CITY OF BLOOMINGTON

ADDENDUM I

BLOOMINGTON CITY COUNCIL AGENDA

OCTOBER 8, 2012

ADDITION TO CONSENT AGENDA

Item 7B. Bills and Payroll. (Recommend that the bills and payroll be allowed and orders drawn on the Treasurer for the various amounts as funds are available.) *City Council Memorandum with Attachment I.*

Item 7H. Approval of Contract Amendment in the amount of $137,802 for Morris Ave. Reconstruction: Six Points Rd. to Fox Hill Apartments. (Recommend that the contract amendment be approved.) *City Council Memorandum with Attachment.*

FOR COUNCIL: October 8, 2012

SUBJECT: Bills and Payroll

RECOMMENDATION: That the bills and payroll be allowed and orders drawn on the Treasurer for the various amounts as funds are available.

FINANCIAL IMPACT: Total disbursements to be approved $5,808,044.02, (Payroll total $1,635,699.66 and Accounts Payable total $4,172,344.36).

Respectfully submitted for Council consideration.

Prepared by: Recommended by:

Patti Lynn Silva
Director of Finance

David A. Hales
City Manager

(ON FILE IN CLERK'S OFFICE)

Attachment: Attachment 1. Bills and Payroll on file in the Clerk's office. Also available at www.cityblm.org.
Attachment 2. Summary Sheet Bills and Payroll Report

Motion: That the bills and payroll be allowed and orders drawn on the Treasurer for the various amounts as funds are available.

Motion: _____ Seconded by: _____

	Aye	Nay	Other		Aye	Nay	Other
Alderman Stearns				Alderman McDade			
Alderman Mwilambwe				Alderman Anderson			
Alderman Fazzini				Alderman Schmidt			
Alderman Sage				Alderman Fruin			
Alderman Purcell							
				Mayor Stockton			

FOR COUNCIL: October 8, 2012

SUBJECT: Approval of Contract Amendment in the amount of $137,802 for Morris Ave. Reconstruction: Six Points Rd. to Fox Hill Apartments

RECOMMENDATION/MOTION: That additional unit prices be accepted from Stark Excavating, Inc. and a contract amendment be approved in the amount of $137,802.

BACKGROUND: At the July 9, 2012 meeting, Council approved a contract with Stark Excavating for the reconstruction of Morris Ave. between Six Points Rd. and Fox Hill Circle. After the existing pavement was removed and earth excavation began, a problem with the subsurface soils was discovered. The existing soils approximately two to three feet (2 – 3') below the old pavement consisted of very silty clay with high moisture content. The soil with high moisture was not discovered during the design phase, which included three (3) soil borings. Since the high moisture was not discovered, standard construction methods were specified in the bid documents. Standard methods require the contractor to disk and dry the subgrade for several days, then compact the dried soils to form a hard, stable surface for the pavement structure. Although this process was completed, the high moisture content in the deeper soil is brought to the surface with each pass of construction equipment.

Upon discovering the subsurface problems, Testing Service Corporation (TSC) was brought in to evaluate the conditions and provide a recommended solution. The TSC report is attached. As indicated in the TSC report, the suggested solution is to install underdrains and perform subgrade remediation. To avoid lengthy project delays, the Stark Excavating's price for underdrains was accepted by the City Manager as an emergency expenditure. The underdrains are currently being installed.

Suggested subgrade remediation methods include geogrid reinforcing system over the saturated soils or removing the soils and replacing them with granular embankment. The geogrid reinforcing system is quite expensive. Stark Excavating's price to install the geogrid system over the entire subgrade area is $131,760. Unit prices for removing existing soil and replacement with granular embankment were already included in the contract. There is not sufficient quantity for the recommended treatment depth indicated in the TSC report. Substantial additional quantities need to be added to the contract.

Another issue with the existing site and poor subsurface soils involves existing utilities. There are several utilities below the future road that conflict with the soil removal and replacement depths recommended by TSC. The utilities could be relocated, but there would be additional cost and a considerable delay in the project schedule. To minimize the cost associated with these utilities and avoid delays, the geogrid reinforcing system shall be installed over the utilities. The proposed subgrade remediation involves a combination of soil removal and replacement and geogrid reinforcing system.

The current project completion date is November 30, 2012. To date there have been some project delays, including those related to Nicor Gas main relocation, weather and this subgrade

issue. Although the contractor has not submitted a request to delay the completion date, it is unlikely that the entire project can be completed by November 30, 2012. The current goal is to have the road completed and open to traffic by that date. Approval of the proposed subgrade remediation will allow the contractor to continue working and hopefully achieve this goal. An additional concern related to delay with this project involves the Morris Ave. Fire Station. The current road closure creates about a three (3) minute delay in the station's response time.

With this amendment, the revised total contract cost is still under both the engineer's estimate and budget.

Original Contract	$1,046,725.75
Underdrains	$ 24,402.00
Subgrade Remediation	$ 113,400.00
Revised Total Contract Cost	$1,184,527.75
Engineer's Estimate	$1,351,570.00
Budget	
MFT	$1,140,000.00
Storm Water	$ 210,000.00
Sanitary Sewer	$ 65,000.00
Water	$ 200,000.00
Total Budget	$1,615,000.00

COMMUNITY GROUPS/INTERESTED PERSONS CONTACTED: Stark Excavating, Inc.

FINANCIAL IMPACT: The FY 2013 budget appropriated $1,615,000 for the project within the MFT, Storm Water, Water, and Sanitary Sewer Fund. On July 9, 2012, the Council approved $707,695 of MFT funds for this project. The total MFT budget available for this project was $1,140,000. The contract amendment will appropriate an additional $137,802 which will total $845,497 for the MFT portion of this project. The total MFT appropriation remains $294,502 below the original MFT budget. The contract revision across all funds will be as follows.

	Original	Revised
Motor Fuel Tax Funds (20300300-72530)	$ 707,695.75	$ 845,497.75
Storm Water (53103100-72550)	$ 122,880.00	$ 122,880.00
Sanitary Sewer (51101100-72550)	$ 58,100.00	$ 58,100.00
Water (50100120-72540)	$ 158,050.00	$ 158,050.00
Total Construction	$1,046,725.75	$1,184,527.75

Respectfully submitted for Council consideration.

Prepared by:	Reviewed by:	Financial review by:
Jim Karch, PE, CFM Director of Public Works	Barbara J. Adkins Deputy City Manager	Patti-Lynn Silva Director of Finance

Reviewed as to legal sufficiency:

J. Todd Greenburg
Corporation Counsel

Recommended by:

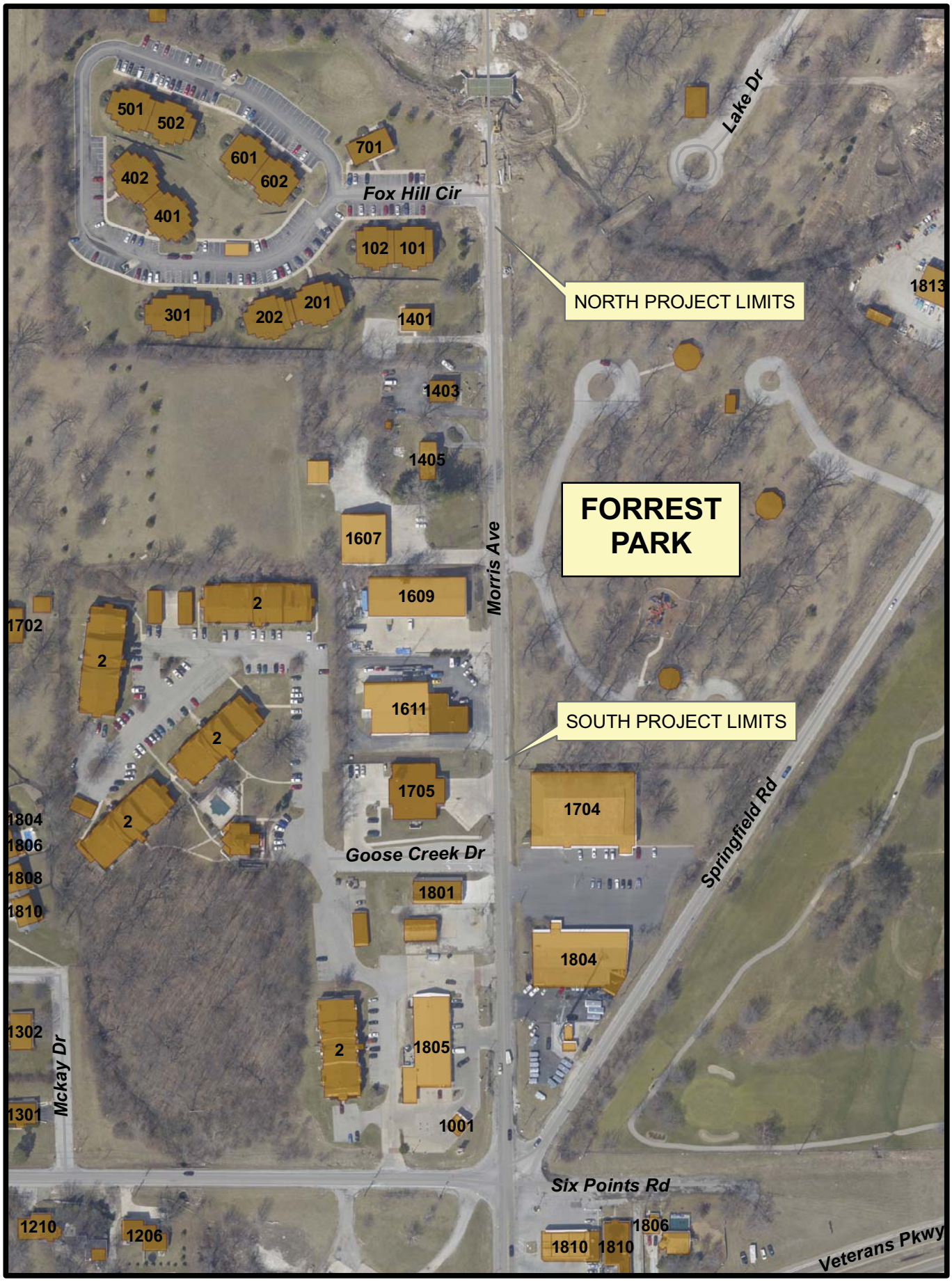
David A. Hales
City Manager

Attachments: Attachment 1. Map
Attachment 2. Testing Service Corporation Report

Motion: _____ Seconded by: _____

	Aye	Nay	Other		Aye	Nay	Other
Alderman Anderson				Alderman Purcell			
Alderman Fazzini				Alderman Sage			
Alderman Fruin				Alderman Schmidt			
Alderman McDade				Alderman Stearns			
Alderman Mwilambwe							
				Mayor Stockton			

MORRIS AVE - SIX POINTS TO FOX HILL CIRCLE



0 100 200 400 Feet

Prepared by Engineering
July 3, 2012

Bloomington, Illinois

October 3, 2012

TESTING SERVICE CORPORATION

Corporate Office:
360 S. Main Place, Carol Stream, IL 60188-2404
630.462.2600 • Fax 630.653.2988

Local Office:
1701 W. Market Street, Suite B, Bloomington, IL 61701-2641
309.821.0430 • Fax 309.821.1242

Mr. Russ Waller
City of Bloomington
Engineering Department
115 East Washington Street - 3rd Floor
Bloomington, Illinois 61701

RE: Morris Avenue
Bloomington, Illinois
TSC Job # L-79,106
Report No. 1, Supplemental

Dear Mr. Waller:

As requested, we have completed observations and tests during preparation of the subgrade below a section of Morris Avenue in Bloomington, Illinois. A summary of our observations and tests, completed by TSC personnel between September 11 and 18, 2012, follows.

At the time of our initial site visit on September 11, 2012, rough grading of the subgrade soils was in progress along the length of the roadway. The soils exposed at the rough finished subgrade elevation consisted of brown to dark brown silty clay. Two samples of these soils were obtained and transported to our laboratory where Standard Proctor tests were completed. Results of these tests are provided on the attached Moisture-Density Relationship sheets.

At the time of our September 13, 2012 site visit the finished subgrade elevation had been established. The subgrade had also been proof rolled in order to allow for an evaluation of the stability. TSC personnel were not present on the site at the time of the proof roll. Based upon observations made by City of Bloomington personnel during the proof roll, several areas of unstable subgrade soils were identified. In order to further evaluate the depth of the unstable soils, Dynamic Cone Penetrometer (DCP) tests were completed by TSC personnel at eight locations selected by representatives of the City of Bloomington. In accordance with Illinois Department of Transportation (IDOT) criteria, the DCP tests were correlated to Immediate Bearing Values which are used to determine recommended treatment depths to achieve stable subgrade conditions.

One of the DCP tests was completed at Station 13+64 where the proof roll did not indicate unstable subgrade conditions. This DCP test confirmed stable subgrade conditions to a depth of approximately 22 inches below the existing grade. The DCP test results at the remaining seven locations confirmed the presence of unstable subgrade soils as identified during the proof roll. Results of individual DCP tests are provided on the attached Dynamic Cone Report sheets.

Based upon the results of the proof roll observations and the DCP tests, we understand that the subgrade was undercut to depths ranging from approximately 12 to 18 inches, a geotextile fabric cloth was placed on the exposed soils and the undercut sections were backfilled up to the originally planned finished subgrade elevation with oversized crushed aggregate. Despite these attempts at stabilization, observations made by City of Bloomington personnel as construction equipment traveled over the surface of the aggregate revealed many areas of “pumping” where the surface was deflecting under the loads indicating continuing unstable conditions.

A site visit was made by TSC personnel on September 18, 2012. Observations of the of the aggregate surface under the loads of a steel drum roller revealed “pumping” of the aggregate with the greatest deflection noted along the edges of the planned roadway alignment.

The stability of silty clay subgrade soils such as those present on this site is typically directly related to moisture conditions within the soils the presence of free water within relative shallow depths below the subgrade surface. The stability is also negatively affected by the percentage of silt sized particles which have little to no cohesion. The silt is also prone to capillary action where moisture is pumped up through the pore spaces of the soil under repetitive construction traffic loading cycles.

Based upon our site observations and the reported performance of the subgrade, it is our opinion that the stability can be improved by providing drainage of the subsurface. We understand that a storm sewer is to be constructed along the west edge of the roadway alignment. Installation of drains along both edges of the pavement along with connecting lateral drains is also being considered. We expect that the storm sewer trench backfill and the edge/lateral drains will provide conduits for removal of free water that is likely present at relatively shallow depths below the subgrade surface. Removal of this free water will likely remove some of the water that is being pumped up into the subgrade at least partially responsible for the observed instability. Although the fine grained subgrade soils are somewhat slow to drain, this subsurface drainage system is expected to ultimately improve the stability.

After the drainage system is installed, the previously installed aggregate and underlying subgrade stability should be re-evaluated by proof rolling. Depending upon the required construction schedule and amounts of rainfall during and subsequent to installation of the drainage system, it is likely that some areas of instability will remain. Given the limited improvement in the stability resulting from the previously completed undercuts and aggregate placement, we suggest incorporating a geogrid between the aggregate and subgrade soils. A geogrid with triangular openings such as Tensar TriAx is recommended. As specified by Tensar, the aggregate placed over the geogrid should have a maximum size that is approximately equivalent to the openings in the geogrid. IDOT gradation specifications for CA-6 meet this criteria. We recommend a minimum of 12 inches of CA-6 over the aggregate in addition to the 12 inches of aggregate already specified in the project plans and specifications.

We have also evaluated treatment depths assuming that the subgrade is stabilized by undercutting the soft/loose soils and replacement with CA-1 or CA-2 as provided for in the original contract documents. This evaluation was based upon the results of the DCP tests along with observations made during proof rolling of the existing aggregate. The DCP tests are correlated to Immediate Bearing Values (IBVs) which ultimately are used to determine treatment depths according to IDOT recommendations. Based upon the observed deflection during proof rolling of the existing aggregate which is up to 18 inches thick, the soil strengths and recommended treatment depths were evaluated at depths of 18 and 24 inches below the existing subgrade surface. A summary of this evaluation follows.

Station	Subgrade Soils at 18" Depth		Subgrade Soils at 24" Depth	
	IBV	Recommended Treatment Depth (in)	IBV	Recommended Treatment Depth (in)
14+38 - 12' RT	< 0.8	30	< 0.8	30
13+06 - 15' LT	< 0.8	30	2.0	15
11+34 - 6' RT	2.6	14	3.5	12
10+10 - 7' LT	3.9	11	8.0	8
8+70 - 5' LT	< 0.8	30	3.9	11
8+07 - 10' RT	< 0.8	30	1.6	17
7+34 - 9' LT	3.5	12	2.3	14

In the area north of Station 14+00 the proof roll indicated unstable conditions essentially for the full width of the planned roadway. These unstable conditions were confirmed by the DCP test results. Based upon these observations and tests, a treatment depth of 30 inches is recommended for the full width of the roadway from Station 14+00 to the north end of the alignment.

The stability of the aggregate and underlying subgrade based upon observations during proof rolling was somewhat variable in the section between Stations 14+00 and 12+50. Moderate deflection was observed in the central portion of the roadway with a greater degree of movement observed along the edges of the proposed alignment. This instability along the west portion of the roadway was confirmed by the DCP test completed at Station 13+06, 15 feet left of the centerline. Similar conditions likely are present along the eastern portion of the roadway in this section. Based upon these observations and tests, we recommend a treatment depth of 30 inches along the edges of the pavement between Stations 14+00 and 12+50. In the central portion of the a treatment depth of 24 inches is recommended.

To the south of Station 12+50, the DCP tests at Stations 8 +70 and 8 + 07 revealed soft soils at a depth of 18 inches which would result in a recommended treatment depth of 30 inches. However, there are somewhat higher strength soils at these locations at a depth of 24 inches resulting in recommended treatment depths of 11 to 17 inches. At the remaining locations south of Station 12+50 the tests indicate recommended treatment depths ranging from 8 to 14 inches. Based upon the test data and observations of the performance of the previously placed aggregate under the proof roll loads, we recommend a minimum treatment depth of 24 inches extending from Station 12+50 to the south end of the alignment.

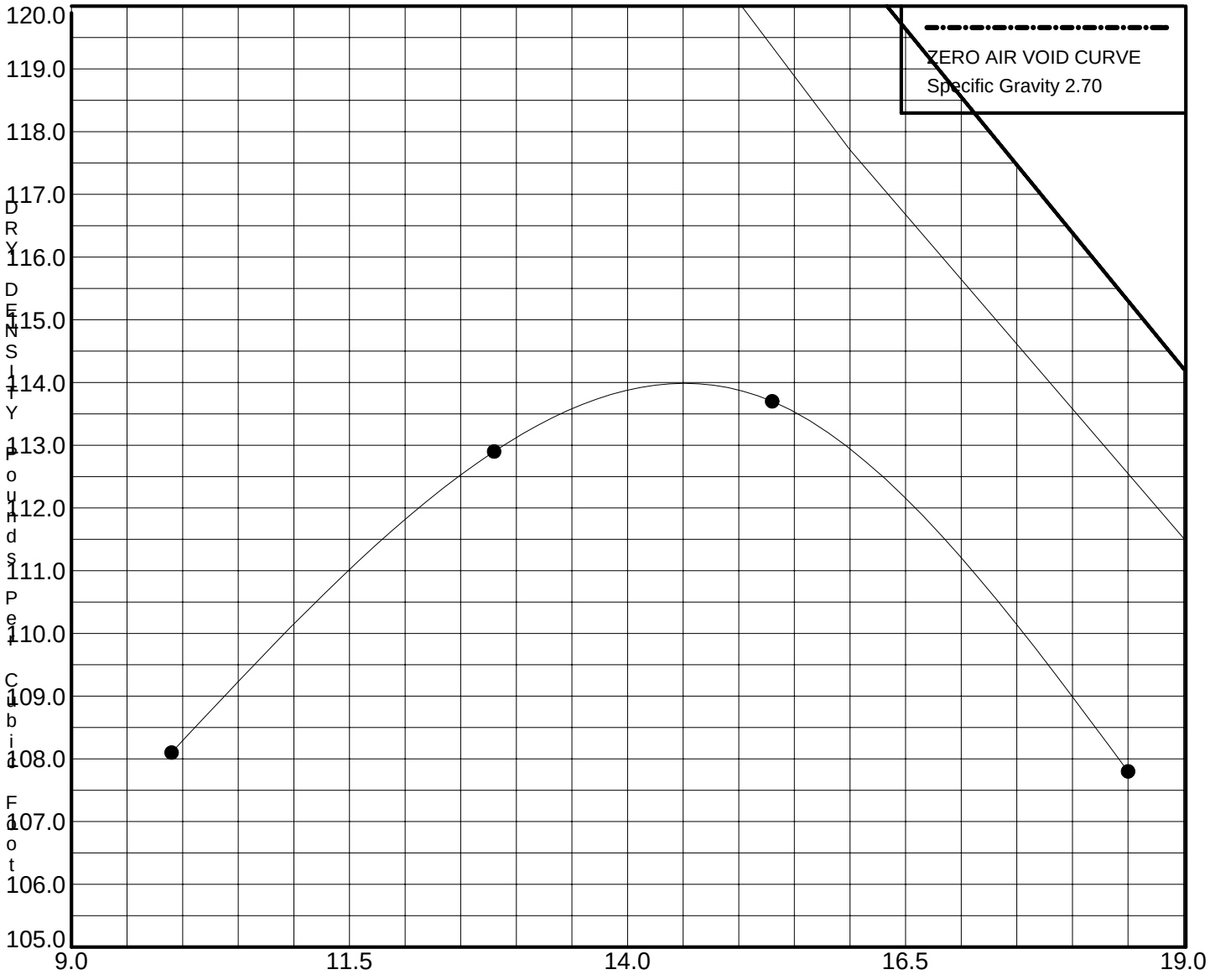
At all locations, the recommended treatment depths are from the bottom of the 12 inch thick aggregate base included in the original design plans. Furthermore, it is likely that the stability of the subgrade will be affected by installation of the storm sewer and drain tile along with weather conditions and construction traffic loads. Due to these circumstances, the existing aggregate and underlying subgrade should be evaluated immediately prior to implementing any stabilization procedures to confirm the required treatment depths.

We are available to review our findings and conclusions your convenience.

Respectfully submitted,
TESTING SERVICE CORPORATION

Douglas P. Ramsey, P.E.
Branch Manager

Attachments: Moisture-Density Relationships (2 Sheets)
Dynamic Cone Reports (5 Sheets)



SPECIMEN IDENTIFICATION	CLASSIFICATION
Sample No. 1	Brown-dark brown silty CLAY, trace sand

MOISTURE/DENSITY RELATIONSHIP		NOTES :
x	Standard ASTM D698/AASHTO T99	Sample obtained from roadway subgrade on
	Modified ASTM D1557/AASHTO T180	September 11, 2012.
Maximum Dry Density (PCF)	**114.0**	
Optimum Water Content (%)	**14.5**	

PROJECT **Morris Avenue** JOB NO. **L-79,106**

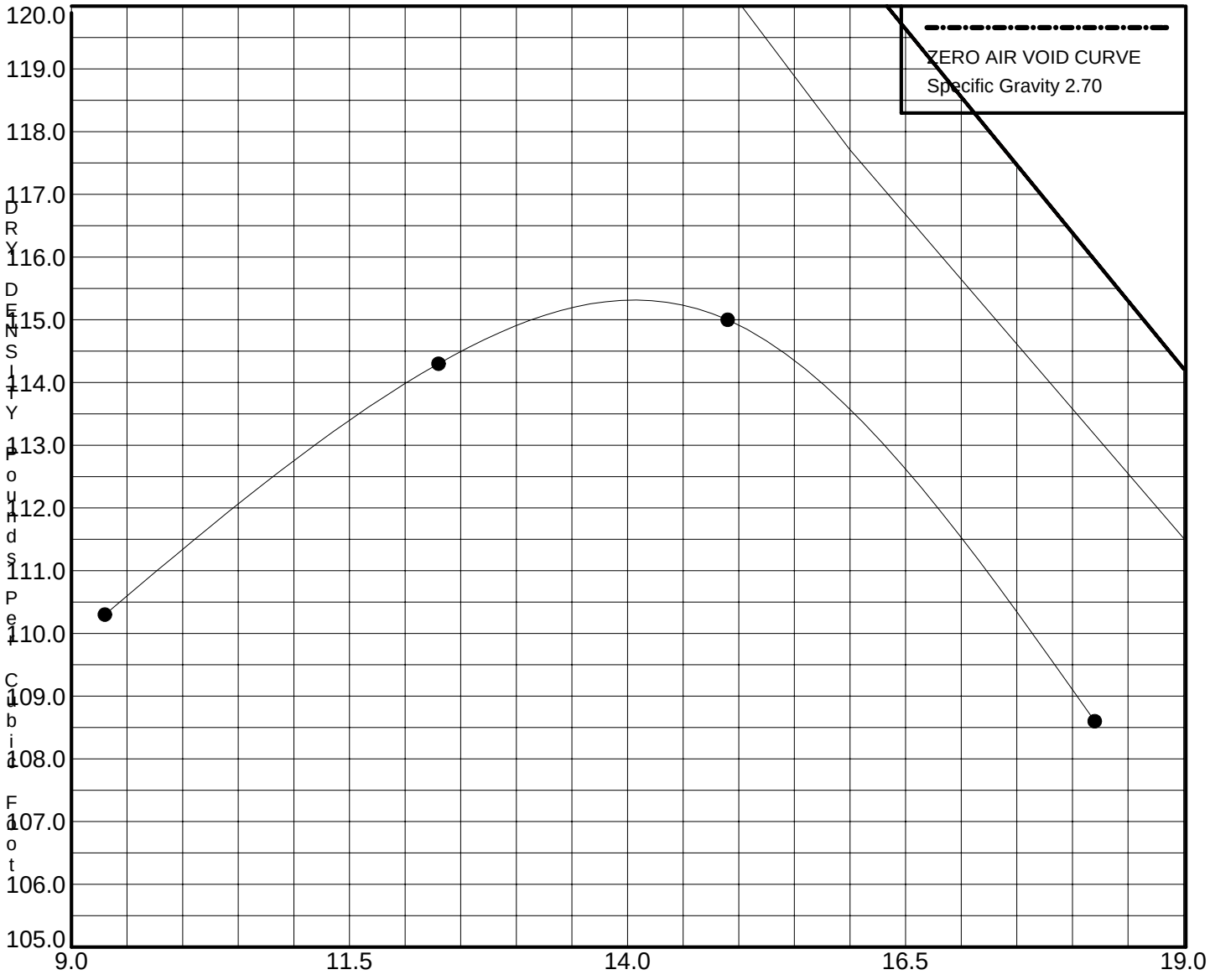
LOCATION **Bloomington, Illinois** DATE **September 12, 2012**

1

MOISTURE-DENSITY RELATIONSHIP

Testing Service Corporation

Bloomington, Illinois 61701



SPECIMEN IDENTIFICATION	CLASSIFICATION
Sample No. 2	Brown silty CLAY, trace sand and gravel

MOISTURE/DENSITY RELATIONSHIP		NOTES :
x	Standard ASTM D698/AASHTO T99	Sample obtained from roadway subgrade on
	Modified ASTM D1557/AASHTO T180	September 11, 2012.
Maximum Dry Density (PCF)	**115.4**	
Optimum Water Content (%)	**14.1**	

PROJECT **Morris Avenue** JOB NO. **L-79,106**

LOCATION **Bloomington, Illinois** DATE **September 12, 2012**

2

MOISTURE-DENSITY RELATIONSHIP

Testing Service Corporation

Bloomington, Illinois 61701

TSC Job No.: 79,106
September 13, 2012

TESTING SERVICE CORPORATION
1701 W. Market Street, Suite B, Bloomington, IL 61701-2641 - 309-821-0430 - FAX 309-821-1242

Morris Avenue
Bloomington, Illinois

DYNAMIC CONE REPORT

Station 14+38, 12' RT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
1	1.2	1.2	1.2	5.5	9
1	2.2	1.0	1.0	7.0	8
1	3.3	1.1	1.1	6.0	8
3	6.3	3.0	1.0	7.0	8
1	9.9	3.6	3.6	1.4	17
1	14.7	4.8	4.8	0.9	24
1	21.2	6.5	6.5	< 0.8	30
1.	28.2	7.0	7.0	< 0.8	30
1	33.2	5.0	5.0	0.8	30

Station 13+64, 6' RT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
16	11.5	11.5	0.7	11.0	0
10	16.6	5.1	0.5	16.6	0
10	21.7	5.1	0.5	16.6	0

TSC Job No.: 79,106
September 13, 2012

TESTING SERVICE CORPORATION
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Morris Avenue
Bloomington, Illinois

DYNAMIC CONE REPORT

Station 13+06, 15' LT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
1	2.2	2.2	2.2	2.6	14
1	3.4	1.2	1.2	5.5	9
2	5.2	1.8	0.9	8.0	8
1	7.1	1.9	1.9	2.9	13
1	9.2	2.1	2.1	2.6	14
1	10.1	0.9	0.9	8.0	8
1	10.9	0.8	0.8	9.2	0
1.	12.7	1.8	1.8	3.3	13
1	21.2	8.5	8.5	< 0.8	30
1	23.9	2.7	2.7	2.0	15
1	25.4	1.5	1.5	3.9	11

Station 11+34, 6' RT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
7	6.0	6.0	0.9	8.0	8
1	9.2	3.2	3.2	1.6	17
1	12.7	3.5	3.5	1.4	17
1	15.0	2.3	2.3	2.3	14
1	17.2	2.2	2.2	2.6	14
1	19.0	1.8	1.8	3.3	13
1	20.7	1.7	1.7	3.5	12
1	22.5	1.8	1.8	3.3	13
1	24.2	1.7	1.7	3.5	12
1	25.5	1.3	1.3	4.5	10
1	26.2	0.7	0.7	11.0	0

TSC Job No.: 79,106
September 13, 2012

TESTING SERVICE CORPORATION
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Morris Avenue
Bloomington, Illinois

DYNAMIC CONE REPORT

Station 10+10, 7' LT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
5	5.9	5.9	1.2	5.5	9
2	8.2	2.3	1.2	5.5	9
1	10.9	2.7	2.7	2.0	15
1	12.9	2.0	2.0	2.9	13
1	15.1	2.2	2.2	2.6	14
1	16.9	1.8	1.8	3.3	13
1	18.4	1.5	1.5	3.9	11
1.	19.6	1.2	1.2	5.5	9
1	20.6	1.0	1.0	7.0	8
1	21.4	0.8	0.8	9.2	0
1	22.5	1.1	1.1	6.0	8
1	23.4	0.9	0.9	8.0	8

Station 8+70, 5' LT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
1	12.7	12.7	12.7	< 0.8	30
1	18.7	6.0	6.0	< 0.8	30
1	21.0	2.3	2.3	2.3	14
1	22.4	1.4	1.4	4.5	10
1	23.9	1.5	1.5	3.9	11
1	25.2	1.3	1.3	4.5	10
1	26.7	1.5	1.5	3.9	11
1	27.2	0.5	0.5	16.6	0

TSC Job No.: 79,106
September 13, 2012

TESTING SERVICE CORPORATION
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Morris Avenue
Bloomington, Illinois

DYNAMIC CONE REPORT

Station 8+07, 10' RT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
1	2.0	2.0	2.0	2.9	13
1	3.3	1.3	1.3	4.5	10
1	4.6	1.3	1.3	4.5	10
1	5.8	1.2	1.2	5.5	9
1	7.5	1.7	1.7	3.5	12
1	10.0	2.5	2.5	2.1	15
1	14.3	4.3	4.3	1.1	20
1.	19.6	5.3	5.3	< 0.8	30
1	22.8	3.2	3.2	1.6	17
1	25.1	2.3	2.3	2.3	14
1	27.1	2.0	2.0	2.9	13
1	28.8	1.7	1.7	3.5	12
1	30.3	1.5	1.5	3.9	11

TSC Job No.: 79,106
September 13, 2012

TESTING SERVICE CORPORATION
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Morris Avenue
Bloomington, Illinois

DYNAMIC CONE REPORT

Station 7+34, 9' LT					
No. Blows	Total Penetration Depth (in)	Penetration Difference (in)	Penetration Rate (in/blow)	IBV	Recommended Treatment Depth (in)
1	2.2	2.2	2.2	2.6	14
1	3.6	1.4	1.4	4.5	10
1	4.9	1.3	1.3	4.5	10
1	6.6	1.7	1.7	3.5	12
1	9.4	2.8	2.8	1.9	16
1	13.6	4.2	4.2	1.1	20
1	15.0	1.4	1.4	4.5	10
1.	16.4	1.4	1.4	4.5	10
1	17.9	1.5	1.5	3.9	11
1	19.6	1.7	1.7	3.5	12
1	21.4	1.8	1.8	3.3	13
1	23.7	2.3	2.3	2.3	14
1	24.9	1.2	1.2	5.5	9
1	25.9	1.0	1.0	7.0	8
1	27.1	1.2	1.2	5.5	9
1	28.4	1.3	1.3	4.5	10