

ISLAND OF HAWAII



STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

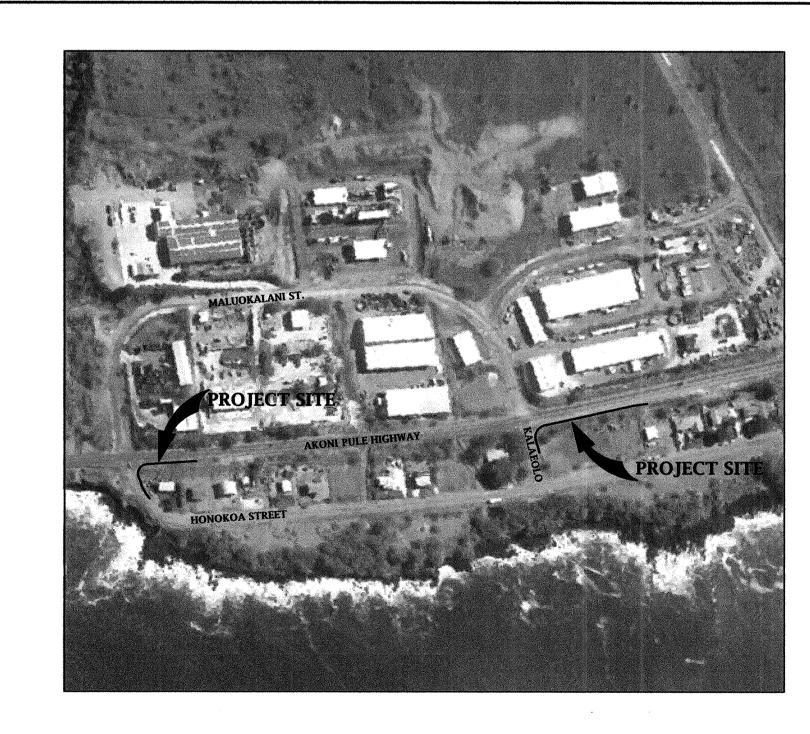
KAWAIHAE, SOUTH KOHALA, HAWAII

PREPARED FOR:

DEPARTMENT OF HAWAIIAN HOME LANDS 91-5420 KAPOLEI PARKWAY **KAPOLEI, HAWAII 96707**

PREPARED BY:

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CONSULTING CIVIL ENGINEERS 501 SUMNER STREET, SUITE 521 HONOLULU, HAWAII 96817-5304



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	INDEX OF DRAWINGS		
SHT. NO.	DWG. NO.	DESCRIPTION	
1	T-1	TITLE SHEET, ISLAND MAP, LOCATION MAP, AND INDEX OF DRAWINGS	
2	G-1	CONSTRUCTION NOTES - 1	
3	G-2	CONSTRUCTION NOTES - 2	
4	C-1	OVERALL SITE PLAN	
5	C-2	SITE PLAN KAWAIHAE-MAHUKONA ROAD AND HONOKOA STREET	
6	C-3	SITE PLAN KAWAIHAE-MAHUKONA ROAD AND KALAEOLO STREET	
7	C-4	GUARDRAIL DETAILS AND NOTES	
8	C-5	STRONG POST W-BEAM GUARDRAIL	
9	C-6	GUARDRAIL TERMINAL CONNECTORS & END SECTIONS	
10	C-7	ANCHOR BLOCK DETAILS	
11	C-8	FLEAT-350 FLARED ENERGY ABSORBING TERMINAL	
12	C-9	GUARDRAIL DETAILS	
13	C-10	TYPE "A" FLARE	
14	C-11	TYPE "A" FLARE	
15	C-12	TYPE "A" FLARE	
16	TC-1	GENERAL TRAFFIC CONTROL PLAN AND NOTES	

DIRECTOR, DEPARTMENT OF HAWAIIAN HOME LANDS STATE OF HAWAII MINISTRATOR, HIGHWAYS DIVISION STATE DEPARTMENT OF TRANSPORTATION (APPROVAL GRANTED FOR WORK WITHIN STATE RIGHT-OF-WAY ONLY. ID NO. H-15-03 LETTER OF APPROVAL NO. HWY-CM 2. 1623 DATED 01/27/16 - CHIEF ENGINEER, DEPARTMENT OF PUBLIC WORKS

APPROVED

01/25/16

GENERAL CONSTRUCTION NOTES

- 1. ALL CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION 2005" AS AMENDED. AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1984 AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTIES OF THE STATE OF HAWAII AND THE CONSTRUCTION DRAWINGS AND DETAILS SPECIFICATIONS PREPARED FOR THIS PROJECT.
- 2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES.
- 3. WHEREVER CROSSINGS OR CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR DAMAGES TO THE FACILITIES WHETHER SHOWN OR NOT ON THE PLANS.
- 4. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA, BUT ARE NOT GUARANTEED AS TO THE ACCURACY OF THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF LOCATION OF UNCHARTED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE. AND SHALL PAY FOR ALL DAMAGES TO EXISTING UTILITIES.
- 5. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST. EXCEPT DURING ACTUAL WORKING HOURS.
- 6. EXCEPT DURING ACTUAL WORKING HOURS, ALL SIGNS WHICH DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMEN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
- 7. THE CONTRACTOR SHALL EMPLOY A HAWAII REGISTERED PROFESSIONAL SURVEYOR TO PERFORM ALL CONSTRUCTION STAKEOUTS, THE COST OF WHICH SHALL BE BORNE BY THE CONTRACTOR.
- 8. THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR, AND PAY FOR ALL TEMPORARY UTILITIES REQUIRED FOR HIS WORK.
- 9. SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS AND MOUNDS, OR REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATION OF CHARCOAL OR SHELLS BE ENCOUNTERED DURING CONSTRUCTION WORK, WORK SHALL CEASE IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION ((808) 692-8015), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY A 3-METER / 10-FOOT WIDE BUFFER ZONE EXISTS AROUND ALL SITES IN PRESERVATION DURING CONSTRUCTION. IT IS HIGHLY IMPORTANT THAT THE PRESERVED SITES REMAIN UNDISTURBED.
- 10. THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
- 11. THE CONTRACTOR SHALL RESTORE ALL EXISTING FACILITIES INCLUDING PAVEMENT, DRAINAGE FACILITIES, CURBS, GUTTERS, SIGNS, LANDSCAPING, IRRIGATION SYSTEMS, ETC., REMOVED OR DAMAGED AS A RESULT OF HIS OPERATION USING MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH "HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION". 2005 AS AMENDED. AND "STANDARD DETAILS". SEPTEMBER 1984 FOR PUBLIC WORKS CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF MAUI, AS AMENDED.
- 12. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES AND OTHER PROTECTIVE DEVICES FOR THE PROTECTION, SAFETY AND CONVENIENCE OF THE PUBLIC ACCORDING TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", 2003 AND THE "RULES AND REGULATIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON/OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS", ADOPTED BY THE HIGHWAY SAFETY COORDINATOR AND THE U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS", DATED 2009.
- 13. THE DIRECTOR OF PUBLIC WORKS HAS THE RIGHT TO STOP CONSTRUCTION SHOULD ANY WORK BE FOUND CONTRARY TO THE APPROVED CONSTRUCTION PLAN OR DETRIMENTAL TO THE PUBLIC'S INTEREST.
- 14. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH, AND COUNTY GRADING ORDINANCE.
- 15. THE CONTRACTOR SHALL REMOVE AND DISPOSE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION ORDERED BY THE DIRECTOR OF PUBLIC WORKS SHALL BE PAID BY THE CONTRACTOR.

GENERAL CONSTRUCTION NOTES (CONT.)

- 16. CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE SITE. THE CONTRACTOR SHALL INFORM THE DIRECTOR OF PUBLIC WORKS OF THE LOCATION OF THE DISPOSAL SITES. THE DISPOSAL SITE MUST FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE. THE CONTRACTOR SHALL MINIMIZE ITS CONSTRUCTION DEBRIS AND SOLID
- 17. CONTRACTOR SHALL PROVIDE VEHICULAR AND PEDESTRIAN ACCESS ROUTES AT ALL TIMES TO ALL EXISTING FACILITIES.
- 18. THE EXISTING ASPHALTIC CONCRETE (A.C.) PAVEMENT SHALL BE SAW CUT BEFORE COMMENCEMENT OF WORK.
- 19. ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS SHALL BE CHECKED AND VERIFIED PRIOR TO THE START OF CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.

NOTES FOR CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY

- 1. CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK ON COUNTY HIGHWAYS FROM THE DEVELOPMENT SERVICES ADMINISTRATION TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.
- 2. STANDARD DETAIL DRAWINGS AND STANDARD SPECIFICATIONS OF THE DEPARTMENT OF PUBLIC WORKS SHALL BE INCLUDED AS PART OF THE CONSTRUCTION PLANS.
- 3. ALL CONSTRUCTION WORK SHALL STRICTLY CONFORM TO THE LATEST VERSION OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD END BRIDGE PUBLIC WORKS CONSTRUCTION. AND THE SEPTEMBER 1984 "STANDARD DETAILS" FOR PUBLIC WORKS CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS. AS AMENDED.
- 4. IF EXISTING UTILITIES. WHETHER OR NOT SHOWN ON PLANS, ARE DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL AT HIS OWN EXPENSE BE REQUIRED TO REPAIR SUCH
- 5. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, AND OTHER PROTECTIVE DEVICES FOR THE PROTECTION, SAFETY AND CONVENIENCE OF THE PUBLIC ACCORDING TO THE LATEST VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE FOR STREETS AND HIGHWAYS", AND TO THE RULES AND REGULA-TIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORKSITES ADJACENT TO PUBLIC STREETS AND HIGHWAYS ADOPTED BY THE HIGHWAY SAFETY COORDINATOR AND THE U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS".
- 6. THE DIRECTOR OF PUBLIC WORKS AND/OR THE DIRECTOR OF THE DEPARTMENT OF WATER SUPPLY HAS THE RIGHT TO STOP CONSTRUCTION SHOULD ANY WORK BE FOUND CONTRARY TO THE APPROVED CONSTRUCTION PLAN OR DETRIMENTAL TO THE PUBLIC'S INTEREST.
- 7. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH DSA FIVE (5) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 8. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, KEEP THE PROJECT AREA AND THE SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH AND THE COUNTY GRADING ORDINANCE.
- 9. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES. ROADWAYS AND OTHER AREAS. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION ORDERED BY THE DIRECTOR OF PUBLIC WORKS SHALL BE PAID BY THE CONTRACTOR.
- 10. CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE WORK SITE. THE CONTRACTOR SHALL INFORM THE DIRECTOR OF PUBLIC WORKS OF THE LOCATION OF THE DISPOSAL SITES. THE DISPOSAL SITE MUST FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
- 11. THE CONTRACTOR SHALL SUBMIT A .PDF FILE AND FIVE (5) COPIES OF THE "AS-BUILT" DRAWINGS PRIOR TO THE FINAL APPROVAL OF THE IMPROVEMENTS.
- 12. IF THE CLEARANCE BETWEEN A WASTEWATER LINE AND A NEW OR EXISTING WATERLINE IS EIGHTEEN INCHES (18") OR LESS, THE WASTEWATER LINE SHALL BE CONCRETE-JACKETED IN ACCORDANCE WITH THE STANDARD DETAILS OF PUBLIC WORKS CONSTRUCTION DATED SEPTEMBER 1984, AS AMENDED.
- 13. SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS, OR MOUNDS, OR REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATION OF SHELL OR CHARCOAL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR AND/OR LANDOWNER SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION (692-8015), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY.
- 14. STEEL PLATE WARNING SIGNS ARE REQUIRED FOR ALL STEEL PLATES IN THE RIGHT-OF-WAY.
- 15. WHEELCHAIR RAMP INSPECTION/CERTIFICATION FORMS SHALL BE REQUIRED FOR ALL NEWLY CONSTRUCTED RAMPS.
- 16. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE OF THERMOPLASTIC MATERIAL.

CONTRACTOR'S RESPONSIBILITY FOR

EXISTING UTILITY LINES, PIPES AND SERVICES

- INFORMATION REGARDING THE SITE OF THE WORK GIVEN ON THE DRAWINGS OR SPECIFICATIONS HAS BEEN OBTAINED BY THE ENGINEER AND IS BELIEVED TO BE REASONABLY CORRECT; HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL SUCH INFORMATION. THE CONTRACTOR SHALL TONE THE AREA TO BE EXCAVATED TO ASCERTAIN THE LOCATION OF UNCHARTED UTILITIES.
- 2. ANY UTILITIES THAT THE CONTRACTOR ENCOUNTERS DURING THE PROGRESS OF THE WORK, SUCH AS TELEPHONE DUCTS, ELECTRIC DUCTS, WATER LINES, SEWER LINES, ELECTRIC LINES AND DRAINAGE PIPES, WHETHER SHOWN OR NOT ON THE CONTRACT PLANS, SHALL NOT BE DISTURBED OR DAMAGED UNLESS OTHERWISE INSTRUCTED IN THE PLANS AND SPECIFICATIONS.
- 3. IN THE EVENT THE UTILITIES ARE DAMAGED OR DISTURBED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE HELD LIABLE FOR THE DAMAGED OR DISTURBED UTILITIES.
- 4. THE CONTRACTOR SHALL REPAIR THE DAMAGED OR DISTURBED UTILITIES TO THE EXISTING CONDITION AT NO COST TO THE OWNER. ANY DAMAGE CLAIMS DUE TO THE DISRUPTION OF SERVICE CAUSED BY THE UTILITIES BEING DAMAGED SHALL BE PAID BY THE CONTRACTOR, WHO SHALL SAVE HARMLESS THE OWNER AND ENGINEER FROM ALL SUITS, ACTIONS OR CLAIMS OF ANY CHARACTER BROUGHT ON ACCOUNT OF SUCH DAMAGES. 5. IN THE EVENT UTILITIES WHICH WERE NOT SHOWN ON THE PLANS AND SPECIFICATIONS ARE DAMAGED OR DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE HELD LIABLE. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND EXPOSE ALL UTILITY LINES PRIOR TO ANY EXCAVATION AND/OR INSTALLATION OF LINES.

SOLID WASTE CONSTRUCTION NOTES

UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER HANDLING, STORAGE AND/OR DISPOSAL OF ALL WASTE GENERATED BY THE CONSTRUCTION INCLUDING GRUBBING AND EXCESS EXCAVATED MATERIAL ANY MATERIAL BROUGHT TO THE COUNTY LANDFILLS WILL BE SUBJECTED TO THE INSTITUTED TIPPING FEE SYSTEM, WITH NO EXCEPTIONS OR EXEMPTIONS.

ARCHAEOLOGICAL MONITORING NOTES

CONTRACTOR SHALL HAVE AN ARCHAEOLOGICAL MONITOR TO BE PRESENT DURING ALL GROUND-DISTURBING ACTIVITIES. THE ARCHAEOLOGICAL MONITOR SHALL INSPECT THE EXPOSED SOIL AND THE STRATIGRAPHIC PROFILES OF ANY EXCAVATED TRENCHES IN AN EFFORT TO IDENTIFY ANY PREVIOUSLY UNDISCOVERED AND UNDISTURBED CULTURAL DEPOSITS, FEATURES, ARTIFACTS AND HUMAN SKELETAL MATERIAL. THE MONITOR SHALL NOTIFY THE COUNTY IF ANY SUCH RESOURCES ARE ENCOUNTERED. IF NO CULTURAL RESOURCES ARE ENCOUNTERED, THE MONITOR SHALL PREPARE A FINAL MONITORING REPORT AND SUBMIT TO SHPD FOR CONCURRENCE. THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS CONTRACT ITEMS AND WILL NOT BE PAID FOR SEPARATELY. ADDITIONAL WORK DUE TO THE DISCOVERY OF CULTURAL RESOURCES WILL BE PAID FOR ON A FORCE ACCOUNT BASIS.

ELECTRICAL NOTES:

- 1. DO NOT EXCAVATE WITHIN 5'-0" OF POLES
- 2. VERIFY EXISTING UNDERGROUND CABLES IN THE VICINITY. CALL HAWAII ONE CALL CENTER AT 1-866-423-7287 TO HAVE EXISTING UNDERGROUND LINES LOCATED BEFORE EXCAVATING.
- 3. CALL FOR A MECO STANDBY MAN BEFORE EXCAVATION IN THE AREA OF EXISTING UNDERGROUND ELECTRICAL CABLES. THREE WORKING DAYS IN ADVANCE NOTICE IS REQUIRED. CALL 8771-7777.
- 4. WHEN WORKING OR OPERATING EQUIPMENT IN THE VICINITY OF OVERHEAD ELECTRICAL LINES/GUY WIRES. MAINTAIN A MINIMUM OF 10'-0" RADIAL CLEARANCE.

NOTES FOR ENVIRONMENTAL PROTECTION

- 1. ENVIRONMENTAL PROTECTION NOTES PERTAINING TO AIR AND WATER POLLUTION SHALL BE ADMINISTERED AND MONITORED BY THE DEPARTMENT OF HEALTH.
- 2. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF FUGITIVE DUST EMISSIONS FROM THE PROJECT AND SURROUNDING AREAS CAUSED BY HIS OPERATIONS. THESE MEASURES SHALL MEET THE REQUIREMENTS OF STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, AIR POLLUTION CONTROL (11-60.1).
- 3. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE GRADING ORDINANCE TO PREVENT VIOLATION OF THE STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS (11-54, 11-55) DUE TO EROSION AND RUNOFF TO
- 4. GRUB MATERIAL, DEMOLITION WASTES, AND CONSTRUCTION WASTES SHALL BE DISPOSED OF AT AN AUTHORIZED SITE HAVING A DEPARTMENT OF HEALTH SOLID WASTE MANAGEMENT PERMIT. OPEN BURNING IS PROHIBITED.
- 5. PERMITS REQUIRED:
- A. A NPDES PERMIT IS REQUIRED TO BE OBTAINED FROM THE CLEAN WATER BRANCH OF THE DEPARTMENT OF HEALTH FOR STORM WATER DISCHARGE AND HYDROTESTING.
- B. A DEWATERING PERMIT MAY BE REQUIRED TO BE OBTAINED FROM THE CLEAN WATER BRANCH OF THE DEPARTMENT OF HEALTH IF DISCHARGING INTO STATE WATERS.
- C. PERMIT MUST BE OBTAINED PRIOR TO START OF CONSTRUCTION.
- 6. ENVIRONMENTAL PROTECTION NOTES PERTAINING TO AIR AND WATER POLLUTION SHALL BE ADMINISTERED AND MONITORED BY THE DEPARTMENT OF HEALTH.

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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

CONSTRUCTION NOTES-1

AUSTIN, TSUTSUMI & ASSOC., INC.



This work was prepared by me or under my supervision and construction of this project will be under my observation. Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules Professional Engineers, Architects, Surveyors, and Landscape Architects.")



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REVISION	DATE	BRIEF	BY

Project No:	O-11-056.004
Scale:	AS NOTED
Date:	10/16/15
Designed By:	BHK
Drawn By:	ВНК
Checked By:	DMF

CONSTRUCTION NOTES

DWG. NO.

G-1

SHEET 2 OF 16 FILE POCKET FOLDER NO.

NOTES FOR CONSTRUCTION WITHIN STATE HIGHWAY RIGHT-OF-WAY

- 1. PERMIT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL THEREOF. IN THE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS ONE-YEAR PERIOD, THE APPLICANT WILL BE REQUIRED TO RESUBMIT THE CONSTRUCTION PLANS TO THE STATE HIGHWAYS DIVISION, HAWAI'I DISTRICT OFFICE, FOR REVIEW AND APPROVAL.
- 2. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK UPON STATE HIGHWAYS FROM THE STATE HIGHWAYS DIVISION, HAWAI'I DISTRICT OFFICE, AT 50 MAKAALA STREET, HILO, HI 96720, BEFORE STARTING ANY WORK WITHIN THE STATE HIGHWAY RIGHT-OF-WAY.
- 3. UNLESS OTHERWISE SPECIFIED, ALL REFERENCES TO "ENGINEER" SHALL REFER TO THE HAWAI'I DISTRICT ENGINEER, AT THE ABOVE ADDRESS, OR HIS REPRESENTATIVE. ALL REFERENCES TO "TRAFFIC" SHALL INCLUDE BOTH MOTORIZED AND NON-MOTORIZED TRAFFIC (INCLUDING PEDESTRIANS AND BICYCLISTS), WHERE THE CONTEXT MAY SO APPLY.
- 4. CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN STATE RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION, AND THE SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, OF THE STATE DEPARTMENT OF TRANSPORTATION'S HIGHWAYS DIVISION.
- 5. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE DEVICES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE, AND SAFETY OF THE TRAVELING PUBLIC. ALL SUCH PROTECTIVE MEASURES AND DEVICES SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAI'I GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON, OR ADJACENT TO, PUBLIC STREETS AND HIGHWAYS", ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI - STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENTAL MANAGEMENT OPERATIONS". IF TRAFFIC MAY BE AFFECTED IN ANY WAY DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCLUDED IN THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE ENGINEER PRIOR TO THE ISSUANCE OF THE PERMIT.
- 6. ALL REGULATORY. GUIDE, CONSTRUCTION SIGNS, AND BARRICADES SHALL BE OF HIGH INTENSITY REFLECTIVE SHEETING.
- 7. PAVEMENT STRIPING SHALL BE DONE BY THE CONTRACTOR, AND SHALL BE REPLACED IN KIND.
- 8. THE CONTRACTOR SHALL REFERENCE TO THE SATISFACTION OF THE ENGINEER, ALL EXISTING TRAFFIC SIGNS, POSTS, AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS, AND PAVEMENT MARKINGS DISTURBED BY HIS ACTIVITIES, AT NO ADDITIONAL COST TO THE STATE. DISTRICT ENGINEER OR HIS REPRESENTATIVE.
- 9. ALL LANES SHALL BE OPEN TO TRAFFIC DURING THE MORNING PEAK HOURS FROM 6:30 A.M. TO 8: 30 A.M. AND DURING THE AFTERNOON PEAK HOURS FROM 3: 30 P.M. TO 5: 30 P.M., AND DURING OFF-WORK HOURS. FREE FLOW OF TRAFFIC SHALL BE MAINTAINED AT ALL OTHER TIMES, EXCEPT WHEN OTHERWISE PERMITTED BY A TRAFFIC CONTROL PLAN APPROVED BY THE ENGINEER.
- 10. THE CONTRACTOR SHALL INFORM THE STATE PERMIT OFFICE, (808) 933-8866 AT LEAST TWO (2) DAYS PRIOR TO CLOSING ANY LANES.
- 11. TEMPORARY ROAD CLOSURES REQUIRE ADVANCE APPROVAL IN WRITING FROM THE ENGINEER AND A NOTICE TO MOTORISTS MAY BE REQUIRED. SUBMIT THE NOTICE TO THE ENGINEER FOR REVIEW AND ACCEPTANCE A MINIMUM OF 4 WEEKS PRIOR TO PUBLICATION.
- 12. UNPROTECTED PAVEMENT DROPOFFS GREATER THAN 2" WITHIN 8 FEET OF THE TRAVEL WAY SHALL NOT BE ALLOWED DURING NON-WORKING HOURS, EXCEPT AS APPROVED BY THE ENGINEER IN WRITING.
- 13. CLEAR SHOULDER AREAS SHALL BE MAINTAINED FOR BICYCLISTS AND PEDESTRIAN TRAFFIC AT ALL TIMES. IF ONE SHOULDER IS TO BE CLOSED, APPROPRIATE SIGNS SHALL BE POSTED DIRECTING BICYCLISTS AND PEDESTRIANS TO USE ALTERNATE SHOULDER AREA.
- 14. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHT-OF-WAY, EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE ENGINEER.
- 15. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:
- A. RESIDENTIAL DRIVEWAYS:
- 1) 2" HOT MIX ASPHALT CONCRETE (HMA) PAVEMENT ON 6" AGGREGATE BASE COURSE OR 2" HMA PAVEMENT ON 2-1/2" HOT MIX GLASSPHALT BASE (HMGB) COURSE OR HOT MIX ASPHALT BASE (HMAB) COURSE.
- 2) 4" OF CLASS "A" CONCRETE REINFORCED WITH 6"x6"-W2.9xw2.9 WIRE MESH ON 12" AGGREGATE SUBBASE IF DEEMED NECESSARY BY THE ENGINEER.
- B. COMMERCIAL DRIVEWAYS. SIDE ROADS AND UTILITY INSTALLATIONS ON MINOR HIGHWAYS:
- 1) 2-1/2" HMA PAVEMENT, 8" AGGREGATE BASE COURSE ON 12" AGGREGATE SUBBASE, OR 2-1/2" HMA PAVEMENT ON 8" HMGB COURSE OR HMAB COURSE.
- 2) 6" OF CLASS "A" CONCRETE REINFORCED WITH 6"x6"-W2.9xW2.9 WIRE MESH ON 12" AGGREGATE SUBBASE IF DEEMED NECESSARY BY THE ENGINEER.
- C. CHANNELIZED INTERSECTIONS AND UTILITY INSTALLATIONS ON MAJOR HIGHWAYS:
- 1) 4" HMA PAVEMENT, 8" AGGREGATE BASE COURSE ON 12" AGGREGATE SUBBASE. OR 4" HMA PAVEMENT ON 8" HMGB COURSE OR HMAB COURSE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.
- 16. COMPACTION TESTS SAHLL BE TAKEN IN ACCORDANCE WITH THE CURRENT "SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS", AS FOLLOWS:
- A. SUBBASE: 1 COMPACTION TEST(S) PER LIFT EACH 300 LINEAL FEET OF ROADWAY.
- B. BASE COURSE: 1 COMPACTION TEST(S) PER LIFT <u>EACH 200 LINEAL FEET</u> OF ROADWAY.
- C. 1 COMPACTION TEST(S) PER LIFT FOR EACH 200 LINEAL FEET OF TRENCH.
- D. A COPY OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR ACCEPTANCE.
- 17. NO OPEN TRENCHES SHALL BE PERMITTED WITHIN THE CLEAR ZONE, DEFINED BY THE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE, EXCEPT WHERE SPECIFIED IN THE APPROVED TRAFFIC CONTROL PLAN, OR AS APPROVED BY THE ENGINEER IN WRITING.
- 18. NO TRENCH SHALL BE OPENED MORE THAN 500 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPE AND/OR DUCTLINE.
- 19. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A SURFACE PROFILE ALONG THE CENTERLINE OF THE PROPOSED UTILITY TRENCH. THIS INFORMATION SHALL BE USED IN VERIFYING THAT THE ROADWAY HAS BEEN RESTORED TO ITS ORIGINAL CONDITION. A COPY OF THE TRENCH PROFILE SHALL BE SUBMITTED TO THE ENGINEER.

NOTES FOR CONSTRUCTION WITHIN STATE HIGHWAY RIGHT-OF-WAY (CONT.)

- 20. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC. SMOOTH RIDING TAPERS SHALL BE PROVIDED FOR PAVEMENT TRANSITIONS AND ADVANCED WARNING SIGNS SHALL BE POSTED. PRIOR TO INSTALLING SUCH BRIDGING MATERIAL, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR ACCEPTANCE, DRAWINGS STAMPED BY A LICENSED STRECTURAL ENGINEER.
- 21. LONGITUDINAL DRAINAGE ALONG THE HIGHWAY SHALL BE MAINTAINED AT ALL TIMES.
- 22. EXISTING HIGHWAY DRAINAGE SYSTEMS SHALL REMAIN FUNCTIONAL AT ALL TIMES.
- 23. THE CONTRACTOR SHALL SCHEDULE HIS WORK AROUND THE IRONMAN TRIATHLON RACE ACTIVITIES, HELD ANNUALLY IN OCTOBER AND ANY OTHER PERMITTED RACE. ALL PAVEMENT AND SHOULDER AREAS SHALL BE RESTORED TO SMOOTH RIDING CONDITION, COMPLETELY CLEANED WITH PAVEMENT STRIPING INSTALLED, THREE WEEKS PRIOR TO THE EVENT. NO CONSTRUCTION WORK WITHIN THE STATE RIGHT-OF-WAY SHALL BE PERMITTED DURING THIS PERIOD THAT INTERFERES WITH THE PREPARATION AND RUNNING OF THE RACE. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CHECK WITH THE HAWAI'I DISTRICT PERMIT OFFICE AT (808) 933-8866 AND THE POLICE DEPARTMENT, TRAFFIC SERVICES BRANCH, AT (808) 961-2227, FOR ANY PERMITTED RACE.
- 24. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS. ANY SUCH, REPAIR WORK SHALL BE DONE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE. DAMAGES TO ANY EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES. COUNTY OR STATE AGENCY.
- 25. CONTRACTOR SHALL PROVIDE THE STATE HIGHWAYS DIVISION, HAWAI'I DISTRICT OFFICE, WITH "AS BUILT" DRAWINGS UPON COMPLETION OF THE WORK. THIS SHALL BE DONE PRIOR TO THE DEPARTMENT'S RELEASE OF THE PERMIT BOND.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR PERMIT PROJECTS WITHIN

STATE HIGHWAY RIGHT-OF-WAY

- 1. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS FOR HAWAI'I DISTRICT PERMIT PROJECTS. THIS IS AVAILABLE AT THE HAWAI'I DISTRICT OFFICE AT 50 MAKAALA STREET, HILO, HAWAI'I (PHONE 933-8866). DUE TO POTENTIAL COST IMPACTS, THE CONTRACTOR NEEDS TO BE AWARE OF THESE REQUIREMENTS.
- 2. ALL CONTRACTORS INVOLVED WITH ANY CONSTRUCTION PROJECT OR PERMIT PROJECT WITHIN THE STATE HIGHWAYS RIGHT-OF-WAY SHALL FOLLOW THE GUIDELINES OF THE HIGHWAYS DIVISION'S "CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL" AND THE "RULES RELATING TO SOIL EROSION STANDARDS AND GUIDELINES" OF THE CITY AND COUNTY OF HONOLULU. COPIES OF THESE DOCUMENTS SHALL BE MAINTAINED ON SITE AT ALL TIMES. THE RESPECTIVE DOCUMENTS MAY BE DOWNLOADED FROM THE WEB SITES AT http://www.stormwaterhawaii.com/resources
 - http://www.usspecbook.com/files/specs/rules-relating-to-soil-erosion.pdf
- 3. THE CONTRACTOR SHALL COMPLETE AND SUBMIT A CONTRACTOR'S CERTIFICATE OF NPDES COMPLIANCE, INCLUDING COMPLETION OF THE BEST MANAGEMENT PRACTICE (BMP) CHECKLIST AND SUBMITTAL OF A WRITTEN BMP PLAN, PRIOR TO ISSUANCE OF THE "PERMIT TO PERFORM WORK UPON STATE HIGHWAYS" OR "APPLICATION AND PERMIT FOR THE OCCUPANCY AND USE OF STATE HIGHWAYS RIGHT-OF-WAY".
- 4. THE CONTRACTOR SHALL OBTAIN A GENERAL NPDES PERMIT FROM THE DEPARTMENT OF HEALTH FOR ANY PROJECT 1 ACRE OR GREATER IN AREA. PRIOR TO ISSUANCE OF THE "PERMIT TO PERFORM WORK UPON STATE HIGHWAYS" OR "APPLICATION AND PERMIT FOR THE OCCUPANCY AND USE OF STATE HIGHWAYS RIGHT-OF-WAY".

AustinTsutsumi & ASSOCIATES, INC. CIVIL ENGINEERS I SURVEYORS HONOLULU I WAILUKU I HILO, HAWAII

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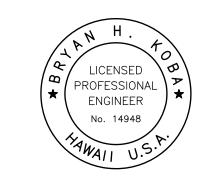
PHONE: 808-533-3646 FAX: 808-526-1267

STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE **GUARDRAIL INSTALLATION**

CONSTRUCTION NOTES-2

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LINE IS 2 INCHES AT FULL SIZE (If NOT 2-inches : Scale Accordingly) REVISION DATE

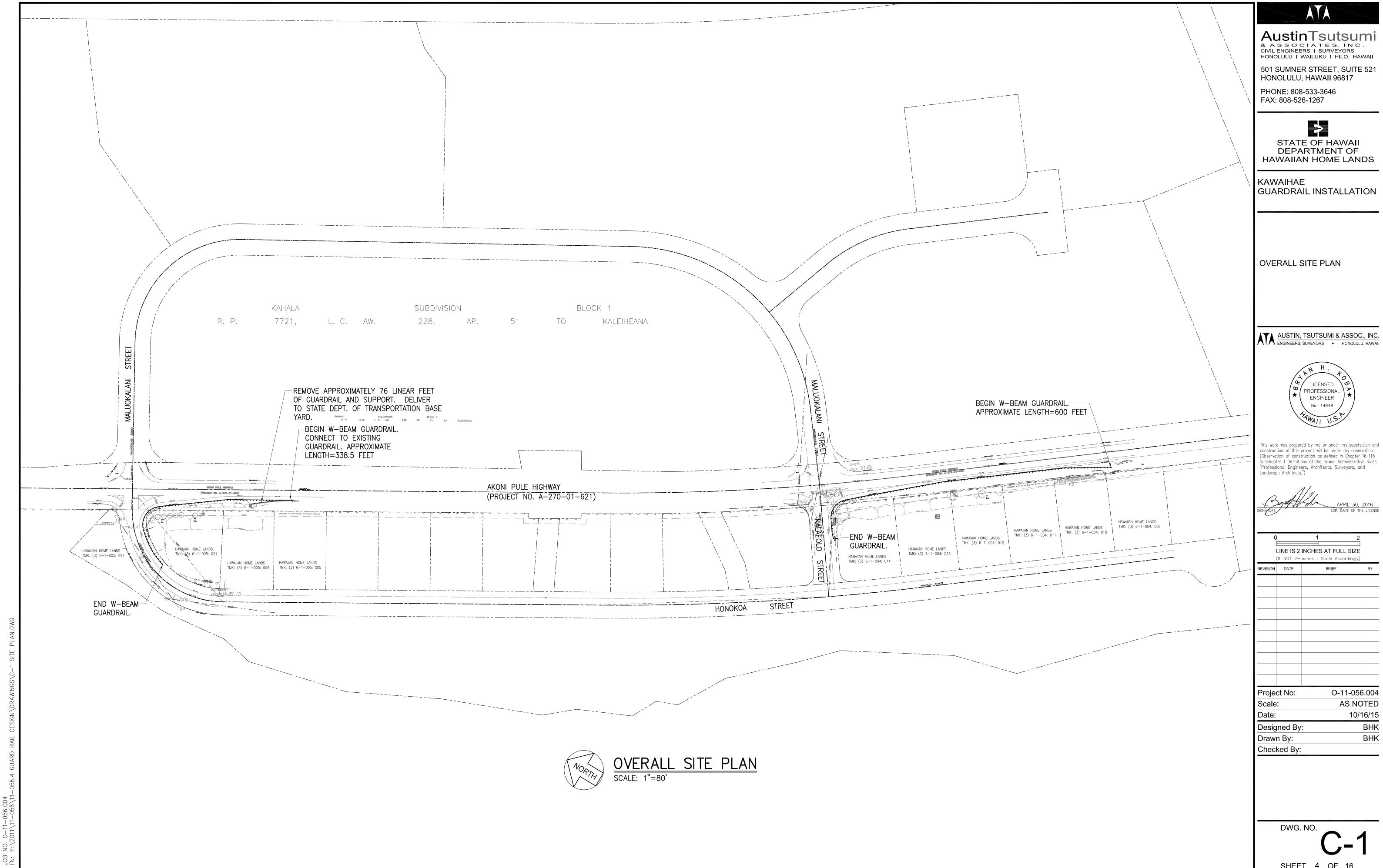
O-11-056.004 Project No: AS NOTED Scale: 10/16/15 Date: Designed By: **BHK** Drawn By: DMF Checked By:

CONSTRUCTION NOTES

DWG. NO.

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SHEET 3 OF 16



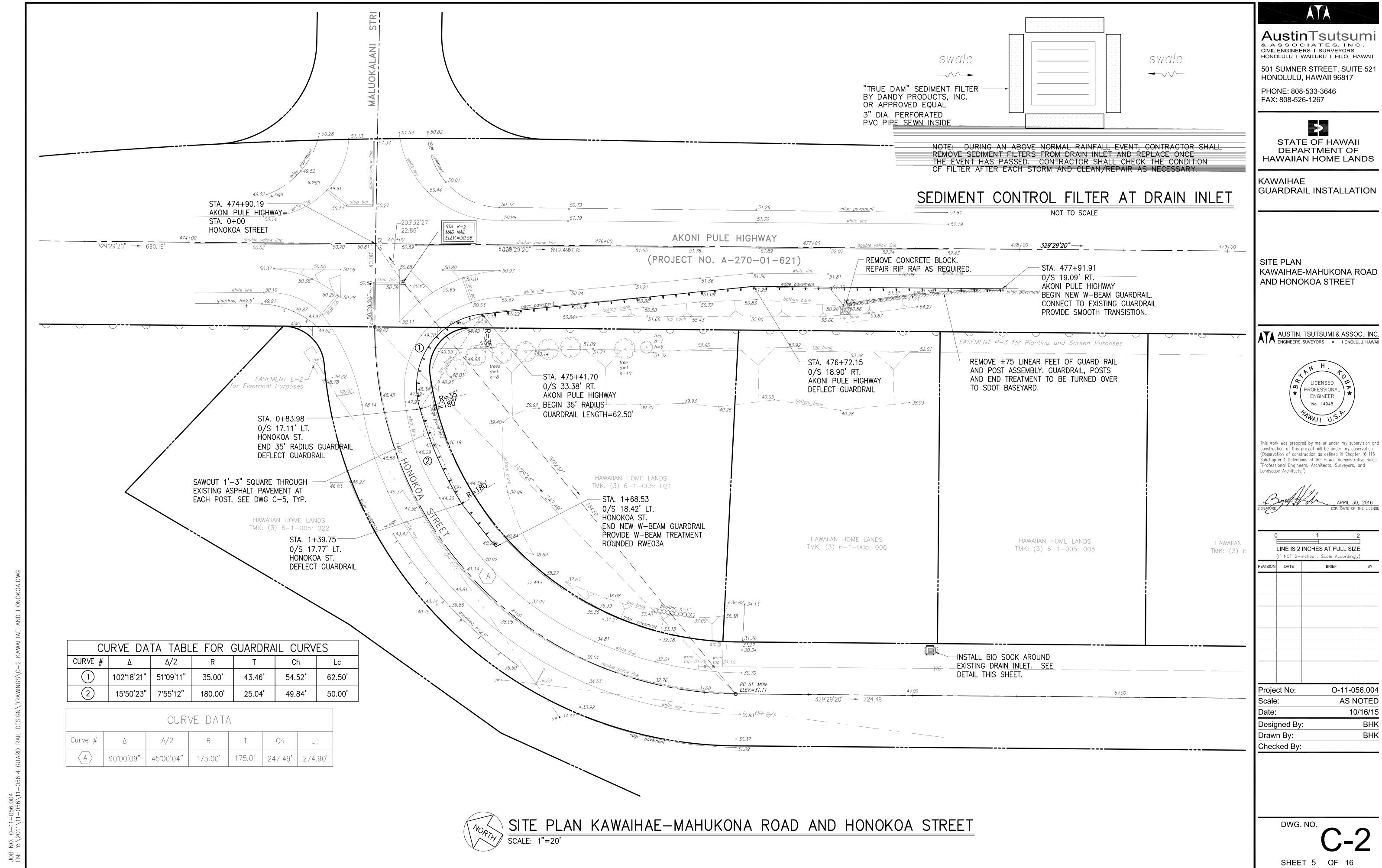
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(Observation of construction as defined in Chapter 16-115

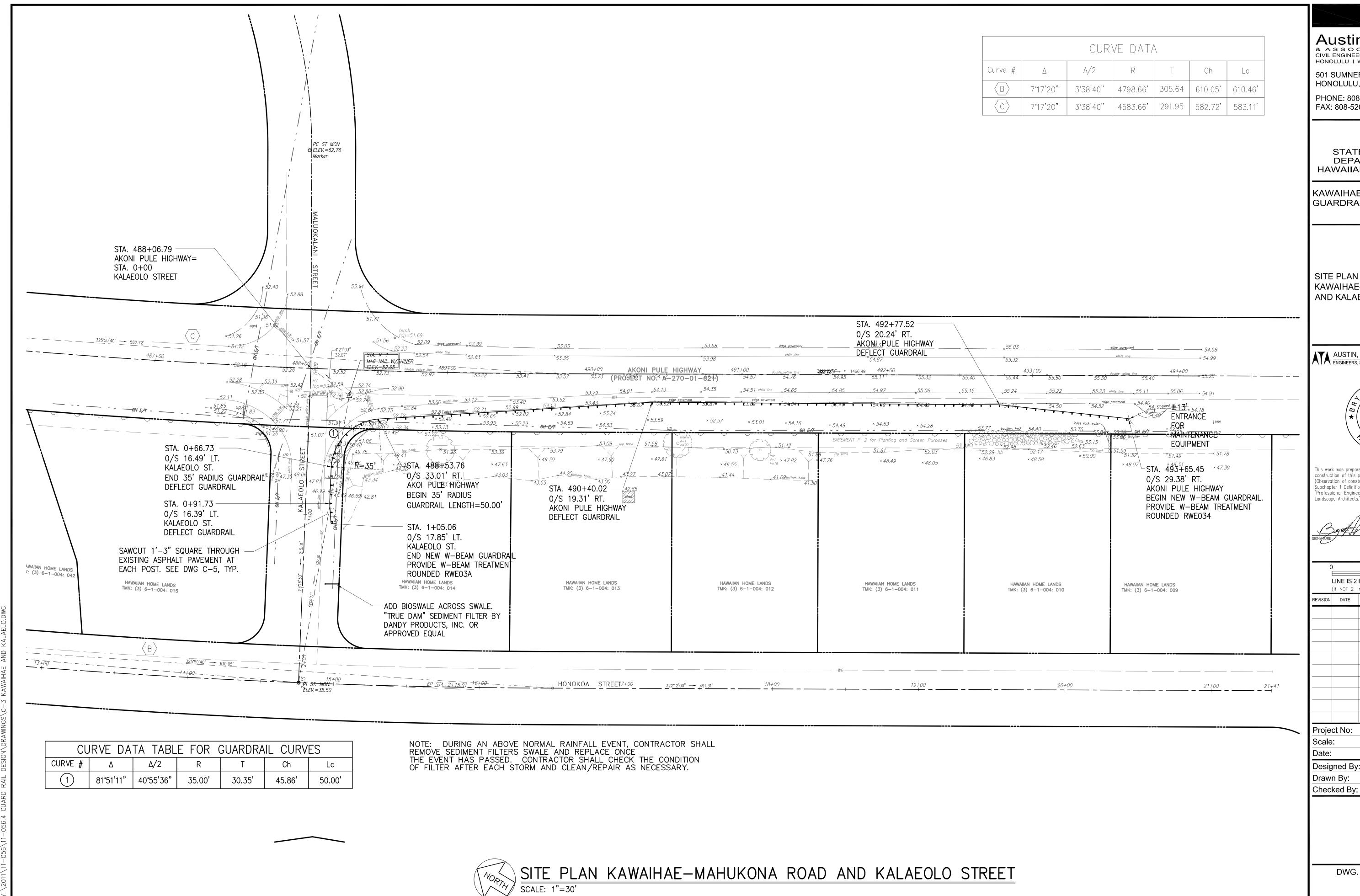
Subchapter 1 Definitions of the Hawaii Administrative Rules

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EVISION	DATE	BRIEF	BY

Project No:	O-11-056.004
Scale:	AS NOTED
Date:	10/16/15
Designed By:	BHK
Drawn By:	BHK
Checked By:	



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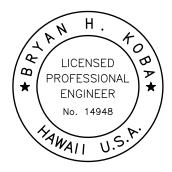
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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

SITE PLAN KAWAIHAE-MAHUKONA ROAD AND KALAEOLO STREET

AUSTIN, TSUTSUMI & ASSOC., INC. ENGINEERS, SUVEYORS • HONOLULU, HAWAII



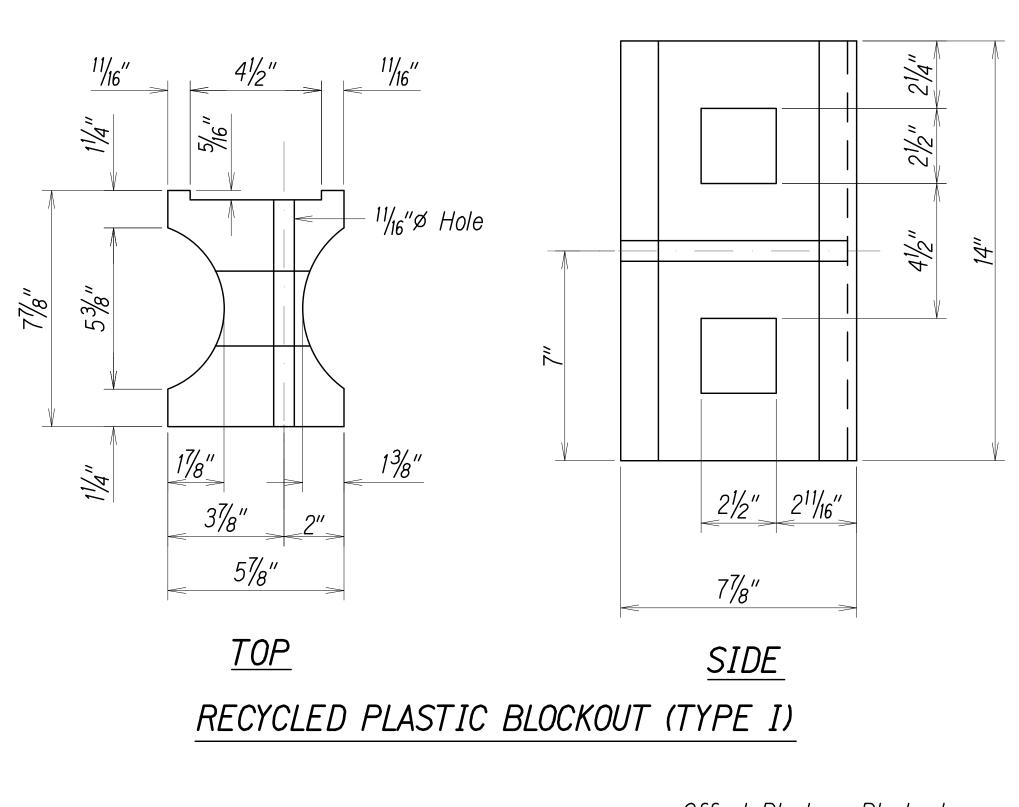
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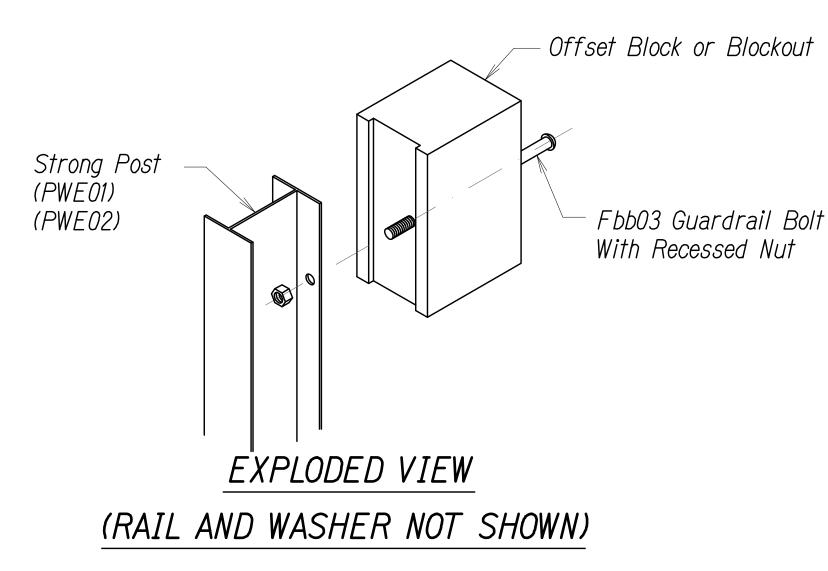
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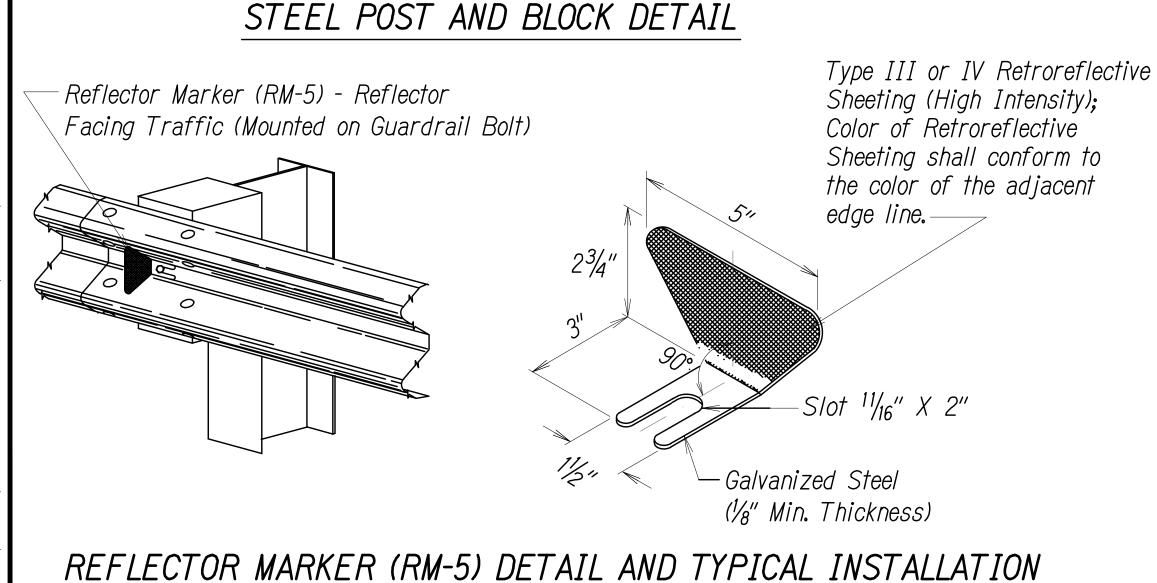
Project No: O-11-056.004 AS NOTED 10/16/15 BHK Designed By: Drawn By:

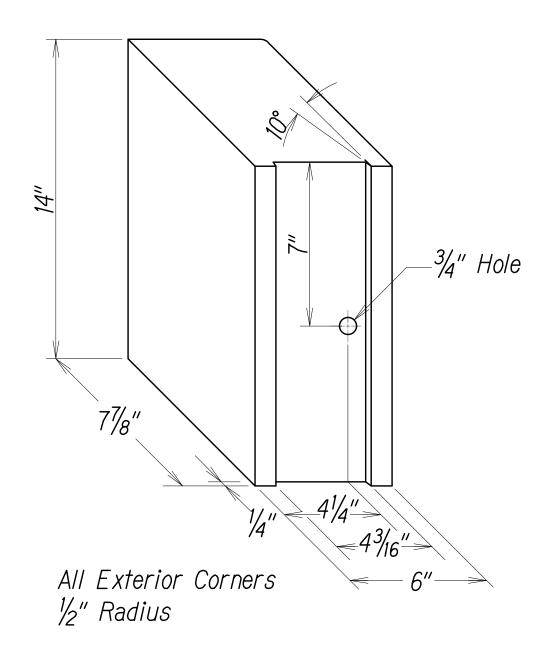
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SHEET 6 OF 16

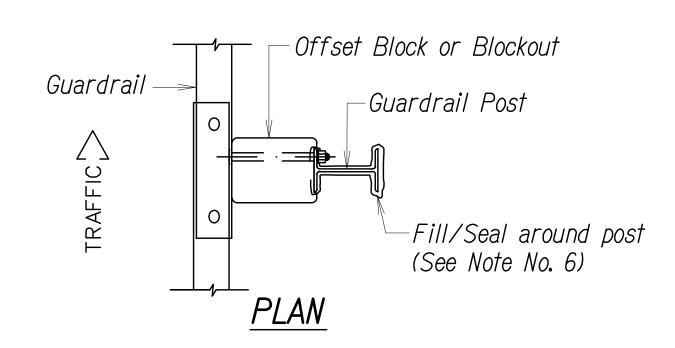


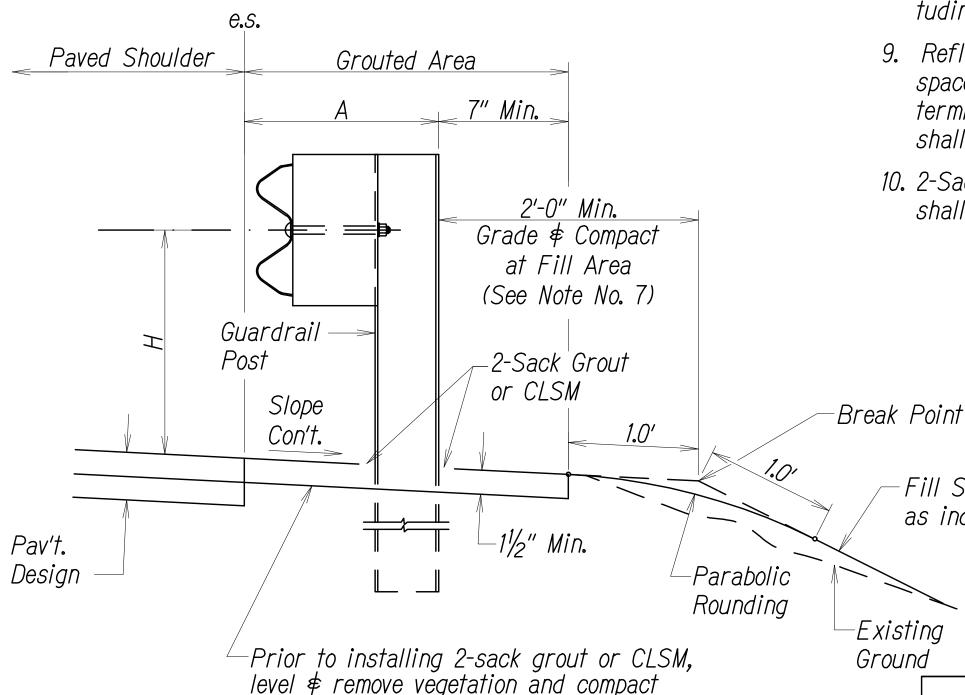






RECYCLED POLYETHYLENE OFFSET BLOCK (TYPE II)





-Fill Slope (2:1 Max.) or GRP, as indicated on plans

-Prior to installing 2-sack grout or CLSM, level \$ remove vegetation and compact existing ground to 95% compaction.

TYPICAL GUARDRAIL INSTALLATION

ELEVATION

General Notes:

- . 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 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 Recycled Plastic Block or Offset Block shall be approved by the State.
- 5. All new guardrail systems (system consists of total length of quardrail 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. Furnishing and installing of each RM-5 shall be considered incidental to the adjacent guardrail system.
- 10. 2-Sack Grout and Controlled Low Strength Material (CLSM) shall be considered incidental to the guardrail.

DIMENSION GUARDRAIL TYPE 1'-6" Strong Post W-Beam Strong Post Rubrail (W-Beam) 2'-0" 1'-6" 2'-0" 2'-0" Modified or Strong Post Thrie Beam

AYA

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STATE OF HAWAII **DEPARTMENT OF** HAWAIIAN HOME LANDS

KAWAIHAE **GUARDRAIL INSTALLATION**

GUARDRAIL DETAILS & NOTES

AUSTIN, TSUTSUMI & ASSOC., INC.

ENGINEERS, SUVEYORS • HONOLULU, HAWAII



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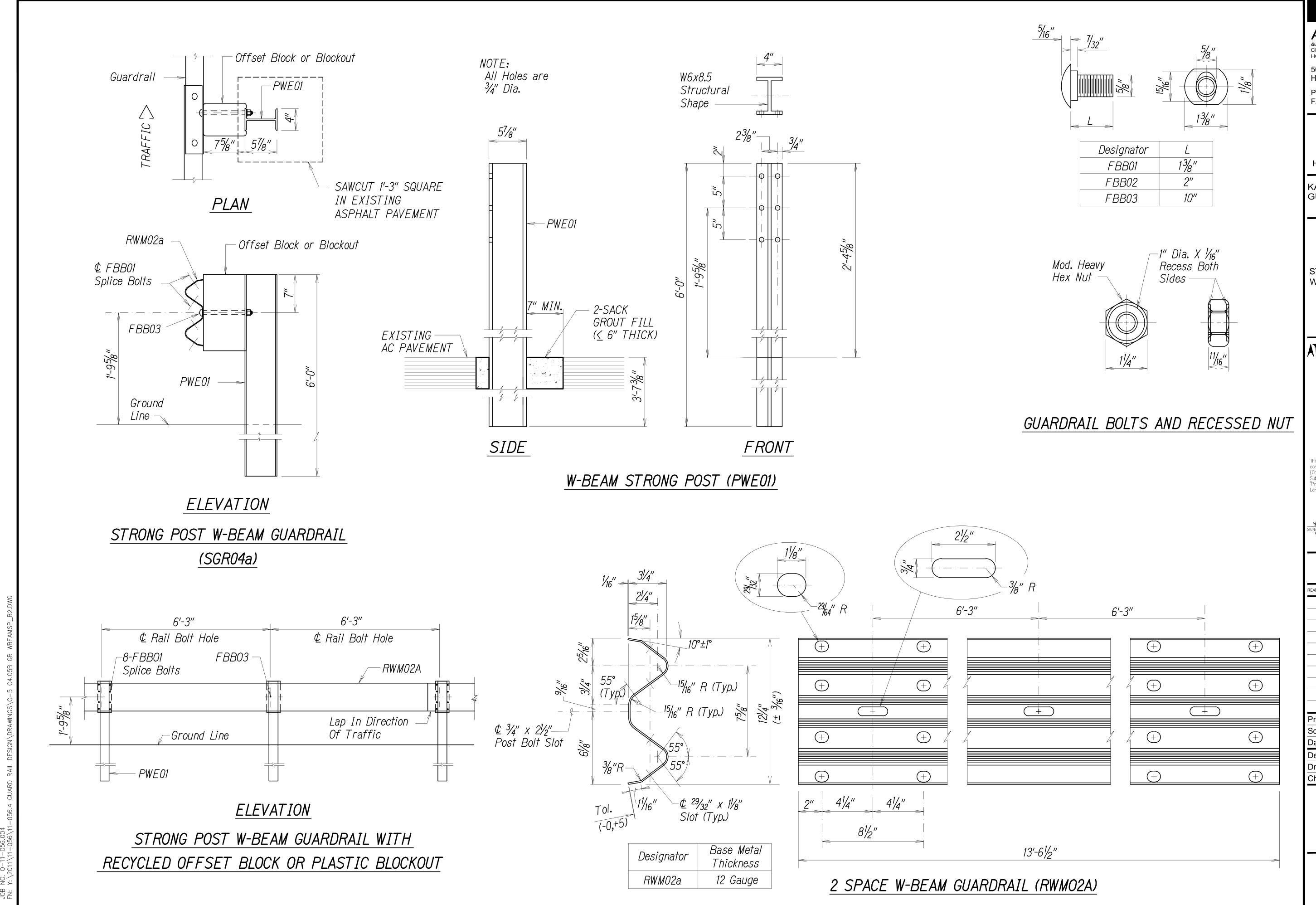
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EVISION DATE

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SHEET 7 OF 16



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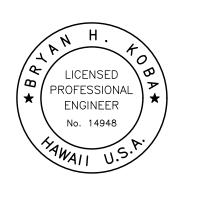
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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

STRONG POST W-BEAM GUARDRAIL

AUSTIN, TSUTSUMI & ASSOC., INC.
ENGINEERS, SUVEYORS • HONOLULU, HAWAII



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APRIL 30, 2016

SIGNATURE

EXP. DATE OF THE LICENSE

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LINE IS 2 INCHES AT FULL SIZE

Project No: O-11-056.004
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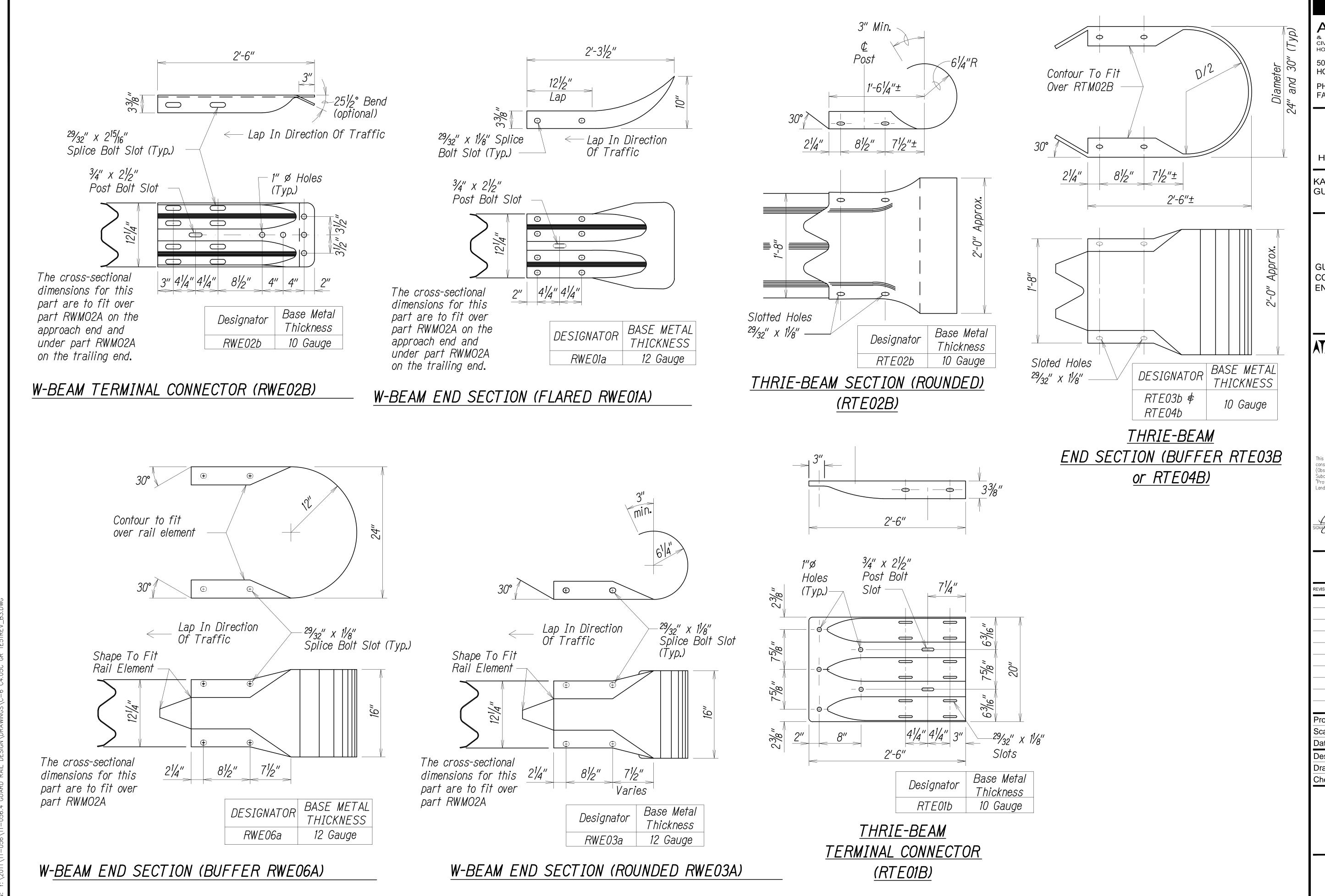
Designed By: BHK

Drawn By: BHK

Checked By:

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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

GUARDRAIL TERMINAL CONNECTORS & END SECTIONS

AUSTIN, TSUTSUMI & ASSOC., INC.
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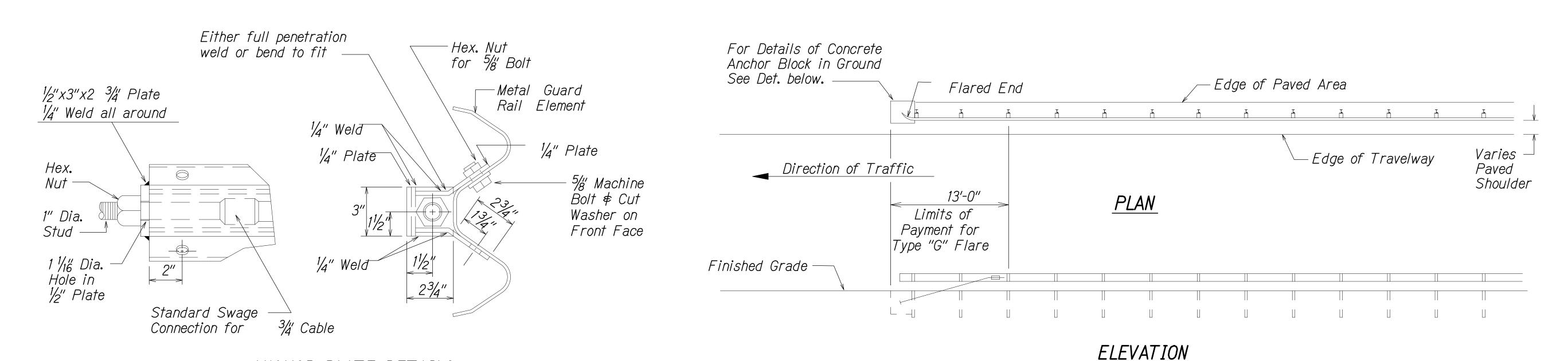
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Checked By:

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SHEET 9 OF 16



NOTE:

TYPE "G" FLARE END TERMINAL

Type "G" Modified End Terminal is a site specific end terminal with a

AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate

site evaluation. The Engineer shall consider safety (minimize the spearing \$

blunt end situation); degree and potential seriousness of the hazard; bicycle

availability; the smallest radii the metal w-beam/thrie-beam railing can be

and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way

During construction, the Contractor shall layout the proposed Type "G"

The taper (flare rate) of the guardrail shall follow the latest edition of

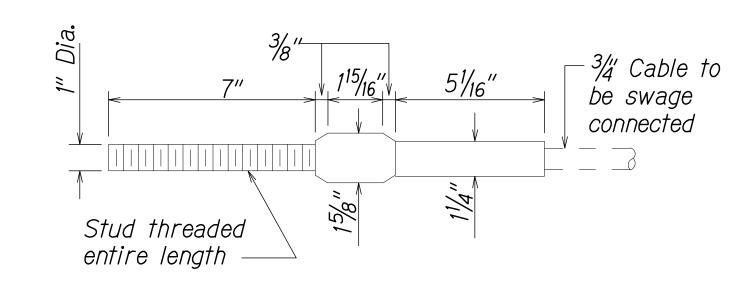
The radius of the radial termini is an Engineer's judgement based on the

taper and radial termini. A site specific detailed drawing is required for all

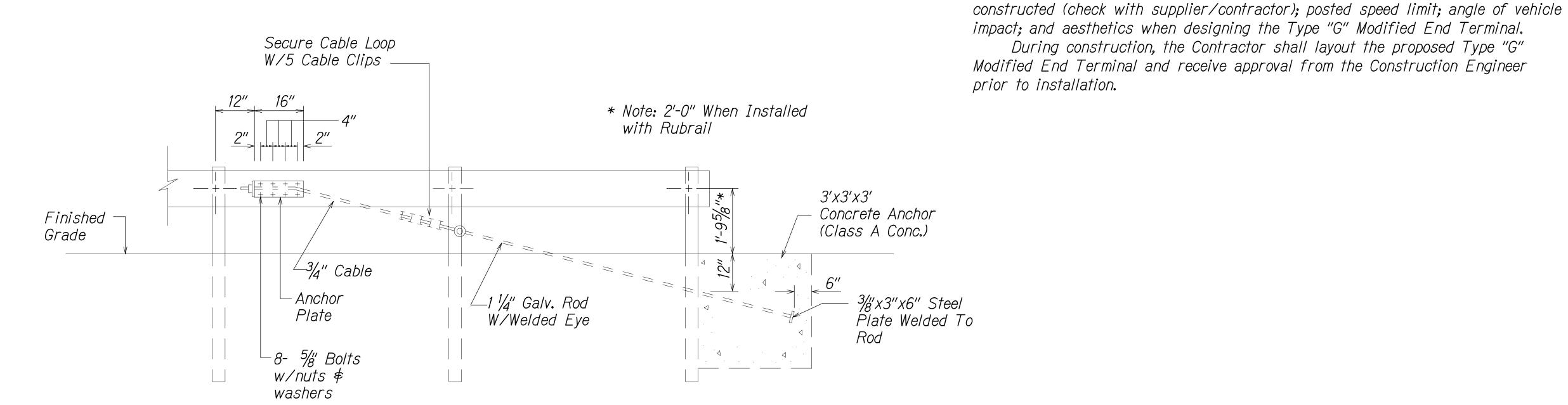
Type "G" Modified End Terminal and must receive Engineer's approval.

for Barrier Design, page 5-21, Jan. 1996 edition).

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.

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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE **GUARDRAIL INSTALLATION**

ANCHOR BLOCK DETAILS

AUSTIN, TSUTSUMI & ASSOC., INC.

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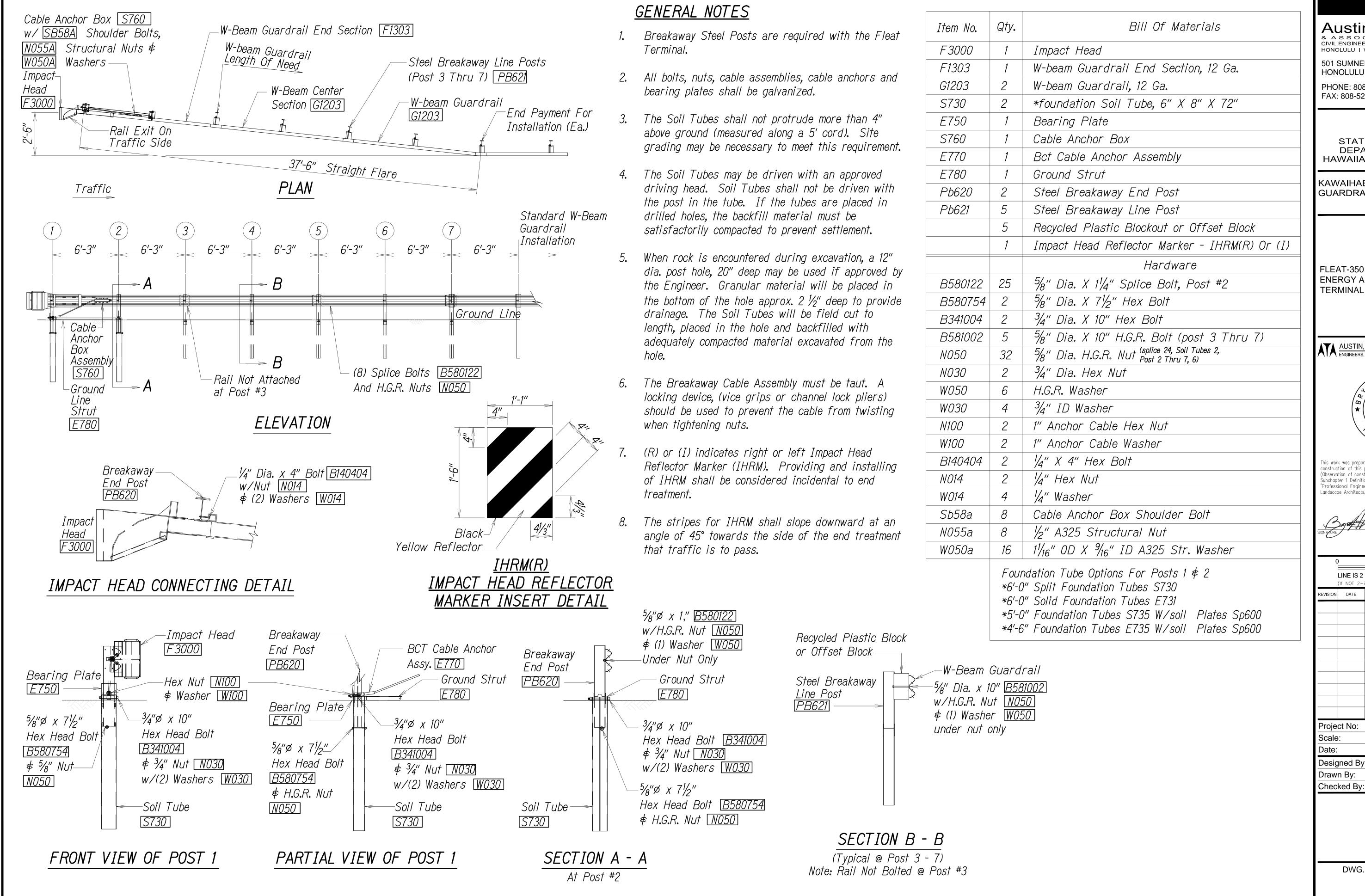
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SHEET 10 OF 16



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STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE **GUARDRAIL INSTALLATION**

FLEAT-350 FLARED **ENERGY ABSORBING TERMINAL**

AUSTIN, TSUTSUMI & ASSOC., INC.

ENGINEERS, SUVEYORS • HONOLULU, HAWAII



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SHEET 11 OF 16

State Approved Guardrail End Terminal ————— Fill Requiring Guardrail Type "A" Flare-Fill Slope Cut Slope ------(STRUCTURE) _____ \--------Cut Slope Fill Slope —Type "A" Flare – State Approved Guardrail-End Terminal

PLAN

TWO WAY ROADWAY

Fill Requiring Guardrail See Note No. 2 Type "A" -See Note No. 2 Fill Slope Cut Slope (STRUCTURE) Median Cut Slope ∠See Note No. 2 Fill Slope └─Type "A" Flare See Note No. 2

<u>PLAN</u> ONE WAY ROADWAY (DIVIDED HIGHWAY)

ATA

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Notes:

1. Metal Guardrail Connection to concrete structures requires

2. Depending on the existing field conditions, the Engineer shall

3. Refer to State's most current approved product list for

NCHRP 350 approved guardrail end terminals.

determine which guardrail end terminal should be installed.

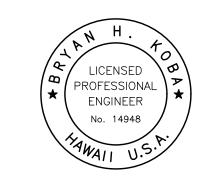
end post connection. See structure plans.

STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

GUARDRAIL DETAILS

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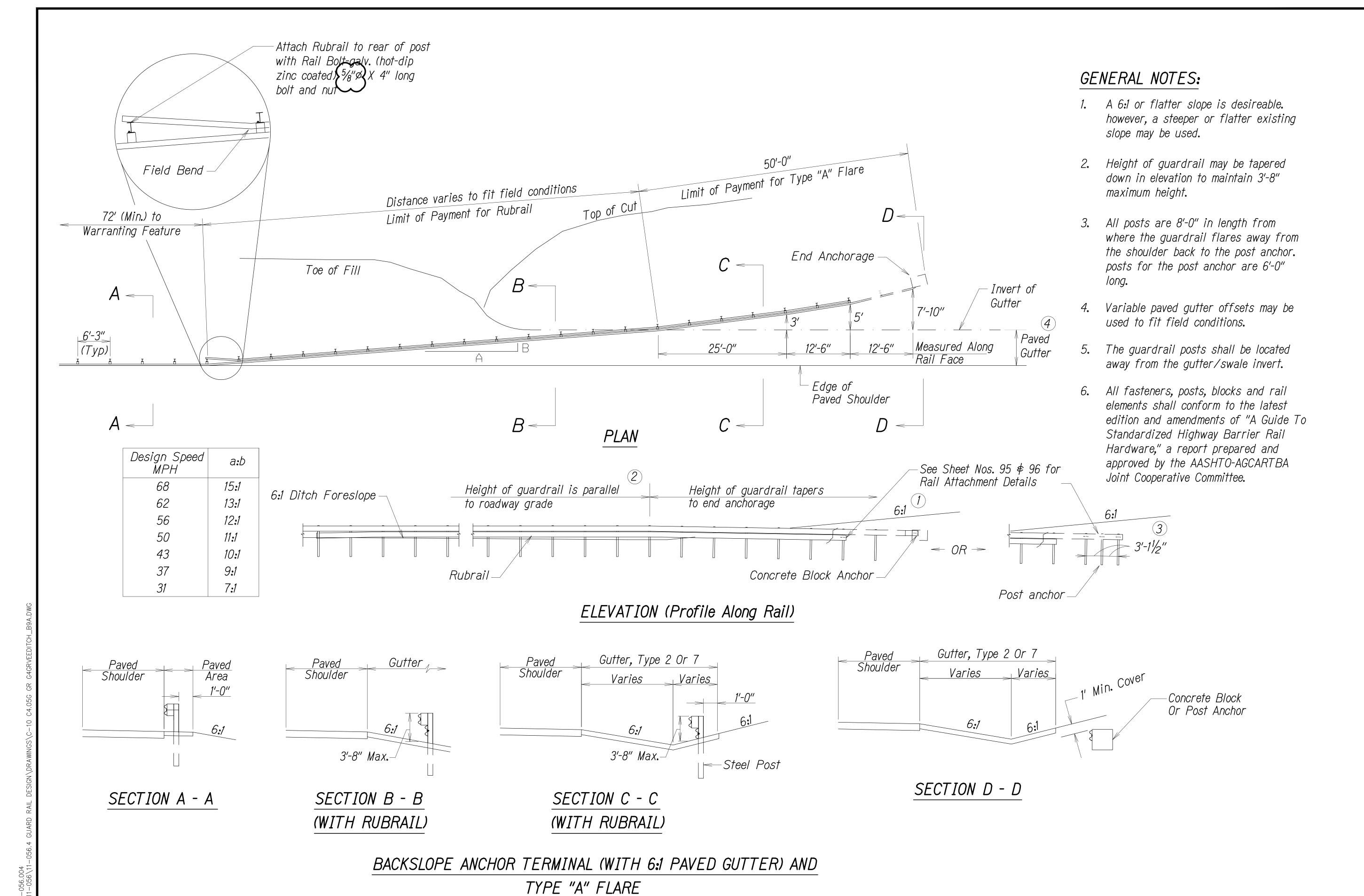
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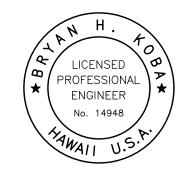
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KAWAIHAE GUARDRAIL INSTALLATION

TYPE "A" FLARE

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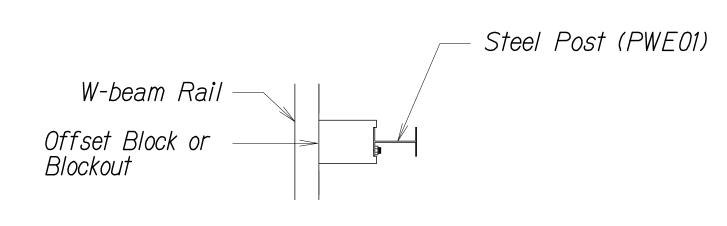
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REVISION DATE BRIEF BY

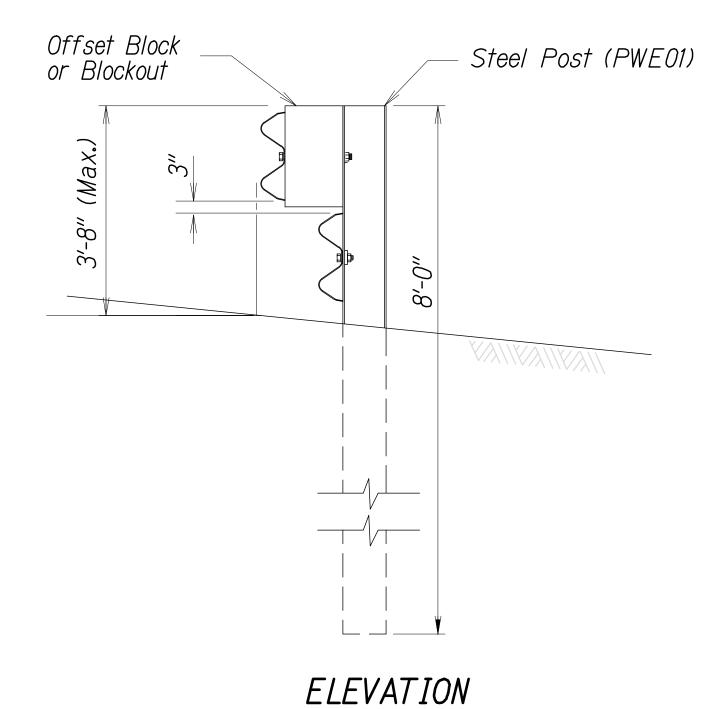
Project No:	O-11-056.004
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Date:	10/16/15
Designed By:	BHK
Drawn By:	BHK

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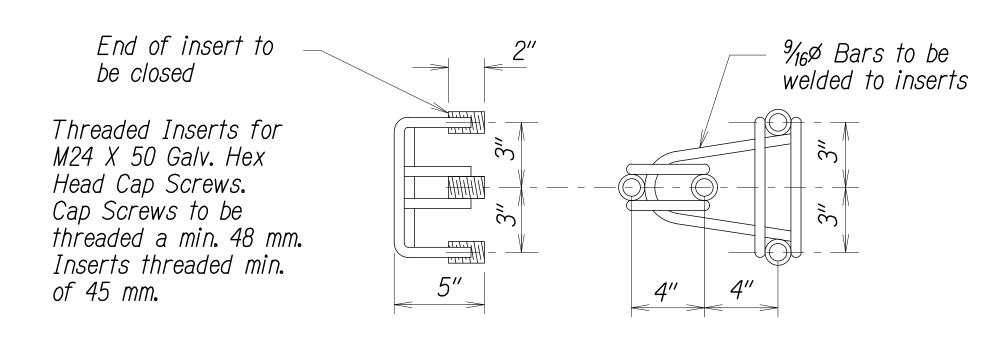
SHEET 13 OF 16



PLAN



STEEL POST GUARDRAIL
WITH RUBRAIL



ANCHOR ASSEMBLY CONCRETE BLOCK ANCHOR

Note:

All fasteners, posts, blocks and rail

elements shall conform to the latest

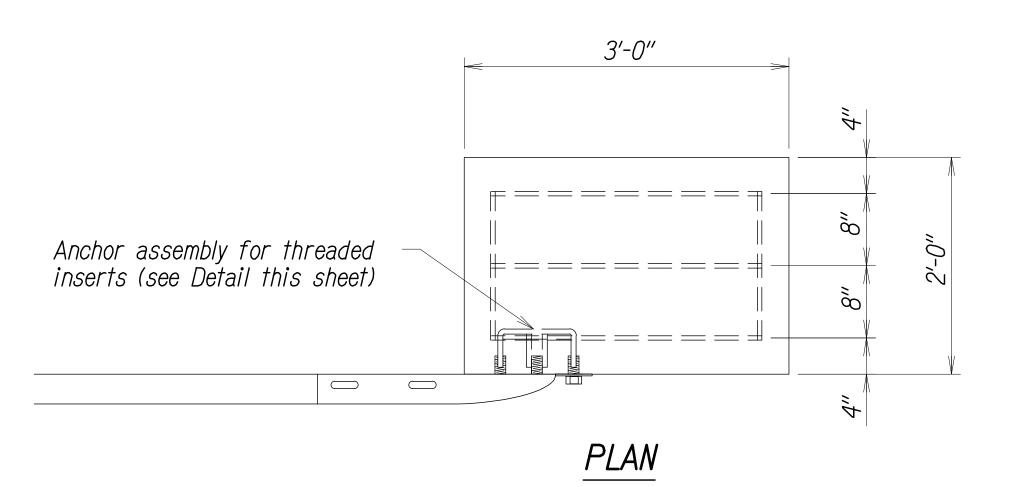
Standardized Highway Barrier Rail

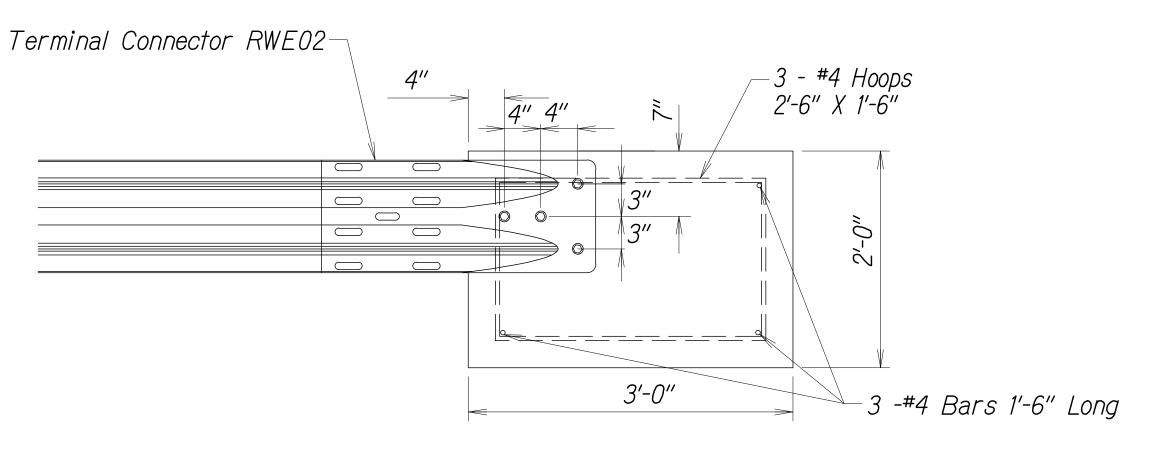
Hardware," a report prepared and

Joint Cooperative Committee.

approved by the AASHTO-AGCARTBA

edition and amendments of "A Guide To





ELEVATION

CONCRETE BLOCK ANCHOR
(2' X 2' X 3')

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS

TYPE "A" FLARE

AustinTsutsumi & associates, inc. civil engineers i surveyors honolulu i wailuku i hilo, hawaii

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PHONE: 808-533-3646 FAX: 808-526-1267

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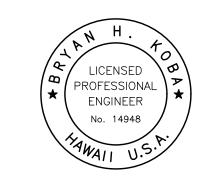
STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE GUARDRAIL INSTALLATION

TYPE "A" FLARE

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Drawn By: BHK
Checked By:

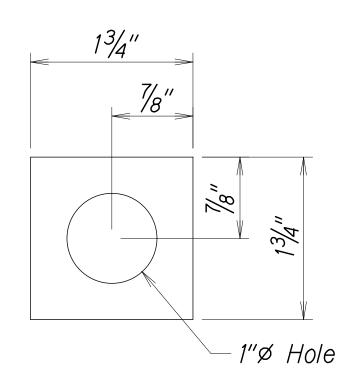
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SHEET 14 OF 16

FILE POCKET FOLDER NO.

1: Y:\2011\11—056\11—056.4 GUARD RAIL DESIGN\DRAWINGS\C—11 C4.05H GR G4DE

STEEL PLATE - 1/2" (Hot-dip Zinc Coated Galvanized Welded or Bolted to Post)



SQUARE WASHER (¾6" Thick - Hot-dip

Zinc Coated Galvanized)

Steel Post (PWE01) -W-Beam Rail Offset Block PLAN or Blockout Steel Post (PWE01) 6'-0" long 3 - 7/8"ø holes to be field Drill extra 13/16"ø hole drilled in rail and attached to steel plate with 7/8"Ø hex bolts 1¹⁵/₁₆" long with square in post flange each side 3 washer 1¹⁵/₁₆" Bolt plate to post 87/8" with 4 - 5/8"\$ hex bolts 2" long with hex nuts ← ¢ Of Post 1/2" Steel Plate 1"ø holes to be field drilled in rail and through post flange. attach to steel plate with ELEVATION FRONT VIEW

with square washer RUBRAIL ANCHOR DETAILS 77/8" |57/8" Steel Post (PWE01) -W-Beam Rail PLAN

3 - 7/8"ø holes to be field-Drill extra 13/16"\$\times\$ hole drilled in rail and attached in post flange each side to steel plate with 1/8"ø hex Steel Post (PWE01) bolts 115/16" long with square 6'-0" long washer Bolt plate to post with 4 - 5/8"\$ hex bolts 2" long with hex nuts −¢ Of Post

1"ø holes to be field drilled in rail and through post flange. attach to steel plate with 7/8"ø hex bolts 2" long

with square washer

7/8"ø hex bolts 2" long

FRONT VIEW

ELEVATION

Note:

All fasteners, posts, blocks and rail

elements shall conform to the latest

Standardized Highway Barrier Rail

approved by the AASHTO-AGCARTBA

Hardware," a report prepared and

Joint Cooperative Committee.

edition and amendments of "A Guide To

POST ANCHOR DETAILS

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS TYPE "A" FLARE

AYA

AustinTsutsumi CIVIL ENGINEERS I SURVEYORS HONOLULU I WAILUKU I HILO, HAWAII

501 SUMNER STREET, SUITE 521 HONOLULU, HAWAII 96817

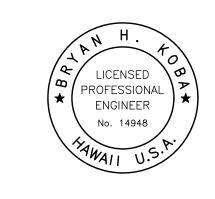
PHONE: 808-533-3646 FAX: 808-526-1267

STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

KAWAIHAE **GUARDRAIL INSTALLATION**

TYPE "A" FLARE

AUSTIN, TSUTSUMI & ASSOC., INC.
ENGINEERS, SUVEYORS • HONOLULU, HAWAII



This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")



LINE IS 2 INCHES AT FULL SIZE

(II NOT Z-Illeties . Scale Accordingly)			
VISION	DATE	BRIEF	BY
roje	ct No:	O-11-056	5.004
cale):	AS NO	DTED

10/16/15 BHK Designed By: Drawn By: BHK Checked By:

DWG. NO.

SHEET 15 OF 16

TYPICAL DETAIL FOR CONSTRUCTION SIGNS ON TWO LANE OR MULTILANE UNDIVIDED LOW SPEED HIGHWAY

21/2" | 13/4" | 13/4" | - 61/6" - - 21/2" | 13/4" | - 61/6" - - 21/2"

18⁴~5½"~ 2" ~ 13½~~

LEGEND: BLACK

BACKGROUND: WHITE

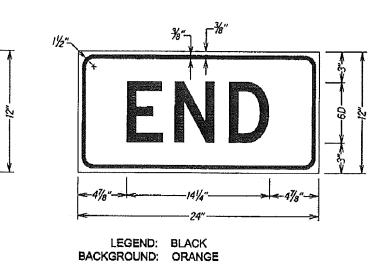
Designer Notes:

- 1. This Work Zone Signing Plan shall be used only for low speed highways (design speeds of 45 mph or less).
- 2. The Designer shall replace all XX, YY & D references with appropriate speed limit as indicated in Table I.
- 3. Speed Limit YY shall be the existing posted speed.

Work Zone Notes:

- 1. This Work Zone Sign Plan is intended for use on long-term stationary work zones/construction phases (3 days or more). All work zones or construction phases less than 3 days duration will use Traffic Control Plans shown in Section 645 of the Special Provisions.
- 2. All existing regulatory speed limit signs with posts within the work zone/project limits shall be removed and replaced with work zone speed limit sign assemblies (R2-1(XX)) and CW3-5(XX) with "CONSTRUCTION AREA" and "\$250 FINE HRS 291C-104" Supplemental Signs).
- 3. Construction sign assemblies shall be installed on both the approaching and trailing ends of each work zone as shown on this plan.
- 4. Each construction warning sign shall have a minimum of two (2) Type II OM. Each work zone speed limit assembly shall have a minimum of one (1) Type II OM. Installation of each Type II OM shall be considered incidental to Item No. 621.7100, Construction Sign with Posts.
- 5. Upon the completion of all physical work or as directed by the Engineer, all construction signs and work zone speed limit assemblies shall be removed. All speed limit signs and posts that were existing at the start of the project within the work zone/project limits shall be restored back to their original locations and configurations.
- 6. Placement of construction signs shall not obstruct the path of pedestrians and bicyclists.
- 7. The removal and restoration of existing regulatory speed limit signs with new posts along with the installation, maintenance and removal of work zone speed limit sign assemblies shall be considered incidental to Item No. 621.7100, Construction Sign with Posts.

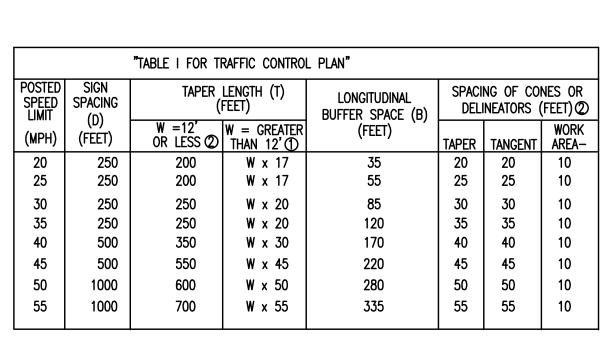
		OF SPEED REDUCTION AREA SPEED LIMIT
EXISTING POSTED SPEED LIMIT (MPH)	XX-NEW CONSTRUCTION AREA SPEED LIMIT (MPH)	D-REDUCED SPEED LIMIT SIGN SPACING TO FIRST CONSTRUCTION AREA SPEED LIMIT SIGN (FEET)
≤25	EXIST. SPEED LIMIT TO REMAIN	
30	25 100	
35	25	175
40	30	175



TYPICAL DETAIL FOR CONSTRUCTION SIGNS ON TWO LANE OR MULTILANE UNDIVIDED LOW SPEED HIGHWAYS

LEGEND: BLACK

BACKGROUND: ORANGE



① USE ADVISORY SPEEDS WHEN POSTED

LEGEND: BLACK

BACKGROUND: ORANGE

W= WIDTH OF LANE OR OFFSET ③ NOT APPLICABLE FOR "TWO-LANE HIGHWAYS"

48"x48" CW21-5(2D)-ACW21-5(D)-A(SEE NOTE 5) 48"x48" CW13-1(XX)-ACW13-1(XX)-ACW13-1(XX)-A24"x24" 24"x24" 24"x24" CG20-2A 48"x24" SHOULDER WORK ROAD WORK WORK END AHEAD ROAD WORK XX MPH XX MPH MPH 1/3 T B WORK AREA 1000' 500'

WORK ON SHOULDER OR ROADSIDE

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

- 1. THE PERMITTEE SHALL MAKE MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
- CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- 3. 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.
- 4. REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE
- 5. FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- 6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL AS SHOWN ON THE TRAFFIC CONTROL PLANS.
- 7. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
- 8. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- 9. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRI-ATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
- 10. AT THE END OF EACH DAY'S WORK, OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTEE 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. REPLACE EXISTING FADED OR OBLITERATED PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
- 11. REPLACE PAVEMENT MARKINGS AND TRAFFIC SIGNS UPON COMPLETION OF EACH PHASE OF WORK.
- 12. THE CONTRACTOR SHALL CONTROL TRAFFIC IN AND OUT OF DRIVEWAYS.
- 13. SIGN SPACINGS (L), TAPER LENGTHS (T) AND SPACING OF CONES OR DELINEATORS SHALL BE AS SHOWN ON TABLE 1, THIS SHEET, UNLESS OTHERWISE NOTED.

- 1. THIS PLAN MAY BE USED IF ALL ROAD WORK, INCLUDING EQUIPMENT AND WORKERS ARE OFF THE TRAVEL WAY.
- 2. SEE TABLE 1 FOR ADDITIONAL DIMENSIONS.
- 3. ENGINEER WILL DETERMINE IF ADVISORY SPEED SIGN IS NECESSARY.
- 4. THE CONTRACTOR SHALL PROVIDE NECESSARY ADJUSTMENTS TO ACCOMODATE BICYCLISTS AND PEDESTRIANS.
- 5. CW20-1AD SIGN REQUIRED FOR POSTED SPEED LIMIT OF 45 MPH OR GREATER.
- SIGNING IS NOT REQUIRED IF THE WORK AREA INCLUDING EQUIPMENT AND WORKERS IS OUTSIDE THE CLEAR ZONE DISTANCE, AS SPECIFIED IN THE LATEST AASHTO ROADSIDE DESIGN GUIDE.

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KAWAIHAE GUARDRAIL INSTALLATION

GENERAL TRAFFIC CONTROL PLAN AND **NOTES**

AUSTIN, TSUTSUMI & ASSOC., INC.

ENGINEERS, SUVEYORS • HONOLULU, HAWAII



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REVISION	DATE	BRIEF	BY
Danis at Ni		0 44 05	2 22

Project No:	O-11-056.004	
Scale:	AS NOTED	
Date:	10/16/15	
Designed By:	ВНК	
Drawn By:	BHK	
· J ·		

DWG. NO.

FILE POCKET FOLDER