

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 83A-01-28 | 1992 | C.O. 3 | 162 |

WATER NOTES

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS", VOLUME 1, DATED 1985, AND THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- 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 OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO EXISTING UTILITIES.
- THE CONTRACTOR SHALL NOTIFY THE BOARD OF WATER SUPPLY, PLANNING & ENGINEERING DIVISION, CONSTRUCTION SECTION, IN WRITING ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
- ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY. ALL OTHER FEATURES OF THE WATER SYSTEM, SUCH AS LINES, GRADES, FITTINGS, ETC., AND DRAINAGE AND OTHER FEATURES OF IMPROVEMENTS SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
- REAPPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LATERAL LOCATIONS WHETHER OR NOT SHOWN ON THE PLANS, PRIOR TO COMMENCING WITH ANY OF THE WORK AND SHALL NOT ASSUME THAT WHERE NO SERVICES ARE SHOWN NONE EXISTS.
- RELOCATION OF EXISTING 16" WATER MAIN (SEE SHEET 15)
 - CONTRACTOR SHALL HAND EXCAVATE EXISTING 16"A.C. WATER LINE AT PROPOSED CONNECTION POINTS.
 - THE CONTRACTOR SHALL TAKE EXTRA PRECAUTION WHEN REMOVING EXISTING JOINT COUPLING WHEN CONNECTION IS TO BE MADE, SUCH THAT THE PORTION OF EXISTING PIPE TO BE CONNECTED TO IS NOT DAMAGED.
 - ALL WATER MAIN TRENCHES SHALL BE BACKFILLED AS CALLED FOR UNDER PART III, SECTION 1.2.2, TRENCH BACKFILL OF THE "WATER SYSTEM STANDARDS", DATED 1985. COMPACTION OF TRENCH BACKFILL SHALL MEET APPLICABLE REQUIREMENTS OF "THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1986, OF THE COUNTIES OF THE STATE OF HAWAII.
 - ABANDONED LINE SHALL BE PLUGGED WITH CLASS DWS 2000 CONCRETE.
 - ALL WATER LINE CONSTRUCTION REQUIRING SHUT DOWN SHALL BE SCHEDULED FOR NORMAL WORKING HOURS AND MAXIMUM DOWN TIME SHALL BE 8 HOURS TO BE DONE CONCURRENTLY ON BOTH CONNECTIONS.
- TEST PRESSURE SHALL BE ONE OF THE FOLLOWING:
 - PREVAILING LINE PRESSURE, JOINTS LEFT EXPOSED FOR 24 HOURS TO CHECK FOR LEAKS PRIOR TO BACKFILL.
 - 120 PSI.
- THE CONTRACTOR SHALL CHLORINATE THE ENTIRE INSIDE SURFACE OF EACH PIPE AND FITTING WITH DISINFECTION SOLUTION OF 5 OUNCES OF SODIUM HYPOCHLORITE MIXED WITH 10 GALLONS OF WATER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINES, TEES AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH DWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHOD.
- PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY BOARD OF WATER SUPPLY, THE MANUFACTURER'S CERTIFICATION THAT ALL CAST IRON (GRAY OR DUCTILE) FITTINGS FOR THE PROJECT CONFORM IN ALL RESPECTS TO THE WATER SYSTEM STANDARDS, DATED 1985.
- POLYGON SHAPE FOR MECHANICAL JOINT PLANTS AS DESCRIBED IN AWWA STANDARD C111 SHALL BE "STRAIGHT-SIDED" OR APPROVED EQUAL ON A JOB TO JOB BASIS.

GENERAL NOTES

- CONTRACTOR BIDDING ON THIS PROJECT SHALL VERIFY THE EXISTING FEATURES AT HIS OWN DISCRETION PRIOR TO SUBMITTING HIS BID.
- REMOVAL OF EXISTING TREES AND SUGARCANE CROPS SHALL BE APPROVED BY THE ENGINEER AND SHALL BE CONSIDERED INCIDENTAL TO THE WORK WITH NO SEPARATE PAYMENT. ANY CROP DAMAGES SHALL BE BORNE BY THE STATE OF HAWAII.
- UPON COMPLETION OF THE GRADING WORK, ALL EXPOSED AREAS SHALL BE COVERED WITH TEMPORARY GROUND COVER AS SPECIFIED IN THIS CONTRACT.
- THE CONTRACTOR SHALL COORDINATE THE USAGE OF CANE HAUL ROADS FOR USE AS ACCESS ROADS WITH WAIALUA SUGAR CO.
- ANY IMPROVEMENTS TO THE CANE HAUL ROADS TO FACILITATE ITS USE AS ACCESS ROADS SUCH AS WIDENING AND REALIGNMENT, SHALL BE COORDINATED WITH WAIALUA SUGAR CO. AND APPROVED BY THE ENGINEER.
- COST OF IMPROVEMENTS TO CANE HAUL ROADS TO FACILITATE ITS USE AS ACCESS ROADS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACTED WORK WITH NO SEPARATE PAYMENT.
- THE CONTRACTOR SHALL COORDINATE ANY RELOCATION AND/OR REPLACEMENT OF CROP IRRIGATION SYSTEM WITH WAIALUA SUGAR CO. COST OF RELOCATION AND/OR REPLACEMENT OF CROP IRRIGATION SYSTEM SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACTED WORK WITH NO SEPARATE PAYMENT.
- THE BENCH MARK FOR THIS PROJECT IS THE C&GS TRIANGULATION STATION DISK (DESIGNATED AS "WEED") SET ON TOP OF CONCRETE POST FLUSH WITH THE GROUND LOCATED IN THE CENTER OF WEED CIRCLE. ELEV. = 48.55'.

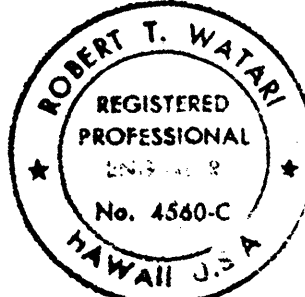
TEMPORARY EROSION CONTROL

- FOLLOW SEQUENCE OF OPERATION AS RECOMMENDED ON PAGES 26 AND 27 OF THE "SOIL EROSION STANDARDS AND GUIDELINES", DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, NOVEMBER 1975, AND SECTION 639 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF LAND TO BE EXPOSED AT ANY ONE TIME.
- GRADING OPERATIONS SHALL PROCEED FROM THE HIGHER GROUND AREA FIRST, WHERE EXCAVATION OPERATIONS ARE NECESSARY. THE EXISTING VEGETATION ON THE LOWER AREA SHALL BE LEFT IN PLACE AS LONG AS FEASIBLE TO SERVE AS A FILTERING MEDIUM.
- TEMPORARY GROUND COVER OF ALL AREAS GRADED SHALL BE DONE IMMEDIATELY AFTER FINAL GRADES ARE ESTABLISHED.
- GRADED AREAS THAT ARE NOT AT FINAL GRADE AND IS EXPECTED TO BE EXPOSED FOR MORE THAN 30 DAYS, SHALL BE MULCHED (AT THE RATE OF 45 CUBIC FEET PER 1,000 SQUARE FEET) IN ORDER TO PREVENT EROSION AND SILT RUNOFF.
- THE ABOVE PROCEDURE FOR EROSION AND SEDIMENT CONTROL IS A MINIMUM REQUIREMENT AND MAY BE REVISED BY THE CONTRACTOR TO CONFORM TO HIS GRADING OPERATION PROCEDURE. THE CONTRACTOR SHALL PLAN, DESIGN AND SUBMIT TO THE ENGINEER, AN EROSION CONTROL PLAN AS SPECIFIED UNDER SECTION 639 OF THE STANDARD SPECIFICATIONS.

GRADING NOTES

- ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 23, GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1978, AS AMENDED (ORDINANCE NO. 81-13), AND SOILS REPORT BY ERNEST K. HIRATA AND ASSOCIATES, INC., W. O. 88-1693, DATED NOVEMBER 1, 1989.
- 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 SHALL BE PAYABLE BY THE CONTRACTOR.
- 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.
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
- ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA, WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED, SHALL BE PLANTED.
- FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
- THE ENGINEER SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE OF THE CITY AND COUNTY OF HONOLULU.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DISTRICT ENGINEER.
- THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
- TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF CHAPTER 54, WATER QUALITY STANDARDS, AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH. (OVER 1 ACRE)
- TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR A GRADING PERMIT. (OVER 1 ACRE).
- THE BENCH MARK FOR THIS PROJECT IS THE C&GS TRIANGULATION STATION DISK (DESIGNATED AS "WEED") SET ON TOP OF A CONCRETE POST FLUSH WITH THE GROUND. LOCATED IN THE CENTER OF WEED CIRCLE. ELEVATION = 48.55'.
- PRIOR TO PLACEMENT OF ANY FILL, THE EXISTING GROUND SHALL BE SCARIFIED TO A DEPTH OF SIX INCHES AND COMPACTED TO A MINIMUM OF 90 PERCENT COMPACTION AS DETERMINED BY AASHTO T-
- CUT AND FILL SLOPES SHALL BE 2:1 (HORIZONTAL TO VERTICAL) OR FLATTER, UNLESS OTHERWISE INDICATED ON THE DRAWING.
- AFTER CLEARING AND GRUBBING, ADDITIONAL ROOTS AND OTHER VEGETATION FOUND IN THE UPPER 6 TO 8 INCHES SHALL BE REMOVED.
- CONSTRUCTION OBSERVATION AND FIELD DENSITY TESTING SHALL BE PERFORMED BY THE STATE. WHERE TESTS AND/OR OBSERVATIONS INDICATE THAT THE DENSITY OF UNIFORMITY OF ANY PORTION OF THE FILL IS INADEQUATE, THAT PORTION SHALL BE REMOVED AND REWORKED UNTIL THE REQUIRED DENSITY OR UNIFORMITY HAS BEEN SATISFACTORILY OBTAINED.

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| 4/15/92 | REVISED NOTES #2 & #12. ADDED RE'APPROVED |
| DATE | REVISION |



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Robert T. Water

RE'APPROVED (DUE TO TIME LAPSE)

for H. Hamauchi 4/15/92
CHIEF, PLANNING & ENGINEERING, BWS R DATE
APPROVED

for R. M. Maguire 2/1/90
CHIEF, PLANNING & ENGINEERING, BWS DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

KAMEHAMEHA HIGHWAY - HELEMANO/WAIALUA
JUNCTION TO HALEIWA BEACH PARK
(ROADWAY)
PROJ. NO. 83A-01-28

SHEET NO. 02 OF 85 SHEETS

C.O. 3

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| DATE | _____ |
| ORIGINAL PLAN | _____ |
| DRAWN BY | _____ |
| TRACED BY | _____ |
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| NOTE BOOK | _____ |
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