

GUARDRAIL 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.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, 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 of fasteners, posts and rail elements have been converted from metric units into their present form.
4. The Recycled Plastic Block 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. New A.C. pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
9. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. The color of the RM-5 shall be the same as the adjacent edge of pavement line. Furnishing and installing of each RM-5 shall be considered incidental to the adjacent guardrail system.
10. The locations and limits of guardrails shown on the plans are approximate. The Contractor shall stake-out guardrail locations in the field for acceptance by the Engineer
11. Unless otherwise noted, all guardrail elements shall be 12' - 6" nominal length.
12. For all Modified Type 'G' end treatments:
- a. Provide a curve radius to extend the flare away from the travelway.
- b. Use the 'Rounded End Section' in lieu of the 'Flared End Section' (Refer to Plan Sheet 27).
13. Placement of Asphalt Concrete Mix V from edge of shoulder to 1' - 0" minimum beyond the guardrail post applied to the entire length of guardrail, including flared segments and treatments unless noted.
14. All existing posts and guardrails for removal shall be disposed of by the Contractor at no cost to the State. This work shall be considered incidental to the contract Item No. 606.5000 -Guardrail Type Strong Post W-Beam.
15. Removal and reinstallation or relocation of existing signs for the purpose of guardrail removal and installation shall be incidental to Item No. 606.5000 - Guardrail Strong Post W-Beam. Signs damaged by the Contractor's operations shall be repaired or replaced at no cost to the State.
16. All end treatments (Terminal, modified "A-1", "G", Fleat 350, etc.) not completed by day's end shall be properly delineated with Triton Barriers as directed by the Engineer. Payment for use of the Triton Barriers shall be considered incidental to guardrail installation.
17. Replacement of existing guardrails shall be completed within the same day. No unshielded areas shall be permitted at the end of the work day.
18. Grading and leveling for paving under guardrails shall not be paid for separately, but shall be considered incidental to Contract Item No. 401.0500 - Asphalt Concrete Pavement Mix V.

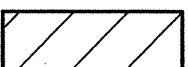
GENERAL NOTES FOR TRAFFIC CONTROL PLAN

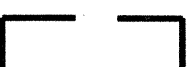
1. The Contractor shall provide, install and maintain all necessary signs and other protective facilities, which shall conform with the "Hawaii Administration Rules governing the use of traffic control devices at work sites or adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highway Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part IV -Traffic Devices Control for Street and Highway Construction and Maintenance Operations."
2. During working hours, the Contractor shall provide two lanes for through traffic. During non-working hours, all open trenches shall be covered with a safe non-skid bridging material. Submit structural calculations of the bridging system with a structural engineer's stamp prior to use. The cost for the bridging system and preparation of the structural calculation with stamp shall be considered incidental to the various contract items.
3. As required by the Department of Transportation, the Contractor shall provide off-duty Police officers to control the flow of traffic.
4. Where pedestrian walkway exist, they shall be maintained in passable condition or other facilities for pedestrian shall be provided. Passage between walkways at intersection shall likewise be provided.
5. Driveways shall be kept open unless the owners of the property using these right-of-way are otherwise provided for satisfactory.
6. Traffic cones and delineators shall be a minimum of 18 inches in height with a broadened base and may be made of various materials to withstand impact without damage to themselves or to vehicles. Twenty-eight inches should be the minimum height of cones during hours of darkness. Orange shall be the predominant colors of cones.
7. Traffic cones and delineators shall be reflectorized or equipped with lighting devices for maximum visibility during nighttime use.
8. Reflectorization of tubular markers shall be a minimum of two, three-inch-wide white bands placed maximum of 2 inches from the top with a maximum of 6 inches between the bands. Reflectorization of cones shall be provided by a minimum 6-inches wide band placed a minimum of 3-inches but no more than 4-inches from the top. When the 28-inch cone or large size are used, the standard 6-inches band shall be supplemented with an additional 4-inch white band.
9. The Contractor shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
10. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
11. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
12. Regulatory and warning signs within the Construction zone that are in conflict within the traffic control plans shall be removed or covered. All signs shall be restored upon completion of the work.
13. When required by the issuing office, the Contractor shall install a flashing arrow signal as shown on the Traffic Control Plans.
14. The Contractor shall submit traffic control and construction phasing plans for approval prior to starting work. NCHRP Report 350 approved water filled traffic barriers shall be used to separate the work area from the traffic lanes and prevent encroachment of errant vehicles into the work area. Work for traffic control including traffic barrier installation and maintenance will not be paid for separately but will be considered incidental to the various contract items.
15. All Construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.

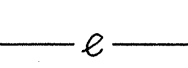
16. At the end of each days work or as soon as the work is completed, the Contractor shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
17. Increment 1 detour shall utilize existing roadway.
18. Incremental work shall include the construction of lanes, utility adjustments, lights, walls and related construction shown on the plan.
19. Striping of the roadway for detour phasing shall satisfy the requirements of the M.U.T.C.D., dated 2000. Removal of existing striping shall be done by methods approved by the State. All traffic lanes shall be a minimum of 11 feet wide.
20. Existing signs removed during construction and not incorporated in the new work shall be delivered to the Hilo Baseyard of the State Highways Division. Unless indicated otherwise, existing signs remain as shown.

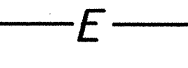
LEGEND

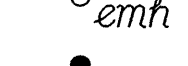
 Reconstruction Areas

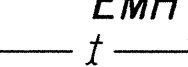
 Overlay Areas

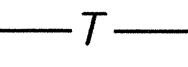
 Resurfacing Limits

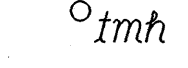
 Existing Electrical Line


 New Electrical Line


 Existing Electric Manhole

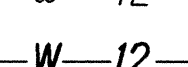
 New Electric Manhole

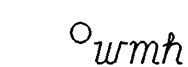
 Existing Telephone Line


 New Telephone Line

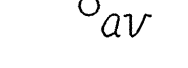
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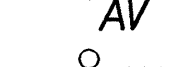
 New Telephone Manhole


 New Signal Corps Line

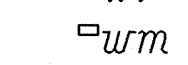
 Existing 12" Water Line


 New 12" Water Line

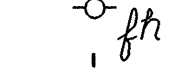
 Existing Water Manhole

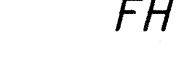
 New Water Manhole


 Existing Water Air Valve


 New Water Air Valve


 Existing Water Valve Box

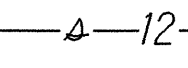
 New Water Valve Box

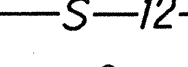
 Existing Water Meter


 New Water Meter

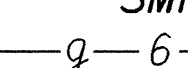
 Existing Fire Hydrant

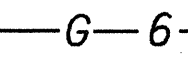
 New Fire Hydrant

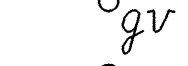
 Existing Sewer Line

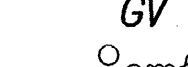
 New 12" Sewer Line

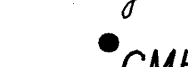
 Existing Sewer Manhole


 New Sewer Manhole


 Existing 6" Gas Line

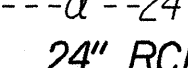
 New 6" Gas Line

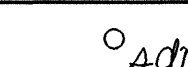
 Existing Gas Valve Box


 New Gas Valve Box

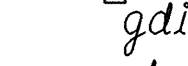
 Existing Gas Manhole

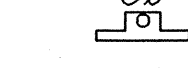
 New Gas Manhole


 Existing Monument


 New Monument

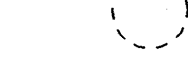
 Existing 24" Drain Line


 New 24 " RCP Drain Line

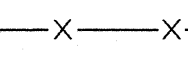
 Existing Storm Drain Manhole


 New Storm Drain Manhole


 Existing Grated Drop Inlet


 Existing Catch Basin

 Existing Traffic Sign

 Existing Highway Lighting Standard

 Existing Hedge

 New Hedge

 Fence Line

ORIGINAL PLAN	DATE	DESIGNED BY	CHECKED BY

5/11/04	Revised Note Nos. 14 and 19
DATE	REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**GENERAL NOTES  
AND LEGEND**  
*Hawaii Belt Road  
Intersection Improvements  
At Kulaimano Road  
Project No. 19J-01-02*  
Scale: No Scale Date: Feb. 2003  
SHEET No. 2 OF 2 SHEETS