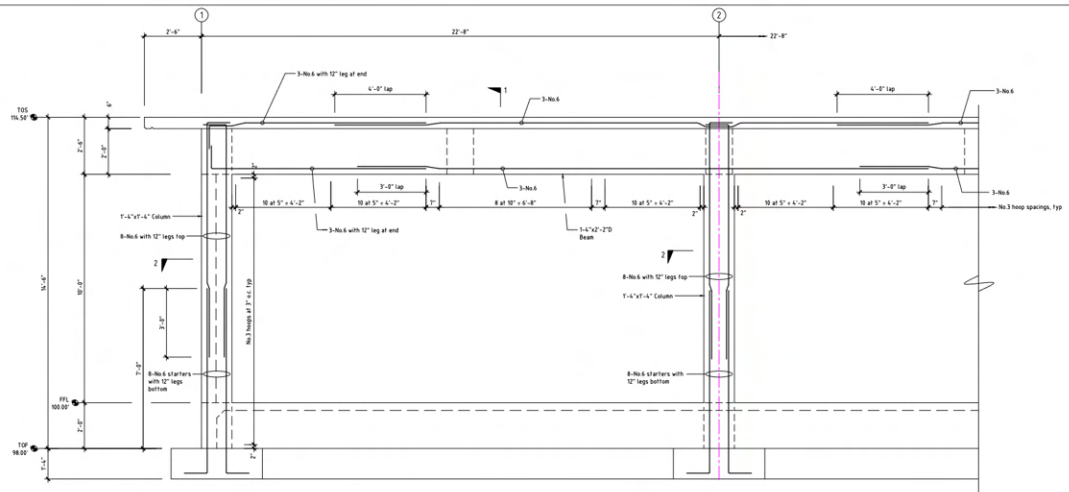
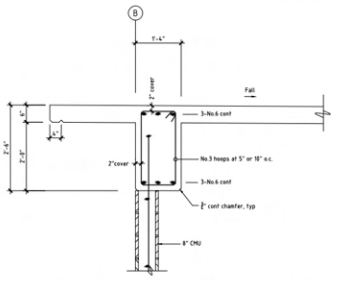


Partial Frame Elevation - Line B shown

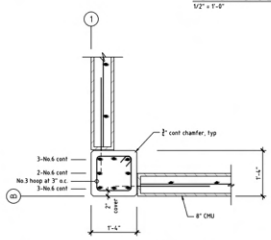
1/2" = 1'-0"

Note:
Locate bar splice at similar locations for other beams unless not required



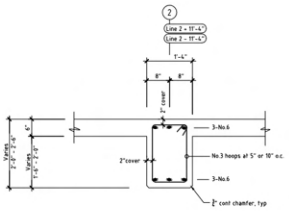
Perimeter Beam Elevation Section 1 - At Line B

3/4" = 1'-0"



Column Plan Section 2 - At Corner B-1

3/4" = 1'-0"



Internal Beam Elevation Section

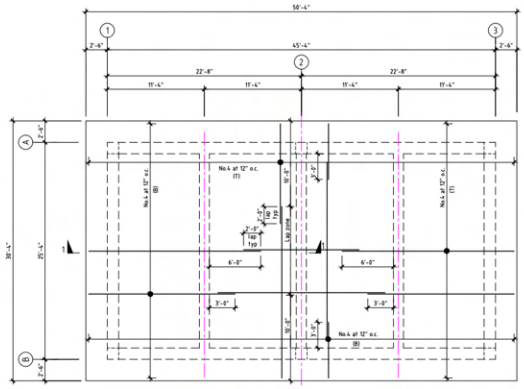
3/4" = 1'-0"

Note:
Beam depth at Line A = 2'-0"
Beam depths at Lines 1 and 3 vary 2'-0" - 2'-6"

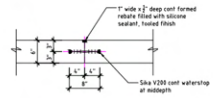
Note:
Main bars - provide 12" legs at Beam ends

PROJECT DETAILS:		DRAWING ORIGINATOR:			REVISION:					
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799		NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:
DWG. TITLE: PARTIAL FRAME ELEVATIONS & BEAM AND COLUMN SECTIONS	ISSUED FOR: CONSTRUCTION		REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25						
PROJECT NUMBER: ASPA21.041	SHEET NO: S007									
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023									

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

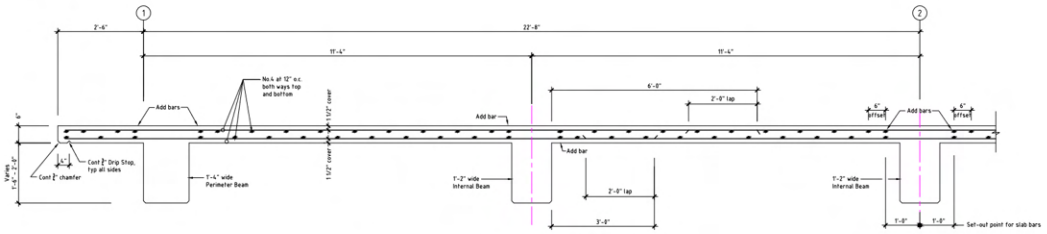


Plan - Roof Slab Reinforcement
3/16" = 1'-0"



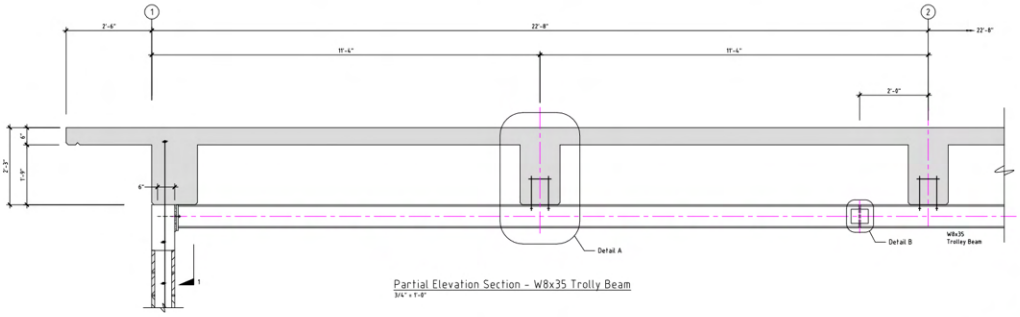
Elevation Section - Slab Waterstop at Construction Joint
1" = 1'-0"

Note:
Slab reinforcement omitted for clarity

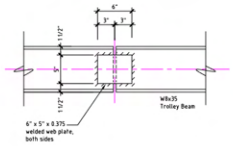


Elevation Section 1-1 - Partial Roof Slab Section
3/4" = 1'-0"

PROJECT DETAILS:		DRAWING ORIGINATOR:			REVISION:					
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799		NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:
DWG. TITLE: ROOF SLAB PLAN & SECTION	ISSUED FOR: CONSTRUCTION		REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25						
PROJECT NUMBER: ASPA21.041	SHEET NO: S008				AMERICAN SAMOA POWER AUTHORITY					
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023				WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD					
					P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799					

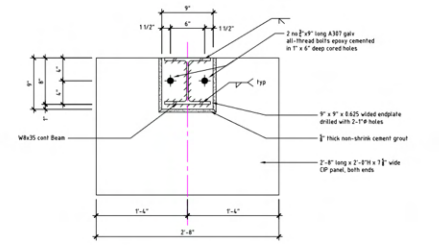


Partial Elevation Section - W8x35 Trolly Beam
3/4" = 1'-0"

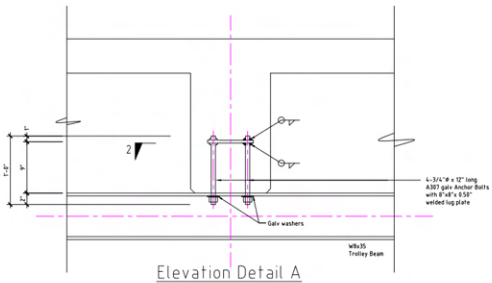


Elevation Detail B
1½" = 1'-0"

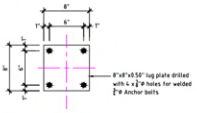
Note:
Single beam splice only
required at this location



Elevation Section 1
1½" = 1'-0"



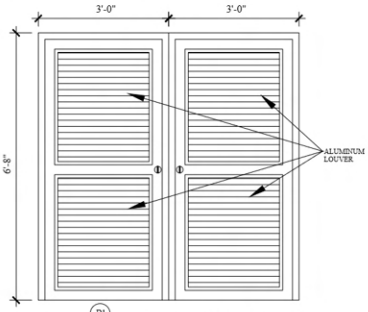
Elevation Detail A
1½" = 1'-0"



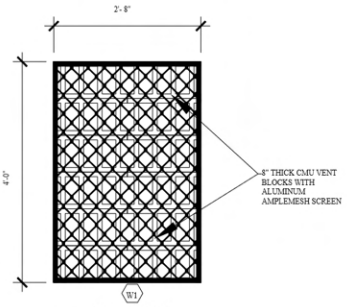
Plan Section 2
1½" = 1'-0"

PROJECT DETAILS:		DRAWING ORIGINATOR:		REVISION:					
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799		NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:
DWG TITLE: TROLLY BEAM DETAILS	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA	EXPIRES: 31/12/25						
PROJECT NUMBER: ASPA21.041	SHEET NO: S009								
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023								

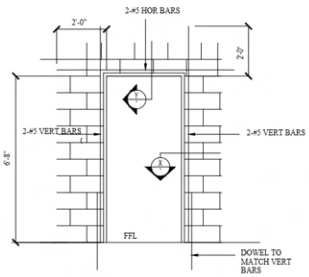
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799



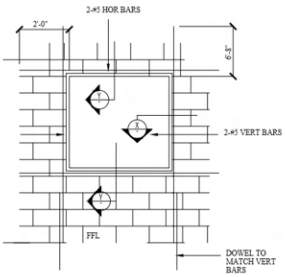
1 DOUBLE SWING ALUMINUM DOOR
SCALE: 3/8" : 1'-0"



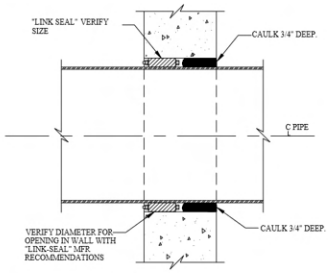
2 WINDOW DETAILS
SCALE:3/8" : 1' - 0"



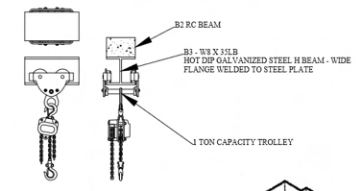
3 TYP DOOR OPENING REINFORCING
SCALE: 1/2" : 1'



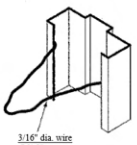
4 TYP WINDOW OPENING REINFORCING
SCALE : 1/2" : 1'



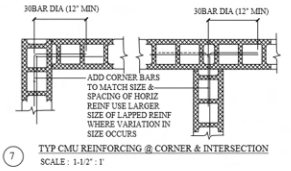
5 PIPE PENETRATION



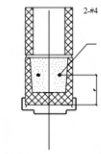
6 PIPE PENETRATION



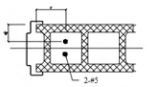
8 TYPICAL DOOR JAMB & HEAD
NTS



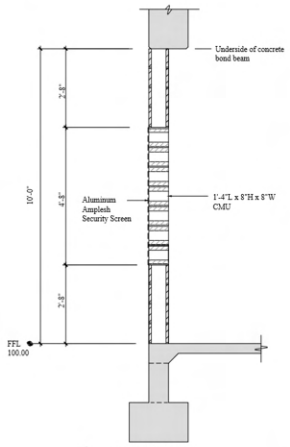
7 TYP CMU REINFORCING @ CORNER & INTERSECTION
SCALE : 1-1/2" : 1'



SECTION Y
SCALE : 1-1/2" : 1'



9 SECTION X
SCALE : 1-1/2" : 1'



10 ELEVATION SECTION 1
SCALE : 3/4" : 1'

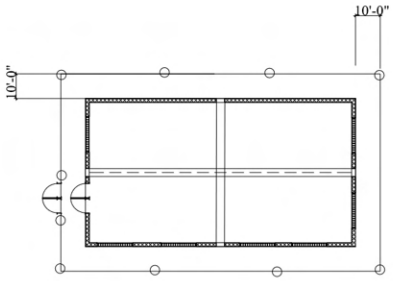
PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: MISCELLANEOUS DETAILS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: S010
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E.CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

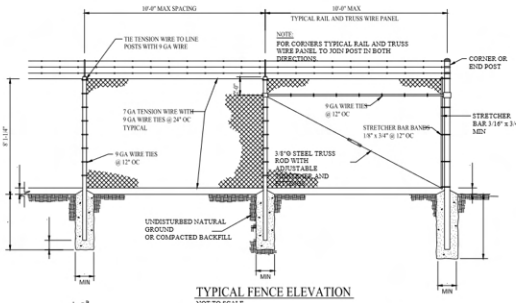
CLIENT:	
AMBASSADOR WRN	AMERICAN SAMOA POWER AUTHORITY
	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
	P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
	TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

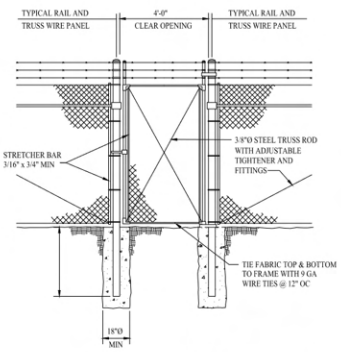


BEAM LAYOUT



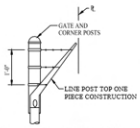
TYPICAL FENCE ELEVATION

NOT TO SCALE



TYPICAL WALK GATE DETAIL 3

SCALE: NTS



BARBED WIRE ARM SHALL WITHSTAND A WEIGHT OF 250 LBS. WITH NO PERMANENT DEFORMATION AND INSTALLED AS REQUESTED BY SBMWD.

BARBED WIRE SUPPORTING ARM DETAIL

NOT TO SCALE

NOTES:

1. ADJUSTABLE TIGHTENERS SHALL TURNBUCKLE OR EQUIVENT, HAVING 6" MIN. TAKE-UP.
2. TYPICAL RAIL AND TRUSS WIRE PANELS SHA BE USED AT ALL CORNERS, END POSTS AND ANGLE POSTS, OR CURVES WITH HORIZONTAL DEFLECTION ANGLES OF 5° OR GREATER.
3. TYPICAL RAIL AND TRUSS WIRE PANELS SHA BE INSTALLED AT NOT MORE THAN 1000' INTERVALS ALONG FENCE LINE AND AT VERTICAL GRADE CHANGES EXCEEDING 5°.

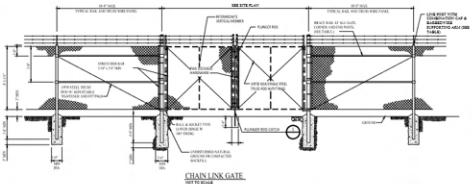
POST & MATERIALS TABLE

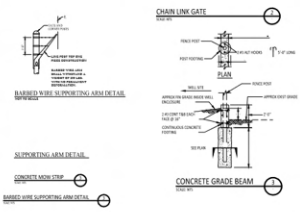
ITEM	MATERIALS
LINE POSTS	SCH 80 HOT DIP GALVANIZED
CORNER & END POSTS	SCH 80 HOT DIP GALVANIZED
WALK GATE POST	SCH 80 HOT DIP GALVANIZED
DRIVE GATE POSTS	SCH 80 HOT DIP GALVANIZED
CHAIN LINK FABRIC	9 GA. 2" MESH WIRE PVC COATED
GATE FRAMES	1 7/8" OD SCH 80 PIPE
TENSION WIRE	7 GA. GALV SPRING COILED
TRUSS RODS	3/8" GALV STEEL
BRACES	GALV STEEL

CHAIN LINK FENCE MATERIALS

1. SUBMIT MANUFACTURERS DESCRIPTIVE LITERATURE A STANDARD DRAWINGS OF FENCE AND GATE INSTALLATION FOR REVIEW IN ACCORDANCE WITH THE GENERAL PROVISIONS.
2. CHAIN LINK FABRIC SHALL BE PER ASPA SPE
3. TIE WIRES SHALL BE ALUMDUM, 9 GAUGE, ALLOY 1100-H4 P COATED OR EQUAL
4. STEEL PIPE FOR POSTS, BRACE RAILS AND GATE FRAMES SHA BE SCH 80 HOT DIP GALVANIZED.
5. FENCE FITTINGS WHICH INCLUDE THE ITEMS LISTED HERE SHALL BE PER SPEC
6. TENSION WIRE SHALL BE MARCELLED 7 GAUGE STEEL WI WITH MINIMUM COATING OF 0.80 OUNCES OF ZINC OR 0.40 OUNCES OF ALUMINUM PER SQUARE FOOT OF WIRE SURFACE AND CONFORMING TO ASTM A824.
7. GATE FRAMES CAN BE WELDED, OR CONSTRUCTED WI MALLEABLE OR PRESSED STEEL CORNER FITTINGS WHICH ARE RIVETED FOR RIGID CONSTRUCTION.
8. GATE HINGES SHALL BE PRESSED OR FORGED STEEL MALLEABLE IRON, NON LIFT OFF TYPE, OFFSET FOR 180 DEGREE OPENING, ONE AND ONE-HALF PAIRS FOR EACH LEAF. GATE LATCH SHALL BE FORKED TYPE OR PLUNGER BAR TYPE FOR OPERATION FOR EITHER SIDE, WITH PADLOCK EYE AS AN INTEGRAL PART.
9. CONCRETE SHALL BE CONFORMING TO ASTM C 94, HAVING MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
10. INSTALL THE CHAIN LINK FENCING IN ACCORDANCE W ASTM F567 EXCEPT AS MODIFIED ON THESE DRAWINGS.

CHAIN LINK FENCE DETAIL





BARBED WIRE SUPPORTING ARM DETAIL

SUPPORTING ARM DETAIL

CONCRETE MOW STRIP

BARBED WIRE SUPPORTING ARM DETAIL

CHANGES EXCEEDING 5°.

NOTES:

1. ADJUSTABLE TIGHTENERS SHALL TURNBUCKLE OR EQUIVENT, HAVING 6" MIN. TAKE-UP.
2. TYPICAL RAIL AND TRUSS WIRE PANELS SHA BE USED AT ALL CORNERS, END POSTS AND ANGLE POSTS, OR CURVES WITH HORIZONTAL DEFLECTION ANGLES OF 5° OR GREATER.
3. TYPICAL RAIL AND TRUSS WIRE PANELS SHA BE INSTALLED AT NOT MORE THAN 1000' INTERVALS ALONG FENCE LINE AND AT VERTICAL GRADE CHANGES EXCEEDING 5°.

GATE MATERIALS

1. SUBMIT MANUFACTURERS DESCRIPTIVE LITERATURE A STANDARD DRAWINGS OF FENCE AND GATE INSTALLATION FOR REVIEW IN ACCORDANCE WITH THE GENERAL PROVISIONS.
2. GATE FRAMES CAN BE WELDED, OR CONSTRUCTED WI MALLEABLE OR PRESSED STEEL CORNER FITTINGS WHICH ARE RIVETED FOR RIGID CONSTRUCTION.
3. GATE HINGES SHALL BE PRESSED OR FORGED STEEL MALLEABLE IRON, NON LIFT OFF TYPE, OFFSET FOR 180 DEGREE OPENING, ONE AND ONE-HALF PAIRS FOR EACH LEAF. GATE LATCH SHALL BE FORKED TYPE OR PLUNGER BAR TYPE FOR OPERATION FOR EITHER SIDE, WITH PADLOCK EYE AS AN INTEGRAL PART.

CHAIN LINK GATE DETAIL

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: CHAIN LINK FENCE DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S011
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA

STATE OF MAINE — WILLIAM C GORDON — No. 9257 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

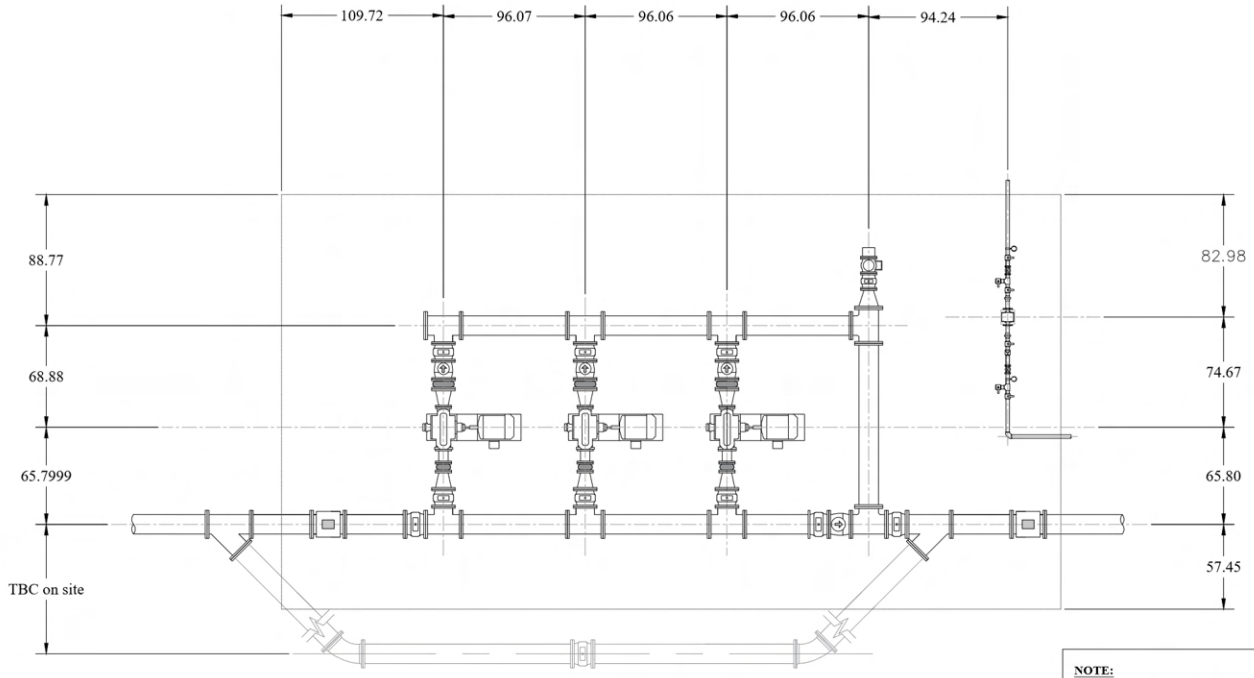
AMERICAN SAMOA POWER AUTHORITY

WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD

P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



NOTE:
ALL MEASUREMENTS ARE TO BE VERIFIED BY THE CONTRACTOR WITH STANDARD FITTINGS AND UPON SITE MEASUREMENTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1:30
DWG TITLE: PROPOSED PUMP & PIPING LAYOUT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: M002
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

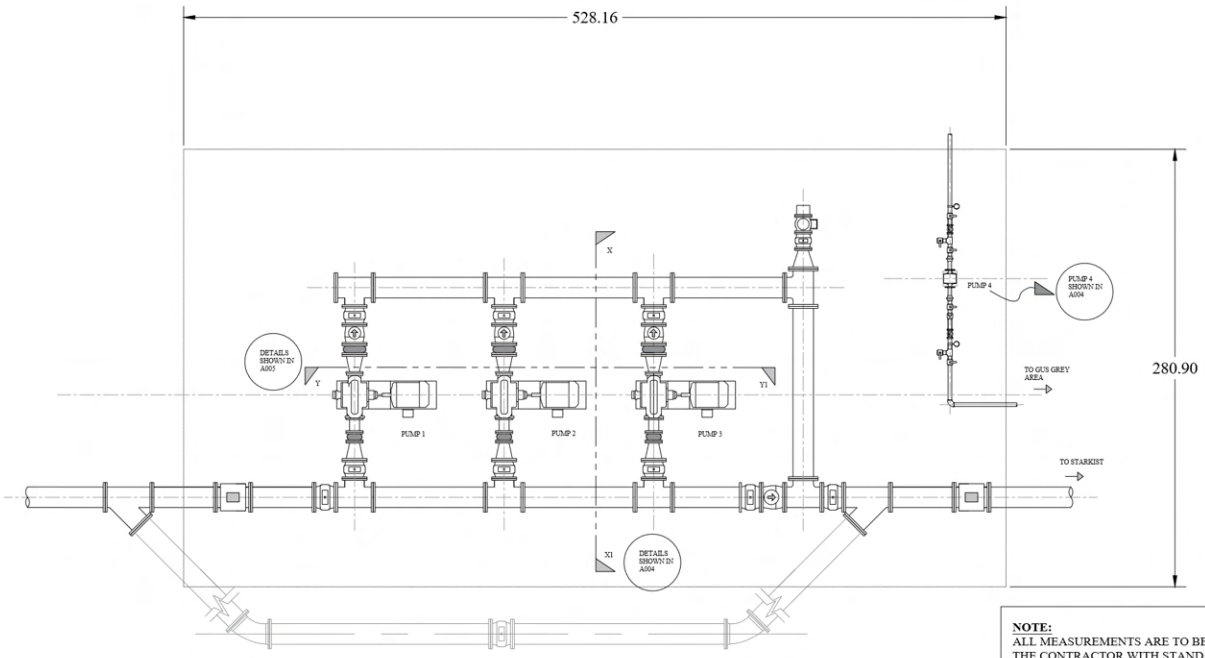
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



NOTE:
ALL MEASUREMENTS ARE TO BE VERIFIED BY THE CONTRACTOR WITH STANDARD FITTINGS AND UPON SITE MEASUREMENTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1:30
DWG TITLE: PROPOSED PLAN WITH SECTIONAL LINES	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: M003
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

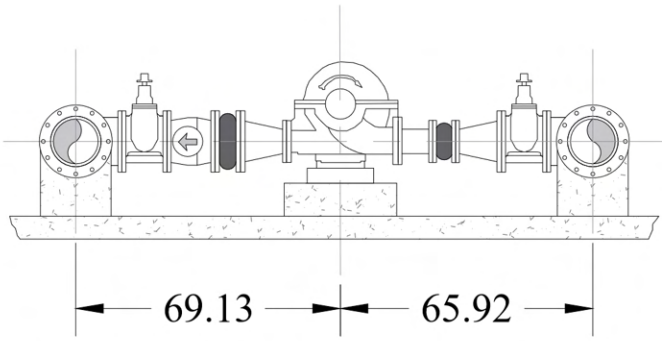
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

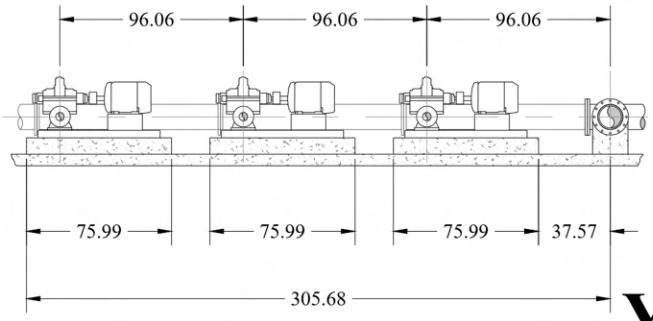
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



X-X1



Y-Y1

NOTE:
ALL MEASUREMENTS ARE TO BE VERIFIED BY THE CONTRACTOR WITH STANDARD FITTINGS AND UPON SITE MEASUREMENTS

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1:10
DWG TITLE: PROPOSED FRONT SECTIONAL VIEW	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: M004
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:	
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

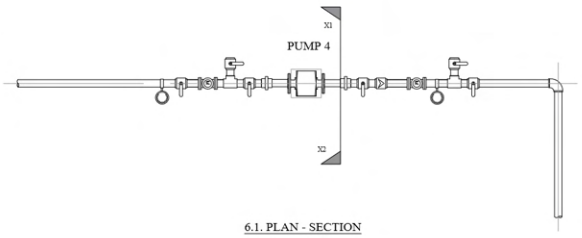
CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

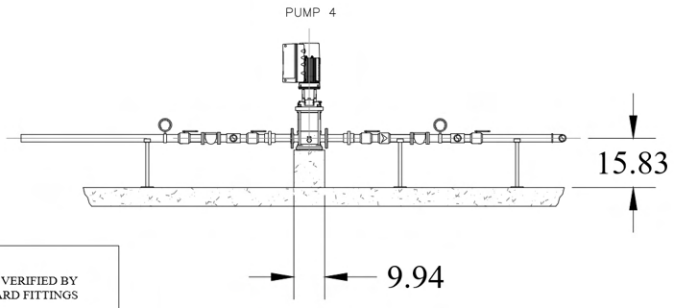
PUMP 4 DETAILS

DESCRIPTION
GRUNDFOS PUMP CRIE 15-3 A-FGJ-A-E-HQQE 90 .3 GPM @ 152.9 FT LOW NPSH, 440-480 VOLTS 7.5 HP MOTOR 60 HZ

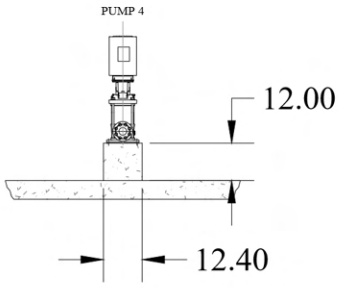
NOTE(S):
1. PUMP RUNS ON BUILT-IN VFD BASED ON PRESSURE REQUIRED - INITIAL SETTINGS TO BE 70/90 PSI
2. OPTIONAL TO INSTALL A PRESSURE TANK IF REQUIRED
2. ALL MEASUREMENTS ARE TO BE VERIFIED BY THE CONTRACTOR WITH STANDARD FITTINGS AND UPON SITE MEASUREMENTS



6.1. PLAN - SECTION



5.1. PIPING - SIDE VIEW



5.1. PIPING - END SECTIONAL X2-X2

NOTE:
ALL MEASUREMENTS ARE TO BE VERIFIED BY THE CONTRACTOR WITH STANDARD FITTINGS AND UPON SITE MEASUREMENTS

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1:15
DWG TITLE: PROPOSED PUMP 4 DETAILS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: M005
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:	
	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA

CLIENT:	
	AMERICAN SAMOA POWER AUTHORITY
	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
	P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
	TEL: (684) 699-7199

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

CONSTRUCTION NOTES

GENERAL:

G 1 These drawings shall be read in conjunction with all Architectural and Structural drawings and Specifications. Any discrepancy shall be referred to the Engineer and be resolved before work proceeds.

G 2 All materials and workmanship shall be in accordance with the 2018 Edition of the International Building Code (IBC)

G 3 All dimensions shown shall be verified by the Contractor on site. The drawings shall not be scaled for dimensions.

G 4 During construction, the Contractor shall maintain safe and stable the structure and adjacent structures. No part shall be overstressed. Temporary bracing shall be provided by the Contractor to keep the works and excavations stable at all times.

G 5 All levels are in feet and inches unless noted otherwise.

LOADS :

L 1 The structural components detailed on these drawings have been designed in accordance with ASCE 7 - 16.

Floor Live Load:	100 psf
Roof Live Loads :	50 psf
Wind :	170 mph (Strength)
Earthquake :	Cs = 0.14

SITE PREPARATION :

SP 1 Demolish and remove completely from the site all structures and materials noted on the Plans to be demolished under this Contract.

SP 2 Remove all organic material and topsoil from the area of the slabs to a distance of 3 feet beyond. Excavate to required levels.

SP 3 Cut on cleared subgrade and all structural fill to 3 feet beyond slab edges shall be compacted to 95% compaction in accordance with ASTM D1557. Fill shall be compacted in layers not exceeding 6" loose thickness. Structural backfill shall be free of vegetable matter and shall conform to the following grading requirements:

Sieve Size	Percent Passing by Weight
2"	100
1 1/2"	90 - 100
3/4"	50 - 90
No. 4	25 - 50
No. 200	3 - 9

SP 4 Notify the Engineer if rock is exposed during excavation to obtain his instructions before proceeding further.

FOUNDATIONS :

F 1 Footings have been designed for an allowable bearing pressure of 2000 psf on natural material. Preparations made to ground under foundations and slabs shall be approved by the Engineer before placement of reinforcement or concrete can proceed.

F 2 Footings are to be constructed and backfilled as soon as possible following excavation and inspection to avoid softening or drying out of foundation materials through exposure.

CONCRETE:

C 1 All workmanship and materials shall be in accordance the 2018 Edition of the International Building Code and ACI 117-90.

C 2 Materials

Cement shall conform to ASTM C150, Type II.

Aggregates shall conform to ASTM C33, Concrete Aggregate.
Maximum aggregate size shall be 3/4".

Reinforcing bars shall conform to ASTM A615:
Grade 60

Weld wire fabric shall conform to ASTM A185.

Water used in mixing concrete shall be potable.
Admixtures to be used in concrete shall be subject of to prior approval by the Engineer.

Cementitious materials and aggregate shall be stored in such manner as to prevent deterioration or intrusion of foreign matter. Any material that has deteriorated or has been contaminated shall not be used for concrete.

C 3 Durability Requirements

Minimum concrete compressive strength at 28 days shall be 4000 psi.
The maximum water - cement ratio by weight shall not exceed 0.4

The following minimum concrete cover shall be provided for reinforcement unless otherwise noted:

1) Concrete cast directly against earth: 3"

2) Formed concrete exposed to weather:

Slabs : 1 1/2"

Beams and columns:
Transverse reinforcement: 2"

C 4 Concrete Quality, Mixing and Placing Requirements

The Engineer shall be given at least 24 hours notice for reinforcement inspection. Concrete shall not be delivered until final approval has been obtained for the reinforcement.

All concrete shall have the workability and consistency to be deposited into forms and worked around reinforcement without segregation or excessive bleeding. All concrete including slabs on ground and footings shall be compacted with mechanical vibrators.

A minimum of of three samples shall be taken from each day's pour for testing. Testing shall be carried out at 7 days and 28 days. Slump shall not exceed 4".

Internal floors shall receive a steel troweled finish.
External footpaths shall have a broomed finish transverse to direction of pedestrian traffic.

The finish tolerance of concrete floor slabs shall be 1/4" in 10 feet.

Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of 7 days. Approved sprayed or curing compounds may be used where no floor finishes are proposed. Polythene sheeting may be used if protected from wind and traffic.

C 5 Formwork Construction

Forms shall result in a final structure that conforms to lines and dimensions of the members as required by the design drawings and specifications.

Forms shall be constructed of the following materials:

Hidden surfaces:	Rough sawn or better timber
Exposed surfaces:	Plywood, dressed T and G timber, or steel

C 6 Details of Reinforcement

All reinforcement shall be bent cold. Bending deails shall be as in Figure 1.

Splices shall be made only in positions shown on the drawings or as otherwise approved in writing by the Engineer. Minimum lap lengths shall be as follows unless noted otherwise:

Bar Size	Bar Length
# 3	1' - 6"
# 4	2' - 0"
# 5	2' - 6"
# 6	3' - 0"
# 7	3' - 6"
# 8	4' - 0"
Mesh	8"

Welding of reinforcement is not permitted.

MASONRY

M 1 All workmanship and materials shall be in accordance with the 2006 Edition of the International Building Code and ACI 117-90.

M 2 Materials

Masonry units shall have a minimum compressive strength at 28 days of 1500 psi.

Mortar shall have a minimum compressive strength at 28 days of 1500 psi.

Grout used in masonry wall cells and courses shall have a minimum compressive strength at 28 days of 2000 psi. Maximum aggregate size shall be 3/8".

Columns shall be filled with structural concrete having a minimum 28 day compressive strength of 4000 psi.

Reinforcing bars shall conform to ASTM A615, Grade 60.

M 3 Handling, Storage and Preparation

Masonry materials shall be stored so that at the time of use the materials are clean and structurally suitable for the intended use.

All metal reinforcement shall be free from loose rust and other coatings that would inhibit reinforcing bond.

Mortar or grout mixed at the jobsite shall be mixed for a period of time not less than 3 minutes or more than 10 minutes in a mechanical mixer.

M 4 Placing Masonry Units

Masonry shall be constructed in running bond pattern throughout. Concrete masonry units shall not be wetted prior to or during placement. The initial bed joint thickness shall not be less than 1/4" or more than 1"; subsequent joints shall not be less than 1/4" or more than 1/2" in thickness.

All joints shall be neatly tooled and left slightly concave to the surface of the masonry block.

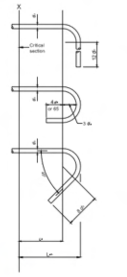
M 5 Grouted Masonry

Reinforcement shall be placed prior to grouting and secured against displacement by wire positioners or other suitable means. Bolts shall be accurately set with templates to prevent dislocation during grouting.

Cleanouts shall be provided in the bottom course of every vertical bar and shall be sealed after inspection and before grouting.

Grouting shall be carried out in lifts not exceeding 4 feet. All cells shall be grouted solid. Grout shall be consolidated by mechanical vibration during placement.

FIGURE 1



STRUCTURAL STEEL

S 1 All workmanship and materials shall be in accordance with the 2018 Edition of the International Building Code.

S 2 Materials

Unless noted otherwise, steel shall conform to one of the following ASTM Specifications :

Structural steel, plate	ASTM A36
Structural tube, pipe,	ASTM A500 Grade B
General, all purpose bolts,	ASTM A36
High strength structural bolts,	ASTM A325

S 3 Three (3) copies of shop fabrication drawings shall be submitted to the Engineer for review at least 7 days prior to commencement of fabrication.

S 4 Mill and Shop Inspection

The Contractor shall give advance notice of shop and mill work and also then location to the Engineer so that the Engineer may set up testing and inspection procedure.

S 5 Shop Work and Fabrication

Structural material shall be kept clean and free from injury due to rough handling at all times including during loading, transporting and storage.

S 6 Erection

Materials stored on site shall be placed on skids above the ground. They shall be kept clean and properly drained.

All erection work shall be subject to inspection by the Engineer. The Contractor shall provide the falsework and all tools and machinery necessary for the handling of the work.

S 7 Bolts

Anchor bolts shall be set accurately to the pattern and dimensions called for on the Plans. The protrusion of the threaded ends through the connected material shall be sufficient to fully engage the thread of the nuts.

Where A325 high strength bolts are specified for connections, the work shall comply with Sections 2220-2228 of the 22018 IBC.

For all A325 bolts a hardened washer shall be installed under the nut or bolt head, whichever is the element turned in tightening.

Galvanized A325 bolts shall not be reused once tightened.

S 8 Welding

All welding shall comply with the applicable provisions of the American Welding Society's Structural Welding Code - Steel '.

Welding shall be carried out by welding operators who have had suitable training and practical exprience in welded construction.

Electrical arc welding equipment shall be maintained in good condition to the satisfaction of the Engineer.

Electrodes arc welding equipment shall be maintained in good condition to the satisfaction of the Engineer.

Electrodes used for arc welding shall be AWS A5.1, E7014.
Electrodes for metal inert gas (MIG) welding shall conform to AWS A5.20.

Weld symbols :

LOCATION OF ELEMENTS OF A WELDING SYMBOL

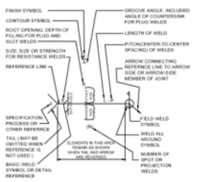


TABLE A - BASIC WELD SYMBOLS AND THEIR LOCATION SIGNIFICANCE

LOCATION SIGNIFICANCE	ARC AND GAS WELD SYMBOLS														
	FILLET	PLUG OR SLOT	ARC-SEAM OR ARC-SPOT	GROOVE							BACK OR BACKING	MELT THRU	SURFACING	FLANGE	
				SQUARE	V	BEVEL	U	J	FLARE V	FLARE BEVEL				EDGE	CORNER
ARROW-SIDE											GROOVE WELD SYMBOL	GROOVE OR FLANGE WELD SYMBOL	NOT USED		
OTHER-SIDE											GROOVE WELD SYMBOL	GROOVE OR FLANGE WELD SYMBOL	NOT USED		
BOTH SIDES		NOT USED	NOT USED								NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
NO ARROW -SIDE OR OTHER-SIDE SIGNIFICANCE	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED		NOT USED	NOT USED

S 9 Paint

Refer to specifications for paint treatment of exposed steelwork.

WOOD

W 1 All workmanship and materials shall be in accordance with the 2018 Edition of the International Building Code.

W 2 Materials

Unless noted otherwise, timber shall be Douglas Fir No. 1 grade.

All timber shall be CCA treated to 0.25 lbs/ft³ in accordance with relevant AWPA standards.
A certificate of inspection from a recognized timber inspection bureau shall be submitted with each shipment of timber.

Bolts shall be general all purpose bolts, ASTM A307.

All nails, nail plates, bolts and washers shall be hot dipped galvanized.

W 3 Storage of Materials

Timber store on the work site shall be kept in orderly stacks on supports at least 12 inches above the ground surface. The material shall be protected from the weather by a suitable covering.

W 4 Workmanship

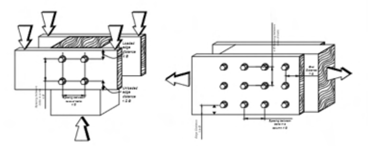
Workmanship shall be first class throughout. All timber shall be accurately cut and framed to a close fit in such manner that the joints shall have even bearing over the entire contact surfaces. Mortises shall be true to size for their full depth and tenons shall fit snugly. No shimming will be permitted in making joints, nor will open joints be accepted. Unless otherwise specified, nails shall be driven with heads set flush with the surface of the wood.

W 5 Bolts and Lag Screws

Holes and bolts shall be bored with a bit the same diameter as the bolt.
Holes for lag screws shall be bored with a bit not larger than the body of the screw at the base of the thread.

Washers, of the size and type specified, shall be used under all bolt heads and nuts.

Bolt spacings, edge and end distances shall be as follows:



PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: GENERAL NOTES	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S001
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING — Engineering and Construction Management

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
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EXPIRES: 31/12/25

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

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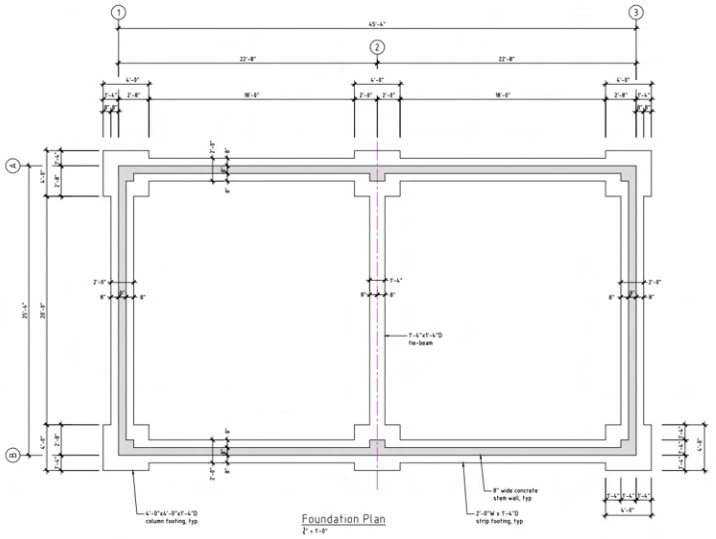
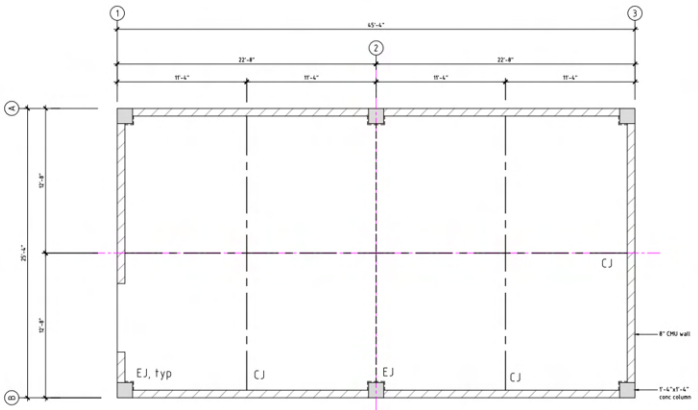
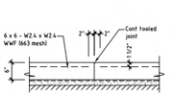
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



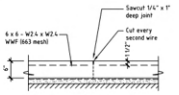
Foundation Plan
1" = 1'-0"



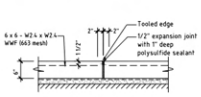
General Floor Slab Plan
1" = 1'-0"



Elevation Section
- Construction Joint (CJ) Detail
3/4" = 1'-0"



Elevation Section
- Contraction Joint (CJ) Detail
3/4" = 1'-0"



Elevation Section
- Expansion Joint (EJ) Detail
3/4" = 1'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: FOUNDATION & GROUND FLOOR SLAB PLANS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S002
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
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REVIEWED AND APPROVED BY:
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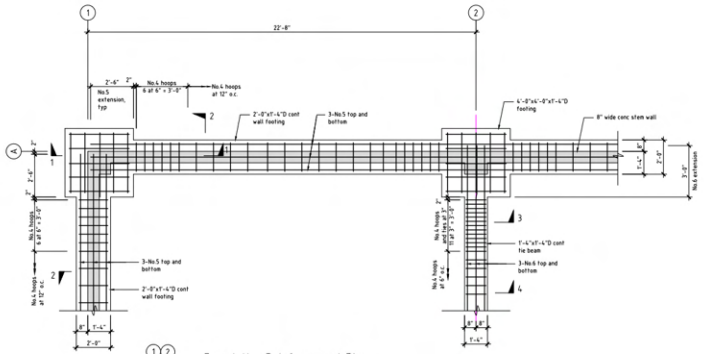
STATE OF MAINE
WILLIAM C GORDON
No. 8201
PROFESSIONAL ENGINEER
EXPIRES: 31/12/25

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

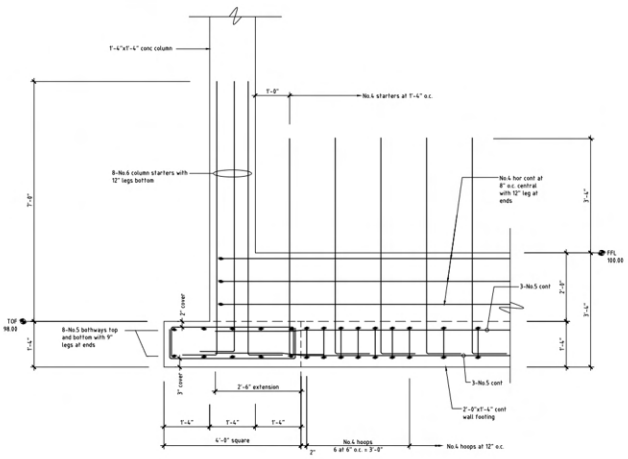
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

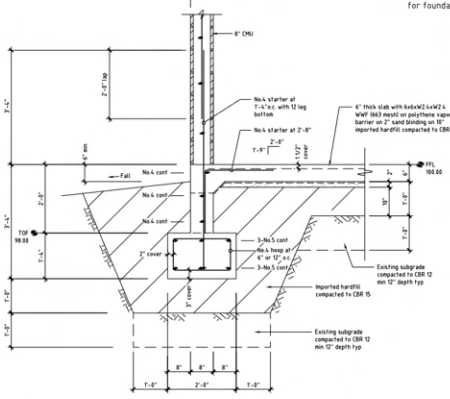


Foundation Reinforcement Plan
3/8" = 1'-0"

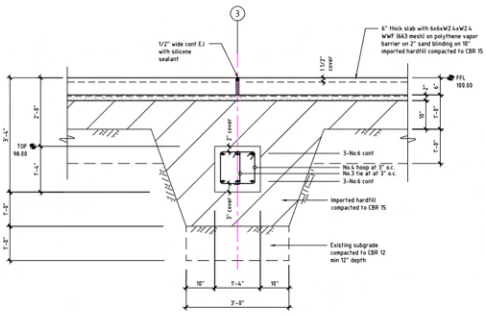
Note:
Detail shown typical for foundation



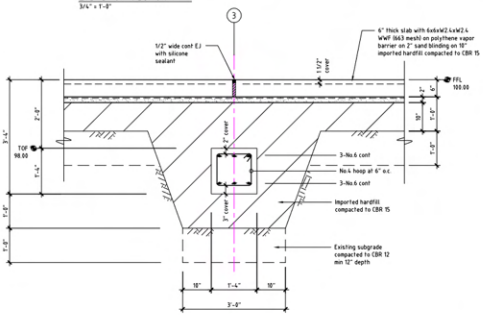
Elevation Section 1 – 1
3/4" = 1'-0"



Elevation Section 2
3/4" = 1'-0"



Elevation Section 3
3/4" = 1'-0"



Elevation Section 4
3/4" = 1'-0"

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: FOUNDATION DETAILS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S003
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
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MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
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STATE OF MAINE — WILLIAM C GORDON — No. 9201 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

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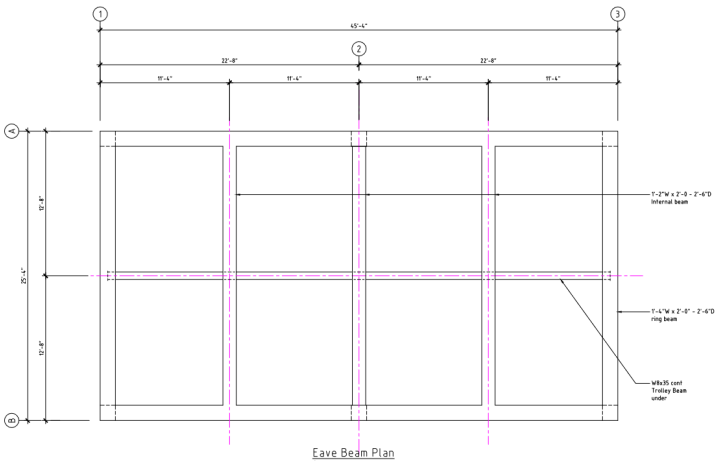
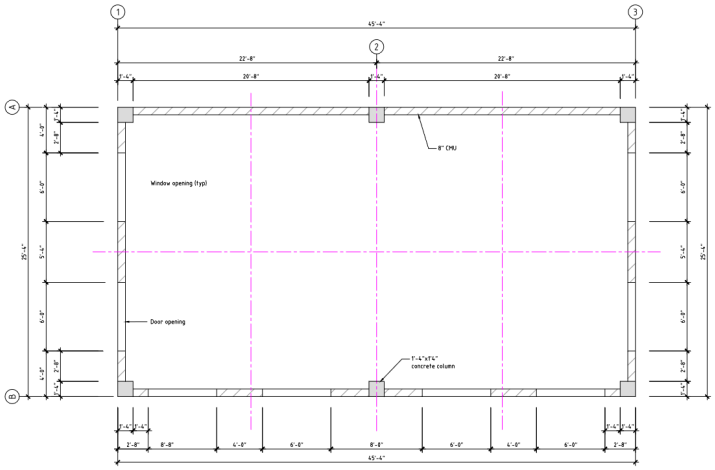
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



Eave Beam Plan

1" = 1'-0"



Wall Plan

1" = 1'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: EAVE BEAM & WALL PLAN	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S004
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	STATE OF MAINE WILLIAM C GORDON No. 9201 PROFESSIONAL ENGINEER
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

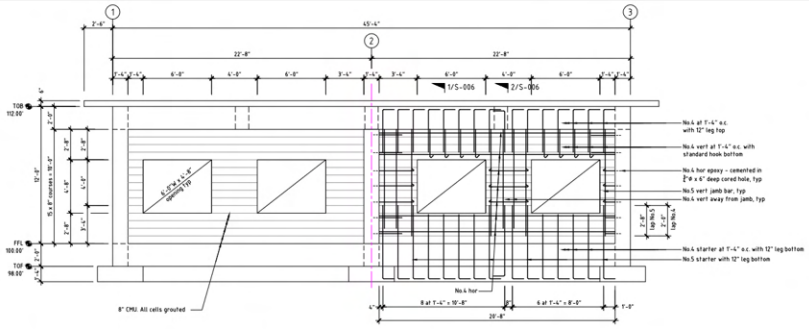
AMERICAN SAMOA POWER AUTHORITY

WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD

P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

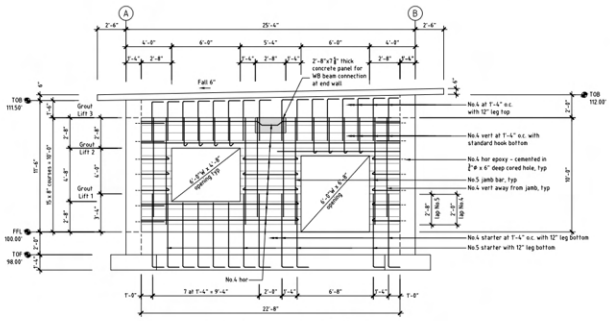
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



Front Elevation - Line B

1" = T'-0"

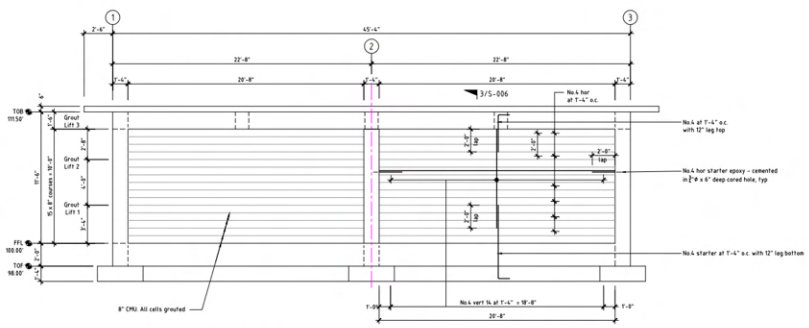
Note:
Reinf arrangement typical for both bays.



Left Elevation - Line 1

1" = T'-0"

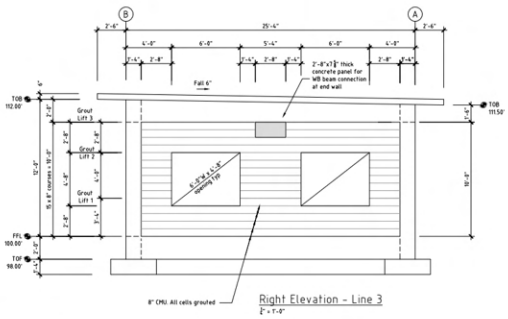
Note:
Reinf arrangement typical for Right Elevation



Rear Elevation - Line A

1" = T'-0"

Note:
Reinf arrangement typical for both bays.
Note:
Construction Sequence:
1) Pour concrete columns
2) Place CMU blockwork
3) Pour eave beams and slab



Right Elevation - Line 3

1" = T'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: WALL ELEVATIONS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S005
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

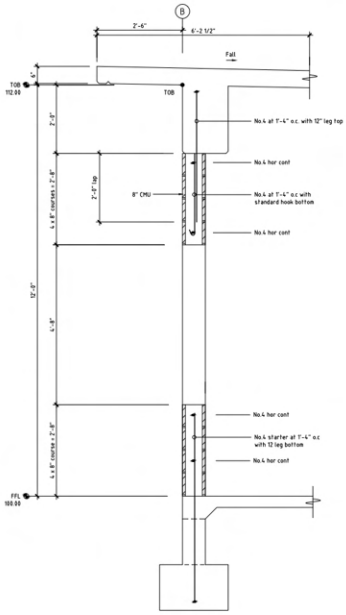
AMERICAN SAMOA POWER AUTHORITY

WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD

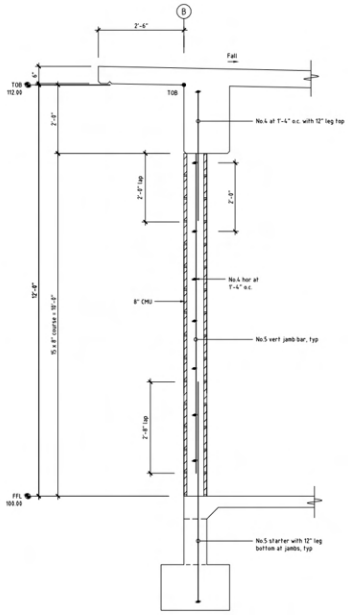
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

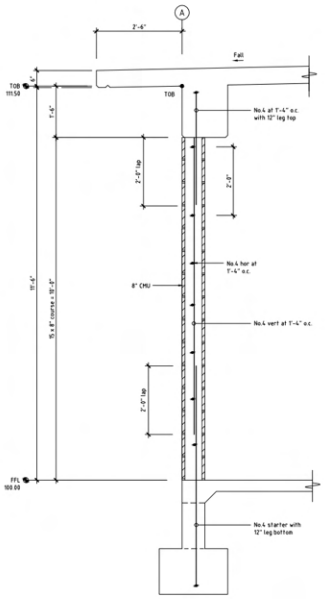
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



Elevation Section 1/S-005 - Line B
3/4" = 1'-0"



Elevation Section 2/S-005 - Line B
3/4" = 1'-0"



Elevation Section 3/S-005 - Line A
3/4" = 1'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: WALL SECTIONS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: S006
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

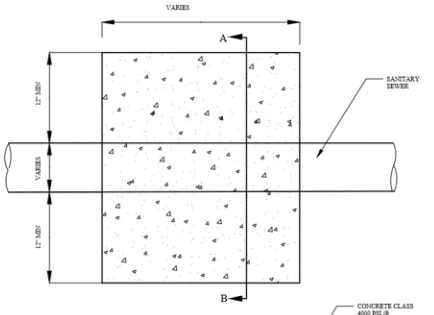
REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

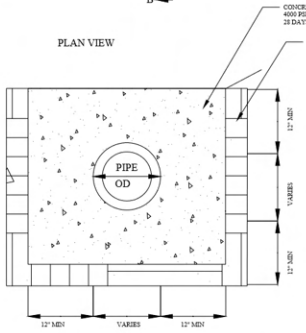
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

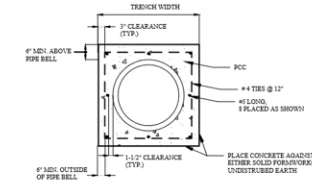
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



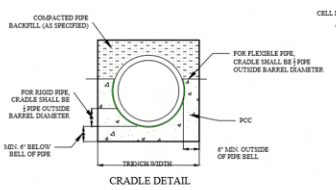
PLAN VIEW



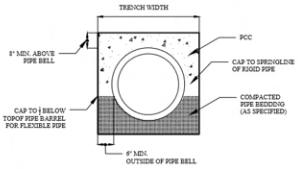
SECTION A-A



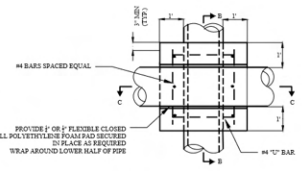
CONCRETE ENCASEMENT DETAIL



CRADLE DETAIL

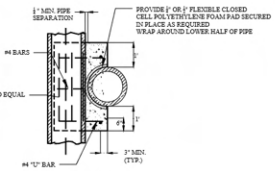


CAP DETAIL

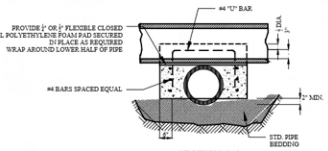


PLAN

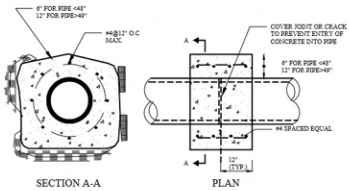
SADDLE



SECTION B-B



SECTION C-C



SECTION A-A PLAN

REINFORCED CONCRETE COLLAR

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET

1. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE
2. END ALL REINFORCING 3" CLEAR OF GROUND, FORMS OT TOP SURFACE, UNLESS OTHERWISE SHOWN
3. TROWEL FINISH TOP SURFACE OF SADDLE, AND CRADLE.
4. REINFORCEMENT SHALL BE # 4 VERTICAL & HORIZONTAL BARS AS SHOWN.

NOTE

1. CONCRETE ENCASEMENT SHALL BE PROVIDED WHERE SEPRATION REQUIREMENTS CANNOT BE MET.
2. ENCASEMENT PLACED AGAINST UNDITURBED NATIVE SOIL, OR FILL COMPACTED TO 90% RELATIVE COMPATION.
3. NOT FOR PIPE TO PIPE CONNECTIONS.

CONCRETE ENCASEMENT DETAIL - 1

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: CONCRETE ENCASEMENT DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C063
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799

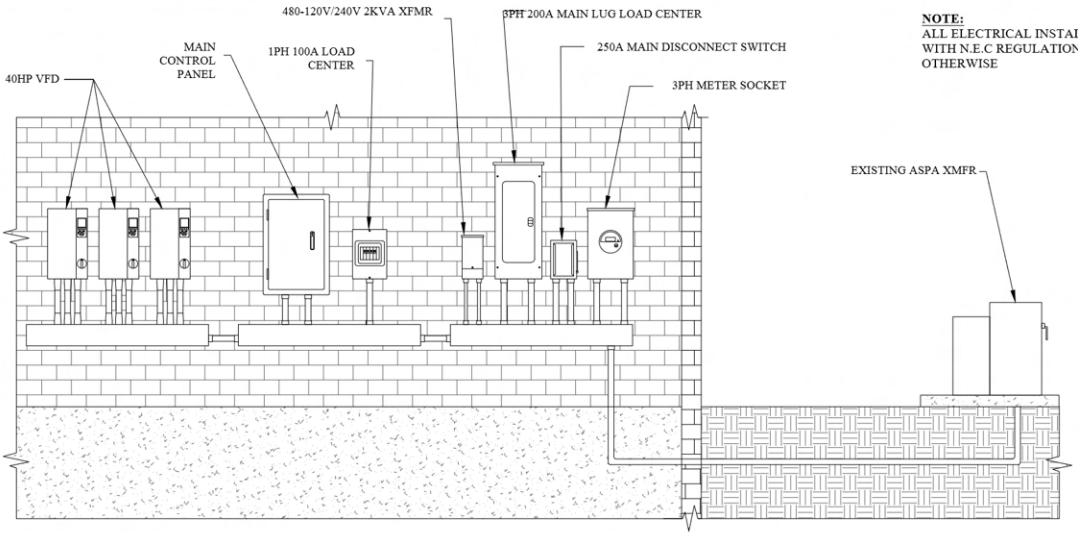
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA

EXPIRES: 31/12/25

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



NOTE:
ALL ELECTRICAL INSTALLATIONS SHALL ABIDE WITH N.E.C REGULATIONS UNLESS STATED OTHERWISE

POWER CONDUIT & CONDUCTOR SCHEDULE

CONDUIT	CONDUCTORS		ROUTING INFORMATION		
SIZE	POWER	GND	FROM	TO	COMMENTS
2-1/2"	3-#4/0	#4	EXISTING ASPA XMFR	3PH METER SOCKET	COPPER WIRE THHN2
2-1/2"	3-#4/0	#4	3PH METER SOCKET	250A MAIN DISCONNECT SWITCH	
2-1/2"	3-#2/0	#6	250A MAIN DISCONNECT SWITCH	3PH 200A MAIN LUG LOAD CENTER	
1"	3-#10	#10	3PH 200A MAIN LUG LOAD CENTER	480-120/240V 2KVA XFMR	
3/4"	2- #10	#10	480-120/240V 2KVA XFMR	1PH 100A LOAD CENTER	
1-1/4"	3-#4	#8	3PH 200A MAIN LUG LOAD CENTER	40HP VFD	
3/4"	2- #12	#12	1PH 100A LOAD CENTER	LIGHTING CIRCUIT	
3/4"	2- #12	#12	1PH 100A LOAD CENTER	RECEPTACLE CIRCUIT	

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED PANEL ARRANGEMENT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E001
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

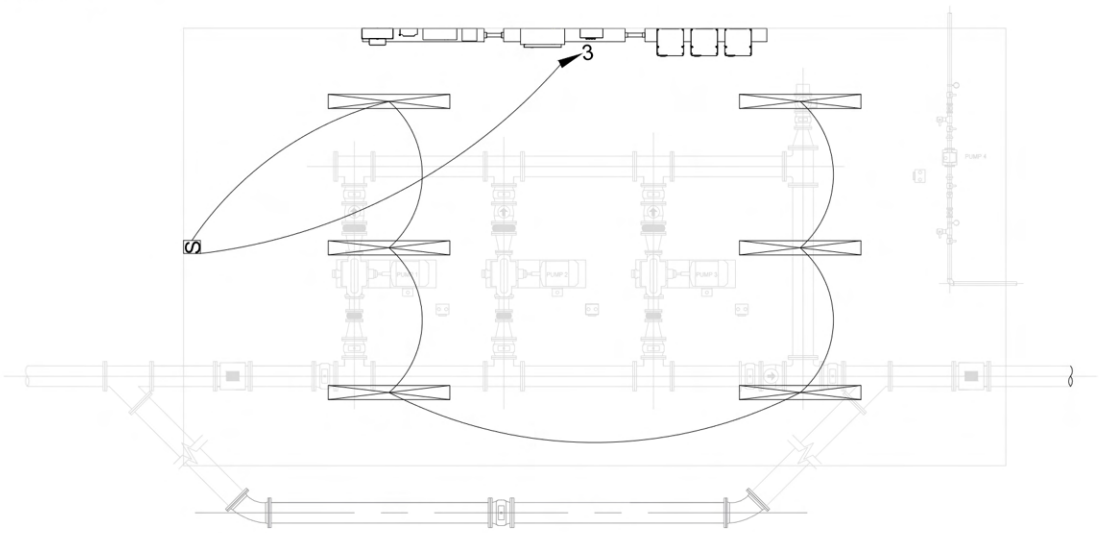
CLIENT:

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

NOTE:
ALL ELECTRICAL INSTALLATIONS SHALL ABIDE WITH N.E.C REGULATIONS UNLESS STATED OTHERWISE



SYMBOL	FIXTURE	LAMP	LUMENS	TEMP	DESCRIPTION	MANUFACTURER/MODEL
		38W	6000	4000K	120V, LED, 8"X4' SURFACE MOUNTED VAPORTIGHT LUMINAIRE WITH CLEAR ACRYLIC LENS AND STAINLESS STEEL LATCHES. UL LISTED FOR WET LOCATIONS.	LITHIONIA FEM

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED LIGHTING CIRCUIT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E002
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

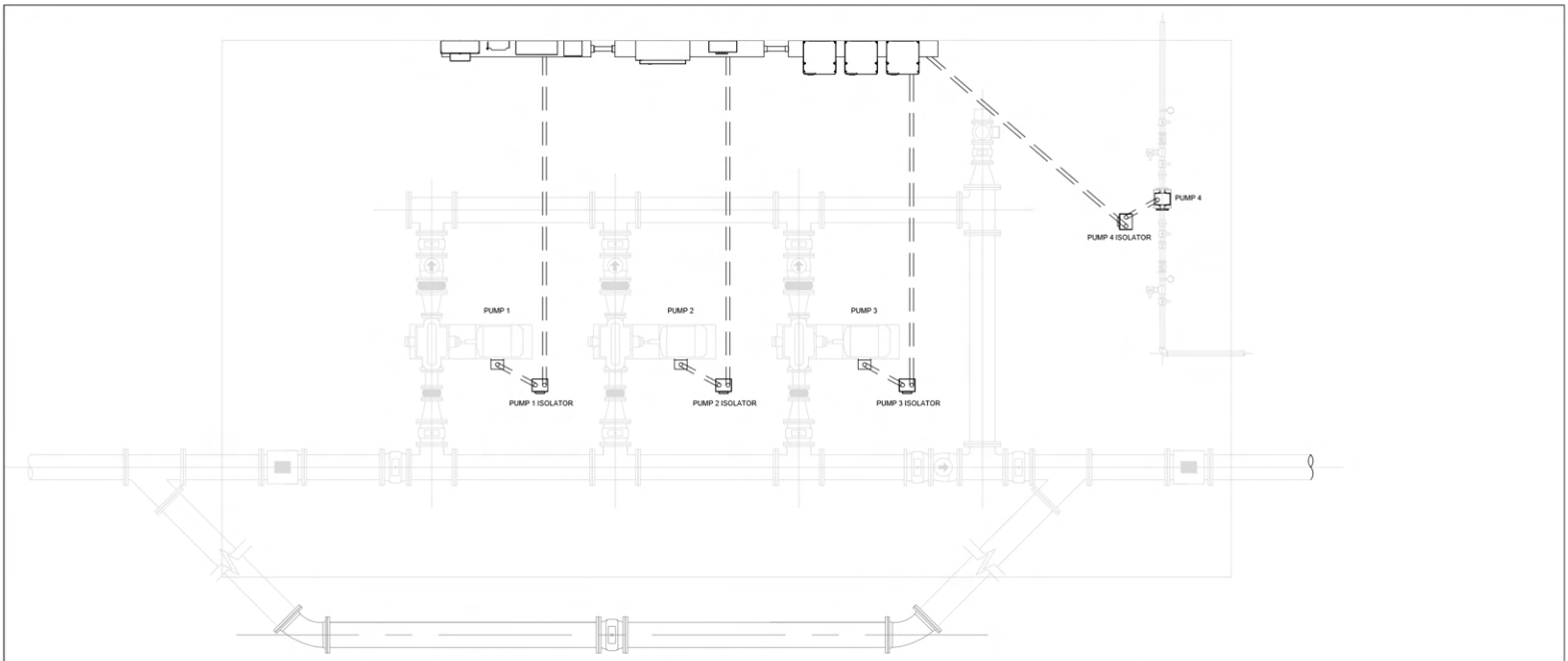
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



POWER CONDUIT & CONDUCTOR SCHEDULE

CONDUIT	CONDUCTORS		ROUTING INFORMATION		
SIZE	POWER	GND	FROM	TO	COMMENTS
1-1/4"	3-#4	#8	40HP VFD 1	PUMP 1 ISOLATOR	CONDUIT RUN UNDERGROUND
1-1/4" FLEX	3-#4	#8	PUMP 1 ISOLATOR	PUMP 1	SURFACE MOUNT
1-1/4"	3-#4	#8	40HP VFD 2	PUMP 2 ISOLATOR	CONDUIT RUN UNDERGROUND
1-1/4" FLEX	3-#4	#8	PUMP 2 ISOLATOR	PUMP 2 ISOLATOR	SURFACE MOUNT
1-1/4"	3-#4	#8	40HP VFD 3	PUMP 3 ISOLATOR	CONDUIT RUN UNDERGROUND
1-1/4" FLEX	3-#4	#8	PUMP 3 ISOLATOR	PUMP 3 ISOLATOR	SURFACE MOUNT
1"	3-#12	#12	LOAD CENTER	PUMP 4 ISOLATOR	CONDUIT RUN UNDERGROUND
1" FLEX	3-#12	#12	PUMP 4 ISOLATOR	PUMP 4	SURFACE MOUNT

NOTE:
ALL ELECTRICAL INSTALLATIONS SHALL ABIDE WITH N.E.C REGULATIONS UNLESS STATED OTHERWISE

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED PUMP CONDUIT ROUTE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E003
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

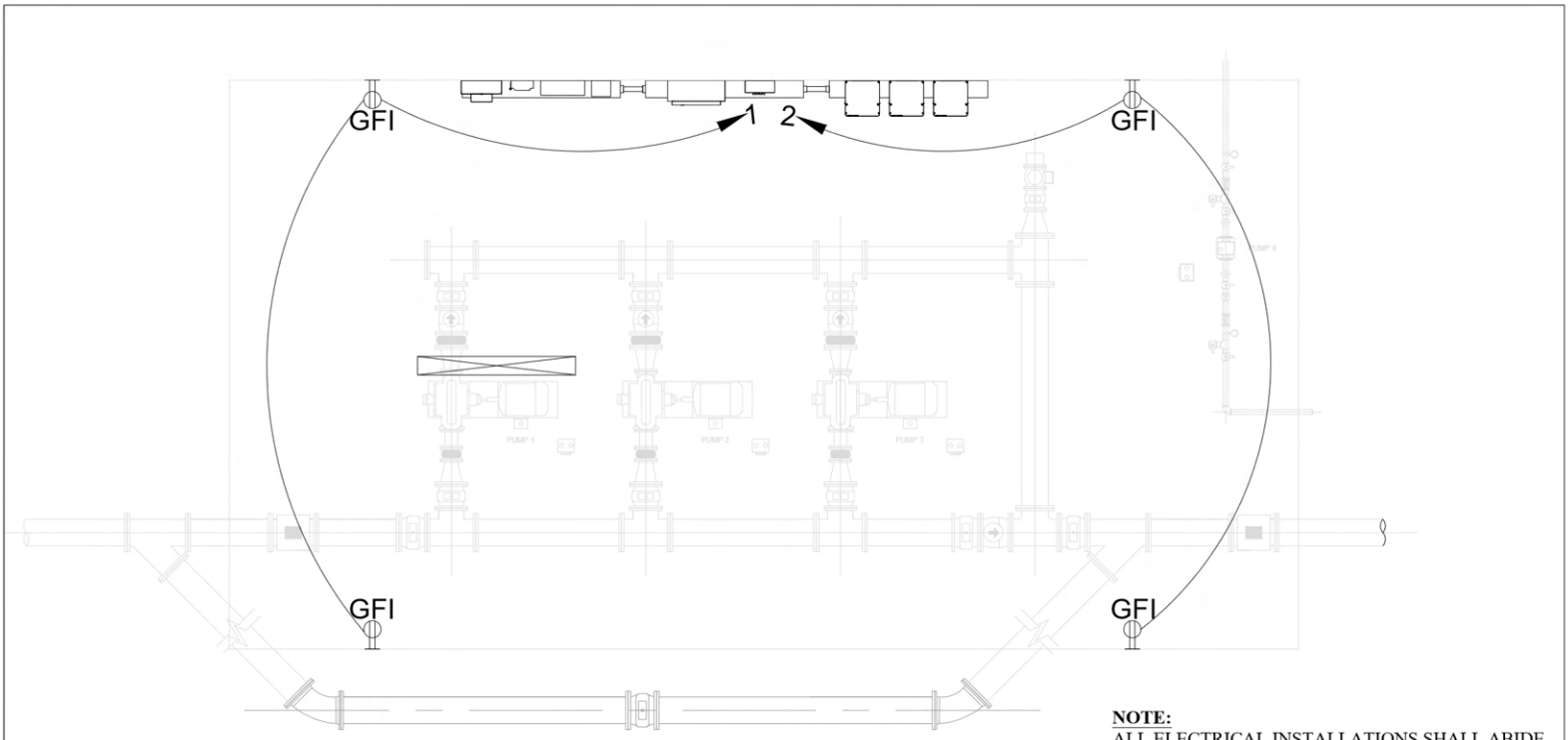
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



NOTE:
ALL ELECTRICAL INSTALLATIONS SHALL ABIDE WITH N.E.C REGULATIONS UNLESS STATED OTHERWISE

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED RECEPTABLE CIRCUIT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E004
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:	
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

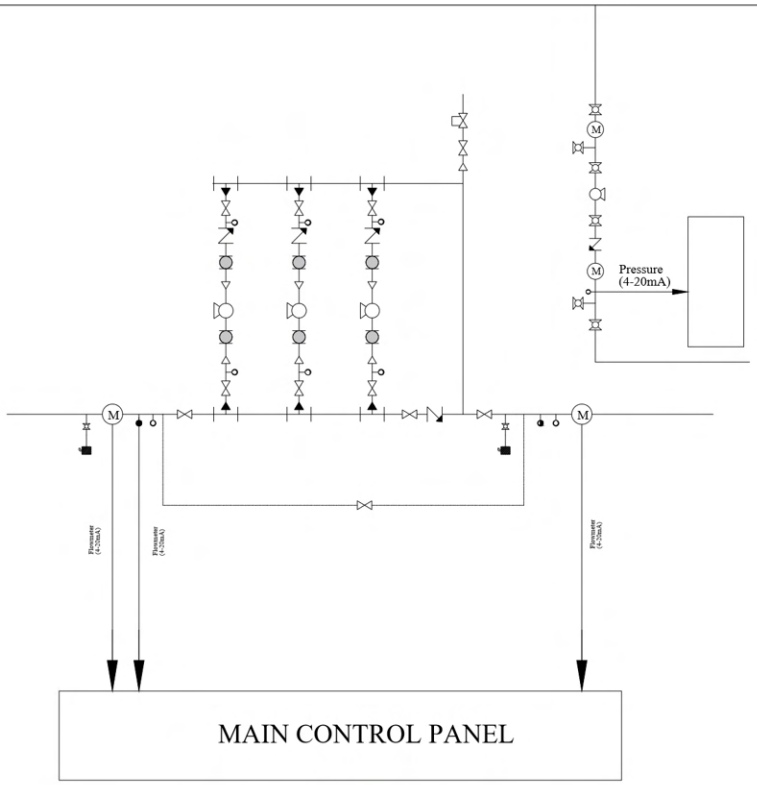
	BALL VALVE
	REDUCING TEE
	CHECK VALVE
	EDM RUBBER EXPANSION JOINT
	SURGE ANTICIPATOR VALVE
	REDUCER FLGXFLG
	GATE VALVE FLGXFLG
	PRESSURE SENSOR
	PRESSURE GAUGE
	PRESSURE TRANSDUCER
M	FLOWMETER/ MAGMETER
KEYS	DESCRIPTION

PUMP 1, 2 & 3 DETAILS

DESCRIPTION
GRUNFOS XP PUMP 5015-9/0 KP 1300GPM @ 70 FT 14.06 FT NPSH, 460 VOLTS 30 HP MOTOR 60 HZ

PUMP 4 DETAILS

DESCRIPTION
GRUNFOS PUMP CRIE 15-3 A-FGJ-A-E-HQQE 90 .3 GPM @ 152.9 FT LOW NPSH, 440-480 VOLTS 7.5 HP MOTOR 60 HZ



PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED P&ID ELECTRICAL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E005
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

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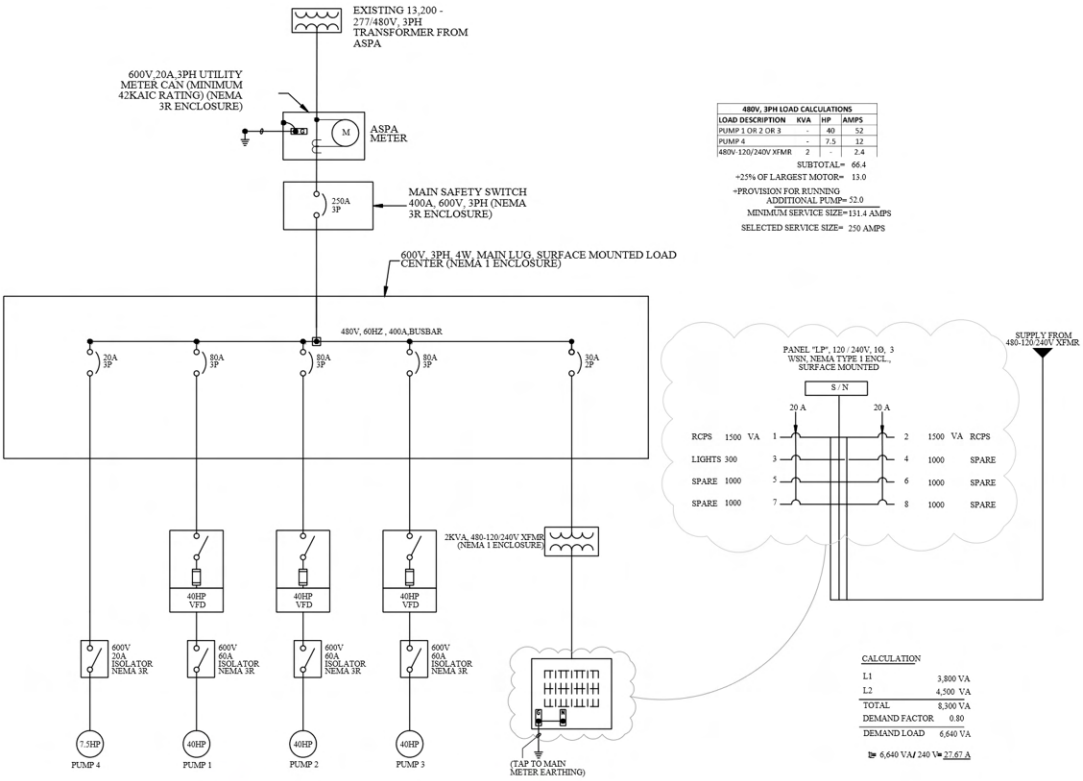


480V, 3PH LOAD CALCULATIONS			
LOAD DESCRIPTION	KVA	HP	AMPS
PUMP 1 OR 2 OR 3	-	40	52
PUMP 4	-	7.5	12
480V-120/240V XFMR	2	-	2.4
SUBTOTAL=			66.4
+25% OF LARGEST MOTOR=			13.0
+PROVISION FOR RUNNING ADDITIONAL PUMP=			52.0
MINIMUM SERVICE SIZE=			131.4 AMPS
SELECTED SERVICE SIZE=			250 AMPS

CALCULATION

L1	3,800 VA
L2	4,500 VA
TOTAL	8,300 VA
DEMAND FACTOR	0.80
DEMAND LOAD	6,640 VA

⇛ 6,640 VA/ 240 V= 27.67 A

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED ELECTRIC SINGLE LINE DIAGRAM	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: E006
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA

CLIENT:

AMERICAN SAMOA POWER AUTHORITY

WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD

P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

TEL: (684) 699-7199

REVISION:

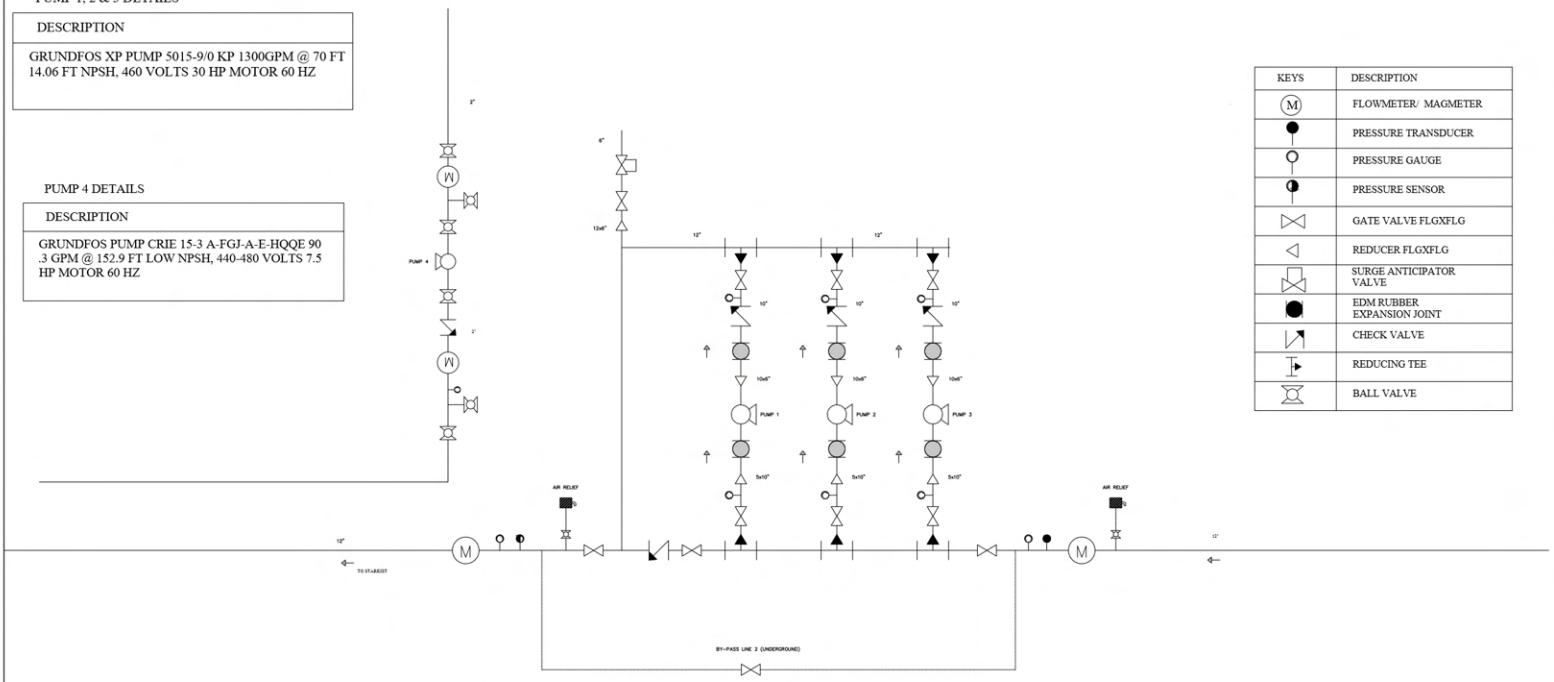
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PUMP 1, 2 & 3 DETAILS

DESCRIPTION
GRUNDFOS XP PUMP 5015-9/0 KP 1300GPM @ 70 FT 14.06 FT NPSH, 460 VOLTS 30 HP MOTOR 60 HZ

PUMP 4 DETAILS

DESCRIPTION
GRUNDFOS PUMP CRIE 15-3 A-FGJ-A-E-HQQE 90 .3 GPM @ 152.9 FT LOW NPSH, 440-480 VOLTS 7.5 HP MOTOR 60 HZ



KEYS	DESCRIPTION
M	FLOWMETER/ MAGMETER
	PRESSURE TRANSDUCER
	PRESSURE GAUGE
	PRESSURE SENSOR
	GATE VALVE FLGXFLG
	REDUCER FLGXFLG
	SURGE ANTICIPATOR VALVE
	EDM RUBBER EXPANSION JOINT
	CHECK VALVE
	REDUCING TEE
	BALL VALVE

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PROPOSED P&ID LAYOUT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: M001
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

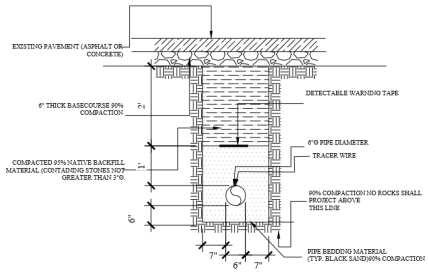
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:

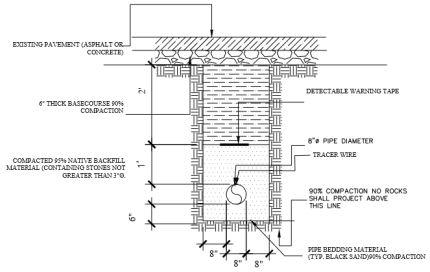
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

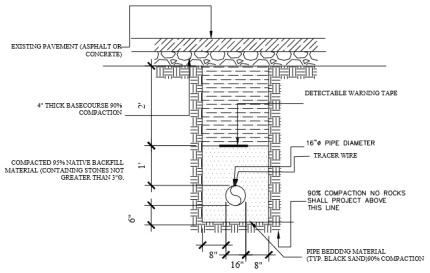
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



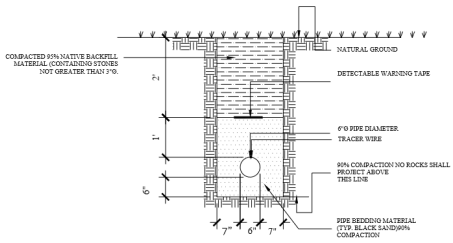
1 6'' PIPE TRENCH (PAVED)
Scale: NTS



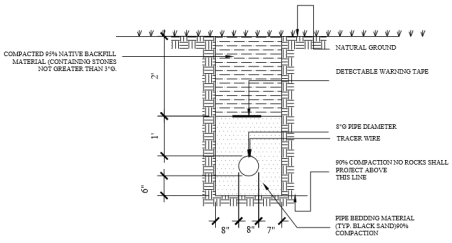
3 8'' PIPE TRENCH (PAVED)
Scale: NTS



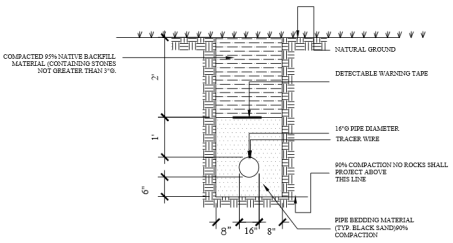
5 16'' PIPE TRENCH (PAVED)
Scale: NTS



2 6'' PIPE TRENCH (UNPAVED)
Scale: NTS



4 8'' PIPE TRENCH (UNPAVED)
Scale: NTS



6 16'' PIPE TRENCH (UNPAVED)
Scale: NTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: TYPICAL TRENCH DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-056
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
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TEL: (684) 699-1234

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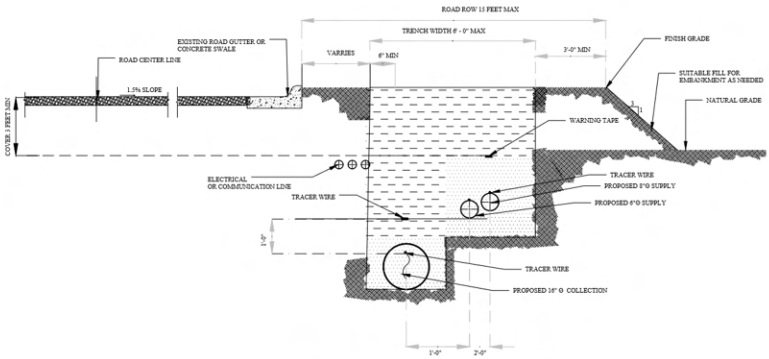
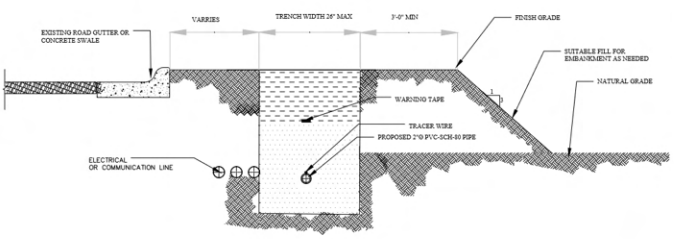
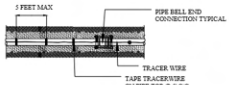
NO.		BY:	CHK:	APPD:	DATE:



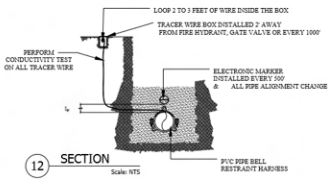
7 COMBINE TRENCH & EMBANKMENT DETAIL
Scale: NTS



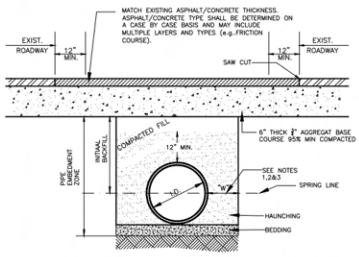
8 SERVICE LINE TRENCH
Scale: NTS



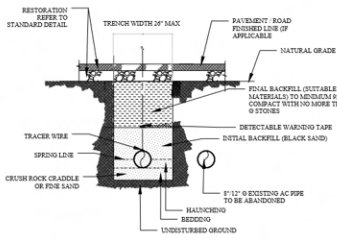
11 PLAN VIEW
Scale: NTS



12 SECTION
Scale: NTS



9 ASPHALT/CONCRETE PAVEMENT REMOVAL & REPLACEMENT
Scale: NTS

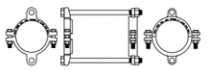


10 TYPICAL TRENCH SECTION
Scale: NTS

NOTES:

1. "W" SHALL BE A MINIMUM OF 6" WIDE AND OF SUFFICIENT WIDTH TO ACCOMMODATE NECESSARY COMPACTION EFFORTS. IN THE EVENT THE REQUIRED MINIMUM DENSITY IS NOT ACHIEVED, LOOSE MATERIAL SHALL BE REMOVED, REPLACED AND COMPACTED TO THE REQUIRED DENSITY, OR REPLACED WITH FULL DEPTH FLOWABLE FILL. DENSITY TESTS BELOW THE SPRING LINE OF THE PIPE ARE REQUIRED IN ADDITION TO OTHER TESTING REQUIREMENTS (IN THE EVENT FULL DEPTH FLOWABLE FILL IS USED AS BACKFILL, DENSITY REQUIREMENTS ARE WAIVED).
2. MINIMUM ALLOWABLE BACKFILL DENSITY SHALL BE 95% OF THE MAXIMUM DENSITY AT OPTIMUM MOISTURE PER AASHTO T-99 / FP - 03.
3. FOR DRIVEWAYS USE 6" THICK PCC PAVEMENT OVER 6" THICK ¾" AGGREGATE BASE COURSE ON A COMPACTED (95%) SUBBASE/SUBGRADE WITH #45 MESH WIRE OR EQUAL TO DPW SATISFACTION
4. FOR SUBBASE AND BASE COURSE GRADATION USE CLASS "B" FOR SUBBASE AND CLASS "D"FOR BASE ACCORDING TO TABLE 703-2 UNDER SECTION 703 OF FP-03.
5. EXCAVATE, BACKFILL AND COMPACT AT A MAXIMUM PER DAY WHICH CONTRACTOR CAN RESTORE AT THE END OF THE EACH DAY.
6. TRACER WIRE BOX SHALL BE 4" SCH. 40 PVC PIPE AND THREADED WATERTIGHT PLUG ASSEMBLY TO BE SUPPLIED BY THE CONTRACTOR.
7. TRACER WIRE BOX SHALL BE 4" SCH. 40 PVC PIPE AND THREADED WATERTIGHT PLUG ASSEMBLY TO BE SUPPLIED BY THE CONTRACTOR.
8. INSTALL TRACER WIRE BOX EACH PIPE DIRECTION OR 2EA EVERY FIRE HYDRANT LOCATION.
9. WHERE COMPACTION IS NOT POSSIBLE DUE TO GROUNDWATER, FREE DRAINING MATERIAL SHALL BE USE FROM BEDDING UP TO INITIAL BACKFILL ENCLOSE WITH FILTER FABRIC. FREE DRAINING MATERIAL SHALL NOT EXCEED 3" CLEAN ROCKS.
10. SURFACE SHALL BE TEMPORARY RESTORED UP TO THE LEVEL OF EXISTING GRADE OR ROADWAY.
11. HAUNCHING SHALL BE BLACK SAND TO BE PLACED IN BETWEEN THE BEDDING AND SPRINGLINE. THE LIFT THICKNESS SHALL NOT EXCEED1 FOOT AND SHALL BE DEPOSITED AND COMPACTED TO UNIFORM DENSITY OF 95% ON EACH SIDE OF THE PIPE TO PREVENT LATERAL DISPLACEMENT OF THE PIPE.
12. COMPACTION TEST SHALL BE PERFORMED FOR EVERY 6" LAYER LIFT OR AS PER DPW REQUIREMENT.
13. BEDDING OF AT LEAST 6 INCHES THICK OF ¾" MINUS CRASH ROCKS SHALL BE USED WHERE TRENCH BOTTOM IS UNSTABLE. THIS BEDDING MATERIAL WILL BE PLACED AT A UNIFORM DENSITY OF 85%.

THESE ARE MINIMUM REQUIREMENTS. ADDITIONAL RESTRICTIONS MAY BE NECESSARY ON A CASE BY CASE BASIS, AS APPROVED BY THE DPW.



13 BELL-RESTRAINT
Scale: NTS

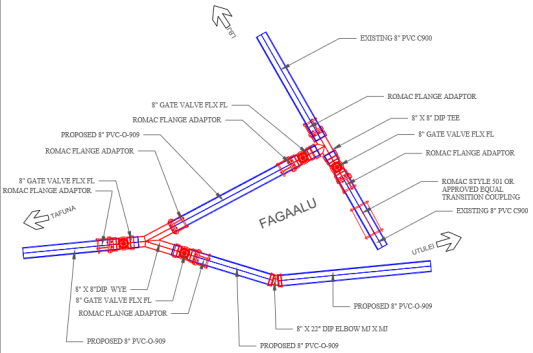
PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: TYPICAL TRENCH DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-057
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-1234	

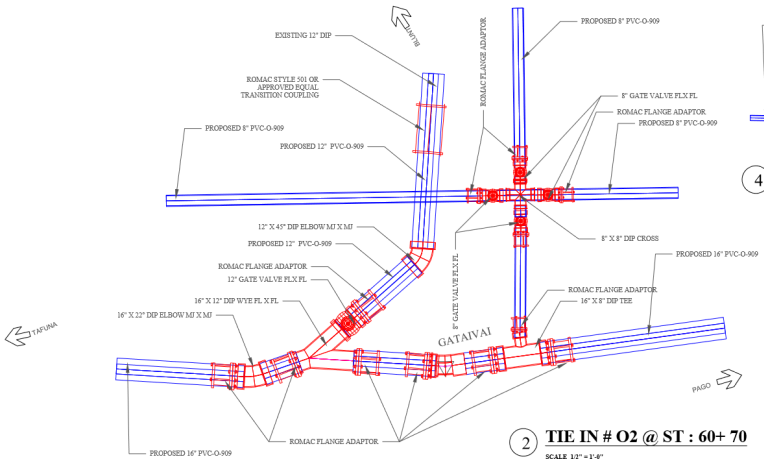
REVISION:

NO.		BY:	CHK:	APPD:	DATE:



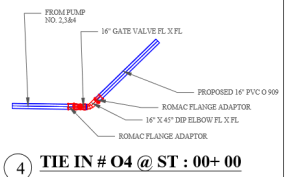
1 **TIE IN # O1 @ ST : 21+ 45**

SCALE 1/2" = 1'-0"

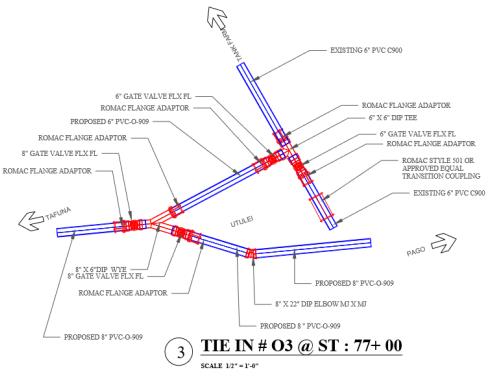


2 **TIE IN # O2 @ ST : 60+ 70**

SCALE 1/2" = 1'-0"

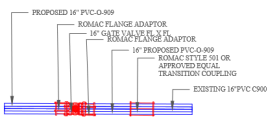


4 **TIE IN # O4 @ ST : 00+ 00**

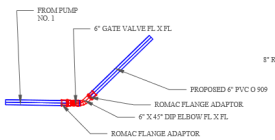


3 **TIE IN # O3 @ ST : 77+ 00**

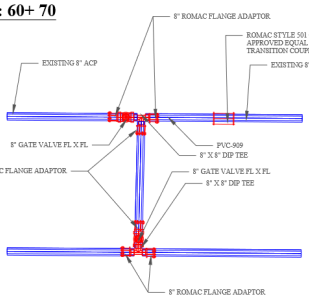
SCALE 1/2" = 1'-0"



5 **TIE IN # O5 @ ST : 86+ 19**



6 **TIE IN # O6 @ ST : 00+ 00**



7 **TIE IN # O7 @ ST : 81+ 80**

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: TIE IN DETAILS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C058
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	STATE OF MAINE WILLIAM C GORDON No. 9221 REGISTERED PROFESSIONAL ENGINEER
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:

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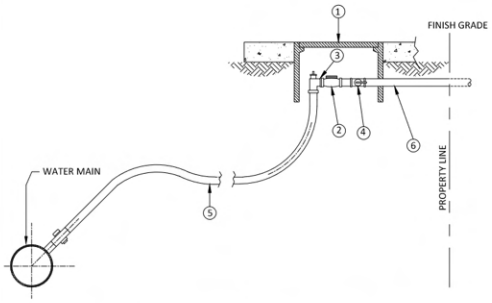
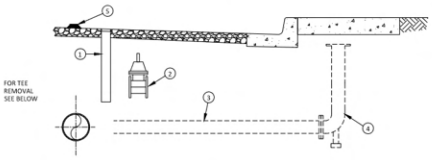
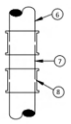


ITEM	QTY	DESCRIPTION
1		EXISTING METER AND METER BOX TO BE REMOVED AND RELOCATE AS PER PLAN OR ASPA'S ENGINEERS INSTRUCTION
2		EXISTING WATER METER TO BE REMOVED AS # 1
3		EXISTING ANGLE VALVE
4		EXISTING BALL VALVE. REMOVE AND INSTALL WATER TIGHT CAP OR PLUG ON CUSTOMER SIDE.
5		EXISTING PE SERVICE LATERAL
6		EXISTING ONSITE PE/PVC WATER TAIL PIPE

1 WATER METER REMOVAL WITH MAIN ABANDONMENT

SCALE 1/2" = 1'-0"





TEE REMOVAL

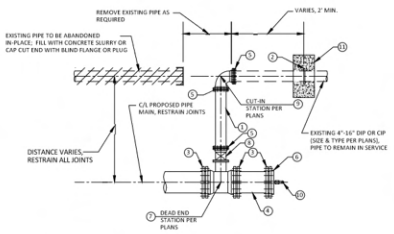
NOTES:

1. ASPA ENGINEER OR FIELD INSPECTOR TO MAKE DETERMINATION OF APPROPRIATE MATERIALS TO USE AND HOW APPURTENANCES ARE ABANDONED. TEES WITH LEAD CAULKED JOINTS SHALL BE REMOVED AND REPLACED WITH LIKE SIZE D.I. PIPE.
1. IF EXISTING PIPE AND TEE ARE STEEL, USE FLEX COUPLINGS TO MAKE RE-CONNECTION.
2. IF EXISTING PIPE AND TEE ARE CAST OR DUCTILE IRON, USE EITHER A PAIR OF D.I. M.J. SLEEVES OR FLEX COUPLINGS. A BELL END OF D.I. PIPE MAY BE SUBSTITUTED FOR ONE SLEEVE OR COUPLING.
3. THIS STANDARD DRAWING MAY BE USED FOR IN-LINE VALVE REMOVAL OR OTHER IN-LINE APPURTENANCES AS DIRECTED BY ASPA ENGINEER.
4. REPAIR OR REPLACE STREET AND SIDEWALK SURFACES PER AMERICAN SAMOA PUBLIC WORKS STANDARDS. ALL TRENCHES SHALL BE BACKFILLED PER ASPA'S STANDARD AND REQUIRMENTS.

ITEM	QTY	DESCRIPTION
1		REMOVE GATE CAN ASSEMBLY, IF PRESENT.
2		REMOVE GATE VALVE.
3		ABANDON OR REMOVE PIPE LATERAL - AS DIRECTED BY ASPA ENGINEER
4		ABANDON OR REMOVE APPURTENANCES (HYDRANT, BURY, ETC.) - AS DIRECTED BY ASPA ENGINEER.
5		REMOVE BLUE DOT PAVEMENT MARKER(S), IF PRESENT.
6		FOR PIPE WITH LEAD CAULKED JOINTS, PROTECT EXISTING PIPE IN PLACE, REMOVE TEE.
7	__LF	INSTALL LIKE SIZED DUCTILE IRON PIPE.
8	2 EA	INSTALL DUCTILE IRON M.J. SLEEVE OR FLEX COUPLING - AS DIRECTED BY ASPA. IF EXISTING PIPE IS DUCTILE IRON, RESTRAIN WITH MEGALUG OR EQUIVALENT. IF EXISTING PIPE IS CAST IRON, DO NOT USE MECHANICAL RESTRAINT.

2 FIRE HYDRANT & TEE REMOVAL DETAIL

SCALE 1/2" = 1'-0"



ITEM	QUANTITY	DESCRIPTION
1		AS REQUIRED EXISTING PIPE SIZE X REQUIRED LENGTH CLASS 50 DIP P.E. SPOOL
2	1 EA	EXISTING PIPE SIZE EBBA IRON MEGALUG OR APPROVED EQUAL
3	3 EA	PROPOSED PIPE MAIN SIZE EBBA IRON MEGALUG OR APPROVED EQUAL
4		AS REQUIRED PROPOSED PIPE MAIN SIZE X REQUIRED LENGTH CLASS 50 DIP P.E. SPOOL
5	3 EA	EXISTING PIPE SIZE EBBA IRON MEGALUG OR APPROVED EQUAL
6	1 EA	PROPOSED PIPE MAIN SIZE M.J. END CAP WITH 2" TAP
7	1 EA	PROPOSED PIPE MAIN RUN SIZE X EXISTING PIPE SIZE SIDE OUTLET (M.J. X M.J. X FLG UNLESS OTHERWISE SHOWN ON PLAN)
8	1 EA	EXISTING PIPE SIZE FLG X M.J. GATE VALVE .
9	1 EA	EXISTING PIPE SIZE X 90° M.J. BEND
10	1 EA	2" CHLORINATION AND FLUSHING PORT
11	1 EA	IN-LINE THRUST BLOCK

NOTE: ALL MATERIAL, CONSTRUCTION METHODS AND TESTING SHALL BE IN ACCORDANCE WITH ASPA'S STANDARDS AND SPECIFICATIONS. A ASPA INSPECTOR SHALL BE PRESENT AT ALL TIMES DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY ASPA.

3 EXISTING WATER MAIN

SCALE 1/2" = 1'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: REMOVAL OF EXISTING SERVICE DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C059
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

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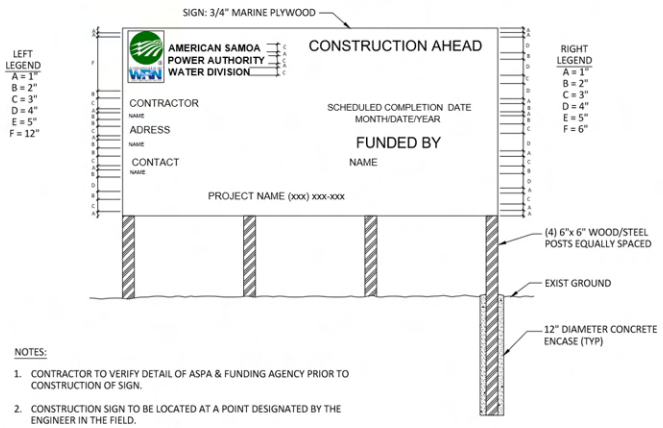
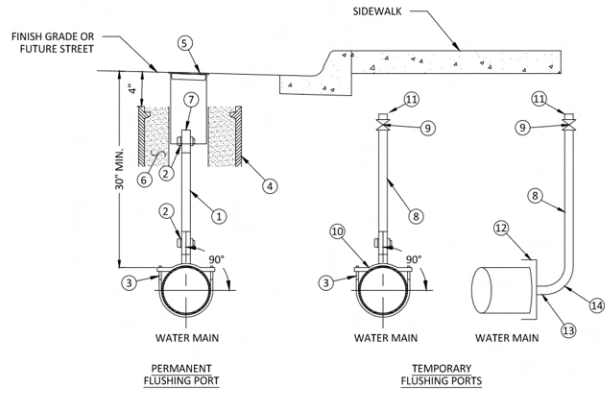


NOTES:

1. CONTRACTOR TO VERIFY DETAIL OF ASPA & FUNDING AGENCY PRIOR TO CONSTRUCTION OF SIGN.
2. CONSTRUCTION SIGN TO BE LOCATED AT A POINT DESIGNATED BY THE ENGINEER IN THE FIELD.
3. SIGN SHALL HAVE ADEQUATE BLOCKING & BRACING IN BACK.
4. CONTRACTOR TO BE RESPONSIBLE FOR MAINTAINING CORRECT INFORMATION ON SIGN DURING CONSTRUCTION.
5. SIGN WILL BE CONSTRUCTED WITH BLACK LETTERS ON WHITE BACKGROUND WITH 1" BLACK BORDER. ALL LETTERS TO BE PAINTED ON SIGN OR OPTION APPROVED BY ASPA'S PROJECT ENGINEER.
6. SIGN SHALL DISPLAY A CURRENT TELEPHONE NUMBER FOR CONTRACTOR.
7. CONTRACTOR SHALL REMOVE SIGN AT CONSTRUCTION COMPLETION.
8. SIGN SHALL BE IN COMPLIANCE WITH ALL APPLICABLE ASPA OR DPW SIGN CODE OR ORDINANCE REQUIREMENTS.
9. SIGN SHALL BE PROTECTED WITH A GRAFFITI PROOF SPRAY.

1 CONSTRUCTION SIGN

NTS



ITEM	QTY	DESCRIPTION
1	__ L.F.	2" PVC SCH 80 (ASPA APPROVED U.S. MANUFACTURER)
2	1 EA.	2" BRONZE CORPORATION STOP MUELLER H15023 OR EQUAL
3	1 EA.	___" x 2" SERVICE SADDLE OR 2" WELD-ON THREAD-O-LET
4	1 EA.	12"x18"x12" METER BOX ARMORCAST 6001425A OR EQUAL
5	1 EA.	VALVE CAN INSTALLATION PER ASPA STD.
6	1.5 CF	CLEAN FINE SAND
7	1 EA.	THREADED PVC CAP
8	__ L.F.	2" PVC SCH 80 PIPE
9	1 EA.	2" WHEEL VALVE
10	1 EA.	PLUG SADDLE WITH 2" BRASS PLUG WHEN TEMPORARY RISOR IS REMOVED
11	1 EA.	2" BRASS PLUG USED TO PREVENT TAMPERING
12	1 EA.	___" MJ CAP (RESTRAIN WITH MEGALUG). REMOVE TO MAKE TIE-IN.
13	1 EA.	2" BRASS NIPPLE
14	1 EA.	2" BRASS 90° EL.

2 2" CHLORINATION AND FLUSHING PORT

NTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: CONSTRUCTION SIGN, CHLORINE & FLUSHING PORT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C060
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

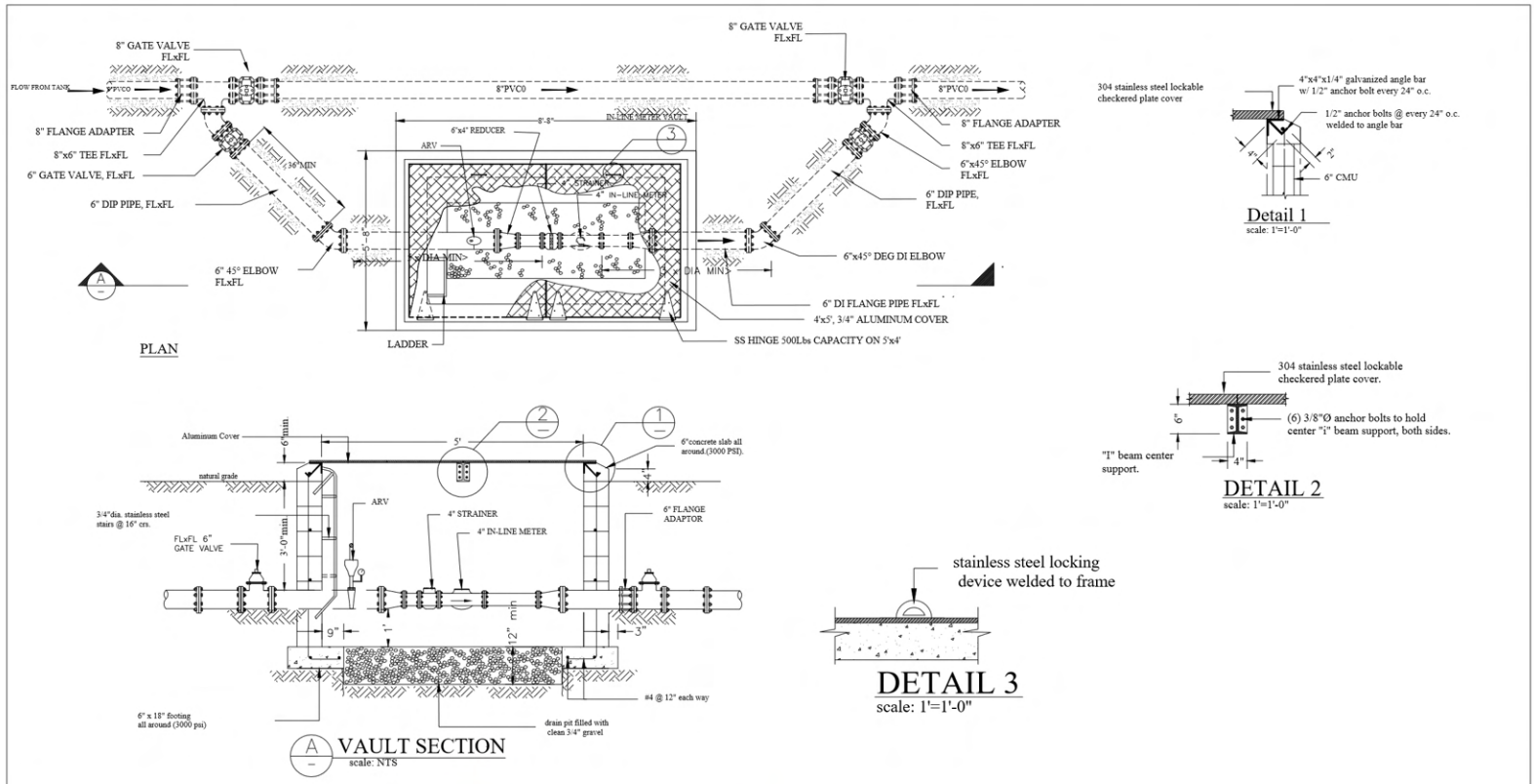
REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



A
VAULT SECTION
scale: NTS

Detail 1
scale: 1'=1'-0"

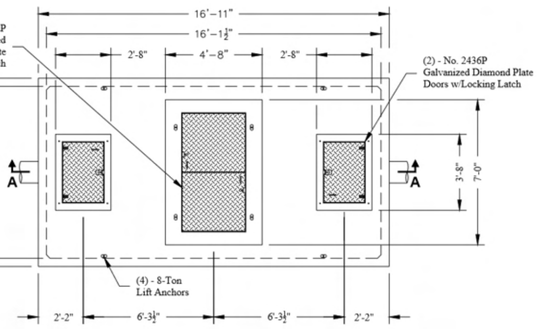
DETAIL 2
scale: 1'=1'-0"

DETAIL 3
scale: 1'=1'-0"

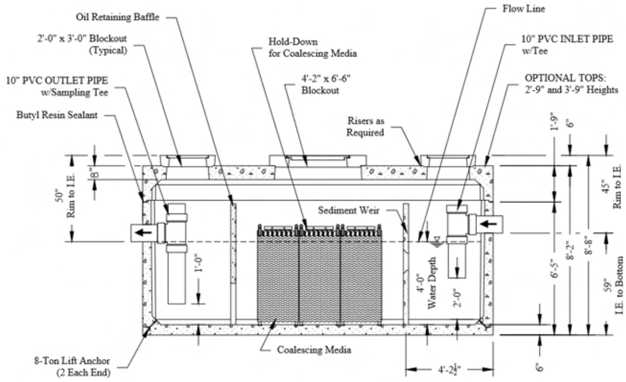
PROJECT DETAILS:		DRAWING ORIGINATOR:			REVISION:					
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799		NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:
DWG. TITLE: INLINE METER & VAULT BOX DETAIL	ISSUED FOR: CONSTRUCTION		REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25						
PROJECT NUMBER: ASPA21.041	SHEET NO: C001									
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023									

AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	

Projected Coalescing Plate Area = 3,552 Sq.Ft.
*Design Flow Rate = 840 GPM
Maximum Process Flow = 1,508 GPM



PLAN VIEW



SECTION AA

Notes:
- Static Water Depth = 4'-0"
- Prior to "Startup" of system, fill with clean water to bottom of outlet pipe. For best results, fill to flow line.
- Follow Regular Inspection, Cleaning, & Maintenance Schedule.

*DESIGN FLOW RATE	EFFLUENT QUALITY	100% COLLECTED SIZE
840 GPM	10 ppm	60 Micron

Basic Design Information: *
Influent Characterics
- Oil Specific Gravity = 0.88
- Operating Temperature = 50°
- Influent Oil Concentration = 100 ppm
- Mean Oil Droplet Size = 130 Microns
- .033 ft/min. Critical Oil Droplet Predicted Rise Rate

*Basic Design Information per ; Contractor to Adjust Estimates for Variations in Real Conditions.

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: OIL/WATER SEPARATOR	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C062
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:
MARTAM CONSULTING – Engineering and Construction Management

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE – WILLIAM C GORDON – No. 5231 – LICENSED PROFESSIONAL ENGINEER
EXPIRES: 31/12/25

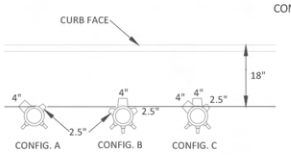
AMBASSADOR WRN

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

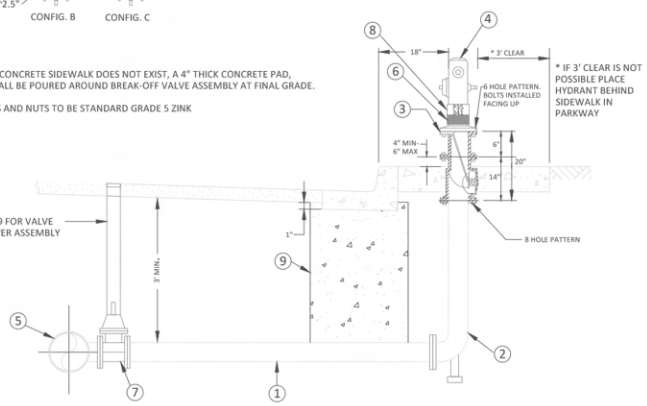
CONFIGURATION OPTIONS



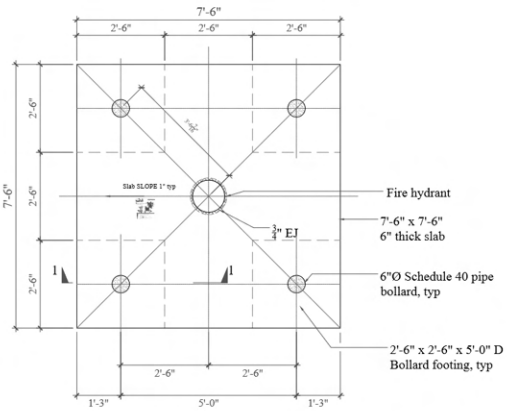
CONFIGURATION	DESCRIPTION
A	1 - 4" OUTLET; 1 - 2.5" OUTLET
B	1 - 4" OUTLET; 2 - 2.5" OUTLETS
C	2 - 4" OUTLETS; 1 - 2.5" OUTLET

NOTES:

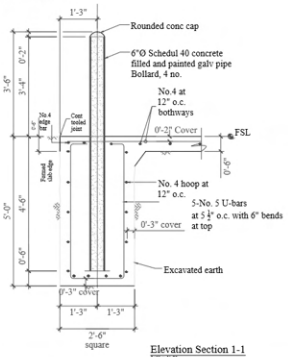
1. WHERE A CONCRETE SIDEWALK DOES NOT EXIST, A 4" THICK CONCRETE PAD, 3' X 3', SHALL BE POURED AROUND BREAK-OFF VALVE ASSEMBLY AT FINAL GRADE.
2. ALL BOLTS AND NUTS TO BE STANDARD GRADE 5 ZINK PLATED.



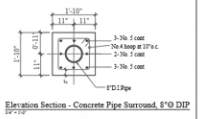
ITEM	QTY	DESCRIPTION
1	___LF	6" CLASS 350 DUCTILE IRON PIPE RESTRAINED WITH MEGALUG OR ASPA'S APPROVED EQUAL
2	1 EA	___" x 6" (8 HOLE) FIRE HYDRANT BURY WITH RESTRAINED MJ INLET AND FLANGE OUTLET
3	1 EA	CLOW VALVE CO. BREAK OFF CHECK VALVE MODEL LB1 400A (NO SUBSTITUTIONS)
4	1 EA	A ASPA'S APPROVED HYDRANT (SELECT THE APPROPRIATE CONFIGURATION)
5	1 EA	USE TEE WITH RESTRAINED BRANCH AND RUN ON NEW SYSTEMS.
6	1 EA	3" WIDE COLOR CODED REFLECTIVE MARKING TAPE
7	1 EA	INSTALL 6" GATE VALVE, (FLG x MJ)
8	1 EA	INSTALL 6-DIGIT FIRE HYDRANT ALPHANUMERIC IDENTIFICATION NUMBER. ASPA'S ENGINEERING TO PROVIDE IDENTIFICATION NUMBER. I.D. SPECS: CHARACTER SIZE = 3/4", PAINT COLOR = BLACK LOCATION = FH BARREL ABOVE 3" WIDE REFLECTIVE MARKING FONT = MARSH STENCIL FONT
9	1 EA	CONTRACTOR SHALL BACKFILL EXCAVATION UNDER EXISTING CURB AND GUTTER WITH 1 SACK SLURRY MIX TO 1" ABOVE BOTTOM OF GUTTER. SLURRY SHALL BE THOROUGHLY COMPACTED BY MECHANICAL COMPACTION EQUIPMENT (I.E. VIBRATORS).



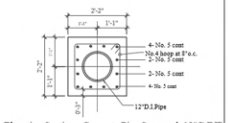
Plan - Slab and Bollard Lay-out at Hydrant Location
3/4" = 1'-0"



Elevation Section 1-1
3/4"=1'-0"



Elevation Section - Concrete Pipe Surround, 8"Ø DIP
3/4"=1'-0"



Elevation Section - Concrete Pipe Surround, 12"Ø DIP
3/4"=1'-0"

6 INCH FIRE HYDRANT INSTALLATION

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: FIRE HYDRANT & BOLLARD INSTALLATION DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C050
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

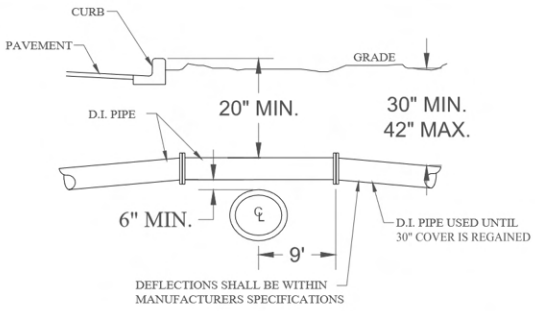
REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

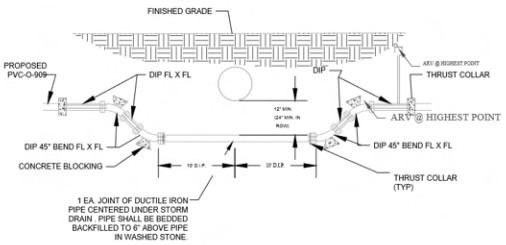
CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



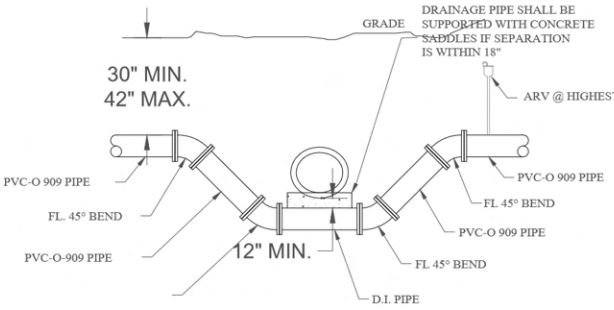
UTILITY CROSSING - 1
NTS



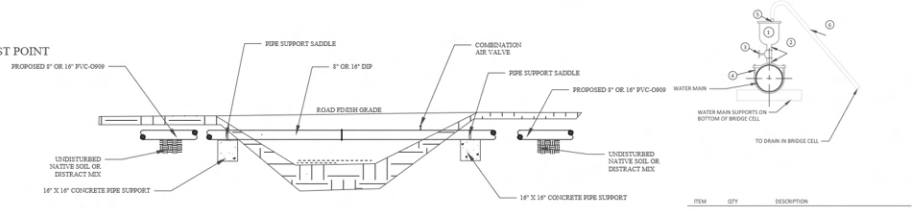
NOTES: 1. CULVERT CROSSINGS REQUIRE 24" MIN. SEPARATION FROM BOTTOM OF CULVERT TO TOP OF WATER MAIN.

2. IN LIEU OF RESTRAINT (TIE) RODS, APPROVED RESTAINT JOINT PIPE MAY BE USED.

DRAINAGE CROSSING - 2
NTS



NOTE:
ALL JOINTS MECHANICALLY RESTRAINED



CROSSING NOTES:

1. ALL PIPES SHALL BE DUCTILE IRON WITH STAINLESS STEEL HARDWARE.
2. ALL EXPOSED PIPING SHALL BE SAND BLASTED, PRIMED AND PAINTED COLOR CODING ACCORDING TO UTILITY. SEE APPROVED PRODUCTS LIST.
3. PROVISIONS SHALL BE MADE FOR EXPANSION OF ASSEMBLY A SUPPORTED MECHANICAL JOINT OR APPROVED EQUAL.
4. TIE PIPE TO PIERS WITH STAINLESS STEEL STRAPS AND HARDWARE.

AERIAL CROSSING - 3
NTS

ITEM	QTY	DESCRIPTION
1	1 EA.	1" MIDGET AIR RELEASE VALVE CRISPIN MSD W/1/16" ORIFICE, OR APPROVED EQUAL
2	2 EA.	1" MALE THREADED NIPPLE
3	1 EA.	1" BRONZE WHEEL VALVE (FEMALE THREAD)
4	1 EA.	___" x 1" BRONZE SERVICE SADDLE*
5	1 EA.	3/8" THREAD x 1" FLARE (BRONZE)
6	30 L.F.	1" TYPE K SOFT COPPER TUBING

NOTE:
DIRECT TAPPING DUCTILE IRON MAINS WITH 1" OR SMALLER SERVICE LINES REQUIRES ASPA APPROVAL OF EQUIPMENT AND METHODS. ASPA INSPECTOR MUST BE PRESENT WHEN DIRECT TAPS ARE MADE.

AIR RELEASE VALVE IN BRIDGE - 4
NTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: UTILITY CROSSING DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C051
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

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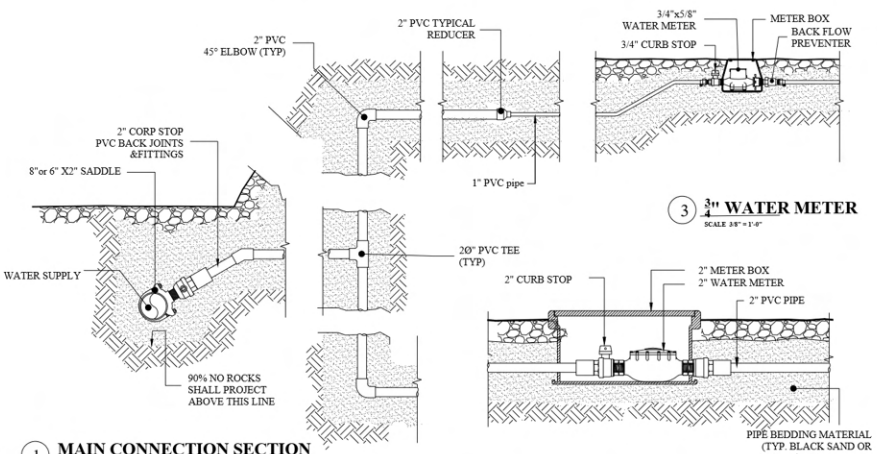


1 MAIN CONNECTION SECTION

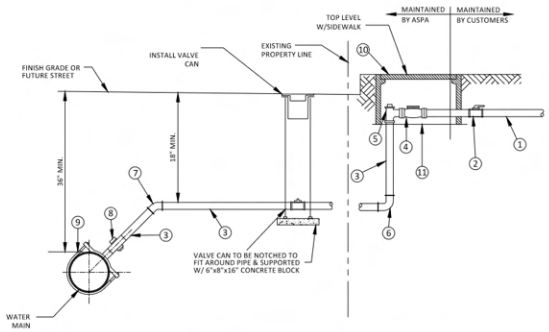
SCALE 1/2" = 1'-0"

2 2" TO 3/4" REDUCE PLAN

SCALE 1/2" = 1'-0"

3 3/4" WATER METER

SCALE 3/8" = 1'-0"



ITEM	QTY	DESCRIPTION
1	1 EA	1" SCH 80 PVC PIPE TO BE CONNECTED TO CUSTOMERS RESIDENCE
2	1 EA	2" LOCKWING BALL VALVE NELES-JAMESBURY SERIES 1000 OR ASPA APPROVED EQUAL.
3	___LF	2" SCH 80 PVC PIPE
4	1 EA	ASPA WATER METER.
5	1 EA	(1-1/2" OR 2") LOCKWING BRASS ANGLE METER STOP JONES J-1527F OR EQUAL. JONES J-1975WSG OR EQUAL
6	1 EA	2" PVC SCH 80 COMPRESSION QUARTER BEND.
7	1 EA	2" PVC SCH 80 1\8 BEND SOCKET BOTH SIDE.
8	1 EA	2" BRONZE CORPORATION STOP (COMPRESSION X MALE NPT) MUELLER H15023 OR ASPA APPROVED EQUAL.
9	1 EA	2" SERVICE SADDLE FROM ASPA'S APPROVED LIST
10	1 EA	METER BOX
11	-	3/8" ROCK 4"-6" DEEP.

5 2" SERVICE CONNECTION

SCALE 1/2" = 1'-0"

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: TYPICAL PVC SERVICE LINE CONNECTION DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C032
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE — WILLIAM C GORDON — No. 5257 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

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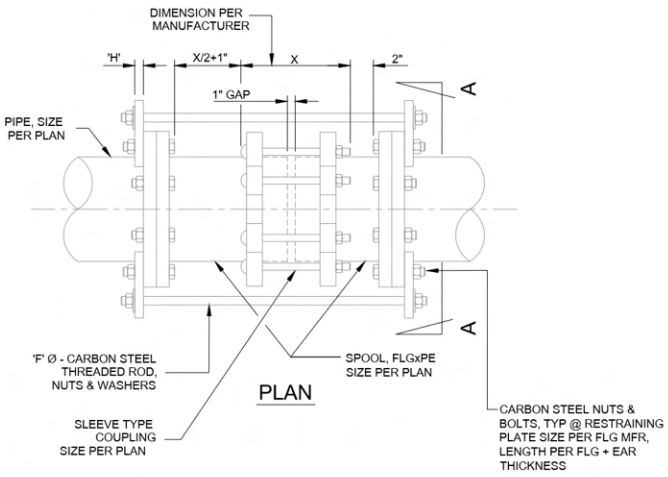
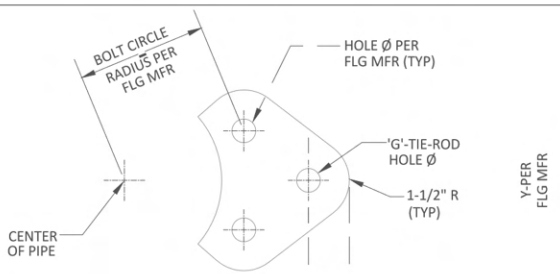
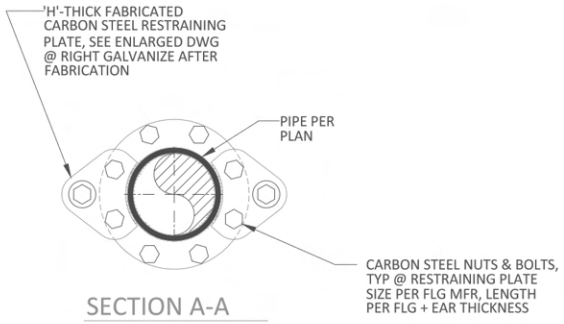


PLAN



ENLARGED RESTRAINING PLATE



SECTION A-A

RESTRAINING PLATE DIMENSIONS									
PIPE SIZE	NO. RODS	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'
3"	2	5-1/8"	1-3/8"	1-3/8"	2-1/8"	2-1/4"	3/4"Ø	3/4"Ø	5/8"Ø
4"	2	5-7/8"	1-3/8"	1-3/8"	2-7/16"	2-5/8"	3/4"Ø	3/4"Ø	5/8"Ø
6"	2	6-3/4"	1-1/2"	1-1/2"	2-3/8"	3-5/8"	3/4"Ø	7/8"Ø	3/4"Ø
8"	2	8"	1-1/2"	1-1/2"	2-1/2"	4-5/8"	3/4"Ø	7/8"Ø	3/4"Ø
10"	2	9-3/8"	1-1/2"	1-1/2"	2-1/2"	5-7/8"	3/4"Ø	7/8"Ø	3/4"Ø
12"	2	11"	1-1/2"	1-1/2"	2 13/16"	6-7/8"	7/8"Ø	1"Ø	7/8"Ø

RESTRAINED FLEXIBLE COUPLING RESTRAINT
NTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: RESTRAINED FLEXIBLE COUPLING RESTRAINT	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C033
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
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TEL: (684) 699-7199

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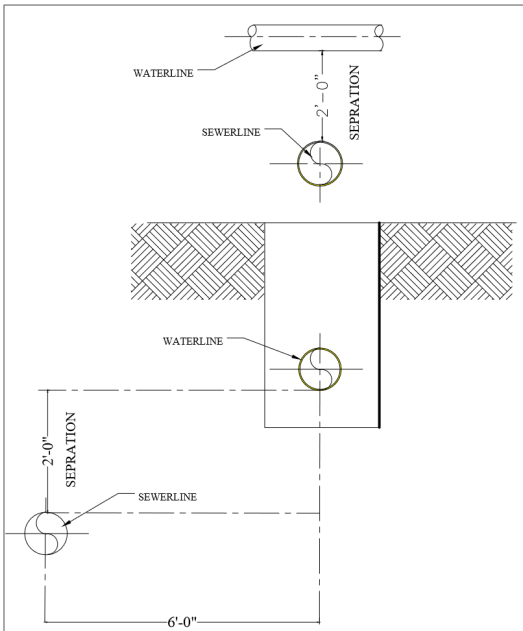
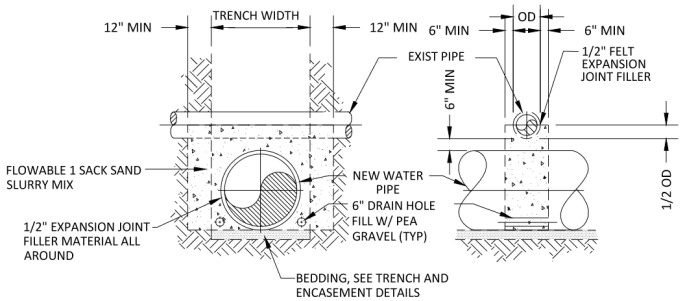


NOTE :
a. VERTICAL SEPARATION NOT REQUIRED FOR DISTANCE BETWEEN LINES EXCEEDING 6 FEET.
b. WHEN PROPER VERTICAL SEPARATION, AS SHOWN, IS NOT POSSIBLE, THE WATERLINE SHALL BE CONCRETE ENCASED FOR A LENGTH OF 10 FEET ON EITHER SIDE OF THE SEWERLINE. (AIR TEST FOR TIGHTNESS)

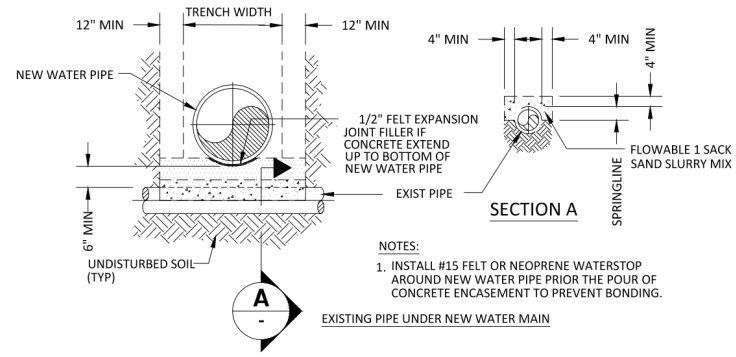
1. THE CONTRACTOR SHALL ADHERE TO THESE REQUIREMENTS AND THE ASPA'S ENGINEER SHALL BE NOTIFIED IN CASE WHERE SUCH REGULATIONS MAY BE VIOLATED.
A. HORIZONTAL SEPARATION - WHENEVER POSSIBLE, WATER SHOULD BE LAID AT LEAST 6 FEET, HORIZONTAL FROM ANY EXISTING OR PROPOSED SEWER MAIN IF :
1) IT IS LAID IN A SEPARATE TRENCH ; OR IF
2) IT IS LAID IN THE SAME TRENCH , WITH THE SEWER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND IF
3) IN EITHER CASE THE ELEVATION OF THE TOP (CROWN) OF THE WATER IS AT LEAST 2 FEET BELOW THE BOTTOM (INVERT) OF THE WATER MAIN.
B. VERTICAL SEPARATION - WHENEVER WATER MUST CROSS TOP OF SEWER MAINS, THE WATER SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER IS AT LEAST 2 FEET ABOVE THE SEWER MAIN. WHEN THE ELEVATION OF THE WATER CANNOT BE VARIED TO MEET THE ABOVE REQUIREMENTS, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION , FOR A DISTANCE OF 6 FEET EXTENDING ON EACH SIDE OF THE SEWER. IF POSSIBLE, ONE FULL LENGTH OF WATER MAIN SHOULD BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHERE LESS THAN AN 2 FEET VERTICAL SEPARATION EXISTS BETWEEN THE WATER AND SEWER LINE, THE SEWER LINE SHALL BE CONCRETE ENCASED 10 FEET ON BOTH SIDES OF THE WATER MAIN. IF POSSIBLE SEWER CROSSING WATER MAIN SHALL BE CONSTRUCTED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN

1 SEPARATION OF WATER AND SEWER MAIN

SCALE 1/2" = 1'-0"



EXISTING PIPE OVER NEW WATER MAIN



NOTES:

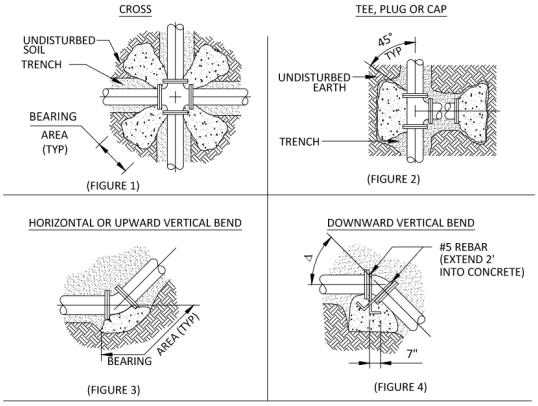
1. INSTALL #15 FELT OR NEOPRENE WATERSTOP AROUND NEW WATER PIPE PRIOR THE POUR OF CONCRETE ENCASEMENT TO PREVENT BONDING.

EXISTING PIPE UNDER NEW WATER MAIN

1 STRUCTURAL SUPPORT AT CROSSING

SCALE 1/2" = 1'-0"

PROJECT DETAILS:		DRAWING ORIGINATOR:		CLIENT:	REVISION:
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	DESIGN AND DRAFTING: JAMES TAMARESE MARTAM CONSULTING PAGO PAGO, AS 96799		AMERICAN SAMOA POWER AUTHORITY	NO. / ISSUED FOR: / BY: / CHK: / APPD: / DATE:
DWG. TITLE: RESTRAINED FLEXIBLE COUPLING RESTRAINT	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
PROJECT NUMBER: ASPA21.041	SHEET NO: C054			P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023			TEL: (684) 699-7199	



NOTES:

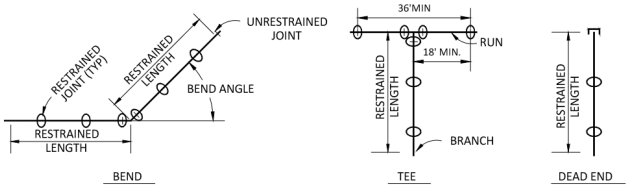
1. ALL CONCRETE SHALL BE 3000 PSI MINIMUM, 28 DAYS COMPRESSIVE STRENGTH. CONCRETE IS TO BE PLACED AGAINST UNDISTURBED EARTH. TABLE BELOW DENOTES MINIMUM BEARING AREA OR VOLUME OF THRUST BLOCK. SPECIAL DESIGN CALCULATIONS ARE TO BE SUBMITTED TO ASPA FOR APPROVAL IF ALLOWABLE SOIL BEARING CAPACITY IS LESS THAN 3000 PSF. ALL VERTICAL SURFACES NOT BEARING AGAINST UNDISTURBED EARTH SHALL BE FORMED. ALL THRUST BLOCKS SHALL BE PLACED IN THE PRESENCE OF AN ASPA'S INSPECTOR.

	BEARING AREA IN SQ FT						CONC/CU YDS		
PIPE ID	FIGURE	FIGURE	FIGURE 3, △				FIGURE 4, △		
	1	2	90°	45°	22-1/2°	11-1/4°	45°	22-1/2°	11-1/4°
4"	2	2	2	2	1	1	1.0	0.5	0.5
6"	2	3	4	2	1	1	1.5	1.0	0.5
8"	3	5	7	4	2	1	3.0	1.5	1.0
10"	4	8	11	6	3	2	4.0	2.5	1.5
12"	6	11	15	8	4	2	6.0	3.0	1.5
16"	10	20	28	15	8	4	10.5	6.0	3.0
18"	13	25	35	19	10	5	13.5	7.5	3.5
20"	16	31	44	24	12	6	16.0	9.0	4.5
24"	22	44	63	34	17	9	23.5	12.5	6.5

2. USE OF THRUST BLOCKS REQUIRES PRIOR DEPARTMENT APPROVAL AND WILL BE EVALUATED ON A CASE BY CASE BASIS.

1 THRUST BLOCK INSTALLATION

SCALE 1/2" = 1'-0"



PIPE SIZE	11 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	TEE*	DEAD END
4"	2'	5'	10'	24'	11'	50'
6"	3'	7'	14'	34'	31'	70'
8"	4'	9'	18'	43'	51'	90'
10"	5'	10'	21'	52'	69'	109'
12"	6'	12'	25'	60'	86'	127'
16"	7'	15'	31'	75'	120'	161'

* BRANCH LENGTH

NOTES:

1. USE THE FOLLOWING GUIDELINES WHEN OTHER PIPE JOINTS ARE WITHIN 10 FEET OF THE JOINT BEING RESTRAINED:
   - A) USE THE "DEAD END" LENGTH FOR CONNECTIONS TO ANY MATERIAL EXCEPT DUCTILE IRON AND CAST IRON.
   - B) USE THE "DEAD END" LENGTH WHEN ANOTHER PIPE JOINT IS WITHIN 10 FEET OF A BEND BEING RESTRAINED.
   - C) USE THE "90 BEND" LENGTH WHEN ANOTHER PIPE JOINT IS WITHIN 10 FEET OF A TEE BEING RESTRAINED.
2. DIVIDE RESTRAINED LENGTH BY 0.85 FOR SILTY SOIL.
3. THIS TABLE IS BASED ON THE ASSUMPTION THAT THE TRENCH IS BACKFILLED TO A MINIMUM DEPTH OF 2.5 FEET WITH A SILTY SAND WHICH HAS BEEN LIGHTLY COMPACTED.
4. FOR PIPE DIAMETERS LARGER THAN 16", OR FOR CONDITIONS OTHER THAN THOSE DESCRIBED ABOVE, PLEASE REFER TO DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) GUIDELINES FOR CALCULATING RESTRAINED LENGTH. CALCULATIONS MUST BE SUBMITTED FOR APPROVAL.
5. RESTRAINED LENGTH ON TEES ASSUMES THE SAME SIZE BRANCH AND RUN. TEES WHICH HAVE BRANCH DIAMETERS LESS THAN THE DIAMETER OF THE RUN MAY REQUIRE A SHORTER RESTRAINED LENGTH. CALCULATIONS MUST BE SUBMITTED JUSTIFYING A SHORTER RESTRAINED LENGTH.
6. ALL PIPELINES LARGER THAN 16" DIAMETER REQUIRE RESTRAINED LENGTH CALCULATIONS INCLUDING SOILS REPORT.

2 RESTRAINED JOINT DETAIL

SCALE 1/2" = 1'-0"

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: THRUST BLOCK AND RESTRAINED JOINT DETAIL	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C055
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMARESE, MARTAM CONSULTING, PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 67+00 - 79+30	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C046
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 73+30 - 86+15	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C047
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

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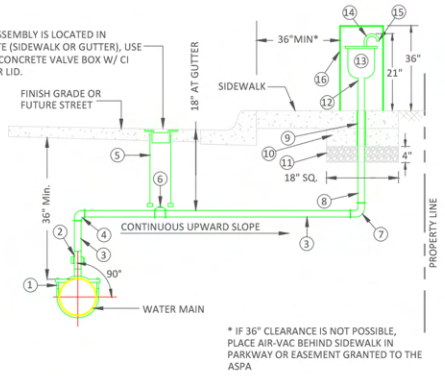
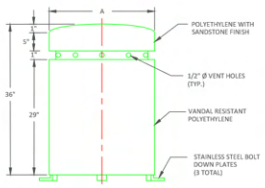
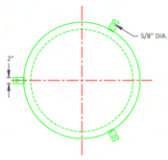


ITEM	QTY	DESCRIPTION
1	1 EA.	_6/8/16__" X 2" DOUBLE STRAP SERVICE SADDLE
2	1 EA.	2" BRASS CORPORATION STOP
3	_ L.F.	2" SCH 80 PVC PIPE
4	1 EA.	2" BRASS PACK JOINT ELBOW
5	1 EA.	8" DIA. GATE CAN ASSEMBLY PER ASPA STD
6	1 EA.	2" BALL CURB VALVE (MUELLER B25209N OR FORD B44-777-OR-Q-NL OR JONES E-1949 (COMPRESSION X COMPRESSION)
7	1 EA.	2" PVC- SCH - 80 ELBOW

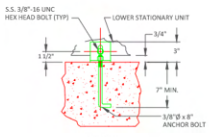
ITEM	QTY	DESCRIPTION
8	_ L.F.	2" PVC-SCH-80 PIPE
9	10 IN.	TIGHT FITTING 3" FLEXIBLE VINYL SLEEVE OR WRAP W/ PIPE TAPE
10		2,000 PSI CONCRETE: 2'-6" SQ. X 10" DEEP CONC. PAD (FORMED)
11		3/4" POORLY GRADED GRAVEL
12	1 EA.	2" TO 1" PVC. REDUCER & 1" BRASS. CLOSE NIPPLE (BOTH MAY BE OPTIONAL)
13	1 EA.	VALVE PER ASPA'S SPECIFICATION
14	2 EA.	PVC. STRAIGHT ELBOW
15	1 EA.	SCREEN WITHIN ELBOW
16	1 EA.	VALVE ASSEMBLY COVER

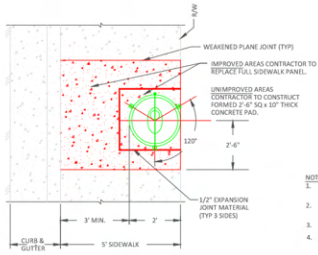
1" AND 2" AIR RELEASE VALVE





SIZING FOR AIR VALVE ASSEMBLY COVER		
VALVE SIZE	A (DIAMETER)	B (HEIGHT)
1"	12"	36"
2", 3", 4", & 6"	20"	36"
8"	24"	36"





NOTES:
1. ENGINEER TO VERIFY THE REQUIRED SIZE AND TYPE OF AIR VALVE ASSEMBLY PER PROJECT REQUIREMENTS.
2. USE ONLY THE APPROPRIATE STD. DRAWING(S) AND DESCRIPTIONS FOR CORRECT SIZE OF AIR VALVE ASSEMBLY.
3. MODEL NO. P6002001, 2 or 3 BY AMORCAST 1-818-982-3600.
4. ALL EXPOSED FERROUS METAL SHALL BE COATED PER SPECS. EXTERIOR COLOR TO BE SANDSTONE FINISH.

ARMORCAST (POLYETHYLENE) ENCLOSURE FOR AIR VALVE ASSEMBLY

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: AIR RELEASE VALVE AND ASSEMBLY	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C048
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA

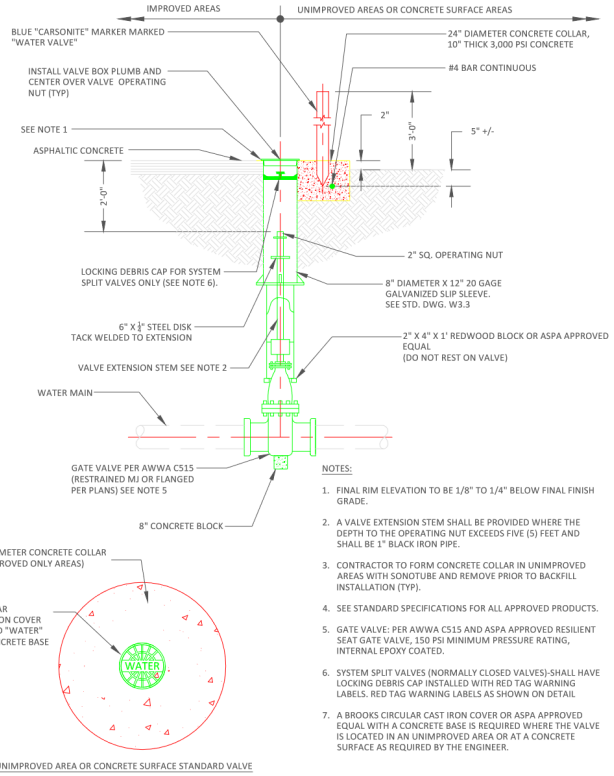
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

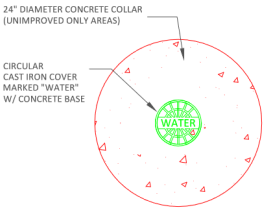
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



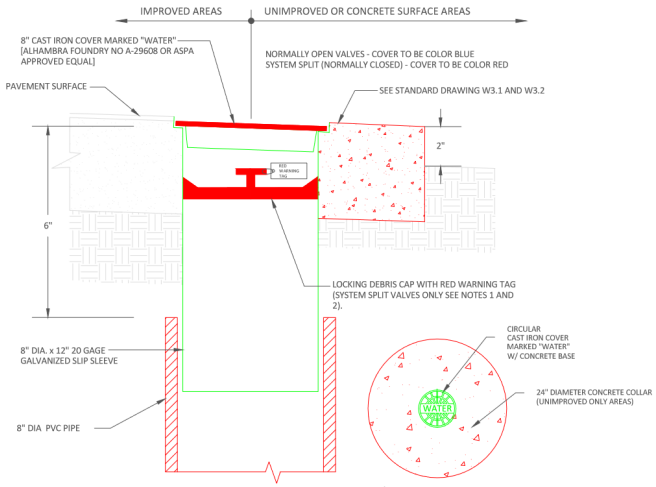
NOTES:

1. FINAL RIM ELEVATION TO BE 1/8" TO 1/4" BELOW FINAL FINISH GRADE.
2. A VALVE EXTENSION STEM SHALL BE PROVIDED WHERE THE DEPTH TO THE OPERATING NUT EXCEEDS FIVE (5) FEET AND SHALL BE 1" BLACK IRON PIPE.
3. CONTRACTOR TO FORM CONCRETE COLLAR IN UNIMPROVED AREAS WITH SONOTUBE AND REMOVE PRIOR TO BACKFILL INSTALLATION (TYP).
4. SEE STANDARD SPECIFICATIONS FOR ALL APPROVED PRODUCTS.
5. GATE VALVE: PER AWWA C515 AND ASPA APPROVED RESILIENT SEAT GATE VALVE, 150 PSI MINIMUM PRESSURE RATING, INTERNAL EPOXY COATED.
6. SYSTEM SPLIT VALVES (NORMALLY CLOSED VALVES)-SHALL HAVE LOCKING DEBRIS CAP INSTALLED WITH RED TAG WARNING LABELS. RED TAG WARNING LABELS AS SHOWN ON DETAIL
7. A BROOKS CIRCULAR CAST IRON COVER OR ASPA APPROVED EQUAL WITH A CONCRETE BASE IS REQUIRED WHERE THE VALVE IS LOCATED IN AN UNIMPROVED AREA OR AT A CONCRETE SURFACE AS REQUIRED BY THE ENGINEER.



UNIMPROVED AREA OR CONCRETE SURFACE STANDARD VALVE

TYPICAL GATE VALVE INSTALLATION



UNIMPROVED AREA/CONCRETE SURFACE STANDARD VALVE

NOTES:

1. LOCKING DEBRIS CAP SHALL BE MODEL NO. LD-B BY S.W. SERVICES, PHOENIX OR ASPA'S APPROVED EQUAL (SYSTEM SPLIT VALVES ONLY)
2. RED WARNING TAG SHALL BE BRIGHT RED PLASTIC AND SHALL READ AS FOLLOWS (SYSTEM SPLIT VALVES ONLY):

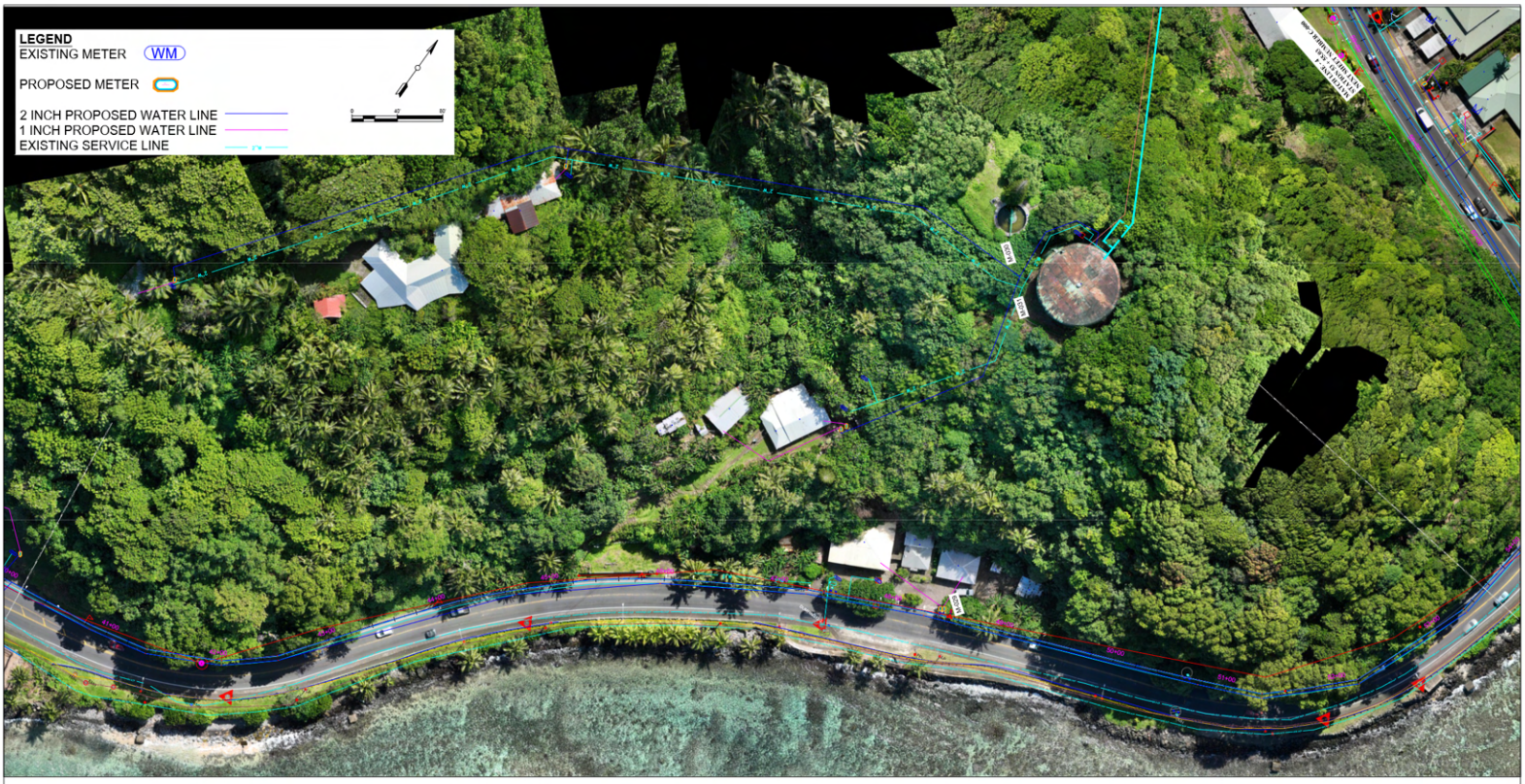
WARNING!
SYSTEM SPLIT VALVE (NORMALLY CLOSED)
VALVE TO BE OPERATED BY ASPA'S PERSONNEL ONLY
VALVE ID NO. _____
NO. OF TURNS TO CLOSE _____

ASPA'S INSPECTOR SHALL FILL-IN VALVE ID NO. AND NO. OF TURNS TO CLOSE VALVE. PLACE TAG AND DEBRIS CAP IN CAN AFTER VALVE MAINTENANCE.

3. A BROOKS CIRCULAR CAST IRON COVER OR ASPA'S APPROVED EQUAL WITH A CONCRETE BASE IS REQUIRED WHERE THE VALVE IS LOCATED IN AN UNIMPROVED AREA OR AT A CONCRETE SURFACE AS REQUIRED BY THE ENGINEER.

TYPICAL VALVE CAN INSTALLATION

PROJECT DETAILS:		DRAWING ORIGINATOR:		CLIENT:	REVISION:					
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799		AMERICAN SAMOA POWER AUTHORITY	NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:
DWG. TITLE: GATE VALVE AND VALVE CAN INSTALLATION DETAIL	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD						
PROJECT NUMBER: ASPA21.041	SHEET NO: C049			P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799						
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023			TEL: (684) 699-7199						



PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" : 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 41+20 - 53+60	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C044
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-7199	

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 53+60 - 67+00	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C045
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
	AMERICAN SAMOA POWER AUTHORITY
	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
	P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
	TEL: (684) 699-7199

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 00+00 - 13+00	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C041
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:	
DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	EXPIRES: 31/12/25
REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	

CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 13+00 - 26+80	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C042
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
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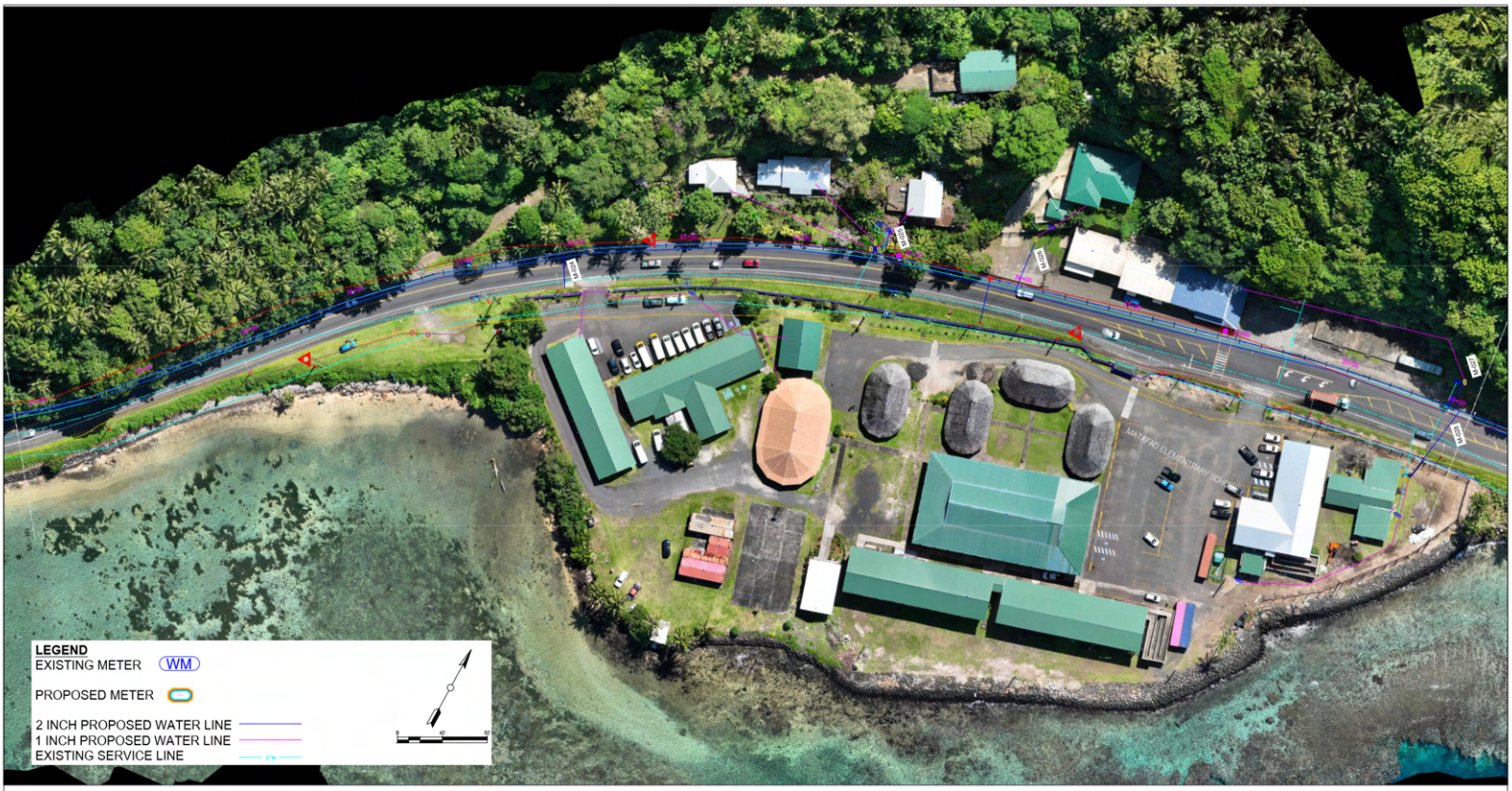

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: 1" = 40'
DWG TITLE: SERVICE LINE FOR WATER METER CONNECTION ST 26+80 - 41+20	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C043
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
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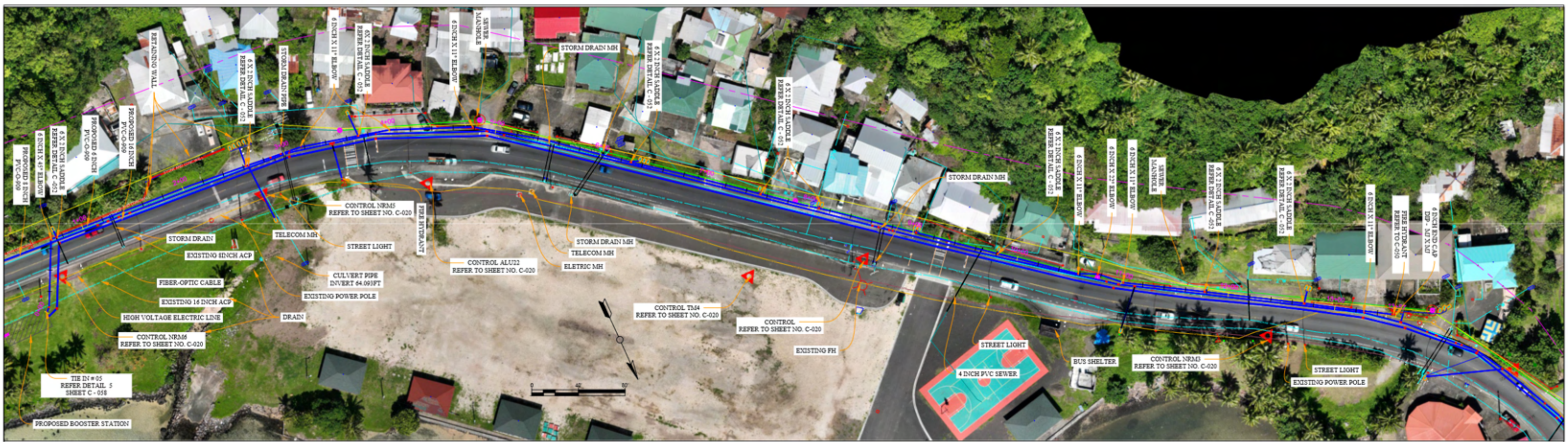
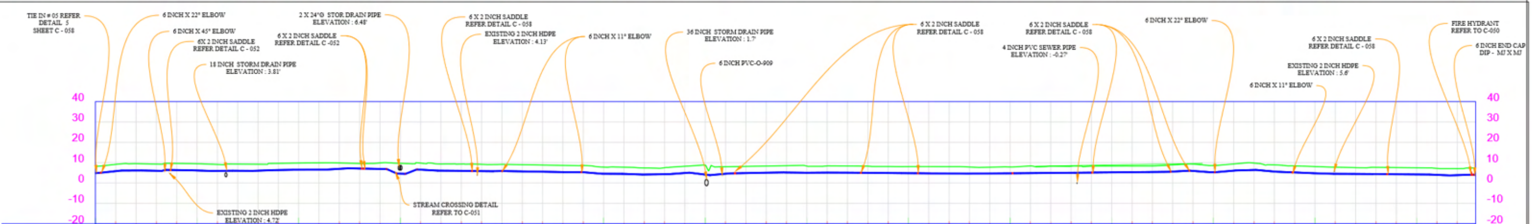




Stations	0+20	0+40	0+60	0+80	1+00	1+20	1+40	1+60	1+80	2+00	2+20	2+40
Existing Grade	9.14	9.50	9.29	9.62	9.47	9.11	9.30	9.20	9.65	9.79	9.87	9.82
Pipe Elevation	6.10	6.43	6.29	6.62	6.43	6.25	6.30	6.33	6.65	6.79	6.87	7.25

Stations	2+60	2+80	3+00	3+20	3+40	3+60	3+80	4+00	4+20	4+40	4+60	4+80
Existing Grade	9.60	9.86	9.65	9.75	9.37	9.31	9.16	9.15	8.99	8.82	8.65	8.61
Pipe Elevation	7.39	7.18	5.01	6.82	6.36	6.26	6.13	6.15	5.99	5.82	5.65	5.58

Stations	5+00	5+20	5+40	5+60	5+80	6+00	6+20	6+40	6+60	6+80	7+00	7+20
Existing Grade	7.80	7.75	7.41	7.51	8.21	8.73	7.97	8.16	8.34	8.49	8.31	8.39
Pipe Elevation	4.82	4.75	4.44	4.61	5.20	4.40	4.81	5.16	5.34	5.45	5.31	5.39

Stations	7+40	7+60	7+80	8+00	8+20	8+40	8+60	8+80	9+00	9+20	9+40	9+60
Existing Grade	8.36	8.26	8.10	8.09	8.08	8.06	7.85	7.76	7.86	8.38	8.24	8.23
Pipe Elevation	5.36	5.28	5.20	5.12	5.04	4.96	4.89	4.98	5.06	5.15	5.24	5.32

Stations	9+80	10+00	10+20	10+40	10+60	10+80	11+00	11+20	11+40	11+60	11+80	12+00
Existing Grade	8.29	8.34	8.35	8.34	8.89	9.29	8.58	9.36	9.79	8.86	8.44	8.07
Pipe Elevation	5.42	5.51	5.61	5.70	5.89	6.21	5.58	6.36	6.68	5.92	5.47	5.07

Stations	12+20	12+40	12+60	12+80	13+00	13+20	13+40
Existing Grade	7.77	7.52	7.67	7.57	7.48	7.17	7.04
Pipe Elevation	4.78	4.73	4.67	4.57	4.48	4.29	4.16

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 6 INCH SUPPLY LINE - PLAN & PROFILE ST 00+00 - 13+57	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C039
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

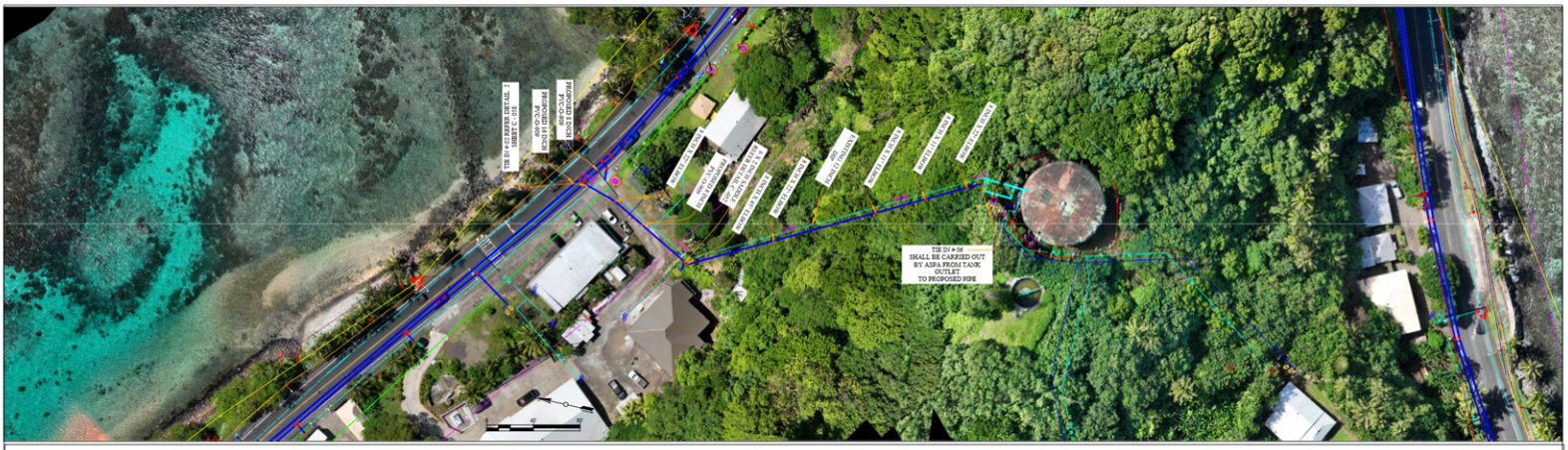
EXPIRES: 31/12/25

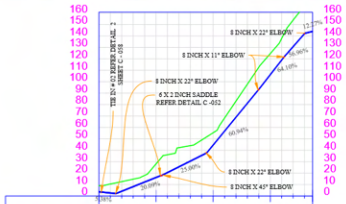
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





Stations	0+20	0+40	0+60	0+80	1+00	1+20	1+40	1+60	1+80	2+00	2+20	2+40	2+60	2+80	3+00	3+20	3+40	3+60
Existing Grade	10.47	12.57	14.72	17.99	28.03	35.08	42.25	44.05	48.99	55.32	68.19	83.02	97.85	112.68	124.56	137.86	153.86	167.54
Pipe Elevation	2.33	4.21	8.28	12.35	16.43	20.50	25.49	30.66	35.83	44.96	57.14	69.32	81.49	93.67	106.49	119.31	131.00	142.37

NOTE:
ALL PIPE JOINTS MUST BE RESTRAINED
REFER TO DETAIL ON SHEET C-053

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG TITLE: 8 INCH SUPPLY LINE FROM TANK - PLAN & PROFILE ST 00+00 - 3+71	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C040
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

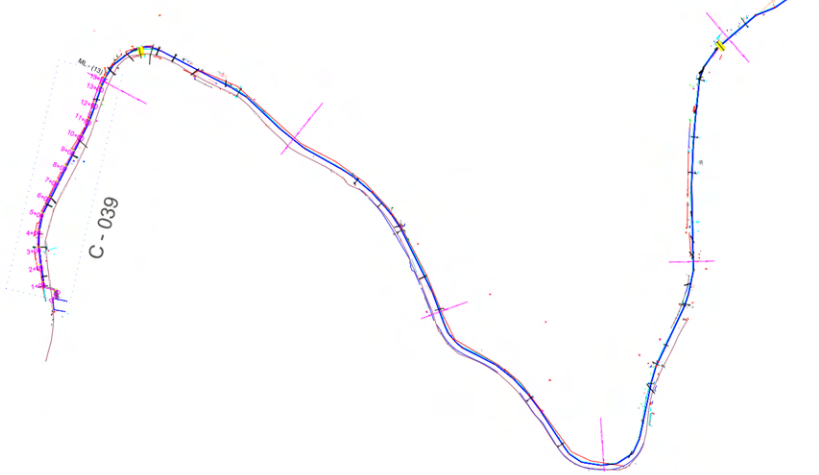
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PLAN & PROFILE KEY PLAN - 6" SUPPLY LINE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C038
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

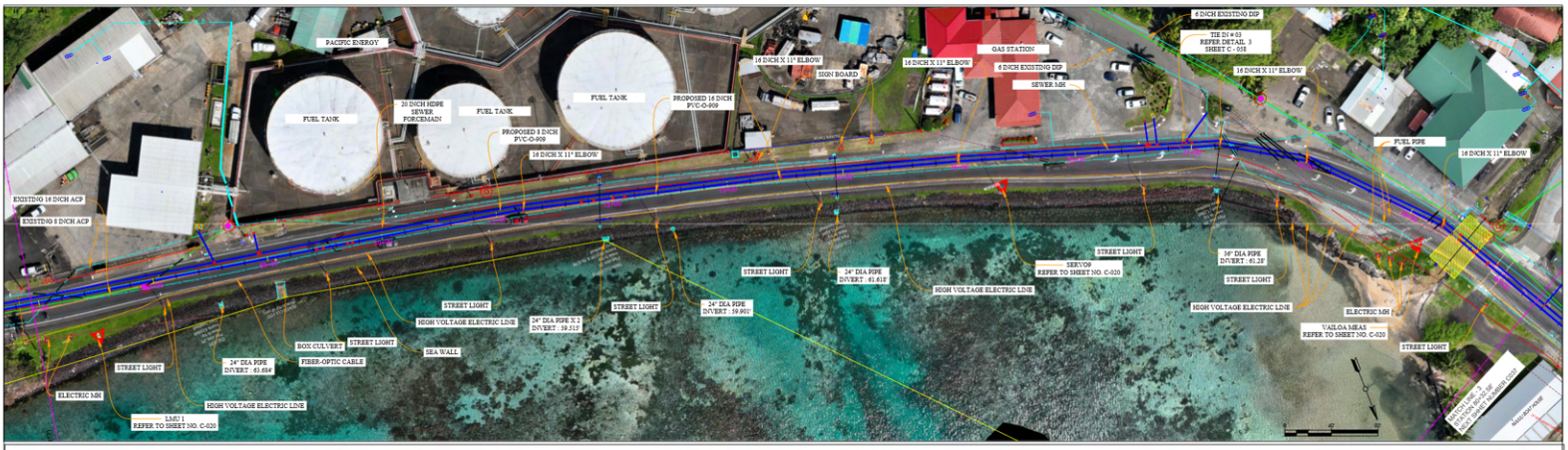
EXPIRES: 31/12/25

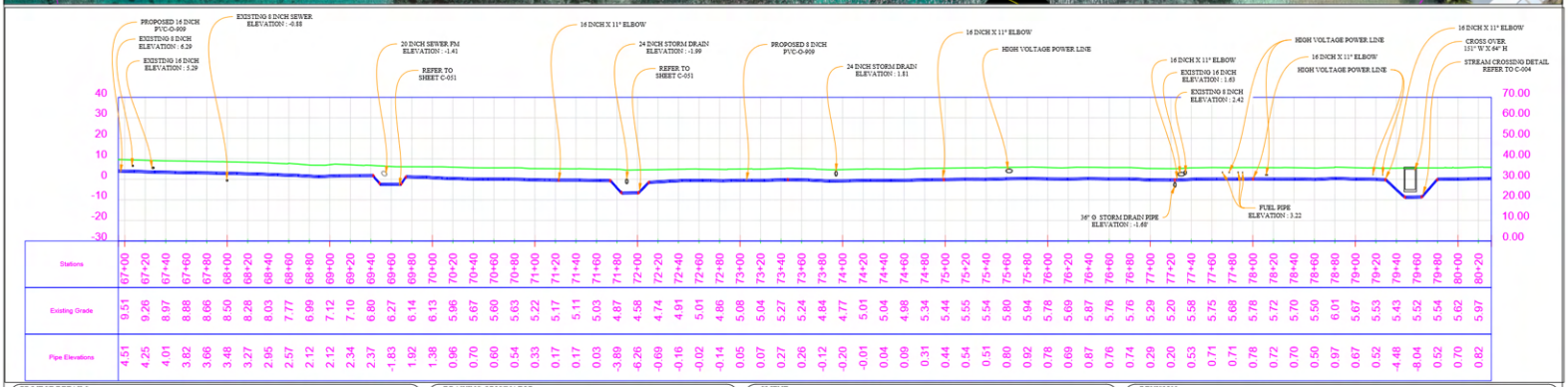
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





Stations	Existing Grade	Pipe Elevations
67+00	9.51	4.51
67+20	9.26	4.25
67+40	8.97	4.01
67+60	8.88	3.82
67+80	8.66	3.66
68+00	8.50	3.48
68+20	8.28	3.27
68+40	8.03	2.95
68+60	7.77	2.57
68+80	6.99	2.12
69+00	7.12	2.34
69+20	7.10	2.37
69+40	6.80	-1.83
69+60	6.27	1.92
69+80	6.14	1.38
70+00	6.13	0.96
70+20	5.96	0.70
70+40	5.67	0.60
70+60	5.60	0.54
70+80	5.63	0.33
71+00	5.22	0.17
71+20	5.17	0.17
71+40	5.11	0.03
71+60	5.03	-3.89
71+80	4.87	-6.26
72+00	4.58	-0.69
72+20	4.74	-0.16
72+40	4.91	-0.02
72+60	5.01	-0.14
72+80	4.86	0.05
73+00	5.08	0.07
73+20	5.04	0.27
73+40	5.27	0.26
73+60	5.24	-0.12
73+80	4.84	-0.20
74+00	4.77	-0.01
74+20	5.01	0.04
74+40	5.04	0.09
74+60	4.98	0.31
74+80	5.34	0.44
75+00	5.44	0.54
75+20	5.55	0.51
75+40	5.54	0.80
75+60	5.80	0.92
75+80	5.94	0.78
76+00	5.78	0.69
76+20	5.69	0.87
76+40	5.87	0.76
76+60	5.76	0.74
76+80	5.76	0.29
77+00	5.29	0.20
77+20	5.20	0.53
77+40	5.58	0.71
77+60	5.75	0.71
77+80	5.68	0.78
78+00	5.78	0.72
78+20	5.72	0.70
78+40	5.70	0.50
78+60	5.50	0.97
78+80	6.01	0.67
79+00	5.67	0.52
79+20	5.53	0.43
79+40	5.43	0.52
79+60	5.52	-4.48
79+80	5.54	-8.04
80+00	5.62	0.52
80+20	5.97	0.70
		0.82

PROJECT DETAILS:

PROJECT NAME:
FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE

SCALE: PLAN: 1" = 40' PROFILE: 1" = 40'

DWG. TITLE:
16 INCH COLLECTION LINE - PLAN & PROFILE ST 66+93.83 - 80+32.58'

ISSUED FOR:
CONSTRUCTION

PROJECT NUMBER:
ASPA21.041

SHEET NO:
C036

PROJECT LOCATION:
FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799

DATE:
DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

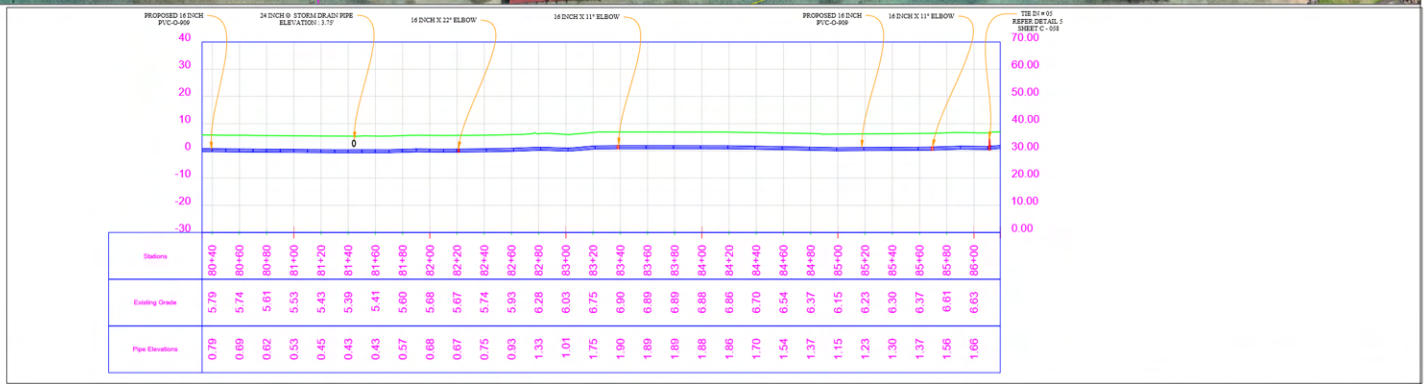
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL : (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:

PROJECT NAME:
FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE

SCALE: PLAN: 1" = 40' PROFILE: 1" = 40'

DWG. TITLE:
16 INCH COLLECTION LINE - PLAN & PROFILE ST 80+32.58 - 86+19

ISSUED FOR:
CONSTRUCTION

PROJECT NUMBER:
ASPA21.041

SHEET NO.:
C037

PROJECT LOCATION:
FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799

DATE:
DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE WILLIAM C. GORDON No. 9237 REGISTERED PROFESSIONAL ENGINEER

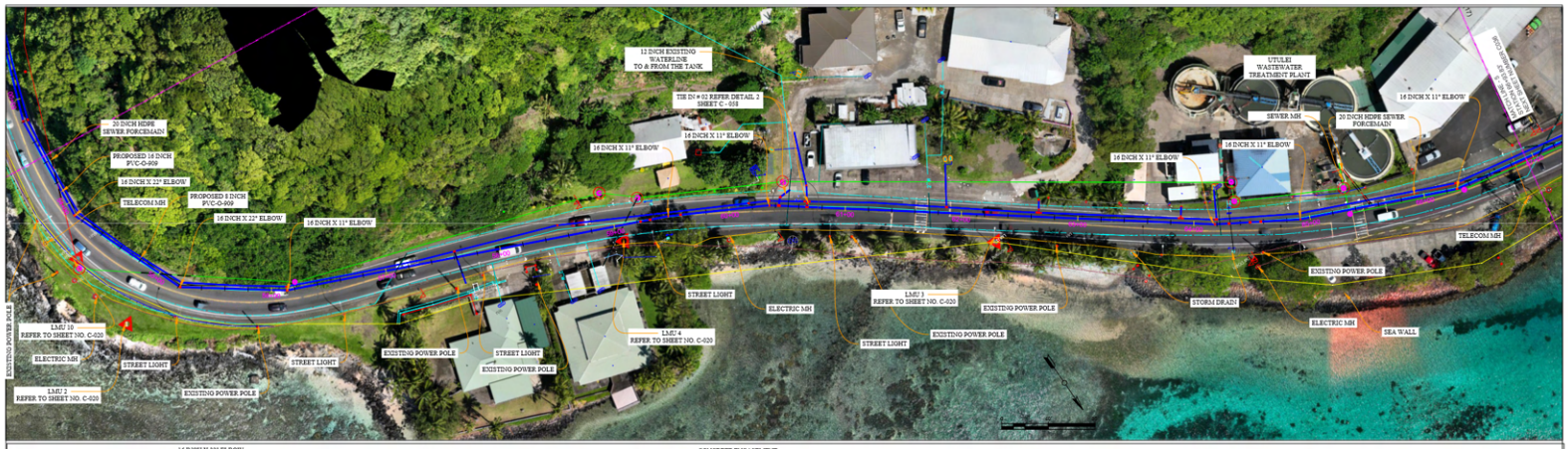
EXPIRES: 31/12/25

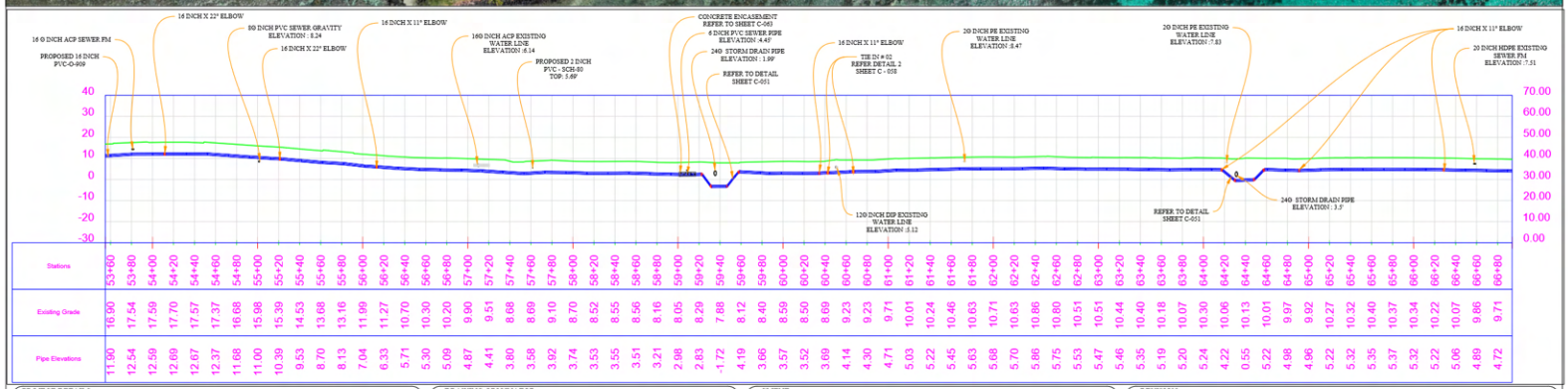
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





Stations	53+60	53+80	54+00	54+20	54+40	54+60	54+80	55+00	55+20	55+40	55+60	55+80	56+00	56+20	56+40	56+60	56+80	57+00	57+20	57+40	57+60	57+80	58+00	58+20	58+40	58+60	58+80	59+00	59+20	59+40	59+60	59+80	60+00	60+20	60+40	60+60	60+80	61+00	61+20	61+40	61+60	61+80	62+00	62+20	62+40	62+60	62+80	63+00	63+20	63+40	63+60	63+80	64+00	64+20	64+40	64+60	64+80	65+00	65+20	65+40	65+60	65+80	66+00	66+20	66+40	66+60	66+80
Existing Grade	18.90	17.54	17.59	17.70	17.57	17.37	16.68	15.98	15.39	14.53	13.68	13.16	11.99	11.27	10.70	10.30	10.20	9.90	9.51	8.68	8.69	9.10	8.70	8.52	8.55	8.56	8.16	8.05	8.29	7.88	8.12	8.40	8.59	8.50	8.69	9.23	9.71	10.01	10.24	10.46	10.63	10.71	10.63	10.86	10.80	10.51	10.51	10.44	10.40	10.18	10.07	10.30	10.06	10.13	10.01	9.97	9.92	10.27	10.32	10.40	10.37	10.34	10.22	10.07	9.86	9.71
Pipe Elevations	11.90	12.54	12.59	12.69	12.67	12.37	11.68	11.00	10.39	9.53	8.70	8.13	7.04	6.33	5.71	5.30	5.09	4.87	4.41	3.80	3.58	3.92	3.74	3.53	3.55	3.51	3.21	2.98	2.83	-1.72	4.19	3.66	3.57	3.52	3.69	4.14	4.30	4.71	5.03	5.22	5.45	5.63	5.68	5.70	5.86	5.75	5.53	5.47	5.46	5.35	5.19	5.20	5.24	4.22	0.55	5.22	4.98	4.96	5.22	5.32	5.35	5.37	5.32	5.22	5.06	4.89	4.72

PROJECT DETAILS:

PROJECT NAME:
FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE

SCALE: PLAN 1" = 40' PROFILE 1" = 40'

DWG. TITLE:
16 INCH COLLECTION LINE - PLAN & PROFILE ST 53+54.63 - 66+93.83

ISSUED FOR:
CONSTRUCTION

PROJECT NUMBER:
ASPA21.041

SHEET NO:
C035

PROJECT LOCATION:
FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799

DATE:
DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE WILLIAM C GORDON No. 9221 PROFESSIONAL ENGINEER

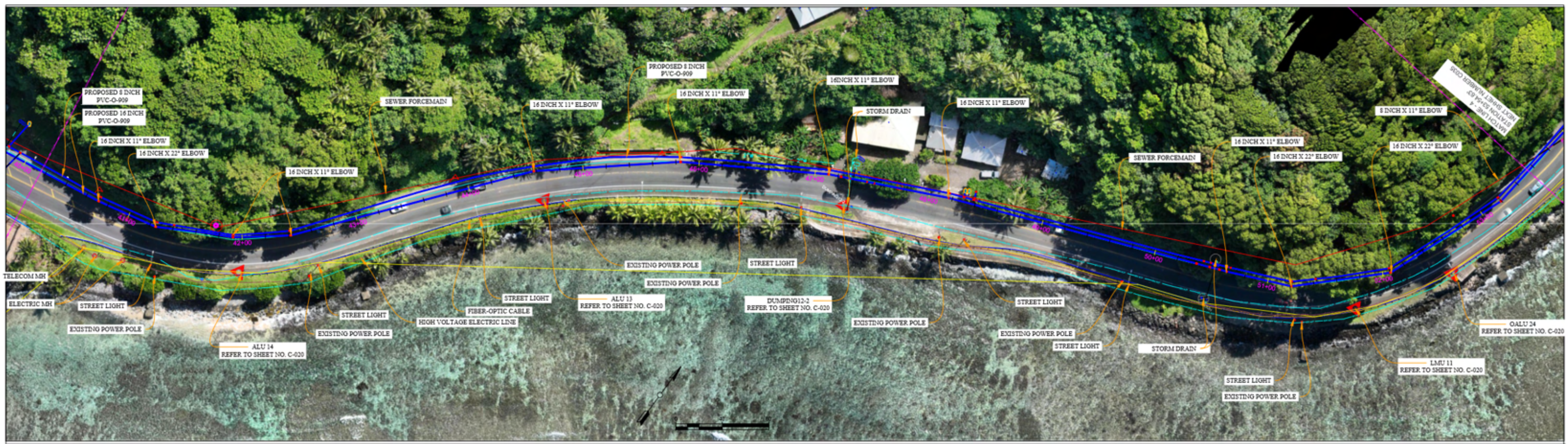
EXPIRES: 31/12/25

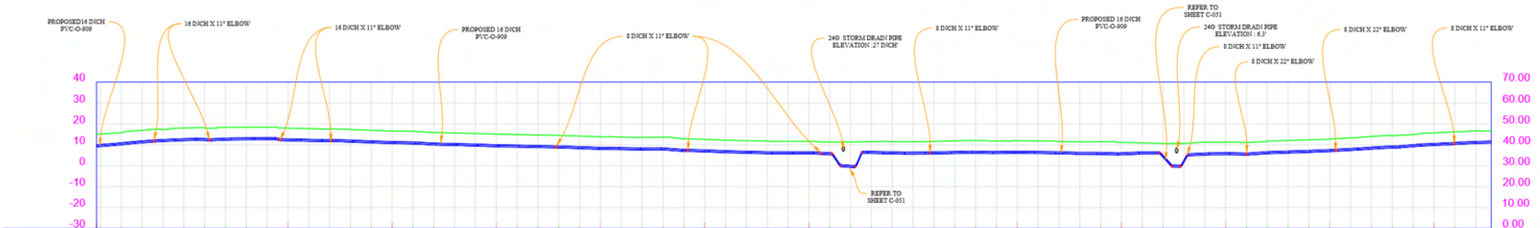
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





Stations	40+20	40+40	40+60	40+80	41+00	41+20	41+40	41+60	41+80	42+00	42+20	42+40	42+60	42+80	43+00	43+20	43+40	43+60	43+80	44+00	44+20
Existing Grade	15.18	15.86	16.97	17.28	18.03	18.11	18.34	18.41	18.47	17.98	17.77	17.60	17.33	16.96	16.64	16.48	15.93	15.70	15.44	15.13	14.95
Pipe Elevations	10.22	11.06	11.97	12.62	13.03	13.07	13.26	13.41	13.50	12.98	12.75	12.66	12.33	11.96	11.66	11.46	10.96	10.70	10.44	10.13	9.94

Stations	44+40	44+60	44+80	45+00	45+20	45+40	45+60	45+80	46+00	46+20	46+40	46+60	46+80	47+00	47+20	47+40	47+60	47+80	48+00	48+20	48+40
Existing Grade	14.72	14.55	14.22	13.87	13.73	13.57	13.66	12.93	12.64	12.24	12.01	11.86	11.70	11.66	11.34	11.36	11.54	11.52	11.50	11.66	11.86
Pipe Elevations	9.73	9.55	9.22	8.89	8.74	8.57	8.59	7.93	7.63	7.28	7.01	6.77	6.70	6.66	6.26	0.10	6.93	6.67	6.54	6.65	6.88

Stations	48+60	48+80	49+00	49+20	49+40	49+60	49+80	50+00	50+20	50+40	50+60	50+80	51+00	51+20	51+40	51+60	51+80	52+00	52+20	52+40	52+60	52+80	53+00	53+20	53+40
Existing Grade	12.08	11.84	12.01	11.88	11.60	11.48	11.48	11.14	10.93	10.68	10.74	11.21	11.28	11.11	11.80	12.10	12.40	12.76	13.33	13.98	14.41	14.93	15.74	16.19	16.71
Pipe Elevations	7.05	6.87	7.01	6.88	6.73	6.48	6.42	6.24	6.66	5.26	3.42	6.14	6.28	6.13	6.77	7.10	7.40	7.78	8.34	8.98	9.47	10.14	10.74	11.19	11.71

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 16 INCH COLLECTION LINE - PLAN & PROFILE ST 40+15.87 - 53+54.63	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C034
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING — Engineering and Construction Management

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE — WILLIAM C. GORDON — No. 5231 — LICENSED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

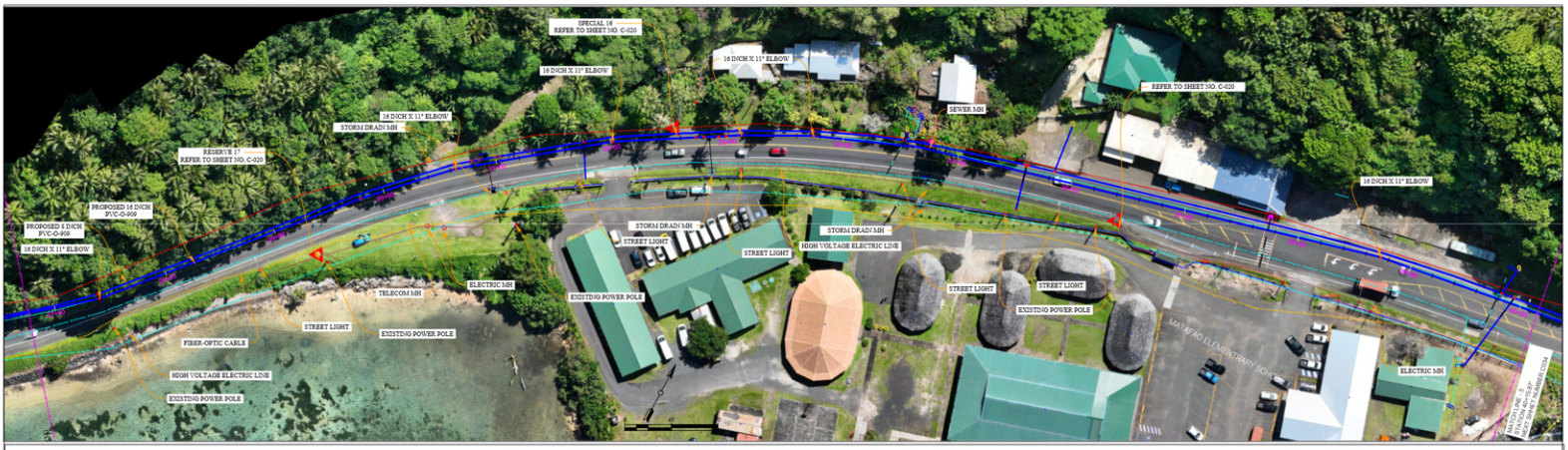
CLIENT:

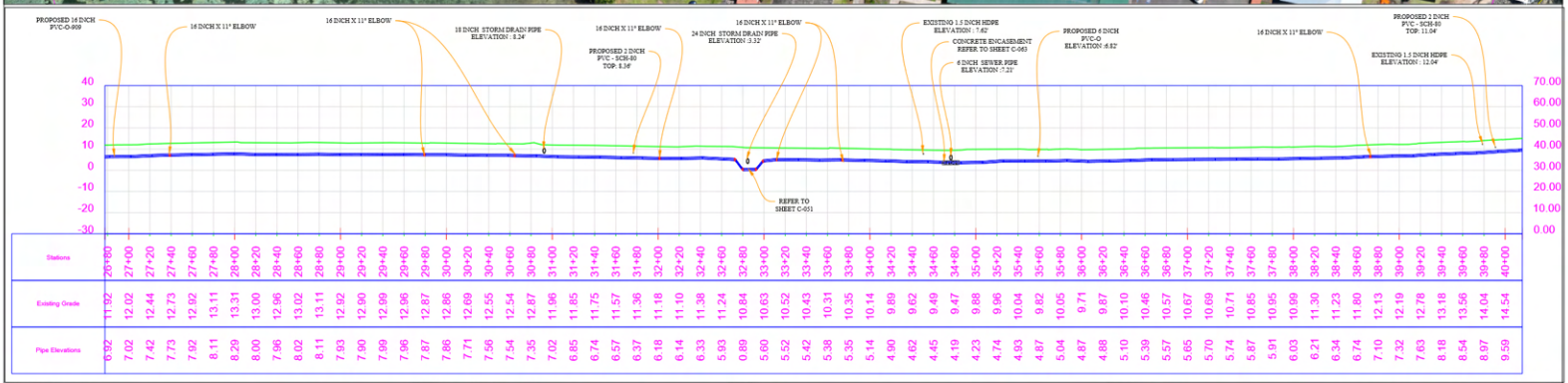
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL.: (684) 699-7199

AMBASSADOR® WRN

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





PROJECT DETAILS:

PROJECT NAME:
FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE

SCALE: PLAN: 1" = 40' PROFILE: 1" = 40'

DWG. TITLE:
16 INCH COLLECTION LINE - PLAN & PROFILE ST 26+77.12 - 40+15.87

ISSUED FOR:
CONSTRUCTION

PROJECT NUMBER:
ASPA21.041

SHEET NO:
C033

PROJECT LOCATION:
FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799

DATE:
DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

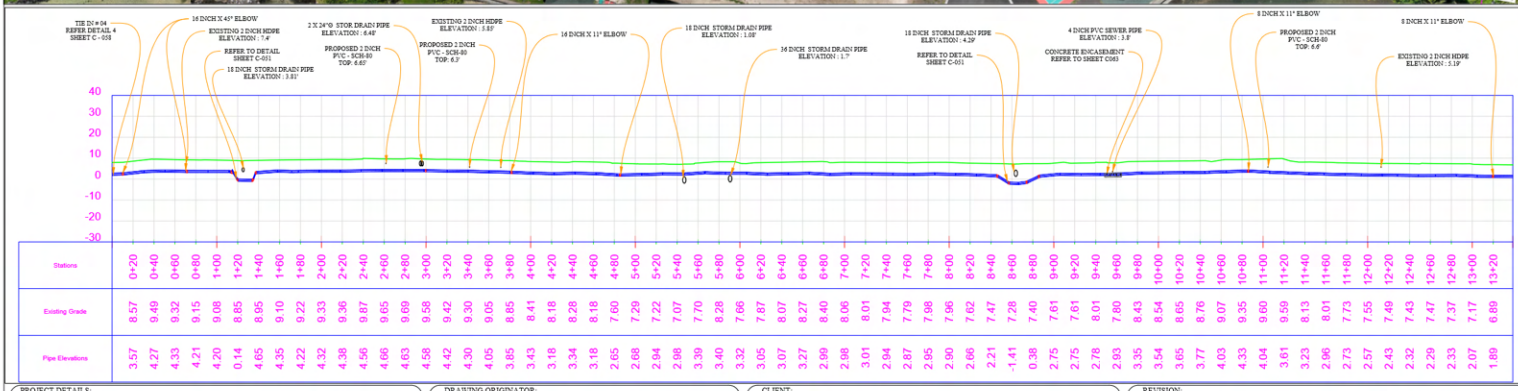
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:

PROJECT NAME:
FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE

SCALE: PLAN: 1" = 40' PROFILE: 1" = 40'

DWG. TITLE:
16 INCH COLLECTION LINE - PLAN & PROFILE ST 00+00 - 13+38.36

ISSUED FOR:
CONSTRUCTION

PROJECT NUMBER:
ASPA21.041

SHEET NO:
C031

PROJECT LOCATION:
FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799

DATE:
DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING
Engineering and Construction Services

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE
WILLIAM C GORDON
No. 9237
REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

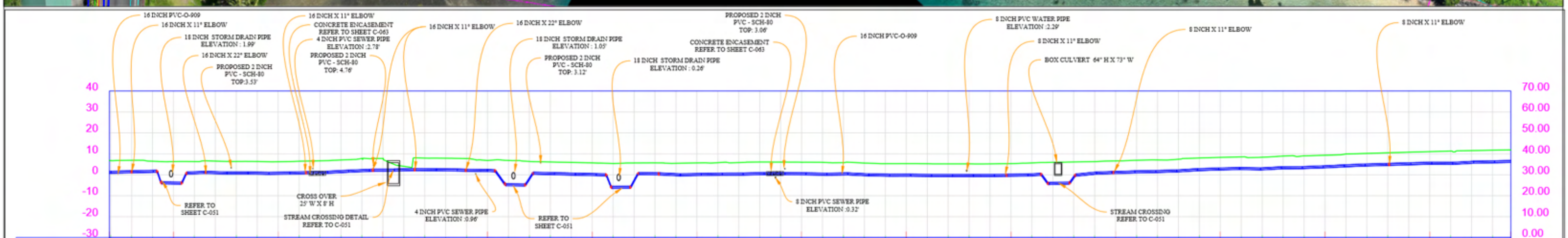
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

AMERICAN SAMOA POWER AUTHORITY WEN

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



Stations	13+40	13+60	13+80	14+00	14+20	14+40	14+60	14+80	15+00	15+20
Existing Grade	6.77	6.93	6.47	6.33	6.33	6.53	6.38	6.37	6.23	6.46
Pipe Elevations	1.77	1.97	2.18	-3.39	2.05	1.56	1.39	1.32	1.28	1.47

Stations	15+40	15+60	15+80	16+00	16+20	16+40	16+60	16+80	17+00	17+20
Existing Grade	6.68	7.08	7.80	7.76	4.04	7.96	7.90	7.75	6.83	6.84
Pipe Elevations	1.69	2.06	2.53	2.78	2.92	3.01	2.90	2.74	2.62	-4.24

Stations	17+40	17+60	17+80	18+00	18+20	18+40	18+60	18+80	19+00	19+20
Existing Grade	6.39	6.12	5.89	5.68	5.43	5.64	5.69	5.50	5.67	5.78
Pipe Elevations	-1.13	1.11	0.89	0.68	-5.50	-2.08	1.27	0.62	0.67	0.85

Stations	19+40	19+60	19+80	20+00	20+20	20+40	20+60	20+80	21+00	21+20
Existing Grade	5.83	6.10	6.06	5.98	5.92	5.79	5.57	5.31	5.34	5.26
Pipe Elevations	0.90	1.06	1.06	1.00	0.87	0.96	0.61	0.36	0.34	0.26

Stations	21+40	21+60	21+80	22+00	22+20	22+40	22+60	22+80	23+00	23+20
Existing Grade	5.22	5.20	5.22	5.34	5.67	5.93	6.11	6.31	6.64	6.94
Pipe Elevations	0.22	0.19	0.23	0.33	0.42	-3.58	-0.58	1.33	1.65	1.93

Stations	23+40	23+60	23+80	24+00	24+20	24+40	24+60	24+80	25+00	25+20
Existing Grade	7.08	7.44	8.01	8.32	8.58	8.39	8.92	9.03	9.35	9.95
Pipe Elevations	2.11	2.43	3.01	3.32	3.54	3.40	3.89	3.99	4.36	4.84

Stations	25+40	25+60	25+80	26+00	26+20	26+40	26+60
Existing Grade	10.23	10.51	10.78	11.06	11.34	11.55	11.73
Pipe Elevations	5.23	5.51	5.78	6.06	6.00	6.51	6.73

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 16 INCH COLLECTION LINE - PLAN & PROFILE ST 13+38.36 - 26+77.12	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C032
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

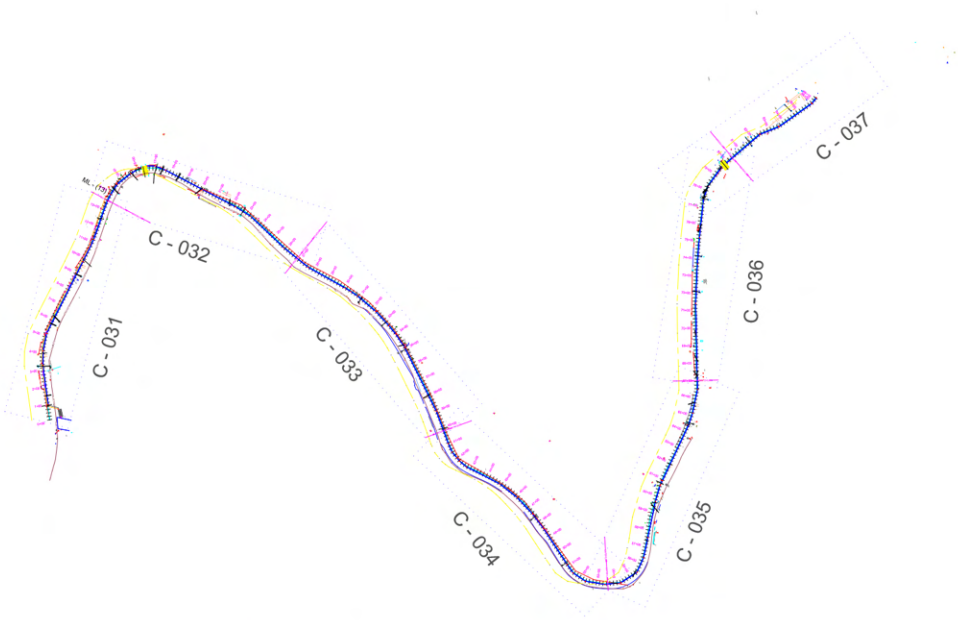
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL.: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:	
PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PLAN & PROFILE KEY PLAN - 16" COLLECTION Y LINE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C030
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

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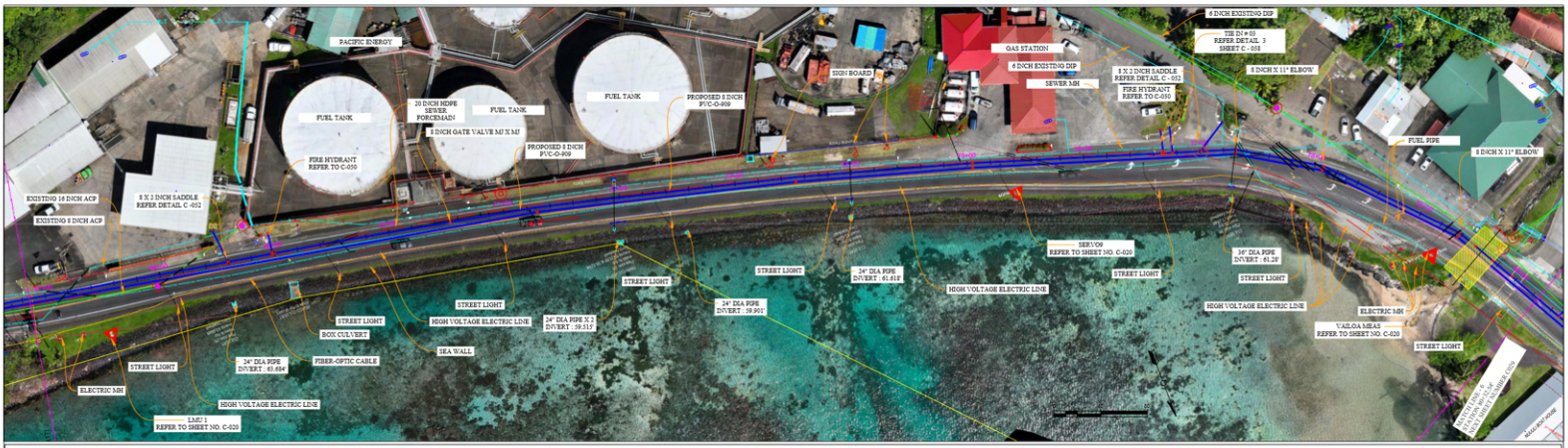
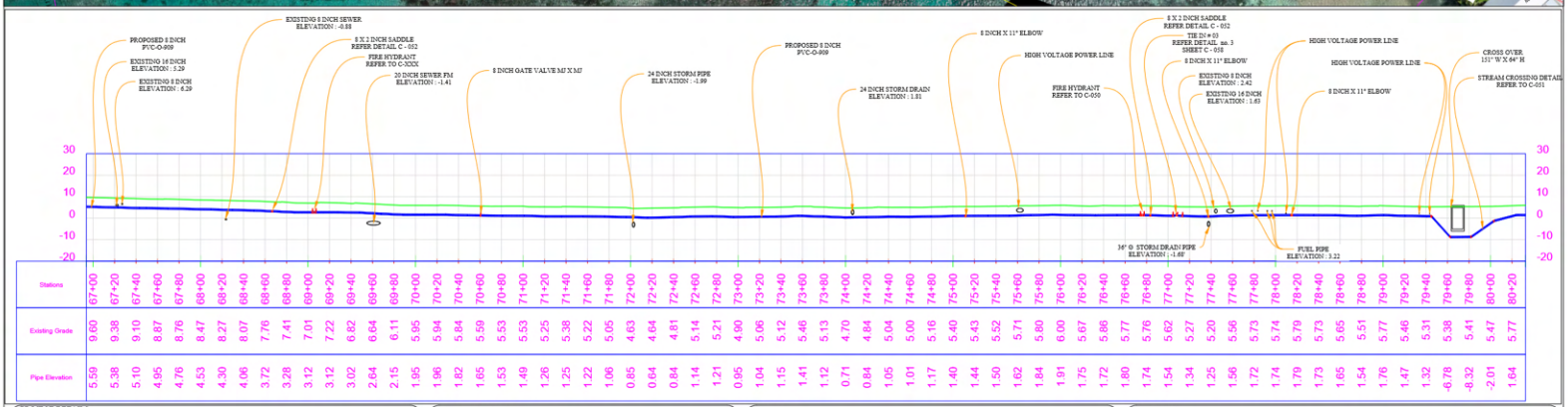




PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 66+93.78- 80+32.54'	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C028
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

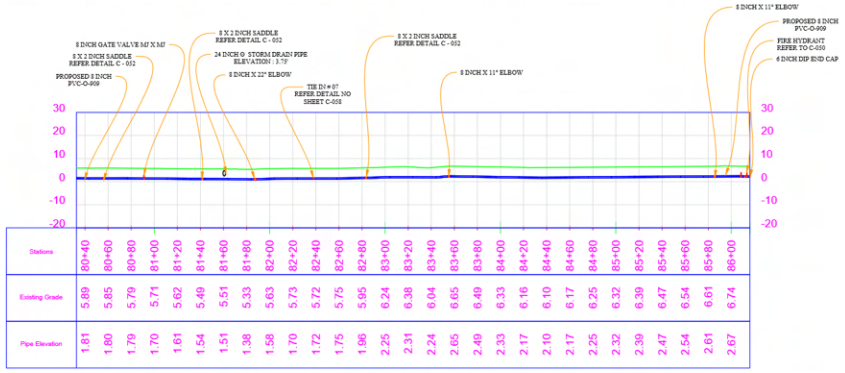
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



Stations	80+40	80+60	80+80	81+00	81+20	81+40	81+60	81+80	82+00	82+20	82+40	82+60	82+80	83+00	83+20	83+40	83+60	83+80	84+00	84+20	84+40	84+60	84+80	85+00	85+20	85+40	85+60	85+80	86+00
Existing Grade	5.89	5.85	5.79	5.71	5.62	5.49	5.51	5.33	5.63	5.73	5.72	5.75	5.95	6.24	6.38	6.04	6.65	6.49	6.33	6.16	6.10	6.17	6.25	6.32	6.39	6.47	6.54	6.61	6.74
Pipe Elevation	1.81	1.80	1.79	1.70	1.61	1.54	1.51	1.38	1.58	1.70	1.72	1.75	1.96	2.25	2.31	2.24	2.65	2.49	2.33	2.17	2.10	2.17	2.25	2.32	2.39	2.47	2.54	2.61	2.67

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 80+32.54' - 86+16	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C029
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

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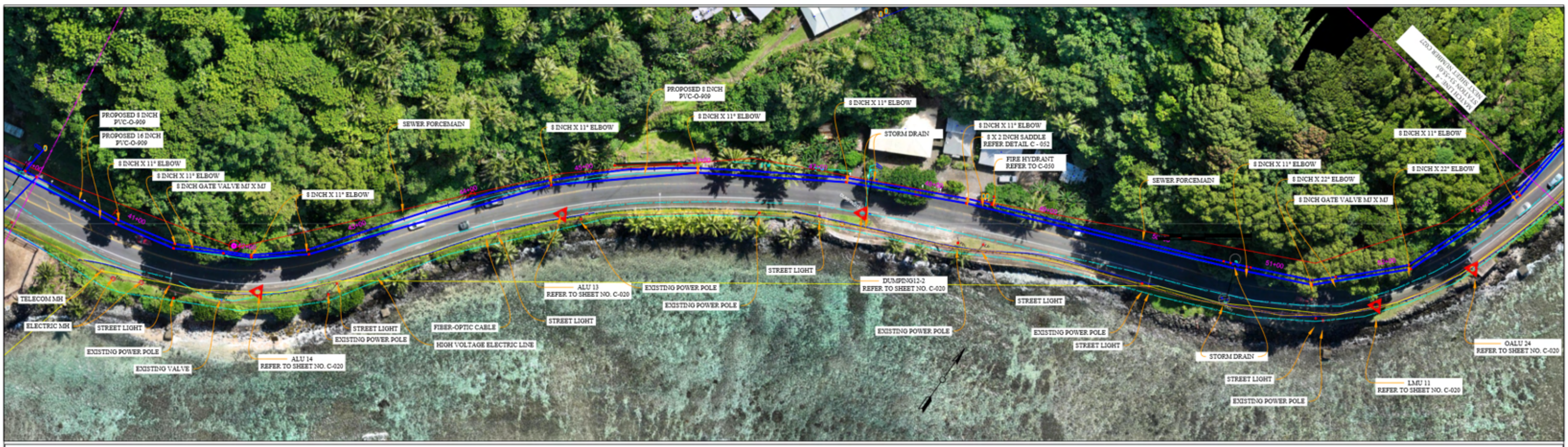

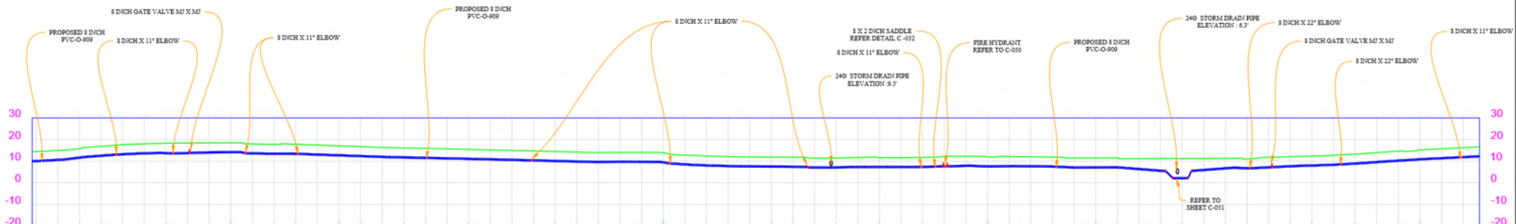

Stations	Existing Grade	Pipe Elevation
40+20	14.46	10.44
40+40	14.94	10.97
40+60	15.87	12.00
40+80	16.88	12.88
41+00	17.64	13.56
41+20	18.00	14.00
41+40	18.30	14.10
41+60	18.41	14.14
41+80	18.46	14.43
42+00	18.51	14.51
42+20	17.98	13.98
42+40	17.76	13.83
42+60	17.80	13.80
42+80	17.44	13.44
43+00	17.08	13.08
43+20	16.72	12.72
43+40	16.37	12.37
43+60	16.12	12.12
43+80	15.90	11.90
44+00	15.68	11.68
44+20	15.45	11.45
44+40	15.20	11.21
44+60	14.98	10.98
44+80	14.73	10.73
45+00	14.47	10.47
45+20	14.20	10.21
45+40	14.01	10.00
45+60	14.06	10.06
45+80	14.09	10.03
46+00	13.83	9.83
46+20	12.80	8.89
46+40	12.37	8.42
46+60	12.13	8.13
46+80	11.92	7.94
47+00	11.88	7.88
47+20	11.84	7.80
47+40	11.41	7.49
47+60	11.49	7.50
47+80	11.72	7.66
48+00	11.55	7.68
48+20	11.60	7.65
48+40	11.75	7.74
48+60	12.18	7.98
48+80	12.26	8.21
49+00	11.91	7.96
49+20	12.14	8.09
49+40	12.01	8.01
49+60	11.88	7.87
49+80	11.46	7.46
50+00	11.50	7.50
50+20	11.54	7.51
50+40	11.13	6.74
50+60	11.27	5.96
50+80	11.16	2.06
51+00	11.22	6.30
51+20	11.29	7.06
51+40	11.02	7.13
51+60	11.75	7.52
51+80	12.06	8.03
52+00	12.36	8.36
52+20	12.69	8.72
52+40	13.24	9.29
52+60	13.96	9.96
52+80	14.67	10.61
53+00	15.24	11.23
53+20	15.73	11.74
53+40	16.24	12.24

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 40+16.27 - 53+55.03'	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C026
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING — Engineering and Construction Management

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE — WILLIAM C GORDON — No. 5231 — LICENSED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

AMBASSADOR WRN

REVISION:

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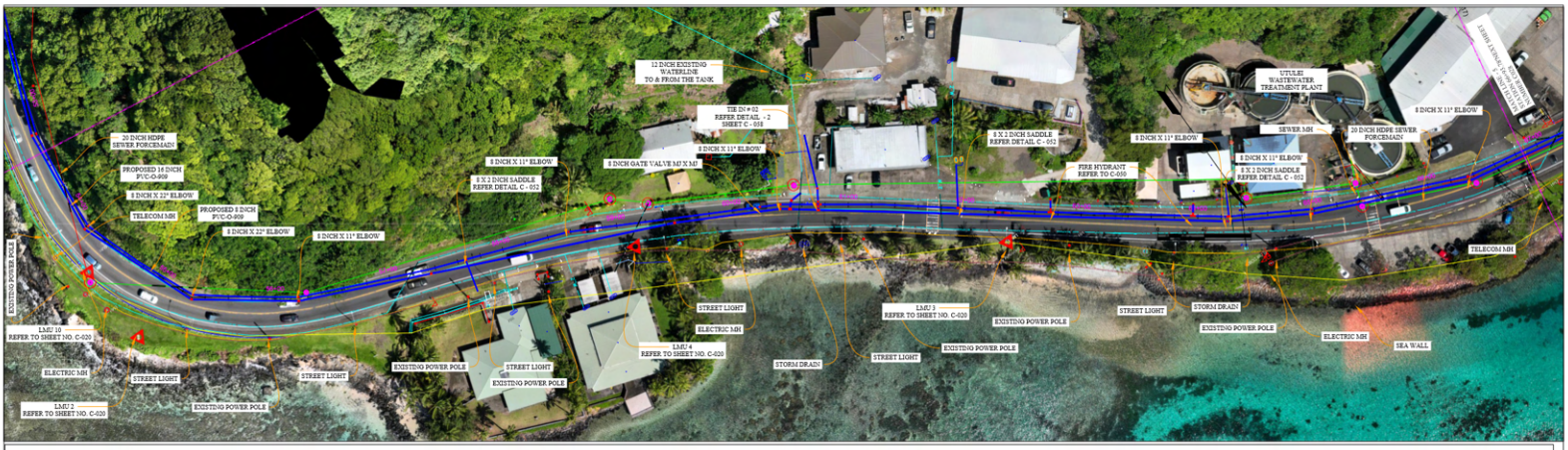

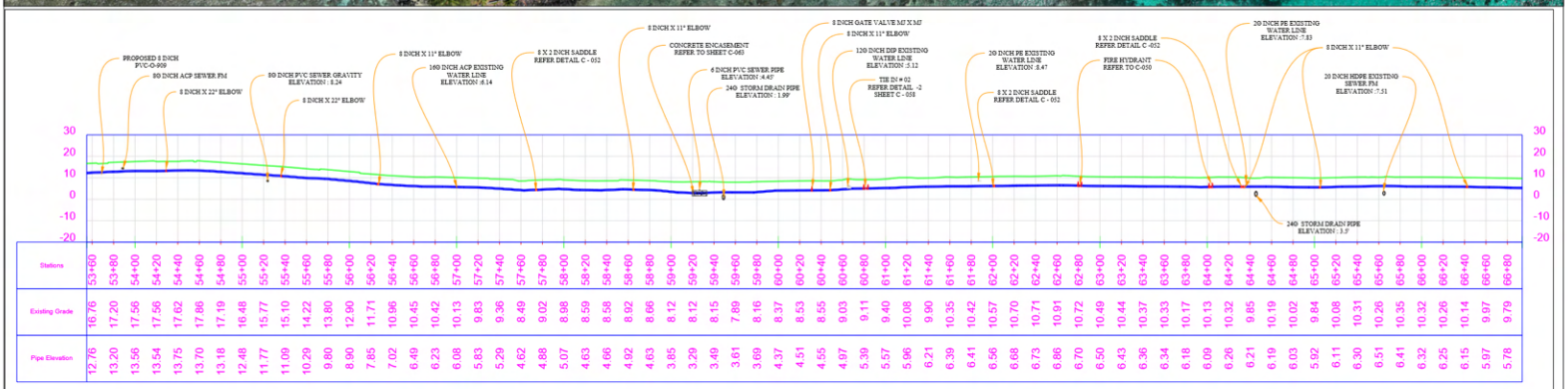

Stations	53+60	53+80	54+00	54+20	54+40	54+60	54+80	55+00	55+20	55+40	55+60	55+80	56+00	56+20	56+40	56+60	56+80	57+00	57+20	57+40	57+60	57+80	58+00	58+20	58+40	58+60	58+80	59+00	59+20	59+40	59+60	59+80	60+00	60+20	60+40	60+60	60+80	61+00	61+20	61+40	61+60	62+00	62+20	62+40	62+60	62+80	63+00	63+20	63+40	63+60	63+80	64+00	64+20	64+40	64+60	64+80	65+00	65+20	65+40	65+60	65+80	66+00	66+20	66+40	66+60	66+80
Existing Grade	16.76	17.20	17.56	17.56	17.62	17.86	17.19	16.48	15.77	15.10	14.22	13.80	12.90	11.71	10.96	10.45	10.42	10.13	9.83	9.36	8.49	9.02	8.98	8.59	8.58	8.92	8.66	8.12	8.12	8.15	7.89	8.16	8.37	8.53	8.55	9.03	9.11	9.40	10.08	9.90	10.35	10.42	10.57	10.70	10.71	10.91	10.72	10.49	10.44	10.37	10.33	10.17	10.13	10.32	9.85	10.19	10.02	9.84	10.08	10.31	10.26	10.35	10.32	10.26	10.14	9.97	9.79
Pipe Elevation	12.76	13.20	13.56	13.54	13.75	13.70	13.18	12.48	11.77	11.09	10.29	9.80	8.90	7.85	7.02	6.49	6.23	6.08	5.83	5.29	4.62	4.88	5.07	4.63	4.66	4.92	4.63	3.85	3.29	3.49	3.61	3.69	4.37	4.51	4.55	4.97	5.39	5.57	5.96	6.21	6.39	6.41	6.56	6.68	6.73	6.86	6.70	6.50	6.43	6.36	6.34	6.18	6.09	6.26	6.21	6.19	6.03	5.92	6.11	6.30	6.51	6.41	6.32	6.25	6.15	5.97	5.78

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 53+55.03 - 66+93.78	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C027
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY

WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD

P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799

TEL: (684) 699-7199

REVISION:

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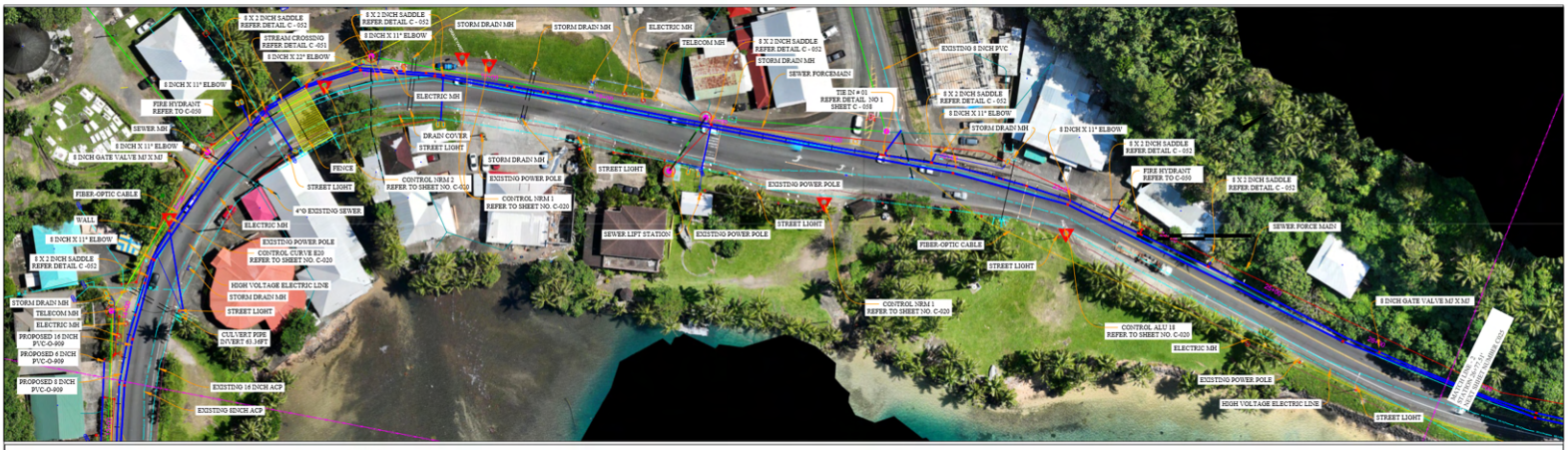
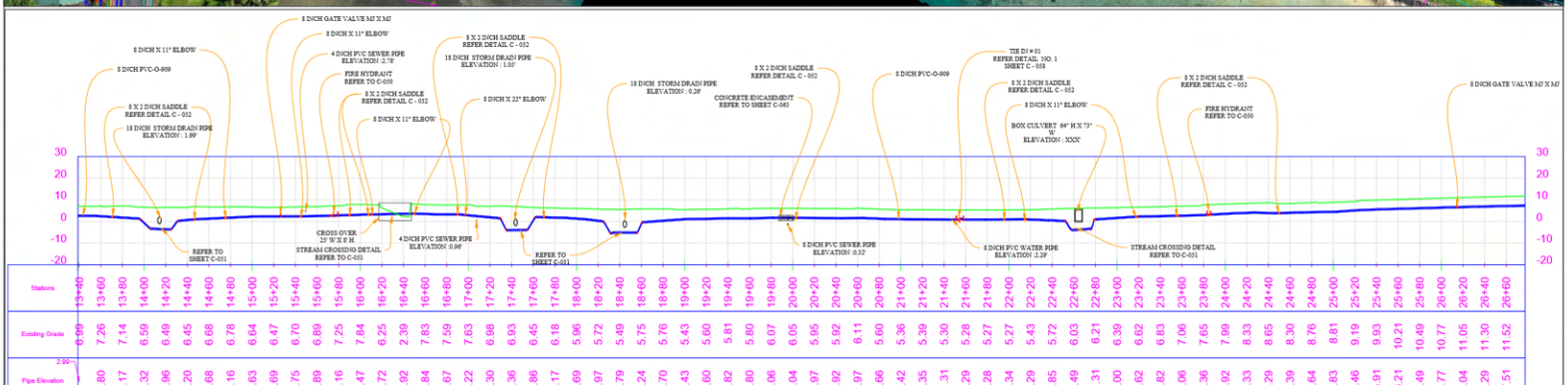




Stations	13+40	13+60	13+80	14+00	14+20	14+40	14+60	14+80	15+00	15+20	15+40	15+60	15+80	16+00	16+20	16+40	16+60	16+80	17+00	17+20	17+40	17+60	17+80	18+00	18+20	18+40	18+60	18+80	19+00	19+20	19+40	19+60	19+80	20+00	20+20	20+40	20+60	20+80	21+00	21+20	21+40	21+60	21+80	22+00	22+20	22+40	22+60	22+80	23+00	23+20	23+40	23+60	23+80	24+00	24+20	24+40	24+60	24+80	25+00	25+20	25+40	25+60	25+80	26+00	26+20	26+40	26+60
Existing Grade	6.99	7.26	7.14	6.59	6.49	6.45	6.68	6.78	6.64	6.47	6.70	6.89	7.25	7.84	6.25	2.39	7.83	7.59	7.63	6.98	6.93	6.45	6.18	5.96	5.72	5.49	5.75	5.76	5.43	5.60	5.81	5.80	6.07	6.05	5.95	5.92	6.11	5.60	5.36	5.39	5.30	5.28	5.27	5.27	5.43	5.72	6.03	6.21	6.39	6.62	6.83	7.06	7.65	7.99	8.33	8.65	8.30	8.76	8.81	9.19	9.93	10.21	10.49	10.77	11.05	11.30	11.52
Pipe Elevation	2.80	2.17	-0.32	-2.96	1.20	1.68	2.16	2.63	2.69	2.75	2.89	3.16	3.47	3.72	3.92	3.84	3.67	3.22	2.30	-3.36	0.86	2.17	1.69	0.97	-4.79	-0.24	0.70	1.43	1.60	1.82	1.80	2.06	2.04	1.97	1.92	1.97	1.66	1.42	1.35	1.31	1.29	1.28	1.34	1.29	0.85	-3.49	1.31	2.00	2.82	2.82	3.06	3.36	3.92	4.33	4.29	4.39	4.64	4.83	5.46	5.91	6.21	6.49	6.77	7.04	7.29	7.51

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 13+38.76 - 26+77.51	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C024
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA

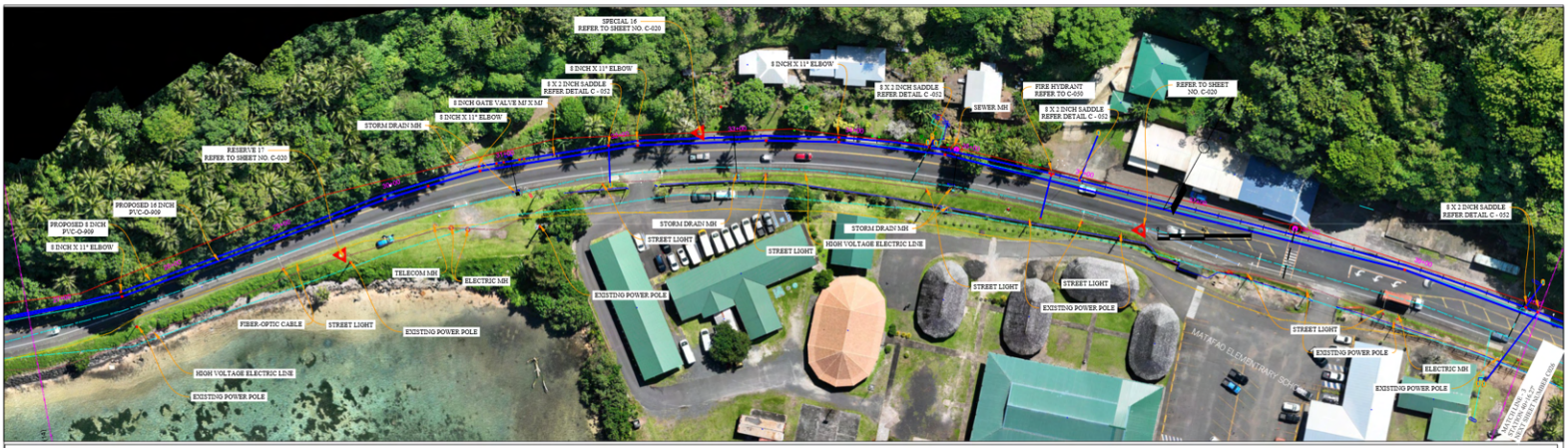
EXPIRES: 31/12/25

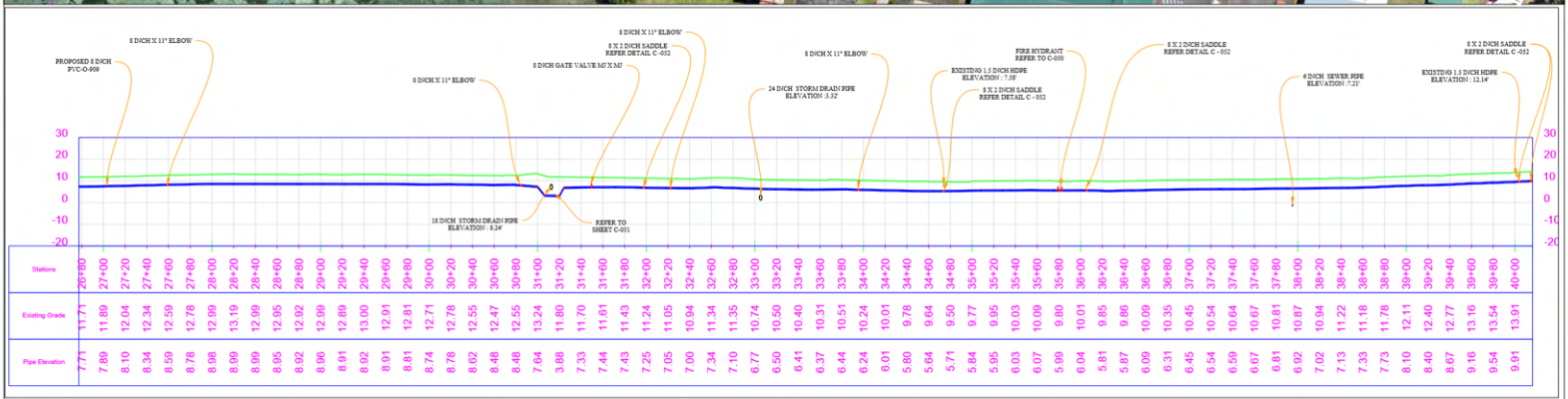
CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:





Stations	26+80	27+00	27+20	27+40	27+60	27+80	28+00	28+20	28+40	28+60	28+80	29+00	29+20	29+40	29+60	29+80	30+00	30+20	30+40	30+60	30+80	31+00	31+20	31+40	31+60	31+80	32+00	32+20	32+40	32+60	32+80	33+00	33+20	33+40	33+60	33+80	34+00	34+20	34+40	34+60	34+80	35+00	35+20	35+40	35+60	35+80	36+00	36+20	36+40	36+60	36+80	37+00	37+20	37+40	37+60	37+80	38+00	38+20	38+40	38+60	38+80	39+00	39+20	39+40	39+60	39+80	40+00
Existing Grade	11.71	11.89	12.04	12.34	12.59	12.78	12.99	13.19	12.99	12.95	12.92	12.99	12.89	13.00	12.91	12.81	12.71	12.78	12.55	12.47	12.55	13.24	11.80	11.70	11.61	11.43	11.24	11.05	10.94	11.34	11.35	10.74	10.50	10.40	10.31	10.51	10.24	10.01	9.78	9.64	9.50	9.77	9.95	10.03	10.09	9.80	10.01	9.85	9.86	10.09	10.35	10.45	10.54	10.64	10.67	10.81	10.87	10.94	11.22	11.18	11.78	12.11	12.40	12.77	13.16	13.54	13.91
Pipe Elevation	7.71	7.89	8.10	8.34	8.59	8.78	8.98	8.99	8.99	8.95	8.92	8.96	8.91	8.92	8.91	8.81	8.74	8.78	8.62	8.48	8.48	7.64	3.88	7.33	7.44	7.43	7.25	7.05	7.00	7.34	7.10	6.77	6.50	6.41	6.37	6.44	6.24	6.01	5.80	5.64	5.71	5.84	5.95	6.03	6.07	5.99	6.04	5.81	5.87	6.09	6.31	6.45	6.54	6.59	6.67	6.81	6.92	7.02	7.13	7.33	7.73	8.10	8.40	8.67	9.16	9.54	9.91

PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 8 INCH SUPPLY LINE - PLAN & PROFILE ST 26+77.51 - 40+16.27'	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C025
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

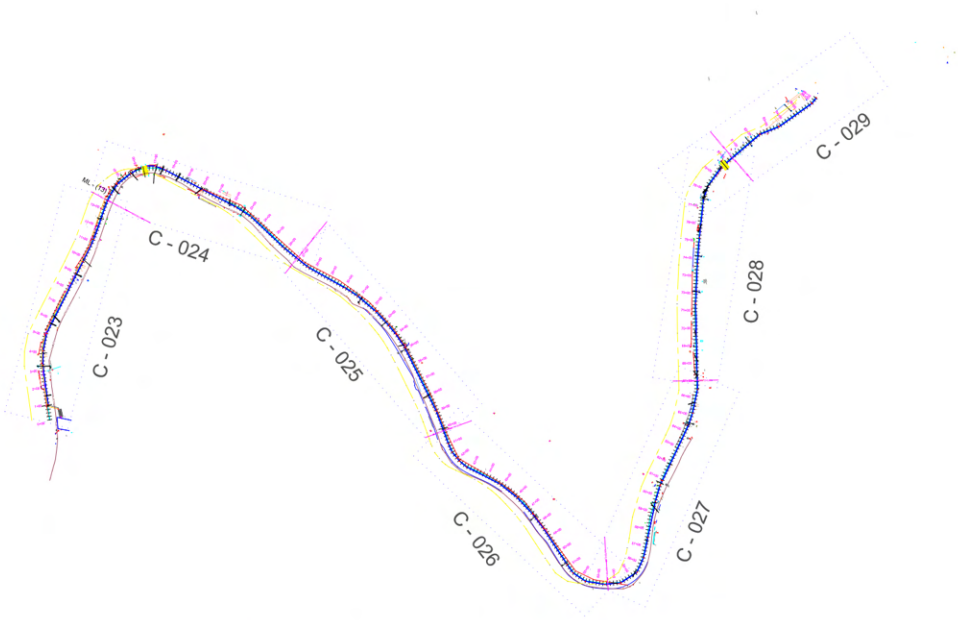
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: PLAN & PROFILE KEY PLAN - 8" SUPPLY LINE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C022
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

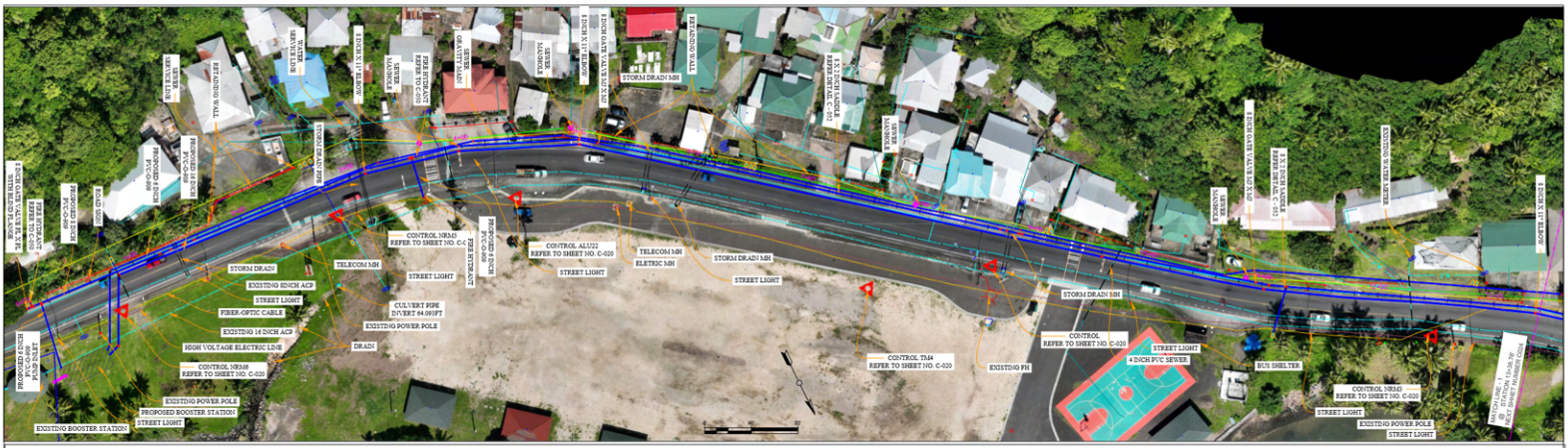
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



PROJECT DETAILS:

PROJECT NAME: FAGAALU TO UTULEI AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: PLAN: 1" : 40' PROFILE: 1" : 40'
DWG. TITLE: 8 INCH COLLECTION LINE - PLAN & PROFILE ST 0+00 - 13+38.76'	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO: C023
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

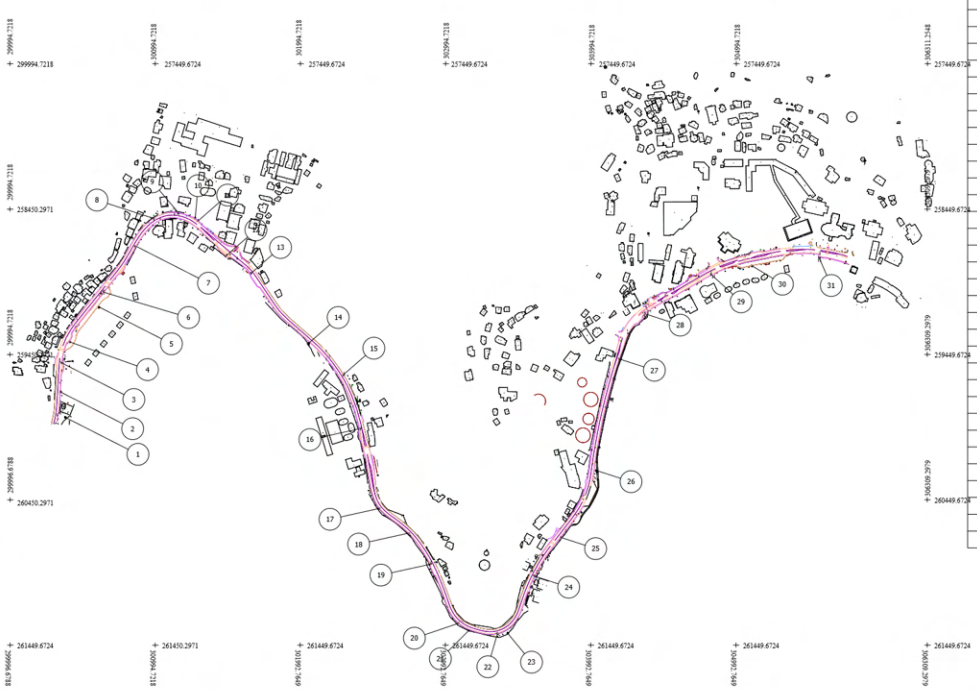
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-7199

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



HORIZONTAL & VERTICAL SURVEY CONTROL POINTS

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	300377.1310	259882.3901	7.6021	ALU23
2	300343.1347	259707.1601	9.5185	NRM6
3	300351.2613	259506.0216	10.0493	NRM5
4	300405.5086	259361.5448	8.9191	ALU22
5	300608.5142	259125.3390	7.9000	TM4
6	300638.2529	259021.5756	7.9048	ALU21
7	300859.4237	258709.0938	7.5928	NRM3
8	300983.2292	258513.4790	7.3281	CURVE20
9	301154.5262	258477.3398	7.9511	NRM2
10	301269.7930	258512.9635	7.1880	GRAVEYARD19
11	301287.5071	258528.9979	6.8130	NRM 1
12	301483.0096	258770.5163	5.5404	LBJX
13	301652.5755	258893.3964	6.7976	ALU18
14	302052.5577	259372.2602	13.7688	RESERVE17
15	302292.7261	259590.7126	11.4937	SPECIAL16
16	302402.3729	259962.3889	10.9287	ELEMENTARY - 15
17	302534.7571	260506.5108	19.1286	ALU14
18	302739.9604	260680.8903	14.2960	ALU13
19	302889.5742	260890.8219	11.0159	DUMPING 12-2
20	303079.7333	261296.1838	12.9084	LMU11
21	303153.5495	261345.4383	14.6048	OALU24
22	303352.1367	261369.9050	18.5497	LMU10
23	303422.4539	261366.7187	17.6102	LMU2
24	303604.8429	260973.9898	8.4025	LMU4
25	303785.9727	260710.9418	11.1551	LMU3
26	304030.3551	260249.9001	9.4650	LMU1
27	304190.4994	259480.5670	6.0149	SERVO9
28	304366.7516	259167.3046	5.2000	VAILOA-MEAS
29	304824.3458	258900.4346	7.1719	SAMOANA CHECK
30	305102.9365	258839.7668	6.9186	PARK
31	305563.6447	258778.4998	5.7049	SADIES-MEAS-GPS
32	263539.1200	308830.2800	8.0000	LESI

NOTES:

1. ORIGIN OF AZIMUTHS AND COORDINATES REFERRED TO AMERICAN SAMOA DATUM OF 1962 (ASD62). HORIZONTAL CONTROL DATA PROVIDED BY ASPA AND THE LOCAL SURVEY DEPARTMENT.
2. ELEVATIONS SHOWN DERIVED FROM LEASI A FEDERAL BENCHMARK HAVING AN ELEVATION OF 8.8.
3. In 2023, THE LAND SURVEYING ACTIVITIES WERE EXECUTED BY THE PROFESSIONAL SURVEYORS AT LANDMARKS SURVEYING
4. THE CONTRACTOR HAS TO CONFIRM THE ELEVATIONS OF ALL TEMPORARY BENCHMARKS DUE TO THE ROAD CONSTRUCTION PROJECT ONGOING ON ISLAND.
5. ALL TBVS & AS BENCHMARKS ARE ALL ESTABLISHED BY LANDMARKS SURVEYING
6. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER CONNECTION OF UNDERGROUND UTILITY LINES AS SHOWN IS UNVERIFIED AND COMPILED FROM SOURCES NOT CONNECTED WITH THIS COMPANY, THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.

LEGEND:

SURVEY CONTROL POINT

SURVEY BENCH MARK

HORIZONTAL & VERTICAL CONTROL PLAN

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: HORIZONTAL AND VERTICAL CONTROL PLAN	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-020
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TANASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E.CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

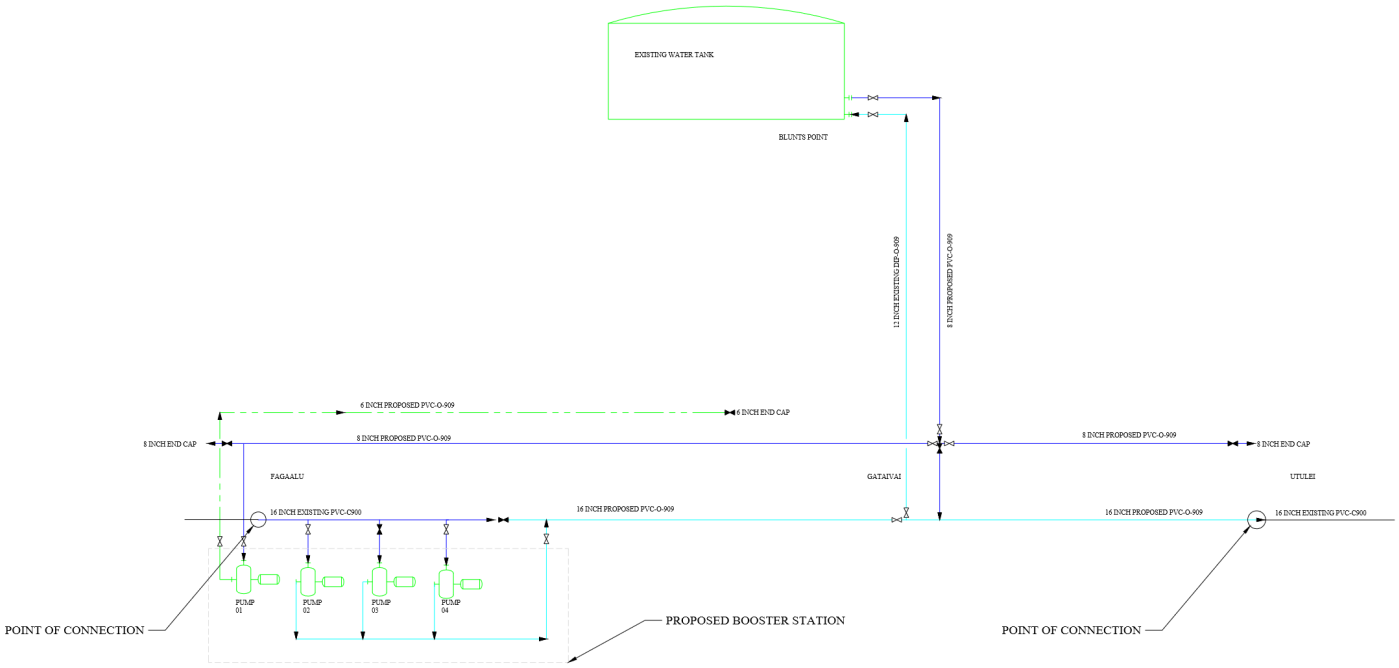
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL.: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



SHEMATIC LAYOUT

PROJECT DETAILS:		DRAWING ORIGINATOR:		CLIENT:	REVISION:
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	DESIGN AND DRAFTING: JAMES TAMARESE MARTAM CONSULTING PAGO PAGO, AS 96799		AMERICAN SAMOA POWER AUTHORITY	NO. / ISSUED FOR / BY / CHK / APPD / DATE:
DWG. TITLE: SCHEMATIC LAYOUT	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-021			P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DECEMBER 2023			TEL: (684) 699-1234	

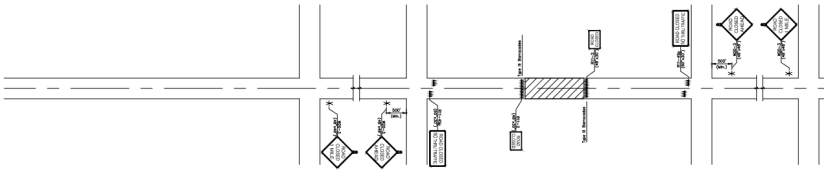
SIGN LAYOUT FOR R11-4SP

Sign	R11-4 Special
W x H	60" x 30"
Border Width	¾"
Corner Radius	2"
Mounting	Ground
Background	Type: Reflective
	Color: White
Legend/Border	Type: Non-Reflective
	Color: Black

LIST OF TRAFFIC CONTROL DEVICES

MUTCD DEVICE NO.	NO.	FLASHERS TYPE A	FLASHERS TYPE B	REMARKS
W20-3	2	2		"ROAD CLOSED 1 MILE"
W20-3	2	2		"ROAD CLOSED AHEAD"
R11-2	2			"ROAD CLOSED"
R11-4Sp	2			"ROAD CLOSED NO THRU TRAFFIC"
FOR INFORMATION ONLY				

DELINEATORS & CHANNELIZATION DEVICES					
DEVICE	NO.	SIZE	FLASHERS TYPE A	FLASHERS TYPE B	FLASHERS TYPE C
BARRICADES: TYPE III	As Req'd.	8'	8		
DRUMS	As Req'd.				
SLIM LINE CHANNELIZERS	As Req'd.				
PAVEMENT MARKING	WHITE	YELLOW			
4" BROKEN (Lin. Ft.)					
4" SOLID (Lin. Ft.)					
TEMPORARY STRIPING (Line Mile)					



NOTES:

All temporary sign supports shall meet all applicable crashworthiness criteria in NCHRP 350 or updated requirements.

Advance signs shall be post mounted a minimum of five (5) feet above the edge of roadway for work zones in place longer than three (3) days.

LEGEND

- Temporary Sign Support w/Sign
- Type III Barricade(s)
- Work Zone

TRAFFIC CONTROL CLOSURE PLAN FOR CROSS ROAD PIPE REPLACEMENT

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: CROSS ROAD PIPE INSTALLATION	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-018
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

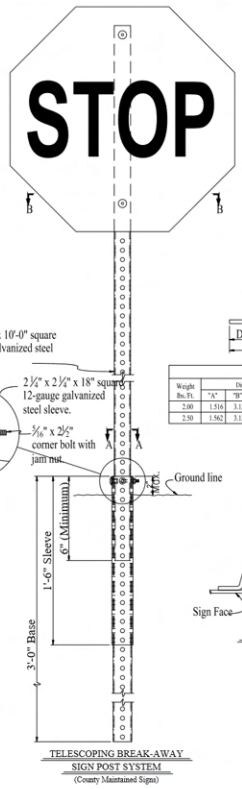
CLIENT:

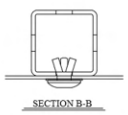
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

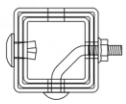
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

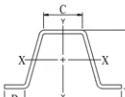
NOTE:
Telescoping steel posts shall be used for all signs to be maintained by Sedgwick County. Channel posts shall be used for all signs to be maintained by a Township.




SECTION B-B

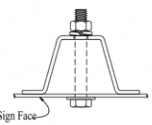

SECTION A-A

TELESCOPING BREAK-AWAY SIGN POST SYSTEM
(County Maintained Signs)



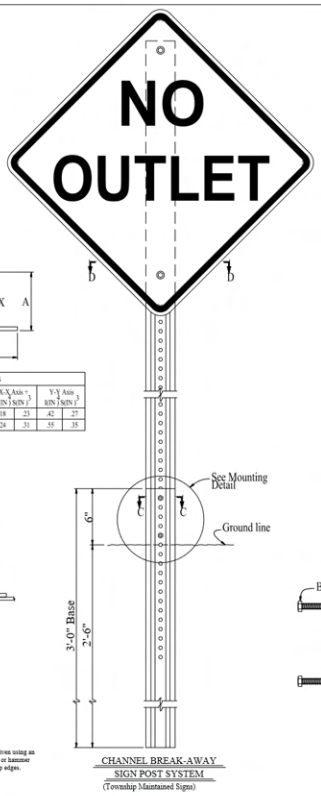
Flanged Channel Properties

Weight lbs./Ft.	Dimensions "A"	"B"	"C"	"D"	Area IN ²	X-X Axis *, I(IN⁴)	S(IN³)	Y-Y Axis I(IN⁴)	S(IN³)
2.00	1.516	3.125	1.250	.625	.59	.18	.23	.42	.27
2.50	1.562	3.125	1.250	.625	.74	.24	.31	.55	.35

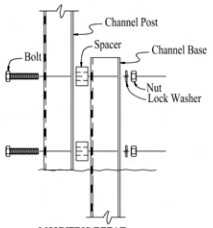


SECTION D-D

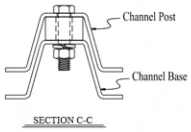
NOTE:
Bases and sleeves shall be driven using an appropriately sized drive cap or hammer bit to minimize damage to top edges.



CHANNEL BREAK-AWAY SIGN POST SYSTEM
(Township Maintained Signs)



MOUNTING DETAIL



SECTION C-C

GENERAL NOTES

General
All break away sign post systems supplied shall be NCHRP-350 compliant.

Sign posts shall be installed plumb to the ground. Leaning posts will not be accepted. The completed sign/post systems shall meet the requirements as detailed on this sheet and as required by the manufacturer of the system.

Telescoping posts and 12' tall sign blanks shall be used at intersections having at least one county maintained road. Post shall have a length of 10 feet.

Channel posts and 8' tall blanks shall be used at township intersections and all interior subdivision intersections. Post shall be 8'-0" long behind Curb & Gutter, and 10'-0" long when used in ditch section.

Materials not meeting the requirements herein shall be rejected.

Sheeting
Retroreflective sign sheeting shall conform to the requirements for ASTM Type III - Prismatic sheeting as defined in ASTM D-4956-01 and the Sedgwick County specification "Microprismatic Lens Retroreflective Sign Sheeting (ASTM Type III - Prismatic)."

Blanks
The aluminum sign blanks shall conform to ASTM B-209, alloy 6061-T6 or 5052-H38. Blanks shall have a thickness of 0.080". All dimensions shall be as shown in these details.

Hardware
Bolts, nuts, spacers and rivets shall meet post manufacturer's requirements for proper operation of the break away systems supplied. All hardware shall have a corrosion resistant finish per post manufacturer's requirements.

Sign Legend
The street name sign legend(s) shall conform to the dimensions on this sheet. Any deviation shall be approved by Sedgwick County Public Works prior to fabrication. All layouts shall be submitted for approval prior to fabrication.

Posts-Telescoping (County)
The steel posts, base and sleeves shall conform to the standard specifications for cold rolled carbon sheet steel, commercial quality, ASTM A-446, Grade A. Dimensions of the components shall be as detailed on this sheet. All posts shall be galvanized.

The yield strength of the post, sleeve and anchor shall be 52,000 psi. The posts, sleeve and anchor shall be manufactured from hot dipped galvanized steel with 1.25 ounce coating conforming to ASTM A-525, also referred to as G-90. Both interior and exterior faces of the components shall be galvanized.

The post shall be flush or recessed down below the top of the sign.

Posts-Channel (Township)

Material: Posts shall be produced from steel according to ASTM A-499.

Finish: Base posts and sign posts shall be finished with either a baked enamel paint (green) or galvanized per ASTM A-123.

Base Post: The weight of each base post before punching shall be 2.00 to 2.50 lbs./ft. The base post shall be punched with 18 - 0.375" (⅜") diameter holes on 1.00" centers with the first hole 1.00" from the top.

Sign Post: The weight of each sign post before punching shall be 2.00 to 2.50 lbs./ft, and the length shall be 10 feet. The sign post shall be punched with 0.375" (⅜") diameter holes on 1.00" centers, full length. The first and last hole shall be 1.00" from the ends of the post.

PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DRG. TITLE: TRAFFIC SIGN INSTALLATION DETAILS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-019
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E.CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

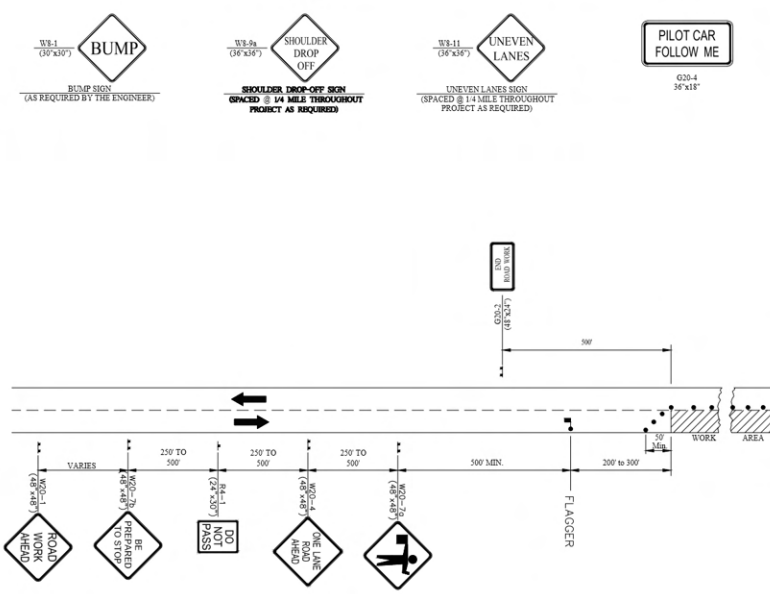
EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



TRAFFIC CONTROL PLAN
FOR HANDLING TRAFFIC THROUGH CONSTRUCTION
TO BE USED ONLY WITH A PILOT CAR

NOTES:

Flagger ahead (W20-7a, symbolic) sign shall be used ONLY when a flagger is present. At all other times this sign shall be covered or removed. Flaggers shall comply with the "Handbook For Flaggers" State of Kansas (latest edition). On roadways utilizing a flagger, additional flaggers and W20-7a signs may be required when traffic volumes, especially during peak hours, are such that approaching traffic will not have adequate advance warning or when traffic is backed up more than fifteen hundred (1500') feet from the flagger station.

- Channelization devices.

PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: ONE ROAD CLOSED ON A TWO LANE ROAD USING A PILOT CAR	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-016
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
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WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-1234	

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

LEGEND

- Channelization Device
- Temporary Sign Support w/Sign
- Type III Barricade(s)

LIST OF TRAFFIC CONTROL DEVICES

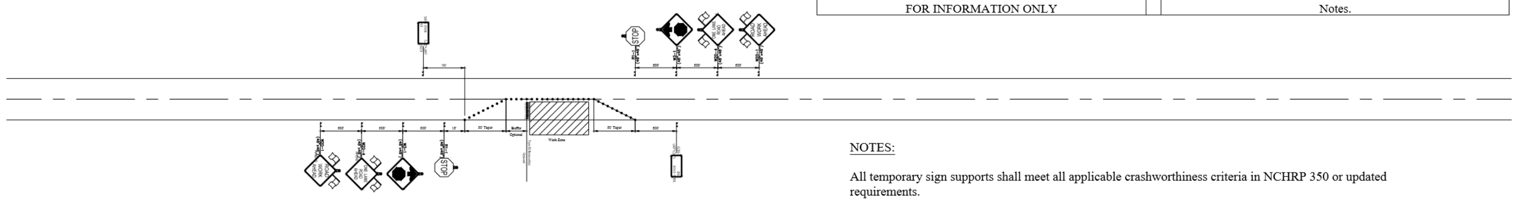
MUTCD DEVICE NO.	NO.	FLASHERS TYPE A	FLASHERS TYPE B	REMARKS
W20-1	2		2	High Intensity Yellow Flasher and Flags
W20-4	2		2	High Intensity Yellow Flasher and Flags
W3-1	2		2	High Intensity Yellow Flasher
R1-1	2		2	High Intensity Red Flasher
G20-2	2			

FOR INFORMATION ONLY

DELINEATORS & CHANNELIZATION DEVICES

DEVICE	NO.	SIZE	FLASHERS TYPE A	FLASHERS TYPE B	FLASHERS TYPE C
BARRICADES: TYPE III	As Req'd.	8'			
DRUMS	As Req'd.				
SLIM LINE CHANNELIZERS	As Req'd.				
PAVEMENT MARKING	WHITE	YELLOW			
4" BROKEN (Lin. Ft.)					
4" SOLID (Lin. Ft.)					
TEMPORARY STRIPING (Line Mile)					

See Sheet Nos. SheetNumber & SheetNumber for Traffic Control Notes.



NOTES:

All temporary sign supports shall meet all applicable crashworthiness criteria in NCHRP 350 or updated requirements.

Channelization devices shall be either drums or slim line channelizers.

The total length of the traffic control zone between stop signs shall be short enough that drivers from both directions can see approaching traffic beyond the work area. Total traffic control zone lengths in excess of 200' shall be approved in advance by the Engineer.

The traffic control zone, including all advance signing shall be removed at the end of each work day.

If work zone must be protected overnight due to cross sectional issues or equipment left on site, the Contractor shall submit a traffic control plan for review and approval by the Engineer for appropriate signing and other traffic control devices sufficient to provide the required protection. The devices necessary for this protection shall be subsidiary to the bid item "Traffic Control".

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: LANE CLOSURE WITH STOP SIGNS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-017
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

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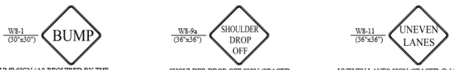
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



BUMP SIGN (AS REQUIRED BY THE ENGINEER)

SHOULDER DROP-OFF SIGN (SPACED @ 1/4 MILE THROUGHOUT PROJECT AS REQUIRED)

UNEVEN LANES SIGN (SPACED @ 1/4 MILE THROUGHOUT PROJECT AS REQUIRED)

LIST OF TRAFFIC CONTROL DEVICES *

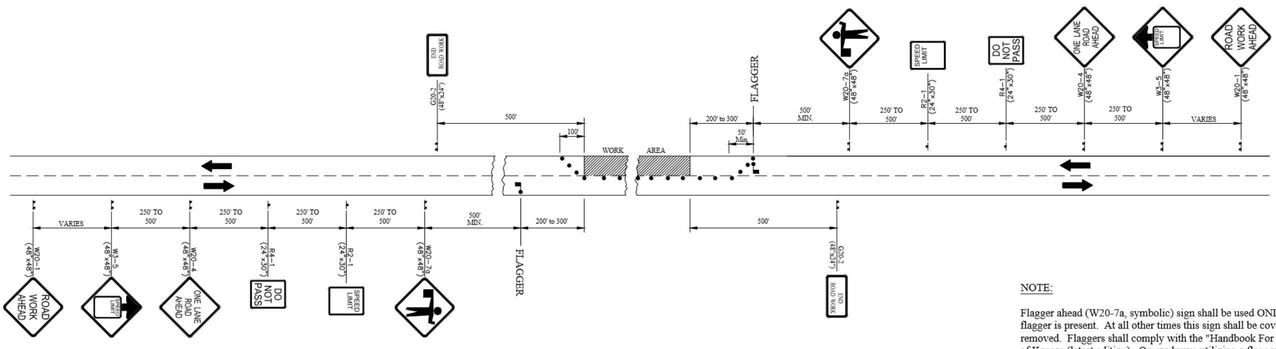
MUTCD DEVICE NO.	NO.	FLASHERS TYPE A	FLASHERS TYPE B	REMARKS
W20-1	2			
W3-5	2			
W20-4	2			
R4-1	2			
R2-1	2			
W20-7a	2			
G20-2	2			
W8-9a				
W8-11				
W8-1				

* FOR INFORMATION ONLY

DELINEATORS & CHANNELIZATION DEVICES

DEVICE	NO.	SIZE	FLASHERS TYPE A	FLASHERS TYPE B	FLASHERS TYPE C
BARRICADES					
TYPE III					
TYPE II					
TYPE I					
DRUMS					
SLIM LINE CHANNELIZERS					
CONES					
TUBES					
VERTICAL PANELS					
SINGLE					
BACK TO BACK					
PAVEMENT MARKING	WHITE	YELLOW			
4" BROKEN (Lin. Ft.)					
4" SOLID (Lin. Ft.)					
TEMPORARY STRIPING (Line Mile)					

See Sheet Nos. SheetNumber & SheetNumber for Traffic Control Notes.



NOTE:

Flagger ahead (W20-7a, symbolic) sign shall be used ONLY when a flagger is present. At all other times this sign shall be covered or removed. Flaggers shall comply with the "Handbook For Flaggers" State of Kansas (latest edition). On roadways utilizing a flagger, additional flaggers and W20-7a signs may be required when traffic volumes, especially during peak hours, are such that approaching traffic will not have adequate advance warning or when traffic is backed up more than fifteen hundred (1500') feet from the flagger station.
* Channelization devices.

TRAFFIC CONTROL PLAN FOR HANDLING ONE-LANE TRAFFIC THROUGH WORK AREA (FLAGGER)

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: FOR ONE LANE CLOSED ON A TWO-LANE ROADWAY (FLAGGER)	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-014
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE WILLIAM C. GORDON No. 5231 LICENSED PROFESSIONAL ENGINEER
EXPIRES: 31/12/25

CLIENT:

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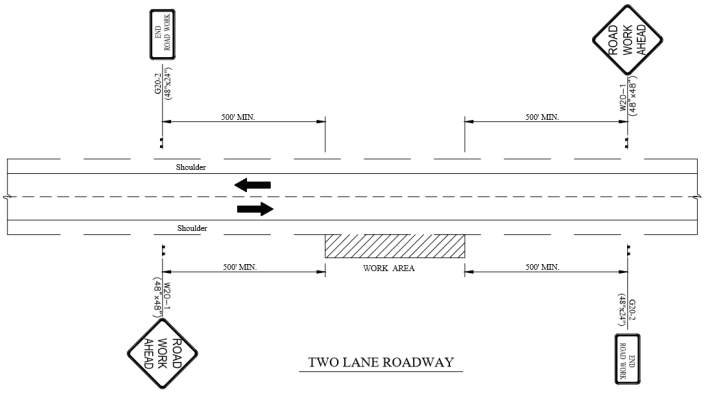
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



TWO LANE ROADWAY

LIST OF TRAFFIC CONTROL DEVICES *

MUTCD DEVICE NO.	NO.	FLASHERS TYPE A	FLASHERS TYPE B	REMARKS
W20-1	2			
G20-2	2			

DELINEATORS & CHANNELIZATION DEVICES

DEVICE	NO.	SIZE	FLASHERS TYPE A	FLASHERS TYPE B	FLASHERS TYPE C
BARRICADES					
TYPE III					
TYPE II					
TYPE I					
DRUMS					
SLIM LINE CHANNELIZERS					
CONES					
TUBES					
VERTICAL PANELS					
SINGLE					
BACK TO BACK					
PAVEMENT MARKING	WHITE	YELLOW			
4" BROKEN (Lin. Ft.)					
4" SOLID (Lin. Ft.)					
TEMPORARY STRIPING (Line Mile)					

FOR INFORMATION ONLY

See Sheet Nos. SheetNumber & SheetNumber for Traffic Control Notes.

TRAFFIC CONTROL
PLAN FOR CONSTRUCTION WORK AT OFF SHOULDER LOCATIONS

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: CONSTRUCTION WORK @ OFF SHOULDER LOCATIONS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-015
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

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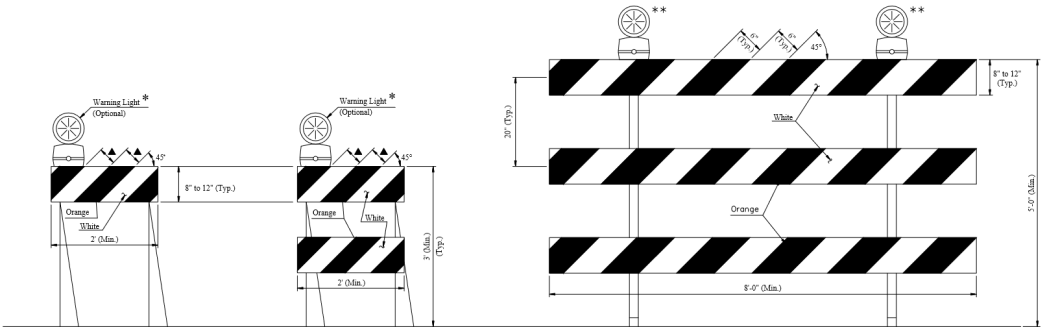
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

TRAFFIC CONTROL NOTES

1. All traffic control devices and Installation or use thereof shall comply with the Manual on Uniform Traffic Control Devices for Streets and Highways (Latest Edition), and all traffic control devices shall be NCHRP 350 complaint with respect to crashworthiness requirements.
2. Whenever practical, all construction equipment, materials, and debris shall be stored no closer than thirty (30) feet from the traveled way. The contractor shall place appropriate signs or barricades, as directed by the Engineer, around any condition created by the contractor with thirty (30) feet of the traveled way that violates clear zone criteria stated herein. All devices needed to meet this requirement shall be considered subsidiary to the bid item "Traffic Control".
3. Type "B" high Intensity yellow flashing warning lights may be required on Type Ill barricades when deem necessary by the Engineer.
4. Barricades are to be set at locations shown on the traffic control plan sheets or as directed by the Engineer. Sufficient barricades shall be erected to adequately cover the roadway or lane width. The barricades may be mounted on approved skids anchored by wire or sandbags.
5. The contractor is responsible for maintaining all devices in their proper position, cleaning or replacing any damaged or worn out device as directed by the Engineer without undue delay to ensure effective and safe traffic control.
6. The contractor shall designate an employee, and an alternate, who will have the responsibility for signing and traffic control as noted on the traffic control plan and shall be available at all times to perform the above maintenance. The Engineer will be advised of the name and contact numbers/methods of the person and alternate given this responsibility. The Engineer shall conduct daily field inspections to see that the devices are in place and in satisfactory condition.
7. Channelization devices: Devices as used herein shall include, but not be limited to Type I and Type II barricades.
   A. The maximum spacing, in feet, between channelization devices in the taper should be approximately equal to the permanent speed limit, in miles per hour, prior to construction.
   B. The spacing between devices in the work zone should be approximately 50 to 100 feet.
   C. Devices placed along pavement edge or shoulder drop-offs of less than four (4) inches shall be placed a maximum of four hundred (400) feet apart as directed by the Engineer.
   D. Devices placed along pavement edge or shoulder drop-offs of more than four (4) inches shall be placed a maximum of two hundred (200) feet apart as directed by the Engineer.
   E. Type I or Type II barricades should be placed at approximately right angles to the center of the roadway.
   F. All channelizing devices shall be fully reflectorized and, as directed by the Engineer, display the appropriate warning light on top of the device nearest the traveled way centerline.
8. The lump sum price bid for the bid item "Traffic Control" shall be full compensation for providing, installing, moving, replacing, maintaining, removing and cleaning all traffic control devices as required or as directed by the Engineer. It shall also include the addition of any devices deemed necessary by the Engineer whether specifically mentioned or not.
9. At all times, and during all weather conditions, access shall be maintained for local traffic to the satisfaction of the Engineer. This maintenance, including temporary surfacing material, if necessary, is subsidiary to the bid item "Traffic Control".



TYPE I BARRICADE WITH LIGHT

TYPE II BARRICADE WITH LIGHT

TYPE III BARRICADE WITH LIGHTS

Type I and Type II barricades along shoulder edges or in drop-offs shall have a minimum of 36" from the top of the barricade to the top of the pavement.

The entire area of barricade rails are to be fully reflectorized with Type III or Type IV sheeting per FP-96.

▲ Rail stripe widths shall be 6", except that 4" wide stripes may be used if rail lengths are less than 36".

WARNING LIGHTS

Warning lights shall be in accordance with the current ITE purchase specifications for flashing and steady burn warning lights.

Type A low intensity flashing warning lights and Type C steady burn warning lights shall be maintained so as to be capable of being visible on a clear night from a distance of 3,000 feet. Type B high intensity flashing warning lights shall be maintained so as to be capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1,000 feet.

Lights used on Channelizing Devices
* When used singly --- Type "A" Flashing
When used in series - Type "C" Steady Burn
The lens shall be a minimum of 7" in diameter.

Signs mounted on Type III barricades should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.

Barricade rails shall be plastic and the complete barricade shall be NCHRP 350 compliant. For rails less than 3 feet long, 4 inch wide stripes may be used.

Where barricades extend entirely across a roadway, and where both right and left turns are provided for, the chevron striping shall slope downward in both directions from the center of the road. When a detour is provided the stripes shall slope downward in the direction toward which traffic must turn.

Barricades intended for use on expressways, freeways, and other high speed roadways shall have a minimum of 270 square inches of reflective area facing traffic.

A minimum of two Type "A" lights shall be used at each location where a Type III barricade or barricades are used. A light shall be mounted on the outside corner at the end barricades when more than one is used. The lens
** shall be a minimum of 7" in diameter.

All barricades shall be faced with reflective sheeting on the front and back faces.

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: TRAFFIC CONTROL DETAILS BARRICADES	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-013
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
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REVIEWED AND APPROVED BY:
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LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

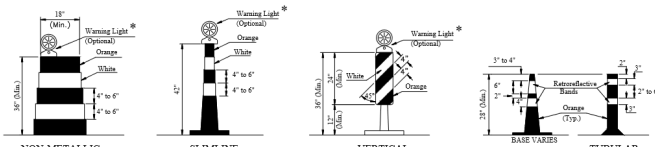
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

TRAFFIC CONTROL NOTES

1. All traffic control devices and installation or use thereof shall comply with the Manual on Uniform Traffic Control Devices for Streets and Highways (Latest Edition), and all traffic control devices shall be NCHRP 350 complaint with respect to crashworthiness requirements.
2. When no work is in progress nor is any expected to be for an extended period of time or there are no existing hazards, and the roadway is unrestricted to the traveling public, traffic control signs shall be removed or completely covered with adequate opaque waterproof material.
3. All signs shall be post mounted if time in place exceeds three (3) days. Exceptions may be made particularly in areas where post-mounted signs are prohibitive. Posts shall be 4" X 4" wood or other breakaway supports that are NCHRP 350 compliant. Signs with a minimum area of 16 square feet shall be mounted on a minimum of two posts.
4. Portable supports used for mounting signs or devices for temporary conditions shall be NCHRP 350 compliant.
5. All permanent speed limit signs that conflict with the posted project speed limit shall be removed and stored, or covered with adequate opaque waterproof material throughout the construction period.
6. Whenever practical, all construction equipment, materials, and debris shall be stored no closer than thirty (30) feet from the traveled way. The contractor shall place appropriate signs or barricades, as directed by the Engineer, around any condition created by the contractor within thirty (30) feet of the traveled way that violates clear zone criteria stated herein. All devices needed to meet this requirement shall be considered subsidiary to the bid item "Traffic Control".
7. Type "B" high intensity yellow flashing warning lights may be required on any sign or device when deemed necessary by the Engineer.
8. The contractor is responsible for maintaining all devices in their proper position, cleaning or replacing any damaged or worn out device as directed by the Engineer without undue delay to ensure effective and safe traffic control.
9. The contractor shall designate an employee, and an alternate, who will have the responsibility for signing and traffic control as noted on the traffic control plan and shall be available at all times to perform the above maintenance. The Engineer will be advised of the name and contact numbers/methods of the person and alternate given this responsibility. The Engineer shall conduct daily field inspections to see that the devices are in place and in satisfactory condition.
10. Channelization devices: Devices as used herein may include Type I and Type II barricades in addition to the devices shown on this sheet.
    A. The maximum spacing, in feet, between channelization devices in the taper should be approximately equal to the permanent speed limit, in miles per hour, prior to construction.
    B. The spacing between devices in the work zone should be approximately 50 to 100 feet or as designated in the traffic control plan.
    C. Devices placed along pavement edge or shoulder drop-offs of less than four (4) inches shall be placed a maximum of four hundred (400 feet apart as directed by the Engineer.
    D. Devices placed along pavement edge or shoulder drop-offs of more than four (4) inches shall be placed a maximum of two hundred (200) feet apart as directed by the Engineer.
    E. Type I or Type II barricades should be placed at approximately right angles to the centerline of the roadway
    F. All channelizing devices shall be fully reflectorized and, as directed by the Engineer, display the appropriate warning light on top of the device nearest the traveled way centerline.
11. The lump sum price bid for the bid item "Traffic Control" shall be full compensation for providing, installing, moving, replacing, maintaining, removing and cleaning all traffic control devices as required or as directed by the Engineer. It shall also include the addition of any devices deemed necessary by the Engineer whether specifically mentioned or not.
12. At all times, and during all weather conditions, access shall be maintained for local traffic to the satisfaction of the Engineer. This maintenance, including temporary surfacing material, if necessary, is subsidiary to the bid item "Traffic Control".
13. All advance warning signs shall have a minimum surface area of 16 square feet. All other signs shall be of standard size as directed in the MUTCD or the most recent edition of the Standard Highway Signs Manual unless specified otherwise on the traffic control plan.



NON-METALLIC REFLECTORIZED DRUM WITH LIGHT | SLIMLINE CHANNELIZER | VERTICAL PANEL | CONES | TUBULAR MARKERS

WARNING LIGHTS

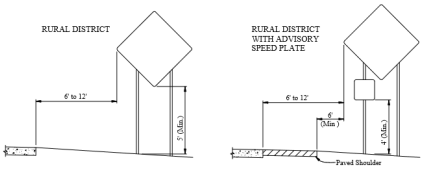
Warning lights shall be in accordance with the current ITE purchase specifications for flashing and steady burn warning lights.

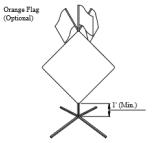
Type A low intensity flashing warning lights and Type C steady burn warning lights shall be maintained so as to be capable of being visible on a clear night from a distance of 3,000 feet. Type B high intensity flashing warning lights shall be maintained so as to be capable of being visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1,000 feet.

Lights used on Channelizing Devices
* When used singly --- Type "A" Flashing
When used in series - Type "C" Steady Burn
The lens shall be a minimum of 7" in diameter.

The non-metallic drums shall be fully reflectorized with Type III or Type IV reflective sheeting per FP-96.

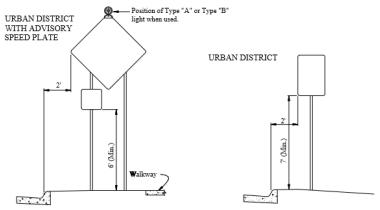
All advance warning signs shall be reflectorized with fluorescent orange prismatic grade reflective sheeting.





Portable sign supports should not be used for more than three continuous days.

PORTABLE/TEMPORARY SIGN MOUNTING



SIGN MOUNTING LOCATIONS

PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: TRAFFIC CONTROL DETAILS SIGNS & CHANNELIZATION DEVICES	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-012
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
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MARTAM CONSULTING
PAGO PAGO, AS 96799

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STATE OF MAINE — WILLIAM C GORDON — No. 5559 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

CLIENT:

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REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

LEGEND AND SYMBOLS:

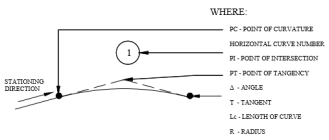
CPP — CONCRETE POWER POLE
WPP — WOODEN POWER POLE
CONCRETE SLAB
EDGE OF A.C. ROAD
EDGE OF DIRT ROAD
LP — LIGHT POST/ STREETLIGHT
EXISTING ROAD SIGNS
321.23 — SPOT ELEVATION
EXISTING ELEC/ELECL. UTILITIES
EXISTING CONTROL
NEW CONTROL
SURVEY CONTROL STATION
APPROXIMATE TEST PIT LOCATION
— x —x — x — x — x — CHAIN/LINK FENCE/ BARB WIRE FENCE
EXISTING FIRE HYDRANT

SFM 8 — EXISTING SEWER FORCEMAIN LINE WITH SIZE
EXISTING SEWER MANHOLE (SMH)
CO — SEWER CLEAN-OUT
EXISTING DRAINAGE MANHOLE
EXISTING DRAIN INLET
G — UNDERGROUND GAS LINE
CONCRETE
ROCK/RUBBLE/MASONRY/RIPRAP
BRICK/TILE
UE — UNDERGROUND ELECTRICAL LINE
UT — UNDERGROUND TELEPHONE LINE
Eoh — OVERHEAD ELECTRICAL LINE
Toh — OVERHEAD TELEPHONE LINE
SL — UNDERGROUND STREET LIGHT
EXISTING BOX CULVERT

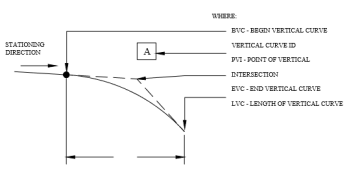
EXISTING FENCE
EXISTING GATE
TOP BANK
SHORELINE
TOP DITCH
BOTTOM DITCH — EMBANKMENT/ DITCH
320 — EXISTING MAJOR CONTOUR
319 — EXISTING MINOR CONTOUR
W2 — EXISTING WATER LINE WITH SIZE
EXISTING WATER METER
EXISTING ARV
EXISTING WATER REDUCER
EXISTING GATE VALVE
S8 — EXISTING SEWER LINE WITH SIZE

EXISTING WATER TANK
EXISTING WELL
EXISTING PUMP STATION WITH FENCE
COCONUT TREE
PINE TREES
PLANTS AND SHRUBS/TREES
EXISTING SWALE
EXISTING DAYLIGHT

HORIZONTAL CURVE PROPERTIES:



VERTICAL CURVE PROPERTIES:



PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: LEGEND AND SYMBOLS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-010
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:		
MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E. CIVIL, STRUCTURAL, LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL.: (684) 699-1234	

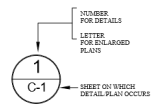
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

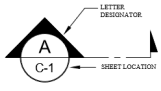
ABBREVIATIONS:

&	AND
@	AT
ADAAG	AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES
AC, A/C	ASPHALTIC CONCRETE
APP, APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
ASG	AMERICAN SAMOA GOVERNMENT
ASPA	AMERICAN SAMOA POWER AUTHORITY
AS-DOH	AMERICAN SAMOA -DEPARTMENT OF HEALTH
AS-DPW	*AMERICAN SAMOA - DEPARTMENT OF PUBLIC WORKS*
AS-EPA	*AMERICAN SAMOA - ENVIRONMENTAL PROTECTION AGENCY*
ATB	ASPHALT TREATED BASE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BOTTOM OF CURB
BPP	BACKFLOW PREVENTER
BLDG	BUILDING
BLK(S)	BLOCK(S)
BOT.	BOTTOM
BOV	BLOW-OFF VALVE
BV	BOTTOM VERTICAL
BVC	BEGIN VERTICAL CURVE
BW	BOTTOM OF WALL / BOTHWAYS
℄	CENTERLINE
C	CHANNEL
CB	CATCH BASIN
CFS/cfs	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CLASS
CLF	CHAIN LINK FENCE
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COTG	CLEANOUT TO GRADE
CONC/C	CONCRETE
CONN	CONNECTION
CORP	CORPORATION
CP	CONTROL POINT, CATHODIC PROTECTION
CPLG	COUPLING
CRM	CEMENT RUBBLE MASONRY
CU	CUBIC
CY	CUBIC YARDS
D	DRAIN
DEFL	DEFLECTION
DET	DETAIL
DI	DUCTILE IRON, DRAIN INLET, DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
DRWY	DRIVEWAY
E	EAST, ELECTRICAL
EA	EACH
EAC	EDGE AC PAVEMENT
ED	EXIST DRAIN
EG	EXISTING GROUND
EL, ELEV	ELEVATION
ELEC/ELECTL	ELECTRICAL
EMH	ELECTRIC MANHOLE
ES	EXIST SEWER
EVC	END VERTICAL CURVE
EOH	ELECTRICAL OVERHEAD
EOW	END OF WALL
EP	ELECTRICAL POLE
EW	EXIST WATER / EACH WAY
EXIST, EX	EXIST, EXISTING
FF	FINISH FLOOR
FH	FINISHED HEIGHT
FG	FINISHED GRADE
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FL	FLOOD LINE
FPS	FEET PER SECOND
FT	FEET
GALV.	GALVANIZED
GD	GROUND
GEN.	GENERAL
GP	GUY POLE
GV	GATE VALVE
GUY	GUY WIRE
HGL	HYDRAULIC GRADE LINE
HT, H	HEIGHT
HT WALL	HOLLOW TILE WALL
HP	HIGH POINT
HORIZ/HOR.	HORIZONTAL
HR	HOUR
HDPE	HIGH DENSITY POLYETHYLENE
HSE	HOUSE
ICV	IRRIGATION CONTROL VALVE
IE	INVERT ELEVATION
IN	INCHES
INV	INVERT
IPT	INTERNAL PIPE THREAD
I.D.	INNER DIAMETER
JKT	JACKET
L	LENGTH
LAT	LATERAL
LBS	POUNDS
LF	LINEAR FEET
LP	LIGHT POLE
LT	LEFT
LPT/LP	LOW POINT
LVC	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MB	MAILBOX
MCD	McCONNEL DOWELL
MH	MANHOLE
MJ	MECHANICAL JOINT
MIN	MINIMUM
MLLW	MEAN LOW LOW WATER
MON	MONUMENT
MSL	MEAN SEA LEVEL
MTR	METER
MULT	MULTIPLE
MECH	MECHANICAL
N	NORTH
NGL	NATURAL GRADE LINE
NO.#	NUMBER
NOAA	*NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION*
O/S	OFFSET
O.C.	ON CENTER
O.D.	OUTER DIAMETER
OSHA	*OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION*
PAVT	PAVEMENT
PT	POINT OF TANGENCY
℄	PROPERTY LINE
PC	POINT OF CURVATURE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIVC	*POINT OF INTERSECTION OF VERTICAL CURVE*
PNRS	*PROJECT NOTIFICATION AND REVIEW SYSTEM*
POC	POINT OF CONNECTION
PROP	PROPOSED
PSI	POUND PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
RPM	RAISED PAVEMENT MARKING
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RECONN	RECONNECT
REINF	REINFORCED
REQ'D	REQUIRED
RT	RIGHT
RET	RETAINING
R/W	RIGHT-OF-WAY
S	SEWER, SLOPE, SPREAD
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SFM	SEWER FORCEMAIN
SHT	SHEET
SL	STREET LIGHT
SLB	STREET LIGHT BOX, SLAB
SMH	SEWER MANHOLE
SYMM	SYMMETRICAL
SS	SEWER SYSTEM/STAINLESS STEEL
ST	STREET
STA/STN	STATION
STD	STANDARD
STRM	STREAM
STRUCT	STRUCTURAL
SQ	SQUARE
SW	SIDEWALK
TC	TOP OF CURB
TE	TOP ELEVATION
TEMP	TEMPERATURE
THK	THICK
TMH	TELEPHONE MANHOLE
TMK	TAX MAP KEY
TP	TELEPHONE POLE
TR	TRAVERSE
TRANSF	TRANSFORMER
TREE=	(D= DIAMETER OF TRUNK) (H= HEIGHT) (S= SPREAD)
TSB	TRAFFIC SYSTEM BOX
TSL	TRAFFIC SYSTEM LIGHT
TS	TOP STEM
TV	TOP VERTICAL
TW	TOP OF WALL
TYP	TYPICAL
UC	UNDERGROUND CABLE
UE	UNDERGROUND ELECTRICAL
UT	UNDERGROUND TELEPHONE
VB	VALVE BOX
VC	VERTICAL CURVE
VH	VALVE HANDLE
V, VERT	VERTICAL
W	WATER, WEST
W/	WITH
WCR	WHEELCHAIR CURB RAMP
WF	WIDE FLANGE
WL	WATER LINE
WM	WATER METER
WMH	WATER MANHOLE
WP	WORKING PRESSURE / WORKING POINT
WV	WATER VALVE
WVHH	WATER VALVE HAND HOLE
WWF	WELDED WIRE FABRIC

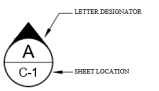
CROSS REFERENCES:



DETAIL TARGET



SECTION TARGET



ELEVATION TARGET

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: ABBREVATIONS	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-011
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

WILLIAM C GORDON No. 9253 STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

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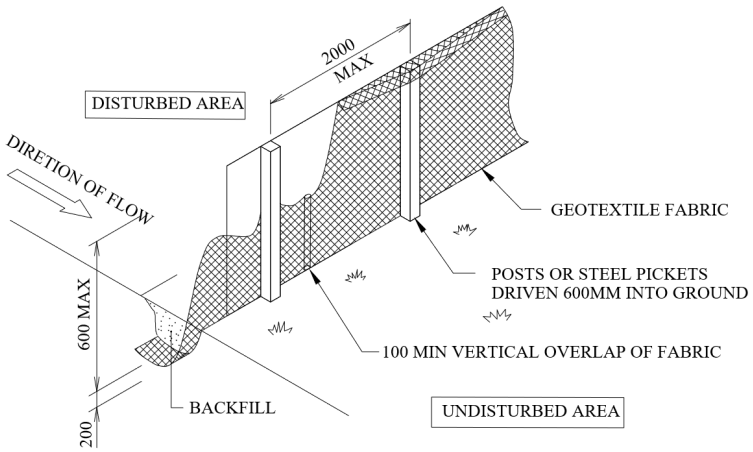

SEDIMENT FENCE DETAIL

NOT TO SCALE

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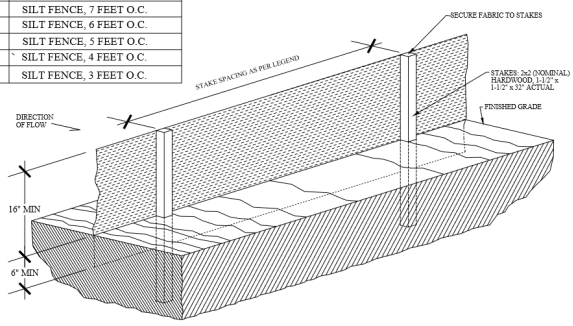
C003

LEGEND

SF10	SILT FENCE, 10 FEET O.C.
SF9	SILT FENCE, 9 FEET O.C.
SF8	SILT FENCE, 8 FEET O.C.
SF7	SILT FENCE, 7 FEET O.C.
SF6	SILT FENCE, 6 FEET O.C.
SF5	SILT FENCE, 5 FEET O.C.
SF4	SILT FENCE, 4 FEET O.C.
SF3	SILT FENCE, 3 FEET O.C.



1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE GROUND COVER IS REMOVED. CLEARING, GRUBBING, AND STUMPING CAN OCCUR BEFORE SILT FENCE INSTALLATION IF GROUND COVER IS NOT REMOVED.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS THAT MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
4. SILT FENCE SHOULD PREFERABLY BE A MINIMUM OF 10 FEET FROM THE TOE OF SLOPE.
5. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
6. WHERE TWO SECTIONS OF PREFABRICATED SILT FENCE ARE COMBINED INTO ONE RUN, THE END POSTS SHALL BE CONNECTED TOGETHER, NOT SIMPLY OVERLAPPED.
7. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: A) AN ADDITIONAL RUN OF SILT FENCE SHALL BE PLACED UPSTREAM, B) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, C) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR D) OTHER PRACTICES SHALL BE IMPLEMENTED.
8. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THE DEPOSIT REACHES APPROXIMATELY ONE-HALF OF THE HEIGHT OF THE SILT FENCE.
9. ALL STOCKPILES SHALL BE INCIRCLED WITH SILT FENCE.
10. SILT FENCE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS: MINIMUM TENSILE STRENGTH 120 LBS., ASTM D 4632; MAXIMUM ELONGATION AT 60 LBS., 15%, ASTM D 4632; MINIMUM PUNCTURE STRENGTH 50 LBS., ASTM D 4833; MINIMUM TEAR STRENGTH 40 LBS., ASTM D 4533, APPARENT OPENING SIZE <= 0.84MM, ASTM D 4751; MINIMUM PERMITTIVITY 1X10-2SEC.-1, ASTM D 4491; WATER FLOW RATE 15GAL./MIN/SQ. FT.; UV EXPOSURE STRENGTH RETENTION, 70%, ASTM G 4355.

Silt Fence, 16" Above Ground, 32" Wood Stakes

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C003

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN
DWG. TITLE: SILT FENCE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-009
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

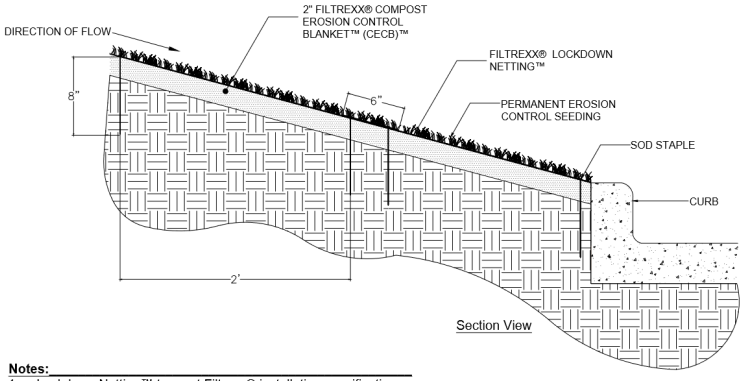
EXPIRES: 31/12/25

CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

LOCKDOWN NETTING



Section View

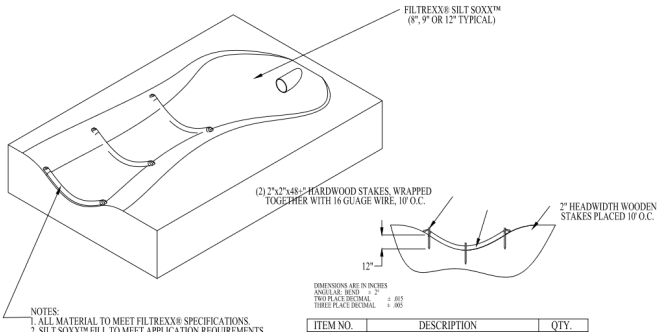
Notes:

1. Lockdown Netting™ to meet Filtrexx® installation specifications.
2. Lockdown Netting™ must be installed by a Filtrexx® Certified Installer.
3. Lockdown Netting™ is recommended for slopes between 3:1 and 2:1 and is required for slopes greater than 2:1.
4. Lockdown Netting™ is not sufficient to be used alone as a form of slope stabilization or erosion control; Lockdown Netting™ shall be installed prior to the application of CECB™.
5. Lockdown Netting™ shall be anchored to the soil using 8" sod staples to be driven along the entire perimeter of the netting area.
6. Staples for Lockdown Netting™ shall be spaced no more than 24" apart on all sides.
7. Where more than on roll of Lockdown Netting™ is required for slope length or slope width, netting edges shall be overlapped by a minimum of 6".
8. Lockdown Netting™ shall be installed from top to bottom (never across) on the slope.
9. Lockdown Netting™ shall be installed under the entire area of the CECB™, including 10 feet over the shoulder of the slope.

BIOSWALE

NOTES:

1. REMOVE GRATE AND CAP TO INSTALL OR REPLACE FILTER
2. BUCKET CAN BE REMOVED TO CLEAR DEBRIS AND SOIL



DIMENSIONS ARE IN INCHES
ANGULAR: BEND ± 2°
TWO PLACE DECIMAL ± .015
THREE PLACE DECIMAL ± .005

ITEM NO.	DESCRIPTION	QTY.
1	SWALE	1
2	SOXX™	3
3	2" X 2" X 36" WOODEN STAKE	3

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN
DWG. TITLE: LOCKDOWN NETTING & BIOSWALE	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-007
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

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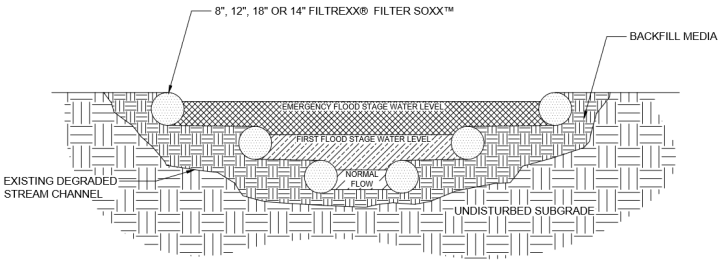
NOTES:
1. STAKE SOXX™ AS NEEDED TO RETAIN IN PLACE.
2. ENGINEER TO SPECIFY SOXX™ DIAMETER AND PLACEMENT BASED ON APPLICATION REQUIREMENTS.



NTS

BANK STABILIZATION TERRACE SYSTEM

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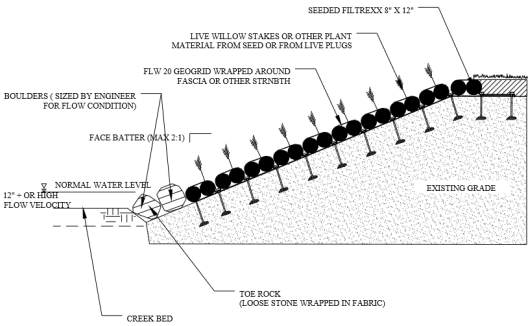
C003



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. GROSOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. ALL GROSOXX™ TO BE SEEDED PER LANDSCAPE ARCHITECT'S SPECIFICATIONS.
4. BACKFILL TO BE PLACED PER ENGINEER'S REQUIREMENTS.
5. GEOGRID STRENGTH, LENGTH AND VERTICAL SPACING TO BE DETERMINED BY ENGINEER. GEOGRID - NO STRANDS ARE TO BE CUT DURING PLANTING, ETC. WE RECOMMEND BI-DIRECTIONAL STRENGTH FOR CONSTRUCTION EASE.
6. NATIVE AND DRAINAGE BACKFILL TO BE SEPARATED BY NON-WOVEN FILTER FABRIC.
7. MAXIMUM HEIGHT RECOMMENDED: TEN FEET EXPOSED HEIGHT.
8. FILTREXX® GROSOXX™ DEPENDS ON APPLICATION (SIZE DEPENDENT ON PROJECT)
9. CUT BANK NO STEEPER THAN 2H:1V. FOR STEEPER EMBANKMENTS, REFER TO GREENLOXX SYSTEM.

BANK STABILIZATION SYSTEM REINFORCED WITH RIPRAP TOE

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C003

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN
DWG TITLE: BANK STABILIZATION	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-008
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

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TEL: (684) 699-1234

REVISION:

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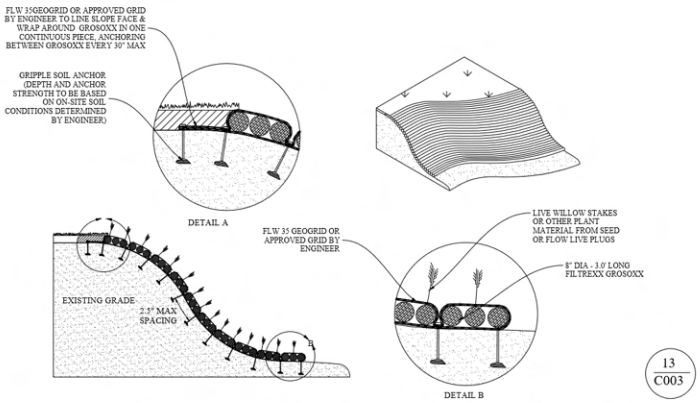

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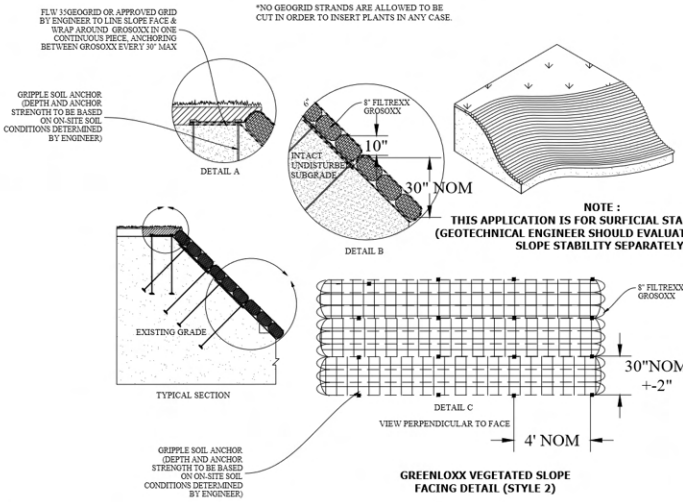
C003

NOTE :
THIS APPLICATION IS FOR SURFICIAL STABILITY ONLY (GEOTECHNICAL ENGINEER SHOULD EVALUATE DEEP SEATED SLOPE STABILITY SEPARATELY)

NO GEOGRID STRANDS ARE ALLOWED TO BE CUT IN ORDER TO INSERT PLANTS IN ANY CASE

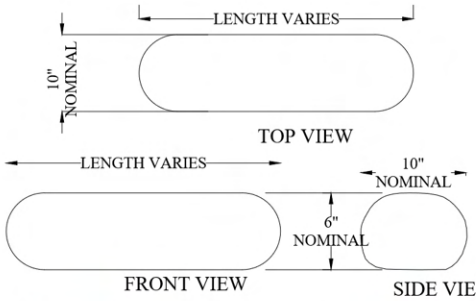
GREENLOXX VEGETATED SLOPE FACING DETAIL (STYLE 1)



NOTE :
THIS APPLICATION IS FOR SURFICIAL STABILITY ONLY (GEOTECHNICAL ENGINEER SHOULD EVALUATE DEEP SEATED SLOPE STABILITY SEPARATELY)

14
C003

GREENLOXX VEGETATED SLOPE FACING DETAIL (STYLE 2)



NOTE :
8 INCH DIAMETER TUBES THAT DEFORM TO NOMINALLY 6 - INCHES TALL AND 10 INCHES WIDE

8" DIA MODULE DIMENSION DETAIL

15
C003

PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN
DWG. TITLE: VEGETATED SLOPE FACING	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-006
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER, 2023

MARTAM CONSULTING	DESIGN AND DRAFTING: JAMES TAMASESE MARTAM CONSULTING PAGO PAGO, AS 96799	
	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	EXPIRES: 31/12/25

CLIENT:	
AMERICAN SAMOA POWER AUTHORITY	
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
TEL: (684) 699-1234	

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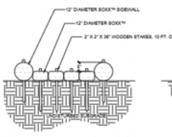
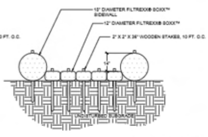
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

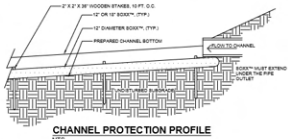


CHANNEL PROTECTION 6' SECTION
NTS



CHANNEL PROTECTION 7.5' SECTION
NTS

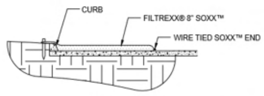
1. Soxx™ shall meet Filtrexx Soxx™ Specifications and use Filtrexx GrowingMediaTM.
2. Contractor is required to be a Filtrexx CertifiedTM installer.
3. Soxx™ must be installed and stabilized before flow is allowed from culverts and storm outlets.
4. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to Soxx™ installation.
5. Channel bed shall be made smooth prior to installation of Soxx™.
6. Soil bed may be compacted and graded prior to installation.
7. The upslope end of the Soxx™ shall be installed under the lip of the culvert or outlet drain to ensure initial storm flow contact is on top of the Soxx™, not under or in front of the system.
8. Soxx™ shall be placed parallel to water flow, where socks are tightly abutted to prevent water seepage between and underneath the Soxx™.
9. Once in place, Soxx™ shall be lightly compacted and abutting edges leveled to tighten seal between socks and encourage even water flow over Soxx™ system.
10. Stakes shall be installed through the middle of the Soxx™ on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. Top of stakes should be cut off, leaving 3 in (75mm) above the top of the Soxx™.
11. Soxx™ may be seeded at the time of application, seed selection will be determined by the Engineer.



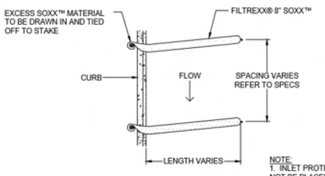
CHANNEL PROTECTION PROFILE
NTS

CHANNEL PROTECTION - NEW CHANNEL
NTS

1
C003



SECTION NTS

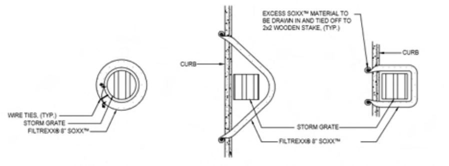


PLAN NTS

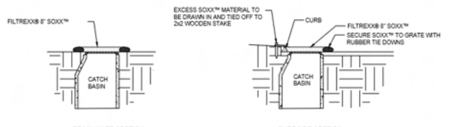
NOTE:
1. INLET PROTECTION SHOULD NOT BE PLACED DIRECTLY UPSLOPE FROM DRAIN INLETS

2
C003

INLET PROTECTION - CURB CONTAINMENT
NTS



DRAIN INLET PLAN **CURBSIDE OPTION "A" PLAN** **CURBSIDE OPTION "B" PLAN**

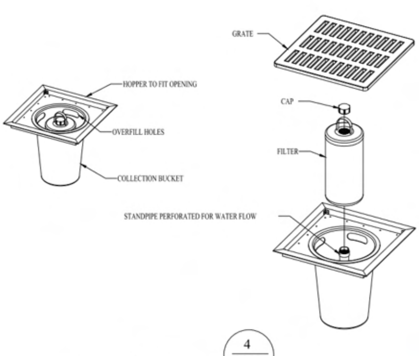


DRAIN INLET SECTION **CURBSIDE SECTION**

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

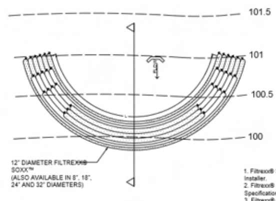
3
C003

INLET PROTECTION
NTS



BASIN PROTECTION

4
C003



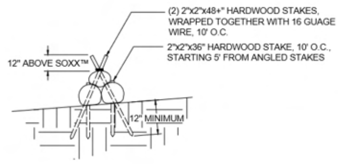
PLAN

1. Filtrexx® Sediment Trap must be installed by Filtrexx Certified Installer.
2. Filtrexx® Sediment Trap must be comply with all Filtrexx Standard Specifications.
3. Filtrexx® Sediment Trap must use Filtrexx FilterMedia™.
4. Filtrexx® Sediment Trap barrier face sizing shall use Q/0.98cfm(per sf of area face) = A (Q=5L/sec/sq.m)
5. Filtrexx® Sediment Trap barrier face shall be measured as A=L*D.
6. Filtrexx® Sediment Trap shall be constructed so that the minimum base width is equivalent to the height (1H:1V).
7. Sediment accumulation shall not exceed ½ the height of the barrier.
8. Filtrexx® Sediment Trap shall be inspected and maintained after storm events.
9. Soxx™ shall be of larger diameter at the base of the Sediment Tra and decrease in diameter for successive layers.
10. Ends of the Sediment Trap shall be a minimum 1 ft (30 cm) higher in elevation than the mid-section, which shall be at the lowest elevation.
11. Bottom layer of Soxx™ shall be staked with 2x2x36" wooden stakes. Successive layers shall be staked with ½" rebar at a 45 degree angle.

SECTION

SEDIMENT TRAP

5
C003



SEDIMENT TRAP STAKING DETAIL
NTS

6
C003

PROJECT DETAILS:	
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN
DWG. TITLE: INLET, CURB & CATCH BASIN PROTECTION & SEDIMENT TRAP	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-004
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

MARTAM CONSULTING

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

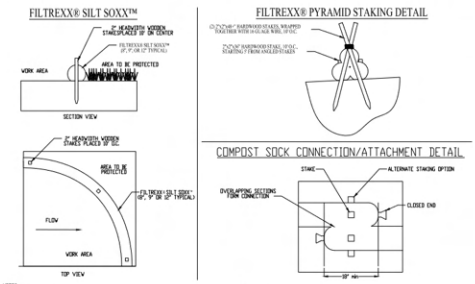
REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

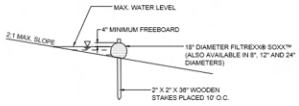
CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

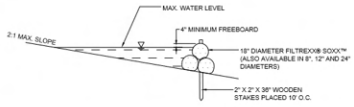
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:



7
C003



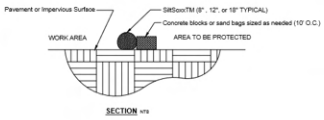
SINGLE INSTALLATION SECTION
NTS

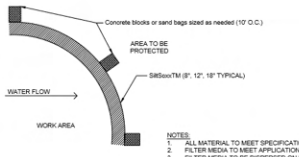


PYRAMID INSTALLATION SECTION
NTS

RUNOFF DIVERSION SECTIONS
NTS

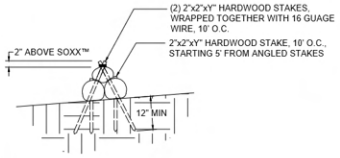
8
C003





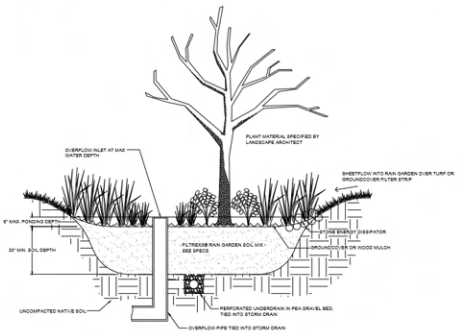
Sediment Control on Pavement
NTS

9
C003



PYRAMID STACK DETAIL
NTS

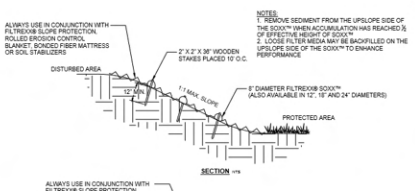
10
C003

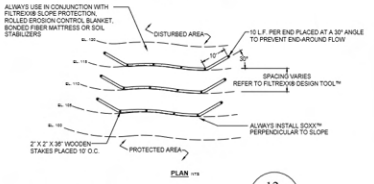


NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. RAIN GARDEN AREA MUST BE SIZED APPROPRIATELY FOR SITE CONDITIONS.
3. ALL PLANT MATERIAL TO BE SPECIFIED BY LANDSCAPE ARCHITECT.
4. SITE MUST BE FULLY STABILIZED PRIOR TO RAIN GARDEN CONSTRUCTION.
5. NATIVE SOIL BELOW AND SURROUNDING THE RAIN GARDEN AREA MUST NOT BE COMPACTED.
6. NO CONSTRUCTION SEDIMENT MAY BE PERMITTED TO ENTER THE RAIN GARDEN.

RAIN GARDEN
NTS

11
C003





SLOPE INTERUPTION
NTS

12
C003

PROJECT DETAILS:			
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: AS SHOWN	DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799	CLIENT: AMERICAN SAMOA POWER AUTHORITY
DRW. TITLE: RUN OFF, RAIN GARDEN & SEDIMENT	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON P.E CIVIL, STRUCTURAL LICENSED IN MAINE, USA	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-005	EXPIRES: 31/12/25	P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER, 2023		TEL: (684) 699-1234

REVISION:					
NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

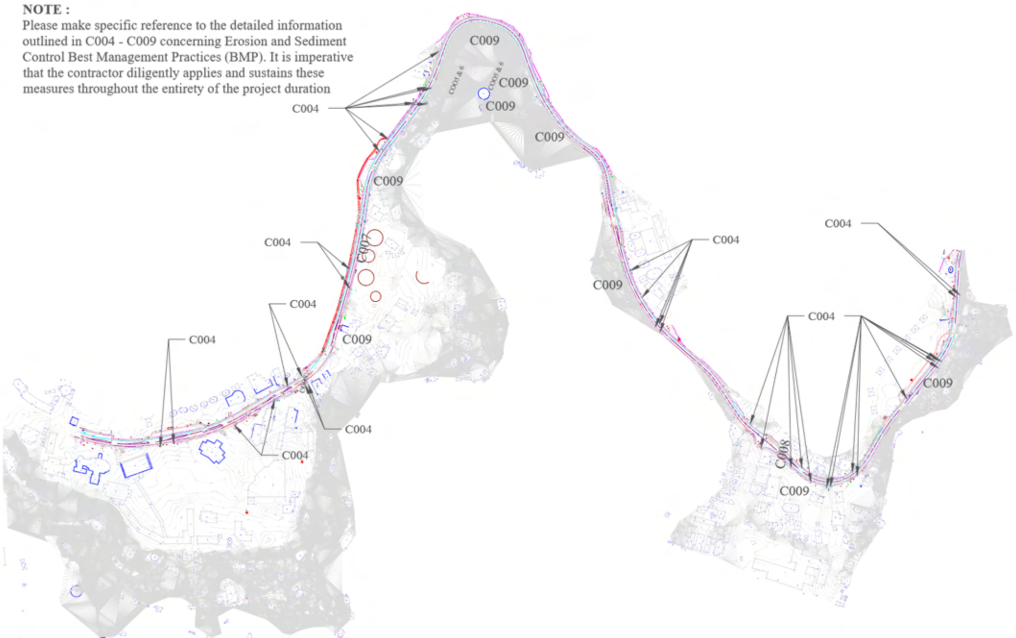
EROSION CONTROL GUIDELINES:

1. The contractor is required to submit a comprehensive Erosion and Sedimentation Control Plan to the American Samoa Government (ASG) Environmental Protection Agency (EPA). The contractor holds responsibility for adherence to the pertinent provisions outlined in the Water Quality and Water Pollution Control Standards, as stipulated in the American Samoa Government (ASG) Environmental Protection Agency Earthmoving Regulations 1996. Additionally, compliance is mandated with the Initial Environmental Assessment submitted in accordance with the Environmental Impact Assessment Regulations 1995. The implementation of Best Management Practices (BMPs) is mandatory throughout the construction period.
2. The contractor, including any subcontractors, must avoid any work operation that could result in falling rocks, soil, or debris into existing state drainage systems, adjoining properties, streets, or natural watercourses. In the event of such violations, the contractor may face citations, necessitating immediate and cost-free remedial actions to be undertaken at the discretion of ASPA.
3. It is the contractor's responsibility to promptly remove all silt and debris deposited in drainage facilities, roadways, and other areas due to their work. Costs incurred for any necessary remedial action directed by the ASPA Project Engineer or the government shall be borne by the contractor.
4. Throughout the construction phase, the contractor shall employ preventive maintenance measures to proactively control potential dust, erosion, or sedimentation issues that may arise during the project's progression.
5. Fugitive dust and solid waste disposal resulting from grubbing activities must comply with the requirements stipulated in Administrative Rules, Title II, Chapter 60 (Air Pollution Control), and Chapter 58 (Solid Waste Management Control). The contractor is obliged to meet these regulations to ensure responsible environmental practices during the execution of the project.
6. Soil stabilization techniques, such as hydroseeding or the use of erosion control blankets, shall be employed to secure exposed soil surfaces promptly. This ensures that vulnerable areas are protected against erosion and sedimentation, especially during periods of inactivity or inclement weather.

BMP NOTES:

1. Implement measures to prevent or minimize the discharge of pollutants from paving operations. This includes preventing runon or runoff pollution, proper disposal of water, and providing comprehensive training for employees and subcontractors to enhance awareness and compliance.
2. Effectively prevent or reduce the discharge of pollutants to stormwater resulting from leaks and spills. This involves minimizing the likelihood of spills, promptly addressing spill sources, containing and cleaning up spills, appropriately disposing of spill materials, and ensuring comprehensive employee training programs.
3. Mitigate the discharge of pollutants to stormwater from sanitary septic waste by maintaining convenient and well-maintained facilities. Arrange for regular servicing and proper disposal to ensure the responsible management of septic waste.
4. Take proactive measures to prevent or reduce the discharge of pollutants from dewatering operations. Utilize sediment controls and conduct groundwater testing to identify and address potential pollution concerns.
5. Prior to the initiation of any work, implement erosion and pollutant control measures. These measures must be appropriately constructed and diligently maintained throughout the entire construction period.
6. Regularly inspect and repair all temporary erosion control measures as needed to ensure their continued effectiveness.
7. Perform grassing or mulching of exposed areas as finish grades are established to provide effective ground cover and prevent erosion.
8. Divert storm runoff away from fill slopes until grassing on the fill slopes is established to minimize erosion risks.
9. Establish and maintain a stabilized construction entrance to prevent tracking of sediment onto roadways. Ensure this entrance is well-maintained at the egress and ingress points to the construction site.
10. Alternatively, consider using a tire wash in lieu of a stabilized construction entrance. It is the contractor's responsibility to keep roadways free from soil and construction debris.
11. Apply dust control measures to reduce dust emissions, including watering the area during construction to effectively manage and control dust.
12. Install inlet protection devices at all storm drain inlets on the construction site and those off-site that may receive runoff from the project.
13. Refer to the Erosion and Sedimentation Controls Plan & Details for comprehensive guidance on the implementation of erosion control measures.
14. Establish and maintain vegetative buffers along water bodies or sensitive areas surrounding the construction site. Vegetative buffers provide additional protection against sedimentation and runoff, promoting natural filtration and enhancing overall environmental resilience.
15. Utilize sediment basins or sedimentation ponds strategically placed within the construction site to capture and settle suspended sediments, preventing their discharge into nearby watercourses. Regular inspection and maintenance of these basins ensure their continued effectiveness throughout the project.
16. Implement advanced erosion control technologies, such as erosion control blankets or geotextiles, in critical areas with high erosion potential. These materials provide an additional layer of protection against soil erosion, especially on slopes and exposed surfaces.
17. Incorporate permeable surfaces, such as pervious concrete or permeable pavers, in construction areas to minimize runoff and facilitate groundwater recharge. These surfaces allow water to infiltrate the soil, reducing the risk of surface runoff and erosion.
18. Conduct regular training sessions for construction site personnel on the proper installation and maintenance of erosion control measures. Well-trained staff contribute to the successful implementation of BMPs and ensure ongoing compliance with environmental regulations.
19. Integrate real-time monitoring systems for weather conditions and water quality on the construction site. Automated alerts can notify project teams of adverse weather events or potential environmental risks, allowing for timely implementation of preventive measures.

NOTE :
Please make specific reference to the detailed information outlined in C004 - C009 concerning Erosion and Sediment Control Best Management Practices (BMP). It is imperative that the contractor diligently applies and sustains these measures throughout the entirety of the project duration



NOTE:

The contractor is responsible for furnishing, installing, and ensuring the ongoing maintenance of silt fences, socks, and related erosion control measures at all times.

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: EROSION & SEDIMENTATION CONTROL PLAN	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-003
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

MARTAM CONSULTING
Engineering and Construction Management

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

STATE OF MAINE · WILLIAM C. GORDON · No. 5231 · LICENSED PROFESSIONAL ENGINEER
EXPIRES: 31/12/25
EXPIRES: 31/12/25

CLIENT:
AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL.: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

VICINITY MAP

TABLE OF CONTENTS

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG TITLE: TABLE OF CONTENTS, SITE PLAN, VICINITY MAP & DEVELOPMENT PLAN	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-001
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

AMERICAN SAMOA POWER AUTHORITY
WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799
TEL: (684) 699-1234

REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

GENERAL NOTES:

1. The elevations indicated in the drawings (in feet) are referenced to a mean sea level of 0.00.
2. The positioning of underground utilities is based on information from referenced drawings or visible fittings, manholes, patched trenches, and other ground markings, and therefore, the locations are approximate. The contractor is responsible for verifying the exact locations of existing underground utilities before commencing construction.
3. All activities involving utilities must be coordinated and cleared with the respective utility agencies before any excavation begins. The contractor is obligated to obtain all necessary permits and clearances before initiating construction.
4. The contractor is required to locate all water and sewer laterals and ensure their uninterrupted service during construction. Damaged surfaces must be replaced, and any laterals conflicting with the work should be relocated. Materials for water or sewer lateral installation must comply with local specification standards and requirements.
5. The plans indicate the underground pipes, cables, or duct lines known to exist based on the engineer's records. The contractor must verify the locations and depths of these facilities with care during excavation. When new utility connections to existing lines are shown, the contractor must expose the existing lines at proposed connections to verify their locations and depths before excavating for new lines.
6. The contractor must exercise caution during their work and is liable for any damage incurred to existing facilities, utilities, and other features, whether shown on plans or not. Damaged portions must be replaced at the contractor's expense, following the requirements of the affected owner or user. In the event of damage to an existing line, the contractor must immediately report it to the utility company and inform the ASPA Project Engineer/Site Representative.
7. The contractor is responsible for restoring all damaged improvements resulting from construction to their original condition. This includes but is not limited to pavements, sidewalks, embankments, curbs, ramps, signs, landscaping, structures, utilities, walls, fences, etc. The restoration must match existing conditions, including finishing details.
8. All materials used must meet the specified standards and be subject to approval by the project engineer.
9. In case of disputes or unforeseen conditions, the decision of the project engineer shall be final.
10. The contractor shall provide as-built drawings upon completion of the project.
11. Regular progress meetings will be scheduled with the contractor to discuss project status and address any concerns.
12. The contractor shall provide and maintain all necessary safety measures, including fencing and signage.
13. The project engineer must be notified of any deviations from the approved construction schedule.

CONSTRUCTION NOTES:

1. All construction work must adhere to the Standard Specifications for Roads and Drainage at the Department of Public Works (AS-DPW). ASPA should be contacted for water, sewer, and electrical work, while ASTCA is the point of contact for cable and communications lines.
2. Prior to the commencement of construction, the contractor must verify and check all dimensions and details depicted in the drawings. Any discrepancies discovered should be promptly brought to the attention of the ASPA Project Engineer for clarification.
3. The contractor is obligated to observe and comply with all applicable federal, state, and local laws essential for the protection of public health, safety, and environmental quality.
4. The contractor is responsible for coordinating the haul route staging area and associated requirements, including a land use permit, with the FONS, contracting office, and affected landowner.
5. If the contractor's staging area or any work extends beyond the contract limits, a separate land use permit must be obtained. The existing land use permit is contingent upon a Division of Marine and Wildlife Resources review before construction begins.
6. The contractor is accountable for cleaning and removing all silt and debris generated by grading and construction work, ensuring proper disposal and preventing accumulation on roadways and other areas.
7. Protection of all existing utilities, concrete walkways, steps, and walls is mandatory during construction and grading work, irrespective of whether they are indicated on the drawings. Any damage incurred shall be repaired by the contractor at their expense.
8. Construction work hours are limited to 7:30 AM to 4:00 PM Samoa Standard Time. No work is permitted on Saturdays, Sundays, federal holidays, or outside normal work hours without special arrangement and prior approval from the contracting officer.
9. Existing utilities must remain in service and in place. If relocation is required for the contractor's convenience, service interruption should be minimized and executed at the contractor's expense with the approval of the ASPA Project Engineer.
10. Whenever existing fences are removed, chain-link fencing must be provided to secure protected areas daily. Trenches crossing any fence, existing or new, should not be left open during non-working hours. Backfilling a minimum of 10 feet on each side of the fence is required at the end of each workday, with additional measures approved by the ASPA Project Engineer.
11. Utility cut-overs and interruptions shall occur only after normal working hours or on Saturdays, Sundays, and government holidays, subject to prior approval from the ASPA Project Engineer.
12. The contractor must take necessary measures to prevent damage to existing utility lines and be equipped to handle emergencies. The contractor shall not rely on government forces for emergency response, and associated costs are the responsibility of the contractor/subcontractor.
13. The contractor is responsible for meeting the conditions of FONS permits obtained for projects, including obtaining right-of-way and clearance for the setup site and construction yard. Permits for electricity, water, sewer, internet, and all other utilities for site offices must be secured by the contractor.
14. The contractor is required to implement erosion control measures throughout the construction process. These measures should include, but are not limited to, the installation of silt fences, sediment basins, and erosion control blankets. Regular inspections of these measures must be conducted to ensure their effectiveness, and any necessary maintenance or improvements should be promptly addressed.
15. Noise and vibration control measures must be implemented to minimize disturbances to the surrounding environment and neighboring properties. The contractor should adhere to established guidelines and regulations regarding acceptable noise levels and vibration limits. If complaints arise from nearby residents or businesses, the contractor must take immediate corrective actions to mitigate the impact.
16. Environmental protection is of utmost importance. The contractor must implement measures to prevent the release of hazardous materials into the environment and take appropriate steps for the proper disposal of construction waste. Any spills or incidents involving hazardous materials must be reported to the relevant authorities immediately, and the contractor must cooperate fully with any investigations or clean-up efforts.

WATER NOTES:

1. The accuracy of existing waterline locations is approximate. Prior to excavation, the contractor must coordinate with ASPA or utility owners to locate existing utilities, providing appropriate advance notification.
2. Existing water mains and services are to be abandoned in place only after the new water main has been disinfected and approved by the American Samoa Power Authority (ASPA) and the American Samoa Environmental Protection Agency.
3. Install all gate valves with valve boxes according to drawings and specifications.
4. Install all flush valves in valve boxes as per drawings and specifications.
5. The contractor is responsible for providing all necessary equipment and materials for testing waterlines.
6. Station locations are approximate.
7. The contractor is responsible for protecting all waterlines during construction, especially when excavating behind waterline tees and bends where there is a possibility of movement.
8. The contractor shall take necessary measures to protect the waterline, including constructing special reaction blocks and modifying construction methods.
9. Blasting is not allowed on this project.
10. Coordinate with ASPA, ASO, Bluesky Communications, and ASTCA for the relocation and/or removal of power, television, and communication poles. Provide supports for existing poles affected by excavation.
11. The contractor shall notify affected villages and utility companies seven (7) days prior to service interruptions, as per the convenience of ASPA, ASC, Bluesky Communications, and ASTCA.
12. Provide all land survey construction stakeout services, soil aggregate, concrete, pavement monitoring, and sampling and testing services.
13. Dispose of waste material at an approved, FONS-compliant, off-site disposal area. The contractor is responsible for obtaining the disposal area.
14. Remove all existing pavement and crossings along the new roadway. Demolition and removal of existing pavement are considered incidental to the project.
15. At the end of the workday or upon completion of work, the contractor shall ensure safe passage for public traffic and proper covering and maintenance of all open holes throughout the project's duration.
16. The contractor is responsible for potential de-watering, flow diversion, or temporary pumping for all trench work. Submit a de-watering plan and construction methodology for ASPA project engineer approval. Construction de-watering into the sewer collection system is prohibited.
17. Excavate and prepare trenches according to specifications. The maximum allowable trench width is the outside diameter of the pipe plus 18 inches for pipes up to 12" (I.D.). If the excavation exceeds the computed maximum width, the contractor shall provide additional bedding, a different type of bedding, and/or higher-strength pipe at their own expense.
18. Fill and compact voids created by additional excavation at the subgrade with bedding material as required.
19. The use of free-draining granular material with a minimum sand equivalent of 30 or a coefficient of permeability greater than 0.001 centimeter per second is allowed.
20. Provide geotextile fabric to envelop the pipe cradle and select backfill material where water or unstable soil conditions are encountered.
21. The contractor shall provide temporary thrust restraints, bracing, test plugs, and/or other devices necessary for successfully completing pressure testing of all pressure piping systems.
22. All buried piping specified for pressure service shall be provided with restraining devices at all directional changes unless noted otherwise.
23. All fasteners shall be manufactured of non-corrosive materials or 316 stainless steel.
24. Pipe measurements shall be from center to center of fittings or valves unless otherwise noted.
25. The contractor shall provide both concrete anchors and clay dikes as required by the engineer according to specified guidelines.
26. For slopes between 10% and 15%, install clay dikes at intervals of one every 200 linear feet
27. For slopes of 15% or greater, provide concrete anchors and clay dikes at intervals of one every 100 linear feet
28. Clay dikes should extend for the full trench width (used for pipe bedding and cover) and have a length of 5 feet. They should be located in the middle of the pipe length, at least 2 feet from a pipe joint. The materials used should be clay as designated "CL" under the Unified Soil Classification System.
29. Concrete anchors should be located at the downstream side of joints, be unreinforced, and have a minimum height of the trench width, 2 feet high (replacing pipe bedding and cover), and a thickness of 2 feet.
30. These specifications are crucial for the successful implementation of the project, ensuring the safety, stability, and longevity of the waterline infrastructure. The contractor is expected to adhere to these guidelines, and any deviations must be approved by the project engineer. Constant communication and coordination with relevant authorities, as well as proactive measures to address potential challenges during construction, are essential for the overall success of the project.

SAFETY NOTES

1.
2. The contractor is required to comply with all provisions outlined in the Occupational Safety and Health Administration (OSHA) Standard for Excavation Safety (29 CFR 1926 Subpart P). This includes adherence to safety measures for the protection of workers in excavations exceeding 5 feet in depth. Protective systems may involve sloping/benching of excavation walls or the installation of support/shielding devices. The design of protective systems must be based on the field classification of soil by a competent person and should conform to the tables and figures specified in the OSHA standards. Alternatively, the system may be a manufactured protection system used strictly in accordance with the manufacturer's instructions or one designed by a registered professional engineer. Further details on compliance can be found in the OSHA standard.
3. The contractor is responsible for ensuring safe access to and from all driveways and streets.
4. The contractor must plan operations to minimize the number of open excavated trenches at the end of each workday. Open trenches should be covered with non-skid steel plates capable of supporting H-20 vehicles in traffic areas and 300 pounds per square foot in non-traffic areas. The plates in non-traffic areas should be anchored, and barricades must delineate covered trenches in non-traffic areas and all stockpiled piles. Any excavation within the roadway must be temporarily patched with concrete, a thin layer of asphalt, or cold mix.
5. The contractor is obligated to properly shore, sheet, and brace the excavation, stabilizing the existing ground to ensure safety and security from potential slides, cave-ins, and settlement. Additionally, the contractor must provide proper support for existing structures and facilities, using beams, struts, or underpinning to fully protect them from damage.
6. A licensed professional engineer competent in soils and a licensed structural engineer, when required by Occupational Safety and Health Administration (OSHA) standards, must prepare and stamp the excavation shoring plan provided by the contractor.
7. Open excavations must be barricaded and equipped with warning lights. Unattended excavations exceeding 4 feet in depth must be kept free of water, and their walls must remain sloping and stable. A ladder or other means of escape must be left within the excavation, and when personnel are present, at least two means of egress are required, with ladders provided to require not more than 25 feet of lateral travel.
8. The contractor must supply safety fences and barricades for any equipment, stockpiles, or construction materials left on the job site after work hours and over the weekend.
9. The work site and surrounding areas must be maintained free from dust nuisance.
10. In areas where construction activities impede normal property access, the contractor must provide and maintain alternate routes, subject to approval by the American Samoa Power Authority (ASPA).
11. The contractor must undertake all practical and necessary efforts during construction to prevent tree removal, at the expense of the contractor.
12. The contractor shall establish and strictly enforce a comprehensive safety program, ensuring that all personnel are adequately trained in excavation safety procedures. Regular safety meetings and drills must be conducted to promote awareness and preparedness among the project team.
13. Adequate signage, including warning signs and safety instructions, must be prominently displayed around the construction site, especially in areas with open excavations. The contractor is responsible for maintaining clear communication about potential hazards to workers, visitors, and the general public.
14. Emergency response procedures, including protocols for addressing accidents, injuries, or hazardous situations, shall be clearly outlined and communicated to all personnel. The contractor must have designated personnel trained in first aid and emergency response available on-site at all times during construction activities.

POTHOLING NOTES:

1. The contractor is entrusted with the investigation, inspection, and verification of all existing utilities, supplemented by on-site excavation if necessary, to accurately determine the actual location of these utilities, including their branch and service lines, whether or not indicated on the plans. Potholing, preferably using vacuum potholing equipment, is to be conducted to ensure precise information.
2. The contractor is obligated to carry out exploratory excavations as needed to gather as-built information. Verification of the depth, location, alignment, size, and material of existing underground utilities or structures—whether explicitly specified on the plans or not—shall be conducted. All relevant data must be meticulously recorded and subsequently incorporated into the as-built drawings.
3. Utilizing information obtained through potholing, the contractor is required to confirm that construction/installation can proceed in accordance with the design and specifications. In cases where adjustments are deemed necessary, the contractor is expected to exert their utmost efforts and expertise to propose changes at no additional cost, subject to ASPA approval. Any proposals to alter or revise the design alignment should aim to minimize overall costs.
4. The contractor must uphold a clean work area throughout potholing activities. This entails preventing dirt or rocks from leaving the work area and ensuring that regular activities and traffic are not adversely affected. The contractor is responsible for maintaining a safe and unobstructed environment during these operations.
5. In the event that unexpected conditions or discrepancies are discovered during potholing, the contractor shall promptly notify the appropriate stakeholders, including ASPA and utility owners, and submit a detailed report outlining the findings. This proactive communication is essential for addressing unforeseen challenges and swiftly developing effective solutions to maintain project timelines.
6. Prior to any potholing activities, the contractor shall establish clear safety protocols to safeguard both personnel and the surrounding environment. This includes the use of appropriate signage, barricades, and warning signals to alert on-site and passing traffic of the ongoing excavation work. Regular safety briefings and ongoing monitoring will be implemented to ensure a secure work zone.
7. The contractor is responsible for coordinating with relevant utility companies and local authorities to obtain accurate utility maps and records before commencing potholing activities. This collaborative effort is crucial to ensure that the contractor's investigation aligns with existing utility information, minimizing the risk of inadvertent damage to crucial infrastructure.
8. All potholing equipment used by the contractor must adhere to industry standards for safety and environmental compliance. Regular maintenance checks and calibration of equipment, especially vacuum potholing devices, should be conducted to guarantee optimal performance and accuracy during field investigations.
9. The contractor shall engage in close collaboration with ASPA representatives and other relevant authorities during the potholing process. This collaboration aims to ensure that the collected data aligns with project requirements and regulatory standards, fostering a transparent and cooperative working relationship throughout the duration of the utility investigation.
10. Environmental stewardship is a key consideration during potholing activities. The contractor must implement measures to contain and properly dispose of any materials excavated during the process, adhering to environmental regulations and best practices to mitigate potential impacts on soil and water quality.

WATERWAY STD. BMP NOTES :

1. The following measures, as applicable, shall be integrated into the projects to mitigate water quality degradation and minimize impacts on fish and wildlife resources:
2. Turbidity and siltation resulting from project-related activities shall be minimized and confined to the immediate project vicinity through the effective use of silt containment devices. Work shall be curtailed during adverse tidal and weather conditions.
3. Project activities shall be scheduled during the dry season or when affected streams have minimal or no flow, whenever feasible. Work shall be discontinued during flooding, intense rainfall, storm surge, or high surf conditions where runoff and turbidity cannot be adequately controlled. Shoreline work will be conducted during low tides as much as possible.
4. No project-related materials (such as fill, revetment rock, or pipes) shall be stockpiled in the water, including intertidal zones, reef flats, stream channels, and wetlands.
5. Project-related activities shall not result in contamination (e.g., trash or debris disposal, alien species introductions) of adjacent marine/aquatic environments, including reef flats, channels, open ocean, stream channels, and wetlands.
6. Fueling of project-related vehicles and equipment shall occur away from the water. A contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms, if appropriate, shall be stored on-site to facilitate the cleanup of accidental petroleum releases.
7. Under-layer fills used in the project shall be protected from erosion with suitable materials (such as precast concrete armor or mat units) as soon as practicable after placement.
8. Any soil exposed near water as part of the project shall be protected from erosion with suitable materials (such as plastic sheeting or filter fabric) after exposure. Stabilization shall occur as soon as practicable, utilizing methods like vegetation matting or hydroseeding.
9. Silt fences, curtains, and other structures shall be properly installed and maintained in a functioning manner throughout the construction period. This is especially crucial in areas where fill material and exposed soils may cause sediment or turbidity transport beyond the immediate construction site.
10. The contractor shall implement erosion control measures, such as coir logs or fiber rolls, along waterways and project perimeters to further prevent sediment runoff. These measures should be installed promptly and maintained throughout the construction period to ensure the effectiveness of erosion prevention.
11. To safeguard against potential spills or leaks, a spill response plan shall be in place, detailing procedures for prompt containment, cleanup, and reporting of any hazardous material incidents. This plan should be communicated to all personnel involved in the project, and regular drills shall be conducted to ensure readiness in case of emergencies.
12. All construction equipment and vehicles shall be inspected regularly to identify and address any leaks, fluid spills, or potential sources of contamination. The contractor shall promptly repair or replace faulty equipment and implement preventive maintenance measures to minimize the risk of environmental harm.
13. Native vegetation in and around the project area shall be preserved to the greatest extent possible. Any unavoidable vegetation removal shall be compensated by implementing appropriate re-vegetation efforts, such as planting native species, to restore ecological balance.

GRADING NOTES:

1. No grading operation shall be conducted by the contractor in a manner that causes falling rocks, soil, or debris, in any form, to descend, slide, or flow onto adjoining properties, streets, or natural watercourses. In the event of such violations, the contractor may be cited, and immediate remedial actions shall be undertaken.
2. The contractor is responsible for maintaining, at their own expense, a dust-free project area and its surroundings. Work activities shall align with air pollution control standards to prevent the creation of dust nuisances.
3. Effective provisions must be implemented to prevent surface waters from causing damage to cut faces of excavations or the sloped surfaces of fills. Additionally, measures shall be in place to prevent sediment-laden runoff from exiting the site.
4. Sodding or planting on all slopes and exposed areas shall commence as soon as final grades are established. Planting activities should not be delayed until all grading work is completed. Continuous grading to the final grade is required, and any area with interrupted or delayed work shall be promptly planted.
5. Fills on slopes steeper than 5:1 shall be appropriately keyed to ensure stability.
6. Grading operations shall adhere to applicable provisions of water quality and water pollution control standards.
7. Measures to control erosion and pollutants shall be implemented before initiating any earth-moving phase of the grading, where applicable and feasible.
8. Temporary erosion controls shall not be removed until permanent erosion controls are in place and established.
9. If grading involves contaminated soil, all work shall conform to relevant state and federal requirements.
10. Grading and construction activities shall incorporate measures to minimize pollutant discharge from the construction site, ensuring compliance with water quality standards to the maximum extent practicable.
11. Non-compliance with any of the aforementioned requirements may result in an immediate suspension of all work. Remedial actions shall commence promptly, and all associated costs will be billed to the violator. Additionally, violators may face administrative, civil, and/or criminal penalties.
12. The contractor shall implement a comprehensive stormwater management plan to effectively capture, treat, and control stormwater runoff resulting from grading activities. This plan should include the use of sediment basins, sediment traps, or other appropriate Best Management Practices (BMPs) to minimize the transport of sediments into water bodies.
13. Construction entrances with stabilized surfaces, such as gravel or track-out control devices, shall be established and properly maintained to prevent the tracking of mud and sediment onto adjacent streets and roadways. The contractor is responsible for promptly cleaning any accumulated mud or sediment from public roadways.
14. All grading equipment and vehicles shall be equipped with spill containment devices, and operators shall be trained to respond promptly to any fuel or oil spills. The contractor shall have spill response kits readily available on-site to facilitate quick and effective cleanup in the event of accidental releases.
15. The contractor must coordinate with local environmental agencies to obtain any necessary permits related to grading activities, ensuring compliance with regional regulations and standards. This includes obtaining permits for the discharge of stormwater and adhering to any specific requirements for erosion and sediment control.

PROJECT DETAILS:

PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS
DWG. TITLE: GENERAL NOTES	ISSUED FOR: CONSTRUCTION
PROJECT NUMBER: ASPA21.041	SHEET NO.: C-002
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023

DRAWING ORIGINATOR:

DESIGN AND DRAFTING:
JAMES TAMASESE
MARTAM CONSULTING
PAGO PAGO, AS 96799

REVIEWED AND APPROVED BY:
WILLIAM C GORDON
P.E CIVIL, STRUCTURAL
LICENSED IN MAINE, USA

EXPIRES: 31/12/25

CLIENT:

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WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD
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TEL: (684) 699-1234

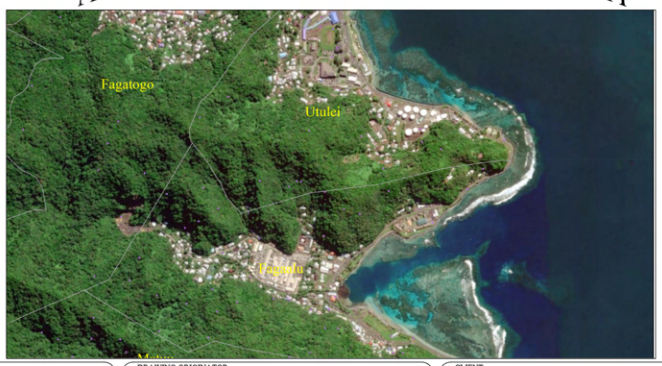
REVISION:

NO.	ISSUED FOR:	BY:	CHK:	APPD:	DATE:

DESIGN AND CONSTRUCTION PLANS FOR

ASBESTOS CEMENT PIPE REPLACEMENT AND WATER SYSTEM UPGRADE PROJECT

FAGAALU TO UTULEI TUTUILA ISLAND
AMERICAN SAMOA



PROJECT DETAILS:		DRAWING ORIGINATOR:		CLIENT:	REVISION:
PROJECT NAME: FAGAALU AC PIPE REPLACEMENT AND WATER SYSTEM UPGRADE	SCALE: NTS	DESIGN AND DRAFTING: JAMES TAMASESE, MARTAM CONSULTING, PAGO PAGO, AS 96799		AMERICAN SAMOA POWER AUTHORITY	NO. / ISSUED FOR: / BY: / CHK: / APPD: / DATE:
DWG. TITLE: TITLE SHEET	ISSUED FOR: CONSTRUCTION	REVIEWED AND APPROVED BY: WILLIAM C GORDON, P.E CIVIL, STRUCTURAL, LICENSED IN MAINE, USA	EXPIRES: 31/12/25	WATER ENGINEERING DIVISION, TAFUNA, AIRPORT ROAD	
PROJECT NUMBER: ASPA21.041	SHEET NO.: T-001			P.O BOX PPB, PAGO PAGO, AMERICAN SAMOA 96799	
PROJECT LOCATION: FAGAALU TO UTULEI VILLAGE, TUTUILA ISLAND, AS 96799	DATE: DECEMBER 2023			TEL: (684) 699-1234	