ANGUS McDONALD
GARY SHARPE
& ASSOCIATES, INC.

Drainage Report

Proposed Development
Percival Avenue, Berlin CT

Property of:
The Town of Berlin

Prepared for:
The Berlin Housing Authority

Date: July 17, 2014

1-23-15

STATE OF CONNECTICUT
MATTHEW B. WHITE
19476
LICENSED
PROFESSIONAL ENGINEER

Contents

Project Overview

The Housing Authority of the Town of Berlin is proposing a renovation of the former Knights of Columbus facility located on Percival Ave. The site is an 8.8 ±Ac parcel located east of Percival Avenue and north of Lawdale Street in Berlin, Connecticut. The site presently has a vacant building and parking lots in the western portion of the property and the eastern portion of the property is wooded and undeveloped. The two sides are divided by a central wetland corridor which flows to a 24" concrete pipe that drains to the north. The property is surrounded by residential neighborhoods to the south and west, a town park to the north and the eastern boundary is bordered by a second wetland corridor that separates the property from a senior housing facility operated by the Housing Authority. A sanitary sewer main (located within a sewer easement) owned and operated by the Kensington Fire District runs through the center of the property, and will remain following the proposed development.

At this time the Housing Authority is planning to remove the existing structures on the site and construct of two main buildings which will contain 50 senior housing units along with the associated drainage, parking facilities, an accessory maintenance building and Gazebo.

Drainage Area Characteristics

The site was analyzed using the TR-55 method in its existing and developed states to determine peak rates of runoff produced by 2, 10, 25, 50 and 100 yr storm events.

Under existing and developed conditions the site drains to a design point at a 24" concrete pipe inlet located along the northern property boundary in the center of the site. This pipe drains north under the outfield of the baseball field on in the neighboring town park and outlets into a large inland wetland.

Existing Drainage Areas

The existing drainage area which drains to through the site extends approximately 1,750 ft south west of the design point, nearly to the intersection of Percival Ave. and Sheldon Street, and encompasses 20.76 Ac. The majority of the existing drainage area is located off site and is comprised of residential neighborhoods and wooded areas.

A drainage model was created using Haestad Methods PondPack to determine the peak rate of runoff to the design point in the existing and developed conditions. Drainage area maps which show the existing and developed drainage areas and the design point have been included with this report.

Table 1 shows the input data that was used to determine peak rates of runoff to the design point under existing conditions:

Table 1 – Input data for existing peak rates of runoff

Drainage Area	Curve Number	Area (Ac.)	Time of Concentration (Hr.)
Existing	67	20.76	.54

Table 2 shows the peak rates of runoff that were calculated using PondPack models:

Table 2 – Peak rates of runoff under existing conditions

	Existing Peak Runoff (cfs)				
	2 yr	*10 yr*	*25 yr*	*50 yr*	*100 yr*
Existing to Design Point	8.34	22.75	28.58	35.68	44.10

Developed Conditions

Developed to Design Point

The developed area draining to the design point is divided into two drainage sub areas, Developed and Developed Remaining.

The Developed drainage area includes the majority of the proposed development on the site as well as some of the offsite areas immediately up gradient of the development. Runoff in this area, as well as the roof water from the new buildings, will be collected through a catch basin network that outlets into in a proposed surface detention basin. Abtech DI 1420 N Storm filter inlet protection will be installed in some of the proposed as a water quality measure.

This detention basin will have an internal capacity of .50 Ac-ft ± and will outlet to the Developed Remaining drainage area in the vicinity of the Design Point. An outlet control structure in the basin will reduce developed peak rates of runoff leaving the site at the design point to levels below existing levels.

Developed Remaining will include the remaining area that is left over from the existing drainage area after the Developed subarea has been removed. Developed Remaining is comprised primarily of the residential neighborhood and wooded areas that are located up gradient of the proposed development, these areas bypass the detention basin.

Table 3 shows the input data that was used to determine peak rates of runoff to each of the design points under developed conditions:

Table 3 – Input data for developed peak rates of runoff

Drainage Area	Curve Number	Area (Ac.)	Time of Concentration (Hr.)
Developed	83	3.43	.19
Developed Remaining	66	17.33	0.54

Table 4 shows the peak rates of runoff that were calculated using PondPack models:

Table 4 – Peak rates of runoff under developed conditions

	Developed Peak Runoff (cfs)				
	2 yr	10 yr	25 yr	50 yr	*100 yr*
Developed to Design Point	7.16	22.09	27.97	35.14	43.13
Max. Water Surface Elevation	129.6	130.5	130.7	131.0	131.4

Conclusion

Drainage area maps as well as data sheets that were created using the stormwater modeling software PondPack are included in the rear of this report.

The proposed stormwater measures that will be constructed as part of the site development will collect and detain the stormwater runoff produced by the addition of impervious areas to the site. Peak rates of runoff will be reduced to below existing levels as a result of the stormwater control measures that will be build on the site as part of the proposed development.

Appendix

Project	Job Number	
Berlin Housing Authority	135948	
Location	Date	Print Date
Percival Ave, Berlin	6/1/2014	5/30/2014

Check One Existing [X] or Developed [ ]

Existing	Sub Areas					Total (ft^2)	Total (Acres)	% of Total Area	Hydraulic Soil Group	Cover Type	Curve Number	Product CN x Area
		50	298	5,611	640	6,599	0.15	0.73%	A	Lawn (Good)	39	5.9
					50,826	50,826	1.17	5.62%	A	Woods (Good)	30	35.0
					741	741	0.02	0.08%	A	Impervious	98	1.7
					176,783	176,783	4.06	19.55%	A	1/3 Acre Residential	57	231.3
		2,178	10,210	2,306	143,344	158,038	3.63	17.47%	B	Lawn (Good)	61	221.3
					102,683	102,683	2.36	11.35%	B	Woods (Good)	55	129.7
				1,923	60,056	61,979	1.42	6.85%	B	Impervious	98	139.4
						0	0.00	0.00%	B	1/3 Acre Residential	72	0.0
					11,512	11,512	0.26	1.27%	C	Lawn (Good)	74	19.6
					14,030	14,030	0.32	1.55%	C	Woods (Good)	70	22.5
				116	468	584	0.01	0.06%	C	Impervious	98	1.3
					276,180	276,180	6.34	30.54%	C	1/3 Acre Residential	81	513.6
						0	0.00	0.00%	D	Lawn (Good)	80	0.0
					44,482	44,482	1.02	4.92%	D	Woods (Good)	77	78.6
						0	0.00	0.00%	D	Impervious	98	0.0
						0	0.00	0.00%	D	1/3 Acre Residential	86	0.0
						904,437	20.76	1.00				1,400

CN *(Weighted)* = $\frac{1,400}{21}$ = **67**

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SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.3000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = C:\HAESTAD\PPKW\135948 - BERLIN HOUSING\
HYG File - ID = - EXISTING 2
Tc = .5400 hrs
Drainage Area = 20.760 acres Runoff CN= 67

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Computational Time Increment	=	.07200 hrs
Computed Peak Time	=	12.4560 hrs
Computed Peak Flow	=	8.36 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.4500 hrs
Peak Flow, Interpolated Output	=	8.34 cfs

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DRAINAGE AREA

ID:None Selected
CN = 67
Area = 20.760 acres
S = 4.9254 in
0.2S = .9851 in

Cumulative Runoff

.7401 in
1.280 ac-ft

HYG Volume... 1.280 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .54000 hrs (ID: None Selected)
Computational Incr, Tm = .07200 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	43.56 cfs
Unit peak time	Tp =	.36000 hrs
Unit receding limb,	Tr =	1.44000 hrs
Total unit time,	Tb =	1.80000 hrs

Project	Job Number	
Berlin Housing Authority	135948	
Location	Date	Print Date
Percival Ave, Berlin	12/24/2013	5/30/2014

Check One Existing [ ] or Developed [X]

Developed to Basin	Sub Areas					Total (ft^2)	Total (Acres)	% of Total Area	Hydraulic Soil Group	Cover Type	Curve Number	Product CN x Area
						0	0.00	0.00%	A	Lawn (Good)	39	0.0
						0	0.00	0.00%	A	Woods (Good)	30	0.0
						0	0.00	0.00%	A	Impervious	98	0.0
						0	0.00	0.00%	A	1/3 Acre Residential	57	0.0
				28,750	23,522	52,272	1.20	34.96%	B	Lawn (Good)	61	73.2
				8,712		8,712	0.20	5.83%	B	Woods (Good)	55	11.0
				10,890	77,666	88,556	2.03	59.22%	B	Impervious	98	199.2
						0	0.00	0.00%	B	1/3 Acre Residential	72	0.0
						0	0.00	0.00%	C	Lawn (Good)	74	0.0
						0	0.00	0.00%	C	Woods (Good)	70	0.0
						0	0.00	0.00%	C	Impervious	98	0.0
						0	0.00	0.00%	C	1/3 Acre Residential	81	0.0
						0	0.00	0.00%	D	Lawn (Good)	80	0.0
						0	0.00	0.00%	D	Woods (Good)	77	0.0
						0	0.00	0.00%	D	Impervious	98	0.0
						0	0.00	0.00%	D	1/3 Acre Residential	86	0.0
						149,540	3.43	1.00				283

CN *(Weighted)* = $\frac{283}{3}$ = **83**

Developed Remaining	Sub Areas					Total (ft^2)	Total (Acres)	% of Total Area	Hydraulic Soil Group	Cover Type	Curve Number	Product CN x Area
					0	0	0.00	0.00%	A	Lawn (Good)	39	0.0
					51,401	51,401	1.18	6.81%	A	Woods (Good)	30	35.4
						0	0.00	0.00%	A	Impervious	98	0.0
					174,240	174,240	4.00	23.08%	A	1/3 Acre Residential	57	228.0
			-28,750	49,223	52,272	72,745	1.67	9.64%	B	Lawn (Good)	61	101.9
			-8,712	54,450	55,321	101,059	2.32	13.39%	B	Woods (Good)	55	127.6
			-10,890	10,890		0	0.00	0.00%	B	Impervious	98	0.0
						0	0.00	0.00%	B	1/3 Acre Residential	72	0.0
				4,792		4,792	0.11	0.63%	C	Lawn (Good)	74	8.1
					20,909	20,909	0.48	2.77%	C	Woods (Good)	70	33.6
						0	0.00	0.00%	C	Impervious	98	0.0
					280,526	280,526	6.44	37.16%	C	1/3 Acre Residential	81	521.6
						0	0.00	0.00%	D	Lawn (Good)	80	0.0
					49,223	49,223	1.13	6.52%	D	Woods (Good)	77	87.0
						0	0.00	0.00%	D	Impervious	98	0.0
						0	0.00	0.00%	D	1/3 Acre Residential	86	0.0
						754,894	17.33	1.00				1,143

CN *(Weighted)* = $\frac{1,143}{17}$ = **66**

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DEVEL. REMAINING AREA	25	3.102	12.4000	22.84
DEVEL. REMAINING AREA	50	3.848	12.4000	28.68

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.3000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File - ID = SCSTYPES.RNF - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = C:\HAESTAD\PPKW\135948 - BERLIN HOUSING\CURRENT PLANS\
HYG File - ID = - DEVEL. REMAINING 2
Tc = .5400 hrs
Drainage Area = 17.330 acres Runoff CN= 66

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Computational Time Increment	=	.07200 hrs
Computed Peak Time	=	12.4560 hrs
Computed Peak Flow	=	6.39 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.4500 hrs
Peak Flow, Interpolated Output	=	6.37 cfs

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DRAINAGE AREA

ID:None Selected
CN = 66
Area = 17.330 acres
S = 5.1515 in
0.2S = 1.0303 in

Cumulative Runoff

.6942 in
1.002 ac-ft

HYG Volume... 1.002 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .54000 hrs (ID: None Selected)
Computational Incr, Tm = .07200 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	36.36 cfs
Unit peak time	Tp =	.36000 hrs
Unit receding limb,	Tr =	1.44000 hrs
Total unit time,	Tb =	1.80000 hrs

File.... C:\HAESTAD\PPKW\135948 - BERLIN HOUSING\CURRENT PLANS\DEVELOPED WITH POND - OPTION C - REVISED BASIN.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
126.50	-----	.0200	.0000	.000	.000
127.00	-----	.0400	.0883	.015	.015
128.00	-----	.0600	.1490	.050	.064
130.00	-----	.1300	.2783	.186	.250
131.00	-----	.1700	.4487	.150	.399
132.00	-----	.2000	.5544	.185	.584

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

Where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... C:\HAESTAD\PPKW\135948 - BERLIN HOUSING\CURRENT PLANS\DEVELOPED WITH POND - OPTION C - REVISED BASIN.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID =
Structure Type = Orifice-Circular

# of Openings = 1
Invert Elev. = 126.50 ft
Diameter = .3300 ft
Orifice Coeff. = .600

Structure ID =
Structure Type = Orifice-Circular

# of Openings = 1
Invert Elev. = 130.25 ft
Diameter = .7500 ft
Orifice Coeff. = .600

Structure ID =
Structure Type = Orifice-Circular

# of Openings = 1
Invert Elev. = 129.25 ft
Diameter = 1.0000 ft
Orifice Coeff. = .600

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

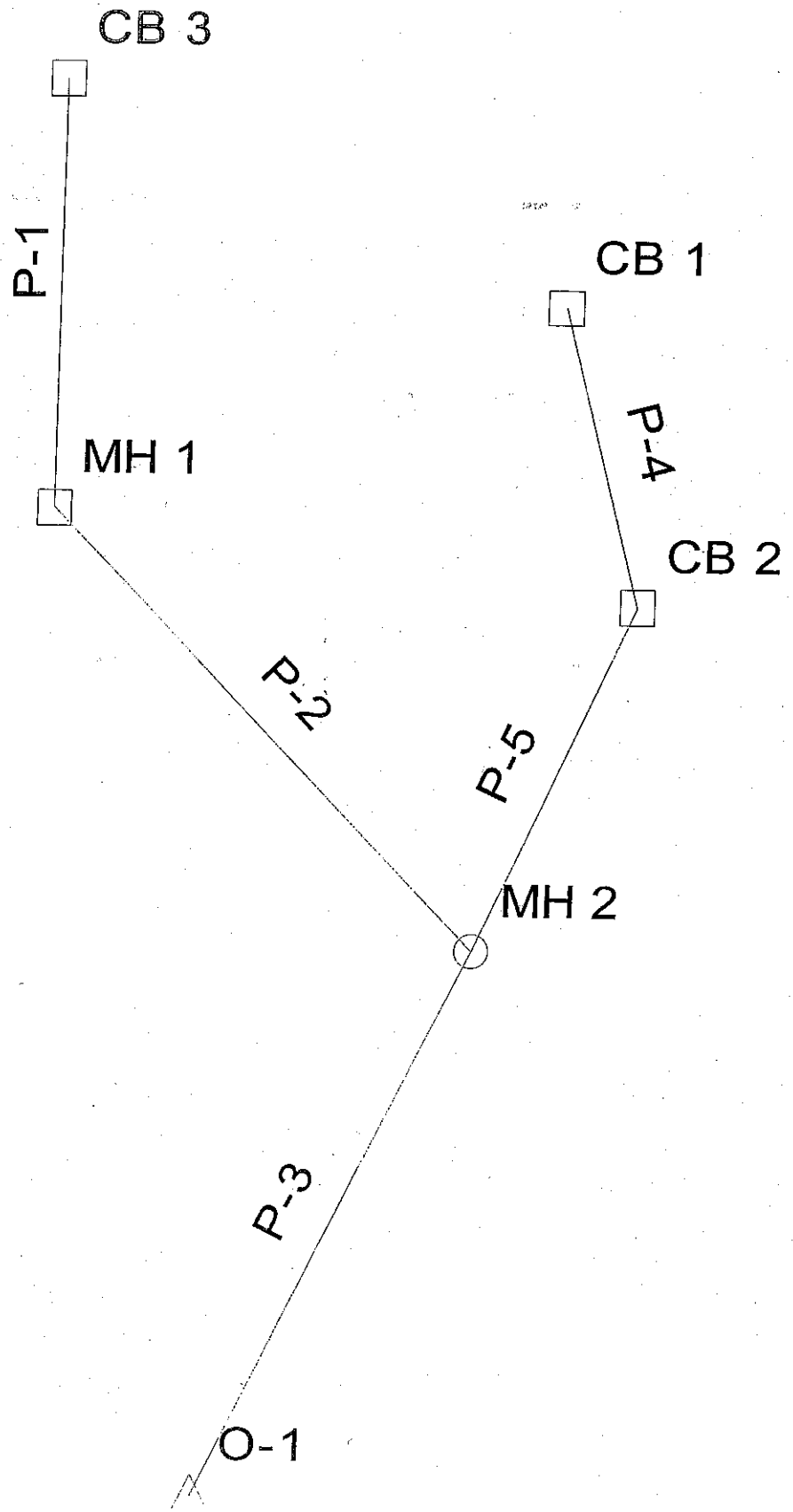
C numbers	
Woods	0.2
Lawns	0.3
Impervious	0.9

DRAINAGE AREA

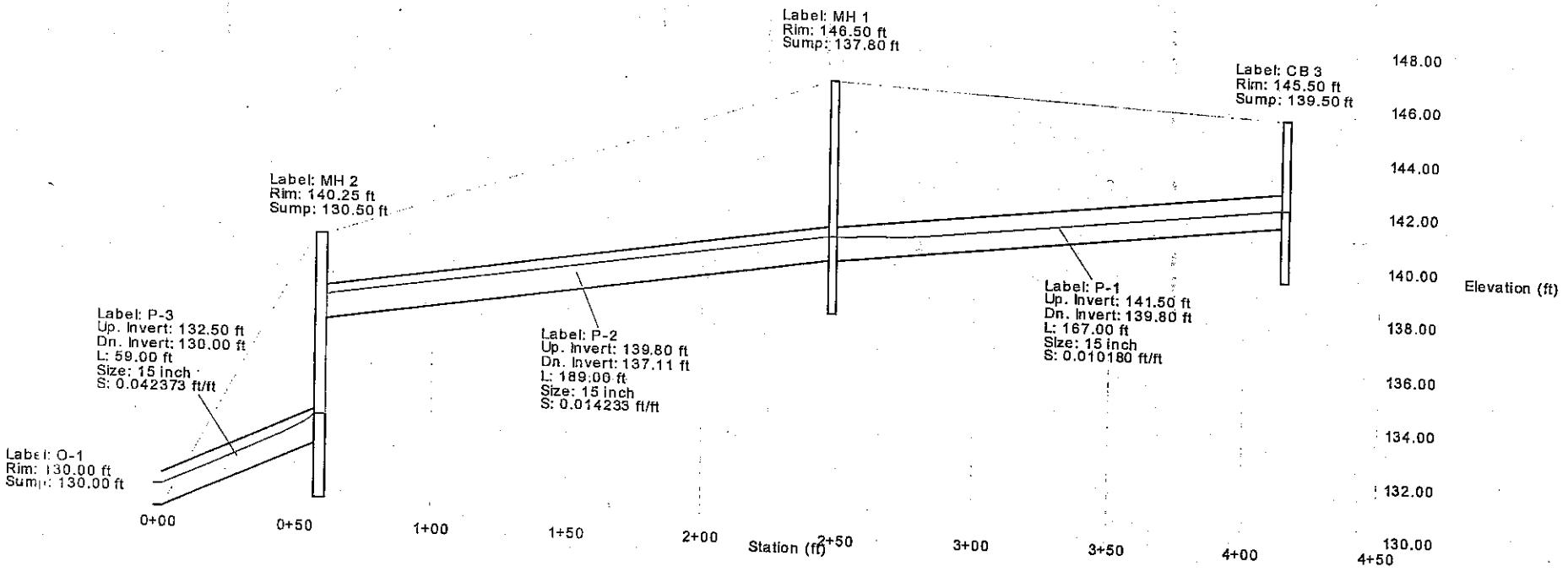
Date: 6/2/2014

Catch Basin Area	Acres				C AVE
	Wooded Area	Lawn Area	Impervious Area	Total Area	
1	0.00	0.03	0.35	0.38	0.85
2	0.00	0.09	0.20	0.29	0.71
3	0.20	0.77	0.25	1.22	0.41
4	1.05	0.47	0.00	1.52	0.23
5	0.00	0.08	0.17	0.25	0.71
6	0.00	0.01	0.18	0.19	0.87
7	0.00	0.03	0.17	0.20	0.81

Scenario: 25 Year Storm



Profile
Scenario: 25 Year Storm



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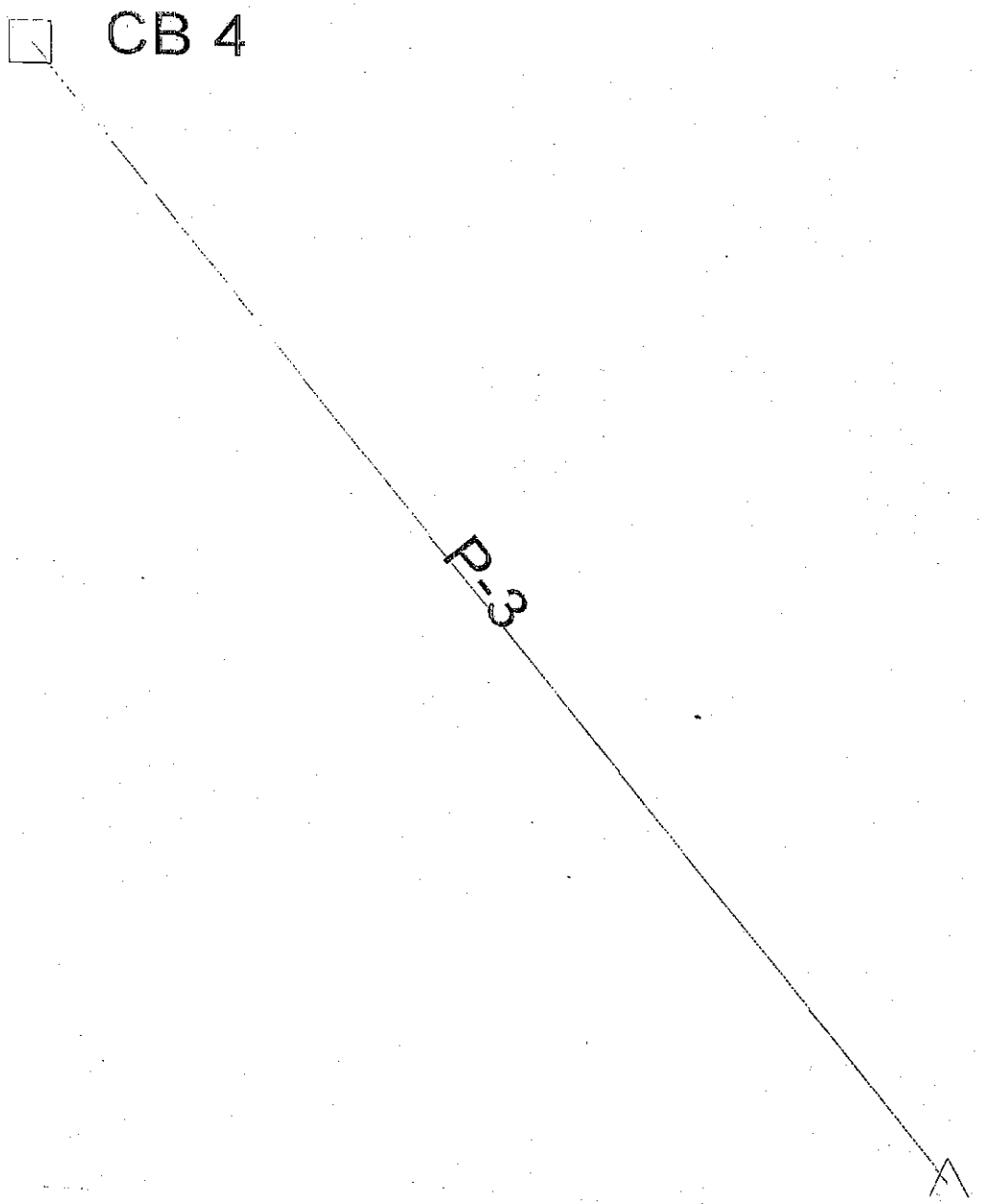
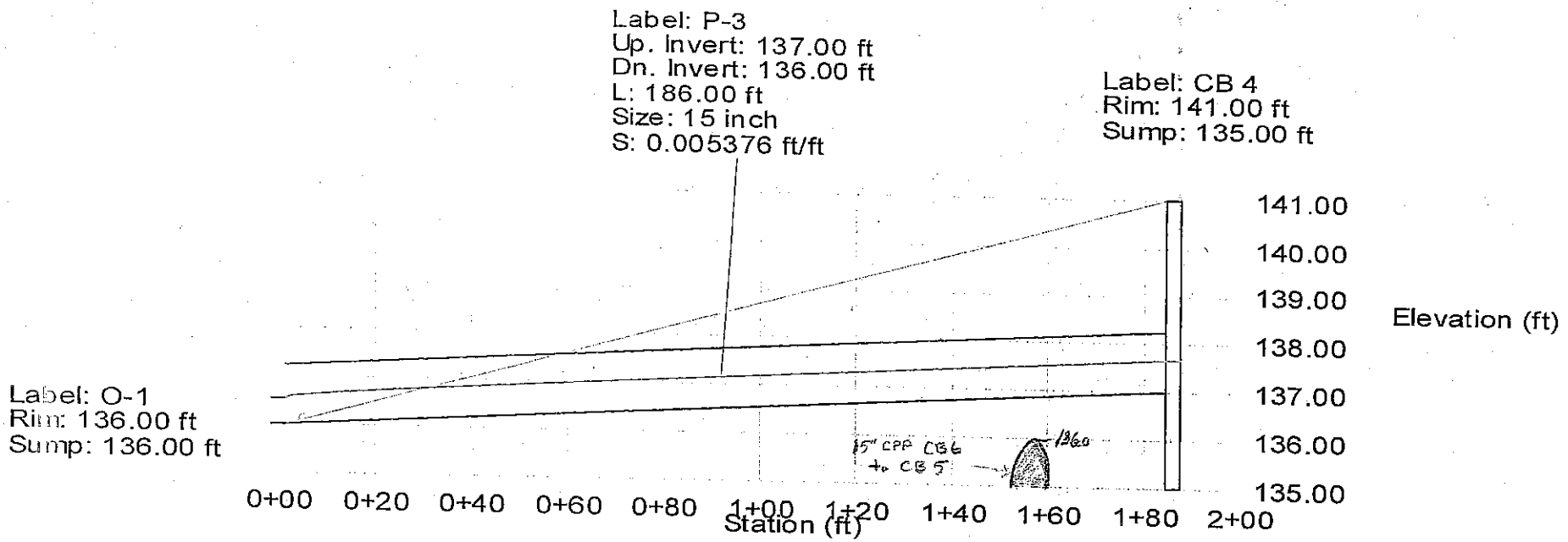
Scenario: Base



Profile
Scenario: Base

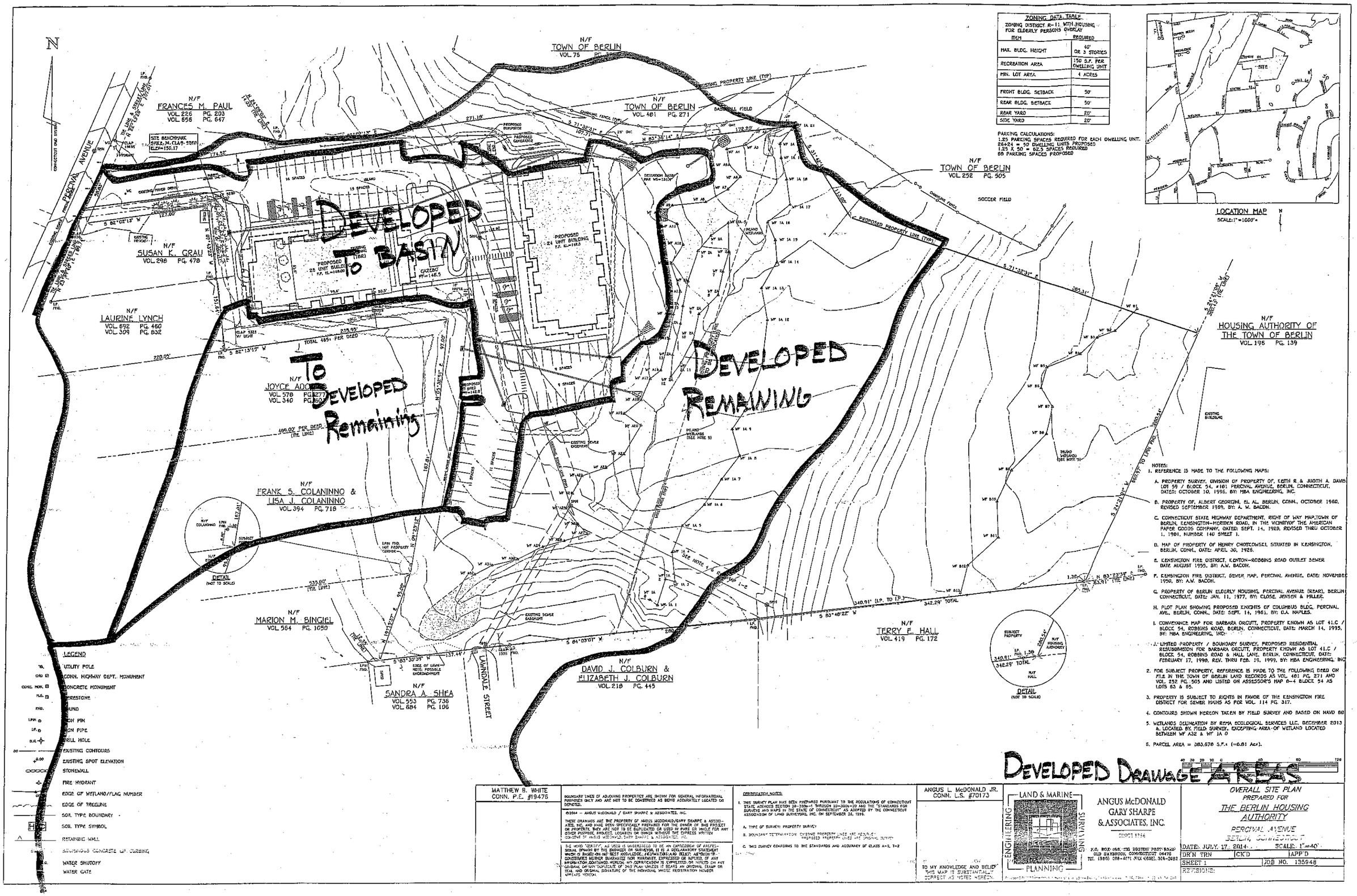


Scenario: Base

STORM DRAINAGE RESULTS

Up. Node	OUT	Label	Up. Inlet Area (acres)	Up. Inlet Rat. Coef.	System CA (acres)	System Q (cfs)	Q Full (cfs)	System Additional Flow (cfs)	Avg. v (ft/s)	Size	L (ft)	S (fl/ft)	Up. Invert (ft)	Dn. Invert (ft)	Up. Gr Elev. (ft)	Dn. Gr. Elev. (ft)	HGL In (ft)	HGL Out (ft)
CB6	CB 5	P-4	0.19	0.87	0.17	1.12	4.67	0.00	3.12	15 inch	69.00	0.010000	135.03	134.34	141.20	140.50	135.45	134.76
CB 5	CB 7	P-5	0.25	0.71	0.34	2.28	4.67	0.00	3.77	15 inch	135.00	0.010000	131.85	130.50	140.50	139.00	132.47	131.12
CB 7	O-1	P-3	0.20	0.81	0.50	3.29	3.89	0.00	4.01	15 inch	36.00	0.006944	130.25	130.00	139.00	130.00	131.12	130.73

Existing Drainage Area Map



ZONING DATA TABLE

ZONING DISTRICT: R-11 WITH HOUSING FOR ELDERLY PERSONS OVERLAY

ITEM	REQUIRED
MAX. BLDG. HEIGHT	40' OR 3 STORIES
RECREATION AREA	150 S.F. PER DWELLING UNIT
MIN. LOT AREA	4 ACRES
FRONT BLDG. SETBACK	50'
REAR BLDG. SETBACK	50'
REAR YARD	20'
SIDE YARD	20'

PARKING CALCULATIONS:
1.25 PARKING SPACES REQUIRED FOR EACH DWELLING UNIT.
26+24 = 50 DWELLING UNITS PROPOSED
1.25 X 50 = 62.5 SPACES REQUIRED
68 PARKING SPACES PROPOSED

NOTES:
1. REFERENCE IS MADE TO THE FOLLOWING MAPS:
   A. PROPERTY SURVEY, DIVISION OF PROPERTY OF, KEITH R. & JUDITH A. DAVIS LOT 59 / BLOCK 54, #181 PERCIVAL AVENUE, BERLIN, CONNECTICUT, DATED: OCTOBER 10, 1996, BY: HBA ENGINEERING, INC.
   B. PROPERTY OF, ALBERT GEORGINI, ET. AL., BERLIN, CONN., OCTOBER 1960, REVISED SEPTEMBER 1989, BY: A. W. BACON.
   C. CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP,TOWN OF BERLIN, KENSINGTON-HUBINON ROAD, IN THE VICINITYOF THE AMERICAN PAPER GOODS COMPANY, DATED: SEPT. 14, 1928, REVISED THRU OCTOBER 1, 1931, NUMBER 140 SHEET 1.
   D. MAP OF PROPERTY OF HENRY CHOTKOWSKI, SITUATED IN KENSINGTON, BERLIN, CONN., DATE: APRIL 30, 1928.
   E. KENSINGTON FIRE DISTRICT, KENTON-ROBBINS ROAD OUTLET SEWER DATE AUGUST 1955, BY: A.W. BACON.
   F. KENSINGTON FIRE DISTRICT, SEWER MAP, PERCIVAL AVENUE, DATE: NOVEMBER 1950, BY: A.W. BACON.
   G. PROPERTY OF BERLIN ELDERLY HOUSING, PERCIVAL AVENUE (REAR), BERLIN CONNECTICUT, DATE: JAN. 11, 1977, BY: CLOSE, JENSEN & MILLER.
   H. PLOT PLAN SHOWING PROPOSED KNIGHTS OF COLUMBUS BLDG. PERCIVAL AVE., BERLIN, CONN., DATE: SEPT. 14, 1961, BY: D.A. NAPLES.
   I. CONVEYANCE MAP FOR BARBARA ORCUTT, PROPERTY KNOWN AS LOT 41.C / BLOCK 54, ROBBINS ROAD, BERLIN, CONNECTICUT, DATE: MARCH 14, 1995, BY: HBA ENGINEERING, INC.
   J. LIMITED PROPERTY / BOUNDARY SURVEY, PROPOSED RESIDENTIAL RESUBDIVISION FOR BARBARA ORCUTT, PROPERTY KNOWN AS LOT 41.C / BLOCK 54, ROBBINS ROAD & HALL LANE, BERLIN, CONNECTICUT, DATE: FEBRUARY 17, 1998, REV. THRU FEB. 19, 1999, BY: HBA ENGINEERING, INC.
2. FOR SUBJECT PROPERTY, REFERENCE IS MADE TO THE FOLLOWING DEED ON FILE IN THE TOWN OF BERLIN LAND RECORDS AS VOL. 481 PG. 271 AND VOL. 252 PG. 505 AND LISTED ON ASSESSOR'S MAP 8-4 BLOCK 54 AS LOTS 63 & 65.
3. PROPERTY IS SUBJECT TO RIGHTS IN FAVOR OF THE KENSINGTON FIRE DISTRICT FOR SEWER MAINS AS PER VOL. 114 PG. 317.
4. CONTOURS SHOWN HEREON TAKEN BY FIELD SURVEY AND BASED ON NAVD 88
5. WETLANDS DELINEATION BY REMA ECOLOGICAL SERVICES LLC, DECEMBER 2013 & LOCATED BY FIELD SURVEY, EXCEPTING AREA-OF WETLAND LOCATED BETWEEN WF A32 & WF 1A 0
6. PARCEL AREA = 383,678 S.F.± (=8.81 Ac±).

DEVELOPED DRAINAGE AREAS

MATTHEW B. WHITE
CONN. P.E. #19476

CERTIFICATION NOTES:

1. THIS SURVEY PLAN HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTION 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
   A. TYPE OF SURVEY: PROPERTY SURVEY
   B. BOUNDARY DETERMINATION: EXISTING PROPERTY LINES ARE ACCURATE; PROPOSED PROPERTY LINES ARE ORIGINAL SURVEY
   C. THIS SURVEY CONFORMS TO THE STANDARDS AND ACCURACY OF CLASS A-2, T-2

ANGUS L. McDONALD JR.
CONN. L.S. #70173

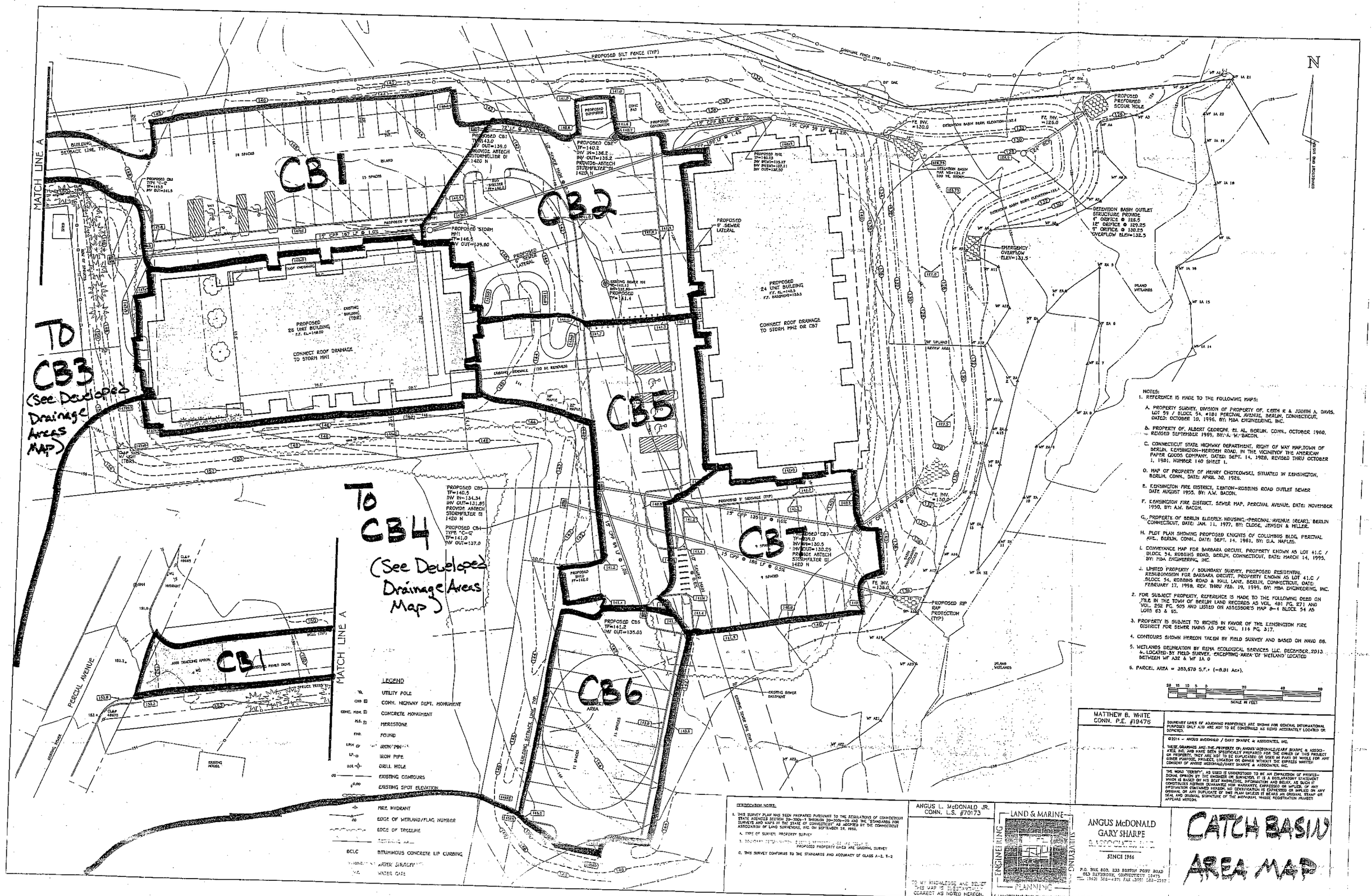
TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREIN.

LAND & MARINE ENGINEERING SURVEYING PLANNING

ANGUS McDONALD GARY SHARPE & ASSOCIATES, INC.
SINCE 1956
P.O. BOX 668, 735 BOSTON POST ROAD
OLD SAYBROOK, CONNECTICUT 06475
TEL. (860) 388-4071 FAX (860) 388-3682

OVERALL SITE PLAN
PREPARED FOR
THE BERLIN HOUSING AUTHORITY
PERCIVAL AVENUE
BERLIN, CONNECTICUT

DATE: JULY 17, 2014	SCALE: 1"=40'
DR'N TRN	CK'D
APP'D	
SHEET 1	JOB NO. 135948
REVISIONS:	



NOTES:

1. REFERENCE IS MADE TO THE FOLLOWING MAPS:
   - A. PROPERTY SURVEY, DIVISION OF PROPERTY OF, KEITH R & JUDITH A. DAVIS, LOT 59 / BLOCK 54, #181 PERCIVAL AVENUE, BERLIN, CONNECTICUT, DATED: OCTOBER 10, 1996, BY: MBA ENGINEERING, INC.
   - B. PROPERTY OF, ALBERT GEORGINE, ET AL, BERLIN, CONN., OCTOBER 1960, REVISED SEPTEMBER 1969, BY: A. W. BACON.
   - C. CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP,TOWN OF BERLIN, KENSINGTON-MERIDEN ROAD, IN THE VICINITYOF THE AMERICAN PAPER GOODS COMPANY, DATED: SEPT. 14, 1928, REVISED THRU OCTOBER 1, 1951, NUMBER 140 SHEET 1.
   - D. MAP OF PROPERTY OF HENRY CHOTKOWSKI, SITUATED IN KENSINGTON, BERLIN, CONN., DATE: APRIL 30, 1926.
   - E. KENSINGTON FIRE DISTRICT, KENTON-ROBBINS ROAD OUTLET SEWER DATE AUGUST 1955. BY: A.W. BACON.
   - F. KENSINGTON FIRE DISTRICT, SEWER MAP, PERCIVAL AVENUE, DATE: NOVEMBER 1950. BY: A.W. BACON.
   - G. PROPERTY OF BERLIN ELDERLY HOUSING,-PERCIVAL AVENUE (REAR), BERLIN CONNECTICUT, DATE: JAN. 11, 1977, BY: CLOSE, JENSEN & MILLER.
   - H. PLOT PLAN SHOWING PROPOSED KNIGHTS OF COLUMBUS BLDG, PERCIVAL AVE., BERLIN, CONN., DATE: SEPT. 14, 1961, BY: D.A. NAPLES.
   - I. CONVEYANCE MAP FOR BARBARA ORCUTT, PROPERTY KNOWN AS LOT 41.C / BLOCK 54, ROBBINS ROAD & MALL LANE, BERLIN, CONNECTICUT, DATE: FEBRUARY 17, 1998, REV. THRU FEB. 19, 1998, BY: MBA ENGINEERING, INC.
   - J. LIMITED PROPERTY / BOUNDARY SURVEY, PROPOSED RESIDENTIAL RESUBDIVISION FOR BARBARA ORCUTT, PROPERTY KNOWN AS LOT 41.C / BLOCK 54, ROBBINS ROAD & MALL LANE, BERLIN, CONNECTICUT, DATE: FEBRUARY 17, 1998, REV. THRU FEB. 19, 1998, BY: MBA ENGINEERING, INC.
2. FOR SUBJECT PROPERTY, REFERENCE IS MADE TO THE FOLLOWING DEED ON FILE IN THE TOWN OF BERLIN LAND RECORDS AS VOL. 481 PG. 271 AND VOL. 252 PG. 505 AND LISTED ON ASSESSOR'S MAP #-4 BLOCK 54 AS LOTS 63 & 65.
3. PROPERTY IS SUBJECT TO RIGHTS IN FAVOR OF THE KENSINGTON FIRE DISTRICT FOR SEWER MAINS AS PER VOL. 114 PG. 317.
4. CONTOURS SHOWN HEREON TAKEN BY FIELD SURVEY AND BASED ON NAVD 88.
5. WETLANDS DELINEATION BY REMA ECOLOGICAL SERVICES LLC, DECEMBER, 2013 & LOCATED BY FIELD SURVEY, EXCEPTING AREA OF WETLAND LOCATED BETWEEN WF A32 & WF 1A D
6. PARCEL AREA = 383,678 S.F.+ (=8.81 Ac+).

MATTHEW B. WHITE
CONN. P.E. #19475

CERTIFICATION NOTES:

1. THIS SURVEY PLAN HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTION 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
   - A. TYPE OF SURVEY: PROPERTY SURVEY
   - B. [illegible] PROPOSED PROPERTY LINES ARE ORIGINAL SURVEY
   - C. THIS SURVEY CONFORMS TO THE STANDARDS AND ACCURACY OF CLASS A-2, T-2

ANGUS L. McDONALD JR.
CONN. L.S. #70173

TO MY KNOWLEDGE AND BELIEF THIS MAP IS ESSENTIALLY CORRECT AS NOTED HEREON.

LAND & MARINE ENGINEERING SURVEYING PLANNING

ANGUS McDONALD
GARY SHARPE
& ASSOCIATES, INC.
SINCE 1966
P.O. BOX 805, 233 BOSTON POST ROAD
OLD SAYBROOK, CONNECTICUT 06475
(860) 388-4571 FAX (860) 388-3552

CATCH BASIN AREA MAP