To: All Plan Holders of Record

From: CT Consultants, Inc.
For the Owner

Re: ***Addendum No. 2***
Valleyview Sanitary Sewer Improvements
City of Wheeling

Date: April 26, 2024

This Addendum forms a part of the contract documents and modifies the original bidding documents dated April 2024 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

BID OPENING DATE

The date of receiving and opening bids shall be changed from May 2, 2024 to May 3, 2024. The time and place shall remain the same.

OPINION OF PROBABLE CONSTRUCTION COST

The Opinion of Probable Construction Cost is $1,620,000

PRE-BID CONFERENCE SIGN-IN SHEET

Attached is the Pre-Bid Conference Sign-In Sheet.

QUESTIONS AND ANSWERS

Q. A question was asked about increasing the completion date.

A. The completion date shall stay the same. 270 Days from Notice to Proceed.

Q. A question about anticipated flows was asked.

A. Peak dry weather flows of 0.12 MGD should be expected at the lower end of the project with less upstream. The system is also a combined system. Expect higher wet weather flows of around 3 MGD if you work from downstream to upstream during the “typical year” storm (1-year occurrence interval) with higher amounts in larger storms.

BID FORMS

Replace Bid Form, Pages BF.15 to BF.16, with the enclosed Bid Form, Pages BF.15A to BF.16A.

Liquidated Damages are on Bid Form, page BF.17.

PLANS

Sheet 2: Replace plan sheet 2/19 with the enclosed plan sheet 2R1/19

Sheet 7 Coded Note 1: Note should read "REMOVE AND REPLACE EXISTING DECK IN KIND. SEE NOTE 57 OF THE GENERAL NOTES SHEET"

Sheet 9 Coded Note 3: Note should read "REMOVE AND REPLACE EXISTING DECK IN KIND. CONTRACTOR TO CAREFULLY WORK AROUND POOL. SEE NOTE 57 OF THE GENERAL NOTES SHEET"

Sheet 17 Sewer Cleanout Detail: Sewer Riser Pipe shall be SDR35

PREVAILING WAGES

Section 8, Prevailing Wage Rates

1. Heavy – Decision No. **WV**20240073, Modification No. 2, dated 04/19/2024
   – Issued in Addendum 01.

2. Highway – Decision No. **WV**20240080, No Updates, Modification No. 0, dated 01/05/2024 is still the current modification.
   – In Bid Book.

GEOTECHNICAL REPORT

A geotechnical report dated April 5, 2024 by Terracon Consultants, Inc. was relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided along with this addendum but are not considered to be part of the bid documents.

DB/LS:mep

Enclosures

H:\2022\220991\SPEC\04C Valleyview Sanitary Sewer Improvements\Addenda\Addendum 02\Addendum 02.Doc

PRE-BID CONFERENCE SIGN-IN SHEET

220991 04C – Valleyview Sanitary Sewer Improvements - City of Wheeling

NAME	COMPANY (REPRESENTING)	ADDRESS	CITY	ZIP	PHONE#	EMAIL ADDRESS
Lucas Skelly	CT Consultants	2001 Main Street	Wheeling, WV	26003	412-860-4575	Lskelly@ctconsultants.com
Frank Flora	James White Construction	4156 Freedom Way	Weirton, WV	26062	304-748-8181	fflora@jameswhiteconstruction.com
Bill Lanham	City of Wheeling	1500 Chapline Street	Wheeling, WV	26003	304-234-3617	wlanham@wheelingwv.gov
Dan Barr	CT Consultants	2001 Main Street	Wheeling, WV	26003	614-633-5029	Dbarr@ctconsultants.com
Joe Baker	Cast and Baker Corp.	2214 Washington Road	Canonsburg, PA	15317	724-745-6430	jbaker@castandbaker.com
Don Boyle	Alex E. Paris Construction	1595 Smith Township State Road	Atlasburg, PA	15004	724-350-7172	dboyle@alexparis.com
Robert Weisner	City of Wheeling WPCD	2516 Main Street	Wheeling, WV	26003	304-234-2819	bweisner@wheelingwv.gov
Dana Hall	City of Wheeling WPCD	2516 Main Street	Wheeling, WV	26003	304-639-8344	dana.hall@wheelingwv.gov
Zarley Price	Fergeson Waterworks	73750 Repik Lane	Freeport, OH	43973	304-231-6465	Zarley.price@fergeson.com
Abel Vir	Virco	224 Capitol Street	Charleston, WV	25301	304-543-2709	able@vircocompany.com

Proposal to the City of Wheeling, WV
For Valleyview Sanitary Sewer Improvements
Project No. 220991 4C

Ref No.	ITEM No.	Description	Quantity	Measure Units	Unit Price	Item Total
1	639001	CONSTRUCTION LAYOUT AND STAKES	1	LS	$ _____	$ _____
2	204001	MOBILIZATION	1	LS	$ _____	$ _____
3	636001	MAINTENANCE OF TRAFFIC	1	LS	$ _____	$ _____
4	408002	TACK COAT	36	GAL	$ _____	$ _____
5	501001	8" REINFORECED PORTLAND CEMENT CONCRETE PAVEMENT	362	SY	$ _____	$ _____
6	401002	2" WEARING COURSE TYPE 4	40	TON	$ _____	$ _____
7	307001	6" CLASS 1 AGGREGATE COURSE BASE	90	TON	$ _____	$ _____
8	675007	36" PLASTIC SEWER PIPE (TYPE A TRENCH)	66	LF	$ _____	$ _____
9	675007	36" PLASTIC SEWER PIPE (TYPE D TRENCH)	76	LF	$ _____	$ _____
10	675007	27" PLASTIC SEWER PIPE (TYPE A TRENCH)	223	LF	$ _____	$ _____
11	675007	27" PLASTIC SEWER PIPE (TYPE D TRENCH)	145	LF	$ _____	$ _____
12	675007	24" PLASTIC SEWER PIPE (TYPE A TRENCH)	250	LF	$ _____	$ _____
13	675007	24" PLASTIC SEWER PIPE (TYPE D TRENCH)	801	LF	$ _____	$ _____
14	675007	18" PLASTIC SEWER PIPE (TYPE D TRENCH)	281	LF	$ _____	$ _____
15	675007	15" PLASTIC SEWER PIPE (TYPE A TRENCH)	52	LF	$ _____	$ _____
16	675007	15" PLASTIC SEWER PIPE (TYPE D TRENCH)	244	LF	$ _____	$ _____
17	675007	12" PLASTIC SEWER PIPE (TYPE A TRENCH INSTALLATION ONLY)	38	LF	$ _____	$ _____
18	675007	12" PLASTIC SEWER PIPE (TYPE D TRENCH INSTALLATION ONLY)	511	LF	$ _____	$ _____
19	675007	8" CIPP LINER	244	LF	$ _____	$ _____
20	605001	MANHOLE TYPE A (72" DIAMETER BASE)	1	EA	$ _____	$ _____
21	605001	MANHOLE TYPE A (60" DIAMETER BASE)	6	EA	$ _____	$ _____
22	605001	MANHOLE TYPE A (48" DIAMETER BASE)	10	EA	$ _____	$ _____
23	SPEC	OVERFLOW MANHOLE - W-43R COMPLETE INCLUDING CASTING (84" BASE)	1	EA	$ _____	$ _____
24	SPEC	OVERFLOW MANHOLE - W-45R COMPLETE INCLUDING CASTING (72" BASE)	1	EA	$ _____	$ _____
25	SPEC	OVERFLOW MANHOLE - W-47R COMPLETE INCLUDING CASTING (72" BASE)	1	EA	$ _____	$ _____
26	SPEC	OVERFLOW MANHOLE - W-48R COMPLETE INCLUDING CASTING (72" BASE)	1	EA	$ _____	$ _____
27	SPEC	WEIR MODIFICATION (W-47)	1	EA	$ _____	$ _____
28	SPEC	WINGWALL 36" PIPE	1	EA	$ _____	$ _____
29	SPEC	CONNECT EXISTING SANITARY TO PROPOSED MANHOLE	15	EA	$ _____	$ _____
30	SPEC	CONNECT OVERFLOW LINE TO EX HEADWALL	3	EA	$ _____	$ _____
31	SPEC	SEWER PIPE REMOVAL	1566	LF	$ _____	$ _____
32	SPEC	REMOVE EX MANHOLE	16	EA	$ _____	$ _____
33	SPEC	ABANDON MANHOLE	1	EA	$ _____	$ _____
34	SPEC	BULKHEAD FOR SEWER	8	EA	$ _____	$ _____
35	SPEC	SHIFT EX STORM LINE	1	LS	$ _____	$ _____
36	SPEC	UNSUITABLE BACKFILL CONTINGENCY	2250	CY	$ _____	$ _____
38	SPEC	TREE CLEARING AND GRUBBING	1	LS	$ _____	$ _____
39	SPEC	SEEDING AND MULCHING	6864	SY	$ _____	$ _____

Proposal to the City of Wheeling, WV
For Valleyview Sanitary Sewer Improvements
Project No. 220991 4C

Ref No.	ITEM No.	Description	Quantity	Measure Units	Unit Price	Item Total
40	SPEC	REMOVE AND REPLACE FENCE IN KIND	1	LS	$ _____	$ _____
41	SPEC	EROSION CONTROL	1	LS	$ _____	$ _____
42	SPEC	DOCUMENTATION OF SITE	1	LS	$ _____	$ _____
43	SPEC	LANDSCAPE RESTORATION (ALLOWANCE)	20,000	$	$ _____	$ _____
44	SPEC	REMOVE AND REPLACE DECKS IN KIND (ALLOWANCE)	30,000	$	$ _____	$ _____

GRAND TOTAL BID PRICE (in figures): $ _____

GRAND TOTAL BID PRICE (in Writing):

_____

APPENDIX A

SITE LOCATION PLAN

FOR INFORMATION ONLY

Appendix A - Site Location

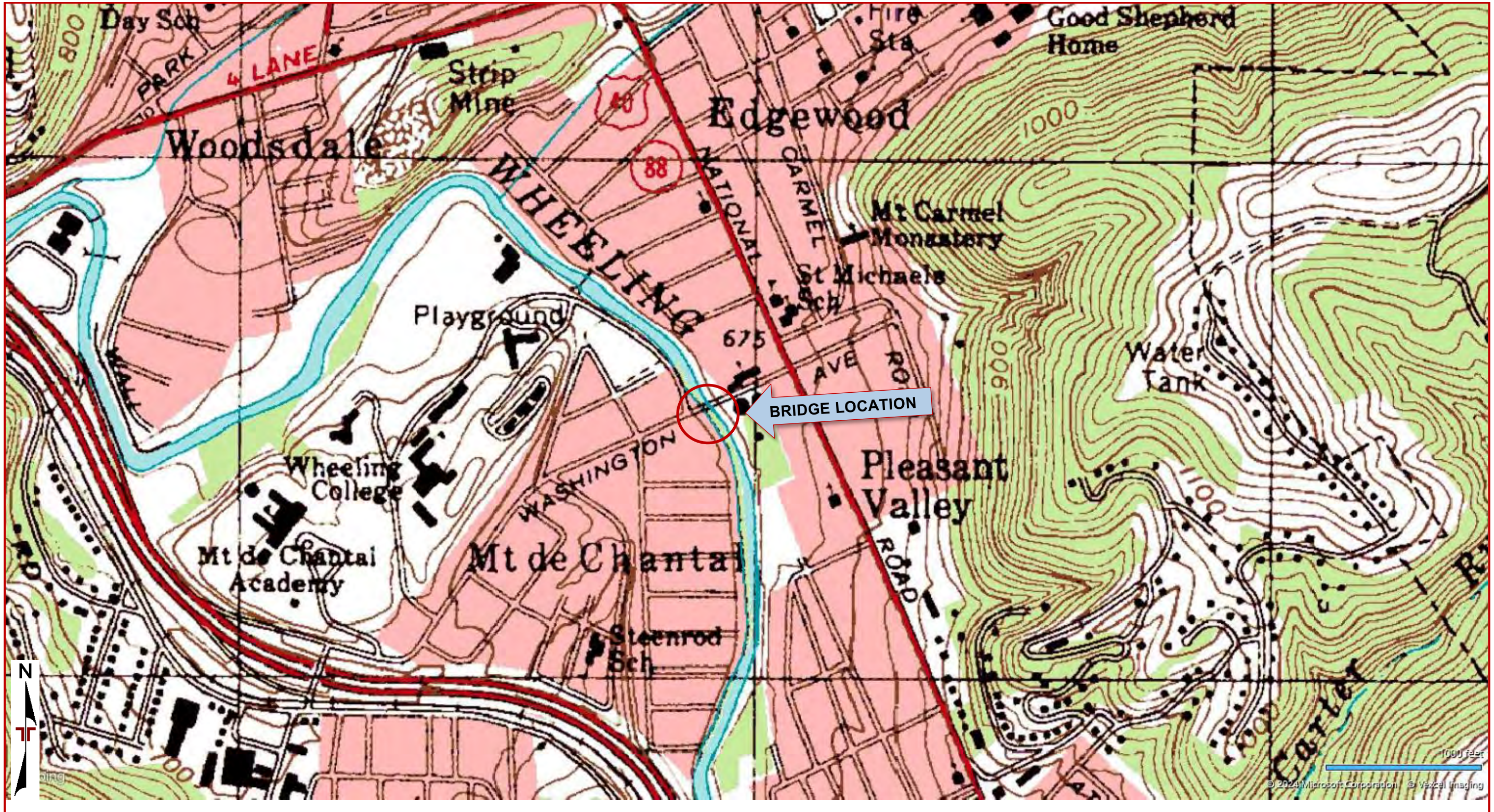


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

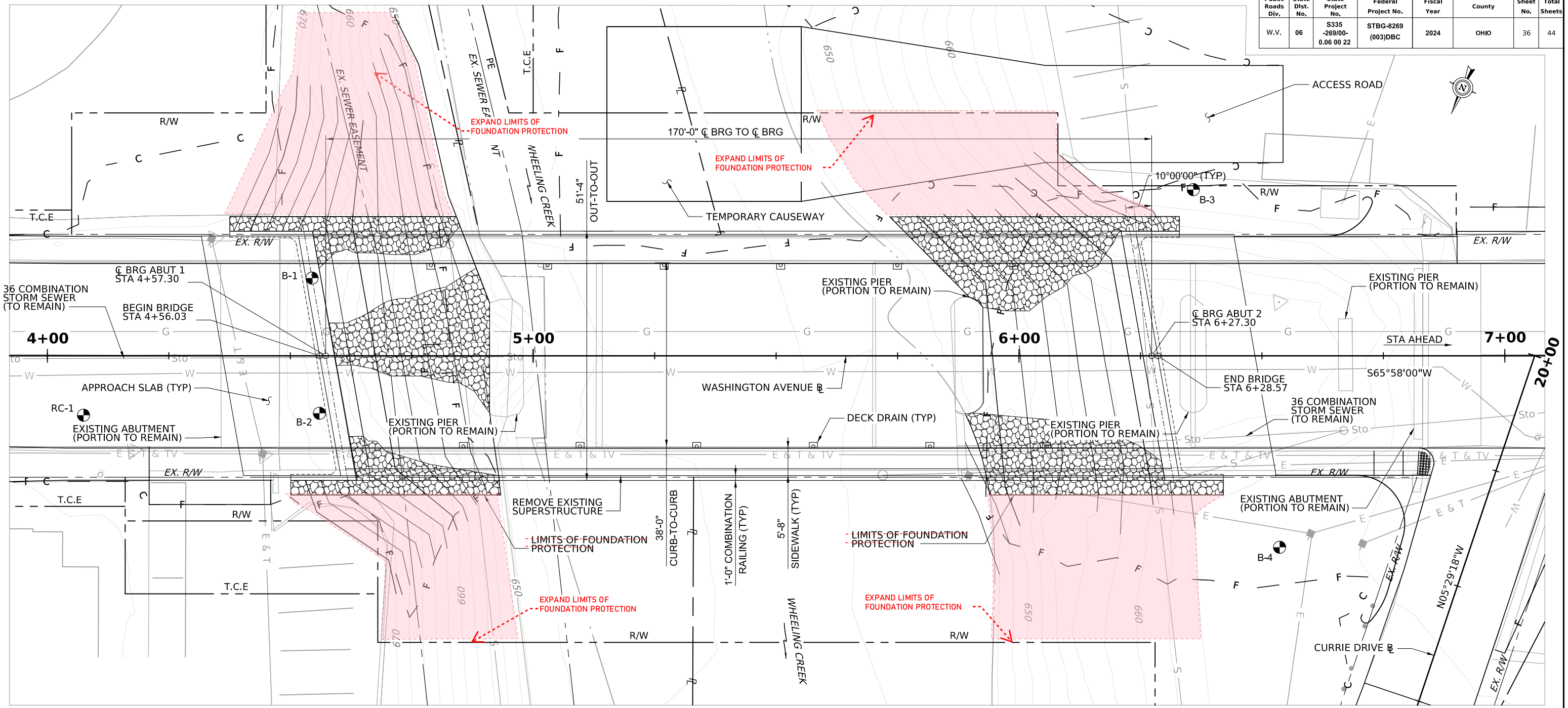
MAP PROVIDED BY

FOR INFORMATION ONLY

APPENDIX B

EXPLORATION AND ELEVATION PLAN

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W.V.	06	S335 -269/00- 0.06 00 22	STBG-8269 (003)DBC	2024	OHIO	36	44



WASHINGTON AVENUE HORIZONTAL GEOMETRY

STA 0+00.00 TO STA 11+00.00
TANGENT

PLAN

10' 5' 0' 10'

WASHINGTON AVE DESIGN DESIGNATION

ADT (2026) = 7,479 VPD
ADT (2046) = 7,953 VPD
DHV = 875
D = 57/43
T = 3%
V = 25 MPH

AS-DRILLED BORING LOCATIONS

BORING	STATION	OFFSET	NORTHING	EASTING
RC-1	4+07.00	12.25' RT	574664.6933	1637205.7150
RC-2	7+30.00	14.00' LT	574509.3808	1636921.8248
B-1	4+55.00	16.00' LT	574619.7527	1637174.2491
B-2	4+56.00	12.00' RT	574644.5476	1637161.5183
B-3	6+36.00	34.25' RT	574529.2496	1637015.9832
B-4	6+54.00	39.50' RT	574589.2463	1636969.7816

FOR INFORMATION ONLY

NO.	REVISION	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
DIVISION OF HIGHWAYS

DESIGNED	DATE	CHECKED	DATE
JJS	1/24	SER	1/24
DRAWN	DATE	REVIEWED	DATE
RMJ	1/24	SER	1/24

PRELIMINARY SITUATION PLAN
WASHINGTON AVENUE BRIDGE
OVER WHEELING CREEK

LOCHNER

4-Apr-24

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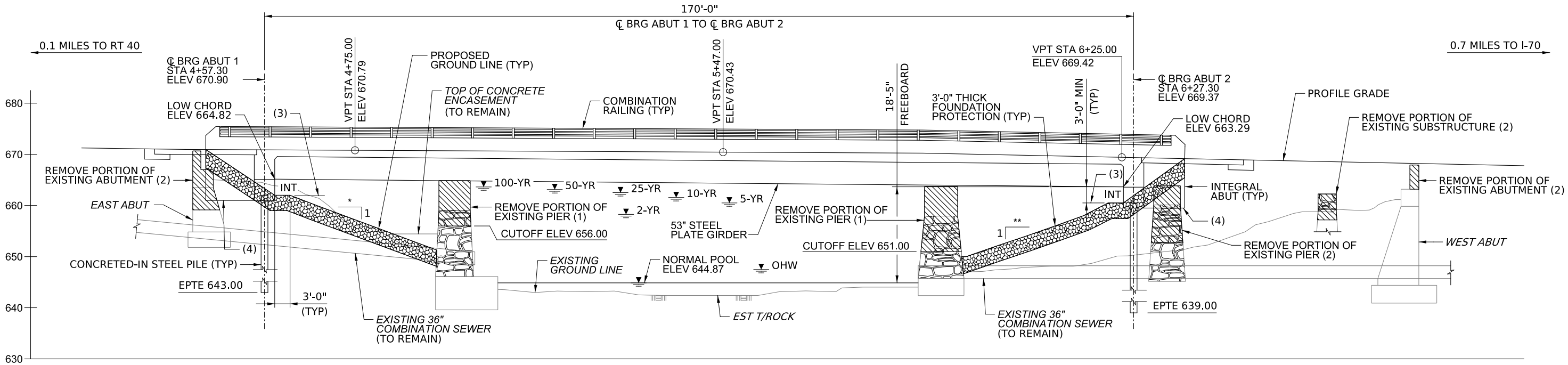
JSPISAK

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W.V.	06	S335 -269/00- 0.06 00 22	STBG-8269 (003)DBC	2024	OHIO	31	44



ELEVATION

10' 5' 0' 10'

(1) REMOVE PORTION OF EXISTING PIER TO A STONE MASONRY COURSE ABOVE THE EXISTING COMBINATION SEWER OUTFALL

(2) REMOVE PORTION OF EXISTING SUBSTRUCTURE TO FACILITATE NEW CONSTRUCTION

(3) BERM ELEVATION:
ABUTMENT 1 = 661.50
ABUTMENT 2 = 660.00

(4) BOTTOM OF ABUTMENT ELEVATION:
ABUTMENT 1 = 660.50
ABUTMENT 2 = 659.00

* 1.5:1 MIN, 2.5:1 MAX

** 1.5:1 MIN, 2.8:1 MAX

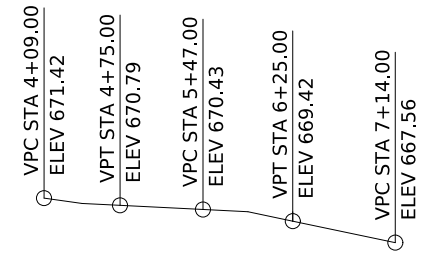
VERTICAL GEOMETRY
WASHINGTON AVENUE

PVI STA = 4+42.00
ELEV = 670.95
VC = 66.00'

-1.40% -0.50%

PVI STA = 5+86.00
ELEV = 670.23
VC = 78.00'

-0.50% -2.09%



EXISTING HYDRAULIC DATA

DRAINAGE AREA = 286.30 SQ MI

FLOOD EVENT	*DISCHARGE (CFS)*	*WSEL (FT)*	*VELOCITY FT/S*
OHW	*500*	*647.12*	*2.32*
2-YEAR	*8,478*	*657.87*	*6.50*
5-YEAR	*12,670*	*660.10*	*8.06*
10-YEAR	*15,630*	*661.18*	*9.16*
25-YEAR	*19,450*	*662.15*	*10.62*
50-YEAR	*22,560*	*662.80*	*11.77*
100-YEAR	*25,670*	*663.35*	*12.90*

PROPOSED HYDRAULIC DATA

DRAINAGE AREA = 286.30 SQ MI

FLOOD EVENT	DISCHARGE (CFS)	WSEL (FT)	VELOCITY FT/S
OHW	500	647.12	2.32
2-YEAR	8,478	657.90	6.48
5-YEAR	12,670	660.13	8.04
10-YEAR	15,630	661.18	9.16
25-YEAR	19,450	662.14	10.63
50-YEAR	22,560	662.75	11.81
100-YEAR	25,670	663.27	12.98

FOR INFORMATION ONLY

12-FEB-2024

NO.	REVISION	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
DIVISION OF HIGHWAYS

DESIGNED	DATE	CHECKED	DATE
JJS	1/24	SER	3/24
DRAWN	DATE	REVIEWED	DATE
MDS	2/24	JJS	3/24

BRIDGE NO. 11826 ELEVATION
WASHINGTON AVENUE BRIDGE
OVER WHEELING CREEK

LOCHNER

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JSPISAK

APPENDIX C

TEST BORING LOGS

Terracon Consultants, Inc.

912 Morris Street
Charleston, West Virginia 25301
PH: (304) 344-0821, FAX: (304) 342-4711

Draft Log
BORING
B-1

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 4+54	Offset: 15.0 ft. Lt.	CL	Elevation (ft.)	665.9-ft Actual
Date Started	2/27/2024	County	Ohio	Inspector	RMP
Date Completed	2/27/2024	District	D-6	Entered By	BMM
Lat. and Long.	40.07161°N -80.68394°W			Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS (color, material description, grain size, structures, moisture, consistency)	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
665.90	0.0	Dark brown FILL: clayey sand with gravel, rootlets, brick fragments, moist, loose		0.0-1.5	1.5 ft. 0.5 ft. 33 %	1-2-3 (5)			WC = 16.8% LL = 32, PI = 12 Gravel = 14.0% Sand = 50.3% Fines = 35.6%	
				1.5-3.5						
				3.5-5.0	1.5 ft. 0.5 ft. 33 %	6-7-3 (10)			WC = 28.7%	
				5.0-8.5						
656.40	9.5			8.5-10.0	1.5 ft. 0.3 ft. 20 %	5-7-20 (27)				
654.20	11.7	Red and gray CLAY: intermediate geomaterial, highly weathered claystone, dry to moist, very stiff		10.0-11.7						
		Gray SHALE: clayey, moderately weathered, extremely soft		11.7-11.9	0.2 ft. 0.2 ft. 100 %	50/0.2				
				11.9-15.2	3.3 ft. 1.1 ft. 33 %		0	0.0 ft. 0 %		
650.70	15.2	Gray SHALE: clayey, subvertical limey veins, fissile, laminated to very thinly bedded, horizonal bedding, slightly weathered, slightly to moderately fractured, smooth bedding plane joints spaced 0.1 to 1.0 ft, very soft		15.2-20.2	5.0 ft. 5.0 ft. 100 %		1	4.1 ft. 82 %		
646.80	19.1	@18.8 ft slickensided fracture dips 40° to 60°								
		Red and gray SHALE: clayey, fissile, laminated, horizontal bedding, slightly weathered, highly fractured, smooth bedding plane joints spaced 0.1 to 0.7 ft, very soft		20.2-25.2	5.0 ft. 4.8 ft. 96 %		1	0.8 ft. 16 %	@22.2 - 23.1 UCS = 909 psi	
		@20.2 to 21.2 sandstone streaks								
639.00	26.9	Gray SHALE: clayey, carbonaceous streaks, limey nodules, fissile, laminated, horizontal bedding, slightly weathered, moderately to highly fractured, very soft to soft		25.2-30.2	5.0 ft. 4.8 ft. 96 %		1-2	1.5 ft. 30 %	@27.3 - 28.0 UCS = 1,497 psi	
637.30	28.6						2		@28.6 - 29.6 SDI = 1.5% @29.6 - 30.1 UCS = 2,740 psi	
635.70	30.2	@27.4 ft slickensided fracture dips 45°								
		Gray CLAYSTONE: sandy, massive, limey veins and nodules, irregular fractures, root structures, slightly weathered, soft		30.2-35.2	5.0 ft. 4.8 ft. 96 %		3	3.9 ft. 78 %		
631.30	34.6	Gray SANDSTONE: limey veins, ripples, laminated, horizontal bedding,								

Rig No.	CME-55
Rig Type	Track
Core Size	NQ2
Core Barrel	Solid
Hammer	Auto

Remarks
Zero depth corresponds to ground surface below bridge. Boring advanced using 4" ID casing from 0 to 11.9 ft.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations

Immediate	NW	ft.	
At Completion	1.0	ft.	▼
After	BF	Hrs. Backfilled	ft.
Before Coring	NA	ft.	
Backfilled	Cutting	ft.	

Terracon Consultants, Inc.
912 Morris Street
Charleston, West Virginia 25301
PH: (304) 344-0821, FAX: (304) 342-4711

Draft Log
BORING
B-1

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 4+54	Offset: 15.0 ft. Lt.	CL	Elevation (ft.)	665.9-ft Actual
Date Started	2/27/2024	County	Ohio	Inspector	RMP
Date Completed	2/27/2024	District	D-6	Entered By	BMM
Lat. and Long.	40.07161°N -80.68394°W			Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS (color, material description, grain size, structures, moisture, consistency)	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
		slightly weathered, slightly fractured: spaced 0.1 to 1.5 feet, slightly rough, medium hard					2			
		@31.1 to 32.0 clay streaks		35.2-40.2	5.0 ft. 4.9 ft. 98 %			3.6 ft. 72 %		
627.40	38.5	Dark gray SHALE: clayey, limey nodules, fissile, laminated to very thinly bedded, horizontal bedding, slightly weathered, moderately to highly fractured, smooth bedding plane joints spaced 0.1 to 1.0 ft, soft					3			
625.40	40.5	***(LAYER CONTINUED DESCRIPTION REPEATED)***								
		@37.4 ft rough fracture dips 45°		40.2-45.2	5.0 ft. 4.6 ft. 92 %		2	1.8 ft. 36 %		
621.30	44.6	Gray LIMESTONE: massive, wavy clay streaks, unweathered, medium hard								
620.70	45.2	@39.9 ft green slickensided fracture dips 40° to 50°					2			
		Gray and dark gray CLAYSTONE: sandy, massive, limey veins and nodules, root structures, slickensides, soft								
		Gray and black SHALE: sandy, wavy laminations and ripples, horizontal bedding, slightly weathered, soft								
		BORING COMPLETED AT 45.2 ft.								

Rig No.	CME-55
Rig Type	Track
Core Size	NQ2
Core Barrel	Solid
Hammer	Auto

Remarks
Zero depth corresponds to ground surface below bridge. Boring advanced using 4" ID casing from 0 to 11.9 ft.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations

Immediate	NW	ft.	
At Completion	1.0	ft.	▼
After	BF	Hrs. Backfilled	ft.
Before Coring	NA	ft.	
Backfilled	Cutting	ft.	

Terracon Consultants, Inc.

912 Morris Street
Charleston, West Virginia 25301
PH: (304) 344-0821, FAX: (304) 342-4711

Draft Log BORING B-2

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 4+56	Offset: 12.5 ft. Rt.	CL	Elevation (ft.)	661.9-ft Actual
Date Started	2/29/2024	County: Ohio	Inspector: RMP	Lat. and Long.	40.07168°N -80.68398°W
Date Completed	2/29/2024	District: D-6	Entered By: BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS (color, material description, grain size, structures, moisture, consistency)	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
661.90	0.0	Dark brown FILL: clayey sand with gravel, rootlets, moist, medium dense		0.0-1.5	1.5 ft. 0.3 ft. 20 %	3-10-15 (25)			WC = 32.5%	
				1.5-2.5						
658.90	3.0	Red and gray CLAY: intermediate geomaterial, highly weathered claystone, dry to moist, hard		2.5-4.0	1.5 ft. 1.0 ft. 67 %	7-15-32 (47)				
657.40	4.5			4.0-4.7	0.7 ft.	28-50/0.2				
		Red and gray CLAYSTONE: variegated, moderately weathered, massive, extremely soft		4.7-5.9	0.7 ft. 100 %		0	1.2 ft. 100 %		
655.80	6.1	Gray SHALE: clayey, subvertical limey veins, fissile, laminated to very thinly bedded, horizonal bedding, slightly weathered, slightly to moderately fractured, smooth bedding plane joints spaced 0.2 to 2.0 ft, very soft		5.9-10.9	1.2 ft. 1.2 ft. 100 % 5.0 ft. 5.0 ft. 100 %		1	3.2 ft. 64 %		
647.80	14.1	Red and gray SHALE: clayey, fissile, laminated, horizontal bedding, slightly weathered, highly fractured, smooth bedding plane joints spaced 0.1 to 1.0 ft, very soft to soft @14.5 to 15.9 ft sandstone streaks		10.9-15.9	5.0 ft. 5.0 ft. 100 %		1-2	4.7 ft. 94 %	@16.8 - 18.0 SDI = 83.3% @18.0 - 18.4 UCS = 1,244 psi	
640.20	21.7	Gray SHALE: clayey, carbonaceous streaks, limey nodules, slightly weathered, highly fractured, slickensides, very soft		15.9-20.9	5.0 ft. 4.6 ft. 92 %		1	3.3 ft. 66 %	@21.2 - 21.7 UCS = 977 psi	
638.60	23.3	Gray CLAYSTONE: sandy, massive, limey veins and nodules, irregular fractures, root structures, slightly weathered, soft					2		@22.4 - 23.4 SDI = 43.4%	
636.30	25.6	Light gray SANDSTONE: limey veins, cross beds, laminated to massive, horizontal bedding, slightly weathered, slightly to moderately fractured: spaced 0.1 to 1.2 ft, slightly rough, dipping 0°-10°, medium hard @26.1 to 27.2 ft clay streaks		20.9-25.9	5.0 ft. 5.0 ft. 100 %		3	2.0 ft. 40 %	@26.3 - 26.7 UCS = 3,623 psi	
632.30	29.6	Gray SHALE: clayey, fissile, laminated to very thinly bedded, horizontal bedding, slightly weathered, moderately fractured, smooth bedding plane joints spaced 0.2 to 0.7 ft, soft		25.9-30.9	5.0 ft. 5.0 ft. 100 %		2	2.9 ft. 58 %		
631.00	30.9	BORING COMPLETED AT 30.9 ft.								

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Zero depth corresponds to ground surface below bridge. Boring offset 4.5 ft SE to avoid overhead utilities. Boring advanced using 4" ID casing from 0 to 4.7 ft.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate NW ft.
At Completion 1.5 ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR WVDOT.GDT 4/4/24

Terracon Consultants, Inc.

912 Morris Street
Charleston, West Virginia 25301
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Draft Log BORING B-3

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 6+36	Offset: 34.0 ft. Lt.	CL	Elevation (ft.)	667.5-ft EST.
Date Started	2/28/2024	County: Ohio	Inspector: RMP	Lat. and Long.	40.07136°N -80.68449°W
Date Completed	2/28/2024	District: D-6	Entered By: BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS (color, material description, grain size, structures, moisture, consistency)	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
667.50	0.0	SURFACE SOIL: grass and roots		0.0-1.5	1.5 ft. 1.4 ft. 93 %	2-2-3 (5)			WC = 24.0% LL = 42, PI = 22 Sand = 10.7% Fines = 89.3%	
667.20	0.3	Brown and orange FILL: sandy lean clay with gravel, brick, and coal fragments, slightly plastic, moist, soft to medium stiff @3 ft likely cobble		1.5-2.5						
				2.5-4.0	1.5 ft. 0.6 ft. 40 %	2-15-16 (31)			WC = 36.5%	
				4.0-5.0						
				5.0-6.5	1.5 ft. 1.4 ft. 93 %	2-3-3 (6)			WC = 27.6% LL = 38, PI = 18 Gravel = 0.2% Sand = 21.2% Fines = 78.6%	
				6.5-7.5						
				7.5-9.0	1.5 ft. 1.0 ft. 67 %	0-0-2 (2)			WC = 25.2%	
				9.0-10.0						
				10.0-11.5	1.5 ft. 0.9 ft. 60 %	0-2-1 (3)			WC = 26.9%	
				11.5-15.0						
				15.0-16.5	1.5 ft. 1.1 ft. 73 %	0-2-3 (5)			WC = 24.5% LL = 32, PI = 12 Gravel = 3.9% Sand = 37.0% Fines = 59.0%	
				16.5-20.0						
647.50	20.0	Gray SANDY CLAY: slightly plastic, manganese staining, sparse 1" thick silty sand lenses, decomposed plant material and fine grained sand throughout, moist, soft		20.0-21.5	1.5 ft. 1.5 ft. 100 %	2-2-2 (4)			WC = 47.5% Sand = 16.6% Fines = 83.4%	
				21.5-24.0						
643.50	24.0	Red and gray SHALE: clayey, laminated, horizontal bedding, slightly weathered, extremely soft		24.0-24.6	0.6 ft. 100 %	40-50/0.1	0	0.6 ft. 86 %		
642.30	25.2	Gray SANDSTONE: fine to medium grained, limey veins and nodules, wavy laminations, horizontal bedding, ripples, slightly weathered, medium hard		24.6-25.3	0.7 ft. 0.7 ft. 100 %		3		@26.1 - 27.0 SDI = 69.9%	
641.70	25.8	Red and gray SHALE: clayey, fissile, laminated, horizontal bedding, slightly weathered, moderately fractured, smooth bedding plane joints spaced 0.2 to 0.7 ft, very soft @27.4 ft slightly rough fracture dips 50° to 60°		25.3-30.3	5.0 ft. 5.0 ft. 100 %		1	1.8 ft. 36 %	@28.8 - 29.8 SDI = 65.0% @30.3 - 30.8 UCS = 559 psi	
637.70	29.8	Dark gray SHALE: carbonaceous, with noted sandy streaks and iron stained					1			
635.40	32.1			30.3-35.3	5.0 ft. 5.0 ft. 100 %		3	2.6 ft. 52 %		
634.90	32.6						1			

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Boring offset 20 ft SW due to bridge access issues.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate NW ft.
At Completion 20.5 ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR WVDOT.GDT 4/4/24

Terracon Consultants, Inc.

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Draft Log BORING B-3

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 6+36	Offset: 34.0 ft. Lt. CL		Elevation (ft.)	667.5-ft EST.
Date Started	2/28/2024	County Ohio	Inspector RMP	Lat. and Long.	40.07136°N -80.68449°W
Date Completed	2/28/2024	District D-6	Entered By BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS color, material description, grain size, structures, moisture, consistency	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
631.80	35.7	veins, laminated, horizontal bedding, fissile, slightly weathered, slightly rough joints spaced 0.1 to 0.5 ft and dipping 0°-10°, very soft		35.3-40.3	5.0 ft. 5.0 ft. 100 %		2	3.9 ft. 78 %		
		Gray LIMESTONE: massive, clayey, slightly weathered, medium hard								
627.90	39.6	Gray SHALE: clayey, brecciated, limey nodules, slightly weathered, moderately fractured, undulating joints spaced 0.2 to 0.5 ft, very soft					4			
		(LAYER CONTINUED DESCRIPTION REPEATED)		40.3-45.3	5.0 ft. 4.2 ft. 84 %		1	1.6 ft. 32 %		
625.00	42.5	@33.0 to 33.5 clay seam								
		@35.3 to 35.7 sandstone streaks								
		Gray SHALE: sandy, limey veins and nodules, laminated, horizontal bedding, slightly weathered, slightly fractured, smooth bedding plane joints spaced 0.2 to 1.0 ft, soft								
621.40	46.1	@37.4 ft - smooth fracture dips 30°-40°		45.3-50.3	5.0 ft. 5.0 ft. 100 %		2	2.7 ft. 54 %		
		Gray LIMESTONE: massive, brecciated, unweathered, randomly oriented fractures spaced 0.1 to 0.7 ft, hard								
617.20	50.3	Gray CLAYSTONE: limey nodules and veins, massive, slickensides, slightly weathered, moderately to highly fractured, joints spaced 0.1 to 0.6 ft and dipping 10°-60°, very soft		50.3-55.3	5.0 ft. 5.0 ft. 100 %		2	4.9 ft. 98 %		
612.20	55.3	Gray and black SHALE: wavy laminations and ripples, horizontal bedding, clay seams, slightly weathered, moderately to highly fractured, smooth to slightly rough joints spaced 0.1 to 0.5 ft and dipping 0°-20°, soft								
		Gray SHALE: sandy, sparse calcareous nodules, thinly bedded to laminated, horizontal bedding, fissile, unweathered, slightly fractured, smooth bedding plane joints spaced 1.0 to 3.0 ft, soft								
		BORING COMPLETED AT 55.3 ft.								

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Boring offset 20 ft SW due to bridge access issues.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate NW ft.
At Completion 20.5 ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR.WVDOT.GDT 4/4/24

Terracon Consultants, Inc.

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Draft Log BORING B-4

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 6+55	Offset: 39.0 ft. Rt. CL		Elevation (ft.)	665.7-ft EST.
Date Started	2/29/2024	County Ohio	Inspector RMP	Lat. and Long.	40.07151°N -80.68466°W
Date Completed	2/29/2024	District D-6	Entered By BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS color, material description, grain size, structures, moisture, consistency	Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
665.70	0.0								WC = 17.9% LL = 33, PI = 13 Gravel = 14.8% Sand = 38.4% Fines = 46.8%	
665.40	0.3	SURFACE SOIL: grass and sod		0.0-1.5	1.5 ft. 0.9 ft. 60 %	2-3-5 (8)				
		Brown and dark brown FILL: clayey sand with gravel and cobbles		1.5-2.5						
				2.5-4.0	1.5 ft. 0.8 ft. 53 %	3-4-3 (7)			WC = 24.8%	
				4.0-5.0						
				5.0-6.5	1.5 ft. 0.5 ft. 33 %	3-2-2 (4)			WC = 27.4%	
				6.5-7.5						
				7.5-9.0	1.5 ft. 0.7 ft. 47 %	2-2-3 (5)			WC = 25.8% LL = 30, PI = 11 Gravel = 27.1% Sand = 44.4% Fines = 28.5%	
				9.0-10.0						
				10.0-11.5	1.5 ft. 0.3 ft. 20 %	2-3-3 (6)			WC = 18.2%	
				11.5-15.0						
650.70	15.0	Brown SILTY SAND: fine to medium grained, loose		15.0-16.5	1.5 ft. 1.5 ft. 100 %	2-3-2 (5)			WC = 20.4% LL = NP, PI = NP Sand = 73.2% Fines = 26.8%	
				16.5-19.7						
646.00	19.7									
645.20	20.5	Light gray SANDSTONE: fine grained laminated, horizontal bedding, moderately weathered, medium hard		19.7-19.9	0.2 ft. 0.1 ft. 25 %	50/0.2	3	0.0 ft. 0 %		
				19.9-20.5	0.6 ft. 0.6 ft. 100 %				@22.0 - 22.4 UCS = 124 psi	
		Red and gray SHALE: clayey, fissile, thinly bedded to laminated, horizontal bedding, slightly weathered, moderately to highly fractured, smooth bedding plane joints spaced 0.1 to 0.5 ft, very soft		20.5-25.5	5.0 ft. 5.0 ft. 100 %		1	1.9 ft. 38 %		
640.20	25.5								@25.5 - 26.5 SDI = 51.0%	
		Dark gray SHALE: clayey, sandy streaks and iron stained veins, carbonaceous, fissile, laminated, horizontal bedding, slightly weathered, smooth bedding plane joints spaced 0.1 to 0.3 ft, very soft		25.5-30.5	5.0 ft. 4.5 ft. 90 %		1	1.8 ft. 36 %		
637.30	28.4						3			
636.20	29.5	Gray LIMESTONE: massive, clayey, slightly weathered, medium hard							@30.1 - 30.5 UCS = 295 psi	
		Gray SHALE: clayey, brecciated, limey nodules, slightly weathered, moderately fractured, undulating joints spaced 0.1 to 0.7 ft, very soft					1			
633.10	32.6	@30.5 to 31.0 ft clay seam		30.5-35.5	5.0 ft. 5.0 ft. 100 %			3.6 ft. 72 %		
		@31.9 to 32.6 ft sandstone streaks					2		@33.9 - 34.4 UCS = 3,477 psi	

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Boring offset 37 ft NW due to bridge access issues.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate 20 ft.
At Completion NR ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR.WVDOT.GDT 4/4/24

Terracon Consultants, Inc.
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Draft Log
BORING
B-4

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 6+55	Offset: 39.0 ft. Rt. CL		Elevation (ft.)	665.7-ft EST.
Date Started	2/29/2024	County Ohio	Inspector RMP	Lat. and Long.	40.07151°N -80.68466°W
Date Completed	2/29/2024	District D-6	Entered By BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS color, material description, grain size, structures, moisture, consistency	SAMPLE Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
629.00	36.7	Gray SHALE: sandy, limey veins and nodules, laminated, horizontal bedding, slightly weathered, slightly fractured, smooth bedding plane joints spaced 0.2 to 1.0 ft, soft ***(LAYER CONTINUED DESCRIPTION REPEATED)***		35.5-40.5	5.0 ft. 4.5 ft. 90 %		4	2.9 ft. 58 %		
627.20	38.5						1			
625.20	40.5	Gray LIMESTONE: massive, brecciated, unweathered, randomly oriented fractures spaced 0.2 to 0.6 ft, hard								
		Gray CLAYSTONE: limey nodules, massive, root structures, slightly weathered, highly fractured, very soft								
		BORING COMPLETED AT 40.5 ft.								

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Boring offset 37 ft NW due to bridge access issues.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate 20 ft. ▽
At Completion NR ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

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Draft Log
BORING
RC-1

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 4+23	Offset: 8.0 ft. Rt. CL		Elevation (ft.)	671.3-ft Actual
Date Started	2/26/2024	County Ohio	Inspector RMP	Lat. and Long.	40.07174°N -80.68381°W
Date Completed	2/26/2024	District D-6	Entered By BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS color, material description, grain size, structures, moisture, consistency	SAMPLE Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
671.30	0.0			0.0-1.0					WC = 13.3% LL = 23, PI = 7 Sand = 46.7% Fines = 53.3%	
671.10	0.2	ASPHALT: 2 in thick								
670.50	0.8	CONCRETE: 7 in thick		1.0-2.5	1.5 ft. 0.9 ft. 60 %	4-8-7 (15)				
670.30	1.0	GRAVEL: 3 in thick - base course aggregate								
668.80	2.5	Brown and gray FILL: sandy lean clay with coal fragments, moist, stiff		2.5-4.0	1.5 ft. 0.3 ft. 20 %	5-3-4 (7)			WC = 17.3%	
		Brown and gray FILL: clayey sand with coal fragments, moist, loose		4.0-5.0						
				5.0-6.5	1.5 ft. 1.2 ft. 80 %	2-3-3 (6)			WC = 13.1%	
				6.5-7.5						
662.80	8.5			7.5-9.0	1.5 ft. 1.5 ft. 100 %	14-14-25 (39)			WC = 17.7%	
662.30	9.0	Red and gray CLAY: intermediate geomaterial, highly weathered claystone, moist, hard								
		BORING COMPLETED AT 9.0 ft.								

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks
Boring offset 4 ft E along CL to avoid gas lateral.

Sampling Method
Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations
Immediate NW ft.
At Completion NW ft.
After BF Hrs. Backfilled ft.
Before Coring NA ft.
Backfilled Cutting ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR WVDOT.GDT 4/4/24

Terracon Consultants, Inc.

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Draft Log
BORING
RC-2

DATE & TIME REVISED 3/11/2024

Project Name	Washington Avenue Bridge			Project Number	S335-269/00-0.06 00 23
Boring Location	Station: 7+11 Offset: 9.0 ft. Lt. CL			Elevation (ft.)	666.8-ft Actual
Date Started	2/26/2024	County	Ohio	Inspector	RMP	Lat. and Long.	40.0713°N -80.68483°W
Date Completed	2/26/2024	District	D-6	Entered By	BMM	Driller / Company	LS/Terracon

ELEV. ft.	DEPTH ft.	DESCRIPTION OF MATERIALS color, material description, grain size, structures, moisture, consistency	SAMPLE Type	INT Depth	Run Rec	Blows Cnt (N-Value)	HCSI	RQD	Additional Notes	RMR (Total)
666.80	0.0									
666.60	0.2	ASPHALT: 2 in thick		0.0-0.6						
666.10	0.7	CONCRETE: 6 in thick		0.6-2.1	1.5 ft. 0.6 ft. 40 %	3-2-3 (5)				
665.60	1.2	GRAVEL: 6 in thick - base course aggregate		2.1-2.5					WC = 17.8%	
		Black and gray FILL: clayey sand with gravel, claystone cobbles, and slag, moist, loose		2.5-4.0	1.5 ft. 1.0 ft. 67 %	2-5-5 (10)			LL = 27, PI = 10 Gravel = 4.4% Sand = 50.1% Fines = 45.6%	
				4.0-5.0						
		5		5.0-6.5	1.5 ft. 1.0 ft. 67 %	4-6-5 (11)			WC = 16.3%	
				6.5-7.5						
657.80	9.0			7.5-9.0	1.5 ft. 1.1 ft. 73 %	4-2-2 (4)			WC = 14.7%	
		BORING COMPLETED AT 9.0 ft.								
		10								
		15								
		20								
		25								
		30								

Rig No. CME-55
Rig Type Track
Core Size NQ2
Core Barrel Solid
Hammer Auto

Remarks

Sampling Method

Shelby Tube, Solid Auger, Split Spoon, Hollow Auger, Rock Core, Tricone

Water Level Observations

Immediate	NW		ft.
At Completion	NW		ft.
After	BF	Hrs. Backfilled	ft.
Before Coring		NA	ft.
Backfilled	Cutting		ft.

TERRACON N2235069_WASHINGTON AVENUE DOH.GPJ RMR WVDOT.GDT 4/4/24

APPENDIX D

ROCK CORE PHOTOGRAPHS

Abutment 1 – Rock Core Photographs (B-1 and B-2)

B-1 Rock Core, Box 1 of 2

B-2 Rock Core, Box 2 of 2

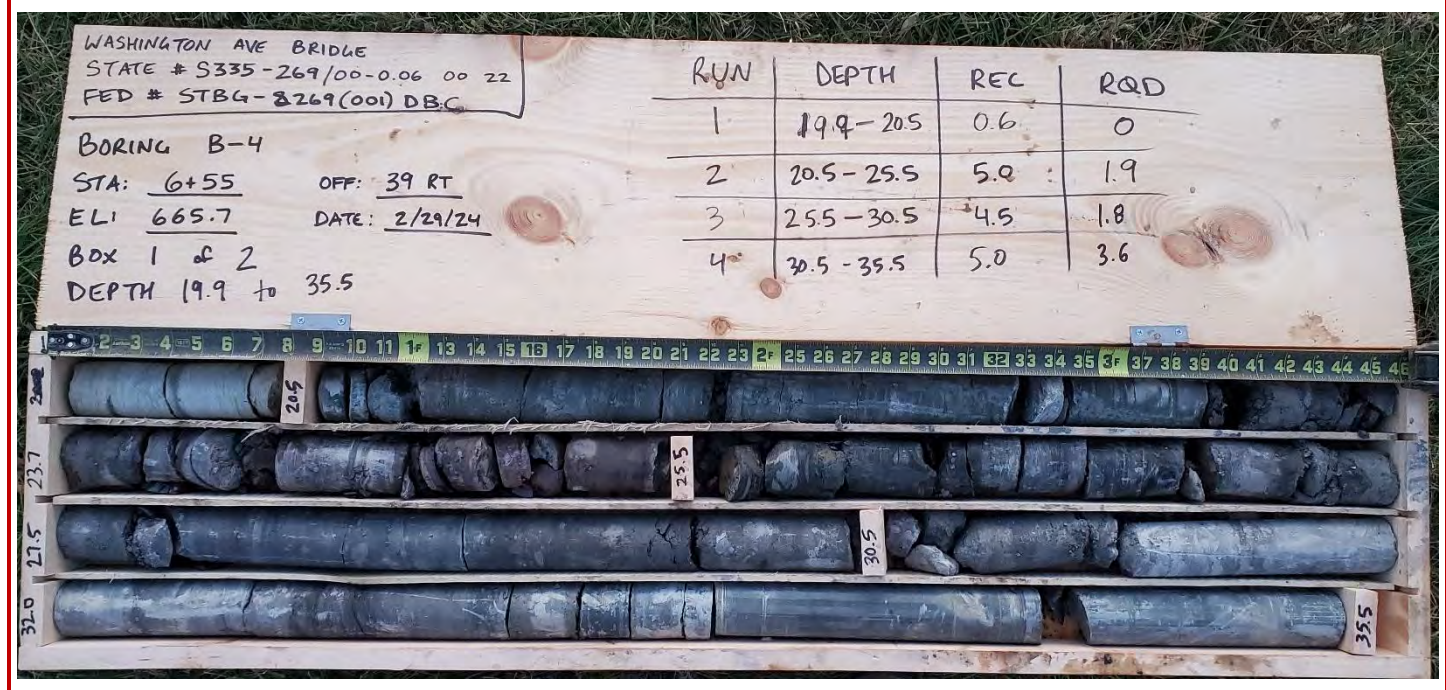
B-2 Rock Core, Box 1 of 2

B-2 Rock Core, Box 2 of 2

Abutment 2 – Rock Core Photographs (B-3 and B-4)

B-3 Rock Core, Box 1 of 2

B-3 Rock Core, Box 2 of 2



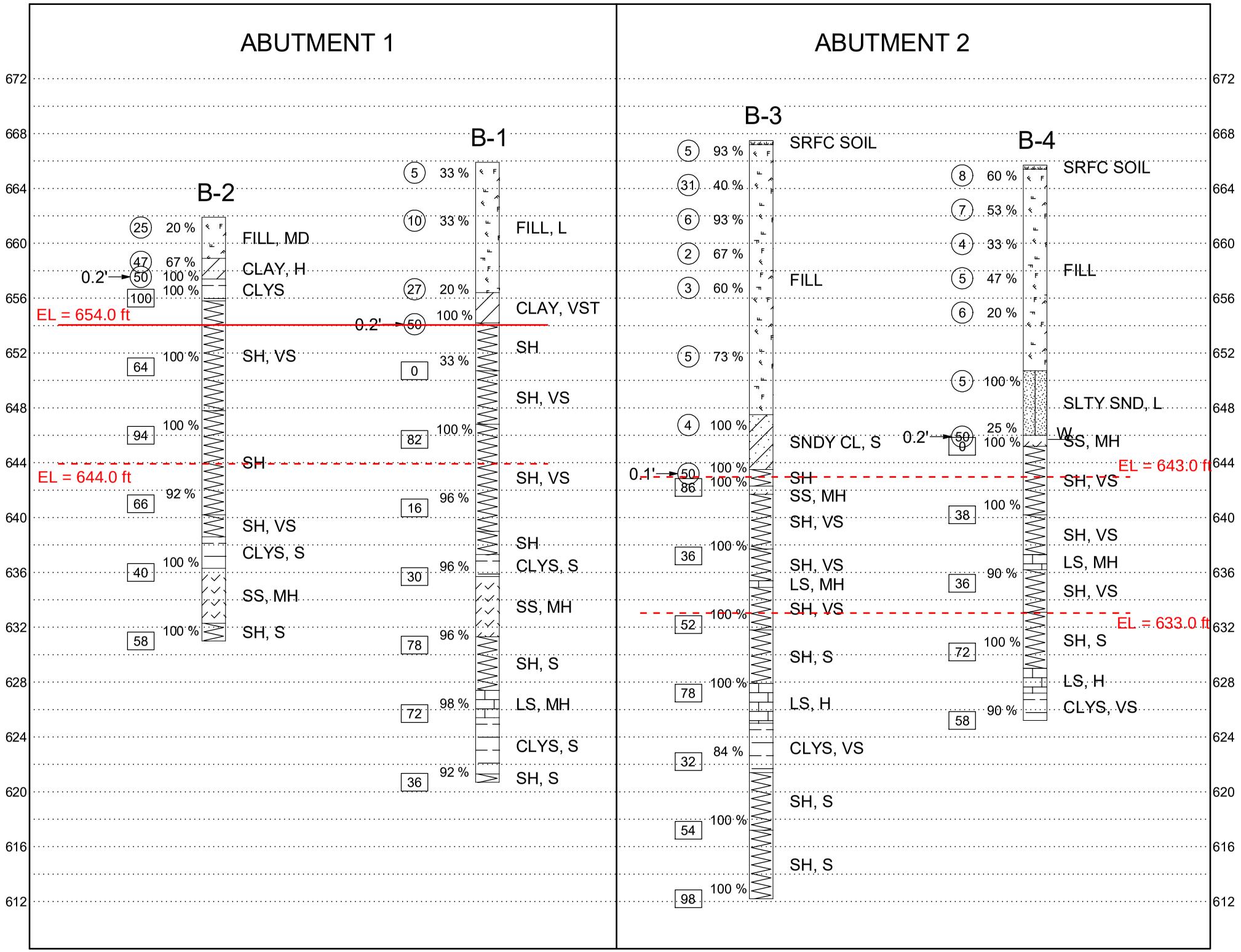
B-4 Rock Core, Box 1 of 2

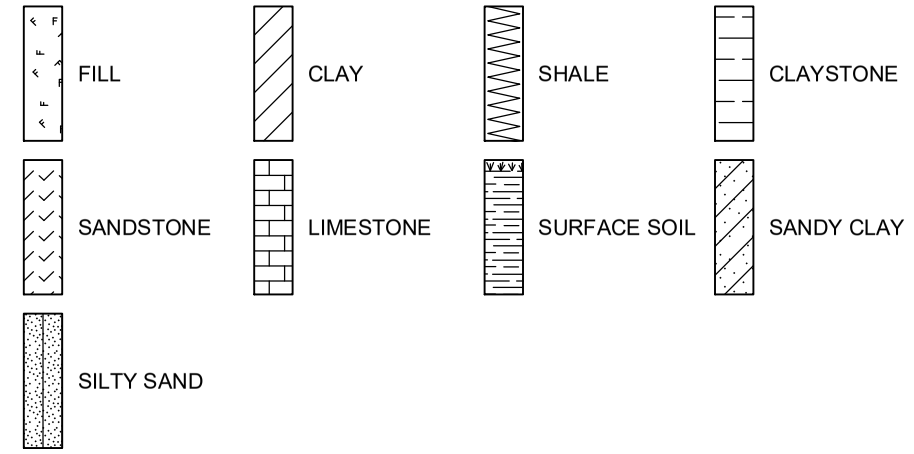
B-4 Rock Core, Box 2 of 2

APPENDIX E

GEOLOGIC SUBSURFACE PROFILES

FOR INFORMATION ONLY

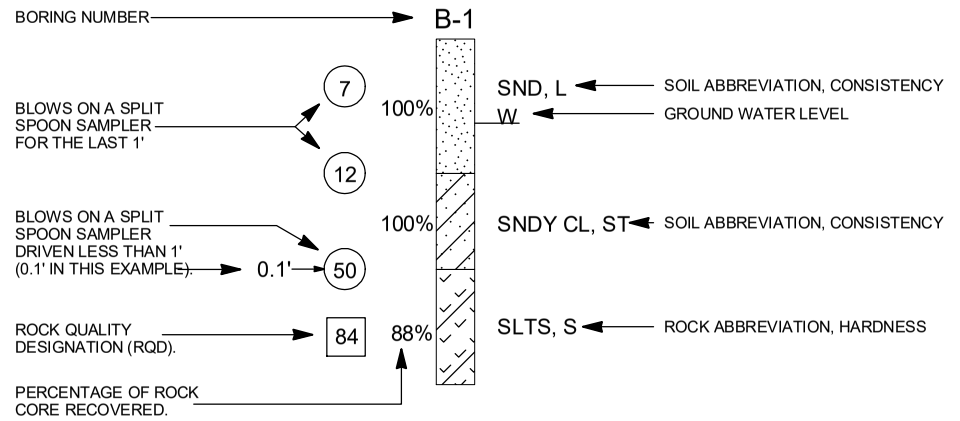




<u>Abutment No. 1 - Geologic Fence Profile</u>
Bottom of Abutment EL = 661.0 ft
Max. Factored Load/Pile = 352 kips
Foundation Option:
Rock Socketed Drilled Shafts

<u>Abutment No. 2 - Geologic Fence Profile</u>
Bottom of Abutment EL = 659.5 ft
Max. Factored Load/Pile = 349 kips
Foundation Option:
Rock Socketed Drilled Shafts

<u>TYPICAL REPRESENTATION OF BORING DATA</u>



<u>ROCK FIELD HARDNESS</u>

ES - EXTREMELY SOFT	HCSI=0
VS - VERY SOFT	HCSI=1
S - SOFT	HCSI=2
M - MEDIUM HARD	HCSI=3
H - HARD	HCSI=4
VH - VERY HARD	HCSI=5
EH - EXTREMELY HARD	HCSI=6

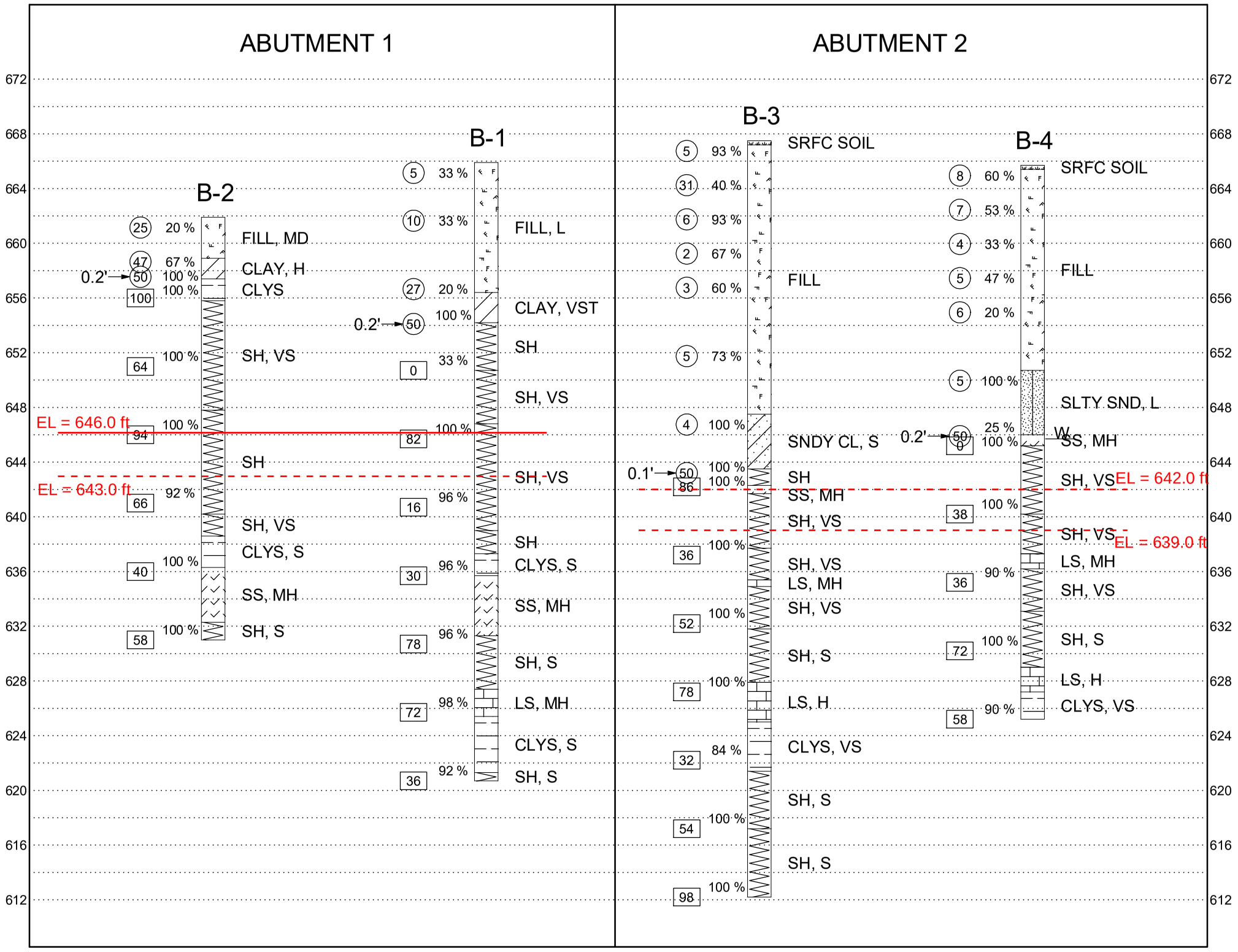
<u>SOIL DENSITY/CONSISTENCY</u>

GRANULAR	SPOON BLOWS	COHESIVE	SPOON BLOWS
VL - VERY LOOSE	0-4	VS - VERY SOFT	0-2
L - LOOSE	4-10	S - SOFT	2-4
MD - MEDIUM DENSE	10-30	MST - MEDIUM STIFF	4-8
D - DENSE	30-50	ST - STIFF	8-15
VD - VERY DENSE	>50	VST - VERY STIFF	15-30
		H - HARD	>30

Terracon

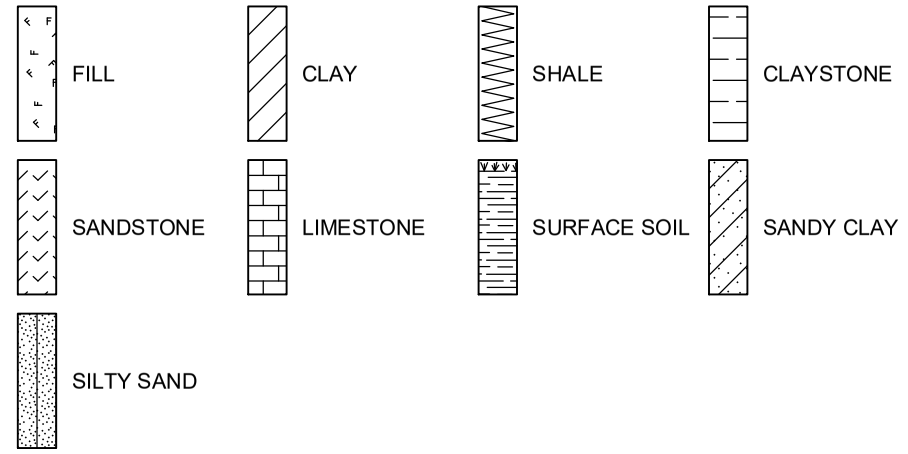
Washington Avenue Bridge
S335-269/00-0.06 00 23
D-6 , Ohio

FOR INFORMATION ONLY



Anticipated top of rock socket elevation

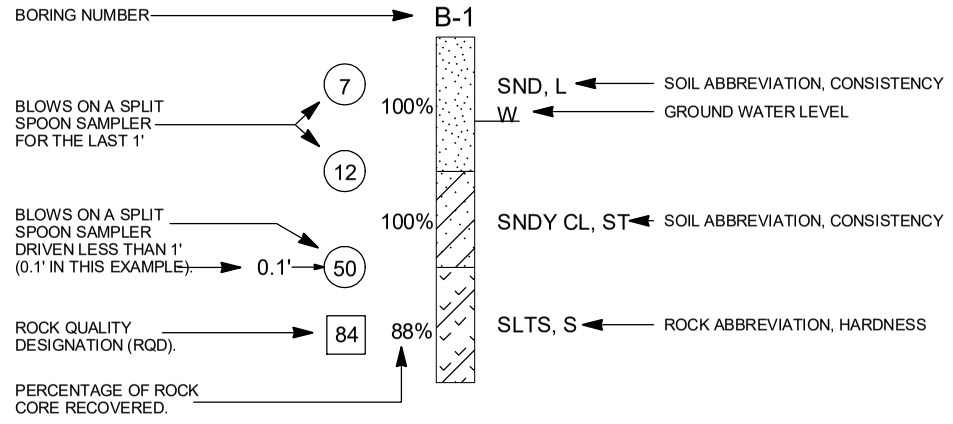
Anticipated bottom of rock socket elevation



<u>Abutment No. 1 - Geologic Fence Profile</u>
Bottom of Abutment EL = 661.0 ft
Max. Factored Load/Pile = 352 kips
Foundation Option:
Concreted-In Piles

<u>Abutment No. 2 - Geologic Fence Profile</u>
Bottom of Abutment EL = 659.5 ft
Max. Factored Load/Pile = 349 kips
Foundation Option:
Concreted-In Piles

<u>TYPICAL REPRESENTATION OF BORING DATA</u>



<u>ROCK FIELD HARDNESS</u>

ES - EXTREMELY SOFT	HCSI=0
VS - VERY SOFT	HCSI=1
S - SOFT	HCSI=2
M - MEDIUM HARD	HCSI=3
H - HARD	HCSI=4
VH - VERY HARD	HCSI=5
EH - EXTREMELY HARD	HCSI=6

<u>SOIL DENSITY/CONSISTENCY</u>

GRANULAR	SPOON BLOWS	COHESIVE	SPOON BLOWS
VL - VERY LOOSE	0-4	VS - VERY SOFT	0-2
L - LOOSE	4-10	S - SOFT	2-4
MD - MEDIUM DENSE	10-30	MST - MEDIUM STIFF	4-8
D - DENSE	30-50	ST - STIFF	8-15
VD - VERY DENSE	>50	VST - VERY STIFF	15-30
		H - HARD	>30

Terracon

Washington Avenue Bridge
S335-269/00-0.06 00 23
D-6 , Ohio

FOR INFORMATION ONLY

APPENDIX F

LABORATORY ANALYSES

Summary of Laboratory Results

BORING ID	Depth (Ft.)	Water Content (%)
B-1	0-1.5	16.8
B-1	3.5-5	28.7
B-2	0-1.5	32.5
B-3	0-1.5	24.0
B-3	2.5-4	36.5
B-3	5-6.5	27.6
B-3	7.5-9	25.2
B-3	10-11.5	26.9
B-3	15-16.5	24.5
B-3	20-21.5	47.5
B-4	0-1.5	17.9
B-4	2.5-4	24.8
B-4	5-6.5	27.4
B-4	7.5-9	25.8
B-4	10-11.5	18.2
B-4	15-16.5	20.4
RC-1	1-2.5	13.3
RC-1	2.5-4	17.3
RC-1	5-6.5	13.1
RC-1	7.5-9	17.7
RC-2	2.5-4	17.8
RC-2	5-6.5	16.3
RC-2	7.5-9	14.7

PROJECT: Washington Avenue Bridge

SITE: Washington Ave.
Wheeling, WV

Terracon
912 Morris St
Charleston, WV

PROJECT NUMBER: N2235069

CLIENT: HW Lochner Inc
Pittsburgh, PA

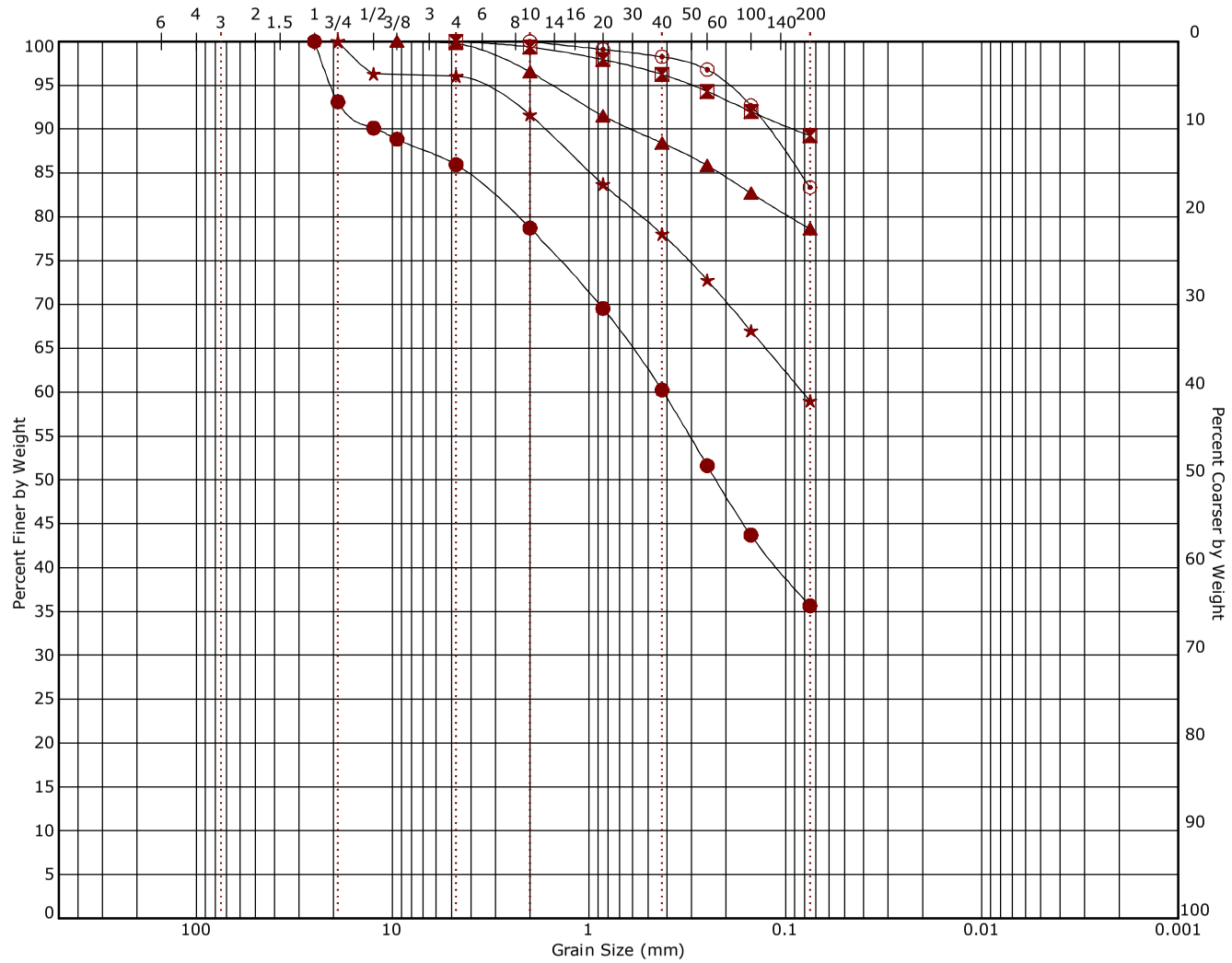
EXHIBIT: B-1

Washington Avenue Bridge
Washington Ave. | Wheeling, WV
Terracon Project No. N2235069

Terracon
912 Morris St
Charleston, WV

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
●	B-1	0 - 1.5	CLAYEY SAND	SC	32	20	12		
⊠	B-3	0 - 1.5	LEAN CLAY	CL	42	20	22		
▲	B-3	5 - 6.5	LEAN CLAY with SAND	CL	38	20	18		
★	B-3	15 - 16.5	SANDY LEAN CLAY	CL	32	20	12		
⊙	B-3	20 - 21.5							

	Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-1	0 - 1.5	25	0.419			0.0	14.0	50.3	35.6		
⊠	B-3	0 - 1.5	4.75				0.0	0.0	10.7	89.3		
▲	B-3	5 - 6.5	9.5				0.0	0.2	21.2	78.6		
★	B-3	15 - 16.5	19	0.082			0.0	3.9	37.0	59.0		
⊙	B-3	20 - 21.5	2				0.0	0.0	16.6	83.4		

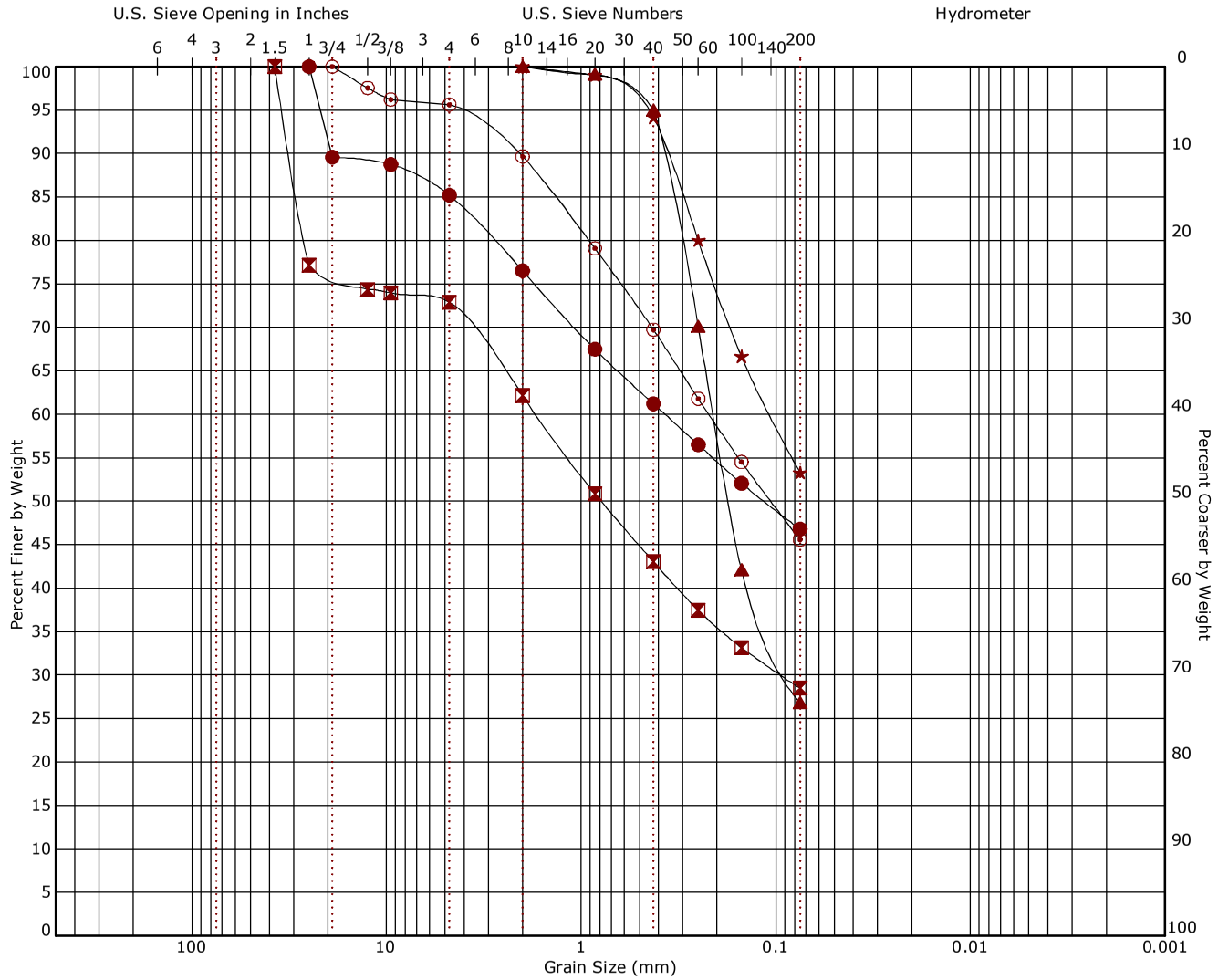
Laboratory tests are not valid if separated from original report.

Washington Avenue Bridge
Washington Ave. | Wheeling, WV
Terracon Project No. N2235069

912 Morris St
Charleston, WV

Grain Size Distribution

ASTM D422 / ASTM C136



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
●	B-4	0 - 1.5	CLAYEY SAND	SC	33	20	13		
⊠	B-4	7.5 - 9	CLAYEY SAND with GRAVEL	SC	30	19	11		
▲	B-4	15 - 16.5	SILTY SAND	SM	NP	NP	NP		
★	RC-1	1 - 2.5	SANDY SILTY CLAY	CL-ML	23	16	7		
⊙	RC-2	2.5 - 4	CLAYEY SAND	SC	27	17	10		

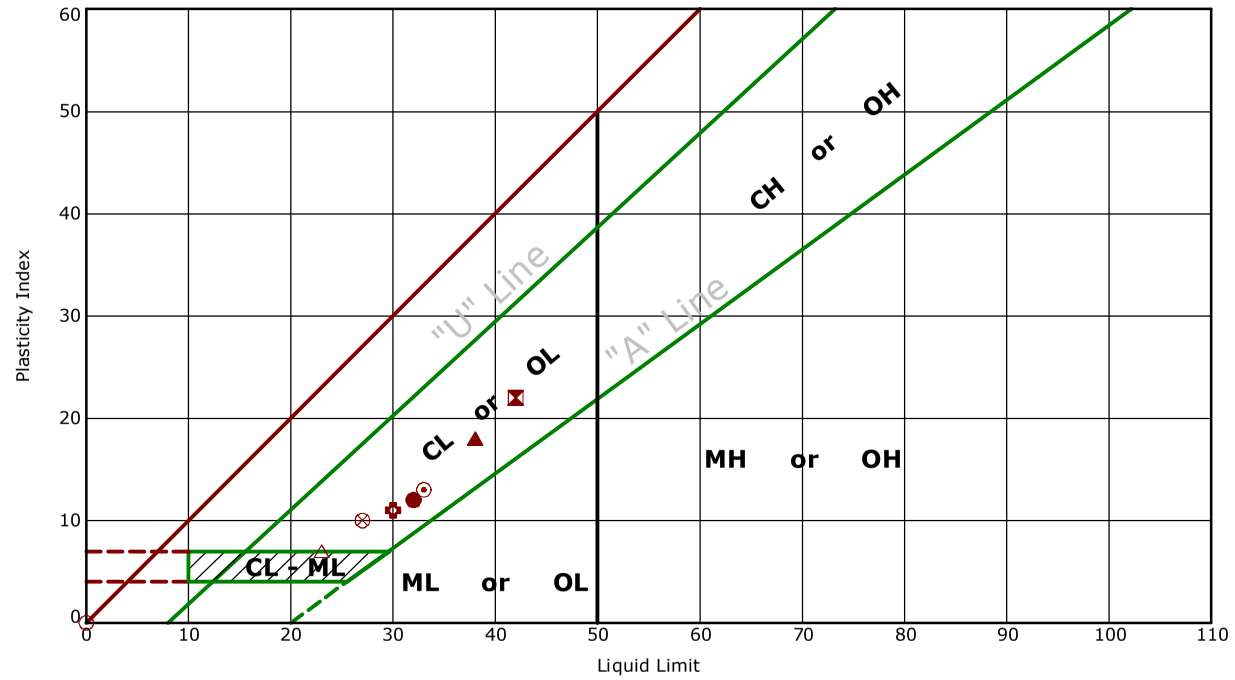
	Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
●	B-4	0 - 1.5	25	0.371			0.0	14.8	38.4	46.8		
⊠	B-4	7.5 - 9	37.5	1.697	0.094		0.0	27.1	44.4	28.5		
▲	B-4	15 - 16.5	2	0.208	0.087		0.0	0.0	73.2	26.8		
★	RC-1	1 - 2.5	2	0.106			0.0	0.0	46.7	53.3		
⊙	RC-2	2.5 - 4	19	0.22			0.0	4.4	50.1	45.6		

Washington Avenue Bridge
Washington Ave. | Wheeling, WV
Terracon Project No. N2235069

912 Morris St
Charleston, WV

Atterberg Limit Results

ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	0 - 1.5	32	20	12	35.6	SC	CLAYEY SAND
⊠	B-3	0 - 1.5	42	20	22	89.3	CL	LEAN CLAY
▲	B-3	5 - 6.5	38	20	18	78.6	CL	LEAN CLAY with SAND
★	B-3	15 - 16.5	32	20	12	59.0	CL	SANDY LEAN CLAY
⊙	B-4	0 - 1.5	33	20	13	46.8	SC	CLAYEY SAND
✤	B-4	7.5 - 9	30	19	11	28.5	SC	CLAYEY SAND with GRAVEL
○	B-4	15 - 16.5	NP	NP	NP	26.8	SM	SILTY SAND
△	RC-1	1 - 2.5	23	16	7	53.3	CL-ML	SANDY SILTY CLAY
⊗	RC-2	2.5 - 4	27	17	10	45.6	SC	CLAYEY SAND

Laboratory tests are not valid if separated from original report.

Facilities | Environmental | **Geotechnical** | Materials

912 Morris Street
Charleston, WV 25301
(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-1
Depth (ft): 22.2-23.1

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.930
L/D Ratio: 2.0
Natural Density, lb/ft³ 162.9

Total Load (lbf.): 2800
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.029
Break Time (minutes): 2.08

Compressive Strength (psi): 909
Compressive Strength (psf): 130909
Compressive Strength (tsf): 65

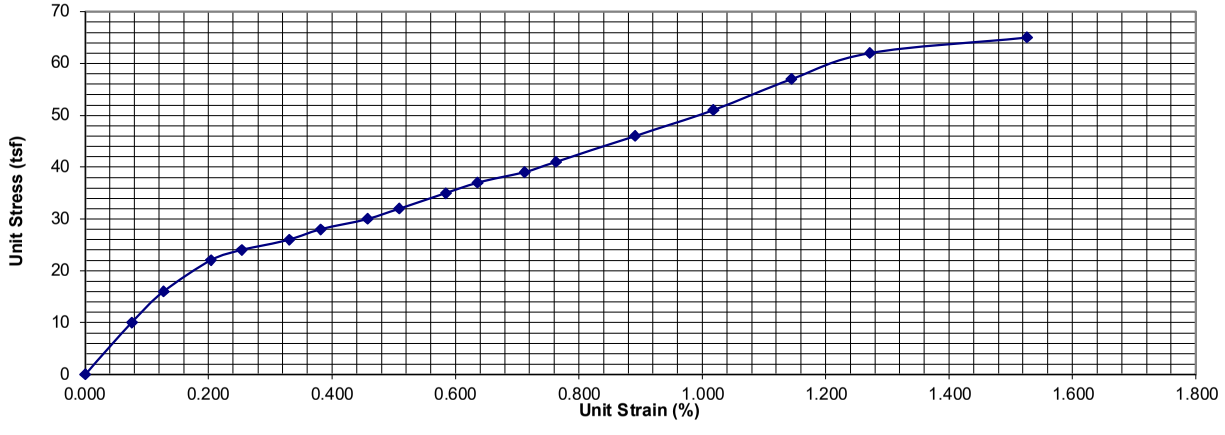
Moisture Content (%): 0.03

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	410	0.076	133	10
0.005	680	0.127	221	16
0.008	920	0.204	299	22
0.010	1040	0.254	338	24
0.013	1120	0.331	364	26
0.015	1200	0.382	390	28
0.018	1300	0.458	422	30
0.020	1390	0.509	451	32
0.023	1490	0.585	484	35
0.025	1580	0.636	513	37
0.028	1660	0.712	539	39
0.030	1760	0.763	571	41
0.035	1970	0.891	640	46
0.040	2180	1.018	708	51
0.045	2430	1.145	789	57
0.050	2660	1.272	864	62
0.060	2800	1.527	909	65

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicableto the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

912 Morris Street
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(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-1
Depth (ft): 27.3-28.6

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.920
L/D Ratio: 2.0
Natural Density, lb/ft³ 157.1

Total Load (lbf.): 4610
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.052
Break Time (minutes): 0.54

Compressive Strength (psi): 1497
Compressive Strength (psf): 215532
Compressive Strength (tsf): 108

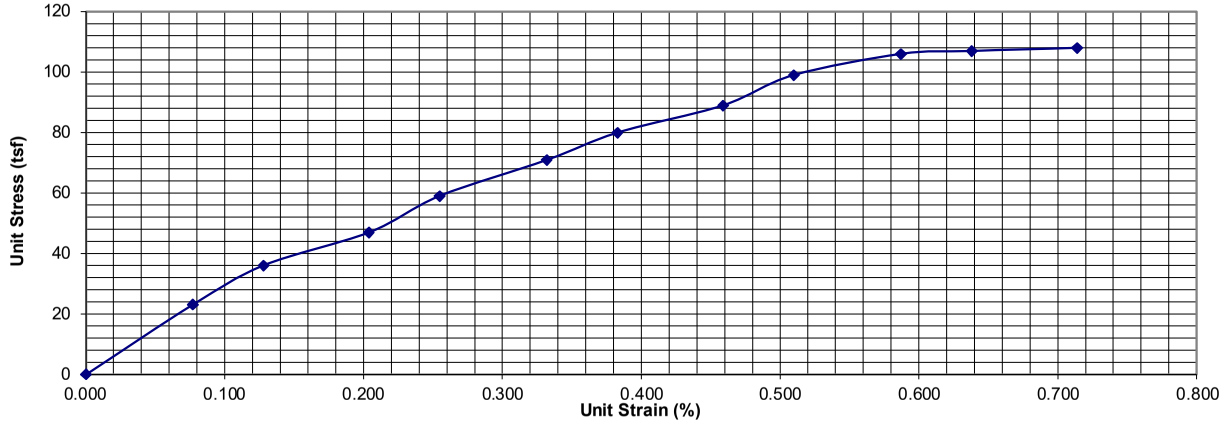
Moisture Content (%): 0.04

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	980	0.077	318	23
0.005	1540	0.128	500	36
0.008	2020	0.204	656	47
0.010	2530	0.255	821	59
0.013	3050	0.332	990	71
0.015	3430	0.383	1114	80
0.018	3810	0.459	1237	89
0.020	4230	0.510	1373	99
0.023	4550	0.587	1477	106
0.025	4570	0.638	1484	107
0.028	4610	0.714	1497	108

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



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912 Morris Street
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(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-1
Depth (ft): 29.6-30.1

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.930
L/D Ratio: 2.0
Natural Density, lb/ft³ 174.3

Total Load (lbf.): 8440
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.016
Break Time (minutes): 1.57

Compressive Strength (psi): 2740
Compressive Strength (psf): 394597
Compressive Strength (tsf): 197

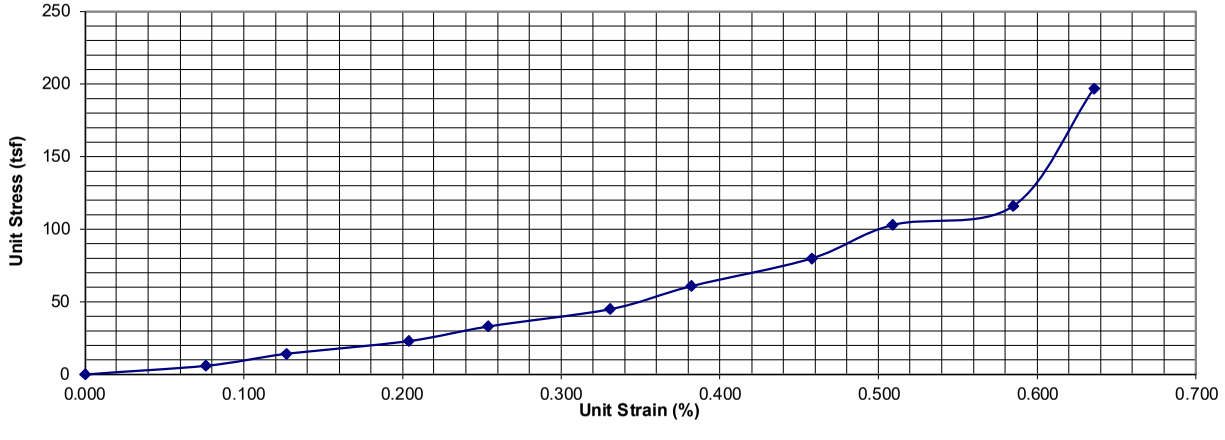
Moisture Content (%): 0.01

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	270	0.076	88	6
0.005	590	0.127	192	14
0.008	980	0.204	318	23
0.010	1410	0.254	458	33
0.013	1910	0.331	620	45
0.015	2620	0.382	851	61
0.018	3430	0.458	1114	80
0.020	4400	0.509	1429	103
0.023	4970	0.585	1614	116
0.025	8440	0.636	2740	197

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



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Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-2
Depth (ft): 18.0-18.4

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.910
L/D Ratio: 2.0
Natural Density, lb/ft³ 165.7

Total Load (lbf.): 3830
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.025
Break Time (minutes): 2.00

Compressive Strength (psi): 1244
Compressive Strength (psf): 179065
Compressive Strength (tsf): 90

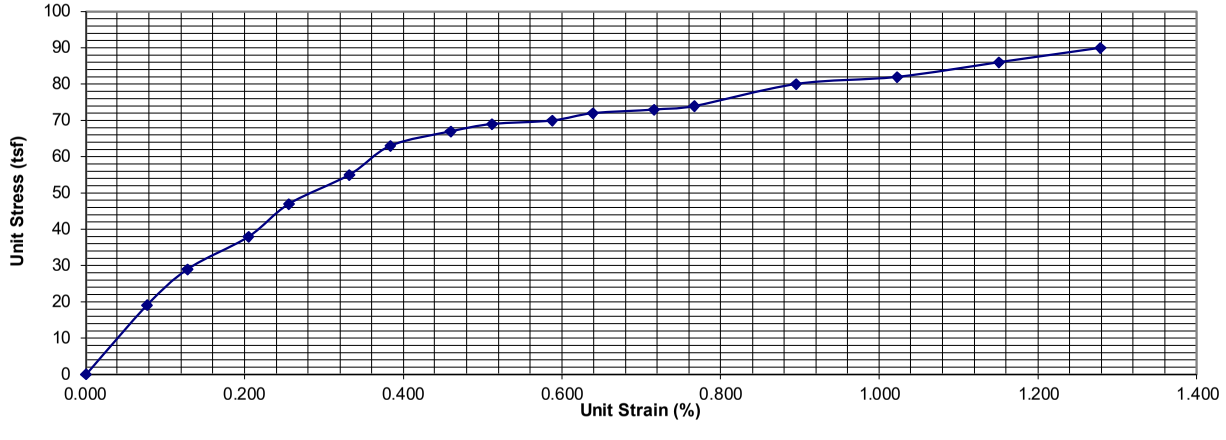
Moisture Content (%): 0.04

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	820	0.077	266	19
0.005	1230	0.128	399	29
0.008	1610	0.205	523	38
0.010	2010	0.256	653	47
0.013	2370	0.332	769	55
0.015	2690	0.384	873	63
0.018	2850	0.460	925	67
0.020	2940	0.512	955	69
0.023	3000	0.588	974	70
0.025	3090	0.639	1003	72
0.028	3120	0.716	1013	73
0.030	3170	0.767	1029	74
0.035	3410	0.895	1107	80
0.040	3510	1.023	1140	82
0.045	3660	1.151	1188	86
0.050	3830	1.279	1244	90

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



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Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-2
Depth (ft): 21.2-21.7

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.940
L/D Ratio: 2.0
Natural Density, lb/ft³ 162.9

Total Load (lbf.): 3010
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.023
Break Time (minutes): 1.30

Compressive Strength (psi): 977
Compressive Strength (psf): 140727
Compressive Strength (tsf): 70

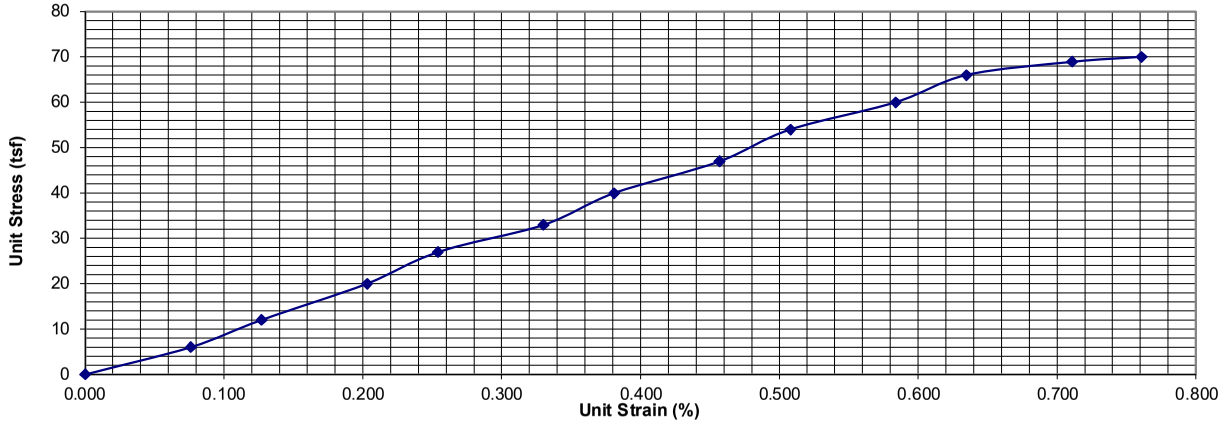
Moisture Content (%): 0.04

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	250	0.076	81	6
0.005	510	0.127	166	12
0.008	840	0.203	273	20
0.010	1140	0.254	370	27
0.013	1420	0.330	461	33
0.015	1710	0.381	555	40
0.018	2010	0.457	653	47
0.020	2310	0.508	750	54
0.023	2570	0.584	834	60
0.025	2810	0.635	912	66
0.028	2950	0.711	958	69
0.030	3010	0.761	977	70

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



912 Morris Street
Charleston, WV 25301
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Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-2
Depth (ft): 26.3-26.7

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.940
L/D Ratio: 2.0
Natural Density, lb/ft³ 162.9

Total Load (lbf.): 11160
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.025
Break Time (minutes): 1.21

Compressive Strength (psi): 3623
Compressive Strength (psf): 521766
Compressive Strength (tsf): 261

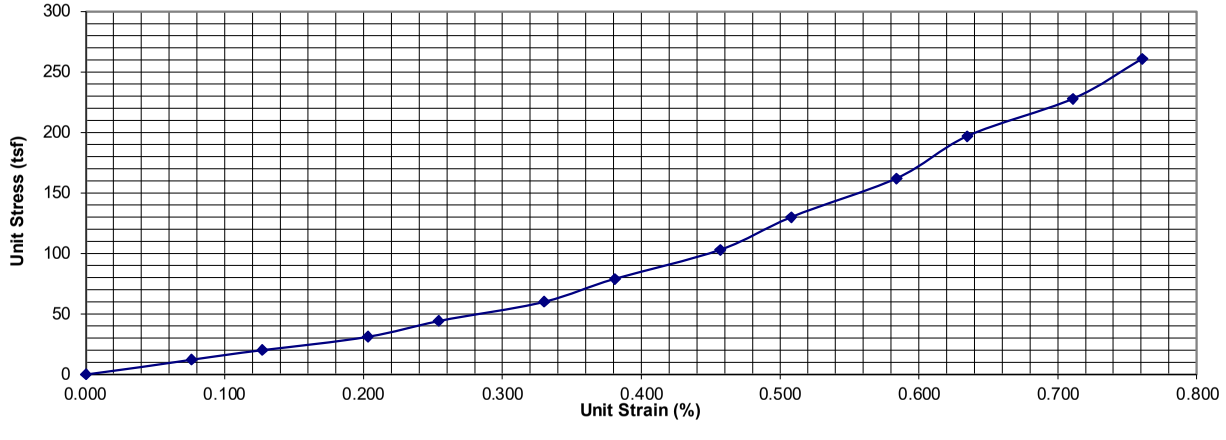
Moisture Content (%): 0.01

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	510	0.076	166	12
0.005	850	0.127	276	20
0.008	1320	0.203	429	31
0.010	1870	0.254	607	44
0.013	2570	0.330	834	60
0.015	3390	0.381	1101	79
0.018	4400	0.457	1429	103
0.020	5550	0.508	1802	130
0.023	6930	0.584	2250	162
0.025	8410	0.635	2731	197
0.028	9770	0.711	3172	228
0.030	11160	0.761	3623	261

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



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Charleston, WV 25301
(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-3
Depth (ft): 30.3-30.8

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.990
Area (in.²): 3.11
Avg. Specimen Length (in.): 3.930
L/D Ratio: 2.0
Natural Density, lb/ft³ 157.1

Total Load (lbf.): 1740
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.039
Break Time (minutes): 1.28

Compressive Strength (psi): 559
Compressive Strength (psf): 80566
Compressive Strength (tsf): 40

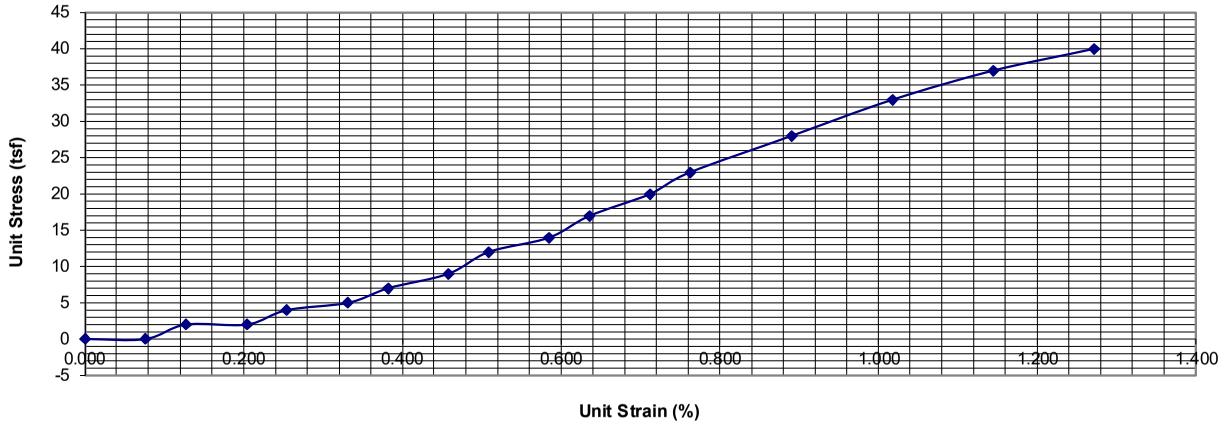
Moisture Content (%): 0.04

Failure Photograph:

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	20	0.076	6	0
0.005	70	0.127	23	2
0.008	100	0.204	32	2
0.010	170	0.254	55	4
0.013	230	0.331	74	5
0.015	300	0.382	96	7
0.018	380	0.458	122	9
0.020	500	0.509	161	12
0.023	610	0.585	196	14
0.025	720	0.636	232	17
0.028	860	0.712	277	20
0.030	990	0.763	318	23
0.035	1210	0.891	389	28
0.040	1430	1.018	460	33
0.045	1610	1.145	518	37
0.050	1740	1.272	559	40

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



912 Morris Street
Charleston, WV 25301
(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-4
Depth (ft): 22.0-22.4

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 2.000
Area (in.²): 3.14
Avg. Specimen Length (in.): 3.810
L/D Ratio: 1.9
Natural Density, lb/ft³ 151.4

Total Load (lbf.): 390
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.036
Break Time (minutes): 3.32

Compressive Strength (psi): 124
Compressive Strength (psf): 17885
Compressive Strength (tsf): 9

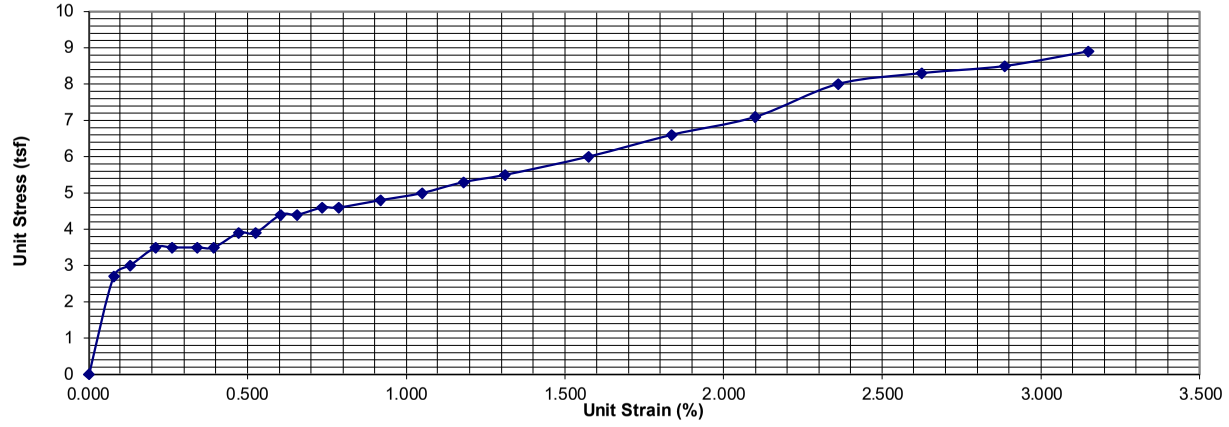
Moisture Content (%): 0.04

Failure Photograph:

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0.0
0.003	120	0.079	38	2.7
0.005	130	0.131	41	3.0
0.008	150	0.210	48	3.5
0.010	150	0.262	48	3.5
0.013	150	0.341	48	3.5
0.015	150	0.394	48	3.5
0.018	170	0.472	54	3.9
0.020	170	0.525	54	3.9
0.023	190	0.604	61	4.4
0.025	190	0.656	61	4.4
0.028	200	0.735	64	4.6
0.030	200	0.787	64	4.6
0.035	210	0.919	67	4.8
0.040	220	1.050	70	5.0
0.045	230	1.181	73	5.3
0.050	240	1.312	76	5.5
0.060	260	1.575	83	6.0
0.070	290	1.837	92	6.6
0.080	310	2.100	99	7.1
0.090	350	2.362	111	8.0
0.100	360	2.625	115	8.3
0.110	370	2.887	118	8.5
0.120	390	3.150	124	8.9

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



912 Morris Street
Charleston, WV 25301
(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-4
Depth (ft): 30.1-30.5

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.890
L/D Ratio: 2.0
Natural Density, lb/ft³ 154.3

Total Load (lbf.): 910
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.025
Break Time (minutes): 2.02

Compressive Strength (psi): 295
Compressive Strength (psf): 42545
Compressive Strength (tsf): 21

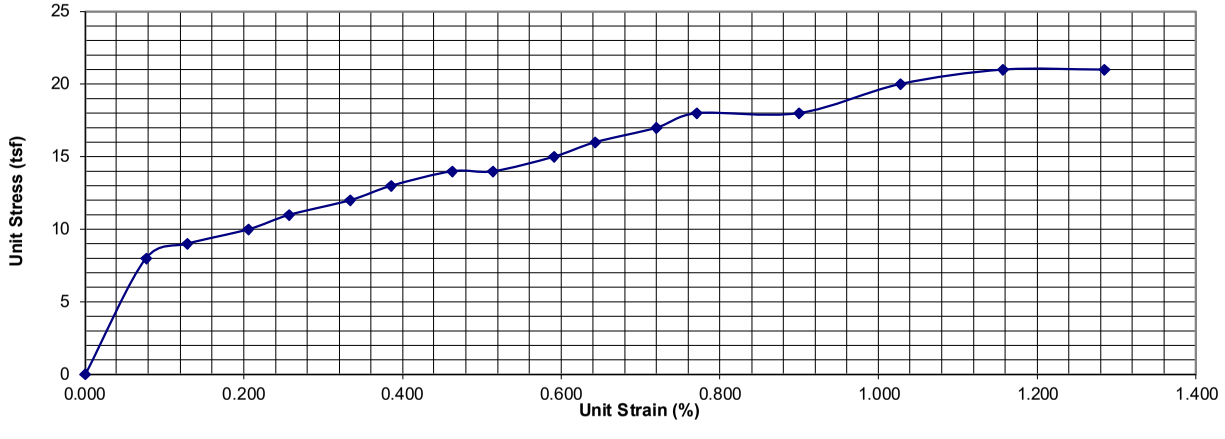
Moisture Content (%): 0.03

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	340	0.077	110	8
0.005	380	0.129	123	9
0.008	430	0.206	140	10
0.010	460	0.257	149	11
0.013	500	0.334	162	12
0.015	540	0.386	175	13
0.018	590	0.463	192	14
0.020	610	0.514	198	14
0.023	640	0.591	208	15
0.025	690	0.643	224	16
0.028	720	0.720	234	17
0.030	760	0.771	247	18
0.035	780	0.900	253	18
0.040	840	1.028	273	20
0.045	890	1.157	289	21
0.050	910	1.285	295	21

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



912 Morris Street
Charleston, WV 25301
(304) 344-0821

Unconfined Compression Test of Intact Rock Core Report
ASTM D 7012 Method C

Client: HW Lochner Inc Pittsburgh, PA
Project: Washington Avenue Bridge
Project No: N2235069

Boring No: B-4
Depth (ft): 33.9-34.4

Test Date: 3/18/2024

Avg. Specimen Diameter (in.): 1.980
Area (in.²): 3.08
Avg. Specimen Length (in.): 3.940
L/D Ratio: 2.0
Natural Density, lb/ft³ 162.9

Total Load (lbf.): 10710
Rate of Loading (lbs/sec): 80
Rate of Deformation (in/min): 0.029
Break Time (minutes): 1.19

Compressive Strength (psi): 3477
Compressive Strength (psf): 500727
Compressive Strength (tsf): 250

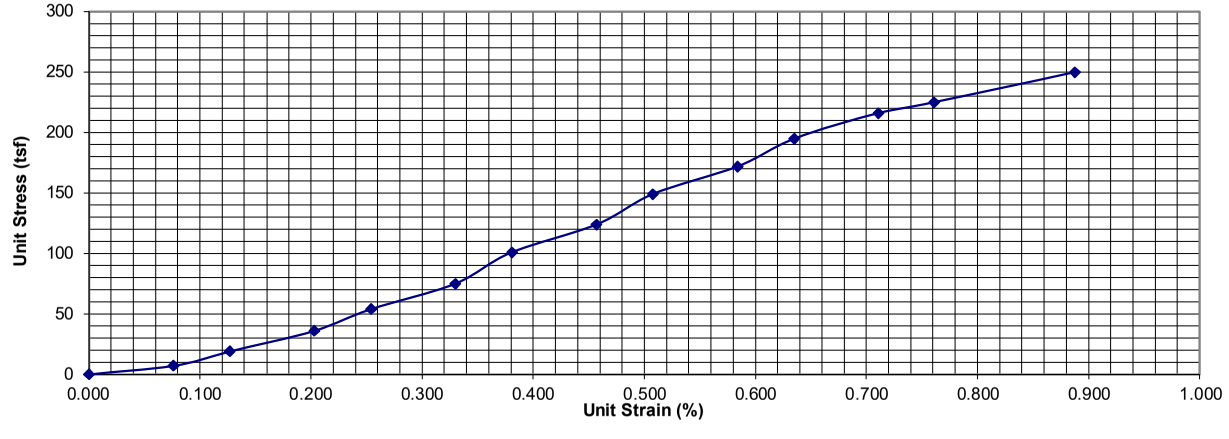
Moisture Content (%): 0.03

Deformation (in.)	Load (lbs.)	Strain (%)	Stress (psi)	Strength (tsf)
0.000	0	0.000	0	0
0.003	300	0.076	97	7
0.005	830	0.127	269	19
0.008	1530	0.203	497	36
0.010	2310	0.254	750	54
0.013	3190	0.330	1036	75
0.015	4330	0.381	1406	101
0.018	5310	0.457	1724	124
0.020	6390	0.508	2075	149
0.023	7370	0.584	2393	172
0.025	8340	0.635	2708	195
0.028	9240	0.711	3000	216
0.030	9610	0.761	3120	225
0.035	10710	0.888	3477	250

Failure Photograph:

Test sample prepared in general accordance to ASTM D4543

Straightness: Procedure S1 Parallelism: Procedure FP2
Flatness: Procedure FP2 Perpendicularity: Procedure P2



SLAKE DURABILITY TEST SUMMARY

Terracon

Client: HW Lochner Inc Pittsburgh, PA — Date: 3/20/2024

Project: Washington Avenue Bridge — Project Number N2235069

Boring No.			B-1
Depth (ft)			28.6-29.6
Tare Weight:			898.3
Moist weight (Sample+Tare):			1405.7
Dry weight (Sample+Tare):			1383.2
Natural Moisture Content (%):			4.7
After Cycle No. 1			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70.0	71.0	70.5	1024.0
After Cycle No. 2			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	905.8
SLAKE DURABILITY INDEX:			**1.5**
Fragments Retained - Type:			III

Boring No.			B-2
Depth (ft)			22.4-23.4
Tare Weight:			902.8
Moist weight (Sample+Tare):			1438.3
Dry weight (Sample+Tare):			1418.4
Natural Moisture Content (%):			3.9
After Cycle No. 1			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	1294.0
After Cycle No. 2			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	1126.6
SLAKE DURABILITY INDEX:			**43.4**
Fragments Retained - Type:			II

SLAKE DURABILITY TEST SUMMARY

Terracon

Client: HW Lochner Inc Pittsburgh, PA — Date: 3/20/2024

Project: Washington Avenue Bridge — Project Number N2235069

Boring No.			B-2
Depth (ft)			16.8-18.0
Tare Weight:			100.2
Moist weight (Sample+Tare):			638.7
Dry weight (Sample+Tare):			619.5
Natural Moisture Content (%):			3.7
After Cycle No. 1			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70.0	71.0	70.5	559.2
After Cycle No. 2			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	532.9
SLAKE DURABILITY INDEX:			**83.3**
Fragments Retained - Type:			III

Boring No.			B-3
Depth (ft)			26.1-27.0
Tare Weight:			841.3
Moist weight (Sample+Tare):			1346.1
Dry weight (Sample+Tare):			1326.7
Natural Moisture Content (%):			4.0
After Cycle No. 1			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	1258.4
After Cycle No. 2			
Temperature (°F)			Dry Weight
Start	End	Average	(Sample+Tare)
70	70	70	1180.5
SLAKE DURABILITY INDEX:			**69.9**
Fragments Retained - Type:			III

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicableto the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

SLAKE DURABILITY TEST SUMMARY

Terracon

Client: HW Lochner Inc Pittsburgh, PA — Date: 3/20/2024

Project: Washington Avenue Bridge — Project Number N2235069

Boring No.			B-3
Depth (ft)			28.8-29.8
Tare Weight:			96.4
Moist weight (Sample+Tare):			589.0
Dry weight (Sample+Tare):			566.4
Natural Moisture Content (%):			4.8
After Cycle No. 1			
Temperature (°F)			Dry Weight (Sample+Tare)
Start	End	Average	
70.0	71.0	70.5	498.5
After Cycle No. 2			
Temperature (°F)			Dry Weight (Sample+Tare)
Start	End	Average	
70	70	70	402.1
SLAKE DURABILITY INDEX:			**65.0**
Fragments Retained - Type:			III

Boring No.			B-4
Depth (ft)			25.5-26.5
Tare Weight:			104.2
Moist weight (Sample+Tare):			602.2
Dry weight (Sample+Tare):			584.0
Natural Moisture Content (%):			3.8
After Cycle No. 1			
Temperature (°F)			Dry Weight (Sample+Tare)
Start	End	Average	
70	70	70	459.1
After Cycle No. 2			
Temperature (°F)			Dry Weight (Sample+Tare)
Start	End	Average	
70	70	70	348.7
SLAKE DURABILITY INDEX:			**51.0**
Fragments Retained - Type:			III

GENERAL

1. ALL ITEMS FOR THIS PROJECT SHALL CONFORM TO THE 2023 EDITION OF THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS (WV DOH) STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES SHALL GOVERN THIS IMPROVEMENT, EXCEPT WHERE NOTED. ALL REFERENCES TO SECTION NUMBERS IN THE FOLLOWING ITEMS REFER TO THE AFOREMENTIONED STANDARD SPECIFICATIONS.

2. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS NECESSARY TO COORDINATE FULL-TIME INSPECTION SERVICE FOR THE PROPOSED WORK.

3. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO ENGINEER AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION.

4. TWENTY-FOUR (24) HOUR ADVANCE NOTIFICATION IS REQUIRED FOR ALL WORK REQUIRING INSPECTION, TESTING, OR APPROVAL BY THE ENGINEER.

5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND VERIFY THE EXTENT OF THE WORK TO BE PERFORMED PRIOR TO MAKING HIS BID, INCLUDING BUT NOT LIMITED TO THE REMOVAL OF ANY AND ALL ITEMS.

6. THE CONTRACTOR AND SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR AND SUBCONTRACTOR SHALL ALSO ABIDE BY ALL CITY ORDINANCES AND STATE/FEDERAL LAWS.THE CONTRACTORS AND ALL SUBCONTRACTORS SHALL SUBMIT THEIR SAFETY PLANS PRIOR TO CONSTRUCTION. A COMPLETE SET OF PLANS, SPECIFICATIONS AND SAFETY PLAN MUST BE ON THE JOB SITE AT ALL TIMES AND AVAILABLE FOR VIEWING.

7. IF THE CONTRACTOR ENCOUNTERS CONTAMINATED SOILS OR NOXIOUS FUMES, OPERATIONS SHOULD BE CEASED IMMEDIATELY AND THE ENGINEER SHALL BE NOTIFIED.

EXISTING UTILITIES

8. THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL CLEARANCES EXIST PER THE APPROVED PLANS. THE CONTRACTOR SHALL CALL, TOLL FREE, THE WEST VIRGINIA 811OR 1-800-245-4848 (WEB SITE WWW.WV811.COM) FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO WORK IN THE VICINITY OF THEIR UNDERGROUND LINES.

9. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON THE RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CITY AND/OR ENGINEER OF RECORD (EOR) ASSUME NO RESPONSIBILITY AS TO THE ACCURACY OF THE LOCATIONS OR DEPTHS OF THE UNDERGROUND FACILITIES AS SHOWN ON THE PLANS. CONTRACTOR MUST GIVE ADEQUATE NOTICE TO THE APPROPRIATE UTILITY COMPANY BEFORE ANY EXCAVATION NEAR A KNOWN UTILITY PER STATE LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS.

10. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE RELOCATION OF ANY UTILITIES AS REQUIRED BY THE PLAN WITH THE OWNER OF THE AFFECTED UTILITY.

11. WHERE POTENTIAL CONFLICTS MIGHT OCCUR WITH EXISTING UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO UNCOVER SUCH UTILITIES SUFFICIENTLY IN ADVANCE OF LAYING PIPE OR DUCT FOR THE EOR TO DETERMINE THE EXACT ELEVATION AND MAKE ANY NECESSARY ADJUSTMENTS. COST OF THE ABOVE SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS IN THE CONTRACT.

12. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY AND ALL EXISTING WORK DAMAGED DURING OR DUE TO THE EXECUTION OF THIS CONTRACT TO EQUAL OR BETTER CONDITION PRIOR TO THE DAMAGE, AT THE CONTRACTOR'S OWN EXPENSE. ALL SAID WORK TO BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER. ANY DAMAGE TO OTHER UTILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE APPROPRIATE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.

13. ANY EXISTING UTILITY (GAS, ELECTRIC, CABLE TELEVISION, TELEPHONE, WATER LINE, STORM OR SANITARY APPURTENANCE, ETC.) IN OR OUTSIDE THE CONSTRUCTION LIMITS DAMAGED DURING THE CONSTRUCTION OF THE PROPOSED PROJECT, WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE UTILITY.

14. TEMPORARY RELOCATION OF ELECTRICAL UTILITIES, INCLUDING RESTRAINT OF POLES, RELOCATION OF POLES, AND RUBBER COVERING OF ENERGIZED CONDUCTORS MAY BE REQUIRED. THE COORDINATION AND COST OF THESE SERVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MA RESTRAIN POLES IF THE METHOD OF SUPPORT HAS BEEN SUBMITTED TO AND APPROVED BY THE UTILITY COMPANY.

15. THE UTILITY WILL ONLY LOCATE AND MARK MAIN LINE SEWERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATIONS ALL SERVICE LATERALS WHETHER SHOWN ON PLANS OR NOT.

EXISTING CONDITIONS

16. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, PROPERTY CORNERS, REFERENCE POINTS AND STAKES AND IN CASE OF WILLFUL OR CARELESS DESTRUCTION, HE SHALL BE CHARGED WITH THE RESULTING EXPENSE OF REPLACEMENT AND SHALL BE RESPONSIBLE FOR ANY MISTAKES THAT MAY BE CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE. ANY EXISTING PROPERTY CORNER PINS OR MONUMENTS DAMAGED OR DESTROYED BY CONSTRUCTION SHALL BE RESET BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE UPON COMPLETION OF THE PROJECT PRIOR TO FINAL PAYMENT. A CERTIFICATION SHALL BE FURNISHED BY A WV REGISTERED SURVEYOR, STATING THAT SAID DAMAGES HAVE BEEN RESTORED. THE CONTRACTOR SHALL PROVIDE SITE EROSION CONTROL TO PREVENT RUNOFF WATER FROM THE SITE FROM CARRYING SAND, SILT, DIRT, ETC. ONTO PRIVATE PROPERTY, OR INTO ANY STORM SEWER OR DRAINAGE CHANNEL. EROSION CONTROL SHALL CONFORM WITH THE REQUIREMENTS OF SPECIFICATIONS AND DRAWINGS.

17. CARE SHALL BE EXERCISED WHEN WORKING THE AREA AROUND EXISTING TREES AND SHRUBS. ANY TREES OR SHRUBS NOT MARKED FOR REMOVAL THAT ARE DAMAGED BY THE CONTRACTOR WILL HAVE TO BE REPLACED BY THE CONTRACTOR, AT HIS EXPENSE AND TO THE SATISFACTION OF THE OWNER.

18. THE CONTRACTOR SHALL MAINTAIN THE FLOOD BERM DURING INSTALLATION. TEMPORARY FLOOD PROTECTION SHALL BE APPROVED BY ENGINEER. ANY DISTURBED FLOOD BERM SHALL BE RECONSTRUCTED PRIOR TO COMPLETION OF THE PROJECT. FILL FOR FLOOD BERM SHALL BE COMPACTED TO 95% AND APPROVED BY THE ENGINEER PRIOR TO RECONSTRUCTION. COST TO BE INCLUDED IN VARIOUS SANITARY BID ITEMS.

19. EXISTING SANITARY FLOWS SHALL BE MAINTAINED AND PROPERLY BYPASSED ACCORDING TO PROJECT SPECIFICATIONS.

DISPOSAL OF MATERIALS

20. THE CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL CONSTRUCTION DEBRIS INCLUDING BUT NOT LIMITED TO EXCESS SOIL, ROCK, OR ANY OTHER TYPE MATERIALS. REMOVED PIPE SHALL BE DISPOSED OF AT A PROPER LANDFILL. THE CONTRACTOR SHALL NOT FILL ANY WETLANDS, LOW LANDS, FLOOD PLAINS, OR DRAINAGE WAYS WITH SAID DEBRIS WITHOUT OBTAINING PROPER APPROVALS, PERMITS, LICENSES, ETC. FROM LOCAL, STATE, OR FEDERAL AGENCIES.

21. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF MATERIALS TAKEN FROM EXCAVATIONS.

22. THE OPEN BURNING OF SITE CLEARING DEBRIS, TRASH, ETC. IS PROHIBITED IN THE CITY.

RESTORATION

23. ALL MAIL BOXES AND TRAFFIC CONTROL SIGNS ENCOUNTERED DURING CONSTRUCTION SHALL BE REPLACED IMMEDIATELY AFTER THE SEWER HAS BEEN INSTALLED AND BACKFILLED. PROVIDE TEMPORARY MAIL BOXES FOR DISRUPTIONS GREATER THAN 24 HOURS.

24. RESTORATION IN MOST CASES SHALL BE PERFORMED ACCORDING TO THE CITY OF WHEELING TRENCH DETAILS AS SHOWN ON THE DETAIL SHEET. ANY EXCEPTIONS TO THIS RESTORATION METHOD ARE PRESENTED IN THE PLAN SHEETS ON A CASE BY CASE BASIS.

ADDITIONAL CLARIFYING NOTES

25. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS.

TREE CLEARING AND GRUBBING

26. ITEM SHALL CONFORM TO SECTION 201 OF THE WVDOT SPECIFICATION MANUAL. ITEM SHALL BE PAID ON LUMP SUM (LS) BASIS.

27. NO CLEARING SHALL TAKE PLACE OUTSIDE OF THE DESIGNATED WORK LIMITS.

28. TREE CLEARING SHALL BE BASED ON QUANTITY SHOWN ON THE BID FORM. AFTER THE PROJECTS IS AWARDED, A SELECTIVE TREE CLEARING WALKTHROUGH SHALL BE SCHEDULED WITH THE CONTRACTOR, ENGINEER, AND OWNER, AND SPECIFIC TREES WILL BE MARKED FOR CLEARING. ONLY THOSE TREES THAT ARE MARKED FOR CLEARING SHALL BE CUT DOWN. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACEMENT OR PAYMENT FOR TREES THAT ARE CUT THAT WERE NOT MARKED AS PART OF THE SELECTIVE TREE CLEARING WALK THROUGH, AT A PRICE DETERMINED BY THE OWNER AND THE ENGINEER.

CONSTRUCTION LAYOUT STAKES

29. ITEM SHALL CONFORM TO SECTION 639 OF THE WVDOT SPECIFICATION MANUAL. ITEM SHALL BE PAID ON A LUMP SUM (LS) BASIS.

PAVEMENT SECTION

30. ITEM 408002 TACK COAT SHALL CONFORM TO SECTION 408 OF THE WVDOT SPECIFICATION MANUAL. THE UNIT OF MEASURE SHALL BE GALLONS (GAL).

31. ITEM 501001- 8" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT. THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIAL AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL THIS ITEM TO CONFORM TO SECTION 501 OF THE WVDOT SPECIFICATIONS MANUAL . THIS ITEM SHALL INCLUDE SAW CUTTING PAVEMENT FULL DEPTH PRIOR TO EXCAVATION. THE PAY LIMIT WIDTH OF REPLACEMENT IS ESTABLISHED IN THE STANDARD DETAIL DRAWING FOR THE VARIOUS SIZE PIPES. MAXIMUM WIDTH IS PAVED AREA DISTURBED. THE UNIT OF MEASURE SHALL BE SQUARE YARDS (SY) INSTALLED AS SHOWN ON THE STANDARD DETAIL DRAWINGS, MEASURED IN PLACE.

32. ITEM 307001- 6" CLASS 1 AGGREGATE BASE COURSE, THIS ITEM SHALL CONFORM TO SECTION 307 OF THE WVDOT SPECIFICATION MANUAL. ALL WORK, LABOR, MATERIAL, DISPOSAL, EQUIPMENT, AGGREGATE, AND EXCAVATION NECESSARY TO COMPLETE WORK SHALL BE INCLUDED IN THIS ITEM. THE UNIT OF MEASURE SHALL BE TONS (TON) INSTALLED AS SHOWN ON THE STANDARD DETAIL DRAWINGS, MEASURED IN PLACE.

33. ITEM 401002- 2" WEARING COURSE TYPE 4. THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIAL AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL WEARING COURSE. THIS ITEM SHALL INCLUDE PLACEMENT OF WEARING COURSE TYPE 4 AS SHOWN ON THE STANDARD DETAIL DRAWINGS AND PER THE CONTRACT DOCUMENTS. THE PAY LIMIT WIDTH OF REPLACEMENT IS ESTABLISHED IN THE STANDARD DETAIL DRAWING FOR THE VARIOUS SIZE PIPES. MAXIMUM WIDTH IS PAVED AREA DISTURBED. ALL WORK NECESSARY TO COMPLETE THE ITEM IN ACCORDANCE WITH THE WVDOH SPECIFICATIONS (TABLE 401.4.2A) AND THE NOTES OUTLINED IN THESE PLANS. THE UNIT OF MEASURE SHALL BE TONS (TON) INSTALLED AS SHOWN ON THE STANDARD DETAIL DRAWINGS, MEASURED IN PLACE.

SANITARY SEWER

34. SANITARY SEWER PIPE - PIPE SIZES 6" TO 15" SHALL BE PVC SDR 35 (ASTM D3034). PIPE SIZES 18" TO 36" SHALL BE PVC PS 46 (ASTM F-679). POLYVINYL CHLORIDE PIPE SHALL CONFORM TO SECTION 604 AND SUBSECTION 714.22 OF THE WVDOT SPECIFICATION MANUAL. ITEM SHALL BE PAID ON A LINEAR FOOT (LF) BASIS AND SHALL INCLUDE THE PIPE MATERIAL, BEDDING MATERIAL INSTALLATION, AND SUITABLE MATERIAL TO BE REUSED FOR TRENCH PLACEMENT. CITY OF WHEELING IS TO PROVIDE ALL 12" PIPE.

35. ALL MANHOLES SHALL BE WVDOT TYPE A MANHOLES ACCORDING TO DETAILS AND DRAWINGS. ITEM SHALL BE PAID ON AN EACH (EA) BASIS AND IS TO INCLUDE ALL EQUIPMENT, MATERIAL, INSTALLATION, AND LABOR.

36. ITEM SPECIAL - WINGWALL CSOW-43R (36" PIPE)
CONTRACTOR TO INSTALL WINGWALL FOR 36" PIPE IN ACCORDANCE WITH THE DRAWINGS AND STANDARD DETAIL SHEET DR2 IN THE WVDOH STANDARD DETAILS VOLUME 1 ISSUED MAY 2016. ALL WORK NECESSARY TO COMPLETE THIS ITEM. ALL WORK, LABOR, MATERIAL, DISPOSAL, EQUIPMENT, AGGREGATE, AND EXCAVATION NECESSARY TO COMPLETE WORK SHALL BE INCLUDED IN THIS ITEM. ITEM SHALL BE PAID FOR ON A LUMP SUM (LS) BASIS.

37. CONTRACTOR TO INSTALL 4" STEEL MARKING POSTS NEXT TO ALL MANHOLES ALONG WHEELING CREEK. (CITY TO PROVIDE MARKING POSTS). ITEM TO BE INCLUDED IN COST OF MANHOLES.

38. ALL TRENCH WORK IS TO STAY IN ONE LANE UNLESS OTHERWISE SHOWN IN THE PLANS OR WHERE CROSSINGS ARE SHOWN.

39. COST OF ALL LABOR, MATERIALS, AND EQUIPMENT TO COMPLETE TRENCH WORK TO THE SURFACE OF THE EXISTING GROUND OR BOTTOM OF THE AGGREGATE BASE COURSE IN ACCORDANCE OF THE DETAILS IN THE PLANS SHALL BE INCLUDED IN THE UNIT PRICE OF THE PIPE.

MOBILIZATION

40. ITEM SHALL CONFORM TO SECTION 204 OF THE WVDOT SPECIFICATION MANUAL.THIS ITEM SHALL INCLUDE PERFORMANCE OF CONSTRUCTION PREPARATORY OPERATIONS, INCLUDING THE MOVEMENT OF PERSONNEL AND EQUIPMENT TO THE PROJECT SITE, PERMITS, BONDING AND INSURANCE. MAXIMUM PAYMENT FOR THIS ITEM WILL BE 50% ON FIRST PAY REQUEST AND BALANCE WILL BE PAID ON FINAL PAY REQUEST. ITEM SHALL BE PAID IN LUMP SUM (LS) BASIS.

MAINTENANCE OF TRAFFIC

41. ITEM SHALL CONFORM TO SECTION 636 OF WVDOT SPECIFICATION MANUAL AND DETAILS ON THE CONSTRUCTION PLAN SET. ITEM SHALL BE LUMP SUM(LS) BASIS. ANY IMPACTS TO ACCESS MUST BE COORDINATED WITH PROPERTY OWNERS A MINIMUM OF 24-HOUR IN ADVANCE. THE CONTRACTORS SHALL PROVIDE UPDATES TO THE CITY WITH TRAFFIC IMPACTS SEVEN DAYS PRIOR TO MAKING CHANGES. CHANGES TO THE MAINTENANCE OF TRAFFIC PLAN, CLOSURES, AND WEEKLY UPDATES SHALL BE SENT TO THE ENGINEER AND OWNER. TRAFFIC CONTROL SHALL BE COORDINATED WITH THE CITY OF WHEELING POLICE AND WVDOH. PARKING CHANGES MUST BE POSTED ALONG THE STREET IMPACTED A MINIMUM OF 24-HOURS IN ADVANCE.

37. TRAFFIC IS TO BE MAINTAINED AT ALL TIMES BY THE USE OF APPROPRIATE TRAFFIC CONTROL DEVICES. USE OF METAL PLATES WITH SUFFICIENT RIGIDITY TO SPAN TYPE A TRENCH IS REQUIRED TO PREVENT WHEEL LOADS FROM BEING TRANSMITTED TO THE CLSM. THE PLATES ARE TO BE SECURELY ANCHORED TO PREVENT MOVEMENT CAUSED BY TRAFFIC. THE PLATES ARE TO BE LEFT IN PLACE UNTIL THE CLSM ATTAINS 50% OF ITS COMPRESSIVE STRENGTH. COST OF SUCH PLATES ARE TO BE INCLUDED IN THE UNIT PRICE FOR PIPE.

38. ROADWAYS SHALL ONLY BE CLOSED ONE LANE AT A TIME. PROVIDE A SIGNED PEDESTRIAN DETOUR, ROADWAY CLOSED AHEAD SIGNS, AND PEDESTRIAN BARRICADES.

39. THE CONTRACTOR SHALL COORDINATE INDIVIDUALLY WITH BUSINESS AND HOME OWNERS ALONG THE ALIGNMENT TO ENSURE THAT TRUCK AND SHIFT TRAFFIC WILL NOT BE IMPEDED BY CONSTRUCTION. A SCHEDULE SHALL BE DEVELOPED THAT IS AGREED UPON BETWEEN THE BUSINESS OWNER AND CONTRACTOR.

40. TEMPORARY LIGHTING MAY BE USED IN LIEU OF FLAGMEN, IN ACCORDANCE WITH THE WVDOT MANUAL ON TEMPORARY TRAFFIC CONTROL FOR STREETS AND HIGHWAYS, 2006 EDITION, SPECIFICALLY DESCRIBED IN SECTION F.75 THROUGH F.80 OF THE MANUAL. IN ALL CASES THE MAINTENANCE OF TRAFFIC PLAN SHALL BE APPLIED AND ADHERED TO.

SPECIAL ITEMS

41. ITEM SPECIAL - OVERFLOW MANHOLE
ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND EXCAVATION REQUIRED TO FACILITATE THE CONSTRUCTION OF EACH OVERFLOW MANHOLE INCLUDING THE OVERFLOW WEIR AS SHOWN ON THE DRAWINGS FOR EACH OVERFLOW MANHOLE SHALL BE INCLUDED IN THIS PAY ITEM. CSO SIGNS SHALL BE INSTALLED UPON COMPLETION OF EACH CSO. SIGN IS TO BE PROVIDED BY CITY. WORK IS TO BE PAID FOR ON AN EACH (EA) BASIS.

41. ITEM SPECIAL - WEIR MODIFICATION (W-47)
ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND EXCAVATION REQUIRED TO FACILITATE THE ADJUSTMENT OF THE EXISTING WEIR AS SHOWN ON THE DRAWINGS SHALL BE INCLUDED IN THIS PAY ITEM . WORK IS TO BE PAID FOR ON A LUMP SUM (LS) BASIS.

42. ITEM SPECIAL - LATERAL REPLACEMENT
LATERAL LOCATIONS SHOWN ON PLANS ARE APPROXIMATE BASED ON STATIONING PROVIDED FROM SEWER INSPECTION AND CITY MAPPING. CONTRACTOR SHALL FIELD LOCATE EACH LATERAL DURING CONSTRUCTION. ANY ENCOUNTERED PRIVATE LATERALS SHALL BE CONNECTED TO THE SANITARY SEWER PER THE SEWER LATERAL DETAIL. LATERALS SHALL BE CONSTRUCTED TO THE RIGHT-OF-WAY LINE. IN CASES WHERE EXISTING LATERALS ARE DIRECTLY CONNECTED TO MANHOLES, THE LATERALS SHALL BE CONNECTED TO THE NEW MANHOLES WITH AN INSIDE DROP. THIS ITEM SHALL INCLUDE ALL COMPONENTS SHOWN ON THE LATERAL DETAIL AND IS TO BE PAID ON A LINEAR FOOT (LF) BASIS.

43. ITEM SPECIAL - UNSUITABLE BACKFILL CONTINGENCY
THE CONTRACTOR SHALL PROVIDE SUITABLE BACKFILL MATERIAL IN THE CASE THAT THE EXISTING MATERIAL IS UNSUITABLE FOR CONSTRUCTION. SUITABILITY FOR CONSTRUCTION SHALL BE AS DESCRIBED IN SECTIONS 207 AND 716 OF THE WVDOT SPECIFICATIONS MANUAL. HOWEVER, THE ENGINEER RESERVES THE RIGHT TO DETERMINE THE SUITABILITY OF BACKFILL MATERIAL. AN ESTIMATE FOR THE REQUIRED AMOUNT OF SUITABLE BACKFILL MATERIAL HAS BEEN INCLUDED IN THE TABLE OF ESTIMATED QUANTITIES, AND SHALL BE PAID ON A CUBIC YARD (CY) BASIS.

44. ITEM SPECIAL- SEWER PIPE REMOVAL
ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND EXCAVATION REQUIRED TO SEAL THE EXISTING CONNECTION SHALL BE INCLUDED WITH THIS PAY ITEM. PIPE SHALL NOT BE USED AS BACKFILL AND MUST BE DISPOSED OF AT AN ACCEPTING LANDFILL. SEWER PIPE ITEM SHALL BE PAID ON A LINEAR FOOT (LF) BASIS.

45. ITEM SPECIAL- MANHOLE REMOVAL
ALL WORK, LABOR, MATERIAL, EQUIPMENT, AND EXCAVATION REQUIRED TO SEAL THE EXISTING CONNECTION SHALL BE INCLUDED WITH THIS PAY ITEM. MANHOLE DEBRIS SHALL NOT BE USED AS BACKFILL OR RIP-RAP AND MUST BE DISPOSED OF AT AN ACCEPTING LANDFILL. ITEM SHALL BE PAID ON AN EACH (EA) BASIS.

46. ITEM SPECIAL- ABANDON MANHOLE
CONTRACTOR FILL MANHOLE AND POUR CONCRETE CAP TO ABANDON MANHOLE. ALL WORK, LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO SEAL THE MANHOLE SHALL BE INCLUDED WITH THIS PAY ITEM. ITEM SHALL BE PAID ON AN EACH (EA) BASIS.

47. ITEM SPECIAL- BULKHEAD FOR SEWER
THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A SEWER ADJUSTMENT AS SHOWN ON THE CONSTRUCTION DRAWINGS AS DETAILS. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE AT HIS OWN EXPENSE THAT OCCURS TO THE ADJACENT MANHOLE AS A RESULT OF THE BULKHEAD CONSTRUCTION. ITEM SHALL BE PAID ON AN EACH (EA) BASIS.

48. ITEM SPECIAL - SHIFT EX STORM LINE
CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIALS, AND EQUIPMETN NECESSARY TO SHIFT EXISTING 6" STORM LINE NEAR PROPOSED MH IP-6 TO FACILITATE CONSTRUCTION OF MH IP-6. ITEM SHALL BE PAID ON A LUMP SUM (LS) BASIS

49. ITEM SPECIAL- SEWER FLOW CONTROL
SEWER FLOW CONTROL WORK IS TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATION. ITEM SHALL BE PAID ON A LUMP SUM (LS) BASIS.

50. ITEM SPECIAL-CONNECT EX SANITARY TO PROPOSED MANHOLE
ALL WORK, LABOR, MATERIAL, BACKFILL, EQUIPMENT, AND EXCAVATION REQUIRED TO CONNECT NEW MANHOLE TO AN EXISTING SEWER SHALL BE INCLUDED WITH THIS PAY ITEM. CONNECTION SHALL BE WATERTIGHT, PER DETAIL. WORK IS TO BE PAID FOR ON AN EACH (EA) BASIS.

51. ITEM SPECIAL-CONNECT PROPOSED OVERFLOW TO EXISTING HEADWALL
ALL WORK, LABOR, MATERIAL, BACKFILL, EQUIPMENT, AND EXCAVATION REQUIRED TO CONNECT PROPOSED OVERFLOW PIPE TO EXISTING HEADWALL SEWER SHALL BE INCLUDED WITH THIS PAY ITEM. CONNECTION SHALL BE WATERTIGHT PER DETAIL. WORK IS TO BE PAID FOR ON AN EACH (EA) BASIS.

52. ITEM SPECIAL- 8" CURED IN PLACE (CIPP) PIPE LINING
CURED IN PLACE LINING SHALL CONFORM TO SECTION 330130.72 OF THE SPECIFICATIONS. ITEM SHALL BE PAID ON A LINEAR FOOT (LF) BASIS AND SHALL INCLUDE PRE-CLEANING, MATERIAL, INSTALLATION, INSPECTION, AND LABOR TO COMPLETE THE LINING.

53. ITEM SPECIAL - EROSION CONTROL
THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL SHEETS AND WVDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL WITH LAST REVISION DATE OF AUGUST 29, 2016. A DETAILED SWPPP WILL BE PROVIDED. ANY FINES INCURRED BY THE CITY FROM WVDEP RESULTING FROM CONTRACTOR NEGLIGENCE SHALL RESULT IN DEDUCTION FROM SUBSEQUENT PAY APPLICATION. DAMAGE TO PROPERTY AS A RESULT OF INADEQUATE EROSION CONTROL MEASURES SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. ITEM SHALL BE PAID ON A LUMP SUM (LS) BASIS.

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NO	ITEM	DESCRIPTION	QUAN	UNIT
1	639001	CONSTRUCTION LAYOUT AND STAKES	1	LS
2	204001	MOBILIZATION	1	LS
3	636001	MAINTENANCE OF TRAFFIC	1	LS
4	408002	TACK COAT	36	GAL
5	501001	8" REINFORECED PORTLAND CEMENT CONCRETE PAVEMENT	362	SY
6	401002	2" WEARING COURSE TYPE 4	40	TON
7	307001	6" CLASS 1 AGGREGATE COURSE BASE	90	TON
8	675007	36" PLASTIC SEWER PIPE (TYPE A TRENCH)	66	LF
9	675007	36" PLASTIC SEWER PIPE (TYPE D TRENCH)	76	LF
10	675007	27" PLASTIC SEWER PIPE (TYPE A TRENCH)	223	LF
11	675007	27" PLASTIC SEWER PIPE (TYPE D TRENCH)	145	LF
12	675007	24" PLASTIC SEWER PIPE (TYPE A TRENCH)	250	LF
13	675007	24" PLASTIC SEWER PIPE (TYPE D TRENCH)	801	LF
14	675007	18" PLASTIC SEWER PIPE (TYPE D TRENCH)	281	LF
15	675007	15" PLASTIC SEWER PIPE (TYPE A TRENCH)	52	LF
16	675007	15" PLASTIC SEWER PIPE (TYPE D TRENCH)	244	LF
17	675007	12" PLASTIC SEWER PIPE (TYPE A TRENCH INSTALLATION ONLY)	38	LF
18	675007	12" PLASTIC SEWER PIPE (TYPE D TRENCH INSTALLATION ONLY)	511	LF
19	675007	8" CIPP LINER	244	LF
20	605001	MANHOLE TYPE A (72" DIAMETER BASE)	1	EA
21	605001	MANHOLE TYPE A (60" DIAMETER BASE)	6	EA
22	605001	MANHOLE TYPE A (48" DIAMETER BASE)	10	EA
23	SPEC	OVERFLOW MANHOLE - W-43R COMPLETE INCLUDING CASTING (84" BASE)	1	EA
24	SPEC	OVERFLOW MANHOLE - W-45R COMPLETE INCLUDING CASTING (72" BASE)	1	EA
25	SPEC	OVERFLOW MANHOLE - W-47R COMPLETE INCLUDING CASTING (72" BASE)	1	EA
26	SPEC	OVERFLOW MANHOLE - W-48R COMPLETE INCLUDING CASTING (72" BASE)	1	EA
27	SPEC	WEIR MODIFICATION (W-47)	1	EA
28	SPEC	WINGWALL 36" PIPE	1	EA
29	SPEC	CONNECT EXISTING SANITARY TO PROPOSED MANHOLE	15	EA
30	SPEC	CONNECT OVERFLOW LINE TO EX HEADWALL	3	EA
31	SPEC	SEWER PIPE REMOVAL	1566	LF
32	SPEC	REMOVE EX MANHOLE	16	EA
33	SPEC	ABANDON MANHOLE	1	EA
34	SPEC	BULKHEAD FOR SEWER	8	EA
35	SPEC	SHIFT EX STORM LINE	1	LS
36	SPEC	UNSUITABLE BACKFILL CONTINGENCY	2250	CY
38	SPEC	TREE CLEARING AND GRUBBING	1	LS
39	SPEC	SEEDING AND MULCHING	6864	SY
40	SPEC	REMOVE AND REPLACE FENCE IN KIND	1	LS
41	SPEC	EROSION CONTROL	1	LS
42	SPEC	DOCUMENTATION OF SITE	1	LS
43	SPEC	LANDSCAPE RESTORATION (ALLOWANCE)	20,000	$
44	SPEC	REMOVE AND REPLACE DECKS IN KIND (ALLOWANCE)	30,000	$

54. ITEM SPECIAL- SEEDING AND MULCHING (WHEELING)
THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIAL AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL SURFACE COVERING. THIS ITEM SHALL INCLUDE ALL NECESSARY GRADING, TOPSOIL, FERTILIZER, WATER, SEED AND MULCH TO REPLACE THE DISTURBED OR DAMAGED AREA, COMPLETE AND IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ITEM SHALL INCLUDE ALL WORK NECESSARY TO COMPLETE THE ITEM IN ACCORDANCE WITH WVDOH SPECIFICATIONS AND THE NOTES OUTLINED IN THESE PLANS. THE UNIT OF MEASURE SHALL BE SQUARE YARDS (SY), COMPUTED BY MULTIPLYING THE LENGTH OF THE DISTURBED AREA AS MEASURED ALONG THE CENTERLINE OF THE PIPE, TIMES THE WIDTH OF THE DISTURBED AREA, BUT IN NO CASE SHALL THE LIMITS OF PAYMENT ON EITHER SIDE OF THE PIPE BE MORE THAN THE WORK LIMITS SHOWN ON THE DRAWINGS. DAMAGED AREAS OUTSIDE OF THE LIMITS WILL BE SEEDED AND MULCHED AT THE CONTRACTOR'S EXPENSE.

55. ITEM SPECIAL - LANDSCAPE RESTORATION (ALLOWANCE)
THE CONTRACTOR SHALL RESTORE ANY EXISTING LANDSCAPING IN KIND THAT WAS DISTURBED DURING CONSTRUCTION OF THE THE PROJECT. ITEM INCLUDES BUT IS NOT LIMITED TO REPAIR OR REPLACEMENT OF ANY EXISTING PATIO, ORNAMENTAL TREES, BUSHES, OR SHRUBS AS DIRECTED BY OWNER AND ENGINEER. ITEM SHALL BE PAID AS AN ALLOWANCE NOT TO EXCEED $20,000. THE INTENT OF THIS ITEM IS TO NOT REPLACE ANY LARGE TREES (E.G. PINE TREES, DECIDUOUS TREES, ETC) WITHIN THE PERMANENT SANITARY SEWER EASEMENT.

56. ITEM SPECIAL- DOCUMENTATION OF SITE
THE CONTRACTOR SHALL VIDEO RECORD THE PROJECT SITE PRIOR TO START OF ACTIVITIES IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THIS VIDEO DOCUMENTATION IS TO INCLUDE ALL PROPOSED WORK ALONG THE ALIGNMENT FROM ALICE.THE CONTRACTOR SHALL PROVIDE ONE COPY OF VIDEO TO ENGINEER AND OWNER IN ELECTRONIC FORM ON USB MEMORY DEVICE. ITEM SHALL BE PAID ON A LUMP SUM (LS) BASIS.

57. ITEM SPECIAL - REMOVE AND REPLACE DECK (ALLOWANCE)
THE CONTRACTOR SHALL REMOVE AND REPLACE DECKS AT 31 CHANTAL AND 36 GARLAND IN KIND. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO FACILITATE THE REMOVAL AND REPLACEMENT OF THE DECK TO ENGINEERS', CITY'S, AND HOMEOWNERS SATISFACTION. ITEM SHALL BE PAID BY AN ALLOWANCE AND SHALL NOT EXCEED $20,000.

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LEGEND

EX. BUILDING	
EX. CONTOUR	805
CENTER LINE	
EX. R/W	EX. R/W
EX. PROPERTY LINE	
EX. FENCE	X X X
EX. WAT	WAT
EX. ELECTRIC	ELEC-OH
EX. SAN	SAN
EX. STM	STM
EX. GAS	GAS
EX. OH UTIL	UTIL-OH
EX. FIBER OPTIC	FOC-UG
EX. DRIVEWAY	
EX. EASEMENT	
EX. VEGETATION	
PR. MILLING	
PR. TRENCH	
PR. SANITARY LINE	X" SAN
PR. SAN. LATERAL REPLACEMENT	SS
EXISTING SAN. LATER	SS
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING CURB INLET	
EXISTING CATCH BASIN	
EXISTING GAS METER	GM
EXISTING UTILITY POLE	
EXISTING TRAFFIC CONTROL POLE	
EXISTING LIGHT POLE	
EXISTING GUY WIRE	
EXISTING CABLE TV PEDESTAL	CP
EXISTING SIGN	
EXISTING MAILBOX	MB
SURVEY BENCHMARK	
PROPOSED SANITARY MANHOLE	S

CONTRACTOR(S) SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CONTRACTOR IS DIRECTED TO VERIFY ALL QUANTITIES PRIOR TO PREPARING AND SUBMITTING THEIR BID. ANY ITEMS OF WORK CALLED FOR ON THE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS INDICATED SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR THE VARIOUS BID ITEMS.

your trusted advisor
consultants
engineers
architects
planners

NO	REVISION	DATE
1	ADDENDUM 2	4/27/2024

ISSUED FOR:	REVIEW
ISSUE DATE:	4/18/2024
SCALE:	AS SHOWN
DESIGNED BY:	LAS
DRAWN BY:	LAS
CHECKED BY:	DAB

WATER POLLUTION CONTROL DIVISION
WASTEWATER COLLECTION AND TREATMENT
VALLEYVIEW SANITARY IMPROVEMENTS

GENERAL NOTES, LEGEND, AND QUANTITIES

PROJECT NO.
220991 4C
DISCIPLINE
CIVIL
SHEET NAME
GN-1
SHEET 2R1 OF 19