



Public Notice

**U.S. Army Corps
of Engineers**
Honolulu District

Public Notice No.
POH-2009-235

Date:
July 23, 2009

Reply to:
Regulatory Branch (CEPOH-EC-R)
U.S. Army Corps of Engineers, Honolulu District
Building 230
Fort Shafter, Hawaii 96858-5440

Respond by:
August 7, 2009

POH-2009-235

**APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT:
MALAELOA DRAINAGE AND STREAM IMPROVEMENT PROJECT,
TUTUILA ISLAND, AMERICAN SAMOA**

- 1. APPLICANT:** Department of Public Works, American Samoa Government, Pago Pago, American Samoa 96799
- 2. AGENT:** None
- 3. APPLICABLE STATUTORY AUTHORITY:** Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- 4. LOCATION OF PROPOSED ACTIVITY:** The project area includes one tidal and three non-tidal locations along Fuafua Stream at Malaeloa, Tutuila, American Samoa (Figure 1).
- 5. PURPOSE AND DESCRIPTION OF PROJECT:**

The applicant proposes to improve the existing drainage system at the village of Malaeloa, Tutuila, in order to prevent future flood damage to homes, properties and roadways, and to improve conveyance of runoff. The proposed drainage improvements would include enlargement and lining of an existing earth ditch outlet, hardening and adjustment of bankline levels on Fuafua Stream, and construction of inlet structures at two downstream bridges. Improvements would be constructed at four locations between Malaeloa and Leone (Figure 2). The work at each location (Site) is described below and shown on the applicant's attached plans (Sheets C-1 thru C-10).

At Site 1, the applicant proposes to reconstruct an existing earthen ditch which is tributary to Fuafua Stream. The proposed improvement is a grouted riprap open channel, slightly wider than the existing channel in order to provide sufficient capacity to convey surface runoff to its outlet at

Fuafua Stream. The 0.12-acre project would be approximately 10 feet wide by 3 feet deep by 500 feet in length.

At Site 2, the applicant proposes to harden and adjust the bank line levels on Fuafua Stream to mitigate overtopping and flooding. The structure would be grouted riprap slightly wider than the existing channel, approximately 1,000 feet in length and about 20 feet wide (0.46 acres). The improvement is intended to confine the stream runoff to prevent it from spreading to the road and residential areas. The applicant notes that the present stream bank line is low and flat so that runoff spreads to the village main road and access roads, creating a problem for commuters as well as for school children walking on the road during school days.

At Sites 3 and 4, the applicant proposes to improve the inlet structures of the Route 001 (Main Road) Bridge and the Leone Village Bridge. At both locations, the new inlet structures would be approximately 20-foot wide and 100-foot long (0.06 acres) grouted riprap with reinforced concrete flood walls. At the Leone Bridge outlet, a 20 by 10 by 3 foot portion of the foundation is undermined and would be repaired. The proposed improvements are intended to prevent erosion on the sides of the stream near the bridges, to protect the bridge foundations from scouring, and to ease maintenance at the inlets which are presently unreachable by equipment and difficult to keep cleared of vegetation.

Overall, the applicant estimates that a total of 4,350 cubic yards of soil and rock would be excavated (including from uplands), and approximately 2600 cubic yards of fill material, including grouted riprap, would be discharged (including into uplands).

The applicant notes that all of the proposed improvements would be constructed under the direct supervision of the Department of Public Works. The method of construction would be mostly by use of heavy equipment such as by excavator, backhoe and dump truck. However, rock placement for grouted riprap would be done manually. Excavated material would be hauled temporarily to a staging area covered by ASG land use permit. Suitable excavated material would be used for filling and embankment, otherwise hauled to the DPW designated dump yard.

As indicated in the applicant's Best Management Practices (BMPS) notes (attached Sheet C-1), the contractor would be required to develop an approved site specific BMP Plan for the project, including measures to control erosion and sedimentation during the work.

6. IMPACTS OF PROPOSED ACTIVITIES IF AUTHORIZED:

Fuafua Stream is listed as perennial in the American Samoa Stream Inventory (USACE, 1981). USGS records between 1959 and 1963 for low-flow, partial record station (No. 169335000) located approximately 2.1 miles upstream from the Fuafua Stream mouth enabled USGS to estimate a median flow of 0.79 cubic feet per second (cited in American Samoa Watershed Protection Plan, Vol. 2, Watershed 30 (Leone), page 30-11). The project would slightly widen the existing stream and drainage channel and would not reduce the area or constrict the present flow capacity of the waters.

The 1981 American Samoa Stream Inventory commented that the stream showed evidence of being a highly disturbed ecosystem, including alteration of lower reaches by concrete masonry

wall along the bank; diversion of surface water for domestic use; the presence of home sites and agricultural activities along the lower reaches; runoff from adjacent urban areas and stream side piggeries; and accumulation of debris near the stream mouth. The project would facilitate future maintenance clearing of the bridge inlets.

Information on the biota of Fuafua Stream is limited. For a sampling location near the mouth of Fuafua Stream, the American Samoa Stream Inventory (USACE, 1981) lists occasional goby fish (*Stiphodon elegans*), abundant Mexican mollies (*Poecilia mexicana*), occasional caridean shrimp (*Caridina weberi*), and common palaemonid shrimp (*Macrobrachium lar*). The project design for the non-tidal stream reaches (Sheets C-6 and C-8) incorporates a low-flow channel design, which is expected to mitigate future migrations of any anadromous species which presently use or may re-enter the stream.

Construction activities have the potential to cause downstream increases in sedimentation and turbidity, but these potential effects are expected to be minimized by the applicant's requirement that the contractor develop an approved site specific BMP Plan for the project, including measures to control erosion and sedimentation during the work (Sheet C-1). With implementation of suitable BMPS, downstream effects on the aquatic environment, including the marine environment, are expected to be minimal. Project construction is expected to result in only minor and temporary local increases in dust and noise.

The improvements are expected to prevent future damage to homes, properties and roadways. The project would enhance the safety and well being of residents by reducing stream bank overtopping and mitigating flooding and by alleviating the present condition in the village following heavy downpours in which runoff ponds on residential areas and stagnates for days, posing a health hazard.

The project is intended to respond to the specific needs of this urbanized stream drainage system and cumulative effects are not considered to be significant. The proposed project would not result in any losses of aquatic resources or impacts to waters of the United States requiring compensatory mitigation pursuant to federal regulations at 33 CFR Parts 325 and 332.

7. IMPACT ON HISTORIC PROPERTIES:

The Area of Potential Effect (APE) of the proposed project includes all areas involving excavation of the existing substrate. The Corps has consulted the on-line version of the National Register of Historic Places (NRHP) for the presence or absence of historic properties, including those listed in or eligible for listing in the National Register of Historic Places, and has determined that there are no listed or eligible properties in the vicinity of the proposed worksite. With inclusion of suitable conditions to insure appropriate actions in the event of discovery of previously unidentified resources, it appears that there would be "no properties affected" by the proposed undertaking. This notice has been sent to the American Samoa Historic Preservation Office (ASHPO). Any additional comments ASHPO may have concerning archaeological or historic resources that may be lost or destroyed by work under the present project will be considered before a final decision is made on the permit application.

8. IMPACT ON ENDANGERED SPECIES:

No federally protected species is known to occur within Fuafua Stream or its tributaries. Federally protected sea turtles are known to occur in the marine waters surrounding American Samoa, including the endangered leatherback sea turtle (*Dermochelys coriacea*), endangered hawksbill sea turtle (*Eretmochelys imbricata*), threatened loggerhead sea turtle (*Caretta caretta*), and threatened green sea turtle (*Chelonia mydas*). With the applicant's requirement that the contractor develop an approved site specific BMP Plan for the project, including measures to control erosion and sedimentation (Sheet C-1), the project is unlikely to result in any significant downstream effects on sea turtles or their potential foraging habitat.

Based on the location and nature of the proposed work and the planned mitigation of potential downstream effects of construction, it appears the project "may affect, but is not likely to adversely affect" sea turtles or other species listed as threatened or endangered under the Endangered Species Act. This notice is being sent to the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to request their concurrence with our "Effect" determination in accordance with Section 7 of the Endangered Species Act. Any comments they have on endangered or threatened species, or their critical habitat, will be considered before a final decision is made on the permit.

9. IMPACT ON ESSENTIAL FISH HABITAT (EFH):

The downstream coastal marine environment is designated coral reef EFH, consisting of typical fringing reef components which contribute to maintenance of fisheries. The magnitude of potential impacts of the proposed project on coral reef EFH is dependent on the degree of downstream movement of sediments or other materials disturbed during project construction. With the applicant's planned incorporation of suitable BMPs to control effects of the construction, the proposed project is not expected to adversely affect any Essential Fish Habitat (EFH) identified pursuant to the Magnuson-Stevens Fishery and Management Act.

10. OTHER GOVERNMENT AUTHORIZATIONS/CERTIFICATIONS:

The American Samoa Coastal Management Program issued a Federal Consistency Certification for the project on April 22, 2009, and the American Samoa Environmental Protection Agency issued a Section 401 Water Quality Certification for the project on March 13, 2009.

11. EVALUATION FACTORS:

The decision whether to issue the requested permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof: among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety,

food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

12. COMMENTS AND INQUIRIES:

Interested parties may submit in writing any comments that they have on the proposed permit. Comments should be forwarded so as to reach this District no later than the response date indicated on the first page of this notice. Mailed comments should cite this notice and should be sent to: Regulatory Branch (CEPOH-EC-R/P. Galloway); U.S. Army Corps of Engineers, Honolulu District; Building 230; Fort Shafter, Hawaii 96858-5440. Alternatively, comments may be transmitted via e-mail to *CEPOH-EC-R@usace.army.mil* or faxed to (808) 438-4060. If needed, further information may be obtained from Peter Galloway via telephone at (808) 438-8416. This notice is also available at the Honolulu District web site (*www.poh.usace.army.mil*).

13. REQUEST FOR PUBLIC HEARING:

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the proposed permit. Requests for public hearing shall specifically state the reasons for holding a public hearing.

Attachments:

Figure 1. Location Map

Figure 2. Vicinity Map and Site Plan

Sheet C-1. Best Management Practices Notes

Sheet C-2. Site 1: GRP Outlet

Sheet C-3. Typical Section

Sheet C-4. Site 2: Stream Improvement

Sheet C-5. Site 2: Stream Improvement

Sheet C-6. Typical Section

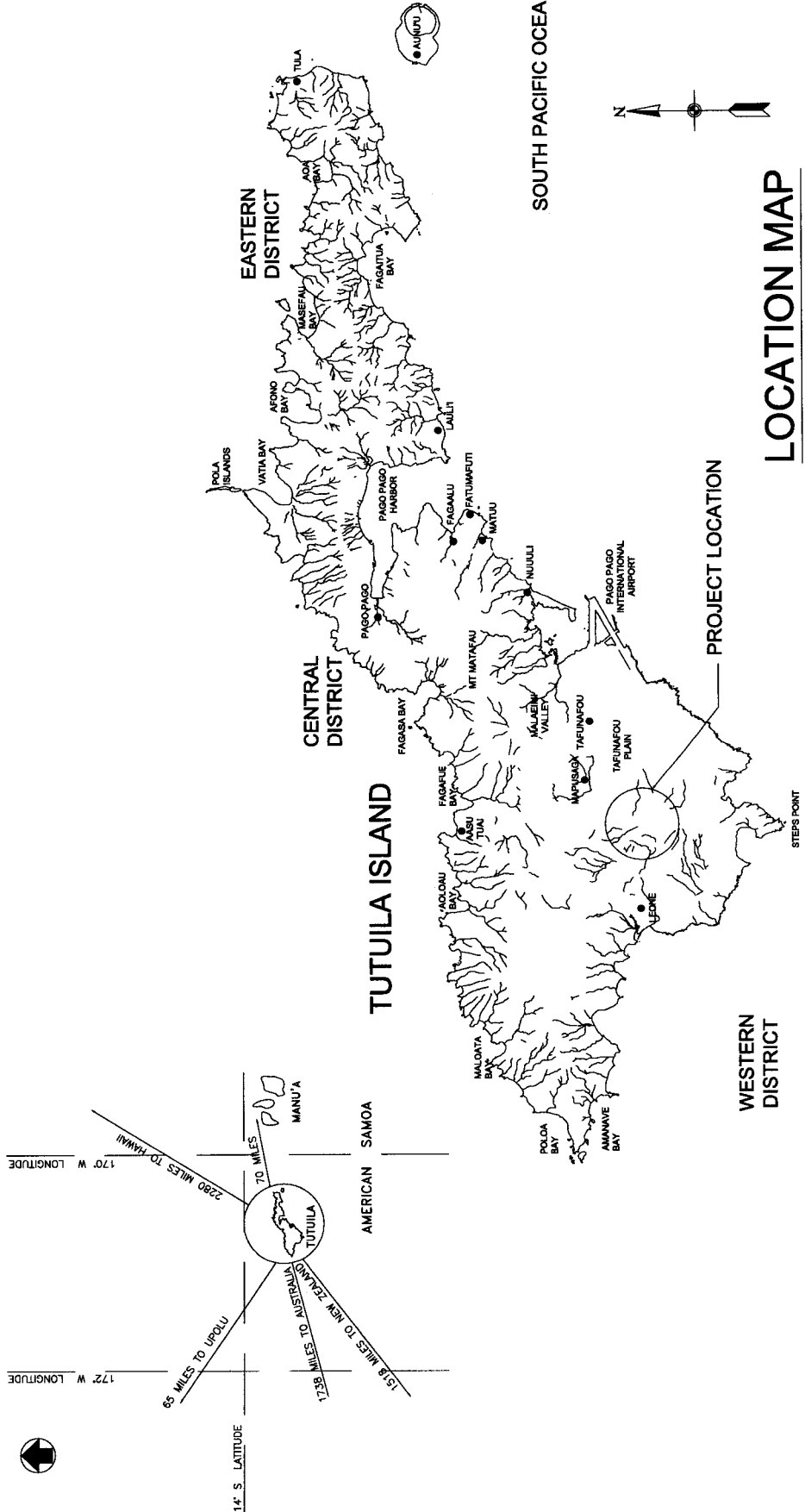
Sheet C-7. Site 3: Route 001 Bridge Plan

Sheet C-8. Route 001 Bridge Typical Section and Cross Section

Sheet C-9. Site 4: Leone Bridge Improvement

Sheet C-10. Leone Bridge Cross Section

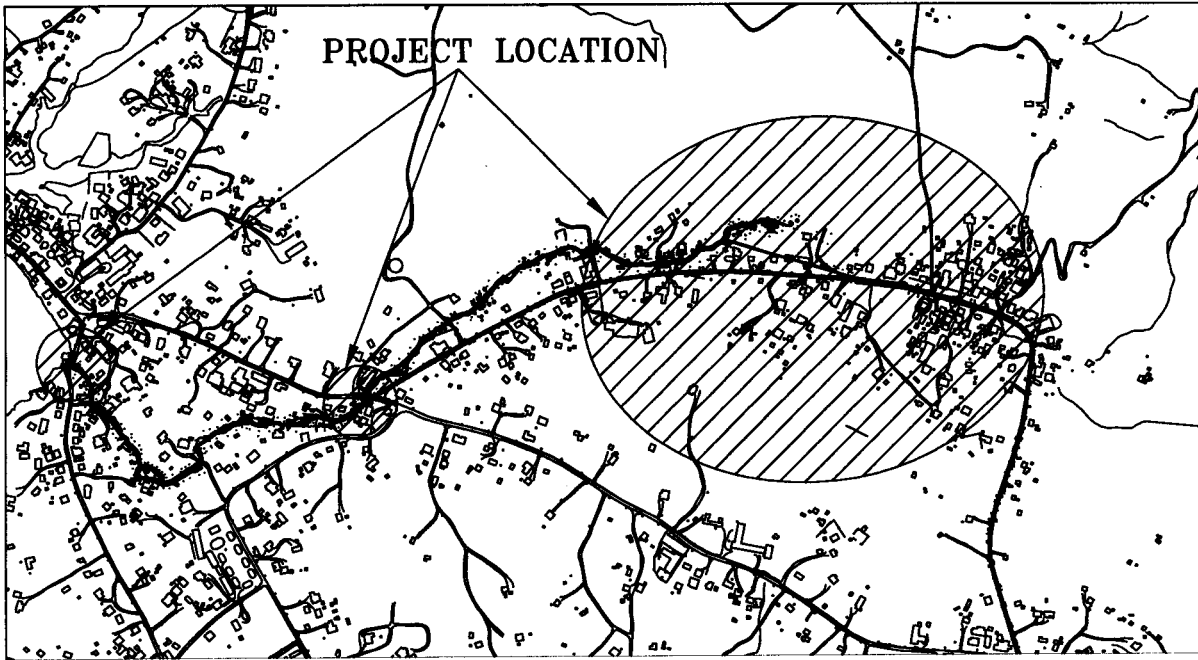
MALAELOA DRAINAGE AND STREAM IMPROVEMENT PROJECT TUTUILA, AMERICAN SAMOA



LOCATION MAP
SCALE: NTS

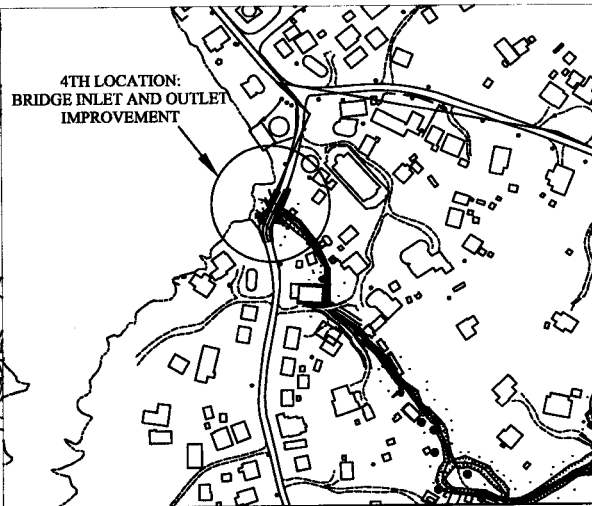
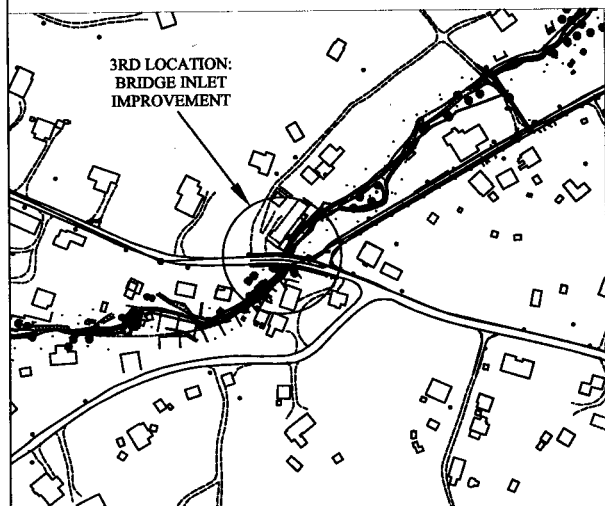
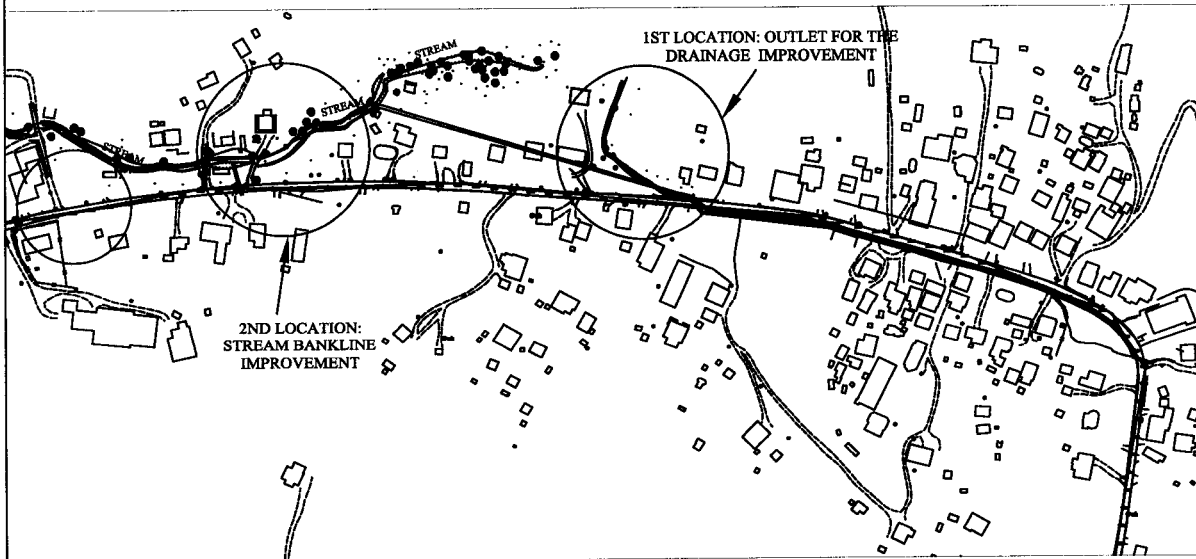
FIGURE 1

DRAWING NO. CH-91-08	PROJECT NO. AS-11-0012 (001)	DATE JAN. 28, 2009	SHEET NO. T-1	SHEET 1 OF 11
AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA				
MALAELOA DRAINAGE AND STREAM IMPROVEMENT TITLE SHEET MALAELOA VILLAGE AMERICAN SAMOA				
NO.	REVISIONS	DATE	DRAWN BY: DESIGNED-CHD	CHECKED BY: PHVA
CORROBORATION APPROVALS				
			DIRECTOR: Teoofili Penua Tili	
			DEPT. DIR. CIVIL/HWY DIV.: Falestone Vofa	
			PROJECT ENGINEER:	



VICINITY MAP OF MALAELOA DRAINAGE PROJECT

SCALE: 1=1000



SITE PLAN	APPLICANT: TAEAOTUI PUNAOFU TILEI	X = 228949.62	VILLAGE: MALAELOA
	SCALE: 1" = 100' - 0"	Y = 283287.32	COUNTY: LEASINA
	DATE: DECEMBER 12, 2008	T - MAP # 44,45	DISTRICT: WESTERN

PREPARED BY: EPR

FIGURE 2

BEST MANAGEMENT PRACTICES (BMP) PRESENTED ON THIS SHEET ARE FOR SUGGESTION ONLY. THE CONTRACTOR SHALL DEVELOP A SITE-SPECIFIC BMP PLAN FOR THE PROJECT TO BE APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. EROSION CONTROL SHALL BE IN COMPLIANCE WITH SPEC SECTIONS 157, 01326, 01430 AND 01900.

- THE CONTRACTOR SHALL OBTAIN A LAND USE PERMIT FROM THE PWS PRIOR TO CONSTRUCTION WORK. SEPARATE PERMITS SHALL BE ACQUIRED IF THE CONTRACTOR'S STAGING AREA IS LOCATED OUTSIDE THE PROJECT BOUNDARY.
- THE CONTRACTOR SHALL INSTALL SUBURRY BARRIERS, Silt FENCES, SANDBAGS, WEED NETS, SLOTTED METAL BERM PLATES, CONSTRUCTION ACCESS/EGRESS AND FINE MESH NETTING SUSPENDED BENEATH EXISTING OR NEW WORK AREA TO CATCH CONCRETE DEBRIS, AS REQUIRED, AS SOON AS PRACTICABLE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORK FOR SEPARATE WORKS CONTAINED THEREIN. MEASURES SHALL BE TAKEN TO ENSURE THAT EROSION CONTROL MEASURES TO BE REMOVED TO ENSURE THAT EFFECTIVENESS.
- THE CONTRACTOR SHALL ADJUST DISTANCES AS NECESSARY TO ENSURE EFFECTIVENESS OF BARRIERS.
- THE CONTRACTOR SHALL PROVIDE Silt FENCE AND CONSTRUCTION ENTRANCE FOR EACH ACCESS/EGRESS. THE CONSTRUCTION INGRESS AND EGRESS SHALL HAVE AN 8'-HIGH SLOTTED METAL BERM PLATE WITH A 1/2" MESH NETTING SUSPENDED BENEATH. OTHER THAN WHAT IS SHOWN IN DETAIL, THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY APPROVALS, INCLUDING THAT FOR RELOCATION OF THE CRUSHED ROCK AREA AS REQUIRED.
- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTHWORK IS INITIATED.
- SLOPE AND EXPOSED AREAS SHALL BE WATERED, MULCHED, SOODED OR PLANTED AS SOON AS BACKFILL HAS BEEN ESTABLISHED TO PREVENT DUST, EROSION AND SEDIMENTATION. PLANTING SHALL NOT BE DELAYED UNTIL ALL BACKFILLING AND FINAL GRADING HAS BEEN COMPLETED. BACKFILLING SHALL BE CONTINUOUS AND AN EROSION CONTROL MEASURE HAS TO BE INSTALLED IMMEDIATELY AFTER EACH PASS OF BACKFILLING. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY APPROVALS, INCLUDING THAT FOR RELOCATION OF THE CRUSHED ROCK AREA AS REQUIRED.
- TEMPORARY BMP'S SHALL NOT BE REMOVED UNTIL ALL PERMANENT EROSION CONTROLS ARE IN PLACE AND ESTABLISHED.
- ANY BACKFILLED AREA WHICH WILL BE LEFT BARE FOR THIRTY (30) CALENDAR DAYS OR MORE SHALL BE MULCHED.
- WASHING DOWN OF CONSTRUCTION EQUIPMENT AND VEHICLES AND FROM CONCRETE TRUCKS INTO DRAINAGE SYSTEMS OR WATER COURSES.
- SHOULD THE P...
- RAINWATER ACCUMULATED WITHIN THE DISBURSED AREA SHALL BE NATURALLY EVAPORATED OR INFLUXED INTO THE GROUND.
- THE CONTRACTOR SHALL PROVIDE REQUIRED INFORMATION TO THE CONTRACTING OFFICER AND AMERICAN SAMOA GOVERNMENT (DSW) FOR DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY WITHIN THIRTY (30) DAYS BEFORE THE COMMENCEMENT OF CONSTRUCTION.
- THE CONTRACTOR SHALL USE THE APPROPRIATE BMP'S AS REQUIRED, SHOWN ON THIS SHEET FOR HIS WORK TO THE APPROVAL OF THE CONTRACTING OFFICER AND AS-DPW.

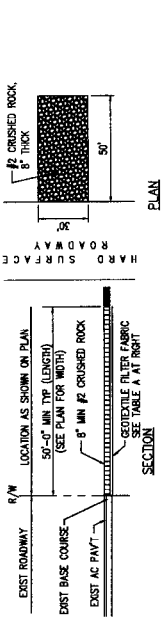
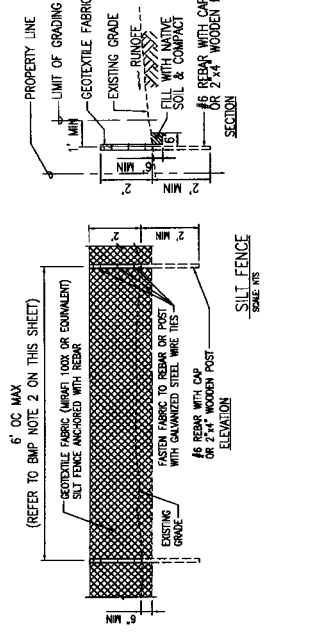
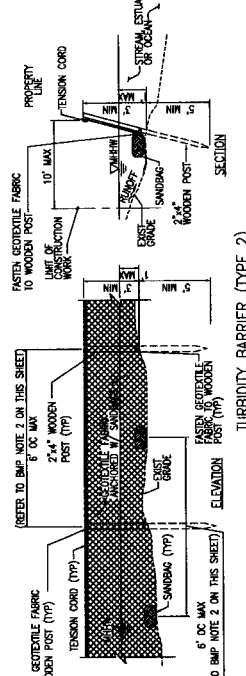
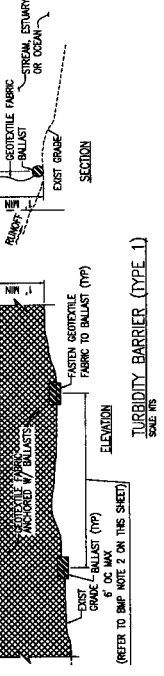
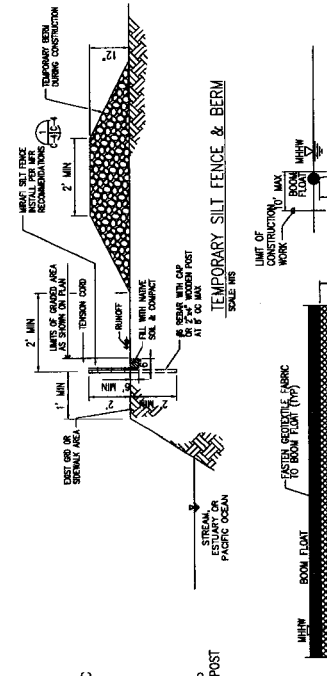
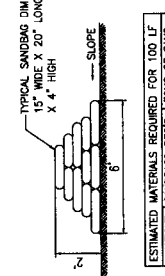
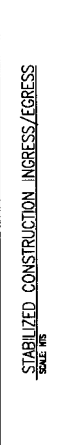


TABLE A

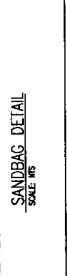
GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LBS (ASTM D1682)
ELONGATION AT BREAK	60% (ASTM D1682)
WALKER BURST STRENGTH	430 LBS (ASTM D3786)
PUNCTURE STRENGTH	125 LBS (ASTM D7511) (MODIFIED)
EQUIVALENT OPENING	SEE 10-80 (US STD. SPEC.) (M-2215)



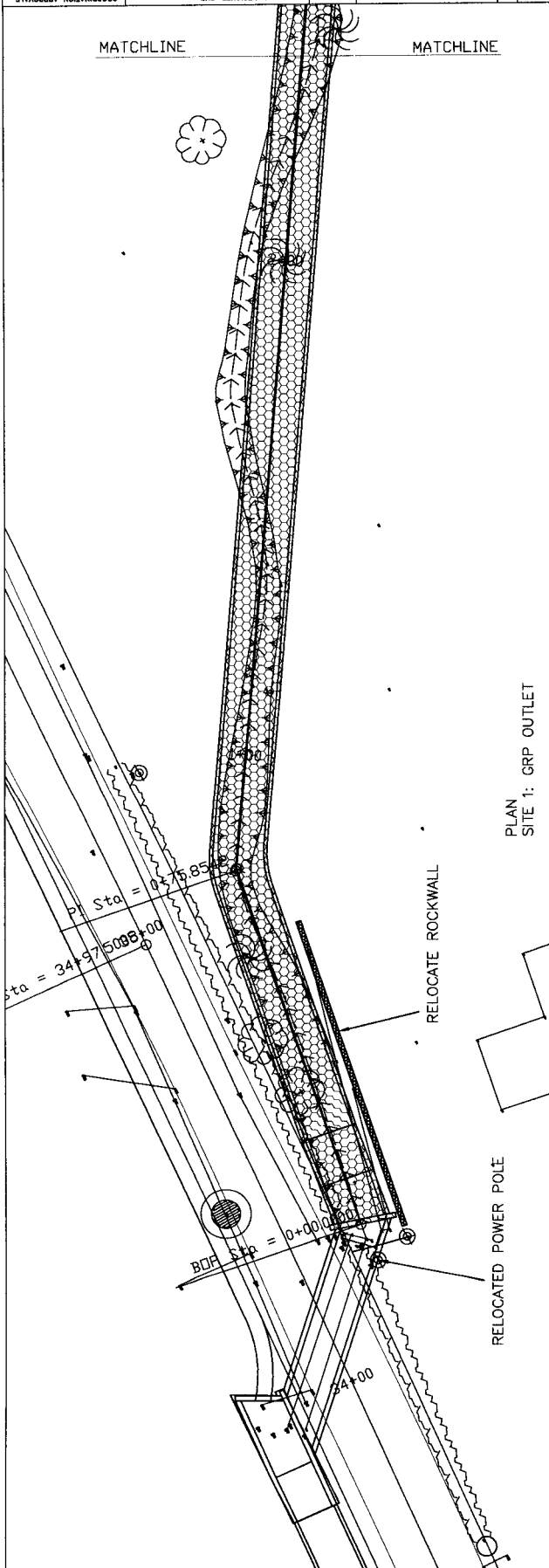
ESTIMATED MATERIALS REQUIRED FOR 100 LF HEIGHT SANDBAGS USED 1 TONS OF SAND

2	623	12.3 Tons
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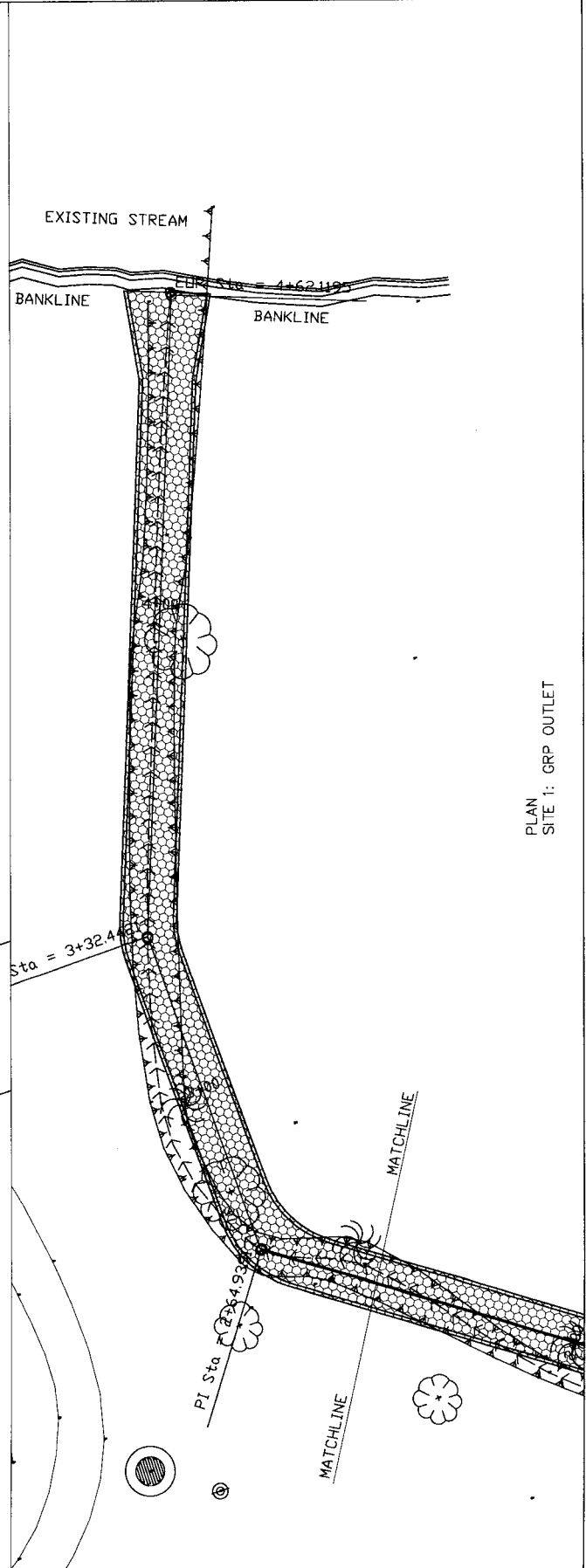
- NOTES:**
- STACK SANDBAGS AS SHOWN.
 - STRIP VEGETATION AND DEBRIS BEFORE LAYING SANDBAGS.
 - SANDBAGS SHOULD BE FILLED ONE-HALF TO TWO-THIRDS FULL.
 - PLACE THE SUCCEEDING BAGS ON THE UNFILLED OR TIED PORTION OF THE PREVIOUSLY LAID BAG AND TAMP INTO PLACE TO ELIMINATE VOIDS AND FORM A TIGHT SEAL.
 - STAGGER THE JOINT CONNECTIONS WHEN MULTIPLE LAYERS ARE NECESSARY AND STACK THE SANDBAGS IN PYRAMID FASHION.
 - CONSTRUCT THE SANDBAG WALL BASE WITH THREE TIMES THE SANDBAG WALL HEIGHT.



DRAWING NO. CH-10-00		PROJECT NO. AS-11-5013 (00)	DATE JAN. 28, 2009	SHEET NO. C-2	SHEET 3 OF 11
PROJECT NAME MATALOA VILLAGE					
STATIONING STA. 0+000 - STA. 4+62.12		AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA			
DRAWN BY: DESIGNED-CHD		MATALOA DRAINAGE AND STREAM IMPROVEMENT SITE 1: GRP OUTLET			
CHECKED BY: PHAA		AMERICAN SAMOA MATALOA VILLAGE			
DESIGNED BY: CHD		DIRECTOR: Tereohi Purohit Tili			
DATE: 04/07/08		DEPT. DIR. CIVIL/HWY DIV.: Faleohoa Vahi			
REVISIONS		PROJECT ENGINEER:			
NO.		COORDINATION APPROVALS			

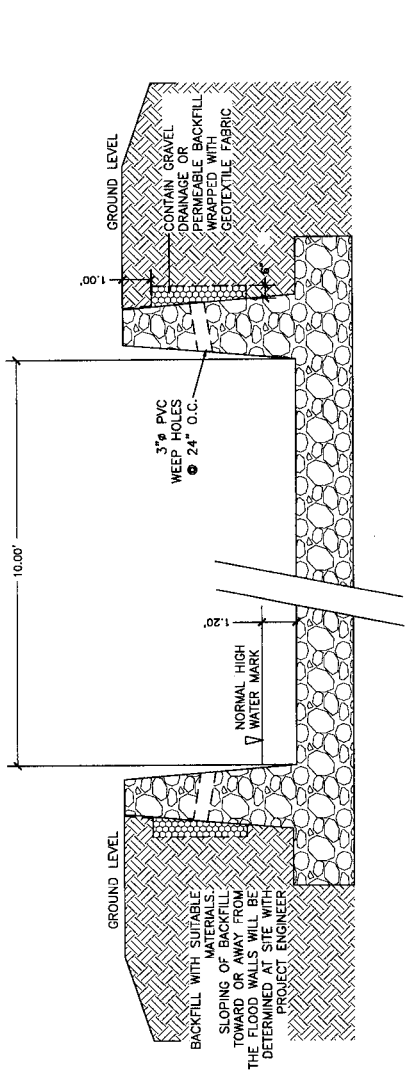


PLAN
SITE 1: GRP OUTLET

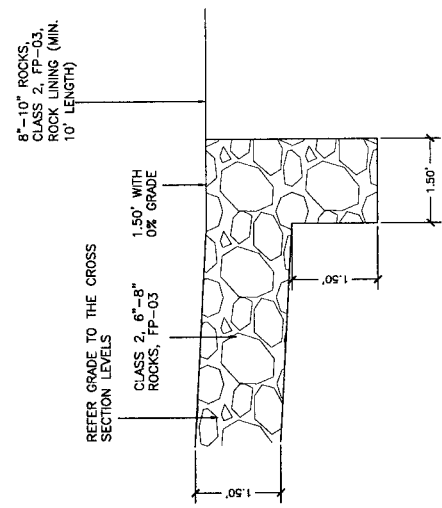


PLAN
SITE 1: GRP OUTLET

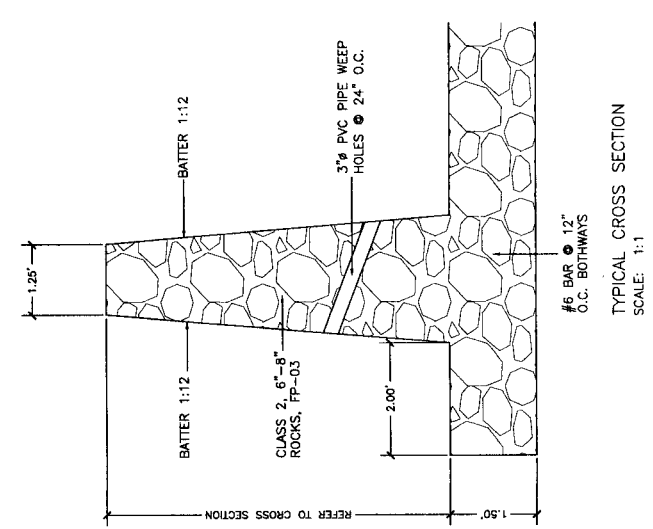
AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA		MATALOA DRAINAGE AND STREAM IMPROVEMENT TYPICAL SECTION AMERICAN SAMOA	
DRAWING NO. CH-01-06	PROJECT NO. AS-11-2015 (001)	DATE JAN. 28, 2009	SHEET NO. C-3
DRAWN BY: DESIGNED - CHD		CHECKED BY: PHVA	
DESIGNED BY: DESIGNED - CHD		PROJECT ENGINEER:	
DEPT. DIR. CIVIL/HAZV DIV.: Federico Velez		DIRECTOR: Theodore Punoua Tili	
COMBINATION APPROVALS		REVISIONS	
DATE		NO.	



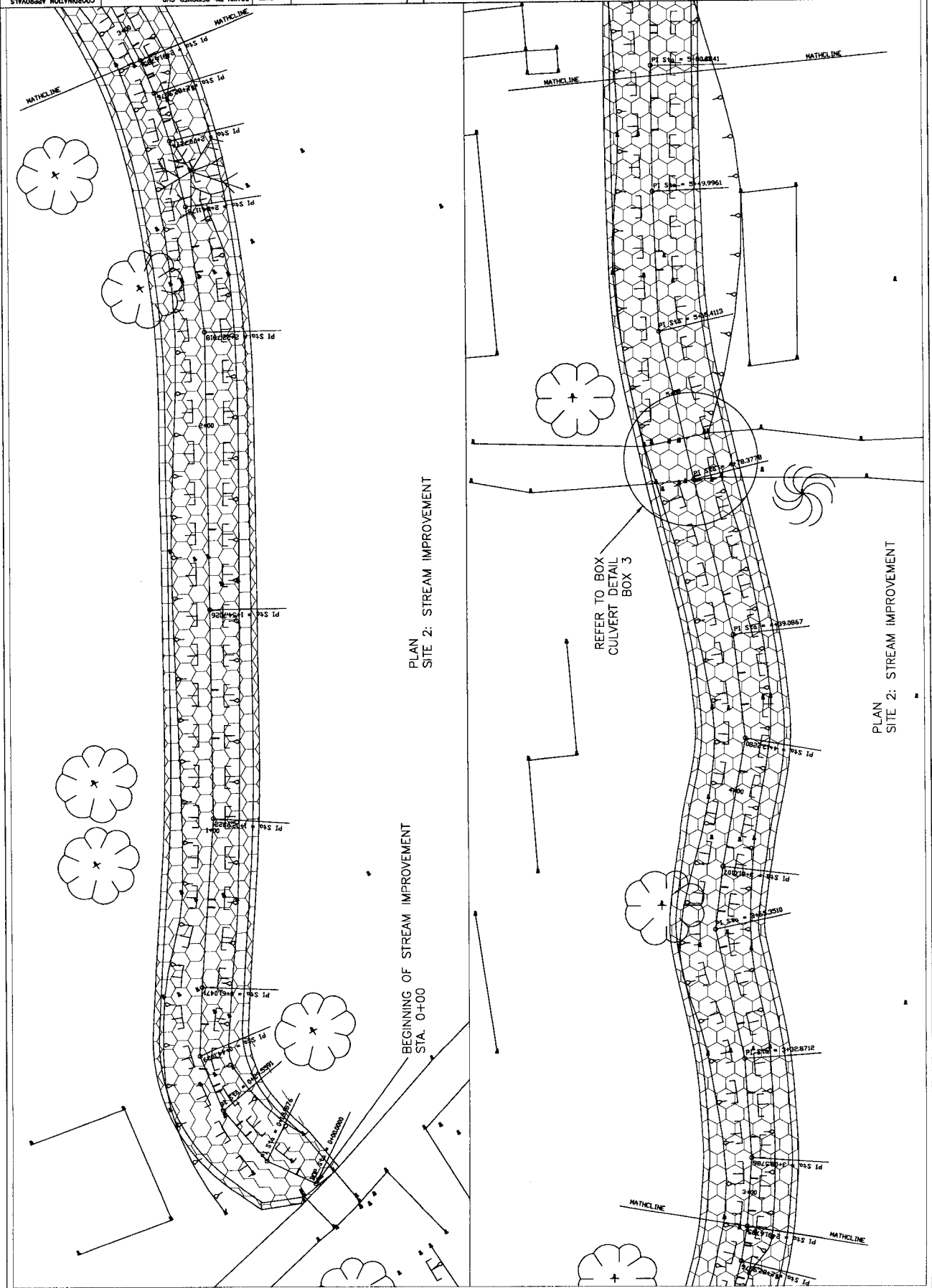
TYPICAL CROSS SECTION
SCALE: NTS



- NOTES:
1. ALL VOIDS MUST BE FILLED WITH CONCRETE;
 2. REBARS MUST BE GALVANIZED COATED;
 3. MORTAR MUST BE 2,800 PSI;
 4. CONTRACTOR TO PROTECT EXISTING ROCKWALL/CONC. WALL TO PREVENT DAMAGE ON THE STRUCTURE. OTHERWISE CONTRACTOR TO RESTORE DAMAGE EXISTING WALL DURING CONSTRUCTION.



AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA		DRAWING NO. CH-01-06	
MATAILOA DRAINAGE PROJECT STREAM IMPROVEMENT STA. 0+000 - STA. 5+50		PROJECT NO. AS-11-0013 (001)	
MATAILOA VILLAGO		DATE JAN. 28, 2009	
NO.		SHEET NO. C-4	
REVISIONS		SHEET 9 OF 11	
DATE			
DESIGNED BY: DESIGNED-CHD			
CHECKED BY: PHMA			
PROJECT ENGINEER:			
DEPT. DIR. CIVIL/HWY DIV., Following Votri			
DIRECTOR, Technical Personnel TMH			
COORDINATION APPROVALS			



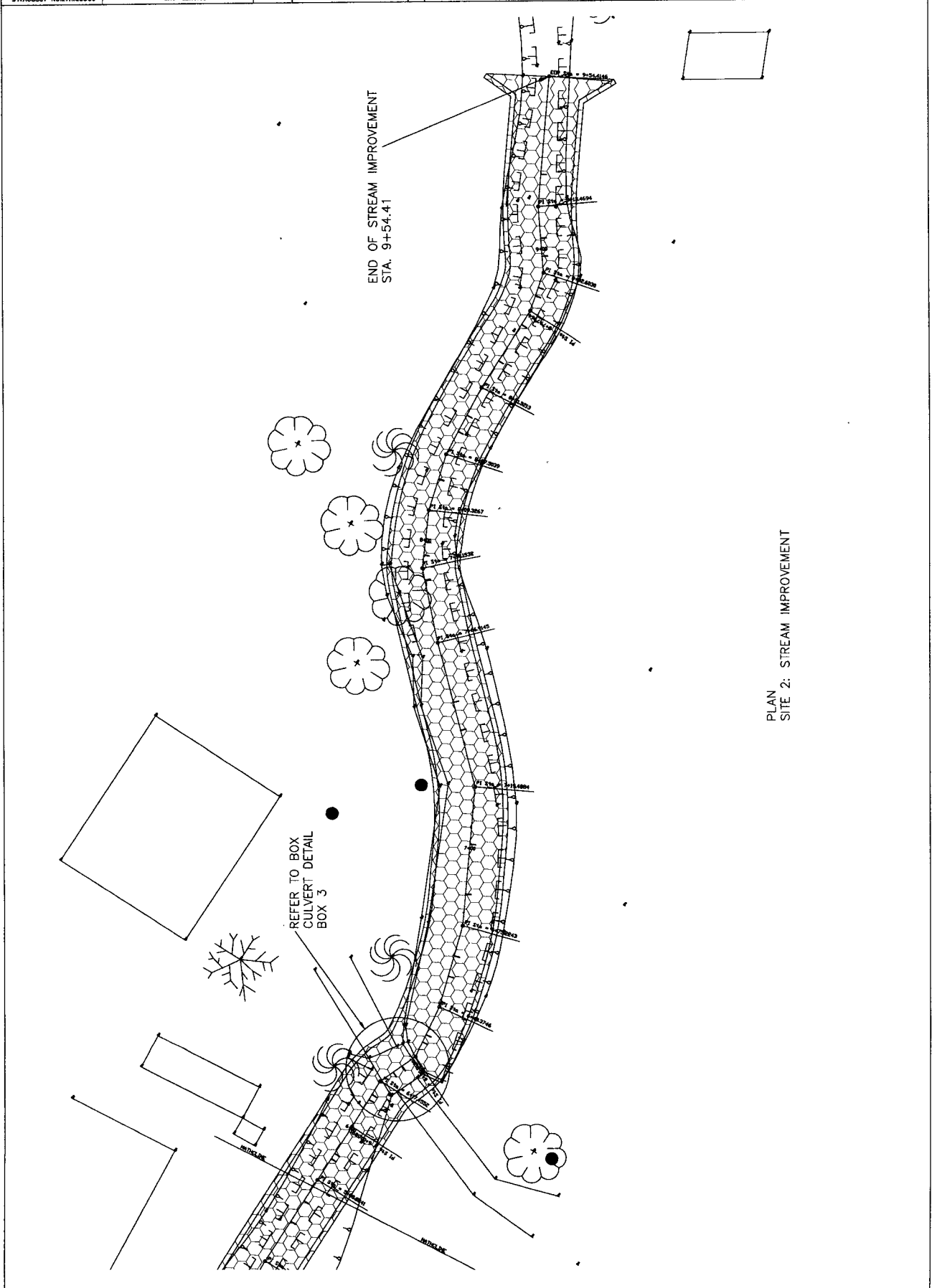
PLAN SITE 2: STREAM IMPROVEMENT

PLAN SITE 2: STREAM IMPROVEMENT

BEGINNING OF STREAM IMPROVEMENT
STA. 0+00

REFER TO BOX
CULVERT DETAIL
BOX 3

DRAWING NO. CH-01-00		PROJECT NO. AS-11-0013 (001)		DATE JAN. 26, 2009		SHEET NO. C-5		SHEET 8 OF 11	
MATAILOA VILLAGE AMERICAN SAMOA		MATAILOA VILLAGE AMERICAN SAMOA		MATAILOA VILLAGE AMERICAN SAMOA		MATAILOA VILLAGE AMERICAN SAMOA		MATAILOA VILLAGE AMERICAN SAMOA	
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PLAN
SITE 2: STREAM IMPROVEMENT

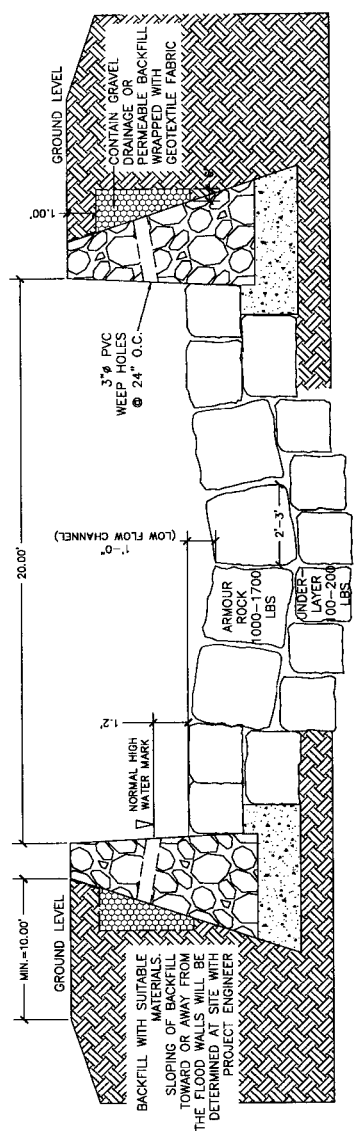
NO.	REVISIONS	DATE	DESIGNED BY: DESIGNED - CHD	CHECKED BY: FRMA	PROJECT ENGINEER:	DEPT. DIR. CIVIL/HAZ. DIV., Faleolele Velea	DIRECTOR: Tosevaki Pua'ava Titi
COORDINATION APPROVALS							

AMERICAN SAMOA
CIVIL HIGHWAY DIVISION
PAGO PAGO, AMERICAN SAMOA

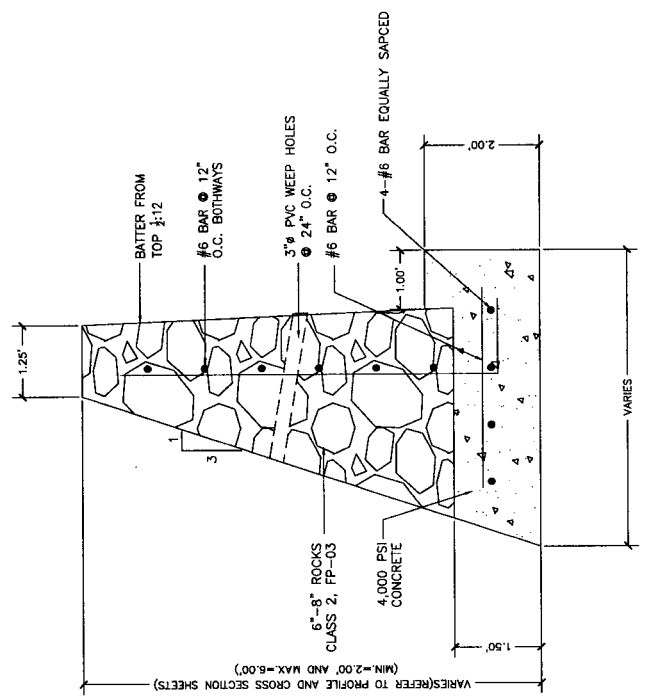
AMERICAN SAMOA GOVERNMENT
DEPARTMENT OF PUBLIC WORKS
CIVIL HIGHWAY DIVISION
PAGO PAGO, AMERICAN SAMOA

DRAWING NO.	CH-01-06
PROJECT NO.	AS-11-0013 (001)
DATE	JUN. 24, 2009
SHEET NO.	C-6

SHEET 7 OF 11



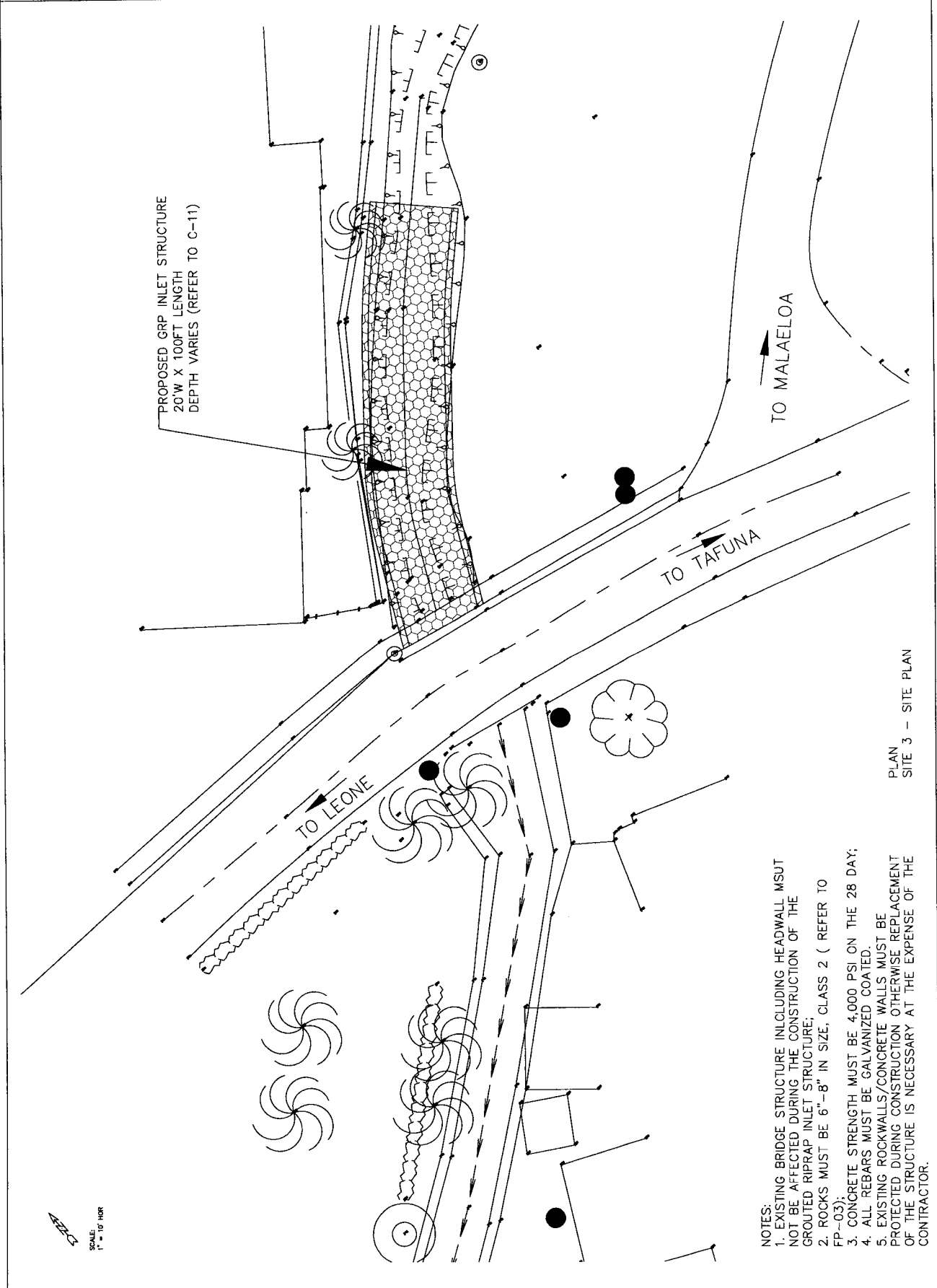
TYPICAL CROSS SECTION



TYPICAL FLOOD WALL DETAIL

- NOTES:
1. ROCKS MUST PASS A DROP TEST OF ABOUT 10FT. HIGH AND CLASS 2 BETWEEN 6" TO 8".
 2. MORTAR MUST BE 2,800 PSI STRENGTH.
 3. REBARS MUST BE COVERED WITH CONCRETE. MINIMUM COVER MUST BE 6".
 4. ALL VOIDS MUST BE FILLED WITH CONCRETE.
 5. REBARS MUST BE GALVANIZED COATED.

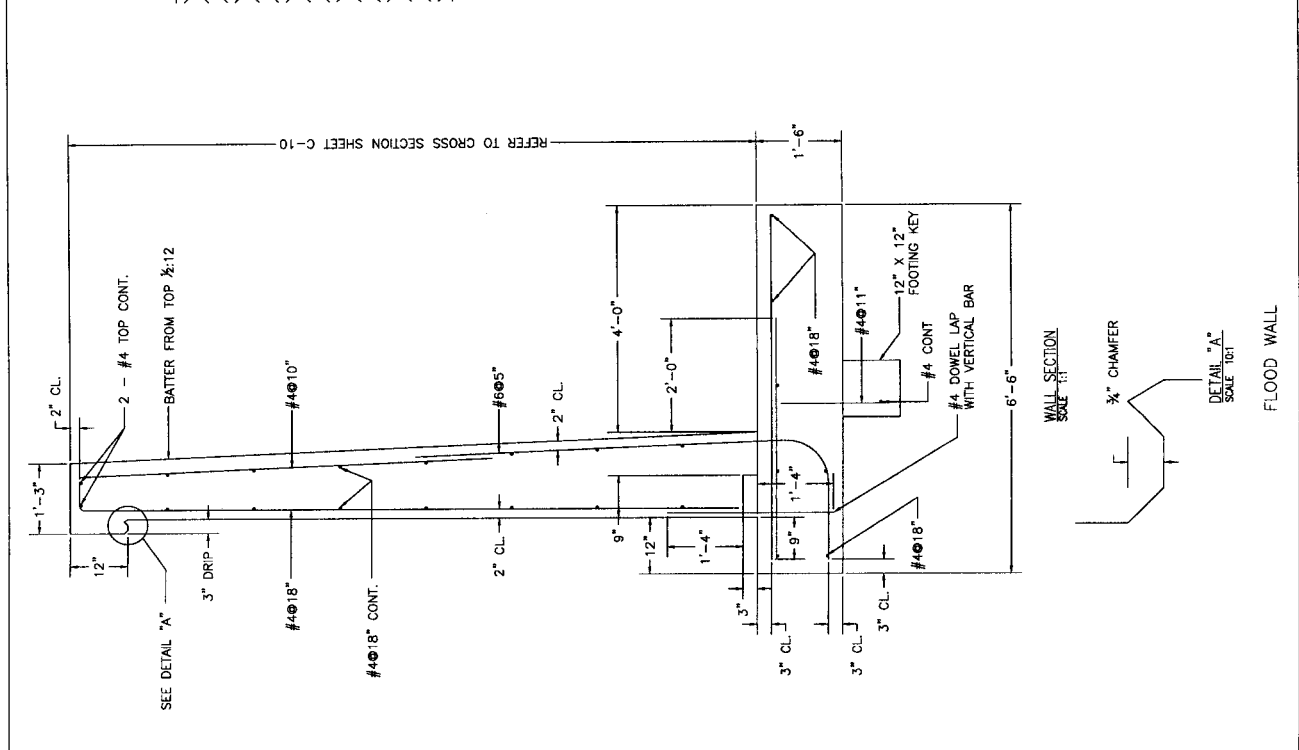
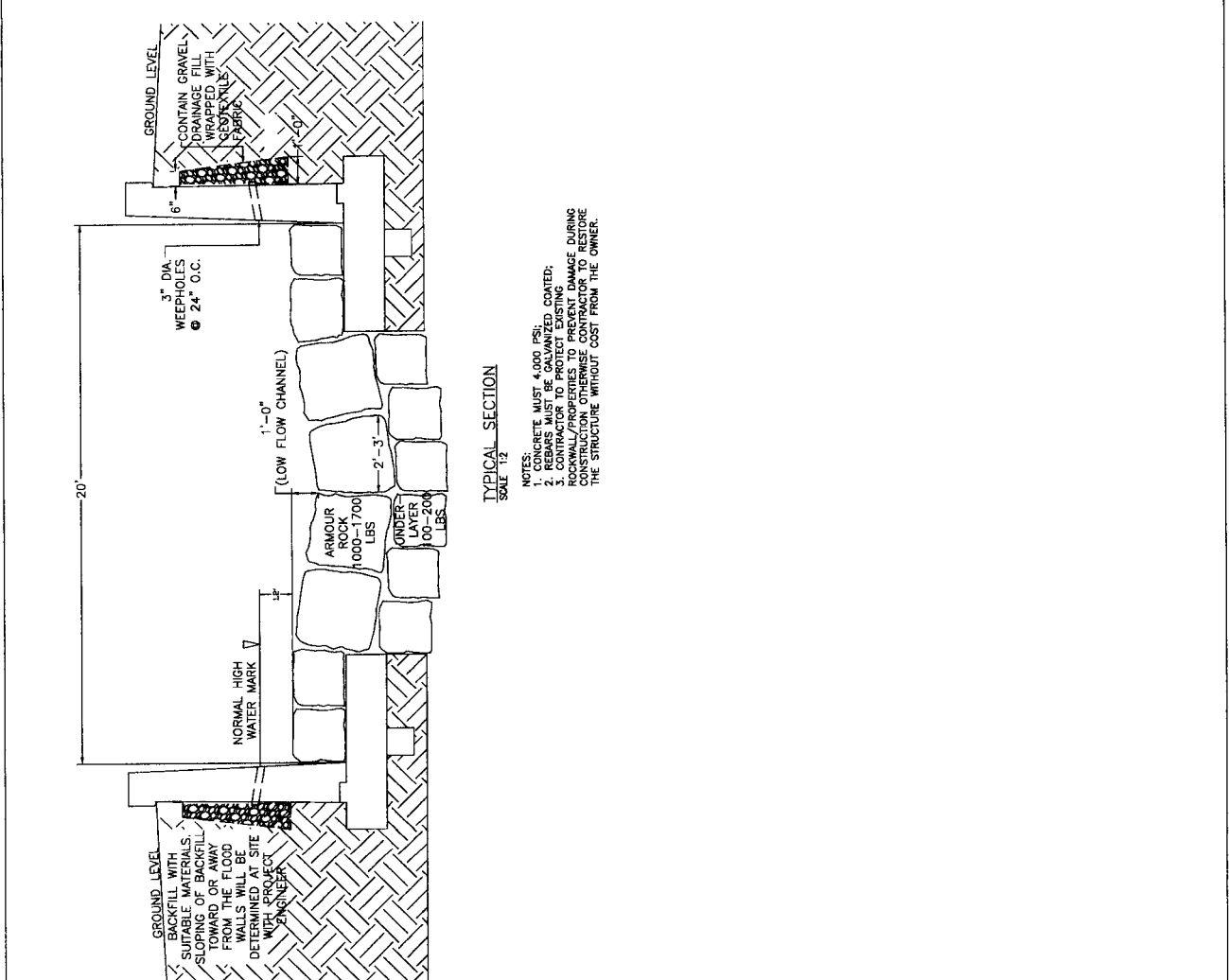
AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA		MATAELO DRAINAGE AND STREAM IMPROVEMENT ROUTE 001 BRIDGE PLAN STA 0+00-STA. 1+00 MALAEO VILLAGE AMERICAN SAMOA	
DRAWING NO. CH-91-06	PROJECT NO. AS-TI-0012 (001)	DATE JUN. 28, 2009	SHEET NO. C-7
DRAWN BY: DESIGNED-CHD		CHECKED BY: PHVA	
PROJECT ENGINEER:		DEPT. DIR. CIVIL/HPV DMV: Faleofoa Vofisi	
DIRECTOR: Taseofu Faleofoa Tasi			



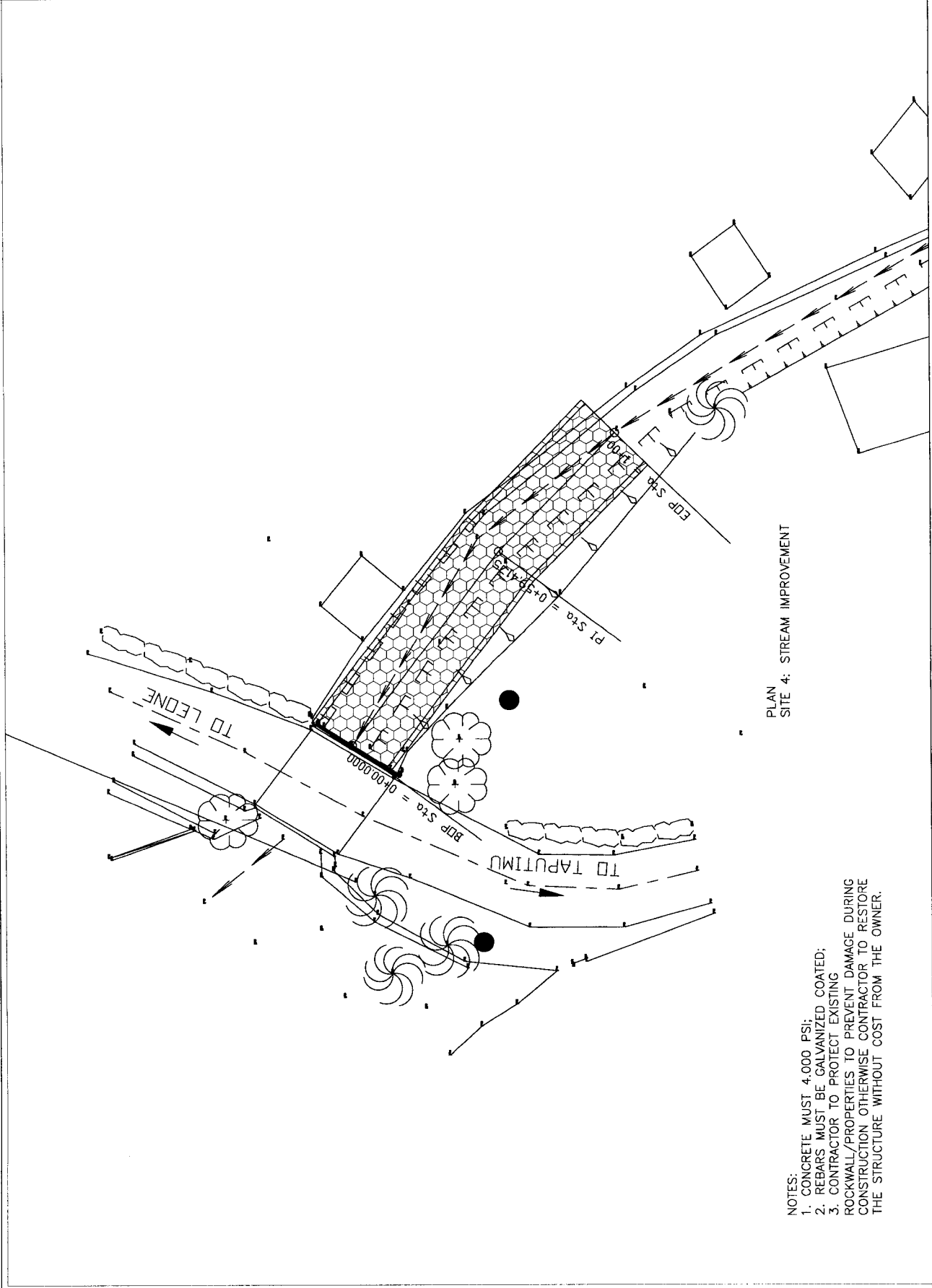
- NOTES:
1. EXISTING BRIDGE STRUCTURE INCLUDING HEADWALL MSUT NOT BE AFFECTED DURING THE CONSTRUCTION OF THE GROUDED RIPRAP INLET STRUCTURE;
 2. ROCKS MUST BE 6"-8" IN SIZE, CLASS 2 (REFER TO FP-03);
 3. CONCRETE STRENGTH MUST BE 4,000 PSI ON THE 28 DAY; ALL REBARS MUST BE GALVANIZED COATED.
 4. EXISTING ROCKWALLS/CONCRETE WALLS MUST BE PROTECTED DURING CONSTRUCTION OTHERWISE REPLACEMENT OF THE STRUCTURE IS NECESSARY AT THE EXPENSE OF THE CONTRACTOR.

PLAN
SITE 3 - SITE PLAN

AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA		MALAIOLA DRAINAGE AND STREAM IMPROVEMENT SECTION AND TYPICAL SECTION MALAIOLA VILLAGE AMERICAN SAMOA	
DRAWING NO. CH-01-08	PROJECT NO. AS-11-0013 (001)	DATE JAN. 28, 2009	SHEET NO. C-8
DESIGNED BY: DESIGNED - CHD		CHECKED BY: RFWA	
PROJECT ENGINEER:		DEPT. DIR. CIVIL/HWY DIV., PAGO PAGO	
DIRECTOR: Tashaki Puroto TML			



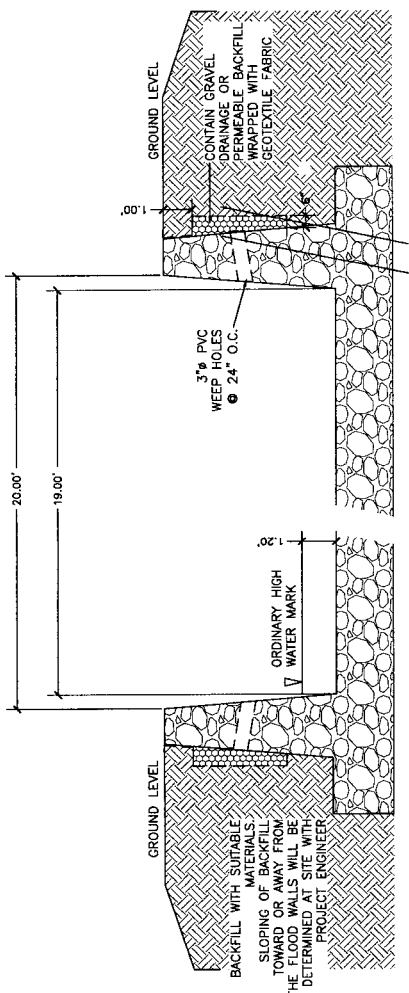
AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA		MATAILOA DRAINAGE PROJECT STREAM IMPROVEMENT LEONE BRIDGE IMPROVEMENT STA. 0+00 - STA. 1+00 MATAILOA VILLAGE AMERICAN SAMOA	
DRAWING NO. CH-01-09	PROJECT NO. AS-11-001 (001)	DATE JUN. 28, 2009	SHEET NO. C-9
DRAWN BY: DESIGNED - CHD		CHECKED BY: FRYA	
PROJECT ENGINEER:		DEPT. DIR. CIVIL/HWY DIV.: Faleofoa Vaitu	
DIRECTOR: Teofofoa Puaolo Titi		COORDINATION APPROVALS:	



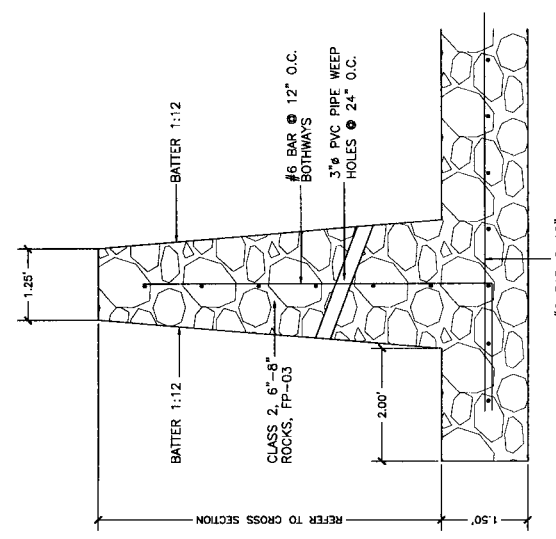
PLAN
SITE 4: STREAM IMPROVEMENT

- NOTES:
1. CONCRETE MUST 4,000 PSI;
 2. REBARS MUST BE GALVANIZED COATED;
 3. CONTRACTOR TO PROTECT EXISTING ROCKWALL/PROPERTIES TO PREVENT DAMAGE DURING CONSTRUCTION OTHERWISE CONTRACTOR TO RESTORE THE STRUCTURE WITHOUT COST FROM THE OWNER.

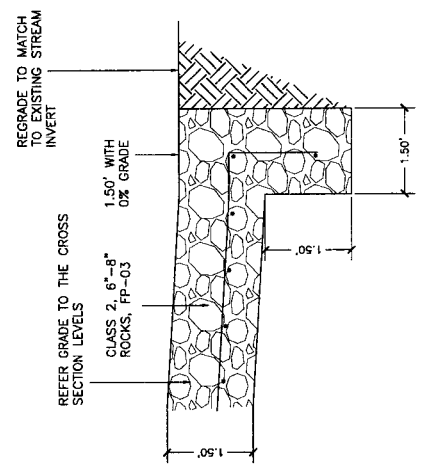
NO.	REVISIONS	DATE	DESIGNED BY: DESIGNED - CHD	CHECKED BY: PHVA	PROJECT ENGINEER:	DEPT. DIR. CIVIL/HWY DIV., Palapaing Vohi	DIRECTOR: Tevohi Puroto Tili
COORDINATION APPROVALS							
MALAIYA DRAINAGE PROJECT AT LEONE BRIDGE CROSS SECTION STA. 0+000 - STA. 1+00 LEONE VILLAGE AMERICAN SAMOA							
AMERICAN SAMOA GOVERNMENT DEPARTMENT OF PUBLIC WORKS CIVIL HIGHWAY DIVISION PAGO PAGO, AMERICAN SAMOA							
DRAWING NO. CH-91-08		PROJECT NO. AS-11-0012 (001)		DATE JUN. 24, 2008		SHEET NO. C-10	
SHEET 11 OF 11							



TYPICAL CROSS SECTION
SCALE: NTS



TYPICAL CROSS SECTION
SCALE: 1:1



APRON DETAIL
SCALE: 1:1

- NOTES:
1. ALL VOIDS MUST BE FILLED WITH CONCRETE;
 2. REBARS MUST BE GALVANIZED COATED;
 3. MORTAR MUST BE 2,800 PSI;
 4. CONTRACTOR TO PROTECT EXISTING ROCKWALL/CONC. WALL TO PREVENT DAMAGE ON THE STRUCTURE. OTHERWISE CONTRACTOR TO RESTORE DAMAGE EXISTING WALL DURING CONSTRUCTION.