SSCBMP Plan Attachments

Attachment A - Project Site Maps, Construction Plans/Drawings, Flow Chart, BMP Location Maps, and BMP Details (SSCBMP Sections 1.9, 1.10, & 3.0)

List of Supporting Documents in Attachment A

A-1 Location, BMP and Selected Project Plans

A-2 BMP Details

A-3 Discharge Locations

A-4 Flow Chart

A-5 City and County and DOT Memorandum on Grading Permit Review

A-6 Flood Zones

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	1	41

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HONOLULU, HAWAII

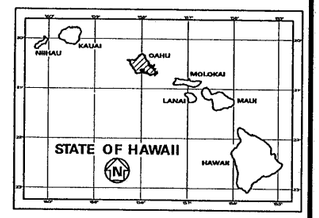
PLANS FOR

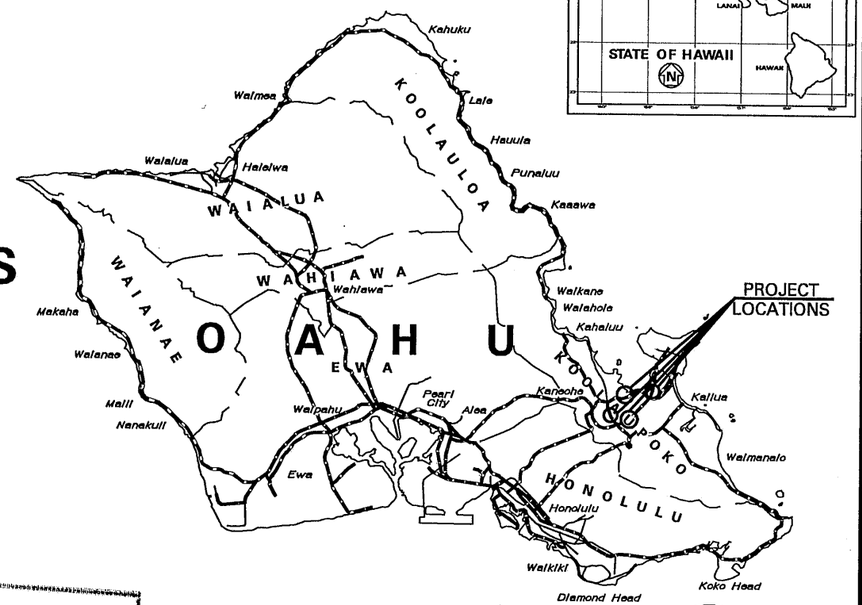
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-O-02-11

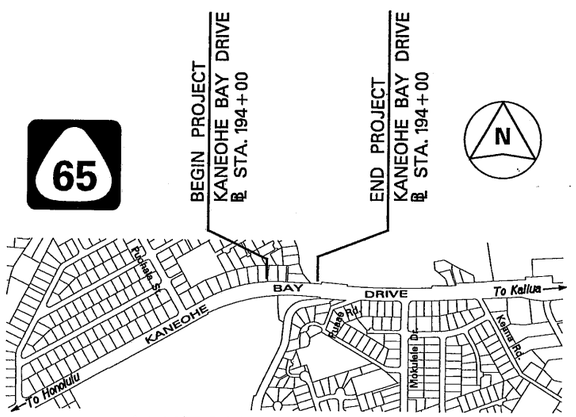
DISTRICT OF KOOLAUPOKO

ISLAND OF OAHU

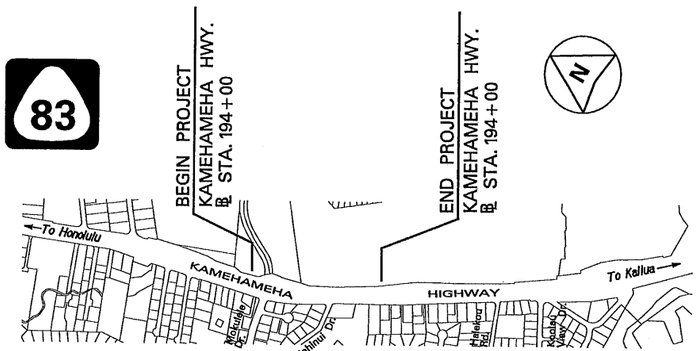




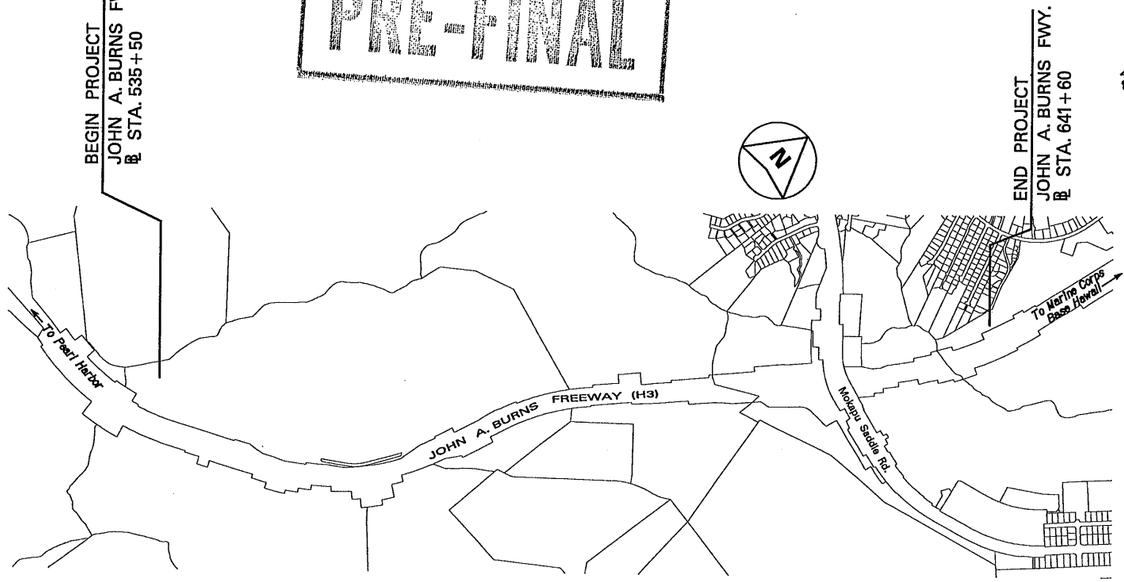
INDEX TO DRAWINGS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLANS SUMMARY
3	GENERAL NOTES, LEGEND, AND ABBREVIATIONS
4 – 7	UTILITY NOTES
8 – 9	WATER POLLUTION AND EROSION CONTROL NOTES
10 –11	BEST MANAGEMENT PRACTICE NOTES AND DETAILS
12	EROSION CONTROL PLAN – KAMEHAMEHA HIGHWAY
13	EROSION CONTROL PLAN – KANEOHE BAY DRIVE
14 – 15	TYPICAL BIOSWALE SECTION
16 –20	BIOSWALE PLANS – INTERSTATE ROUTE H-3
21 – 28	BIOSWALE PROFILE – INTERSTATE ROUTE H-3
29	BIOSWALE PLAN AND PROFILE – KAMEHAMEHA HIGHWAY
30	KAHEOHE BAY DRIVE BMP RETROFIT PLAN
31	KAHEOHE BAY DRIVE BMP RETROFIT SECTIONS
32	KAHEOHE BAY DRIVE BMP RETROFIT DETAILS
33 – 34	BIOSWALE DETAILS
35 – 41	TRAFFIC CONTROL PLANS



KANEOHE BAY DRIVE
LOCATION PLAN - SITE
Scale: NTS



KAMEHAMEHA HIGHWAY
LOCATION PLAN - SITE
Scale: NTS



JONH A. BURNS FREEWAY (H3)
LOCATION PLAN - SITE
Scale: NTS

PRE-FINAL

DEPARTMENT OF TRANSPORTATION STATE OF HAWAII	
APPROVED:	
DIR. OF TRANSPORTATION	DATE

PB AMERICAS, INC. — DESIGNED BY
HWY-DD — MANAGED BY
692-7570 — PHONE
FEB 2011 — DATE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	
NO.		

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	2	41

STANDARD PLAN NO.	TITLE	DATE
B-01	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
	CAN DETAILS	
B-12A	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
	SPLICE CAN DETAILS & NOTES	
B-12B	PILE INTERACTION DIAGRAM	05/31/07
B-13	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07

D-01	CATTLE GATE	05/31/07
D-02	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04	WIRE FENCE WITH METAL POSTS	05/31/07
D-05	TYPICAL DETAILS OF CURBS AND/OR GUTTERS	05/31/07
D-06	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08	STREET SURVEY MONUMENT	05/31/07
D-15	CONCRETE SIDEWALK	05/31/07
D-16	P.C.C. BUS PAD	05/31/07
D-17	P.C.C. BUS PAD	05/31/07
D-18	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23	JOINTS	05/31/07

L-01	TREE PLANTING	08/16/06
L-02	TREE PLANTING	08/16/06
L-03	TREE TRANSPLANTING	08/16/06
L-04	PALM PLANTING	08/16/06
L-05	SHRUB PLANTING	08/16/06
L-06	LANDSCAPE DETAILS	08/16/06
L-07	LANDSCAPE DETAILS	08/16/06
L-08	LANDSCAPE DETAILS	08/16/06
L-09	LANDSCAPE DETAILS	08/16/06
L-10	LANDSCAPE DETAILS	08/16/06
L-11	PLANTING NOTES	08/16/06
L-12	IRRIGATION DETAILS	08/16/06
L-13	IRRIGATION DETAILS	08/16/06
L-14	IRRIGATION DETAILS	08/16/06
L-15	IRRIGATION DETAILS	08/16/06
L-16	IRRIGATION DETAILS	08/16/06
L-17	IRRIGATION DETAILS	08/16/06
L-18	IRRIGATION DETAILS	08/16/06
L-19	IRRIGATION DETAILS	08/16/06
L-20	IRRIGATION DETAILS	08/16/06
L-21	IRRIGATION DETAILS	08/16/06
L-22	IRRIGATION DETAILS	08/16/06
L-23	IRRIGATION DETAILS	08/16/06
L-24	IRRIGATION NOTES	08/16/06

STANDARD PLAN NO.	TITLE	DATE
H-01A	TYPE A CATCH BASIN	05/31/07
H-01B	TYPE B CATCH BASIN	05/31/07
H-01C	TYPE C CATCH BASIN	05/31/07
H-01D	TYPE D CATCH BASIN	05/31/07
H-01E	CATCH BASIN SECTIONS	05/31/07
H-02A	TYPE A1 CATCH BASIN	05/31/07
H-02B	TYPE B2 CATCH BASIN	05/31/07
H-02C	TYPE C1 CATCH BASIN	05/31/07
H-02D	TYPE D1 CATCH BASIN	05/31/07
H-02E	CATCH BASIN SECTION	05/31/07
H-03	TYPE A,B, AND C STORM DRAIN MANHOLE	05/31/07
H-04	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-06	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	CATCH BASIN AND MANHOLE CASTINGS	05/31/07
H-08	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	TYPE A-9 AND A-9P STEEL GRATES	05/31/07
H-12	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL	05/31/07
	FRAME AND GRATES	
H-16	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME	05/31/07
	AND GRATES	
H-17	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	TYPE 61214P STEEL GRATES	05/31/07
H-19	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	INLET/OUTLET STRUCTURE	05/31/07
H-23	INLET/OUTLET STRUCTURE	05/31/07
H-24	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	CONCRETE SPILLWAY INLET	05/31/07
H-27	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07

TE-01 ●	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A ●	SIGN INSTALLATION	07/11/08
TE-02A ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C ●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A ●	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B ●	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04 ●	REGULATORY SIGNS	07/11/08
TE-05 ●	WARNING SIGNS	07/11/08
TE-06 ●	MISCELLANEOUS SIGNS	07/11/08
TE-07 ●	CONSTRUCTION SIGNS	07/11/08
TE-08 ●	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-09	BIKE ROUTE SIGN & SUPPLEMENTARY PLATES	07/11/08
TE-10	INTERSTATE ROUTE MARKER	07/11/08
TE-11	STATE ROUTE MARKER AND AUXILIARY MARKERS	07/11/08
TE-12	STATE ROUTE MARKER AND BORDER DETAIL FOR	07/11/08
	GUIDE SIGNS	
TE-12A	ROUTE SIGN ASSEMBLIES	07/11/08
TE-13	STREET NAME SIGN ON MAST ARM	07/11/08
TE-14	MISCELLANEOUS REFLECTOR MARKERS	07/11/08
TE-15	OBJECT MARKERS	07/11/08
TE-16	MILE POSTS	07/11/08
TE-17A	CANTILEVER OVERHEAD SIGN ELEVATION & DETAILS	05/31/07
TE-17B	CENTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	CENTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	CENTILEVER SIGN FRAME DETAILS	05/31/07
TE-18A	TWO POST OVERHEAD SIGN FRAME ELEVATIONS	05/31/07
TE-18B	TWO POST SIGN FRAMING PLAN SECTION	05/31/07
TE-18C	TWO POST SIGN FRAMING SECTIONS AND DETAILS	05/31/07
TE-18D	TWO POST SIGN FRAME DETAILS	05/31/07
TE-18E	TWO POST SIGN FRAME DETAILS	05/31/07
TE-19A	OVERHEAD SIGN FRAMING SCHEDULE	05/31/07
TE-19B	SIGN POST DRILLED SHAFT FOUNDATION	05/31/07
TE-19C	SPREAD FOOTING	05/31/07
TE-19D	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.1	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.2	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.3	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.4	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.5	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19E	ANCHORAGE DETAILS	05/31/07
TE-19F	ANCHORAGE DETAILS	05/31/07
TE-19G	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-19H	LUMINAIRE WALKWAY SUPPORT	05/31/07
TE-19J	FIXED MESSAGE LUMINAIRE SUPPORT	05/31/07
TE-19K	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19L	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19M	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-20	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20A	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20B	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20C	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-21A	SIGN BREAKAWAY MOUNTS	05/31/07
TE-21B	SIGN BREAKAWAY MOUNTS	05/31/07
TE-22	LAMINATED ALUMINUM SIGN PANELS (OVERHEAD)	05/31/07
TE-23	LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)	07/11/08
TE-24	SOLID ALUMINUM EXTRUDED SIGN PANEL AND	05/31/07
	ACCESSORY DETAILS	
TE-25	GUIDE SIGNS LUMINAIRE MOUNTINGS	05/31/07
TE-26	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-27	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-28	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A	MISCELLANEOUS PAVEMENT MARKINGS	07/11/08
TE-29	PAVEMENT ARROWS AND SYMBOLS	07/11/08
TE-30	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08
TE-31	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
TE-32	TYPE I & II TRAFFIC SIGNAL SYSTEM MISC. DETAILS	05/31/07
TE-33	TYPE II TRAFFIC SIGNAL SYSTEM	08/16/06
TE-33A.1	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-33A.2	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-34	LOOP DETECTOR DETAILS	07/11/08
TE-35	LOOP DETECTORS & DUCT DETAILS	07/11/08
TE-36	TRAFFIC SIGNAL DETAILS	07/11/08
TE-37	PULLBOX & COVER DETAILS	07/11/08
TE-37A	TYPE "A" TRAFFIC PULLBOX	05/31/07
TE-37B	TYPE "A" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37C	TYPE "B" TRAFFIC PULLBOX	05/31/07
TE-37D	TYPE "B" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37E	TYPE "B" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37F	TYPE "C" TRAFFIC PULLBOX	05/31/07
TE-37G	TYPE "C" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37H	TYPE "C" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37J	TRAFFIC PULLBOX COVER AND DETAILS	05/31/07
TE-38	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.1	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.2	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-39	METAL GUARDRAIL CONNECTION TO CONCRETE BARRIER	07/11/08
TE-40	CONCRETE BARRIER TRANSITION	05/31/07
TE-40A	CONCRETE BARRIER TRANSITION SECTIONS	05/31/07
TE-41	GUARDRAIL TYPE 4 (RIGID BARRIER)	05/31/07
TE-42	PORTABLE CONCRETE BARRIER	05/31/07
TE-43	PORTABLE CONCRETE BARRIER	05/31/07
TE-44	GUARDRAIL TYPE 4 MISCELLANEOUS DETAILS	07/11/08
TE-45	BARRICADES	07/11/08
TE-46	DELINEATION & PAVEMENT MARKINGS AT NARROW BRIDGES	07/11/08
TE-47	HIGHWAY LIGHT STANDARD	05/31/07

NOTE:
STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A " ● " NEXT TO THE STANDARD PLAN NO.
(FOR EXAMPLE: D-07 ●)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: None Date: March. 2012

SHEET No. G-1 OF 10 SHEETS

ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY ____ DATE ____ | DRAWN BY ____ | TRACED BY ____ | DESIGNED BY ____ | QUANTITIES BY ____ | CHECKED BY ____ | DATE ____

J:/16459A PPM/FWeaver_RentontoPopoi/Cadd/Sheets/stdplsumm8.dgn

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	3	41

GENERAL NOTES:

1. The scope of work for this project includes removal of concrete ditches, installation of infiltration bioswale trenches, installation of a hydrodynamic seperator, drain pipe installation, grading, planting, mulch, maintaining vegetation during plant establishment, erosion control BMP and provide traffic control.
2. The Contractor's attention is directed to the following Specification Sections of the Standard Specifications: Subsection 107.06 - Contractor Duty Regarding Public Convenience; Subsection 104.11 - Utilities and Services; and Section 645 - Work Zone Traffic Control.
3. At the end of each day's work, the Contractor shall remove all equipment and other obstruction to permit free and safe passage of public traffic.
4. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
5. The Contractor shall verify the presence of existing aerial and underground utilities which may conflict with construction activities and shall coordinate with the utility company for temporary relocation, as necessary. All costs associated with temporary relocations shall be borne by the Contractor.
6. The Contractor shall provide for vehicle and pedestrian access to and from all existing side streets at all times.
7. Existing drainage system shall be kept functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.
8. Existing concrete structures, such as manholes, culverts, channels, etc., which are designated to be removed or are in conflict with proposed construction shall be removed to a depth of not less than 3 feet below finish grade in roadway and not less than 1.5 feet below finish grade in other areas.
9. Existing pavement within 6 inches of the finish grade in areas to be grassed shall be removed. All other existing pavement which will not be overlaid with new A.C. pavement shall be rooted, plowed, pulverized, or scarified to a minimum depth of 6 inches.
10. Existing facilities and/or pavement to remain which has been damaged by the Contractor shall be restored to its original condition at no cost to the State.
11. All regraded areas and all grassed areas damaged by construction activities shall be planted in accordance with Specifications Section 619 - Planting. Contractor shall restore to its original condition at no cost to the State.
12. When excavating in close proximity to walls, fences, and other improvements, the Contractor shall protect, support, secure, and take all precautions to prevent damaging these facilities and improvements.
13. The Contractor shall verify the locations and elevations of all existing utility lines and notify respective owners before commencing any excavation work.
14. No material or equipment shall be stockpiled or otherwise stored within highway right-of-way except at locations designated in writing and approved by the Engineer.
15. Contractor shall dispose of any removed material at no cost to the State.
16. The Contractor shall be held liable for any damages incurred to the existing landscaping as a result of his operations.
17. After the project is completed, the Contractor shall restore grades and groundcover within the project limits to a condition equal or better than existing condition prior to construction.
18. All existing utilities, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. The Contractor shall be held liable for any damages incurred to the existing utilities as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the State.
19. All work specified in the contract but not listed separately in the proposal schedule shall be considered incidental to other various contract items and shall not be paid for separately.

ABBREVIATIONS:

Abut.	Abutment
AC, ac	Asphalt Concrete
℄	Baseline
Bot.	Bottom
CL	Chain Link
Conc.	Concrete
CCP	Corrugated Polyethylene Pipe
Elev	Elevation
es	Existing Edge of Shoulder
etw	Existing Edge of Travel Way
EA.	Each
EB	Eastbound
ftg.	Footing
G.W.	Guy Wire
M.L.	Matchline
ST. MON.	Street Monument
NTS	Not to Scale
o.c.	On Center
O/H	Overhead
PC	Point of Curvature
PCC	Point of Compound Curve (for Alignment)
PE	Polyethylene
PI	Point on Intersection
POC	Point on Curvature
POT	Point on Tangent
PPWP	Polyvinyl Chloride Profile Wall Pipe
PT	Point of Tangency
R	Radius
R/W	Right-of-Way
SFM	Sewer Force Main
sl	Street Light
SLB	Street Light Box
STA	Station along ℄
t	Telephone
TCP	Traffic Control Plan
TRM	Turf Reinforcement Mat
UG	Underground
U.P.	Utility Pole
w	Water
WQV	Water Quality Volume

LEGEND:

Existing

- Chain Link Fence
- 200 Contour
- Denotes No Access Permitted, Right-of-Way
- d30 Drain Pipe
- Grated Drop Inlet
- Guardrail, Type 3
- Slope
- Street Light
- Trees
- sl Utility

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	
NO.		

T:/16523A-Permanent_BMP/Cadd/Sheets/Misc/notes1.dgn

GERALD D. ANDRADE * LICENSED PROFESSIONAL ENGINEER No. 10377-C * HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/12 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES, LEGEND AND ABBREVIATIONS

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: None Date: March. 2012

SHEET No. G-2 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	8	41

WATER POLLUTION AND EROSION CONTROL NOTES: (CONT.)

A. GENERAL:

1. See Section 209 - Temporary Water Pollution, Dust, and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment.

2. Effective October 1, 2008, follow the guidelines in the "Construction Best Management Practices Field Manual", dated January 2008 in developing, installing and maintainingthe Best Management Practices (BMP) for the project.

3. Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.

4. The Engineer may assess liquidated damages of up to $27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.

5. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.

6. For projects that require an NPDES Permit from the Department of Health, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall, and have an opening of at least one-inch in diameter. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.

B. WASTE DISPOSAL:

1. Waste Materials
Collect and store all waste materials in a securely lidded metal dumpster. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster a minimum of twice per week or as often as is deemed necessary. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.

2. Hazardous Waste
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.

3. Sanitary Waste
Collect all sanitary waste from the portable units a minimum of once per week, or as required.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. Inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.5 inches or greater within a 24 hour period.

2. Maintain all measures in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.

WATER POLLUTION AND EROSION CONTROL NOTES: (CONT.)

3. Remove built-up sediment from silt fence when it has reached one-third the height of the fence.

4. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab, and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.

5. Inspect temporary and permanent seeding and planting for bare spots, washouts, and healthy growth.

6. Make a maintenance inspection report promptly after each inspection. Submit a copy to the Engineer no later than one week from the date of the inspection.

7. Provide a stabilized construction entrance to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold planed materials, dirt, or rock tracked from the site. Cover dump trucks hauling material from the construction site with a tarpaulin.

8. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

9. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

10. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

11. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Payment for confinement, removal, and disposal of slurry shall be considered incidental to the various contract items.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Studs	Wood
Tar	Masonry Block

b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.

c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.

d. Keep products in their original containers with the original manufacturer's label.

WATER POLLUTION AND EROSION CONTROL NOTES: (CONT.)

e. Do not mix substances with one another unless recommended by the manufacturer.

f. Whenever possible, use a product up completely before disposing of the container.

g. Follow manufacturer's recommendations for proper use and disposal.

h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan

a. Keep products in original containers unless they are not resealable.

b. Retain original labels and material safety data sheets (MSDS).

c. Dispose of surplus products according to manufacturer's instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan

The following product specific practices shall be followed onsite:

a. Petroleum Based Products:
Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.

b. Fertilizers:
Apply fertilizers used only in the minimum amounts recommended by the manufacturer. Once applied, work fertilizer into the soil to limit exposure to storm water. Storage shall be in a covered shed. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

c. Paints:
Seal and store all containers when not required for use. Do not discharge excess paint to the highway drainage system. Dispose properly according to manufacturer's instructions or State and local regulations.

d. Concrete Trucks:
Wash out or discharge concrete truck drum wash water only at a designated site. Do not discharge water in the highway drainage system or waters of the United States. Contact Drinking Water Branch, Department of Health at 586-4258 to receive permission to designate a disposal site. Clean disposal site as required or as requested by the Owner's representative.

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

J:/16459A PPM/FWeaver_RentontoPopol/Cadd/Sheets/YdPollution Control Notes 01 07-09-09.dgn

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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WATER POLLUTION AND EROSION CONTROL NOTES - 1

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

Scale: None Date: March. 2012

SHEET No. G-7 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	9	41

WATER POLLUTION AND EROSION CONTROL NOTES (CONT.):

4. Spill Control Plan
   a. Post a spill prevention plan to include measures to prevent and clean up each spill.

   b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area and in the office trailer onsite.

   c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.

   d. Keep materials and equipment necessary for spill cleanup in the material storage area onsite.

   e. Clean up all spills immediately after discovery.

   f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

   g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size.

E. PERMIT REQUIREMENTS:

1. If a National Pollutant Discharge Elimination System (NPDES) Permit is required for Construction Activities of one acre or more, submit to the Engineer six sets of the Water Pollution and Erosion Control Submittals as detailed in Subsection 209.03 of the specifications.

2. If an NPDES Permit for Construction Dewatering is required, the Contractor shall be responsible to obtain the Permit from the Department of Health, Clean Water Branch.

3. Comply with all applicable State and Federal Permit conditions. Permits may include but are not limited to the following.

   a. NPDES Permit for Construction Activities*

   * The area of disturbed ground for the project includes a one-quarter acre staging area to be located by the Contractor. Should the Contractor require additional space in excess of one-quarter acre, an NPDES Permit for Construction Activities may be required. If required, the Contractor shall be responsible for obtaining the Permit from the Department of Health, Clean Water Branch, and shall bear all associated fees. The Contractor will not be granted a time extension should an NPDES Permit be required.

ORIGINAL PLAN
NOTE BOOK
No. _____
SURVEY PLOTTED BY _____ DATE
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TRACED BY _____ .
DESIGNED BY _____ .
QUANTITIES BY _____ .
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J:/16459A PPM/FWeaver_RentontoPool/Cadd/Sheets/16Pollution Control Notes 02 07-09-03.dgn

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WATER POLLUTION AND EROSION CONTROL NOTES - 2

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: None Date: March. 2012

SHEET No. G-8 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	10	41

BEST MANAGEMENT PRACTICE NOTES:

The following special conditions apply to all land disturbance work conducted under this general permit:

a) Construction Management Techniques

(1) Clearing and grubbing shall be held to the minimum necessary for grading and equipment operation.

(2) Construction shall be sequenced to minimize the exposure time of the cleared surface area.

(3) Construction shall be staged or phased for large projects. Areas of one phase shall be stabilized before another phase is initiated. Stabilization shall be accomplished by temporarily or permanently protecting the disturbed soil surface from rainfall impacts and runoff.

(4) All control measures shall be checked and repaired as necessary, for example, weekly in dry periods and within twenty-four hours after any rainfall of 0.5 inches or greater within a 24-hour period. During prolonged rainfall, daily checking is necessary. The permittee shall maintain records of checks and repairs.

(5) The permittee shall maintain records of the duration and estimated volume of storm water discharge(s).

(6) The Contractor shall designate a specific individual to be responsible for erosion and sediment controls on each project site.

b) Vegetation Controls

(1) Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than twenty calendar days prior to land disturbance.

(2) Temporary soil stabilization with appropriate vegetation shall be applied on areas that will remain unfinished for more than thirty calendar days.

(3) Permanent soil stabilization with perennial vegetation or pavement shall be applied as soon as practical after final grading. Irrigation and maintenance of the perennial vegetation shall be provided for thirty calendar days or until the vegetation takes root, whichever is shorter.

c) Structural Controls

(1) Storm water flowing toward the construction area shall be diverted by using appropriate control measures, as practical.

(2) Erosion control measures shall be designed according to the size of disturbed or drainage areas to detain runoff and trap sediment.

(3) Water must be discharged in a manner that the discharge shall not cause or contribute to a violation of the basic water quality criteria as specified in section 11-54-04.

d) Grading Controls

(1) All grading work will be done in conformance with Soil Erosion Standards and Guidelines, Department of Public Works, City & County of Honolulu, dated November 1975; and applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, Title 11, Administrative Rules of the State Department of Health.

e) Erosion and Sediment Controls

(1) Erosion and sediment controls will consist of silt fences, storm drain inlet protective measures, stabilized construction entrances and any additional control measures (temporary dikes, sandbags, etc.) as needed. Erosion and sediment controls will be in place until construction is complete. Locations of erosion and sediment controls will be determined on an "as needed basis" as determined by a "walk through" of the project area with the State's project engineer and the Contractor's representative. Approximate locations of erosion and sediment controls are shown on the plans.

BEST MANAGEMENT PRACTICE NOTES: (CONT.)

(2) Silt fences will be installed along the edges of open channels, ditches, and bottom of new and existing slopes to filter sediment from runoff before runoff enters the stream, channels, and/or ditches.

(3) Storm drain inlet protective measures will be installed around existing and new drain inlets to prevent sediment from entering the storm drain system.

(4) Dust mitigation measures include:

(1) Daily watering of disturbed areas until construction is complete.

(2) Placing gravel where vehicles travel to minimize dust should daily watering not be sufficient.

ORIGINAL PLAN
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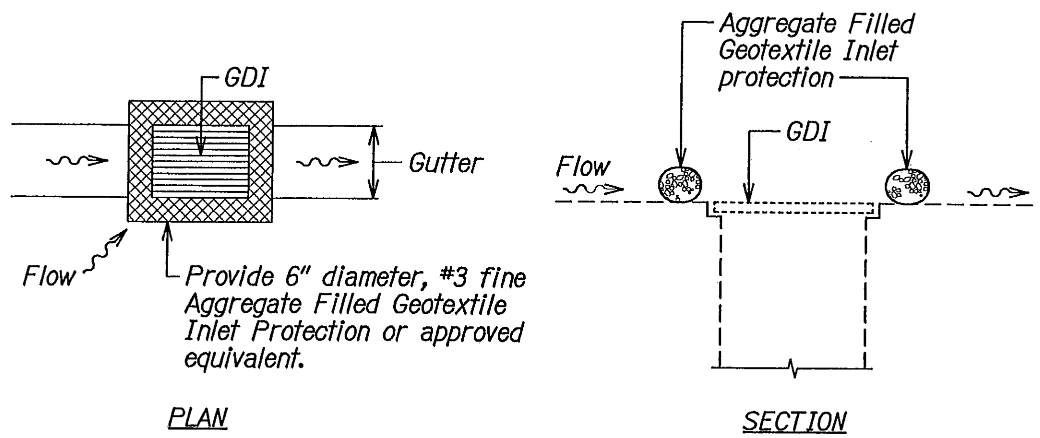
BEST MANAGEMENT PRACTICE NOTES

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: None Date: March. 2012

SHEET No. G-9 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	11	41



INLET PROTECTION AT GRATED DROP INTAKE (GDI)

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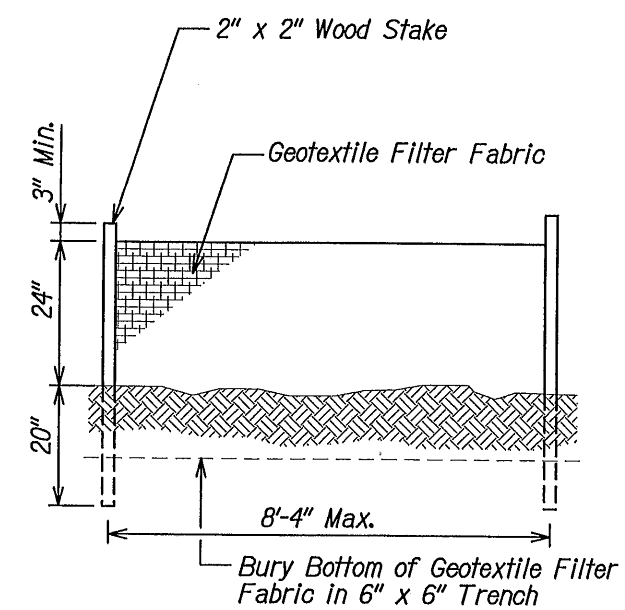

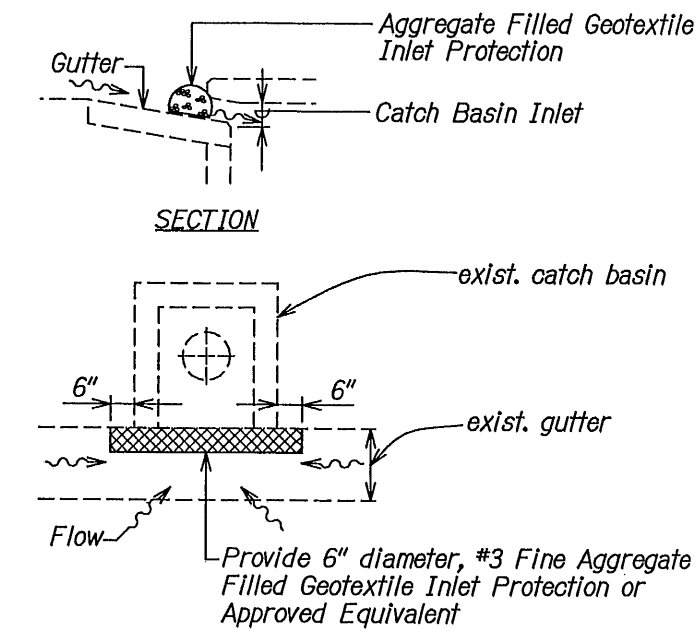

INLET PROTECTION AT EXISTING CATCH BASIN

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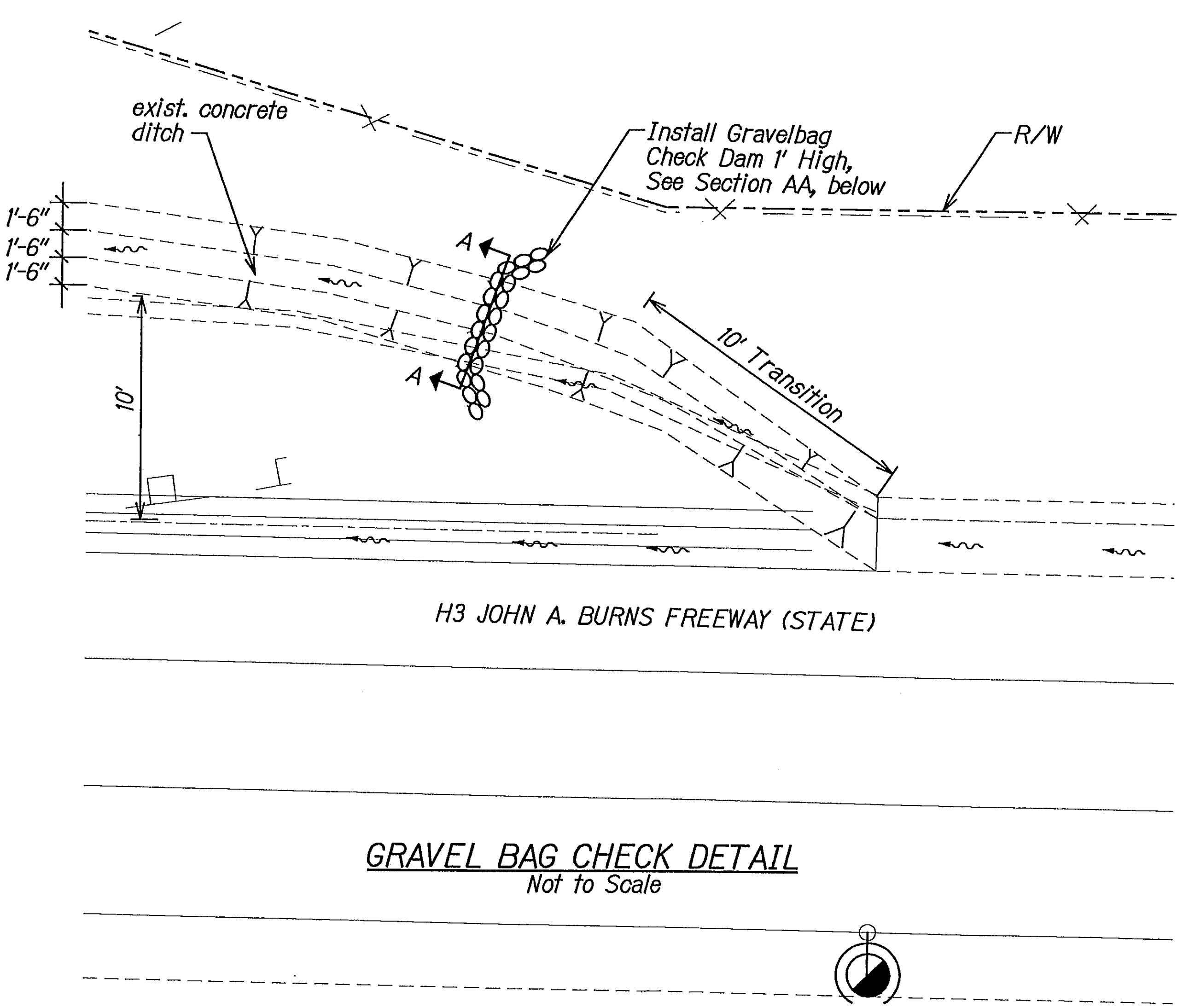

GRAVEL BAG CHECK DETAIL

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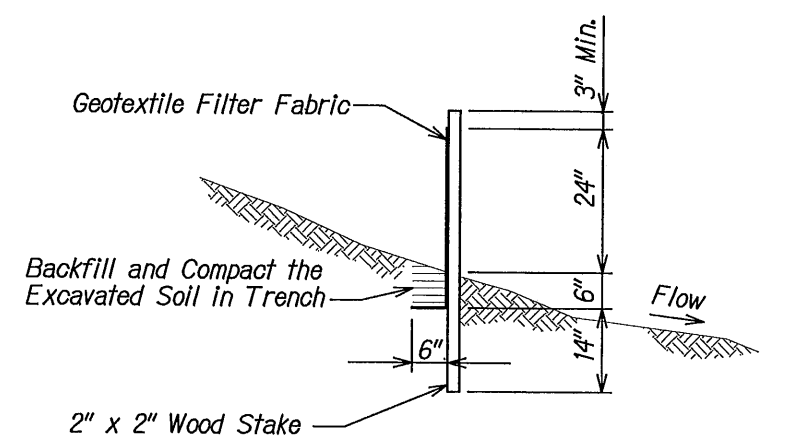

SILT FENCE NOTES:

1. The filter fabric shall be a minimum of 36 inches wide.
2. If silt fence is obtained from manufacturer as a package (i.e. fabric attached to post) the manufacturer's installation instructions shall be adhered to.

SILT FENCE DETAIL

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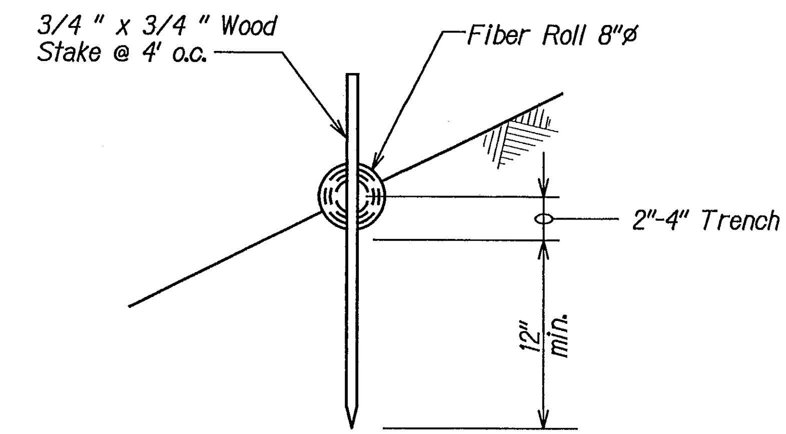

FIBER ROLL DETAIL

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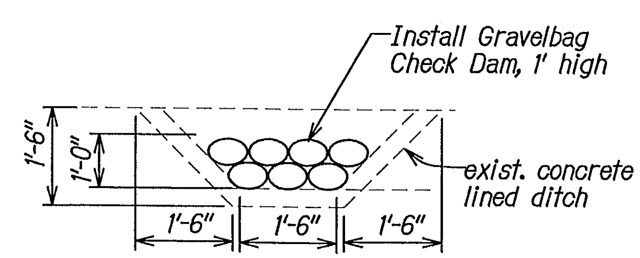

SECTION A-A

Not to Scale

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BEST MANAGEMENT PRACTICE DETAILS

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: Not to Scale Date: March. 2012

SHEET No. G-10 OF 10 SHEETS

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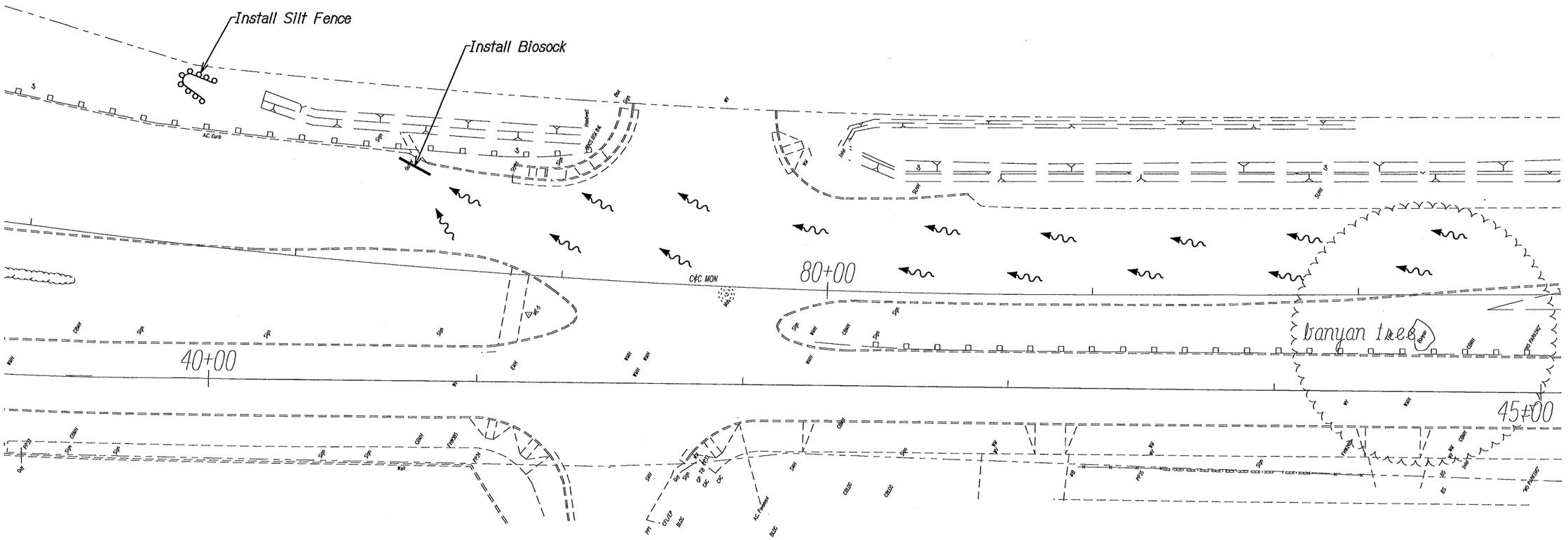
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	12	41

TRUE NORTH
Scale : 1" = 20'



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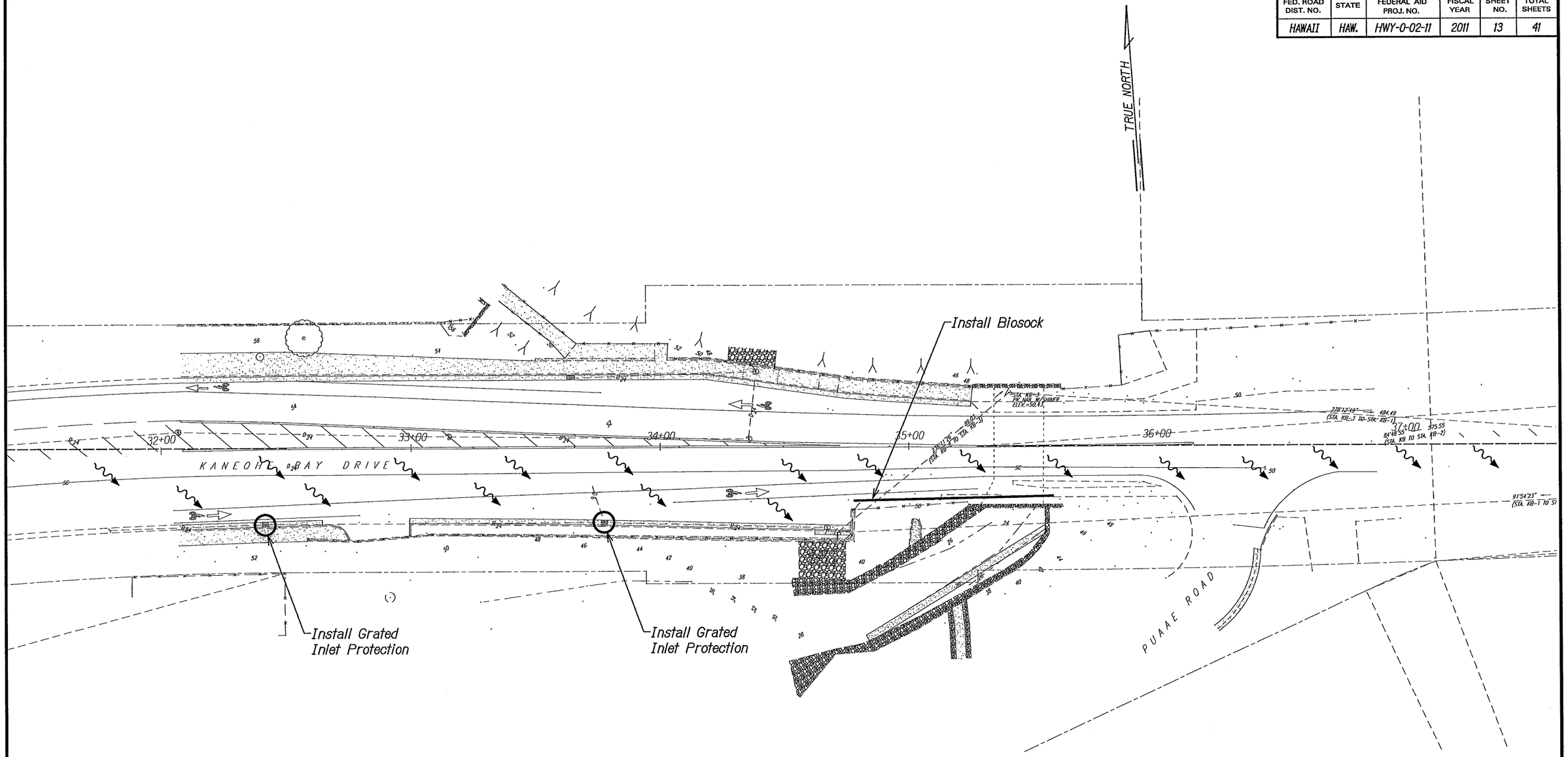
EROSION CONTROL PLAN
KAMEHAMEHA HIGHWAY
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: 1"=20' Date: March. 2012

SHEET No. C-1 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	13	41



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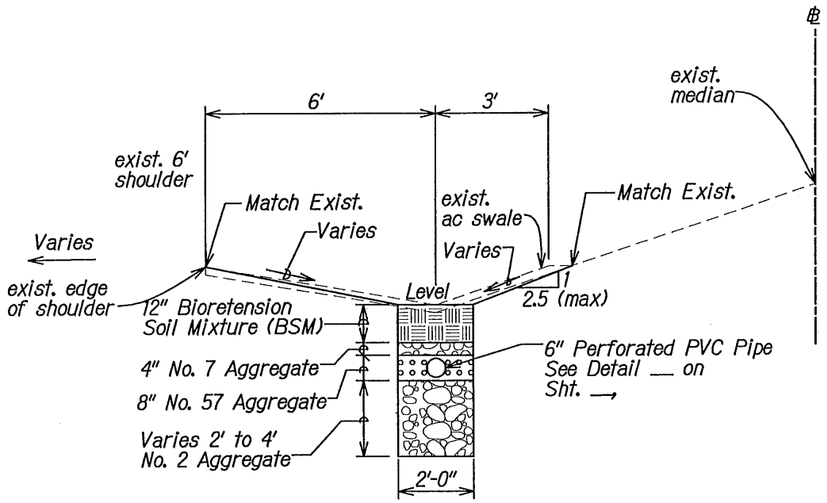
EROSION CONTROL PLAN
KANEOHE BAY DRIVE
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: 1"=20' Date: March. 2012

SHEET No. C-2 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	14	41



TYPICAL SECTION BIOSWALES A, B, C, D, F, G, H, I

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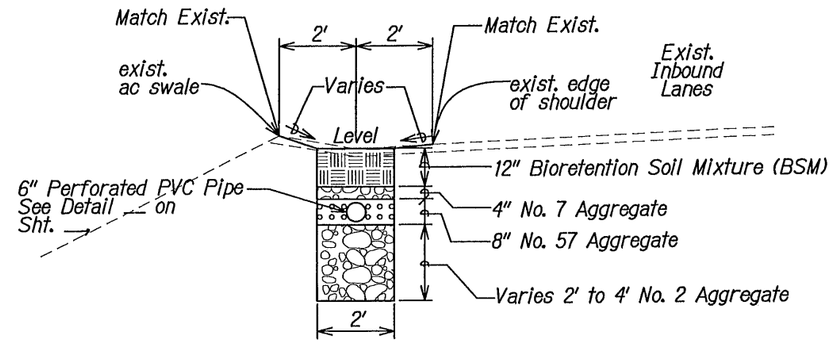

TYPICAL SECTION BIOSWALES E, O

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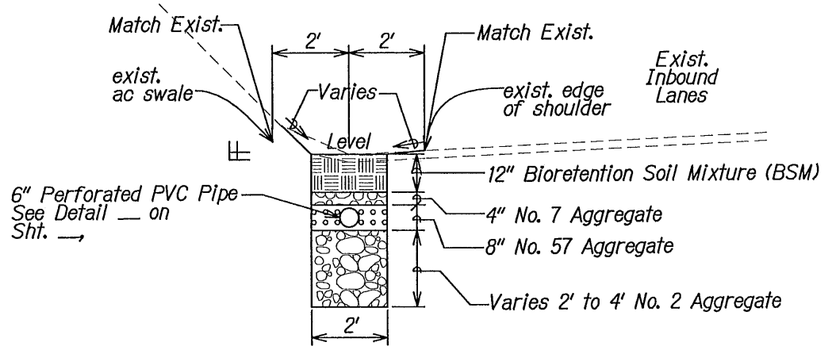

TYPICAL SECTION BIOSWALE Q

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BIOSWALE TYPICAL SECTION-1

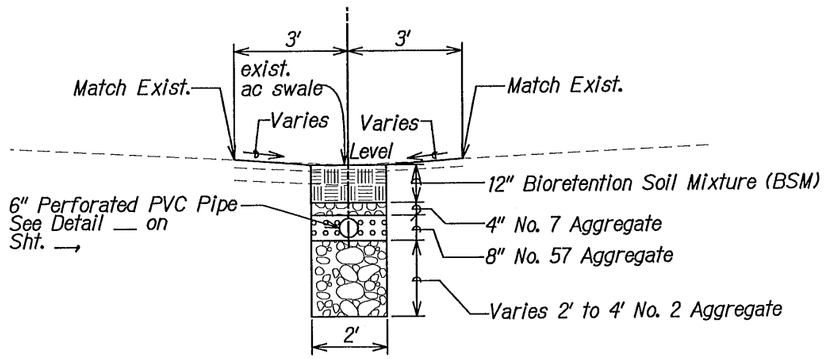
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

Scale: ½"=1'-0" Date: March. 2012

SHEET No. C-3 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	15	41



TYPICAL SECTION BIOSWALES J, M, N, P

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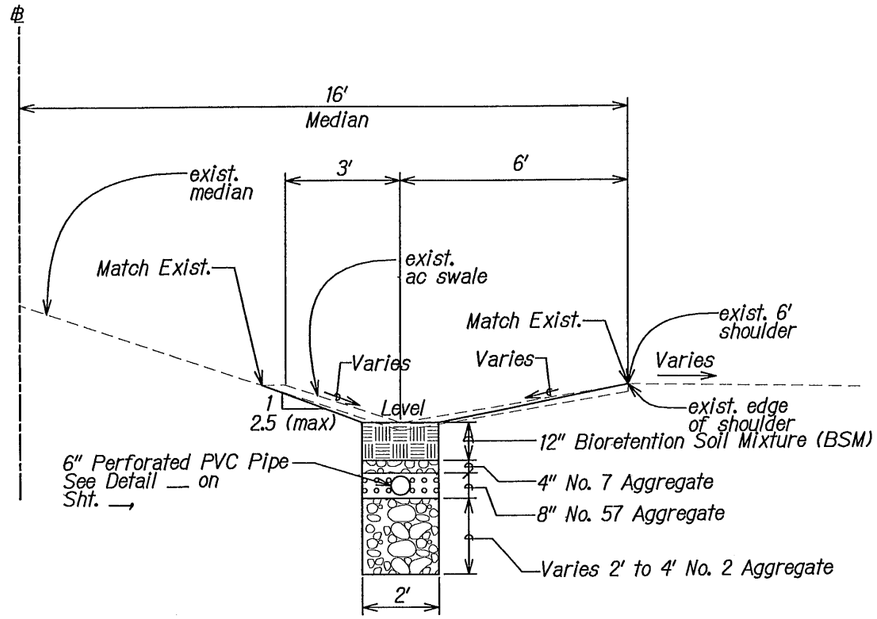

TYPICAL SECTION BIOSWALES K, L

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ORIGINAL PLAN

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STATE OF HAWAII
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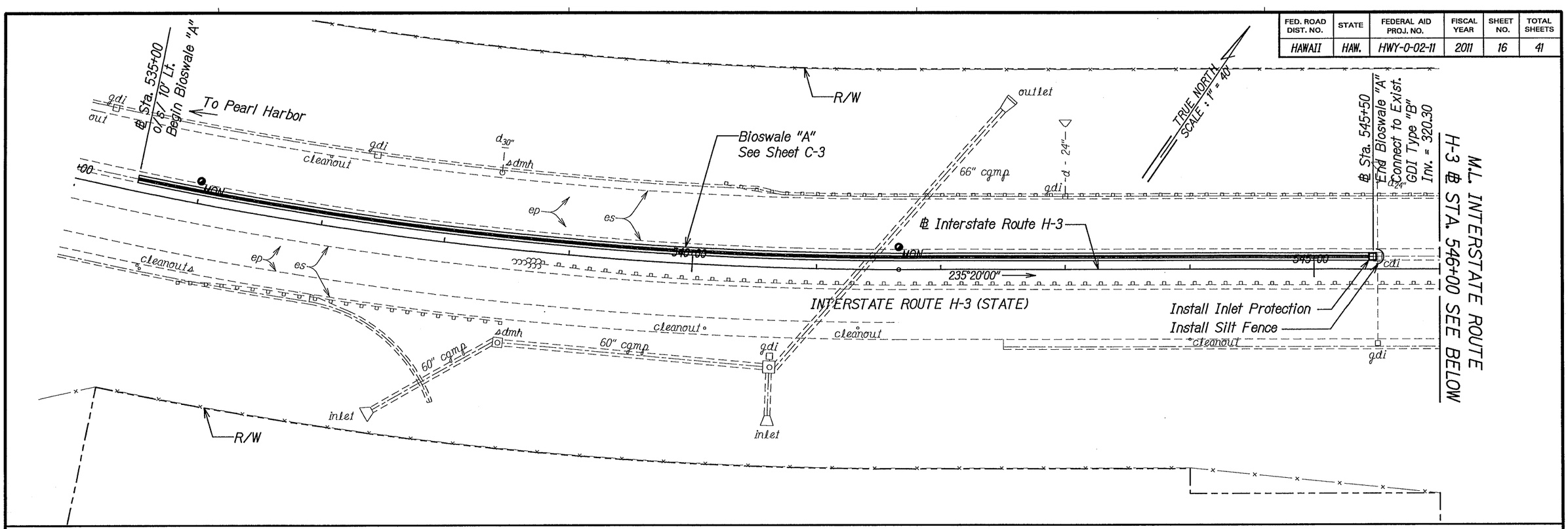
HIGHWAYS DIVISION

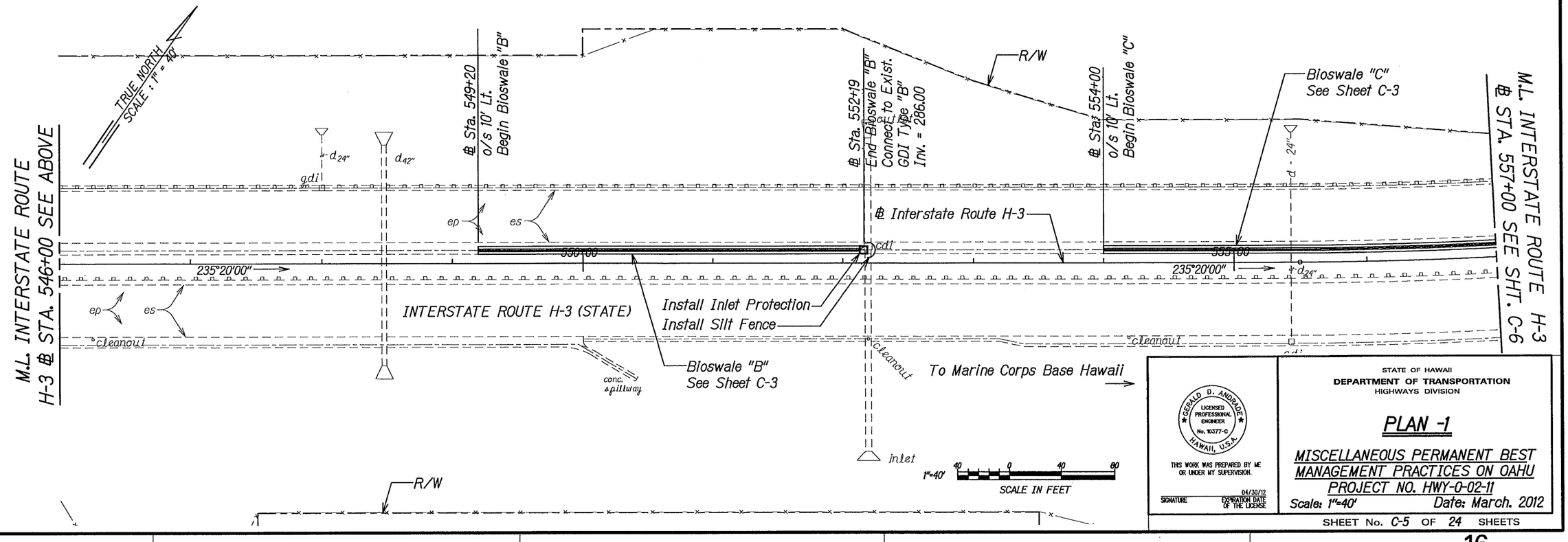
BIOSWALE
TYPICAL SECTION-2
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: 1/2"=1'-0" Date: March. 2012

SHEET No. C-4 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	16	41





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HIGHWAYS DIVISION

PLAN -1

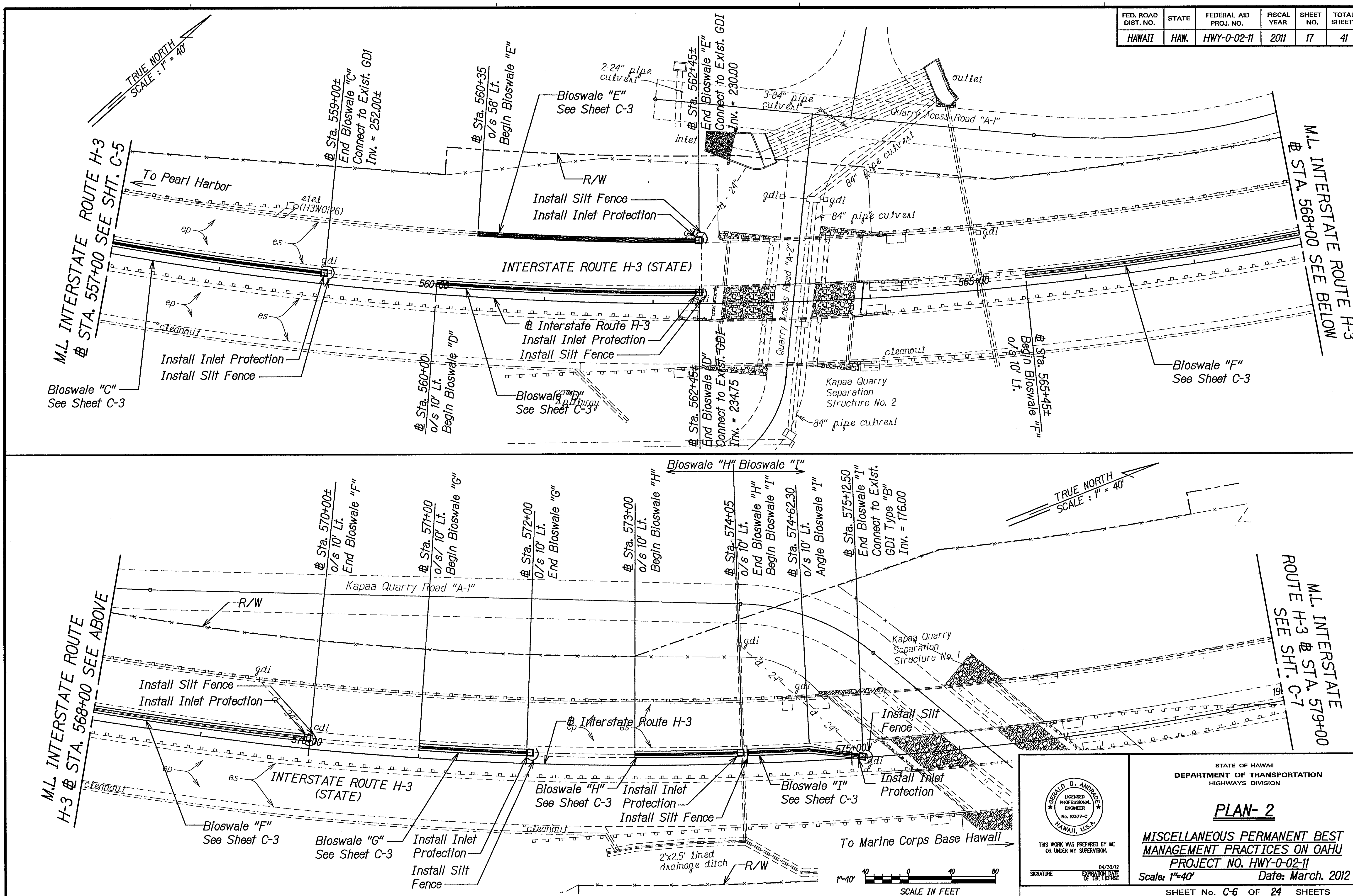
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

Scale: 1"=40' Date: March. 2012

SHEET No. C-5 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	17	41



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No. 10377-C
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN- 2

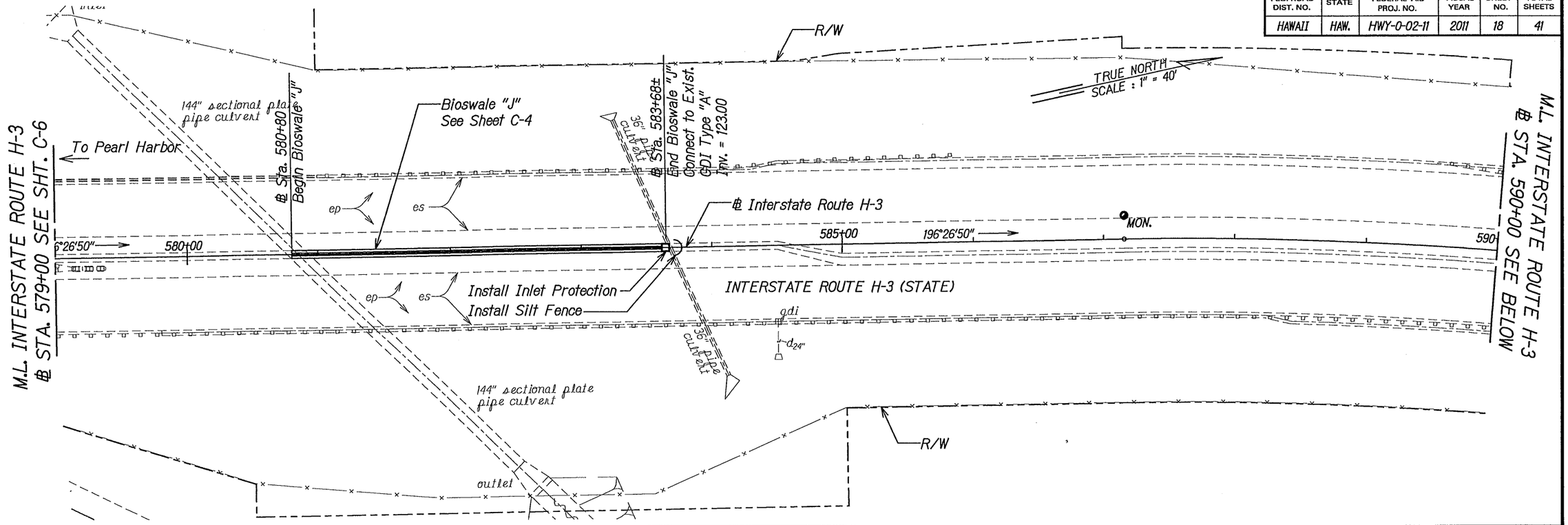
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

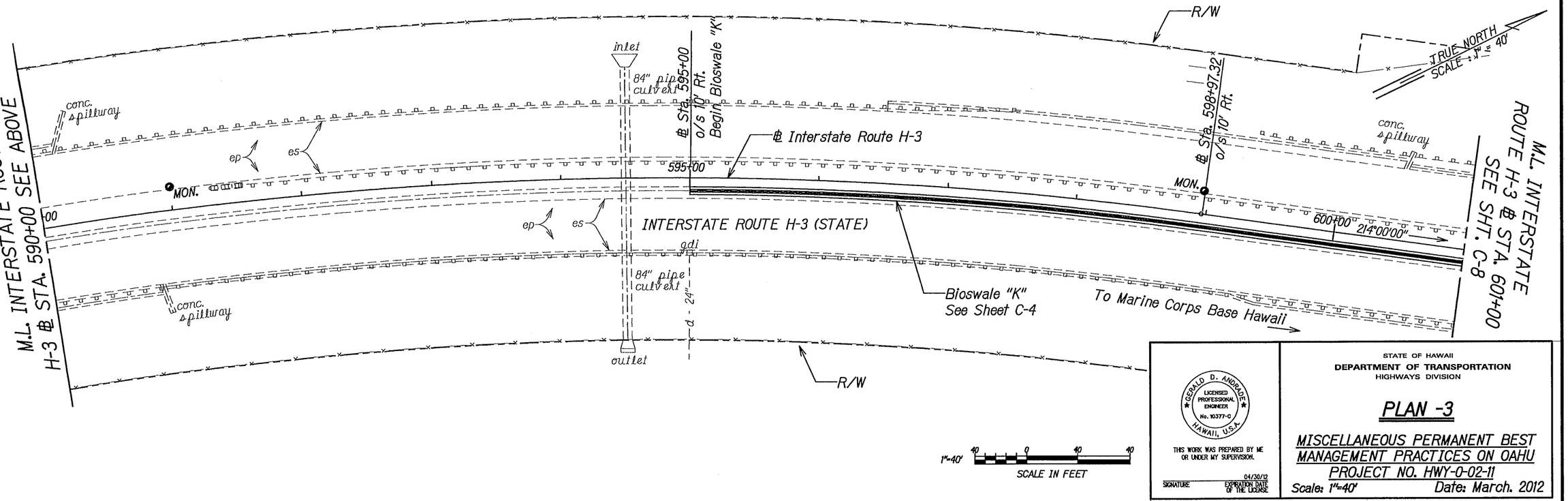
Scale: 1"=40' Date: March. 2012

SHEET No. C-6 OF 24 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	18	41





ORIGINAL PLAN
GRADE PLOTTED BY : DATE
DRAWN BY :
TRACED BY :
NOTE BOOK DESIGNED BY :
QUANTITIES BY :
CHECKED BY :
No.

1"=40' 40 0 40 80
SCALE IN FEET

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

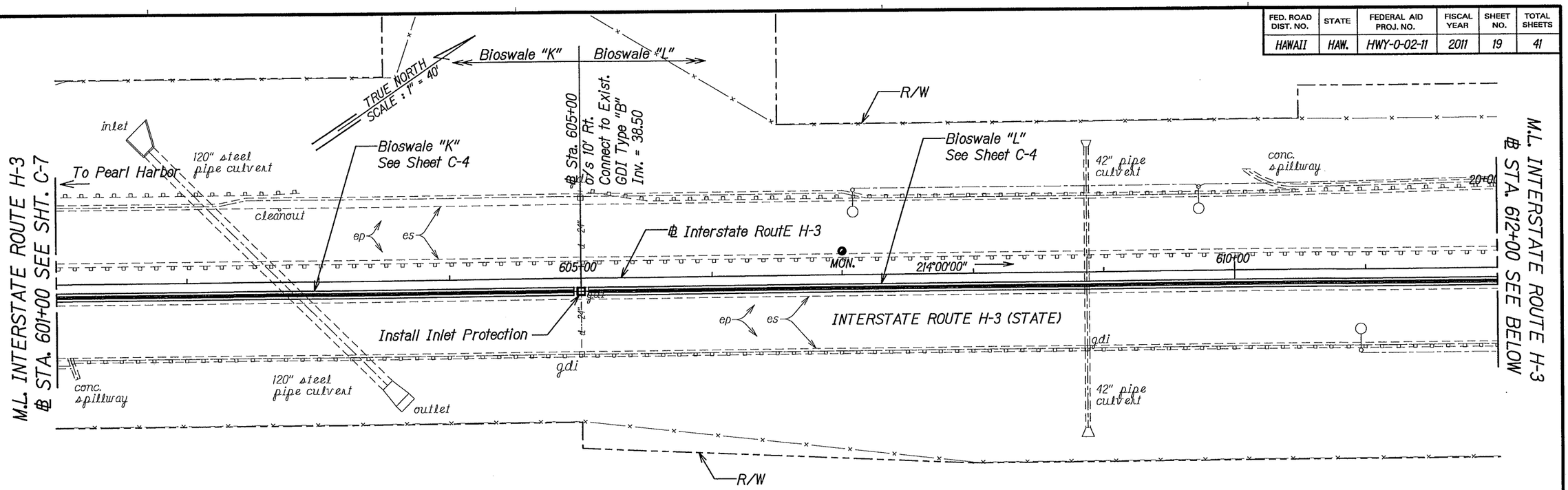
PLAN -3

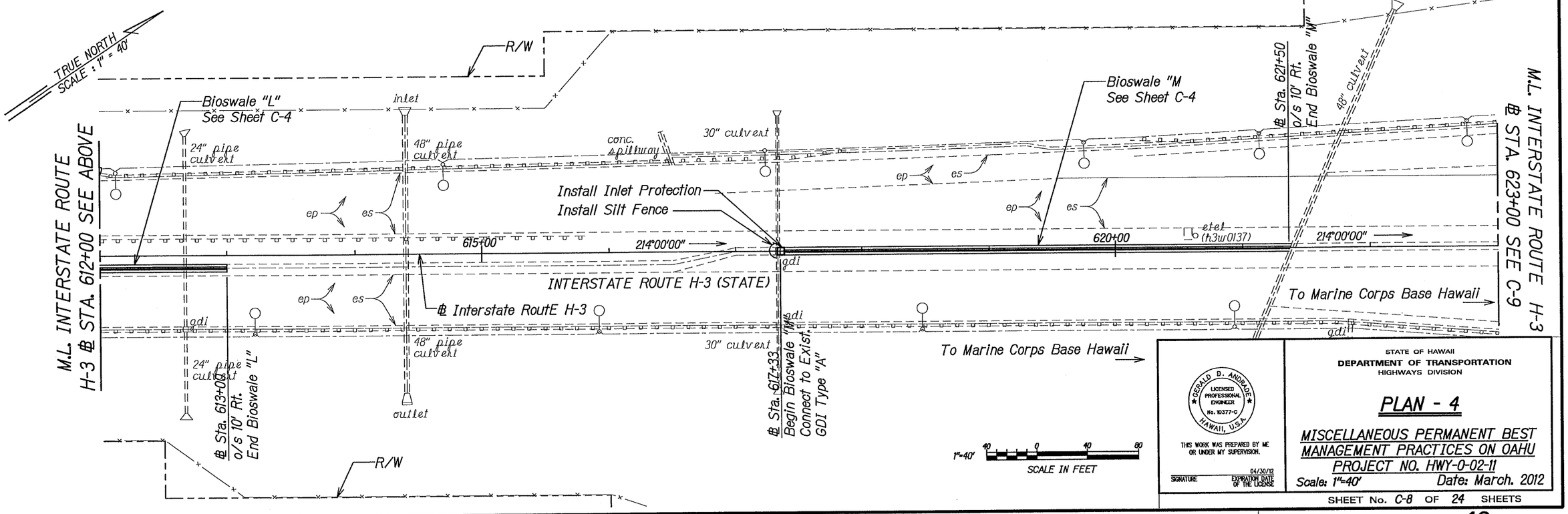
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: 1"=40' Date: March. 2012

SHEET No. C-7 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	19	41





ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
DRAWN BY
TRACED BY
NOTE BOOK DESIGNED BY
QUANTITIES BY
CHECKED BY
No.

1"=40' 40 0 40 80
SCALE IN FEET

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STATE OF HAWAII
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PLAN - 4

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: 1"=40' Date: March. 2012

SHEET No. C-8 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	20	41

TRUE NORTH
SCALE : 1" = 40'

M.L. INTERSTATE ROUTE H-3
℄ STA. 623+00 SEE SHT. C-8

conc. spillway
To Pearl Harbor

36" culvert

5+00

SLPB

℄ Interstate Route H-3

625+00

MON.

214°00'00"

630+00

INTERSTATE ROUTE H-3 (STATE)

36" culvert

sign lighting luminaire

Bioswale "O"
See Sheet C-3

℄ Sta. 633+11
o/s 62' Lt.
End Bioswale "O"

℄ Sta. 633+75.51
o/s 62' Lt.
Angle Bioswale "O"

Install Silt Fence

Install Inlet Protection

Kailua Interchange Structure

635+00

214°00'00"

Bioswale "N"
See Sheet C-4

℄ Sta. 633+18.49
o/s 10' Rt.
End Bioswale "N"

℄ Sta. 633+80
o/s 10' Rt.
End Bioswale "N"

M.L. INTERSTATE ROUTE H-3
℄ STA. 634+00 SEE BELOW

R/W

Bioswale "O"
See Sheet C-3

℄ Sta. 636+28.23
o/s 62' Lt.
End Bioswale "O"

30" pipe culvert

℄ Sta. 637+05.00
o/s 62' Lt.
Begin Bioswale "Q"

42" pipe culvert

Bioswale "Q"
See Sheet C-3

℄ Sta. 642+00
o/s 62' Rt.
End Bioswale "Q"

TRUE NORTH
SCALE : 1" = 40'

Install Gravel Bag

℄ Interstate Route H-3

635+00

214°00'00"

MON.

640+00

Install Silt Fence

Install Inlet Protection

INTERSTATE ROUTE H-3 (STATE)

To Marine Corps Base Hawaii

M.L. INTERSTATE ROUTE
H-3 ℄ STA. 634+00 SEE ABOVE

℄ Sta. 634+92.56
Begin Bioswale "P"
Connect to Exist.
GDI Type "A"

Bioswale "P"
See Sheet C-4

42" pipe culvert

℄ Sta. 637+40'
o/s 0' Rt.
End Bioswale "P"

R/W

1"=40'

SCALE IN FEET

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN - 5

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

Scale: 1"=40' Date: March. 2012

SHEET No. C-9 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	29	41

Hawaiian Memorial Park Cemetary

℄ Sta. 77+81.91 o/s 56.85' Lt.

℄ Sta. 78+02.24 o/s 52.43' Lt.

℄ Sta. 78+68.88 o/s 53.36' Lt.

℄ Sta. 78+98.48 o/s 53.66' Lt.

Bioswale Outlet Type 1

R/W

℄ Bioswale "R"

Berms 25' o.c. Typ.

A.C. Curb

(Private)

Box

Headwall

TRUE NORTH
SCALE : 1" = 10'

To Kaneohe

Kamehameha Highway
North Bound Lane (State)

℄ Kamehameha Highway North Bound Lane

78+00

79+00

C℄C MON

N 13°00' 00" E 74.00'

PLAN - KAMEHAMEHA HWY - BIOSWALE "R"

Scale: 1"=10'

exist. inv. concrete ditch

Inv. Bioswale "R"

Inv. 266.31±

Inv. 266.25

exist. headwall

exist. 30" culvert

5' clr.

Inv. 261.8±

exist. swale

6" PPWL

Bioswale Outlet Type 1

3'

Level

Level

Level

261.81

259.81 6" Pipe

257.81

259.77 6" Pipe

257.81

259.81

257.81

261.81

259.81

PROFILE - BIOSWALE "R"

Scale: 1"=10'

GRAPHIC SCALE

HORIZ: 1"=10' 10' 5' 0 10' 20'

VERT: 1"=2' 2' 1' 0 2' 4'

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ORIGINAL PLAN

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DRAFT BY
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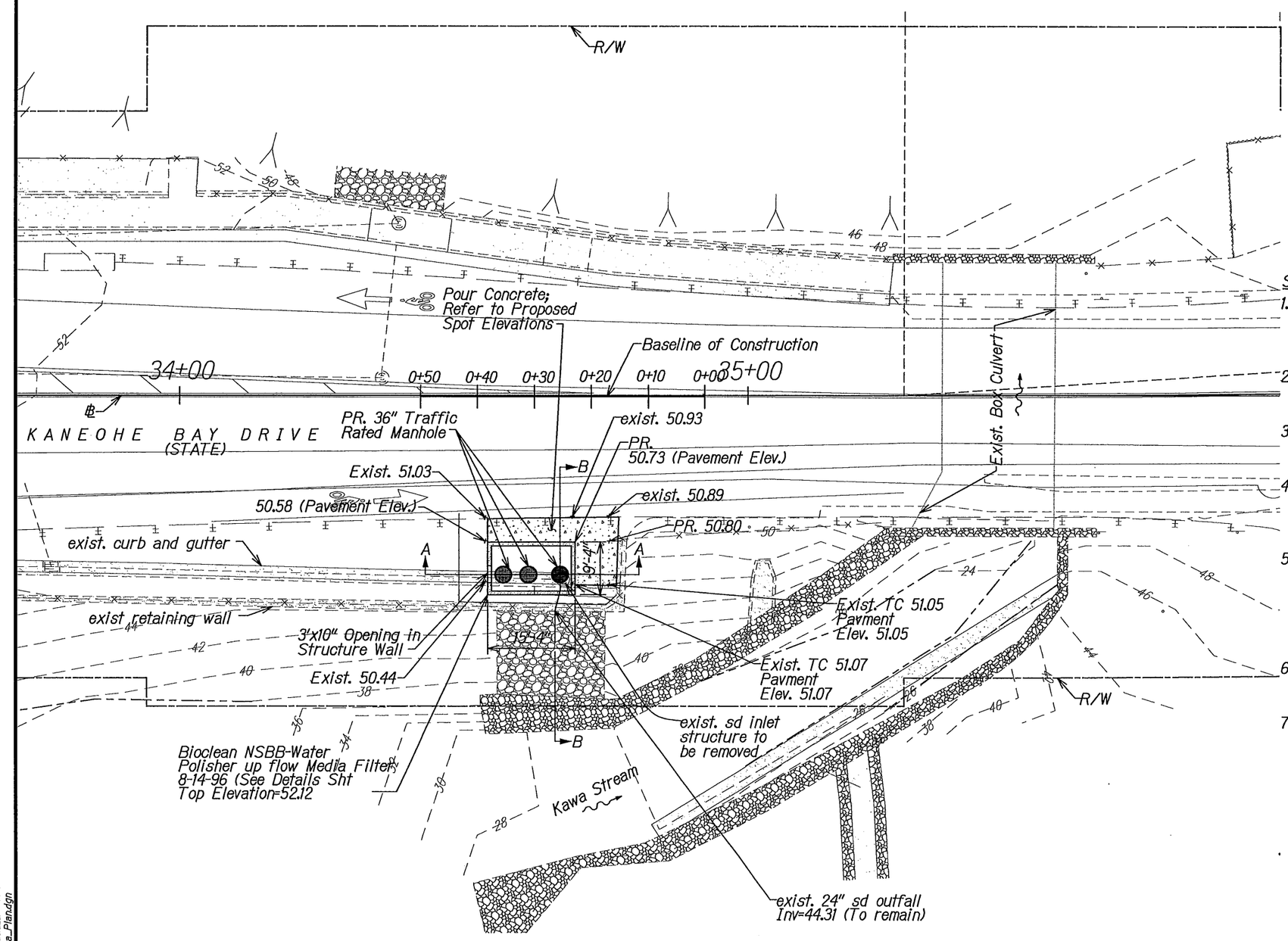
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK
No.

SHEET No. C-18 OF 24 SHEETS

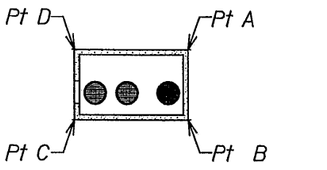
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	30	41



SEQUENCE OF CONSTRUCTION:

1. The contractor shall notify Hawaii Department of Land and Natural Resources a minimum of seven (7) days prior to commencing any land disturing activities.
2. When dry weather is forecast for that work day, begin construction of BMP with the permission of the Agency's complaiance inspector.
3. Excavate and remove existing storm drain inlet structure then install the BMP.
4. Excavated material shall not be stockpiled on-site but shall be taken off-site to a location with an approved Erosion and Sediment Control Plan.
5. To the maximim extend possible the BMP Installation site shall be backfilled and stabilized at the end of each day. If same day stabilization is not possible, the contractor shall protect unstabilized soil surfaces with impermeable sheeting secured with sand bags.
6. A portable sediment tank shall be used as necessary to dewater excavations and to remove sediment laden water.
7. After all areas have been stabilized and with approval from the compliance inspertor, remove erosion and sediment control devices and stabilize any areas disturbed by this process.

BASELINE CONTROL COORDINATES		
STATION	EASTING	NORTHING
0+00	7935.88	-5317.06
0+10	7936.64	-5327.04
0+20	7937.40	-5337.01
0+30	7938.16	-5346.98
0+40	7938.92	-5356.95
0+50	7939.68	-5366.92



PROPOSED BMP STRUCTURE
Inset

PROPOSED BMP STRUCTURE LOCATION DATA	
POINT	LOCATION
A	Sta. 0+22.89, 25.78' Rt.
B	Sta. 0+22.89, 35.09' Rt.
C	Sta. 0+38.22, 25.75' Rt.
D	Sta. 0+38.22, 35.09' Rt.

ORIGINAL PLAN | SURVEY PLOTTED BY ____ DATE ____ | DRAWN BY ____ | TRACED BY ____ | DESIGNED BY ____ | QUANTITIES BY ____ | CHECKED BY ____ | NOTE BOOK ____ | DATE ____

T:/16523A-Permanent_BMP/Cadd/Sheets/01_Kawa_Plan.dgn

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HIGHWAYS DIVISION

KANEOHE BAY DRIVE BMP RETROFIT PLAN

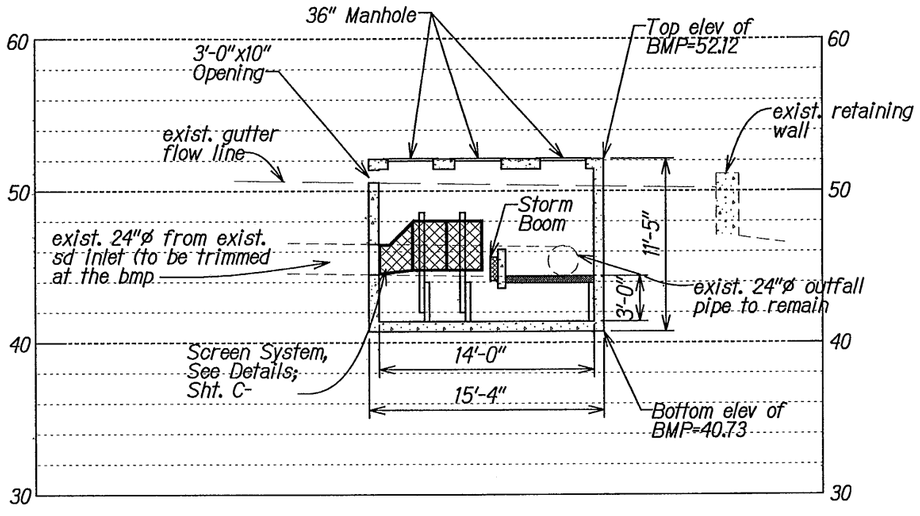
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

Scale: 1"=10' Date: March. 2012

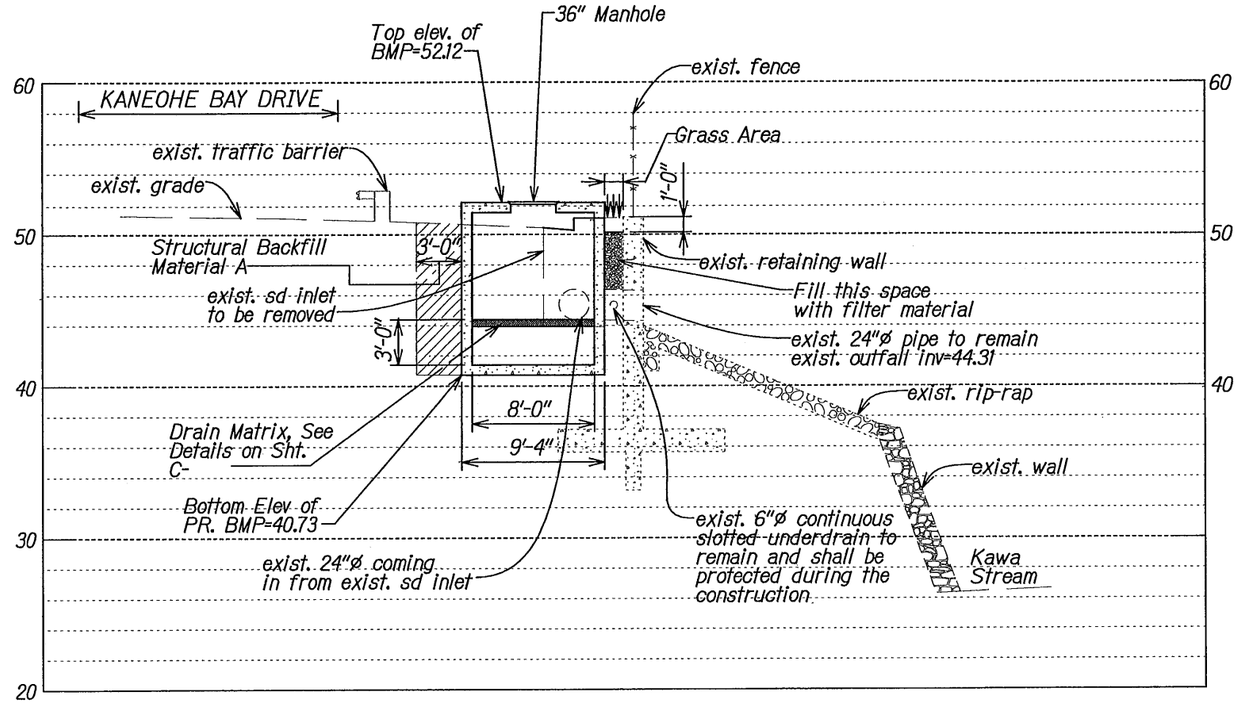
SHEET No. C-19 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	31	41



CROSS-SECTION 'A-A' THROUGH NSBB-WATER POLISHER FLOW MEDIAN FILTER 8-14-96

Scale: 1"=5' Horiz.
1"=5' Vert.



CROSS-SECTION 'B-B' THROUGH NSBB-WATER POLISHER FLOW MEDIAN FILTER 8-14-96

Scale: 1"=5' Horiz.
1"=5' Vert.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	
No.		

T:/16523A-Permanent_BMP/Cadd/Sheets/Section/kawa_Section_01.dgn

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No. 10377-C
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KANEOHE BAY DRIVE BMP RETROFIT SECTION

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: As noted Date: March. 2012

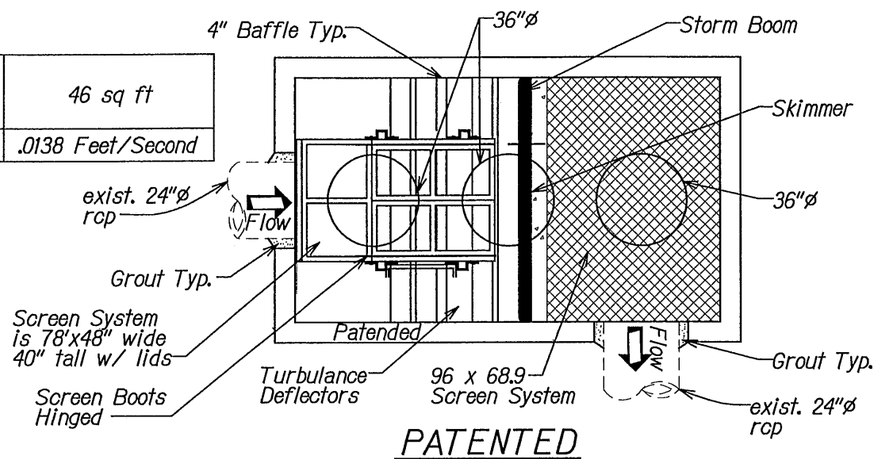
SHEET No. C-20 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	32	41

FILTER FLOW CALCULATIONS

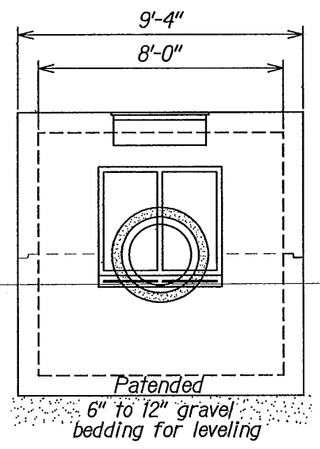
UP FLOW Media Surface Area (flat)	46 sq ft
Hydraulic Conductivity (BioMediaGREEN)	.0138 Feet/Second
Available Head	21"
MAX Media Filter Flow Rate (no clogging)	5.07 CFS
Safety Factor	2
Media Filter Flow Rate (accounts for clogging)	2.54 CFS
PEAK DESIGN FLOW	TBD

All measurments are in inches

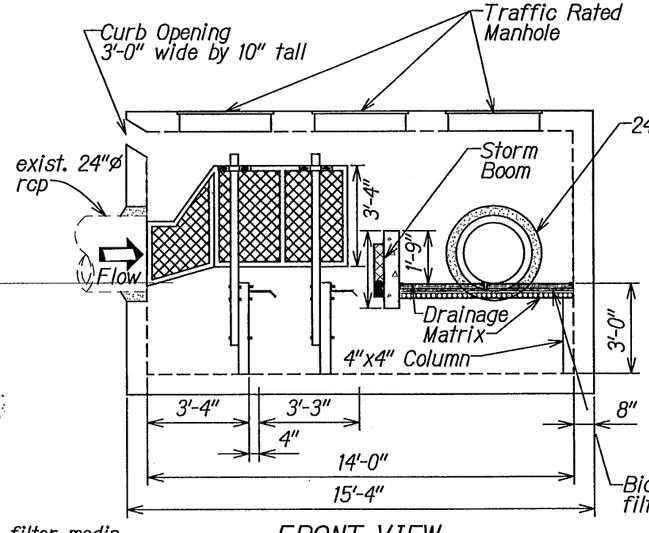


PATENTED

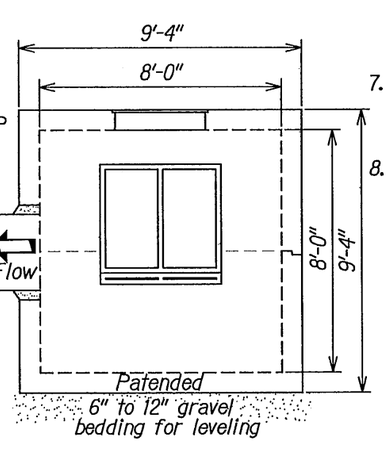
BIOMEDIA GREEN TESTED REMOVAL EFFICIENCIES	
Total Suspended Solids "Sil-Co-Sil 106"	85%
Dissolved Phosphorus	69%
Fecal Coliform	68%
Dissolved Copper	79%
Dissolved Lead	98%
Dissolved Zinc	78%
Dissolved Mercury	71%
TPH	99%



LEFT END VIEW



FRONT VIEW



RIGHT END VIEW

PATENTED

NOTES:

1. Complies with ASTM C 858
2. The shop drawings provide information on the storm filter, filter media and accessory equipment including priciple dimensions, filtel placement, location of fittings and unit foundation.
3. This is a passive treatment system. Up floe vertical media filter.
4. Media cartridges easily replaceble and can incorporate a variety of filter media.
5. See manufactures representative regarding recommendations for specified equipment.
6. (if applicable) Doors and Covers shall be hot-dipped galvanized frame and covers. Covers shall have diamond plate finish. These doors are equipped with recesses lift handle and a locking latch. The door shall meet H-20 loading requirements. Ladders shall be constructed of aluminum and steel reinforced copolymer conforming to ASTM D 4101. Ladder shall meet all ASTM C 497M. Steps shall conform with ASTM C 478.

NOTES:

1. Concrete 28 day compressive strength fc=5,000 psi
2. Reinforcing: ASTM A-615, grade 60.
3. Loads:
   A: Dead load: Concrete weight=160 pcf
   B: Love load: HL-93 as indicated by AASHTO LRFD specifications.
   C: Soil properties:
      Soil dry weight=120 pcf
      Internal friction angle PHI=26 degree
   D: Lateral pressure:
      Use at-rest pressure on manhole walls.
4. Joint sealant: Butyl rubber SS-S-00210.
5. All walls and top slab are 8" think minimum. Bottom slab shall be 9" thick minimum.
6. Concrete cover reinforcement:
   A: Top slab: 2 1/2" for reinforcement at exterior face; 1 1/2" for reinforcement at interior face.
   B: Bottom slab 3" for reinforcement at exterior face; 1 1/2" for reinforcement at interior face.
   C: Wall: 2" for reinforcement at exterior face; 1 1/2" for reinforcement at interior face.
7. Filter material and structural backfill material a shall conform with the requirements of 2005 HDOT Standards Specifications Subsections 205.03 (B), 205.03 (C), 708.18 and 708.20.
8. The BMP retrofit details shall be prepared, designed, stamped, and signed under the supervision of structural engineer licensed in State of Hawaii.

The Structure in this drawing is primarily intended to be installed in off road locations with less than 5' of cover. Structures are readily available for all other conditions. Consult Bio Clean Environmetal Representative for details.

BIOCLEAN ENVIRONMENTAL

NSBB-WATER POLISHER-UP FLOW MEDIA FILTER 8-14-96

DESIGN DETAILS

NTS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

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MISCELLANEOUS DETAIL

KAWA STREAM BMP RETROFIT

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU

PROJECT NO. HWY-0-02-11

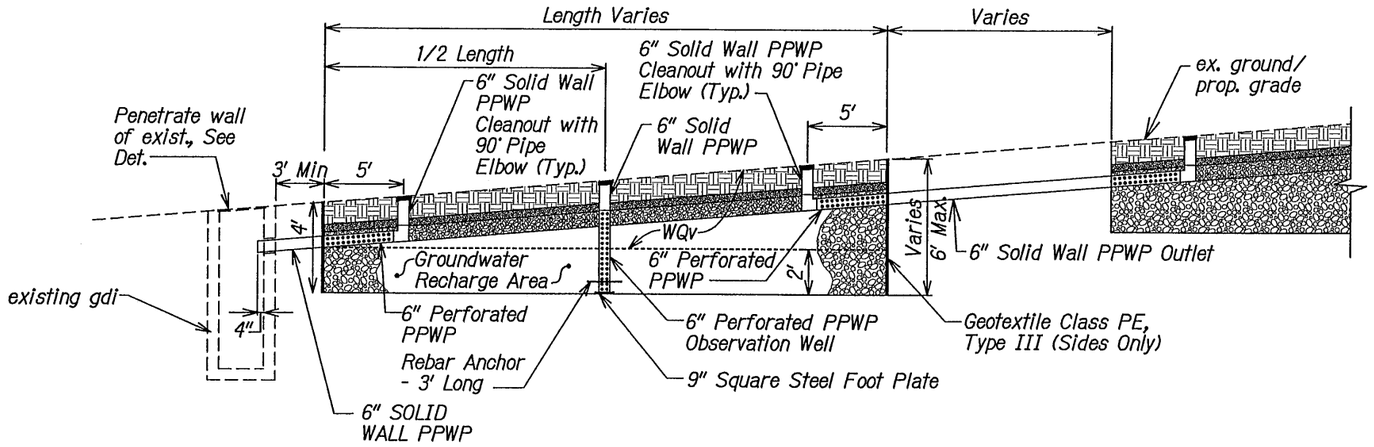
Scale: NTS Date: March. 2012

SHEET No. C-21 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	33	41

Biotrench Filter Media Legend

- Bioretention Soil Mixture (BSM)
- No. 7 Aggregate
- No. 57 Aggregate
- No. 2 Aggregate

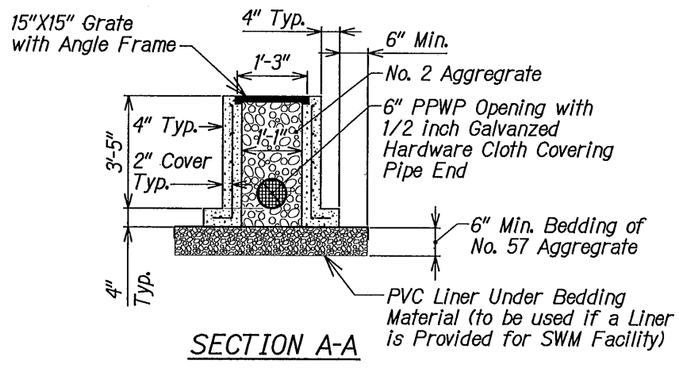


TYPICAL PROFILE - BIOSWALE (IN SERIES)

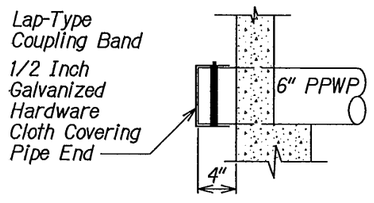
Scale: NTS

NOTES:

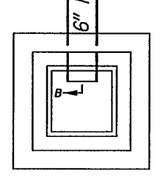
1. Bioswale trench shall be excavated when soil is dry and friable. Construction in wet soil will couse smearing and compaction which will decrease rhe soil's ability to absorb wastewater.
2. The sides and bottom of the trench shall be raked to depth of 1 inch to expose natural soil structure and to remove any smered and compacted soil surface before filter media is installed.



SECTION A-A



SECTION B-B



PLAN - GRATE REMOVED

NOTES:

1. 15x15" Grate inlet with angle frame shall be cast iron, light duty (Neenah R-4550/R-4899 or approved equal.)
2. For cast-in-place structure, use mix No. 2 concrete. For precast structure, use mix No. 6 concrete.
3. Reinforcing shall be No. deformed bars spaced 6" C-C.

BIOSWALE TO BIOSWALE OUTLET CONNECTION DETAILS

Scale: NTS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

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HIGHWAYS DIVISION

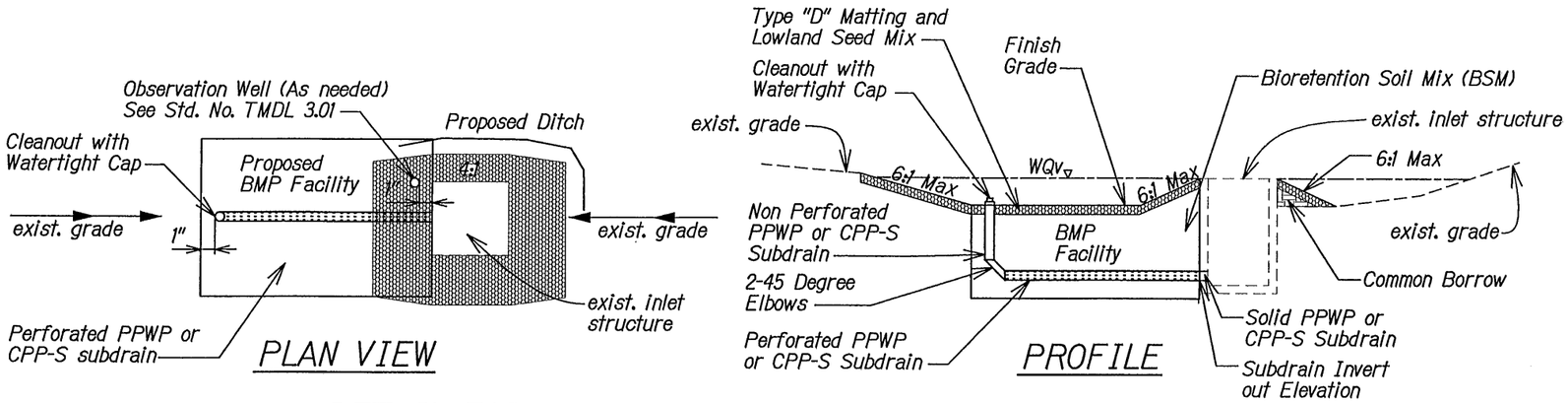
BIOSWALE DETAILS

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: NTS Date: March. 2012

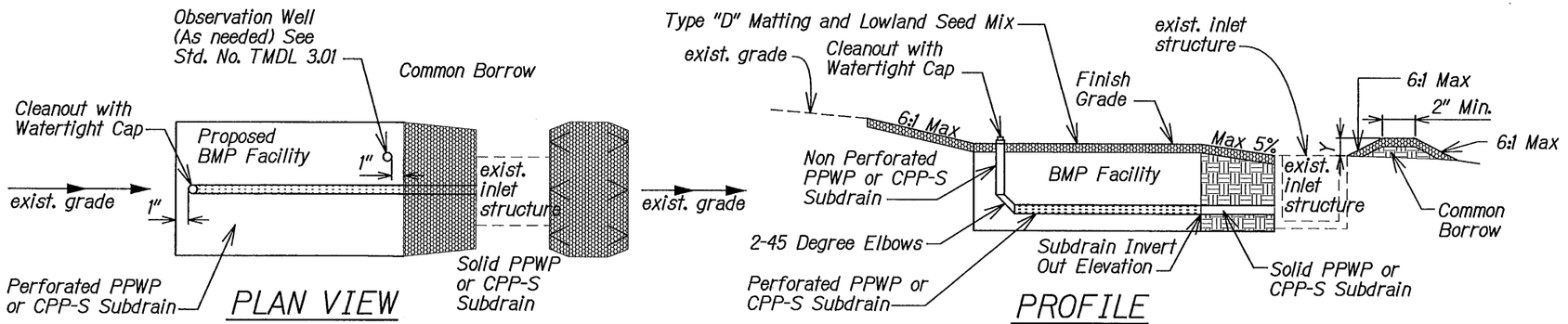
SHEET No. C-22 OF 24 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011	34	41



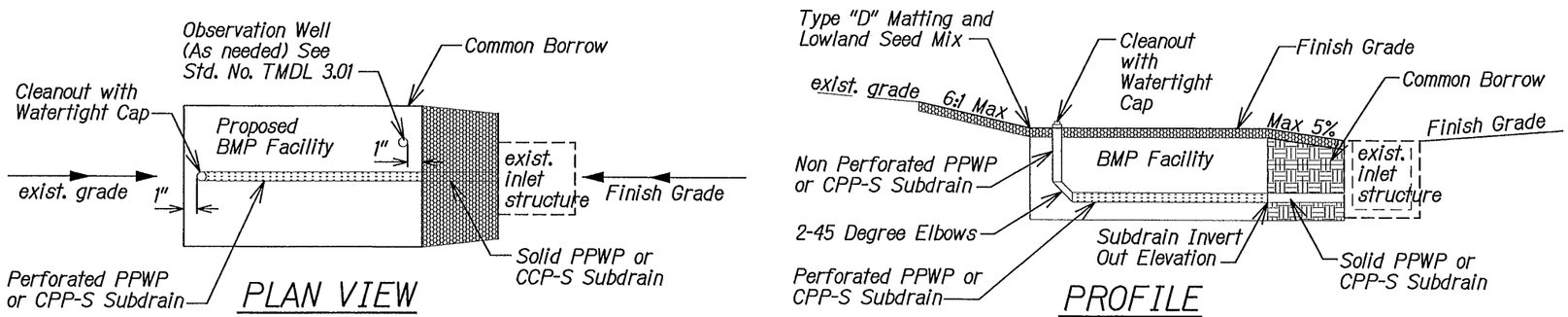
DETAIL FOR SUMP INLET OUTFALL STRUCTURE

Scale: NTS



DETAIL FOR ON GRADE INLET OUTFALL STRUCTURE

Scale: NTS



DETAIL FOR SUMP INLET OUTFALL STRUCTURE

Scale: NTS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

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GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/12 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BIOSWALE DETAILS

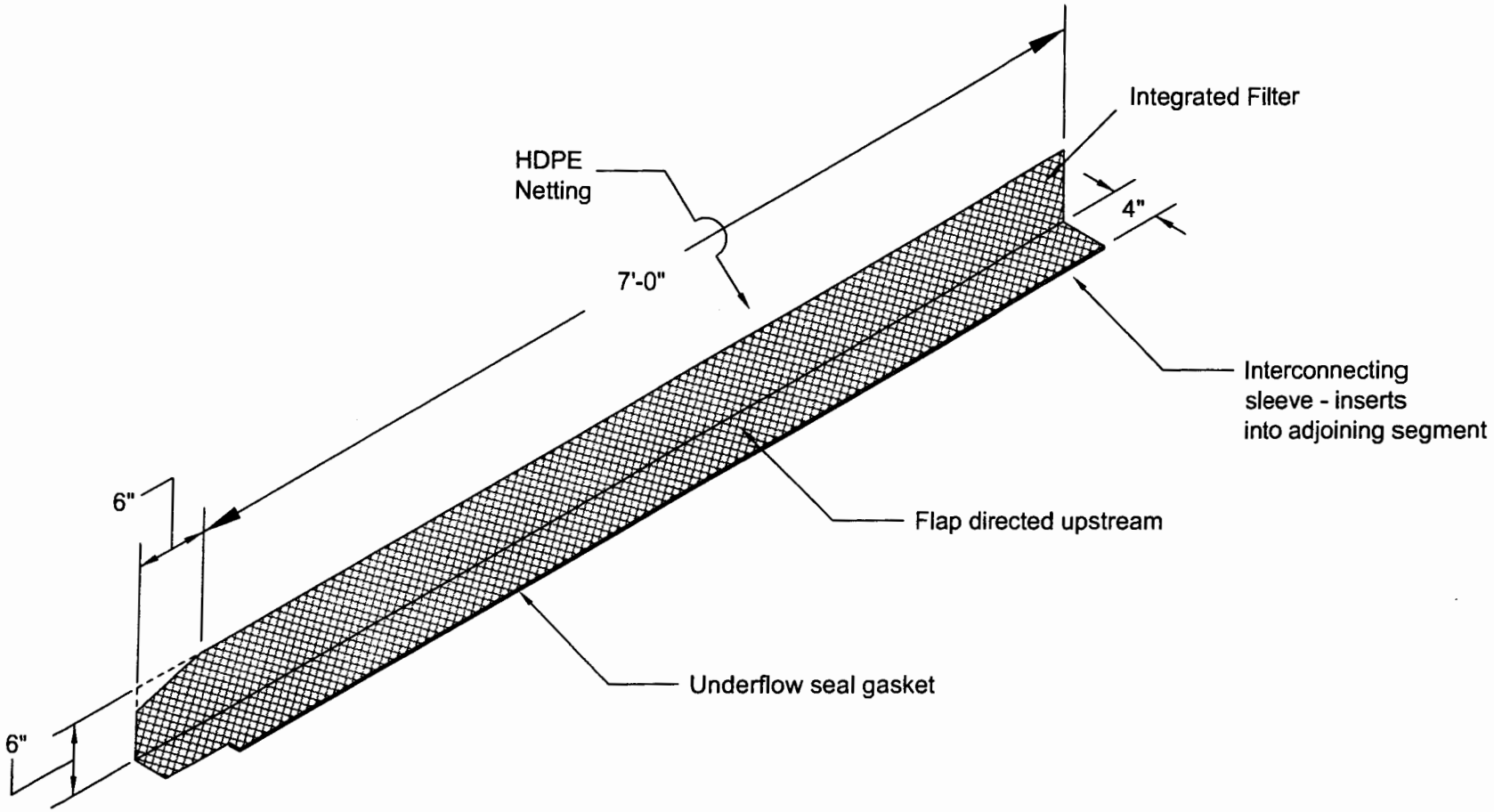
MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: NTS Date: March. 2012

SHEET No. C-23 OF 24 SHEETS

Hard Surface Guard™

Details



Maintenance

Perform maintenance as required. Inspect following rainfall events and at least daily during prolonged rainfall. Maintain to provide an adequate sediment holding capacity. Debris shall be removed daily and sediment shall be removed when the sediment accumulation reaches 50% of the barrier height. Removed sediment shall be incorporated in the project at designated locations.

**** NOT TO SCALE ****

#	Date	Revisions
1	02/28/07	Initial Drawings
2	00/00/00	
3	00/00/00	
4	00/00/00	

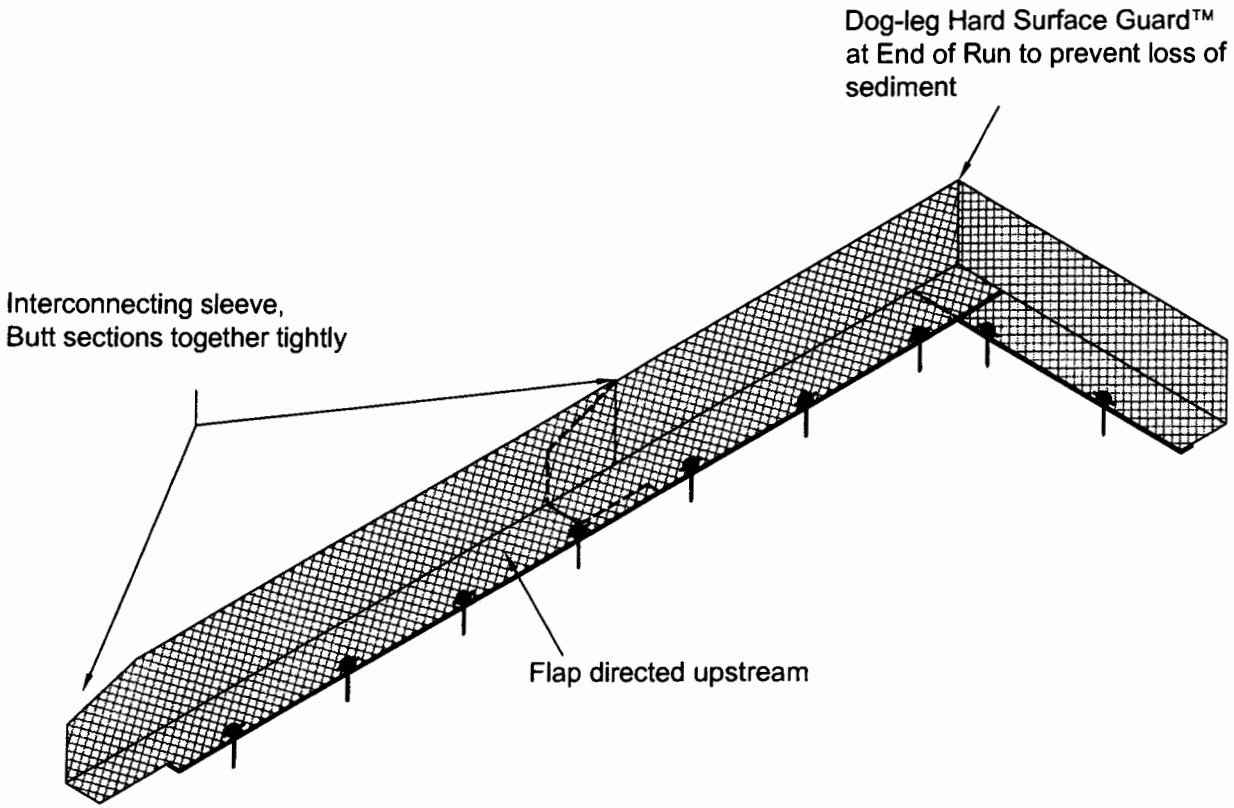
ERTEC Environmental Systems
http://www.ertecsystems.com/
1150 Ballena Blvd.
Suite 250
Alameda, CA 94501
P. 866-521-0724
F. 510-521-3972

ERTEC

File Name: Ertec_Installation_Details_HSG.Dwg
Layout Name: P1 Details
Default Print Size: 8.5" x 11"

Hard Surface Guard™

End-of-Run Details



Maintenance

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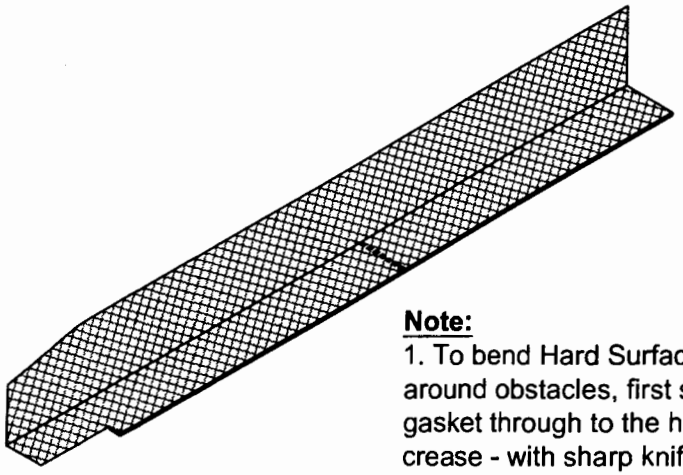
ERTEC

File Name: Ertec_Installation_Details_HSG.Dwg
Layout Name: P2 End-of-run
Default Print Size: 8.5" x 11"

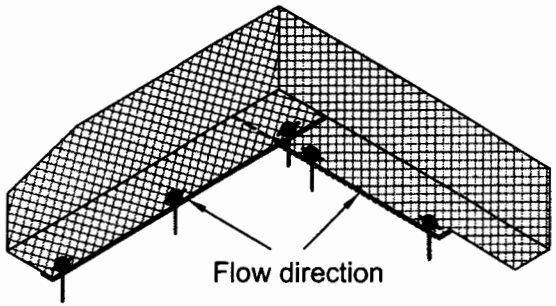
Hard Surface Guard™

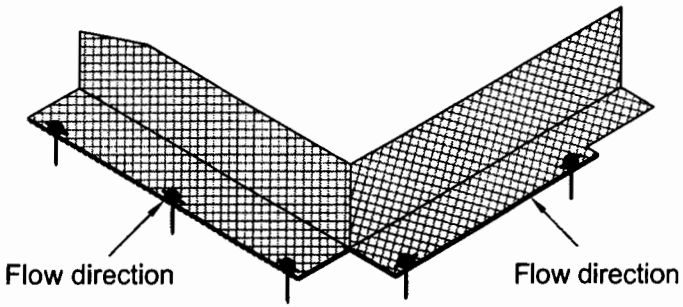
Angled Installation - 90°



Note:

1. To bend Hard Surface Guard™ around obstacles, first slit flap and gasket through to the horizontal crease - with sharp knife or shears.
2. Then bend to desired angle, in either direction, as shown.





Note:

1. If bend is in this direction, locate gravel bag at the angle to prevent underflow

Maintenance

Perform maintenance as required. Inspect following rainfall events and at least daily during prolonged rainfall. Maintain to provide an adequate sediment holding capacity. Debris shall be removed daily and sediment shall be removed when the sediment accumulation reaches 50% of the barrier height. Removed sediment shall be incorporated in the project at designated locations.

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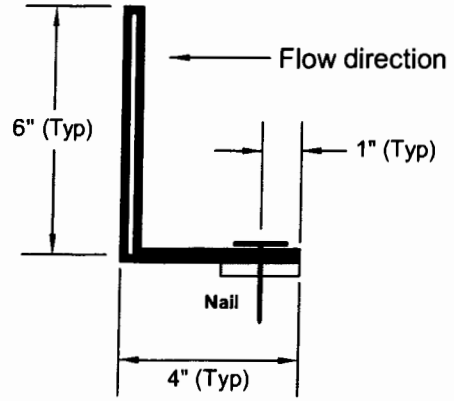
ERTEC

File Name: Ertec_Installation_Details_HSG.Dwg
Layout Name: P3 Angled Installation - 90°
Default Print Size: 8.5" x 11"

HARD SURFACE GUARD™

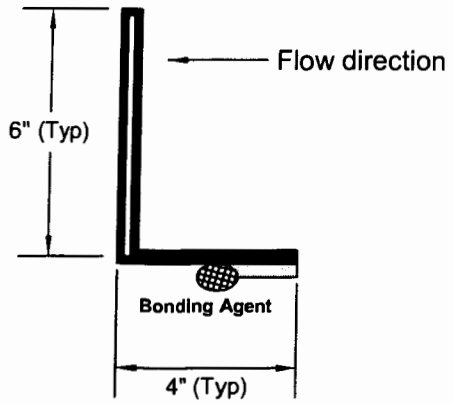
Anchor Details

1. Asphalt Installation
Masonry Nails



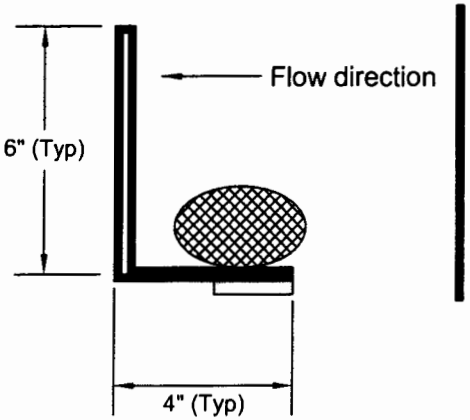
Notes:
1. Install nails flush with netting so that gasket is in good contact with surface.
2. Install 4 to 5 nails per each seven food segment. Use HILTI X-ZF 1½" fasteners with 23mm pre-mounted steel washer (X-ZF 32 P8 S23) or equivalent with automatic powder-actuated hand tool.

2. Asphalt or Concrete
Bonding Agent



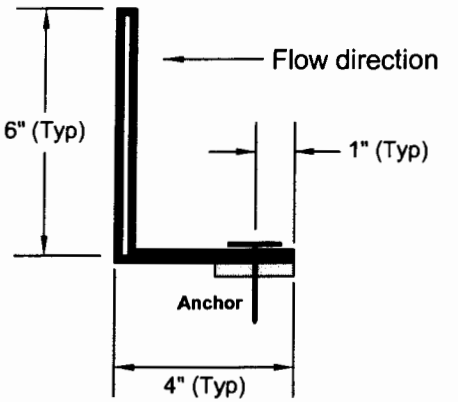
Notes:
1. Install bonding agent between gasket and surface. Use PaverBond, Liquid Nails, or other equivalent. Anchor with gravel bags or other weights until set.

3. Asphalt or Concrete Installation
Gravel Bags, Snake Bags



Notes:
1. Install anchor flap facing upstream. Place small snake bags or equivalent (gravel bags) containing clean, pea-sized graded gravel every 2.5 feet. Additional bags can be placed on the flap as necessary to assure good gasket to surface contact.

4. Alternative Concrete Installation
Concrete Anchors



Notes:
1. Install anchors flush with netting so that gasket is in good contact with surface.
2. Install 4 to 5 anchors per each seven foot segment. Use Red Head Redi-Drive or Hammer Set ¼" x 1¼" anchors or equivalent.

Maintenance

Perform maintenance as required. Inspect following rainfall events and at least daily during prolonged rainfall. Maintain to provide an adequate sediment holding capacity. Debris shall be removed daily and sediment shall be removed when the sediment accumulation reaches 50% of the barrier height. Removed sediment shall be incorporated in the project at designated locations.

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ERTEC

File Name: Ertec_Installation_Details_HSG.Dwg
Layout Name: P4 Anchor Details
Default Print Size: 8.5" x 11"

SNAKE BAG



The Green Snake Bag is a specially engineered UV resistant monofilament geotextile fabric bag intended to be filled with coarse sand or fine clean gravel for use as a sediment control device.

The Green Snakes Bags are commonly used as gravel "wattles" catch basin/curb inlet protection, grated inlet protection, check structures, filter berms, sediment control devices, etc (see back of brochure for function and common uses)

The Green Snake bag unique physical properties woven seams (which gives the bag overall strength stronger than traditional welding, gluing and standard sewing seams). Material makeup (which gives the Snake bag the ability to conform to irregular terrain better than traditional woven polypropylene bags of similar construction) and the high UV rating 3 to 7 years (depending on color) makes the snake bag the chose for most sediment control projects.

The material is designed to withstand moderate road traffic which is superior over the traditional poly or burlap sand bags that have been used in the past for sediment control as well as their fixed high filtration design enables the sediment laden water turbidity to be reduced as the water passes through a series of snake bags on its way to the drain outlet.

Physical Properties:

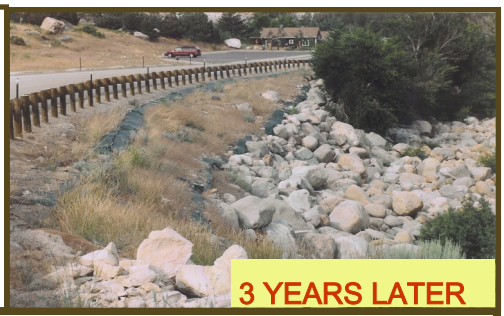
Fabric Structure:	Woven	Yarn: High density polyethylene
Physical Property:	Test Method:	(MEAN) Roll Value
Grab Tensile Strength:	ASTM D4632	W326/F216 lbs
Fabric Weight:	D-5261	5 oz/sq./yd.
Mullen Burst Strength	ASTM D3786	376 lbs./in/sq.
Water Flow	ASTM D4491	180 gal/ft./sq./min.
UV Resistance (@2000 hrs)	ASTM D4355	> 70%

Sizing: lengths and diameters can be custom to project needs please see your local distributor for information and availability in your area.

ESI Resource Services 11854 Larisa Way Rancho Cordova, CA 95742 Phone number 916-985-7787 | fax number 916-985-7887

20 ” *Anaconda Bags* above dry channel (river underground)

- note toe berm function & curb function above
- Sinks Canyon WY 4-11-05



INSTALLATION INSTRUCTIONS:

The green snake bag can be filled with clean coarse sand or gravel (up to ¾ ”) .

For Larger Diameter Anaconda Bags up to 20 ” to 24 ” 1 ” to 1 1/4 ” minus gravel should be used.

Caution should be taken not to over fill the bag….. Bags should be placed with the flap side down and the tied end on the flap which creates a seal where the 2 bags intersects. For higher follow areas, 2 row of bags can be installed side by side staggering joints.

FUNCTIONS:

Snake bags is a practical BMP that can serve multiple functions at the same time.

- Surface protection either on a slope or in a channel
- Minimization of concentrated flows
- Velocity reduction either on slopes or in channels
- Sediment capture

APPLICATIONS:

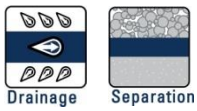
Snake bags are suitable for multiple applications:

- *Disrupting concentrated flows*
- *Capturing sediment by ponding*
- *Used in place of silt fence*
- *Rock check dams*
- *Ridge diversions*
- *Pipe socks*
- *Level spreader*
- *Redirecting concentrated flows*
- *Anchoring other devices*
- *Used as toe berms*
- *Rock outlet protection*
- *Inlet protection*
- *Mulch filled filter bags*
- *Oil absorption containment*

Or part of the structure of sediment basins, sediment traps, storm drain diversions, and structural stabilization of streams.

ESI Resource Services 11854 Larisa Way Rancho Cordova, CA 95742 Phone number 916-985-7787 | fax number 916-985-7887

TENCATE Mirafi®



Mirafi® 170N

Mirafi® 170N is a needlepunched nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. Mirafi® 170N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D4632	N (lbs)	801 (180)	801 (180)
Grab Tensile Elongation	ASTM D4632	%	50	50
Trapezoid Tear Strength	ASTM D4533	N (lbs)	334 (75)	334 (75)
CBR Puncture Strength	ASTM D6241	N (lbs)	2003 (450)	
Apparent Opening Size (AOS)[1]	ASTM D4751	mm (U.S. Sieve)	0.15 (100)	
Permittivity	ASTM D4491	sec^{-1}	1.4	
Flow Rate	ASTM D4491	$l/min/m^2$ ($gal/min/ft^2$)	4278 (105)	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70	

[1] ASTM D 4751: AOS is a Maximum Opening Diameter Value

Physical Properties	Test Method	Unit	Typical Value
Weight	ASTM D5261	g/m^2 (oz/yd^2)	251 (7.4)
Thickness	ASTM D5199	mm (mils)	1.7 (67)
Roll Dimensions (width x length)	--	m (ft)	4.5 x 91 (15 x 300)
Roll Area	--	m^2 (yd^2)	418 (500)
Estimated Roll Weight	--	kg (lb)	111 (245)

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Made in USA

TENCATE™ materials that make a difference

FGS000347
ETQR27

Appendix

A-2 BMP Details

Best Management Practice Details

Controlling Storm Water Flowing onto and through the Project

BMP Description:	***Work Area Isolation*** • *Diversion devices to prevent or control sheet flow onto or through the work area:* • *Diversion berms – erected using existing materials on-site, such as soil, or manufactured berms, such as ERTEC Hard Surface Guard, that can be fixed in place.* • *Snakebags – impermeable bag filled with gravel, so it will be heavy enough to resist movement but light enough to be easily moved as the work area shifts.* • *Existing features – examples include curbs, existing swales, and berms to control surface water.*
Installation Schedule:	Prior to any construction work in a given area
Maintenance:	Built-up sediment will be removed when it has reached one-third the height of the BMP. All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours after the inspection.
Inspection:	Inspections will be performed daily or on an "as needed basis" depending the location and conditions that are present. Inspection will also occur after significant rainfall. Devices will be inspected for tears and to verify that the diversion berms maintain complete contact with the street surface.
Product Specification Reference:	ERTEC Hard Surface Guards shall consist of HDPE netting and integrated filter, as manufactured by ERTEC Environmental Systems. Guards will be held in place using gravel (range from 3/8" to 3/4") filled snakebags as illustrated on Drawing Sheet G-10, Best Management Practice Details.

BMP Description:	***Minimize Disturbed Area***

Work will be performed in a manner so as to minimize the area being disturbed and designed to protect natural features and minimize impacts to the surrounding environment in general.

To the degree possible, work will be designed so that all work in one area is completed contiguously so that the area can be stabilized as soon as possible and not left in a disturbed/unstabilized condition with no active work occurring.

Installation Schedule:	Practice to be employed throughout work effort.
Maintenance:	N/A
Inspection:	Inspections will be performed weekly or on an "as needed basis" depending the location and conditions that are present. If areas are found to require temporary stabilization because they will not be disturbed for a period of more than a week appropriate stabilization measures will be employed.
Product Specification Reference:	N/A

BMP Description:	***Limit or Stop Work during Rain***

Work will not be performed during periods of heavy rainfall. If rainfall becomes heavy during ongoing construction activities, work will stop and the construction area stabilized to the maximum extent possible until rainfall subsides.

Installation Schedule:	Practice to be employed throughout work effort.
Maintenance:	N/A
Inspection:	N/A
Product Specification Reference:	N/A

BMP Description:	***Excavated/Stockpiled Material Protection***

Any stockpiles for this project will be small and very short duration. If soil is stockpiled on-site (soil excavated from the Kaneohe Site will not be stockpiled on site but will be taken to an off-site location with an approved Erosion and Sediment Control Plan), the soil will be stockpiled next to the trench from which it is removed and the excavated material/stockpiles will be protected when (a) material will not be added to a stockpile for a period greater than 24 hours, (b) when left unattended for periods of more than 4 hours or overnight, and (c) when a significant rain event occurs. Protection measures will include:

- *Cover the stockpile with plastic and hold the plastic in place with rocks, ropes, wood, or other suitable material.*
- *Place work area isolation devices (see Section "Controlling Storm Water Flowing onto and through the Project") around the stockpile.*

Any bagged materials will be placed on pallets and under cover.

Installation Schedule:	To commence upon any excavation activities and be properly managed for the duration of any stockpile.
Maintenance:	All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours after the inspection.
Inspection:	Inspections will be performed daily or on an "as needed basis" depending the location and conditions that are present. Inspection will also occur after significant rainfall.
Product Specification Reference:	10-mil plastic. See Section "Controlling Storm Water Flowing onto and through the Project" above.

BMP Description:	***Storm Drain Inlet and Catch Basin Protection Devices***

An inlet protection device will be installed at each storm drain inlet and catch basin into which project site stormwater would flow. Drawing GN0004 illustrates potential installation scenarios. These devices would be employed at all work areas where storm drains and catch basins are prensent. Potential protection devices include:

- *Storm Drain Inlet: Filter fabric with gravel-filled snakebags*
- *Catch Basin: Gravel-filled snakebags*

Installation Schedule:	Prior to the commencement of any construction activities and will be properly managed for the duration of the project.
Maintenance:	Debris and sediment will be removed from installed storm drain inlet sediment control filters at the start and end of each working day. The devices will be removed during times of above normal rainfall to avoid flooding, and replaced when the rain event has passed. All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours after the inspection.
Inspection:	Inspections will be performed weekly or on an “as needed basis” depending on the location and conditions that are present. Inspection will also occur after significant rainfall.
Product Specification Reference:	For grate drains, filter fabric (TenCate Mirafi 170N) will be placed over the grate and held in place using gravel (range from 3/8” to 3/4”) filled snakebags (by ESI Resource Services) as illustrated on Drawing Sheet G-10, Best Management Practice Details. For curb inlets, gravel-filled snake bags will be placed in front of the inlets as shown on Drawing Sheet G-10, Best Management Practice Details.

BMP Description:	***Proper General Waste Management***

The Contractor's Litter Management Plan will be accepted by HDOT and included in the SSCBMP Plan once the Contract is awarded.

For operations with less than one day of duration per work site, trash bags will be on-site. The crews will dispose of all appropriate trash/debris into the bags, to be taken off-site and disposed of at an appropriate solid-waste disposal facility.

For operations with durations longer than one day, site trash cans/dumpsters will be provided. The cans/dumpsters will have a secure watertight lid, be placed away from stormwater conveyances and drains, and meet all local and State solid-waste management regulations.

No construction debris will be buried on-site.

Installation Schedule:	Trash dumpsters/cans will be installed once the work area has been established.
Maintenance:	The cans/dumpsters will be emptied routinely, at least twice a week, to avoid over-filling. Trash cans/dumpsters will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours after the inspection.
Inspection:	Inspections will be performed weekly or on an "as needed basis" depending on the location and conditions that are present. Inspection will also occur after significant rainfall. Inspection will include examining any and all trash receptacles to be sure they have proper lids and do not have any holes.
Product Specification Reference:	See local and State solid-waste management regulations.

BMP Description:	***Proper Hazardous Waste Management***

Hazardous wastes are not anticipated to be encountered or generated during the project. However, if hazardous waste is encountered or generated for any reason, all hazardous waste will be placed in appropriate containers and disposed of in the manner specified by local, State, and Federal regulations.

Installation Schedule:	N/A

Maintenance:	N/A
Inspection:	N/A
Product Specification Reference:	See local, State, and Federal regulations.

Proper Equipment/Vehicle Fueling and Maintenance Practices

BMP Description:	***Proper Equipment/Vehicle Fueling and Maintenance***

The following BMPs will be implemented:

- *A spill kit will be maintained on site sufficient to address potential spills from the equipment used on-site.*
- *All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.*
- *On-site fueling will be limited to fuel equipment that cannot be easily transported to a nearby service station or other fuel facility.*
- *On-site maintenance will be limited to emergency maintenance necessary to prepare equipment for transportation off-site.*
- *Petroleum products will not be stored on-site.*
- *Spill kits will be on-site during fueling and maintenance operations that involve the use of fluids, such as fuel and lubrication. Spill kits will also be maintained at any location where petroleum products, paints, or other hazardous materials are stored.*

Installation Schedule:	Spill kits will be available on-site throughout the construction period.
Maintenance:	All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours after the inspection. The spill kit will be maintained such that if materials are used they are quickly replaced in order to maintain sufficient materials on-site to respond to a spill.
Inspection:	Vehicles will be examined daily for leaks and will be maintained per manufacturer's recommendations. The spill kit will be inspected weekly or on an "as needed basis" depending on use to ensure sufficient materials are available to response to potential releases.
Product Specification Reference:	Spill kit shall be of a universal type, with the ability to handle oil and/or fuel.

Post Construction BMPs

BMP Description:	***Site Restoration***

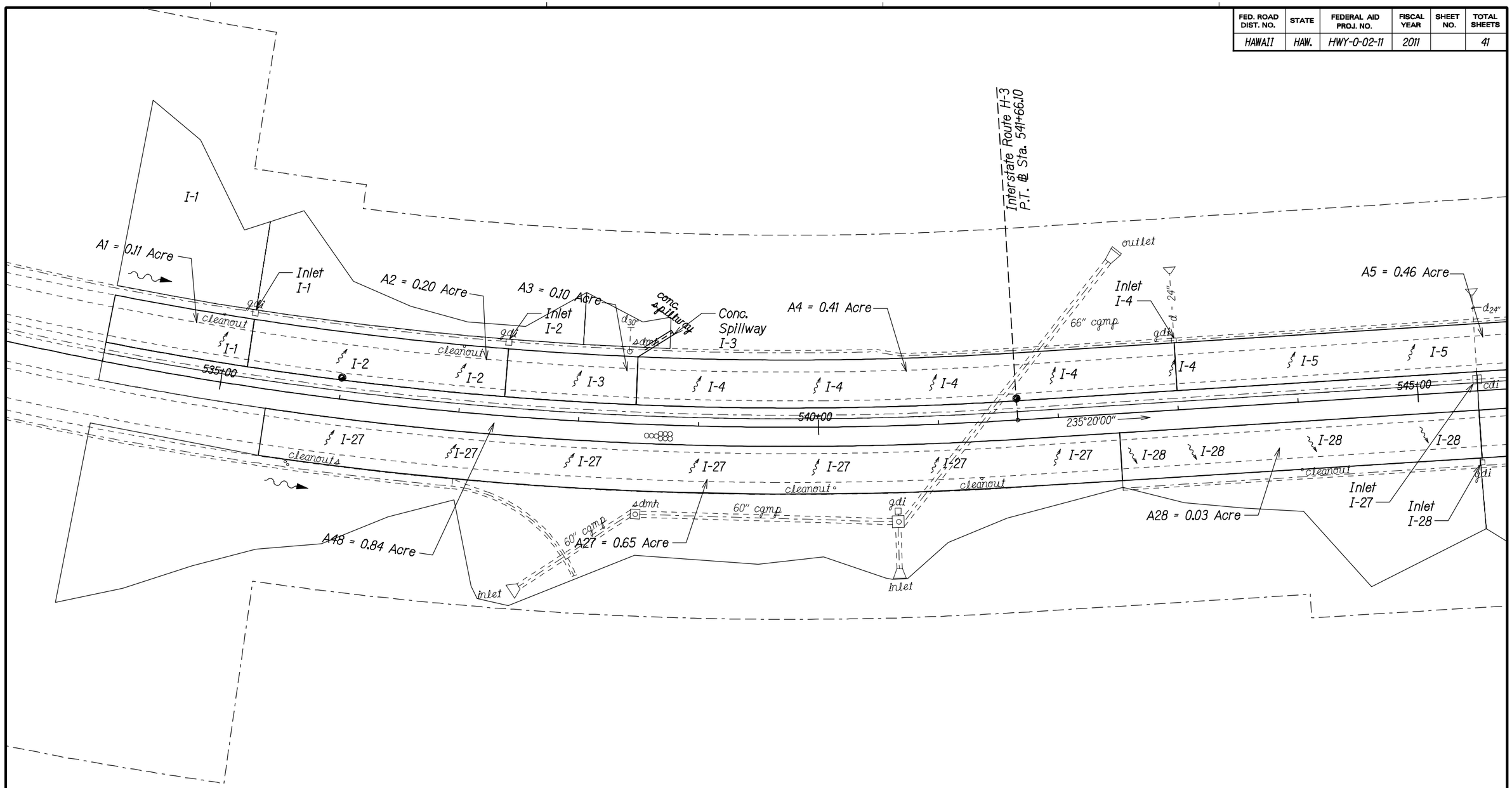
Following the completion of construction activities, the site will be restored to its pre-existing condition or better. Where the work areas include landscaped areas, the existing landscaping will be removed and reserved for reuse. Upon the completion of backfilling the area, the former landscaping materials, such as grass and small bushes, will be replaced in their original position. The existing vegetation will not be displaced for an extended period of time and will be suitable for reuse and capable of preventing soil erosion and runoff at nearly the same level as prior to being disturbed almost immediately after it is returned to its former location.

Installation Schedule:	Site restoration will occur as soon as practical once construction activities are complete in an area.
Maintenance:	The maintenance of the restored surface will be the responsibility of the State agencies maintaining the areas currently.
Inspection:	N/A
Product Specification Reference:	N/A

Attachment A-3

Discharge Locations

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011		41



SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____

ORIGINAL PLAN
NOTE BOOK
No. ____

GERALD D. ANDRADE
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No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE ____ 04/30/12 EXPIRATION DATE OF THE LICENSE

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DEPARTMENT OF TRANSPORTATION
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MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
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Scale: Date: March. 2012

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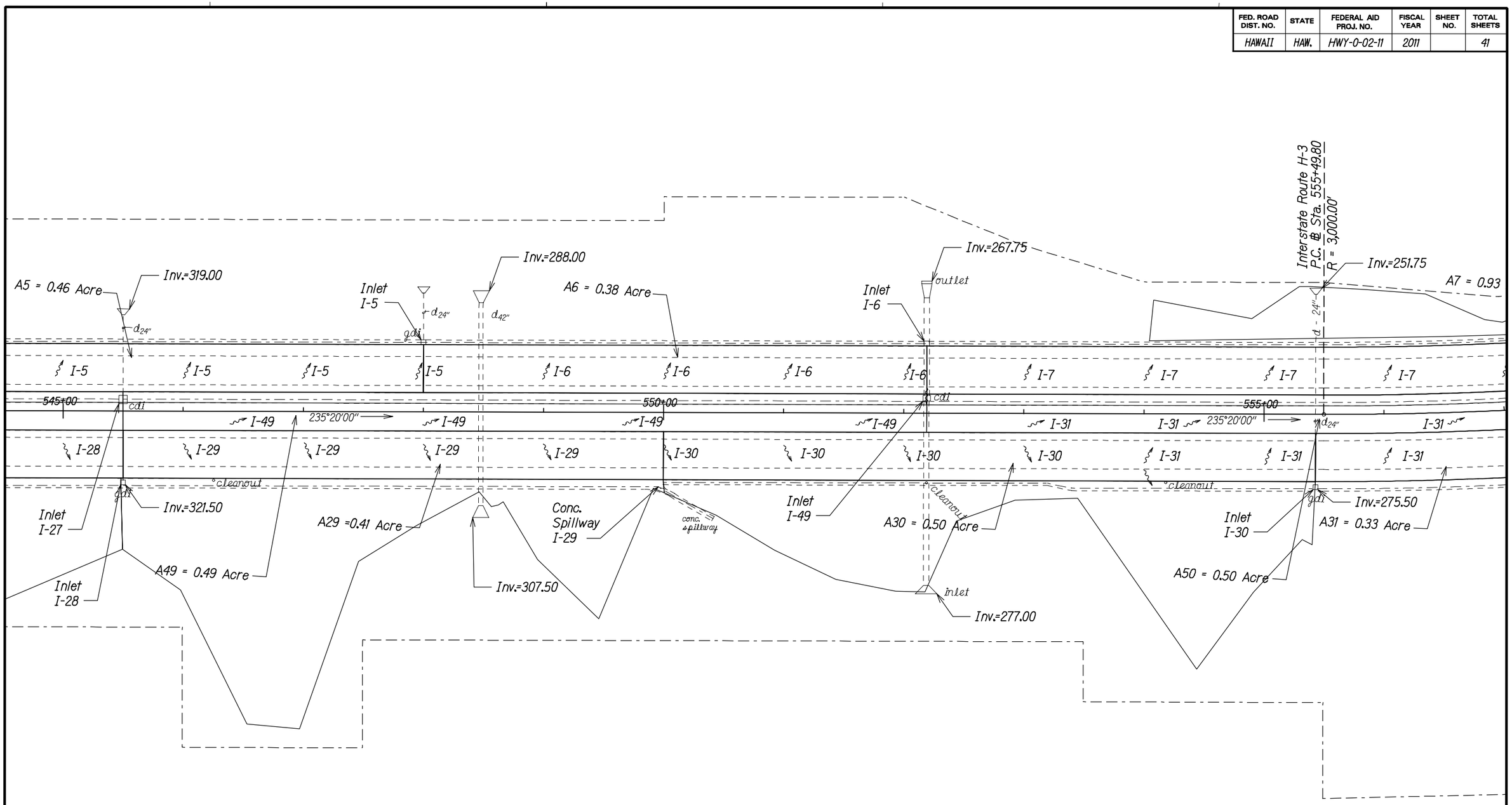

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DRAWN BY	
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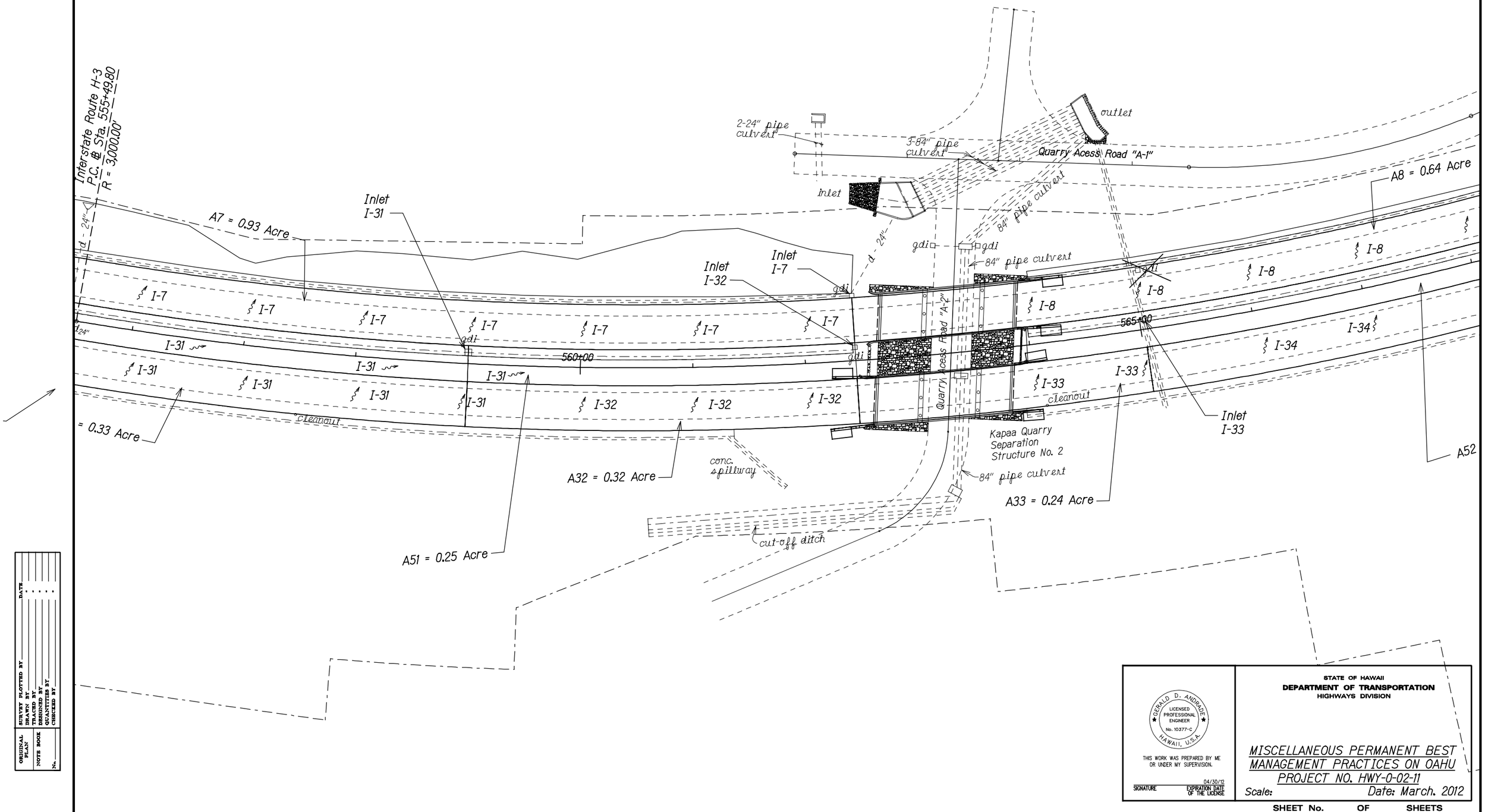

SURVEY PLOTTED BY ____ DATE
DATA FROM ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____
ORIGINAL PLAN
NOTE BOOK ____ No. ____

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No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/12 EXPIRATION DATE OF THE LICENSE

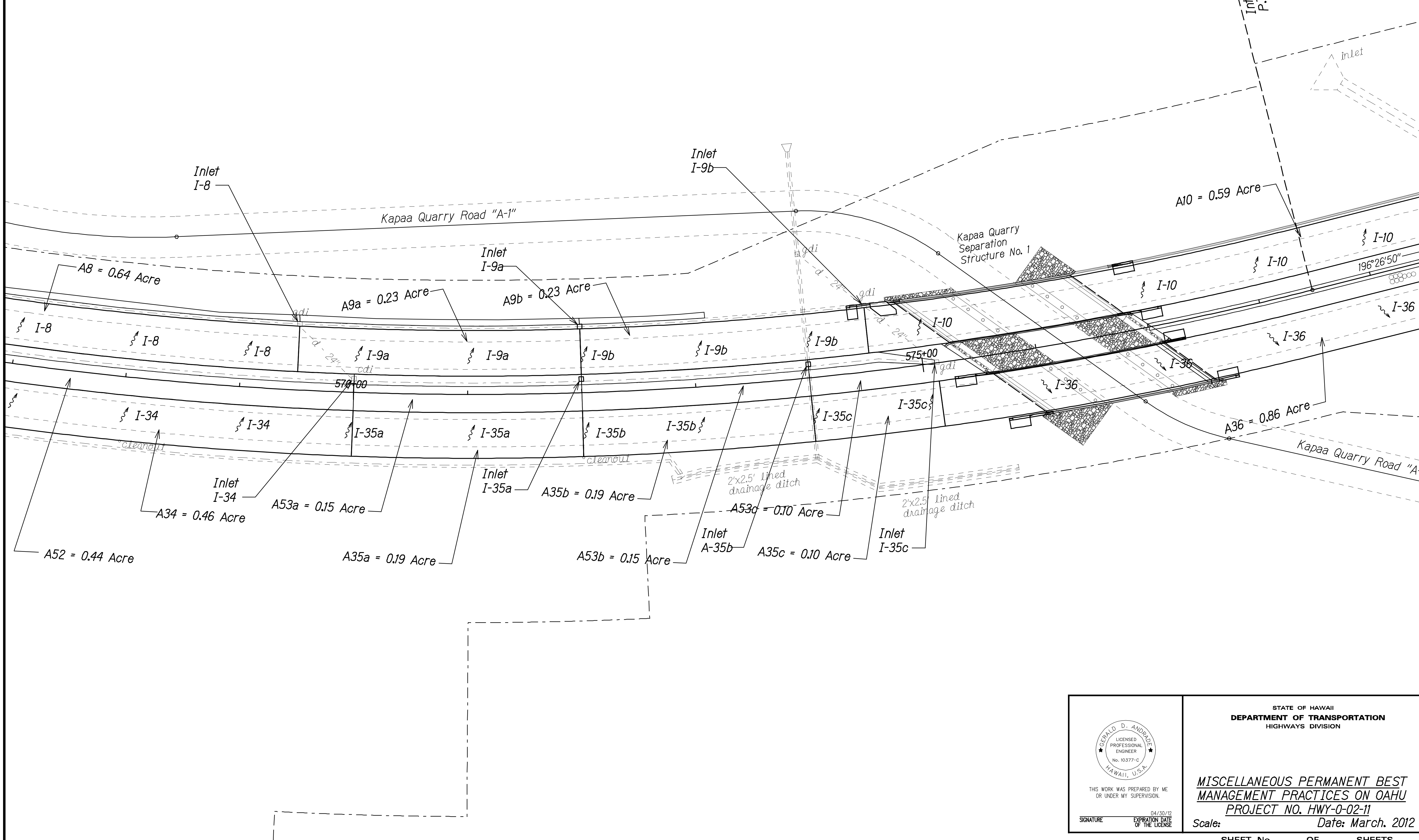
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS PERMANENT BEST MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-0-02-11

Scale: Date: March. 2012

SHEET No. OF SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-02-11	2011		41



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	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
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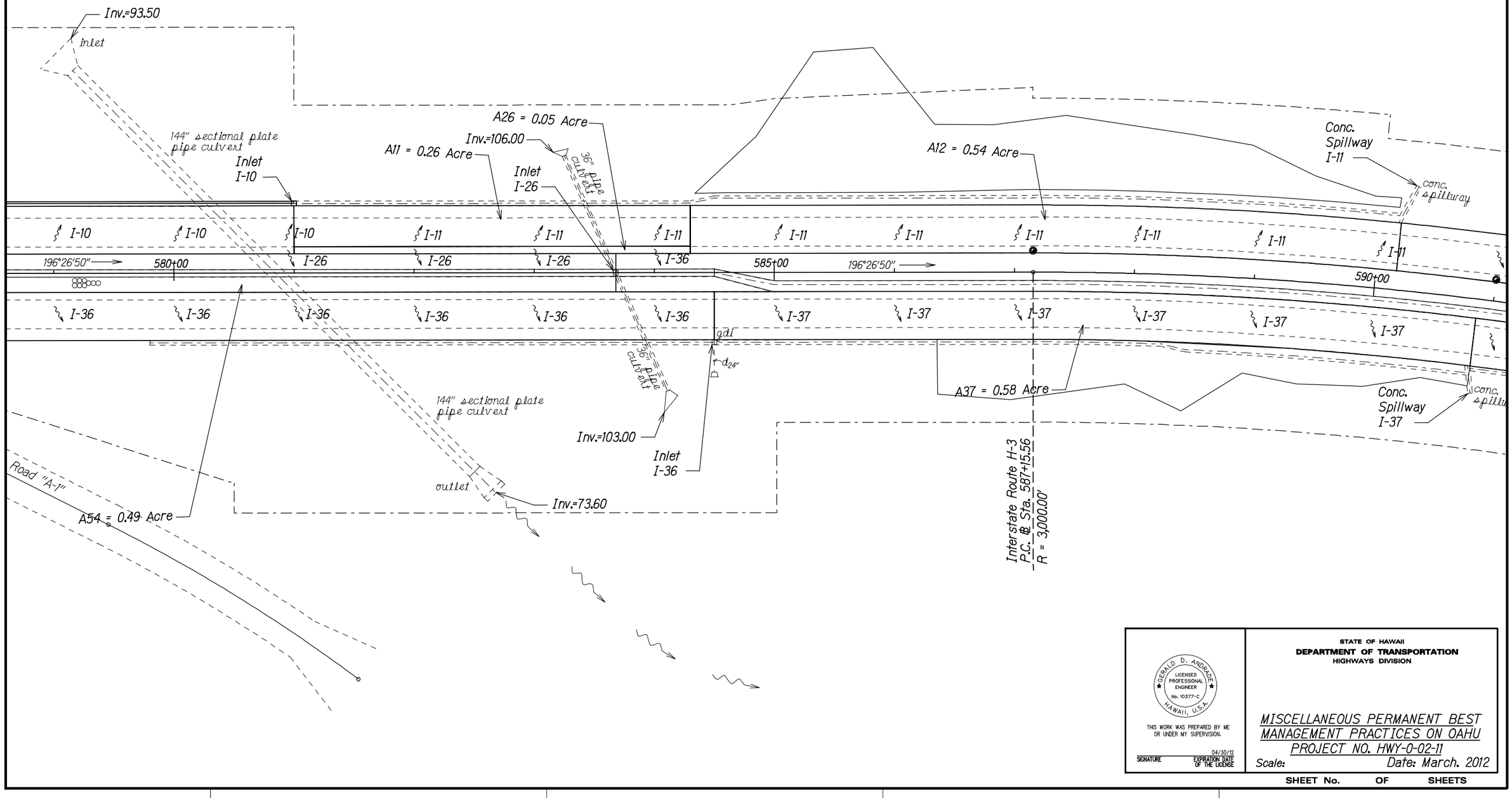

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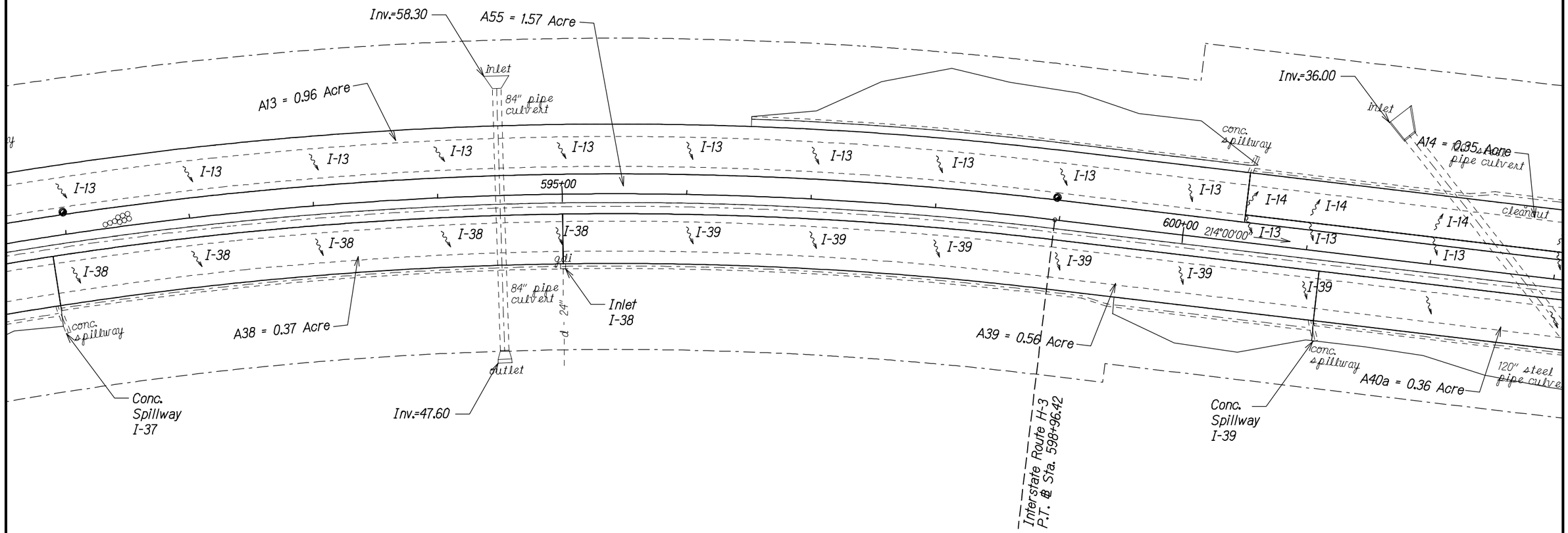

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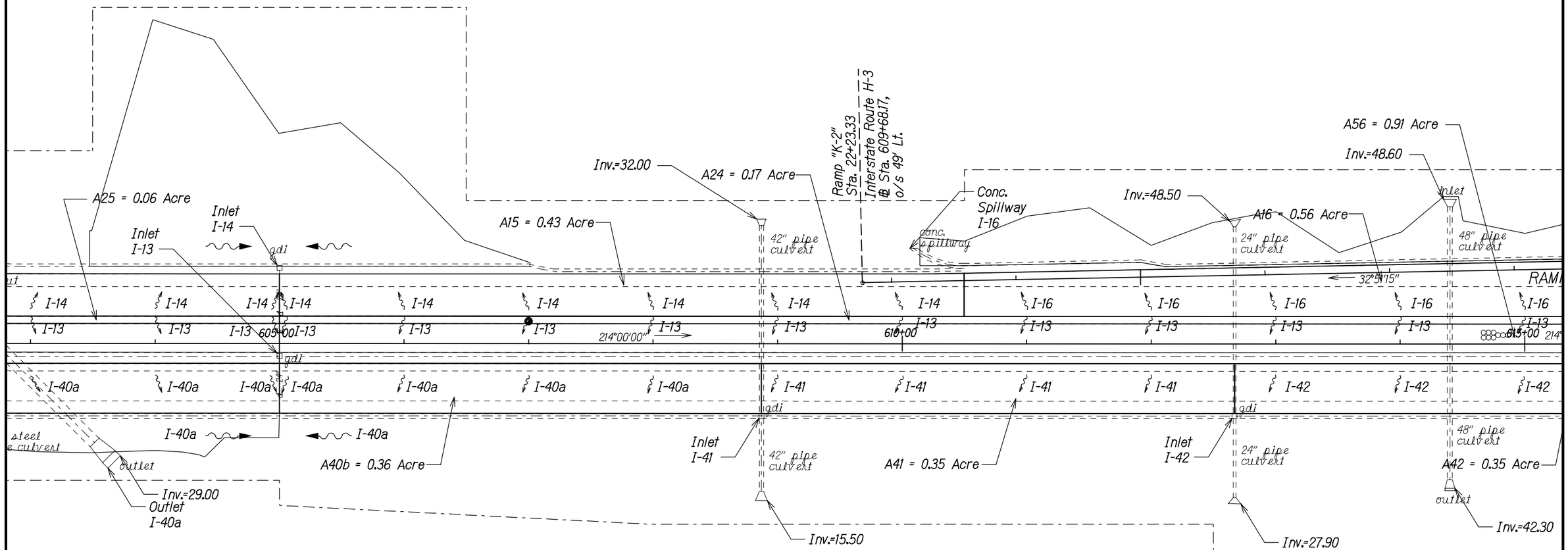

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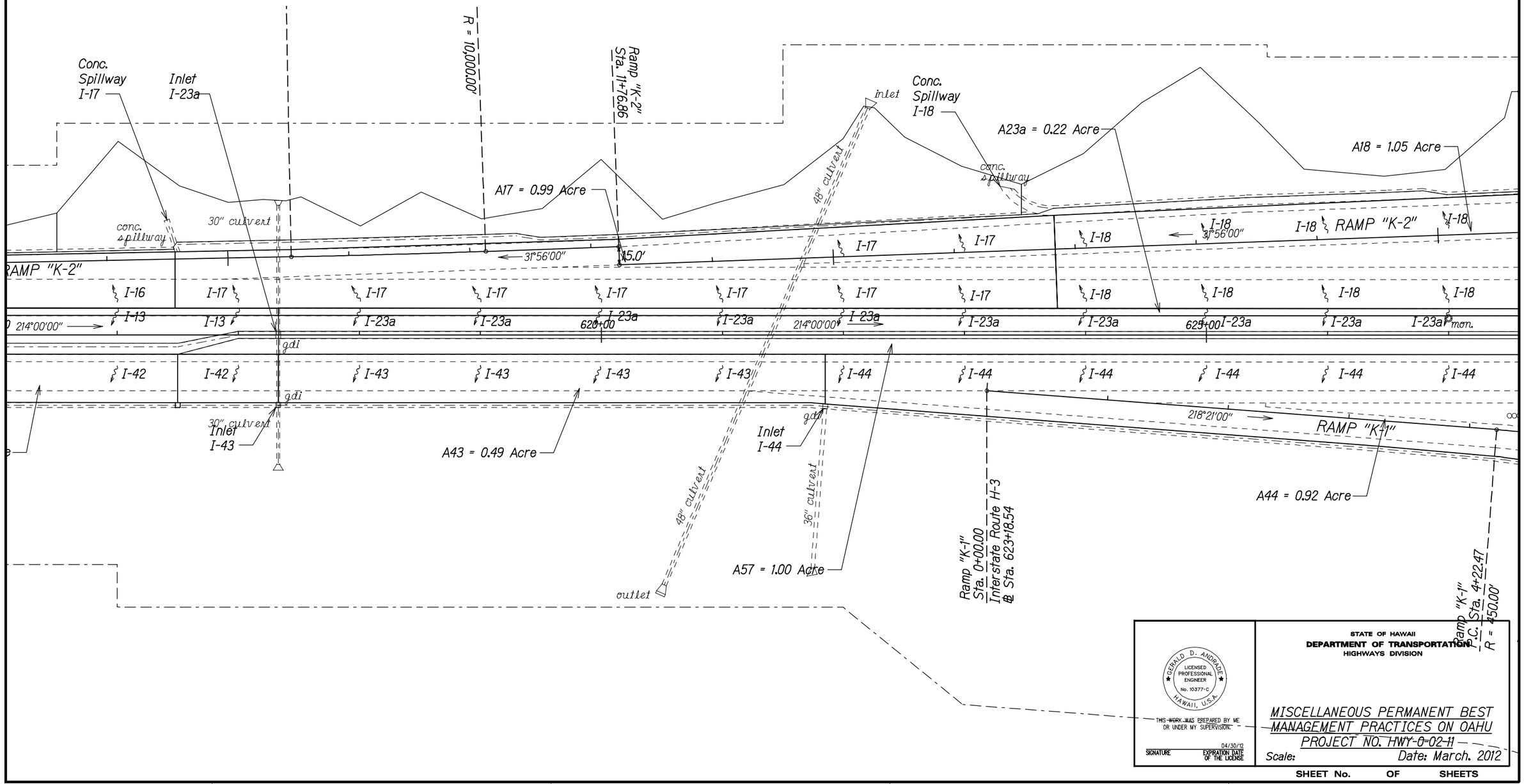

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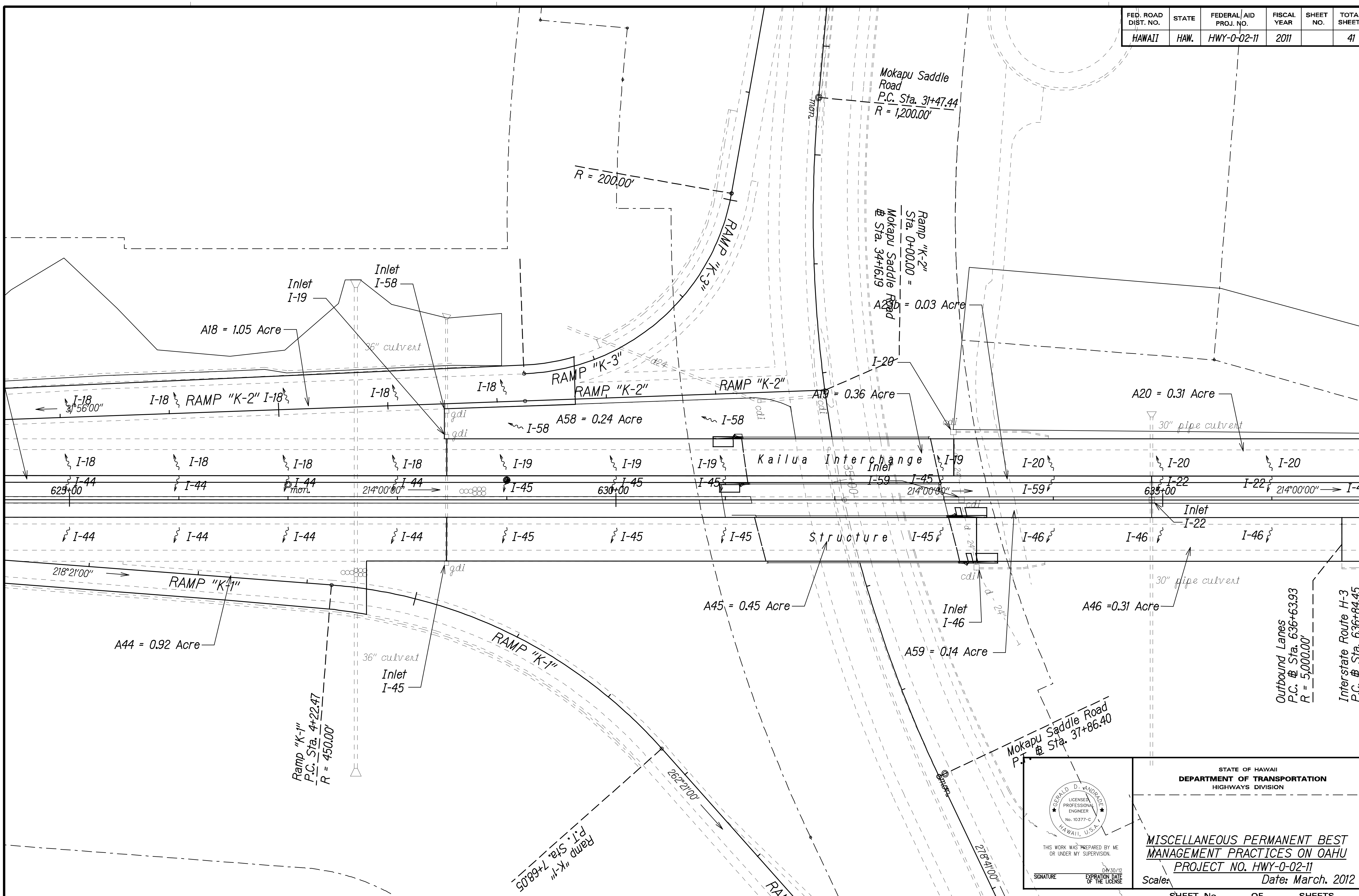

Mokapu Saddle Road
P.C. Sta. 31+47.44
R = 1,200.00'
mon.
R = 200.00'
RAMP "K-3"
Ramp "K-2"
Sta. 0+00.00 =
Mokapu Saddle Road
℄ Sta. 34+16.19
Inlet
I-19
Inlet
I-58
A18 = 1.05 Acre
36" culvert
A23b = 0.03 Acre
I-20
RAMP "K-2"
A19 = 0.36 Acre
A20 = 0.31 Acre
A58 = 0.24 Acre
I-18
I-58
gdi
cdi
30" pipe culvert
Kailua Interchange
Inlet
I-59
I-19
I-20
I-44
I-45
I-22
I-46
625+00
630+00
635+00
214°00'00"
3°56'00"
Inlet
I-22
Structure
218°21'00"
RAMP "K-1"
A45 = 0.45 Acre
A46 = 0.31 Acre
Inlet
I-46
A44 = 0.92 Acre
A59 = 0.14 Acre
36" culvert
Inlet
I-45
Ramp "K-1"
P.C. Sta. 4+22.47
R = 450.00'
Outbound Lanes
P.C. ℄ Sta. 636+63.93
R = 5,000.00'
Interstate Route H-3
P.C. ℄ Sta. 636+84.45
Mokapu Saddle Road
P.I. ℄ Sta. 37+86.40
262°21'00"
Ramp "K-1"
P.I. Sta. 7+68.05
278°41'00"

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A20 = 0.31 Acre

30" pipe culvert

A22 = 0.12 Acre

42" pipe culvert

A21 = 0.52 Acre

I-20

I-22

I-46

635+00

640+00

645+00

214°00'00"

30" pipe culvert

A46 =0.31 Acre

Outbound Lanes
P.C. @ Sta. 636+63.93
R = 5,000.00'

Interstate Route H-3
P.C. @ Sta. 636+84.45

Inbound Lanes
P.C. @ Sta. 637+05.04
R = 5,000.00'

A60 = 0.61 Acre

42" pipe culvert

A47 = 0.66 Acre

dle Road
37+86.40

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PROJECT NO. HWY-0-02-11

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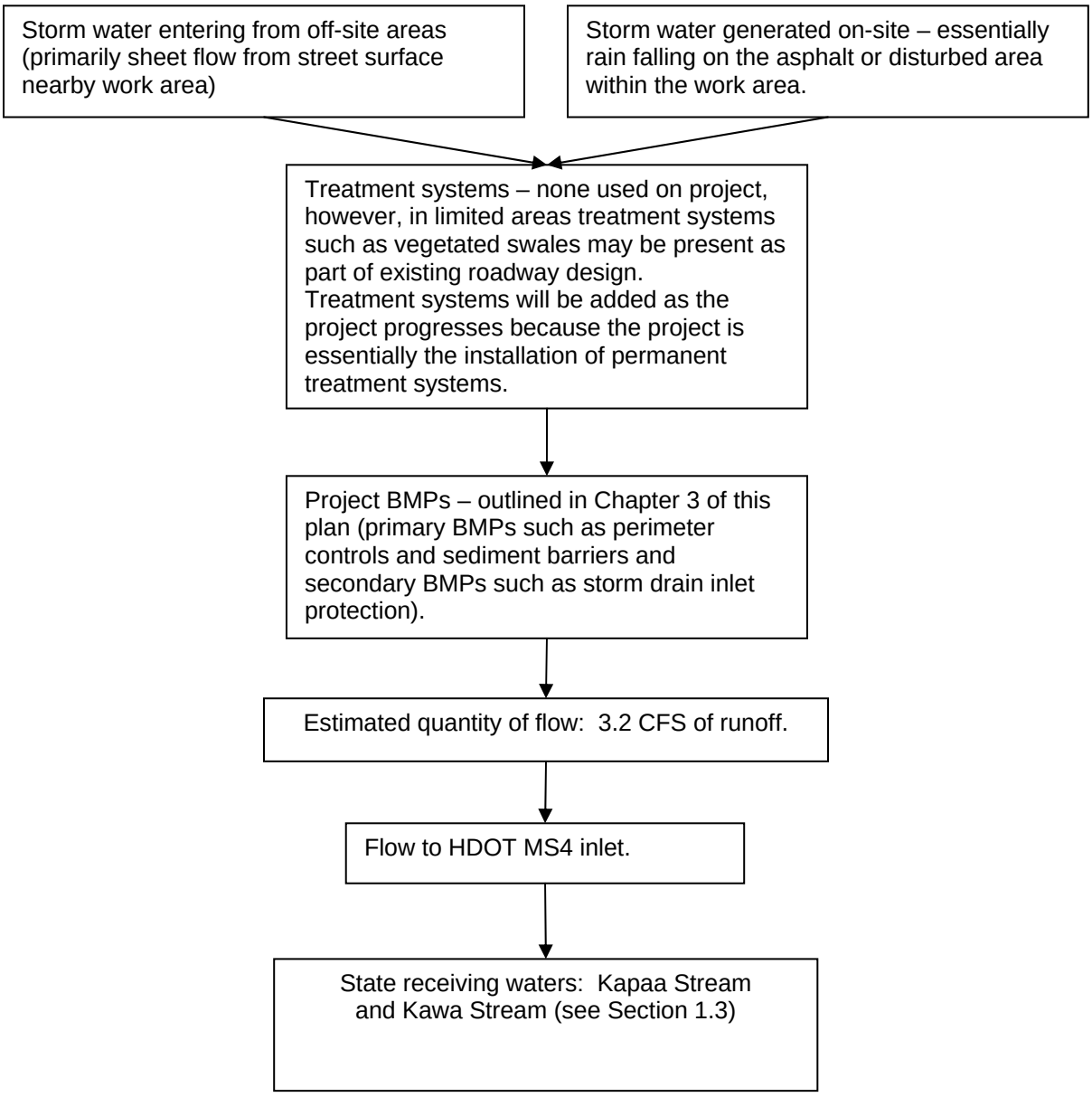
Attachment A-4

Flow Chart—See section 1.10



Attachment A-5

City and County and DOT Memorandum on Grading Permit Review

Mailed out
SEP 19 2008

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DESIGN BRANCH
MEMORANDUM

HWY-D 2.9279
DATE: September 15, 2008

TO: HWY-C, -D, -L, -T, -O

FROM: HWY

SUBJECT: WAIVER OF DETAILED PLAN REVIEW - LETTER OF AGREEMENT (LOA) BETWEEN HAWAII STATE DEPARTMENT OF TRANSPORTATION AND CITY & COUNTY OF HONOLULU (C&C) DATED AUGUST 12, 2008

By letter of agreement (Attachment A), the C&C has agreed not to conduct a detailed plan review for DOT-Highways projects requiring grading permits provided that DOT submits a self certification form (page 2 of Attachment B) along with any required grading permit applications. This applies only to projects on Oahu that require grading permits.

Upon completion of design, the design Project Manager shall use Attachment C, Typical Projects not Requiring Grading Permits dated 8-20-08 and Attachment D, Revised Ordinances of Honolulu to determine whether if the project requires a grading permit or not.

If the project does not require a grading permit, no grading plan review by C&C is needed. The Project Manager checks the applicable block and signs on page 1 of Attachment B. The original is furnished to HWY-OC, and a copy is placed in the project file.

However if a project requires a grading permit, the following shall be done:

1. The Project Manager shall complete check the applicable block and sign page 1 of Attachment B, and complete page 2 of this form. The signatures of Section Head and Branch Head will be that of the office managing the PS&E.

2. The signed originals will be provided to HWY-OC prior to the preconstruction conference. A copy of this form will be kept in the design project file.

3. At the preconstruction meeting, page 2 of the original, signed form will be provided to the construction contractor, who in turn, will provide this to the C&C when a grading permit is processed.

It should be noted that this specifically pertains to grading plan review for projects on Oahu. The possibility exists that a project may affect other C&C facilities such as sewer lines, waterlines, traffic signals, sidewalks, etc. While such work may not require a grading permit, these plans will still require review and approval by C&C.

If you have any questions regarding this matter, please contact Scot Urada, Design Branch Head at 692-7559.

Attachment

SU:su

SELF- CERTIFICATION FORM

To: Department of Planning and Permitting
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Permitting & Inspection Section

From: State of Hawaii
Department of Transportation
Highways Division
601 Kamokila Boulevard, Room 688A
Kapolei, Hawaii 96707

Subject: Non applicability for Detailed Plan review for projects requiring Grading Permits:

Project No: _____

Project Title:_____

_____

TMK No(s): _____

Detailed plan review and approval for the above project by the City & County of Honolulu is not applicable for the reasons stated in the HWY-D letter no. 2.8186 dated June 25, 2008 and as agreed with in DPP Letter 2008/ELOG-1912 dated August 12, 2008.

We certify that the work has been reviewed and is found to be in compliance with Chapter 14, Articles 13, 14 & 15 as amended, Revised Ordinances of Honolulu.

For questions regarding this matter, please contact Scot Urada at 692-7559, Engineering Program Manager, Design Branch, Highways Division.

Section Head: _____ Date: _____

Branch Head: _____ Date: _____

ATTACHMENT B

SUPERSEDED

Typical projects not requiring Grading Permits 8-20-08

(for DOT's use only to determine non-applicability)

	Project Type	Typical Scope of Work
1	Pavement Preservation and Maintenance (PPM)	Application of chip seal, slurry seal, cold plane and replace up to 1-1/2 inches of asphalt.
2	Road Resurfacing	Cut and replace asphalt, place more than 1-1/2 inches of asphalt, ultra thin white topping
3	Road Rehabilitation	Demolition and replacement of PCC, removal and repair and replacement of entire pavement section including PCC or AC and underlying pavement structure materials.
4	Electrical, water, sewer, drainage, communication or other utility installation or relocations	Trenching, removal and/or installation of conduits or pipes, trench backfill, and patching.
5	Traffic Signal Modernization and/or Installation	Trenching, installation of electrical and communication conduits, backfill, patching, replacement of traffic signal hardware, installation of poles & mast arms, augering and placement of concrete foundations, placement of small concrete pads for electrical equipment.
6	Lighting Improvements	Trenching, installation of electrical conduits, backfill, patching, augering and placement of concrete light foundations, placement of small concrete pads for electrical transformers and equipment.
7	Guardrail and Shoulder Improvements	Excavation for shoulder pavement section, install concrete sidewalks and wheel chair ramps, guardrails and end treatments, relocating street lights, grading to "shape" shoulder areas.
8	Intersection Improvements	Installation of pavement structures & sidewalks; minor grading and/or shaping; sometimes installation of traffic signal facilities and installation of electrical and communication conduits.
9	Landscape Improvements	Installation of trees, shrubs, irrigation facilities and other architectural features.
10	Retaining Walls or Sound Walls	Excavation and backfill for footings and walls.
11	Rockfall Protection	Installation of anchors, restraining or containment mesh, restraining or energy absorbing fencing. Slope scaling and removal of boulders.
12	Drainage Improvements	Trenching and replacement of drainage pipes, installation of catchment, inlet or outlet structures, installation of AC or concrete berms or curbs, installation of concrete gutters. Earth or lined ditches and/or swales.

Exclusions (Section 14, Article 13.5, ROH)

1. *Excavation* which does not alter the general drainage pattern with respect to abutting properties, which does not exceed 50 cubic yards of materials on any one site, and does not exceed three feet in vertical height at its deepest point; **provided that the cut meets the cut slopes and distance from property lines requirement in Section 14-15.1, ROH (attachment D).**
2. *Fill* which does not alter the general drainage pattern with respect to abutting properties, which does not exceed 50 cubic yards of materials on any one site, and does not exceed three feet in vertical height at its deepest point; **provided that the cut meets the cut slopes and distance from property lines requirement in Section 14-15.1, ROH.**
3. Grubbing that does not alter the general drainage pattern with respect to abutting properties and does not exceed a total of 15,000 square feet.

ATTACHMENT C

the corrective measures to be taken. Grading operations shall cease until corrective measures satisfactory to the chief engineer have been taken. In addition, whenever the work is not being done in conformance with a NPDES permit, the state department of health will be notified.
(Sec. 23-2.9, R.O. 1978 (1983 Ed.); Am. Ord. 92-122)

Article 15. Grading, Grubbing and Stockpiling

Sections:

14-15.1 Conditions of permit.
14-15.2 Special requirements.

Sec. 14-15.1 Conditions of permit.

The requirements of subsections (a), (b) and (c) may be modified by the director of planning and permitting based on the engineer's soils report and engineering slope hazard report.
(a) Height. Where a cut or fill is greater than 15 feet in height, terraces or benches shall be constructed at vertical intervals of 15 feet except that where only one bench is required, it shall be at the midpoint. The minimum width of such terraces or benches shall be at least eight feet and provided with drainage provisions to control erosion on the slope face and bench surface.
(b) Cut Slopes. Under the following soil conditions, no cut may be steeper in slope than the ratio of its horizontal to its vertical distance as shown below:
(1) One-half horizontal to one vertical in unweathered rock or mudrock;
(2) One horizontal to one vertical in decomposed rock;
(3) One and one-half horizontal to one vertical in soils of low plasticity, cuts of any height in highly plastic soils shall be as recommended in the applicable report.
(c) Fill Slopes. Fills shall not be steeper than a ratio of two horizontal to one vertical except that fill using highly plastic clays shall have slopes as recommended in the applicable report.
(d) Distance from property line. The horizontal distance from the top of a cut slope or the bottom of a fill slope to the adjoining property line shall not be less than as follows:

Height of Cut or Fill	Distance from Property Line (in feet)
Zero feet to 4 feet	2
More than 4 feet to 8 feet	4
More than 8 feet to 15 feet	6
More than 15 feet	8

These requirements may be modified by the director of planning and permitting when cuts or fills are supported by retaining walls or when the permittee submits an engineer's soils report or engineering slope hazard report stating that the soil conditions will permit a lesser horizontal distance without causing damage or danger to the adjoining property.
(e) Area Opened. The maximum-sized parcel of land that may be opened for grading or grubbing is 15 acres. Noncontiguous increments may be worked concurrently provided no single parcel exceeds 15 acres, provided the work is in conformance with the NPDES permit. The area of land that may be opened may be reduced by the director of planning and

Attachment P

permitting to control pollution and minimize storm damage. However, if soils, hydrologic, climatic and construction conditions warrant, and adequate erosion prevention measures have been taken, the director of planning and permitting may authorize additional area to be opened. Additional area may not be opened for grading or grubbing until measures to prevent dust or erosion problems in the area already graded or grubbed have been undertaken to the satisfaction of the director.

(f) Fills. The requirements of subdivisions (1), (2) and (3) may be modified by the director of planning and permitting if the permittee submits an engineer's soils report recommending criteria for the proposed fill for its intended use.

(1) Fill material shall be selected to meet the requirements and conditions of the particular fill for which it is to be used. The fill material shall not contain vegetation or organic matter. Where rocks, concrete, or similar materials of greater than eight inches in diameter are incorporated into the fill, they shall be placed in accordance with the recommendation of a soils engineer.

(2) Preparation of Ground Surface. Before placing or stockpiling, the natural ground surface shall be prepared by removing the vegetation and, if required by the director of planning and permitting, shall be notched by a series of benches and/or subsurface drains installed. No fill shall be placed over any water spring, marsh, refuse dump, nor upon a soft, soggy or springy foundation; provided, that this requirement may be waived by the director of planning and permitting if the permittee submits an engineer's soils report recommending criteria for the fill.

(3) Placement and Compaction. Fill materials shall be spread and compacted in a series of eight-inch to 10-inch layers when compacted, unless otherwise recommended by the soils engineer. Except for slopes, the fill shall be compacted to 90 percent of maximum density as determined by the most recent ASTM soil compaction test D1557 unless the engineer's soils report justifies a lesser degree of compaction, or unless otherwise recommended by the soils engineer.

(g) Vegetation. Whenever feasible, natural vegetation should be retained by becoming part of the erosion control plan during construction or part of the permanent landscaping plan if applicable. If it is necessary that vegetation be removed, trees, timber, plants, shrubbery and other woody vegetation, after being uprooted, displaced or dislodged from the ground by excavation, clearing or grubbing, shall not be stored or deposited along the banks of any stream, river or natural watercourse. After being uprooted, displaced or dislodged, such vegetation shall be disposed of by means approved in writing by the director of planning and permitting or removed from the site within a reasonable time, but not to exceed three months.

(h) Drainage Provisions. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Positive drainage shall be provided to prevent the accumulation or retention of surface water in pits, gullies, holes or similar depressions. All drainage facilities shall be designed to carry surface waters to a street, storm drain inlet or natural watercourse and shall include an erosion and sedimentation control plan to prevent sediment-laden runoff from leaving the site, either during or following construction. The director of planning and permitting may require such detention or retention drainage structures and pipes to be constructed or installed, which in the director's opinion, are necessary to prevent erosion damage, prevent sediment-laden runoff from leaving the site, and to satisfactorily carry off surface waters. The flow of any existing and known natural underground drainage shall not be impeded or changed so as to cause damage to adjoining property.

(i) Debris Prohibited. No person shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses.

(j) Work Days. No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice to the director of planning and permitting, provided such grading work is also in conformance with Hawaii Administrative Rules, Chapter 11-43, "Community Noise Control for Oahu."

(k) Dust Control. All work areas within and without the actual grading area shall be maintained free from dust which will cause a nuisance or hazard to others and in conformance with the air pollution control standards contained in Hawaii Administrative Rules, Chapter 11-60, "Air Pollution Control."

(l) Water Quality Standards. All grading operations authorized under Articles 13 through 16 of this chapter shall be performed in conformance with the applicable provisions of the water pollution control and water quality standards contained in Hawaii Administrative Rules, Chapter 11-55, "Water Pollution Control" and Chapter 11-54, "Water Quality Standards" and if applicable, the NPDES permit for the project. Any dewatering discharge into state waters will require an NPDES permit from the department of health under Chapter 11-55, "Water Pollution Control." Any dewatering discharge into the city-owned storm sewer system will require a construction dewatering permit from the director of planning and permitting and an NPDES permit for the discharge of any pollutant into state waters through the city-owned storm sewer system from the department of health, State of Hawaii.

(m) Notification of Completion. The permittee or the permittee's agent shall notify the director of planning and permitting or the director's representative when the grading operation is ready for final inspection. Final approval shall not be given until completion of all work including installation of all drainage structures and their protective devices, completion of all planting showing a healthy growth in conformance with the approved plans and specifications, and the required reports have been submitted.

(n) Report After Grading.

(1) When grading involves cuts or fills for which an engineer's soils report was required, the permittee shall submit a final report, prepared by an engineer, upon the completion of such work. This report shall contain:

(A) A description of materials used in the fill and its moisture content at the time of compaction, the procedure used in depositing and compacting the fill, the preparation of original ground surface before making the fill, but not limited to benching and subsurface drainage, and a plan or tabulation showing the general location and elevation of compaction tests made in the fill together with a tabulation of relative compaction densities obtained at each location, the location of subdrains and other pertinent features of the fill necessary for its stability.

(B) A certification that the work was done in conformity to this chapter, the approved plans and specifications and the engineer's soils report.

(2) Where a slope hazard evaluation and mitigation plan was required to be submitted with a grading permit application, the permittee shall submit a final assessment report, prepared by an engineer, upon the completion of site work, prior to building construction. The assessment report shall contain a verification that the prevention measures and any stabilization measures called for in the engineering slope hazard report or construction plans

were done in conformity with this chapter, and the approved plans and specifications.
(o) As-Graded Plan. Upon completion of grading areas over one acre or areas graded under subdivision rules, an as-graded plan prepared by an engineer or land surveyor shall be submitted if required by the director of planning and permitting.
(Sec. 23-3.1, R.O. 1978 (1983 Ed.); Am. Ord 92-122, 04-27)

Sec. 14-15.2 Special requirements.
(a) Any person performing or causing to be performed any excavation or fill shall, at such person's own expense, provide the necessary means to prevent the movement of earth of the adjoining properties, to protect the improvements thereon, and to maintain the existing natural grade of adjoining properties.
(b) Any person performing or causing to be performed, any excavation or fill shall be responsible for the maintenance or restoration of street pavements, sidewalks and curbs, and improvements of public utilities which may be affected. The maintenance or restoration of street pavements, sidewalks and curbs shall be performed in accordance with the requirements of the City and County of Honolulu and the maintenance and restoration of improvements of public utilities shall be in conformity with the standards of the public utility companies affected. At cuts fronting any street, a suitable and adequate barrier shall be installed to provide protection to the public.
(c) Any person depositing or causing to be deposited, any silt or other debris in ditches, watercourses, drainage facilities and public roadways, shall remove such silt or other debris. In case such person shall fail, neglect or refuse to comply with the provisions of this section within 48 hours after written notice, served upon such person, either by mail or by personal service, the chief engineer may proceed to remove the silt and other debris or to take any other action the chief engineer deems appropriate. The costs incurred for any action taken by the chief engineer shall be payable by such person.
(d) At any stage of the grading, grubbing or stockpiling work, if the chief engineer finds that further work as authorized by an existing permit is likely to create soil erosion problems or to endanger any life, limb or property, the chief engineer may require safety precautions, which may include but shall not be limited to the construction of flatter exposed slopes, the construction of additional silting or sediment basins, drainage facilities or benches; the removal of rocks, boulders, debris and other dangerous objects which, if dislodged, are likely to cause injury or damage; the construction of fences or other suitable protective barriers; or may refer to the local soil and water conservation district for advice from the soil conservation service or other appropriate agencies on the planting or sodding of slopes and bare areas. All planted or sodded areas shall be maintained. An irrigation system or watering facilities may be required by the chief engineer.
(e) At any stage of the grading, grubbing or stockpiling operations, if the chief engineer finds that further work as authorized by an existing permit is likely to create dust problems which may jeopardize health, property or the public welfare, the chief engineer may require additional dust control precautions and, if these additional precautions are not effective in controlling dust, may stop all operations. These additional dust control measures may include such items as sprinkling water, applying mulch treated with bituminous material, or applying hydro mulch.
(f) Hillside lots shall be graded in such a manner that any parcels which may be created therefrom, including all separate building sites which may be contained within said parcels, can be satisfactorily graded and developed as individual building sites.
(Sec. 23-3.2, R.O. 1978 (1983 Ed.))

Article 16. Violations, Penalties and Liabilities for Grading, Grubbing and

Stockpiling

Sections:

14-16.1 General.
14-16.2 Notice of violation--Stop work.
14-16.3 Criminal prosecution.
14-16.4 Administrative enforcement.
14-16.5 Liability.
14-16.6 Rule-making powers.
14-16.7 Decisions of the chief engineer.

Sec. 14-16.1 General.

It is unlawful for any person to do any act forbidden, or to fail to perform any act required, by the provisions of Articles 13 through 16 of this chapter. Whenever a corporation violates any of the provisions of Articles 13 through 16 of this chapter, the violation shall be deemed to be also that of the individual directors, officers or agents of the corporation who in their capacity as directors, officers or agents of such corporation have authorized, ordered or done any of the acts constituting in whole or in part such violation. (Sec. 23-4.1, R.O. 1978 (1983 Ed.); Am. Ord. 90-71)

Sec. 14-16.2 Notice of violation--Stop work.

(a) Whenever any person, firm or corporation violates any provision of Articles 13 throught 16 of this chapter, the chief engineer shall serve the person, firm or corporation with a notice of violation which shall require the person, firm or corporation responsible to correct the violation.

(b) The notice of violation shall include but not be limited to the following information:

(1) The date of issuance of the notice;

(2) The name and address of the person or entity notified and the location of the violation;

(3) The section number of the ordinance, code or rule which has been violated;

(4) The nature of the violation; and

(5) An order to stop work if deemed necessary by the chief engineer; and

(6) The deadline for correction of the violation.

(c) If the chief engineer deems it necessary for work to stop, the work shall cease upon receipt of the notice and shall not resume until corrective measures satisfactory to the chief engineer have been taken. If the notice includes a stop work order, the chief engineer shall notify and transmit a copy to the chief of police concurrently with the issuance of the notice. The chief of police shall have the power to enforce the stop work order pursuant to Section 6-1604, Revised Charter of Honolulu, 1973, as amended.

(Added by Ord. 90-71; Am. Ord. 91-07)

Sec. 14-16.3 Criminal prosecution.

Any person, firm or corporation violating any of the provisions of Articles 13 through 16 of this chapter shall be deemed guilty of a misdemeanor for each and every day or portion thereof during which any violation of any provisions of this chapter is committed and, upon conviction of any such violation, such person shall be punishable by a fine of not more than $1,000.00 or by imprisonment for not more than one year, or by both fine and imprisonment. (Added by Ord. 90-71)

Sec. 14-16.4 Administrative enforcement.

(a) In lieu of or in addition to enforcement pursuant to Section 14-16.3, if the chief engineer determines that any person, firm or corporation is not complying with a notice of violation, the chief engineer may issue an order to the person or entity responsible for the violation, pursuant to this section.

(b) Contents of Order.

(1) The order may require the party responsible for the violation to do any or all of the following:

(A) Correct the violation within the time specified in the order;

(B) Upon compliance with the provisions of HRS Chapter 91, pay a civil fine not to exceed $1,000.00 in the manner, at the place and time specified in the order; and

(C) Upon compliance with the provisions of HRS Chapter 91, pay a civil fine not to exceed $1,000.00 per day for each day in which the violation occurs, in the manner and at the time and place specified in the order.

(2) The order shall advise the party responsible for the violation that the order shall become final 30 calendar days after the date of its delivery.

(c) Judicial Enforcement of Order. The chief engineer may institute a civil action in any court of competent jurisdiction for the enforcement of any order issued pursuant to this section. Where the civil action has been instituted to enforce the civil fine imposed by said order, the chief engineer need only show that the notice of violation and order were served, that a civil fine was imposed, the amount of the civil fine imposed and that the fine imposed has not been paid.

(Added by Ord. 90-71)

Sec. 14-16.5 Liability.

The provisions of Articles 13 through 16 of this chapter shall not be construed to relieve or alleviate the liability of any person for damages resulting from performing, or causing to be performed, any grading, grubbing or stockpiling operation. The city, its officers and employees shall be free from any liability, cost or damage which may accrue from any grading, grubbing or stockpiling or any work connected therewith, authorized by Articles 13 through 16 of this chapter. (Sec. 23-4.2, R.O. 1978 (1983 Ed.); Am. Ord. 90-71)

Sec. 14-16.6 Rule-making powers.

The chief engineer shall be empowered to promulgate rules and regulations pursuant to HRS Chapter 91, for the implementation of the provisions of Articles 13 through 16 of this chapter. (Sec. 23-4.3, R.O. 1978 (1983 Ed.); Am. Ord. 90-71)

Sec. 14-16.7 Decisions of the chief engineer.

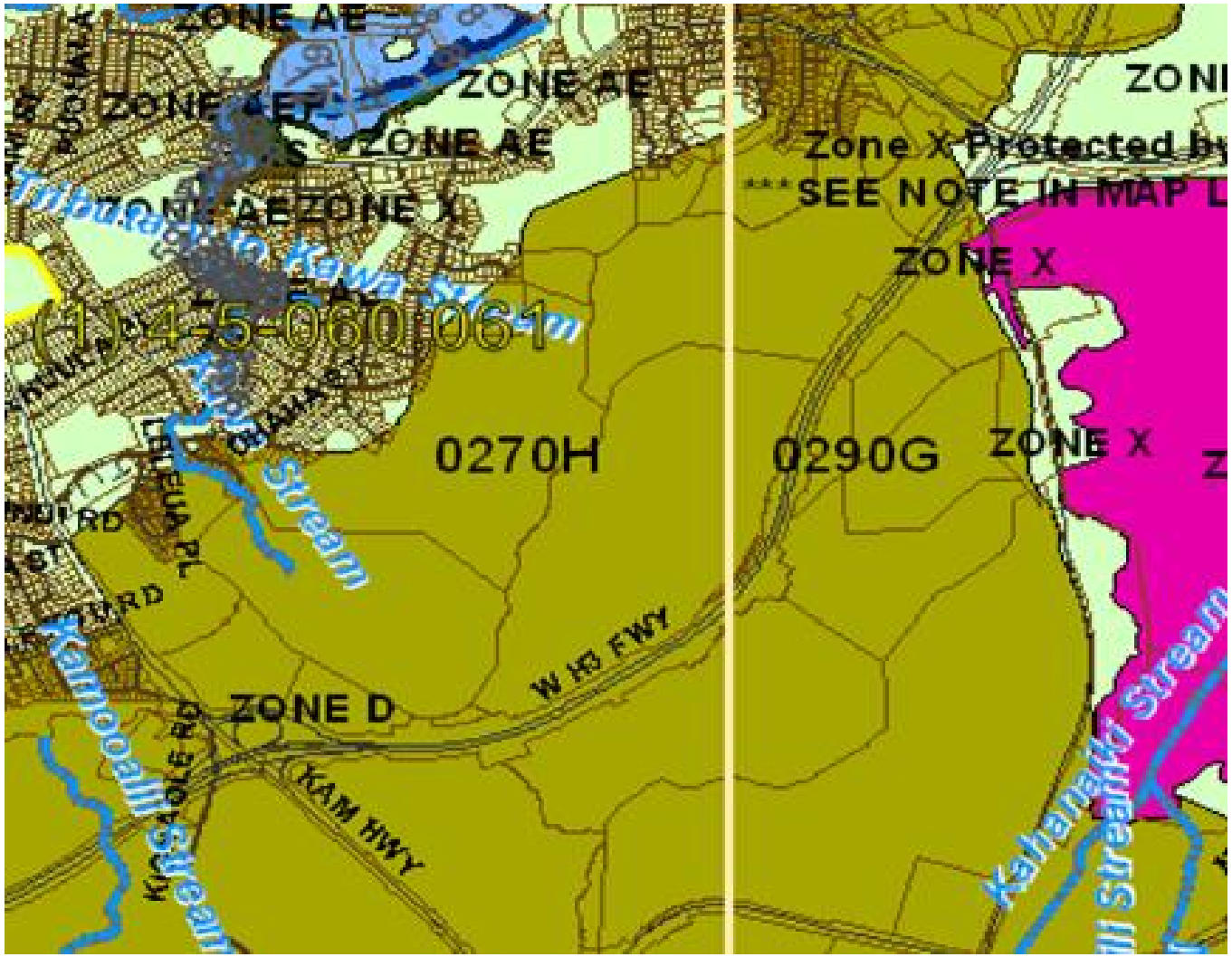
Decisions of the chief engineer made in accordance with the provisions of Articles 13 through 16 of this chapter, and/or decisions involving variations from the standards referred to herein shall be made a matter of record in the permit file. (Sec. 23-4.4, R.O. 1978 (1983 Ed.); Am. Ord. 90-71)

Article 17. Excavation and Repairs of Streets and Sidewalks

Sections:

14-17.1 Permit required--Application--Insurance--Bond--Permit fee.
14-17.2 Notice of commencement, prosecution of work and inspection.
14-17.3 Trench excavation, backfill and pavement restoration.
14-17.4 Repairs by city.

Flood Zone Map



Attachment A-6

Map Legend

- VE / V Zones
- AO Zone
- AE Zone
- AH Zone
- A Zone
- Floodway
- X Zone
- X Protected by Levee Zone (Click to see note)
- XS Zone
- D Zone
- Letter of Map Change (LOMC)

Attachment B – HDOT SSCBMP Plan Training Log (SSCBMP Section 3.3)

Instructions

Check Appropriate Box and Include Additional Sheet for Each of the Training Classes Listed Below on the Training Log Form:

A) Attendance at Department Of Transportation, Highways Division Annual Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors.

B) Attendance at Non-HDOT sponsored Stormwater BMP Training Courses.

C) Participation in viewing Annual HDOT Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors on DVD provided by HDOT.

TRAINING LOG

- ❑ *Department of Transportation, Highways Division Annual Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors*
- ❑ *Non-HDOT Sponsored Stormwater BMP Training Courses*
- ❑ *Annual HDOT Construction Site Runoff Control, Pollution Prevention, and Good Housekeeping Training for Contractors on DVD Provided by HDOT*

Project Name:
Project Location:
Instructor's Name(s):
Instructor's Title(s):

Course Location: _____ *Date:* _____

Course Length (hours): _____

Stormwater Training Topic: (check as appropriate)

- ❑ *Erosion Control BMPs*
- ❑ *Sediment Control BMPs*
- ❑ *Non-Stormwater BMPs*
- ❑ *Emergency Procedures*
- ❑ *Good Housekeeping BMPs*

*Specific Training Objective:*_____

_____

Attendee Roster:

No.	***Name of Attendee***	***Company***
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Add rows as needed

Attachment C - Construction Schedule (SSCBMP Section 2.2)

CONSTRUCTION SCHEDULE

This is a tentative schedule with a start date of September, 2012. The project is predicted to have a six month duration.

The date when the SSCBMP Plan, including erosion control measures will be implemented: September 1, 2012
The date when the general contractor will begin the site disturbance: October 1, 2012
The date when each major construction activity begins: October 1, 2012
The proposed timetable for each major activity: October 1, 2012- January 30, 201. There is one major activity – Permanent BMP construction.
The date when each major construction activity ends: January 30, 2013
The date when the general contractor will end site disturbance: January 30, 2013
The date when erosion control measures will be removed: February 28, 2013
The date when the Notice of Cessation form will be submitted: February 28, 2013

Attachment D – Sample Subcontractor Certifications/Agreements (SSCBMP Page 4)

SUBCONTRACTOR CERTIFICATION

*NGPC File No: HIR10*_____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Site-Specific Construction Best Management Practice (SSCBMP) Plan for any work that you perform on-site. Any person or group who violates any condition of the SSCBMP Plan may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SSCBMP Plan. A copy of the SSCBMP Plan is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact storm water must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SSCBMP Plan for the above designated project and agree to follow the BMPs and practices described in the SSCBMP Plan.

This certification is hereby signed in reference to the above named project:

*Company:*_____

*Address:*_____

*Telephone Number:*_____

*Type of construction service to be provided:*_____

_____

Signature: _____

Title: _____

Date: _____

Attach copies, retain originals on-site.

Attachment E – Sample SSCBMP Inspection Report Form (SSCBMP Section 3.4)

HDOT Site-Specific Best Management Practice Plan Inspection And Maintenance Report Form

Date: _____ Project/Site: _____ NGPC File No.: _____

Inspector's Name: _____ Weather: _____

Site Specific Construction Best Management Practices (SSCBMPs) Plan	Yes	No	N/A	Date Corrected	Notes
Is a copy of the SSCBMP plan available at the site?	☐	☐	☐		
Is the SSCBMP plan certified, signed, and dated?	☐	☐	☐		
Is the SSCBMP plan current and up-to-date?	☐	☐	☐		
Are accompanying erosion and sediment control (ESC) drawings available at the site?	☐	☐	☐		
Are the ESC drawings up-to-date?	☐	☐	☐		
Are all NGPCs available at the site?	☐	☐	☐		
Are inspection records available at the site?	☐	☐	☐		

Insert or removes rows, fill in blanks to tailor to your site.

BMP	Location	Installed Per Specs (Y/N)	Adequate	Needs Mainten-ance	In-adequate, Needs Mod.	N/A	Date Corrected	Notes
Controlling Storm Water Flowing onto and through the Project								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Soil Stabilization								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Slope Protection								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Storm Drain Inlet and Catch Basin Protection								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Perimeter Controls and Sediment Barriers								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Sediment Basins and Detention Ponds								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Stabilized Ingress/Egress Structures								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Additional Erosion and Sediment Control BMPs								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Materials Handling and Waste Management								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Washout Areas								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Proper Equipment/Vehicle Fueling and Maintenance Practices								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
			☐	☐	☐	☐		

BMP	Location	Installed Per Specs (Y/N)	Adequate	Needs Mainten-ance	In-adequate, Needs Mod.	N/A	Date Corrected	Notes
Additional Non-Erosion or Sediment Control BMPs								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Post Construction BMPs								
			☐	☐	☐	☐		
			☐	☐	☐	☐		
Other								
			☐	☐	☐	☐		
			☐	☐	☐	☐		

Insert or removes rows, fill in blanks to tailor to your site.

Site Conditions	Yes	No	N/A	Notes and Corrective Actions
Are off-site flows entering the construction site?	☐	☐	☐	
Is there evidence of polluted discharges off the site?	☐	☐	☐	
Is there evidence of polluted discharges from the site to a State water (e.g. storm drain, ditch, stream, ocean)?	☐	☐	☐	
Is repair, maintenance, or installation of sediment control BMPs needed at the site?	☐	☐	☐	
Is repair, maintenance, or installation of erosion control BMPs needed at the site?	☐	☐	☐	
Are construction materials/debris/trash/soil stored or disposed of properly at the site?	☐	☐	☐	
Is there vehicle tracking from the site to receiving streets?	☐	☐	☐	
Do locations exist where additional or revised BMPs are needed?	☐	☐	☐	
Do locations exist where BMPs may no longer be necessary and may be removed?	☐	☐	☐	

Site Conditions	Yes	No	N/A	Notes and Corrective Actions
Does your site evaluation indicate a need to update or revise the current SSCBMP plan and/or accompanying erosion and sediment control drawings?	☐	☐	☐	

Photos taken during the SSCBMP inspection documented above are:

☐ *Attached*

☐ *Inserted*

☐ *Not taken, attached, or inserted.*

(Insert photos in this section if you so choose.)

I certify that I am the person who performed the inspection documented above and that all information recorded on this form is a true and accurate representation of what was observed at the construction site recorded above. Any photographs attached that were taken during the inspection are a true, accurate, and unaltered representation of what was observed during the inspection documented above.

Inspector's Printed Name: _____

Inspector's Signature: _____ *Date:* _____

Attachment F – Contingency Plan (SSCBMP Section 3.5)

SEVERE STORM CONTINGENCY PLAN

The following plan will be implemented by the General Contractor to prevent/respond to polluted discharges resulting from a severe storm or natural disaster. It is the General Contractor's responsibility to abide by the following plan as well as any other binding plan, agreement, regulation, rule, law, or ordinance applicable.

Emergency numbers for the site manager and his designees will be prominently posted so they may be contacted in case of emergency. State and Federal spill response phone numbers will be prominently displayed so they can be notified in the event of a release.

All contactors associated with the Miscellaneous Permanent Best Management Practices project will follow this plan when a severe storm is either forecast or anticipated or as directed by the Engineer. General Contractors shall:

a. Regularly monitor local weather reports for forecasted and/or anticipated severe storm events, advisories, watches, warnings or alerts. The Contractor shall inspect and document the condition of all erosion control measures on that day prior, during, and within 24 hours after the event. The Contractor shall prepare for forecasted and/or anticipated severe weather events to minimize the potential for polluted discharges.

b. Secure the construction site. Securing the site shall include at a minimum:
   i. Removing or securing equipment, machinery, construction materials, and portable toilets. If portable toilets are to remain on-site, they shall be pumped the day prior to the event.
   ii. Cleaning up all construction debris.
   iii. Stopping scheduled material deliveries.
   iv. Locating and turning off jobsite utilities, including electricity, water, and gas.
   v. Implementing all Best Management Practices detailed in the Site's SSCBMP Plan. This includes BMPs for materials management, spill prevention, and erosion and sediment control. To protect human health, the Engineer will use their discretion as to whether to remove BMPs which may impede flow into inlets causing ponding on the roadway. These changes shall be noted on the SSCBMP plan.
   vi. Work crews shall finalize securing the project site, and evacuate until the severe weather condition has passed.

c. Upon return to the Site, all BMPs shall be inspected, repaired and/or re-installed as needed. If repair or reinstallation of removed BMPs is necessary, it shall be initiated within 24 hours of the inspection. Note the changes on the SSCBMP plan. To facilitate repair or replacement, the Contractor shall be required to store surplus material on the project site if the site is located where replacement materials will not be readily available.

d. When there has been a discharge which violates Hawaii Water Pollution rules and regulations OR there is an imminent threat of a discharge which violates Hawaii Water Pollution rules and regulations and/or endangers human and/or environmental health, the Engineer shall, at a minimum, execute the following steps:

i. Assess whether construction needs to stop or if additional BMPs are needed to stop or prevent a violation.

ii. Direct the Contractor to take all reasonable measures to protect human health and the environment.

iii. Notify responsible parties listed below and immediately notify the DOH of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures.

1. Owner

2. Authorized Representative

3. Contractor

4. Department of Health -- Clean Water Branch (During regular working hours): 808-586-4309; Hawaii State Hospital Operator (After hours): 808-247-2191

iv. Document corrective actions; take photographs of discharge and receiving waters.

v. Evaluate the effectiveness of the construction BMPs in the Site Specific Construction Best Management Plan in relation to the design storm. If the storm was less than the design storm and BMPs were ineffective, revise BMPs to prevent future discharges of a similar nature.

Attachment G – Sample SSCBMP Amendment Log

AMENDMENT LOG

Project Name: _____

SSCBMP Contact: _____

Amendment No.	***Description of the Amendment***	***Date of Amendment***	***Amendment Prepared by [Name(s) and Title]***