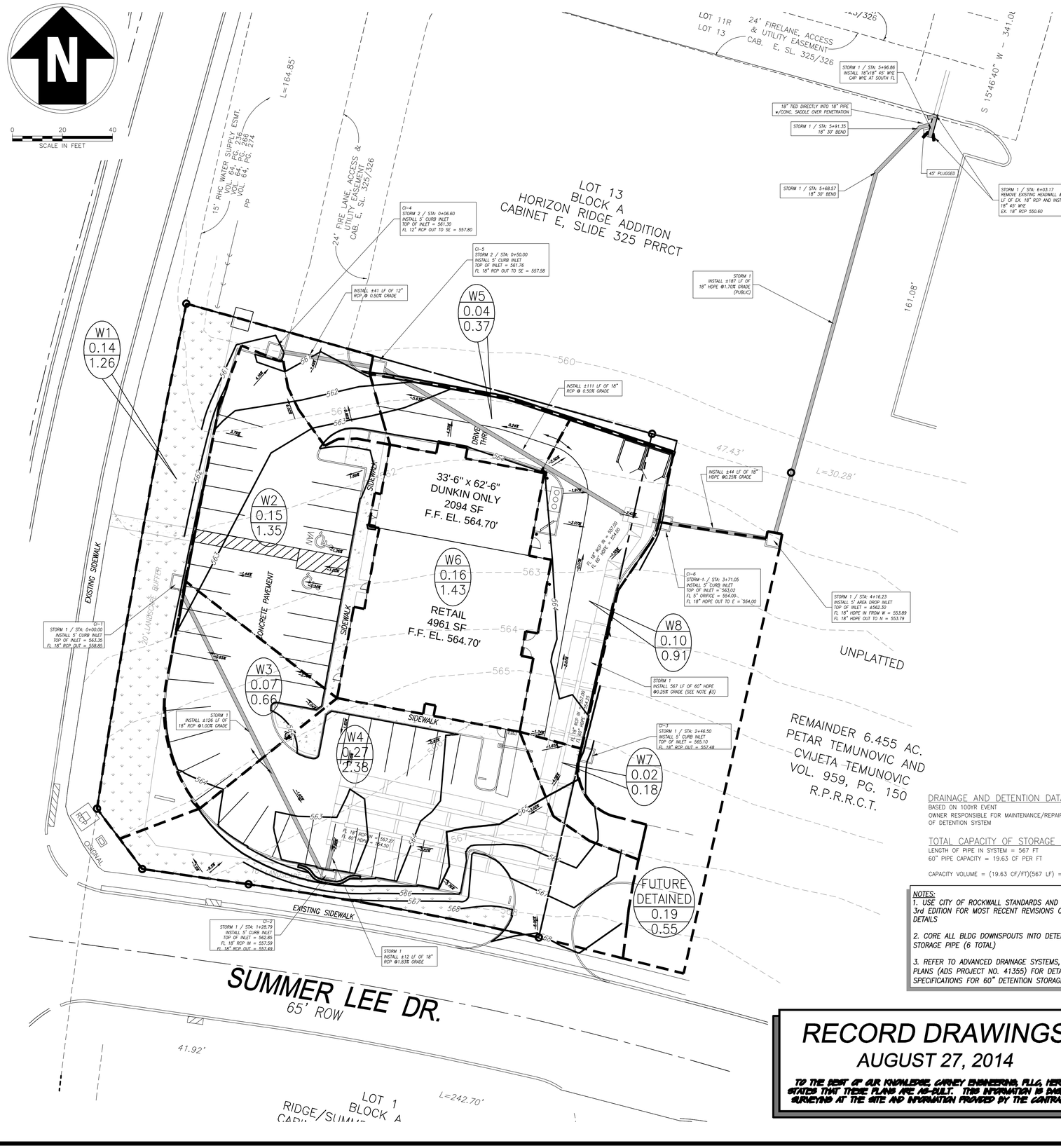

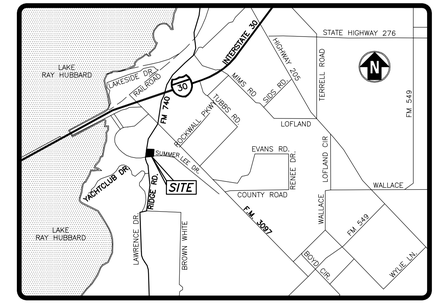

VICINITY MAP

NO SCALE

CAUTION–NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANY TWO WORKING DAYS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

PRE-DEVELOPMENT DRAINAGE CALCULATIONS

AREA	ACRES	COEFF*	Tc	I_5	Q_5	I_{10}	Q_{10}	I_{25}	Q_{25}	I_{100}	Q_{100}
W1	0.14	0.35	20	4.9	0.25	5.9	0.30	6.6	0.33	8.3	0.42
W2	0.15	0.35	20	4.9	0.26	5.9	0.32	6.6	0.35	8.3	0.44
W3	0.07	0.35	20	4.9	0.13	5.9	0.15	6.6	0.17	8.3	0.22
W4	0.27	0.35	20	4.9	0.46	5.9	0.56	6.6	0.62	8.3	0.78
W5	0.04	0.35	20	4.9	0.07	5.9	0.09	6.6	0.10	8.3	0.12
W6	0.16	0.35	20	4.9	0.28	5.9	0.33	6.6	0.37	8.3	0.47
W7	0.02	0.35	20	4.9	0.03	5.9	0.04	6.6	0.05	8.3	0.06
W8	0.10	0.35	20	4.9	0.18	5.9	0.21	6.6	0.24	8.3	0.30
Future Detained	0.19	0.35	20	4.9	0.33	5.9	0.39	6.6	0.44	8.3	0.55
TOTAL	0.97	0.35	20	4.9	1.66	5.9	2.00	6.6	2.24	8.3	2.81

POST-DEVELOPMENT DRAINAGE CALCULATIONS

AREA	DRAINS TO	ACRES	COEFF*	Tc	I_5	Q_5	I_{10}	Q_{10}	I_{25}	Q_{25}	I_{100}	Q_{100}
W1	OFFSITE	0.14	0.90	10	6.1	0.79	7.1	0.91	8.3	1.07	9.8	1.26
W2	CI-4	0.15	0.90	10	6.1	0.84	7.1	0.98	8.3	1.14	9.8	1.35
W3	CI-1	0.07	0.90	10	6.1	0.41	7.1	0.48	8.3	0.56	9.8	0.66
W4	CI-2	0.27	0.90	10	6.1	1.48	7.1	1.73	8.3	2.02	9.8	2.38
W5	CI-5	0.04	0.90	10	6.1	0.23	7.1	0.27	8.3	0.31	9.8	0.37
W6	DET. BOX	0.16	0.90	10	6.1	0.89	7.1	1.03	8.3	1.21	9.8	1.43
W7	CI-3	0.02	0.90	10	6.1	0.11	7.1	0.13	8.3	0.15	9.8	0.18
W8	CI-6	0.10	0.90	10	6.1	0.57	7.1	0.66	8.3	0.77	9.8	0.91
Future Detained	Area Inlet	0.19	0.35	20	4.9	0.33	5.9	0.39	6.6	0.44	8.3	0.55
TOTAL	--	0.97	0.90	10	6.1	5.31	7.1	6.18	8.3	7.23	9.8	8.54

Present Conditions

Q = CIA
A = 0.97
C = 0.35
Tc = 20
I100 = 8.3
Q100 = 2.81

By-Pass Acreage = 0.14

	Q_5	Q_{10}	Q_{25}	Q_{100}
By-Pass Q cfs	0.79	0.91	1.07	1.26
New Allowable cfs	0.87	1.08	1.17	1.55
Actual cfs	0.57	0.66	0.77	0.91

New Acreage = 0.82

Future Conditions

Q = CIA
A = 0.97
C = 0.90
Tc = 10
I100 = 9.8
Q100 = 8.54

POST-DEVELOPMENT FLOWS FOR STORM DURATIONS

Time	C	A	I_5	Q_5	I_{10}	Q_{10}	I_{25}	Q_{25}	I_{100}	Q_{100}
10 min	0.9	0.82	6.1	4.53	7.1	5.27	8.3	6.16	9.8	7.27
15 min	0.9	0.82	5.5	4.08	6.5	4.82	7.5	5.57	9.0	6.68
20 min	0.9	0.82	4.9	3.64	5.9	4.38	6.6	4.90	8.3	6.16
30 min	0.9	0.82	4.1	3.04	4.8	3.56	5.5	4.08	6.9	5.12
40 min	0.9	0.82	3.4	2.52	4.0	2.97	4.6	3.41	5.8	4.31
50 min	0.9	0.82	2.8	2.08	3.5	2.60	4.0	2.97	5.0	3.71
60 min	0.9	0.82	2.6	1.93	3.0	2.23	3.5	2.60	4.5	3.34
70 min	0.9	0.82	2.4	1.78	2.8	2.08	3.3	2.45	4.0	2.97
80 min	0.9	0.82	2.3	1.71	2.6	1.93	3.1	2.30	3.7	2.75
90 min	0.9	0.82	2.1	1.56	2.5	1.86	2.9	2.15	3.5	2.60
100 min	0.9	0.82	1.9	1.41	2.4	1.78	2.7	2.00	3.3	2.45
110 min	0.9	0.82	1.8	1.34	2.3	1.71	2.5	1.86	2.9	2.15

DRAINAGE AND DETENTION DATA

BASED ON 100YR EVENT
OWNER RESPONSIBLE FOR MAINTENANCE/REPAIR OF DETENTION SYSTEM

TOTAL CAPACITY OF STORAGE PIPE

LENGTH OF PIPE IN SYSTEM = 567 FT
60" PIPE CAPACITY = 19.63 CF PER FT

CAPACITY VOLUME = (19.63 CF/FT)(567 LF) = 11,130 CF

NOTES:
1. USE CITY OF ROCKWALL STANDARDS AND NCTCOG 3rd EDITION FOR MOST RECENT REVISIONS OF DETAILS

2. CORE ALL BLDG DOWNSPOUTS INTO DETENTION STORAGE PIPE (6 TOTAL)

3. REFER TO ADVANCED DRAINAGE SYSTEMS, INC. PLANS (ADS PROJECT NO. 41355) FOR DETAILS AND SPECIFICATIONS FOR 60" DETENTION STORAGE PIPE.

Storage Calculations

10 min	Inflow	4,364.49	Storage	3,435.05
	Outflow	929.44		
15 min	Inflow	6,012.31	Storage	4,850.51
	Outflow	1,161.80		
20 min	Inflow	7,392.91	Storage	5,998.75
	Outflow	1,394.16		
30 min	Inflow	9,218.87	Storage	7,359.99
	Outflow	1,858.88		
40 min	Inflow	10,332.26	Storage	8,008.66
	Outflow	2,323.60		
50 min	Inflow	11,133.90	Storage	8,345.58
	Outflow	2,788.32		
60 min	Inflow	12,024.62	Storage	8,771.58
	Outflow	3,253.04		
70 min	Inflow	12,469.97	Storage	8,752.21
	Outflow	3,717.76		
80 min	Inflow	13,182.54	Storage	9,000.06
	Outflow	4,182.48		
90 min	Inflow	14,028.72	Storage	9,381.52
	Outflow	4,647.20		
100 min	Inflow	14,696.75	Storage	9,584.83
	Outflow	5,111.92		
110 min	Inflow	14,206.86	Storage	8,630.22
	Outflow	5,576.64		

LEGEND

- EXISTING CONTOURS (568)
- PROPOSED FINISH CONTOURS (568)
- WATERSHED BOUNDARY
- WATERSHED AREA (A)
- DRAINAGE AREA IN ACRES (0.23)
- RUN–OFF IN cfs (0.5)
- DIRECTION OF SURFACE FLOW (X.XX%)
- CROSSWALK
- LANDSCAPE BUFFER
- PROPERTY BOUNDARY
- PROPOSED UTILITY EASEMENT

RECORD DRAWINGS

AUGUST 27, 2014

TO THE BEST OF OUR KNOWLEDGE, CARNEY ENGINEERING, PLLC, HEREBY, STATES THAT THESE PLANS ARE AS-BUILT. THIS INFORMATION IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

REVISIONS

#1	10/21/13	REVISIONS PER CITY COMMENTS
#2	10/29/13 AM	REVISIONS PER CITY COMMENTS
#3	10/29/13 PM	REVISIONS PER CITY COMMENTS
#4	12/10/13	CHANGE IN PIPE MATERIAL
#5	01/10/14	REVISION TO DETENTION SYSTEM
#6	06/27/14	RECORD AS-BUILT DRAWINGS

DUNKIN' DONUTS & RETAIL SPACE
RIDGE ROAD & SUMMER LEE DR.
ROCKWALL, TEXAS

DRAINAGE PLAN

CARNEY ENGINEERING COMPANY
4588 Hinton Dr.
Plano, Texas 75024
PH (469) 443-0861
FAX (469) 443-0863

STATE OF TEXAS
T. CRAIG CARNEY
55714
REGISTERED PROFESSIONAL ENGINEER
08/27/14
TBPE FIRM REGISTRATION NO: F-5033

DRAWN BY : GWM
CHECKED BY : T.C.C.
START DATE : MAY 2013
SCALE : AS SHOWN
PROJECT NO. : 24437-1015

SHEET
C-202