

GENERAL NOTES

DESIGN SPECIFICATIONS:

- AASHTO Standard Specifications for Highway Bridges (16th edition), with subsequent Interim Specification 1996.
- AASHTO Standard Specifications for Seismic Design of Highway Bridges, Seismic Performance Category B, acceleration coefficient of 0.17

ALLOWABLE DESIGN STRESSES:

- Reinforced concrete: $f_c = 0.40 f'_c$
- Reinforced steel: $f_s = 20,000$ psi for Grade 40, 24,000 psi for Grade 60

MATERIALS:

- Reinforced concrete: $f'_c = 4000$ psi
- Reinforced steel: ASTM A 615, Grade 40 or Grade 60.
- Admixture in concrete: See Special Provisions
- All expansion and premolded joint filler shall be incidental to concrete and will not be paid for separately.

GENERAL:

- See Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994 together with Special Provisions prepared for this project.
- The Contractor shall verify all dimensions in the field before commencing with work.
- The Contractor shall verify the location of all existing utility lines near structures and notify their respective owners before commencing with work.
- The Contractor, at his own expense, shall keep the project area free from dust nuisance. The work shall be in conformance with the air pollution control standards and regulations of the State of Hawaii Department of Health.
- Any damage to existing structures due to the Contractor's operation shall be repaired at no cost to the State, according to the contract.
- The Contractor shall be solely responsible for the protection of adjacent property, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at no cost to the State, according to the contract. He shall conduct his work in such a manner as to insure the safety of all concerned and to protect existing structures.
- Except as noted otherwise, all dimensions are measured plumb.
- All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
- Excavation for all footings and footing keys shall be accomplished by maintaining as near a vertical cut as possible. In the event of over-excavation, the space between the footing or footing key and ground shall be filled with a minimum of Class D concrete at no cost to the State, according to the contract.
- At the time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings adversely affecting bond capacity.
- For Concrete Finish, see Special Provisions. Unless noted otherwise, chamfer all exposed concrete edges three-quarters (3/4) of an inch.
- Weepholes, 4 inches in diameter, shall be placed not more than 10 feet on center along the retaining walls. A 12 inch minimum thick filter gravel drain shall be placed along the entire length of wall connecting the weepholes. Anchor firmly 6" square galvanized steel wire 1/4" mesh hardware cloth (min. wire diameter 0.025") to backface around drain hole. Weepholes and galvanized wire mesh shall be incidental to concrete in retaining walls.

- Reinforcement, dowels and other embedded items shall be positively secured before pouring.
- For steel reinforcing, stagger all splices where possible. Spliced reinforcing shall conform to Hawaii Standard Specifications for Road, Bridges and Public Works Construction, 1994, Specification 602.06 (B).
- Steel reinforcing shall be supported, bent and placed as per ACI Detailing Manual, 1994.
- Unless noted otherwise, minimum reinforcement cover shall satisfy AASHTO Standard Specifications for Highway Bridges (16th Edition).
- Contract items will be paid for in units indicated in the Estimated Quantities.
- All items noted incidental will not be paid for separately.
- All anchor bolts shall be high strength bolts conforming to the requirement of ASTM A 325, Type I.
- For the installation of anchor bolts for highway lighting standards and expressway signs, the Contractor shall provide rigid templates to maintain the proper locations and protection of such anchor bolts at all times during the period of construction. Exact methods shall be approved by the Engineer.
- Flashing compound, asphalt roll roofing paper and premolded joint filler shall be incidental to Concrete in Retaining Walls and will not be paid for separately.
- Contraction joints shall be provided for the retaining walls as specified in Standard Plan B-01.

REFERENCE:

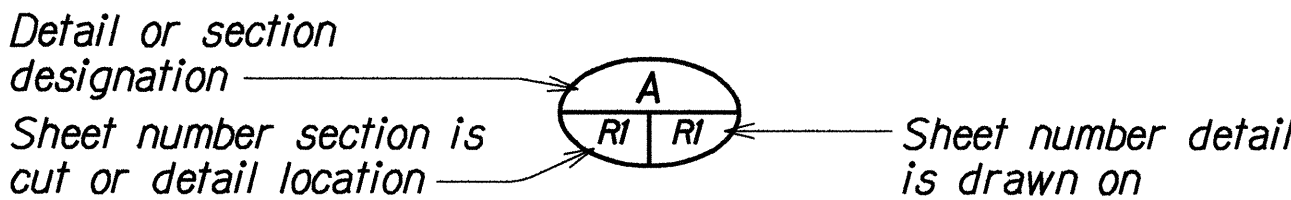
- Refer to Standard Plans for additional details and notes not covered by details and typical drawings.

ABBREVIATIONS

BFE	Bottom Footing Elevation	El.	Elevation	Reinf.	Reinforcing
		Exist.	Existing	Ret.	Retaining
Bot.	Bottom	Exp.	Expansion	Sta.	Station
BOF	Bottom of Footing	Fin.	Finish	TOC	Top of Curbing
Conc.	Concrete	Flash'g	Flashing	TOW	Top of Wall
		Jt.	Joint	Vert.	Vertical

For existing items labeled on Plan, see Legend.

SYMBOL



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-710(1)	1998	C.O.ADD6	16

INDEX TO DRAWINGS

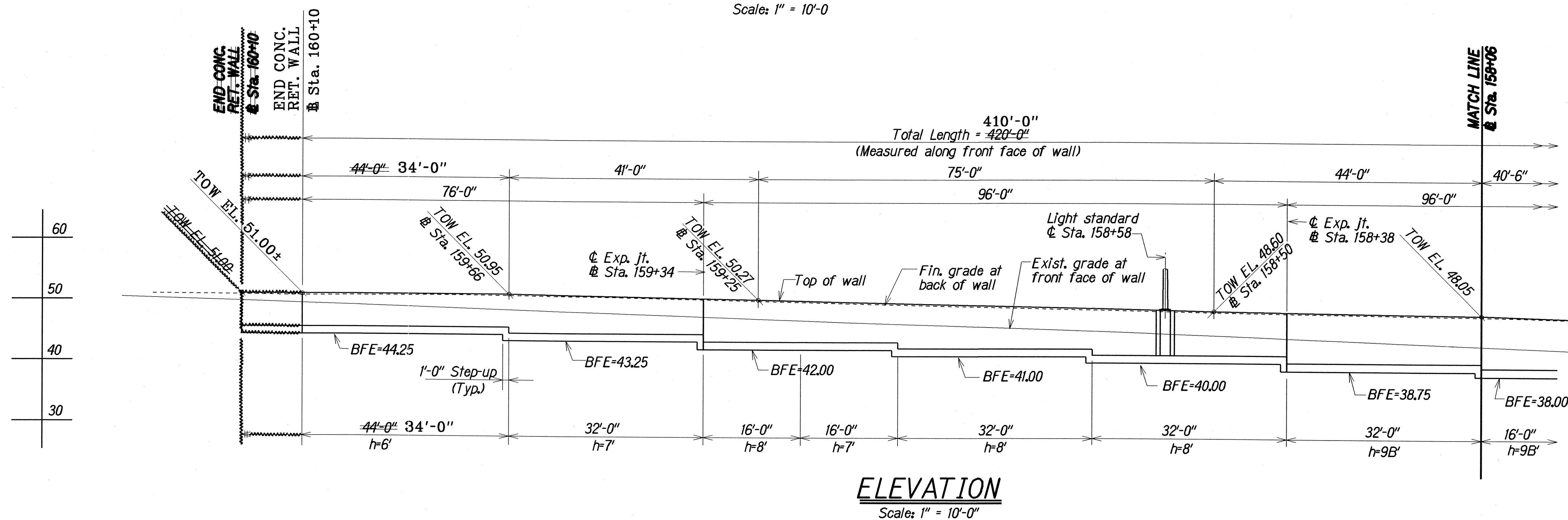
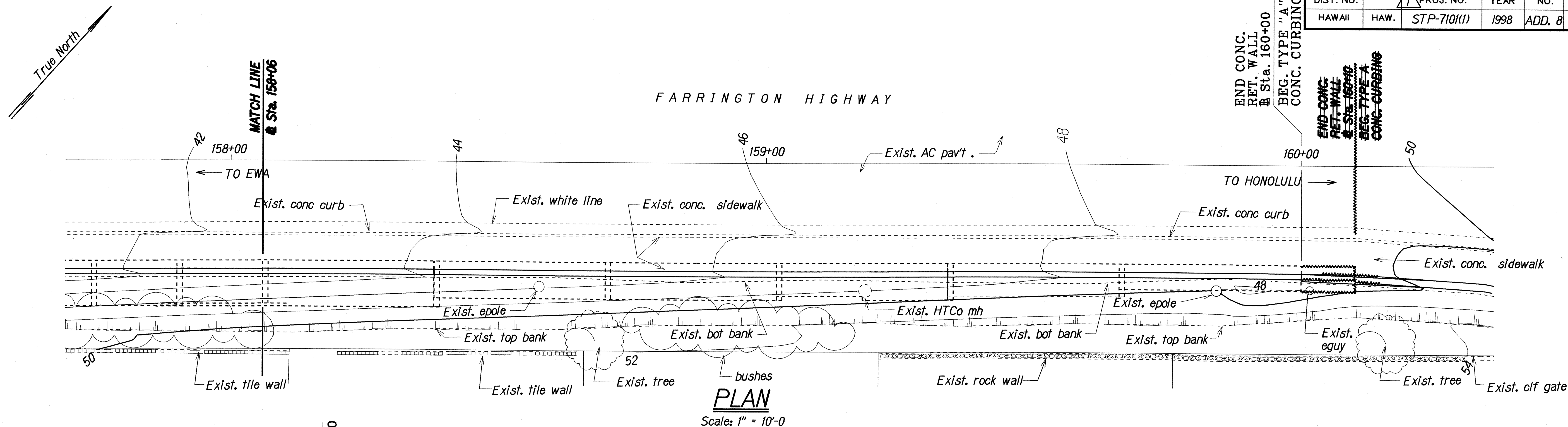
SHEET	DESCRIPTION
R1	Index To Drawings; General Notes And Estimated Quantities
R2	Retaining Wall - Plan And Elevation, Farrington Hwy. @ Sta. 155+90 To Sta. 158+06
R3	Retaining Wall - Plan And Elevation, Farrington Hwy. @ Sta. 158+06 To Sta. 160+10
R4	Type A & B Curbing - Plan And Elevation, Farrington Hwy. @ Sta. 160+10 To Sta. 161+42
R5	Typical Section, Structure Excavation & Backfill Detail, & Schedules
R6	Expansion Joint & Footing Step-up Details; Wall Details at Light Standard

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITIES
206.5000	Structure Excavation For Retaining Walls	Cu. Yd.	1360 c.y.
206.7250	Structure Backfill For Retaining Walls	Cu. Yd.	1160 c.y.
206.8300	Filter Material For Retaining Walls	Cu. Yd.	40 c.y.
503.1050	Concrete In Retaining Walls	Lump Sum	(300 c.y.)
508.0100	Cement Rubble Masonry	Cu. Yd.	3 c.y.
602.0050	Reinforcing Steel In Retaining Walls	Lump Sum	(48,200 lbs.)
608.1210	4" Thick x 2'-0" wide sidewalk	Sq. Yd.	95 sq.

2 1/13/99	Revised Est. Quantities and added "C.O." to sht. no.
1 6/4/98	Changed Proj. No. 7101A-01-97 to F.A. Proj. No. STP-710(1). Changed General Note #19 to ASTM A 325, Type I. Added ADD. to sht no.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION RETAINING WALL INDEX TO DRAWINGS; GENERAL NOTES AND ESTIMATED QUANTITIES FARRINGTON HIGHWAY RETAINING WALL Vicinity of Awanui Street to Waipio Point Access Road F.A. Project No STP-710(1) Scale: As Noted Date: June 1998	
SHEET No. R1 OF 6 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-710(1)	1998	ADD. 8	16



ORIGINAL PLAN	DATE
DESIGNED BY	JUL 1997
TRACED BY	JUL 1997
QUANTITIES BY	JUL 1997
CHECKED BY	JUL 1997

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

6/4/98
DATE

Changed Proj. No. 7101A-01-97 to
F.A. Proj. No. STP-710(1). Added ADD.
to sh. no.

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL
PLAN AND ELEVATION
FARRINGTON HWY. @ STA. 158+06 TO STA. 160+10
FARRINGTON HIGHWAY RETAINING WALL
Vicinity of Awanui Street to Waipio Point Access Road
F.A. Project No. STP-710(1)

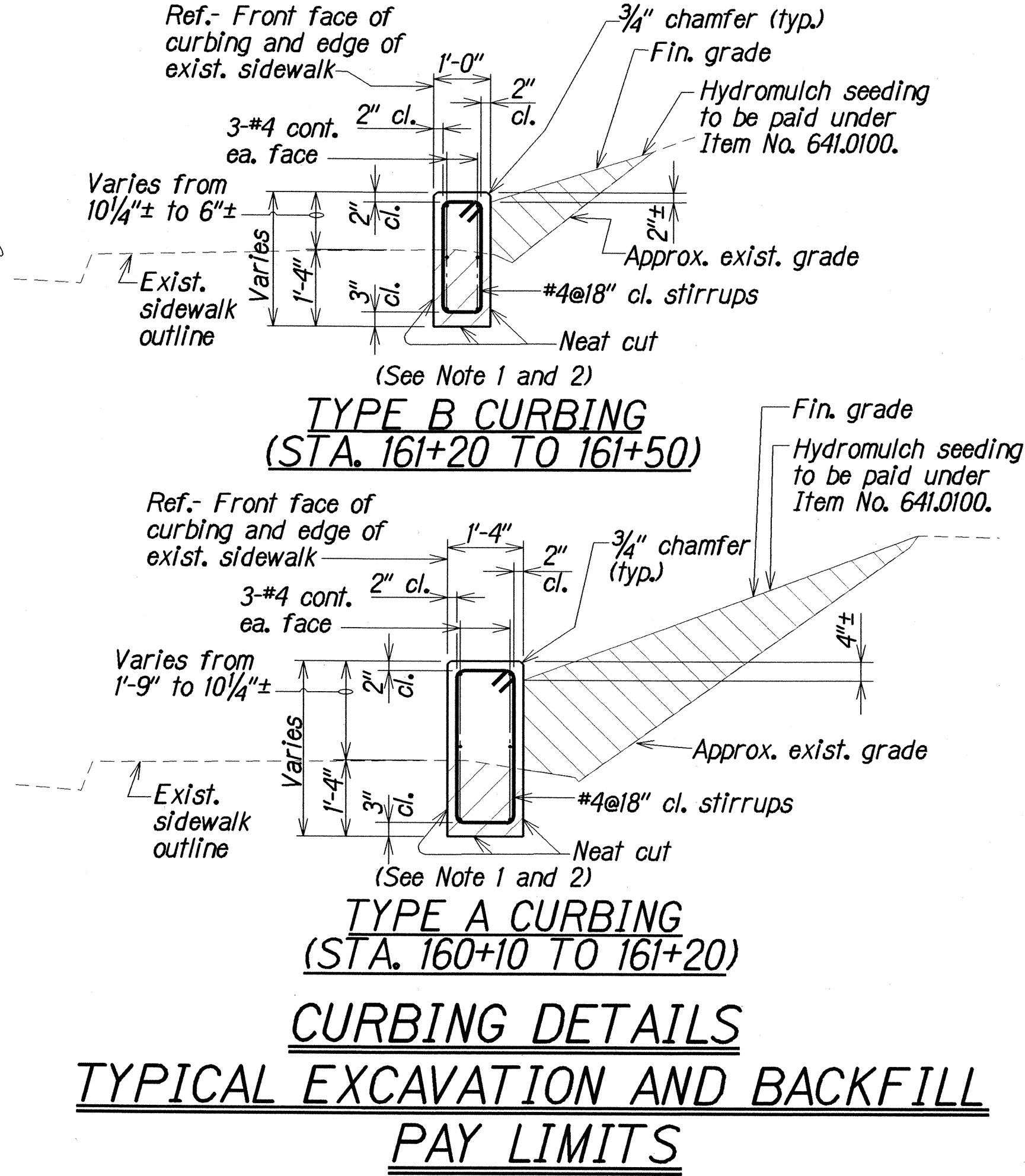
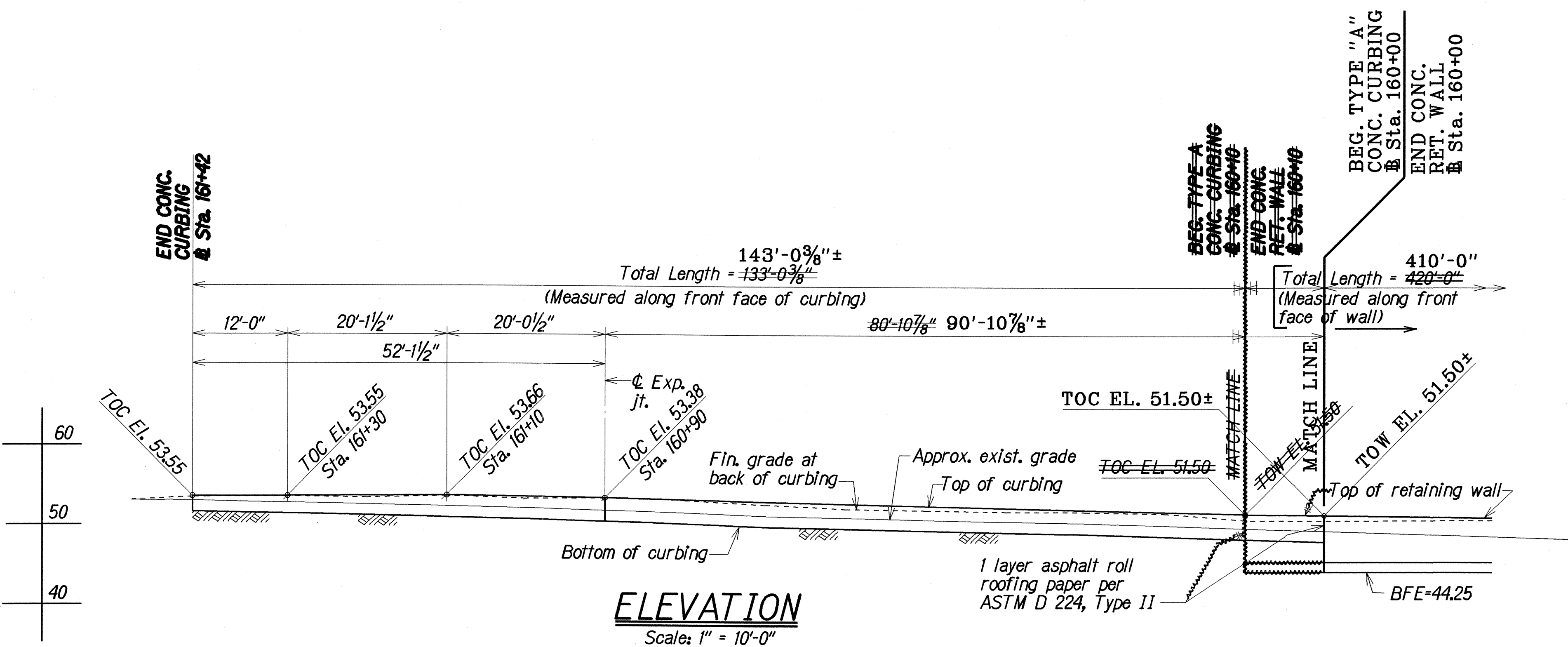
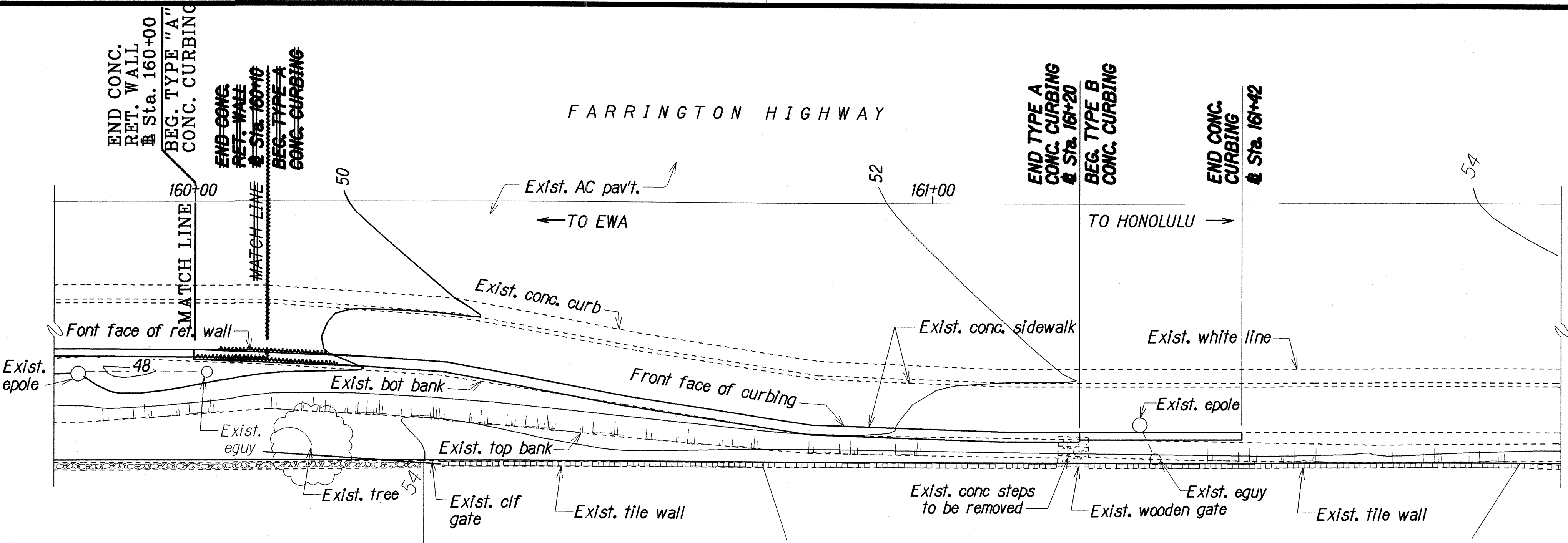
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SHEET No. R3 OF 6 SHEETS

"AS-BUILT"

ADD. 8

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-710(1)	1998	ADD. 9	16



- NOTES:
- Hatched area shown thus denotes limits of structure excavation.
 - Hatched area shown thus denotes limits of imported planting soil. Imported planting soil shall be paid under Item No. 617.0200.
 - Concrete for Type A and Type B curbing shall be paid under Concrete in Retaining walls.
 - Reinforcing for Type A and Type B curbing shall be paid under Reinforcing in Retaining Walls.

SURVEY PLOTTED BY	DATE
DESIGNED BY	DATE
QUANTITIES BY	DATE
CHECKED BY	DATE

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

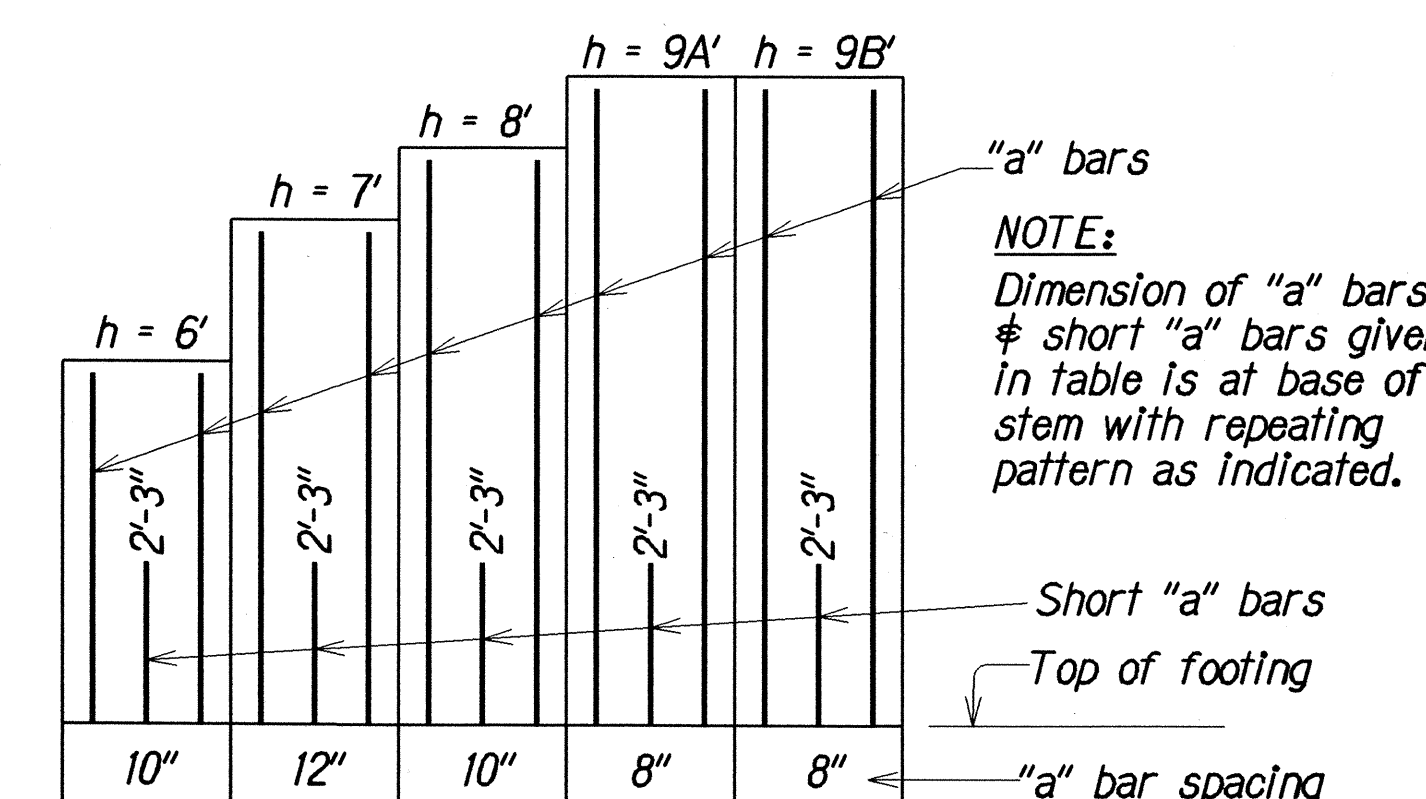
 6/4/98	Changed Proj. No. 7101A-01-97 to F.A. Proj. No. STP-710(1). Added ADD. to sht. no.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
RETAINING WALL TYPE A & B CONCRETE CURBING - PLAN & ELEVATION FARRINGTON HWY. @ STA. 160+10 TO STA. 161+42 Vicinity of Awanui Street to Waipio Point Access Road F.A. Project No. STP-710(1)
Scale: As Noted Date: June 1998
SHEET No. R4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-710(1)	1998	C.O. ADD. 10	16

SCHEDULE OF DIMENSIONS AND REINF. STEEL FOR RETAINING WALL

Maximum "h"	6'	7'	8'	9A'	9B'
"a" bar	#5@10"	#8@12"	#8@10"	#8@8"	#8@8"
Short "a" bar	#5@10"	#6@12"	#8@10"	#8@8"	#8@8"
"b" bar	#5@12"	#7@8"	#7@5"	#8@4"	#7@4"
a	2'-3"	3'-7"	4'-4"	5'-6"	6'-0"
L	4'-9"	6'-1"	6'-10"	8'-0"	8'-6"
d	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
t	1'-3"	1'-3"	1'-3"	1'-4"	1'-4"
b	0	0	1'-3"	1'-6"	1'-9"



VERTICAL REINFORCING STEEL ARRANGEMENT

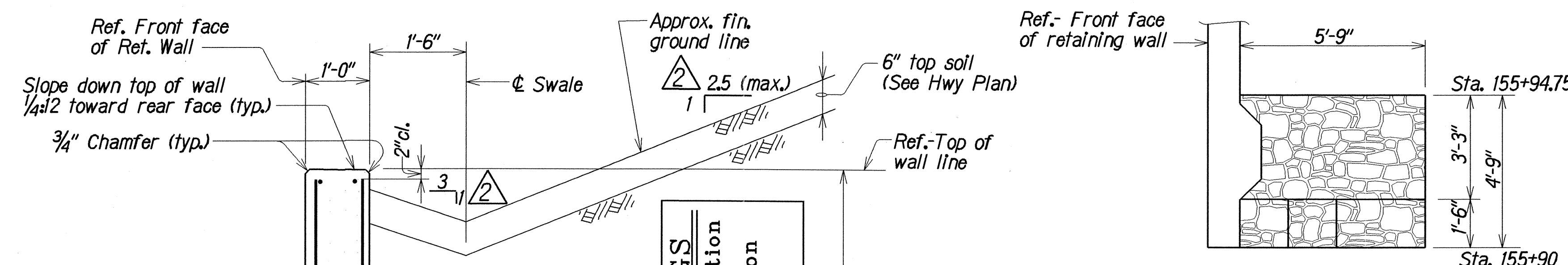
NOTES:

Hatched Area

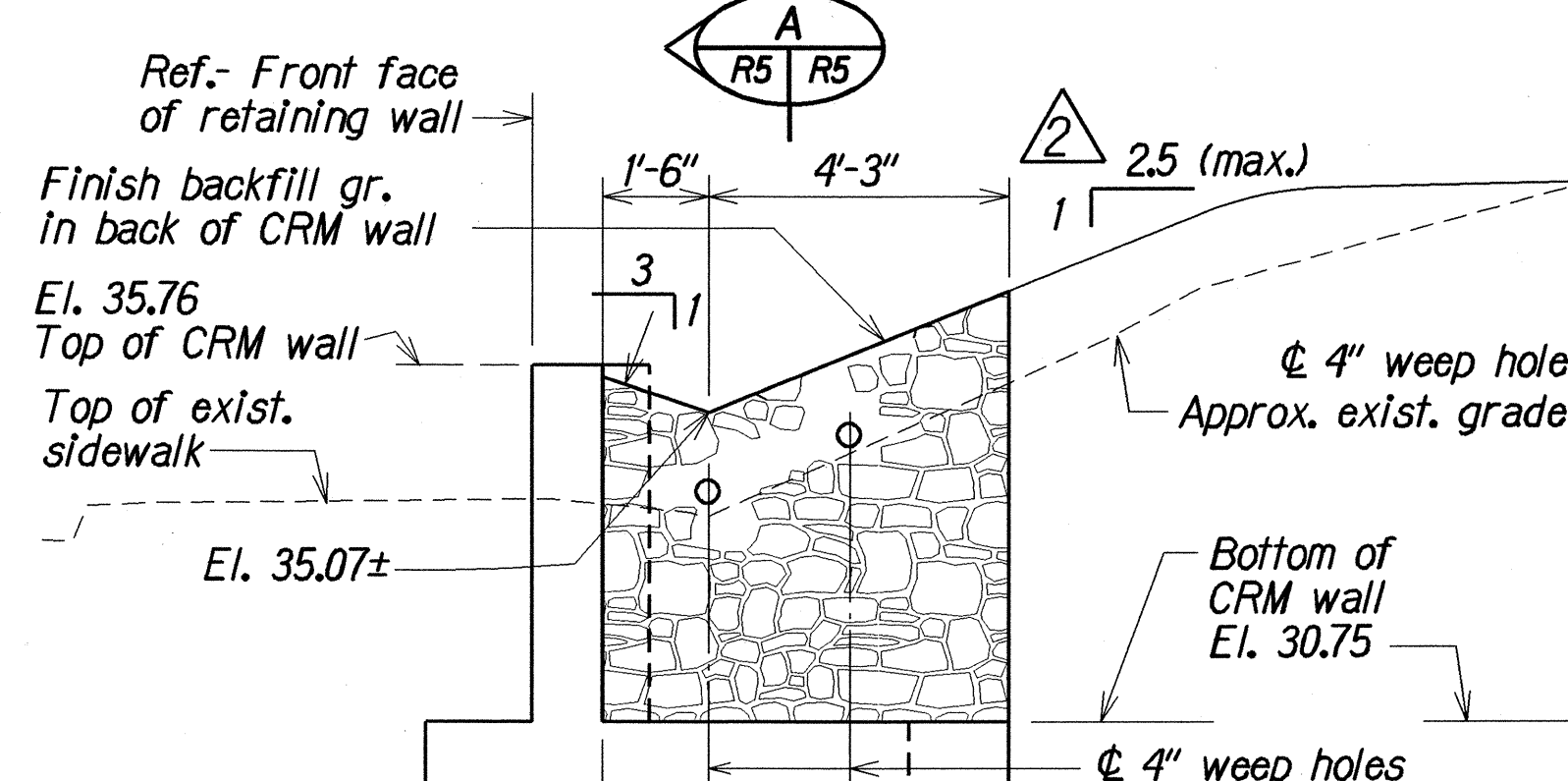
- Hatched area shown thus denotes limits of structure excavation.
- Hatched area shown thus denotes limits of structure backfill.

Impervious Material

- Impervious material as selected by the Engineer shall be incidental to structure backfill.
- When "y" is 2'-0" or less, all backfill below PVC pipe level shall be impervious material.
- The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.



PLAN



ELEVATION

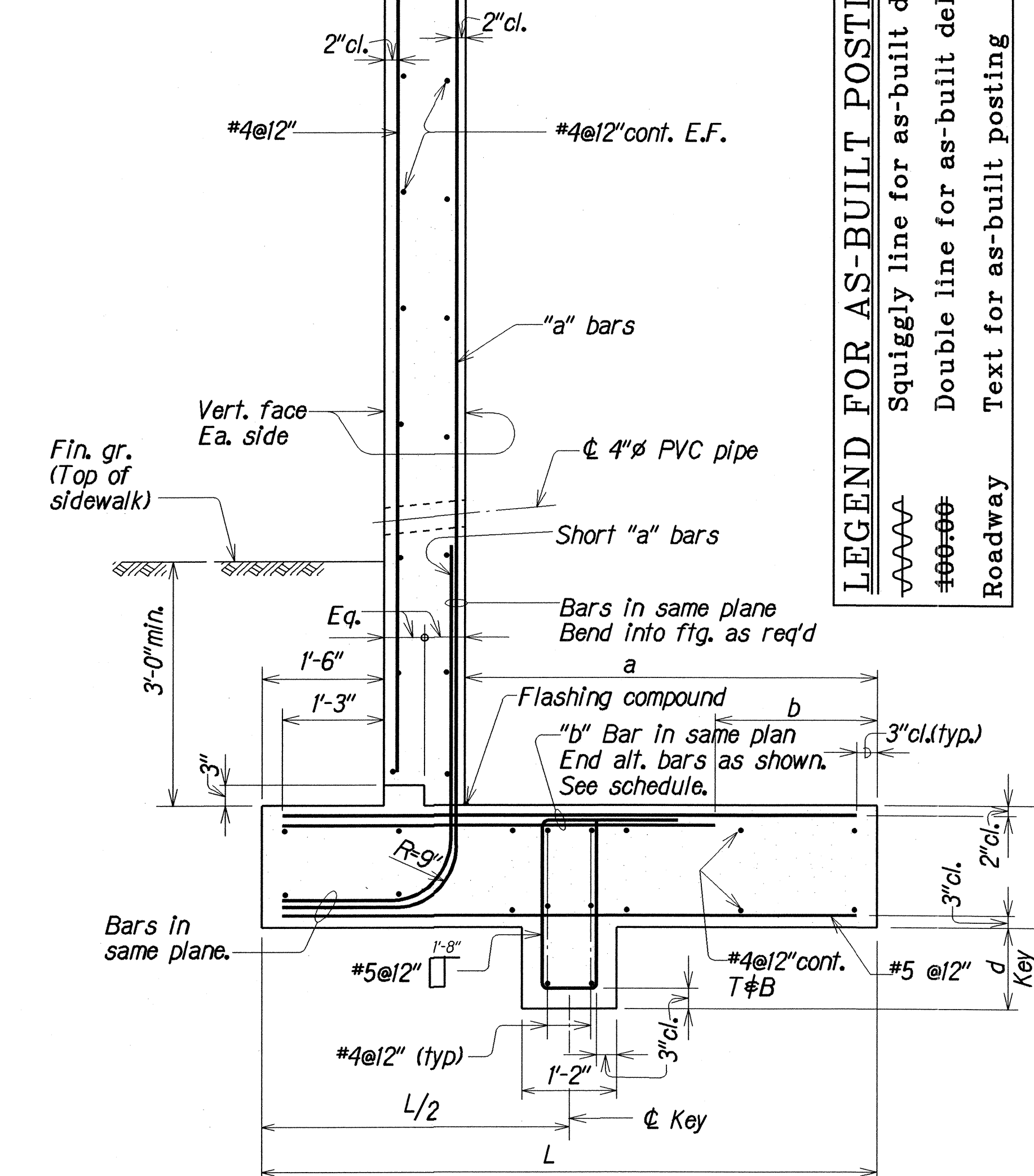
SECTION

CRM WALL DETAILS

Scale: 3/8" = 1'-0"

Install 6'-0" high chain link fence with top rail and conc. footing (See Hwy Plans)

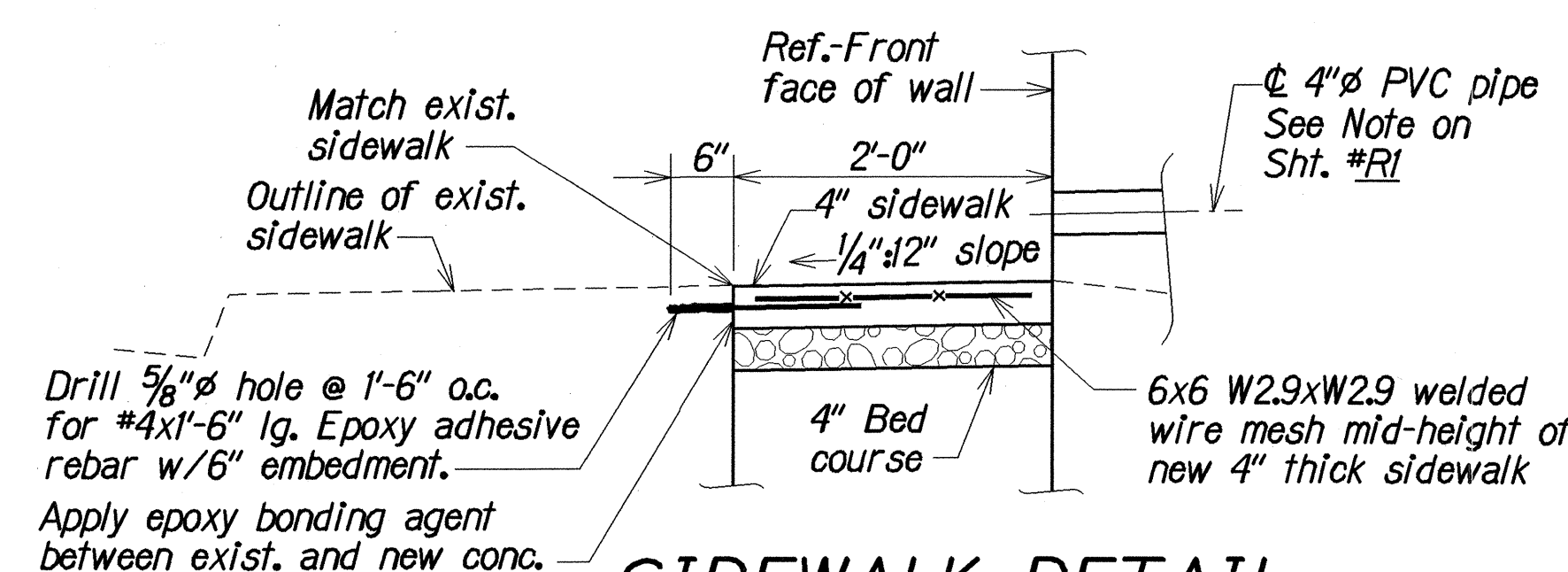
See "Elevation" on Sht. #R1 & #R2 for bot. of ftg. elev.



TYPICAL WALL SECTION

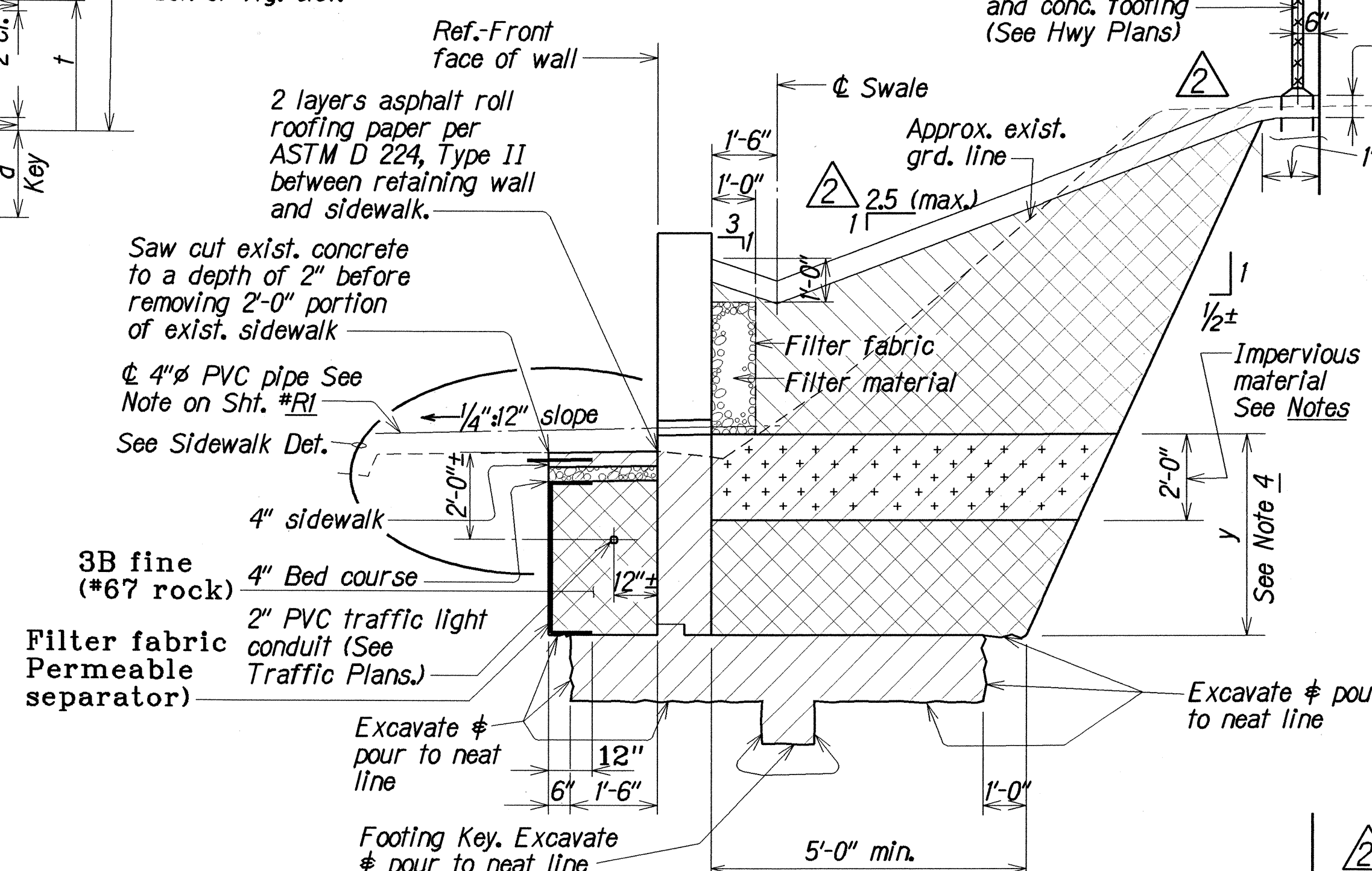
Not to Scale

NOTE: Maximum allowable bearing pressure on all wall footings = 3.0ksf



SIDEWALK DETAIL

Scale: 3/4" = 1'-0"



TYPICAL STRUCTURE EXCAVATION AND BACKFILL PAY LIMITS

Not to Scale

1/13/99	Revised ground line slope from 1:3 to 1:2.5 max. Added C.O. to sht. no.
6/4/98	Changed Proj. No. 7101A-01-97 to F.A. Proj. No. STP-710(1). Rearranged title of drawing. Added ADD. to sht. number.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
RETAINING WALL
TYPICAL SECTION, STRUCTURE EXCAVATION & BACKFILL DETAIL, SCHEDULES
FARRINGTON HIGHWAY RETAINING WALL
Vicinity of Awanui Street to Waipio Point Access Road
F.A. Project No. STP-710(1)
Scale: As Noted Date: June 1998
SHEET No. R5 OF 6 SHEETS

"AS-BUILT"

C.O. ADD. 10

