

Attachment A – Maps, Flow Chart, Hydrotesting Sequence & Filtration System (Sections F.2, F.3, F.5 & F.9)

ATTACHMENT A - TABLE OF CONTENTS		
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-083-1(48)	2020	19	149

Discharge Point No. 1 (From)
Kaipapa'u Stream
Class 2 Inland Waters
Latitude 21.61717846380141
Longitude -157.9142857880188

Benchmark
Sta. "BRIDGE"
1/2" PIPE
Sta. 1247+19.86
O/S 17.85' Rt.
191.89 S
2885.48 E
Elev=10.24 MSL

Stabilized entry/exit 12" min.
thickness, #2 crushed rock, typ.
See det., sht. C-35

Concrete Washout
Basin (5'x5'x5')
See det., sht. C-35

Temporary sand bags
See det., sht. C-35

Temp. stream diversion
Grade as req'd to drain
and provide 0.5% min. slope

Limit of Grading

8' High Dust Fence

Compost filter sock
See det., sht. C-35

Match exist. pav't and
provide smooth riding conn.
See det., sht. C-37

KAMEHAMEHA HWY.

To Kahuku

Approx. location of human burial
(SIHP-4796). See Section 106 of the
National Historic Preservation ACT Notes

Match exist. conc. pav't.
and provide smooth conn.

New Utility Easement

Match exist. ac pav't.
and provide smooth conn.
See det., sht. C-37

Construction parcel

12' High Dust Fence
Temp. Dewatering Basin
(20'x15'x8')

New R/W
New Easement

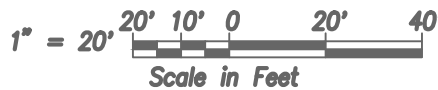
Discharge Point No. 2 (To)
Kaipapa'u Stream
Class 2 Inland Waters
Latitude 21.617151034652878
Longitude -157.91334701486358

ROADWAY GRADING, EROSION & SEDIMENT CONTROL PLAN
Scale: 1"=20'

Notes:

- For additional finished grade elevations, see sht. C-20.
- For bridge deck elevations, see structural drawings.
- For grading work under bridge, see sht. C-19.
- The contractor shall be responsible for obtaining grading permit from the City and County of Honolulu, Department of Planning and Permitting.

Graphic Scale:



Legend

- Discharge Point
- Project Boundary

Legend:

- Project Limits
- Exist. Ground Contour
- Finished Grade Contour
- Limit of Grading
- Dust Fence
- Compost Filter Sock
- Top of Bank
- Bottom of Bank
- Drainage Flow Direction
- Stabilized Entry/Exit

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY GRADING, EROSION &
SEDIMENT CONTROL PLAN

Kamehameha Highway
Kaipapau Stream Bridge Replacement
Federal Aid Project No. BR-083-1(48)

Scale: As Noted Date: April 2019

SHEET No. C-18 OF SHEETS

Attachment A, Exhibit 2, Item F.3 – Hydrotesting Water Flow Chart

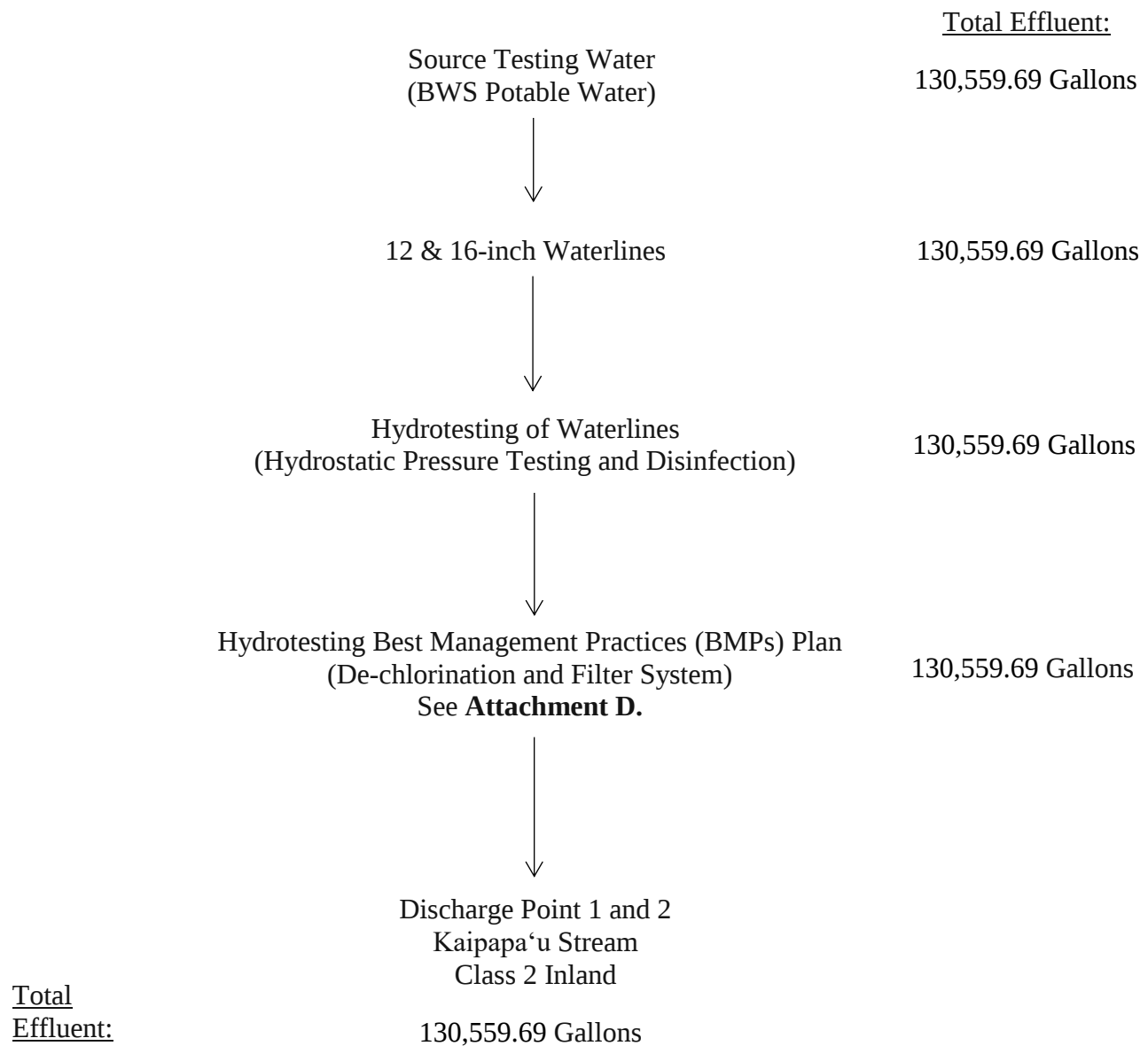
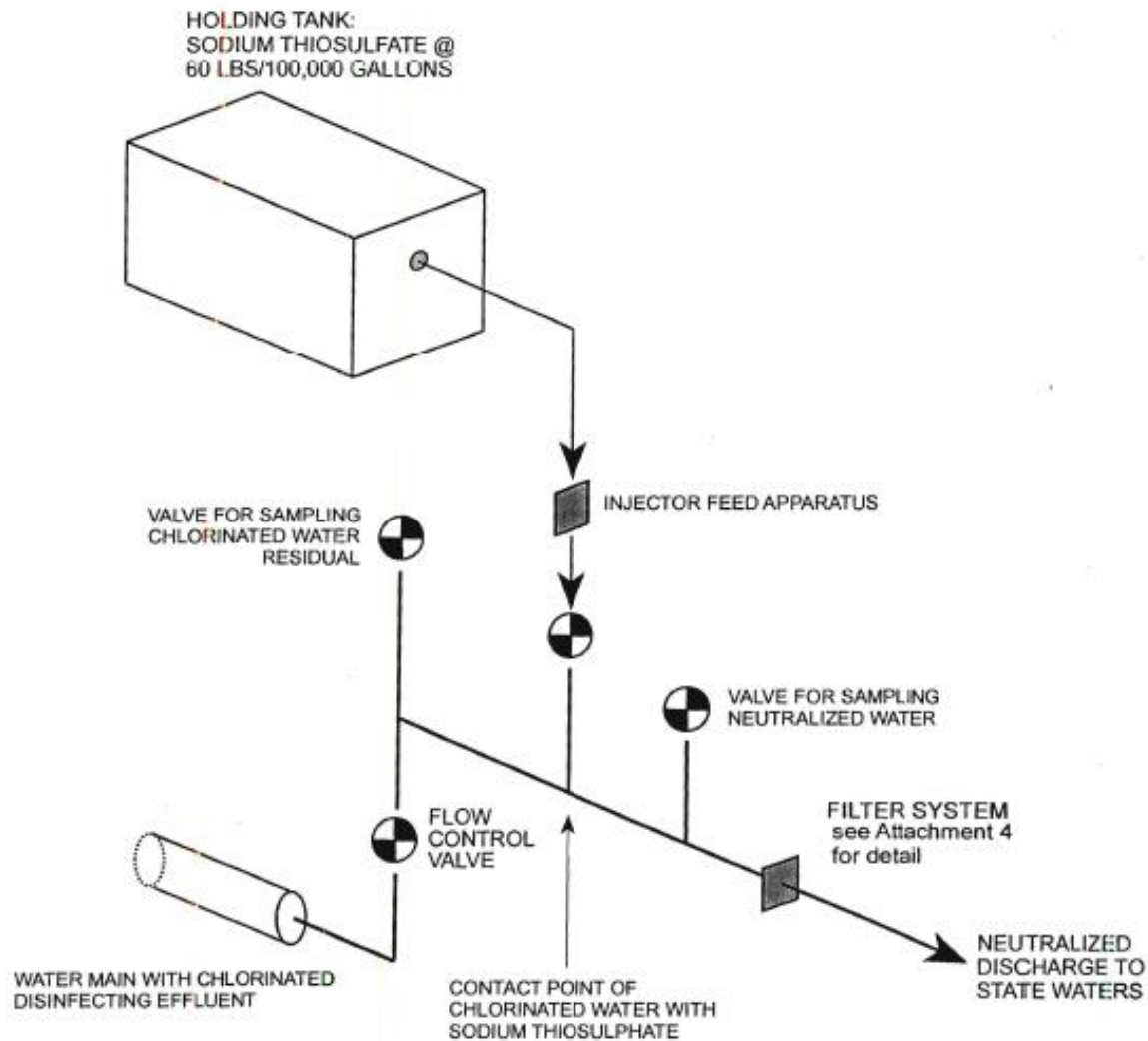


Exhibit 2, Item F.3
Hydrotesting Water Flow Chart
Kaipapa‘u Stream Bridge Replacement
Hau‘ula, Ko‘olaupia District, O‘ahu, Hawai‘i

R. M. TOWILL CORPORATION

Attachment A, Exhibit 3, Item F.5.a. – Hydrotesting Sequence

SOURCE: Basic schematic and process derived from NPDES NOI File No. HI93F002, Modification of Dewatering and BMPs, McCully-Waikiki 30-Inch and 12-Inch Water Main, by Board of Water Supply, City and County of Honolulu, and E.E. Black, Ltd., October 15, 1993.

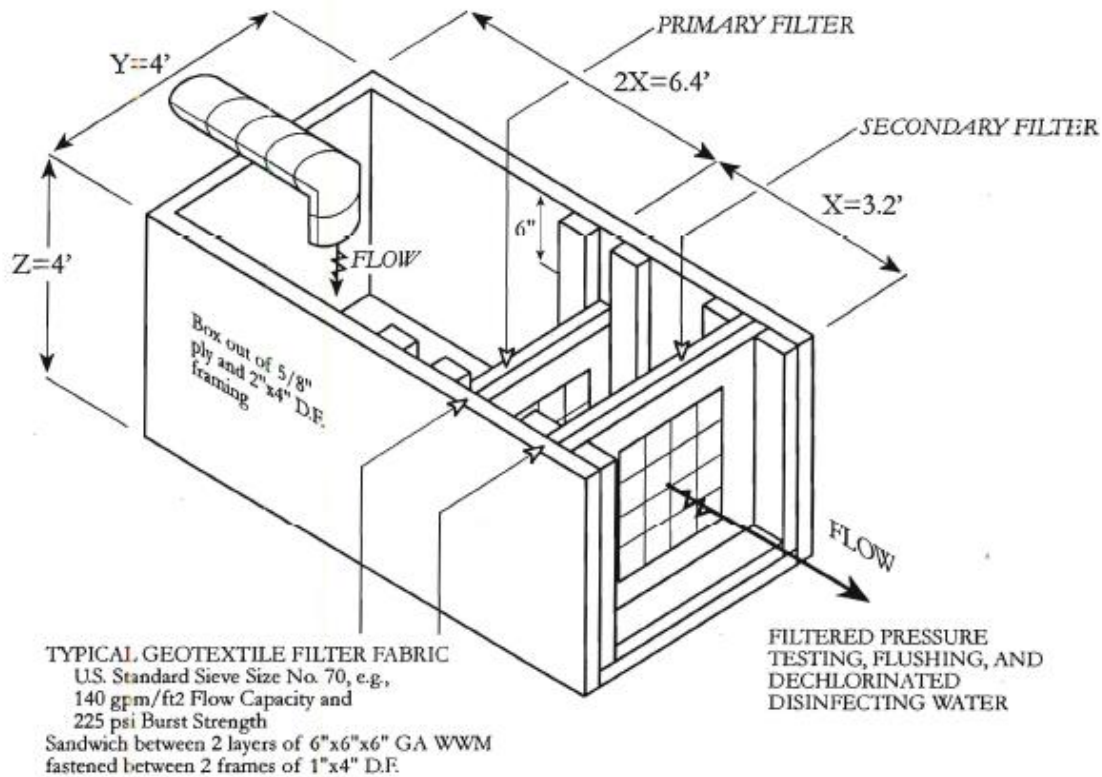


**Exhibit 3, Item F.5.a.
Hydrotesting Sequence
Kaipapa'u Stream Bridge Replacement
Hau'ula, Ko'olauloa District, O'ahu, Hawai'i**

R. M. TOWILL CORPORATION

No Scale

Attachment A, Exhibit 4, Item F.5.a. and F.9 – Filter Box



NOTES:

- 1) Minimum filter area shall equal two times the discharge flow rate divided by allowable geotextile fabric flow rate, or $(2 \times 600 \text{ gpm}) / 140 \text{ gpm/ft}^2 = 8.57 \text{ ft}^2$.
- 2) Proposed design assumes overall filter efficiency rate of approximately 50% due to clogging and degradation of performance, where the area of filter fabric required to achieve 100% = $8.57 \text{ ft}^2 \times 2 = 17.14 \text{ ft}^2$.
- 3) Proposed design provides storage of +2-minutes of retention or 1,197 gallons, where:
 $Z(4') \times Y(4') \times 2X(6.4') = 160 \text{ ft}^3$; and
 $160 \text{ ft}^3 \times 7.48 \text{ gallons/ft}^3 = 1,197 \text{ gallons}$.
- 4) X, Y, and Z dimensions, materials specifications, and product brand names, as applicable, may be subject to change based on requirements of the Board of Water Supply, City and County of Honolulu; and, State Department of Health, Clean Water Branch.
- 5) As required, two or more filter boxes shall be employed to accomplish hydrotesting.

Exhibit 4, Items F.5.a. and F.9
Filter System
Kaipapa'u Stream Bridge Replacement
Hau'ula, Ko'olauloa District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

No Scale