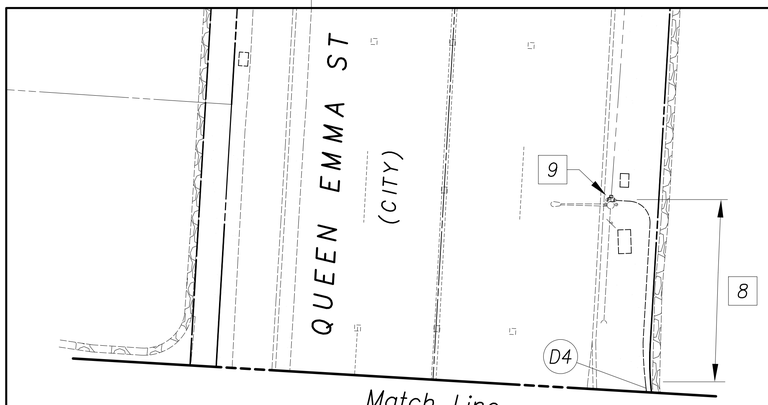
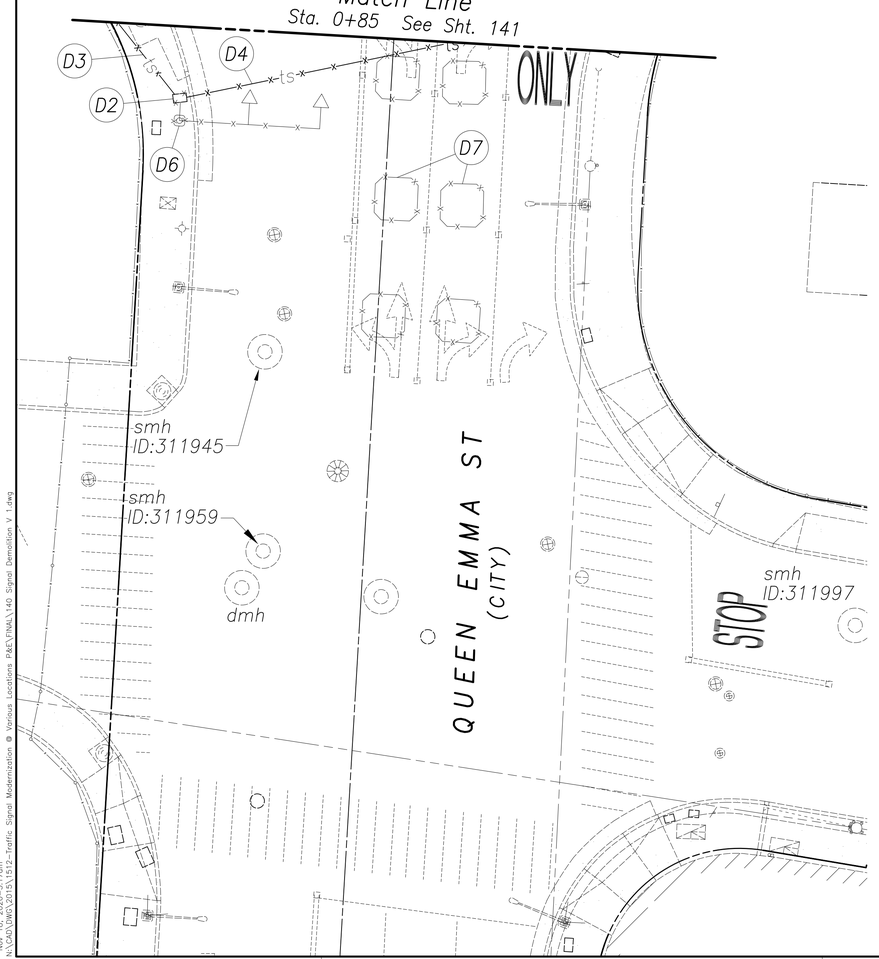
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	140	291



Match Line
Sta. 1+00 See Sht. 141

Match Line
Sta. 0+85 See Sht. 141



Notes:

1. The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.
2. Deliver salvaged equipment to C&C Dept. of Transportation Services, Traffic Signal & Technology baseyard at 999 Makolu Street (ph: 768-5323).
3. Existing pullbox to remain. Remove unnecessary existing traffic signal cables. The Contractor shall not damage existing fiber optic cables to remain.
4. Existing traffic signal standard and/or pedestrian push button pedestal to remain.
5. Existing pullbox to remain.
6. Abandon vehicle loop detectors in place.
7. Existing inter-connect duct to remain.
8. Existing duct to remain.
9. Existing HECO meter, signal power source to remain.

Demolition Callouts:

D1 Remove and salvage traffic signal controller and cabinet. Demolish and dispose of concrete base one foot below finish grade.

D2 Demolish and dispose of traffic signal pullbox. **The Contractor shall not damage asbestos-cement ducts to be abandoned.**

D3 Remove traffic signal cables. The Contractor shall verify conduit material. **Abandon asbetos-cement ducts in place, fill with lean concrete.** Steel ducts may be demolished and removed to facilitate construction.

D4 Remove traffic signal cables. Abandon ducts in place. Fill ducts with lean concrete.

D5 Remove pedestrian push button and pedestal. Salvage pedestrian push button and pedestal.

D6 Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic signal heads, pedestrian signal heads, pedestrian push buttons.

D7 Abandon vehicle detectors in place.

D8 Remove and salvage pedestrian signal heads.

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

Nov 18, 2020-5:17am
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GRAPHIC SCALES
SCALE 1"=10' 10' 5' 0 10' 20'

Approved By:

Chief, Traffic Signals & Technology, DTS — Date

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL DEMOLITION

Vineyard Blvd & Queen Emma St

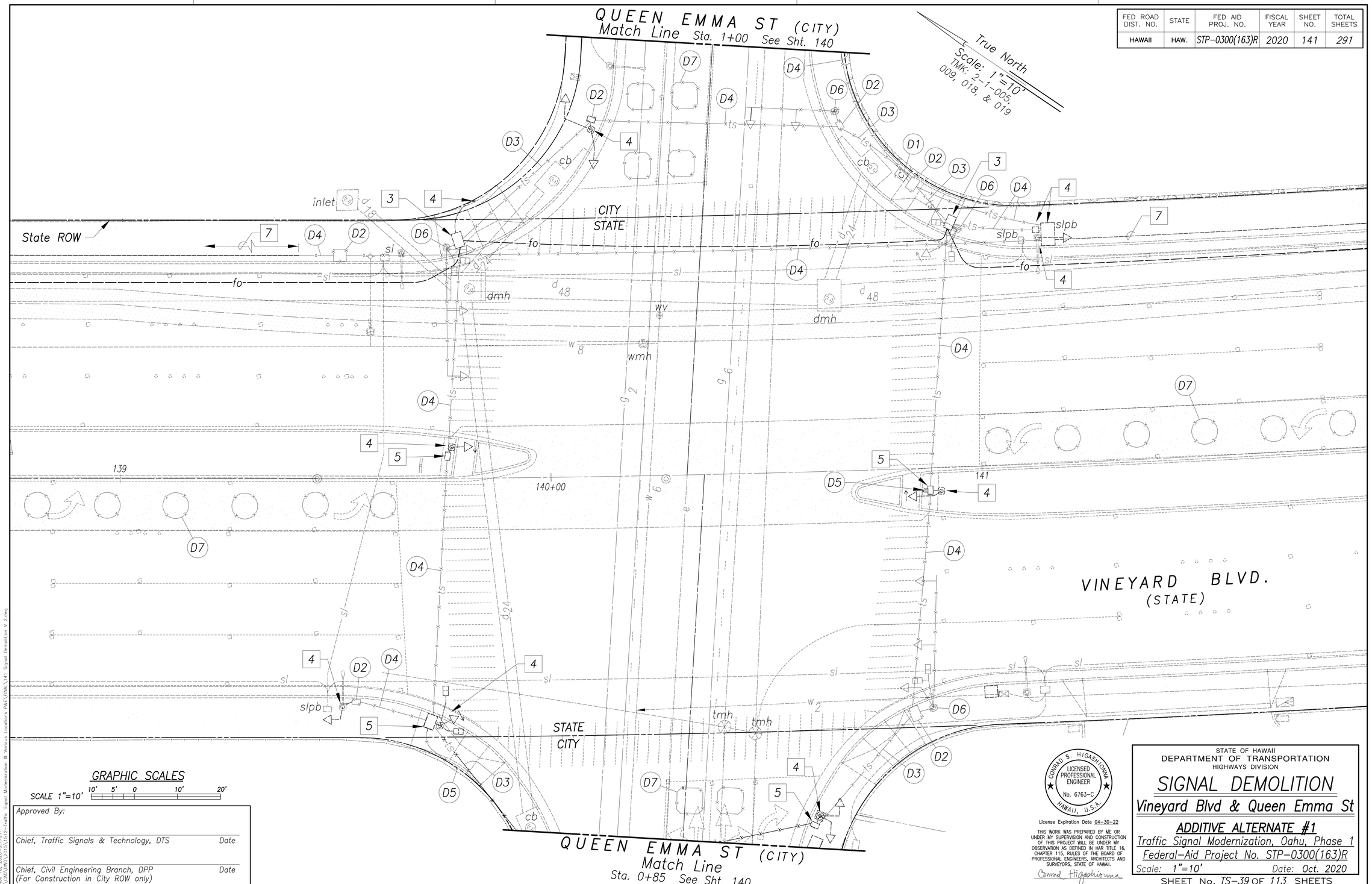
ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-38 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	141	291



GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'

Approved By:

Chief, Traffic Signals & Technology, DTS — Date

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

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

Nov 18, 2020-5:17pm
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CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL DEMOLITION

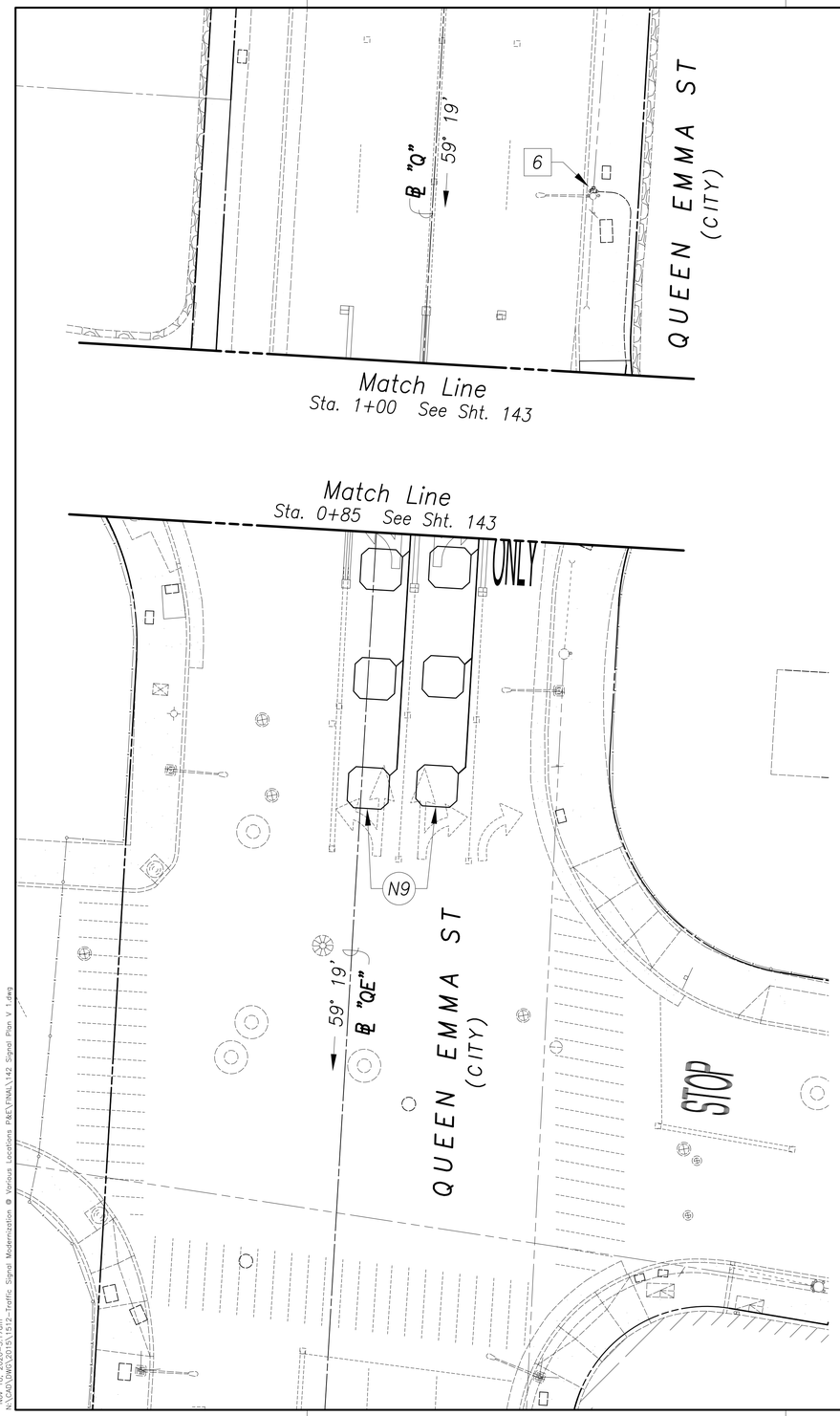
Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-39 OF 113 SHEETS



FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	142	291

Notes:

1. Tie-down of traffic signal standards is to center of vertical pole.
2. For location of traffic signal pullboxes, see New Duct Line Work.
3. Existing street light standard with signal head to remain.
4. Type I traffic signal standard to remain.
5. Existing pedestrian push button (ppb-1 & 2) to remain.
6. Existing power source. Existing HECO meter on joint pole.
7. Relocate 2-inch water lateral, see sheet 56.
8. See sheet 147 for new signal work schedules.

New Signal Work Callouts:

- N1 Install Controller Assembly with Software 139+46.03 ℄ "V" (76.5' Rt.)
- N2 Install Type II Traffic Signal Standard with 36-foot mast arm and drilled shaft foundation. 139+71 ℄ "V" (54' Lt.)
- N3 Install Type I Traffic Signal Standard, 10-feet height, with foundation. 139+88 ℄ "V" (61.7' Lt.)
- N4 Install Type II Traffic Signal Standard with 25-foot mast arm and drilled shaft foundation. 140+67 ℄ "V" (88' Lt.)
- N5 Install Type I Traffic Signal Standard, 10-feet height, with foundation. 141+02.98 ℄ "V" (53.74' Lt.)
- N6 Install Type II Traffic Signal Standard with 38-foot mast arm and drilled shaft foundation. 140+92.25 ℄ "V" (53.5' Rt.)
- N7 Install Type II Traffic Signal Standard with 35-foot mast arm and drilled shaft foundation. 139+88.50 ℄ "V" (68.5' Rt.)
- N8 Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 2 Loops centered in lane
- N9 Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 4 Loops centered in lane
- N10 Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 6 Loops centered in lane
- N11 Install pedestrian push button PPB-3, ADA compliant, on traffic signal standard.
- N12 Install pedestrian push button PPB-4, ADA compliant, mounted on a pedestal with foundation.
- N13 Install pedestrian push buttons PPB-5 and PPB-6, ADA compliant, mounted on traffic signal standard.
- N14 Install temporary Approach-Only Microwave Vehicle Detector on existing traffic signal standard.

DRILLED SHAFT FOUNDATIONS for Type II Traffic Signal Standards

I.D. LABEL	SOIL TYPE	GRADE	MAST ARM LENGTH (feet)	DRILLED SHAFT DIAMETER (inches)	DRILLED SHAFT LENGTH (feet)
D *	Sand & Gravel	Level	36	30	10
G *	Sand & Gravel	Level	25	30	7
K *	Sand & Gravel	Level	38	30	10
M *	Sand & Gravel	Level	35	30	9

* For drilled shaft foundation details, see 2008 Standard Plans TE-33A.1 & TE-33A.2 – above ground water table.

No boring for soils data conducted for this site.

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.

Approved By:

Chief, Traffic Signals & Technology, DTS — Date

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'

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

Nov 18, 2020-5:17pm
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CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

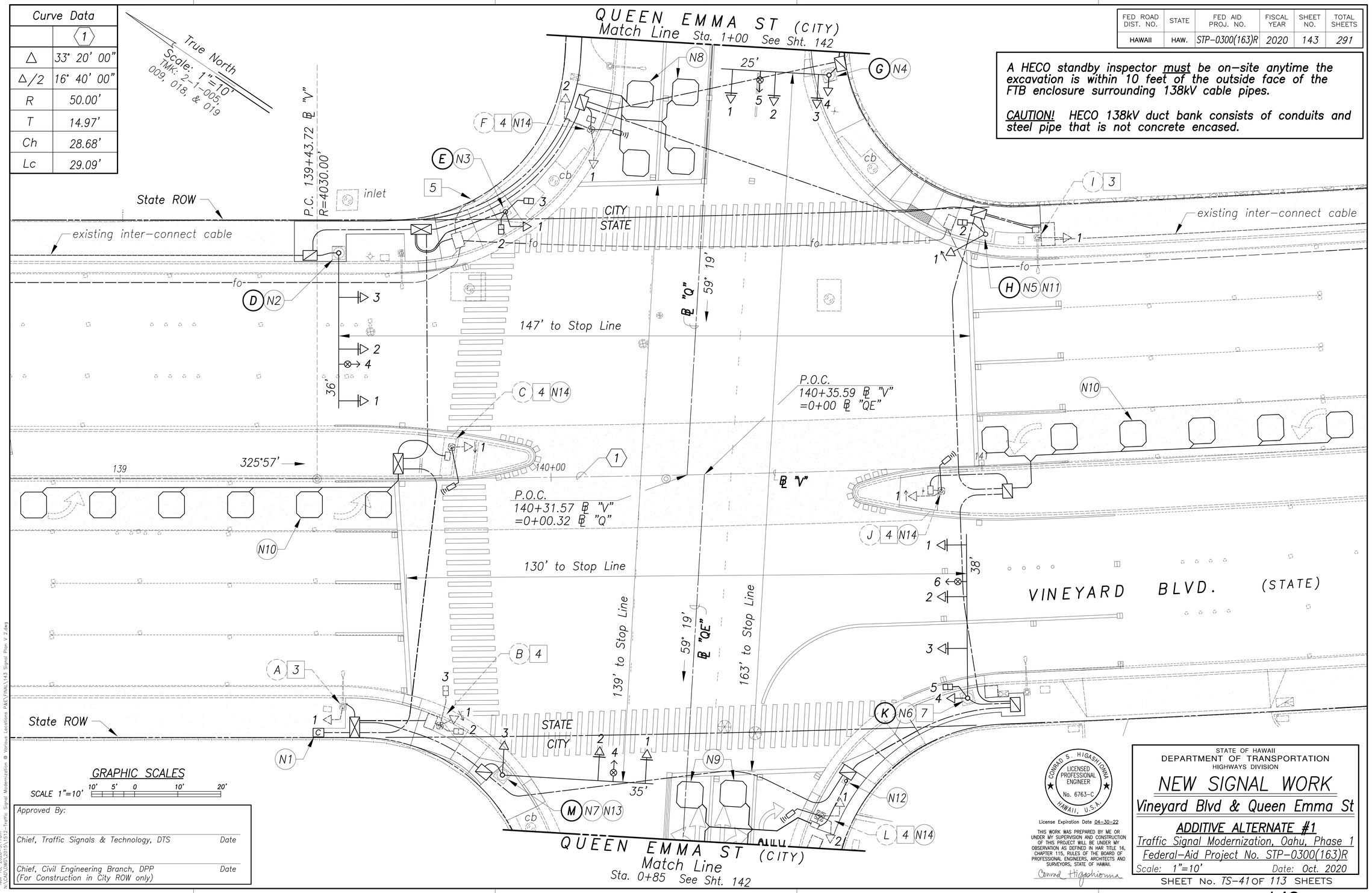
SHEET No. TS-40 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	143	291

Curve Data	
	1
Δ	33° 20' 00"
Δ/2	16° 40' 00"
R	50.00'
T	14.97'
Ch	28.68'
Lc	29.09'

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.



Approved By:

Chief, Traffic Signals & Technology, DTS — Date

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

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

Nov. 18, 2020-5:17am
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LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A. CONRAD S. HIGASHIONNA

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK

Vineyard Blvd & Queen Emma St

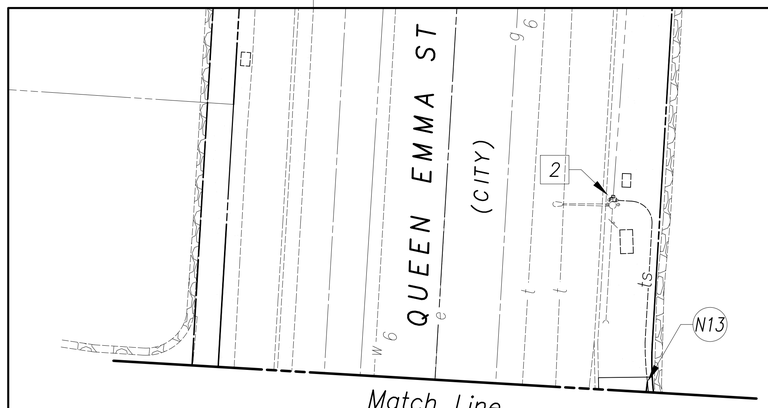
ADDITIVE ALTERNATE #1

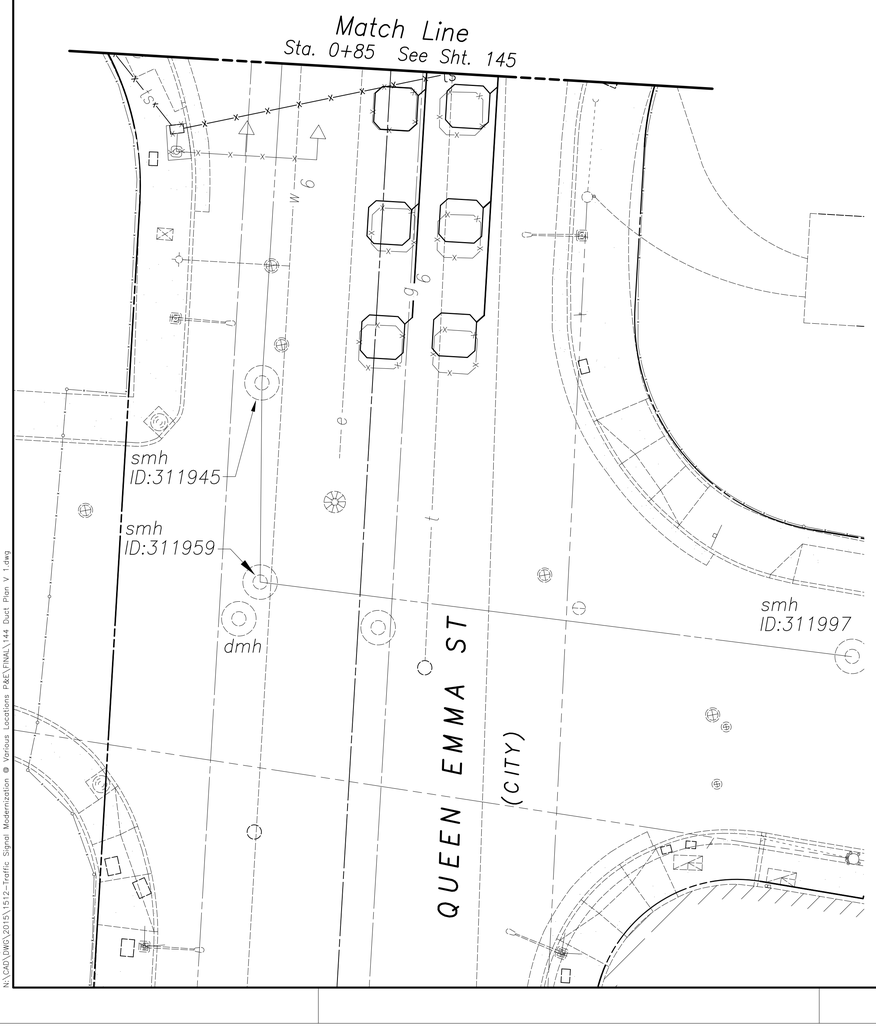
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-41 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	144	291





Notes:

1. Tie-down of traffic signal controller & pullboxes is to center of box.
2. Existing power source. Existing HECO meter mounted on joint pole.
3. 20 L.F. Reinforced Concrete Jacket on 8" sewer.
4. 11 L.F. Reinforced Concrete Jacket on 8" sewer.
5. Existing pullbox PB-10 to remain.
6. Existing pullbox PB-11 to remain.
7. Existing pullbox PB-13 to remain.
8. Existing pullbox PB-15 to remain.
9. Existing pullbox PB-16 to remain.
10. Existing pullbox PB-17 to remain.
11. Existing pullbox PB-18 to remain.
12. Existing pullbox PB-19 to remain.
13. Precast pull boxes shall be set on six (6) inches of level, 95% compacted crushed rock fill, 3/4 inch to one (1) inch size, extending twelve (12) inches beyond the pull box on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator.

New Duct Line Work Callouts:

N1 Install Type C Pullbox PB-1. 139+87 ℄ "V" (72' Rt.)
N2 Install Type C Pullbox PB-2. 139+87 ℄ "V" (5' Lt.)
N3 Install Type C Pullbox PB-3. 139+69 ℄ "V" (58.52' Lt.)
N4 Install Type B Pullbox PB-4. 140+07.50 ℄ "V" (87.20' Lt.)
N5 Install Type B Pullbox PB-5. 141+00 ℄ "V" (58' Lt.)
N6 Install Type B Pullbox PB-6. 140+94 ℄ "V" (5' Rt.)
N7 Install Type B Pullbox PB-7. 140+97 ℄ "V" (56' Rt.)
N8 Install Type B Pullbox PB-8. 140+61 ℄ "V" (86' Rt.)
N9 Install Type B Pullbox PB-9. 139+87 ℄ "V" (72' Rt.)
N10 Install Type B Pullbox PB-12. 139+42 ℄ "V" (51.8' Lt.)
N11 Install Type B Pullbox PB-14. 140+69.50 ℄ "V" (92.09' Lt.)
N12 New traffic signal controller. 139+46.03 ℄ "V" (76.5' Rt.)

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.

Notes continued:

14. Relocate 2-inch water lateral, see sheet 56.
15. See sheet 147 for new duct line work schedules.
16. **The Contractor shall notify the Engineer of any changes to horizontal or vertical alignment within City & County of Honolulu right-of-way. All changes in horizontal or vertical alignment within City right-of-way require revision approval from the Department of Planning and Permitting prior to construction.**

New Duct Line Work Callouts continued:

N13 Connect new concrete encased conduit to existing conduit.
N14 Connect new conduits to existing pullboxes. The Contractor shall drill thru existing pull box wall and patch hole with non-shrink grout. Cut abandoned ducts at inside face of pullbox. Remove unneeded traffic signal cables.
N15 Connect new conduit to existing riser at street light standard with traffic signal head.

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

Nov 18, 2020-5:17am
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GRAPHIC SCALES
SCALE 1"=10' 10' 5' 0 10' 20'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) Date

Chief, Wastewater Branch, DPP Date

Chief, Traffic Signals & Technology, DTS Date

CONRAD S. HIGASHIONA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW DUCT LINE WORK

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-42 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	145	291

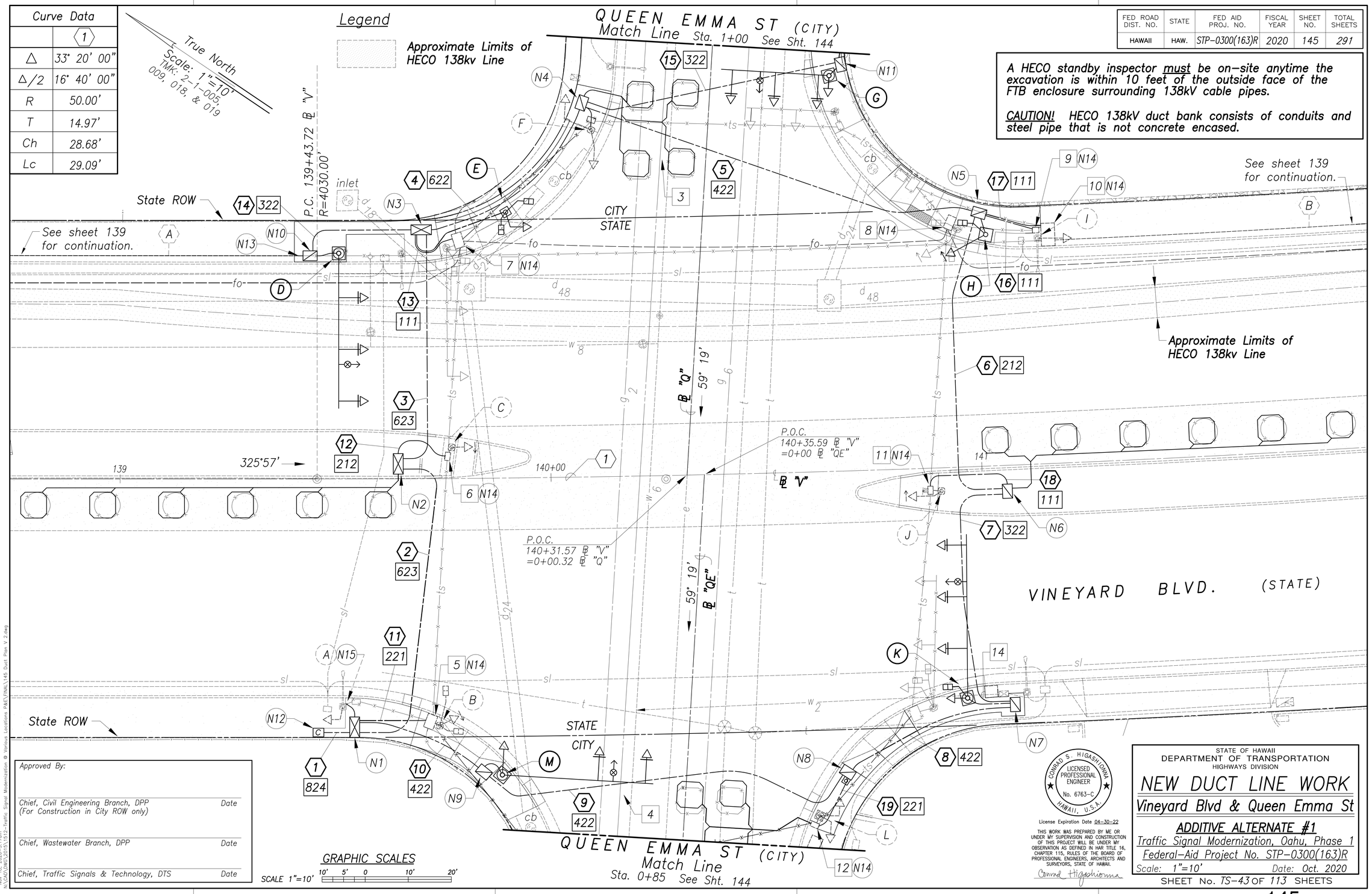
Curve Data	
	1
Δ	33° 20' 00"
Δ/2	16° 40' 00"
R	50.00'
T	14.97'
Ch	28.68'
Lc	29.09'

Legend

Approximate Limits of HECO 138kv Line

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.



Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Wastewater Branch, DPP — Date

Chief, Traffic Signals & Technology, DTS — Date

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

Nov 18, 2020-5:17pm
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License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW DUCT LINE WORK

Vineyard Blvd & Queen Emma St

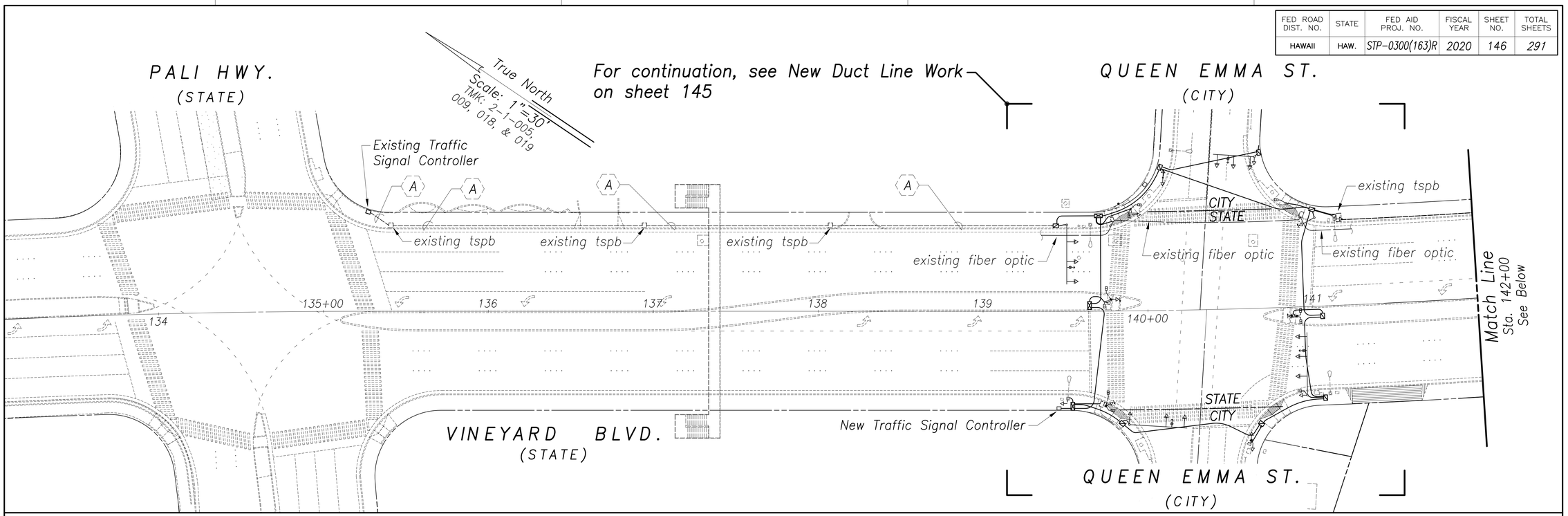
ADDITIVE ALTERNATE #1

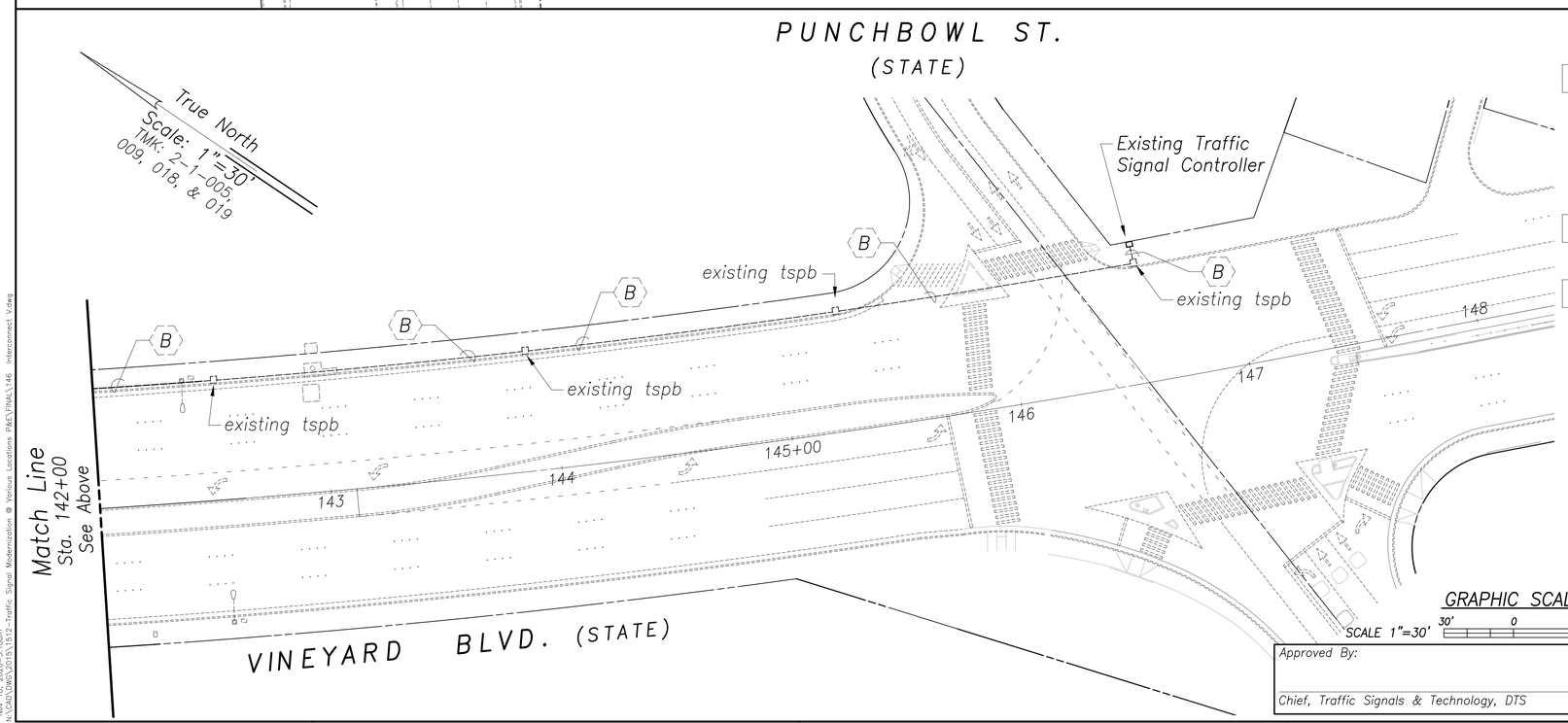
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-43 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	146	291





Notes:

1. Prior to construction, the Contractor shall verify the existing inter-connect cables can be removed from existing conduits between at the intersections of Vineyard Boulevard with Pali Highway, Queen Emma Street, and Punchbowl Street. The Contractor shall notify the Engineer of findings. This work shall be incidental to the various contract items.
2. The Contractor shall remove sediment and debris collecting in existing pull boxes and ducts for installing inter-connect cable.
3. The Contractor shall not splice Type 3 inter-connect cables between controllers.

GRAPHIC SCALES

SCALE 1"=30' 30' 0 30' 60'

Approved By:

Chief, Traffic Signals & Technology, DTS Date

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INTER-CONNECT PLAN

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=30' Date: Oct. 2020

SHEET No. TS-44 OF 113 SHEETS

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

Nov 18, 2020-5:18am
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FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	147	291

CONDUIT–CABLE SCHEDULE

	FROM	TO	CONDUIT	CABLE
1	CONTR.	PB–1	New 8–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 1–Type 1, Ground Wire 4–Type 2 3–Type 2 2–Type 3 1–Type 6 4–Type 7 Spare
2	PB–1	PB–2	New 6–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 4–Type 2 2–Type 3 1–Type 6 2–Type 7 Spare
3	PB–2	PB–3	New 6–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 5–Type 2 2–Type 3 1–Type 6 2–Type 7 Spare
4	PB–3	PB–4	New 6–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 4–Type 2 1–Type 3 1–Type 6 1–Type 7 Spare
5	PB–4	PB–5	New 4–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 1–Type 2 1–Type 3 Spare
6	PB–5	PB–6	New 2–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire Spare
7	PB–6	PB–7	New 3–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 1–Type 2 Spare
8	PB–7	PB–8	New 4–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 1–Type 2 1–Type 7 Spare
9	PB–8	PB–9	New 4–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 3–Type 2 1–Type 7 Spare
10	PB–9	PB–10	New 4–2" Sch. 40 Concrete Encased	1–Type 1, Ground Wire 2–Type 2 2–Type 7 Spare
11	PB–1	Exist. PB–10	New 2–2" Sch. 40 Concrete Encased	2–Type 2 1–Type 5
12	PB–2	Exist. PB–11	New 2–2" Sch. 40 Concrete Encased	1–Type 2 1–Type 5
13	PB–5	Exist. PB–12	New 1–2" Sch. 40 Concrete Encased	2–Type 2
14	PB–3	PB–13	New 3–3" Sch. 40 Concrete Encased	1–Type 3 1–Type 5 1–Type 7
15	PB–4	PB–14	New 3–2" Sch. 40 Concrete Encased	1–Type 5 1–Type 6 1–Type 7
16	PB–14	Exist. HECO Meter	New 1–2" Sch. 40 Concrete Encased	1–Type 6
17	PB–5	Exist. PB–16	New 1–2" Sch. 40 Concrete Encased	1–Type 5
18	PB–5	Exist. PB–17	New 1–2" Sch. 40 Concrete Encased	1–Type 3
19	PB–6	Exist. PB–18	New 1–2" Sch. 40 Concrete Encased	1–Type 5
20	PB–7	Exist. PB–19	New 2–2" Sch. 40 Concrete Encased	1–Type 2 1–Type 5
A	PB–12	Exist. Contr.	Exist. 1–2"	1–Type 3
B	PB–17	Exist. Contr.	Exist. 1–2"	1–Type 3

SIGNAL HEAD SCHEDULE

Head Type and Description	Pole Letter – Signal Head Number
R Red Ball Y Yellow Ball G Green Ball 12" RYG Traffic Signal Head	A–1* I–1* D–1** K–1** D–2** K–2** D–3** K–3** E–1 K–4 F–1* L–1* F–2* L–2* G–1** M–1** G–2** M–2** G–3** M–3 G–4
R Red Ball Yellow Arrow (Left) Green Arrow (Left) 12" R←← Traffic Signal Head	B–1* H–1
R Red Ball Yellow Arrow (Left) Green Arrow (Left) 12" R←← Programmed Visibility Traffic Signal Head	C–1* J–1*
Countdown Pedestrian Signal Head	B–2* E–2 B–3* E–3 H–2 K–5

* Existing signal head to remain

** Install Backplate with Retroreflective Borders

OPTICOM SCHEDULE

Mounting Type	Pole Letter – Opticom Number
Mast Arm, One–Way	D–4 K–6 G–5 M–4

PEDESTRIAN PUSH BUTTON SCHEDULE

Description	New Signal Work Callout	Pole or Pedestal PPB–#
	N11	H PPB–3
	N13	M PPB–5
	N12	Pedestal PPB–4
	N13	M PPB–6

Approved By:

Chief, Traffic Signals & Technology, DTS Date

CONRAD S. HIGASHIONA LICENSED PROFESSIONAL ENGINEER No. 6763–C HAWAII, U.S.A.

License Expiration Date 04–30–22

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Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW WORK SCHEDULES

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal–Aid Project No. STP–0300(163)R

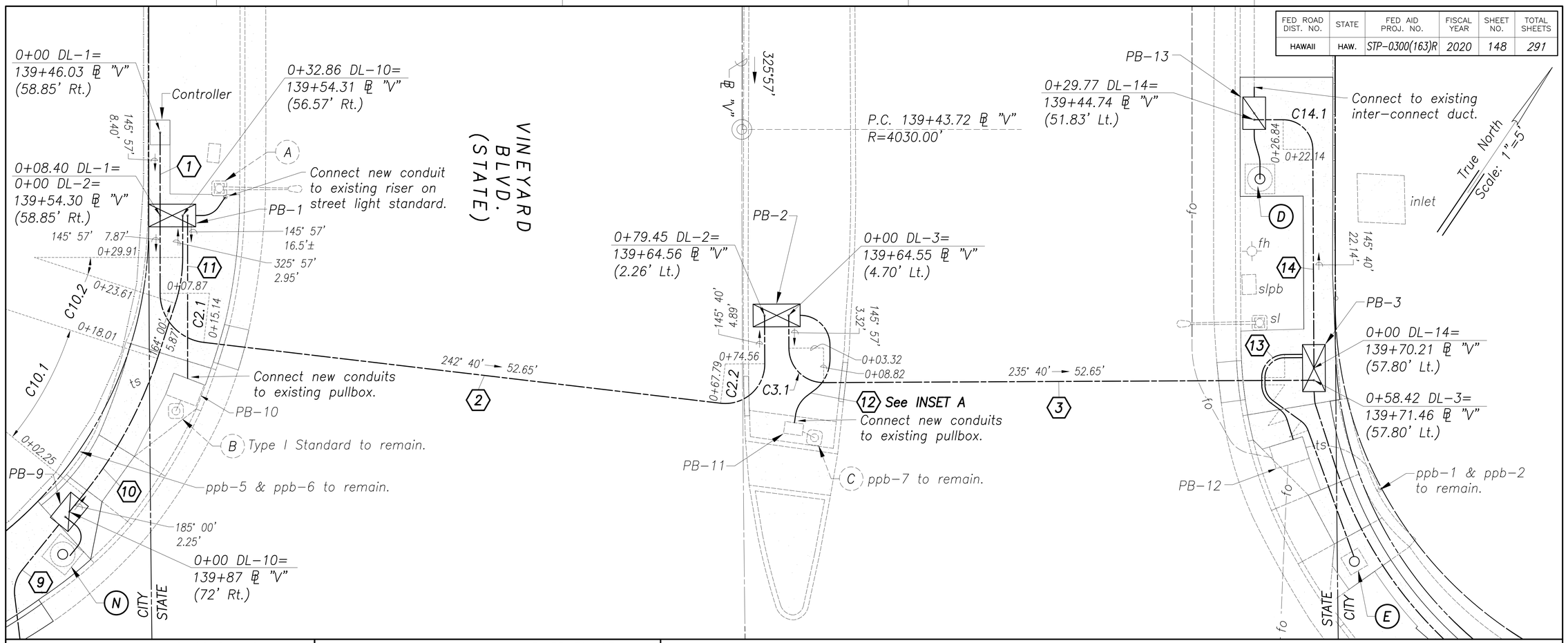
Scale: As noted Date: Oct. 2020

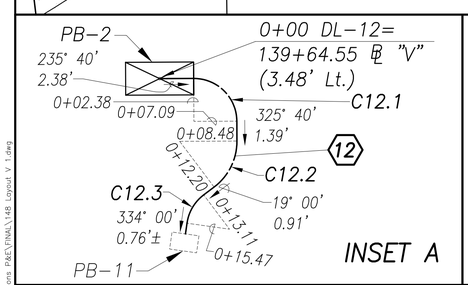
SHEET No. TS–45 OF 113 SHEETS

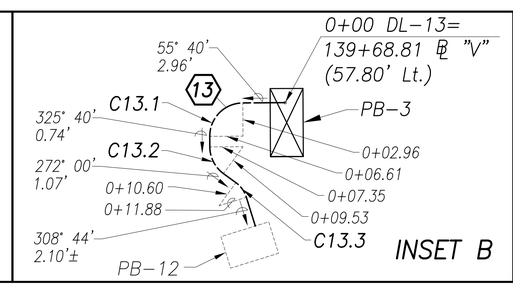
ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

Nov 18, 2020–5:18am
N:\DBOW\2019\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\147 Table V.dwg

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	148	291







GRAPHIC SCALES

SCALE 1"=5' 5' 0 5' 10'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Traffic Signals & Technology, DTS — Date

℄ Duct Line Curve Data

	C2.1	C2.2	C3.1	C10.1	C10.2	C12.1	C12.2	C12.3	C13.1	C13.2	C13.3	C14.1
Δ	83° 17' 00"	97° 00' 00"	90° 00' 00"	21° 00' 00"	18° 03' 00"	90° 00' 00"	53° 19' 00"	45° 00' 00"	90° 00' 00"	53° 40' 00"	36° 44' 00"	89° 43' 00"
Δ/2	41° 38' 30"	48° 30' 00"	45° 00' 00"	10° 30' 00"	9° 01' 30"	45° 00' 00"	26° 39' 30"	22° 30' 00"	45° 00' 00"	26° 50' 00"	18° 22' 00"	44° 51' 30"
R	5.00'	4.00'	3.50'	43.00'	20.00'	3.00'	4.00'	3.00'	2.32'	2.32'	2.00'	3.00'
T	4.45'	4.52'	3.50'	7.97'	3.18'	3.00'	2.01'	1.24'	2.32'	1.18'	0.66'	2.99'
Ch	6.64'	5.99'	4.95'	15.67'	6.27'	4.24'	3.59'	2.30'	3.29'	2.10'	1.26'	4.23'
Lc	7.27'	6.77'	5.50'	15.76'	6.30'	4.71'	3.72'	2.36'	3.65'	2.18'	1.28'	4.70'

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

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License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

Vineyard Blvd & Queen Emma St

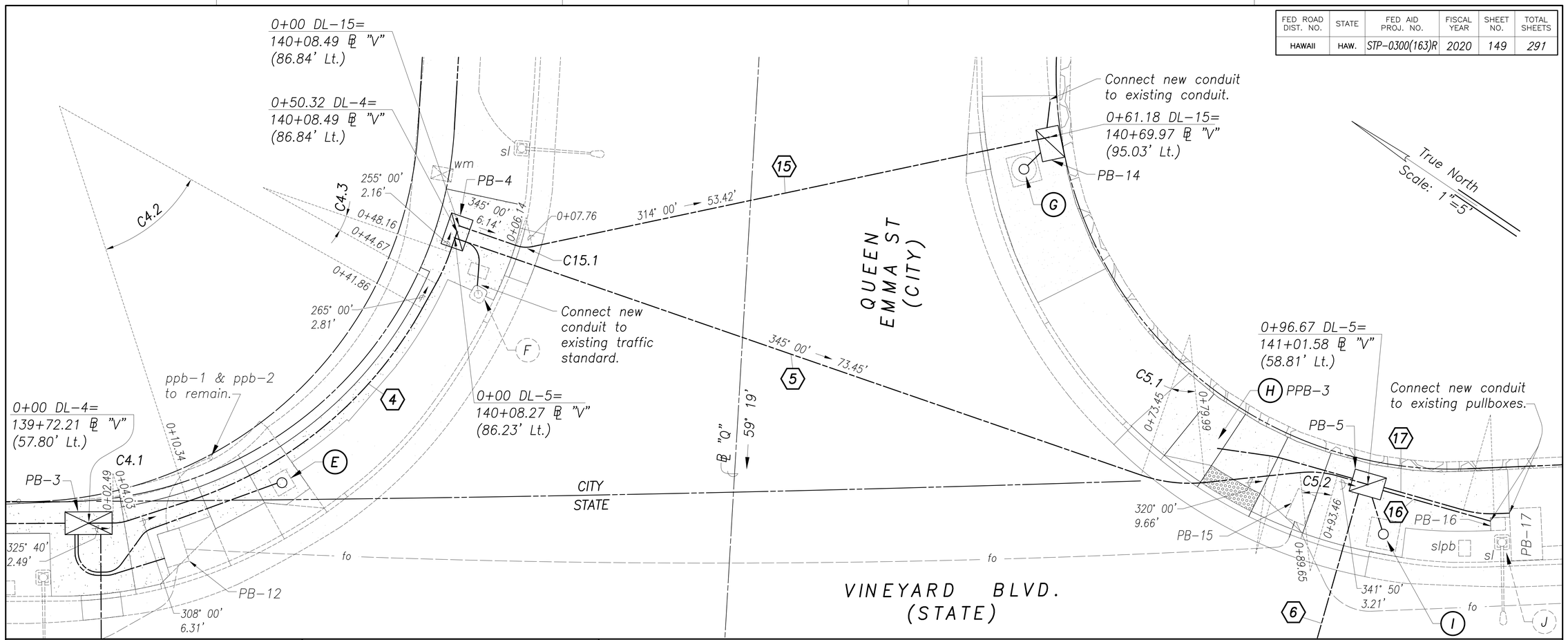
ADDITIVE ALTERNATE #1

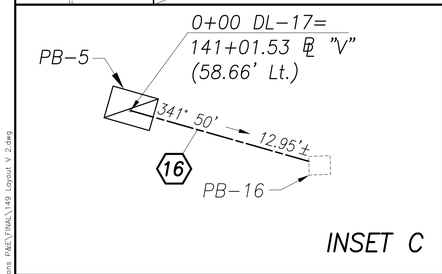
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

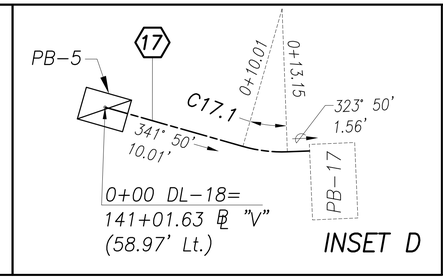
Scale: 1"=5' Date: Oct. 2020

SHEET No. TS-46 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	149	291







℄ Duct Line Curve Data

	C4.1	C4.2	C4.3	C5.1	C5.2	C15.1	C17.1
△	17° 40' 00"	43° 00' 00"	10° 00' 00"	25° 00' 00"	21° 50' 00"	31° 00' 00"	18° 00' 00"
△/2	8° 50' 00"	21° 30' 00"	5° 00' 00"	12° 30' 00"	10° 55' 00"	15° 30' 00"	9° 00' 00"
R	5.00'	42.00'	20.00'	15.00'	10.00'	3.00'	10.00'
T	0.78'	16.52'	1.75'	3.33'	1.93'	0.83'	1.58'
Ch	1.54'	30.75'	3.49'	6.49'	3.79'	1.60'	3.13'
Lc	1.54'	31.48'	3.49'	6.54'	3.81'	1.62'	3.14'

GRAPHIC SCALES
SCALE 1"=5'
5' 0 5' 10'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=5' Date: Oct. 2020

SHEET No. TS-47 OF 113 SHEETS

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

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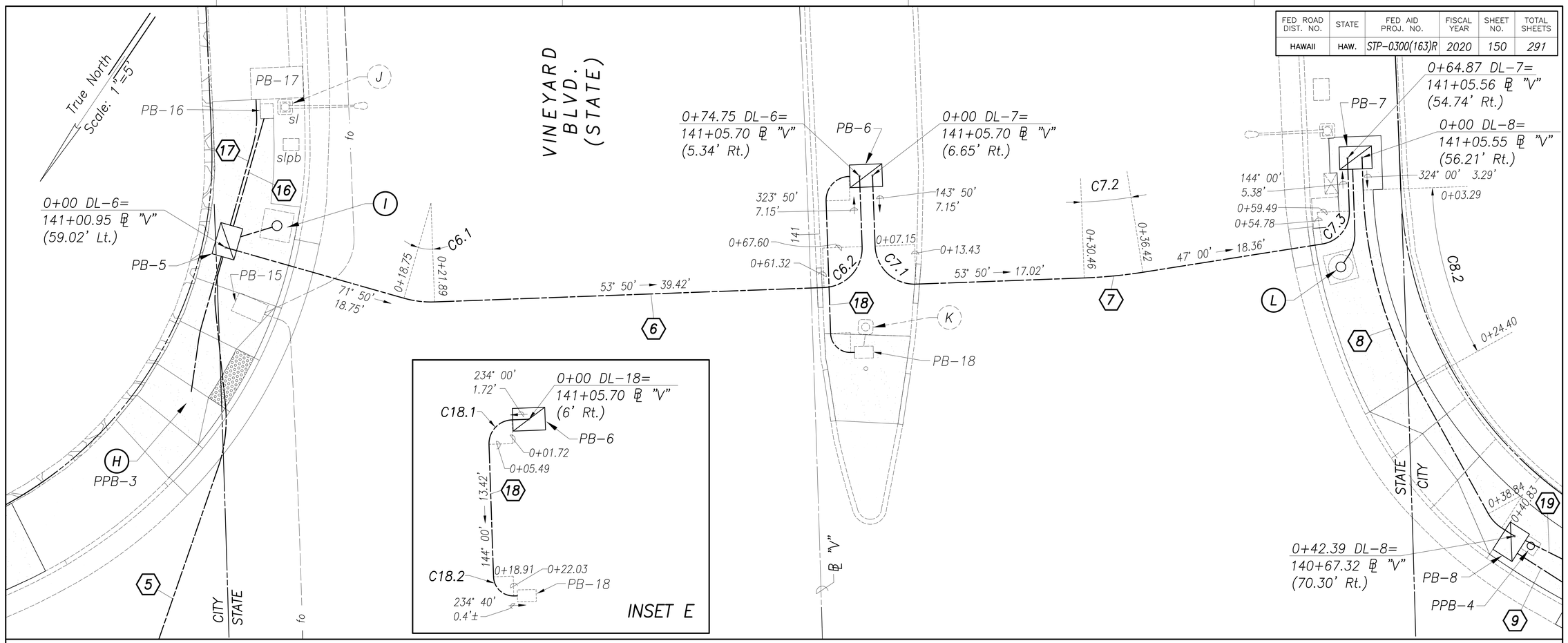
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	150	291



GRAPHIC SCALES

SCALE 1"=5' 5' 0 5' 10'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) Date

Chief, Traffic Signals & Technology, DTS Date

℄ Duct Line Curve Data

	C6.1	C6.2	C7.1	C7.2	C7.3	C8.1	C8.2	C18.1	C18.2
△	18° 00' 00"	90° 00' 00"	90° 00' 00"	6° 50' 00"	83° 00' 00"	27° 00' 00"	29° 00' 00"	90° 00' 00"	89° 20' 00"
△/2	9° 00' 00"	45° 00' 00"	45° 00' 00"	3° 25' 00"	41° 30' 00"	13° 30' 00"	14° 30' 30"	45° 00' 00"	44° 40' 00"
R	10.00'	4.00'	4.00'	50.00'	3.25'	43.81'	3.00'	2.40'	2.00'
T	1.58'	4.00'	4.00'	2.99'	2.88'	10.52'	0.78'	2.40'	1.98'
Ch	3.13'	5.66'	5.66'	5.96'	4.31'	20.45'	1.50'	3.39'	2.81'
Lc	3.14'	6.28'	6.28'	5.96'	4.71'	20.64'	1.52'	3.77'	3.12'

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

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CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

Vineyard Blvd & Queen Emma St

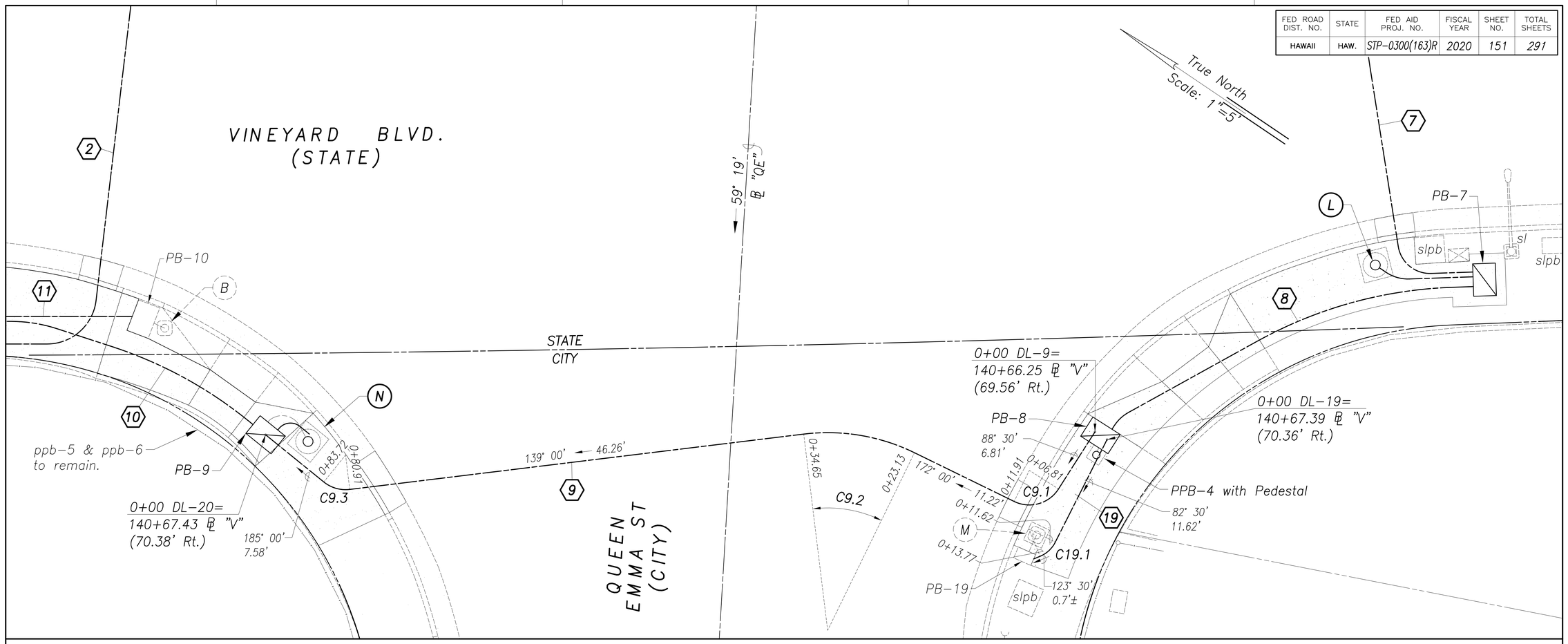
ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=5' Date: Oct. 2020

SHEET No. TS-48 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	151	291



℄ Duct Line Curve Data				
	C9.1	C9.2	C9.3	C19.1
△	83° 30' 00"	33° 00' 00"	46° 00' 00"	41° 00' 00"
△/2	41° 45' 00"	16° 30' 00"	23° 00' 00"	20° 30' 00"
R	3.50'	20.00'	3.50'	3.00'
T	3.12'	5.92'	1.49'	1.12'
Ch	4.66'	11.36'	2.74'	2.10'
Lc	5.10'	11.52'	2.81'	2.15'

GRAPHIC SCALES
SCALE 1"=5'
5' 0 5' 10'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=5' Date: Oct. 2020

SHEET No. TS-49 OF 113 SHEETS

ORIGINAL PLAN
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No.

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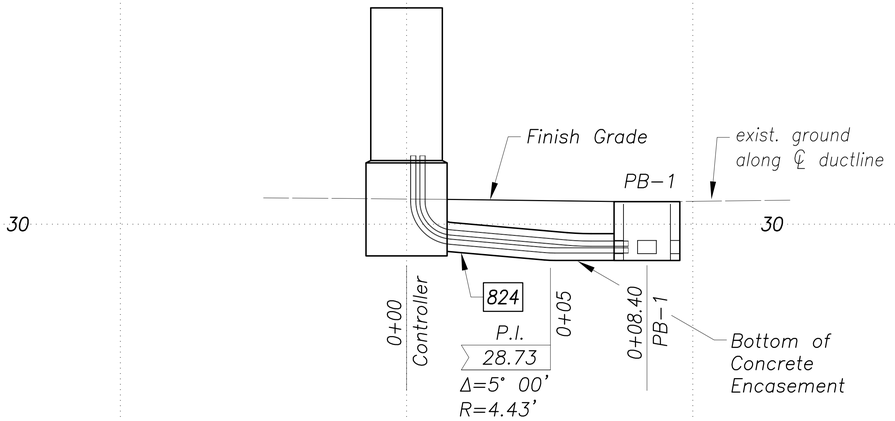
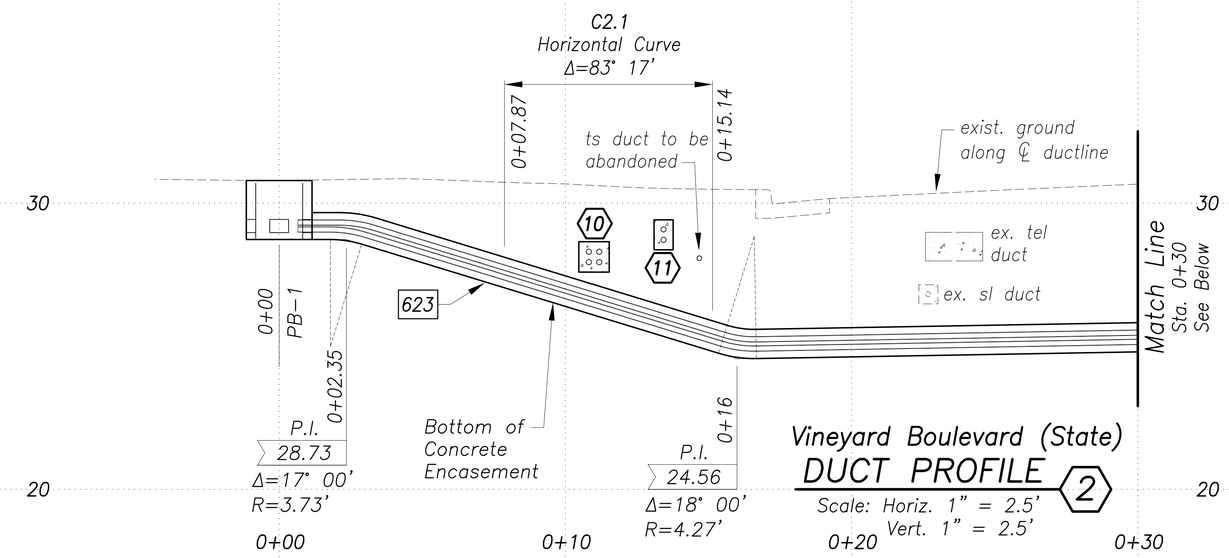
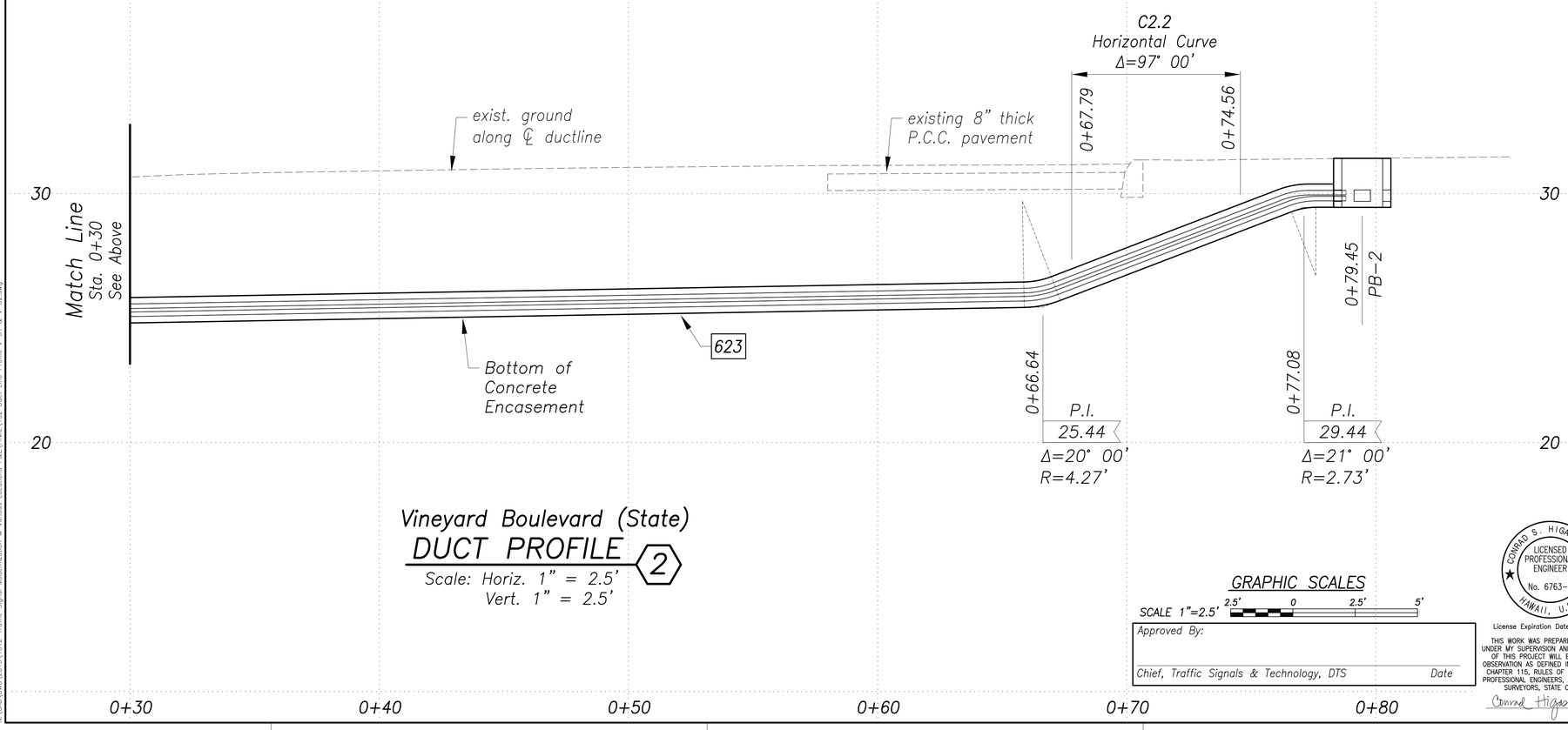
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	152	291



Vineyard Boulevard (State)
DUCT PROFILE (1)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Vineyard Boulevard (State)
DUCT PROFILE (2)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Vineyard Boulevard (State)
DUCT PROFILE (2)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

GRAPHIC SCALES
SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Traffic Signals & Technology, DTS Date

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-50 OF 113 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	DESIGNED BY	
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Nov 18, 2020-5:18am
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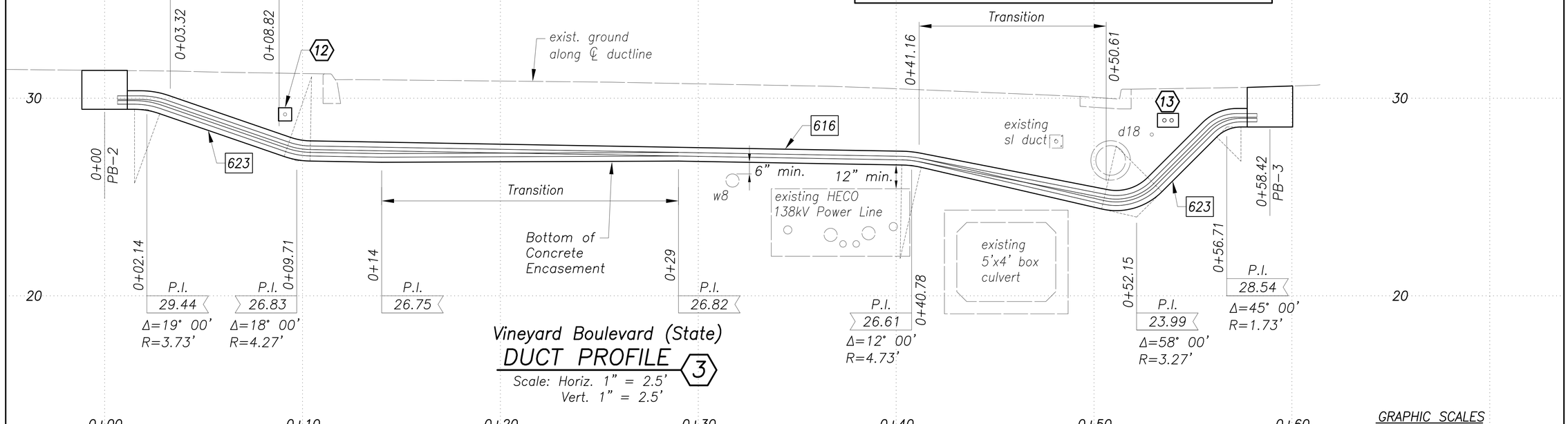
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	153	291

Note:
The Contractor shall verify location of 8-inch water and HECO 138kV power line prior to duct excavation. If the minimum clearances cannot be met, the Contractor shall notify the Engineer for further instruction.

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.



Vineyard Boulevard (State)
DUCT PROFILE 3

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

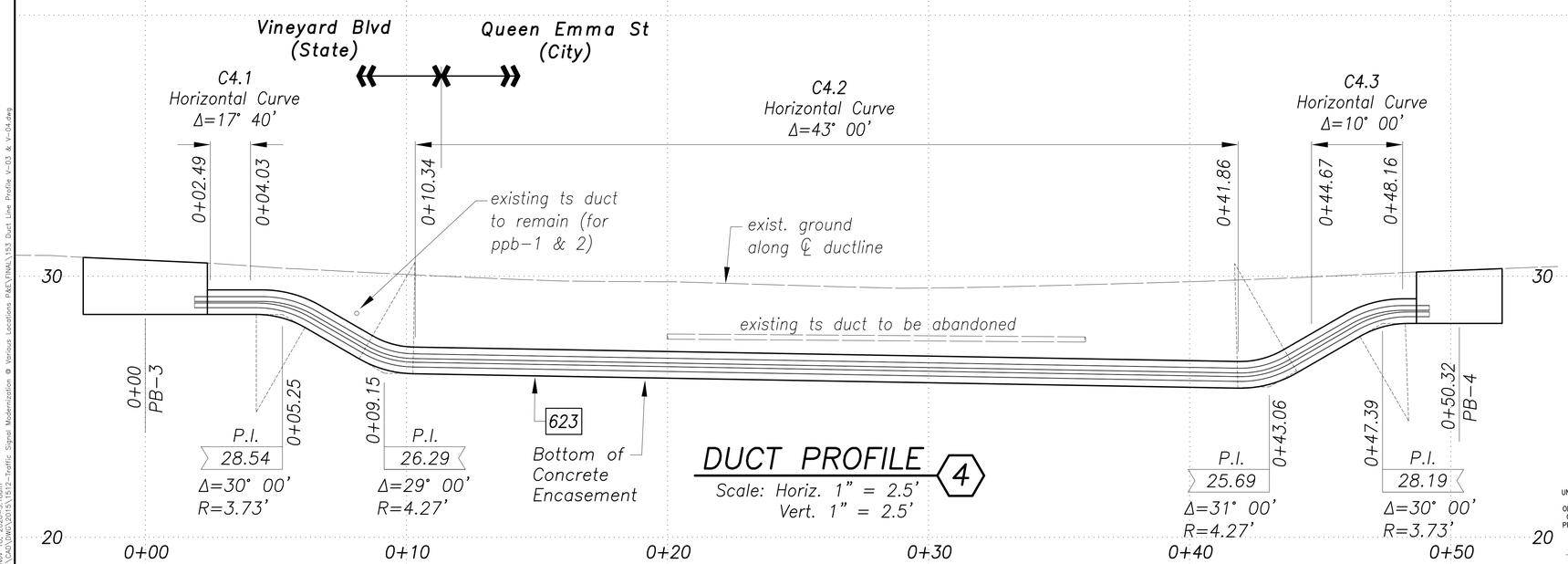
GRAPHIC SCALES
SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Signals & Technology, DTS — Date



DUCT PROFILE 4

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
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License Expiration Date 04-30-22

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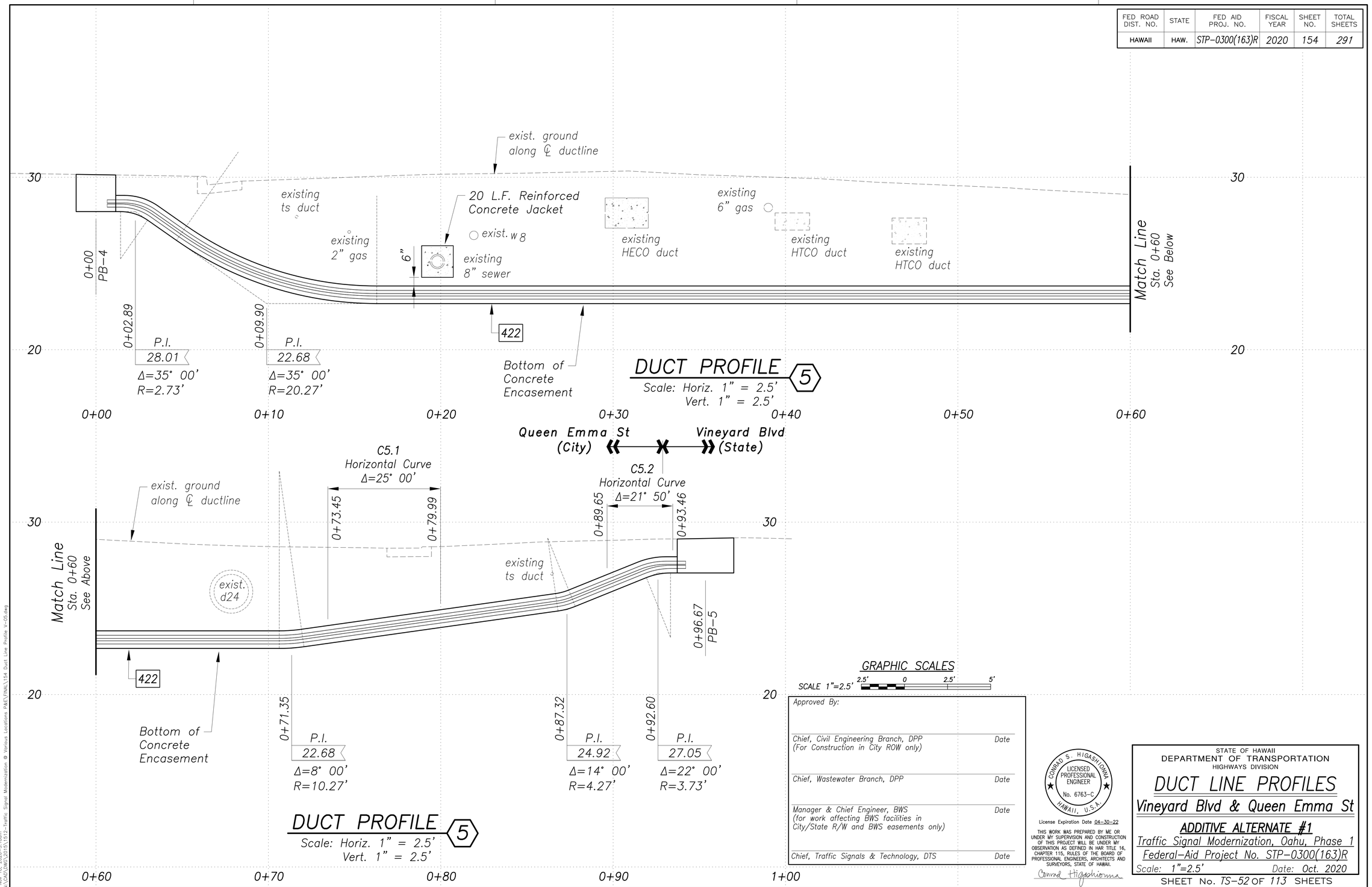
Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
Vineyard Blvd & Queen Emma St
ADDITIVE ALTERNATE #1
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-51 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	154	291



GRAPHIC SCALES

SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Wastewater Branch, DPP — Date

Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-52 OF 113 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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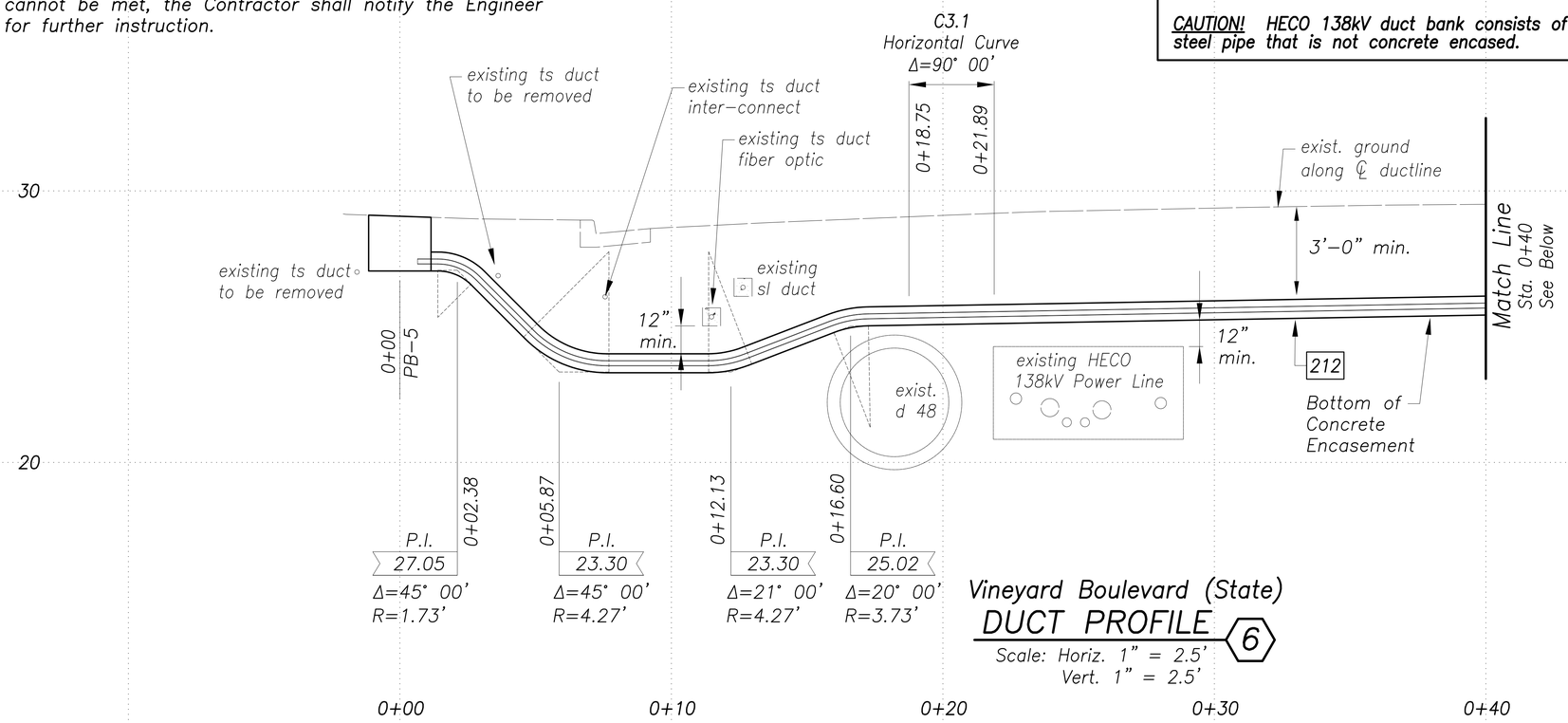
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	155	291

Note:
The Contractor shall verify location of HECO 138kV power line prior to duct excavation. If the minimum clearances cannot be met, the Contractor shall notify the Engineer for further instruction.

A HECO standby inspector must be on-site anytime the excavation is within 10 feet of the outside face of the FTB enclosure surrounding 138kV cable pipes.

CAUTION! HECO 138kV duct bank consists of conduits and steel pipe that is not concrete encased.

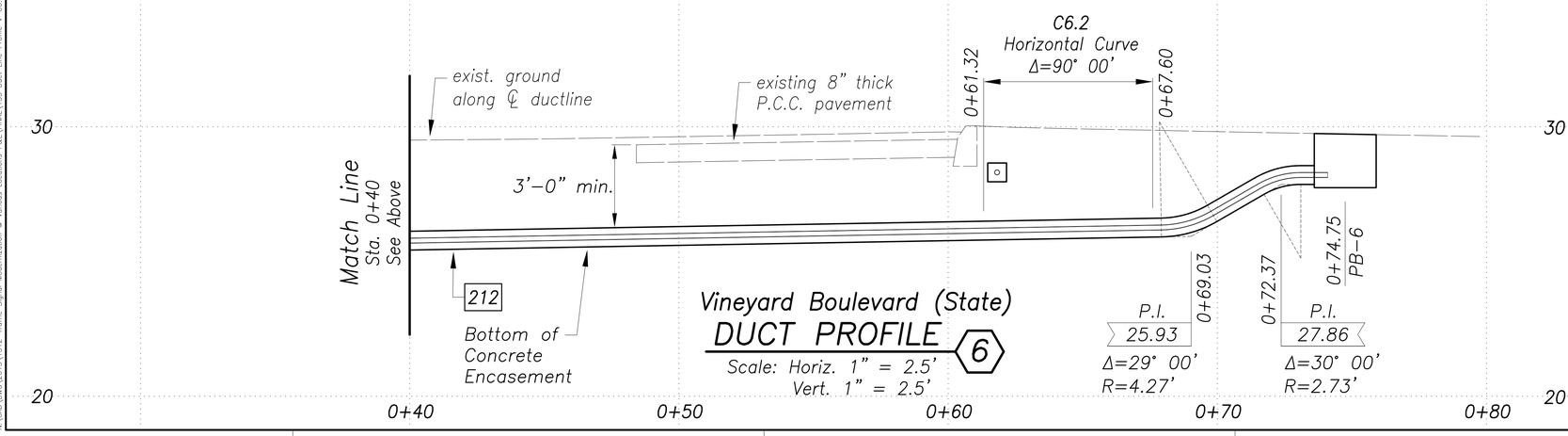


Vineyard Boulevard (State)
DUCT PROFILE (6)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

GRAPHIC SCALES
SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Traffic Signals & Technology, DTS Date



Vineyard Boulevard (State)
DUCT PROFILE (6)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

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

Nov 18, 2020-5:18am
N:\CAD\Work\20151512-Traffic Signal Modernization @ Various Locations F&E\FINAL\155 Duct Line Profile V-06.dwg

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

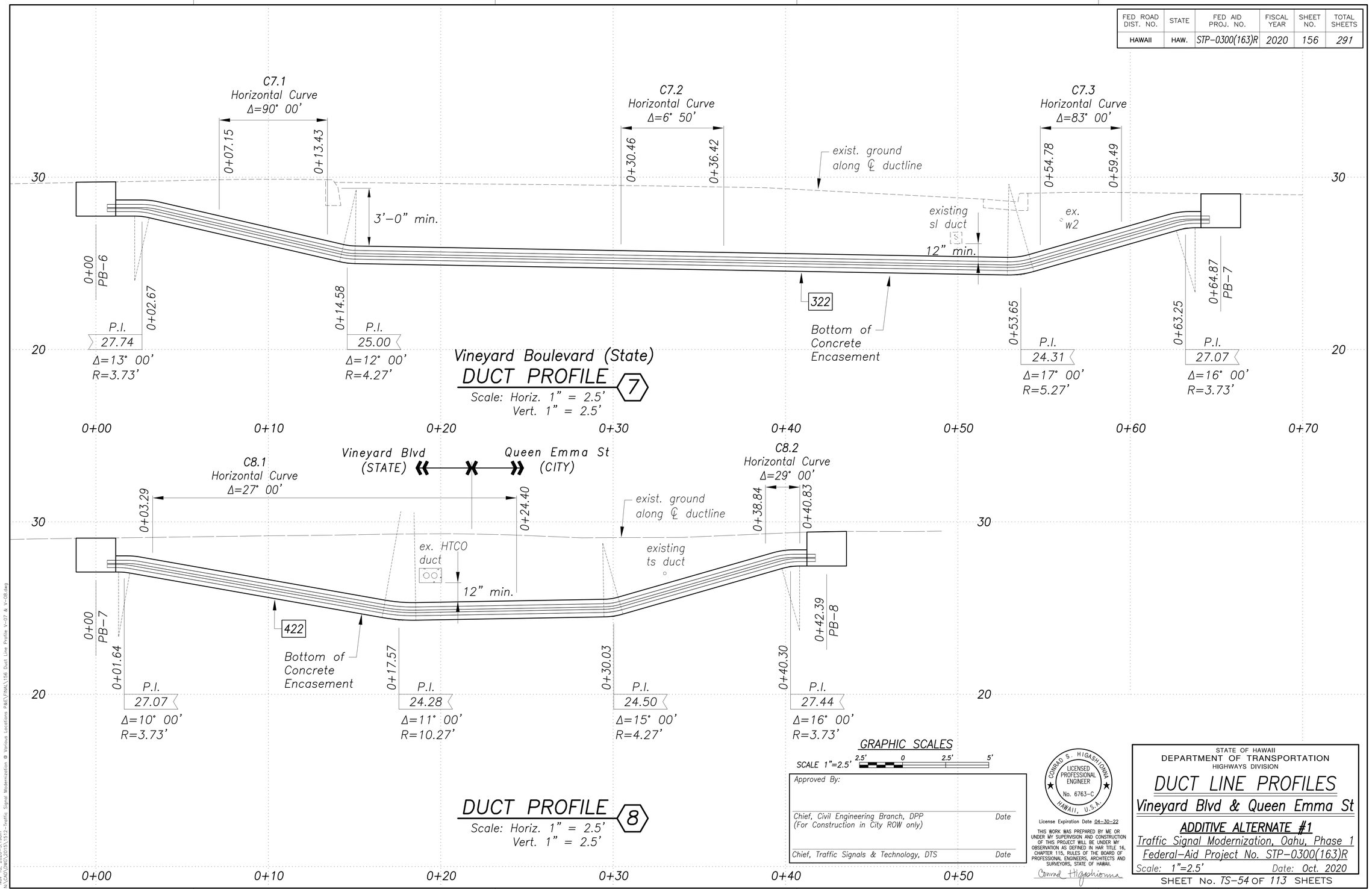
ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-53 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	156	291



GRAPHIC SCALES

SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONNA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

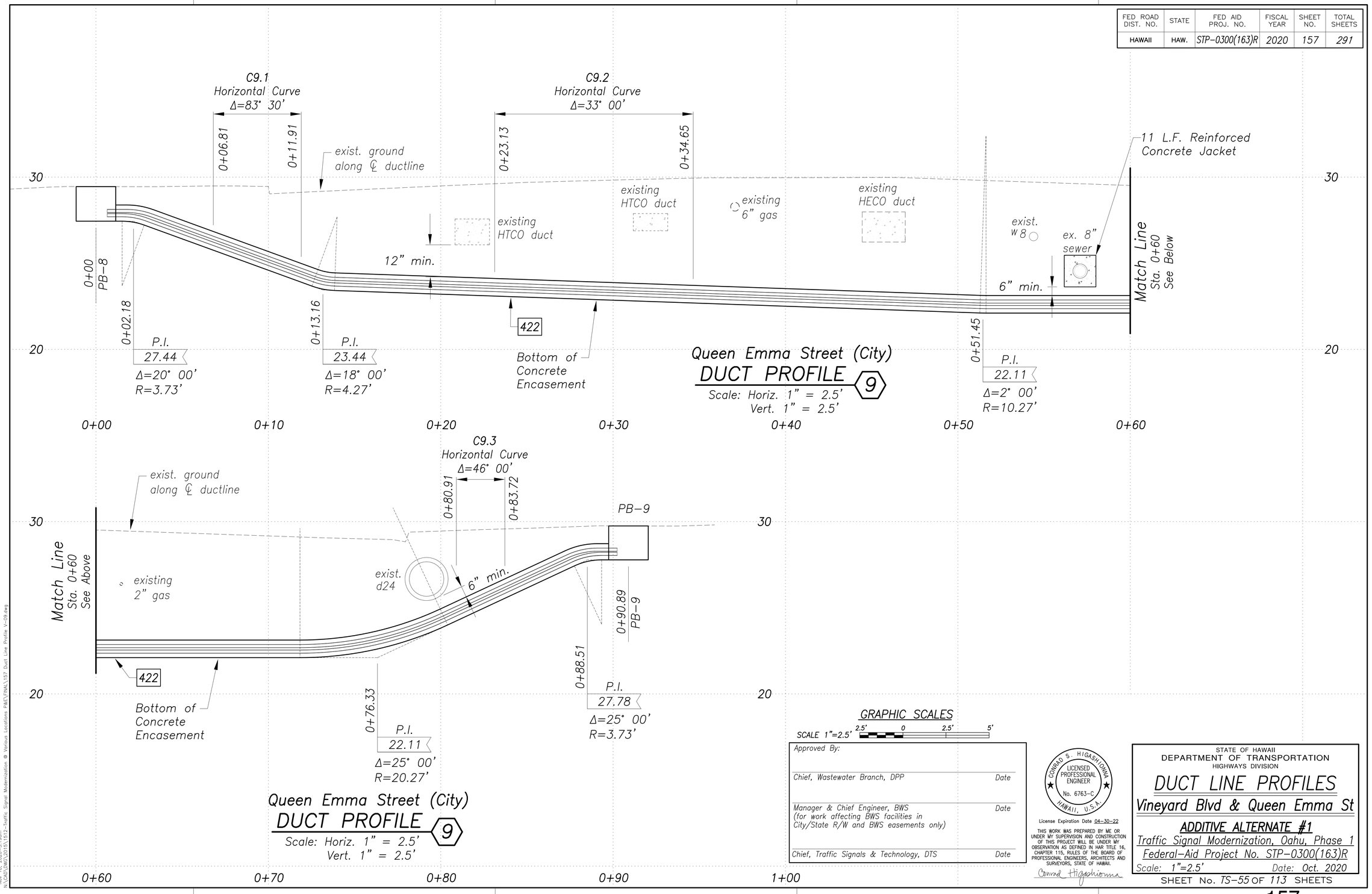
Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-54 OF 113 SHEETS

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

Nov 18, 2020-5:19pm
N:\DOT\ONG\2015\1912-Traffic Signal Modernization @ Various Locations P&E\DNA\156 Duct Line Profile V-07 & V-08.dwg

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	157	291



Queen Emma Street (City)
DUCT PROFILE (9)

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

Queen Emma Street (City)
DUCT PROFILE (9)

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

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

Nov 18, 2020-5:19pm
N:\DOT\WKS\2019\1932-Traffic Signal Modernization @ Various Locations P&E\FINAL\157 Duct Line Profile V-09.dwg

GRAPHIC SCALES
SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Wastewater Branch, DPP — Date

Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

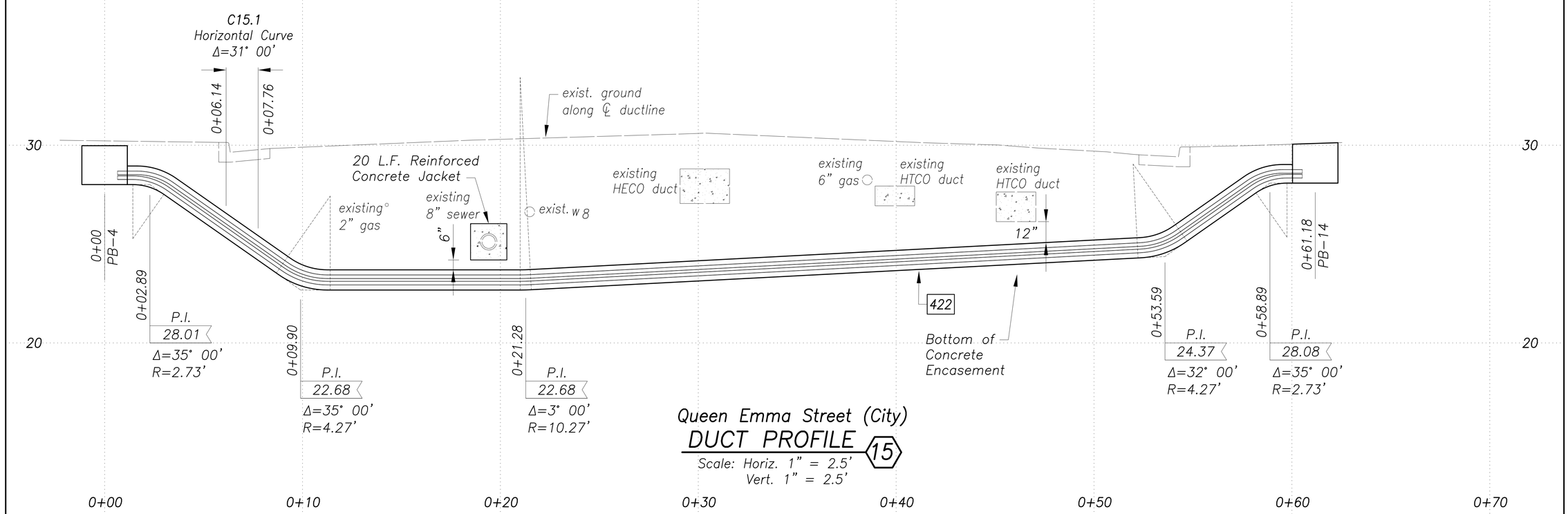
ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=2.5' Date: Oct. 2020

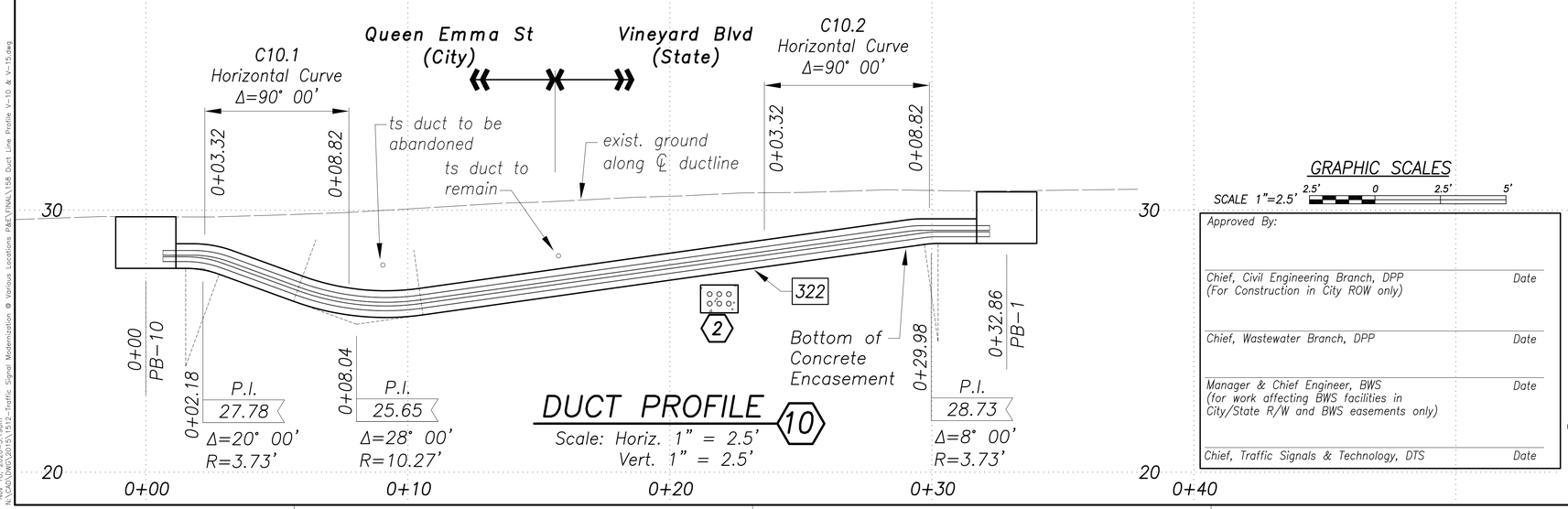
SHEET No. TS-55 OF 113 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	158	291



Queen Emma Street (City)
DUCT PROFILE 15

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



DUCT PROFILE 10

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

GRAPHIC SCALES

SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) — Date

Chief, Wastewater Branch, DPP — Date

Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only) — Date

Chief, Traffic Signals & Technology, DTS — Date

CONRAD S. HIGASHIONA LICENSED PROFESSIONAL ENGINEER No. 6763-C HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
Vineyard Blvd & Queen Emma St
ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

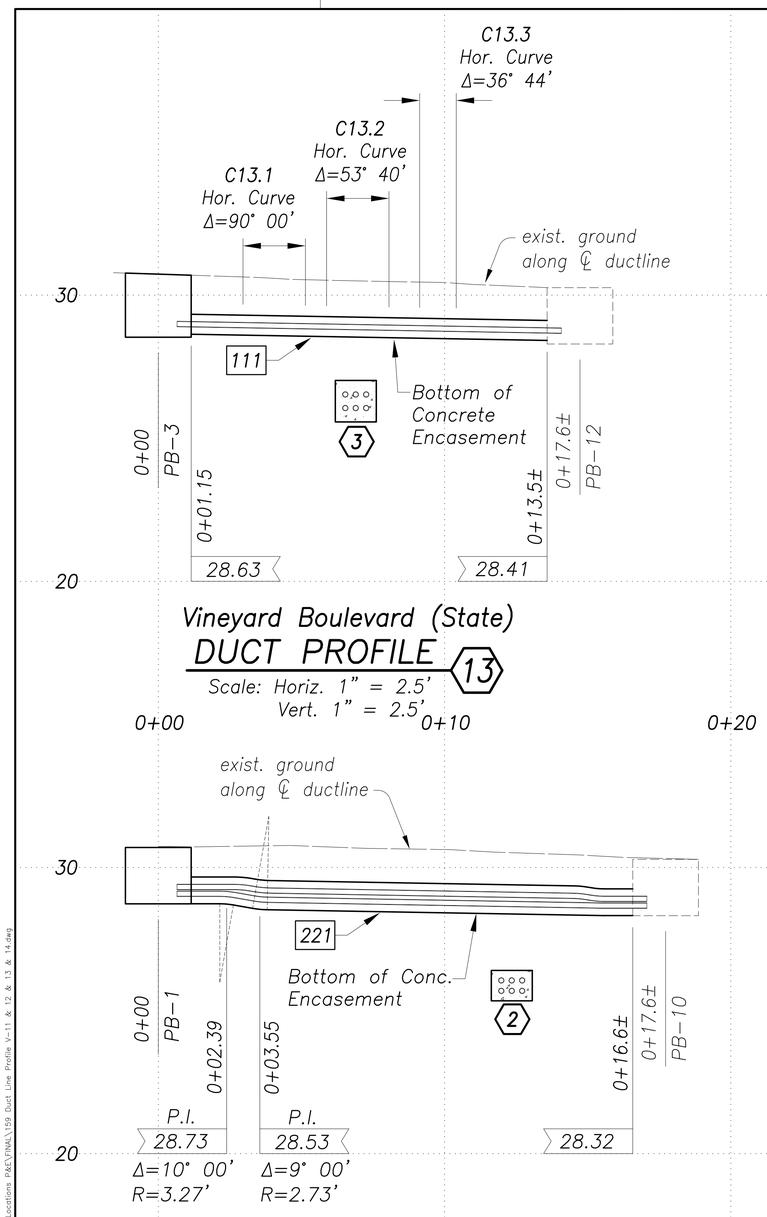
Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-56 OF 113 SHEETS

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

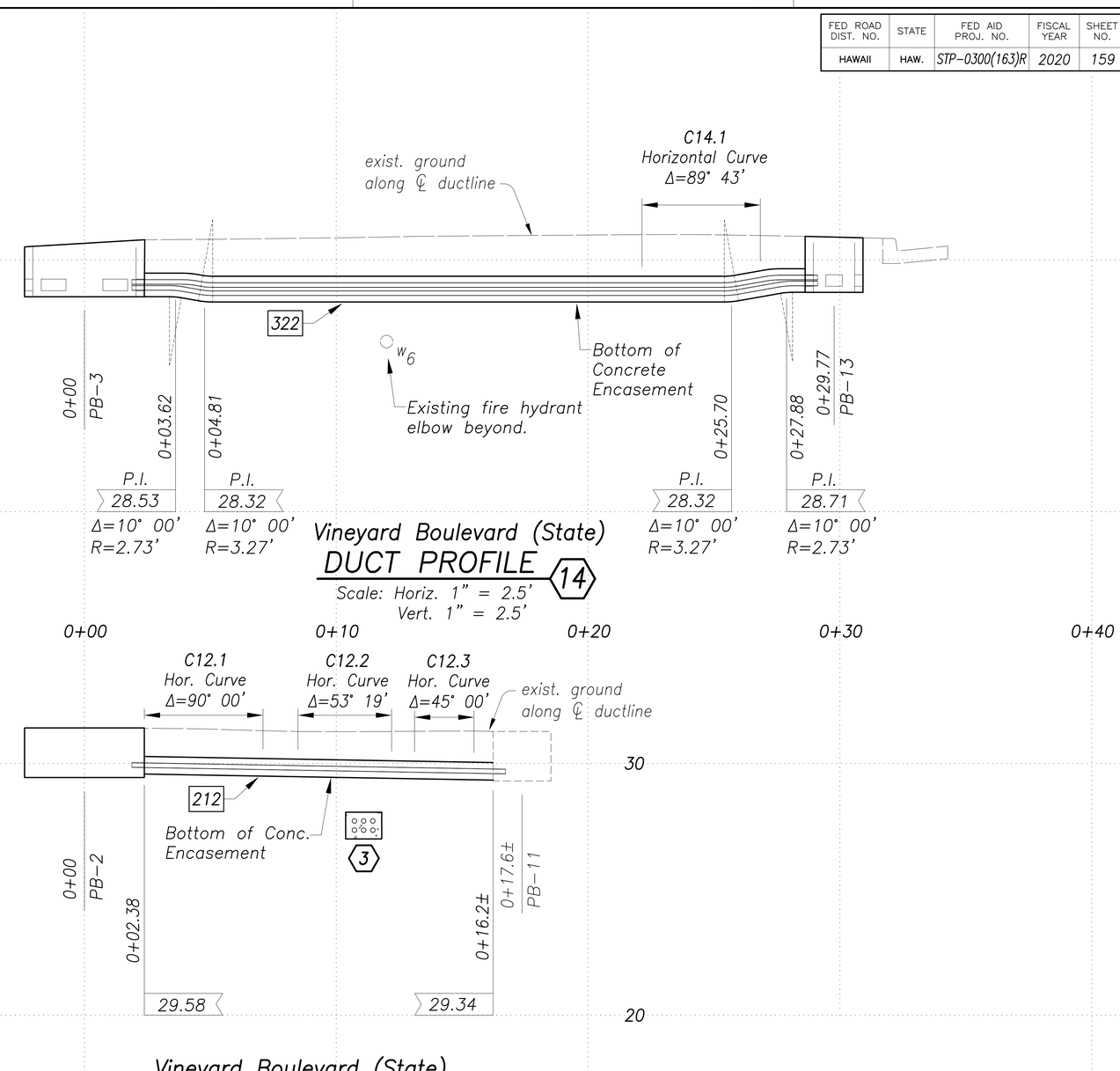
Nov 18, 2020-5:19am
N:\DOT\WO\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\158 Duct Line Profile V-10 & V-15.dwg

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	159	291



Vineyard Boulevard (State)
DUCT PROFILE (13)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

Vineyard Boulevard (State)
DUCT PROFILE (11)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Vineyard Boulevard (State)
DUCT PROFILE (14)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

Vineyard Boulevard (State)
DUCT PROFILE (12)
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

GRAPHIC SCALES
SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Traffic Signals & Technology, DTS Date

CONRAD S. HIGASHIONNA
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HAWAII, U.S.A.

License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

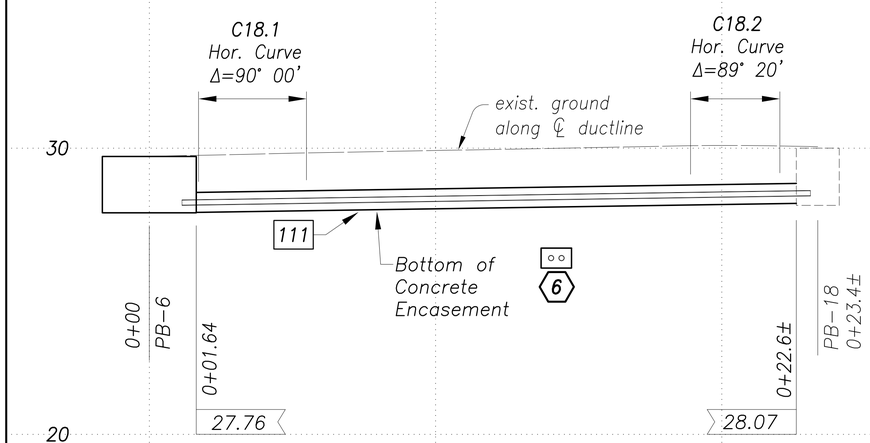
Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-57 OF 113 SHEETS

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

Nov 18, 2020-5:19am
N:\CADWORK\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\159 Duct Line Profile V-11 & 12 & 13 & 14.dwg

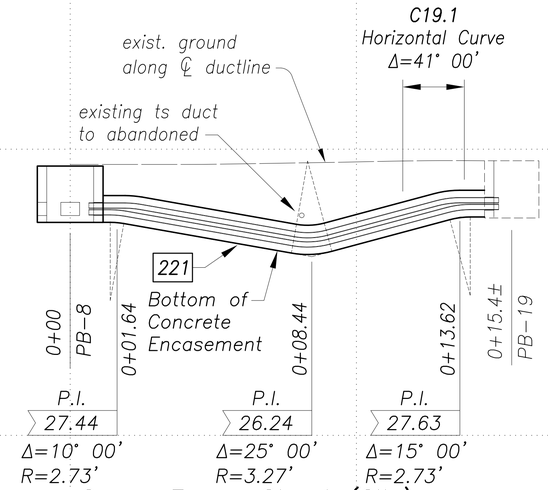
FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	160	291



Vineyard Boulevard (State)

DUCT PROFILE 18

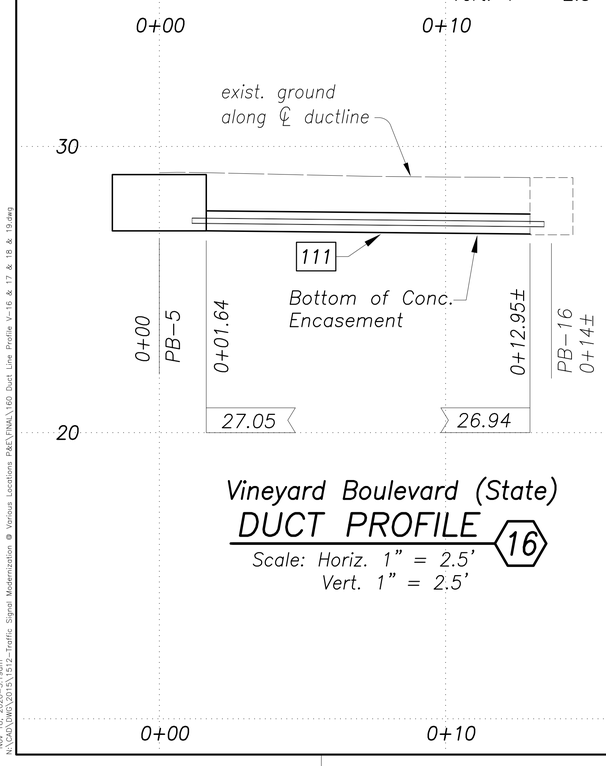
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Queen Emma Street (City)

DUCT PROFILE 19

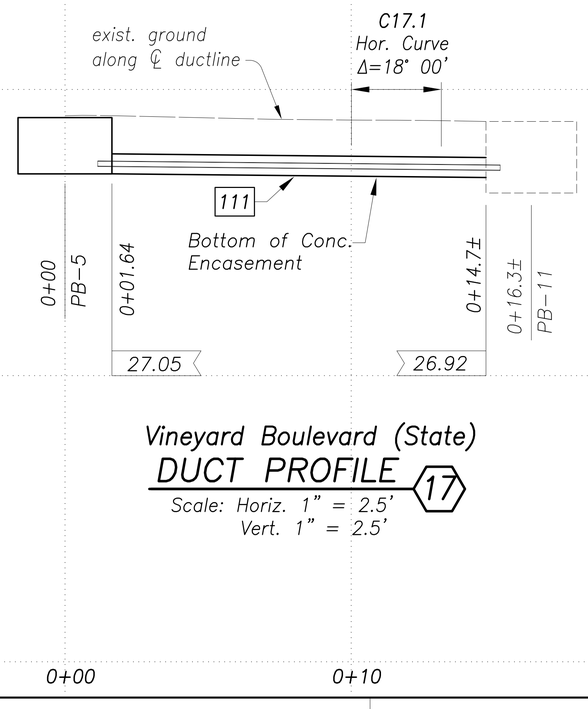
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Vineyard Boulevard (State)

DUCT PROFILE 16

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



Vineyard Boulevard (State)

DUCT PROFILE 17

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

GRAPHIC SCALES

SCALE 1"=2.5' 2.5' 0 2.5' 5'

Approved By:

Chief, Civil Engineering Branch, DPP (For Construction in City ROW only) Date

Chief, Traffic Signals & Technology, DTS Date

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

Nov 18, 2020-5:19pm
N:\DCM\CMS\STS\TS12-Traffic Signal Modernization @ Various Locations P&E\DNA\160 Duct Line Profile V-15 & 17 & 18 & 19.dwg

CONRAD S. HIGASHIONNA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
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License Expiration Date 04-30-22

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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

Vineyard Blvd & Queen Emma St

ADDITIVE ALTERNATE #1

Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-58 OF 113 SHEETS