



Illinois Department of Transportation

Memorandum

To: Jay Wavering Attn: Jon Kelley
From: Chris Isbell By: Luke Murphy *LTM*
Subject: Contract 72D17 Traffic Signal Foundation Recommendations
Date: June 13, 2023

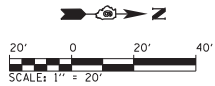
CPT Borings taken at the Intersection of 6th Street and St. Joseph, on June 7th, 2023, indicated that all traffic signals foundations, except the 34' long Mast Arm at the NW Quadrant of the intersection could be designed using Highway Standard 878001-11. The average unconfined compressive strength for the possible foundations at the NW Quadrant had an unconfined compressive strength less than 1.0 tsf, as required by the Highway Standard. As a result, foundation diameter(s) and depth(s) have been determined using the CPT borings and the Traffic Signal Layout dated 1/16/2023 provided to the District Geotechnical Engineer. The resultant recommendations are given in the table below:

Intersection Quadrant	Mast Arm Length	Option A		Option B	
		Foundation Diameter	Foundation Depth	Foundation Diameter	Foundation Depth
NE	58'	42"	21'	30" Not Recommended	
NW	34'	36"	12.5'	30"	16.5'
SW	48'	36"	13'	30" Not Recommended	
SE	30'	36"	11'	30"	13.5'

In addition to the recommendations given in the table, please see the attachment for boring location layout and boring logs.

If you have any questions or comments please contact Luke Murphy at 217-782-6709 or at luke.t.murphy@illinois.gov.

Cc: Chris Siefert



BILL OF MATERIALS

SIXTH STREET AND ST. JOSEPH STREET

ITEM	UNIT	QUANTITY
SERVICE INSTALLATION, TYPE A	EACH	1
UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	141
UNDERGROUND CONDUIT, PVC, 3" DIA.	FOOT	576
UNDERGROUND CONDUIT, PVC, 4" DIA.	FOOT	38
HANDHOLE	EACH	7
DOUBLE HANDHOLE	EACH	1
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 10	FOOT	1085
LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H	EACH	4
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1
UNINTERRUPTABLE POWER SUPPLY, STANDARD	EACH	1
TRANSCEIVER - FIBER OPTIC	EACH	1
FIBER OPTIC CABLE IN CONDUIT, 24 FIBERS, SINGLE MODE	FOOT	978
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	2200
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	3848
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	3352
ELECTRIC CABLE IN CONDUIT, SIGNAL, NO. 18 3C	FOOT	1085
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C	FOOT	53
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C	FOOT	797
TRAFFIC SIGNAL POST, ALUMINUM 16 FT.	EACH	5
PEDESTRIAN PUSH-BUTTON POST, TYPE I	EACH	5
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 48 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 58 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	15
CONCRETE FOUNDATION, TYPE C	FOOT	3
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	35
CONCRETE FOUNDATION, TYPE E 42-INCH DIAMETER	FOOT	21
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	12
SIGNAL HEAD, POLYCARBONATE, LED, 2-FACE, 3-SECTION, BRACKET MOUNTED	EACH	2
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	3
SIGNAL HEAD, POLYCARBONATE, LED, 2-FACE, 1-3-SECTION, 1-5-SECTION, BRACKET MOUNTED	EACH	1
SIGNAL HEAD, POLYCARBONATE, LED, 3-FACE, 1-3-SECTION, 2-5-SECTION, BRACKET MOUNTED	EACH	3
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, BRACKET MOUNTED	EACH	5
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 2-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	2
PEDESTRIAN SIGNAL HEAD, POLYCARBONATE, LED, 3-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	1
TRAFFIC SIGNAL BACKPLATE	EACH	30
PEDESTRIAN PUSH-BUTTON	EACH	11
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING SERVICE INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	3
REMOVE EXISTING DOUBLE HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	8
CAMERA MOUNTING ASSEMBLY	EACH	4
VIDEO VEHICLE DETECTION SYSTEM	EACH	1
COMBINATION LIGHTING CONTROLLER	EACH	1
TEMPORARY LIGHTING SYSTEM	L SUM	1

GENERAL NOTES

- SEE TRAFFIC SIGNAL INTERCONNECT SHEETS FOR PROPOSED CONDUIT OUTSIDE SHEET LIMITS & PROPOSED SIGNAL INTERCONNECTS.
- SEE REMOVAL SHEETS FOR EXISTING HANDHOLE AND CONCRETE FOUNDATION REMOVAL. ALL ITEMS INCLUDED UNDER REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT ARE LISTED ON THE TEMPORARY TRAFFIC SIGNAL LAYOUT SHEET.
- REMOVED TRAFFIC SIGNAL EQUIPMENT SHALL BE RETURNED TO IDOT.

*NOTE: BEFORE ANY OF THESE FOUNDATIONS ARE AUGERED, CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES. ADJUSTMENTS TO ACCOMMODATE EXISTING UTILITIES SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.

FILE NAME : USER NAME : Brien Bond DESIGNED : DRAWN : CHECKED : DATE : 1/13/2023

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED TRAFFIC SIGNAL LAYOUT
SOUTH SIXTH STREET & ST. JOSEPH STREET

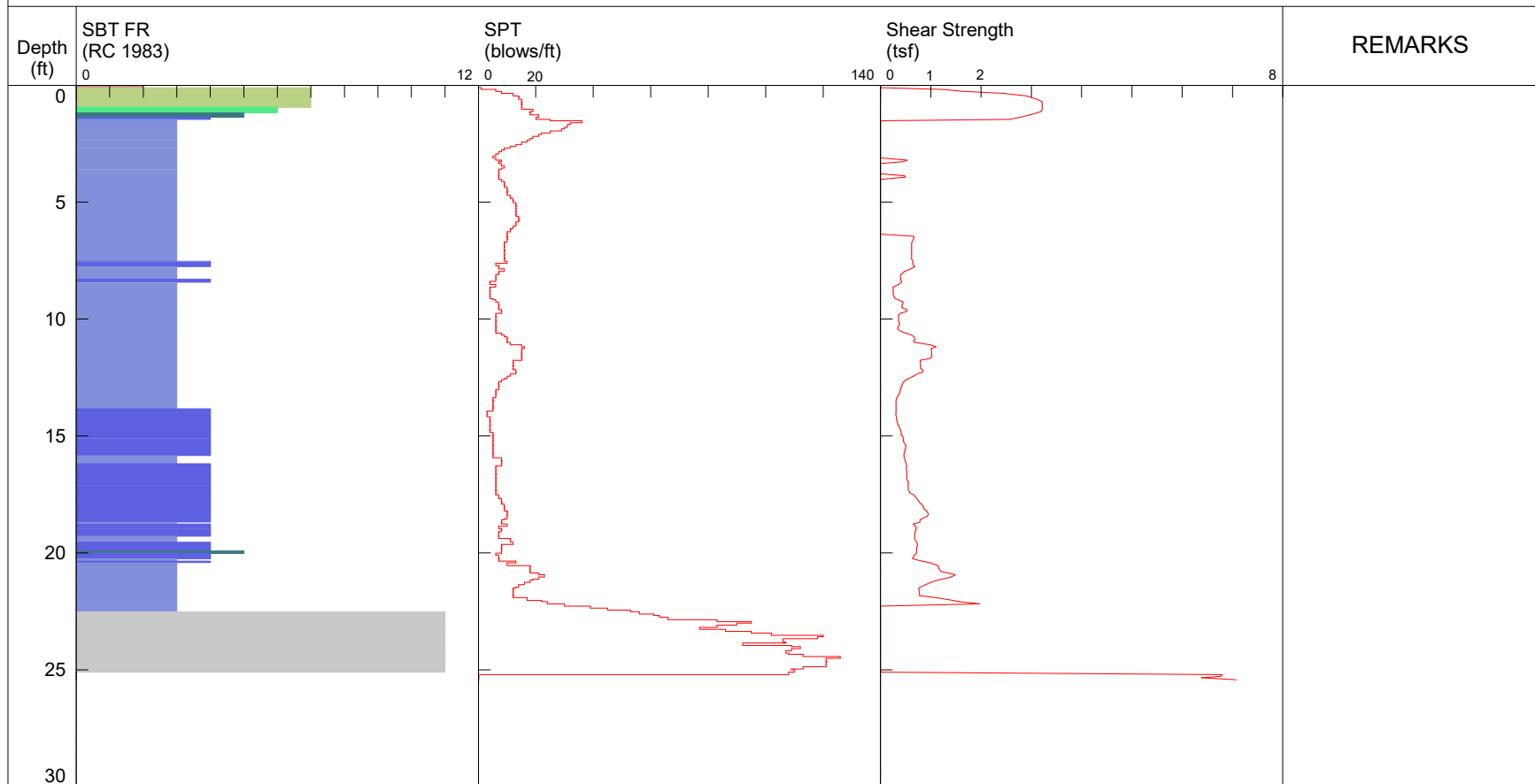
SCALE: 1" = 20' SHEET 8 OF 18 SHEETS STA. TO STA.

F.A.P. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
666	(110X-5)WRS, N, S	SANGAMON	555	447
				CONTRACT NO. 72D17
(ILLINOIS) FED. AID PROJECT				

C-SJ-N

TOTAL DEPTH: 25.432 ft
SITE: St. Joesph and 6th
SOUNDING
COMPANY: Illinois DOT
FILENAME: C-SJ-N.dat

PROBE ID: 4644.186XX
TEST ID: C-SJ-N
PROJECT: Contract 72D17
LOCATION: N Median Sta 49+63 17.5' LT



NOTES:: Example of notes

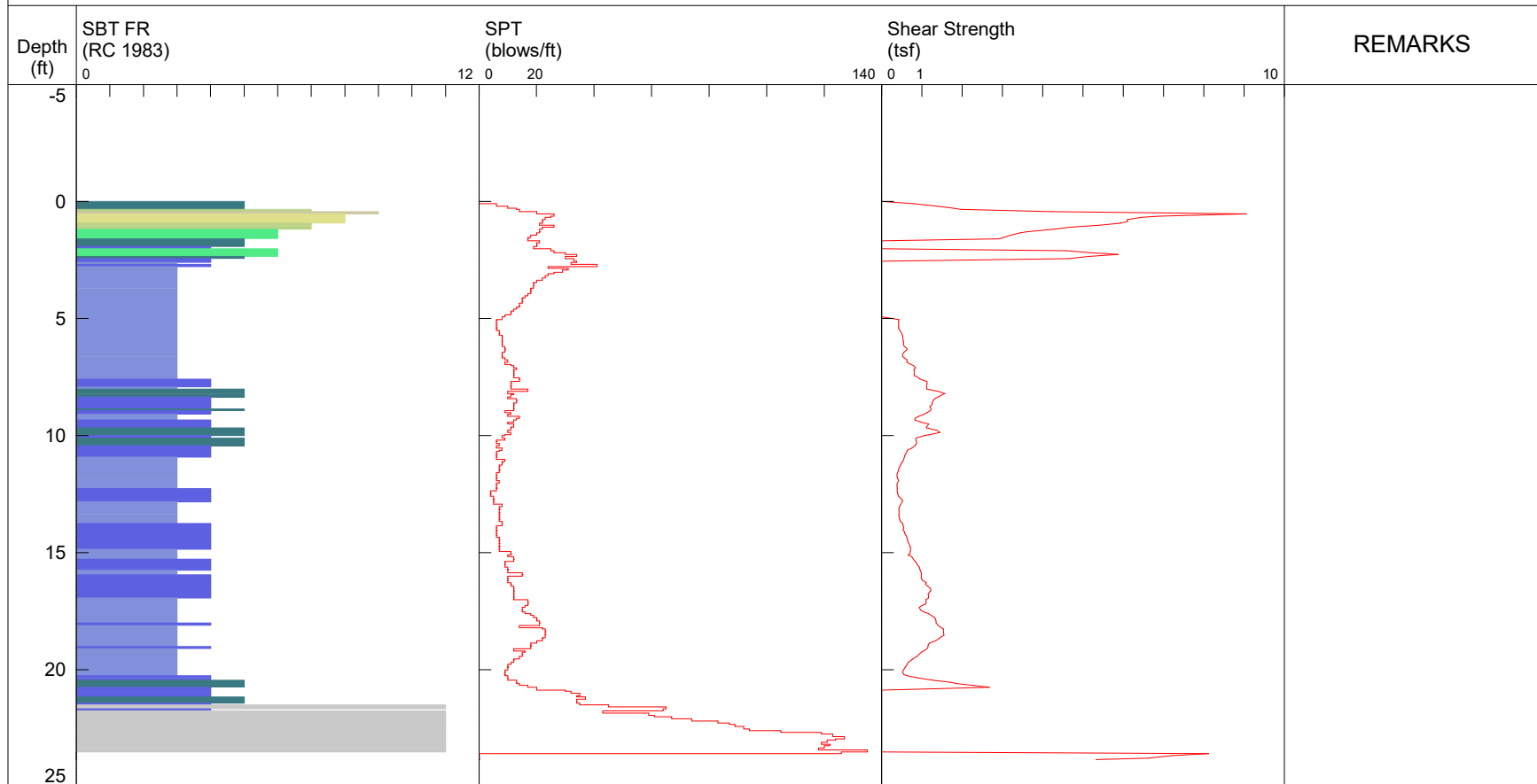
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|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
| 2 organic material | 5 clayey silt to silty clay | 8 sand to silty sand | 11 very stiff fine grained (*) |
| 3 clay | 6 sandy silt to clayey silt | 9 sand | 12 sand to clayey sand (*) |

*SBT/SPT CORRELATION: UBC-1983

C-SJ-SE

TOTAL DEPTH: 23.843 ft
 SITE: St. Joesph and 6th
 SOUNDING
 COMPANY: Illinois DOT
 FILENAME: C-SJ-SE plot.dat

PROBE ID: 4644.186XX TEST
 ID: C-SJ-SE
 PROJECT: Contract 72D17
 LOCATION: SE Quad Sta 47+71 36.9' RT



NOTES:: Example of notes

- | | | | |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay | 7 silty sand to sandy silt | 10 gravelly sand to sand |
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