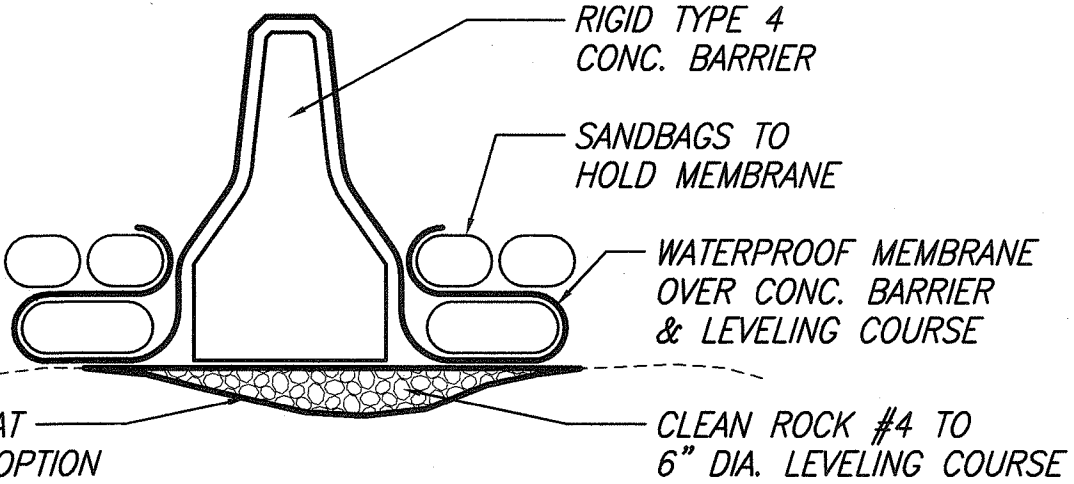


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-12(1)R	2001	76	77

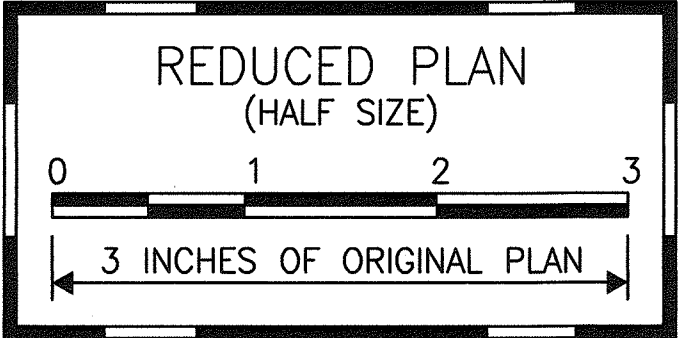
GENERAL NOTES:

- EXCAVATED MATERIAL SHALL BE HAULED OFF SITE FOR DISPOSAL. ROCK CRUSHING IS NOT ALLOWED ONSITE.
- SANDBAGS SHALL BE INSTALLED TO CONTAIN THE WORK AREA. SANDBAGS SHALL BE STACKED IN ALTERNATING DIRECTIONS.
- SANDBAGS W/A MIN. 3'-FT HEIGHT TO ALLOW SEDIMENTATION OF RUNOFF SHALL BE INSTALLED DOWNSLOPE OF ALL CONTAINED WORK AREA.
- ALWAYS KEEP MIN. 80 LF OF STREAM CHANNEL OPEN AND CLEAR FROM DEBRIS IN STREAM CHANNEL.
- WORK ABOVE THE ORDINARY HIGHWATER MARK SHALL RESUME WHEN STREAM FLOWS SUBSIDE TO LEVELS THAT CAN BE DIVERTED BY SANDBAGS AND DO NOT SIGNIFICANTLY AFFECT WATER QUALITY AS APPROVED BY ENGINEER.
- UPSTREAM SAMPLE LOCATION SHALL BE MIN. 30 FEET FROM THE NEAREST POINT OF THE PROJECT SITE.
- IMPACT WATER SAMPLE STATION SHALL BE 3 FEET DOWNSLOPE FROM THE NEAREST POINT OF THE SILT FENCING AND SANDBAGS.
- DOWNSTEAM WATER SAMPLE STATION SHALL BE WITHIN 50 FEET OF THE SILT FENCING/SANDBAGS.
- FILL MATERIAL FOR SANDBAGS AND TEMP. CONSTRUCTION ACCESS ROADS SHALL BE CLEANED GRANULAR MATERIAL.
- RUNOFF COLLECTED WITHIN CONTAINED AREAS SHALL BE DISPOSED OUTSIDE OF STREAM CHANNEL AND ANY STATE WATERS.
- EROSION CONTROL FOR ROAD WORK AND EXPOSED EMBANKMENTS OUTSIDE OF STREAM CHANNEL SHALL CONSIST OF BERMS/SANDBAGS UPSLOPE AND SILT FENCES DOWNSLOPE.
- CLEANUP CONTAINED WORK AREA BEFORE OPENING CHANNEL.
- TREATED WOOD MATERIAL IS NOT PERMITTED FOR FORMS AND SHORING WITHIN THE STREAM CHANNEL.
- SHORING CAN REMAIN IN PLACE WITHIN THE OPEN CHANNELS AS REQUIRED BY THE ENGINEER.
- BMPs ARE REQUIRED FOR CONCRETE POUR AT FOOTINGS. CONFINED POUR AREA WITH SANDBAGS ONE LAYER HIGH.
- BMPs ARE REQUIRED FOR CONTRACTOR'S STOCKPILE AND STAGING AREAS.
- ANY DEVIATIONS FROM THESE BMPs SHALL BE AT CONTRACTOR'S COST AND NO ADDITIONAL WORKDAYS SHALL BE ADDED.



ALTERNATE TO SANDBAG WALLS

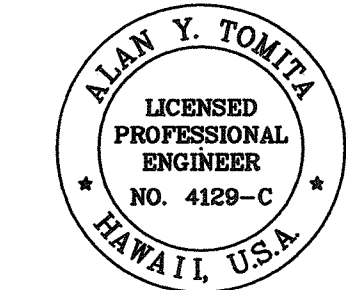
NOT TO SCALE



LEGEND:

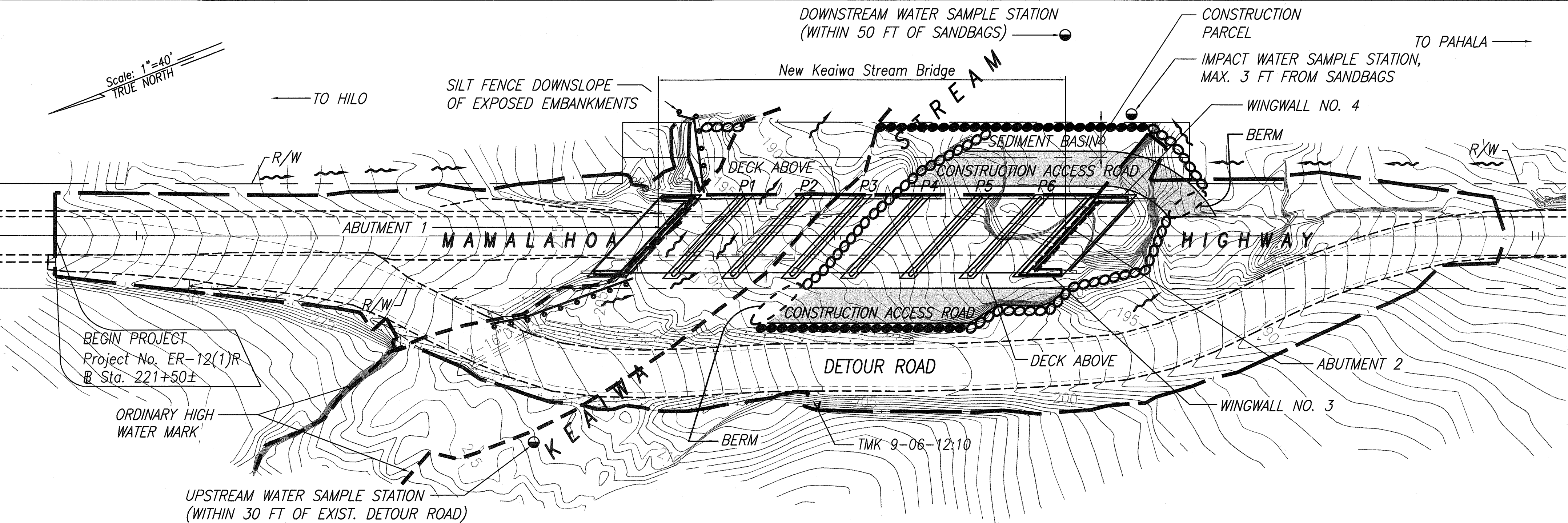
- SILT FENCE 4' HIGH W/#4 REBAR (BOND 1' MIN.) @ 18" O.C.
- SANDBAGS 1 LAYER HIGH MIN.
- SANDBAGS 3 FT MIN. HIGH/RIGID CONC. BARRIER ALT.
- GRP
- CRM
- HIGH WATER MARK (PRE FLOOD CONDITION)
- WATER SAMPLE LOCATION
- BORDER OF WORK AREA

SCALE IN FEET:



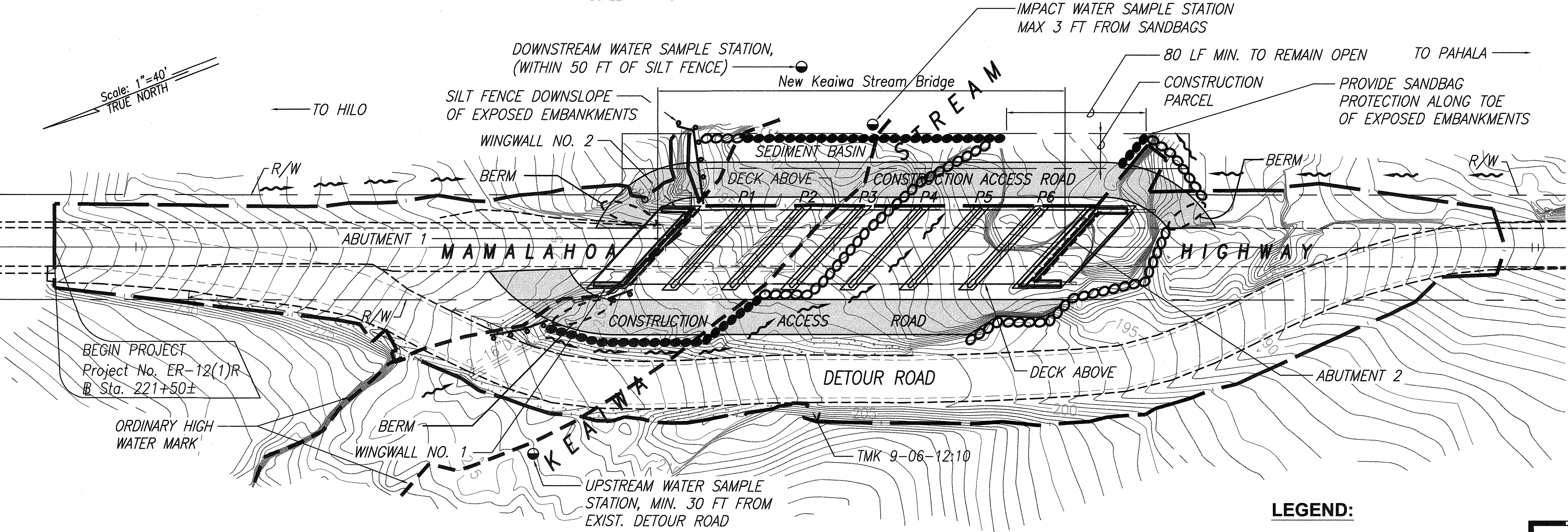
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

BY: *Alan Y. Tomita*



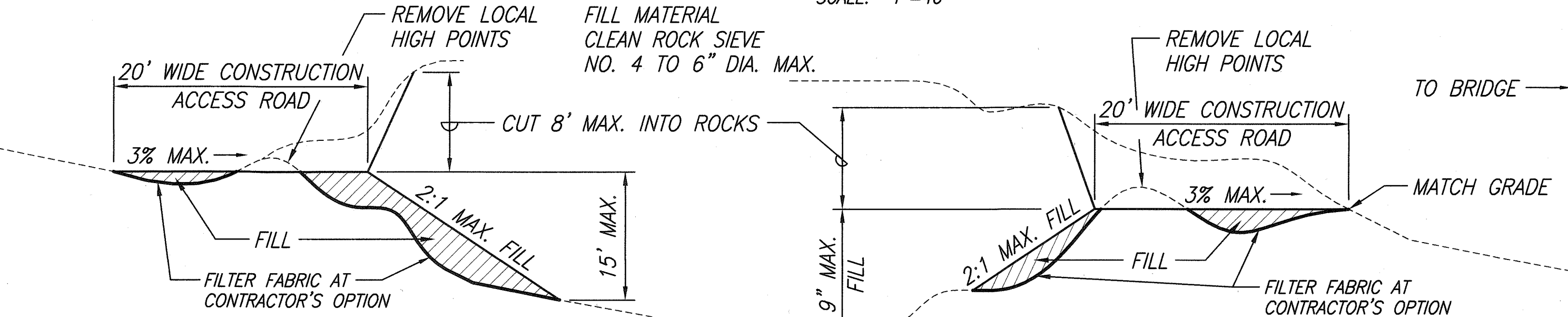
WORK OUTSIDE OF ORDINARY HIGH WATER

SCALE: 1"=40'



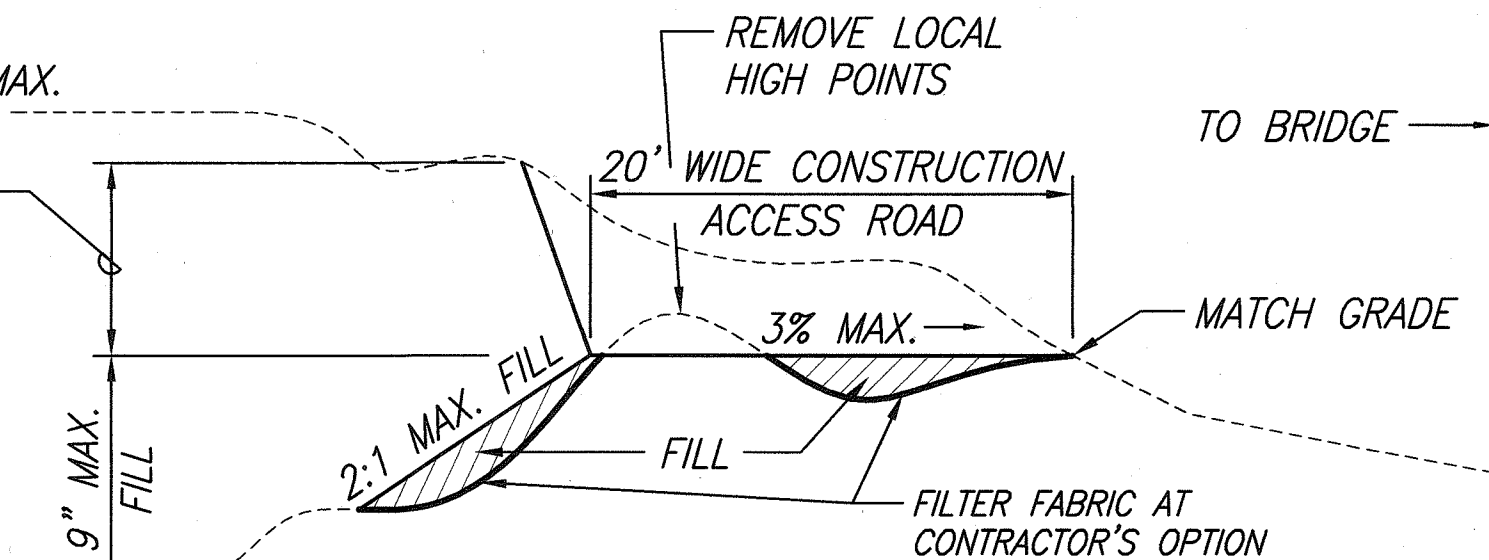
WORK INSIDE OF ORDINARY HIGH WATER

SCALE: 1"=40'



TYPICAL DOWNSTREAM SECTION

NOT TO SCALE



TYPICAL UPSTREAM SECTION

NOT TO SCALE

01-31-01 1 New Sheet

DATE DESCRIPTION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BRIDGE AND ROADWAY BMPs

MAMALAHOA HIGHWAY
EMERGENCY REPLACEMENT OF
KEAIWA STREAM BRIDGE

Federal Aid Project No. ER-12(1)R

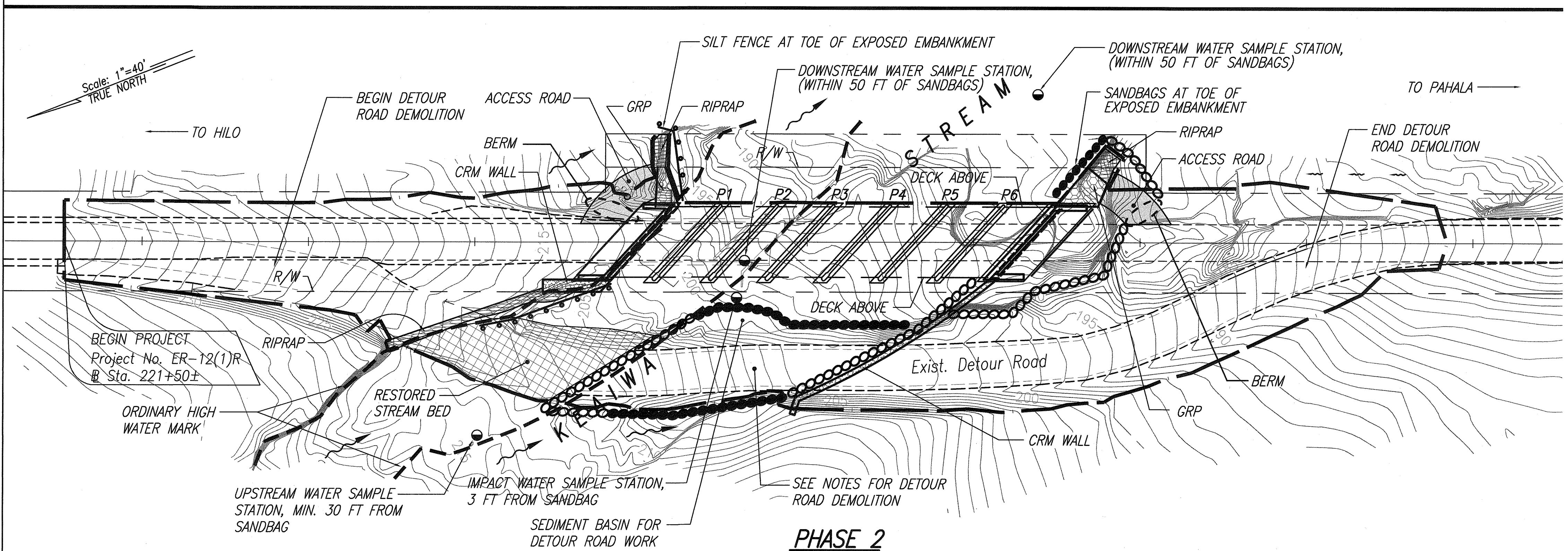
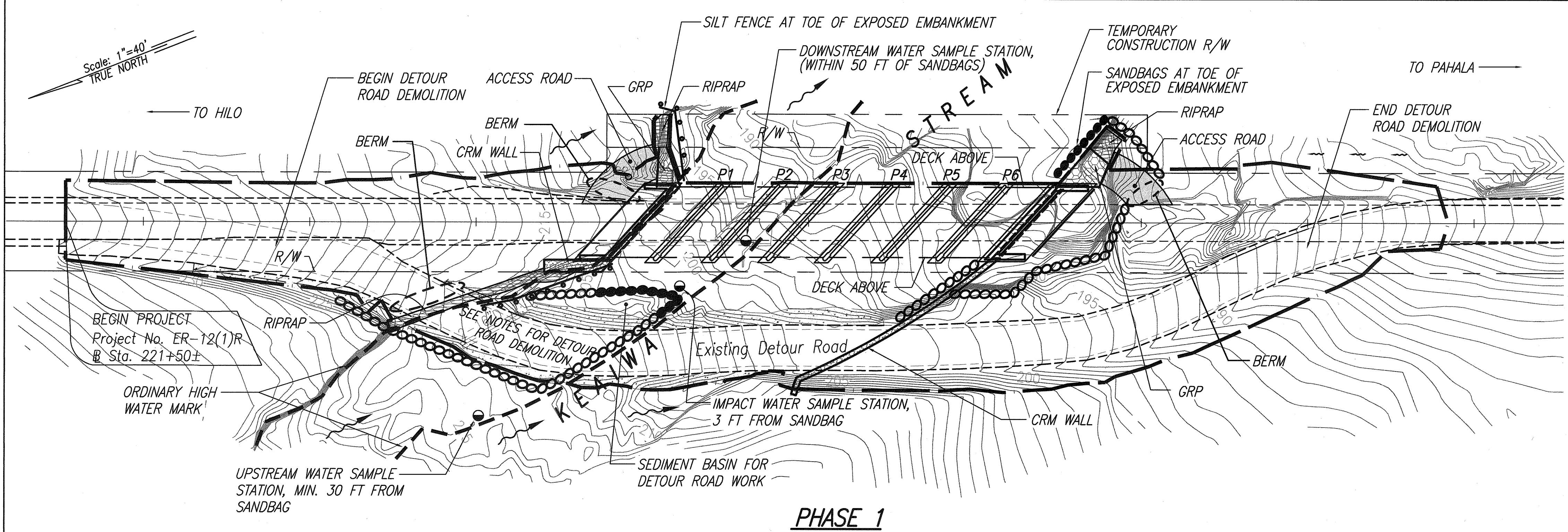
Scale: 1"=40' Date: January 2001

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-12(1)R	2001	77	77

NOTES FOR DETOUR ROAD DEMOLITION/RESTORATION:
DEMOLITION OF THE DETOUR ROAD SHALL OCCUR IN THE FOLLOWING FASHION:

1. SEE GENERAL NOTES SHT 76.
2. THE PAVEMENT SHALL BE BROKEN INTO PARTICLES AS LARGE AS PRACTICAL FOR LOADING INTO A TRUCK.
3. THE HOE RAM SHALL DEMOLISH EMBANKMENT SLOPES ARMORED WITH CLASS D CONCRETE, PARTICLES SHALL BE AS LARGE AS PRACTICAL TO AVOID CREATING EXCESS DUST.
4. A BACKHOE SHALL LOAD THE EMBANKMENT ROCK ONTO A TRUCK.
5. ROCK LODGED IN CREVICES (PROBABLY 10% - 20% OF THE EMBANKMENT MATERIAL) SHALL BE REMOVED MANUALLY.

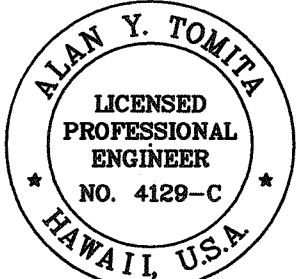
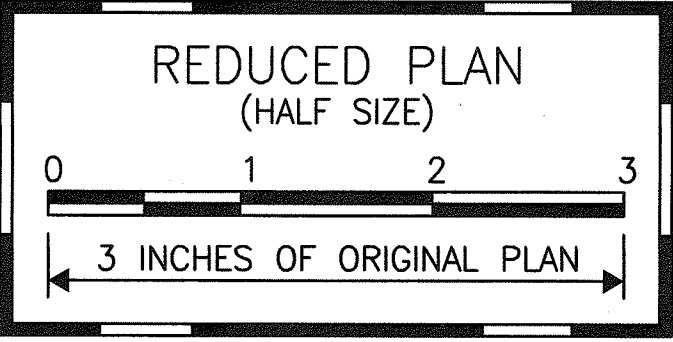
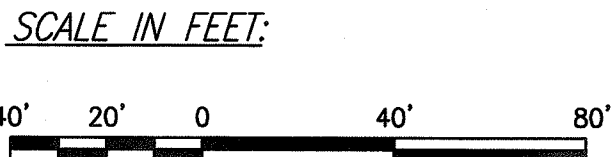


LEGEND:

- SILT FENCE 4' HIGH W/#4 REBAR (BOND 1' MIN.) @ 18" O.C.
- SANDBAGS 1 LAYER HIGH MIN.
- SANDBAGS 3 FT MIN. HIGH/RIGID CONC. BARRIER ALT.
- RIPRAP
- GRP
- CRM
- HIGH WATER MARK (PRE FLOOD CONDITION)
- WATER SAMPLE LOCATION
- BORDER OF WORK AREA

SURVEY PLOTTED BY	DATE
DRAWN BY	JAN 2001
DESIGNED BY	JAN 2001
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN	NO. BMP2/DWG
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.
BY: Alan Y. Tomita

01-31-01 1 New Sheet

DATE DESCRIPTION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**DETOUR ROAD AND
EMBANKMENTS BMPs**

MAMALAOHA HIGHWAY
EMERGENCY REPLACEMENT OF
KEAIWA STREAM BRIDGE

Federal Aid Project No. ER-12(1)R

Scale: 1"=40' Date: January 2001

SHEET No. 2 OF 2 SHEETS