APPENDIX B

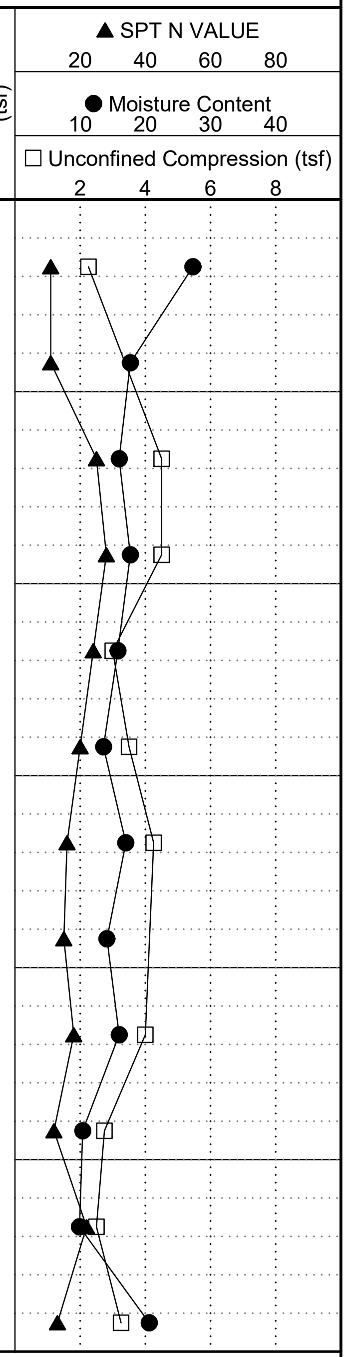
SOIL BORING LOGS

GSG Consultants, Inc.
623 Cooper Court
Schaumburg, Illinois 60173
Telephone: 224-203-4068

BORING NUMBER B-1

CLIENT Bowman Consulting
PROJECT NAME 75th St Improvements
PROJECT NUMBER 19-2033
PROJECT LOCATION Naperville, IL
DATE STARTED 12/30/19 **COMPLETED** 12/30/19
GROUND ELEVATION 695.00 ft **HOLE SIZE** 3 1/4"
DRILLING CONTRACTOR GSG Drilling
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING --- None
LOGGED BY PS **CHECKED BY** DE
AT END OF DRILLING --- N/A
NOTES
AFTER DRILLING --- N/A

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (%)	BLOW COUNTS (N VALUE)	UNCONFINED COMPRESSION (tsf)
0	3 inches Topsoil				
	FILL: SILTY CLAY, trace sand, trace gravel, trace organics - Grayish Brown - Moist	SS 1	67	3-5-6 (11)	2.25
5		SS 2	6	5-5-6 (11)	
	FILL: SILTY CLAY, trace sand, trace gravel - Brown - Moist	SS 3	78	5-10-15 (25)	4.5
10	Dry Unit Weight at 8.5 ft = 111.5 pcf	SS 4	78	9-13-15 (28)	4.5
	Push Rock at 11 feet	SS 5	67	6-11-13 (24)	3.0
	SILTY CLAY, trace sand, trace gravel (CL/ML) - Gray - Very Stiff to Hard - Moist				
15		SS 6	67	6-9-11 (20)	3.5
		SS 7	78	4-6-10 (16)	4.25
20		SS 8	6	6-7-8 (15)	
	Cobbles at 20 feet	SS 9	17	3-10-8 (18)	4.0
	Cobbles at 22.5 feet				
25	SILTY CLAY, with sand, trace gravel (CL/ML) - Gray - Very Stiff - Moist	SS 10	100	4-5-7 (12)	2.75
		SS 11	33	12-12-10 (22)	2.5
30		SS 12	89	4-5-8 (13)	3.25



Bottom of borehole at 30.0 feet.

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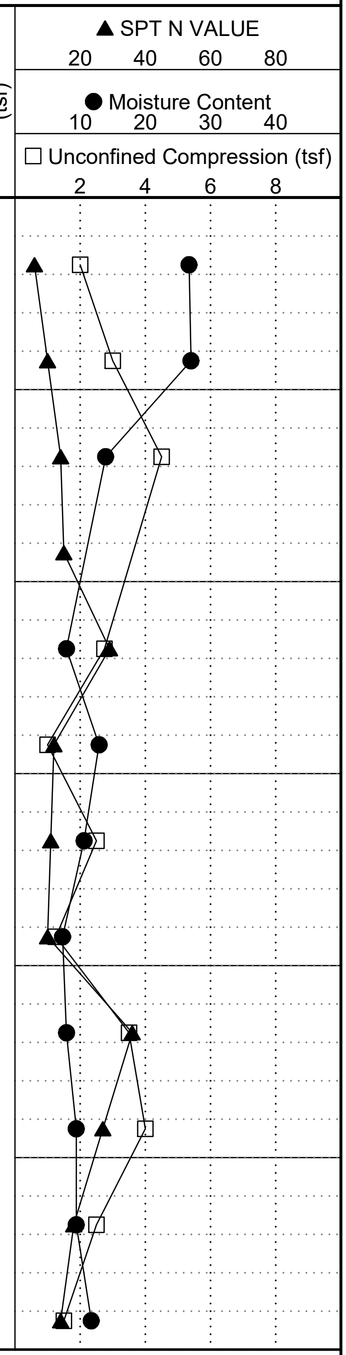
Telephone: 224-203-4068

BORING NUMBER B-2

CLIENT Bowman Consulting
PROJECT NAME 75th St Improvements
PROJECT NUMBER 19-2033
PROJECT LOCATION Naperville, IL
DATE STARTED 1/3/20 **COMPLETED** 1/3/20
GROUND ELEVATION 687.00 ft **HOLE SIZE** 3 1/4"
DRILLING CONTRACTOR GSG Drilling
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING --- None
LOGGED BY PS **CHECKED BY** DE
AT END OF DRILLING --- N/A
NOTES
AFTER DRILLING --- N/A

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (%)	BLOW COUNTS (N VALUE)	UNCONFINED COMPRESSION (tsf)
0	8 inches Topsoil				
	FILL: SILTY CLAY, some sand, trace gravel - Brown and Gray - Moist	SS 1	33	2-3-3 (6)	2.0
5		SS 2	67	4-4-6 (10)	3.0
	Dry Unit Weight at 6 ft = 120.3 pcf	SS 3	67	5-6-8 (14)	4.5
10		SS 4	0	5-7-8 (15)	
	Cobbles at 12 feet	SS 5	78	6-20-9 (29)	2.75
15		SS 6	83	3-5-7 (12)	1.0
	SILTY CLAY, trace sand, trace gravel (CL/ML) - Gray - Stiff to Very Stiff - Moist	SS 7	44	6-5-6 (11)	2.5
20		SS 8	67	4-5-5 (10)	1.25
	Sand Seam at 21.5 feet	SS 9	67	10-20-16 (36)	3.5
25		SS 10	67	9-12-15 (27)	4.0
		SS 11	78	6-8-10 (18)	2.5
30		SS 12	100	5-6-8 (14)	1.5



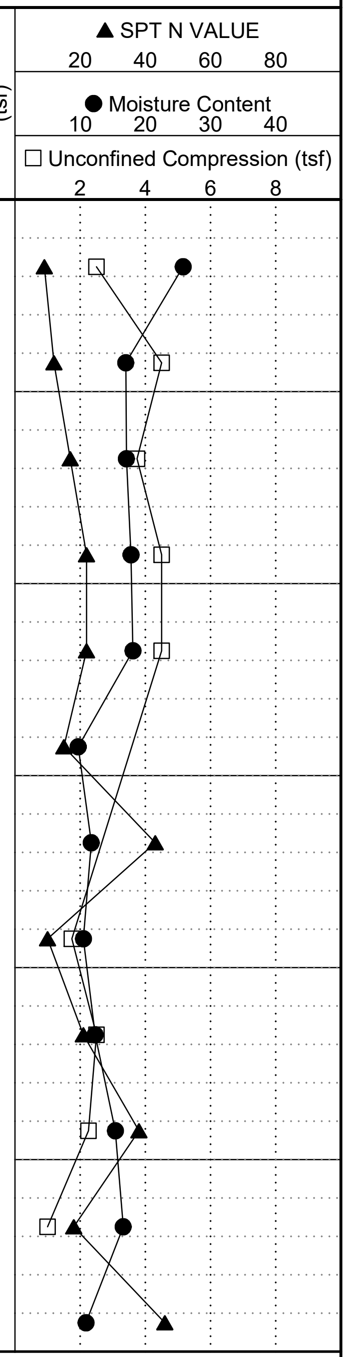
Bottom of borehole at 30.0 feet.

GSG Consultants, Inc.
623 Cooper Court
Schaumburg, Illinois 60173
Telephone: 224-203-4068

BORING NUMBER B-3

CLIENT Bowman Consulting
PROJECT NAME 75th St Improvements
PROJECT NUMBER 19-2033
PROJECT LOCATION Naperville, IL
DATE STARTED 1/3/20 **COMPLETED** 1/3/20
GROUND ELEVATION 679.00 ft **HOLE SIZE** 3 1/4"
DRILLING CONTRACTOR GSG Drilling
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING 13.00 ft / Elev 666.00 ft
LOGGED BY PS **CHECKED BY** DE
AT END OF DRILLING --- N/A
NOTES
AFTER DRILLING --- N/A

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (%)	BLOW COUNTS (N VALUE)	UNCONFINED COMPRESSION (tsf)
0	4 inches Topsoil				
	FILL: SILTY CLAY, trace sand, trace gravel - Light Brown - Moist	SS 1	44	3-4-5 (9)	2.5
5		SS 2	56	5-6-6 (12)	4.5
	Plastics and Brick Fragments at 7.5 feet	SS 3	100	5-7-10 (17)	3.75
10	FILL: SILTY CLAY, trace sand, trace gravel - Dark Brown - Moist Dry Unit Weight at 8.5 ft = 114.3 pcf	SS 4	100	7-12-10 (22)	4.5
	Organics at 12 feet to 13 feet	SS 5	100	6-9-13 (22)	4.5
15	SAND, with gravel (SPG) - Brown - Medium Dense to Dense - Moist	SS 6	39	3-6-9 (15)	
		SS 7	39	12-21-22 (43)	
20	SILTY CLAY, trace sand, trace gravel (CL/ML) - Gray - Stiff to Very Stiff - Moist	SS 8	56	3-4-6 (10)	1.75
		SS 9	39	4-8-13 (21)	2.5
25		SS 10	78	4-6-32 (38)	2.25
	SANDY CLAY, trace gravel (SC) - Brown - Stiff - Moist	SS 11	67	10-9-9 (18)	1.0
30	SAND, with gravel (SPG) - Brown - Dense - Moist Cobbles at 29.5 feet	SS 12	67	26-18-28 (46)	



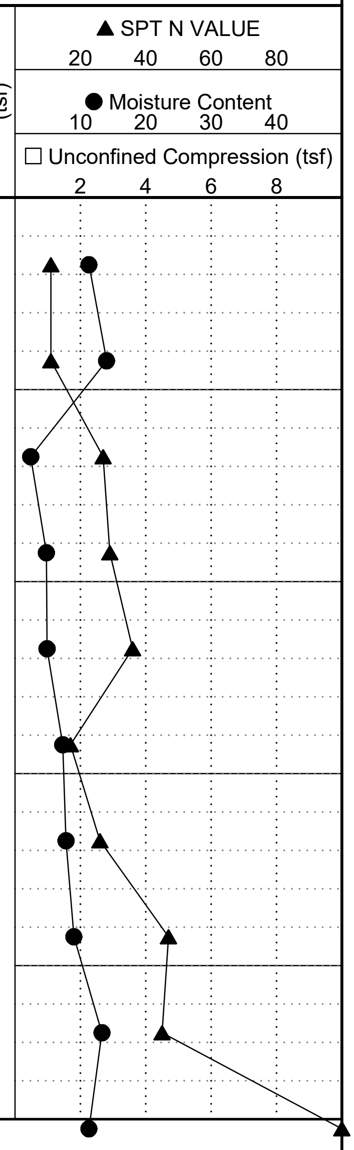
Bottom of borehole at 30.0 feet.

BORING NUMBER B-4

GSG Consultants, Inc.
623 Cooper Court
Schaumburg, Illinois 60173
Telephone: 224-203-4068

CLIENT Bowman Consulting
PROJECT NAME 75th St Improvements
PROJECT NUMBER 19-2033
PROJECT LOCATION Naperville, IL
DATE STARTED 12/30/19 **COMPLETED** 12/30/19
GROUND ELEVATION 661.00 ft **HOLE SIZE** 3 1/4"
DRILLING CONTRACTOR GSG Drilling
GROUND WATER LEVELS:
DRILLING METHOD HSA
AT TIME OF DRILLING 21.00 ft / Elev 640.00 ft
LOGGED BY PS **CHECKED BY** DE
AT END OF DRILLING --- N/A
NOTES
AFTER DRILLING --- N/A

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (%)	BLOW COUNTS (N VALUE)	UNCONFINED COMPRESSION (tsf)
0	4 inches Topsoil				
	CLAYEY SAND, with gravel (SC) - Red-Brown - Medium Dense - Moist	SS 1	78	5-5-6 (11)	
5		SS 2	33	4-4-7 (11)	
		SS 3	28	15-12-15 (27)	
	SAND, with gravel, trace clay (SPG) - Brown - Medium Dense to Dense - Moist				
10		SS 4	33	8-12-17 (29)	
		SS 5	33	12-18-18 (36)	
15		SS 6	22	12-10-7 (17)	
		SS 7	44	16-14-12 (26)	
	CLAYEY SAND, with gravel (SC) - Red-Brown - Dense to Extremely Dense - Moist				
20		SS 8	56	15-27-20 (47)	
		SS 9	44	27-27-18 (45)	
	Weathered Limestone at 24 feet Auger Refusal at 24 feet Bottom of borehole at 24.0 feet.	SS 10	22	14-50-50 (100)	



APPENDIX C

PAVEMENT CORE PHOTOGRAPHS

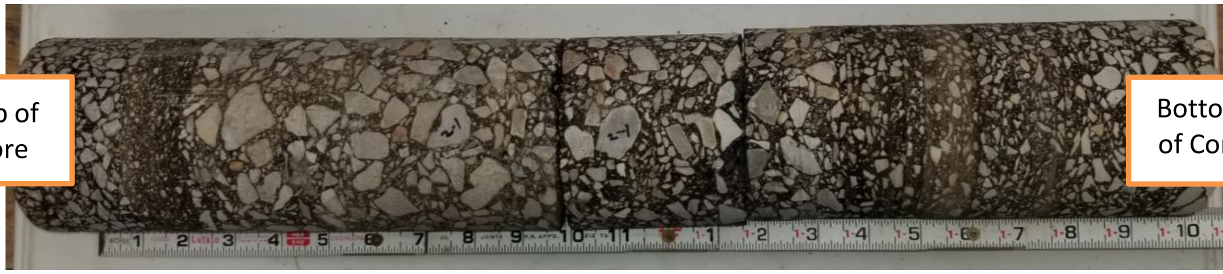
Top of Core

Bottom of Core

C-2–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
North lane of 75th St east of Millbrook Dr.	3.0	9.0	8.0	20.0

*Pictures of the core measurements may differ from measured values



C-3–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
South side of 75th St. west of Modaff Rd.	23.0	None	7.0	30.0

*Pictures of the core measurements may differ from measured values

Top of Core

Bottom of Core

C-4–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
North side of 75th St. east of Modaff Rd.	3.5	10.5	8.0	22.0

*Pictures of the core measurements may differ from measured values

C-5–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
South side of 75th St. west of Olympus Dr.	17.5	8.5	7.0	33.0

*Pictures of the core measurements may differ from measured values

C-6–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
North side of 75^{th} St. east of Olympus Dr.	3.5	10.5	8.0	22.0

*Pictures of the core measurements may differ from measured values

C-7–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
South side of 75th St. west of Greene Rd.	3.0	12.0	7.0	22.0

*Pictures of the core measurements may differ from measured values

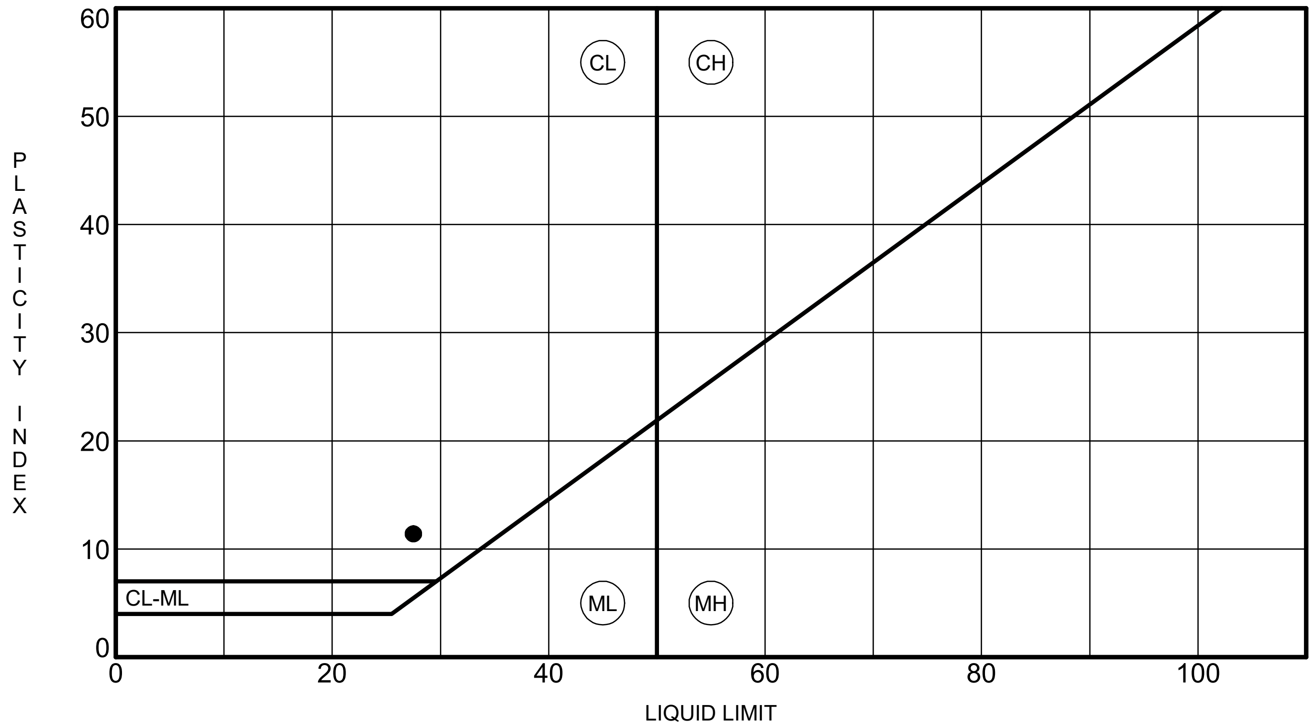
C-8–Pavement Core

Location	Asphalt Thickness (in.)	Concrete Thickness (in.)	Subbase Thickness (in.)	Total Pavement and Subbase Thickness (in.)
North side of 75th St. east of Greene Rd.	4.0	9.0	8.0	21.0

*Pictures of the core measurements may differ from measured values

APPENDIX D

LABORATORY RESULTS



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**B-1**	**13.50**	**27.5**	**16.1**	**11.4**		**Gray Silty Clay**

GSG CONSULTANTS, INC.
ENGINEERS • SCIENTISTS • CONSTRUCTION MANAGERS

GSG Consultants, Inc.
623 Cooper Court
Schaumburg, IL 60173
(630) 994-2600

ATTERBERG LIMITS' RESULTS

Route:

Section:

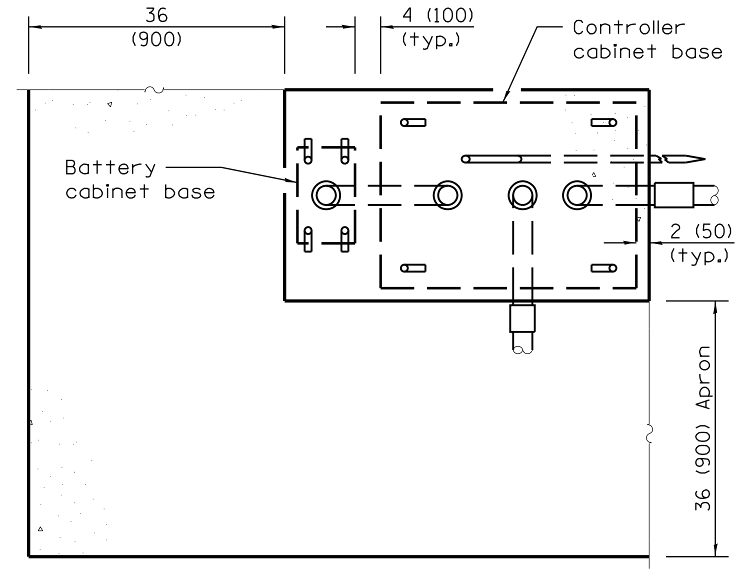
County:

Organic Content Results

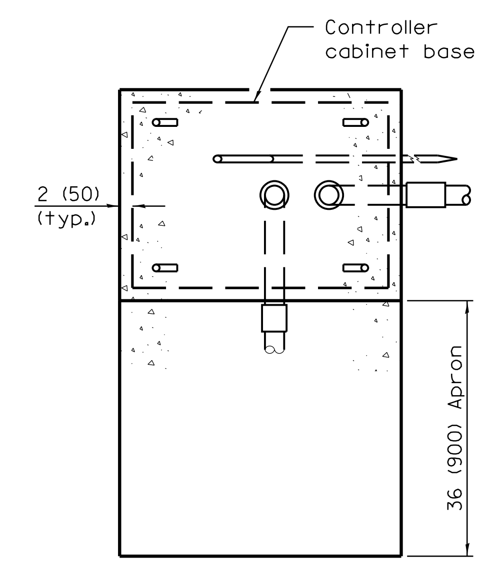
Boring	Depth (feet)	Organic Content (%)
B-1	1	4.7
B-3	11	3.4

APPENDIX E

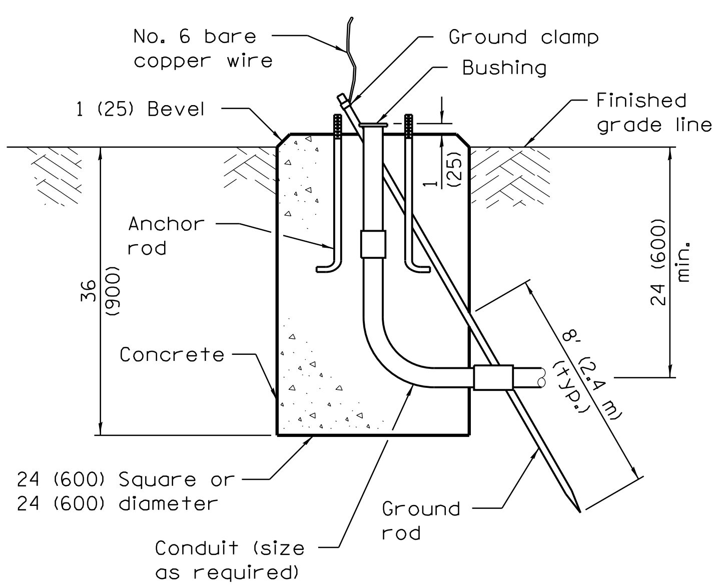
IDOT HIGHWAY STANDARD 878001-10



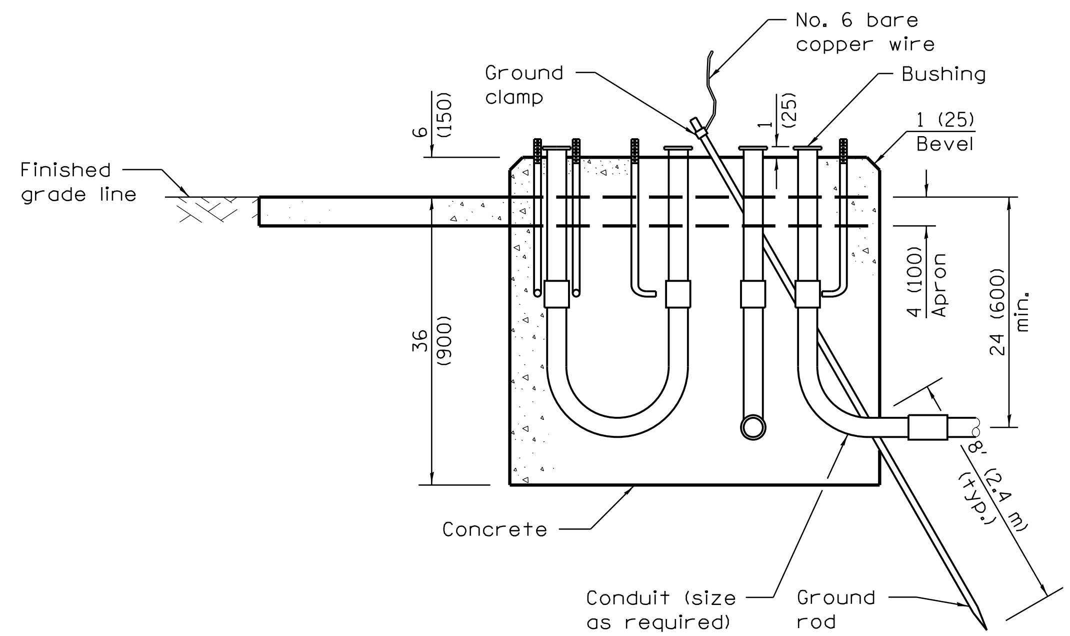
TOP VIEW



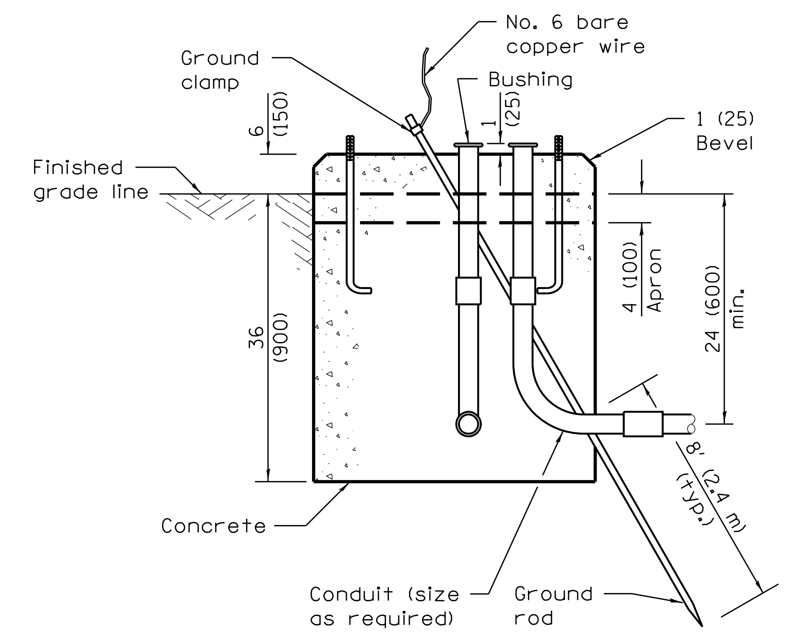
TOP VIEW



TYPE A



TYPE C
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

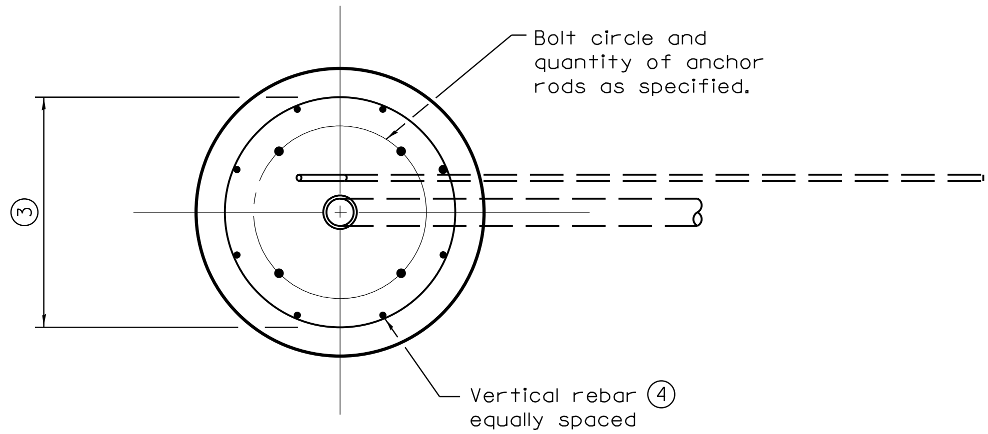
APPROVED January 1, 2015
ENGINEER OF OPERATIONS
APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT
ISSUED 1-1-02

DATE	REVISIONS
1-1-15	Revised TYPE E detail.
1-1-12	Replaced rebar No.'s
	with 'Vertical' for TYPE E
	foundation detail.

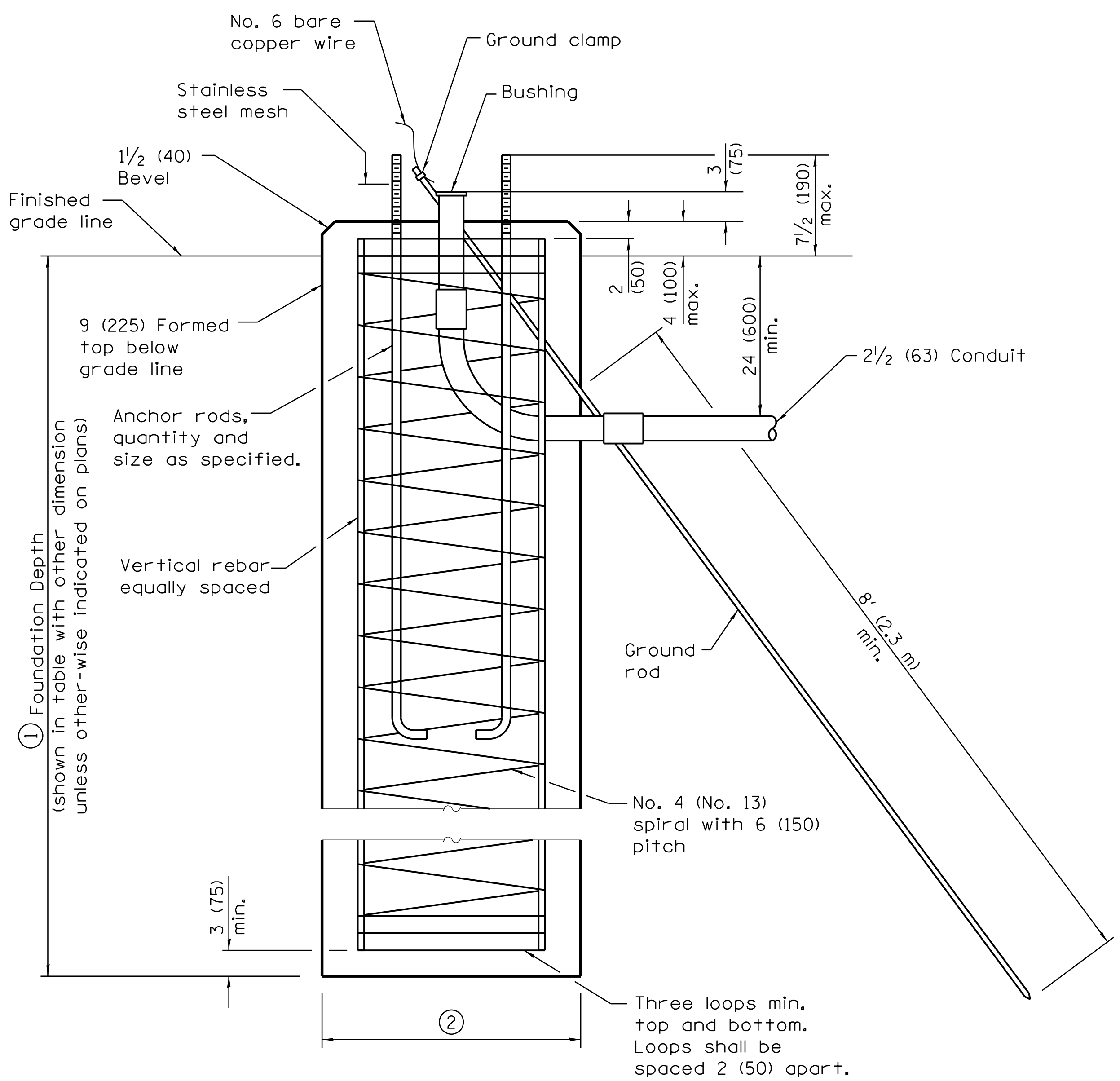
CONCRETE FOUNDATION DETAILS

(Sheet 1 of 2)

STANDARD 878001-10



TOP VIEW



TYPE E

Mast Arm Length	① Foundation Depth •	② Foundation Diameter	③ Spiral Diameter	④ Quantity of Rebars	Size of Rebars
Less than 30' (9.1 m)	10'-0" (3.0 m)	30 (750)	24 (600)	8	6 (19)
Greater than or equal to 30' (9.1 m) and less than 40' (12.2 m)	13'-6" (4.1 m)	30 (750)	24 (600)	8	6 (19)
	11'-0" (3.4 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	13'-0" (4.0 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	15'-0" (4.6 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 56' (16.8 m) and less than 65' (19.8 m)	21'-0" (6.4 m)	42 (1060)	36 (900)	16	8 (25)
Greater than or equal to 65' (19.8 m) and up to 75' (22.9 m)	25'-0" (7.6 m)	42 (1060)	36 (900)	16	8 (25)

• For standard and combination mast arm assemblies. Foundation depths for standard dual mast arms with the longest arm length upto and including 55' (16.8 m) shall be increased by 1' (0.3 m) of that shown in the table, based on the longer of the two arms.

These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Qu) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

Illinois Department of Transportation

APPROVED January 1, 2015
ENGINEER OF OPERATIONS

APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

CONCRETE FOUNDATION DETAILS

(Sheet 2 of 2)

STANDARD 878001-10