

GENERAL NOTES

1. ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, AND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENTS OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU (C&C) AND THE COUNTIES OF KAUAI, MAUI AND HAWAII.
2. THE UNDERGROUND PIPES, CABLES OR DUCT LINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA.
3. THE EXISTING UTILITIES HAVE BEEN SHOWN ON THESE PLANS INsofar AS IT IS POSSIBLE TO DO SO. THEIR LOCATIONS AS SHOWN ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL MAKE AN INDEPENDENT CHECK ON THE GROUND BY PROBING AND COORDINATING WITH THE VARIOUS UTILITY COMPANIES AND GOVERNMENTAL AGENCIES TO ASCERTAIN THEIR EXACT LOCATIONS.
4. ALL EXISTING UTILITIES TO REMAIN IN USE, WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION UNLESS SPECIFIED ON THE PLANS TO BE ABANDONED. ANY DAMAGE TO THE EXISTING UTILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
5. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF HFDC FOR CLARIFICATION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR 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.
7. NO BLASTING SHALL BE PERMITTED ON THIS PROJECT.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DIVISION OF ENGINEERING, DEPARTMENT OF PUBLIC WORKS AT 523--4883 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
9. THE CONTRACTOR SHALL NOTIFY HFDC UPON UNCOVERING ANY POTENTIAL HISTORICAL ARTIFACTS OR ITEMS OF ARCHAEOLOGICAL SIGNIFICANCE.
10. EXISTING IMPROVEMENTS ON THE PREMISES AND IN ADJACENT AREAS THAT ARE NOT TO BE ALTERED OR REMOVED, SHALL BE PRESERVED AND PROTECTED. ANY AND ALL DAMAGES RESULTING FROM THE CONSTRUCTION OPERATION SHALL BE REPLACED OR REPAIRED TO ORIGINAL OR BETTER CONDITIONS, TO THE SATISFACTION OF THE OWNER.
11. THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH)
12. TOPOGRAPHIC DATA ARE FROM SURVEYS BY R. M. TOWILL CORPORATION DATED SEPTEMBER 13, 1988, AUGUST 4, 1990 AND APRIL 3, 1993.
13. ALL COORDINATES AND AZIMUTHS ARE REFERRED TO "KAPUANU NEW."
14. ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON MEAN SEA LEVEL DATUM.

GRADING NOTES

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND SOILS REPORT BY GEOLABS--HAWAII DATED JUNE 28, 1986.
2. NO CONTRACTOR SHALL PERFORM ANY GRADING OR TRENCHING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM JUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS CONTAINED IN CHAPTER 11--60, "AIR POLLUTION CONTROL" OF THE STATE DEPARTMENT OF HEALTH.
4. 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 LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW 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.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT--LODEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS FINAL GRADE 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.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYS.
8. THE CITY 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.
9. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE CHIEF ENGINEER, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH HAWAII ADMINISTRATIVE RULES, CHAPTER 11--43, "COMMUNITY NOISE CONTROL FOR OAHU."
10. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
11. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, CHAPTER 11--55, "WATER POLLUTION CONTROL" AND CHAPTER 11--54, "WATER QUALITY STANDARDS" AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
15. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE PERMITTEE. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
17. BUILDING PERMIT FOR RETAINING WALLS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF GRADING WORK ON SITE.
18. FOR BENCH MARK, SEE SHEET C-5.

EROSION CONTROL NOTES

1. FOLLOW SEQUENCE OF OPERATION AS RECOMMENDED ON PAGES 26 AND 27 OF THE "SOIL EROSION STANDARDS AND GUIDELINES."
2. ALL SLOPES AND EXPOSED AREAS SHALL BE GRASSED AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED FOR MORE THAN 30 DAYS SHALL BE GRASSED IN ORDER TO PREVENT EROSION AND SILT RUNOFF.
3. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
4. THE ABOVE PROCEDURE FOR EROSION AND SEDIMENT CONTROL MAY BE REVISED BY THE CONTRACTOR TO CONFORM WITH ANY CHANGING OPERATION PROCEDURE. ANY REVISION TO THE ABOVE SHALL BE SUBMITTED BY THE CONTRACTOR TO THE DIRECTOR AND CHIEF ENGINEER, C&C, DEPARTMENT OF PUBLIC WORKS, FOR APPROVAL PRIOR TO CLEARING AND GRUBBING.

TRAFFIC NOTES FOR WORK ON CITY & COUNTY STREETS

1. A PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT OF TRANSPORTATION SERVICES BEFORE WORK ON ANY PORTION OF PUBLIC STREET OR HIGHWAY MAY BEGIN. CONSTRUCTION STAFF CONTROL PLANS APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES MUST BE PROVIDED WHEN APPLYING FOR THE PERMIT.
2. 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 ON 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 VI - TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS."
3. WORK ON ANY CITY STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:30 A.M. TO 3:30 P.M., MONDAY THROUGH FRIDAY, UNLESS OTHERWISE PERMITTED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
4. DURING WORKING HOURS, THE CONTRACTOR SHALL PROVIDE TWO LANES FOR THROUGH TRAFFIC. ON STREETS TOO NARROW TO MAKE THIS PRACTICABLE, THE CONTRACTOR MAY WORK IN ONE HALF OF THE ROADWAY, KEEPING ONE LANE OPEN TO TRAFFIC AND ALTERNATING THE FLOW OF TRAFFIC. DURING NON-WORKING HOURS, ALL TRENCHES SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING MATERIAL AND ALL LANES SHALL BE OPEN TO TRAFFIC.
5. AS REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SERVICES, THE CONTRACTOR SHALL PROVIDE OFF-DUTY POLICE OFFICERS TO CONTROL THE FLOW OF TRAFFIC.
6. WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
7. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RIGHTS-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
8. CONTRACTOR SHALL REFERENCE TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION SERVICES 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 PAVEMENTS MARKINGS DISTURBED BY HIS ACTIVITIES. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION SERVICES AT 523-4029 ONE (1) WEEK PRIOR TO ANY WORK TO BE DONE ON SIGNS, POSTS AND PAVEMENT MARKINGS.

WATER NOTES (THESE NOTES SHALL ALSO APPLY TO THE NAVY WATER SYSTEM)

3. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," DATED 1989 AS AMENDED, OF THE HAWAII HIGHWAYS DIVISION, DEPARTMENT OF TRANSPORTATION, AND THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS" VOLUME 1, DATED 1985, THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION," VOLUME 2, DATED 1985, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS," VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. THE CONTRACTOR SHALL NOTIFY THE BWS PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION, IN WRITING ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
3. 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, DRAINAGE, ETC., AND OTHER FEATURES OF IMPROVEMENTS SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINE TEES AND BENDS. WHEREVER THERE IS A POSSIBILITY OF WATER LINE MOVEMENT DUE TO REMOVAL OF THE SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS, THE CONTRACTOR SHALL TAKE WHATEVER MEASURE HE DEEMS NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTION SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHODS.
5. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT IS 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.
6. REAPPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
7. 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.
8. POLYGON SHAPE FOR MECHANICAL JOINT STANDARDS AS DESCRIBED IN AWWA STANDARD C111 SHALL BE "STRAIGHT-SIDED" OR AN APPROVED EQUAL ON A JOB BASIS.
9. THE CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LATERAL LOCATIONS WHETHER SHOWN OR NOT SHOWN ON PLANS PRIOR TO COMMENCING WITH ANY OF THE WORK AND SHALL NOT ASSUME THAT WHERE NO SERVICES ARE SHOWN NONE EXIST.
10. THE CONTRACTOR SHALL ADJUST ALL MANHOLE FRAMES/VALVE BOXES WITHIN THE RESURFACED AREA. PRIOR TO RESURFACING, BWS WILL INITIALLY LOCATE ALL WATER MANHOLES/VALVE BOXES THAT WILL REQUIRE ADJUSTMENTS. THE CONTRACTOR SHALL THEN BE RESPONSIBLE FOR "REFERENCING" THESE MANHOLES/VALVE BOXES TO FACILITATE THE ADJUSTMENTS. THE COST FOR ADJUSTMENTS SHALL BE MADE AT THEIR RESPECTIVE UNIT PRICES IN THE BID BASED ON THE ACTUAL NUMBER ADJUSTED. COST FOR REFERENCING SHALL BE INCIDENTAL AND SHALL NOT BE PAID FOR DIRECTLY. ANY ADDITIONAL REQUEST TO BWS TO AGAIN LOCATE THE MANHOLES/VALVE BOXES SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR. (BWS WILL CHARGE AND BILL THE CONTRACTOR FOR ALL COST FOR SAID ADDITIONAL WORK.)
11. MAINTAIN 3'-0" MINIMUM COVER FOR ALL EXISTING WATERLINES (18" MINIMUM FOR SERVICE LATERALS) FROM NEW FINISH GRADE. THE CONTRACTOR SHALL PROVE THE WATERLINE AND SERVICE LATERALS AND SUBMIT THE PROBING DATA TO BWS CONSTRUCTION SECTION. ANY ADJUSTMENTS TO THE EXISTING WATER SYSTEM TO MEET THE MINIMUM COVER AND THE REQUIREMENTS OF THE BWS STANDARDS, WHETHER SHOWN ON PLANS OR NOT, SHALL BE DONE BY THE CONTRACTOR AT NO COST TO BWS.
12. PRIOR TO ANY EXCAVATING, THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF EXISTING WATER MAINS AND APPURTENANCES.

WATER NOTES, CONTINUED:

13. ALL WATERLINE CONSTRUCTION REQUIRING SHUTDOWN SHALL BE SCHEDULED FOR NORMAL WORKING HOURS.

SHT NO.	STREET NAME	CONNECTION STATIONS	NORMAL WORKING HOURS	AFTER WORKING HOURS	MAXIMUM DOWNTIME, REMARKS
C-10	FARRINGTON HIGHWAY	13+18 & 13+20	X		12 HOURS
C-12	FARRINGTON HIGHWAY	29+58.1	X		8 HOURS
C-13	FARRINGTON HIGHWAY	40+64.5	X		8 HOURS

14. SOIL RESISTIVITY FOR THE SITE HAS A CORROSION RATING OF 2, AS REPORTED BY GEOLABS-HAWAII. ALL REQUIRED ELECTRICAL ISOLATION PROCEDURES AND CORROSION CONTROL REQUIREMENTS SHALL APPLY.
 15. PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A BILL CERTIFICATION THAT HIGH RESISTANT CUSHION MATERIAL HAS A RESISTIVITY GREATER THAN 5,000 OHM-CM. REMAINDER OF THE BACKFILL MATERIAL SHALL BE AS SPECIFIED IN VOLUME 1 OF THE WATER SYSTEM STANDARDS. PIPE CUSHION AND BACKFILL MATERIAL SHALL CONTAIN NO HAZARDOUS SUBSTANCES ABOVE REGULATORY ACTION LEVELS INCLUDING BUT NOT LIMITED TO LEAD, ASBESTOS, MERCURY, CHROMIUM, CADMIUM, ZINC, STRONTIUM, AND POLYCHLORINATED BIPHENYLS (PCB).
 16. THE CONTRACTOR SHALL FOLLOW THE NEW CHLORINATION AND WATER SAMPLING PROCEDURES AS SHOWN ON THE CONTRACT SPECIFICATIONS.
 17. POLYVINYL CHLORIDE (PVC) PIPES SHALL BE CLASS 150. ALL DUCTILE IRON VALVES AND METALLIC FITTINGS SHALL BE WRAPPED WITH TWO LAYERS OF 8 mil. POLYETHYLENE WRAP. NO BENDING OF POLYVINYL CHLORIDE PIPES SHALL BE PERMITTED. THE INSTALLATION OF PVC PIPE, ACCORDING TO THE PLANS AND SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REQUIRE ADDITIONAL DESIGN WORK, ADDITIONAL FITTINGS AND SPECIAL COUPLINGS SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE PROPOSAL FOR PVC PIPE. ANY ADDITIONAL DESIGN WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER TONING WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE PIPELINE AND ALL NON-METALLIC LATERALS.
 18. ALL DUCTILE IRON PIPE, FITTINGS AND VALVES SHALL BE WRAPPED WITH TWO LAYERS OF 8 mil. POLYETHYLENE WRAP.
 19. ALL POLYVINYL CHLORIDE (PVC) PIPE DEFLECTIONS SHALL BE ACCOMPLISHED ONLY BY THE USE OF SPECIAL PVC DEFLECT COUPLINGS. DEFLECTION AROUND CURVES SHALL BE ACCOMPLISHED ONLY BY THE USE OF PVC DEFLECTION COUPLINGS.
 20. ALL SECTIONS OF THE WATER MAIN REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE CLASS 52 WITH DUCTILE IRON FITTINGS.
- ADDITIONAL WATER NOTES FOR PVC FITTINGS CL-150 PVC PIPE SIZES 4"-8":
21. ALL PVC FITTINGS SHALL CONFORM TO AMERICAN WATER WORKS ASSOCIATIONS (AWWA) C-907. DUCTILE IRON FITTINGS SHALL BE USED FOR ALL TYPES OF FITTINGS NOT SPECIFIED IN AWWA C-907.
 22. REACTION BLOCK REQUIREMENTS FOR PVC FITTINGS SHALL BE THE SAME FOR DUCTILE IRON FITTINGS.
 23. THE USE OF HUB CLAMPS AND SET SCREWS ON PVC FITTINGS IS NOT APPROVED.
 24. PRIOR TO THE PVC FITTING INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE MANUFACTURER'S CERTIFICATION THAT ALL PVC FITTINGS CONFORM TO AWWA C-907.

DRAINAGE NOTES

1. STORM DRAIN PIPES SHALL BE REINFORCED CONCRETE PIPE, CLASS IV, UNLESS NOTED OTHERWISE.
2. ALL DRAIN LINES SHALL HAVE A MINIMUM COVER 3 FEET UNDER PAVED AREAS AND 2-FOOT COVER IN OTHER AREAS.
3. ALL MANHOLE AND CATCH BASIN STRUCTURES SHALL BE SUPPORTED ON A MINIMUM OF 6-INCH LAYER OF CUSHION FILL CONSISTING OF COMPACTED SELECT BORROW OR NO. 38 FINE GRAVEL. GRANULAR MATERIAL SHALL BE USED FOR BACKFILL AROUND THE STRUCTURES TO REDUCE THE COMPACTIVE EFFORT REQUIRED.

AT&T FIBER-OPTIC COMMUNICATIONS CABLE NOTES

1. THIS PROJECT INVOLVES WORK THAT WILL IMPACT AT&T'S FIBER-OPTIC COMMUNICATIONS CABLE. PLEASE CALL (808) 455-1010, PRIOR TO THE START OF WORK, TO ARRANGE FOR EXACT CABLE LOCATION. THERE IS NO CHARGE FOR THIS SERVICE. FORTY-EIGHT (48) HOUR PRIOR NOTIFICATION WILL BE APPRECIATED.
2. DUE TO THE LIMITED SEPARATION OF THE CONSTRUCTION, AND TO LIMIT THE CONTRACTOR'S LIABILITY, IT IS RECOMMENDED THAT A REPRESENTATIVE OF AT&T BE PRESENT DURING ALL PHASES OF CONSTRUCTION WHERE THE SEPARATION BETWEEN THE AT&T FIBER AND THE PROJECT IS LESS THAN SEVEN (7) FEET.
3. THE AT&T REPRESENTATIVE SHALL HAVE THE RIGHT TO DIRECT AND CONTROL ALL CONSTRUCTION WITHIN TWO (2) FEET OF THEIR FIBER EXCEPT FAILURE TO COMPLY WITH AT&T'S REQUEST OR DIRECTIONS CAN RESULT IN A CLAIM AGAINST THE CONSTRUCTION COMPANY AND THEIR INSURANCE FOR ANY DAMAGES THAT MAY OCCUR TO THE FIBER OR THE JACKET.
4. ALL CROSSINGS MUST PROVIDE ONE (1) FOOT CLEARANCE TO THE AT&T JACKET.
5. THE AT&T REPRESENTATIVE SHALL HAVE THE RIGHT TO STOP ALL WORK WITHIN TWO (2) FEET OF THEIR JACKET IF THEY BELIEVE THERE IS A DANGER TO THE FIBER OR THE JACKET. WORK WILL RESUME ONLY WHEN ALL OF THE CONCERNS OF THE AT&T REPRESENTATIVE HAVE BEEN SATISFIED. THE CONSTRUCTION ENGINEER AND THE ENGINEER FOR AT&T WILL BE THE FINAL AUTHORITY IN CASE OF DISPUTES.
6. THE CONTRACTOR SHALL KEEP AT&T LINE EXPOSURE TO A MINIMUM TO PREVENT POSSIBLE DAMAGE.
7. THE JACKET MUST BE ADEQUATELY SUPPORTED WHEN MORE THAN FOUR (4) LINEAR FEET IS EXPOSED. AT&T WILL HAVE THE RIGHT TO REVIEW AND REJECT ANY SUPPORT PLANS PRIOR TO INSTALLATION.
8. AT&T'S PRIMARY RESPONSIBILITY IS TO PROTECT THE COMMUNICATIONS FACILITY. THEY WILL USE ANY METHOD THEY DEEM PRUDENT AND NECESSARY TO DO SO.
9. THE JACKET MUST HAVE A MINIMUM OF THIRTY (30) INCHES OF DIRT COVER AFTER CONSTRUCTION IS COMPLETE. LESS COVER WILL BE PERMITTED IF IT IS OTHER THAN DIRT (I.E. ASPHALT OR CONCRETE). THE AT&T REPRESENTATIVE WILL HAVE THE RIGHT TO DETERMINE THE APPROPRIATE COVER AND DEPTH.

16" GAS TRANSMISSION LINE BHP GAS COMPANY NOTES

1. BHP GAS COMPANY'S SIXTEEN (16) INCH HIGH PRESSURE GAS TRANSMISSION LINE IS PLASTIC COATED AND CATHODICALLY PROTECTED. THE CONTRACTOR SHALL BE EXTREMELY CAREFUL WHEN WORKING NEAR THE GAS PIPELINE.
2. THE CONTRACTOR SHALL OBTAIN PRIOR WRITTEN CLEARANCE FROM BHP GAS COMPANY, MAPS AND RECORDS DEPARTMENT 515 KAMAKEE STREET, AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING EXCAVATION NEAR ANY BHP GAS COMPANY PIPELINES.
SINCE PIPELINE LOCATIONS ON FIELD MAPS ARE APPROXIMATE, THE CONTRACTOR, AFTER OBTAINING WRITTEN CLEARANCE SHALL CALL BHP GAS COMPANY, A MINIMUM OF FIVE (5) WORKING DAYS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF EXISTING GAS LINES. THE TELEPHONE NUMBER IS 594-5575 DURING BUSINESS HOURS, AND 526-0086 AFTER HOURS.
3. THE CONTRACTOR SHALL NOTIFY BHP GAS COMPANY, DISTRIBUTION DEPARTMENT (594-5556) TWENTY-FOUR (24) HOURS BEFORE EXCAVATING AND BACKFILLING ANY PIPELINE.
4. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY TO PERFORM FIELD VERIFICATION, INCLUDING HAND DIGGING METHODS.

Approved.

RMS
Chief, Division of Engineering, DPW ^{GS}
(for construction within proposed city
R.O.W. and grading only)
Michael H. Oshes
Chief, Transportation Management
Division, DTS (for construction
within city R.O.W. only)

for STP Matsen
Chief, Planning and Engineering Division
Board of Water Supply, C&C of Honolulu

10/28/95
Date


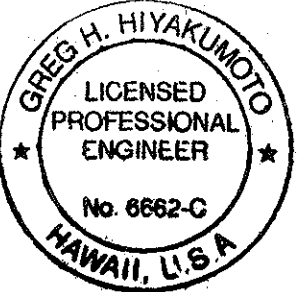
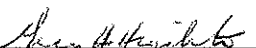
16" GAS TRANSMISSION LINE BHP GAS COMPANY NOTES, CONTINUED

5. THE CONTRACTOR SHALL EXCAVATE AND BACKFILL AROUND THE PIPELINE IN THE PRESENCE OF A REPRESENTATIVE OF BHP GAS COMPANY. ALL BACKFILL WITHIN TWELVE (12) INCHES OF THE PIPELINE SHALL BE SAND, MAWSAND OR SELECT CUSHION MATERIAL APPROVED BY BHP GAS COMPANY.
6. THE CONTRACTOR SHALL NOTIFY BHP GAS COMPANY IMMEDIATELY AFTER CAUSING ANY DAMAGE TO THE EXISTING GAS PIPELINES, THEIR COATINGS OR THEIR CATHODIC PROTECTION DEVICES. THE NUMBER TO CALL IS 594-5567 OR 526-0086, TWENTY-FOUR (24) HOURS A DAY. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO BHP GAS COMPANY FACILITIES. BHP GAS COMPANY SHALL PERFORM THE REPAIR WORK ON THIS DAMAGE WITH PAYMENT FOR THIS WORK TO BE BORNE BY THE CONTRACTOR.
7. MINIMUM VERTICAL AND HORIZONTAL CLEARANCE BETWEEN GAS PIPELINE AND OTHER PIPELINES, CONDUITS, OR OTHER STRUCTURES SHALL BE TWENTY-FOUR (24) INCHES. ADEQUATE SUPPORT AND PROTECTION FOR GAS PIPELINES EXPOSED IN THE TRENCH SHALL BE PROVIDED BY THE CONTRACTOR AND APPROVED BY BHP GAS COMPANY.
8. THE CONTRACTOR SHALL KEEP UNCOVERED GAS LINE EXPOSURE TO A MINIMUM.

10" FUEL LINE BHPPARI NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH "BHPHARI DESIGN AND CONSTRUCTION GUIDELINES FOR PROJECTS NEAR BHPHARI PIPELINES AND FUEL STORAGE FACILITIES." A COPY OF THESE GUIDELINES SHALL BE POSTED AT THE JOB SITE BY THE CONTRACTOR.
 2. AN EXCAVATION PERMIT FROM BHPHARI IS REQUIRED FOR ALL CONSTRUCTION OR INSTALLATIONS WITHIN TEN (10) FEET OF BHPHARI PIPELINES.
 3. FOR SITE SURVEYS AND CONSTRUCTION WORK WITHIN A BHPHARI OCCUPIED RIGHT-OF-WAY, A BHPHARI "APPLICATION FOR CLEARANCE TO EXCAVATE" IS REQUIRED PRIOR TO ANY EXCAVATION* OF HEAVY EQUIPMENT TRAFFIC. THE PERMIT FORM IS AVAILABLE AT THE OFFICE OF THE BHPHARI MAINTENANCE MANAGER AT CAMPBELL INDUSTRIAL PARK, TELEPHONE NO. 547-3929.
 4. THE INSTALLATION OF UTILITY LINES SHALL BE A MINIMUM OF TWENTY-FOUR (24) INCHES BELOW THE BHPHARI PIPELINE FOR THE FULL LENGTH OF THE EASEMENT.
 5. THE BHPHARI PIPELINE INSPECTOR (547-3839) SHALL BE NOTIFIED AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATIONS* IN ORDER THAT THE REPRESENTATIVE CAN LOCATE THE BHPHARI PIPELINE.
 6. A COMPLETE SET OF FINAL CONSTRUCTION DRAWINGS COVERING THE INSTALLATION OR CONSTRUCTION SHALL BE PRESENTED TO BHPHARI WHEN REQUESTING THE EXCAVATION PERMIT FORM. THESE DRAWINGS SHALL BE RETAINED UNTIL SUCH TIME THAT THE PROJECT "AS BUILT" DRAWINGS ARE MADE AVAILABLE.
 7. THE CONTRACTOR SHALL REIMBURSE BHPHARI FOR ANY CONSULTING SERVICES STEMMING FROM THE PROPOSED WORK OR WORK METHODS IN CONNECTION WITH EXCAVATION* AND/OR CONSTRUCTION NEAR THE BHPHARI PIPELINES.
 8. BHPHARI SHALL BE PROVIDED ACCESS TO THE PIPELINE AND FACILITIES AT ALL TIMES, 24 HOURS A DAY, 7 DAYS A WEEK. IF THE EASEMENT AREA IS TO BE FENCED OR WALLED IN, BHPHARI SHALL BE PROVIDED WITH A GATE KEY UNLESS THE AREA IS ATTENDED ON A 24-HOUR BASIS.
 9. STORAGE OF MATERIALS OR EQUIPMENT ON THE EASEMENT SHALL BE AVOIDED. THIS INCLUDES PARKING LOTS FOR LONG-TERM STORAGE OF MATERIALS AND VEHICLES.
 10. A PIPELINE REPRESENTATIVE WILL STAKE THE PIPELINE AT THE CONTRACTOR'S REQUEST. DETERMINATION OF PIPELINE ELEVATIONS AND LOCATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND DONE AT THE CONTRACTOR'S EXPENSE. ALL MAPS AND DRAWINGS PROVIDED BY BHPHARI OF ITS PIPELINES AND PIPELINE FACILITIES ARE APPROXIMATE AND THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE PRECISE LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO THE START OF CONSTRUCTION.
 11. THE PIPELINE EASEMENT ACCESS ROAD SHALL BE KEPT OPEN AT ALL TIMES. AUTHORIZATION TO BLOCK ACCESS ROADS AT ANY TIME DURING CONTRACTOR'S CONSTRUCTION PERIOD MUST BE OBTAINED FROM THE BHPHARI MAINTENANCE MANAGER.
 12. ALL EXCAVATIONS* AND BACKFILL OPERATIONS IN THE BHPHARI EASEMENT SHALL BE WITNESSED BY A BHPHARI REPRESENTATIVE. ALL BACKFILL MATERIAL WITHIN SIX (6) INCHES OF PIPELINES SHALL BE OF FINELY SIFTED NATIVE DIRT OR MANMADE SAND.
 13. ALL EXCAVATIONS* WITHIN THREE (3) FEET OF PIPELINES SHALL BE ACCOMPLISHED BY PROBING AND HAND-DIGGING. WORK SHALL BE HANDLED IN AN EXPEDITIOUS MANNER IN ORDER TO KEEP PIPELINES UNCOVERED AS BRIEF AS POSSIBLE.
 14. REGRADING OF ABUTTING PROPERTY SHALL NOT ADVERSELY AFFECT DRAINAGE OF THE EASEMENT AREA OR POSE A HAZARD TO EASEMENT SUCH AS SLIDES OR EROSION.
 15. THE SLOPE OF THE FINAL GRADE SHALL BE KEPT REASONABLY LEVEL ACROSS THE EASEMENT. THE MAXIMUM FINAL GRADE SHALL BE 5:1 TO ACCOMMODATE BACKHOE OPERATION AND REPAIR VEHICLES.
 16. ALL COSTS PERTAINING TO DAMAGE OF THE PIPELINES, THEIR CATHODIC PROTECTION DEVICES, OR DAMAGE OF PROPERTY AND INJURY TO PERSONS CAUSED DIRECTLY OR INDIRECTLY BY THIS WORK, SHALL BE CHARGED TO THE CONTRACTOR'S ACCOUNT. ANY REPAIR WORK ON THE PIPELINES RESULTING FROM THE CONTRACTOR'S PROJECT SHALL BE PERFORMED BY THE CONTRACTOR WITH THE AUTHORIZATION OF BHPHARI OR BY BHPHARI PERSONNEL AND BILLED TO THE CONTRACTOR.
 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONDITIONS OVER ANY BHPHARI PIPELINE OR PIPELINE FACILITY RELATING TO THEIR CONSTRUCTION ACTIVITIES. TO ELIMINATE SOIL COMPACTION, THE CONTRACTOR SHALL PROVIDE STEEL PLATES OR NON-COMPACTED SOIL BERMS IN AREAS OF EQUIPMENT TRAFFIC AND LIMIT TRAFFIC TO THESE ACCESS WAYS.
- *NOTE: EXCAVATIONS INCLUDE GRADING AND GRUBBING OF THE PROJECT AREA ABOVE THE BHPHARI PIPELINE OR IN THE VICINITY OF THE BHPHARI SURFACE STRUCTURES SUCH AS VALVE VAULTS, VALVE CAGES AND CONTROL DEVICES.

PROPOSED PUBLIC ROAD

ENGINEER	GT/HG						
DRAFTSMAN	PCN		7/27/88	DELETED NOTE ON RCPCL.	HG	MF 7/31/88	CEB 1 DATE
CHECKED BY	GHH		REVISION	DATE	BRIEF	BY	APPROVED
CHECKED BY		R. M. TOWILL CORPORATION ENGINEERS • PLANNERS • SURVEYORS • PHOTOGRAMMETRISTS CONSTRUCTION MANAGERS 420 Waiakamilo Road Honolulu, Hawaii 96817-4941					
		THE ESTATE OF JAMES CAMPBELL, FINANCE REALTY COMPANY, AND HOUSING FINANCE AND DEVELOPMENT CORPORATION, STATE OF HAWAII					
		FARRINGTON HIGHWAY IMPROVEMENTS EWA, OAHU, HAWAII TMK: (1ST DIVISION) PORTION OF 9-1-18					
							
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.		CONSTRUCTION NOTES-1					
 SIGNATURE		7/29/88 DATE		HFDG JOB NO. DEY 93-41 SCALE NONE		DATE AUG 1987	

HAWAIIAN ELECTRIC COMPANY NOTES

1. THE LOCATION OF HECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
2. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION.
3. FOR VERIFICATION OF UNDERGROUND LINES OR FOR ASSISTANCE IN SUPPORTING AND PROTECTING THESE LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7345 A MINIMUM OF 72 HOURS IN ADVANCE.
4. WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH OUR EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:
- A) SHEETING AND BRACING THE EXCAVATION TO PREVENT SLIDES, CAVE-INS, AND SETTLEMENTS.
- B) PROTECTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNINGS.
5. FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO DISTRICT SUPERINTENDENT AT (KOOLOA)/261-6085, WAAU/543-4223, WARD/543-7745) A MINIMUM OF 72 HOURS IN ADVANCE.
6. ANY WORK REQUIRED TO RELOCATE HECO FACILITIES SHALL BE DONE BY HECO AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND FOR POSSIBLE COSTS IF APPLICABLE.
7. SHOULD IT BECOME NECESSARY TO TEMPORARILY RELOCATE ANY OF HECO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BORNE BY THE CONTRACTOR.
8. ANY UNFORESEEN CONFLICT THAT WOULD RESULT IN THE REDESIGN OR RELOCATION (EITHER TEMPORARY OR PERMANENT) OF HECO'S ELECTRICAL FACILITIES MAY BE CAUSE FOR LENGTHY DELAYS. TO AVOID SUCH DELAYS, THE CONTRACTOR MUST NOTIFY HECO OF THE CONFLICT A MINIMUM OF 30 DAYS PRIOR TO THE START OF CONSTRUCTION.
9. ANY DAMAGE TO HECO'S FACILITIES WILL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER AT 543-7874.
10. ALL HECO OVERHEAD AND UNDERGROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACILITIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.
11. THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMAGES, CLAIMS OR ACTION, BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTUOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTION OR CONTROL OR ON ITS BEHALF, PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY UPON THE SOLE NEGLIGENCE OF HECO.

SEWER NOTES

1. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPT. 1986, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPT. 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990 AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT, VOL. 1, JULY 1993.
2. IN THE EVENT THAT ANY CHANGE IN ALIGNMENT OR GRADE FOR THE PROPOSED SEWERS ARE REQUIRED DUE TO UNFORESEEN CONFLICT WITH OTHER UTILITIES, THE ENGINEER IN CHARGE OR THE MAKER OF THE PLANS SHALL BE RESPONSIBLE FOR THE REQUIRED CHANGES WHICH ARE TO BE PRESENTED TO THE DEPARTMENT OF WASTEWATER MANAGEMENT FOR APPROVAL.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DEPARTMENT OF WASTEWATER MANAGEMENT AT 527-5820 OR 523-4345 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FOUR SETS OF APPROVED CONSTRUCTION PLANS SEVEN DAYS PRIOR TO COMMENCEMENT OF SEWER WORK. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION COSTS.
4. CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE MAKER OF THE PLANS AND THE CONSTRUCTION ENGINEER WILL DETERMINE THE PIPE SUPPORT REQUIRED.
5. TREES IN THE ROAD RIGHT-OF-WAY SHALL BE SITUATED A MINIMUM OF 6'-0" FROM THE CITY'S SEWER LINES.
6. 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 THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
7. SEWER LATERAL LOCATION MEASURED ALONG THE FRONT PROPERTY LINE SHALL BE 6'-0" FROM THE PROPERTY CORNER UNLESS OTHERWISE NOTED ON THE PLANS AND SHOULD NOT STRADDLE ELECTRICAL TRANSFORMER PAD.
8. SLOPE FOR SEWER LATERALS SHALL BE 1.00% UNLESS OTHERWISE NOTED.
9. BUILDING PLUMBING FACILITIES SHALL BE CONTROLLED BY SEWER LATERAL INVERTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRUCTION.
11. THE CONSULTING ENGINEER SHALL SUBMIT TO THE DEPT. OF WASTEWATER MANAGEMENT MYLAR "AS-BUILT" TRACINGS OF THE CONSTRUCTION PLANS AS ACTUALLY CONSTRUCTED, SHOWING ALL CHANGES FROM THE ORIGINAL PLANS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATION AND PRESS RELEASES.
13. THE CONTRACTOR SHALL INSTALL "RAINSTOPPER" MANHOLE INSERTS IN ALL SEWER MANHOLES WITH TYPE "SA" FRAME AND COVER.
14. ALL DROP AND SHALLOW DROP SEWER MANHOLES SHALL BE LINED WITH PLASTIC LINERS. ALSO, IF THE VELOCITY EXCEEDS 10 FPS, THE SEWER MANHOLE SHALL BE PLASTIC LINED.
15. THE CONTRACTOR SHALL OBTAIN APPROVAL FOR ADVANCE SEWER RISER AGREEMENT AT THE DEPT. OF WASTEWATER MANAGEMENT AND OBTAIN BUILDING PERMIT FOR PLUMBING WORK BEFORE ANY ADVANCE RISER IS MADE.
16. ALL SEWER PIPE JOINTS WITHIN EASEMENTS SHALL BE WRAPPED WITH GEOTEXTILE ROOT BARRIER.
17. SEWER PIPES 30 INCHES AND LARGER SHALL BE OF CORROSION RESISTANT MATERIAL OR PROTECTED INTERNALLY WITH LINING.
18. SAC PIPE CRADLE SEALS SHALL BE INSTALLED 10 FEET FROM ALL SEWER MANHOLES TO PREVENT SOIL MIGRATION.
19. GEOTEXTILE FABRIC TO ENVELOP THE PIPE CRADLE AND SELECT BACKFILL MATERIAL SHALL BE PROVIDED WHERE WATER OR UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.
20. CONFINED SPACE

FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:

SEWER NOTES, CONTINUED

- A. ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
- 1) FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
- 2) LIFELINE AND ASSOCIATED CLIPS.
- 3) INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
- 4) TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
- 5) EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
- 6) CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
- 7) CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20 FEET AWAY).
- 8) PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
- B. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
- C. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
21. WHEN CONNECTING TO A LIVE SEWER LINE, THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH IN WRITING OF THE IMPENDING CONNECTION TO A LIVE SEWER LINE. THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS THAT THE DEPARTMENT OF HEALTH SETS FORTH TO MITIGATE ANY WASTEWATER SPILL THAT MAY OCCUR. COPIES OF ALL CORRESPONDENCES WITH THE DEPARTMENT OF HEALTH SHALL BE SUBMITTED TO THE DEPARTMENT OF WASTEWATER MANAGEMENT PRIOR TO THE ACTUAL CONNECTION.

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY

1. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK UPON STATE HIGHWAYS FROM THE OAHU DISTRICT ENGINEER, STATE HIGHWAYS, AT 727 KAKO STREET, PRIOR TO COMMENCEMENT OF WORK WITHIN THE STATE'S HIGHWAY RIGHT-OF-WAY.
2. CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN THE STATE'S 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 HIGHWAYS DIVISION.
3. WORK MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:30 A.M. AND 3:00 P.M., MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS, UNLESS OTHERWISE PERMITTED BY THE DISTRICT ENGINEER.
- DURING WORK HOURS, ONLY ONE LANE OF TRAFFIC SHALL BE CLOSED, UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER.
4. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES, AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE, AND SAFETY OF PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII 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 HIGHWAYS ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART IV - STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND INCIDENT MANAGEMENT OPERATIONS".

IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.

5. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:

A. RESIDENTIAL DRIVEWAYS

- (1) 2" ASPHALT CONCRETE (MIX IV) AND 6" AGGREGATE BASE COURSE, OR 2" ASPHALT CONCRETE AND 2-1/2" ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE.
- (2) 4" CLASS "A" CONCRETE REINFORCED WITHIN 6" x 6" - W2.9 x W2.9 WIRE MESH ON 12" AGGREGATE SUBBASE, IF DEEMED NECESSARY BY THE ENGINEER.

B. COMMERCIAL DRIVEWAYS, SIDEROADS, AND UTILITY INSTALLATIONS ON MINOR HIGHWAYS

- (1) 2-1/2" ASPHALT CONCRETE (MIX IV), 8" AGGREGATE BASE COURSE AND 12" SUBBASE, OR 2-1/2" ASPHALT CONCRETE AND 8" ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE.
- (2) 6" OF CLASS "A" CONCRETE REINFORCED WITH 6" x 6" - W2.9 x W2.9 WIRE MESH ON 12" AGGREGATE SUBBASE, IF DEEMED NECESSARY BY THE ENGINEER.

C. CHANNELIZED INTERSECTIONS AND UTILITY INSTALLATIONS ON MAJOR HIGHWAYS

- 4" ASPHALT CONCRETE (MIX IV), 8" AGGREGATE BASE COURSE AND 12" AGGREGATE SUBBASE, OR 4" ASPHALT CONCRETE AND 8" ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.

6. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN THE HIGHWAY RIGHT-OF-WAY, EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DISTRICT ENGINEER.
7. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, AS FOLLOWS:
- A. SUBBASE: ONE (1) COMPACTION TEST PER LIFT PER 200 LINEAL FEET OF ROADWAY.
- B. BASE COURSE: ONE (1) COMPACTION TEST PER LIFT PER 200 LINEAL FEET OF ROADWAY.
- C. ONE (1) COMPACTION TEST PER LIFT PER 300 LINEAL FEET OF TRENCH.
- D. A COPY OF THE TEST RESULTS SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
8. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A PROFILE ALONG THE CENTERLINE OF THE PROPOSED UTILITY TRENCH. THIS INFORMATION SHALL BE USED IN THE VERIFICATION OF RESTORING THE ROADWAY TO ITS ORIGINAL CONDITION. A COPY OF THE PROFILE SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
9. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE AND SAFE NON-SKID BRIDGING MATERIAL, INCLUDING SHORING, OVER TRENCHES IN PAVEMENT AREAS. THE BRIDGING SHALL BE ABLE TO SUPPORT ALL TYPES OF VEHICULAR TRAFFIC.
10. UNLESS OTHERWISE NOTED, NO TRENCH SHALL BE OPENED MORE THAN 300 FEET IN ADVANCE OF INSTALLED AND TESTED PIPELINE AND/OR DUCTLINE.
11. EXISTING DRAINAGE SYSTEMS SHALL BE FUNCTIONAL AT ALL TIMES.
12. THE CONTRACTOR SHALL EXERCISE CARE TO MINIMIZE DAMAGES TO EXISTING HIGHWAY IMPROVEMENTS. ALL DAMAGES SHALL BE REPAIRED BY THE CONTRACTOR, AT HIS EXPENSE, TO THE SATISFACTION OF THE DISTRICT ENGINEER.
13. APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF NOTIFICATION OF APPROVAL TO THE APPLICANT. IN THE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS ONE-YEAR PERIOD, THE APPLICANT WILL BE REQUIRED TO RESUBMIT THE CONSTRUCTION PLANS FOR THE DIVISION'S REVIEW AND REAPPROVAL.

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY, CONTINUED

14. ALL REGULATORY, GUIDE, AND CONSTRUCTION SIGNS AND BARRICADES SHALL HAVE A HIGH-INTENSITY REFLECTIVE BACKGROUND.
15. THE CONTRACTOR SHALL INFORM THE STATE HIGHWAYS' PERMIT OFFICE (831-6712) AT LEAST TWO (2) DAYS PRIOR TO CLOSING ANY LANES.
16. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTIES USING THESE RIGHTS-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
17. WHERE PEDESTRIAN WALKWAYS EXIST THEY SHALL BE MAINTAINED IN A SAFE AND PASSABLE CONDITION, OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGES BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
18. THE CONTRACTOR SHALL REFERENCE, TO THE SATISFACTION OF THE DISTRICT 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 HIS EXPENSE, UNLESS DIRECTED OTHERWISE BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.
19. THE CONTRACTOR SHALL EXERCISE CARE WHEN PERFORMING WORK IN OR ADJACENT TO THE STATE HIGHWAY RIGHT-OF-WAY. DAMAGES TO THE EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES, AND/OR CITY OR STATE AGENCIES. THE REPAIR WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
20. THE CONTRACTOR SHALL NOTIFY THE STATE HIGHWAYS' HIGHWAY LIGHTING AND TRAFFIC SIGNAL SUPERVISOR (834-4581), THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK.
21. TRAFFIC SIGNALS SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION, AND IF DEEMED NECESSARY BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE, A TEMPORARY VEHICLE DETECTION DEVICE SHALL BE INSTALLED. ALL WORK SHALL BE DONE IN ACCORDANCE TO THE REQUIREMENTS OF THE DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, AND PAID FOR BY THE CONTRACTOR.
22. THE CONTRACTOR SHALL NOTIFY OAHU TRANSIT SERVICES, INC. (OTS), ED SNIFFEN AT 848-4571, OR LOWELL TOM AT 848-4578, TWO WEEKS PRIOR TO COMMENCING ANY WORK. THE CONTRACTOR SHALL INFORM OTS OF THE LOCATION AND SCOPE OF WORK, PROPOSED CLOSURE OF ANY STREET OR TRAFFIC LANES, AND THE NEED TO RELOCATE ANY BUS STOP.
23. THE PERMIT TO PERFORM WORK UPON STATE HIGHWAYS MAY BE REVOKED BECAUSE OF DEFAULT IN ANY OF THE FOLLOWING, BUT NOT LIMITED TO, CONDITIONS:
- A. WORK PERFORMED BEFORE OR AFTER PERMITTED HOURS.
- B. FAILURE TO MAINTAIN ROADWAY SURFACES IN A SMOOTH AND SAFE CONDITION.
- C. FAILURE TO CLEAN UP CONSTRUCTION DEBRIS GENERATED FROM PROJECT WORK.
- D. FAILURE TO PROVIDE PROPER TRAFFIC CONTROL.
- E. FAILURE TO REPLACE DAMAGED PAVEMENT MARKINGS AND SIGNS.
24. THE CONTRACTOR SHALL NOTIFY THE STATE HIGHWAYS PERMIT OFFICE (831-6712) AT LEAST TWO DAYS PRIOR TO PERFORMING ANY TRENCH RESTORATION WORK. THIS WORK SHALL INCLUDE ANY BACKFILLING AND COMPACTING OF TRENCH MATERIAL; ANY PLACING AND COMPACTING OF BASE COURSE MATERIAL; AND ANY PAVING OPERATIONS. ANY TRENCH RESTORATION WORK PERFORMED BY THE CONTRACTOR THAT IS NOT WITNESSED BY A STATE REPRESENTATIVE WILL BE REQUIRED TO BE REMOVED AND RESTORED WITH A STATE REPRESENTATIVE PRESENT. ALL RESTORATION WORK WILL BE AT THE CONTRACTORS EXPENSE.
25. TEMPORARY COLD MIX TRENCH PATCHES WILL BE PERMITTED IN ANY GIVEN AREA FOR A MAXIMUM DURATION OF TWO WEEKS, AND SHALL BE A MINIMUM OF 2 INCHES THICK. ALL TEMPORARY PATCHES SHALL BE PLACED OVER PROPERLY PLACED AND COMPACTED BACKFILL AND BASE COURSE LAYERS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY PATCHES AND TO MAKE REPAIRS TO UNSATISFACTORY PATCHES WITHIN 24 HOURS.
26. THE CONTRACTOR WILL MAKE EVERY EFFORT TO MINIMIZE THE USE AND THE DURATION OF USE OF STEEL PLATES. ALL STEEL PLATES SHALL HAVE A NON-SKID SURFACE. THE STATE MAY REQUIRE THE BACKFILLING AND PATCHES OF TRENCHES DUE TO THE EXCESSIVE USAGE OF STEEL PLATES.

HONOLULU PUBLIC TRANSIT AUTHORITY NOTE:

THE CONTRACTOR SHALL NOTIFY OAHU TRANSIT SERVICES, INC. (OTS), ED SNIFFEN (848-4571) OR LOWELL TOM (848-4578), TWO WEEK PRIOR TO CONSTRUCTION, INFORMING THEM OF LOCATION, SCOPE OF WORK, PROPOSED CLOSURE OF ANY STREET OR TRAFFIC LANES, AND THE NEED TO RELOCATE ANY BUS STOP.

COMMISSION ON PERSONS WITH DISABILITIES NOTE:

A MINIMUM 3'-0" WIDTH ACCESSIBLE ROUTE SHALL BE MAINTAINED ALONG THE ENTIRE LENGTH OF SIDEWALK, UNOBSTRUCTED BY LIGHT POLES, SIGNS, ETC.

REQUIREMENTS FOR TAPPING PWC PEARL'S WATER DISTRIBUTION SYSTEMS

- IN ADDITION TO THE BWS WATER NOTES, THE FOLLOWING SHALL APPLY TO THE NAVY WATER SYSTEM WORK.
1. THE CONTRACTOR SHALL USE LEAD FREE SOLDER FOR THE COPPER LINE.
2. THE NAVY WATER LINE SHALL BE DUCTILE IRON AND SHALL BE CEMENT MORTAR-LINED.
3. THE CONTRACTOR SHALL LAY PLASTIC WARNING/D TAPE FOR THE NEW WATER LINE.

4. TAPPING MAINS 12 INCHES AND SMALLER
- A. CONTRACTOR'S RESPONSIBILITY:
- 1) THE CONTRACTOR SHALL TONE FOR UNDERGROUND UTILITY LINES PRIOR TO PERFORMING ANY EXCAVATION WORK.
- 2) MATERIAL, LABOR AND EQUIPMENT - EXCEPT AS OTHERWISE INDICATED, THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR AND EQUIPMENT TO CONNECT NEW EXTERIOR WATER LINES TO THE EXISTING PWC PEARL WATER DISTRIBUTION SYSTEMS BY USE OF TAPPING SLEEVES AND TAPPING VALVES OR CORPORATION STOPS.

Approved:

John P. ... 9/10/97
Off./Div. of Planning & Service Control, WMA (for sewer work within public R.O.W. & city sewer easement only)

REQUIREMENTS FOR TAPPING PWC PEARL'S WATER DISTRIBUTION SYSTEMS, CONTINUED

- 3) TIMING - THE CONTRACTOR SHALL PERFORM THE DISINFECTION WORK AT THE CONNECTION JUST PRIOR TO INSTALLATION OF THE TAPPING MACHINE BY THE GOVERNMENT. THE DISINFECTION WORK SHALL BE PERFORMED IN THE PRESENCE OF THE PWC PEARL UTILITY.
- B. GOVERNMENT'S RESPONSIBILITY: THE GOVERNMENT WILL PROVIDE, INSTALL AND OPERATE THE TAPPING MACHINE. THE EQUIPMENT NECESSARY FOR THE INSTALLATION AND OPERATION OF THE TAPPING MACHINE AS WELL AS THE NECESSARY CUTTING BLADES WILL ALSO BE PROVIDED BY THE GOVERNMENT. DISINFECTION OF THE TAPPING MACHINE WILL BE DONE BY THE GOVERNMENT. ALL OTHER WORK NOT SPECIFICALLY INDICATED AS BEING PERFORMED BY THE GOVERNMENT SHALL BE DONE BY THE CONTRACTOR.
- C. MATERIAL: ALL TAPPING SLEEVES AND TAPPING VALVES SHALL BE A MATCHED SET AND CONFORM TO AWWA SPECIFICATIONS. THE VALVES SHALL BE RESILIENT SEATED TYPE (AWWA C508) WITH EPOXY COATING ON ALL INTERIOR AND EXTERIOR SURFACES. THE INTERIOR COATING SHALL BE SUITABLE FOR POTABLE WATER USE. THE TAPPING VALVE SHALL BE FLANGED BY MECHANICAL JOINT FOR CONNECTING TO THE TAPPING MACHINE. ALL FITTINGS SHALL BE CEMENT MORTAR-LINED.
- D. COORDINATION AND NOTIFICATION: THE CONTRACTOR SHALL COORDINATE THIS WORK WITH PWC PEARL. THE CONTRACTOR SHALL PROVIDE PWC PEARL A MINIMUM OF 14 DAYS ADVANCE NOTICE PRIOR TO THE DATE OF THE TAP. POINT OF CONTACT ON THIS WATER IS THE MECHANICAL DISTRIBUTION SUPPORT BRANCH (CODE 652), UTILITIES DEPARTMENT, PWC PEARL AT TELEPHONE NUMBER 471-0542.
- E. PAYMENT: WORK BY PWC PEARL ON NON-PWC PEARL UTILITIES DEPARTMENT PROJECTS SHALL BE DONE ON A COST REIMBURSABLE BASIS. ALL CONTRACTS FOR TAPPING EXISTING PWC PEARL'S EXTERIOR WATER LINES SHALL REFLECT THIS REIMBURSEMENT REQUIREMENT.
5. OTHER CONNECTIONS INCLUDING WET TAPPING MAINS LARGER THAN 12 INCHES AND INSTALLING NEW PIPE FITTINGS IN EXISTING MAINS
- THE CONTRACTOR SHALL PERFORM ALL CONNECTION WORK. THE CONNECTION WORK SHALL BE PERFORMED IN THE PRESENCE OF PWC PEARL UTILITIES DEPARTMENT PERSONNEL. THE CONTRACTOR SHALL PROVIDE PWC PEARL A MINIMUM OF 7 DAYS ADVANCED NOTICE FOR THE ABOVE PURPOSE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 21 DAYS ADVANCE NOTICE FOR ANY WATER OUTAGES. THE CONTRACTOR SHALL PROVIDE THE FUNDS TO IMPLEMENT THE OUTAGE. THE UTILITIES DEPT. CANNOT PROVIDE THE OUTAGE IF FUNDS ARE NOT PROVIDED TO DO THE WORK. OTHER REQUIREMENTS FOR PROJECTS REQUIRING INSTALLATION OF FITTINGS WILL BE PROVIDED BY PWC PEARL, ON A CASE BY CASE BASIS. ALL WORK AND SERVICES PROVIDED BY PWC PEARL ARE ON A COST REIMBURSABLE BASIS.

REQUIREMENTS FOR DISINFECTION OF EXTERIOR WATER LINES (NAVY)

1. ALL NEW OR REPAIRED POTABLE WATER LINES, FIRE PROTECTION LINES THAT ARE CONNECTED TO THE POTABLE WATER SYSTEM, IRRIGATION LINES THAT ARE UPSTREAM OF THE BACKFLOW PREVENTION DEVICES AND AFFECTED PORTIONS OF EXISTING POTABLE WATER LINES SHALL BE FLUSHED AND DISINFECTED. ALL WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
2. INCLUDE IN THE PROJECT SPECIFICATIONS OR IN NOTES ON THE DRAWINGS IN THE FOLLOWING:
- A. DISINFECTION OF WATER LINES, INCLUDING FLUSHING AND BACTERIOLOGICAL TESTING, SHALL BE IN ACCORDANCE WITH AWWA C651 (LATEST EDITION) EXCEPT AS OTHERWISE INDICATED BELOW.
- (1) ALL CONNECTIONS TO EXISTING WATER LINES SHALL BE DONE IN THE "DRY." WHEN THE EXISTING WATER LINE HAS TO BE DETERMINED, THE CONTRACTOR SHALL ACCOMPLISH THE DETERMINING OF THE LINE IN A MANNER SUCH THAT THE CONNECTION TO THE EXISTING SYSTEM CAN BE DONE IN THE "DRY." THE CONTRACTOR SHALL SUBMIT A DETERMINING PLAN FOR APPROVAL.
- (2) FOR NEW PIPE SECTIONS, CHLORINE SHALL BE APPLIED BY THE CONTINUOUS FEED METHOD UNLESS PRIOR APPROVAL HAS BEEN OBTAINED TO USE A DIFFERENT METHOD.
- (A) CALCIUM HYPOCHLORITE GRANULES SHALL BE PLACED IN NEW PIPE SECTIONS (EXCEPT SOLVENT-WELDED PLASTIC AND SWEATED JOINT STEEL PIPE) DURING CONSTRUCTION AS SPECIFIED IN AWWA C651.
- (B) WHEN THE LINE IS CHLORINATED, WATER ENTERING THE LINE SHALL RECEIVE A DOSE OF CHLORINE FED AT A CONSTANT RATE SUCH THAT THE WATER WILL HAVE NOT LESS THAN 50 MG/L OF FREE CHLORINE.
- (C) AT THE END OF A 24-HOUR PERIOD THE TREATED WATER SHALL HAVE A RESIDUAL OF NOT LESS THAN 25 MG/L FREE CHLORINE.
- (D) DURING THE CHLORINATION PERIOD ALL VALVES AND HYDRANTS IN THE SECTION BEING TREATED SHALL BE OPERATED A SUFFICIENT NUMBER OF TIMES TO THOROUGHLY DISINFECT THE APPURTENANCES.
- (E) ALL METERS SHALL BE DISINFECTED WITH THE WATER LINE EXCEPT WHEN OTHERWISE APPROVED BY THE CONTRACTING OFFICER.
- (3) DISINFECTION PROCEDURES FOR REPAIRS/CONNECTION WORK SHALL BE AS INDICATED IN AWWA C651 UNDER THE PARAGRAPH TITLED "DISINFECTION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING MAINS" EXCEPT THAT A 5 PERCENT HYPOCHLORITE SOLUTION SHALL BE USED.
- (4) ALL TAPPING SLEEVES SHALL BE DISINFECTED AS FOLLOWS:
- (A) THOROUGHLY CLEAN THE EXTERIOR SURFACE OF THE MAIN TO BE TAPPED, THE SURFACES OF THE TAPPING SLEEVE AND THE SURFACES OF THE TAPPING EQUIPMENT THAT WILL COME INTO CONTACT WITH THE WATER.
- (B) THOROUGHLY SWAB THE MAIN, THE TAPPING SLEEVE AND THE TAPPING EQUIPMENT WITH A 5 PERCENT SODIUM HYPOCHLORITE SOLUTION.
- (C) ANY SURFACES THAT BECOME CONTAMINATED AFTER BEING DISINFECTED, SHALL BE RECLEANED AND RESWABBED AS INDICATED ABOVE.
- (5) AFTER FINAL FLUSHING AND PRIOR TO CONNECTING TO EXISTING SYSTEM, BACTERIOLOGICAL TESTS SHALL BE PERFORMED AS INDICATED IN AWWA C651 AND AS FOLLOWS:
- (A) STANDARD CONDITIONS: AT LEAST ONE SAMPLE SHALL BE COLLECTED FROM THE END OF EACH NEW MAIN AND ONE FROM THE END OF EACH NEW BRANCH LINE. IN ADDITION, ONE ADDITIONAL SAMPLE SHALL BE COLLECTED FOR EACH 4,000 FEET OF MAIN OR BRANCH LINE. FOR EXAMPLE, FOR A 9,000-FOOT MAIN, 3 SAMPLES ARE REQUIRED I.E., 2 ADDITIONAL SAMPLES AND ONE SAMPLE AT THE END. THE LOCATION OF THE ADDITIONAL SAMPLES SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE CONTRACTING OFFICER.
- (B) SPECIAL CONDITIONS: IF DURING CONSTRUCTION, TRENCH WATER HAS ENTERED THE LINE OR IF IN THE OPINION OF THE CONTRACTING OFFICER EXCESSIVE QUANTITIES OF DIRT OR DEBRIS HAVE ENTERED THE LINE, SAMPLES SHALL BE TAKEN AT INTERVAL OF APPROXIMATELY 200 FEET AND SHALL BE IDENTIFIED BY LOCATION.
- (6) DISINFECTION OF MAINS AND BRANCH LINES SHALL BE REPEATED UNTIL SAMPLES SHOW THE ABSENCE OF COLIFORM ORGANISMS.
- (7) FINAL BACTERIOLOGICAL TEST RESULTS, THAT SHOW THE ABSENCE OF COLIFORM ORGANISMS, SHALL BE PROVIDED TO THE PWC UTILITIES DEPARTMENT REPRESENTATIVE AT THE FINAL INSPECTION FOR THE PROJECT OR PRIOR TO PLACING THE LINE IN SERVICE WHICHEVER OCCURS FIRST. THE LOCATION WHERE THE BACTERIOLOGICAL SAMPLES WERE TAKEN SHALL BE IDENTIFIED.

- B. THE CONTRACTOR SHALL NOTIFY PWC UTILITIES DEPT. CODE 652 AT TELEPHONE NUMBER 471-0542 THREE (3) WORKING DAYS PRIOR TO CONNECTING TO AN EXISTING NAVY WATER LINE OR DISINFECTING A NEW OR EXISTING LINE.

PROPOSED PUBLIC ROAD

ENGINEER	HG				
DRAFTSMAN	PCN				
CHECKED BY	GHH	REVISION	DATE	BRIEF	BY
		APPROVED			
R. M. TOWILL CORPORATION ENGINEERS • PLANNERS • SURVEYORS • PHOTOGRAMMETRISTS CONSTRUCTION MANAGERS 420 Waiakamilo Road Honolulu, Hawaii 96817-4941					
THE ESTATE OF JAMES CAMPBELL, FINANCE REALTY COMPANY HOUSING FINANCE AND DEVELOPMENT CORPORATION, STATE OF HAWAII					
FARRINGTON HIGHWAY IMPROVEMENTS EWA, OAHU, HAWAII TMK : (1ST DIVISION) PORTION OF 9-1-16					
CONSTRUCTION NOTES-2					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. <i>Michael ...</i> 9/10/97 SIGNATURE DATE					
HFDC JOB NO.	DEV 93-41	SCALE	NONE	DATE	AUG 1997
FILE	POCKET	FOLDER			