

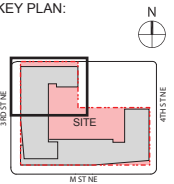


300 M

Square 772 : Washington DC 20002



KEY PLAN:



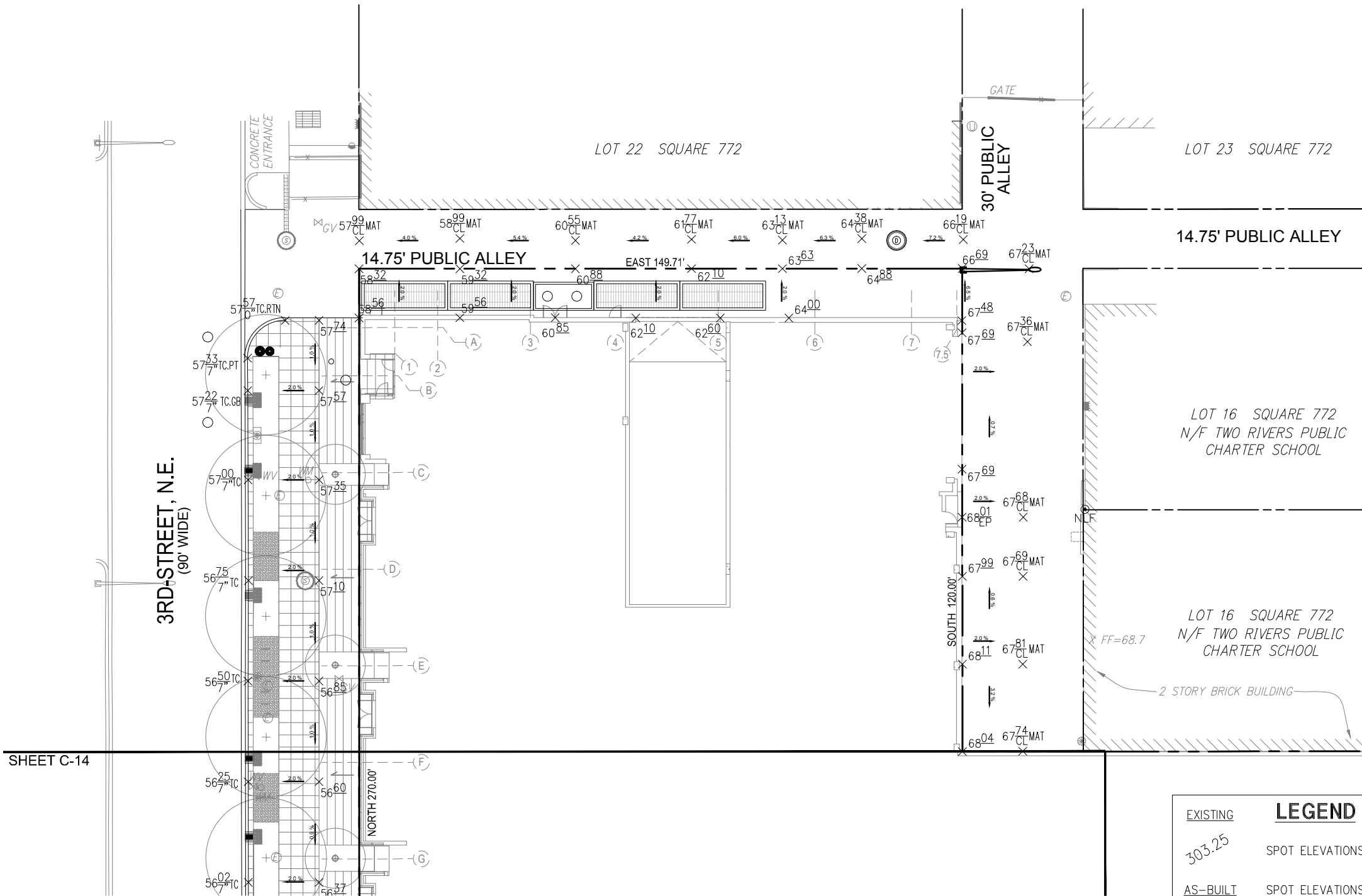
DATE:
JUNE 19, 2015

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APPLICATION

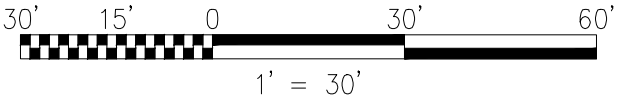
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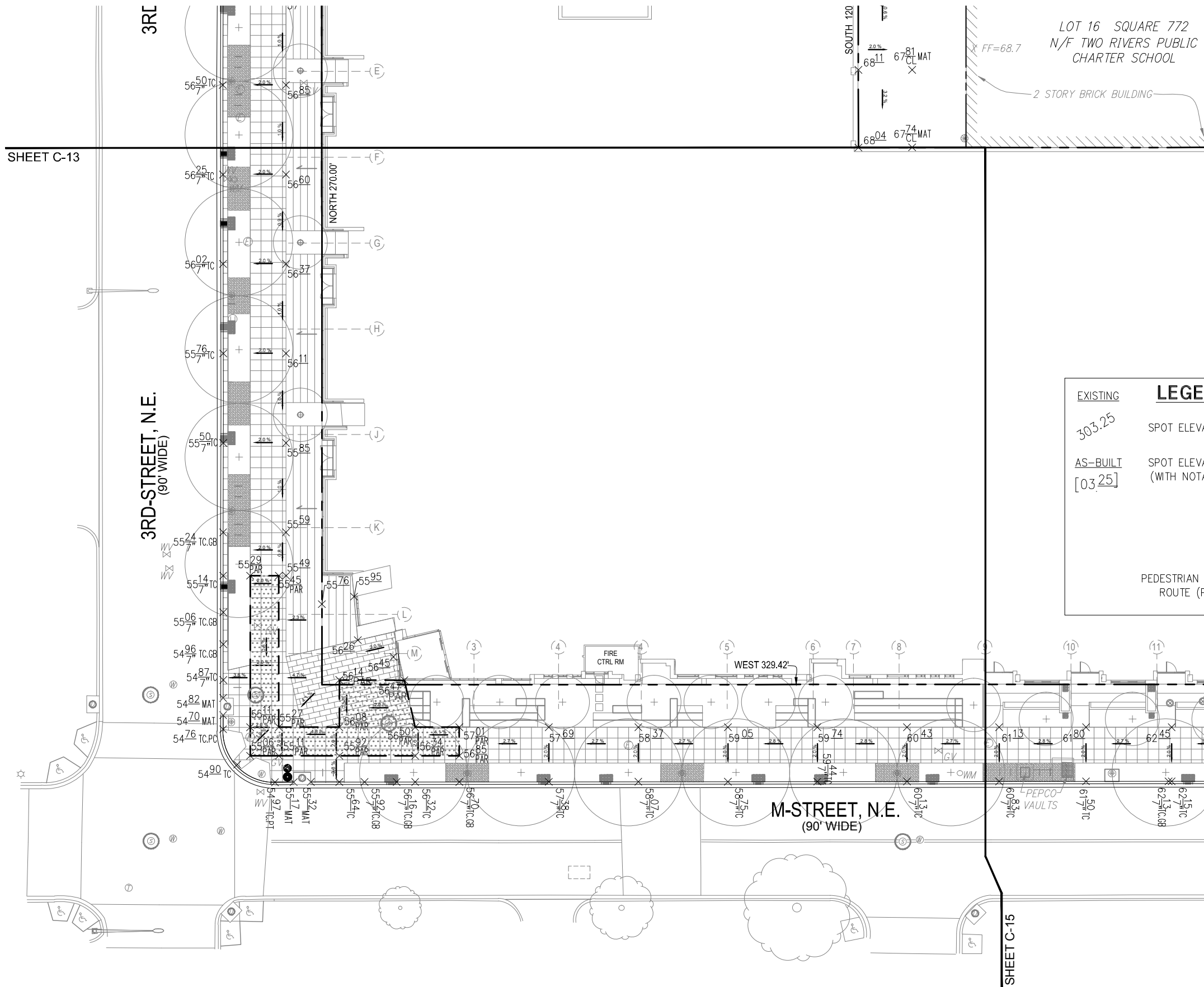
NUMBER:

C-13



EXISTING	LEGEND	BY OTHERS	PROPOSED
303.25	SPOT ELEVATIONS	*03.25	03.25 HUNDREDS PLACE TRUNCATED
AS-BUILT	SPOT ELEVATIONS (WITH NOTATION)	BY OTHERS: DESIGN INFORMATION FROM PLANS OTHER THEN THIS CONTRACT.	03.25 7" TC NOTATION & REVEAL
[03.25]			BC: BOTTOM OF CURB CRN: CROWN GB: GRADE BREAK INV: INVERT MAT: MATCH (EXISTING CONDITION) LP: LOW POINT TC: TOP OF CURB PAR: PEDESTRIAN ACCESS ROUTE
	PEDESTRIAN ACCESS ROUTE (PAR)		UP DATED (DUE TO AS-BUILT) <03.25>

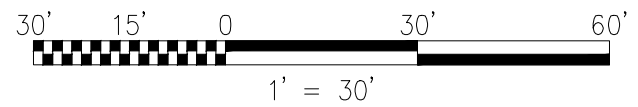




LOT 16 SQUARE 772
N/F TWO RIVERS PUBLIC
CHARTER SCHOOL

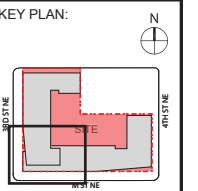
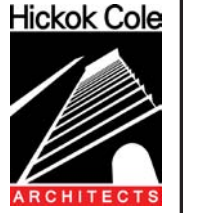
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2 STORY BRICK BUILDING



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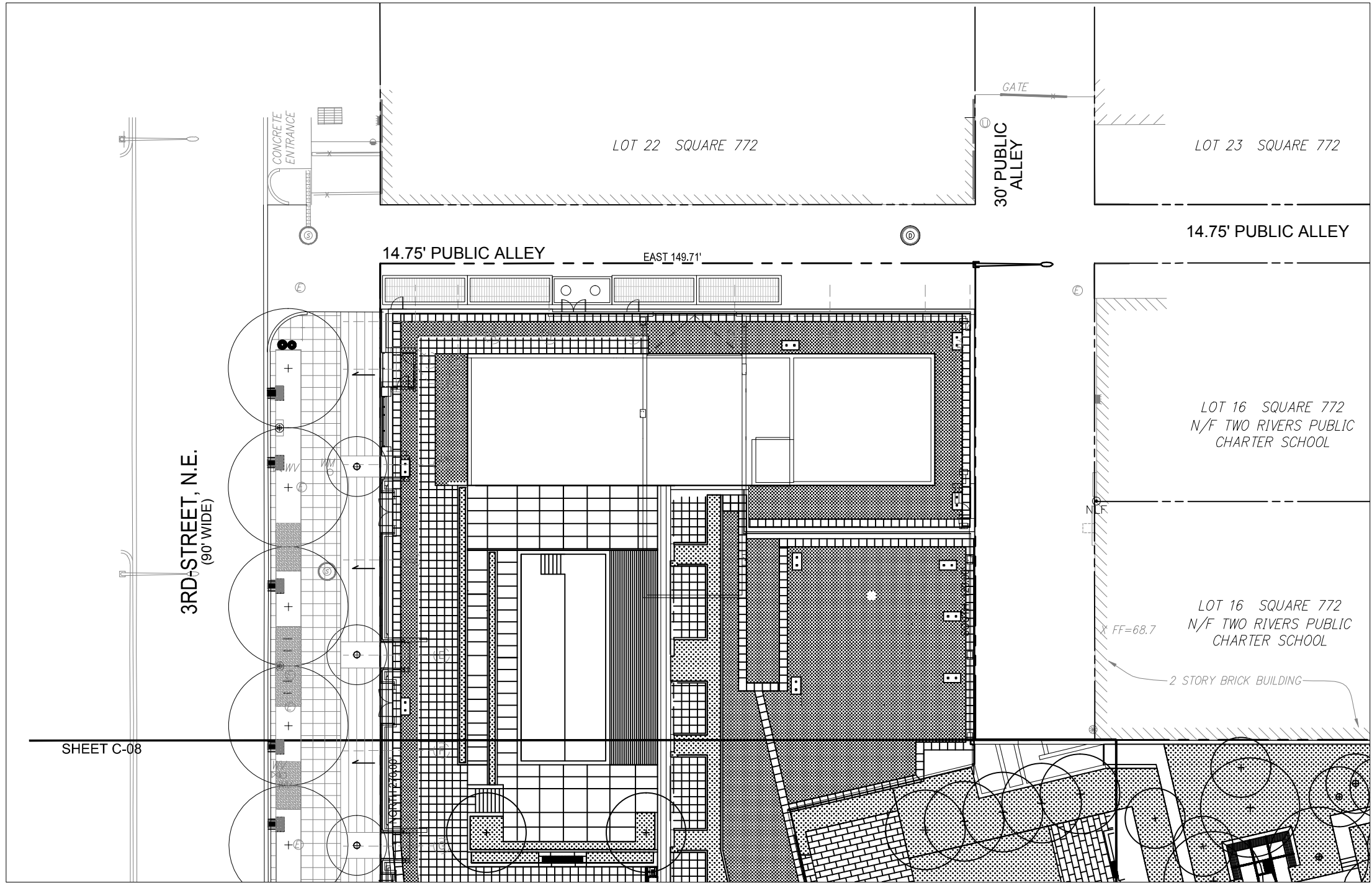
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TITLE:
GRADING PLAN

NUMBER:
C-14

Square 772 : Washington DC 20002



SHEET C-08

3RD STREET, N.E.
(90' WIDE)

LOT 22 SQUARE 772

LOT 23 SQUARE 772

30' PUBLIC ALLEY

14.75' PUBLIC ALLEY

EAST 149.71'

14.75' PUBLIC ALLEY

LOT 16 SQUARE 772
N/F TWO RIVERS PUBLIC
CHARTER SCHOOL

LOT 16 SQUARE 772
N/F TWO RIVERS PUBLIC
CHARTER SCHOOL

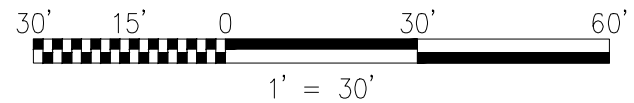
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2 STORY BRICK BUILDING

LEGEND

 GREEN ROOF
(4" MEDIA DEPTH)

 GREEN ROOF
(24" MEDIA DEPTH)

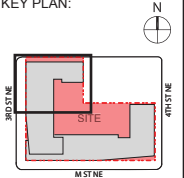


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KEY PLAN:



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TITLE:
STORMWATER
MANAGEMENT
PLAN

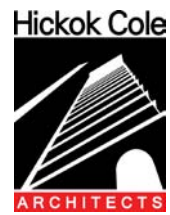
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C-16

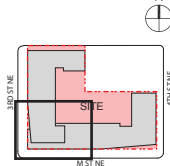


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KEY PLAN:

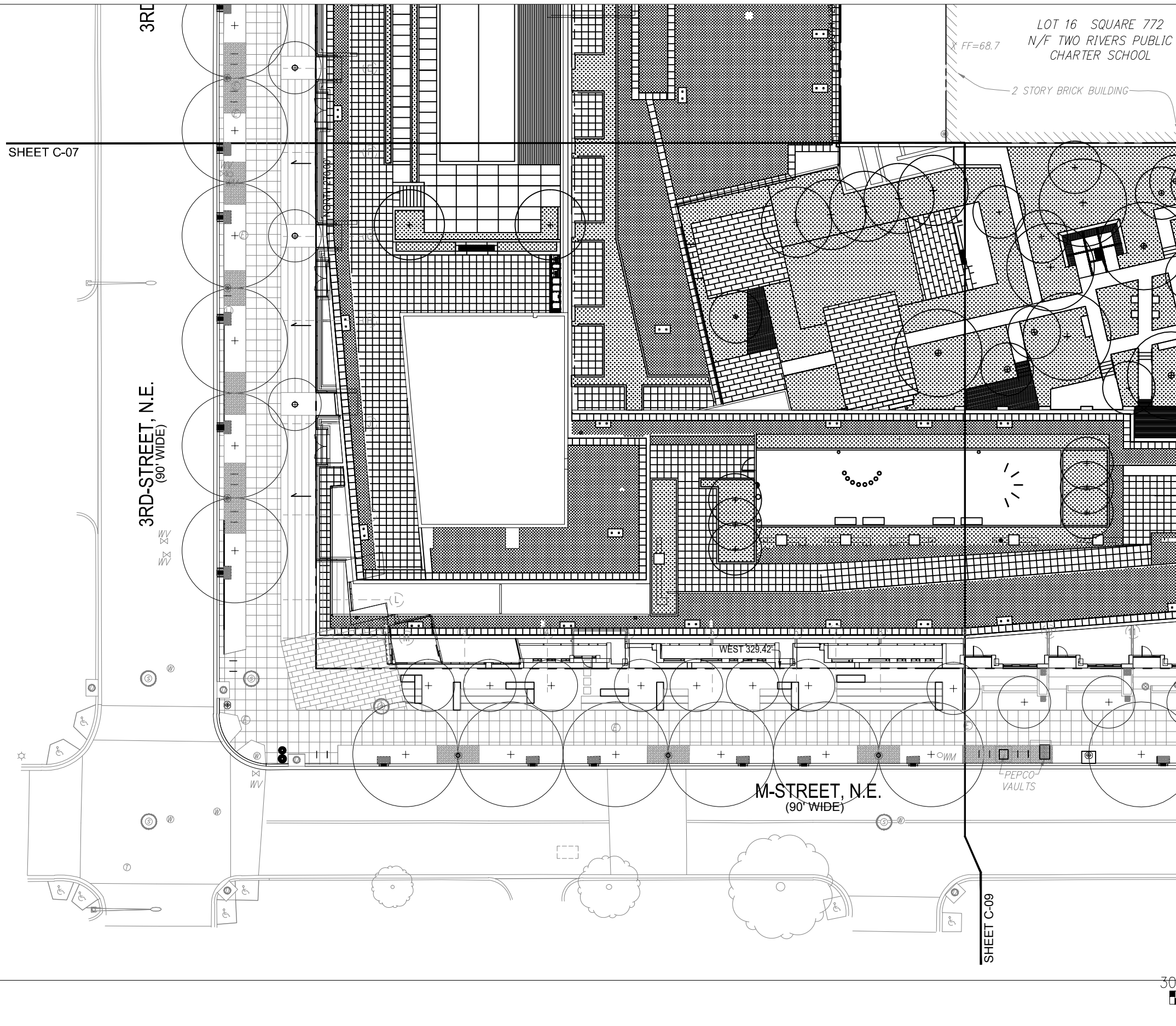


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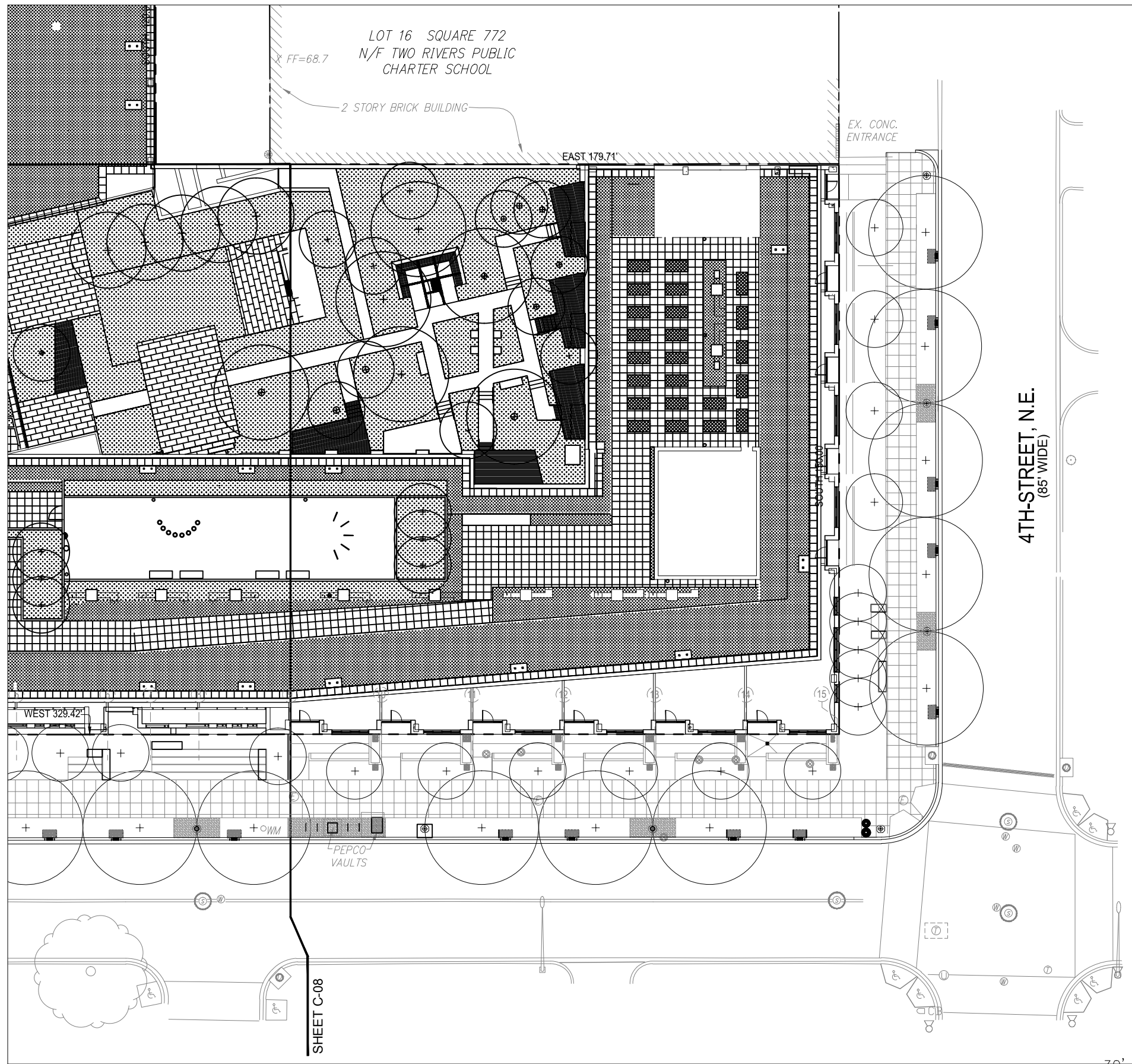
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PLAN

NUMBER:
C-17



LEGEND

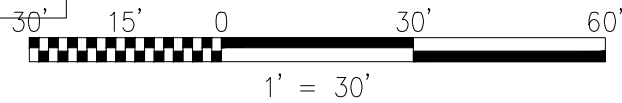
- GREEN ROOF
(4" MEDIA DEPTH)
- GREEN ROOF
(24" MEDIA DEPTH)



LEGEND

 GREEN ROOF
(4" MEDIA DEPTH)

 GREEN ROOF
(24" MEDIA DEPTH)

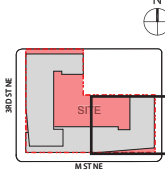


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KEY PLAN:



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JUNE 19, 2015

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TITLE:
STORMWATER
MANAGEMENT
PLAN

NUMBER:

C-18



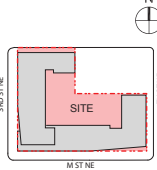
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KEY PLAN:



DATE:
JUNE 19, 2015

CONSOLIDATED PUD
APPLICATION

TITLE:
STORMWATER
MANAGEMENT
CALCULATIONS

NUMBER:

C-19

Stormwater Management Plan Compliance Data

Site Address	300 M Street NE	Plan number	4699
Stormwater Management Plan?	Yes	Green Area Ratio Plan?	Yes
Soil Erosion and Sediment Control?	Yes	Requires Floodplain Review?	No
Type of Activity	Major Land Disturbing	AWDZ?	Non-AWDZ

Total Site Area (sf)	67,444	Curve Numbers	
Natural cover	0	2-Year Storm Adjusted curve Number	59
compacted cover	414	15-Year Storm Adjusted Curve Number	72
Impervious cover	44,716	100-Year Storm Adjusted Curve Number	76
BMP cover	22,314		

	Cubic Feet	Gallons
Site SWRv	6,378	47,709
Site WQTV	0	0
Onsite retention achieved	8,212	61,424
% of SWRv met on-site	129%	129%
Onsite treatment achieved	0	0
SRC eligibility		13,715
Offv		0

Site Drainage Area Compliance Data

	Site Drainage Area ID	Public Right of Way	Total area	Natural land cover	Compacted land cover	Impervious land cover	BMP land cover	Vehicular access area	Site Drainage Area SWRv (cubic feet)	Site Drainage Area WQTV (cubic feet)	Retention volume achieved by BMPs (cubic feet)	Volume treated (cubic feet)	2-year storm adjusted Curve Number	15-year storm adjusted Curve Number	100-year storm adjusted Curve Number	Minimum requirements for drainage area met?
	4699-1		67,444	0	414	44,716	22,314		6378	0	8212	0	59	72	76	N/A
TOT			67,444	0	414	44,716	22,314		6378	0	8212	0				

BMP Compliance Data

	BMP ID number	BMP Type and Subtype	Total contributing drainage area	Post project Natural land cover area	Post Project Compacted land cover area	Post project Impervious land cover area	Post Project BMP land cover area	Total Post project vehicular access area	Total volume received from upstream BMPs (cubic feet)	Maximum volume received by BMP (cubic feet)	BMP storage volume (cubic feet)	Retention calculation	Retention volume achieved (cubic feet)	Additional treatment volume (cubic feet)	Downstream BMP ID Numbers
	4699-1-1	Intensive green roof	971	0	0	0	971		0	131	797	100% of storage volume	131	0	
	4699-1-2	Intensive green roof	3366	0	0	0	3366		0	453	2762.9	100% of storage volume	453	0	
	4699-1-3	Intensive green roof	2174	0	0	0	2174		0	293	1784.5	100% of storage volume	293	0	
	4699-1-4	Extensive green roof	3067	0	0	0	3067		0	413	472.8	100% of storage volume	413	0	
	4699-1-5	Intensive green roof	1675	0	0	0	1675		0	225	1374.9	100% of storage volume	225	0	
	4699-1-6	Extensive green roof	6750	0	0	0	6750		0	908	1040.6	100% of storage volume	908	0	
	4699-1-7	Intensive green roof	496	0	0	0	496		0	67	407.1	100% of storage volume	67	0	
	4699-1-8	Extensive green roof	3815	0	0	0	3815		0	513	588.1	100% of storage volume	513	0	
	4699-1-9	Rainwater harvesting	38,702	0	0	38,702	0		0	5209	6371.8		5209	0	
TOT			61,016	0	0	38,702	22,314		0	8212	15599.7		8212	0	

STORMWATER MANAGEMENT NARRATIVE:

THIS IS A MAJOR LAND DISTURBING ACTIVITY. THEREFORE, THE STORMWATER MANAGEMENT FOR THIS PROJECT WILL BE GREEN ROOF AND A RAINWATER HARVESTING CISTERN. THE VOLUME STORED BY THE GREEN ROOF AND CISTERN SATISFIES THE DDOE STORMWATER RETENTION AND DETENTION REQUIREMENTS.

GENERAL NOTE:

1. REFER TO LANDSCAPE DRAWINGS FOR GREEN ROOF DETAILS.
2. REFER TO LANDSCAPE AND ARCHITECTURAL FOR PLANT MATERIALS.
3. REFER TO STRUCTURAL DRAWINGS FOR DETAIL OF CISTERN STRUCTURE.
4. REFER TO ARCHITECTURAL DRAWINGS FOR WATERPROOFING.
5. REFER TO LANDSCAPE DRAWINGS FOR GREEN ROOF MAINTENANCE NOTES.
6. REFER TO PLUMBING DRAWINGS FOR DETAILS OF INCOMING PIPE.
7. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF REINFORCEMENT AND FILL SLAB THICKNESS.
8. THE SWM STRUCTURE IS A WATER QUANTITY/QUALITY STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICE TO SATISFY DDOE REQUIREMENTS FOR PUBLIC COMBINED SEWER CONNECTION.

NOTE:

"NO PERMITTED STORM WATER BMP IS COMPLETE UNTIL FINAL INSPECTION HAS BEEN CONDUCTED AND AN AS-BUILT PLAN HAS BEEN SUBMITTED TO THE DDOE WITHIN 21 DAYS AFTER FINAL INSPECTION FOR REVIEW AND APPROVAL."

Site Drainage Area: 4699-1

SWRv (cubic feet)	6,378
WQTV (cubic feet)	0

Natural Cover (square feet)	0
Compacted Cover (square feet)	414
Impervious Cover (square feet)	44,716
BMP Cover (square feet)	22,314
Total Area (square feet)	67,444

Volume Retained (cubic feet)	8,212
Retention Volume Remaining (cubic feet)	0
Retention Volume Remaining (gallons)	0
At least 50% of SWRv Retained?	Yes
Vehicular Access Areas Volume Addressed?	N/A

Treatment Required?	No
Volume Treated (cubic feet)	0
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0
Volume Remaining to Treat 50% of the SWRv (gallons)	0
Volume Remaining to Treat WQTV (cubic feet)	0
Volume Remaining to Treat WQTV (gallons)	0

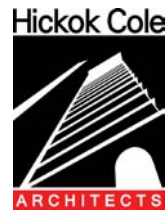
2-Year Storm Adjusted Curve Number	59
15-Year Storm Adjusted Curve Number	72
100-Year Storm Adjusted Curve Number	76

GREEN ROOF: LEVEL 1 (24") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 971 ft² Media Depth (d) 24 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 797.0 ft³ Rv = 5,961.8 gallons	GREEN ROOF: LEVEL 1 COURTYARD (24") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 3366 ft² Media Depth (d) 24 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 2,762.9 ft³ Rv = 20,666.7 gallons
GREEN ROOF: LEVEL 2 (24") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 2174 ft² Media Depth (d) 24 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 1,784.5 ft³ Rv = 13,348.0 gallons	GREEN ROOF: LEVEL 2 (4") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 3067 ft² Media Depth (d) 4 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 472.8 ft³ Rv = 3,536.8 gallons
GREEN ROOF: LEVEL 9 (24") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 1675 ft² Media Depth (d) 24 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 1,374.9 ft³ Rv = 10,284.2 gallons	GREEN ROOF: LEVEL 9 (4") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 6750 ft² Media Depth (d) 4 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 1,040.6 ft³ Rv = 7,783.9 gallons
GREEN ROOF: LEVEL 12 (24") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 496 ft² Media Depth (d) 24 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 407.1 ft³ Rv = 3,045.4 gallons	GREEN ROOF: LEVEL 12 (4") $S_v = SA \times [(d \times \eta_1) + (DL \times \eta_2)]/12$ Sv = Storgae Volume Green Roof Area (SA) 3815 ft² Media Depth (d) 4 in Drainage Layer Depth (DL) 1 in Verified Media Maximum Water Retention (η₁) 0.4 Verified Drainage Maximum Water Retention (η₂) 0.25 Green Roof Receive 100% Retention Value Rv = 588.1 ft³ Rv = 4,399.3 gallons

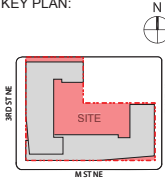


300 M

Square 772 : Washington DC 20002



KEY PLAN:



DATE:
JUNE 19, 2015

CONSOLIDATED PUD
APPLICATION

TITLE:
STORMWATER
MANAGEMENT
CALCULATIONS

NUMBER:

C-20



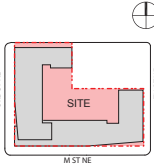
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Square 772 : Washington DC 20002

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KEY PLAN:



DATE:
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CONSOLIDATED PUD
APPLICATION

TITLE:

STORMWATER
MANAGEMENT
CALCULATIONS

NUMBER:

C-21

Input

STORM EVENT

Storm Event (inches) 1.7

CONTRIBUTING DRAINAGE AREA (CDA)

How big is the impervious CDA (SF)? 38,702

IRRIGATION

How big is the area to irrigate? (SF) 22,716

Does the irrigation system have smart controls (e.g. soil moisture sensor shutoff)? If no, leave unchecked. ☐

Enter the average weekly irrigation application rate in inches/week for each month throughout the year (inches/week)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
0.00	0.00	2497.00	#####	#####	#####	#####	#####	#####	#####	15671.00	3499.00	0.00

INDOOR DEMAND - FLUSHING TOILETS/URINALS

Water closet and urinal use (if only toilets are used, set urinals = 0)

How many people will use the building? (# people)

How much water will each urinal use? (gallons/flush) Set to 0, if no urinal. 0.80

How much water will each toilet use? (gallons/flush) 1.60

Calculated daily water closet and urinal demand. (gallons/day) 0

Use this cell if value has already been calculated, instead of the rows above.

Select the first day of the week this water will typically be used (e.g. Monday).

Select the last day of the week this water will typically be used (e.g. Friday).

Hours per day the building is used (e.g. 8 for a 9-5 office building; 24 for a shift-work factory).

Total daily water closet and urinal demand (gallons/day). 0.0

INDOOR DEMAND - LAUNDRY

Laundry use (use either loads per day, pounds per day or calculated demand)

How many loads of laundry are done each day? (# loads/day) 0

How much water does each load of laundry use in gallons? (gallons/load) 42

Calculated daily laundry demand. (gallons/day) 0

Select the first day of the week this water will typically be used (e.g. Monday).

Select the last day of the week this water will typically be used (e.g. Friday).

Total daily laundry demand. (gallons/day) 0

ADDITIONAL DAILY USE

Additional daily use (bus wash, street sweepers, etc)

This value is user defined and is provided to allow for any other unanticipated, or not yet defined, demand value.

Enter the average daily demand for each month throughout the year. (gallons/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
0	0	0	0	0	0	0	0	0	0	0	0

Select the first day of the week this water will typically be used (e.g. Monday).

Select the last day of the week this water will typically be used (e.g. Friday).

COOLING TOWERS

If water is to be used for cooling towers (for large scale projects)

Enter the average daily demand for each month throughout the year. (gallons/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
7220	7750	9630	12370	17000	22000	22090	23340	20940	14540	10140	7650

CONTRIBUTION FROM OTHER SOURCES

If any other sources will contribute water to the cistern, add them here (e.g. condensate)

This value is user defined and will be treated as a negative daily demand.

Enter the average daily demand for each month throughout the year. (gallons/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
0	0	0	0	0	0	0	0	0	0	0	0

Select the first day of the week this water will typically be used (e.g. Monday).

Select the last day of the week this water will typically be used (e.g. Friday).

FIRST FLUSH FILTER DIVERSION AND EFFICIENCY

Enter Approximate Filter Efficiencies associated with the 1.2" and 3.2" storms below.

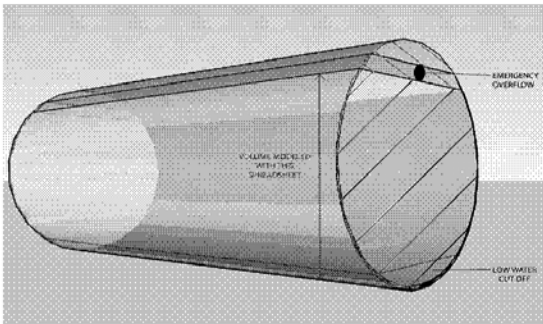
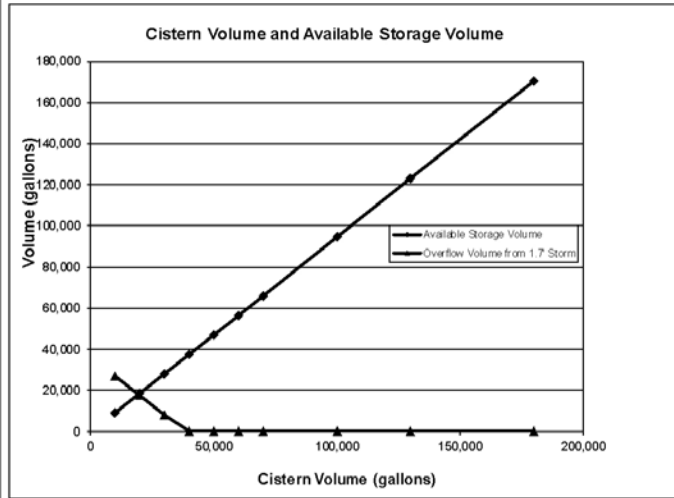
Minimum values are 95% and 90%, respectively. See Specification for additional details and guidance.

Filter Efficiency Associated with the 1.2" storm (%) 95

Filter Efficiency Associated with the 3.2" storm (%) 90

Storage Volume Summary: Results for a P" Storm, where P" = 1.7"

Cistern Volume (gallons)	Average Volume in Cistern (1977-2007)	Overflow Volume caused by 1.7" Storm (gallons)	Available Storage Volume (gallons)	Available Storage Volume (Sv) (cubic feet)
10,000	691	27,219	9,309	1244
20,000	1,298	17,826	18,702	2500
30,000	1,859	8,387	28,141	3762
40,000	2,392	0	37,608	5028
50,000	2,901	0	47,099	6297
60,000	3,401	0	56,599	7567
70,000	3,901	0	66,099	8837
100,000	5,401	0	94,599	12647
130,000	6,901	0	123,099	16457
180,000	9,401	0	170,599	22807



Note: Cistern Volume does not include detention for larger storm events.
Detention volume that will be drawn down after each storm event should be modeled separately.

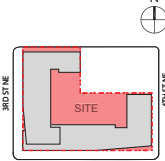
BMP: 4699-1-9 Cistern Rainwater harvesting

Natural Cover (square feet)	0
Compacted Cover (square feet)	0
Impervious Cover (square feet)	38,702
BMP Cover (square feet)	0
Vehicular Access Area (square feet)	
Total Area (square feet)	38,702

Volume Received From Upstream BMPs (cubic feet)	0
Maximum Volume Received by BMP (cubic feet)	5,209

Storage Volume (cubic feet)	6,371.8
Retention Volume (cubic feet)	5,209
Retention Volume (gallons)	38,961
Additional Treatment Volume (cubic feet)	0
Additional Treatment Volume (gallons)	0
Vehicular Access Volume Addressed?	N/A

Downstream BMP	
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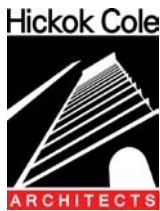


DETAIL 1 - STABILIZED CONSTRUCTION ENTRANCE		DETAIL 4 - SILT FENCE		DETAIL 6A - STANDARD INLET PROTECTION		DETAIL 6B - AT GRADE INLET PROTECTION		DETAIL 6C - CURB INLET PROTECTION (COG OR COS INLETS)		DETAIL 6E - AT GRADE INLET GUARD	
DETAIL 12 - PIPE OUTLET SEDIMENT TRAP - ST1		PIPE OUTLET SEDIMENT TRAP - ST1		DETAIL 34 - PORTABLE SEDIMENT TANK (HORIZONTAL)		DETAIL 35 - PORTABLE SEDIMENT TANK (VERTICAL)		DETAIL 74 - TREE PROTECTION			

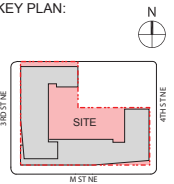


300 M

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KEY PLAN:

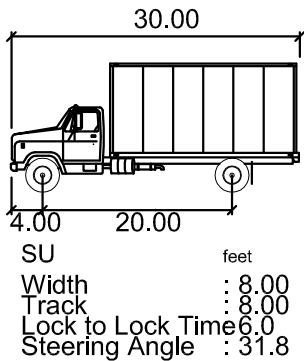
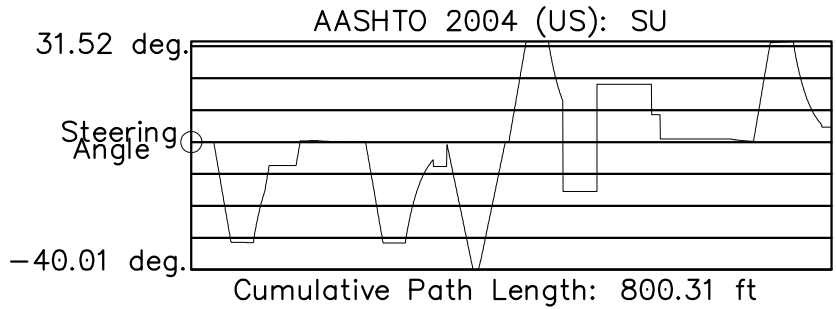
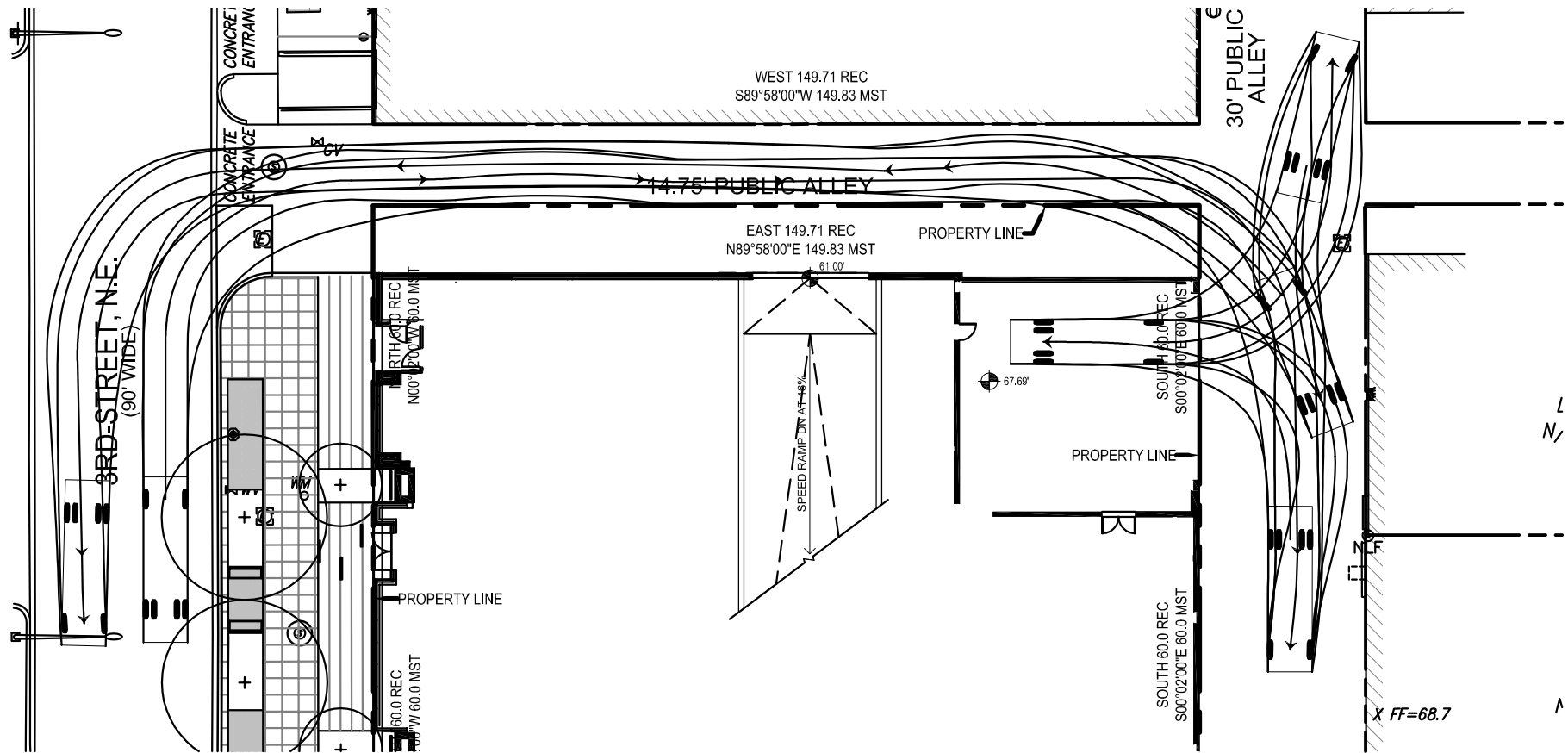


DATE:
JUNE 19, 2015

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TITLE:
TRAFFIC
DIAGRAM

NUMBER:
C-23



TRAFFIC DIAGRAM