

EROSION AND SEDIMENT CONTROL NOTES

1.

The grading operations shall be performed in conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Chapter 11-54, "Water Quality Standards," Chapter 11-55, "Water Pollution Control," and if applicable, the NPDES permit for the project.
2.

The Contractor shall not perform any grading operation which would cause falling rocks, soil or debris, in any form, to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and shall immediately make all remedial actions necessary.
3.

The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The costs incurred for any necessary remedial action by the Engineer shall be payable by the Contractor.
4.

The Contractor, at his own expense, shall keep the project area and surrounding area free from dust and other nuisance. The work shall be in conformance with the air pollution control standards contained in the Hawaii Administrative Rules, Chapter 11-60, "Air Pollution Control."
5.

Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.
6.

Fills on slopes steeper than 5:1 shall be keyed and benched.
7.

No grading work shall be done on Saturdays, Sundays and holidays at any time without prior written notice to the Engineer.
8.

The limits of the area to be graded shall be flagged by the Contractor before the commencement of the grading work. The maximum surface area of earth material exposed at anytime is 300,000 square feet.
9.

Where applicable and feasible, the measures to control erosion and other pollutants shall be in place before any earth moving phase of the grading is initiated.
10.

Temporary erosion control procedures shall be submitted by the contractor for approval by the Engineer prior to the start of actual grading operations.
11.

Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.
12.

Soil stabilization:

A.

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

B.

Disturbed areas left unworked or unfinished for more than 30 calendar Days will be stabilized as necessary according to soil conditions.

C.

In disturbed areas where surface conditions consist of erodible soils, the surface will be stabilized with grassing.

D.

In disturbed areas where surface conditions are bare rock, or Non-erodible soils, no additional stabilization will be applied.

13.

Erosion control measures shall remain in place until all disturbed areas are reestablished with ground vegetation or other means of ground stabilization.
14.

Contractor shall stop all construction activities in the work area when storm runoff is present except to prevent and control soil erosion. All cost to repair the erosion control measures due to storm runoff and/or regular maintenance shall be done at no cost to the State.

TEMPORARY SILT FENCE NOTES

1.

Filter fabric shall be approved by the Engineer, and shall be installed with a support net of polyester netting or approved equal. The filter fabric shall be a minimum of 36" wide and the support net a minimum of 30".
2.

If silt fence is obtained from a manufacturer as a package (i.e., fabric attached to posts), the manufacturer's installation instructions shall be adhered to.
3.

Posts shall be metal, cross section of posts shall be substantial enough to support a loaded silt fence without bending.
4.

Temporary silt fence shall be installed prior to beginning of grading work, and shall not be removed until exposed areas are stabilized.
5.

Location of silt fence is provided as general guideline only. Provide breaks in fence as necessary to ensure clear access into and out of existing road. Adjust limits of fence to conform to existing features as necessary to ensure protection from sediment and erosion damage.

STREAM PROTECTION NOTES

1.

Contractor to submit dewatering shop drawings for each area that requires dewatering to engineer.
2.

Stream flow shall not be pumped.
3.

Equipment to be used in-stream shall be cleaned prior to work below ordinary high water.
4.

Equipment fueling, maintenance and staging will occur at least 100 feet from the stream.
5.

Contractor shall submit a spill prevention plan. Contractor shall have on site absorbent pads and certified personnel during equipment operation.

CONSTRUCTION ACCESS NOTES

1.

The entrance will be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require top dressing, repair and/or cleanout of any measures used to trap sediment.
2.

When necessary, wheels shall be cleaned prior to entrance onto public right-of-way.
3.

When washing is required, it shall be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	50	168

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No.		

MICHAEL H. OKAMOTO

LICENSED PROFESSIONAL ENGINEER

No. 8624-C

HAWAII, U.S.A.

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Michael H. Okamoto

SIGNATURE

April 30, 2022

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

EROSION AND SEDIMENT CONTROL NOTES - 1

FARRINGTON HIGHWAY

Replacement of Makaha Bridge

No. 3 and Makaha Bridge 3A

F. A. Project No. BR-093-1(20)

Scale: None

Date: July 2020

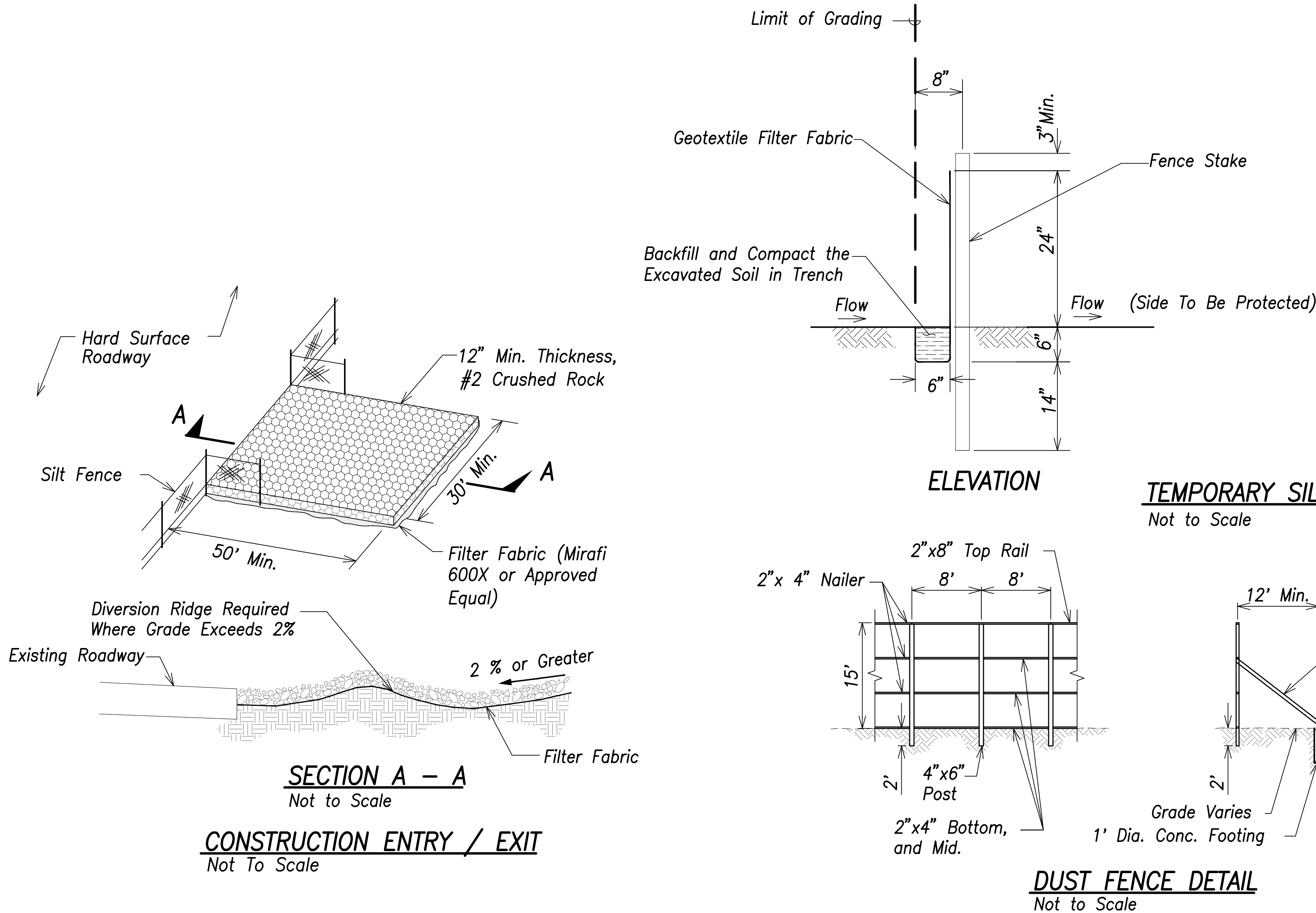
SHEET No. C6.1 OF 168 SHEETS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	51	168

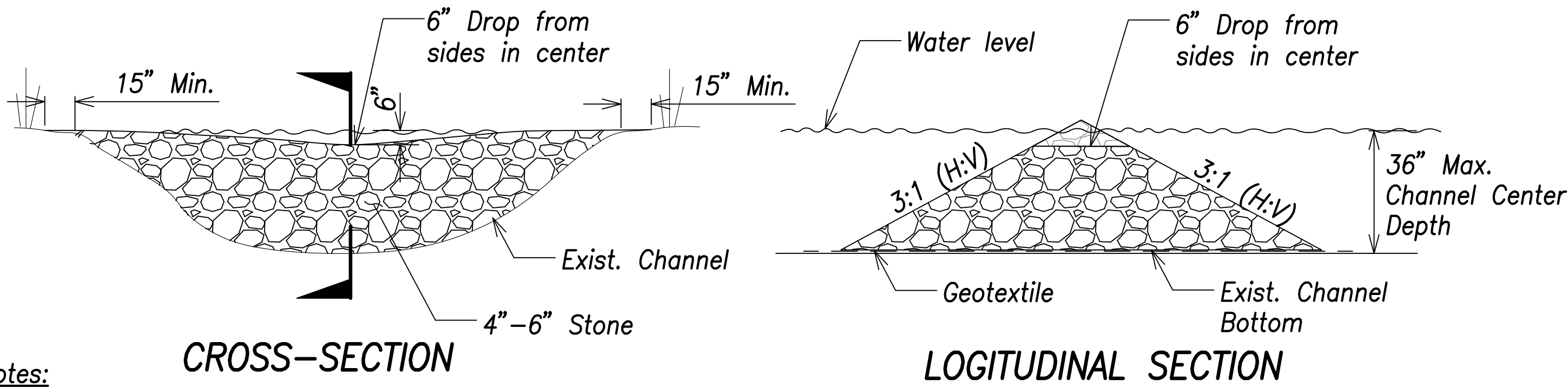
Notes:

1. The Filter Fabric Shall be 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 Instruction Shall be adhered to.
3. Fence Stakes May be Wood or Metal, Must be Capable of Supporting Anticipated Loads.



TEMPORARY SILT FENCE
Not to Scale

DUST FENCE DETAIL
Not to Scale



Notes:

1. Check for sediment after significant rainfall.
2. Sediment shall be removed when it reaches one third of the original height.
3. Remove check dam and accumulated sediment when no longer needed.
4. Rocks shall be hand laid or by mechanical means. No Dumping method.

ROCK CHECK DAM DETAIL
Not To Scale

Notes: Using Gravel Bags for Check Dam

1. Bag Material: Bags shall be either polypropylene, polyethylene or polyimide woven fabric, minimum unit weight 4oz per sq. yd. mullen burst strength exceeding 300 psi in conformance with the requirements in ASTM D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM D4355.
2. Bag Size: Each gravel filled bag shall have be 18"x12"x3" (LxWxT) with a mass of 33 Lb. Bag size are nominal, and may vary based on locally available materials.
3. Fill Material: Fill material shall be between 0.4 and 0.8 inch in diameter, and and shall be clean and free of clat balls, organic matter, and other deleterious materials. Secure bags such that gravel will not escape. Gravel-filled bags shall be between 28 and 48 Lbs in mass..



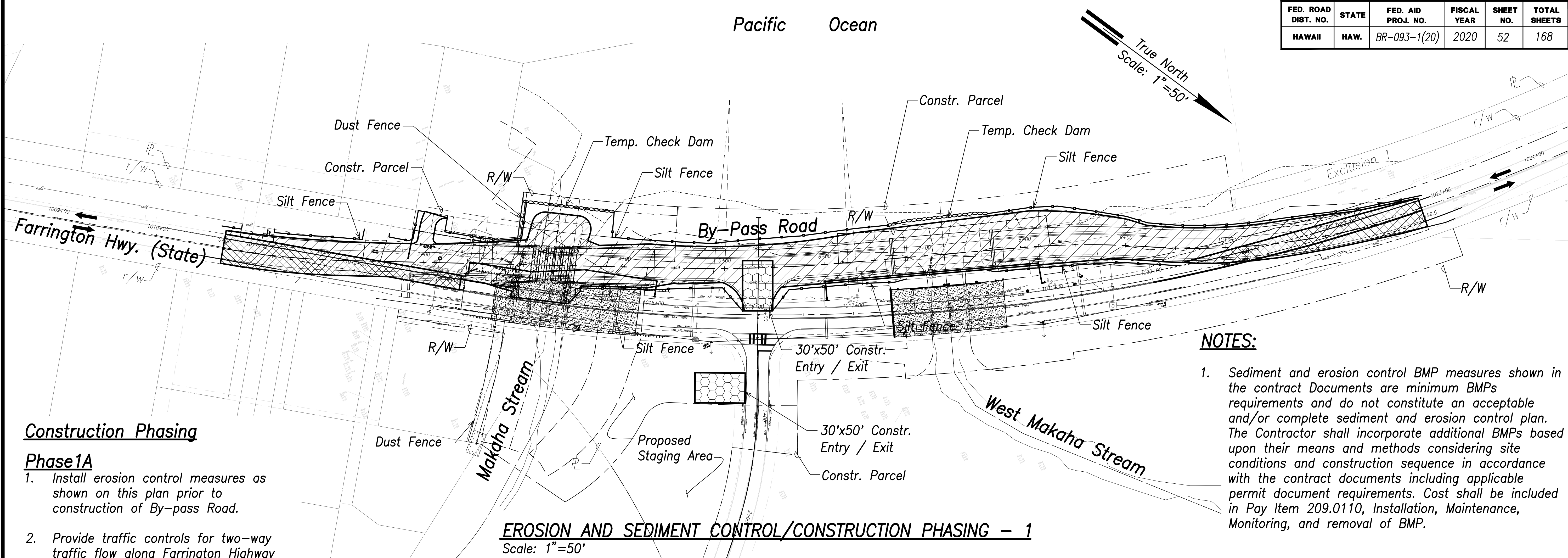
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Michael H. Okamoto April 30, 2022
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OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**EROSION AND SEDIMENT
CONTROL NOTES - 2**
FARRINGTON HIGHWAY
Replacement of Makaha Bridge
No. 3 and Makaha Bridge 3A
F. A. Project No. BR-093-1(20)
Scale: NTS Date: July 2020
SHEET No. C6.2 OF 168 SHEETS

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Construction Phasing

Phase1A

1. Install erosion control measures as shown on this plan prior to construction of By-pass Road.
2. Provide traffic controls for two-way traffic flow along Farrington Highway during Phase 1A work. See Traffic Control Plans on sheets C9.1, C9.2 and C9.3.
3. Clear and grub and demolish and remove existing improvements (See sheet C2.1).

4. Construct temporary By-Pass Road, pre-fabricated steel bridge, culverts and utilities in Phase 1A. See By-Pass Road Plans.

5. Construct By-Pass waterline and relocate electrical utilities (See sht. C7.1 and Electrical drawings).

Phase1B

1. Provide traffic controls along Farrington Highway during Phase 1B work. See Traffic Control Plan - 1 on sheet C9.1.
2. Demolish and remove existing improvements (See sheet C2.1). Construct By-Pass Road and temporary utilities.
3. See By-Pass Road Plans.

EROSION AND SEDIMENT CONTROL/CONSTRUCTION PHASING - 1

Scale: 1"=50'

CONSTRUCTION PHASING NOTES

1. Any requests for adjustments in sequence of construction phasing shall be submitted in writing and approved by the engineer. The contractor's attention is directed to Subsection 108.08 - Failure to Complete on Time and Liquidated Damages of the Special Provisions.
2. Relocation and/or removal of Construction signs, posts and portable concrete barriers used for Construction Phasing shall be considered incidental to their respective contract items.
3. All Construction signs and delineators for the purposes of Construction Phasing shall become the property of the Contractor at the completion of the project.
4. The Contractor shall delete the use of the ground anchorage steel pin for State Furnished Portable Concrete Barrier.
5. Portable Steel Barriers not in use during construction work shall not be stockpiled or otherwise stored within the highway rights-of-way except at locations approved by the Engineer.
6. The Contractor shall periodically wash down signs, delineators and portable concrete barriers called for in the Construction Phasing Plans as deemed necessary by the Engineer.
7. The location of pavement markings and signs, delineators and portable concrete guardrail panels used in the Construction Phasing shall be as shown on the plans and/or as determined in the field by the Engineer.
8. Work required in the State's Construction Phase Plans will be paid under applicable contract items or as otherwise specified herein. All other traffic control work shall be in accordance with Section 645 - Traffic Control. Work required for lane closures during the working day will not be paid for but shall be considered incidental as required under Section 645 of the Special Provisions shall be installed on all approaches to construction areas. This work shall be considered incidental to the various contract items.
9. Install Steady Burn Amber Lamps on portable concrete barrier @ 20'0 o.c. Installing, maintaining and changing batteries of the Portable Mounted Steady Burn Amber Lamps shall be considered incidental to Item No. 606.4230 - State Furnished Portable Concrete Barrier (Intermediate Panel).
10. The Type II Barricades with steady burn amber lamp during Construction Phase shall be considered incidental to the various contract items.

Graphic Scale

1" = 50' 50' 25' 0 50' 100'

Legend:

- Phase 1A Work Area
- Phase 1B Work Area
- Construction Entry/Exit
- Silt Fence
- Check Dam
- Direction of Travel
- Dust Fence



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Michael H. Okamoto April 30, 2022
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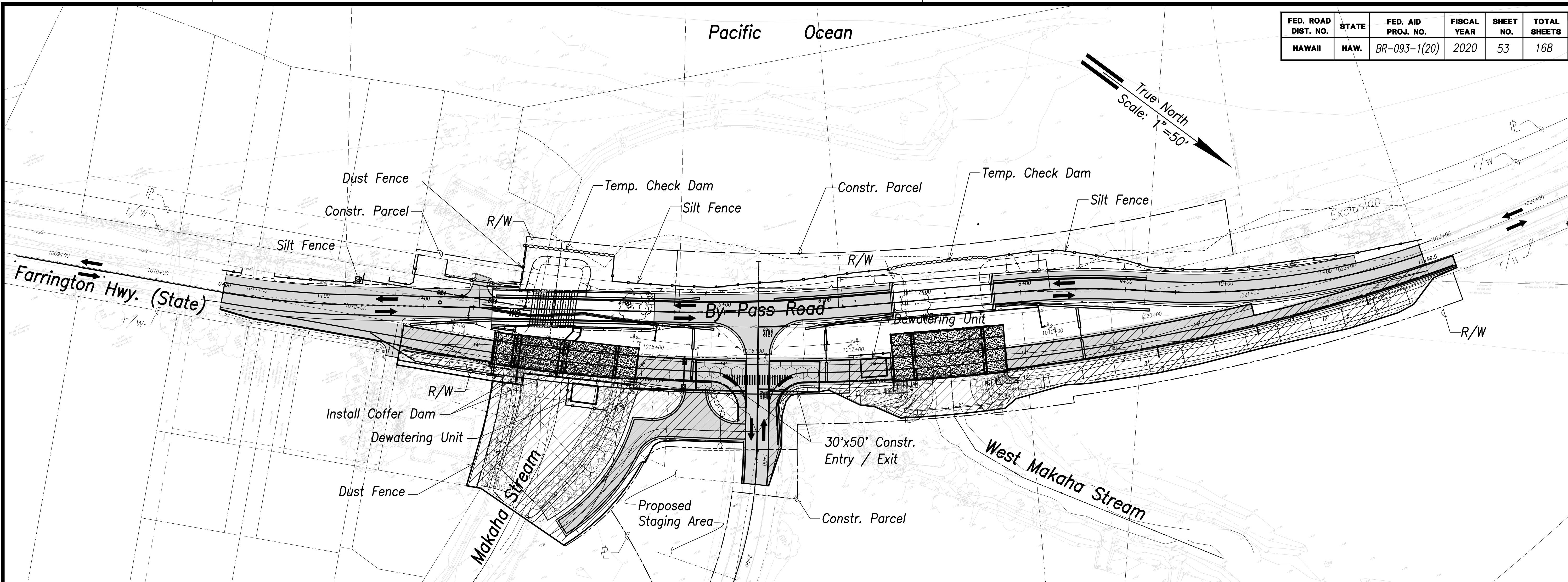
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**EROSION AND SEDIMENT CONTROL
CONSTRUCTION PHASING - 1**
FARRINGTON HIGHWAY
Replacement of Makaha Bridge
No. 3 and Makaha Bridge 3A
F. A. Project No. BR-093-1(20)
Scale: 1"=50' Date: July 2020

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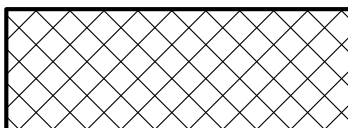
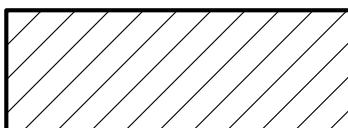
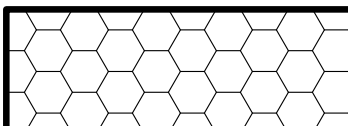
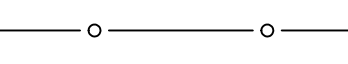
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EROSION AND SEDIMENT CONTROL/CONSTRUCTION PHASING – 2
Scale: 1"=50'

Legend:

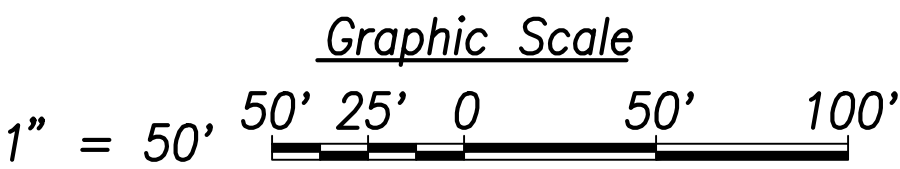
-  Bridge Work Area
-  Roadway Work Area
-  Construction Entry/Exit
-  Silt Fence
-  Check Dam
-  Direction of Travel
-  Dust Fence

Construction Phasing – 2

1. Install additional erosion control measures shown on this plan. Retain silt fence and check dams constructed in the previous construction phase. Contractor shall inspect and ensure re-used erosion control measures are in good working condition.
2. Provide traffic controls and re-direct all traffic from Farrington Highway and Kili Drive onto the By-Pass Road. See Traffic Control Plan on sheet C9.4.
3. Demolish and remove existing improvements (See sheet C2.2). Construct Roadway improvements and utilities shown within the approximate limits on this plan.
4. See Structural drawing for construction of Bridge No. 3.

NOTES:

1. See C6.3 for general construction phasing notes



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Signature
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HIGHWAYS DIVISION

**EROSION AND SEDIMENT CONTROL
CONSTRUCTION PHASING – 2**

FARRINGTON HIGHWAY

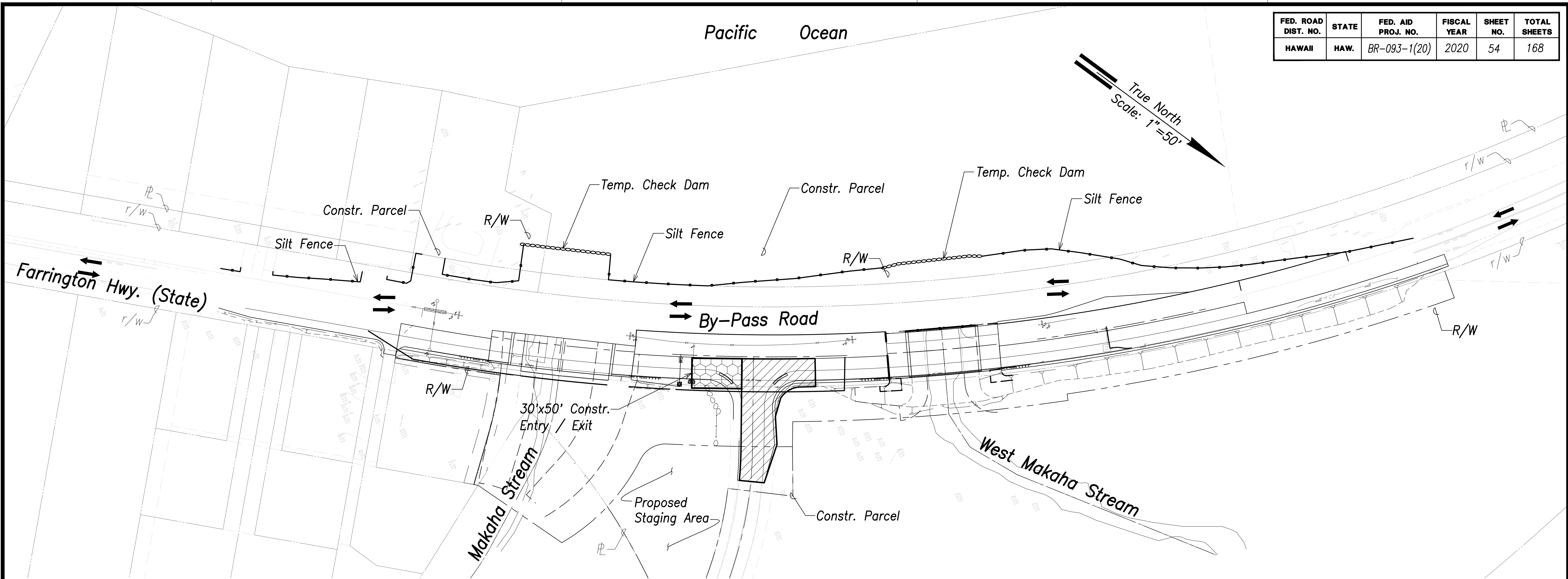
Replacement of Makaha Bridge
No. 3 and Makaha Bridge 3A
F. A. Project No. BR-093-1(20)

Scale: 1"=50' Date: July 2020

SHEET No. C6.4 OF 168 SHEETS

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HAWAII	HAW.	BR-093-1(20)	2020	54	168



EROSION AND SEDIMENT CONTROL/CONSTRUCTION PHASING – 3
 Scale: 1"=50'

Legend:

Bridge Work Area

Roadway Work Area

Construction Entry/Exit

Silt Fence

Check Dam

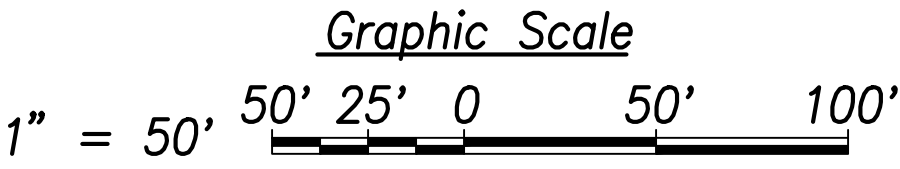
Direction of Travel

Construction Phasing – 3

1. Install additional erosion control measures shown on this plan. Retain silt fence and check dams constructed in the previous construction as necessary. Contractor shall inspect and ensure re-used erosion control measures are in good working condition.
2. For Traffic Control Plan, see sheet C9.5.
3. Demolish and remove existing improvements (See sheet C2.2). Construct Kili Drive improvements and utilities shown within the approximate limits on this plan.
4. Re-direct traffic from the By-Pass Road and Kili Drive onto Farrington Highway.
5. Demolish and remove By-Pass Road (See sht. C2.2)
6. See Sht. C5.3 for Interim Signing and Striping and Site Improvements.

NOTES:

1. See C6.3 for general construction phasing notes



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DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

EROSION AND SEDIMENT CONTROL

CONSTRUCTION PHASING – 3

FARRINGTON HIGHWAY

Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A

F. A. Project No. BR-093-1(20)

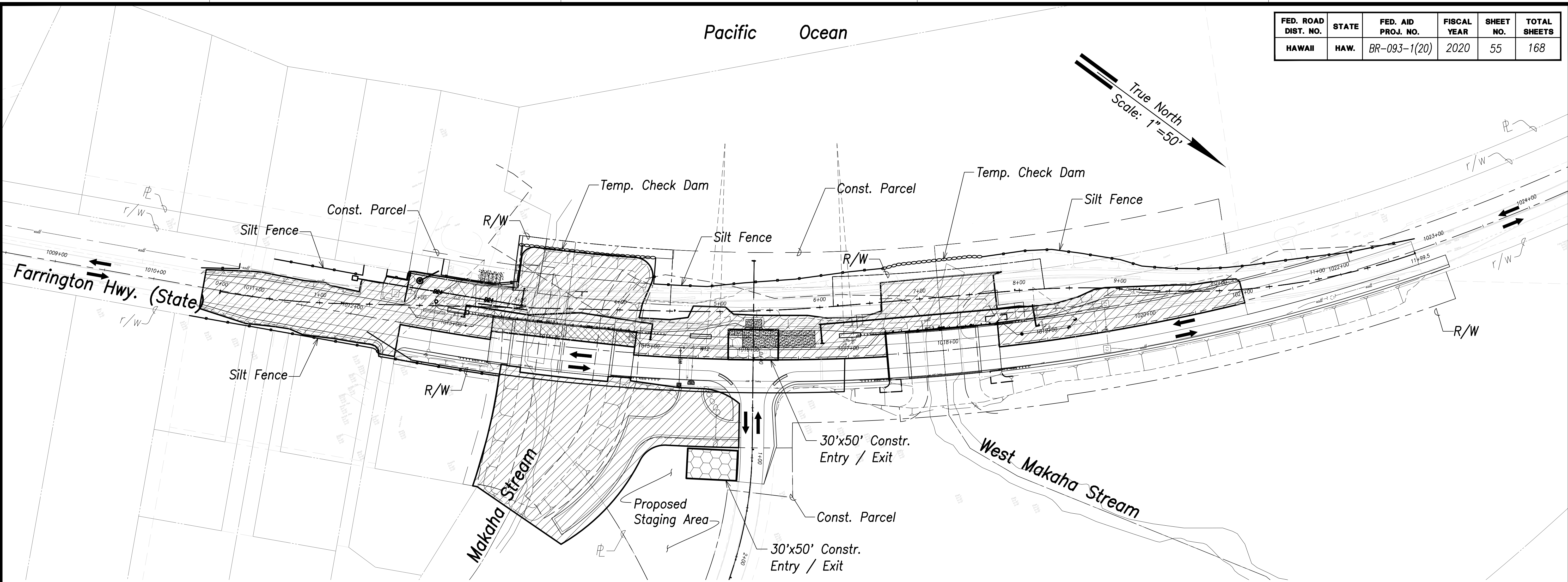
Scale: 1"=50' Date: July 2020

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SHEETS

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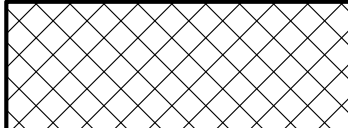
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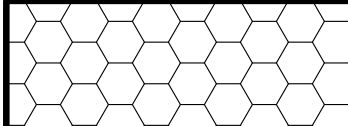


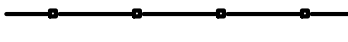
EROSION AND SEDIMENT CONTROL/CONSTRUCTION PHASING – 4
 Scale: 1"=50'

Legend:

 Roadway Work Area

 Bridge Work Area

 Construction Entry/Exit

 Silt Fence

 Check Dam

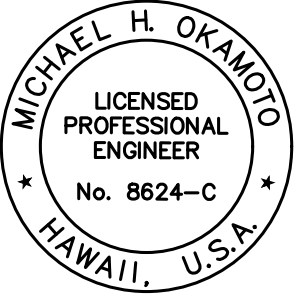
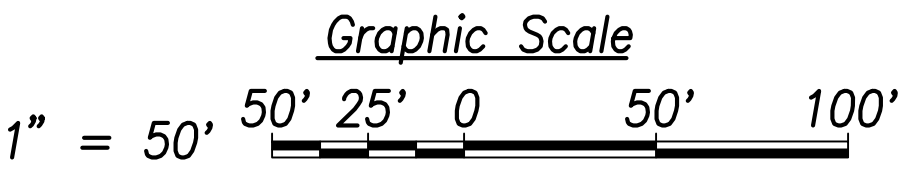
 Direction of Travel

Construction Phasing – 4

1. Install additional erosion control measures shown on this plan. Retain silt fence and check dams constructed in previous construction as necessary. Contractor shall inspect and ensure re-used erosion control measures are in good working condition.
2. Provide traffic controls. For Traffic Control Plan, see sheet C9.6.
3. Follow Demolition Plans – 1 & 2 on sheet C2.2 and C2.3 and construct Roadway and utilities shown within the approximate limits on this plan.

NOTES:

1. See C6.3 for general construction phasing notes



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**EROSION AND SEDIMENT CONTROL
 CONSTRUCTION PHASING – 4**
 FARRINGTON HIGHWAY
 Replacement of Makaha Bridge
 No. 3 and Makaha Bridge 3A
 F. A. Project No. BR-093-1(20)
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