

Baseline Assessment – Stream Attributes

Reach S-E43 (Pipeline ROW) Ephemeral Spread F Monroe County, West Virginia

Data	Included
Photos	✓
SWVM Form	✓
FCI Calculator and HGM Form	N/A – (slope >4%)
RBP Physical Characteristics Form	✓
Water Quality Data	N/A – No flow
RBP Habitat Form	✓
RBP Benthic Form	✓
Benthic Identification Sheet	N/A – No flow
Wolman Pebble Count	✓
Reference Reach Software Pebble Count Data	✓
Longitudinal Profile and Cross Sections	✓

- Modified RBP – No water

37.453834° N, -80.664417° W



Photo Type: DS, US View

Location, Orientation, Photographer Initials: Downstream Edge of ROW, Upstream View, AK/RA

37.453834° N, -80.664417° W



Photo Type: DS, DS View

Location, Orientation, Photographer Initials: Downstream Edge of ROW, Downstream View, AK/RA

37.453834° N, -80.664417° W



Photo Type: CP, US View

Location, Orientation, Photographer Initials: Center Right of Way, Upstream View, AK/RA

37.453834° N, -80.664417° W



Photo Type: CP, DS View

Location, Orientation, Photographer Initials: Center of Right of Way, Downstream View, AK/RA



Photo Type: DS, US View

Location, Orientation, Photographer Initials: Downstream Edge of Right of Way, Upstream View, AK/RA



Photo Type: DS, DS View

Location, Orientation, Photographer Initials: Downstream Edge of Right of Way, Downstream View, AK/RA

"Q:\Charleston\2021 Projects\21-0244- MVP- STREAM AND WETLAND CONDITIONS ASSESSMENT AND SURVEY PLAN\002 - Pre-Crossing Monitoring\Spread F\S-E43"

USACE FILE NO./ Project Name: <small>(v2.1, Sept 2015)</small>	Mountain Valley Pipeline	IMPACT COORDINATES: (in Decimal Degrees)	Lat.	37.453834	Lon.	-80.664417	WEATHER:	Clear/Sunny 75 °F	DATE:	8/23/2021
---	--------------------------	---	------	-----------	------	------------	----------	-------------------	-------	-----------

IMPACT STREAM/SITE ID AND SITE DESCRIPTION: <small>(watershed size (acreage), unaltered or impairments)</small>	S-E43 UNT to Dry Creek			MITIGATION STREAM CLASS./SITE ID AND SITE DESCRIPTION: <small>(watershed size (acreage), unaltered or impairments)</small>			Comments:			
--	------------------------	--	--	---	--	--	-----------	--	--	--

STREAM IMPACT LENGTH:	92	FORM OF MITIGATION:	RESTORATION (Levels I-III)	MIT COORDINATES: (in Decimal Degrees)	Lat.		Lon.		PRECIPITATION PAST 48 HRS:		Mitigation Length:	
-----------------------	----	---------------------	----------------------------	--	------	--	------	--	----------------------------	--	--------------------	--

Column No. 1- Impact Existing Condition (Debit)			
Stream Classification:	Ephemeral		
Percent Stream Channel Slope	3.4		
HGM Score (attach data forms):			
			Average
Hydrology			
Biogeochemical Cycling	0		
Habitat			
PART I - Physical, Chemical and Biological Indicators			
	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	17
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		17
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		19
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		18
9. Vegetative Protection (LB & RB)	0-20		18
10. Riparian Vegetative Zone Width (LB & RB)	0-20		14
Total RBP Score	Optimal		103
Sub-Total			0.858333333
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Indicators (General)			
Specific Conductivity			
100-199 = 85 points	0-90	0-1	
pH			
5.6-5.9 = 45 points	0-80		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WV Stream Condition Index (WVSCI)			
0	0-100	0-1	
Sub-Total			0

Column No. 2- Mitigation Existing Condition - Baseline (Credit)			
Stream Classification:			
Percent Stream Channel Slope			
HGM Score (attach data forms):			
			Average
Hydrology			
Biogeochemical Cycling	0		
Habitat			
PART I - Physical, Chemical and Biological Indicators			
	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (Low Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Pool Substrate Characterization	0-20		
3. Pool Variability	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Channel Sinuosity	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB & RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Indicators (General)			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WV Stream Condition Index (WVSCI)			
	0-100	0-1	
Sub-Total			0

Column No. 3- Mitigation Projected at Five Years Post Completion (Credit)			
Stream Classification:	0		
Percent Stream Channel Slope	0		
HGM Score (attach data forms):			
			Average
Hydrology			
Biogeochemical Cycling	0		
Habitat			
PART I - Physical, Chemical and Biological Indicators			
	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB & RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Indicators (General)			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WV Stream Condition Index (WVSCI)			
	0-100	0-1	
Sub-Total			0

Column No. 4- Mitigation Projected at Ten Years Post Completion (Credit)			
Stream Classification:	0		
Percent Stream Channel Slope	0		
HGM Score (attach data forms):			
			Average
Hydrology			
Biogeochemical Cycling	0		
Habitat			
PART I - Physical, Chemical and Biological Indicators			
	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB & RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Indicators (General)			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WV Stream Condition Index (WVSCI)			
	0-100	0-1	
Sub-Total			0

Column No. 5- Mitigation Projected at Maturity (Credit)			
Stream Classification:	0		
Percent Stream Channel Slope	0		
HGM Score (attach data forms):			
			Average
Hydrology			
Biogeochemical Cycling	0		
Habitat			
PART I - Physical, Chemical and Biological Indicators			
	Points Scale	Range	Site Score
PHYSICAL INDICATOR (Applies to all streams classifications)			
USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	0-1	
2. Embeddedness	0-20		
3. Velocity/ Depth Regime	0-20		
4. Sediment Deposition	0-20		
5. Channel Flow Status	0-20		
6. Channel Alteration	0-20		
7. Frequency of Riffles (or bends)	0-20		
8. Bank Stability (LB & RB)	0-20		
9. Vegetative Protection (LB & RB)	0-20		
10. Riparian Vegetative Zone Width (LB & RB)	0-20		
Total RBP Score	Poor		0
Sub-Total			0
CHEMICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WVDEP Water Quality Indicators (General)			
Specific Conductivity			
	0-90	0-1	
pH			
	5-90		
DO			
	10-30		
Sub-Total			0
BIOLOGICAL INDICATOR (Applies to Intermittent and Perennial Streams)			
WV Stream Condition Index (WVSCI)			
	0-100	0-1	
Sub-Total			0

PART II - Index and Unit Score		
Index	Linear Feet	Unit Score
0.829	92	76.28333333

PART II - Index and Unit Score		
Index	Linear Feet	Unit Score
0	0	0

PART II - Index and Unit Score		
Index	Linear Feet	Unit Score
0	0	0

PART II - Index and Unit Score		
Index	Linear Feet	Unit Score
0	0	0

PART II - Index and Unit Score		
Index	Linear Feet	Unit Score
0	0	0

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAMES-E43 UNT Dry Creek	LOCATION Monroe/F	
STATION # _____ RIVERMILE _____	STREAM CLASS Ephemeral <input type="checkbox"/>	
LAT _____ LONG _____	COUNTY Monroe <input type="checkbox"/>	
STORET # _____	AGENCY Potesta/Edge	
INVESTIGATORS ABK/RA		
FORM COMPLETED BY A. Kincaid	DATE 8/23/2021 TIME 7:00 AM	REASON FOR SURVEY Preliminary Assessment

WEATHER CONDITIONS	<p>Now</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> storm (heavy rain) <input type="checkbox"/> rain (steady rain) <input type="checkbox"/> showers (intermittent) <input type="checkbox"/> %cloud cover _____ <input checked="" type="checkbox"/> clear/sunny </div> <div style="width: 45%;"> <p>Past 24 hours</p> <input type="checkbox"/> _____ % <input type="checkbox"/> _____ % <input type="checkbox"/> _____ % </div> </div> <p>Has there been a heavy rain in the last 7 days? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Air Temperature <u>75</u> °F <u> </u> °C Other _____</p>
SITE LOCATION/MAP	<p>Draw a map of the site and indicate the areas sampled (or attach a photograph)</p>
STREAM CHARACTERIZATION	<p>Stream Subsystem <input type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> Tidal</p> <p>Stream Type <input type="checkbox"/> Coldwater <input checked="" type="checkbox"/> Warmwater</p> <p>Stream Origin <input type="checkbox"/> Glacial <input type="checkbox"/> Spring-fed <input type="checkbox"/> Non-glacial montane <input checked="" type="checkbox"/> Mixture of origins <input type="checkbox"/> Swamp and bog <input type="checkbox"/> Other _____</p> <p>Catchment Area _____ km²</p>

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES	Predominant Surrounding Landuse <input checked="" type="checkbox"/> Forest <input type="checkbox"/> Commercial <input type="checkbox"/> Field/Pasture <input type="checkbox"/> Industrial <input type="checkbox"/> Agricultural <input type="checkbox"/> Other _____ <input type="checkbox"/> Residential		Local Watershed NPS Pollution <input type="checkbox"/> No evidence <input checked="" type="checkbox"/> Some potential sources <input type="checkbox"/> Obvious sources Local Watershed Erosion <input checked="" type="checkbox"/> None <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy	
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present <input checked="" type="checkbox"/> Trees <input checked="" type="checkbox"/> Shrubs <input checked="" type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous Dominant species present _____			
INSTREAM FEATURES	Estimated Reach Length <u>41</u> ft m Estimated Stream Width <u>1.5</u> ft m Sampling Reach Area <u>61.5</u> ft ² m ² Area in km ² (m ² x1000) _____ km ² Estimated Stream Depth <u>0</u> m Surface Velocity <u>0</u> m/sec Stream Dry <input checked="" type="checkbox"/>		Canopy Cover <input type="checkbox"/> Partly open <input checked="" type="checkbox"/> Partly shaded <input type="checkbox"/> Shaded High Water Mark _____ m Proportion of Reach Represented by Stream Morphology Types Rifle ^o _____ % Run <u>0</u> % Pool ^o _____ % Channelized <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Dam Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
LARGE WOODY DEBRIS	LWD <u>0</u> m ² Density of LWD <u>0</u> m ² /km ² (LWD/ reach area)			
AQUATIC VEGETATION dry	Indicate the dominant type and record the dominant species present <input type="checkbox"/> Rooted emergent <input type="checkbox"/> Rooted submergent <input type="checkbox"/> Rooted floating <input type="checkbox"/> Free floating <input type="checkbox"/> Floating Algae <input type="checkbox"/> Attached Algae Dominant species present _____ Portion of the reach with aquatic vegetation <u>0</u> %			
WATER QUALITY	Temperature _____ °C Specific Conductance _____ Dissolved Oxygen _____ pH _____ Turbidity _____ WQ Instrument Used _____		Water Odors <input type="checkbox"/> Normal/None <input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical <input type="checkbox"/> Fishy <input type="checkbox"/> Other _____ Water Surface Oils <input type="checkbox"/> Slick <input type="checkbox"/> Sheen <input type="checkbox"/> Globs Flecks <input type="checkbox"/> None <input type="checkbox"/> Other _____ Turbidity (if not measured) <input type="checkbox"/> Clear <input type="checkbox"/> Slightly turbid <input type="checkbox"/> Turbid <input type="checkbox"/> Opaque <input type="checkbox"/> Stained <input type="checkbox"/> Other _____	
SEDIMENT/SUBSTRATE	Odors <input type="checkbox"/> Normal <input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical <input type="checkbox"/> Anaerobic <input type="checkbox"/> None <input type="checkbox"/> Other _____ Oils <input type="checkbox"/> Absent <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Profuse		Deposits <input type="checkbox"/> Sludge <input type="checkbox"/> Sawdust <input type="checkbox"/> Paper fiber <input type="checkbox"/> Sand <input type="checkbox"/> Relict shells <input type="checkbox"/> Other _____ Looking at stones which are not deeply embedded, are the undersides black in color? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		0	Detritus	sticks, wood, coarse plant materials (CPOM)	15
Boulder	> 256 mm (10")	0			
Cobble	64-256 mm (2.5"-10")	5	Muck-Mud	black, very fine organic (FPOM)	0
Gravel	2-64 mm (0.1"-2.5")	10			
Sand	0.06-2mm (gritty)	40	Marl	grey, shell fragments	0
Silt	0.004-0.06 mm	45			
Clay	< 0.004 mm (slick)	0			

HABITAT ASSESSMENT FIELD DATA SHEET - HG - USE ON ALL STREAMS (FRONT)

STREAM NAMES-E43 UNT Dry Creek		LOCATION	
STATION # _____ RIVERMILE _____		STREAM CLASS Ephemeral <input type="checkbox"/>	
LAT _____ LONG _____		COUNTY Monroe <input type="checkbox"/>	
STORET # _____		AGENCY Potesta/Edge	
INVESTIGATORSABK/RA			
FORM COMPLETED BY A. Kincaid		DATE 8/23/2021 TIME 1000 AM AM PM	REASON FOR SURVEY Preliminary Assessment

Parameters to be evaluated in sampling reach	Habitat Parameter	Condition Category			
		Optimal	Suboptimal	Marginal	Poor
Parameters to be evaluated in sampling reach	1. Epifaunal Substrate/ Available Cover <input checked="" type="checkbox"/> N/A SCORE 0 <input type="checkbox"/>	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	2. Embeddedness SCORE 17 <input type="checkbox"/>	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0	
	3. Velocity/Depth Regime <input checked="" type="checkbox"/> N/A SCORE 0 <input type="checkbox"/>	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
4. Sediment Deposition SCORE 17 <input type="checkbox"/>	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.	
20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		
5. Channel Flow Status <input checked="" type="checkbox"/> N/A SCORE 0 <input type="checkbox"/>	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.	
20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0		

Modified RBP

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration SCORE <u>19</u>	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends) <input checked="" type="checkbox"/> N/A SCORE <u>0</u>	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream. SCORE <u>9</u> SCORE <u>9</u>	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank) SCORE <u>9</u> SCORE <u>9</u>	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone) SCORE <u>7</u> SCORE <u>7</u>	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total Score 103

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAMES-E43 UNT Dry Creek		LOCATION	
STATION # _____ RIVERMILE _____	STREAM CLASS Ephemeral ▼		
LAT _____ LONG _____	COUNTY Monroe ▼		
STORET # _____	AGENCY Potesta/Edge		
INVESTIGATORS ABK/RA		LOT NUMBER	
FORM COMPLETED BY A. Kincaid	DATE <u>8/23/2021</u> TIME <u>1002 AM</u>	REASON FOR SURVEY Preliminary Assessment	

HABITAT TYPES	Indicate the percentage of each habitat type present <input type="checkbox"/> Cobble _____% <input type="checkbox"/> Snags _____% <input type="checkbox"/> Vegetated Banks _____% <input type="checkbox"/> Sand _____% <input type="checkbox"/> Submerged Macrophytes _____% <input type="checkbox"/> Other (_____) _____%
SAMPLE COLLECTION	Gear used <input type="checkbox"/> D-frame <input type="checkbox"/> kick-net <input type="checkbox"/> Other _____ How were the samples collected? <input type="checkbox"/> wading <input type="checkbox"/> from bank <input type="checkbox"/> from boat Indicate the number of jabs/kicks taken in each habitat type. <input type="checkbox"/> Cobble _____ <input type="checkbox"/> Snags _____ <input type="checkbox"/> Vegetated Banks _____ <input type="checkbox"/> Sand _____ <input type="checkbox"/> Submerged Macrophytes _____ <input type="checkbox"/> Other (_____) _____
GENERAL COMMENTS	No benthic sample due to no suitable habitat/dry stream

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3 = Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3 = Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

SITE ID: S-E43 UNT to Dry Creek Spread F

DATE: 8/23/21

COLLECTOR(S): A. Kincaid / R. Adelstein

Wolman Pebble Count (Reach Wide)

0.75	2.0	0.062	0.062	0.062					
0.75	29	33	29	0.062					
0.75	38	0.062	0.062	0.062					
0.75	109	0.062	0.062	0.062					
0.75	0.062	0.062	157	0.062					
0.75	9	0.062	0.062	0.062					
0.75	0.062	0.062	0.062	0.062					
0.20	0.062	0.062	42	0.062					
0.75	0.062	0.062	0.062	0.062					
0.75	0.062	0.062	0.062	0.062					

NOTES:

* Based on modified HGM guidelines.

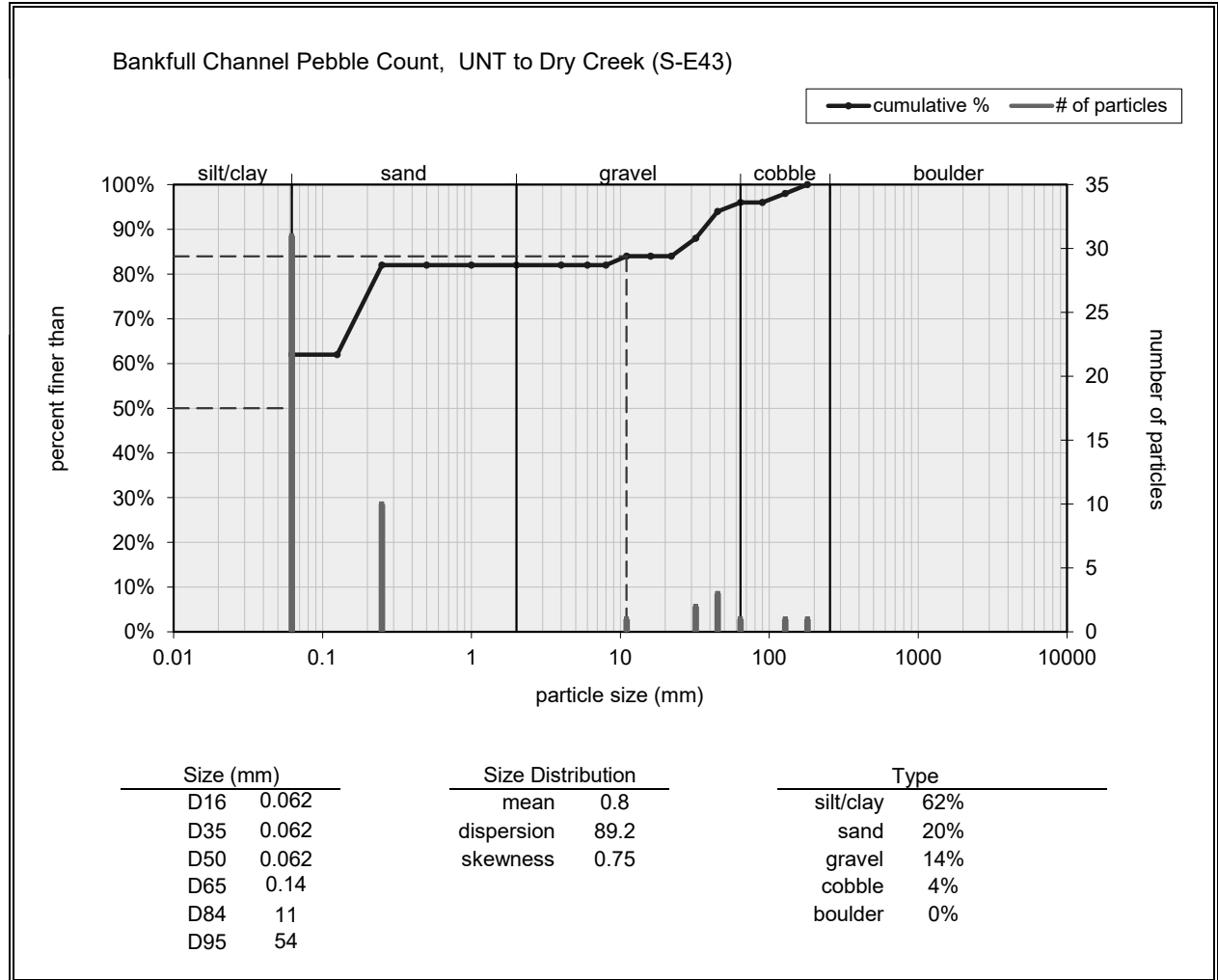
Riffle Pebble Count

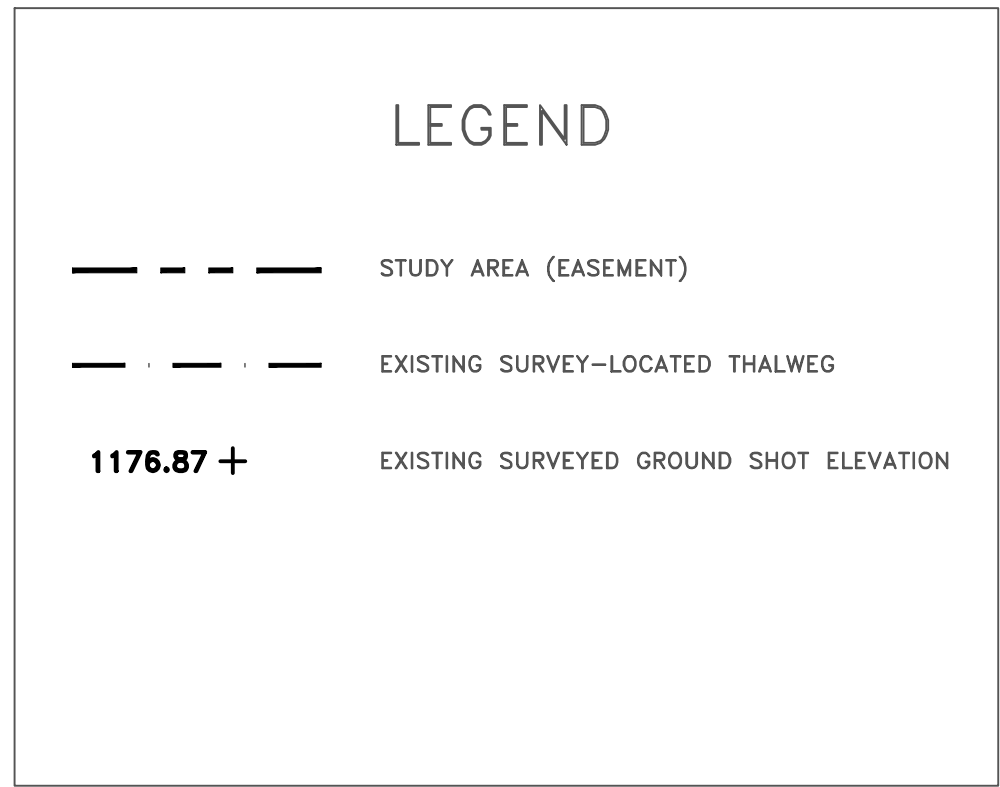
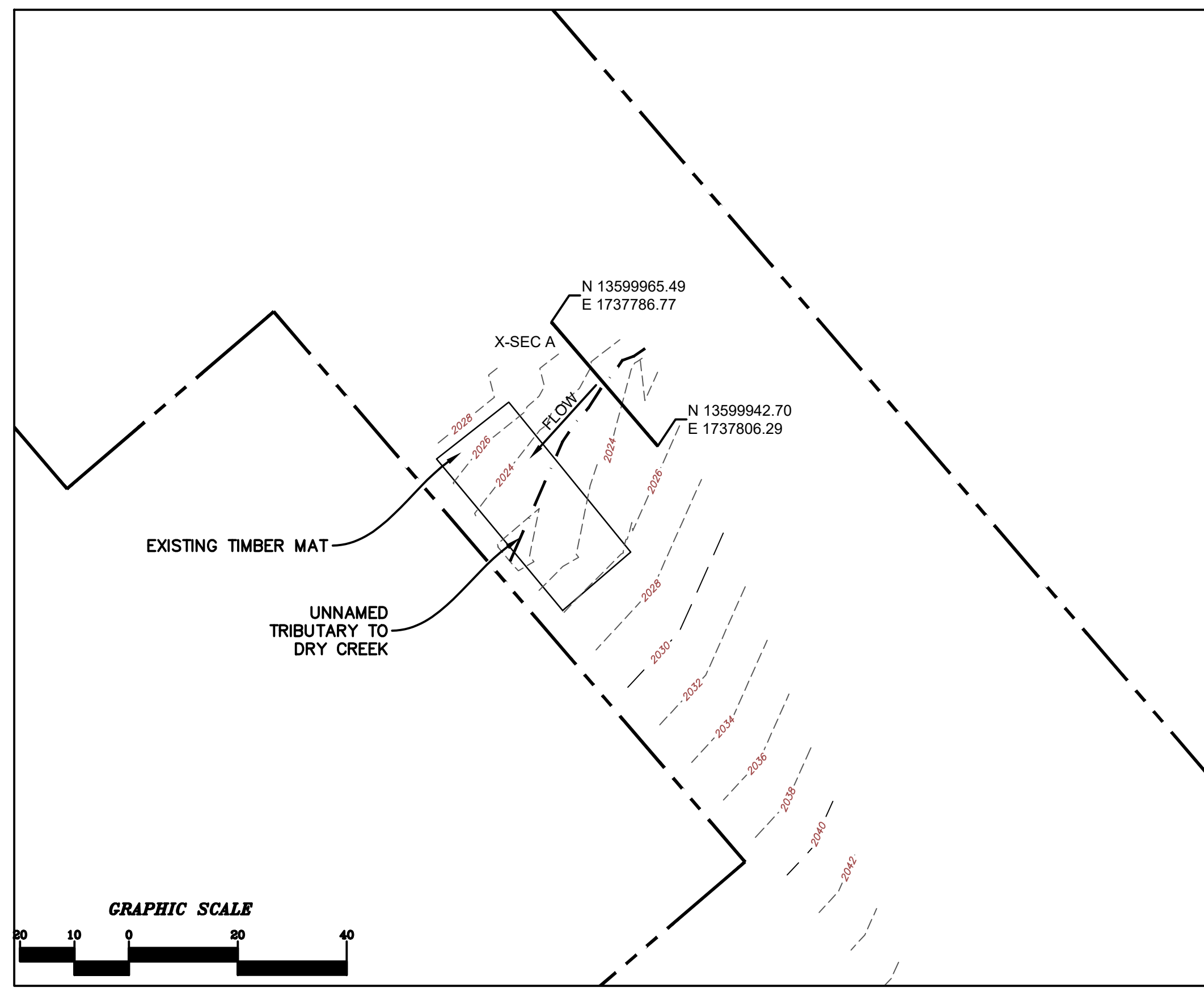
NOTES:

NOTES:

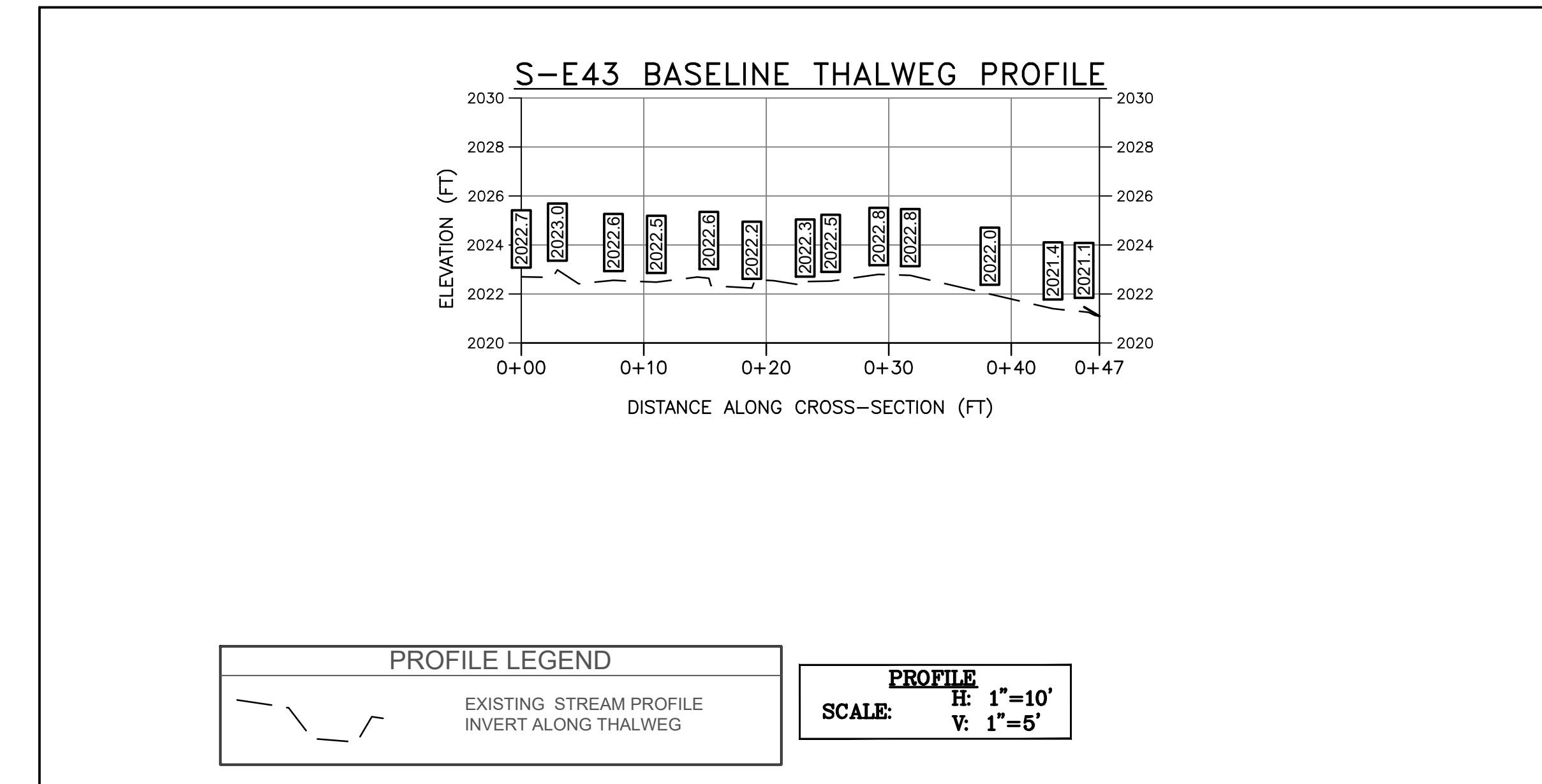
Inches	PARTICLE	Millimeters	S/C
	Silt/Clay	< .062	
	Very Fine	.062 - .125	SAND
	Fine	.125 - .25	
	Medium	.25 - .50	
	Coarse	.50 - 1.0	
.04 - .08	Very Coarse	1.0 - 2	
.08 - .16	Very Fine	2 - 4	GRAVEL
.16 - .22	Fine	4 - 5.7	
.22 - .31	Fine	5.7 - 9	
.31 - .44	Medium	8 - 11.3	
.44 - .63	Medium	11.3 - 16	
.63 - .89	Coarse	16 - 22.6	
.89 - 1.3	Coarse	22.6 - 32	
1.3 - 1.8	Very Coarse	32 - 45	
1.8 - 2.5	Very Coarse	45 - 64	
2.5 - 3.5	Small	64 - 90	COBBLE
3.5 - 5.0	Small	90 - 128	
5.0 - 7.1	Large	128 - 180	
7.1 - 10.1	Large	180 - 256	
10.1 - 14.3	Small	256 - 362	BOULDER
14.3 - 20	Small	362 - 512	
20 - 40	Medium	512 - 1024	
40 - 80	Large-Vry Large	1024 - 2048	
	Bedrock		BDRK

Bankfull Channel		
Material	Size Range (mm)	Count
silt/clay	0 - 0.062	31
very fine sand	0.062 - 0.125	
fine sand	0.125 - 0.25	10
medium sand	0.25 - 0.5	
coarse sand	0.5 - 1	
very coarse sand	1 - 2	
very fine gravel	2 - 4	
fine gravel	4 - 6	
fine gravel	6 - 8	
medium gravel	8 - 11	1
medium gravel	11 - 16	
coarse gravel	16 - 22	
coarse gravel	22 - 32	2
very coarse gravel	32 - 45	3
very coarse gravel	45 - 64	1
small cobble	64 - 90	
medium cobble	90 - 128	1
large cobble	128 - 180	1
very large cobble	180 - 256	
small boulder	256 - 362	
small boulder	362 - 512	
medium boulder	512 - 1024	
large boulder	1024 - 2048	
very large boulder	2048 - 4096	
total particle count:		50
bedrock -----		
clay hardpan -----		
detritus/wood -----		
artificial -----		
total count:		50
Note: <input type="text"/>		

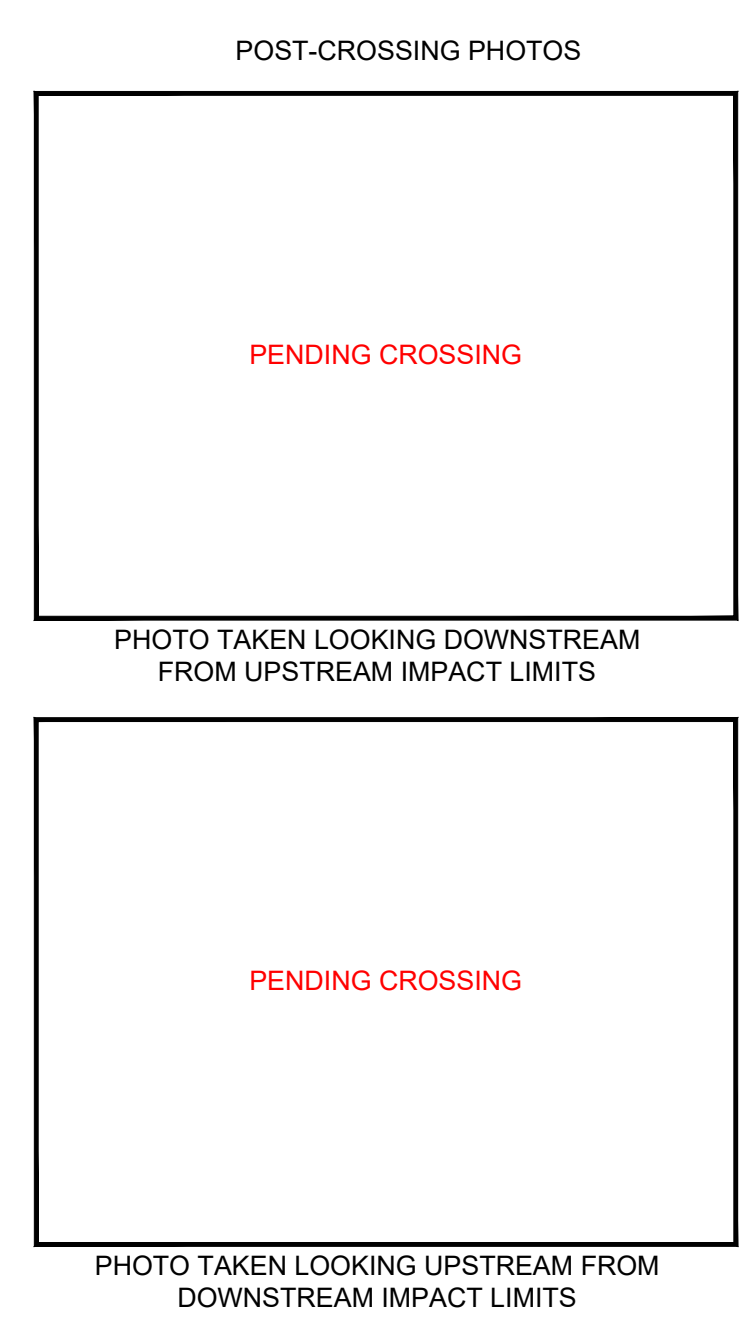
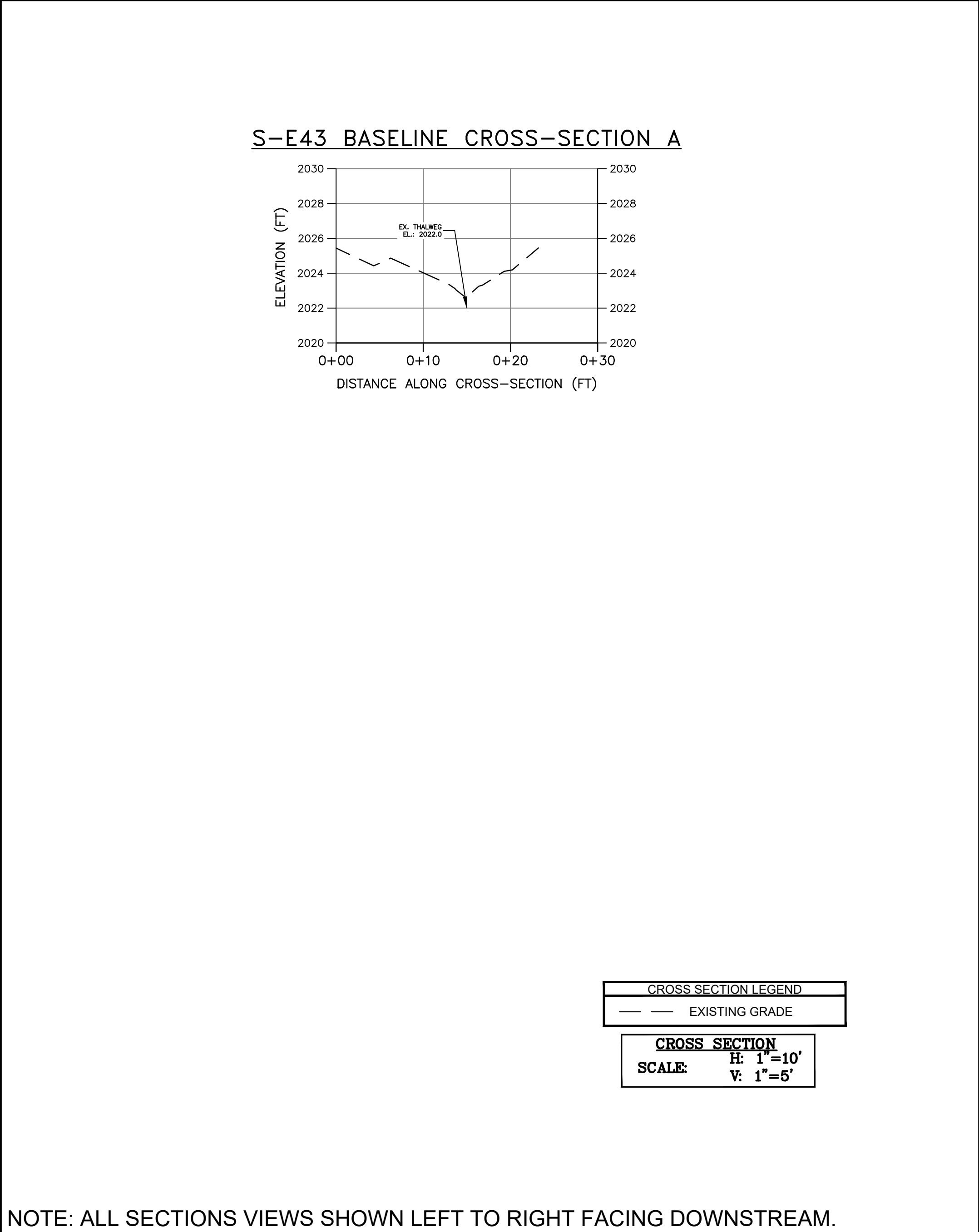
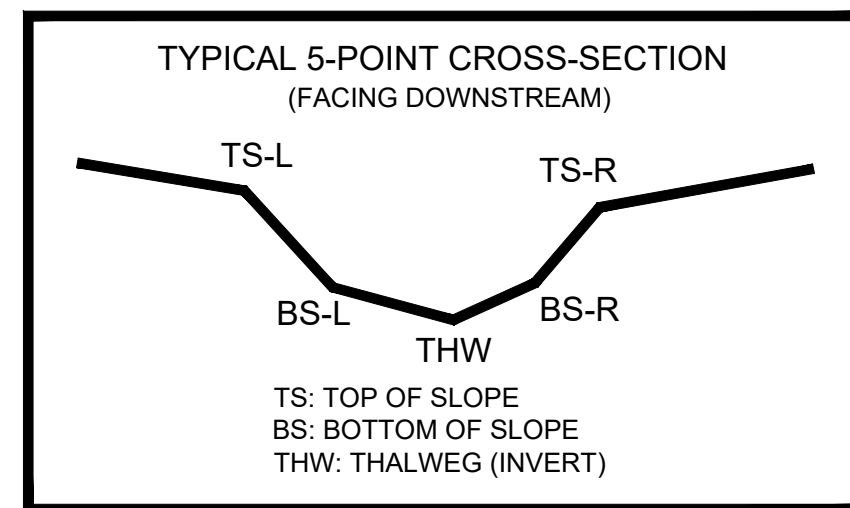




- SURVEY NOTES:**
- THIS MAP HAS BEEN ORIENTED TO NAD 1983 UTM ZONE 17N, AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), USING REAL TIME DGPS. FIELD LOCATIONS WERE COMPLETED ON SEPTEMBER 13, 2021.
 - EASEMENT LINES SHOWN ON PLAN VIEW WERE PROVIDED BY MOUNTAIN VALLEY PIPELINE.
 - SURVEY POINTS FOR CROSS SECTIONS AND THALWEG PROFILES COLLECTED IN 2021 HAVE BEEN USED IN COMBINATION WITH SURVEY POINTS COLLECTED PREVIOUSLY IN 2020 IN ORDER TO GENERATE THE PRE-CROSSING SURFACE SHOWN IN PLAN. DUE TO NATURAL EROSIONAL STREAM PROCESSES THAT CAN OCCUR OVER TIME, MINOR ADJUSTMENTS TO THE PROFILE ALIGNMENTS MAY HAVE BEEN REQUIRED IN ORDER TO GENERATE A CLEAN PRE-CROSSING SURFACE.
 - ALL SECTION VIEWS SHOWN LEFT TO RIGHT FACING DOWNSTREAM.
 - POST-CROSSING SURVEY INFORMATION SHOWN IN RED. DATA PENDING.
 - POST-CROSSING SURVEY POINTS FOR CROSS SECTIONS AND THALWEG ARE PROJECTED ONTO PRE-CROSSING SECTION AND PROFILE VIEWS FOR COMPARISON.



AS-BUILT TABLE: S-E43 CROSS SECTION A				
PT. LOC.	PRE-CROSSING			AS-BUILT
	NORTHING	EASTING	ELEV.	VERT. DIFF.
TS-L	13599952.3660	1737796.7292	2022.977'	
BS-L				
THW	13599953.4075	1737795.9605	2022.483'	
BS-R				
TS-R	13599953.8886	1737794.9516	2023.179'	



PRE-CROSSING

File: \\C:\Users\jz\Documents\2021\1121C07157 - MVA Crossing Permit\1121C07157 - Crossing\Crossing.dwg - Computer\Crossing.dwg - MP 191.70 - 2204.dwg
 Plot Date/Time: Oct 07, 2021 11:15am
 Plot Scale: 1"=50'

TETRA TECH
861 ANDERSEN DRIVE FOSTER PLAZA 7
PITTSBURGH, PA 15220
TEL: (412) 921-7000 FAX: (412) 921-4040
E-Mail Address: WWW.TETRA TECH.COM

TETRA TECH, INC.
861 ANDERSEN DRIVE FOSTER PLAZA 7
PITTSBURGH, PA 15220
TEL: (412) 921-7000 FAX: (412) 921-4040
E-Mail Address: WWW.TETRA TECH.COM

TETRA TECH

www.tetra-tech.com

Client:
MOUNTAIN VALLEY PIPELINE, LLC
2200 ENERGY DRIVE, 2ND FLOOR
CANONSBURG, PA 15317

Title:
PROFILE AND CROSS-SECTIONS
BASELINE SURVEY
CROSSING S-E43 - UNNAMED TRIBUTARY
TO DRY CREEK (MP 191.70)
MONROE COUNTY, WV

1121C07157
Project No.

SEPT. 2021
Date

JZ
Drawn

GH
Checked

DW
Approved

NOTED
Scale:

1
Drawing No.

PRELIMINARY