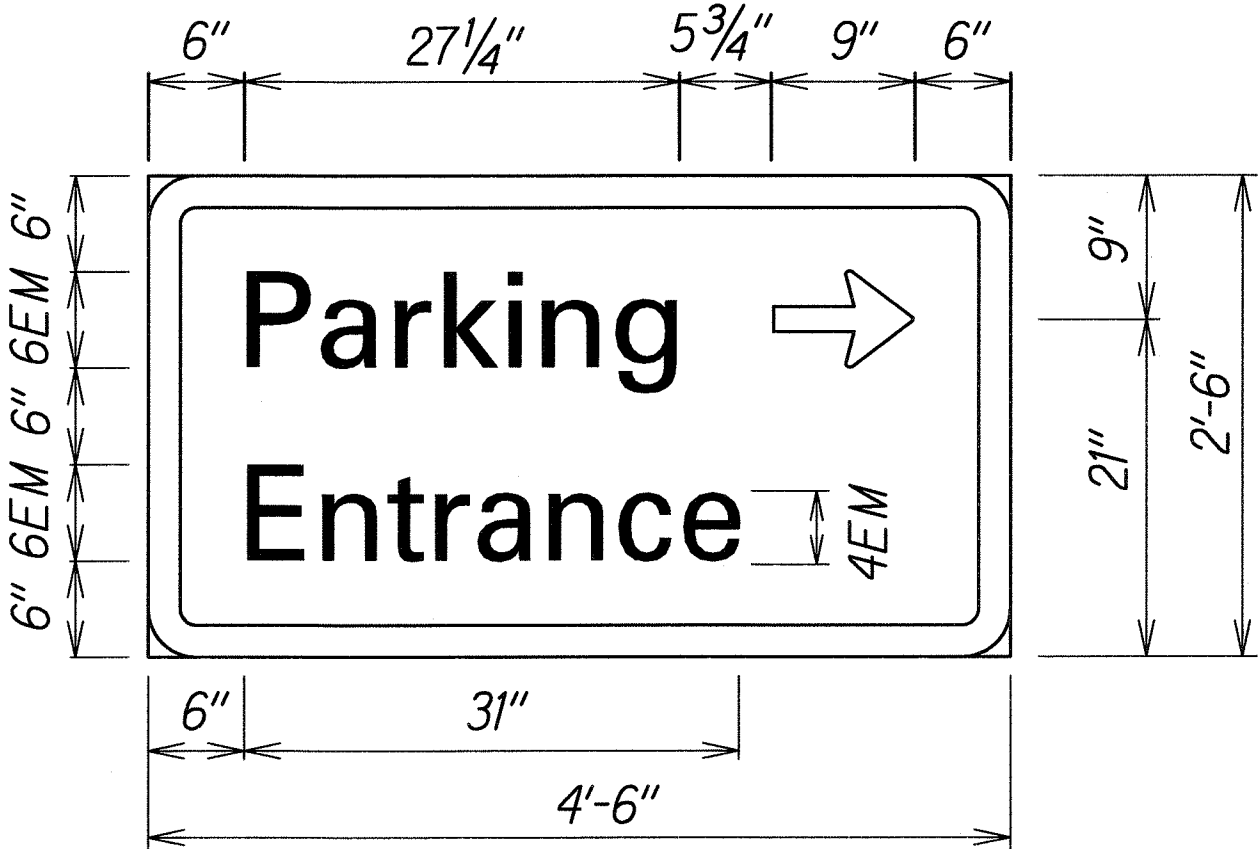
| SIGN PANEL LAYOUT & NOTES | |
|---|--|
| KULA HIGHWAY RESURFACING Haakakai Bridge towards Old Lower Kula Rd. and HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) Scale: As Shown Date: July, 2009 | |
| SHEET No. 1 OF 4 SHEETS | |



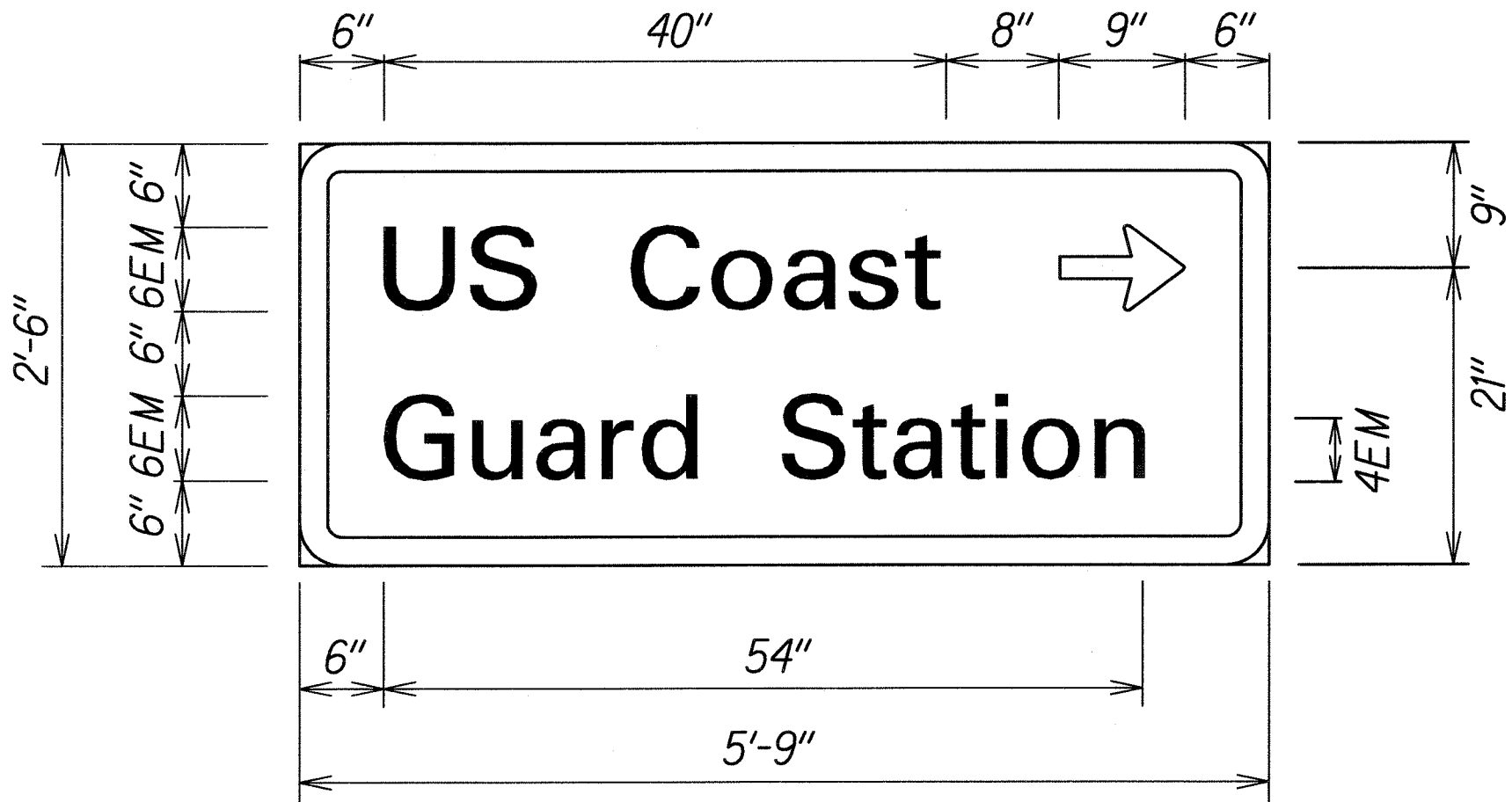
D-1
Scale: 1"= 1'-0"



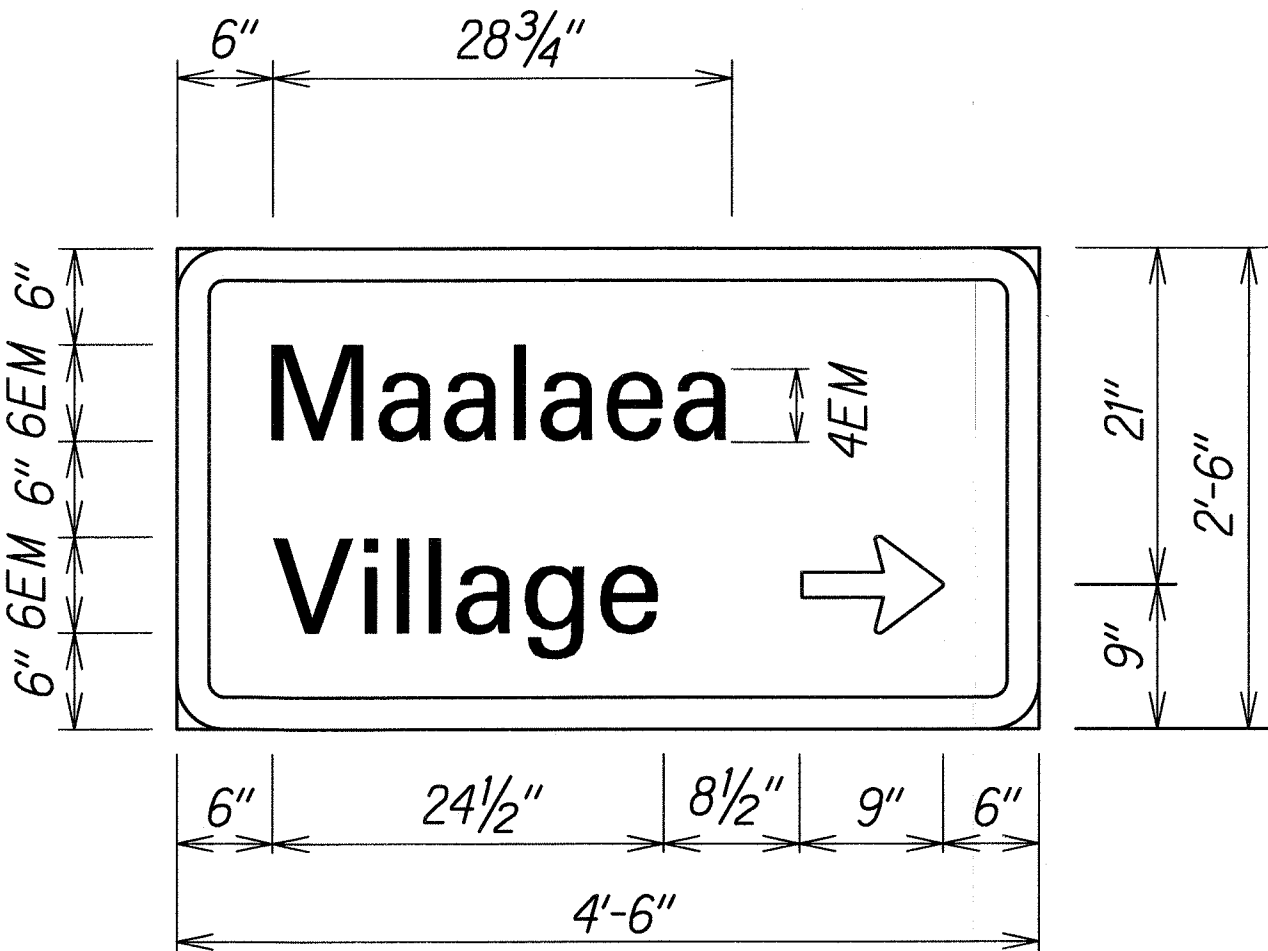
D-4
Scale: 1"= 1'-0"



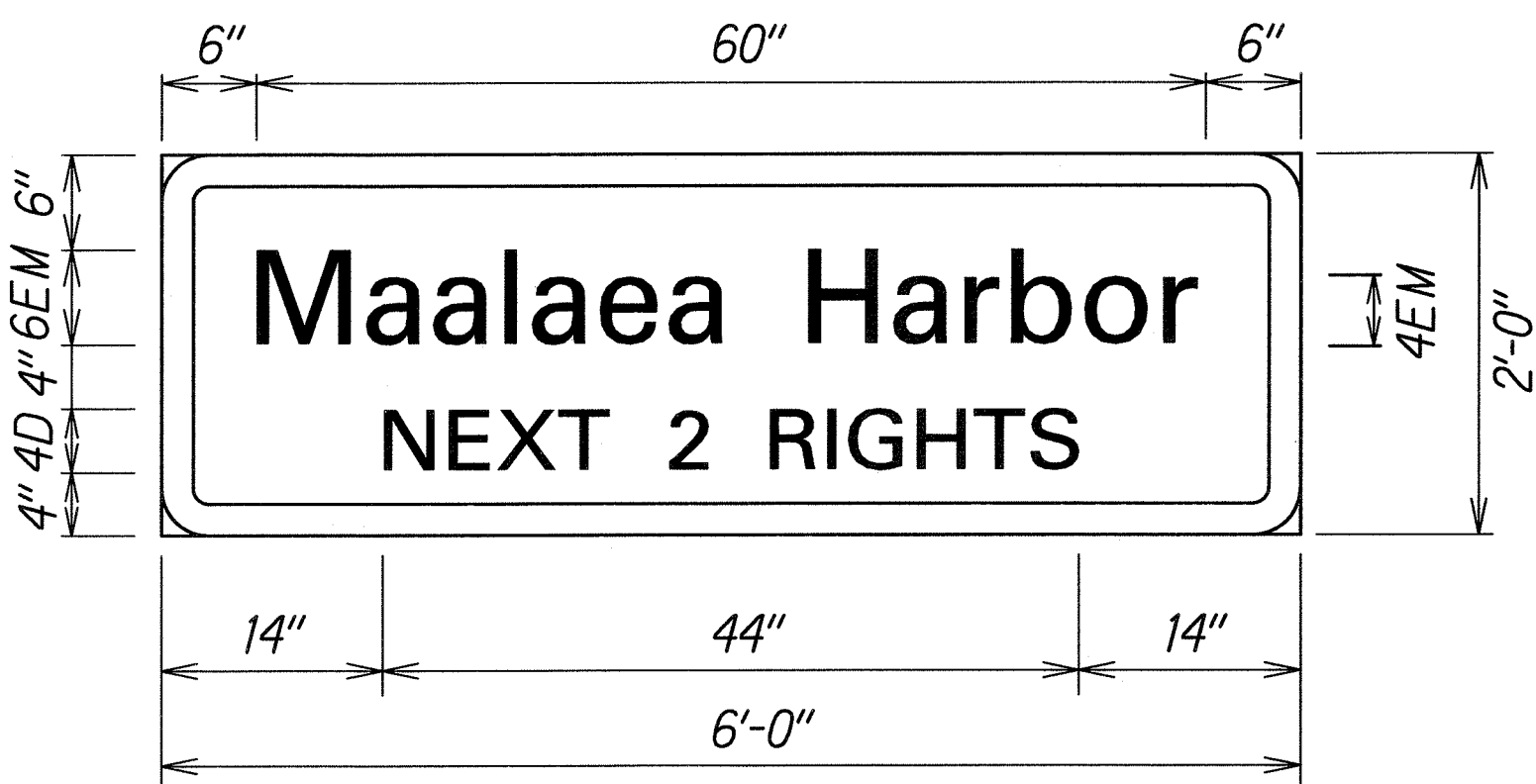
D-2
Scale: 1"= 1'-0"



D-5
Scale: 1"= 1'-0"



D-3
Scale: 1"= 1'-0"



D-6
Scale: 1"= 1'-0"

6-9-11 Revise letter type and case.

DATE REVISION

ADOPT-A-HWY
ITTER CONTROL
NEXT 2 MILES
COUNTRY ROTARY CLUB

W

box

box

m

d24

meca. box

M.L. STA. 317+00

A-HWY
CONTROL
MILES
HOOLS OHANA

3

SPEED
LIMIT
45

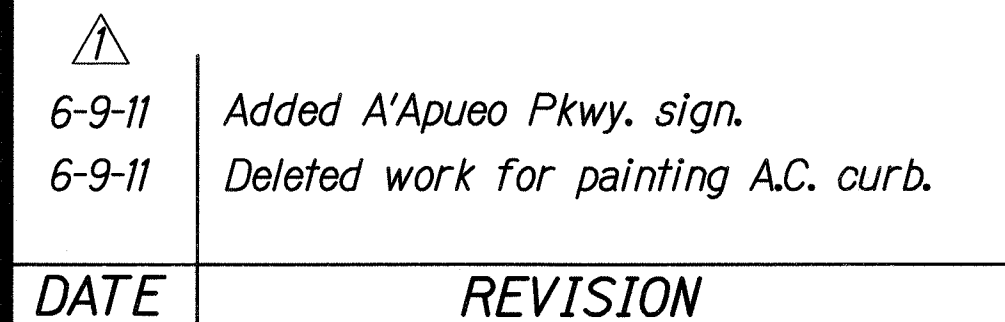
R2-1(45)
(24"x30")

8

D10-1
(10"x18")

37

D10-7
(10"x7")



KEY:

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

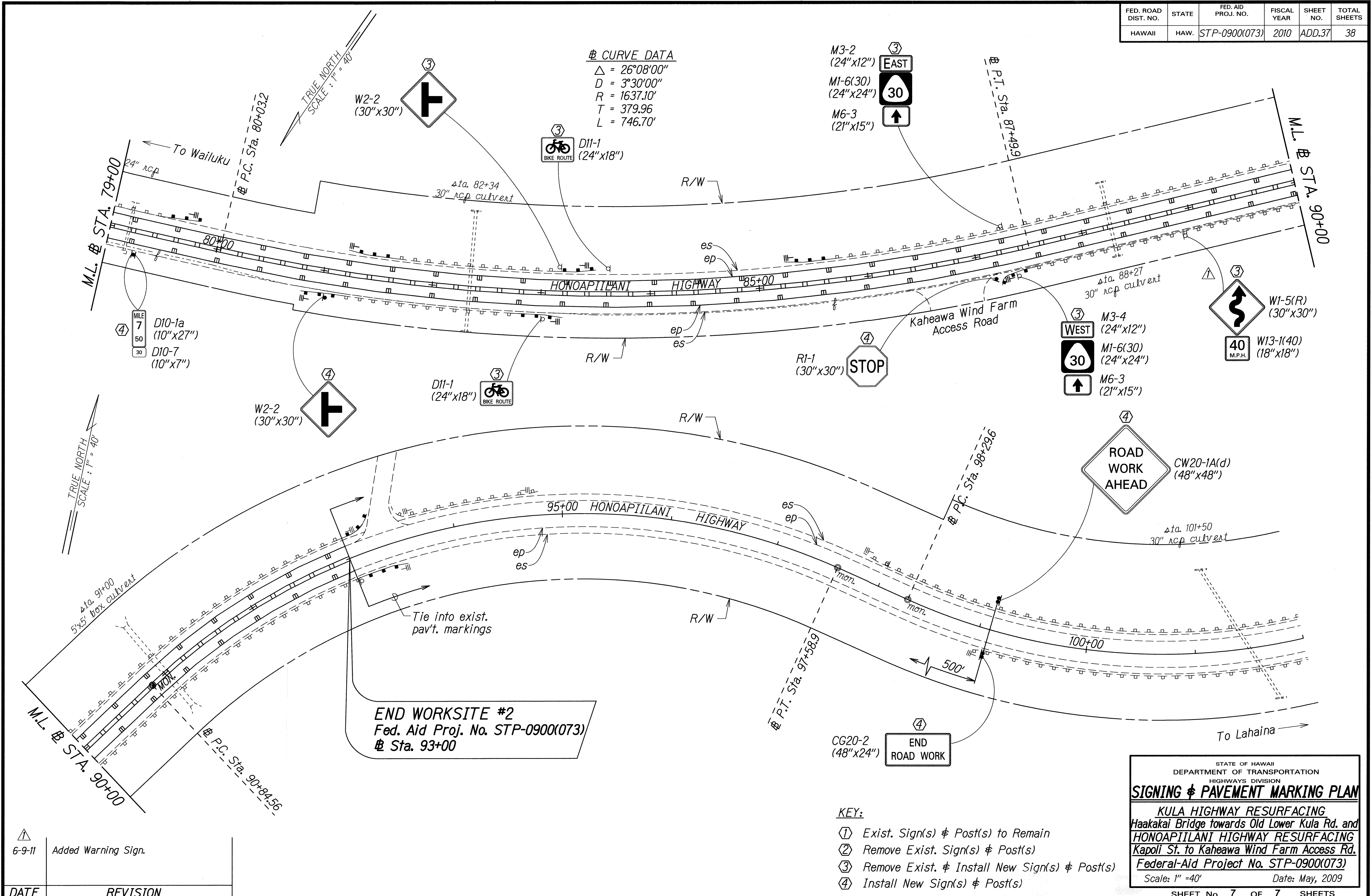
SIGNING & PAVEMENT MARKING PLAN

KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheewa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)

Scale: 1" = 40' Date: May, 2009

SHEET No. 1 OF 7 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.37 | 38 |



| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DESIGNED BY | |
| NOTED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NOTE BOOK | |
| DATE | |
| BY | |

| DATE | REVISION |
|--------|---------------------|
| 6-9-11 | Added Warning Sign. |

- 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)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLAN

KULA HIGHWAY RESURFACING
Haakakai Bridge towards Old Lower Kula Rd. and
HONOAPIILANI HIGHWAY RESURFACING
Kapoli St. to Kaheawa Wind Farm Access Rd.
Federal-Aid Project No. STP-0900(073)

Scale: 1" = 40' Date: May, 2009

SHEET No. 7 OF 7 SHEETS

CONDUIT & CABLE SCHEDULE

| CONDUIT | CABLE |
|---------|--|
| 1 | 1-3" 2-26*14, 1-#8 GROUND |
| 1 | 1-3" 2-OPTICOM CABLES |
| 1 | 1-2" 8-2C*14 SHIELED, 1-#8 GROUND |
| 2 | 1-2" 2-2C*14 SHIELED, 1-#8 GROUND |
| 3 | 1-2" 1-26*14, 3-2C*14 SHIELED, 1-#8 GROUND |
| 3 | 1-2" 1-OPTICOM CABLES |
| 4 | 1-3" INSTALL CABLES TO POLE AND SIGNAL DEVICES AS NEEDED |
| 5 | 1-2" 1-2C*14 SHIELED, 1-#8 GROUND |
| 6 | 1-2" 1-26*14, 1-#8 GROUND |
| 6 | 1-2" SPARE |
| 7 | 1-2" 1-2C*14 SHIELED, 1-#8 GROUND |
| 8 | 2-2" 1-26*14, 4-2C*14 SHIELED, 1-#8 GROUND |
| 8 | 1-2" SPARE |
| 9 | 1-2" 1-26*14, 1-#8 GROUND |
| 9 | 1-2" 1-OPTICOM CABLES |
| 10 | 1-2" 1-2C*14, 1-#8 GROUND |

NOTE:

The #8 system ground installed in traffic signal system conduit shall be bare solid copper.
All conduits shall be schedule 80 PVC unless otherwise noted.

TRAFFIC SIGNAL HEAD SCHEDULE

| Traffic Signal Head Type and Description | 12" RYG Traffic Signal Head | 12" RY↑ Traffic Signal Head | 12" ←←← Traffic Signal Head | 12" RYG & Traffic Signal Head |
|--|-----------------------------|-----------------------------|-----------------------------|-------------------------------|
| Pole Letter Signal Head Number | C-1 D-2 D-3 | A-2 A-4 D-1 | A-3 B-1 | A-1* E-1* |

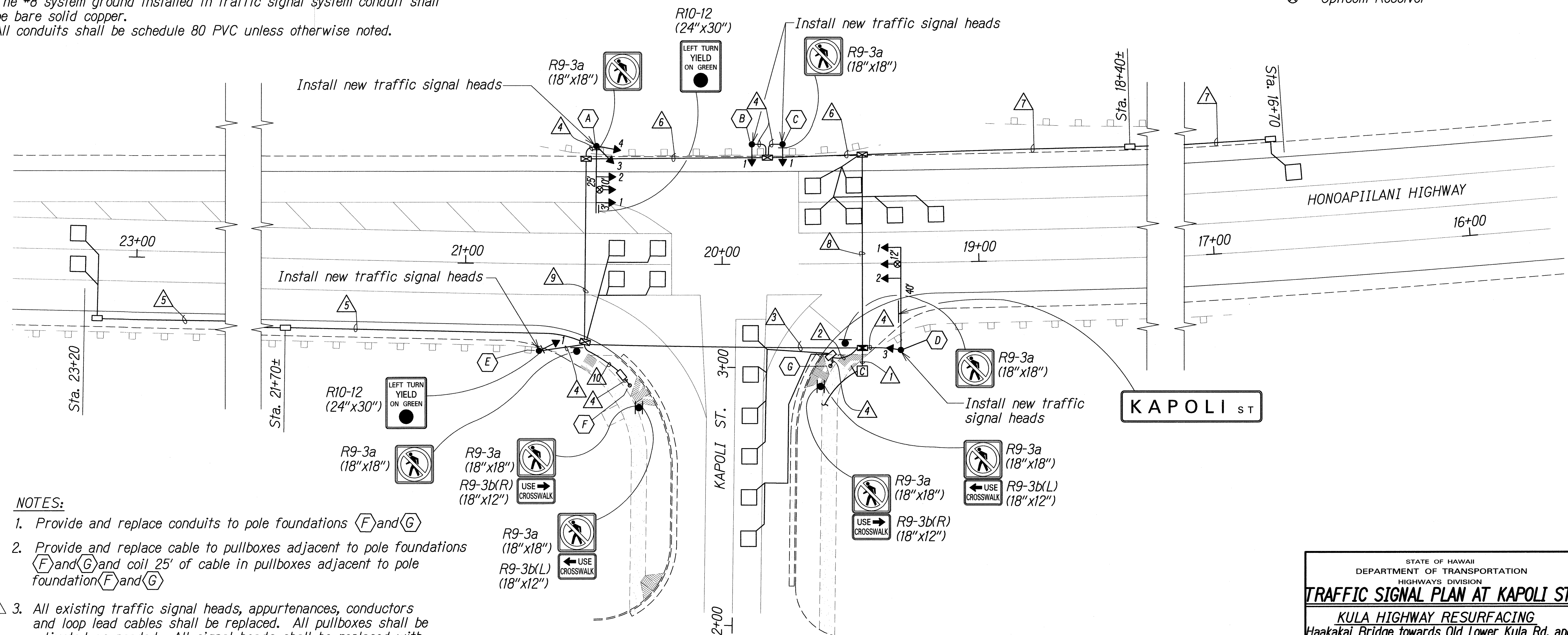
* With Programmed Visibility

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | STP-0900(073) | 2010 | ADD.38 | 38 |

TRAFFIC SIGNAL LEGEND

- Traffic Signal Conduits and Cables
- Traffic Signal Head
- Signal Standard with Mast Arm
- Signal Standard
- Loop Detectors
- Pullbox Type B (Old Type C)
- Pullbox Type A (Old Type B)
- Pullbox Type C (Old Type D)
- Traffic Controller and Foundation
- Opticom Receiver

TRUE NORTH
SCALE: 1" = 20'



NOTES:

- Provide and replace conduits to pole foundations and .
- Provide and replace cable to pullboxes adjacent to pole foundations and coil 25' of cable in pullboxes adjacent to pole foundation .
- All existing traffic signal heads, appurtenances, conductors and loop lead cables shall be replaced. All pullboxes shall be adjusted as needed. All signal heads shall be replaced with Light - Emitting Diode (LED) signal assembly. All work shall be incidental to various traffic items.
- Remove all existing signs and posts shown and install new signs and posts.

6-9-11 Revised Note No. 3.

DATE REVISION

| |
|---|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION |
| TRAFFIC SIGNAL PLAN AT KAPOLI ST. |
| KULA HIGHWAY RESURFACING Haakakai Bridge towards Old Lower Kula Rd. and HONOAPIILANI HIGHWAY RESURFACING Kapoli St. to Kaheawa Wind Farm Access Rd. Federal-Aid Project No. STP-0900(073) |
| Scale: 1" = 20' Date: May, 2009 |
| SHEET No. 1 OF 1 SHEETS |