

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET \* HONOLULU, HAWAII 96813  
 PHONE: (808) 768-8218/8219 \* FAX: (808) 768-6743  
 DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) \* CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

PAID RECEIPT

BUSINESS ACTUAL TIME DRW  
 4/29/2014 4/29/2014 10:19:54 1000  
 REG INT01 WALKIN IC IC  
 RECEIPT # 425624 4/28/2014 OFLN  
 Dept: 9034 6244 GRADING EXCAVATION & FILL

Help protect our  
waters...for life.



692-5656

# GRADING PERMIT

PERMIT NUMBER  
**GP2014-04-0178**

Receipt Tot \$110.00  
 \$110.00 OK \$0.00 CA

Permission is hereby given to do grading work in conformity with Chapter 14, R.O.H. 1990, As Amended, as follows:

TAX MAP KEY				LAND USE	EST. QUANTITY	PERMIT FEE
Zone	Section	Plat	Parcel(s)		Excavation (Cu. Yd.)	\$110.00
3	8	010	004	R-7.5 RESIDENTIAL DISTRICT	21	
						Fill (Cu. Yd.)
						155

Project Name: **510 Kuliouou Rd - Condominium Develop**  
 Located at: **510 Kuliouou Rd**  
 Category: **4**

Related Job:

Plan approved: **June 14, 2012**  
 Surety: **N/A**

BORROW (Source of Material)

DISPOSAL

Site: **Grace Pacific**  
 Material: **select borrow**

**Grace Pacific**  
**dirt**

Est. Starting Date: **June 1, 2014**  
 Est. Compl. Date: **June 1, 2015**

Total Lot Area: **43,572 s.f. (1.00 ac.)**  
 Disturbed Area: **5,358 s.f. (0.12 ac.)**  
 Graded Area: **5,358 s.f. (0.12 ac.)**

To be inspected by: **Site Development Division**  
 (Call 768-8084 for inspection)

Purpose of Work: **future residential development**

OWNER

ENGINEER/PLAN MAKER

CONTRACTOR

**510 Kuliouou LLC**  
**Shawn Kelly**  
**1806 S. King Street 32**  
**Honolulu, HI 96826**  
**(808) 255-3559**

**BOW WILLIAM H Q**  
**(dba Bow Engineering &**  
**Development, Inc.)**  
**816 8th Avenue**  
**Honolulu, HI**  
**(808) 735-8546**

**SIONE T TAUSINGA**  
**Coastline Construction**  
**3436 Keanu St**  
**Honolulu, HI 96816**  
**(808) 330-3624**

Contractor shall notify this office **two working days** before commencing any work and arrange for necessary inspectional services. Grading work which involves contaminated and/or hazardous materials shall be done in conformance with applicable State and Federal requirements. Contact the Solid & Hazardous Waste Branch, State Department of Health for more information at 586-4226.

Authorization from Permittee to act for Owner on file?: **Yes**

Permittee: **510 Kuliouou LLC**  
**Gil Barden, (808) 255-3559**

Signature of Owner/Developer/Authorized Rep.

Date

4/28/14

Permission is hereby given to do the above work according to the conditions hereon and according to the approved plans and specifications pertaining thereto, subject to compliance with Chapter 14, R.O.H. 1990, As Amended.

Remarks: **2011/CP-195;EROSION / RUNOFF CONTROL - CAUTION**  
**REQUIRED - BEST MANAGEMENT PRACTICES WILL BE**  
**ENFORCED**

Issued By:

*W. Fukubara*

**April 28, 2014**

For Director, DPP

Date

**THIS PERMIT WILL EXPIRE UNLESS WORK IS STARTED WITHIN 90 DAYS FROM DATE OF ISSUE; OR IF WORK IS SUSPENDED OR ABANDONED FOR 60 DAYS OR MORE AFTER WORK IS BEGUN; OR ONE YEAR FROM DATE OF ISSUE. REPORT AFTER GRADING IS REQUIRED FOR PERMIT CLOSURE UNLESS OTHERWISE NOTIFIED.**

I hereby certify that all work as requested above **has been completed** in conformity with Chapter 14, R.O.H. 1990, As Amended, and in accordance with the approved plans and specifications.

Permittee: PRINT NAME/TITLE

Approved By:

Signature of Owner/Developer/Authorized Rep.

Date

Authorized Signature

Date

Report After Grading required for permit closure?: **Yes**

Date Report Filed: \_\_\_\_\_

52453243 043539021-008







**CONSTRUCTION NOTES**

- 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 DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII.
- 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 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.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING CITY DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS", AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING, AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
- THE CONTRACTOR MAY SUBMIT A SUBSTITUTION REQUEST TO PRECAST ANY CITY OWNED AND/OR MAINTAINED DRAINAGE STRUCTURE (EX., CATCH BASINS, DRAIN MANHOLES, DRAIN INLETS, CULVERTS, ETC). HOWEVER, PRIOR TO CONSTRUCTION AND INSTALLATION OF ANY PRECAST STRUCTURE, THE CONTRACTOR SHALL A) SUBMIT SIX (6) SETS OF SHOP DRAWINGS TO THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING AND OBTAIN WRITTEN APPROVAL AND B) NOTIFY THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES. NON-COMPLIANCE WITH ANY OF THESE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL PRECAST CONSTRUCTION WORK AND REJECTION OF ALL PRECAST STRUCTURES ALREADY CONSTRUCTED.
- 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:
  - 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:
    - FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
    - LIFELINE AND ASSOCIATED CLIPS.
    - INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
    - TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
    - EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
    - CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
    - CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20- FEET AWAY).
    - PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
  - CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
  - ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
- PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.
- FOR PROJECTS ABUTTING STATE HIGHWAYS' RIGHTS-OF WAY, THE OWNER OR HIS AUTHORIZED REPRESENTATIVE SHALL NOTIFY THE STATE DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, OAHU DISTRICT, DRAINAGE DISCHARGE UNIT AT 831-6793 FOR AN ASSESSMENT OF STATE HIGHWAYS PERMIT REQUIREMENTS.

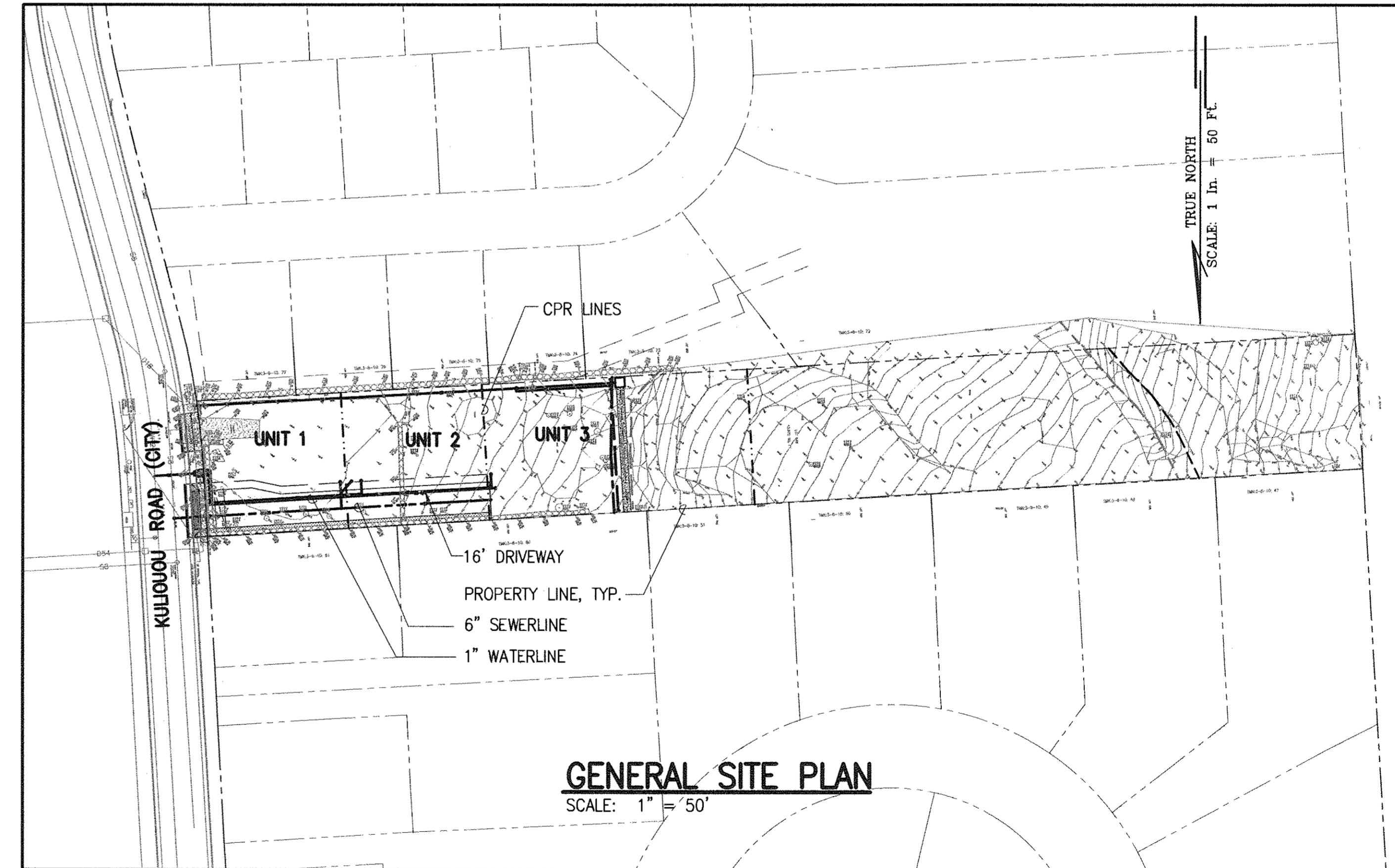
**GRADING NOTES**

- 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 TWO GEOTECHNICAL REPORTS PREPARED BY APPLIED GEOSCIENCES, LLC, ENTITLED:
  - "GEOTECHNICAL SITE INVESTIGATION - 510 KULI'OU'OU ROAD - TMK:3-8-010:004", DATED MARCH 20, 2012.
  - "SLOPE HAZARDS INVESTIGATION - 510 KULI'OU'OU ROAD - TMK:3-8-010:004", DATED MARCH 19, 2012.
- NO CONTRACTOR SHALL PERFORM ANY GRADING 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 CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
- 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 CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
- 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.
- 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-LADEN RUNOFF FROM LEAVING THE SITE.
- 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 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.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, D.P.P., PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL".
- THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS"; AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL"; AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
- 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.
- TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
- TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
- IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
- BUILDING PERMIT FOR RETAINING WALLS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF GRADING WORK ON SITE.
- FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, D.P.P. AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK. FOR CITY PROJECTS, THE CONTRACTOR SHALL COORDINATE INSPECTIONAL SERVICES WITH THE RESPONSIBLE CITY AGENCY.
- PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, D.P.P. (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.

- FOR ALL PROJECTS, WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND, THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL A NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII, AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM. ALSO, FOR NON-CITY AND OTHER NON-GOVERNMENTAL AGENCY PROJECTS, THE CONTRACTOR SHALL PROVIDE A WRITTEN COPY OF THE NGPC TO THE PERMITTING AND INSPECTION SECTION, CIVIL ENGINEERING BRANCH, D.P.P., AT LEAST SEVEN (7) CALENDAR DAYS BEFORE THE START OF THE CONSTRUCTION. FOR CITY OR OTHER GOVERNMENTAL PROJECTS, THE CONTRACTOR SHOULD PROVIDE A WRITTEN COPY OF THE NGPC TO THE APPROPRIATE CITY DEPARTMENT OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
- ALL GRADING AND CONSTRUCTION WORK SHALL IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICABLE AND WILL NOT CAUSE OR CONTRIBUTE TO AN EXCEEDANCE OF WATER QUALITY STANDARDS.
- NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
- FOR BENCH MARK, SEE SHEET C1.01.

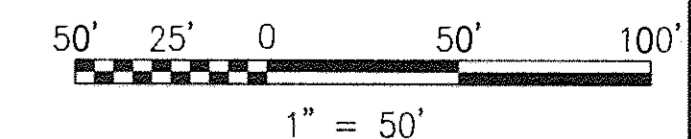
**CONDOMINIUM NOTES**

- BOUNDARIES FOR DWELLING UNITS SHOWN ON PLANS ARE CONDOMINIUM PROPERTY REGIMES (CPR) LIMITS AND ARE SHOWN FOR INFORMATION PURPOSES ONLY.
- REVIEW AND APPROVAL OF PLANS BY THE CITY FOR COMPLIANCE WITH ZONING AND CITY DEVELOPMENT STANDARDS DOES NOT CONSTITUTE APPROVAL OR ENDORSEMENT OF CONDOMINIUM BOUNDARIES.
- THE CONDOMINIUM LAYOUT AND REGISTRATION SHALL REMAIN THE SOLE RESPONSIBILITY OF THE DEVELOPER OF THIS PROJECT.



**GENERAL SITE PLAN**  
SCALE: 1" = 50'

**GRAPHIC SCALE**



**APPROVAL:**

*M. J. ...*  
CHIEF, CIVIL ENGINEERING BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
6/14/12  
DATE

Plotted Sat, 05 May 2012 - 3:27pm By: ELLUM  
File Name: H:\FY2011\11005 Kuliouou Residential\07 Drawings\CD01 thru CD02 Kuliouou - General Notes.dwg

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
CIVIL ENGINEERS  
1833 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone: (808) 941-8853  
Telefax: (808) 943-9299  
Email: bhw@bowengineering.com

**510 KULI'OU'OU ROAD DEVELOPMENT**  
TMK: 3-8-010:004  
**GENERAL CONSTRUCTION NOTES AND GENERAL SITE PLAN**

Designed by:	WB
Checked by:	WB
Drawn by:	DY
Approved by:	WB
Date:	APR. 26, 2012
AS NOTED	AS NOTED
Scale:	3-8-010:004
T.M.K.	T.M.K.

THIS WORK WAS PREPARED BY ME AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY IN CONNECTION WITH THE CONSTRUCTION OF THIS PROJECT. I WILL BE UNDER MY OBSERVATION. 4/26/12  
*William H. Q. Bow*  
LICENSURE NO. 4904-C  
HAWAII USA

**WILLIAM H. Q. BOW**  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

**C0.01**  
SHT. 2 OF SHTS



**SEWER NOTES:**

1. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI AND HAWAII, CURRENT CITY PRACTICES, THE 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 PLANNING AND PERMITTING (DPP) FOR APPROVAL.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGEMENT BRANCH, WASTEWATER DIVISION, DDC, AT 768-8772 OR 768-8770 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FOUR (4) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) 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 5'-0" FROM THE CITY'S SEWER LINES.
6. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES, INCLUDING AND AFFECTING SEWER LINES, IN THE PRESENCE OF THE WASTEWATER INSPECTOR AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
7. SEWER LATERAL SHALL BE CLEAR OF AND NOT CONFLICTING WITH ANY OTHER UTILITY. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES SHALL BE STRICTLY OBSERVED AND FOLLOWED.
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 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 NOTIFICATIONS AND PRESS RELEASES.
12. THE CONTRACTOR SHALL OBTAIN APPROVAL FOR ADVANCE SEWER RISER AGREEMENT AT THE DPP AND OBTAIN BUILDING PERMIT FOR PLUMBING WORK BEFORE ANY ADVANCE RISER IS MADE.
13. 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:
  - 1.1.1. 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:
    - A. FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
    - B. LIFELINE AND ASSOCIATED CLIPS
    - C. INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT
    - D. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT
    - E. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
    - F. CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
    - G. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE, AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20-FEET AWAY).
    - H. PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
  - 2.1.1. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
  - 2.1.2. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).

14. WHEN CONNECTING TO A LIVE SEWER LINE, THE CONTRACTOR SHALL ABIDE BY ALL CONDITIONS THAT THE STATE DEPARTMENT OF HEALTH SETS FORTH TO MITIGATE ANY WASTEWATER SPILL THAT MAY OCCUR. THE CONTRACTOR SHALL INFORM THE CITY INSPECTOR FIVE (5) WORKING DAYS PRIOR TO THE ACTUAL CONNECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND PENALTIES DUE TO ANY SPILLS RESULTING FROM THE CONNECTION.

**WATER NOTES (PRIVATE)**

1. 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", DATED 2002, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. 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.
3. TEST PRESSURE SHALL BE 150 PSI. DURING THE 30-MINUTE PRESSURE TEST, THE PRESSURE SHALL NOT DROP MORE THAN 10 PSI.
4. THE CONTRACTOR SHALL NOTIFY BWS ENGINEERING DIVISION, CONSTRUCTION SECTION IN WRITING AND SUBMIT FIVE (5) SETS OF APPROVED CONSTRUCTION PLANS ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
5. 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. (FOR CONNECTION ONLY)
6. 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 LINE MOVEMENT DUE TO THE REMOVAL OF THE SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHOD.
7. 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. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
8. 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 2002.
9. POLYGON SHAPE FOR MECHANICAL JOINT GLANDS AS DESCRIBED IN AWWA STANDARD C111 SHALL BE "STRAIGHT-SIDED" OR AN APPROVED EQUAL ON A JOB-TO-JOB BASIS.
10. RE-APPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
11. CONTRACTOR SHALL CUT AND PLUG ALL EXISTING UNUSED LATERALS AT THE MAIN WHETHER OR NOT SHOWN ON THE PLANS. THE DAMAGED AREA SHALL BE REPAIRED TO AN EQUAL OR BETTER CONDITION THAN THE IMMEDIATE AREA. ALL WORK SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
12. THE CONTRACTOR/DEVELOPER SHALL OBTAIN A NPDES PERMIT PRIOR TO CHLORINATION AND/OR DEWATERING. A COPY OF THE PERMIT SHALL BE SUBMITTED TO THE BOARD OF WATER SUPPLY, ENGINEERING DIVISION, CONSTRUCTION SECTION.
13. PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A SOIL 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 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).

14. CLEANING SHALL BE BY THE USE OF "PIGS" INTRODUCED INTO THE PIPELINE AND RUN COMPLETELY THROUGH ALL INSTALLED PIPELINES AND ALL BRANCH LINES FOR FIRE HYDRANTS. "PIGGING" OF SERVICE LATERALS IS NOT REQUIRED. BARE FOAM "PIGS" SHALL BE USED TO SWAB PIPING CLEAN AS EACH LENGTH OF THE PIPELINE IS INSTALLED. EACH "PIG" SHALL CONSIST OF A CYLINDRICAL PIECE OF POLYURETHANE FOAM WITH A DENSITY OF 3-7 POUNDS PER CUBIC FOOT AND A VINYL-COATED NOSE. OUTSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 1-1/4 TO 1-1/2 TIMES THE INSIDE DIAMETER OF THE PIPE BEING INSTALLED. THE LENGTH OF THE "PIG" SHALL BE 1-1/2 TO 2 TIMES ITS DIAMETER. PRIOR TO USE, THE "PIG" SHALL BE SUBMERGED IN A CHLORINE SOLUTION OF 1 OZ. OF 5% CHLORINE BLEACH IN 5 GALLONS OF WATER. "PIGGING" OF THE PIPELINE SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE NEW PIPELINE.
15. BALL CORP AND BALL STOP SHALL BE USED IN LIEU OF A CORPORATION STOP AND STOPCOCK, RESPECTIVELY.
20. INSTALL A MIL THICK, NON-METALLIC, BLUE COLORED, 6 INCHES WIDE WARNING TAPE OVER CENTERLINE OF THE PIPE AND BELOW THE BASE COURSE ALONG THE ENTIRE LENGTH OF TRENCH. TAPE SHOULD BE MARKED WITH "CAUTION WATER LINE BURIED BELOW".

**TRAFFIC NOTES FOR WORK ON CITY AND COUNTY STREETS**

1. A PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT OF TRANSPORTATION SERVICES BEFORE WORK ON ANY PORTION OF A PUBLIC STREET OR HIGHWAY MAY BEGIN. CONSTRUCTION TRAFFIC CONTROL PLANS APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES AND/OR THE DEPARTMENT OF PLANNING AND PERMITTING 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 ADMINISTRATIVE 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 HIGHWAYS ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET 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 FOR THROUGH 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 AND THE DEPARTMENT OF PLANNING AND PERMITTING, 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/HER ACTIVITIES.
9. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PLANNING AND PERMITTING, AT 768-8084 ONE (1) WEEK PRIOR TO ANY WORK TO BE DONE ON SIGNS, POSTS, AND PAVEMENT MARKINGS.
10. NO EQUIPMENT SHALL BE STORED WITHIN STREET RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
11. BOW ENGINEERING AND DEVELOPMENT INC. SHALL ENSURE THAT THE CONTRACTOR INSTALLS THE CONSTRUCTION TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MUTCD AND THE HAWAII ADMINISTRATION RULES AS SPECIFIED IN TRAFFIC NOTE #2.

**APPROVAL:**

*Dennis M. Nishimura*  
 CHIEF, WASTE WATER BRANCH, DPP  
 CITY AND COUNTY OF HONOLULU

*[Signature]*  
 CHIEF, TRAFFIC REVIEW BRANCH, DPP  
 CITY AND COUNTY OF HONOLULU

5/21/12  
 DATE

5/21/12  
 DATE

Plotted Set: 05 May 2012 - 09:27am By: ELUM  
 File Name: H:\F\2011\1005 Kulouou Residential\07 Drawings\CD01 thru CD02 Kulouou - General Notes.dwg

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
 CIVIL ENGINEERS  
 1833 K. BERKELEY ST., SUITE 104  
 HONOLULU, HI 96828  
 Telephone: (808) 941-8853  
 Telefax: (808) 941-9299  
 Email: beb@bowengineering.com

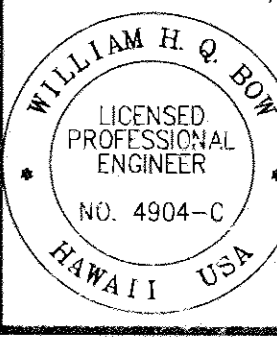
**PLANNERS**

**510 KULIOUOU ROAD DEVELOPMENT**  
 T.M.K. 3-8-010-004

**GENERAL CONSTRUCTION NOTES**

Designed by:	WB
Checked by:	WB
Drawn by:	DY
Approved by:	WB
Date:	APR. 26, 2012
AS NOTED:	3-8-010-004
T.M.K.:	3-8-010-004

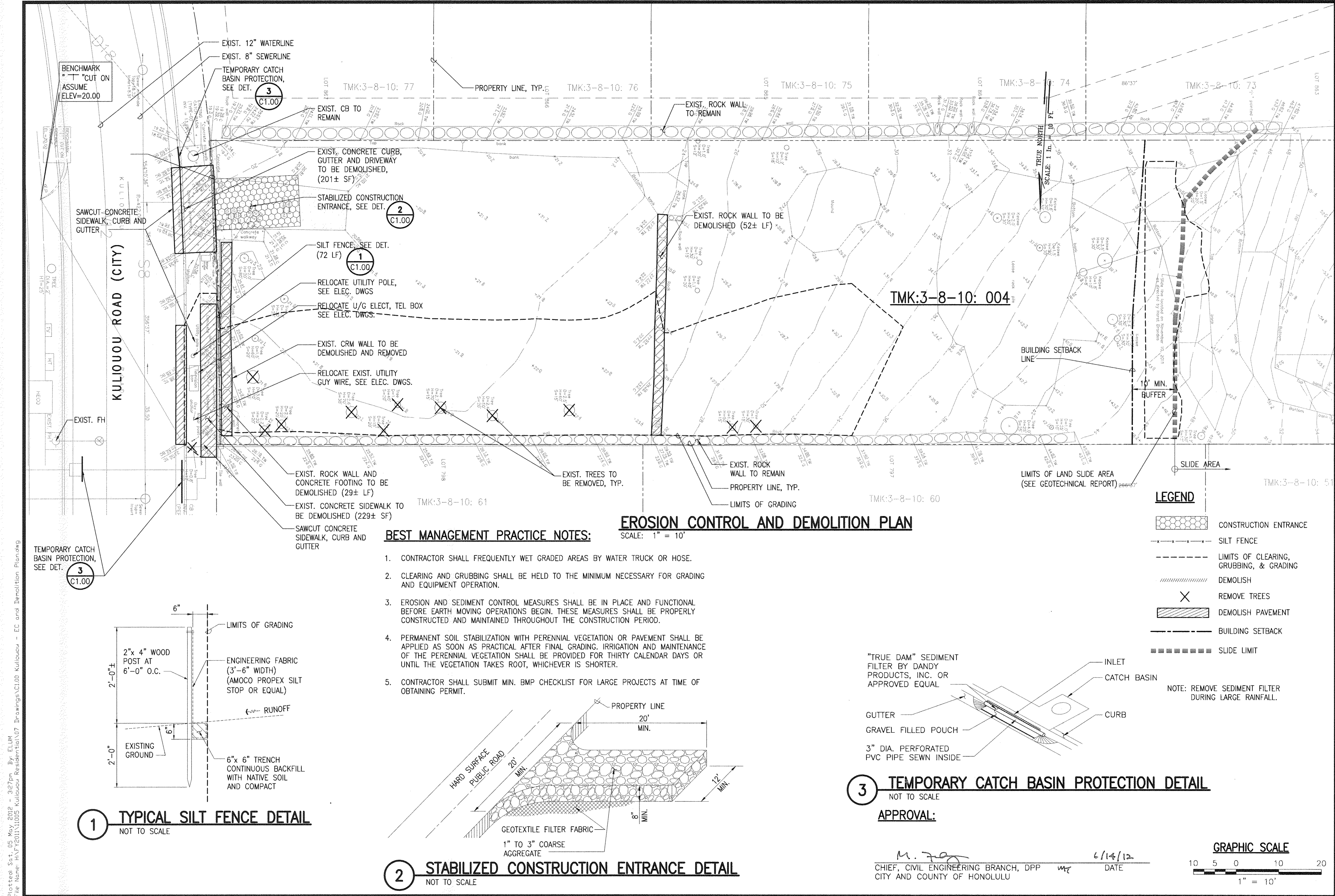
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER. I WILL BE UNDER MY OBSERVATION. WILLIAM H. Q. BOY  
 4/20/11  
 DEPARTMENT OF THE LANDS



C0.02

SHT. 3 OF SHTS





BENCHMARK  
"T" CUT ON  
ASSUME  
ELEV.=20.00

KULIOUOU ROAD (CITY)

TMK:3-8-10: 004

**EROSION CONTROL AND DEMOLITION PLAN**

SCALE: 1" = 10'

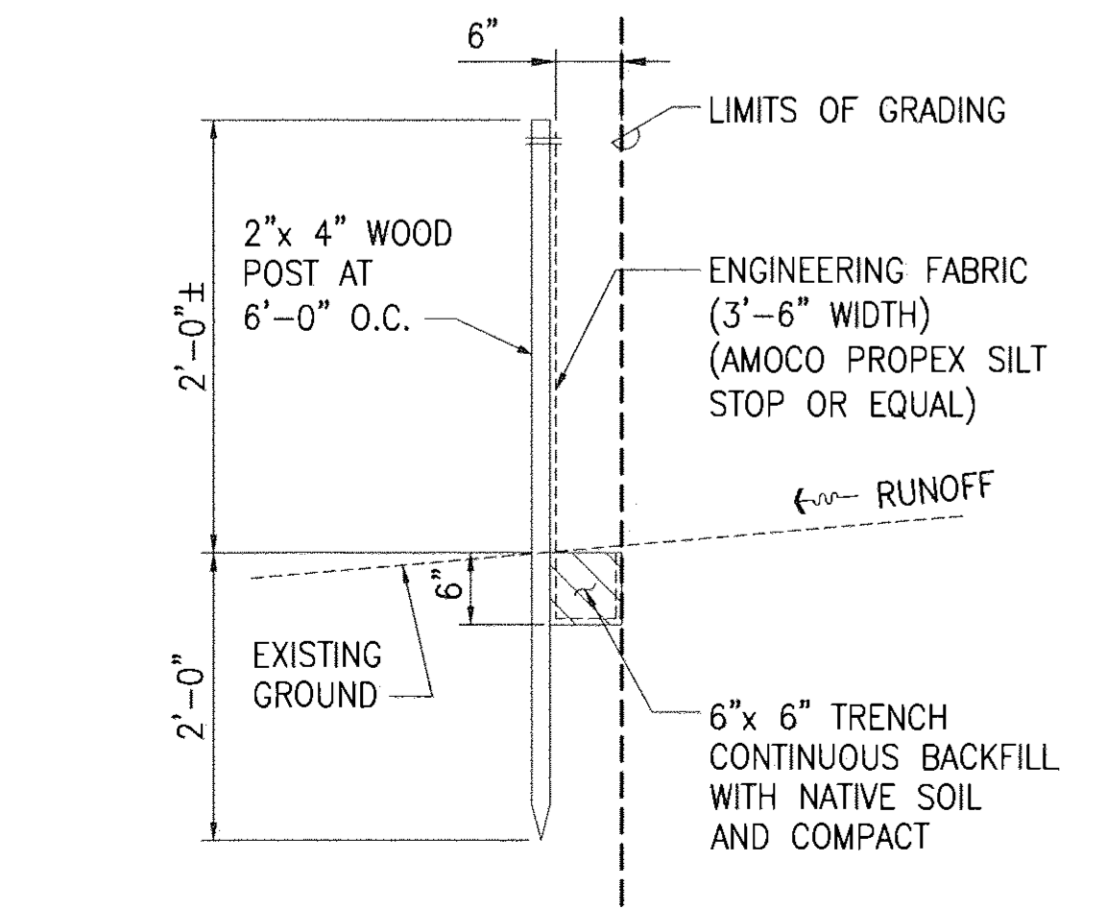
**BEST MANAGEMENT PRACTICE NOTES:**

1. CONTRACTOR SHALL FREQUENTLY WET GRADED AREAS BY WATER TRUCK OR HOSE.
2. CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
4. PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION OR PAVEMENT SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING. IRRIGATION AND MAINTENANCE OF THE PERENNIAL VEGETATION SHALL BE PROVIDED FOR THIRTY CALENDAR DAYS OR UNTIL THE VEGETATION TAKES ROOT, WHICHEVER IS SHORTER.
5. CONTRACTOR SHALL SUBMIT MIN. BMP CHECKLIST FOR LARGE PROJECTS AT TIME OF OBTAINING PERMIT.

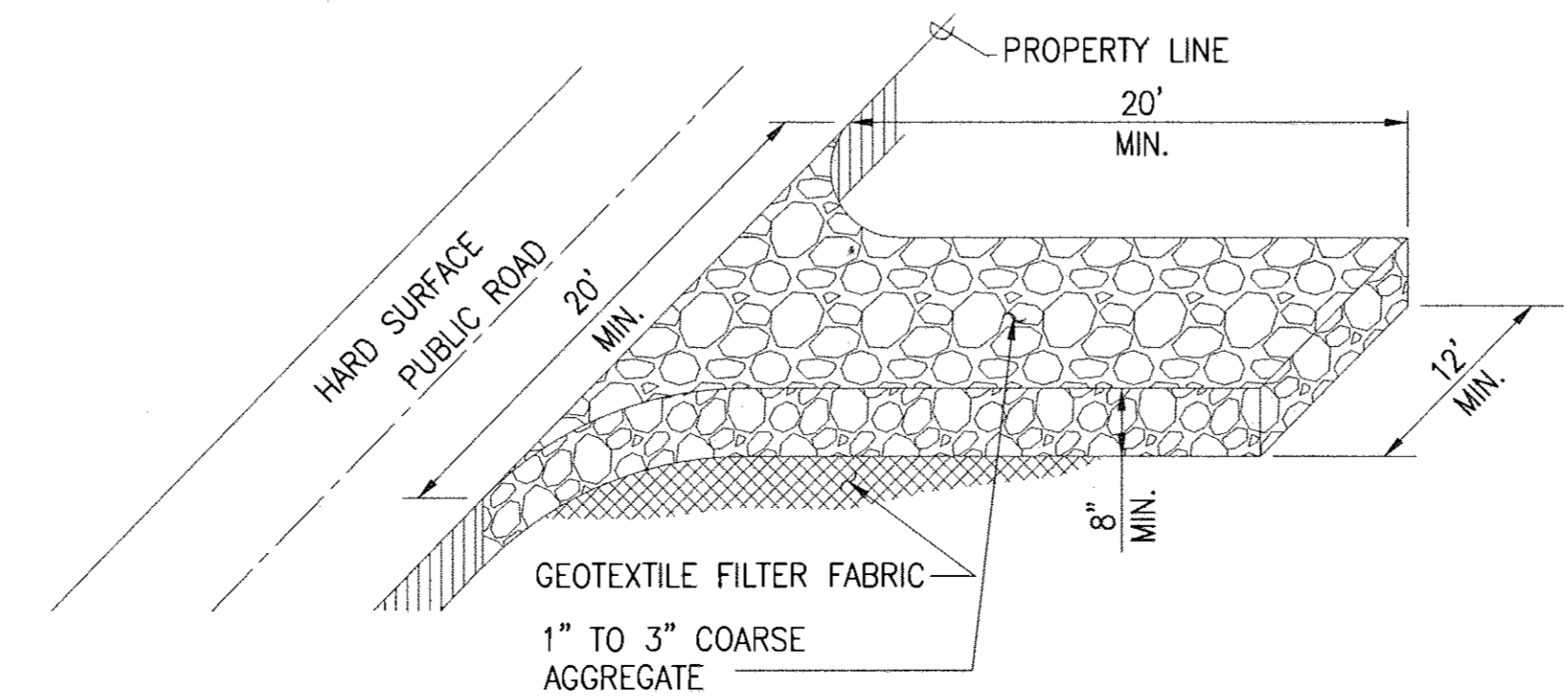
**LEGEND**

- CONSTRUCTION ENTRANCE
- SILT FENCE
- LIMITS OF CLEARING, GRUBBING, & GRADING
- DEMOLISH
- REMOVE TREES
- DEMOLISH PAVEMENT
- BUILDING SETBACK
- SLIDE LIMIT

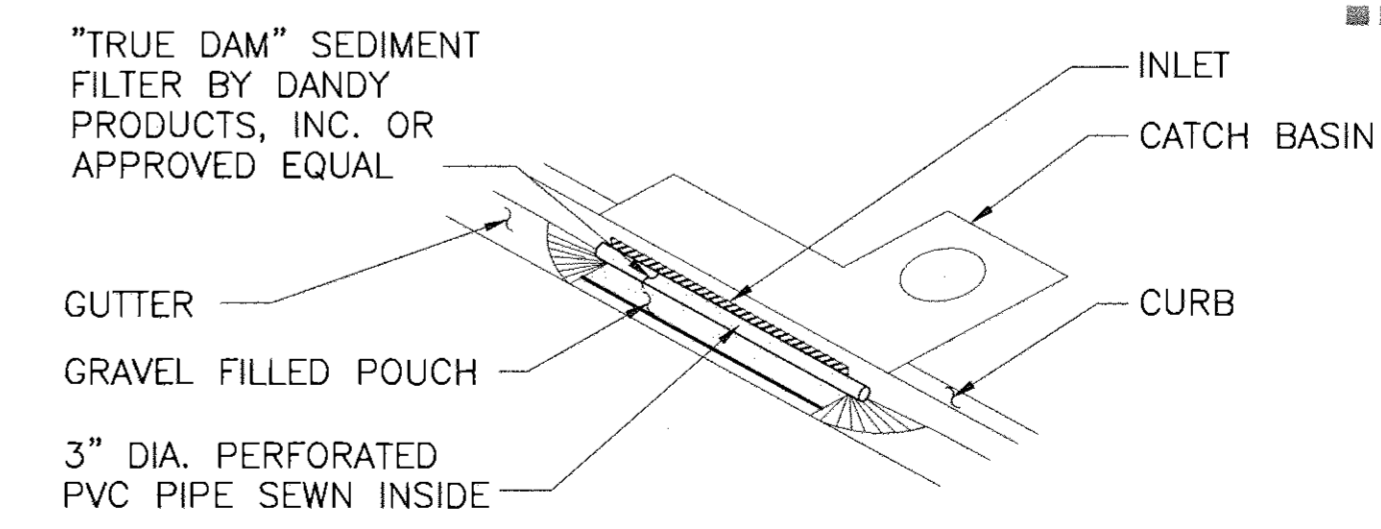
NOTE: REMOVE SEDIMENT FILTER DURING LARGE RAINFALL.



**1 TYPICAL SILT FENCE DETAIL**  
NOT TO SCALE



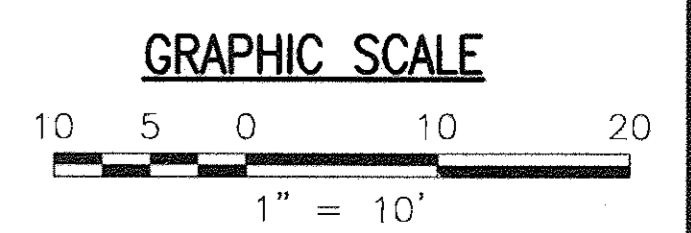
**2 STABILIZED CONSTRUCTION ENTRANCE DETAIL**  
NOT TO SCALE



**3 TEMPORARY CATCH BASIN PROTECTION DETAIL**  
NOT TO SCALE

APPROVAL:

M. J. [Signature]  
CHIEF, CIVIL ENGINEERING BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
DATE: 6/14/12



SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
PLANNERS  
CIVIL ENGINEERS  
193 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone: (808) 941-8833  
Telecopier: (808) 941-9299  
Email: bbow@bowengineering.com

510 KULIOUOU ROAD  
DEVELOPMENT  
TMK: 3-8-010: 004  
**EROSION CONTROL  
AND DEMOLITION PLAN**

Designed by: WB  
Checked by: WB  
Drawn by: DJ  
Approved by: WB  
Date: APR. 26, 2012  
Scale: AS NOTED.  
T.M.K. 3-8-010:004

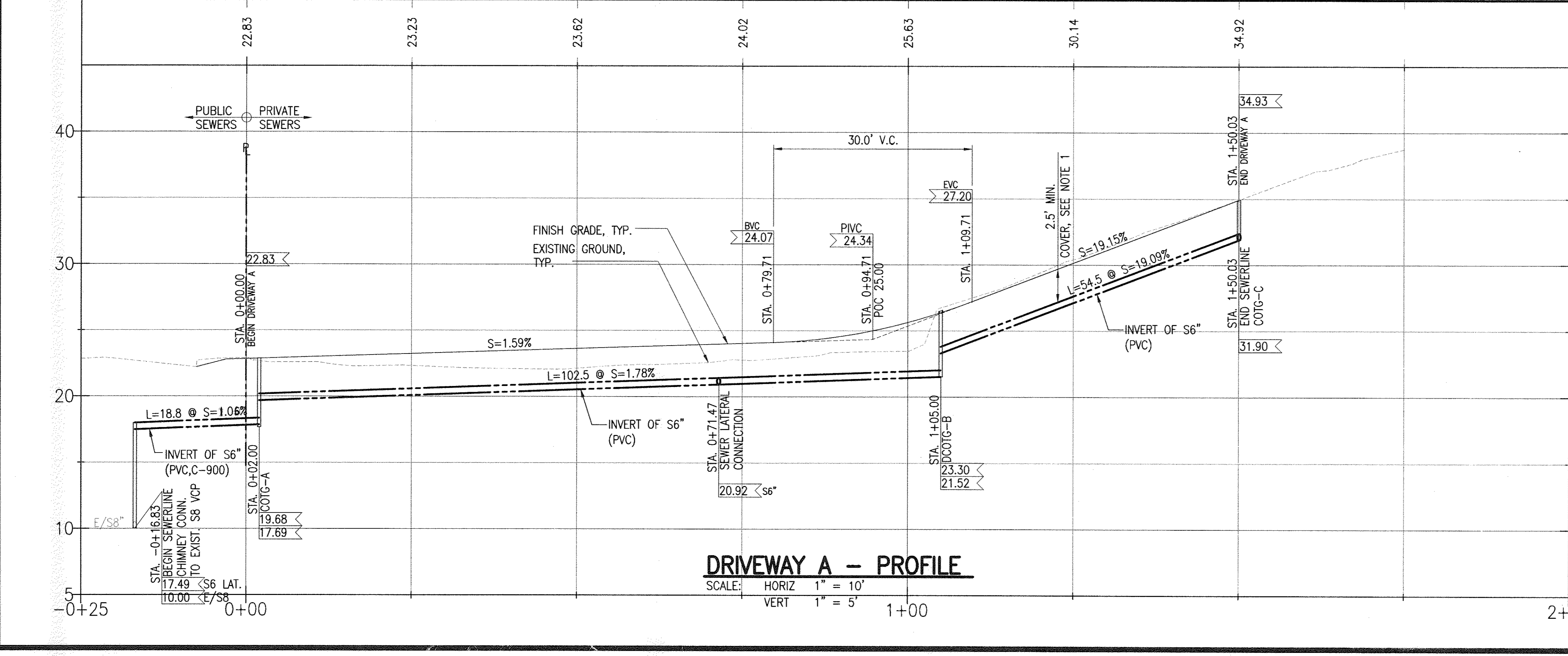
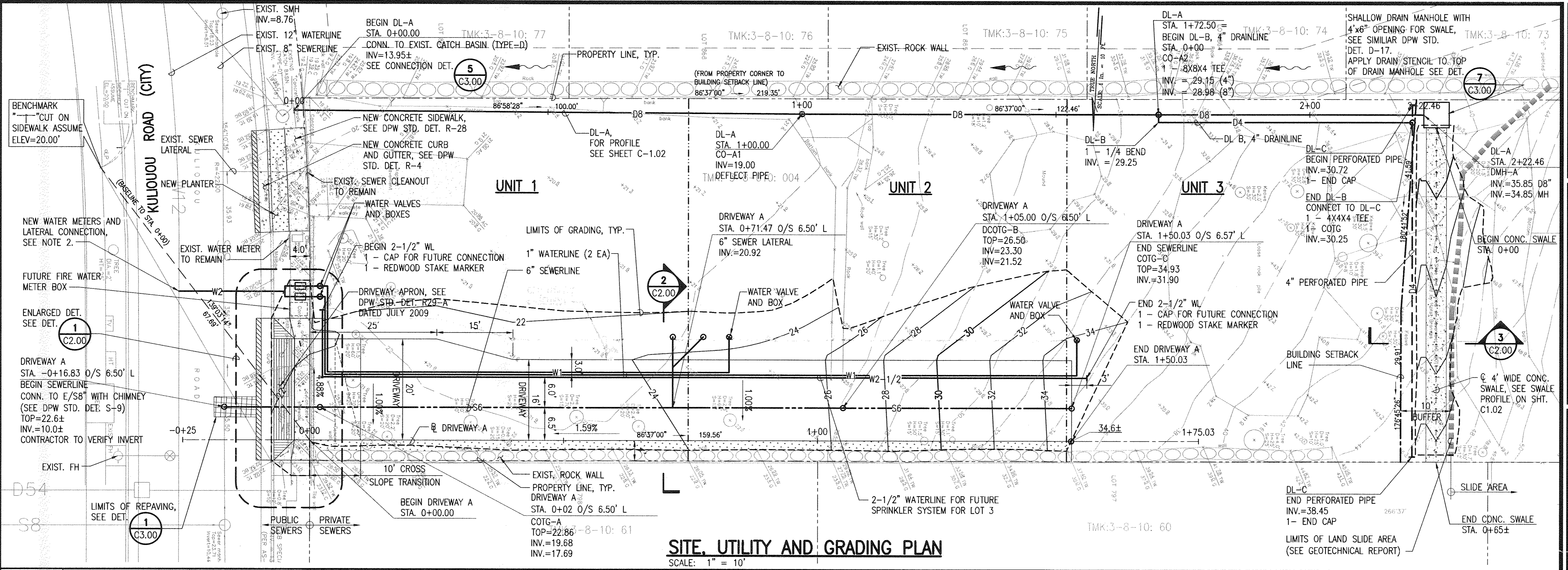
THIS WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
WILLIAM H. Q. BOW  
4/29/11  
DATE OF THE ISSUE

WILLIAM H. Q. BOW  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

C1.00  
SHT. - OF - SHTS.

Plotted: Sat, 05 May 2012 - 3:27pm By: ELUM  
File Name: H:\NF72011\1005 Kulioouou Residential\07 Drawings\C1.00 Kulioouou - EC and Demolition Planning





**EARTHWORK SUMMARY**

FOR PERMIT PURPOSES ONLY

EXCAVATION = 21 C.Y.  
EMBANKMENT = 155 C.Y.  
AREA TO BE GRADED/DISTURBED = 0.123 AC.

THE CONTRACTOR SHALL CONDUCT HIS OWN QUANTITY SUMMARY.

**LEGEND:**

- LIMITS OF GRADING
- 11.6± MATCH TO EG
- 28 FINISH GRADE
- BUILDING SETBACK
- SLIDE LIMIT
- PROPERTY LINE
- CPR LINE

**NOTE:**

- FOR SEWERLINE MINIMUM COVER, 4 FEET IN CITY ROADWAY OR PAVED AREAS, 3 FEET IN SIDEWALK AREAS AND 2.5 FEET IN PRIVATE PROPERTY.
- OWNER TO APPLY WITH BWS FOR THE APPROVAL AND CONSTRUCTION OF 2 NEW WATER METERS AND LATERAL CONNECTION.
- CONTRACTOR SHALL COMPLY WITH DPP JOINTING POLICY ON NEW DRIVEWAYS AND SIDEWALKS DATED APRIL 06, 2009.
- THE WATER METER AND LATERAL CONNECTION WORK WITHIN THE CITY ROW ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY, SEE NOTE 2.

**GRAPHIC SCALE**

1" = 10'  
1" = 5'

**APPROVAL:**

*Dennis M. Robinson*  
CHIEF, WASTEWATER BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
5/21/12  
DATE

*M. Fog*  
CHIEF, CIVIL ENGINEERING BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
6/14/12  
DATE

*W. H. Q. BOY*  
CHIEF, TRAFFIC REVIEW BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
5/21/12  
DATE

**510 KULIOUOU ROAD DEVELOPMENT**  
TMK: 3-8-010-004

**SITE, UTILITY, GRADING PLAN AND DRIVEWAY A PROFILE**

**Bow Engineering & Development, Inc.**  
PLANNERS  
CIVIL ENGINEERS  
1953 K. REEFERAN ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone: (808) 941-8853  
Toll-free: (808) 945-9299  
Email: bow@bowengineering.com

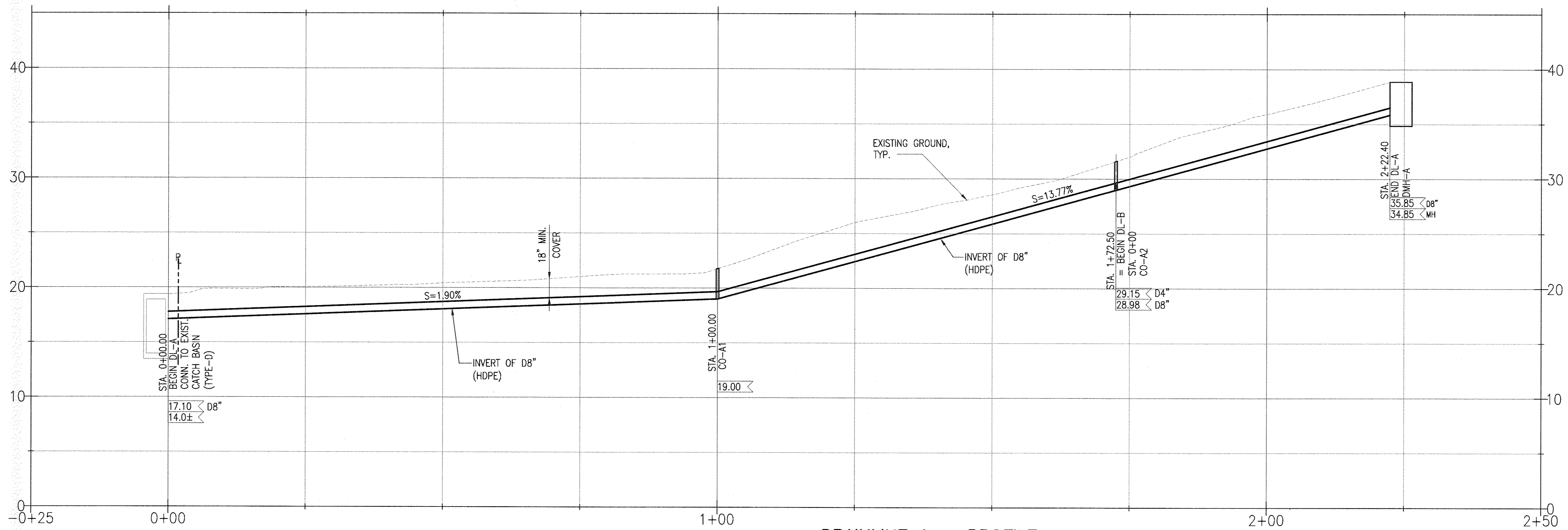
Designed by: WB  
Checked by: WB  
Drawn by: DY  
Approved by: WB  
Date: APR. 26, 2012  
AS NOTED  
Scale: 3-8-10-004  
T.M.K.

THIS WORK WAS PREPARED BY ME AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. DATE OF THIS OBSERVATION: 4/20/12

**WILLIAM H. Q. BOY**  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

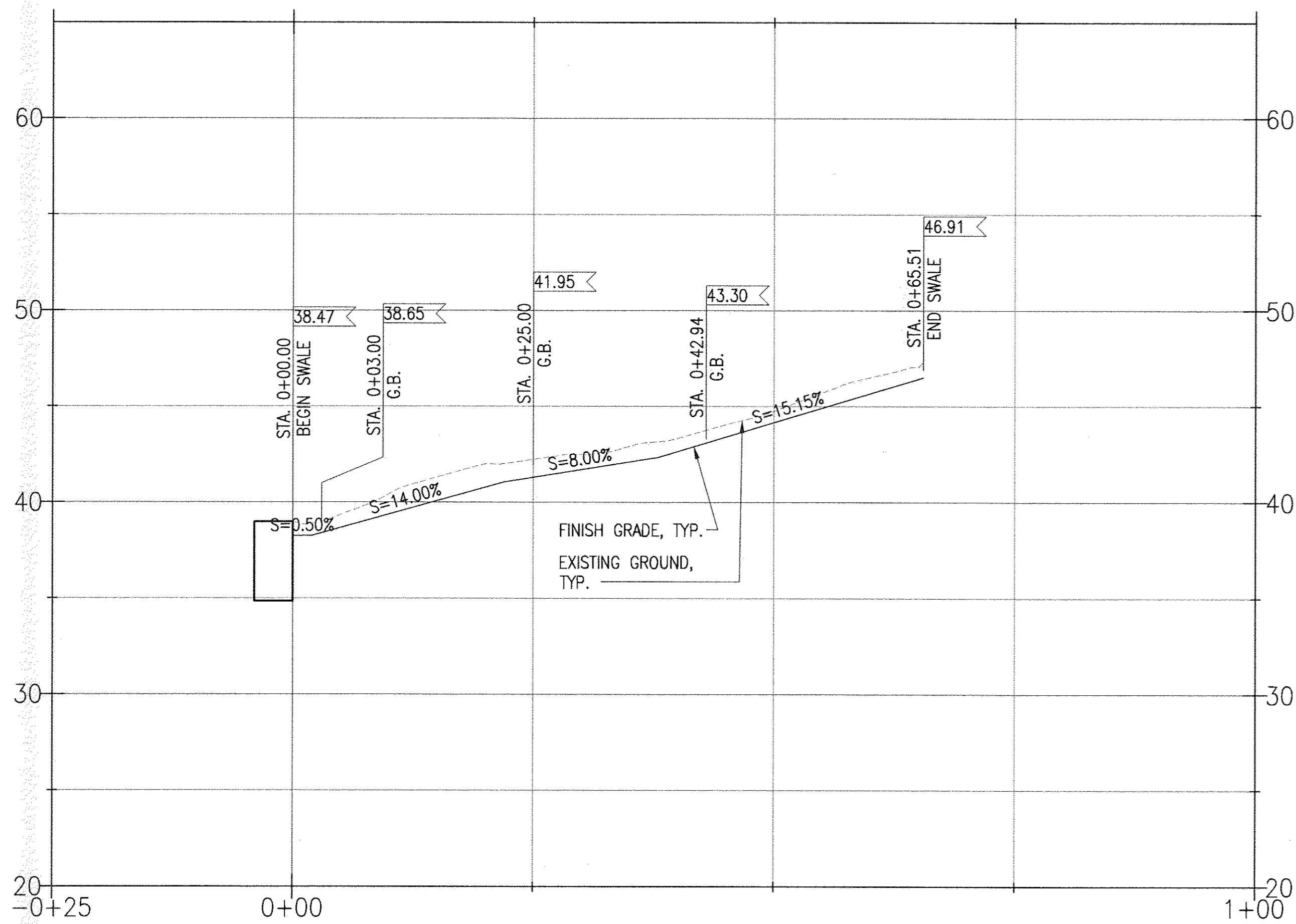
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SHT. - OF - SHTS.





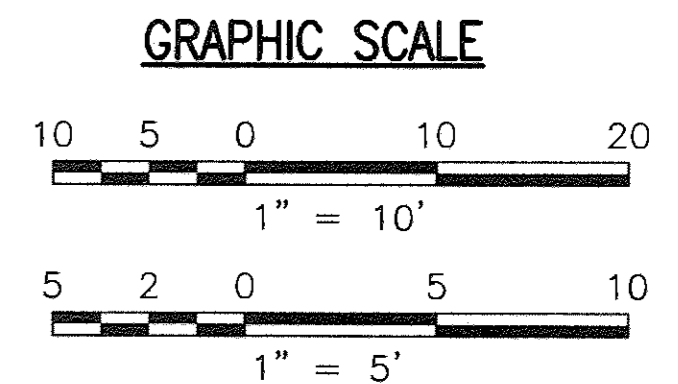
**DRAINLINE A - PROFILE**

SCALE: HORIZ 1" = 10'  
VERT 1" = 5'



**CONCRETE SWALE - PROFILE**

SCALE: HORIZ 1" = 10'  
VERT 1" = 5'



APPROVAL:

*M. F. J.*  
CHIEF, CIVIL ENGINEERING BRANCH, DPP  
CITY AND COUNTY OF HONOLULU

6/14/12  
DATE

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
CIVIL ENGINEERS  
1933 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone (808) 941-5833  
Telecopier (808) 945-5959  
Email: bbow@bowengineering.com

510 KULILOU ROAD  
DEVELOPMENT  
T.M.K. 3-8-001-004  
**DRAINLINE AND SWALE PROFILE**

Designed by: WB  
Checked by: WB  
Drawn by: DT  
Approved by: WB  
Date: APR. 26, 2012  
Scale: AS NOTED  
T.M.K. 3-8-010-001

THIS WORK WAS PREPARED BY ME  
IN CONNECTION WITH THE  
CONSTRUCTION OF THIS PROJECT.  
I WILL BE UNDER MY OBSERVATION.  
*William H. Q. Bow*  
WILLIAM H. Q. BOW  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

WILLIAM H. Q. BOW  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

**C1.02**

SHT. - OF SHTS.

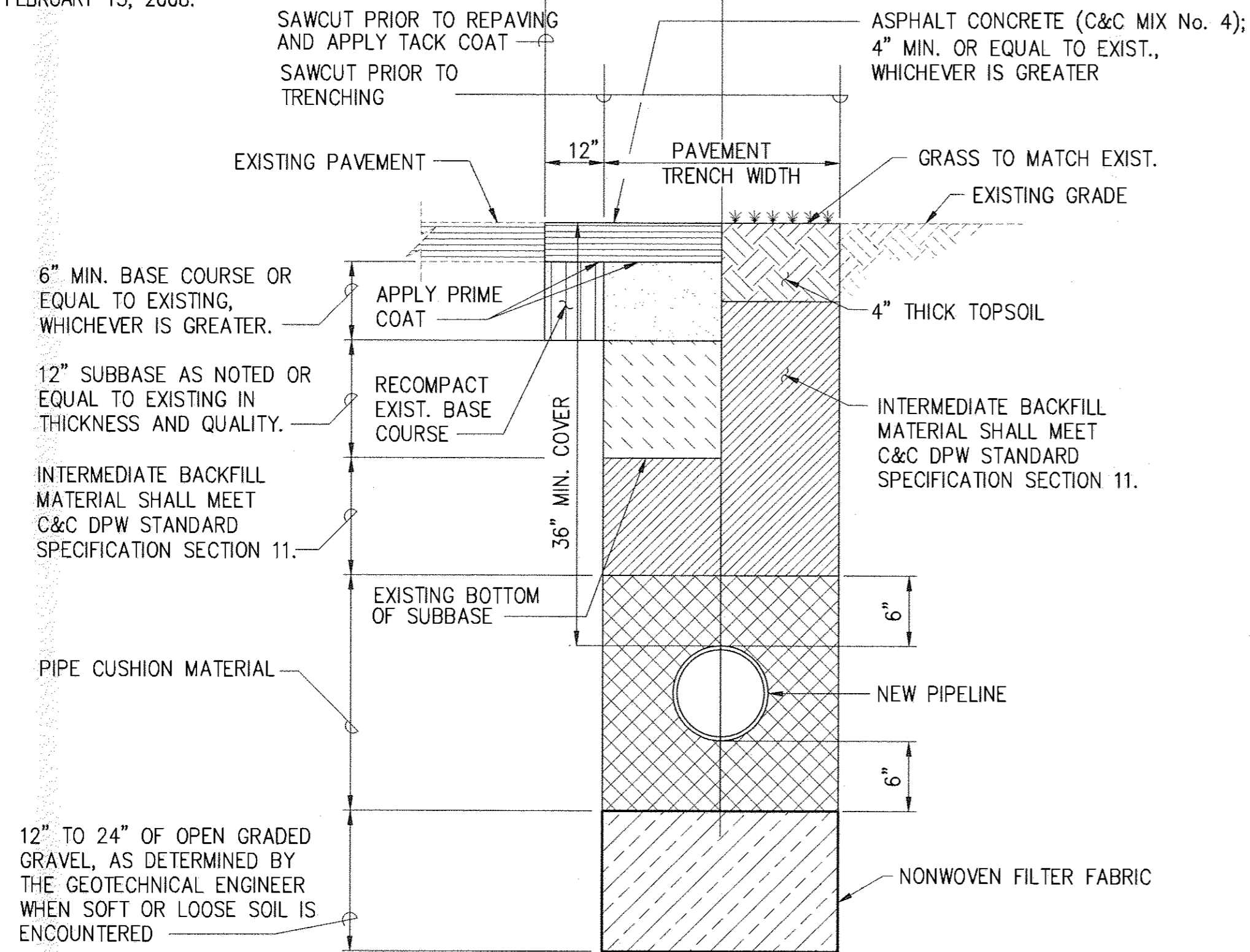
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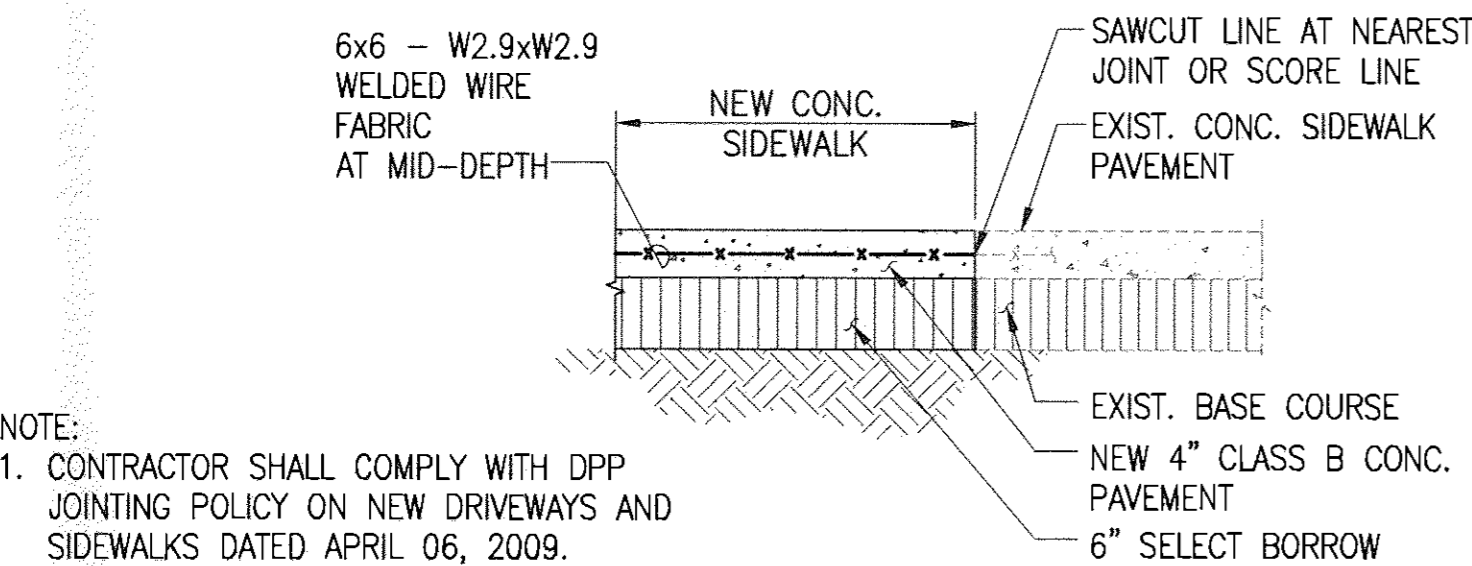


**NOTE:**

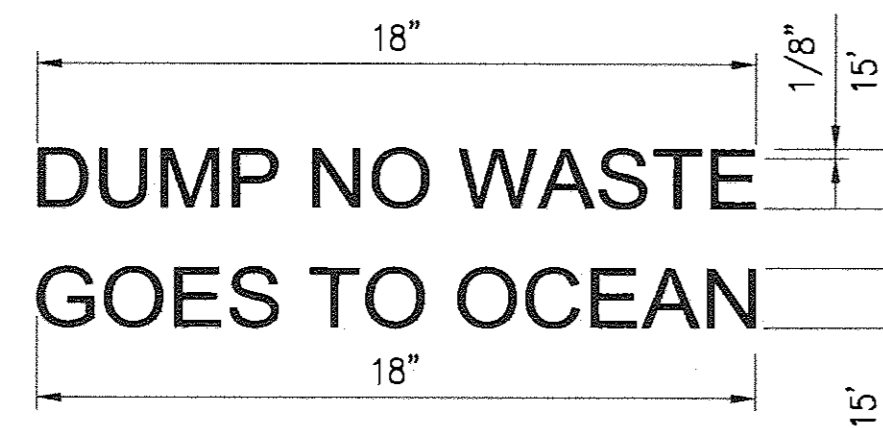
1. CONTRACTOR SHALL COMPLY WITH DPP'S POLICY ON MINIMUM UTILITY DEPTHS WITHIN CITY'S ROAD RIGHTS-OF-WAY DATED FEBRUARY 15, 2008.



**1 TYPICAL SEWER TRENCH SECTION (CITY)**  
NOT TO SCALE



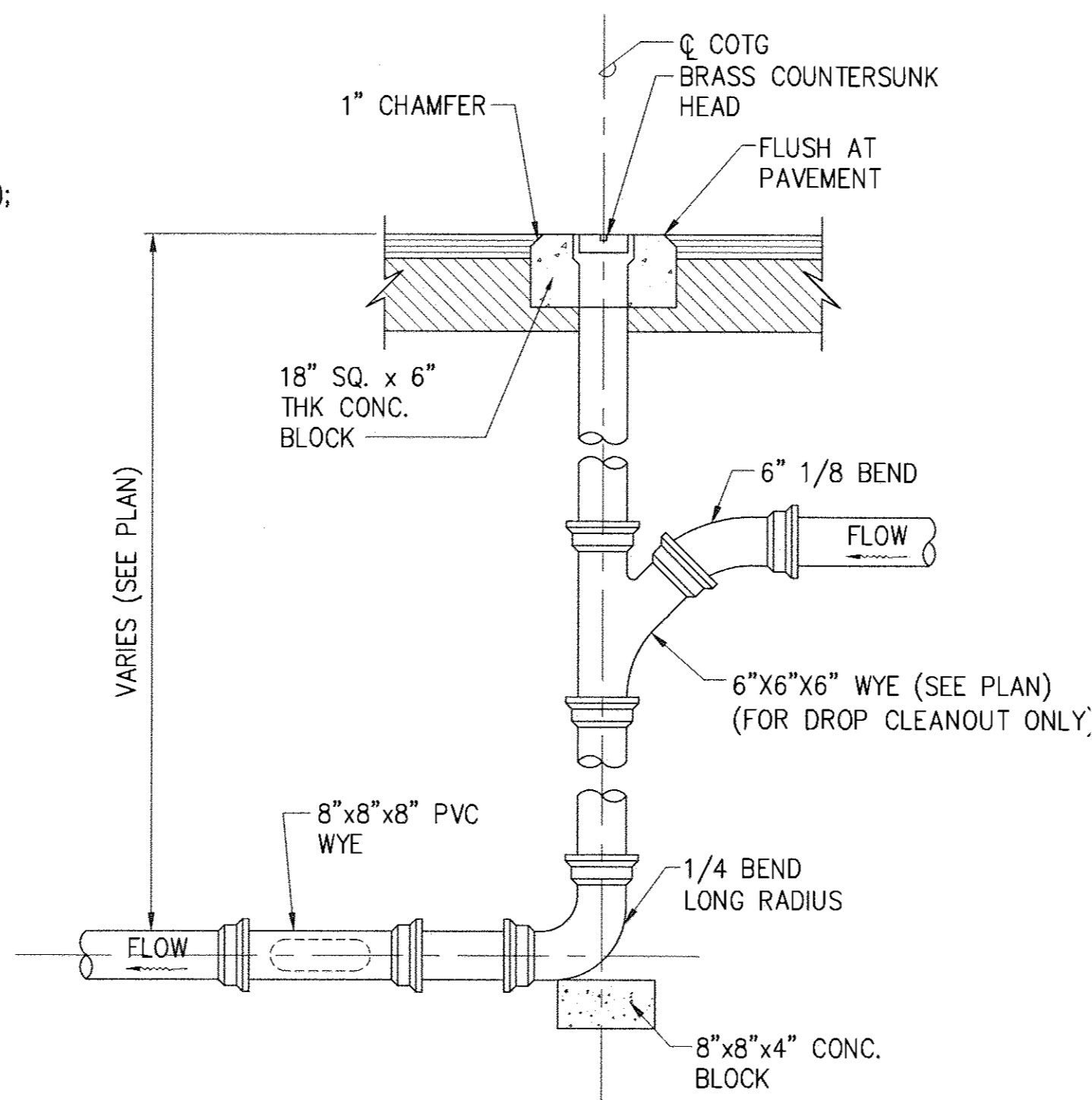
**4 CONCRETE SIDEWALK RESTORATION DETAIL**  
NOT TO SCALE



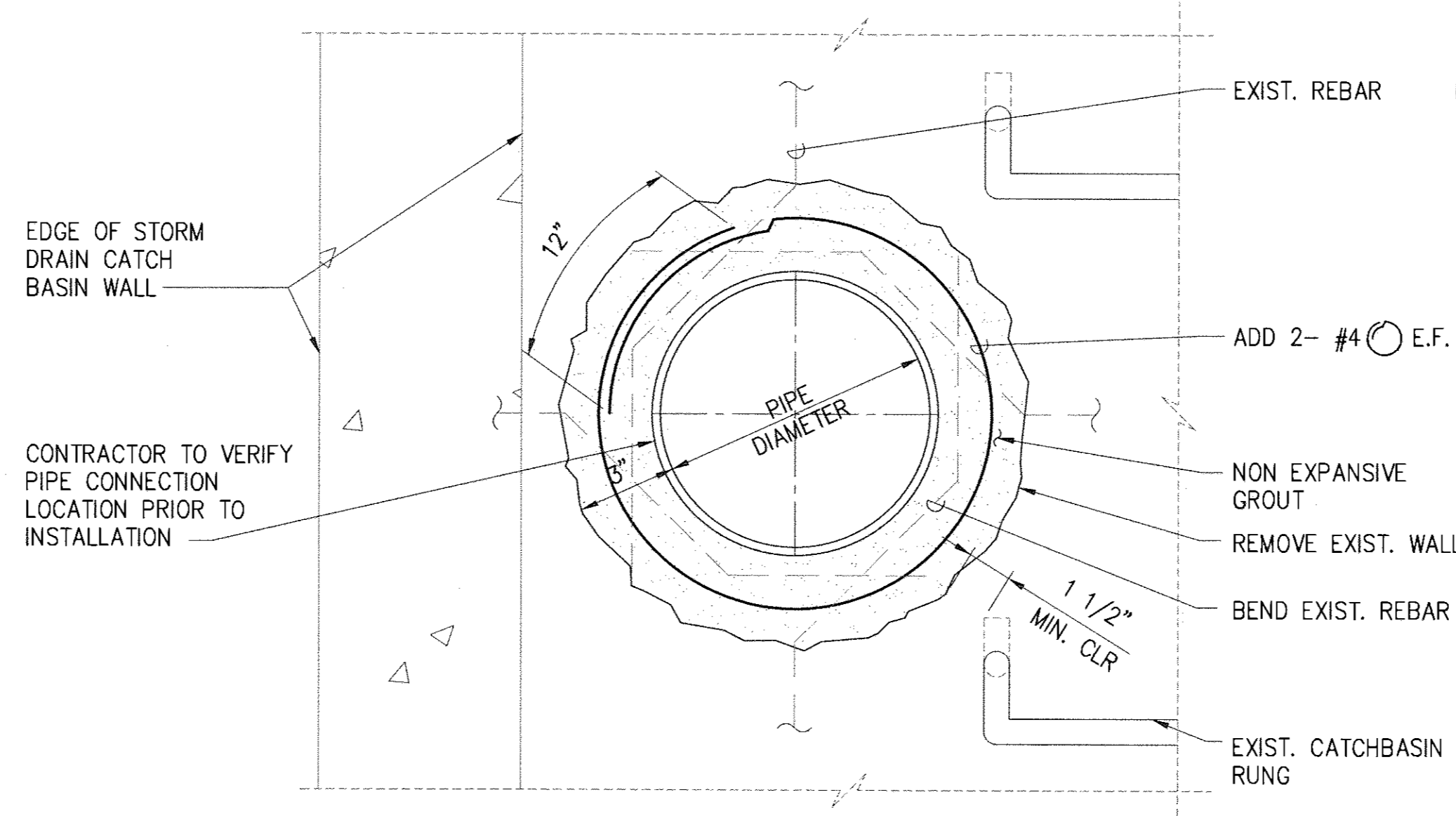
**SPECIFICATIONS:**

- MATERIAL:** ALUMINUM ALLOY (CAST ALUMINUM), LEAD, OR EQUAL LETTERING: HEIGHT OF LETTERS SHALL BE 1 1/2" HIGH AND 1/8" WIDE. THE UNDERSIDE OF ALL LETTERING SHALL BE V-SHAPED.
- PLACEMENT:** THE STENCIL SHOULD BE CENTERED ON THE TOP DECK OF THE DRAIN INLET/DRYWELL.
- IMPRESSION:** THE STENCIL SHALL BE PRESSED 1/4" INTO THE GREEN CONCRETE WHEN THE INLET IS MADE.

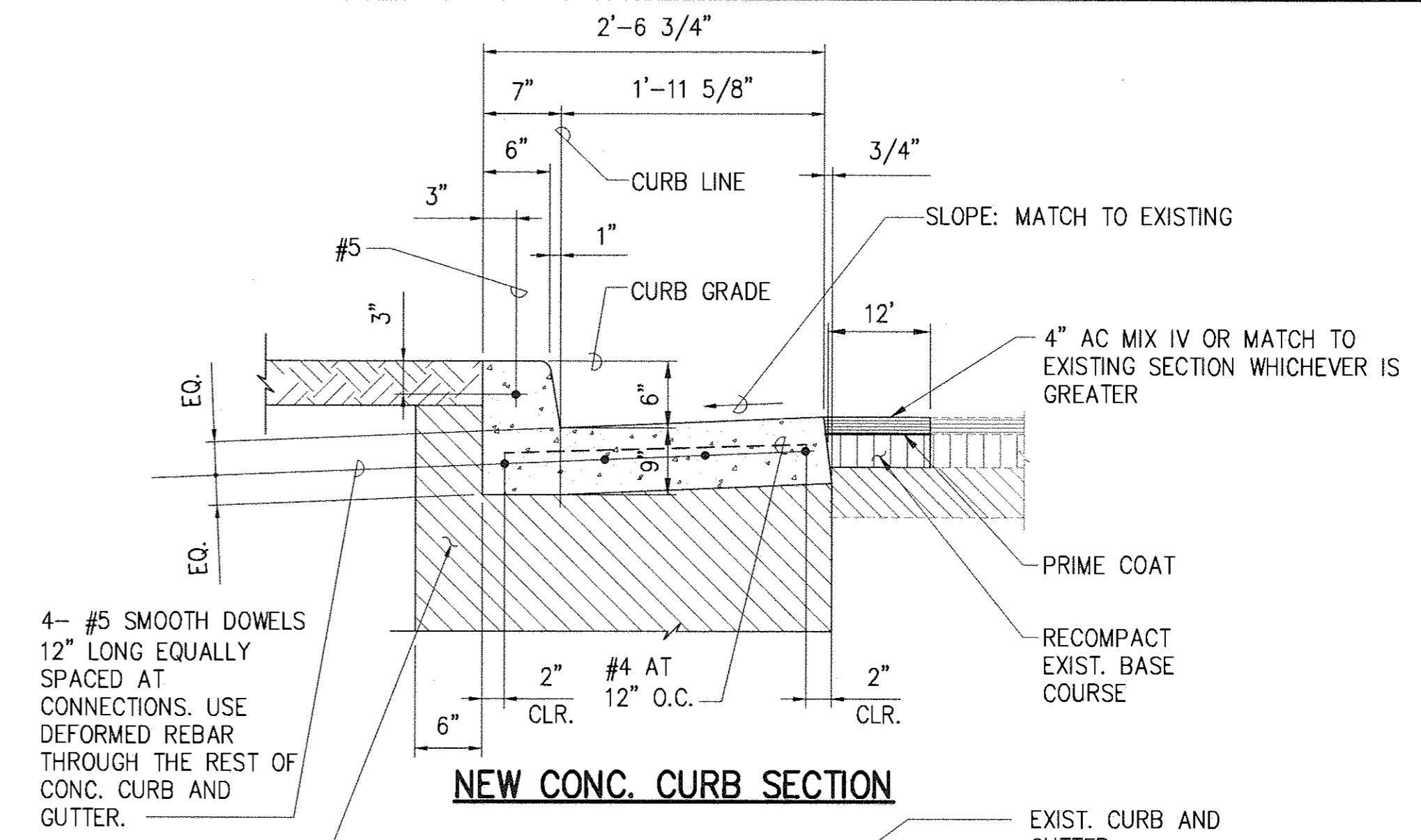
**7 DRAIN INLET STENCIL DETAIL**  
NOT TO SCALE



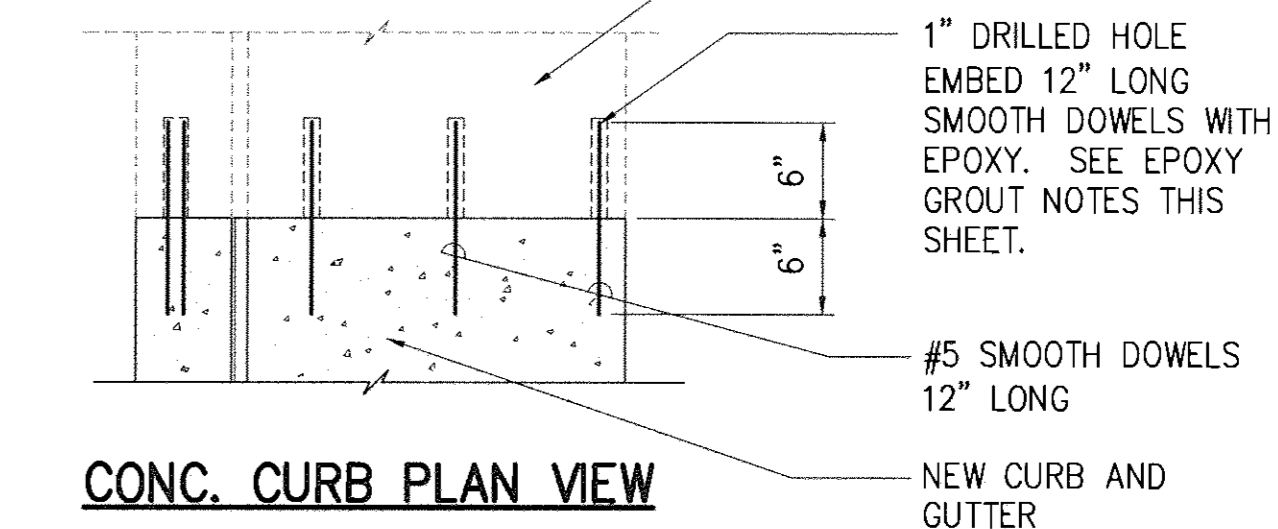
**2 CLEAN OUT TO GRADE DETAIL**  
NOT TO SCALE



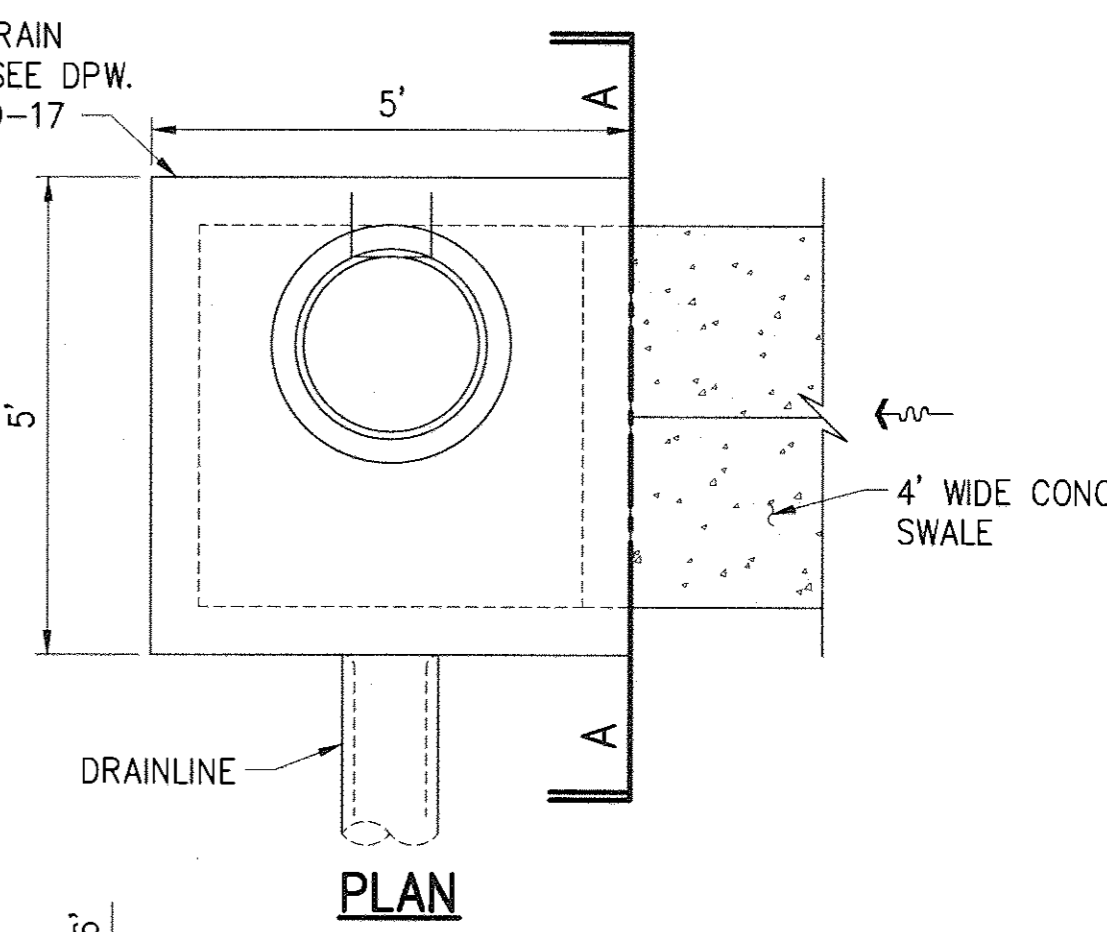
**5 DRAIN MANHOLE CONNECTION ELEVATION DETAIL**  
SCALE: 3" = 1'-0"



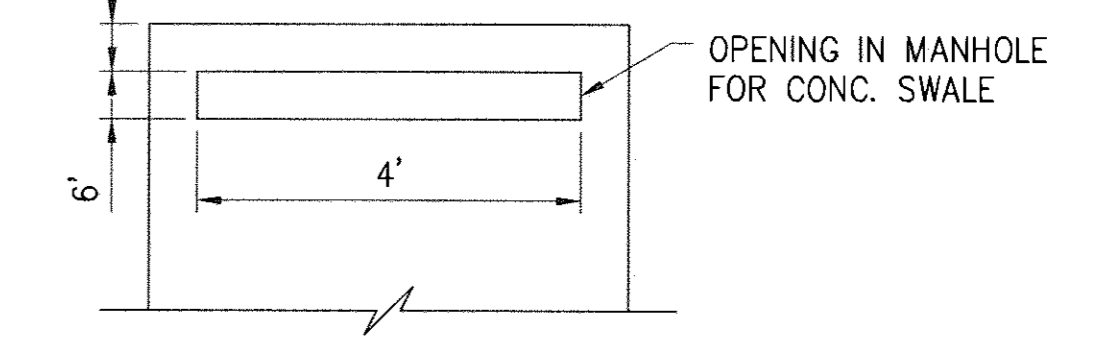
**3 CONCRETE CURB AND GUTTER CONNECTION**  
NOT TO SCALE



**6 MANHOLE OPENING**  
NOT TO SCALE



**PLAN**



**SECTION A-A**

**APPROVAL:**

M. [Signature] 4/14/12  
CHIEF, CIVIL ENGINEERING BRANCH, DPP CITY AND COUNTY OF HONOLULU DATE

DATE	DESCRIPTION	SYMBOL

**Bow Engineering & Development, Inc.**  
PLANNERS  
CIVIL ENGINEERS  
193 S. HERETAHUA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone (808) 941-8853  
Telecopier (808) 945-9299  
Email: [bbow@bowengineering.com](mailto:bbow@bowengineering.com)

**510 KULIOUO ROAD DEVELOPMENT**  
T.M.R. 3-8-010-004  
**MISCELLANEOUS DETAILS**

Designed by: WB  
Checked by: WB  
Drawn by: DY  
Approved by: WB  
Date: APR 26, 2012  
Scale: AS NOTED  
T.M.K.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
WILLIAM H. Q. BOW  
EXPIRATION DATE OF THE LICENSE: 4/30/14  
SIGNATURE

**WILLIAM H. Q. BOW**  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

**C3.00**  
SHT. - OF - SHTS.

Plotted: Sat, 05 May 2012 - 3:28pm By: ELLUM File Name: H:\FY2011\11005 Kulioouo Resident\07 Drawings\C3.00 Kulioouo - Miscellaneous Details.dwg

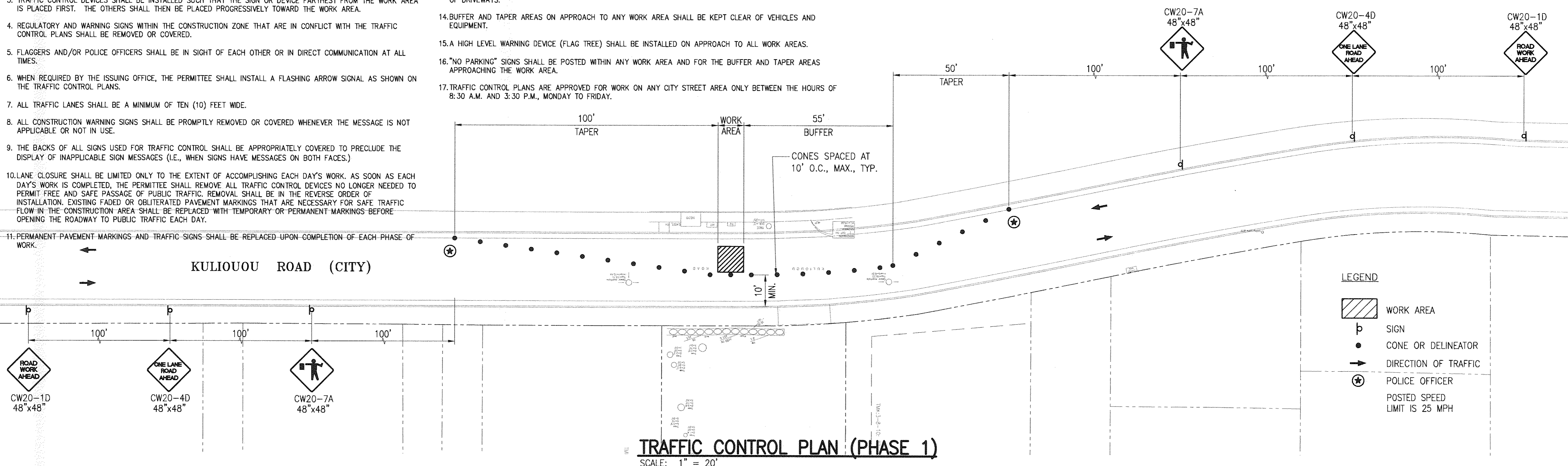


**GENERAL NOTES FOR TRAFFIC CONTROL PLAN**

1. THE PERMITTEE SHALL MAKE MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
2. 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 IS 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.
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 TEN (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 APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES.)
10. LANE CLOSURE SHALL BE LIMITED ONLY TO THE EXTENT OF ACCOMPLISHING EACH DAY'S WORK. AS SOON AS EACH DAY'S 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. EXISTING FADED OR OBLITERATED PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA SHALL BE REPLACED WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
11. PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF EACH PHASE OF WORK.

12. CONES AND DELINEATORS SHALL BE SPACED AT A MAXIMUM DISTANCE OF TWENTY (20) FEET APART. A MINIMUM OF SIX (6) CHANNELIZING DEVICES SHALL BE USED FOR EACH TAPER LENGTH.
13. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. FURTHER, THE PERMITTEE SHALL CONTROL TRAFFIC GOING IN AND OUT OF DRIVEWAYS.
14. BUFFER AND TAPER AREAS ON APPROACH TO ANY WORK AREA SHALL BE KEPT CLEAR OF VEHICLES AND EQUIPMENT.
15. A HIGH LEVEL WARNING DEVICE (FLAG TREE) SHALL BE INSTALLED ON APPROACH TO ALL WORK AREAS.
16. "NO PARKING" SIGNS SHALL BE POSTED WITHIN ANY WORK AREA AND FOR THE BUFFER AND TAPER AREAS APPROACHING THE WORK AREA.
17. TRAFFIC CONTROL PLANS ARE APPROVED FOR WORK ON ANY CITY STREET AREA ONLY BETWEEN THE HOURS OF 8:30 A.M. AND 3:30 P.M., MONDAY TO FRIDAY.

TRUE NORTH  
SCALE: 1 In. = 20 Ft.



DATE	DESCRIPTION

**Bow Engineering & Development, Inc.**  
PLANNERS  
1933 S. BERETANIA ST., SUITE PHA  
HONOLULU, HI 96826  
Telephone (808) 941-5833  
Telecopier (808) 945-5299  
Email: bbow@bowengineering.com

**510 KULIOUOU ROAD DEVELOPMENT**  
T.M.K. 3-8-010-004  
**TRAFFIC CONTROL PLAN**

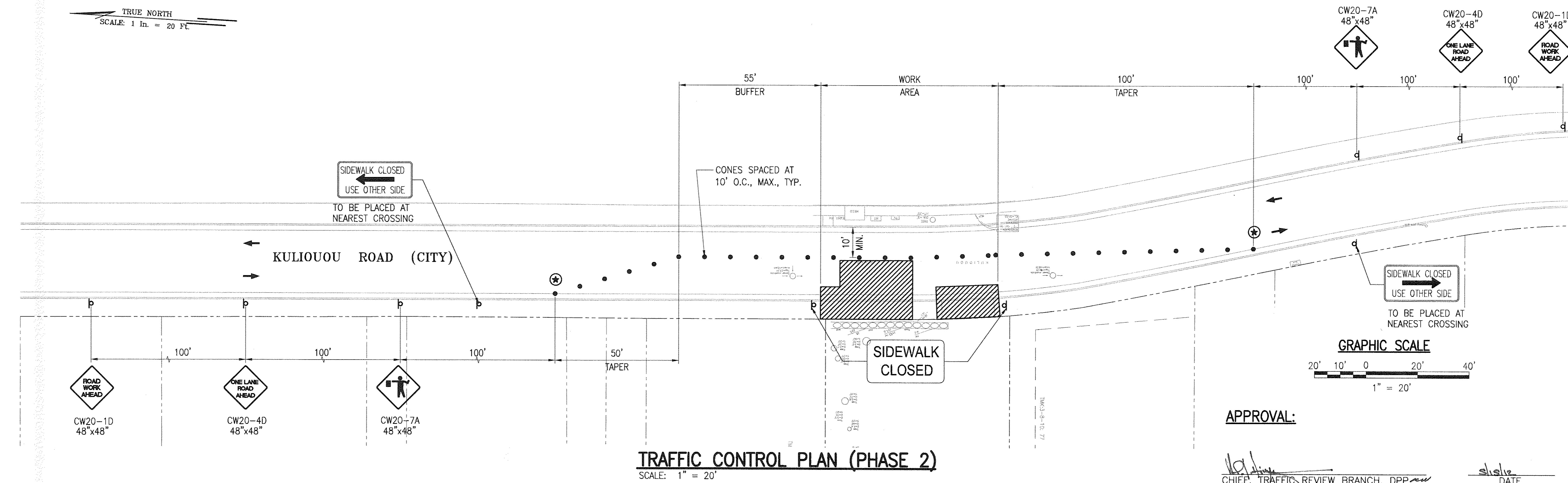
Designed by: WB  
Checked by: WB  
Drawn by: DY  
Approved by: WB  
Date: APR. 26, 2012  
AS NOTED  
Scale: 3-8-010-004  
T.M.K.

THIS WORK WAS PREPARED BY ME IN CONNECTION WITH THE CONSTRUCTION OF THIS PROJECT AND WILL BE UNDER MY OBSERVATION.  
WILLIAM H. Q. BOY  
DATE: 4/26/12  
DRAWN BY: DY

**WILLIAM H. Q. BOY**  
LICENSED PROFESSIONAL ENGINEER  
NO. 4904-C  
HAWAII USA

**C4.00**  
SHT. - OF - SHTS.

TRUE NORTH  
SCALE: 1 In. = 20 Ft.



**APPROVAL:**  
*[Signature]*  
CHIEF, TRAFFIC REVIEW BRANCH, DPP  
CITY AND COUNTY OF HONOLULU  
DATE: *[Signature]*

Plotted: Sat, 05 May 2012 - 3:28pm By: ELUM  
File Name: H:\12011\1005 Kuliouou Residential\07 Drawings\C4.00 Kuliouou - TCP.dwg



## OCEANIC CABLE NOTES

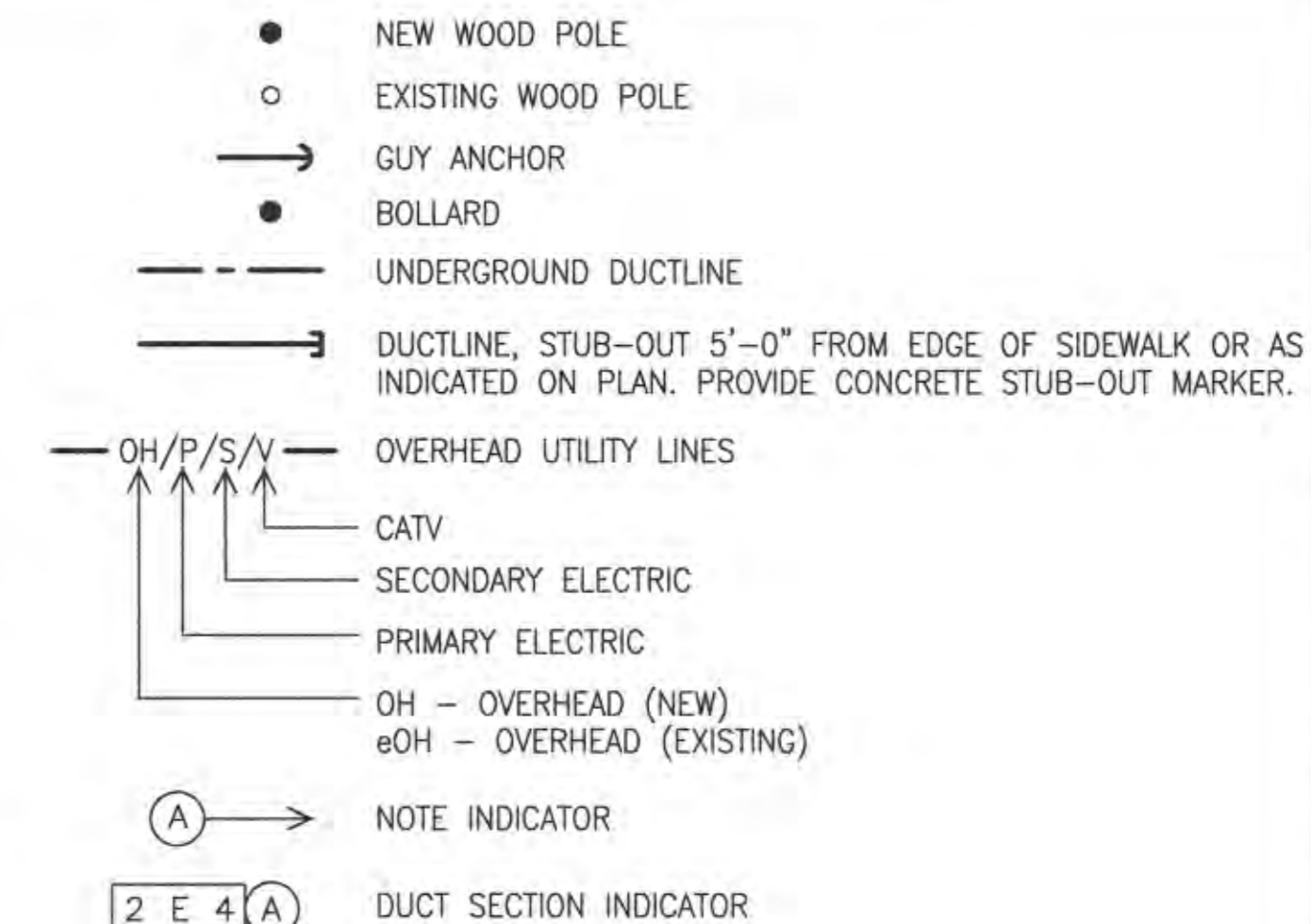
- THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY AND INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
- THE LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THESE UTILITIES AS A RESULT OF HIS OPERATIONS. ADJUSTMENTS TO THE NEW DUCTLINE ALIGNMENT, IF REQUIRED, SHALL BE MADE TO PROVIDE THE REQUIRED CLEARANCES.
- THE CONTRACTOR SHALL BRACE ALL POLES OR LIGHT STANDARDS NEAR THE NEW DUCTLINE AND HANDHOLES DURING ITS OPERATIONS.
- 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 THE AREAS. 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.
- PRIOR TO THE EXCAVATION OF THE DUCTLINE, THE CONTRACTOR SHALL REQUEST THAT OCEANIC TIME WARNER CABLE COMPANY TO LOCATE EXISTING DUCTLINE WHEREVER REQUIRED.
- THE CONTRACTOR SHALL NOTIFY THE OCEANIC TIME WARNER CABLE COMPANY INSPECTOR 72 HOURS PRIOR TO THE POURING OF CONCRETE OR BACKFILLING. CONTACT MOKI PLACE AT #306-0658.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS AND FURNISH ALL LABOR AND EQUIPMENT NECESSARY TO INSTALL THE DUCTLINE IN PLACE COMPLETE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT ALL REQUIRED LINES AND GRADES AND SHALL PRESERVE ALL BENCH MARKS AND WORKING POINTS NECESSARY TO LAYOUT THE WORK CORRECTLY. THE NEW DUCTLINE SHALL BE ADJUSTED BY THE CONTRACTOR TO SUIT THE EXISTING CONDITIONS AND THE DETAILS AS DESCRIBED IN THE PLANS.
- THE LOCATION OF CATV FACILITIES SHOWN ON PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AS TO ITS ACTUAL FIXED LOCATION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN CLOSE PROXIMITY OF CATV FACILITIES.
- THE CONTRACTOR SHALL OBTAIN EXCAVATION PERMIT CLEARANCE FROM OCEANIC'S ENGINEERING SECTION LOCATED AT 200 AKAMAINUI ST., MILILANI TECH PARK.
- FOR VERIFICATION OF CATV FACILITIES OR TONING, THE CONTRACTOR SHALL CALL 1-866-423-7287 (ONE-CALL CENTER).
- ANY WORK REQUIRED TO RELOCATE CATV FACILITIES SHALL BE DONE BY OCEANIC TIME WARNER CABLE AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION REQUIREMENTS AND ASSOCIATED COSTS.
- ANY DAMAGE TO OCEANIC TIME WARNER CABLE'S FACILITIES SHALL BE REPORTED TO OTWC'S REPAIR DISPATCH DEPARTMENT AT 625-8437.
- AT LOCATIONS WHERE EXISTING CATV PULLBOX REPLACEMENT IS PROPOSED, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTION NOT TO DAMAGE THE EXISTING CABLES IN THE PULLBOX. ALL DAMAGES TO EXISTING CABLES SHALL BE REPAIRED BY OCEANIC TIME WARNER CABLE AND PAID FOR BY THE CONTRACTOR.
- COORDINATE ALL PENETRATION OF TELEPHONE PULLBOX WITH THE HAWAIIAN TELCOM INSPECTOR.
- SMOOTH FINISH INSIDE WALL OF EXISTING PULLBOXES AND HAND-HOLES TO ITS ORIGINAL CONDITION OR BETTER.
- FOR 2" CONDUITS OR LARGER, THE CONTRACTOR SHALL INSTALL NEPTCO WP1800 MULETAPE OR APPROVED EQUAL IN ALL DUCTLINES, LEAVE MULETAPE IN PLACE FOR FUTURE USE AS A PULL OR FISH LINE, UNLESS OTHERWISE NOTED. REFERENCE GTE MATERIAL CODE NO. 571154. ALL DUCTS SHALL BE CAPPED TO PREVENT ENTRY OF FOREIGN MATERIAL DURING CONSTRUCTION AND AT COMPLETION OF INSTALLATION. ENDBELLS ARE REQUIRED FOR CONDUITS 2" AND LARGER.
- THE CONTRACTOR SHALL PLACE POLY CORD THROUGH OUT PROJECT, AND SECURE IN HANDHOLES, AND PULLBOXES.
- PENETRATION INTO PULLBOXES IF NECESSARY TO BE FROM FACTORY INSTALLED OPENING OR FROM BRICKS POSITION. PENETRATION FROM PULLBOX WALLS IS NOT ACCEPTABLE.
- A MINIMUM OF (2) PRECASE SECTIONS MUST BE USED ON ALL 2"x4" OR 2"x6" PULLBOXES.
- TWO MINIMUM LAYERS OF BRICKS TO BE USED SHALL ALWAYS BE AT LEAST ONE LAYER LOWER THAN THE LOWEST DUCT ENTERING THE PULLBOX. AT NO TIME HOWEVER, SHALL THERE BE LESS THAN TWO LAYERS OF BRICKS ON EACH INSTALLATION.
- AT NO TIME SHALL CEMENT MORTAR, WOOD, OR ANY OTHER MATERIAL BE USED BETWEEN PRECAST SECTIONS. LEVELING OR RAISING OF BOXES TO GRADE MUST BE DONE AT BRICKWORK SECTION USING CEMENT MORTAR. THE PERMANENT INSTALLATION OF WOODEN WEDGES TO ACCOMPLISH THIS PURPOSE WILL NOT BE ACCEPTED.
- CONCRETE PRECAST BASE MAY BE USED AS AN ALTERNATIVE TO BRICKS.
- PROVIDE 5/8" DIA. x 8'0" GALVANIZED GROUND ROD IN ALL CATV PULLBOXES EXCEPT AT HECO TRANSFORMER PAD LOCATIONS AND IN 12"x20" PULLBOXES. GROUND ROD TO EXTEND 4" ABOVE FINISH PULLBOX FLOOR AND PLACED NEAR CORNER.
- TRENCHING TO BE BY HAND DIGGING NEAR AND ACROSS EXISTING UTILITY LINES.
- MINIMUM CLEARANCE BETWEEN STREET LIGHT STAND AND FIRE HYDRANTS SHALL BE THREE FEET.
- UNDERGROUND UTILITIES SHOWN HEREON IS FROM INFORMATION ONLY. NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INSTALLATION.
- FOR UNDERGROUND CABLE LOCATING AND MARKING, FIVE WORKING DAYS ADVANCE NOTICE IS REQUIRED. THREE WORKING DAYS ADVANCE NOTICE IS REQUIRED FOR ANY INSPECTION BY A DESIGNATE REPRESENTATIVE. CONTRACTOR SHALL TAKE NECESSARY PRECAUTION NOT TO DAMAGE ANY EXISTING CABLES OR DUCTS. OCEANIC'S INSPECTOR OR DESIGNATED REPRESENTATIVE IS REQUIRED TO BE AT ANY JOB SITE WHENEVER THERE WILL BE A BREAKAGE INTO OR ENTRY INTO ANY STRUCTURE THAT CONTAIN OCEANIC'S FACILITIES.
- CONCRETE STRENGTH SHALL BE 3000 PSI IN 28 DAYS.
- BENDS IN THE DUCT ALIGNMENT, DUE TO CHANGES IN GRADE SHALL HAVE A MINIMUM RADIUS OF 20- FEET. ALL 90-DEGREE C-BENDS AT A POLE OR AT THE BUILDING FLOOR SLAB PENETRATION, SHALL HAVE A BEND RADIUS OF TEN TIMES THE DIAMETER OF THE DUCT OR GREATER.
- AFTER DUCTLINE HAS BEEN COMPLETED, A MANDREL WITH A SQUARE FRONT NOT LESS THAN 12-INCH LONG AND HAVING A DIAMETER OF 1/4-INCH LESS THAN THE INSIDE DIAMETER OF DUCT, SHALL BE PULLED THROUGH EACH DUCT AFTER WHICH A BRUSH WITH STIFF BRISTLES SHALL BE PULLED THROUGH TO MAKE CERTAIN THAT NO PARTICLES OF EARTH, SAND, OR GRAVEL HAVE BEEN LEFT INSIDE. DUCTS SHALL BE COMPLETELY DRY AND CLEAN.
- METALLIC ENTRANCE CONDUITS SHALL BE GROUNDED.
- ALL CONDUITS WITHIN A BUILDING SHALL:
  - BE INSTALLED IN THE SHORTEST AND STRAIGHTEST POSSIBLE RUN.
  - HAVE NO SECTION LONGER THAN 100- FEET NOR CONTAIN MORE THAN TWO 90-DEGREE BENDS. AN APPROVED SIZED JUNCTION BOX OR GUTTER BOX SHALL BE PLACED IF THIS IS EXCEEDED.
  - ALL BENDS SHALL BE LONG SWEEP-RADIUS BENDS BUT THE INSIDE RADIUS OF THE BEND MUST NEVER BE LESS THAN TEN TIMES THE DIAMETER OF THE CONDUIT.
- ALL CONSTRUCTION MUST BE INSPECTED AND APPROVED BY OCEANIC PRIOR TO THE INSTALLATION OF ANY OF ITS FACILITIES AND THE ENERGIZING OF ITS SYSTEM.
- CONTRACTOR AND/OR CUSTOMER SHALL PROVIDE OCEANIC WITH SUFFICIENT INSTALLATION TIME IN THEIR OCCUPANCY TIME TABLE.
- INSTALL 4-MIL. THICK ORANGE COLOR WARNING TAPE 3-INCH WIDE, ENTIRE LENGTH OF TRENCH WHEN PLACING CATV CONDUITS. TAPE SHOULD READ "CAUTION BURIED CABLE LINE BELOW". MANUFACTURED BY HARRIS INDUSTRIES, INC., CATALOG NUMBER UT-43 OR EQUIVALENT TAPE. TAPE TO BE INSTALLED 12-INCHES BELOW GRADE.

## HAWAIIAN TELCOM CONSTRUCTION/DESIGN NOTES

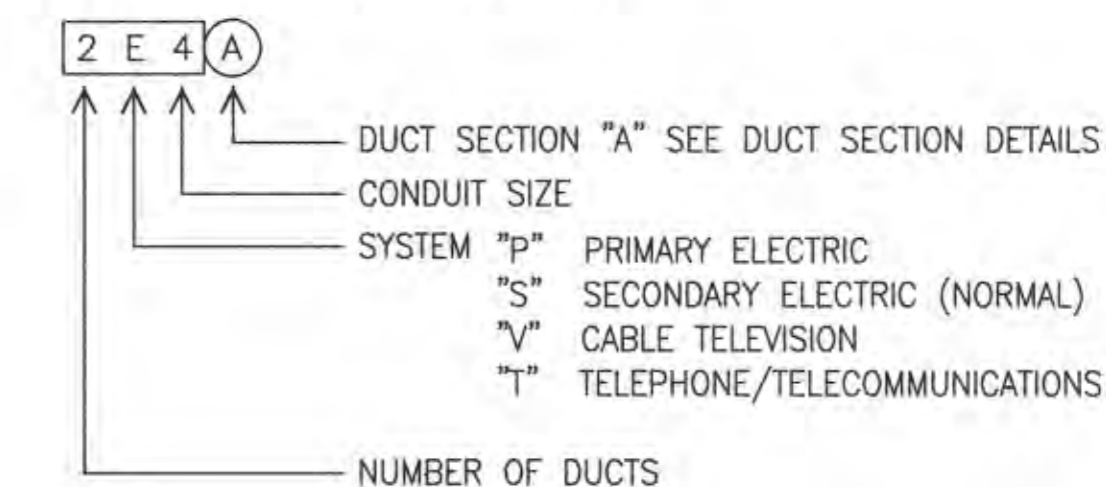
- THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY AND INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
- THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT AND TONING REQUEST FROM HAWAIIAN TELCOM'S EXCAVATION PERMIT SECTION, LOCATED AT 1177 BISHOP STREET, TWO WEEKS PRIOR TO THE START OF CONSTRUCTION. HOURS OF BUSINESS ARE 8:00 A.M. TO 11:00 A.M. AND 12:00 P.M. TO 3:00 P.M. MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS.
- PRIOR TO THE EXCAVATION OF THE DUCTLINE, THE CONTRACTOR SHALL REQUEST HAWAIIAN TELCOM TO LOCATE EXISTING DUCTLINE WHEREVER REQUIRED. FOR UNDERGROUND CABLE LOCATING AND MARKING, FIVE (5) WORKING DAYS ADVANCE NOTICE IS REQUIRED. THREE (3) WORKING DAYS ADVANCE NOTICE IS REQUIRED FOR ANY INSPECTION BY A DESIGNATED REPRESENTATIVE.
- THE LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND SHALL MAINTAIN PROPER CLEARANCES WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF HAWAIIAN TELCOM FACILITIES. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND SHALL BE LIABLE FOR ANY DAMAGES TO HAWAIIAN TELCOM FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO HAWAIIAN TELCOM'S REPAIR SECTION AT #611 (24 HOURS) OR TO THE EXCAVATION PERMIT SECTION AT 546-7746 (NORMAL WORKING HOURS, MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS). AS A RESULT OF HIS OPERATIONS, ADJUSTMENTS TO THE NEW DUCTLINE ALIGNMENT, IF REQUIRED, SHALL BE MADE TO PROVIDE THE REQUIRED CLEARANCES.
- THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTION NOT TO DAMAGE EXISTING CABLES OR DUCTS. A HAWAIIAN TELCOM INSPECTOR OR DESIGNATED REPRESENTATIVE IS REQUIRED TO BE AT ANY JOB SITE WHENEVER THERE WILL BE A BREAKAGE INTO OR ENTRY INTO ANY STRUCTURE THAT CONTAIN HAWAIIAN TELCOM FACILITIES. TEMPORARY CABLE AND DUCT SUPPORTS SHALL BE PROVIDED WHEREVER NECESSARY.
- THE CONTRACTOR SHALL NOTIFY HAWAIIAN TELCOM'S INSPECTOR OR DESIGNATED REPRESENTATIVE A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION, BRACING, OR BACKFILLING OF HAWAIIAN TELCOM'S STRUCTURES OR FACILITIES.
- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE "HAWAIIAN TELCOM STANDARD SPECIFICATIONS FOR PLACING TELEPHONE SYSTEMS" DATED JANUARY 2007, ALL SUBSEQUENT AMENDMENTS AND ADDITIONS, AND ALL OTHER PERTINENT STANDARDS FOR TELEPHONE CONSTRUCTION. CONTRACTOR SHALL FAMILIARIZE HIS PERSONNEL BY OBTAINING APPLICABLE SPECIFICATIONS.
- WHEN EXCAVATION IS ADJACENT TO OR BENEATH HAWAIIAN TELCOM'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL:
  - SHEET AND/OR BRACE THE EXCAVATION TO PREVENT SLIDES, CAVE-INS, OR SETTLEMENTS TO ENSURE NO MOVEMENT TO HAWAIIAN TELCOM'S STRUCTURES OR FACILITIES.
  - PROTECT EXISTING STRUCTURES AND/OR FACILITIES WITH BEAMS, STRUTS, OR UNDERPINNING WHILE EXCAVATING BENEATH THEM TO ENSURE NO MOVEMENT TO HAWAIIAN TELCOM'S STRUCTURES OR FACILITIES.
- THE CONTRACTOR SHALL BRACE ALL POLES OR LIGHT STANDARDS NEAR THE NEW DUCTLINE, MANHOLE, OR HANDHOLE DURING HIS OPERATIONS.
- THE CONTRACTOR SHALL SAW-CUT A.C. PAVEMENT AND CONCRETE GUTTER WHEREVER NEW MANHOLES, HANDHOLES, OR DUCTLINES ARE TO BE PLACED AND SHALL RESTORE TO EXISTING CONDITION OR BETTER. THE CONTRACTOR SHALL COMPLY WITH THE POLICY ADOPTED BY THE DEPARTMENT OF PLANNING AND PERMITTING, CITY AND COUNTY OF HONOLULU, CONCERNING THE REPLACEMENT OF CONCRETE SIDEWALKS AFTER EXCAVATION WORK.
- 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 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.
- WHEREVER CONNECTIONS TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES PRIOR TO EXCAVATION OF THE MAIN TRENCHES TO VERIFY THEIR LOCATIONS AND DEPTHS.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE COST FOR SUPPLEMENTARY MEASURE, WHICH WILL BE REQUIRED BY THE CITY AND COUNTY, SHALL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PUMP ALL MANHOLES DRY DURING FINAL INSPECTIONS.
- THE CONTRACTOR SHALL NOTIFY HAWAIIAN TELCOM INSPECTOR 24 HOURS PRIOR TO THE POURING OF CONCRETE OR BACKFILLING.
- WHEN CONNECTING TO MANHOLE WALLS, ALL EXISTING REINFORCING BARS SHALL BE LEFT INTACT. DUCTS SHALL BE ADJUSTED IN THE FIELD IN ORDER TO CLEAR REINFORCING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT ALL REQUIRED LINES AND GRADES AND SHALL PRESERVE ALL BENCH MARKS AND WORKING POINTS NECESSARY TO LAY OUT THE WORK CORRECTLY. THE NEW DUCTLINE SHALL BE ADJUSTED BY THE CONTRACTOR TO SUITE THE EXISTING CONDITIONS AND THE DETAILS AS DESCRIBED IN THE PLANS.
- MINIMUM CONCRETE STRENGTH SHALL BE:
 

FOR DUCTLINE	3000 PSI AT 28 DAYS
FOR MANHOLE	3000 PSI AT 28 DAYS OR AS SPECIFIED IN DESIGN NOTES
- BENDS IN THE DUCT ALIGNMENT, DUE TO CHANGES IN GRADE SHALL HAVE A MINIMUM RADIUS OF 25 FEET. ALL 90 DEGREE C-BENDS AT A POLE OR AT THE BUILDING FLOOR SLAB PENETRATION, SHALL HAVE A BEND RADIUS OF TEN TIMES THE DIAMETER OF THE DUCT OR GREATER.
- AFTER DUCTLINE HAS BEEN COMPLETED, A MANDREL WITH A SQUARE FRONT NOT LESS THAN 12" LONG AND HAVING A DIAMETER OF 1/4" LESS THAN THE INSIDE DIAMETER OF THE DUCT, SHALL BE PULLED THROUGH EACH DUCT AFTER WHICH A BRUSH WITH STIFF BRISTLES SHALL BE PULLED THROUGH TO MAKE CERTAIN THAT NO PARTICLES OF EARTH, SAND, OR GRAVEL HAVE BEEN LEFT INSIDE. DUCTS SHALL BE COMPLETELY DRY AND CLEAR.
- ALL DUCTS AND CONDUITS SHALL HAVE AN 1800# POLYESTER MULE-TAPE (NEPTCO, WP1800P, HAWAIIAN TELCOM MATERIAL CODE NO. 571154) INSTALLED THROUGHOUT ITS ENTIRE LENGTH. ALL DUCTS SHALL BE CAPPED TO PREVENT ENTRY OF FOREIGN MATERIAL DURING CONSTRUCTION AND AT THE COMPLETION OF INSTALLATION.

## SITE ELECTRICAL SYMBOLS



## DUCT DESIGNATION



## PULLBOX, HANDHOLE, MANHOLE SCHEDULE

- |    |  |
|----|--|
| 4  | 2" x 4" HECO PULLBOX                           |
| 6  | 3' x 5' HECO HANDHOLE                          |
| 40 | 12" x 20" (436T) HTcom PULLBOX                 |
| 44 | 2' x 4' (435TB) HTcom PULLBOX                  |
| 46 | 3' x 5' HTcom HANDHOLE                         |
| 82 | 17" x 30" CATV METERBOX, SEE $\frac{2}{E2.03}$ |
| 84 | 2' x 4' CATV PULLBOX, SEE $\frac{1}{E2.03}$    |

## GENERAL NOTES:

- OBTAIN ALL STANDARDS AND DRAWINGS RELATED TO THIS PROJECT FROM THE UTILITY COMPANIES. VERIFY THAT THE UTILITY COMPANY'S PROJECT DRAWINGS ARE THE SAME AS THE CONTRACT DRAWINGS. NOTIFY THE ENGINEER OF ANY DIFFERENCES BETWEEN THEM. IF DIFFERENCES EXIST, OBTAIN A RESOLUTION PRIOR TO PROCEEDING WITH THE WORK WHICH IS AFFECTED.
- PRIOR TO STARTING WORK, NOTIFY THE UTILITY COMPANIES IN WRITING WHEN WORK WILL START, AND PROVIDE THEM WITH A CONSTRUCTION SCHEDULE.

## APPROVAL:

HAWAIIAN TELCOM DATE 2/7/17  
 OCEANIC TIME WARNER CABLE DATE 02-15-13

11080

SYMBOL	DESCRIPTION	DATE

**BoW Engineering & Development, Inc.**  
 CIVIL ENGINEERS  
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 Telephone (808) 441-8833  
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 Email: hbow@bowengineering.com

510 KULIYOU ROAD  
 DEVELOPMENT  
 T.M.K. 3-8-010-004  
**ELECTRICAL SYMBOLS**

Designed by: RDM  
 Checked by: RCK  
 Drawn by: MKE  
 Approved by: RCK  
 Date: AUG. 15, 2011  
 Scale: AS NOTED  
 T.M.K. 3-8-010004

THE ENGINEER, I.D.  
 LICENSE EXPIRATION DATE: 4/20/14  
 This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. I am not providing any professional services in any other state.  
 Board of Professional Engineers, Architects, and Surveyors  
 State of Hawaii (June 9/12/01; effective 9/29/01)

C. K. ANAPA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 3191-E  
 HAWAII

**E0.01**  
 SHT. - OF - SHTS.



# HAWAIIAN ELECTRIC COMPANY NOTES

## 1. LOCATION OF HECO FACILITIES

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 VERIFY IN THE FIELD THE LOCATIONS OF THE FACILITIES AND SHALL EXERCISE PROPER CARE IN EXCAVATING AND WORKING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES AND UTILITY CROSSINGS ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS AND CROSSINGS TO VERIFY THE DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO'S FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLANS.

## 2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAWS AND REGULATIONS, INCLUDING WITHOUT LIMITATION, THOSE RELATED TO WORKING ON OR NEAR EXPOSED OR ENERGIZED ELECTRICAL LINES AND EQUIPMENT.

## 3. EXCAVATION PERMIT

THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S TECHNICAL DIVISION (543-5654) LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. PLEASE REFER TO OUR REQUEST NUMBER AT THAT TIME.

## 4. CAUTION!!! ELECTRICAL HAZARD!!!

EXISTING HECO OVERHEAD AND UNDERGROUND LINES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION UNLESS PRIOR SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH HECO. ONLY HECO PERSONNEL ARE TO HANDLE THESE ENERGIZED LINES AND ERECT TEMPORARY GUARDS TO PROTECT THESE LINES FROM DAMAGE. THE CONTRACTOR SHALL WORK CAUTIOUSLY AT ALL TIME TO AVOID ACCIDENTS AND DAMAGE TO EXISTING HECO FACILITIES, WHICH CAN RESULT IN ELECTROCUTION.

## 5. OVERHEAD LINES

STATE LAW (OSHA 1910.269 (k) (2B)) REQUIRES THAT A WORKER AND THE LONGEST OBJECT HE OR SHE MAY CONTACT CANNOT COME CLOSER THAN A MINIMUM RADIAL CLEARANCE OF 10 FEET WHEN WORKING CLOSE TO OR UNDER ANY OVERHEAD LINES RATED 50KV AND BELOW. FOR EACH ADDITIONAL 10KV ABOVE 50KV, AN ADDITIONAL 4 INCHES SHALL BE ADDED TO THE 10 FOOT CLEARANCE REQUIREMENT. THE PRECEDING INFORMATION ON LINE CLEARANCE REQUIREMENTS IS PROVIDED AS A CONVENIENCE AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE INFORMED OF AND COMPLY WITH ANY REVISIONS OR AMENDMENTS TO THE LAW.

SHOULD THE CONTRACTOR ANTICIPATE THAT HIS WORK WILL RESULT IN THE NEED TO ENCROACH WITHIN THE MINIMUM REQUIRED CLEARANCE AT ANY TIME, THE CONTRACTOR SHALL NOTIFY HECO AT LEAST FOUR (4) WEEKS PRIOR TO THE PLANNED ENCROACHMENT SO THAT, IF FEASIBLE, THE NECESSARY PROTECTIONS (E.G. RELOCATE OR DE-ENERGIZE HECO LINES) CAN BE PUT IN PLACE. HECO MAY ALSO BE ABLE TO BLANKET ITS DISTRIBUTION (12KV AND BELOW) LINES TO PROVIDE A VISUAL AID IN PREVENTING ACCIDENTAL CONTACT. HECO'S COST OF SAFEGUARDING OR IDENTIFYING ITS LINES WILL BE CHARGED TO THE CONTRACTOR.

CONTACT HECO'S CUSTOMER INSTALLATIONS DEPARTMENT AT 543-7846 FOR ASSISTANCE IN IDENTIFYING AND SAFEGUARDING OVERHEAD POWER LINES.

REFER TO SECTION X OF HECO'S ELECTRIC SERVICE INSTALLATION MANUAL FOR ADDITIONAL GUIDELINES WHEN WORKING AROUND HECO'S FACILITIES. A COPY MAY BE OBTAINED FROM HECO'S CUSTOMER INSTALLATIONS DEPARTMENT.

## 6. POLE BRACING

A MINIMUM CLEARANCE OF 10 FEET MUST BE MAINTAINED WHEN EXCAVATING AROUND UTILITY POLES AND/OR THEIR ANCHOR SYSTEM TO PREVENT WEAKENING OR POLE SUPPORT FAILURE. SHOULD WORK REQUIRE EXCAVATING WITHIN 10 FEET OF A POLE AND/OR ITS ANCHOR SYSTEM, THE CONTRACTOR SHALL PROTECT, SUPPORT, SECURE, AND TAKE ALL OTHER PRECAUTIONS TO PREVENT DAMAGE TO OR LEANING OF THESE POLES. THE CONTRACTOR IS RESPONSIBLE FOR ALL ASSOCIATED COSTS TO BRACE, REPAIR, OR STRAIGHTEN POLES. ALL MEANS OF STRUCTURAL SUPPORT FOR THE POLE PROPOSED BY THE CONTRACTOR SHALL FIRST BE REVIEWED BY HECO BEFORE IMPLEMENTATION. FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO CONSTRUCTION AND MAINTENANCE DEPT., CUSTOMER AND SYSTEM SUPERINTENDENT AT 543-4223 A MINIMUM OF TWO (2) WEEKS IN ADVANCE.

## 7. UNDERGROUND LINES

THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES. HECO'S EXISTING ELECTRICAL CABLES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION. ONLY HECO PERSONNEL ARE TO BREAK INTO EXISTING HECO FACILITIES, HANDLE THESE CABLES, AND ERECT TEMPORARY GUARDS TO PROTECT THESE CABLES FROM DAMAGE. THE COST OF HECO'S ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS UNDERGROUND LINES WILL BE CHARGED TO THE CONTRACTOR. SPECIAL PRECAUTIONS ARE REQUIRED WHEN EXCAVATING NEAR HECO'S 138KV UNDERGROUND LINES (SEE HECO INSTRUCTIONS TO CONSULTANTS/CONTRACTORS ON "EXCAVATION NEAR HECO'S UNDERGROUND 138KV LINES" FOR DETAILED REQUIREMENTS).

FOR VERIFICATION OF UNDERGROUND LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7049 A MINIMUM OF 72 HOURS IN ADVANCE.

FOR ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF THESE LINES, THE CONTRACTOR SHALL CALL HECO'S CONSTRUCTION AND MAINTENANCE DEPT., CUSTOMER AND SYSTEM SUPERINTENDENT, AT 543-4223, A MINIMUM OF TWO (2) WEEKS IN ADVANCE.

## 8. UNDERGROUND FUEL PIPELINES

THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF HECO'S UNDERGROUND FUEL OIL PIPELINES. SPECIAL PRECAUTIONS ARE REQUIRED WHEN EXCAVATING NEAR HECO'S UNDERGROUND FUEL OIL PIPELINES (SEE HECO INSTRUCTIONS TO CONSULTANTS/CONTRACTORS ON "EXCAVATION NEAR HECO'S UNDERGROUND FUEL PIPELINES" FOR DETAILED REQUIREMENTS).

## 9. EXCAVATIONS

WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:

- SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE AND TO PREVENT POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS.
- PROPERLY SUPPORTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNINGS TO FULLY PROTECT IT FROM DAMAGE.
- BACKFILLING WITH PROPER BACKFILL MATERIAL INCLUDING SPECIAL THERMAL BACKFILL WHERE EXISTING (REFER TO ENGINEERING DEPARTMENT FOR THERMAL BACKFILL SPECIFICATIONS).

## 10. RELOCATION OF HECO FACILITIES

ANY WORK REQUIRED TO RELOCATE OR MODIFY HECO FACILITIES SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND SHALL PROVIDE NECESSARY SUPPORT FOR HECO'S WORK, WHICH MAY INCLUDE, BUT NOT BE LIMITED TO, EXCAVATION AND BACKFILL, PERMITS AND TRAFFIC CONTROL, BARRICADING, AND RESTORATION OF PAVEMENT, SIDEWALKS, AND OTHER FACILITIES.

ALL COSTS ASSOCIATED WITH ANY RELOCATION OR MODIFICATION (EITHER TEMPORARY OR PERMANENT) FOR THE CONVENIENCE OF THE CONTRACTOR, OR TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS SHALL BE BORNE BY THE CONTRACTOR.

## 11. CONFLICTS

ANY REDESIGN OR RELOCATION OF HECO'S FACILITIES NOT SHOWN ON THE PLANS MAY BE CAUSE FOR LENGTHY DELAYS. THE CONTRACTOR ACKNOWLEDGES THAT HECO IS NOT RESPONSIBLE FOR ANY DELAY OR DAMAGE THAT MAY ARISE AS A RESULT OF ANY CONFLICTS DISCOVERED OR IDENTIFIED WITH RESPECT TO THE LOCATION OR CONSTRUCTION OF HECO'S ELECTRICAL FACILITIES IN THE FIELD, REGARDLESS OF WHETHER THE CONTRACTOR HAS MET THE REQUESTED MINIMUM ADVANCE NOTICES. IN ORDER TO MINIMIZE ANY DELAY OR IMPACT ARISING FROM SUCH CONFLICTS, HECO SHOULD BE NOTIFIED IMMEDIATELY UPON DISCOVERY OR IDENTIFICATION OF SUCH CONFLICT.

## 12. DAMAGE TO HECO FACILITIES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HECO SURFACE AND SUBSURFACE UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO HECO'S FACILITIES AS A RESULT OF HIS OPERATIONS. THE CONTRACTOR SHALL IMMEDIATELY REPORT SUCH DAMAGES TO HECO'S TROUBLE DISPATCHER AT 548-7961. REPAIR WORK SHALL BE DONE BY HECO OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION. COSTS FOR DAMAGES TO HECO'S FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

IN CASE OF DAMAGE OR SUSPECTED DAMAGE TO HECO'S FUEL PIPELINE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY HECO'S HONOLULU POWER PLANT SHIFT SUPERVISOR AT 533-2102 (A 24-HOUR NUMBER) SO HECO PERSONNEL CAN SECURE THE DAMAGED SECTION AND REPORT ANY OIL SPILLS TO THE PROPER AUTHORITIES. ALL COSTS ASSOCIATED WITH THE DAMAGE, REPAIR, AND OIL SPILL CLEANUP SHALL BE BORNE BY THE CONTRACTOR.

## 13. HECO STAND-BY PERSONNEL

THE CONTRACTOR MAY REQUEST HECO TO PROVIDE AN INSPECTOR TO STAND-BY DURING CONSTRUCTION NEAR HECO'S FACILITIES. THE COST OF SUCH INSPECTION WILL BE CHARGED TO THE CONTRACTOR.

THE CONTRACTOR SHALL CALL THE HECO CONSTRUCTION AND MAINTENANCE DEPT., CUSTOMER AND SYSTEM SUPERINTENDENT AT 543-4223 A MINIMUM OF 5 WORKING DAYS IN ADVANCE TO ARRANGE FOR HECO STAND-BY PERSONNEL.

## 14. CLEARANCES

THE FOLLOWING CLEARANCES SHALL BE MAINTAINED BETWEEN HECO'S DUCTLINE AND ALL ADJACENT STRUCTURES (CHARTED AND UNCHARTED) IN THE TRENCH:

STRUCTURE TYPE	MINIMUM CLEARANCE (INCHES)
WATER LINES, PARALLEL	36 (A)
WATER LINES, CROSSING	12 (B)
SEWER LINES, PARALLEL	36 (C)
SEWER LINES, CROSSING	24 (D)
DRAIN LINES, PARALLEL	12
DRAIN LINES, CROSSING	6 (E)
ELECTRICAL AND GAS LINES, PARALLEL	12
ELECTRICAL AND GAS LINES, CROSSING	12
TELEPHONE LINES, PARALLEL	6 (E)
TELEPHONE LINES, CROSSING	6 (E)
CHEVRON OIL LINES, PARALLEL	36
CHEVRON OIL LINES, CROSSING	48 BELOW OIL LINE (F)

- THE MINIMUM HORIZONTAL CLEARANCES TO WATER LINES PARALLEL TO ELECTRICAL DUCTLINES SHOULD BE INCREASED TO 60 INCHES IF THE WATER LINES IS GREATER THAN OR EQUAL TO 16 INCHES IN DIAMETER.
- THE MINIMUM VERTICAL CLEARANCES TO WATER LINES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 6 INCHES IF THE ELECTRICAL DUCTLINE STRUCTURE IS CONCRETE ENCASED AND IS BELOW THE WATER LINE AND THE WATER LINE IS LESS THAN 16 INCHES IN DIAMETER.
- A MINIMUM HORIZONTAL CLEARANCE OF 36 INCHES IS REQUIRED BETWEEN NEW HANDHOLES AND EXISTING SEWER LATERALS.
- THE MINIMUM VERTICAL CLEARANCES TO SEWER PIPES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 12 INCHES IF THE SEWER PIPE IS JACKETED IN CONCRETE.
- THE MINIMUM CLEARANCES SHALL BE INCREASED TO 12 INCHES IF THE ELECTRICAL DUCTLINE IS DIRECT BURIED.
- THE MINIMUM VERTICAL CLEARANCES TO OIL LINES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 24 INCHES BELOW OIL LINES IF THE CROSSINGS ARE ENCASED IN 6 INCHES OF CONCRETE.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER AND HECO OF ANY HEAT SOURCES (POWER CABLE DUCT BANK, STEAMLINE, ETC.) ENCOUNTERED THAT ARE NOT PROPERLY IDENTIFIED ON THE DRAWING.

THE FOLLOWING CLEARANCE SHALL BE MAINTAINED BETWEEN HECO'S FUEL OIL PIPELINES AND ALL ADJACENT STRUCTURES: 24-INCHES, PARALLEL OR CROSSING. THE MINIMUM CLEARANCE CAN BE REDUCED TO 12 INCHES (PARALLEL AND BELOW ONLY) IF THE STRUCTURE IS JACKETED IN CONCRETE.

## 15. INDEMNITY

THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS, AND ACTIONS, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES AND COSTS BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS 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 BASED UPON THE SOLE NEGLIGENCE OF HECO.

## 16. SCHEDULE

CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE 60 WORKING DAYS PRIOR TO STARTING WORK ON HECO FACILITIES. CONTRACTOR SHALL GIVE HECO, IN WRITING, 30 WORKING DAYS NOTICE TO PROCEED WITH HECO'S PORTION OF WORK.

## 17. AUTHORITY

ALL CONSTRUCTION, RESTORATION WORK, AND INSPECTION SHALL BE SUBJECT TO WHICHEVER GOVERNMENTAL AGENCY HAS AUTHORITY OVER THE WORK.

## 18. SPECIFICATIONS

CONSTRUCTION OF HECO'S UNDERGROUND FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISIONS OF HECO SPECIFICATIONS CS7001, CS7003, CS7202, CS9301, AND CS9401 AND APPLICABLE HECO STANDARDS.

## 19. CONSTRUCTION

CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO PROPERLY PERFORM AND FULLY COMPLETE ALL WORK SHOWN ON THE CONTRACT, DRAWINGS, AND SPECIFICATIONS. ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA. ALL MANHOLE, HANDHOLE, AND DUCTLINE INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY HECO PRIOR TO EXCAVATION AND PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL NOTIFY HECO'S INSPECTION DIVISION AT 543-4356 AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE.

CONTRACTOR TO COORDINATE WORK TO BREAK INTO HECO'S EXISTING ELECTRICAL FACILITIES WITH HECO'S UNDERGROUND DIVISION AT 543-7871 AT LEAST 10 WORKING DAYS IN ADVANCE.

## 20. STAKEOUT

THE CONTRACTOR SHALL ARRANGE FOR TONEOUTS OF ALL UNDERGROUND FACILITIES AND SHALL STAKEOUT ALL PROPOSED HECO FACILITIES WITHIN THE PROJECT AREA SO AS TO NOT CONFLICT WITH ANY UTILITY (EXISTING OR PROPOSED) AND ANY PROPOSED CONSTRUCTION OR IMPROVEMENT WORK FOR VERIFICATION BY HECO BEFORE PROCEEDING WITH HECO WORK.

## 21. DUCTLINES

ALL DUCTLINE INSTALLATIONS SHALL BE PVC SCHEDULE 40 ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED. ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR IN THE PRESENCE OF HECO'S INSPECTOR SUING HECO'S STANDARD PRACTICE. THE CONTRACTOR SHALL INSTALL A 1/8" POLYOLEFIN PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.

## 22. JOINT POLE REMOVAL

THE LAST JOINT POLE OCCUPANT OFF THE POLES SHALL REMOVE THE POLES.

## 23. AS-BUILT PLANS

THE CONTRACTOR SHALL PROVIDE HECO WITH TWO SETS OF AS-BUILT REPRODUCIBLE TRACINGS SHOWING THE OFFSETS, STATIONING, AND VERTICAL ELEVATION OF THE DUCT LINE(S) CONSTRUCTED.

### DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 11/28/13 By *[Signature]*

Customer Installation Department  
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVAL:

HAWAIIAN ELECTRIC COMPANY

DATE

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
 CIVIL ENGINEERS  
 1983 S. BERETANIA ST., SUITE PH-A  
 HONOLULU, HI 96826  
 Telephone (808) 941-8833  
 Telecopier (808) 945-9299  
 Email: [bow@bowengineering.com](mailto:bow@bowengineering.com)

510 KULIQUO ROAD  
 DEVELOPMENT  
 T.M.K. 3-3-8-010-004

**HECO UTILITY NOTES**

Designed by:	RDM
Checked by:	RCK
Drawn by:	MKE
Approved by:	RCK
Date:	AUG 15, 2011
Scale:	AS NOTED
T.M.K.:	3-3-010/004

WE ENGINEERS, LTD. (05/01/01)  
 This work was prepared by me or under my supervision and confirmation of the project construction is defined in Section 15-115-2 of the Hawaii State Engineering Act. I am a duly Licensed Professional Engineer in the State of Hawaii. My License No. is 318-LE. I am a member of the Hawaii State Board of Professional Engineers and Architects at the time of this project. (Date: 9/15/01 - effective 10/26/01)



**E0.02**

SHT. - OF - SHTS.





**SITE ELECTRICAL DEMOLITION PLAN "A"**

SCALE: 1" = 10'-0"

**NOTES:**

- 1. ——— LIGHT LINES DENOTE EXISTING CONDITION
- \*—\*— "X" DENOTES REMOVAL WORK

**DRAWING REVIEW**

Reviewed for HECO's Facilities Only

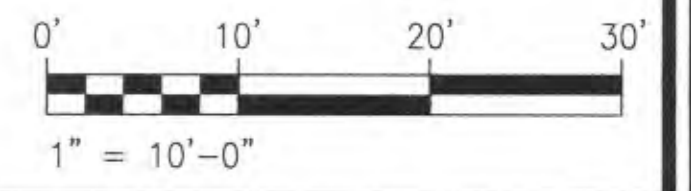
Date 11/28/13 By [Signature]

Customer Installation Department  
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

**APPROVAL:**

<u>[Signature]</u> CHIEF, CIVIL ENGINEERING BRANCH, DPP M/C CITY AND COUNTY OF HONOLULU	<u>6/14/12</u> DATE
_____ HAWAIIAN ELECTRIC COMPANY	_____ DATE
<u>[Signature]</u> HAWAIIAN TELCOM	<u>2/14/13</u> DATE
<u>[Signature]</u> OCEANIC TIME WARNER CABLE	<u>02-15-13</u> DATE



SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
CIVIL ENGINEERS  
193 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96822  
Telephone (808) 941-5833  
Telecopier (808) 945-5299  
Email: bow@bowengineering.com

510 KULIYOUU ROAD  
DEVELOPMENT  
TMK: 3-8-010-004  
**SITE ELECTRICAL  
DEMOLITION PLAN "A"**

Designed by:	RDM
Checked by:	RCK
Drawn by:	MKE
Approved by:	RCK
Date:	AUG. 15, 2011
Scale:	AS NOTED
T.M.K.:	3-8-010-004

THE ENGINEER, LTD.  
LICENSE EXPIRES DATE: 4/30/14  
This work was prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Hawaii. My license number is 3181-E.  
Board of Professional Engineers, Architects, and Land Surveyors  
State of Hawaii (Created 9/13/01; effective 10/24/01)



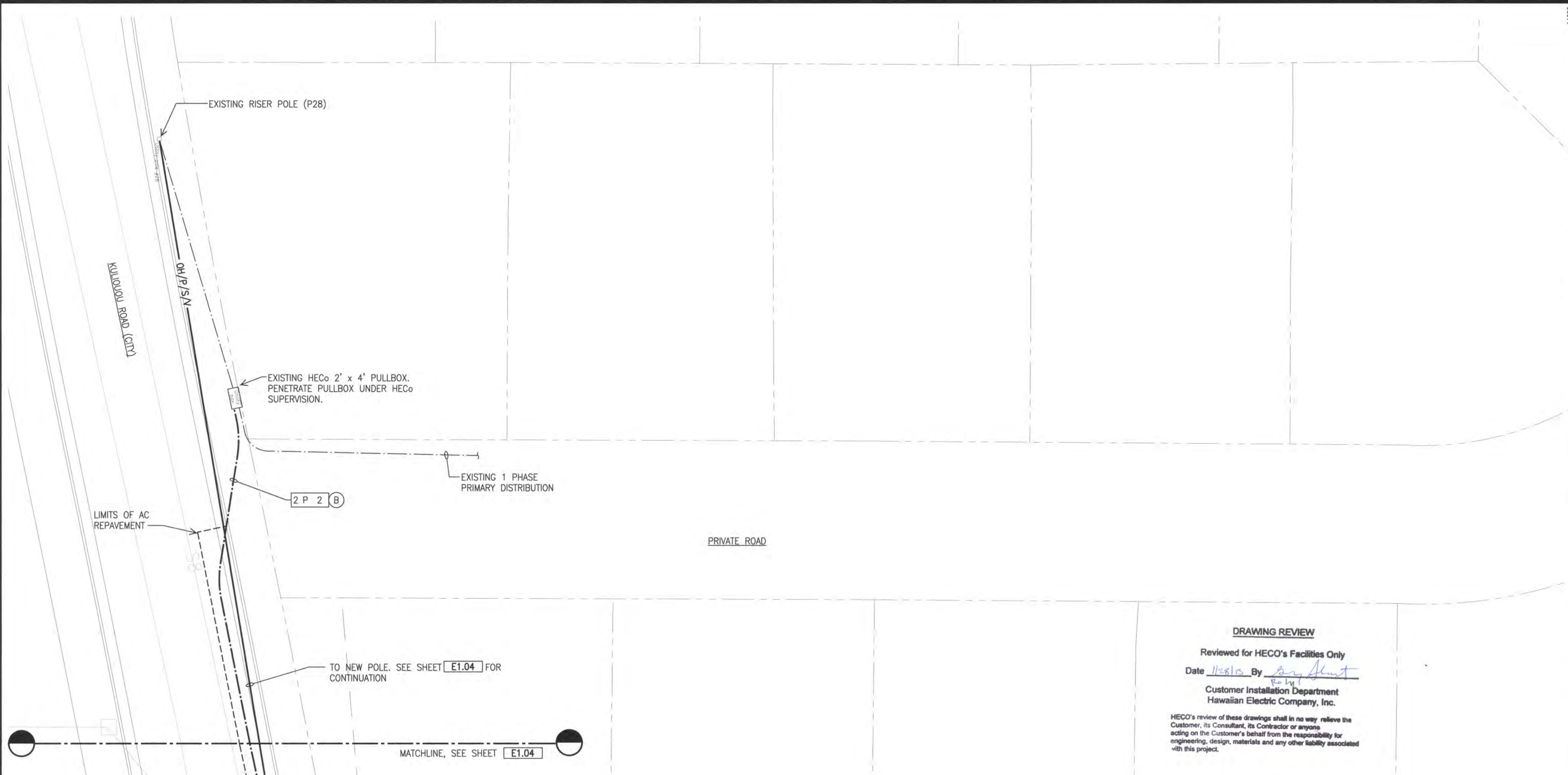
**E1.01**  
SHT. - OF - SHTS.







11080



**DRAWING REVIEW**  
 Reviewed for HECO's Facilities Only  
 Date 11/28/13 By [Signature]  
 Customer Installation Department  
 Hawaiian Electric Company, Inc.  
 HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

**APPROVAL:**

[Signature] 6/14/12  
 CHIEF, CIVIL ENGINEERING BRANCH, DPP MP  
 CITY AND COUNTY OF HONOLULU

HAWAIIAN ELECTRIC COMPANY \_\_\_\_\_ DATE \_\_\_\_\_

[Signature] 2/1/13  
 HAWAIIAN TELCOM \_\_\_\_\_ DATE \_\_\_\_\_

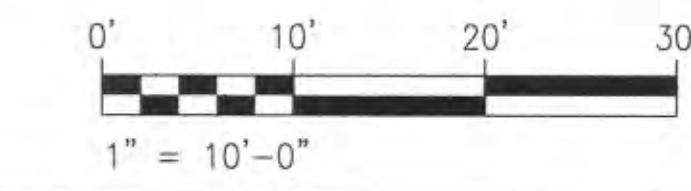
[Signature] 02-15-13  
 OCEANIC TIME WARNER CABLE \_\_\_\_\_ DATE \_\_\_\_\_



**SITE ELECTRICAL PLAN "A"**

SCALE: 1" = 10'-0"

- NOTES:**
1. LIGHT LINES DENOTE EXISTING CONDITION  
 BOLD LINES DENOTE NEW WORK



SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
 CIVIL ENGINEERS  
 PLANNERS  
 195 S. BERETANIA ST., SUITE PH-A  
 HONOLULU, HI 96826  
 Telephone (808) 941-8833  
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 Email: hbow@bvwengineering.com

510 KULILOUO ROAD  
 DEVELOPMENT  
 TMK: 3-8-010-004  
**SITE ELECTRICAL PLAN "A"**

Designed by: RDM  
 Checked by: RCK  
 Drawn by: MCE  
 Approved by: RCK  
 Date: AUG. 15, 2011  
 Scale: AS NOTED  
 T.M.K. 3-8-010-004

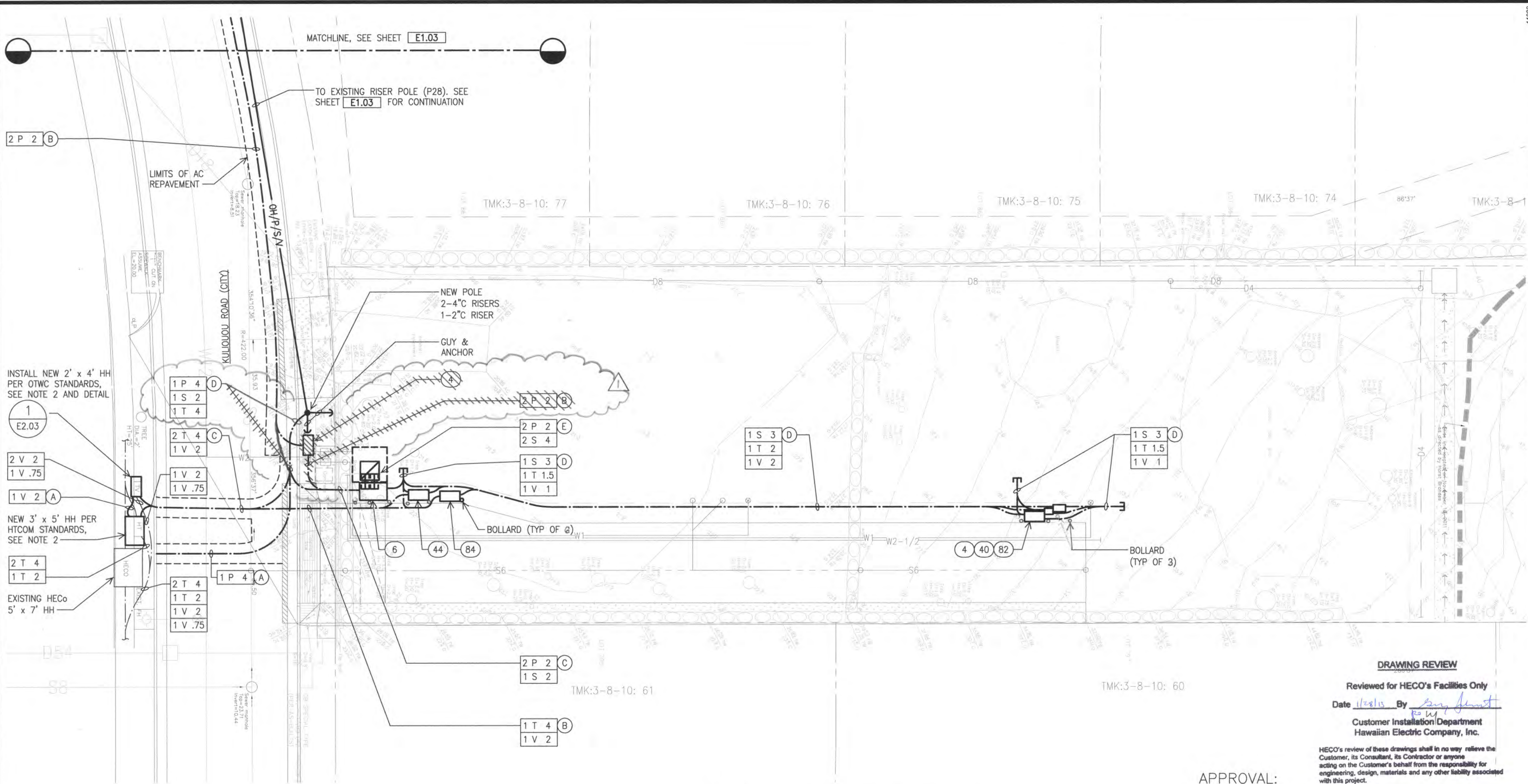
THE ENGINEER, LTD.  
 LICENSE EXPIRES DATE: 6/30/14  
 This drawing is the property of the engineer and shall not be reproduced, copied, or used in any way without the written consent of the engineer. The engineer's liability is limited to the scope of the contract and shall not extend to any other project or to any other party. The engineer's liability shall not be limited by the amount of any bond or insurance. The engineer's liability shall not be limited by the amount of any bond or insurance. The engineer's liability shall not be limited by the amount of any bond or insurance.



**E1.03**  
 SHT. - OF - SHTS.

P:\071\_PROJECTS\2011\1080\_Kulouou\_Road\_Development\Site\_Electrical\03\_E1\_03.dwg, Date: 11/28/13 2:28:28 PM, Drawn: 11





INSTALL NEW 2' x 4' HH PER OTWC STANDARDS, SEE NOTE 2 AND DETAIL

NEW 3' x 5' HH PER HTCOM STANDARDS, SEE NOTE 2

EXISTING HECO 5' x 7' HH

MATCHLINE, SEE SHEET E1.03

TO EXISTING RISER POLE (P28). SEE SHEET E1.03 FOR CONTINUATION



### SITE ELECTRICAL PLAN "B"

SCALE: 1" = 10'-0"

- NOTES:**
1. LIGHT LINES DENOTE EXISTING CONDITION  
BOLD LINES DENOTE NEW WORK
  2. PROVIDE PROPER SUBGRADE COMPACTION PER NOTES ON SHEET E2.01. COORDINATE ALL WORK WITH CIVIL ENGINEERING BRANCH INSPECTORS.

#### DRAWING REVIEW

Reviewed for HECO's Facilities Only  
 Date 1/28/13 By [Signature]  
 Approved by [Signature]  
 Customer Installation Department  
 Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

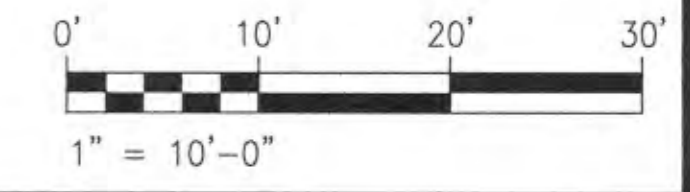
#### APPROVAL:

[Signature] 6/14/12  
 CHIEF, CIVIL ENGINEERING BRANCH, DPP  
 CITY AND COUNTY OF HONOLULU

HAWAIIAN ELECTRIC COMPANY

[Signature] 2/6/13  
 HAWAIIAN TELCOM

[Signature] 02-15-13  
 OCEANIC TIME WARNER CABLE



SYMBOL	DESCRIPTION	DATE
△	REMOVE 2' x 4' HH	1/15/13

**Bow Engineering & Development, Inc.**  
 CIVIL ENGINEERS  
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 Email: bow@bowengineering.com

510 KULILOUO ROAD DEVELOPMENT  
 TMK:3-8-010-004  
**SITE ELECTRICAL PLAN "B"**

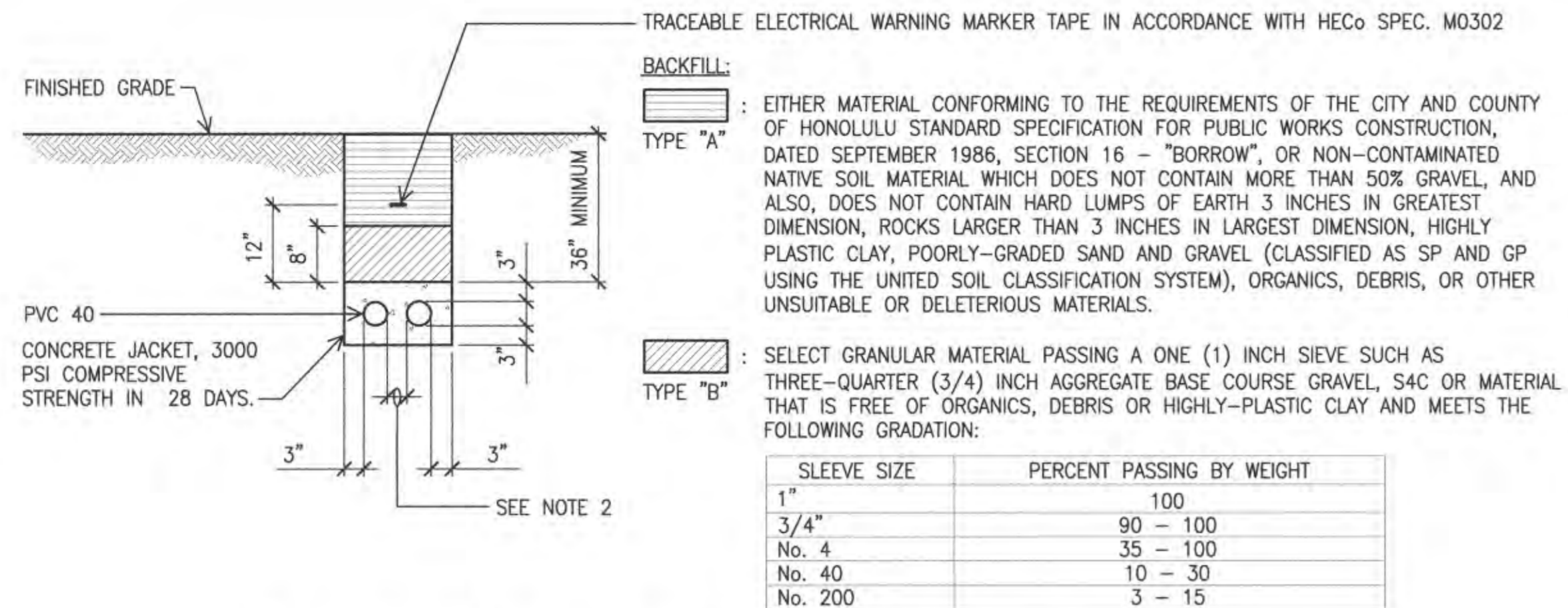
Designed by:	RDM
Checked by:	RCK
Drawn by:	MKE
Approved by:	RCK
Date:	AUG 15, 2011
Scale:	AS NOTED
T.M.K.:	3-8-010-004

AK ENGINEERS, LTD.  
 LICENSE EXPIRES DATE: 6/30/14  
 This drawing was prepared by the undersigned and is the property of the undersigned. It is to be used only for the project and site identified on this drawing. It is not to be used for any other project or site without the written consent of the undersigned. The undersigned is not responsible for any errors or omissions in this drawing. The undersigned is not responsible for any changes or modifications to this drawing. The undersigned is not responsible for any damage or injury resulting from the use of this drawing. The undersigned is not responsible for any liability associated with this project.



**E1.04**  
 SHT. - OF - SHTS.

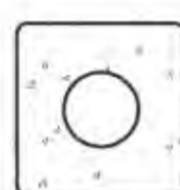




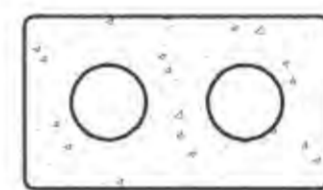
SLEEVE SIZE	PERCENT PASSING BY WEIGHT
1"	100
3/4"	90 - 100
No. 4	35 - 100
No. 40	10 - 30
No. 200	3 - 15

**1** TYPICAL DUCT SECTION (CONCRETE ENCASED)  
E2.01 NOT TO SCALE

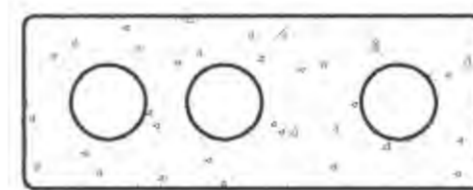
- NOTES:**
- ELECTRICAL AND TELEPHONE DUCTS SIMILAR.
  - PROVIDE 2" SEPARATION BETWEEN DUCTS OF SAME SYSTEM AND 3" BETWEEN DUCTS OF DIFFERENT SYSTEMS.
  - WHERE TRENCH ENCOUNTERS EXISTING CONCRETE OR ASPHALT CONCRETE, SURFACE SHALL BE SAWCUT, BACKFILL, COMPACT AND PATCH SURFACE TO MATCH ADJACENT AREA. SEE RESTORATION DETAILS ON CIVIL DRAWING [C3.00].
  - SEE DUCT SECTION DETAILS FOR CONDUIT ARRANGEMENT.



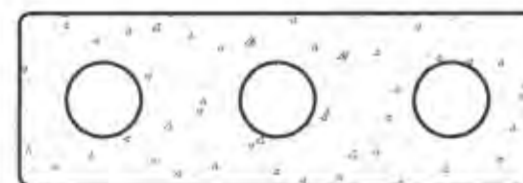
DUCT SECTION (A)



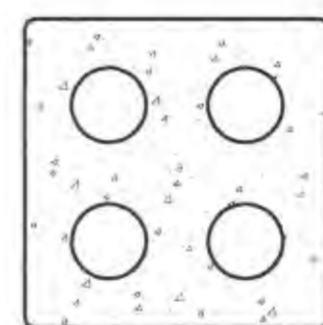
DUCT SECTION (B)



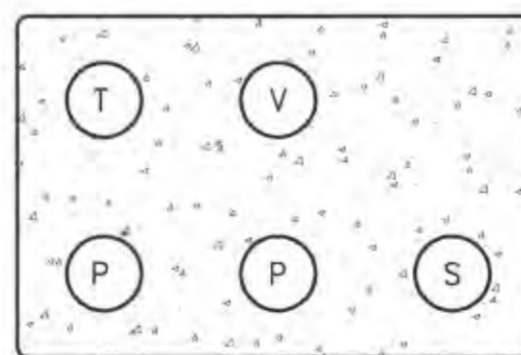
DUCT SECTION (C)



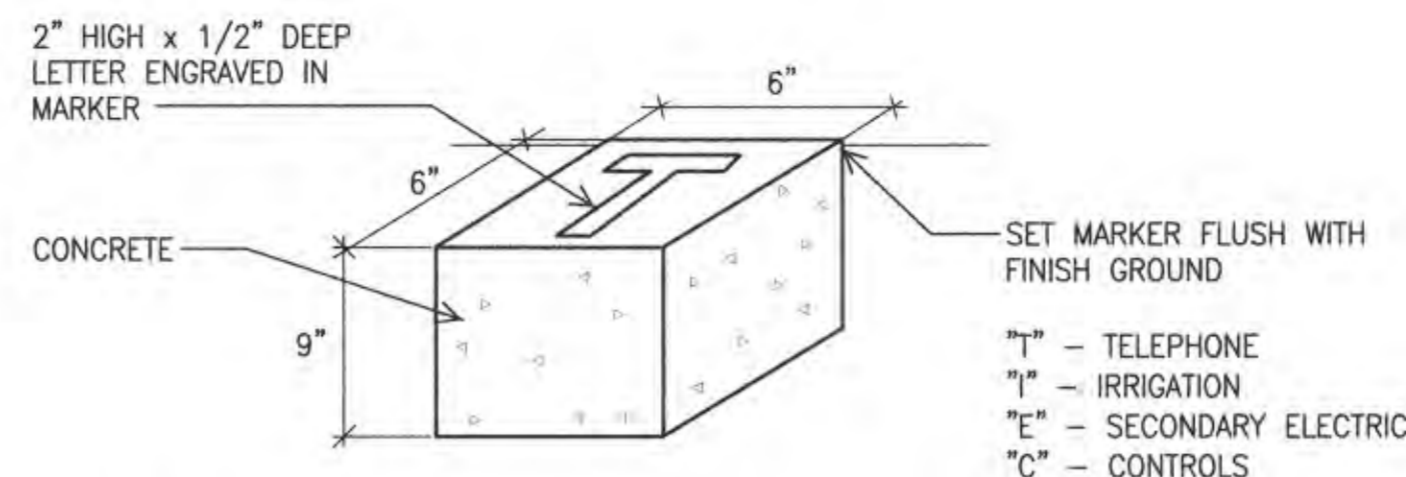
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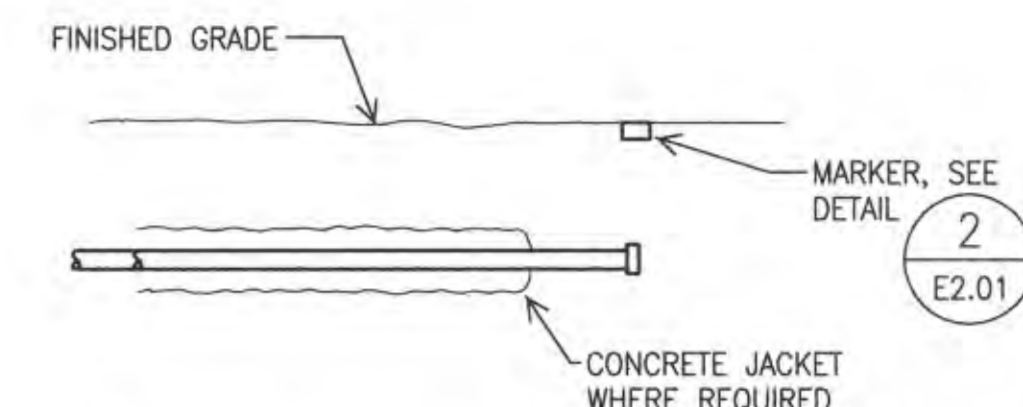
DUCT SECTION (E)



DUCT SECTION (F)



**2** CONCRETE MARKER DETAIL  
E2.01 NOT TO SCALE



**3** CONDUIT STUB OUT DETAIL  
E2.01 NOT TO SCALE

**GENERAL NOTES:**

**COMPACTION:**

USE HAND-OPERATED, PLATE-TYPE, VIBRATORY, OR OTHER SUITABLE HAND TAMPERS IN AREAS NOT ACCESSIBLE TO LARGER ROLLERS OR COMPACTORS. AVOID DAMAGING CONDUITS AND PROTECTIVE CONDUIT COATINGS. COMPACT MATERIAL IN ACCORDANCE WITH THE FOLLOWING. IF NECESSARY, ALTER, CHANGE, OR MODIFY SELECTED EQUIPMENT OR COMPACTION METHODS TO MEET SPECIFIED COMPACTION REQUIREMENTS.

- COMPACTION OF CONDUIT AND INITIAL BACKFILL: COMPACT EACH LIFT TO A DENSE CONSISTENCY AS EVIDENCED BY LITTLE TO NO SETTLEMENT OF THE GRAVEL UNDER REPEATED PASSES WITH THE COMPACTION EQUIPMENT BUT NOT LESS THAN A MINIMUM OF FIVE PASSES OF A HAND OPERATED TYPE VIBRATORY COMPACTOR WITH THE VIBRATOR TURNED ON.
- COMPACTION OF FINAL BACKFILL: MOISTURE CONDITION THE FINAL BACKFILL TO BETWEEN OPTIMUM AND 3 PERCENT WET OF THE OPTIMUM CONTENT AND COMPACT TO AT LEAST 90 PERCENT ASTM D 1557 MAXIMUM DRY UNIT WEIGHT. UNDER AREAS TO BE SEEDED OR SODDED, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL TO 85 PERCENT OF ASTM D 1557 MAXIMUM DRY UNIT WEIGHT. FOR CONDUITS UNDER STRUCTURES AND PAVEMENTS, THE TOP 24 INCHES OF BACKFILL BELOW THE FINISH SUBGRADE LEVEL SHALL CONSIST OF CONTROLLED BACKFILL PLACED IN NOT MORE THAN 8 INCH THICK LOOSE HORIZONTAL LIFTS, MOISTURE CONDITIONED TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT, AND COMPACTED TO AT LEAST 95 PERCENT OF ASTM D 1557 MAXIMUM DRY UNIT WEIGHT.

**DRAWING REVIEW**

Reviewed for HECO's Facilities Only  
Date 12/8/13 By [Signature]  
Customer Installation Department  
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

**APPROVAL:**

[Signature]  
CHIEF, CIVIL ENGINEERING BRANCH, DPP M7  
CITY AND COUNTY OF HONOLULU

6/14/12  
DATE

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
CIVIL ENGINEERS  
1953 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone (808) 941-8833  
Telecopier (808) 945-9259  
Email: bbow@bowengineering.com

510 KULIYOUU ROAD  
DEVELOPMENT  
T.M.K.: 3 - 8 - 010 - 004  
**ELECTRICAL DETAILS**

Designed by:	RDM
Checked by:	RCK
Drawn by:	MKE
Approved by:	RCK
Date:	AUG. 15, 2011
Scale:	AS NOTED
T.M.K.:	3-8-010-004

HECO'S REVIEW OF THESE DRAWINGS SHALL IN NO WAY RELIEVE THE CUSTOMER, ITS CONSULTANT, ITS CONTRACTOR OR ANYONE ACTING ON THE CUSTOMER'S BEHALF FROM THE RESPONSIBILITY FOR ENGINEERING, DESIGN, MATERIALS AND ANY OTHER LIABILITY ASSOCIATED WITH THIS PROJECT.

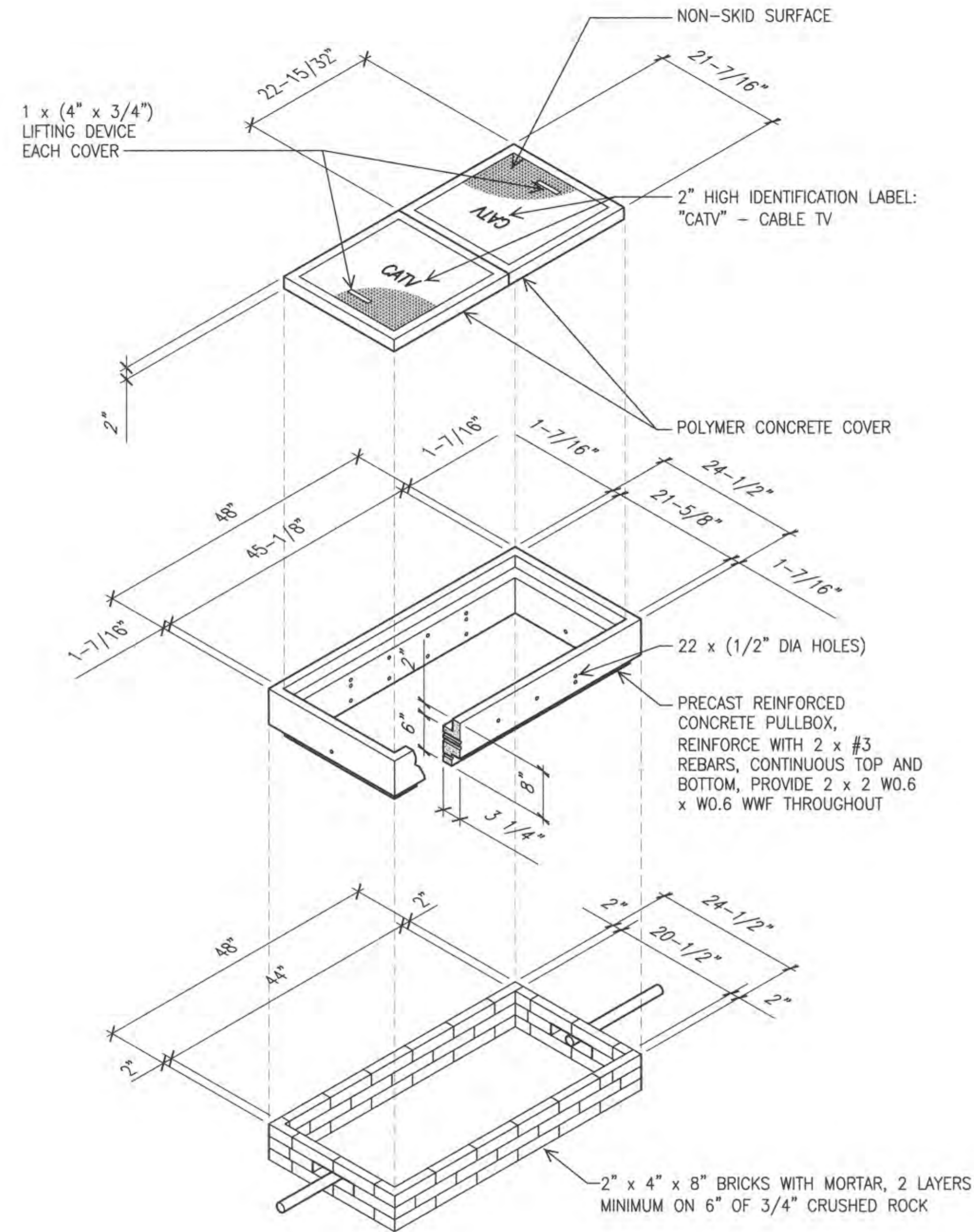


**E2.01**  
SHT. - OF - SHTS.







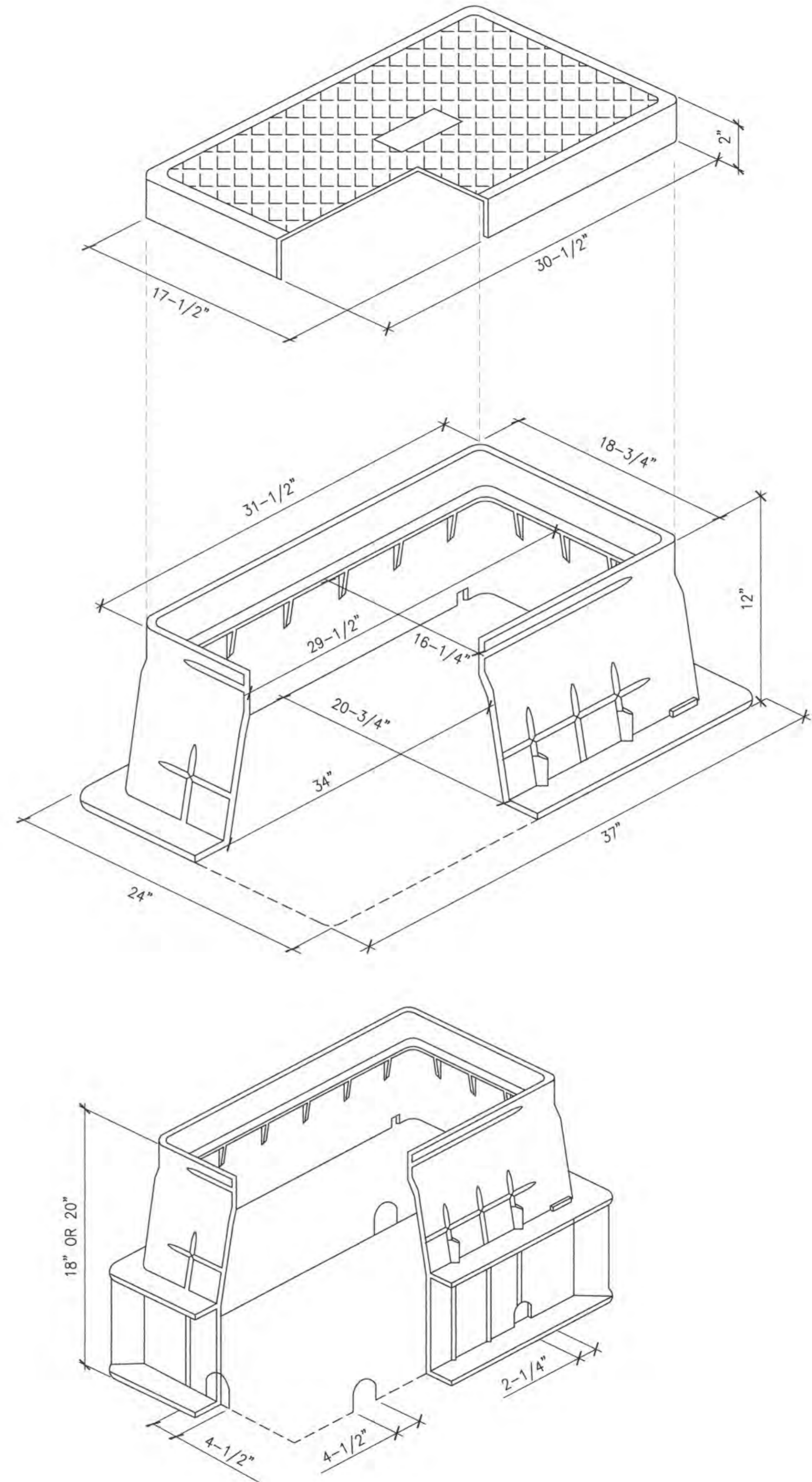


**1** 2' x 4' PRECAST CONCRETE TYPE **84** DETAIL

E2.03 NOT TO SCALE HH\_PB-007

**NOTES:**

1. CLEAR INSIDE DIMENSIONS: 20-1/2" x 44"
2. PROVIDE PROPER SUBGRADE COMPACTION PER CITY & COUNTY OF HONOLULU STANDARDS. COORDINATE ALL WORK WITH CIVIL ENGINEERING BRANCH INSPECTORS.



**2** 17" x 30" CATV METERBOX TYPE **82** DETAIL

E2.03 NOT TO SCALE

APPROVAL:

*Handwritten Signature*  
OCEANIC TIME WARNER CABLE

02-15-13  
DATE

SYMBOL	DESCRIPTION	DATE

**Bow Engineering & Development, Inc.**  
CIVIL ENGINEERS  
193 S. BERETANIA ST., SUITE PH-A  
HONOLULU, HI 96826  
Telephone (808) 941-8833  
Teletype (808) 945-9259  
Email: bow@bowengineering.com

510 KULIQUOU ROAD  
DEVELOPMENT  
TMK: 3-8-010-004  
**CATV PRECAST  
CONCRETE DETAIL**

Designed by: RDM  
Checked by: RCK  
Drawn by: MKE  
Approved by: RCK  
Date: AUG. 15, 2011  
Scale: AS NOTED  
T.M.K. 3-8-010-004

THE ENGINEERS, LTD.  
LICENSED PROFESSIONAL ENGINEERS  
This work was prepared by me or under my direct supervision and I am a duly licensed Professional Engineer in the State of Hawaii. My license number is 15152-2. I am not providing any professional services in any other state. My office is located at 1000 Kalia Road, Suite 1000, Honolulu, Hawaii 96813. My telephone number is (808) 941-8833. My fax number is (808) 941-8834. My email address is bow@bowengineering.com. (Cert. 11/19/11, expires 10/28/17)



**E2.03**