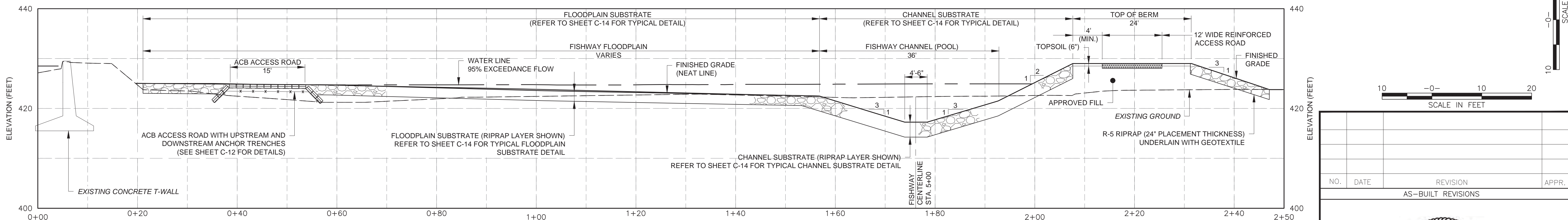
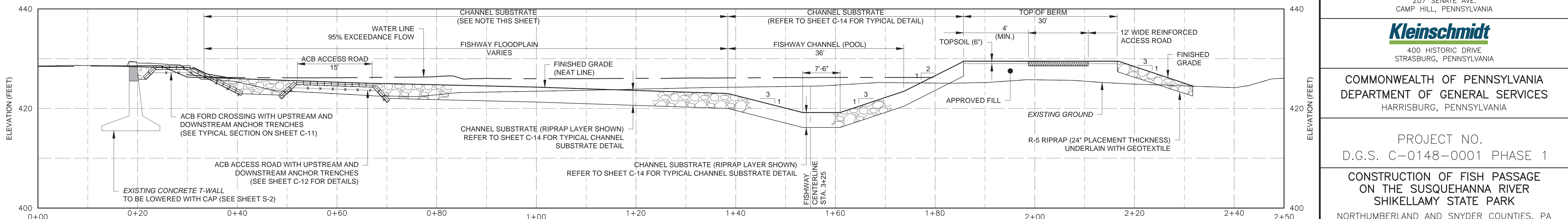


**CROSS SECTION THROUGH FISHWAY AT FISHWAY CHANNEL CENTERLINE STATION 7+00
(SECTION C-C)**
SCALE: 1" = 10'



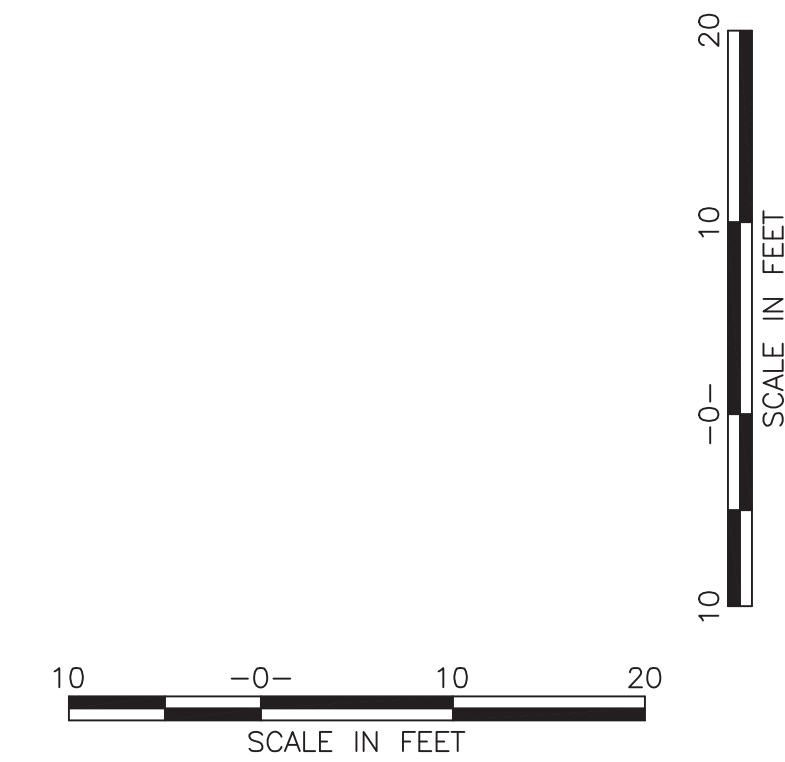
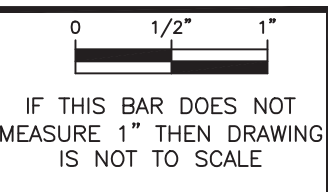
**CROSS SECTION THROUGH FISHWAY AT FISHWAY CHANNEL CENTERLINE STATION 5+00
(SECTION F-F)**
SCALE: 1" = 10'



**CROSS SECTION THROUGH FISHWAY AT FISHWAY CHANNEL CENTERLINE STATION 3+25
(SECTION G-G)**
SCALE: 1" = 10'

NOTES:

- REFER TO SHEET C-2 FOR LOCATION OF CROSS SECTIONS.
- THE FLOODPLAIN AREA EAST OF POOL 4 AND RIFFLE 5 SHALL BE CONSTRUCTED WITH CHANNEL SUBSTRATE. THE DOWNSTREAM LIMIT OF THE CHANNEL SUBSTRATE WITHIN THE FLOODPLAIN SHALL BE A LINE PERPENDICULAR FROM TANGENT AT THE DOWNSTREAM END OF POOL 4.
- CHANNEL BOULDERS AND FLOODPLAIN BOULDERS NOT SHOWN FOR CLARITY.



NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
PROFESSIONAL'S SIGNATURE DATE

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

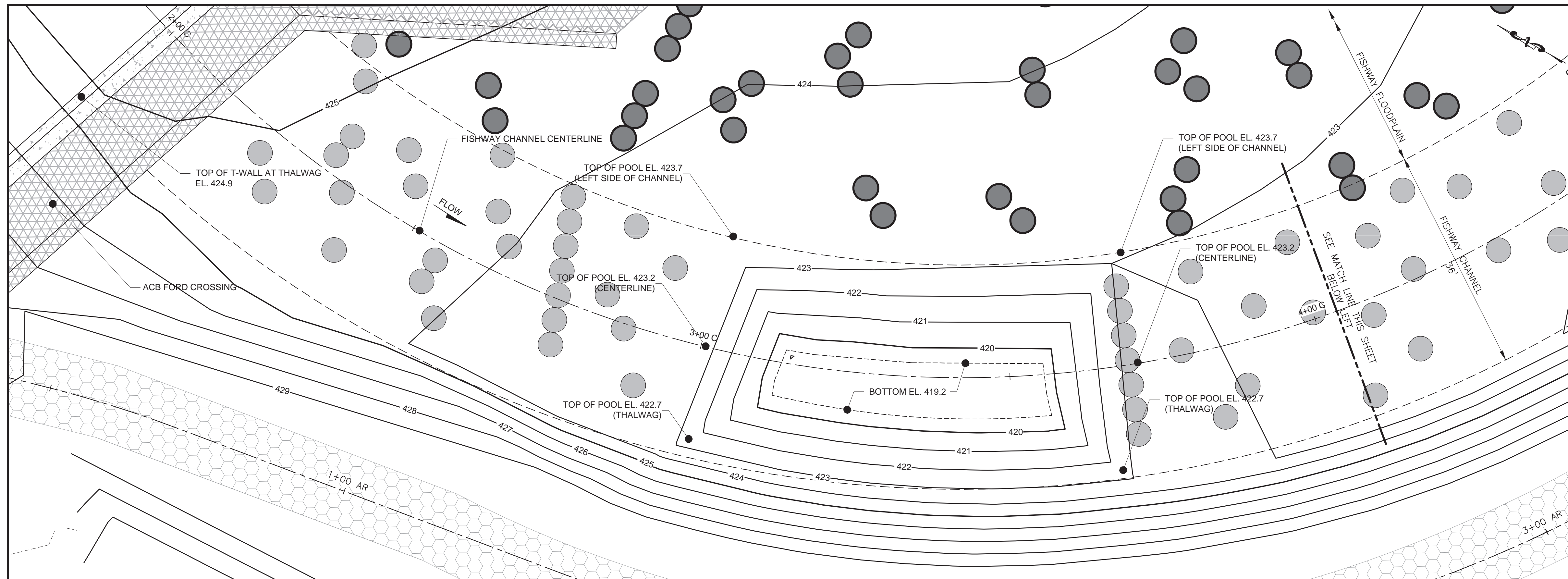
PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

FISHWAY SECTIONS

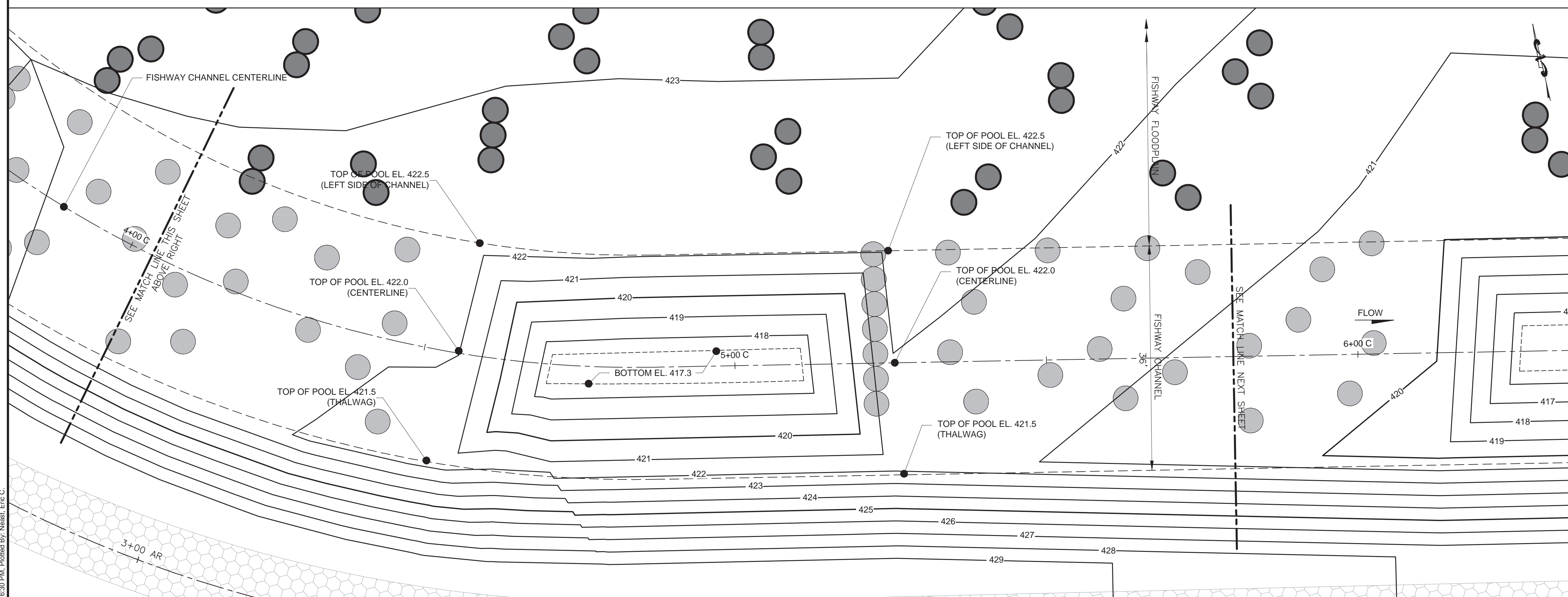
DRAWN BY J.P.H.	DATE OCTOBER 2021	DRAWING NO. C-7
CHECKED BY E.C.N.	SCALE AS SHOWN	

C:\Earth Sciences\ESD\214\1\GDI\092621\BANDS_Sunbury\CA\DD\Design_SectC-6 TYPICAL RIFFLE PLAN AND SECTIONS.dwg
Plot Date: 10/15/2021 2:04 PM. Plotted By: Neast, Eric C.

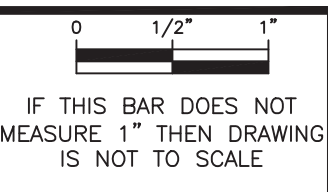


POOL 4 ENLARGED PLAN VIEW
SCALE: 1" = 10'

- PROPOSED LEGEND**
- EL. 422.7 PROPOSED SPOT ELEVATION
 - ▨ REINFORCED ACCESS ROAD
 - BOULDER (CHANNEL)
 - BOULDER (FLOODPLAIN)



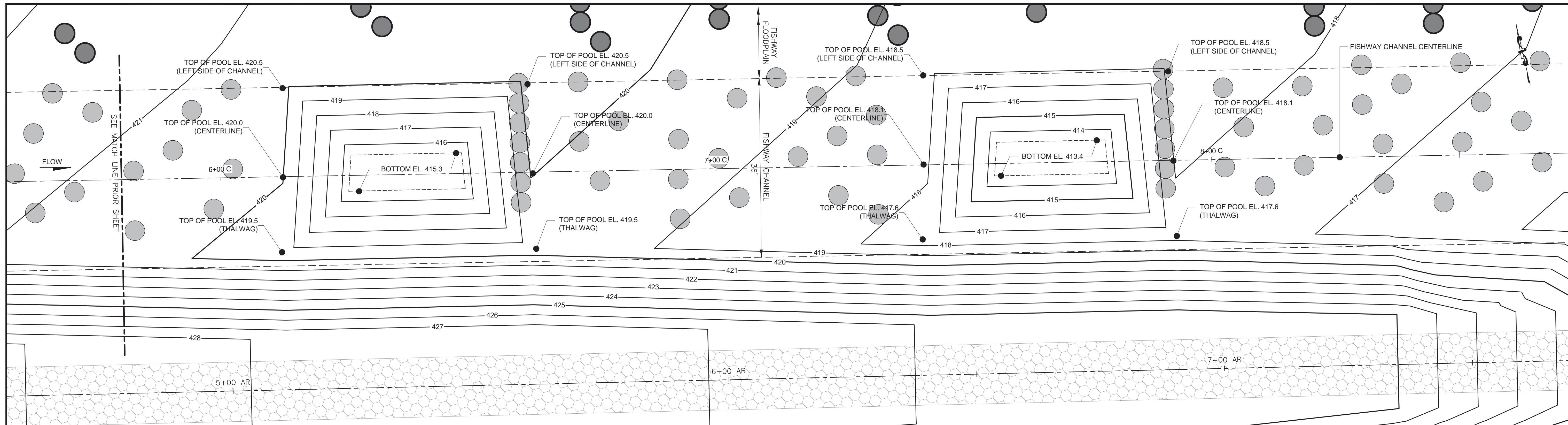
POOL 3 ENLARGED PLAN VIEW
SCALE: 1" = 10'



ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			
			10-15-2021 DATE
Gannett Fleming 207 SENATE AVE. CAMP HILL, PENNSYLVANIA			
Kleinschmidt 400 HISTORIC DRIVE STRASBURG, PENNSYLVANIA			
COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES HARRISBURG, PENNSYLVANIA			
PROJECT NO. D.G.S. C-0148-0001 PHASE 1			
CONSTRUCTION OF FISH PASSAGE ON THE SUSQUEHANNA RIVER SHIKELLAMY STATE PARK NORTHUMBERLAND AND SNYDER COUNTIES, PA			
FISHWAY FEATURES LAYOUT PLAN			
DRAWN BY RMD / JPH	DATE OCTOBER 2021	DRAWING NO. C-8	
CHECKED BY TLK / PGS	SCALE AS SHOWN		

C:\Users\scs\OneDrive\Work\GIS\Projects\PA\DCS_Summary\CADD\Design_Series\3B_Layout\Plan.dwg
 Plot Date: 10/15/2021 8:30 PM, Plotted By: Neast, Eric C.

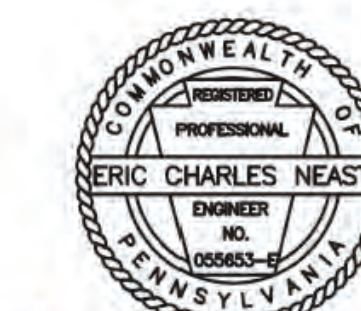


POOL 2 ENLARGED PLAN VIEW
SCALE: 1" = 10'

POOL 1 ENLARGED PLAN VIEW
SCALE: 1" = 10'



NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast
PROFESSIONAL'S SIGNATURE 10-15-2021
DATE

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

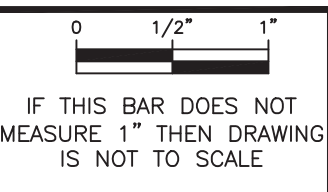
CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

FISHWAY FEATURES LAYOUT PLAN

DRAWN BY RMD / JPH	DATE OCTOBER 2021	DRAWING NO. C-9
CHECKED BY TLK / PGS	SCALE AS SHOWN	

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

- PROPOSED LEGEND**
- EL. 422.7 PROPOSED SPOT ELEVATION
 - ▣ REINFORCED ACCESS ROAD
 - BOULDER (CHANNEL)
 - BOULDER (FLOODPLAIN)



C:\Users\scs\OneDrive\Work\GIS\Projects\PA\DCS_Summary\CADD\Design_Series\3B_Layout\Plan.dwg
 Plot Date: 10/15/2021 3:34 PM, Plotted By: Neast, Eric C.

CHANNEL BOULDER CONTROL TABLE		
Point ID	Northing	Easting
C1	553969.04	2227927.93
C2	553965.34	2227922.86
C3	553951.10	2227920.08
C4	553954.37	2227928.81
C5	553958.30	2227933.50
C6	553957.37	2227937.54
C7	553959.77	2227946.10
C8	553962.71	2227951.23
C9	553948.53	2227940.10
C10	553944.55	2227935.30
C11	553936.09	2227926.52
C12	553936.31	2227922.53
C13	553931.68	2227918.34
C14	553934.83	2227946.59
C15	553931.18	2227938.47
C16	553926.66	2227934.38
C17	553921.79	2227946.32
C18	553920.37	2227942.61
C19	553918.96	2227938.95
C20	553917.48	2227934.97
C21	553916.07	2227931.32
C22	553914.65	2227927.45
C23	553913.23	2227923.79
C24	553909.24	2227935.25
C25	553910.49	2227947.19
C26	553904.28	2227931.81
C27	553898.56	2227924.50
C28	553901.89	2227944.30
C29	553838.74	2227976.32
C30	553836.16	2227973.03
C31	553833.86	2227970.01
C32	553831.34	2227966.82
C33	553828.87	2227963.69
C34	553826.40	2227960.45
C35	553823.98	2227957.32
C36	553829.36	2227984.12
C37	553824.48	2227972.31
C38	553813.05	2227966.50
C39	553812.55	2227972.54
C40	553817.76	2227984.18
C41	553818.15	2227995.88
C42	553809.03	2227988.03
C43	553807.42	2228003.03
C44	553806.04	2228012.14
C45	553798.15	2228017.11
C46	553798.32	2228001.99
C47	553800.30	2227992.44
C48	553793.74	2227981.35
C49	553791.20	2227991.39
C50	553788.00	2228011.21
C51	553796.33	2228029.97
C52	553785.34	2228024.90
C53	553780.11	2228017.45
C54	553770.82	2228018.39
C55	553777.03	2228102.26
C56	553772.88	2228101.16
C57	553769.18	2228100.33
C58	553765.09	2228099.39
C59	553761.27	2228098.33
C60	553757.50	2228097.56

CHANNEL BOULDER CONTROL TABLE		
Point ID	Northing	Easting
C61	553753.74	2228096.56
C62	553774.20	2228113.89
C63	553765.58	2228115.82
C64	553758.50	2228110.13
C65	553749.76	2228112.23
C66	553770.44	2228129.38
C67	553766.90	2228144.93
C68	553761.04	2228151.79
C69	553759.93	2228139.23
C70	553753.02	2228133.54
C71	553750.92	2228124.79
C72	553744.34	2228135.42
C73	553746.44	2228144.22
C74	553735.88	2228154.18
C75	553747.37	2228156.67
C76	553749.75	2228165.41
C77	553756.55	2228171.33
C78	553758.59	2228180.01
C79	553742.95	2228176.31
C80	553736.14	2228170.61
C81	553745.21	2228236.40
C82	553741.32	2228235.34
C83	553737.38	2228234.51
C84	553733.32	2228233.73
C85	553729.60	2228232.68
C86	553725.66	2228231.73
C87	553721.61	2228230.90
C88	553742.48	2228248.08
C89	553730.71	2228245.25
C90	553721.99	2228247.36
C91	553732.82	2228253.91
C92	553737.65	2228267.53
C93	553726.25	2228264.76
C94	553718.37	2228262.76
C95	553710.48	2228261.04
C96	553711.76	2228273.71
C97	553720.42	2228271.76
C98	553731.31	2228278.32
C99	553733.25	2228286.93
C100	553727.42	2228293.90
C101	553729.48	2228302.62
C102	553720.81	2228304.62
C103	553718.70	2228295.90
C104	553716.75	2228287.12
C105	553712.96	2228302.84
C106	553707.13	2228293.17
C107	553701.41	2228300.12
C108	553715.35	2228362.95
C109	553711.30	2228362.05
C110	553707.42	2228361.03
C111	553703.71	2228360.08
C112	553699.56	2228359.23
C113	553695.85	2228358.39
C114	553692.08	2228357.38
C115	553708.83	2228373.58
C116	553699.89	2228375.61
C117	553693.31	2228370.10
C118	553687.36	2228376.85
C119	553689.44	2228385.56
C120	553696.18	2228391.25

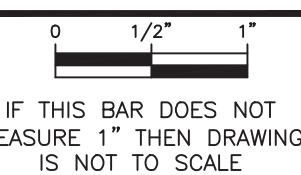
CHANNEL BOULDER CONTROL TABLE		
Point ID	Northing	Easting
C121	553705.00	2228389.28
C122	553706.12	2228401.99
C123	553698.25	2228399.92
C124	553689.60	2228402.05
C125	553681.95	2228400.20
C126	553675.20	2228410.94
C127	553677.11	2228419.77
C128	553678.07	2228432.26
C129	553686.10	2228417.69
C130	553687.17	2228430.18
C131	553692.56	2228423.37
C132	553697.79	2228436.98
C133	553701.44	2228421.35
C134	553700.32	2228408.64

FLOODPLAIN BOULDER CONTROL TABLE			
Point ID	Northing	Easting	BOULDER CLUSTER DETAIL
F1	553958.09	2227953.96	SINGLE BOULDER
F2	553942.34	2227955.31	B
F3	553919.81	2227966.52	C
F4	553920.61	2227982.43	C
F5	553905.60	2227976.22	E
F6	553903.81	2228001.10	A
F7	553894.40	2227991.35	E
F8	553881.38	2227970.41	B
F9	553861.99	2227979.69	B
F10	553867.36	2227999.90	A
F11	553874.00	2228014.74	A
F12	553891.46	2228022.83	B
F13	553883.92	2228042.45	E
F14	553869.35	2228029.07	D
F15	553848.40	2228016.05	E
F16	553837.83	2227998.27	D
F17	553861.41	2228060.79	D
F18	553841.93	2228055.16	E
F19	553837.03	2228037.91	B
F20	553832.79	2228022.60	A
F21	553816.57	2228010.92	A
F22	553811.43	2228026.41	B
F23	553814.55	2228049.15	C
F24	553826.18	2228067.16	E
F25	553835.21	2228081.73	D
F26	553842.23	2228104.12	B
F27	553822.92	2228115.89	A
F28	553815.85	2228093.66	A
F29	553799.35	2228093.88	E
F30	553784.22	2228123.07	B
F31	553797.15	2228138.38	A
F32	553811.56	2228129.52	B
F33	553823.56	2228148.27	B
F34	553825.69	2228173.96	E
F35	553805.41	2228189.83	E
F36	553794.10	2228170.65	E
F37	553777.92	2228150.24	B
F38	553771.86	2228210.57	D
F39	553793.39	2228223.83	D
F40	553799.47	2228249.97	D
F41	553778.25	2228253.25	A
F42	553757.82	2228252.42	D
F43	553751.35	2228279.63	A
F44	553774.76	2228285.44	E
F45	553790.06	2228272.43	D
F46	553793.28	2228301.52	A
F47	553777.07	2228310.50	A
F48	553795.71	2228335.37	E
F49	553759.37	2228298.08	D
F50	553765.47	2228324.13	D
F51	553743.07	2228314.82	E
F52	553741.37	2228339.15	D
F53	553763.80	2228348.50	D
F54	553747.72	2228365.20	E
F55	553770.37	2228377.70	C
F56	553785.45	2228361.71	B
F57	553758.69	2228388.34	D
F58	553770.54	2228407.52	E
F59	553757.14	2228429.06	D
F60	553749.22	2228410.77	D
F61	553736.34	2228395.54	C
F62	553719.89	2228395.59	A
F63	553714.40	2228419.07	A
F64	553717.62	2228440.23	E
F65	553735.09	2228436.22	A

NOTES

- 1. POINT ID NUMBERS FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT SHOWN ON PLAN.
- 2. POINT ID CORRESPONDS TO THE CENTER OF BOULDER FOR CHANNEL BOULDERS AND TO THE WORK POINT (WP) FOR FLOODPLAIN BOULDER CLUSTERS. REFER TO BOULDER CLUSTER DETAILS SHOWN ON SHEET C-14.

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			
 <i>Eric C. Neast</i> 10-15-2021 PROFESSIONAL'S SIGNATURE DATE			
 207 SENATE AVE. CAMP HILL, PENNSYLVANIA			
 400 HISTORIC DRIVE STRASBURG, PENNSYLVANIA			
COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES HARRISBURG, PENNSYLVANIA			
PROJECT NO. D.G.S. C-0148-0001 PHASE 1			
CONSTRUCTION OF FISH PASSAGE ON THE SUSQUEHANNA RIVER SHIKELLAMY STATE PARK NORTHUMBERLAND AND SNYDER COUNTIES, PA			
FISHWAY BOULDER CONTROL DATA			
C-10	DRAWN BY: RMD / JPH DATE: OCTOBER 2021 DRAWING NO. CHECKED BY: TLK / PGS SCALE: AS SHOWN		



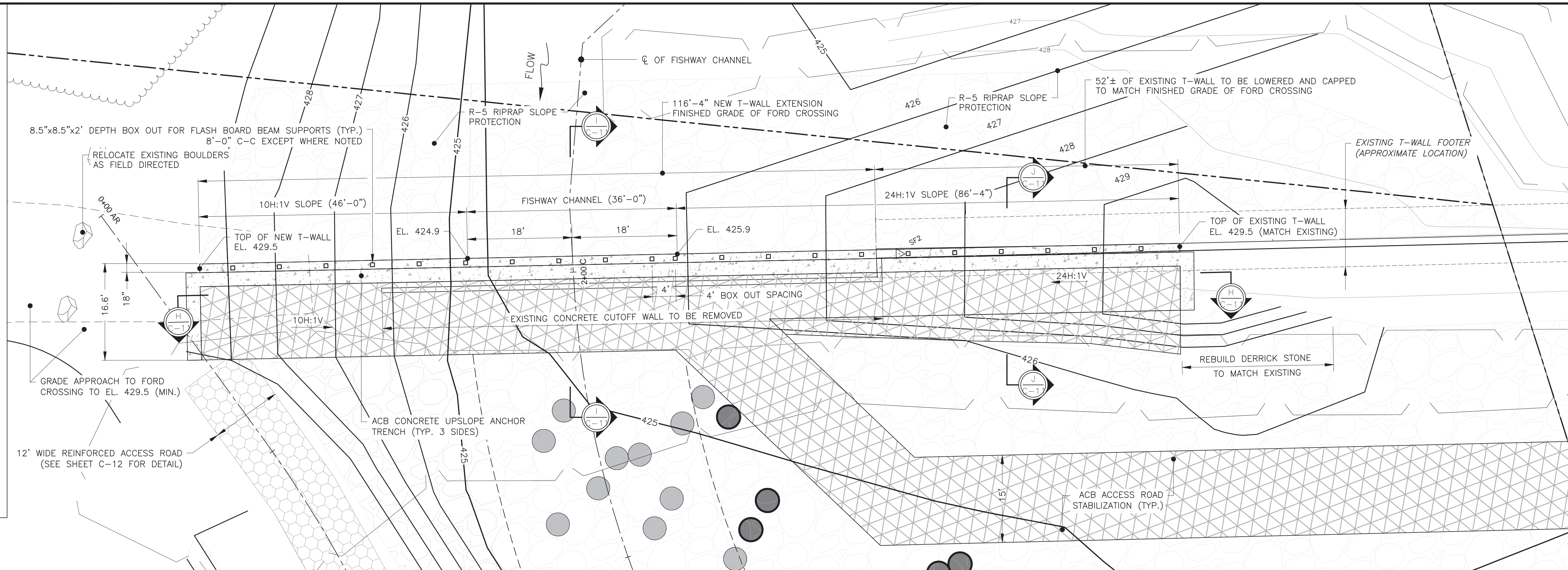
ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

EXISTING LEGEND

- 420 — MINOR CONTOUR
- 420 — MAJOR CONTOUR
- - - - - MODIFIED MINOR CONTOUR
- - - - - MODIFIED MAJOR CONTOUR
- - - - - GRAVEL ROAD
- - - - - EDGE OF WATER
- — — — — TREELINE
- ☀ EXISTING TREE
- — — — — DITCH
- — — — — FENCE
- — — — — RIPRAP
- — — — — UTILITY POLE
- △ SF3 CONTROL POINT
- CONCRETE MONUMENT / BENCHMARK
- SIGN
- — — — — STORM / WATER PIPE
- × 429.5 EXISTING SPOT ELEVATION

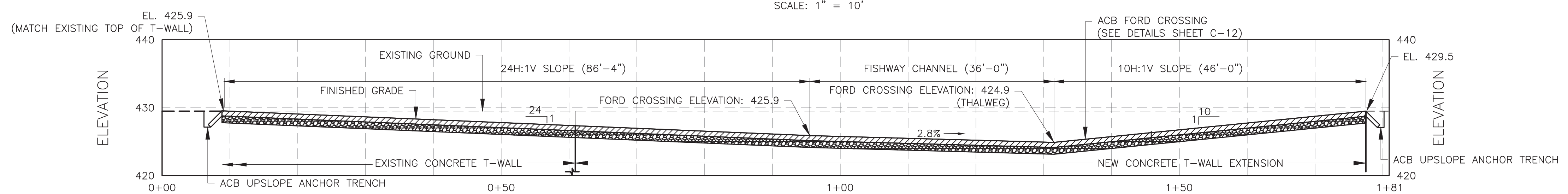
PROPOSED LEGEND

- × 429.5 PROPOSED SPOT ELEVATION
- 100 — LIMIT OF DISTURBANCE (NPDES PERMIT BOUNDARY)
- — — — — REINFORCED ACCESS ROAD
- — — — — RIPRAP
- BOULDER (SCHEMATIC LOCATION)
- — — — — TREELINE TO REMAIN / NEW TREELINE
- — — — — UNDISTURBED WETLANDS
- BOULDER CHANNEL
- BOULDER FLOODPLAIN



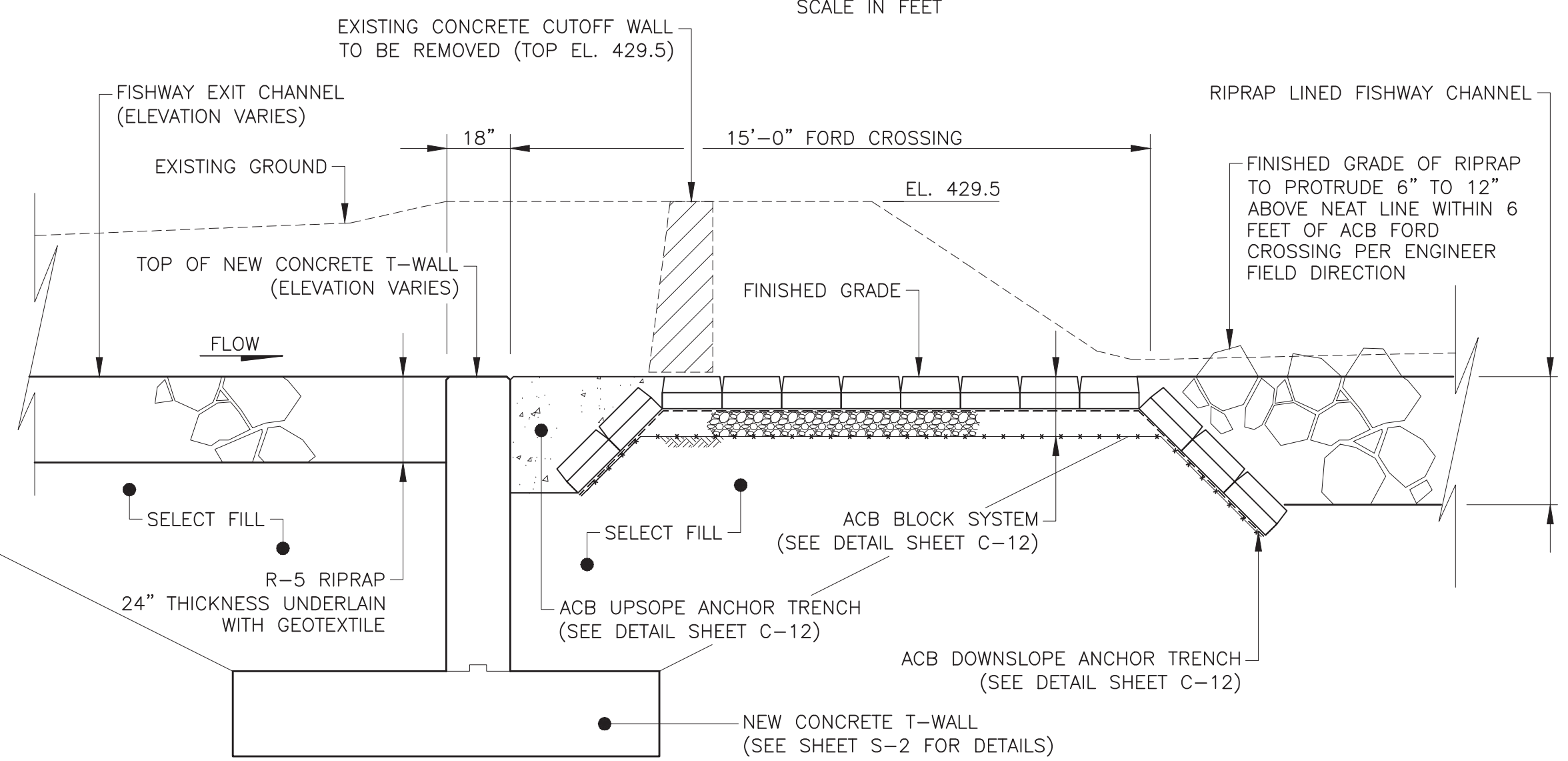
ENLARGED PLAN VIEW OF FORD CROSSING

SCALE: 1" = 10'



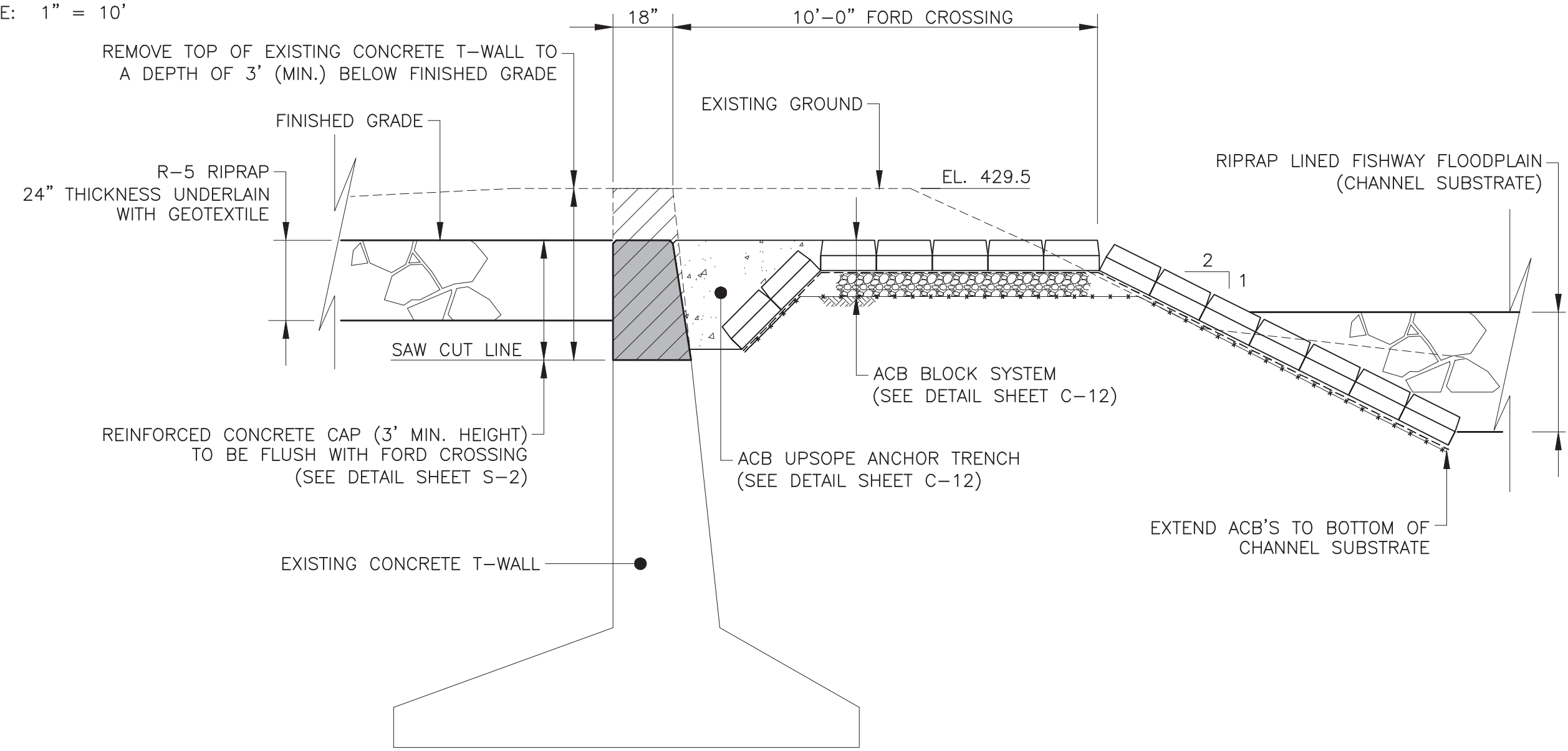
SECTION H-H

SCALE: 1" = 10'



SECTION I-I
TYPICAL SECTION WITHIN FISHWAY CHANNEL

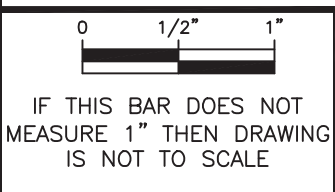
SCALE: 1" = 3'



SECTION J-J
TYPICAL SECTION IN AREA OF EXISTING T-WALL

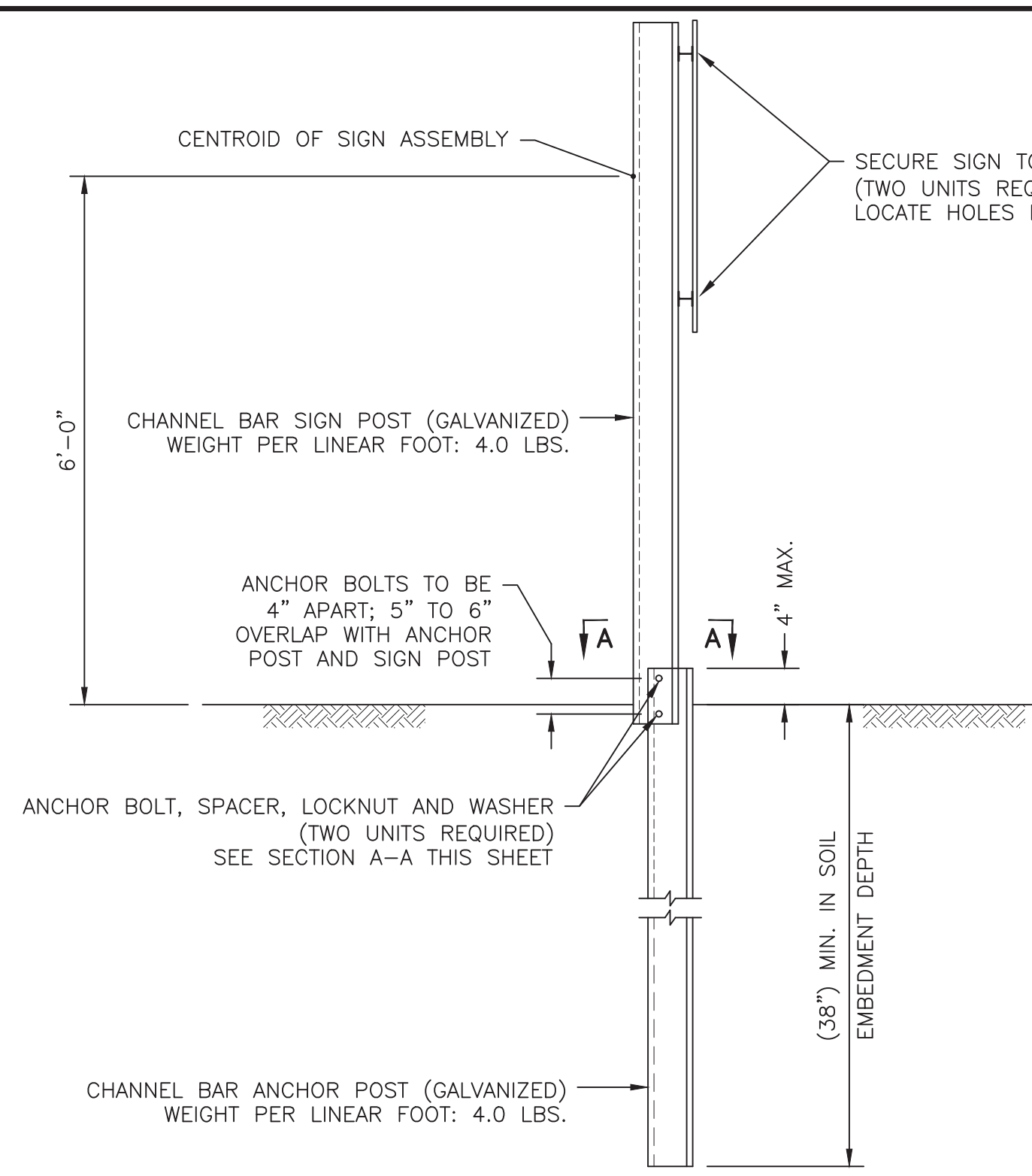
SCALE: 1" = 3'

C:\Earth Sciences\CRS\DWG\4\1\GDI\06050505.DWG, Sunbury\CA\DD\Design_SettC-8 Proposed Plans.dwg
 Plot Date: 10/15/2021 1:08 PM, Plotted By: Neast, Eric C.



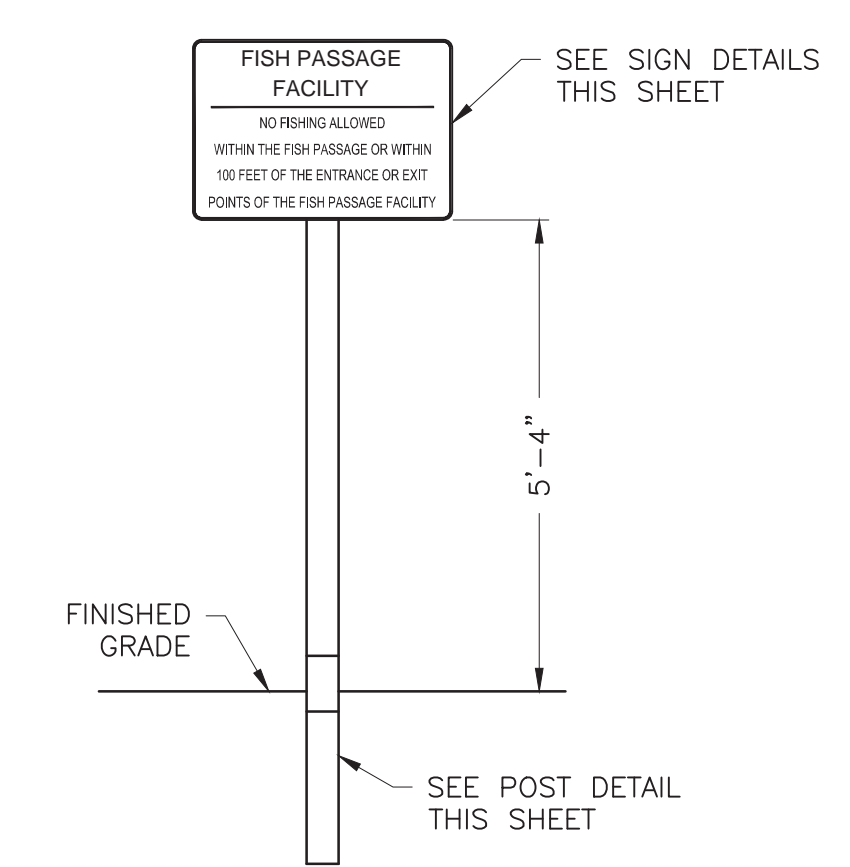
NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			
Eric C. Neast PROFESSIONAL'S SIGNATURE			10-15-2021 DATE
207 SENATE AVE. CAMP HILL, PENNSYLVANIA			
400 HISTORIC DRIVE STRASBURG, PENNSYLVANIA			
COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES HARRISBURG, PENNSYLVANIA			
PROJECT NO. D.G.S. C-0148-0001 PHASE 1			
CONSTRUCTION OF FISH PASSAGE ON THE SUSQUEHANNA RIVER SHIKELLAMY STATE PARK NORTHUMBERLAND AND SNYDER COUNTIES, PA			
PLAN OF FORD CROSSING STRUCTURE			
DRAWN BY	DATE	DRAWING NO.	
J.P.H.	OCTOBER 2021	C-11	
CHECKED BY	SCALE		
P.G.S.	AS SHOWN		

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.



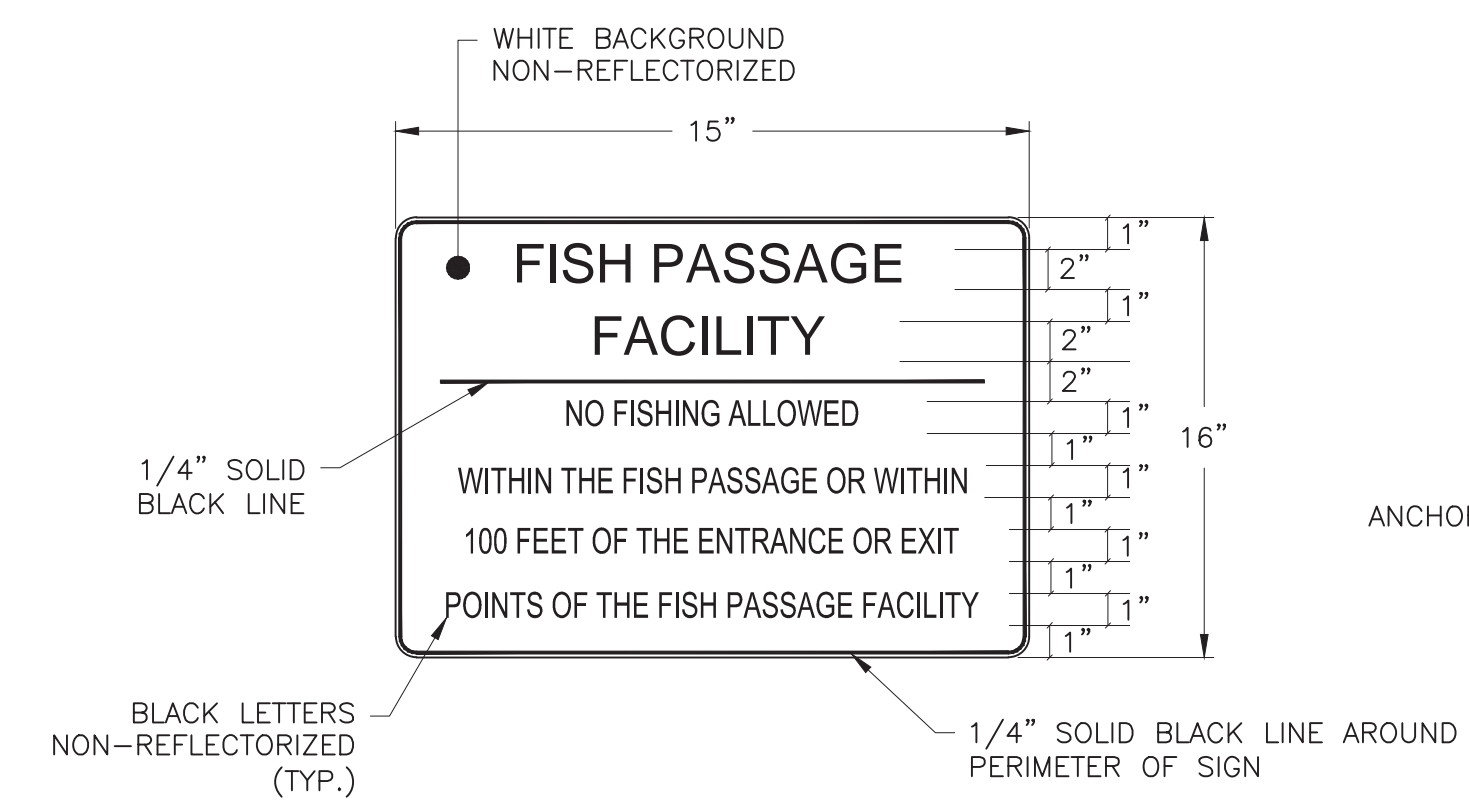
POST DETAIL
NOT TO SCALE

SECURE SIGN TO SIGN POST WITH GALVANIZED BOLTS, NUTS AND WASHERS (TWO UNITS REQUIRED [MIN.] - ONE AT TOP OF SIGN AND ONE AT BOTTOM OF SIGN) LOCATE HOLES IN SIGN TO AVOID CONFLICTS WITH TEXT

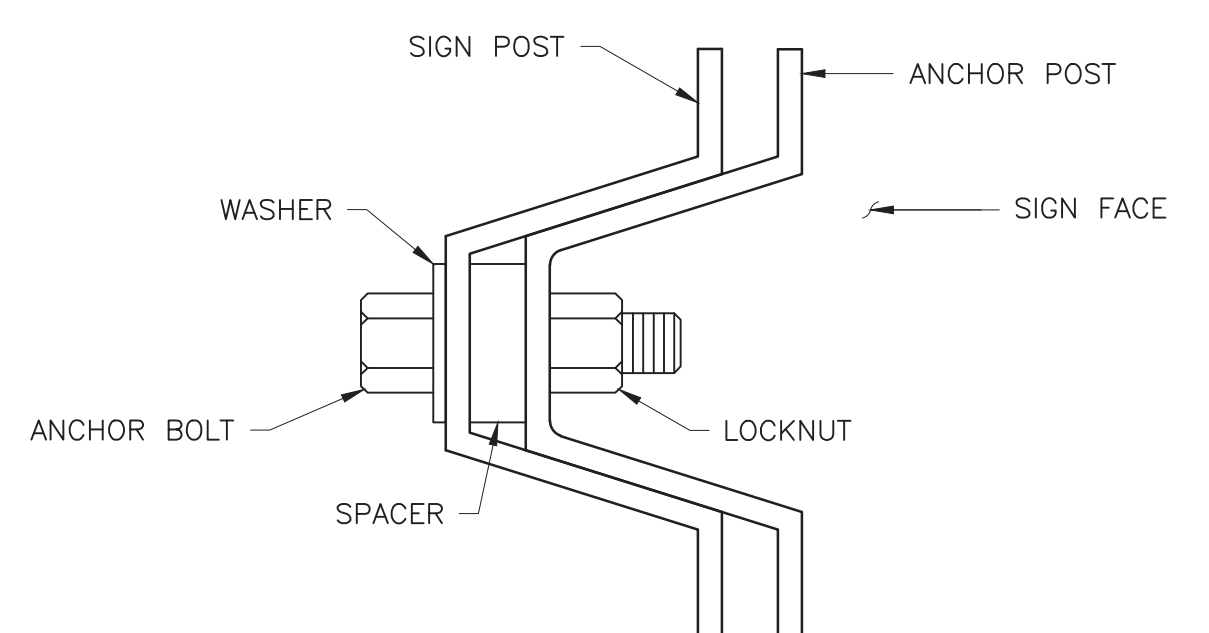


SIGN MOUNTING DETAIL
NOT TO SCALE

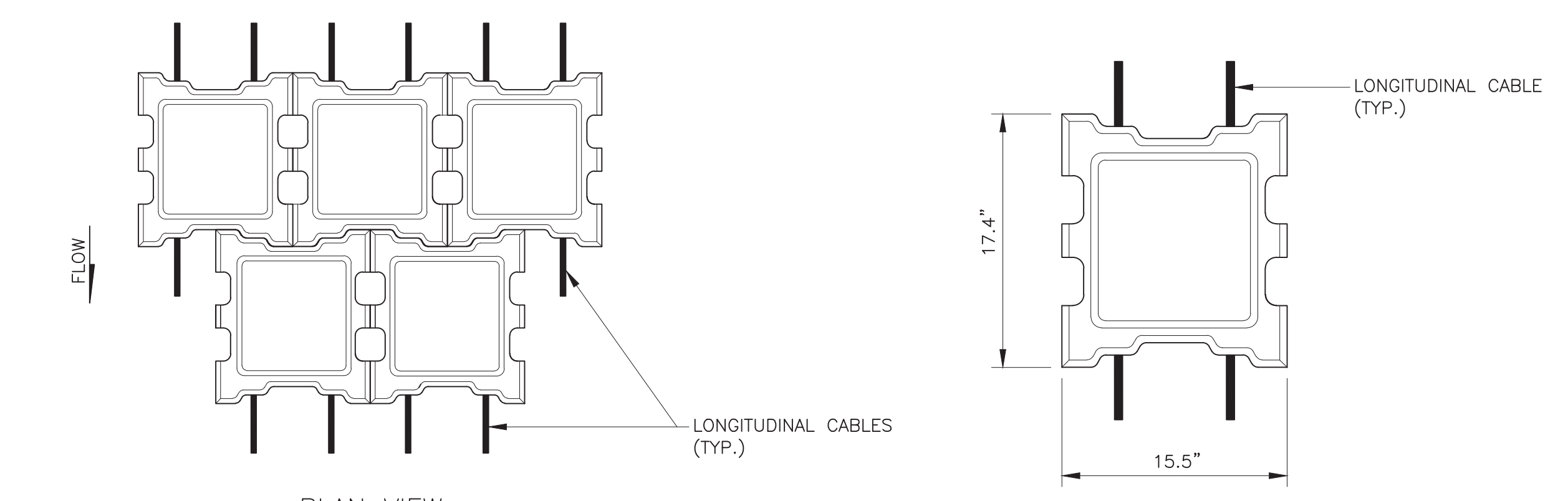
- NOTES:**
1. MOUNT SIGN AND SPLICE POST PER PADOT STANDARD DETAILS.
 2. SEE PLAN SHEET C-2 FOR LOCATION.



FISH PASSAGE FACILITY SIGN DETAIL
NOT TO SCALE

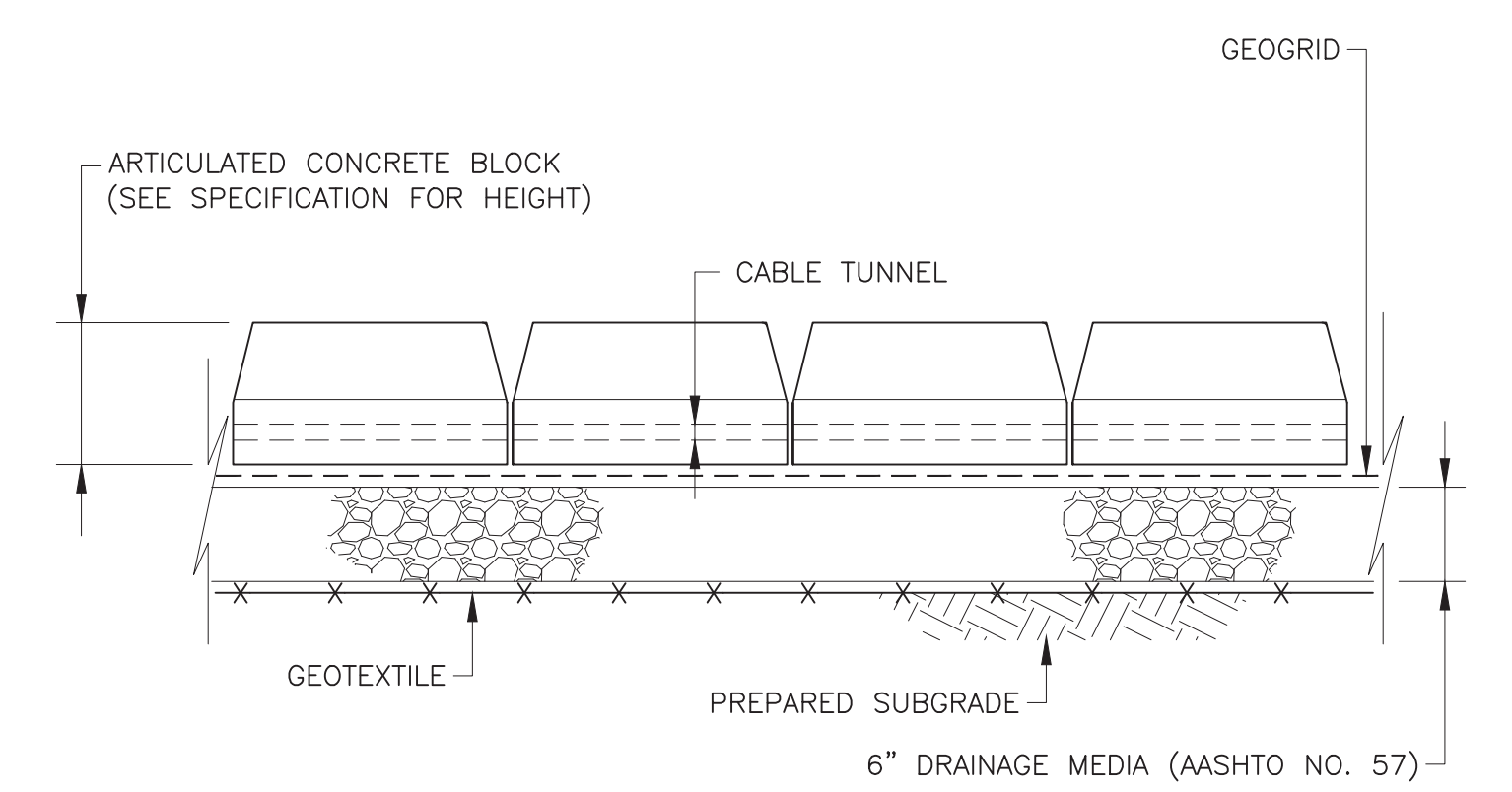


SECTION A-A
NOT TO SCALE

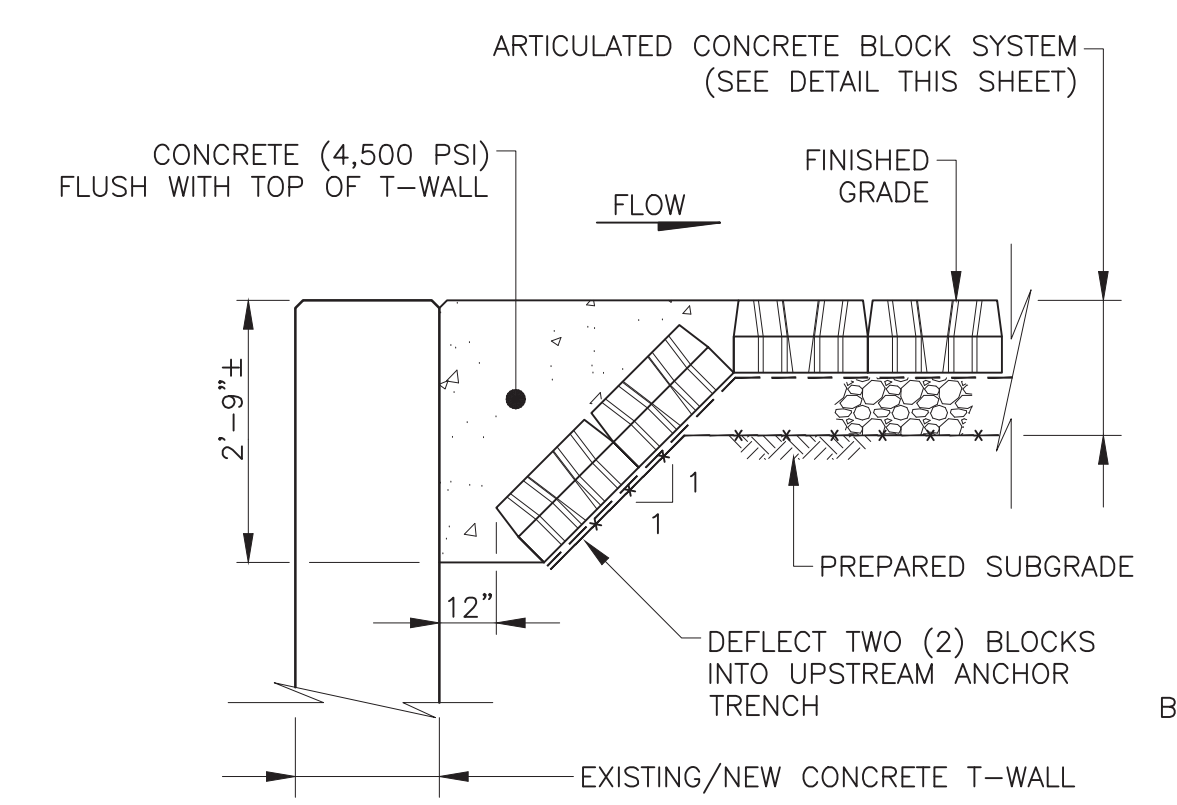


ARTICULATED CONCRETE BLOCK SYSTEM
TYPICAL DETAIL
NOT TO SCALE

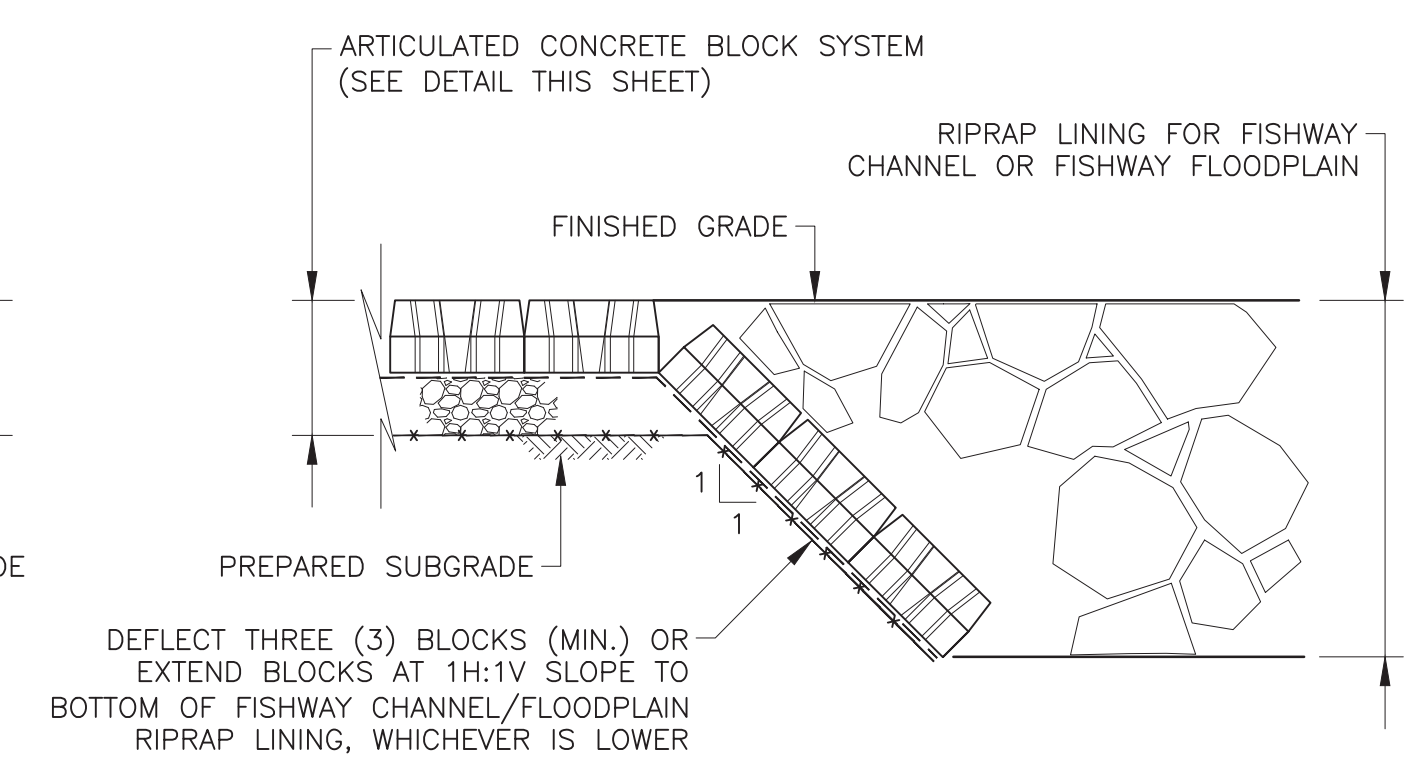
ENLARGED PLAN VIEW OF INDIVIDUAL BLOCK (CLOSED CELL)



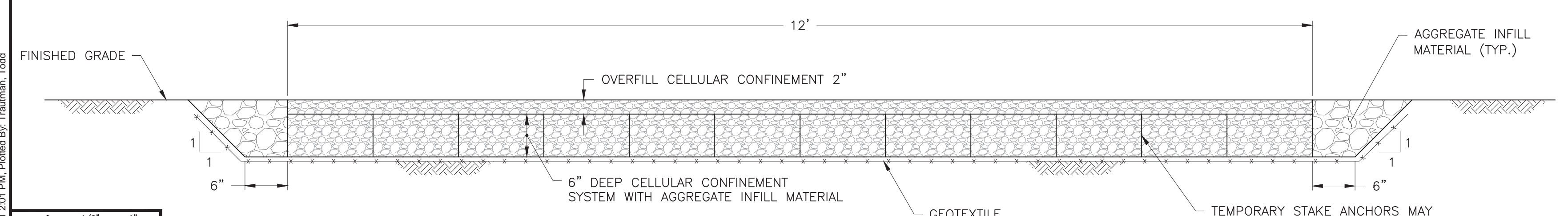
ARTICULATED CONCRETE BLOCK (ACB) SYSTEM
TYPICAL CROSS SECTION
NOT TO SCALE



ACB UPSLOPE ANCHOR TRENCH WHEN AGAINST CONCRETE T-WALL
NOT TO SCALE

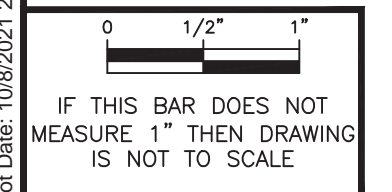


ACB UPSLOPE ANCHOR TRENCH WHEN NOT AGAINST CONCRETE T-WALL AND ACB DOWNSLOPE ANCHOR TRENCH
NOT TO SCALE



REINFORCED ACCESS ROAD DETAIL
NOT TO SCALE

TEMPORARY STAKE ANCHORS MAY BE USED FOR CELLULAR CONFINEMENT LAYOUT PRIOR TO PLACING INFILL MATERIAL



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
PROFESSIONAL'S SIGNATURE DATE

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

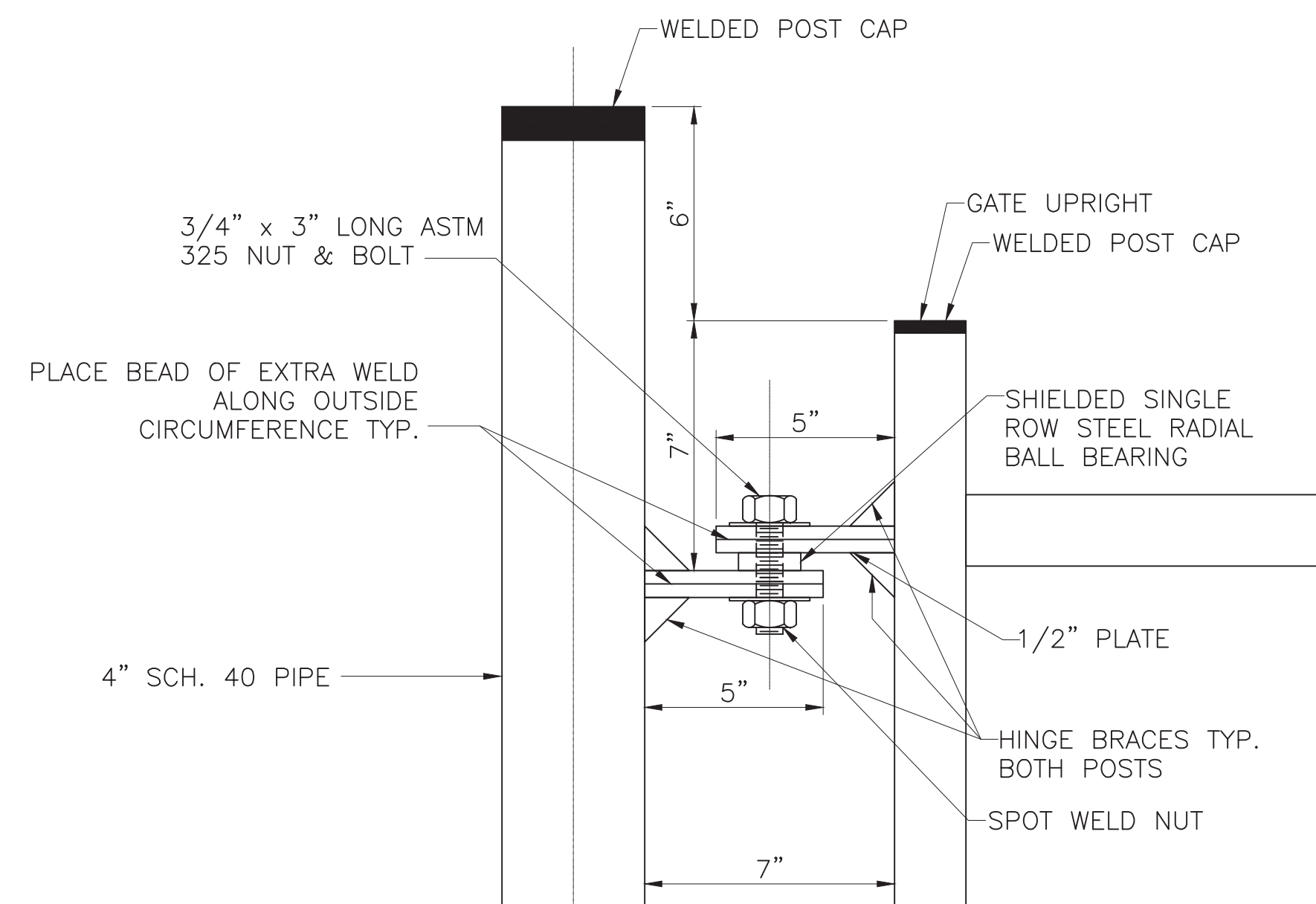
CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

MISCELLANEOUS DETAILS

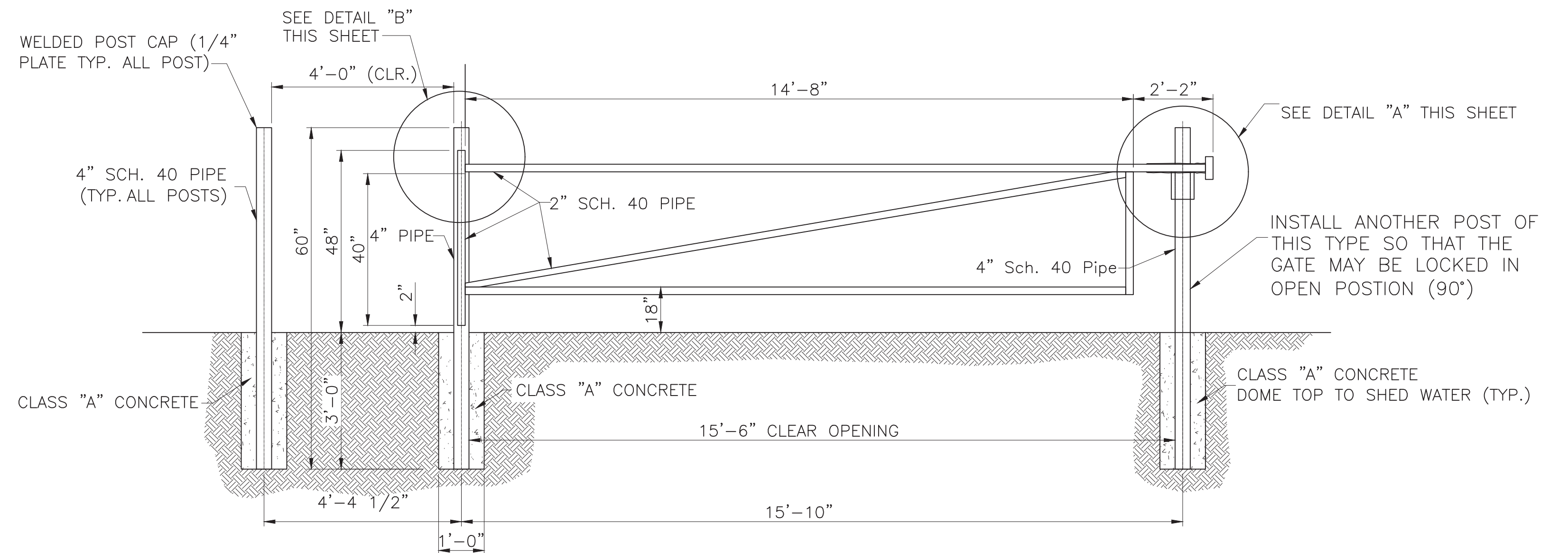
DRAWN BY J.P.H.	DATE OCTOBER 2021	DRAWING NO. C-12
	CHECKED BY P.G.S.	

ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

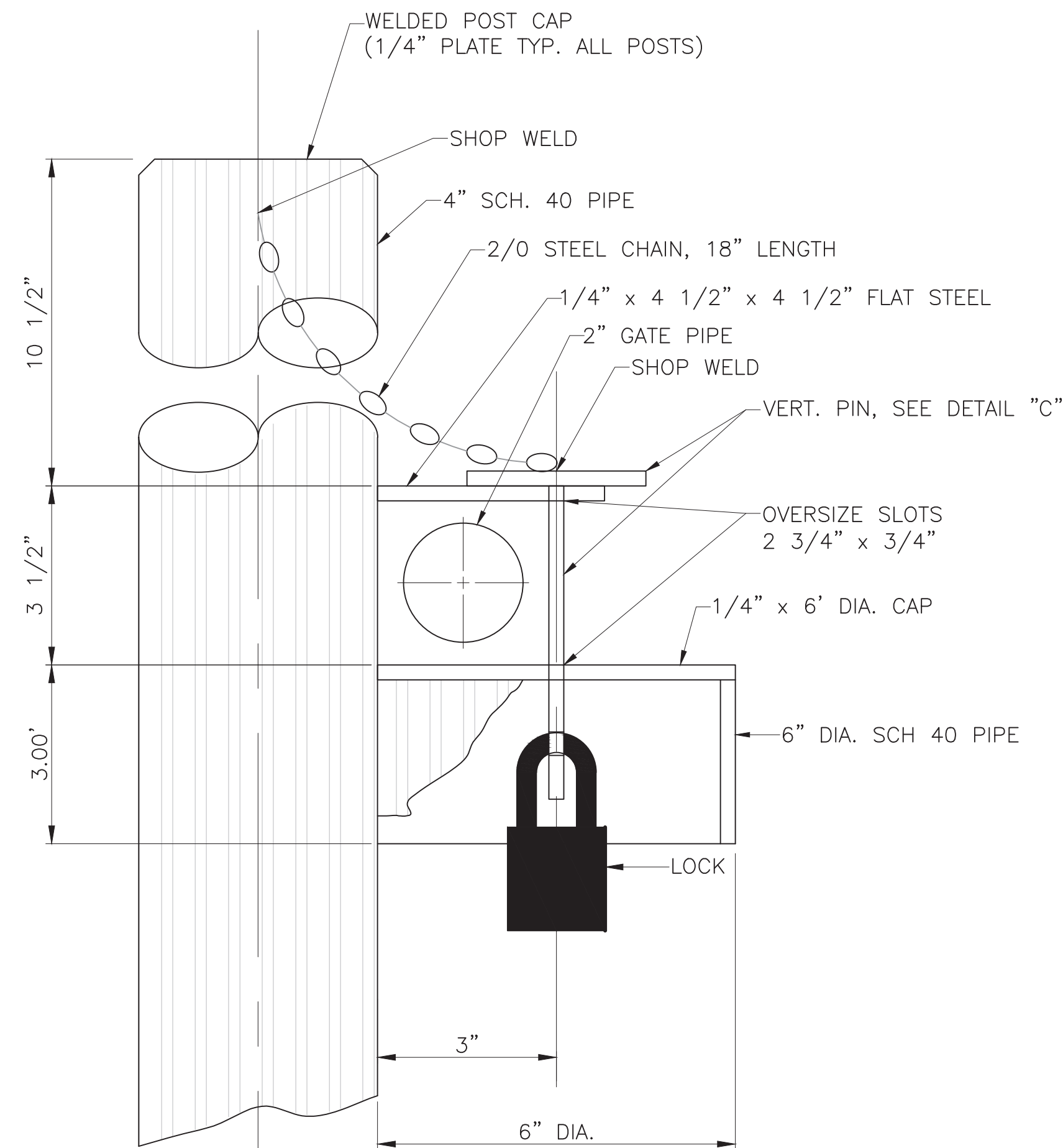
C:\Health Sciences\EGS\DWG\4\WCD\066666\BAPCS_Sunbury\CADD\Design_Sett\C-9 C-10 AND C-12 Sections and Details.dwg
Plot Date: 10/09/2021 2:01 PM, Plotted By: Taitman, Todd



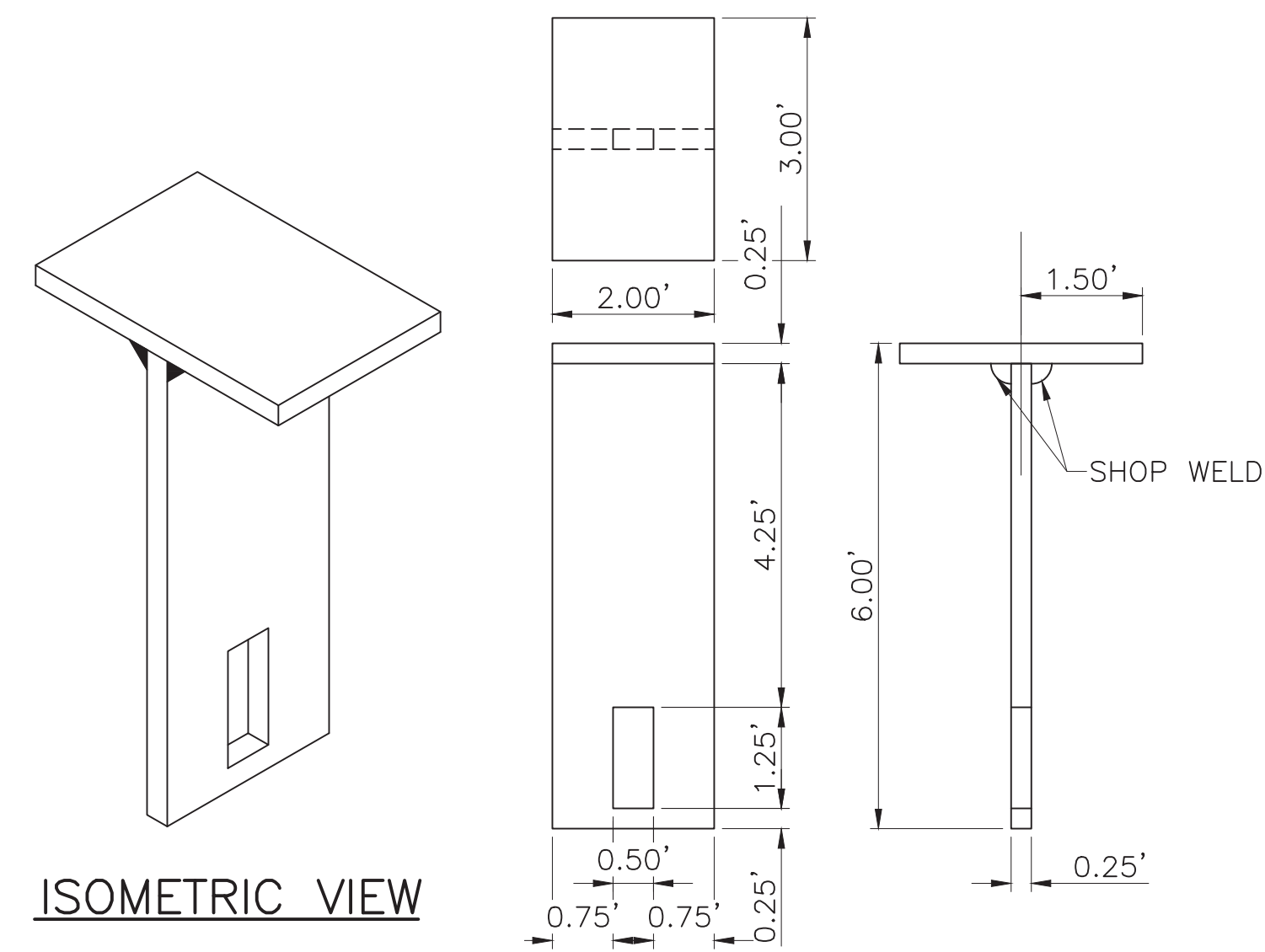
DETAIL "B"
GATE HINGE (SIDE VIEW)
2-REQ'D PER GATE
 NO SCALE



GATE ASSEMBLY - ELEVATION VIEW
 NO SCALE

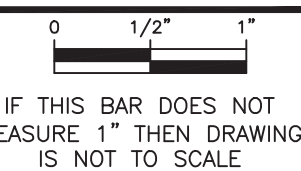


DETAIL "A"
LATCH FOR VERTICAL PIN
2-REQ'D PER GATE
 NO SCALE



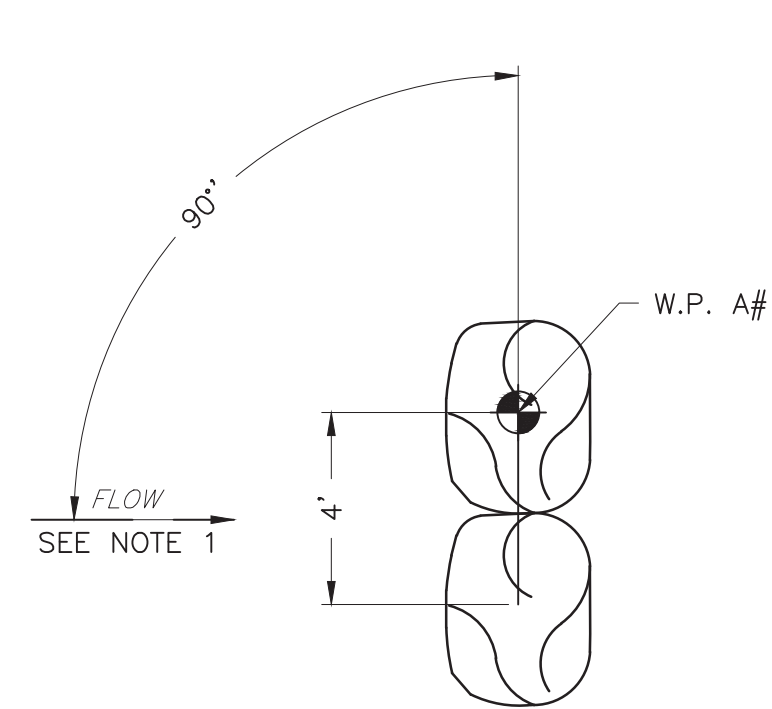
DETAIL "C"
VERTICAL PIN
1-REQ'D PER GATE
 NO SCALE

C:\E:\h\sc\scas\CDG\DWG\4\WCD\062626\BANDS_Summary\CADD\Design_Sett\13 MISCELLANEOUS DETAILS.dwg
 Plot Date: 10/9/2021 1:59 PM, Plotted By: Taitman, Todd

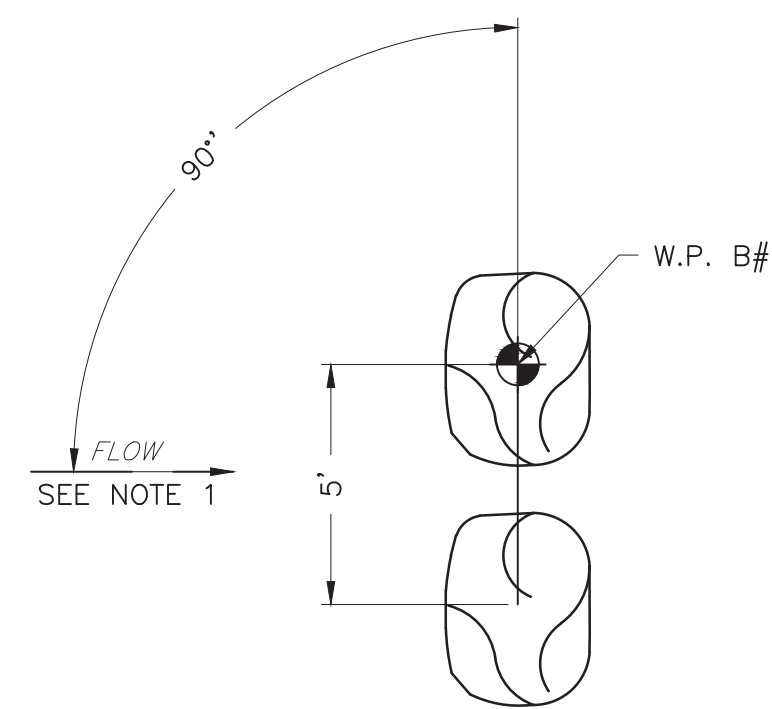


IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

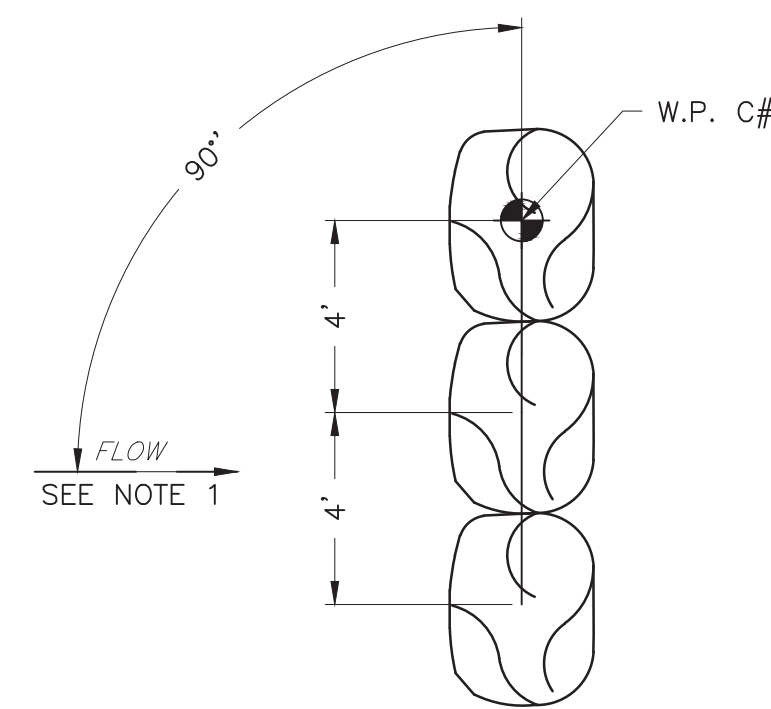
NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			
<i>Eric C. Neast</i> PROFESSIONAL'S SIGNATURE			10-15-2021 DATE
 207 SENATE AVE. CAMP HILL, PENNSYLVANIA			
 400 HISTORIC DRIVE STRASBURG, PENNSYLVANIA			
COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES HARRISBURG, PENNSYLVANIA			
PROJECT NO. D.G.S. C-0148-0001 PHASE 1			
CONSTRUCTION OF FISH PASSAGE ON THE SUSQUEHANNA RIVER SHIKELLAMY STATE PARK NORTHUMBERLAND AND SNYDER COUNTIES, PA			
MISCELLANEOUS DETAILS			
DRAWN BY J.P.H.	DATE OCTOBER 2021	DRAWING NO. C-13	
CHECKED BY E.C.N.	SCALE AS SHOWN	ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.	



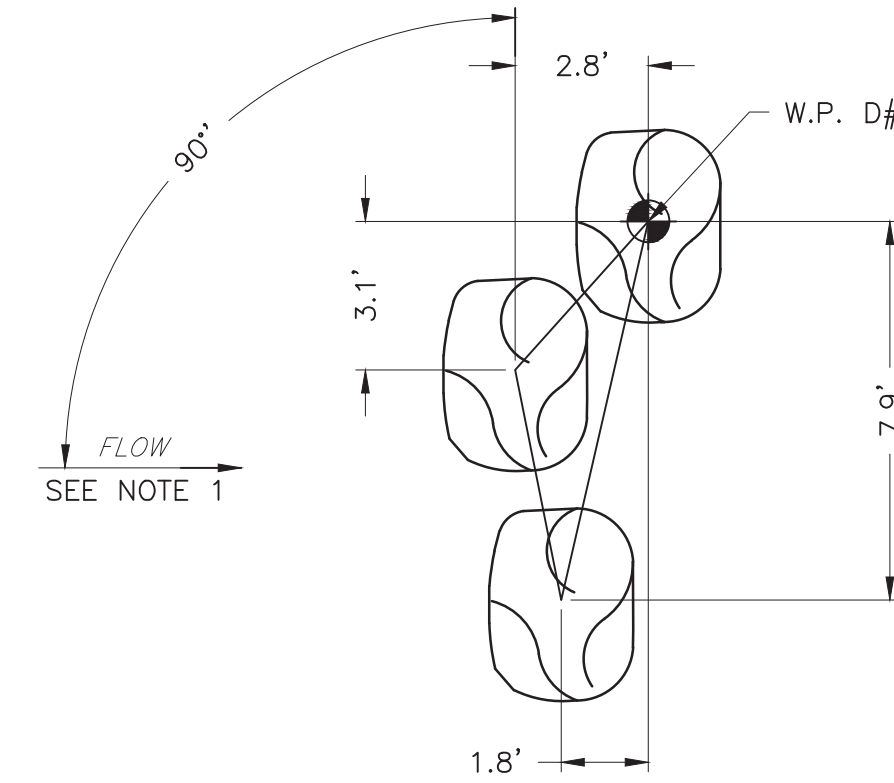
BOULDER CLUSTER "A" DETAIL
1:4



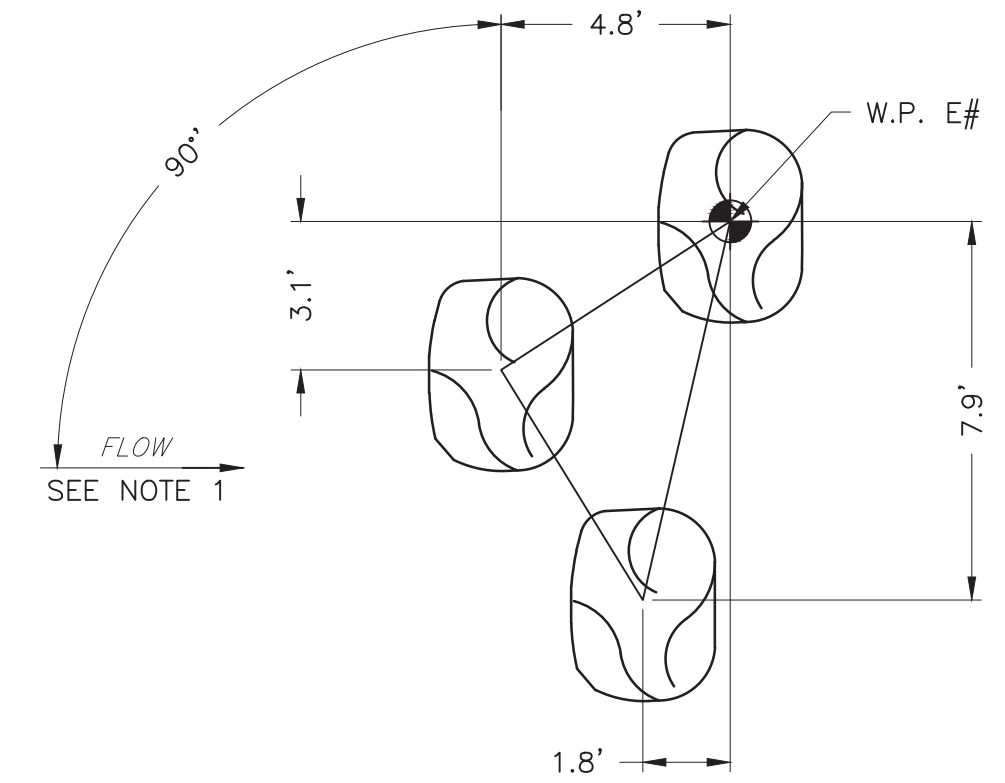
BOULDER CLUSTER "B" DETAIL
1:4



BOULDER CLUSTER "C" DETAIL
1:4

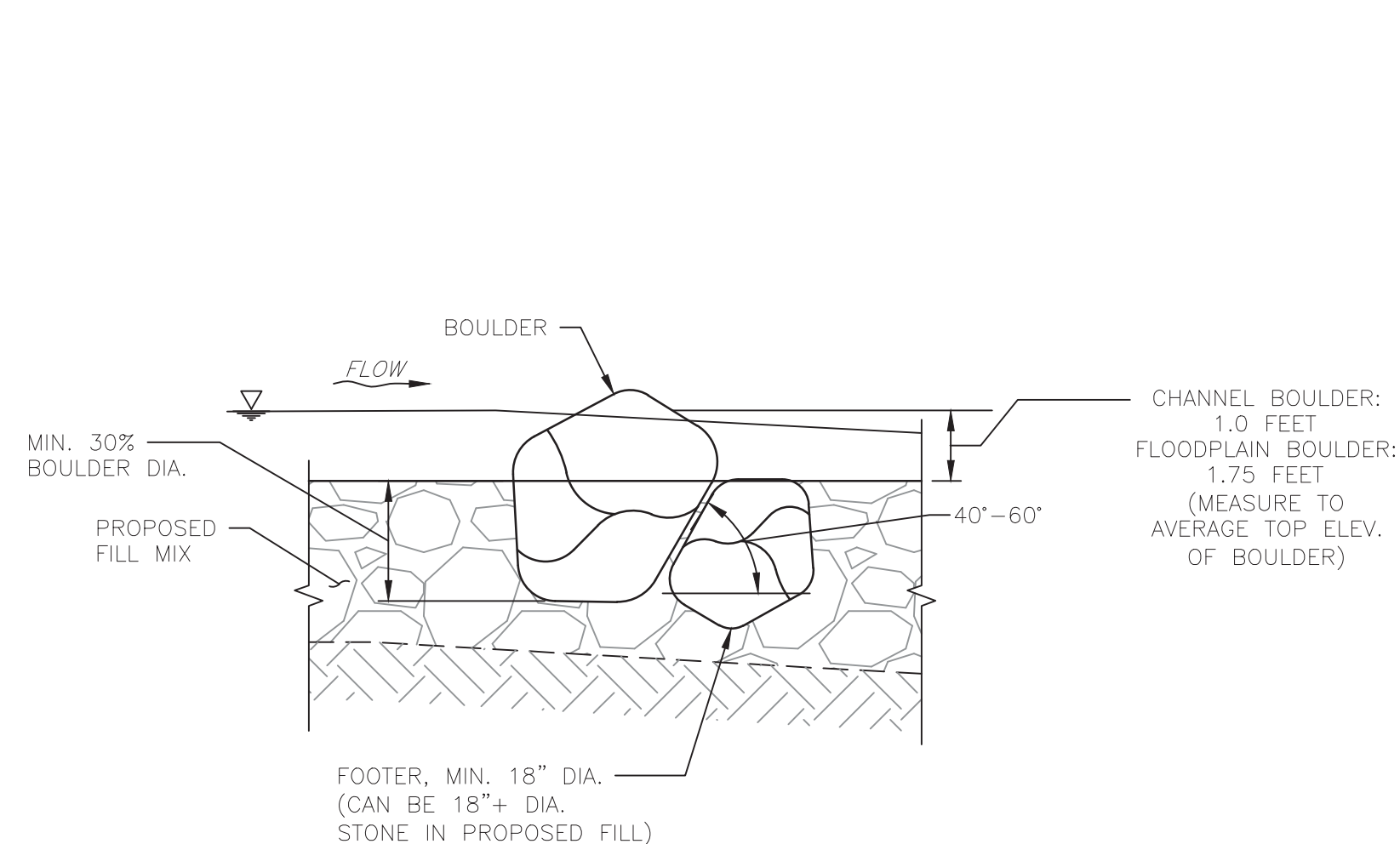


BOULDER CLUSTER "D" DETAIL
1:4



BOULDER CLUSTER "E" DETAIL
1:4

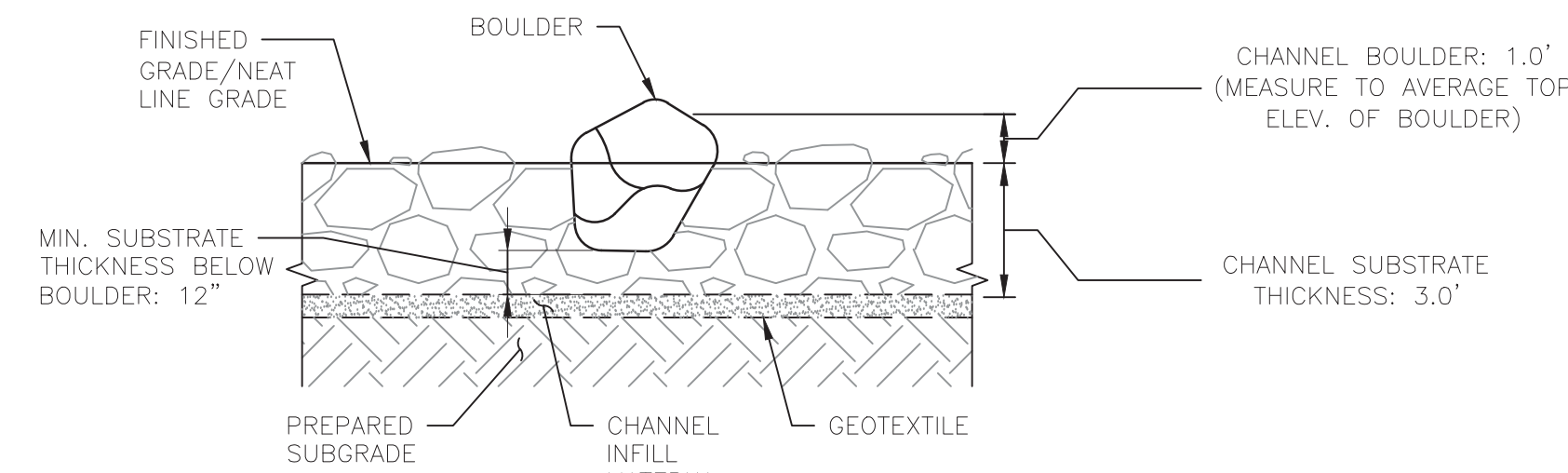
- NOTES:
- SEE NLF PLAN VIEW FOR CLUSTER LOCATIONS AND GENERAL ORIENTATION.
 - BOULDER ORIENTATION TO FLOW SHALL BE LOCATED AS SHOWN ON THE PLAN VIEW, WITH NO MORE THAN 30° OFFSET FROM PERPENDICULAR, OR AS APPROVED BY THE ENGINEER IN THE FIELD.
 - TYPICAL OFFSET DIMENSIONS PROVIDED TO CENTER OF BOULDER. CONTRACTOR SHALL INSTALL BOULDERS WITHIN 0.5 FOOT OF TYPICAL OFFSET DIMENSIONS (MAINTAINING ANY GAPS BETWEEN BOULDERS) OR AS DIRECTED BY THE ENGINEER.



TYPICAL BOULDER AND BOULDER FOOTER DETAIL
1:4

BOULDER AND BOULDER FOOTER NOTES:

- AVERAGE TOP ELEV. OF BOULDERS (ELEV. OF A 18" DIA. RING LAID HORIZONTAL ON TOP OF THE BOULDER) SHALL MEET DESIGN GRADES. EXCAVATE AS NECESSARY TO ACHIEVE GRADES AND MAINTAIN MINIMUM BOULDER SIZE.
- BOULDERS SHALL BE STABLE AND FOOTER ROCK SHALL SUPPORT THE BOULDER ALONG THE MAJORITY OF THE UPSTREAM FACE OF THE FOOTER ROCK.
- STONES SHALL CONSIST OF SOUND, DURABLE ROCK, RESISTANT TO THE ACTION OF AIR AND WATER. EITHER FIELD STONE OR ROUGH, UNHEWN QUARRY STONE MAY BE USED. STONES SHALL BE SUBJECT TO APPROVAL OF ENGINEER PRIOR TO PLACEMENT.
- BOULDERS SHALL HAVE APPROXIMATE DIMENSIONS OF 4'X3'X3' AND A MINIMUM WEIGHT OF 2.2 TONS
- FOOTER BOULDERS SHALL HAVE A 18" MINIMUM DIAMETER (STONE SIZE SHALL BE MEASURED ON INTERMEDIATE AXIS).
- STONES SHALL BE SEMI-ANGULAR WITH THE USE OF SEMI-ROUND STONES SUBJECT TO ENGINEER APPROVAL.
- STONE DENSITY SHALL BE AT LEAST 164 LBS PER CUBIC FOOT.
- BOULDERS SHALL BE EMBEDDED INTO FOUNDATION FILL AT A MINIMUM DEPTH OF 30% OF THE BOULDER DIAMETER.



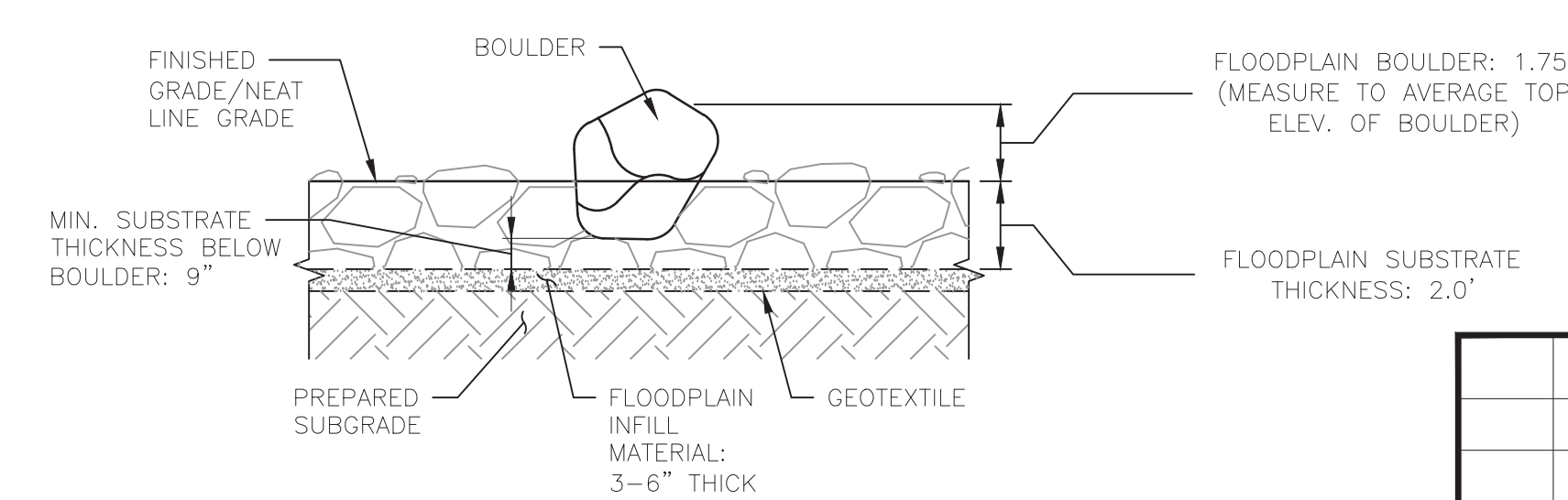
TYPICAL CHANNEL SUBSTRATE DETAIL
1:4

CHANNEL AND FLOODPLAIN SUBSTRATE NOTES:

- SECTIONS SHOWN LOOKING DOWNSTREAM (FOOTER ROCK OBSCURED BY BOULDER, BUT MUST BE PRESENT)
- STONES SHALL CONSIST OF SOUND DURABLE ROCK WHICH WILL NOT DESINTEGRATE BY EXPOSURE TO WATER OR WEATHER. EITHER FIELD STONE OR ROUGH, UNHEWN QUARRY STONE MAY BE USED.
- STONE SIZE SHALL BE MEASURED ON INTERMEDIATE AXIS.
- CHANNEL SUBSTRATE SHALL HAVE THE FOLLOWING RIPRAP GRADATION AND INFILL MATERIAL. FILL SHALL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO PLACEMENT. R-7 RIPRAP MAY SATISFY THIS REQUIREMENT, DEPENDING ON THE GRADATION AND SOURCE.

DESIGNATION	PERCENT FINER	STONE SIZE	MINIMUM WEIGHT
D85	85%	27"	~1090 LB
D50	50%	18"	~325 LB
D15	15%	11"	~75 LB.
- FLOODPLAIN SUBSTRATE SHALL HAVE THE FOLLOWING RIPRAP GRADATION AND INFILL MATERIAL. FILL SHALL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO PLACEMENT. R-6 RIPRAP MAY SATISFY THIS REQUIREMENT, DEPENDING ON THE GRADATION AND SOURCE.

DESIGNATION	PERCENT FINER	STONE SIZE	MINIMUM WEIGHT
D85	85%	18"	~325 LB
D50	50%	12"	~100 LB
D15	15%	8"	~30 LB.
- WASH INFILL MATERIAL INTO INTERSTICES OF RIPRAP PER TECHNICAL SPECIFICATION 37 31 00: RIPRAP AND BOULDERS.
- RIPRAP FOR SUBSTRATES SHALL BE PLACED IN A MINIMUM OF TWO LIFTS FOR DEPTHS GREATER THAN TWICE THE D50 ROCK SIZE, WITH WASHING IN OF INFILL MATERIALS PRIOR TO PLACING THE SECOND LIFT.



TYPICAL FLOODPLAIN SUBSTRATE DETAIL
1:4

NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			

PROFESSIONAL'S SIGNATURE _____ DATE _____

Gannett Fleming
207 SENATE AVE.
CAMP HILL, PENNSYLVANIA

Kleinschmidt
400 HISTORIC DRIVE
STRASBURG, PENNSYLVANIA

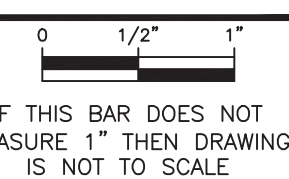
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF GENERAL SERVICES
HARRISBURG, PENNSYLVANIA

PROJECT NO.
D.G.S. C-0148-0001 PHASE 1

CONSTRUCTION OF FISH PASSAGE
ON THE SUSQUEHANNA RIVER
SHIKELLAMY STATE PARK
NORTHUMBERLAND AND SNYDER COUNTIES, PA

BOULDER DETAILS

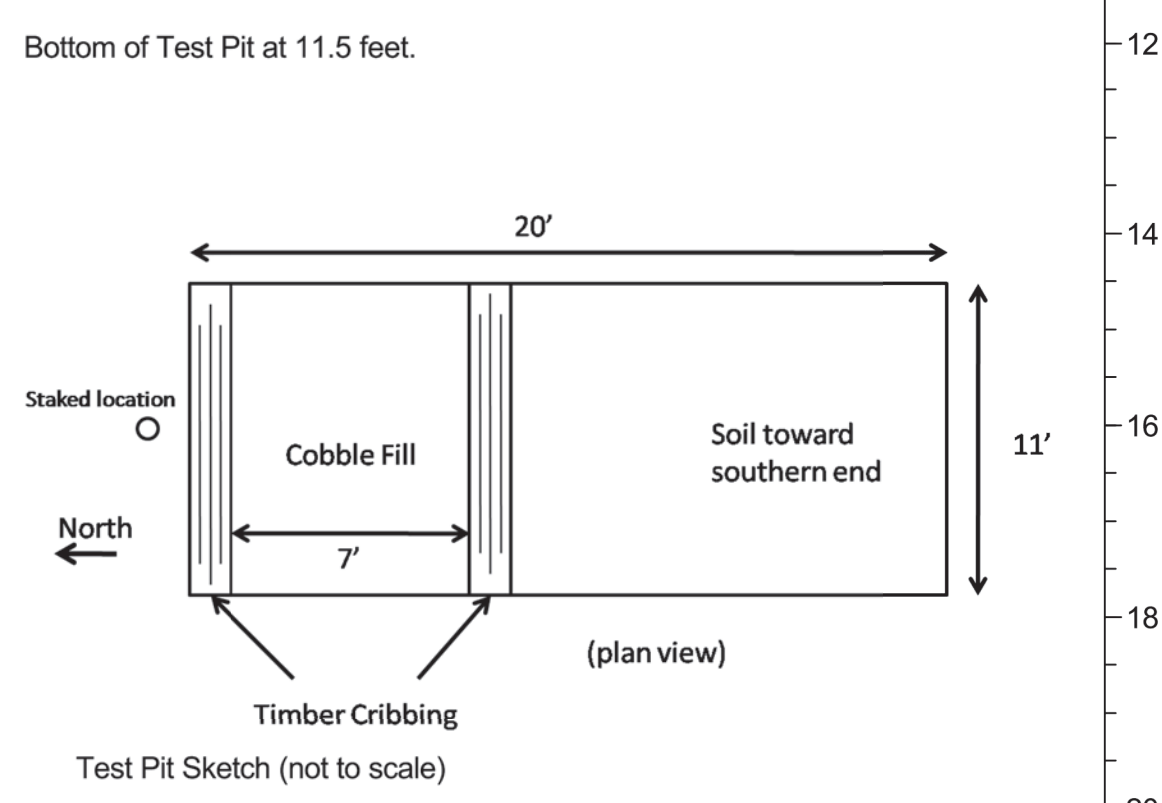
DRAWN BY	DATE	DRAWING NO.
JCH	OCTOBER 2021	C-14
CHECKED BY	SCALE	
TLK	AS SHOWN	



ALL WORK ON THIS DRAWING IS TO BE INCLUDED BY THE GENERAL CONTRACTOR.

Date Started:	11/3/09	TEST PIT LOG 	Hole Number:	TP-1	
Date Finished:	11/4/09		Sheet:	1 of 1	
Total Depth of Pit:	11.5 ft		Line & Station:		
Inspector:	E.J. Barben	Project:	Sunbury Nature-Like Fishway	Offset:	
Photographic Log:	Yes	Contractor:	Underhill Excavating, Inc	N Coordinate:	554114 ft
GROUNDWATER OBSERVATIONS At 4.5 ft After 0 Hrs		Operator:	Todd Underhill	E Coordinate:	2227861 ft
		Excavation Equipment:	Samsung SE 130 LC 2	Surface Elevation:	+428.9 ft

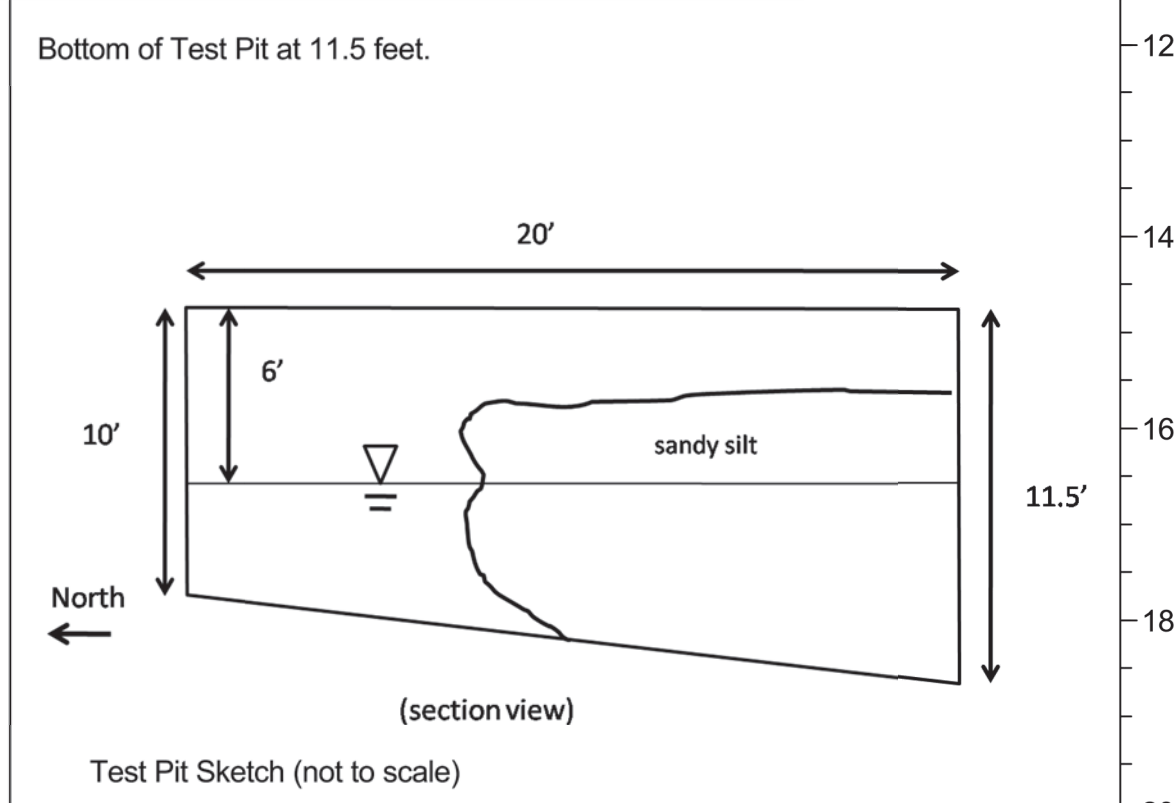
Remarks	Depth (Ft.)	Sample No.	USCS	Description Of Materials
3.5' wide bucket with rock teeth, 1 cubic yard of volume	0.0 - 5.0	Unsampled		0.0'-11.5': Clayey SAND With Gravel And Cobbles (sc) 30% gravel, 50% sand, 20% fines. Gravel is subrounded to subangular, flat and elongated, hard, fine to coarse; Sand is fine; Fines have high plasticity, slow to rapid dilatancy, Brown (7.5 YR 4/4), moist to wet, Gravel and cobbles predominantly consist of sandstone and are present at depth.
3.0' Timber cribbing encountered, extends at least 6.5' below ground surface. Extent is unknown due to groundwater. Timber cribbing appears to be filled with cobbles, 6-12" in diameter				
	5.0 - 6.0	Bag 1		Total Sample by Volume: +12": 0% (none observed) 9"-12": 5% 6"-9": 20% 3"-6": 25% -3": 50%
11.5' Bucket refusal on bedrock	6.0 - 11.5	Unsampled		



Purpose: Determine top of rock and classify native materials for use in Fishway construction
 Dimensions: Length: 20', width: 11'
 Remarks: Sample collected at 5.0' from southern end of test pit
 Test pit backfilled with pit spoils and 1 dump truck load of shale for surface stabilization and safety

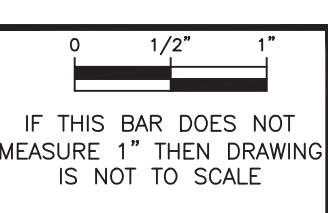
Date Started:	11/4/09	TEST PIT LOG 	Hole Number:	TP-2	
Date Finished:	11/4/09		Sheet:	1 of 1	
Total Depth of Pit:	11.5 ft		Line & Station:		
Inspector:	E.J. Barben	Project:	Sunbury Nature-Like Fishway	Offset:	
Photographic Log:	Yes	Contractor:	Underhill Excavating, Inc	N Coordinate:	554042 ft
GROUNDWATER OBSERVATIONS At 6.0 ft After 0 Hrs		Operator:	Todd Underhill	E Coordinate:	2227905 ft
		Excavation Equipment:	Samsung SE 130 LC 2	Surface Elevation:	+428.6 ft

Remarks	Depth (Ft.)	Sample No.	USCS	Description Of Materials
3.5' wide bucket with rock teeth, 1 cubic yard of volume	0.0 - 1.0	Unsampled		Poorly Graded SAND (sp) Brown (10YR 4/3) and Sandy SILT (ml) Very Dark Grayish Brown (10 YR 3/2). Soil is fine grained for both types of soil, sp is non-plastic while ml has medium plasticity. Minus 3" fraction consists of 10% gravel, 60% sand and 30% fines. Moist to wet. Sandy SILT located on southern end of test pit (see photo).
	1.0 - 2.0	Bag - 1		
	2.0 - 3.0	Unsampled		
	3.0 - 4.0	Bag - 2		
	4.0 - 11.5	Unsampled		7.0'-11.5': WELL-GRADED GRAVEL With Boulders And Sand (gw) Sand is brown (10 YR 4/3). Gravel to boulder size material is sandstone (Blcomsburg Fm) grayish red (5R 4/2) and grayish green (5G 5/2). Maximum particle size: 2x1.5x1.3'. Estimated sample by volume: +12": 10% 6"-12": 15% 3"-6": 25% -3": 50%
11.5' Bucket refusal on bedrock				



Purpose: Determine top of rock and classify native materials for use in Fishway construction
 Dimensions: Length: 20', width: 10'
 Remarks: Two bags of minus 3" material collected. 1.0': brown sand, 3.0': grayish brown sandy silt
 Test pit backfilled with mixture of pit spoils and two dump truck loads of shale for stabilization and safety purposes.

Q:\Earth Sciences\CADD\14\WCD\062656-PA005_Sunbury\ICADD\Design_SettC-14 BORING LOGS.dwg
 Plot Date: 10/9/2021 1:40 PM, Plotted By: Trautman, Todd



NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			

Eric C. Neast
 PROFESSIONAL'S SIGNATURE DATE: 10-15-2021

207 SENATE AVE.
 CAMP HILL, PENNSYLVANIA

400 HISTORIC DRIVE
 STRASBURG, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

PROJECT NO.
 D.G.S. C-0148-0001 PHASE 1

CONSTRUCTION OF FISH PASSAGE
 ON THE SUSQUEHANNA RIVER
 SHIKELLAMY STATE PARK
 NORTHUMBERLAND AND SNYDER COUNTIES, PA

TEST PIT LOGS

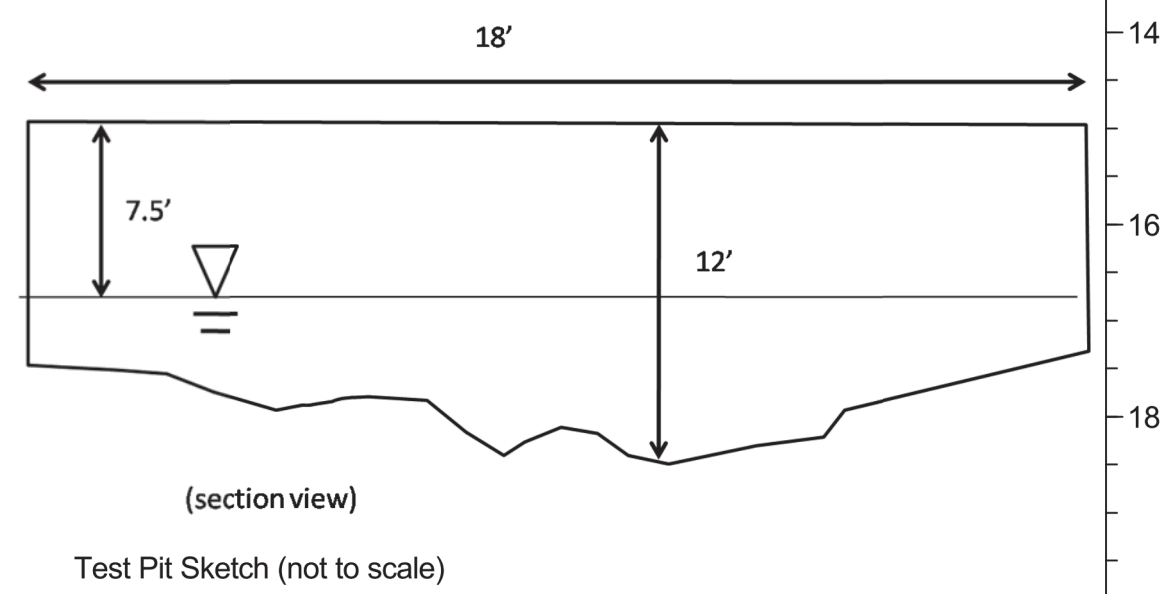
DRAWN BY	DATE	DRAWING NO.
J.P.H.	OCTOBER 2021	C-15
CHECKED BY	SCALE	
E.C.N.	AS SHOWN	

Date Started:	11/3/09	TEST PIT LOG 	Hole Number:	TP-3	
Date Finished:	11/3/09		Sheet:	1 of 1	
Total Depth of Pit:	12.0 ft		Line & Station:		
Inspector:	E.J. Barben	Project:	Sunbury Nature-Like Fishway	Offset:	
Photographic Log:	Yes	Contractor:	Underhill Excavating, Inc	N Coordinate:	553986 ft
GROUNDWATER OBSERVATIONS At 7.5 ft After 0 Hrs	Operator:	Todd Underhill	E Coordinate:	2227776 ft	
	Excavation Equipment:	Samsung SE 130 LC 2	Surface Elevation:	+430.3 ft	

Remarks	Depth (Ft.)	Sample No.	USCS	Description Of Materials
3.5' wide bucket with rock teeth, 1 cubic yard of volume	0.0 - 2.0	Unsampled		0.0'-12.0': WELL-GRADED GRAVEL With Silty Sand And Cobbles (gw) 50% gravel, 30% sand, 20% fines. Gravel is subangular, flat and elongated, hard, fine to coarse; Sand is fine; Fines have medium plasticity, Brown ((7.5 YR 4/3)), moist to wet, Gravel and cobbles are predominately sandstone grayish red 5R 4/2, grayish green 5G 5/2, and very pale orange 10 YR 8/2. One piece of limestone was also noted. Total estimated sample by volume: +12": 5% 9"-12": 15% 6"-9": 20% 3"-6": 20% -3": 40%
4.0' Timber with large metal spike encountered.	2.0 - 3.0	Bag - 1		
	3.0 - 12.0	Unsampled		

Bottom of pit was not observed due to water, however bedrock is not smooth as indicated by dragging the excavator bucket across the bottom of pit. 418.3

Bottom of Test Pit at 12.0 feet.



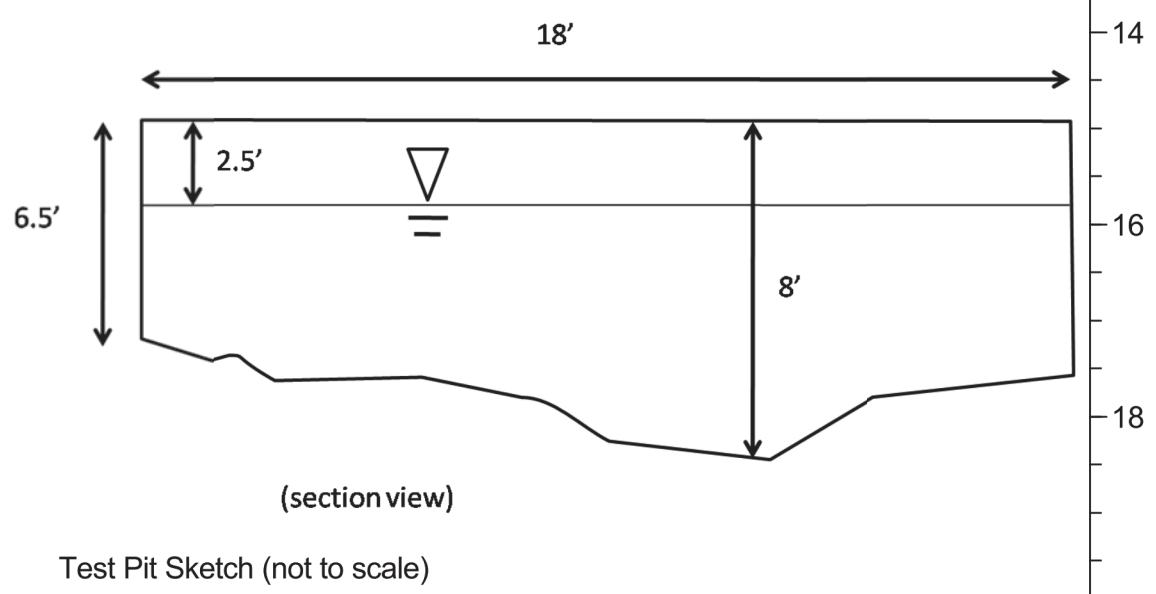
Purpose: Determine top of rock and classify native materials for use in Fishway construction
 Dimensions: Length: 18', width: 8'
 Remarks: Sample collected from 2.0'-3.0'
 Test pit backfilled with pit spoils

Date Started:	11/3/09	TEST PIT LOG 	Hole Number:	TP-4	
Date Finished:	11/3/09		Sheet:	1 of 1	
Total Depth of Pit:	8.0 ft		Line & Station:		
Inspector:	E.J. Barben	Project:	Sunbury Nature-Like Fishway	Offset:	
Photographic Log:	Yes	Contractor:	Underhill Excavating, Inc	N Coordinate:	553805 ft
GROUNDWATER OBSERVATIONS At 2.5 ft After 0 Hrs	Operator:	Todd Underhill	E Coordinate:	2227788 ft	
	Excavation Equipment:	Samsung SE 130 LC 2	Surface Elevation:	+424.7 ft	

Remarks	Depth (Ft.)	Sample No.	USCS	Description Of Materials
3.5' wide bucket with rock teeth, 1 cubic yard of volume	0.0 - 3.0	Unsampled		0.0'-8.0': Sandy SILT With Gravel And Cobbles (ML) 30% gravel, 50% sand, 20% fines. Gravel is subangular to subrounded, flat and elongated, hard, fine to coarse; Sand is fine; Fines have no to low plasticity, Brown (1) YR 4/3), moist to wet, Cobbles show iron staining and consist of sandstone which is predominately red (Bloomsburg) and some gray (Keefer fm?). Max particle size: 2.6"x1.2"x0.7". Total estimated sample by volume: +12": 5% 9"-12": 10% 6"-9": 20% 3"-6": 15% -3": 50%
	3.0 - 4.0	Bag - 1		
	4.0 - 8.0	Unsampled		

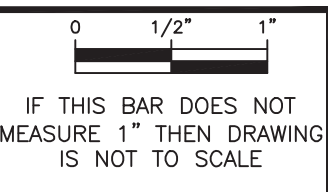
8.0': Bucket refusal on bedrock

Bottom of Test Pit at 8.0 feet.



Purpose: Determine top of rock and classify native materials for use in Fishway construction
 Dimensions: Length: 18', width: 6.5'
 Remarks: Sample collected from 3.0'
 Test pit backfilled with pit spoils

C:\Earth Sciences\CDG\014-VIC\014\062616\BANDS_Sunbury\CA\DD\Design_Ser\C-14 BORING LOGS.dwg
 Plot Date: 10/20/2021 1:41 PM, Plotted By: Taitman, Todd



NO.	DATE	REVISION	APPR.
AS-BUILT REVISIONS			



Eric C. Neast 10-15-2021
 PROFESSIONAL'S SIGNATURE DATE



COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF GENERAL SERVICES
 HARRISBURG, PENNSYLVANIA

PROJECT NO.
 D.G.S. C-0148-0001 PHASE 1

CONSTRUCTION OF FISH PASSAGE
 ON THE SUSQUEHANNA RIVER
 SHIKELLAMY STATE PARK
 NORTHUMBERLAND AND SNYDER COUNTIES, PA

TEST PIT LOGS

DRAWN BY	DATE	DRAWING NO.
J.P.H.	OCTOBER 2021	C-16
CHECKED BY	SCALE	
E.C.N.	AS SHOWN	