

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE REHABILITATION OF BRIDGE NO. SUM-271-0853 L/R ON IR 271 OVER BOSTON MILLS ROAD (CR 32) BY REPLACING THE SUPERSTRUCTURES AND THE WIDENING OF BRIDGE NO. SUM-271-0853 R. THE PROJECT WILL USE THE EXISTING HORIZONTAL AND VERTICAL ALIGNMENTS. THE PROPOSED WORK INCLUDES ALL ASSOCIATED DRAINAGE, ROADWAY WORK, TRAFFIC CONTROL AND MAINTENANCE OF TRAFFIC.

HISTORIC RECORDS

HISTORICAL RECORDS WERE OBTAINED FROM ODOT’S TRANSPORTATION INFORMATION MAPPING SYSTEM (TIMS) FOR SUM-271-8.29, SUB-BATCH NUMBERS 8445 AND 15178, COMPLETED IN 1965 AND 1970, RESPECTIVELY, FOR BRIDGE NO. SUM-271-0853 L/R. ADDITIONALLY, RECORDS WERE OBTAINED FOR SUM-271-8.02, SUB-BATCH 19267, COMPLETED IN 2003, FOR BRIDGE NO. SUM-271-0802 L/R, WHICH INCLUDED THE WIDENING OF BRIDGE NO. SUM-271-0853 L. RESULTS OF THE HISTORICAL EXPLORATIONS INDICATED THE SOILS IN THIS SITE WERE PRIMARILY COHESIVE WITH NON-COHESIVE LAYERS. BEDROCK WAS NOT ENCOUNTERED IN ANY OF THE HISTORICAL BORINGS; THE LOWEST TERMINATION ELEVATION IS 587.5 FEET. SELECTED BORINGS ARE PRESENTED WITHIN THIS EXPLORATION AND ARE DISCUSSED IN FURTHER DETAIL WITHIN THE EXPLORATION FINDINGS SECTION.

BRIDGE NO. SUM-271-0853 L							
BORING ID	HIST. ID	GROUND SURFACE ELEV. (NAVD 88)	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	STATION (FEET)	OFFSET (FEET)	DIR.
B-001-0-03	BMB-01	731.4	41.264091	-81.551531	449+01	28	LT.
B-002-0-03	BMB-02	702.5	41.264307	-81.551134	450+36	29	LT.
B-003-0-03	BMB-03	735.6	41.264437	-81.550879	451+21	28	LT.

BRIDGE NO. SUM-271-0853 R								
BORING ID	HIST. ID	GROUND SURFACE ELEV. (NGVD 29)	GROUND SURFACE ELEV. (NAVD 88)	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	STATION (FEET)	OFFSET (FEET)	DIR.
B-001-0-70	B-1	724.9	724.2	41.264066	-81.551403	449+25	Ø	-
B-012-0-65	B-12	702.9	702.2	41.26418	-81.550953	450+50	37	RT.

GEOLOGY

THE PROJECT IS LOCATED WITHIN THE KILLBUCK GLACIATED PITTSBURGH PLATEAU PHYSIOGRAPHIC REGION WHICH IS CHARACTERIZED BY MODERATE RELIEF. THE GLACIAL-DERIVED SOIL DEPOSITS IN THIS AREA ARE DEEP AND OVERLIE STEEP WALLED BURIED BEDROCK VALLEYS. THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR) INTERACTIVE GEOLOGIC MAP INDICATES THAT THE OVERBURDEN END MORaine SOILS IS PREDOMINATELY COHESIVE AND IS UNDERLAIN BY DEVONIAN-AGED OHIO SHALE.

RECONNAISSANCE

FIELD RECONNAISSANCE WAS COMPLETED BY DISTRICT PERSONNEL ON OCTOBER 13, 2020. THE APPROACH ROADWAY PAVEMENT WAS NOTED AS BEING IN VERY GOOD CONDITION. ALTHOUGH THE BRIDGE DECKS ARE IN POOR CONDITION DUE TO AGE WITH SPALLING CONCRETE AND RUSTED STEEL BEAMS, THE PIERS ARE IN GOOD CONDITION. THERE WERE NO SIGNS OF CURRENT EMBANKMENT INSTABILITY. THE ADJACENT LAND USAGE WAS NOTED AS BEING MOSTLY WOODED WITH RESIDENTIAL LOTS TO THE WEST.

SUBSURFACE EXPLORATION

CURRENT DESIGN EFFORTS HAVE BEEN CONDUCTED UTILIZING HISTORICAL DATA. THIS DATA IS SUMMARIZED BELOW.

SUB-BATCH 8445: SUM-271-0853 L/R: THE EXPLORATION CONSISTED OF TWO (2) AUGER BORINGS, B-5 AND B-12, COMPLETED BETWEEN APRIL 28 AND MAY 5, 1965, AND EIGHT (8) DRIVE ROD PENETRATION TESTS, COMPLETED BETWEEN FEBRUARY 3 AND 9, 1965. BORING B-12 WAS USED WITHIN THE CURRENT DESIGN AND RENAMED B-012-0-65. GROUND ELEVATIONS (EL.) WERE BASED ON NGVD 29 WHICH REQUIRE A -0.7 FEET (FT) CORRECTION FOR NAVD 88.

SUB-BATCH 15178; SUM-271-0853 R: THE EXPLORATION CONSISTED OF ONE (1) AUGER BORING, B-1, COMPLETED BETWEEN APRIL 29 AND MAY 1, 1970. BORING B-1 WAS USED FOR THE CURERNT DESIGN AND RENAMED B-001-0-70. GROUND EL. WERE BASED ON NGVD 29 WHICH REQUIRE A -0.7 FT CORRECTION FOR NAVD 88.

SUB-BATCH 19267, SUM-271-0802 L/R: THE EXPLORATION AT BRIDGE NO. SUM-271-0853 L CONSISTED OF THREE (3) AUGER BORINGS, BMB-01 THROUGH BMB-03, COMPLETED BETWEEN FEBRUARY 7 AND MARCH 4, 2003. ALL THREE (3) BORINGS, BMB-1, BMB-2, AND BMB-3, WERE USED WITHIN THE CURRENT DESIGN AND RENAMED B-001-0-03, B-002-0-03, AND B-003-0-03, RESPECTIVELY. DRILLING WAS COMPLETED WITH A TRUCK MOUNTED CME 55 ROTARY DRILL RIG UTILIZING 3.25-INCH I.D. HOLLOW STEM AUGERS (HSA). DISTURBED SAMPLES WERE COLLECTED USING A STANDARD 2.0-INCH O.D. SPLIT BARREL SAMPLER DRIVEN INTO THE SOIL BY MEANS OF A 140-LB. HAMMER FALLING FREELY THROUGH A DISTANCE OF 30-INCHES IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (ASTM D 1586) AT 2.5 AND 5-FOOT INTERVALS.

LEGEND

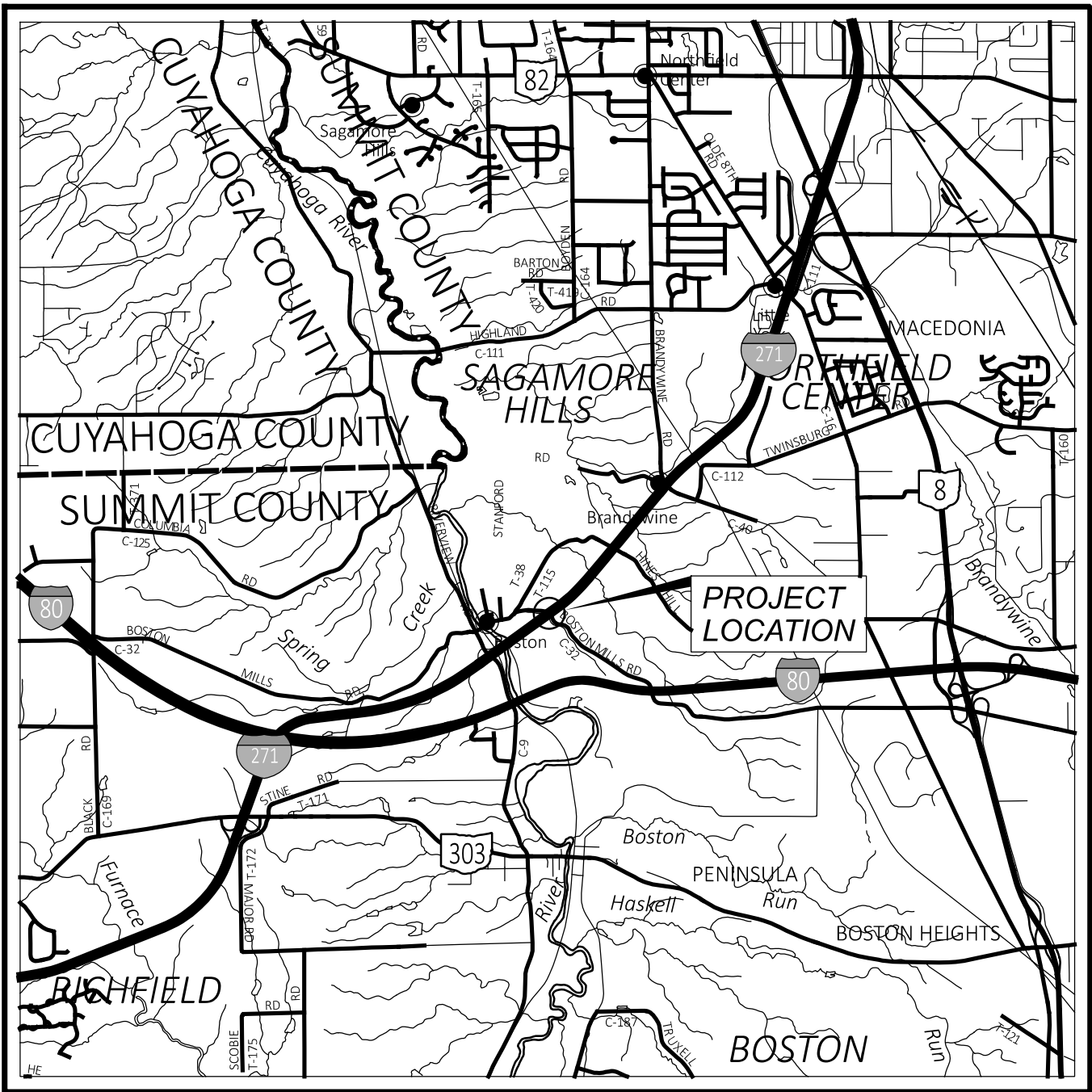
DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
COARSE AND FINE SAND	A-3a	-	1
GRAVEL WITH SAND AND SILT	A-2-4	2	1
SANDY SILT	A-4a	5	10
SILT	A-4b	19	19
SILT AND CLAY	A-6a	20	43
SILTY CLAY	A-6b	8	2
CLAY	A-7-6	8	3
	TOTAL	62	79
TOPSOIL = X = APPROXIMATE THICKNESS	VISUAL		
HISTORICAL BORING LOCATION - PLAN VIEW.			
DRIVE SAMPLE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
WC	INDICATES WATER CONTENT IN PERCENT.		
N	INDICATES STANDARD PENETRATION RESISTANCE		
Y/Z	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): Y = NUMBER OF BLOWS FOR SECOND 6 IN. (UNCORRECTED, FIRST 6 IN. NOT REPORTED). Z = NUMBER OF BLOWS FOR THIRD 6 INCHES (UNCORRECTED).		
Y/(D')	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): Y/(D') = NUMBER OF BLOWS (UNCORRECTED) FOR (D') OF PENETRATION AT REFUSAL.		
W	INDICATES FREE WATER ELEVATION.		
	INDICATES WATER AT COMPLETION.		
	INDICATES STATIC WATER ELEVATION.		
●	INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.		
⊕	INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.		
NP	INDICATES A NON-PLASTIC SAMPLE.		
SS	INDICATES A SPLIT SPOON SAMPLE.		

EXPLORATION FINDINGS

SUB-BATCH 8445: BORING B-012-0-65 ENCOUNTERED LOOSE TO DENSE GRAVEL WITH SAND AND SILT (A-2-4) AND SOFT TO VERY STIFF SILT AND CLAY (A-6a), SILT (A-4b), SANDY SILT (A-4a), AND CLAY (A-7-6) ABOVE APPROXIMATELY EL. 632 FT. B-012-0-65 THEN ENCOUNTERED DENSE SANDY SILT (A-4a) AND SILT (A-4b) AND HARD SANDY SILT (A-4a) AND SILT (A-4b). B-012-0-65 WAS TERMINATED AT 101 FT, EL. 601.4 FT, AFTER PENETRATING 30 FT OF MATERIAL REQUIRING MORE THAN 30 BLOWS PER FOOT IN THE STANDARD PENETRATION TEST. GROUNDWATER WAS NOT REPORTED ON THE BORING LOG.

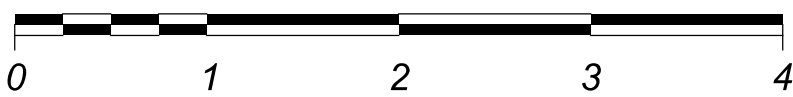
SUB-BATCH 15178: BORING B-001-0-70 ENCOUNTERED MEDIUM DENSE TO DENSE SANDY SILT (A-4a) AND SILT (A-4b) AND STIFF TO VERY STIFF SILT AND CLAY (A-6a) AND SILTY CLAY (A-6b) TO APPROXIMATELY EL. 668 FT. B-001-0-70 THEN ENCOUNTERED VERY SOFT SILTY CLAY (A-6b) AND CLAY (A-7-6) EXTENDING TO APPROXIMATELY EL. 642 FT UNDERLAIN BY MEDIUM DENSE SILT (A-4b). B-001-0-70 WAS TERMINATED AT 101 FT, EL. 623.2 FT, WITHIN HARD SILT AND CLAY (A-6a). FREE WATER WAS REPORTED AT 42 FT IN DEPTH, EL. 682.2 FT.

SUB-BATCH 19267: BORINGS B-001-0-03 THROUGH B-003-0-03 WERE ADVANCED THROUGH TOPSOIL RANGING FROM APPROXIMATELY 3 TO 8-INCHES IN DEPTH UNDERLAIN BY BOTH FILL MATERIAL AND NATURAL SOILS WHICH WERE PRIMARILY COHESIVE. FILL MATERIALS WERE ENCOUNTERED ABOVE APPROXIMATE EL. 692.9 TO 701.6 FT CONSISTING OF MEDIUM STIFF TO VERY STIFF SILT AND CLAY (A-6a) AND SANDY SILT (A-4a) AND NON-COHESIVE MEDIUM DENSE COARSE AND FINE SAND (A-3a). THE NATURAL COHESIVE SOILS ENCOUNTERED BENEATH THE FILL MATERIAL TO TERMINATION DEPTH CONSISTING OF STIFF TO HARD SANDY SILT (A-4a), SILT (A-4b), SILT AND CLAY (A-6a), SILTY CLAY (A-6b), AND CLAY (A-7-6). THE NATURAL NON-COHESIVE SOILS ENCOUNTERED CONSISTED OF MEDIUM DENSE SILT (A-4b). STATIC WATER WAS REPORTED IN B-001-0-03, B-002-0-03, AND B-003-0-03 AT EL. 686.4, 691.0, AND 703.6 FT, RESPECTIVELY. WATER ON COMPLETION WAS REPORTED IN B-001-0-03, B-002-0-03, AND B-003-0-03 AT EL. 686.4, 676.5, AND 709.8 FT, RESPECTIVELY.

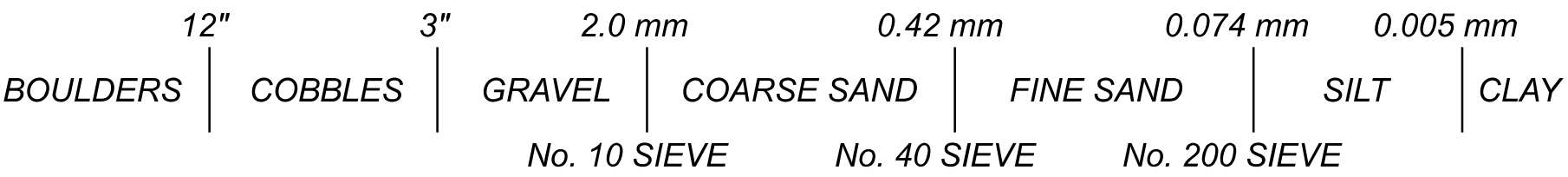


LOCATION MAP

SCALE IN MILES



PARTICLE SIZE DEFINITIONS



SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2026.

AVAILABLE INFORMATION

THE SOIL AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE GEOTECHNICAL PROFILE SHEETS HAS BEEN PRESENTED. THE RAW CPT DATA IS AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALES WEBSITE.

RECON. -	D04	10/13/20
DRILLING -	PE&A	02/07/03 - 03/04/03
	ODOT	04/28/65, 04/29/70 - 05/01/70
DRAWN -	ARR	01/05/26
REVIEWED -	AAM	01/05/26

DESIGN AGENCY



DESIGNER

ARR

REVIEWER

AAM 01/05/26

PROJECT ID

111417

SUBSET

TOTAL

1 10

SHEET

TOTAL

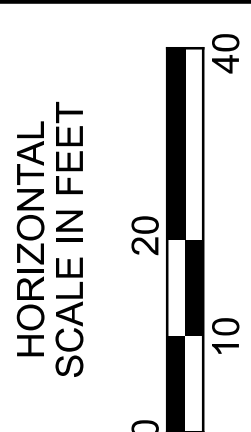
P.0 0



HORIZONTAL
SCALE IN FEET

10 20 40

DESIGNER	
ARR	
REVIEWER	
AAM 01/05/26	
PROJECT ID	
111417	
SUBSET	TOTAL
2	10
SHEET	TOTAL
P.0	0



DESIGN AGENCY



DESIGNER

ARR

REVIEWER

AAM 01/05/2

PROJECT ID

111417

SUBSET	TOTAL
0	1.0

3	10
---	----

SHEET	TOTAL
100	100

B-001-0-03

**PRIME ENGINEERING
& ARCHITECTURE INC.**

TEST BORING No.: BMB-01

STA. & OFFSET: 449+01.48, 27.73' LT.

@ R/W IR 271, STA. 449+01.48, 27.73' LT. =

@ CONST. SB IR 271, STA. 1449+02.01, 25.61' RT.

ELEVATION: 731.4ft

CLIENT: Richland Engineering Ltd.

PROJECT: Bridge No. SUM-271-0854 Lt. over BM Road

PROJECT No.: 03001g

LOCATION: Summit County, OH

DATE STARTED: 2/26/03 DATE COMPLETED: 2/27/03

SAMPLER DIAM: 2.0" TYPE: SS HAMMER WT.: 140lb FALL: 30"

CASING DIAM: 3.25" TYPE: HSA OTHER:

DRILLING INFORMATION:

North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig

GROUNDWATER INFORMATION:

Groundwater was encountered at 45.0 feet during and 45.0 feet upon completion of drilling operations.

▽ GROUNDWATER DURING DRILLING ▽ GROUNDWATER UPON COMPLETION ▽ EXTENDED GROUNDWATER READING

ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%(RQD%)	PENETROMETER (tons/ft ²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED (%) OR SILT(%)CLAY(%)	CLASSIFICATION SYMBOL
									LL	PL	PI				
731.1	0.3		TOPSOIL												
			Medium stiff to stiff, brown SILT AND CLAY (A-6a), trace sand, trace to no rock fragments (fill).	SS 1	1.0	8	3.75	23	35	22	13	0	5	94	A-6a
				SS 2	3.5	10	1.75	23	-	-	-	-	-	-	VISUAL
725.4	6.0		Stiff, brown SANDY SILT (A-4a), some clay, trace rock fragments (fill).	SS 3	6.0	15	2.5	16	-	-	-	-	-	-	VISUAL
				SS 4	8.5	13	1.5	15	-	-	-	-	-	-	VISUAL
720.4	11.0		Stiff to hard, brown SILT AND CLAY (A-6a), trace sand, trace rock fragments, moist (fill).	SS 5	11.0	10	1.5	23	-	-	-	-	-	-	VISUAL
				SS 6	13.5	14	3.0	23	-	-	-	-	-	-	VISUAL
				SS 7	16.0	14	4.0	19	-	-	-	-	-	-	VISUAL
				SS 8	18.5	16	4.5	18	-	-	-	-	-	-	VISUAL
				SS 9	21.0	12	3.25	19	-	-	-	-	-	-	VISUAL
				SS 10	23.5	19	4.5	18	-	-	-	-	-	-	VISUAL
				SS 11	26.0	38	4.5+	17	-	-	-	-	-	-	VISUAL
702.3	29.1		Very stiff, brown SANDY SILT (A-4a), little clay, trace rock fragments, moist. (fill)	SS 12A	28.5	5	3.75	19	-	-	-	-	-	-	VISUAL
701.4	30.0		Very stiff, brown SILT AND CLAY (A-6a), trace sand, trace rock fragments, moist (fill).	SS 12B	29.1	10	1.25	16	-	-	-	-	-	-	VISUAL
				SS 13	33.5	5	4.5+	19	-	-	-	-	-	-	VISUAL
692.9	38.5			SS 14	38.5	4	3.0	23	29	21	8	0	11	43/45	A-4a

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer

BMB-01: PAGE 1 OF 3

B-001-0-03

**PRIME ENGINEERING
& ARCHITECTURE INC.**

TEST BORING No.: BMB-01

STA. & OFFSET: 449+01.48, 27.73' Lt.

@ R/W IR 271, STA. 449+01.48, 27.73' LT. =

@ CONST. SB IR 271, STA. 1449+02.01, 25.61' RT.

ELEVATION: 731.4ft

PROJECT: Bridge No. SUM-271-0854 Lt. over BM Road

PROJECT No.: 03001g

DRILLING INFORMATION:

North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig

GROUNDWATER INFORMATION:

Groundwater was encountered at 45.0 feet during and 45.0 feet upon completion of drilling operations.

GROUNDWATER
DURING DRILLING

GROUNDWATER
UPON COMPLETION

EXTENDED GROUNDWATER
READING

ELEV
(ft.)

DEPTH
(ft.)

Soil/
Rock
Symbol

MATERIAL DESCRIPTION

Very stiff to stiff, brown to gray SANDY SILT (A-4a), some clay, trace to no rock fragments, moist. (continued)

Note: Color changed to gray at approximately 53.5 feet.

Very stiff to hard, gray SILT (A-4b), some clay, trace to no sand, moist.

FIELD DATA

LABORATORY DATA

SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%/ (RQD%)	PENETROMETER (tons/ft ²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED (%) OR SILT (%) / CLAY (%)	CLASSIFICATION SYMBOL
					LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX				
SS 15	43.5	5 29 11 18	1.75	19	-	-	-	-	-	-	VISUAL
SS 16	48.5	8 20 9 11	2.25	20	-	-	-	-	-	-	VISUAL
SS 17	53.5	4 16 6 10	1.25	27	28	19	9	0	1	37/62	A-4a
SS 18	58.5	7 18 8 10	1.0	27	-	-	-	-	-	-	VISUAL
ST 19	63.5	ST		29	-	-	-	-	-	-	VISUAL
SS 20	68.5	4 12 5 7	0.75	28	-	-	-	-	-	-	VISUAL
SS 21	73.5	2 10 4 8	0.5	29	-	-	-	-	-	-	VISUAL
SS 22	78.5	5 25 11 14	0.5	28	-	-	-	-	-	-	VISUAL
SS 23	83.5	5 23 10 13	0.5	23	-	-	-	-	-	-	VISUAL

NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer

BMB-01: PAGE 2 OF 3





PRIME ENGINEERING

& ARCHITECTURE INC.

TEST BORING No.:

BMB-02

STA. & OFFSET:

450+35.89, 29.32' Lt.

ELEVATION:

702.5ft

PROJECT:

Bridge No. SUM-271-0854 Lt. over BM Road

PROJECT No.:

03001g

DRILLING INFORMATION:

North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig

GROUNDWATER INFORMATION:

Groundwater was encountered at 11.5 feet during and at 26.0 feet upon completion of drilling operations.

GROUNDWATER DURING DRILLING

GROUNDWATER UPON COMPLETION

EXTENDED GROUNDWATER READING

ELEV (ft.)

DEPTH (ft.)

Soil/Rock Symbol

MATERIAL DESCRIPTION

SS 15

43.5

5

8

9

15

1.0

25

-

-

-

-

-

-

VISUAL

SS 16

48.5

5

8

10

18

0.75

26

-

-

-

-

-

-

VISUAL

SS 17

53.5

3

7

10

17

0.75

28

-

-

-

-

-

-

VISUAL

SS 18

58.5

5

9

12

19

0.75

25

-

-

-

-

-

-

VISUAL

SS 19

63.5

8

11

13

24

1.5

21

31

19

12

0

1

98

A-6a

SS 20

68.5

13

13

8

13

1.5

23

-

-

-

-

-

-

VISUAL

SS 21

73.5

14

14

10

14

-

24

-

-

-

-

-

-

VISUAL

SS 22

78.5

11

14

20

34

2.5

18

-

-

-

-

-

-

VISUAL

SS 23

83.5

8

17

24

41

4.0

20

-

-

-

-

-

-

VISUAL

NOTES/REMARKS:

SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer

BMB-02: PAGE 2 OF 3



PRIME ENGINEERING

& ARCHITECTURE INC.

TEST BORING No.:

BMB-02

STA. & OFFSET:

450+35.89, 29.32' Lt.

ELEVATION:

702.5ft

PROJECT:

Bridge No. SUM-271-0854 Lt. over BM Road

PROJECT No.:

03001g

DRILLING INFORMATION:

North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig

GROUNDWATER INFORMATION:

Groundwater was encountered at 11.5 feet during and at 26.0 feet upon completion of drilling operations.

GROUNDWATER DURING DRILLING

GROUNDWATER UPON COMPLETION

EXTENDED GROUNDWATER READING

ELEV (ft.)	DEPTH (ft.)	Soil/Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%/ROD%	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED (%) OR SILT (%) / CLAY (%)	CLASSIFICATION SYMBOL
									L	PL	PI				
			Hard, gray SILT AND CLAY (A-6a), trace sand, trace to no rock fragments, moist. (continued)	SS 24	88.5	11 23 44	4.5+	13	-	-		-	-		VISUAL
609.0	93.5		Hard, gray SILT AND CLAY (A-6a), little to trace sand, trace rock fragments, moist.	SS 25	93.5	11 25 79	4.5+	15	32	18	14	8	13	78	A-6a
				SS 26	98.5	11 23 55	4.5+	14							VISUAL
				SS 27	103.5	11 23 53	3.5	18							VISUAL
				SS 28	108.5	9 18 49	4.25	18							VISUAL
587.5	115.0		TERMINATION DEPTH = 115.0 FEET	SS 29	113.5	9 18 44	4.5+	19							VISUAL

NOTES/REMARKS:

SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer

BMB-02: PAGE 3 OF



PE PRIME ENGINEERING & ARCHITECTURE INC.		TEST BORING No.: BMB-03													
		STA. & OFFSET: _____	ELEVATION: _____												
		@ R/W IR 271, STA. 451+20.60, 27.62' LT. = @ CONST. SB IR 271, STA. 1451+21.13, 25.72' RT.													
CLIENT: <u>Richland Engineering Ltd.</u>															
PROJECT: <u>Bridge No. SUM-271-0854 Lt. over BM Road</u>		PROJECT No.: <u>03001g</u>													
LOCATION: <u>Summit County, OH</u>															
DATE STARTED: <u>2/28/03</u>		DATE COMPLETED: <u>3/4/03</u>													
SAMPLER DIAM: <u>2.0"</u>		FALL: <u>30"</u>													
CASING DIAM: <u>3.25"</u>		OTHER: _____													
DRILLING INFORMATION:		FIELD DATA													
North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig		LABORATORY DATA													
GROUNDWATER INFORMATION:															
Groundwater was encountered at 32.0 feet during and at 25.8 feet upon completion of drilling operations.															
 GROUNDWATER DURING DRILLING GROUNDWATER UPON COMPLETION EXTENDED GROUNDWATER READING															
ELEV (ft.)	DEPTH (ft.)	Soil/Rock Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/6 INCHES N-VALUE (BLOWS/FT) OR REC%(ROD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%)/CLAY (%)	CLASSIFICATION SYMBOL
									LL	PL	PI				
735.3	0.3	[Hatched]	TOPSOIL	SS 1	1.0	4 7 11		17	37	22	15	2	10	88	A-6a
			Very stiff to stiff, brown SILT AND CLAY (A-6a), trace sand, trace rock fragments, moist (fill).	SS 2	3.5	8 8 5		21	-	-	-	-	-	-	VISUAL
				SS 3	6.0	7 7 10		19	-	-	-	-	-	-	VISUAL
				SS 4	8.5	9 3 10		20	-	-	-	-	-	-	VISUAL
				SS 5	11.0	9 3 10		21	-	-	-	-	-	-	VISUAL
				SS 6	13.5	9 3 10		21	-	-	-	-	-	-	VISUAL
				SS 7	16.0	9 3 10		22	-	-	-	-	-	-	VISUAL
				SS 8	18.5	9 3 11		25	-	-	-	-	-	-	VISUAL
			Note: Dark brown organic layer encountered at 19.8 feet.	SS 9	21.0	5 10 10		21	-	-	-	-	-	-	VISUAL
			Hard to medium stiff, brown CLAY (A-7-6), trace sand, trace rock fragments, moist to wet.	SS 10	23.5	3 8 16		19	-	-	-	-	-	-	VISUAL
				SS 11	26.0	5 12 18		24	48	26	22	2	1	97	A-7-6
				SS 12	28.5	1 1 5		30	-	-	-	-	-	-	VISUAL
				SS 13A	33.5	1 1 5		18	-	-	-	-	-	-	VISUAL
702.1	33.5	[Cross-hatch]	Brown gravel with sand and silt layer, wet.	13B	34.0	1 1 5		28	-	-	-	-	-	-	VISUAL
701.6	34.0	[Cross-hatch]	Medium dense to very dense, gray SILT (A-4b), trace clay, trace sand, moist.	SS 14	38.5	2 5 2		25	NP	NP	NP	0	1	63/36	A-4b
NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer															



PRIME ENGINEERING

& ARCHITECTURE INC.

TEST BORING No.:

BMB-03

STA. & OFFSET:

451+20.60, 27.62' Lt.

ELEVATION:

735.6ft

PROJECT:

Bridge No. SUM-271-0854 Lt. over BM Road

PROJECT No.:

03001g

DRILLING INFORMATION:

North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig

GROUNDWATER INFORMATION:

Groundwater was encountered at 32.0 feet during and at 25.8 feet upon completion of drilling operations.

GROUNDWATER DURING DRILLING

GROUNDWATER UPON COMPLETION

EXTENDED GROUNDWATER READING

ELEV (ft.)

DEPTH (ft.)

Soil/Rock Symbol

MATERIAL DESCRIPTION

SS 15

43.5

5 9 11

20

21

-

-

-

-

-

-

VISUAL

SS 16

48.5

7 9 16

25

23

-

-

-

-

-

-

VISUAL

SS 17

53.5

7 14 19

33

21

-

-

-

-

-

-

VISUAL

SS 18

58.5

10 23 29

66

21

-

-

-

-

-

-

VISUAL

SS 19

63.5

5 8 11

19

29

-

-

-

-

-

-

VISUAL

SS 20

68.5

5 11 13

24

28

-

-

-

-

-

-

VISUAL

SS 21

73.5

8 10 11

19

24

-

-

-

-

-

-

VISUAL

SS 22

78.5

9 16 23

39

1.75

20

30

18

12

0

1

99

A-6a

SS 23

83.5

8 10 13

23

1.75

25

-

-

-

-

-

-

VISUAL

NOTES/REMARKS:

SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer

BMB-03: PAGE 2 OF 3



PROJECT: Bridge No. SUM-271-0854 Lt. over BM Road PROJECT No.: 03001g

DRILLING INFORMATION:				FIELD DATA				LABORATORY DATA							
North America Drilling, Inc. using a CME 55 Truck Mounted Drill Rig				SAMPLE NUMBER	SAMPLE DEPTH	BLOWS/INCHES N-VALUE (BLOWS/FT) OR REC%/(ROD%)	PENETROMETER (tons/ft²)	MOISTURE CONTENT (%)	ATTERBERG LIMITS (%)			AGGREGATE (%)	COARSE AND FINE SAND (%)	SILT AND CLAY COMBINED(%) OR SILT(%) /CLAY(%)	CLASSIFICATION SYMBOL
GROUNDWATER INFORMATION:									L	P	I				
Groundwater was encountered at 32.0 feet during and at 25.8 feet upon completion of drilling operations.															
GROUNDWATER DURING DRILLING				GROUNDWATER UPON COMPLETION				EXTENDED GROUNDWATER READING							
ELEV (ft.)	DEPTH (ft.)	Soil/ Rock Symbol	MATERIAL DESCRIPTION												
632.1-	103.5-		Very stiff to hard, gray SILT AND CLAY (A-6a), trace sand, trace to no rock fragments, moist. (continued)	SS 24	88.5	7 9 10	19	0.75	26	-	-	-	-	-	VISUAL
				SS 25	93.5	9 11 12	23	1.0	27	-	-	-	-	VISUAL	
			Note: Occasional silt lenses encountered at 98.5 feet.	SS 26	98.5	8 14 19	33	2.25	23	-	-	-	-	VISUAL	
				SS 27	103.5	8 17 19	36	4.5+	21	-	-	-	-	VISUAL	
				SS 28	108.5	10 21 24	45	3.0	21	-	-	-	-	VISUAL	
				SS 29	113.5	7 14 15	29	3.5	21	-	-	-	-	VISUAL	
615.6-	120.0		Hard to very stiff, gray SILT (A-4b), some clay, trace sand, trace to no rock fragments, moist.	SS 30	118.5	16 28 32	60	3.5	21	-	-	-	-	VISUAL	
			TERMINATION DEPTH = 120.0 FEET												
NOTES/REMARKS: SS = Split Spoon, HSA = Hollow Stem Augur, ST = Shelby Tube, NP = Non Plastic, WOH = Weight Of Hammer															
BMB-03: PAGE 3 OF 3															



State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Date Started 4-29-70
Date completed 5-1-70
Boring No.. B-1
Sampler: Type SS/ST Dia. 1 3/8, 3"
Station & Offset 449+25, &=

Water Elev. 682.9
Surface Elev. 724.9

B-001-0-70
& RW IR 271, STA. 449+25.00, & =
& CONST. NB IR 271, STA. 2449+25.84, 53.37' LT.
NAVD 88 ELEVATION = NGVD 29 ELEVATION - 0.732 FEET

Elev.	Depth	Std. Pen. (N)	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics							ODOT Class																		
							% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.																		
724.9	0																															
719.9	2				STIFF, SILTY CLAY, TRACE GRAVEL, LITTLE COARSE TO FINE SAND	1	0	5	6	32	57	37	17	19	A-6b																	
	4																															
	6	6/8																														
	8																															
714.9	10				STIFF, SILT AND CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	2	0	3	5	36	58	30	11	18	A-6a																	
	12	5/6																														
	14																															
	16	5/8																														
709.9	18				STIFF, SILT AND CLAY, LITTLE GRAVEL, LITTLE COARSE TO FINE SAND	3	12	7	7	29	45	32	13	19	A-6a																	
	20	11/11																														
	22																															
	24																															
699.9	26	7/9			MEDIUM DENSE, SANDY SILT, TRACE GRAVEL, SOME CLAY	5	0	4	20	46	30	NP	NP	17	A-4a																	
694.9	28				VERY STIFF, SILTY CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	6	0	1	2	36	61	37	16	20	A-6b																	
	30	12/16																														
	32																															
	34																															
689.9	36	11/13			MEDIUM DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND "AND" CLAY	7	0	1	1	58	40	NP	NP	31	A-4b																	
684.9	38				LOOSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND "AND" CLAY	8	0	1	1	54	44	NP	NP	27	A-4b																	
	40	6/7																														
	42																															
	44																															
679.9	46	12/14			MEDIUM DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND, SOME CLAY	9	0	0	0	73	27	NP	NP	24	A-4b																	
674.9	48				DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND, SOME CLAY	10	0	1	2	73	24	NP	NP	21	A-4b																	
	50	17/18																														
	52																															
	54																															
669.9	56				STIFF, SILTY CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	11	0	0	0	28	72	35	16	26	A-6b																	
668.4	58	ST 6/6	67	33																												
664.9	60				VERY SOFT, CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND, LITTLE SILT	13	0	0	0	20	80	45	21	31	A-7-6																	
663.4	62	ST 5/7	100	-																												
659.9	66				VERY SOFT, SILTY CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	15	0	0	0	23	77	37	17	27	A-6b																	
558.4	68	ST 6/7	100	-																												
654.9	70				VERY SOFT, CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND, SOME SILT	17	0	0	0	21	79	46	25	31	A-7-6																	
653.4	72	ST 5/5	100	-																												
649.9	76				VERY SOFT, SILTY CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	19	0	1	2	28	69	35	17	24	A-6b																	
648.4	78	ST 9/11	100	-																												
644.9	80				VERY SOFT, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND "AND" CLAY	21	0	2	4	50	44	26	7	18	A-4b																	
643.4	82	ST 13/14	67	33																												
639.9	86				MEDIUM DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND "AND" CLAY	23	0	1	2	57	40	NP	NP	23	A-4b																	
	88	12/14																														
634.9	90				MEDIUM DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND, LITTLE CLAY	24	0	0	1	80	19	NP	NP	26	A-4b																	
	92	12/15																														
629.9	94				MEDIUM DENSE, SILT, TRACE GRAVEL, TRACE COARSE TO FINE SAND, SOME CLAY	25	0	1	3	68	28	NP	NP	22	A-4b																	
	96	9/13																														
624.9	100	19/26			HARD, SILT AND CLAY, TRACE GRAVEL, TRACE COARSE TO FINE SAND	26	0	2	6	40	52	28	11	17	A-6a																	

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm, Fine Sand= 0.42-0.074mm, Silt+= 0.074-0.005mm, Clay= <0.005mm



DESIGN AGENCY

DESIGNER

ARR

REVIEWER

AAM 01/05/26

PROJECT ID

111417

SUBSET

9

TOTAL

10

SHEET

P.0

TOTAL

0

GEOTECHNICAL PROFILE - BRIDGE
BRIDGE NO. SUM-271-0853 L/R OVER BOSTON MILLS ROAD
HISTORICAL BORING LOG FOR B-001-0-70

B-012-0-65

LOG OF BORING

NAVD 88 ELEVATION = NGVD 29 ELEVATION - 0.732 FEET

Date Started: 4-28-65

Date Completed: 4-28-65

Boring No.: B-12

Sampler Type: SS

Casing: Length: 25'

Station & Offset: 450+50, 37' Rlt (FORWARD PIER)

Water Elev. _____

Surface Elev. 702.9'

Elev.		Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class
								% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
702.9	0					§ RW IR 271, STA. 450+50.00, 37.00' RT. = § CONST. NB IR 271, STA. 2450+50.23, 16.34' LT.	1	0	4	3	40	53	36	15	28	A-6a		
700.4	2	5/4					2	0	4	6	48	42	32	11	23	A-6a		
697.9	4	5/5					3	25	30	11	21	13	NP	NP	17	A-2-4		
695.4	6	3/2					4	0	3	11	60	26	31	7	30	A-4b		
692.9	8	3/1					5	40	35	7	6	12	22	7	21	A-2-4		
690.4	10	3/4					6	0	2	4	34	60	38	15	22	A-6a		
687.9	12	6/10					7	22	8	3	37	30	30	9	23	A-4a		
685.4	14	6/10					8	0	1	4	39	56	35	15	21	A-6a		
682.9	16	7/11																
677.9	18						9	9	1	1	63	26	NP	NP	23	A-4b		
672.9	20	12/10					10	0	1	0	17	82	44	19	34	A-7-6		
667.9	22	9/11																
662.9	24	8/12					11	0	0	0	40	60	34	13	26	A-6a		
657.9	26	8/11					12	0	0	0	37	63	37	17	32	A-6b		
652.9	28	6/7					13	0	0	0	22	78	37	15	33	A-6a		
647.9	30	7/11					14	0	1	0	25	74	43	23	34	A-7-6		
642.9	32	10/10					15	0	0	1	35	64	38	15	28	A-6a		
637.9	34	12/13					16	0	1	1	34	64	33	12	23	A-6a		
632.9	36	18/21					17	0	0	0	36	64	32	12	23	A-6a		
627.9	38	21/23					18	0	0	1	59	40	NP	NP	32	A-4b		
622.9	40	16/20					19	0	0	1	85	14	NP	NP	18	A-4b		
617.9	42	24/22					20	0	2	6	72	20	26	8	17	A-4b		
612.9	44	22/26					21	0	0	1	60	39	NP	NP	21	A-4b		
607.9	46	50* (0.7')					22	0	1	1	56	42	NP	NP	21	A-4b		
602.9	48	50* (0.8')					23	15	3	2	32	48	31	9	13	A-4a		
602.1	50	50* (0.8')				24	9	4	5	33	49	29	11	15	A-6a			