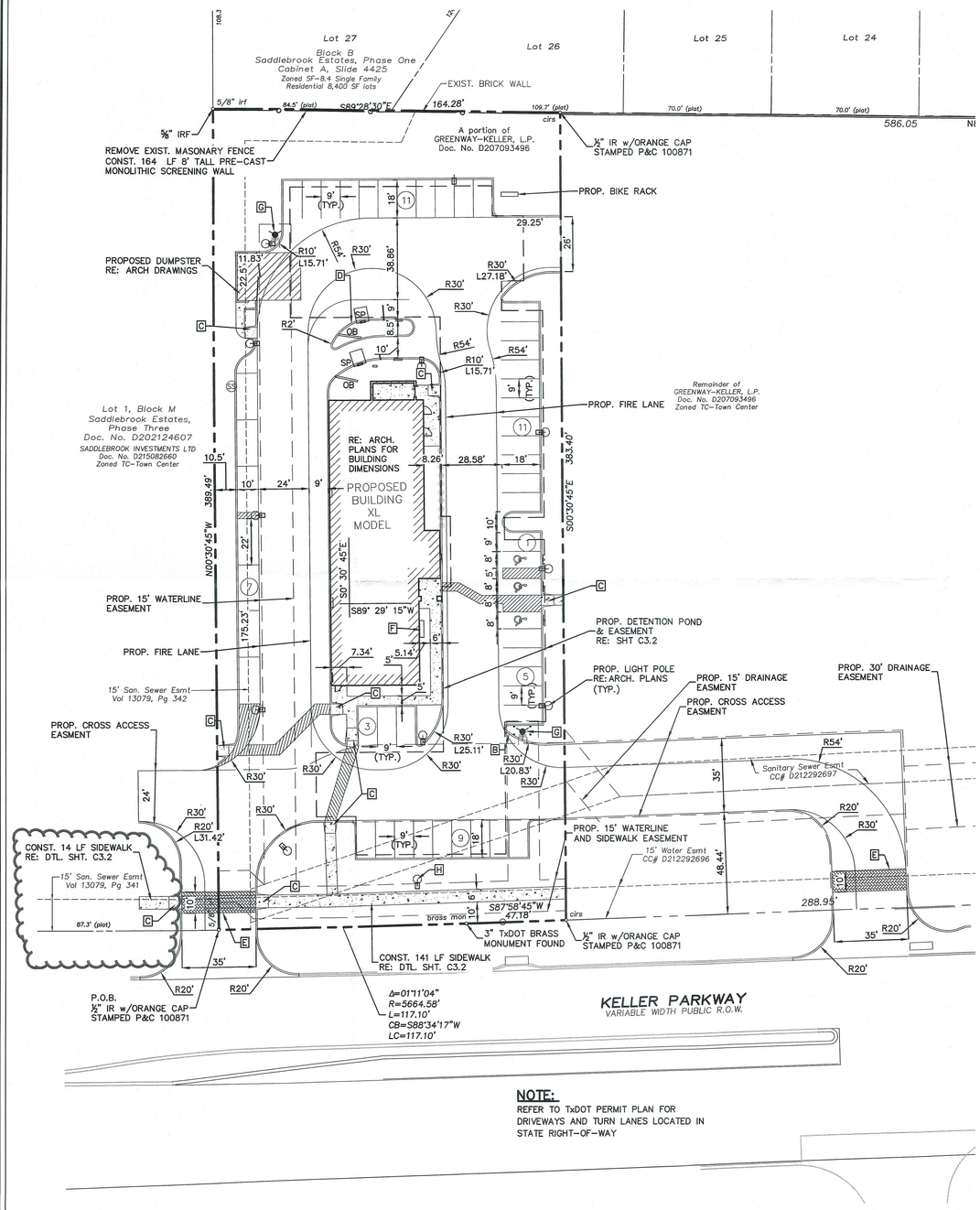


NOTE:
REFER TO TxDOT PERMIT PLAN FOR DRIVEWAYS AND TURN LANES LOCATED IN STATE RIGHT-OF-WAY

NOTE KEY

- A TRANSITION 6" BARRIER CURB TO 6" MOUNTABLE CURB OVER 5 LF
- B 6" MOUNTABLE CURB RE: DTL. SHT. C3.2
- C PROP. HANDICAP RAMP RE: SHT. C3.0
- D PROP. LANDSCAPE ISLAND w/6" MOUNTABLE CURB RE:DTL. SHT. C3.2
- E 10' WIDE BAND OF BRICK/CONCRETE PAVERS OR STAMPED CONCRETE CENTERED ON SIDEWALK. PAVERS SHALL BE ANTIQUE RED UNI-DECOR PAVERS IN HERRINGBONE PATTERN WITH HOLLAND STONE SOLDIER COURSE
- F PROP. BENCH
- G PROP. FIRE HYDRANT RE: SHT C4.2
- H PROP. STREET LIGHT RE: ARCH PLANS

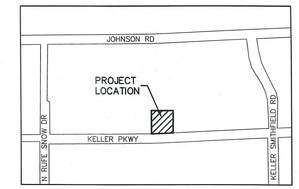
SITE SUMMARY TABLE

PROPOSED BLDG	6094 SF
REQUIRED PARKING	
2737 SQ. FT. RESTAURANT	28 SPACES
3357 SQ. FT. GROCERY	17 SPACES
TOTAL	45 SPACES
PARKING PROVIDED	47 SPACES

Original Benchmark
KELLER GEODETIC CONTROL NETWORK MONUMENT #9: THE BERNTSEN TOP SECURITY MONUMENT WITH ACCESS COVER IS LOCATED 9.5' SOUTH OF THE SOUTH EDGE OF A SIDEWALK ON THE SOUTH SIDE OF BEARCREEK PARKWAY. THE MONUMENT IS 8.5' WEST OF THE WEST END OF A BRICK WALL AND ±625' EAST OF THE CENTERLINE INTERSECTION OF TOWN CENTER LANE AND BEARCREEK PARKWAY.

ELEVATION = 652.54 FEET

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.



VICINITY MAP
NOT TO SCALE

GENERAL NOTES

1. ALL DIMENSIONS SHOWN HEREON ARE TO FACE OF CURB UNLESS STATED OTHERWISE.
2. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF ALL MEASUREMENTS PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT TEXAS ONE CALL TO LOCATE ALL UNDERGROUND UTILITIES 48 HOURS PRIOR TO CONSTRUCTION.
4. ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE CURRENT CITY OF KELLER STANDARD SPECIFICATIONS FOR CONSTRUCTION, INCLUDING TXDOT SPECIFICATION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY WORK ORDERS AND PERMITS FROM THE CITY OF KELLER, INCLUDING PROVISIONS OF BONDS AND INSURANCE AS REQUIRED PRIOR TO CONSTRUCTION.

LEGAL DESCRIPTION

BEING A TRACT OF LAND IN THE PAMELA ALLEN SURVEY, ABSTRACT NO. 28, KELLER, TARRANT COUNTY, TEXAS AND BEING A PORTION OF THAT PROPERTY DESCRIBED IN DEED TO GREENWAY-KELLER, L.P. AS RECORDED IN DOCUMENT NUMBER D207093496 COUNTY CLERK RECORDS, TARRANT COUNTY, TEXAS (C.C.R.T.C.T.) AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 1/2 INCH IRON ROD WITH ORANGE CAP STAMPED "P&C 100871" SET FOR CORNER IN THE NORTH LINE OF KELLER PARKWAY (A VARIABLE WIDTH RIGHT-OF-WAY), SAID ROD BEING THE SOUTHWEST CORNER OF SAID GREENWAY TRACT AND THE SOUTHEAST CORNER OF LOT 1, BLOCK M, SADDLEBROOK ESTATES, PHASE THREE, AN ADDITION TO THE CITY OF KELLER AS RECORDED IN DOCUMENT NUMBER D202124607 C.C.R.T.C.T.;

THENCE NORTH 00°30'45" WEST, ALONG THE COMMON LINE BETWEEN SAID GREENWAY TRACT AND SAID BLOCK M, FOR A DISTANCE OF 389.49 FEET TO A 5/8 INCH IRON ROD FOUND FOR CORNER IN THE SOUTH LINE OF BLOCK B, SADDLEBROOK ESTATES, PHASE ONE, AN ADDITION TO THE CITY OF KELLER AS RECORDED IN CABINET A, SLIDE 4425 PLAT RECORDS, TARRANT COUNTY, TEXAS;

THENCE SOUTH 89°28'30" EAST, ALONG THE SOUTH LINE OF SAID BLOCK B, FOR A DISTANCE OF 164.28 FEET TO A 1/2 INCH IRON ROD WITH ORANGE CAP STAMPED "P&C 100871" SET FOR CORNER;

THENCE SOUTH 00°30'45" EAST, DEPARTING THE SOUTH LINE OF SAID BLOCK B AND TRAVELING OVER AND ACROSS AFOREMENTIONED GREENWAY TRACT, FOR A DISTANCE OF 383.40 FEET TO A 1/2 INCH IRON ROD WITH ORANGE CAP STAMPED "P&C 100871" SET FOR CORNER IN THE AFOREMENTIONED NORTH LINE OF KELLER PARKWAY;

THENCE SOUTH 87°58'45" WEST, ALONG SAID NORTH LINE OF KELLER PARKWAY, FOR A DISTANCE OF 47.18 FEET TO A 3 INCH TXDOT BRASS MONUMENT FOUND, SAID MONUMENT BEING THE BEGINNING OF A CURVE TO THE RIGHT WITH A RADIUS OF 5,664.58 FEET AND A CHORD WHICH BEARS SOUTH 88°34'17" WEST FOR A DISTANCE OF 117.10 FEET;

THENCE ALONG SAID CURVE AND THE NORTH LINE OF SAID KELLER PARKWAY THROUGH A CENTRAL ANGLE OF 01°11'04" FOR AN ARC LENGTH OF 117.10 FEET TO THE POINT OF BEGINNING AND CONTAINING 1.458 ACRES, OR 63,526 SQUARE FEET OF LAND, MORE OR LESS.

ONE CALL UTILITY SERVICE LOCATION
811
CONTRACTOR IS TO CONTACT TEXAS ONE-CALL SYSTEM OR OTHER UTILITY LOCATING SERVICES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

RUBBS CONSULTING, LLC
CIVIL ENGINEERING & LAND PLANNING
1819 S. Morgan Road
Oklahoma City, OK 73128
Phone: (405) 265-0641
Fax: (405) 265-0649
GRUBBS CONSULTING, LLC CERTIFICATE OF AUTHORIZATION NO. CA-F-12422 EXP. 06/30/18

STATE OF TEXAS
MARK C. GRUBBS
105496
LICENSED PROFESSIONAL ENGINEER

BRAUM'S ICE CREAM & DAIRY STORES
KELLER PARKWAY & KELLER-SMITHFIELD RD
KELLER, TEXAS
SITE PLAN

REVISIONS

NO.	DESCRIPTION	DATE

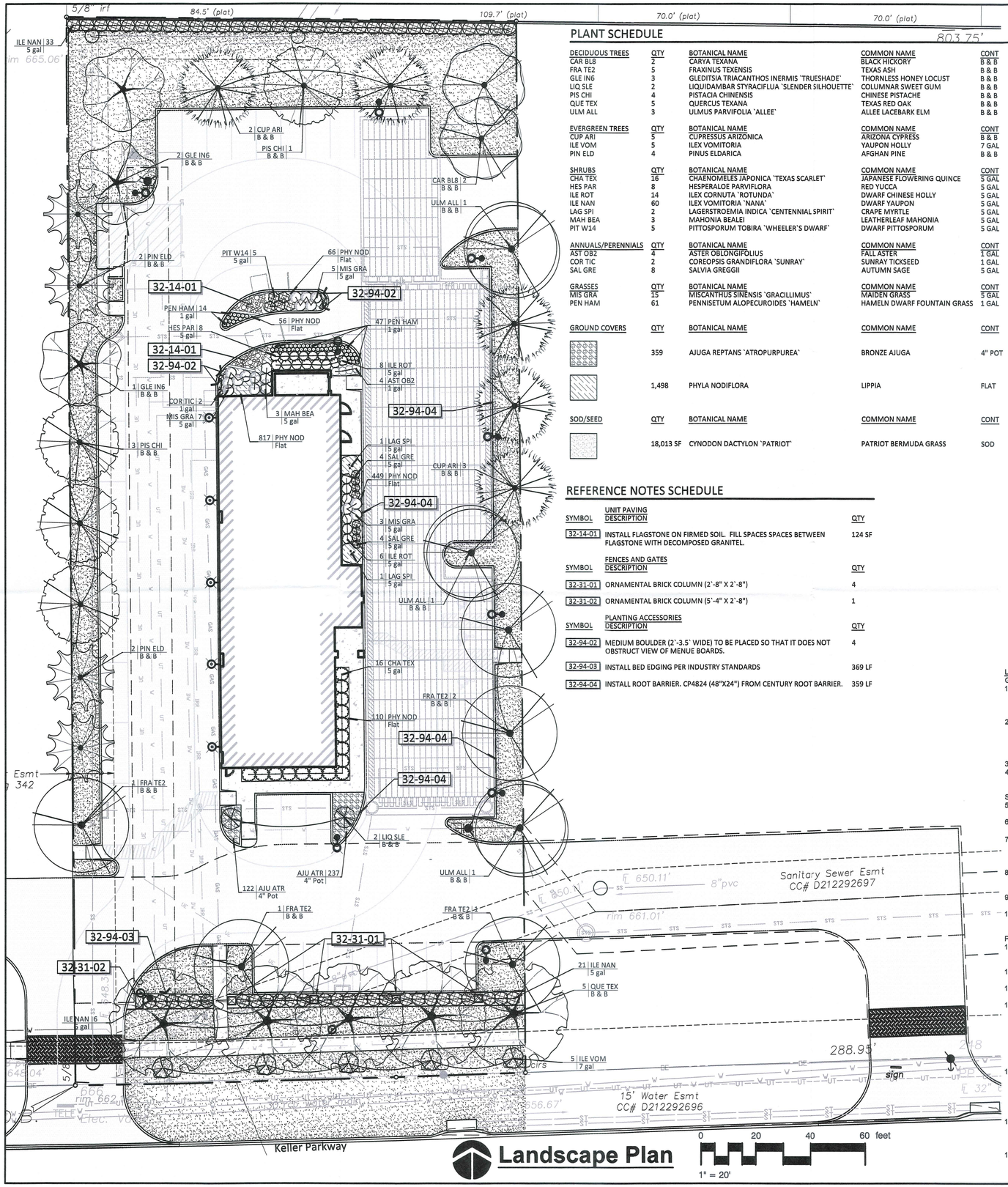
Proj. No.: 17-010
Date: 7.28.2017
Scale: (Horiz.) 1"=30' (Vert.) N/A
Drawn By: CWL
Checked By: MCG
Approved By: MCG

SHEET NUMBER
C1.0

BRAUM'S ICE CREAM & DAIRY STORES – KELLER, TX

17-010

APPROVED BY CITY COUNCIL ACTION
RESOLUTION # 3932
Date: 10/17/17



Landscape Plan

0 20 40 60 feet

1" = 20'

PLANT SCHEDULE

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
CAR BL8	2	CARYA TEXANA	BLACK HICKORY	B & B	3"CAL	
FRA TE2	5	FRAXINUS TEXENSIS	TEXAS ASH	B & B	4"CAL	
GLE IN6	3	GLEDITSIA TRIACANTHOS INERMIS `TRUESHADE`	THORNLESS HONEY LOCUST	B & B	3"CAL	
LIQ SLE	2	LIQUIDAMBAR STYRACIFLUA `SLENDER SILHOUETTE`	COLUMNAR SWEET GUM	B & B	2"CAL	
PIS CHI	4	PISTACIA CHINENSIS	CHINESE PISTACHE	B & B	3"CAL	
QUE TEX	5	QUERCUS TEXANA	TEXAS RED OAK	B & B	4"CAL	
ULM ALL	3	ULMUS PARVIFOLIA `ALLEE`	ALLEE LACEBARK ELM	B & B	3"CAL	

EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
CUP ARI	5	CUPRESSUS ARIZONICA	ARIZONA CYPRESS	B & B		11`-12`
ILE VOM	5	ILEX VOMITORIA	YAUPON HOLLY	7 GAL		
PIN ELD	4	PINUS ELDARICA	AFGHAN PINE	B & B		8`-10` H

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT	POINT
CHA TEX	16	CHAENOMELES JAPONICA `TEXAS SCARLET`	JAPANESE FLOWERING QUINCE	5 GAL	
HES PAR	8	HESPERALOE PARVIFLORA	RED YUCCA	5 GAL	
ILE ROT	14	ILEX CORNUTA `ROTUNDA`	DWARF CHINESE HOLLY	5 GAL	
ILE NAN	60	ILEX VOMITORIA `NANA`	DWARF YAUPON	5 GAL	
LAG SPI	2	LAGERSTROEMIA INDICA `CENTENNIAL SPIRIT`	CRAPE MYRTLE	5 GAL	
MAH BEA	3	MAHONIA BEALEI	LEATHERLEAF MAHONIA	5 GAL	
PIT W14	5	PITTOSPORUM TOBIRA `WHEELER'S DWARF`	DWARF PITTOSPORUM	5 GAL	

ANNUALS/PERENNIALS	QTY	BOTANICAL NAME	COMMON NAME	CONT	POINT
AST OB2	4	ASTER OBLONGIFOLIUS	FALL ASTER	1 GAL	
COR TIC	2	COREOPSIS GRANDIFLORA `SUNRAY`	SUNRAY TICKSEED	1 GAL	
SAL GRE	8	SALVIA GREGGII	AUTUMN SAGE	5 GAL	

GRASSES	QTY	BOTANICAL NAME	COMMON NAME	CONT	POINT
MIS GRA	15	MISCANTHUS SINENSIS `GRACILLIMUS`	MAIDEN GRASS	5 GAL	
PEN HAM	61	PENNISETUM ALOPECUROIDES `HAMELN`	HAMELN DWARF FOUNTAIN GRASS	1 GAL	

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	PNT	SPACING
	359	AJUGA REPTANS `ATROPURPUREA`	BRONZE AJUGA	4" POT		10" o.c.
	1,498	PHYLA NODIFLORA	LIPPIA	FLAT		10" o.c.

SOD/SEED	QTY	BOTANICAL NAME	COMMON NAME	CONT	PNT	SPACING
	18,013 SF	CYNODON DACTYLON `PATRIOT`	PATRIOT BERMUDA GRASS	SOD		

REFERENCE NOTES SCHEDULE

SYMBOL	UNIT PAVING DESCRIPTION	QTY
32-14-01	INSTALL FLAGSTONE ON FIRMED SOIL. FILL SPACES SPACES BETWEEN FLAGSTONE WITH DECOMPOSED GRANITEL.	124 SF

SYMBOL	FENCES AND GATES DESCRIPTION	QTY
32-31-01	ORNAMENTAL BRICK COLUMN (2`-8" X 2`-8")	4
32-31-02	ORNAMENTAL BRICK COLUMN (5`-4" X 2`-8")	1

SYMBOL	PLANTING ACCESSORIES DESCRIPTION	QTY
32-94-02	MEDIUM BOULDER (2`-3.5` WIDE) TO BE PLACED SO THAT IT DOES NOT OBSTRUCT VIEW OF MENUE BOARDS.	4
32-94-03	INSTALL BED EDGING PER INDUSTRY STANDARDS	369 LF
32-94-04	INSTALL ROOT BARRIER. CP4824 (48"X24") FROM CENTURY ROOT BARRIER.	359 LF

LANDSCAPE CALCULATIONS

Site Information:

Special Zoning District	TC = Town Center District
Parking Provided	51 Stalls
Rear Adjacent to Residential	±164 LF
Street Frontage	±164 LF
East Side Buffer	±383 LF
West Side Buffer	±389 LF

Required:

Parking Landscape Requirement	1,275 SF (25 SF/ Stall) 5 Canopy Trees (1 Tree/12 Stalls)
Rear Buffer	30' Buffer Large Canopy Trees (mature spacing) 5 Gal. Dwarf Yaupon Holly (5' O.C.)
Keller Parkway Buffer	30' Buffer Row of 4" Cal. Red Oaks (30' O.C.) Row of 5 Gal. Dwarf Yaupon Holly (5' O.C.) Special Ornamental Columns (30' O.C.)
East Side Buffer	10' Buffer Large Canopy Trees (mature Spacing)
West Side Buffer	10' Buffer Large Canopy Trees (mature Spacing)

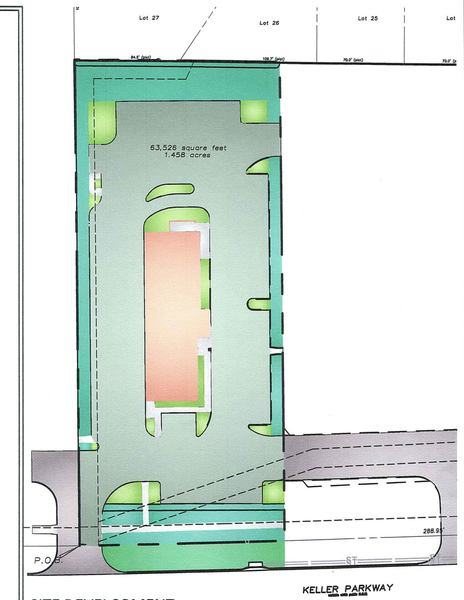
Provided:

Parking Landscape Requirement	4,348 SF 9 Canopy Trees
Rear Buffer	30' Buffer 5 Large Canopy Trees 33 Dwarf Yaupon Holly (5' O.C.)
Keller Parkway Buffer	30' Buffer 5 Red Oaks (30' O.C.) 5 Yaupon Holly (Tree Form 30' O.C.) 26 Dwarf Yaupon Holly (5' O.C.) 4 Special Ornamental Columns (30' O.C.)
East Side Buffer	10' Buffer 12 Large Canopy Trees (mature Spacing)
West Side Buffer	10' Buffer 12 Large Canopy Trees (mature Spacing)
Site Totals	38 Trees (24 Deciduous/14 Evergreen) 107 Shrubs 73 Ornamental Grasses 14 Perennials 1,633 SF Ground Cover 17,007 SF Turf (Including RoW)

MAINTENANCE:

- Landscape contractor to maintain the site landscape until final approval from the owner. Once landscape has been approved and accepted by the owner, the owner will take responsibility of routine maintenance.
- Landscape to be maintained on a regular schedule
- Maintenance to include (but not limited to) mowing, fertilization, weed removal, pruning, etc.
- All landscape maintenance to be done in accordance with City of Keller Codes and Ordinances.

IRRIGATION:
All landscaped and turf areas to be irrigated. An detailed irrigation plan will be provided for construction plan review.



SITE DEVELOPMENT

SYMBOL	NOTES	QTY
	PARKING AREA	35,555 SF
	BUILDING	6,131 SF
	PARKING LOT LANDSCAPE	4,361 SF
	PERIMETER LANDSCAPE	13,932 SF
	OFF-SITE LANDSCAPE	3,008 SF
	WALKS	2,616 SF
	OFF-SITE PAVING	11,470 SF

REGISTERED LANDSCAPE ARCHITECT
KYLE BRAUGHMAN
3026
STATE OF TEXAS

LANDSCAPE NOTES

General Notes

1. Contractor shall be responsible for any damage caused to the utilities (both overhead and buried) which may occur due to his action or lack of action on the project site during landscape or irrigation installation. Contractor shall seek the assistance of local utilities and the owner in locating the utilities prior to performing trenching operations in any area.
2. Plant trees three (3) inches above finished grade. Cut and remove twine from around the trunk and ball. Cut and remove burlap from the top ⅓ to ⅔ of the root ball. Plant shrubs two (2) inches above finished grade. Crown Islands 6" above top of curb or as directed on drawing. All planting beds shall have positive drainage out of the bed and away from building.
3. All landscape work to be done in accordance to industry standards.
4. Landscape contractor shall locate all utilities prior to starting work. Landscape contractor will be responsible for the repair of any damage caused to utilities.

Soil Preparation

5. All shrub, groundcover, and seasonal plantings shall receive soil preparation/amendments per specification 02950.
6. Mix 17-6-12 fertilizer into the top two (2) inches of soil in the planting beds at a rate of five (5) pounds per 100 square feet.
7. Each tree shall backfilled with amended native soil (⅔ cotton bur mulch soil conditioner and ⅓ excavated soil from tree pit. For trees smaller than two (2) inch caliper, apply four (4) slow release fertilizer tablets (20-10-5, 21 gram tablets). For trees larger than two (2) inch caliper, apply six (6) slow release fertilizer tablets (20-10-5, 21 gram tablets).
8. All areas of the site (and adjacent street Rights-of Way that are disturbed by construction shall be sodded with Patriot Bermuda. Sod shall only be installed from April 15 - September 15.
9. May 1 - August 31 - Apply a 16-8-8 fertilizer at a rate of six (6) pounds per 1,000 square feet to all lawn areas.
10. September 1 - April 30 - Apply 6-2-0 fertilizer at a rate of ten (10) pounds per 1,000 square feet of lawn area. This fertilizer shall be applied prior to sodding.

Planting Notes

11. Quantities of materials shown in plant material list is for contractor's convenience and information only. Contractor to verify quantities and provide all plants as specified on landscape plan to provide a complete project.
12. Prior to beginning any work on the site, the landscape contractor shall contact the general contractor/project manager for specific instructions relevant to the sequencing of work.
13. Landscape Architect and/or owner representative reserves the right to revise proposed plant list and/or location of plants as deemed necessary.
14. Landscape contractor shall provide all labor, materials and service necessary to furnish and install plantings as specified her in and as shown on these plans. All plant materials shall be protected from the drying action of the sun and wind after being dug, while being transported, and while awaiting planting. Balls of plants which cannot be planted immediately shall be protected from drying action by covering them with moist mulch. Periodically, apply water to mulch-covered root balls to keep moist. If planting should occur during growing season, apply anti-dessicant to leaves before transport to reduce likelihood of windburn. Reapply anti-dessicant after planting to reduce transpiration.
15. All plant material shall be well-formed and developed in good condition, healthy and disease-free, and be typical of the species. Plants shall comply in all applicable respects with acceptable standards as set forth in the American Association of Nurseryman's "American Standard of Nursery Stock." Owner and landscape architect reserve the right to reject at any time or place prior to final acceptance of work, any and all plants which, in their opinion, fail to meet these specification requirements.
16. Plants designated container grown shall have been grown in pots, cans or boxes for a minimum of six months and a maximum of two years. These plants shall be removed from containers before planting. Plants that appear root-bound shall be root pruned through the use of a vertical slicing method prior to planting.
17. Landscape contractor shall locate all utilities prior to starting work. Landscape contractor will be responsible for the repair of any damage caused to utilities.
18. Protect and save the existing plant materials shown on plans unless noted to be removed.Plant ground cover within one (1) foot of trunk of trees or shrubs planted within area. Planting arrangement shall be triangular, with proper on-center spacing between plants.
19. Seasonal annual beds are to be planted with local materials that will offer the longest lasting and boldest color display at the time of installation.
20. All planting bed and lawn areas will be received by the landscape contractor, from the general contractor, within 0.1 of a foot of finish grade. The landscape contractor shall grade all planting and lawn areas to smooth and uniform levels or slope without any abrupt changes. All soil areas, planting beds or lawns adjacent to buildings shall be graded to allow positive drainage away from the buildings to either the parking areas or area drains. The finish grade, in all planting areas, after adding soil amendment and settlement, shall be one inch below curbs, sidewalks, and other paving. Rough grading for berms or other lawn features shall be performed by the general contractor.
21. When clay soil is encountered in the establishment of the lawn or the installation of the plant material it shall be improved in accordance with standard trade practice.
22. backfill for plant excavations to be clean natural soil, excavated from planting pits mixed with compost at a rate of 3:1 soil to compost.
23. Cultivate ground cover planting beds to a depth of 8" . Till compost into soil at a rate of 3:1 soil to compost.
24. All plant materials shall have backfill carefully placed around base and sides of ball to two-thirds (⅔) depth of ball, then thoroughly soaded with water to allow settlement. All wire, burlap fasteners and loose burlap around base of trunk shall be removed at this time. Remainder of pit shall then be backfilled, allowing for depth of mulch, saucer and settlement of backfill. Backfill shall then be thoroughly watered once again.
25. Plant ground cover within one (1) foot of trunk of trees or shrubs planted within area. Planting arrangement shall be triangular, with proper on-center spacing between plants.
26. Seasonal annual beds are to be planted with local materials that will offer the longest lasting and boldest color display at the time of installation.
27. Fertilize all plants with with 6-10-4 commercial fertilizer as directed by instructions on fertilizer. Except for annual and perennial beds.
28. Use Shredded Hardwood Mulch, place 2" of mulch in all shrub beds. Place 2" of mulch in ground cover beds, place 2" of mulch in all tree saucers. All mulch In tree saucers shall be incidental to tree installation and not counted in mulch quantity.
29. Planting beds receiving mulch are to be free of weeds and grass. Treat beds with a pre-emergent herbicide <u>After</u> planting and mulch placement. Apply in accordance with standard trade practice. Do not apply herbicide in perennial beds.
30. 4"x¼" painted steel edging shall be used to separate all turf areas from planting beds. Place edging flush with grade.
31. After planting is completed, repair injuries to all plants as required. Limit amount of pruning to a minimum necessary to remove dead or injured twigs and branches. Prune in such a manner as not to change natural habit or shape of plant. Make cuts flush, leaving no stubs. Central leaders shall not be removed.
32. Guarantee trees, shrubs, ground cover plants for one calendar year following provisional acceptance of the overall project. During the guarantee period, plants that die due to natural causes or that are unhealthy or unsightly in condition, shall be replaced by the contractor. Plant used for the replacement shall be planted at the appropriate planting times.
33. At the completion of planting operations all plants shall be inspected by the owner. Contractor shall replace immediately any plants no in healthy and vigorous condition at that time at no expense to the owner. Any plant not in healthy condition after one full year from the date of final acceptance shall be replaced as per the original specifications, free of charge to the owner.
34. Landscape contractor to remove tree stakes, and all dead wood on trees and shrubs one year after provisional acceptance.

APPROVED BY
CITY COUNCIL ACTION
RESOLUTION # 3932
Date: 10/17/17

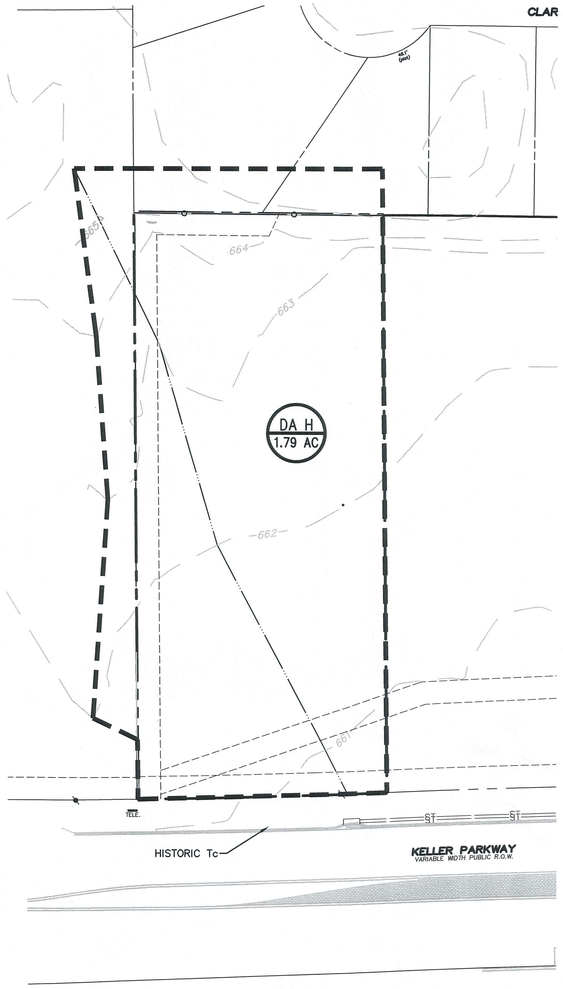
Baughman Company, P.A.
315 Ellis St. Weldon, KS 67211 P 316.262.2271 F 316.262.6949
Civil Engineering • Land Surveying • Land Development • Water Resources Engineering • Water/Wastewater • Landscape Architecture
Designer: BKB Drawn: BKB Approved: BKB Date: JULY 2017
File: Greenhaven-Site-LANDSCAPE

Baughman

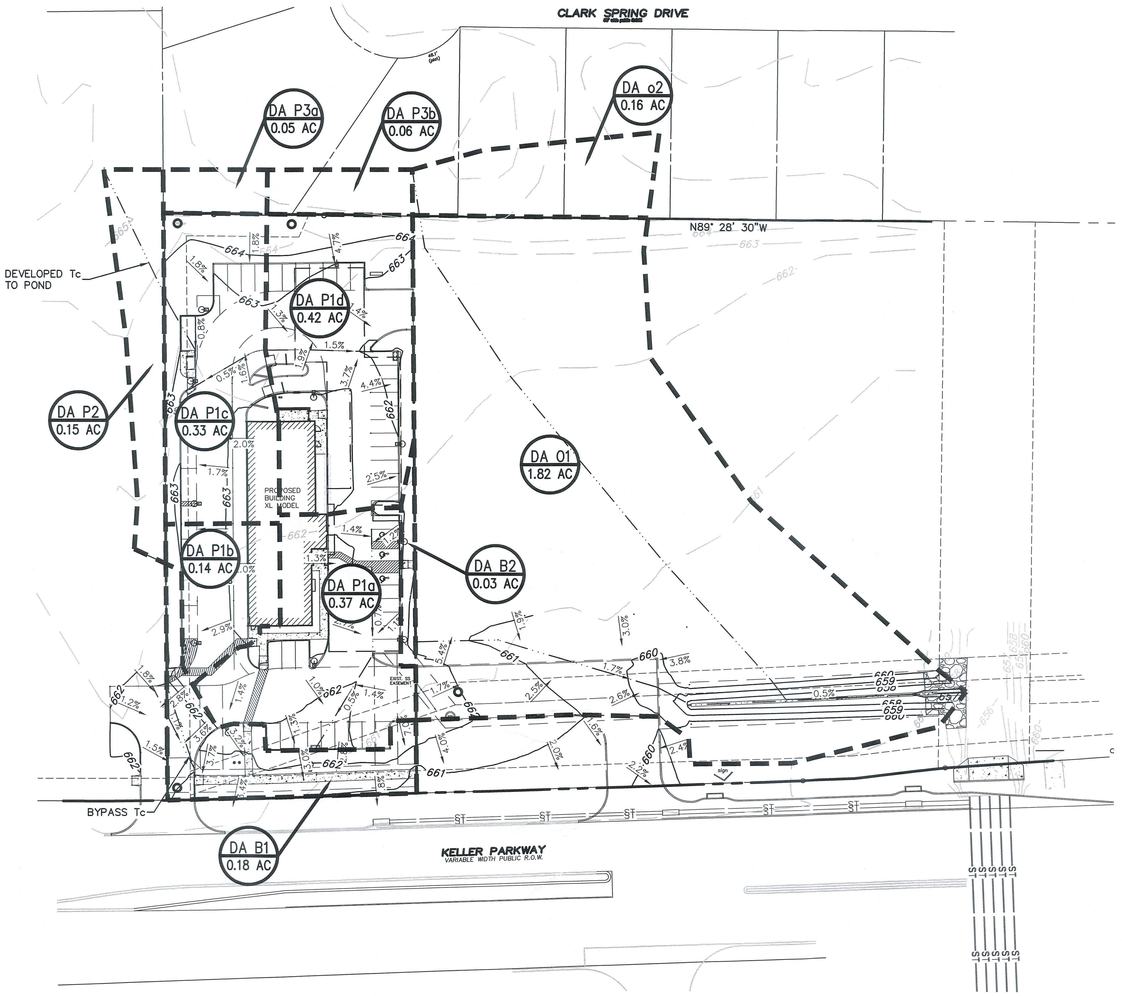
Greenway-Keller, L.P.
LANDSCAPE PLAN
New Braum's Ice Cream and Dairy Store

REVISIONS

SHEET L1.1 OF



HISTORIC DRAINAGE AREA MAP



DEVELOPED DRAINAGE AREA MAP

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

DRAINAGE LEGEND

DA "C" / 0.07 AC	DRAINAGE AREA DESIGNATION (C=COMMERCIAL, R=RESIDENTIAL); DRAINAGE AREA (ACRES)
	DRAINAGE AREA BOUNDARY
	DRAINAGE Tc FLOW PATH

NOTE: NOT ALL SYMBOLS MAY BE SHOWN ON THIS PLAN.

STAGE/STORAGE TABLE

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Total Chamber (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch & St (cubic feet)	Cumulative Chamber (cubic feet)	Elevation (feet)
22	0.00	0.00	394.57	394.57	11583.65	660.15
21	0.00	0.00	394.57	394.57	11189.08	660.07
20	0.00	0.00	394.57	394.57	10794.52	659.99
19	0.00	0.00	394.57	394.57	10399.95	659.90
18	0.00	0.00	394.57	394.57	10005.38	659.82
17	0.00	0.00	394.57	394.57	9610.82	659.74
16	0.05	36.16	380.10	416.26	9216.25	659.65
15	0.13	94.90	356.61	451.51	8799.99	659.57
14	0.29	205.15	312.51	517.66	8348.48	659.49
13	0.44	312.00	269.77	581.77	7830.82	659.40
12	0.54	380.65	242.31	622.96	7249.05	659.32
11	0.62	435.13	220.51	655.65	6626.10	659.24
10	0.68	480.61	202.32	682.93	5970.45	659.15
9	0.74	519.53	186.75	706.29	5287.52	659.07
8	0.78	553.08	173.33	726.42	4581.23	658.99
7	0.82	582.38	161.61	744.00	3854.82	658.90
6	0.86	607.41	151.60	759.01	3110.82	658.82
5	0.89	631.63	141.92	773.54	2351.81	658.74
4	0.00	0.00	394.57	394.57	1578.27	658.65
3	0.00	0.00	394.57	394.57	1183.70	658.57
2	0.00	0.00	394.57	394.57	789.13	658.49
1	0.00	0.00	394.57	394.57	394.57	658.40

Braum's Ice Cream & Dairy Stores

Keller, TX

Modified Rational Detention Calculations

	Tc (min)	I1 (in/hr)	I10 (in/hr)	I100 (in/hr)	C	A (acre)	Q1 (cfs)	Q10 (cfs)	Q100 (cfs)
Historic	12.70	3.62	5.95	8.51	0.30	1.79	1.94	3.19	4.57
Developed	12.78	3.61	5.93	8.49	0.82	1.52	4.47	7.35	10.52
Bypass	10.00	4.06	6.52	9.24	0.90	0.21	0.77	1.23	1.75

Note: ALLOWABLE RELEASE RATE FROM POND IS HISTORIC DISCHARGE MINUS BYPASS DISCHARGE

Td (min)	C	I1 (in/hr)	I10 (in/hr)	I100 (in/hr)	Ad (acre)	Qd1 (cfs)	Qd10 (cfs)	Qd100 (cfs)	Vin1 (cf)	Vout1 (cf)	Vreq1 (cf)	Vin10 (cf)	Vout10 (cf)	Vreq10 (cf)	Vin100 (cf)	Vout100 (cf)	Vreq100 (cf)
10	0.82	4.06	6.52	9.24	1.52	5.03	8.09	11.46	3019.51	803.97	2215.55	4851.47	1339.93	3511.54	6875.28	1927.95	4947.33
20	0.82	2.82	4.84	7.05	1.52	3.50	5.99	8.73	4200.46	1156.94	3043.52	7192.57	1928.21	5264.36	10480.02	2774.39	7705.63
30	0.82	2.20	3.89	5.76	1.52	2.72	4.82	7.14	4902.42	1509.90	3392.52	8681.89	2516.48	6165.40	12856.90	3620.82	9236.08
40	0.82	1.81	3.28	4.91	1.52	2.25	4.07	6.09	5394.89	1862.87	3532.02	9759.83	3104.76	6655.07	14612.30	4467.25	10145.05
50	0.82	1.55	2.85	4.30	1.52	1.92	3.53	5.33	5772.46	2215.84	3556.62	10600.30	3693.03	6907.26	15998.90	5313.69	10685.22
60	0.82	1.36	2.53	3.84	1.52	1.69	3.14	4.76	6078.26	2568.81	3509.45	11287.86	4281.31	7006.55	17143.67	6160.12	10983.55
70	0.82	1.22	2.28	3.48	1.52	1.51	2.83	4.31	6335.27	2921.78	3413.49	11869.43	4869.58	6999.84	18118.59	7006.56	11112.04
80	0.82	1.10	2.08	3.19	1.52	1.37	2.58	3.95	6557.07	3274.75	3282.33	12373.50	5457.86	6915.64	18968.12	7852.99	11115.13
90	0.82	1.01	1.92	2.95	1.52	1.25	2.37	3.65	6752.34	3627.71	3124.62	12818.58	6046.13	6772.45	19721.47	8699.42	11022.05
100	0.82	0.93	1.78	2.74	1.52	1.15	2.20	3.40	6926.89	3980.68	2946.20	13217.33	6634.41	6582.92	20398.82	9545.86	10852.96
110	0.82	0.87	1.66	2.57	1.52	1.07	2.06	3.18	7084.84	4333.65	2751.19	13578.76	7222.69	6356.08	21014.63	10392.29	10622.34
120	0.82	0.81	1.56	2.42	1.52	1.00	1.93	3.00	7229.19	4686.62	2542.58	13909.51	7810.96	6098.55	21579.65	11238.73	10340.92

OUTLET CONTROL STRUCTURE CALCULATION
TRAPEZOIDAL WEIR

	Wier Bottom Width (in)	Head on Wier (in)	Wier Q (cfs)	Qh-Qb (cfs)
Q1	8.85	6.78	0.77	1.18
Q10	8.85	12.07	1.57	1.96
Q100	9.12	21.90	2.82	2.82

APPROVED BY
CITY COUNCIL ACTION
RESOLUTION # 3932
Date: 10/17/17

REVIEWED BY THE CITY OF KELLER AND RELEASED FOR CONSTRUCTION

DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

DATE

GRUBBS CONSULTING, LLC
CIVIL ENGINEERING & LAND PLANNING
1819 S. Morgan Road
Oklahoma City, OK 73128
Phone: (405) 285-0841
Fax: (405) 285-0849
GRUBBS CONSULTING, LLC CERTIFICATE OF AUTHORIZATION NO. CA F-12442 EXP. 04/30/18

STATE OF TEXAS
MARK C. GRUBBS
105496
LICENSED
PROFESSIONAL ENGINEER
10/17/17

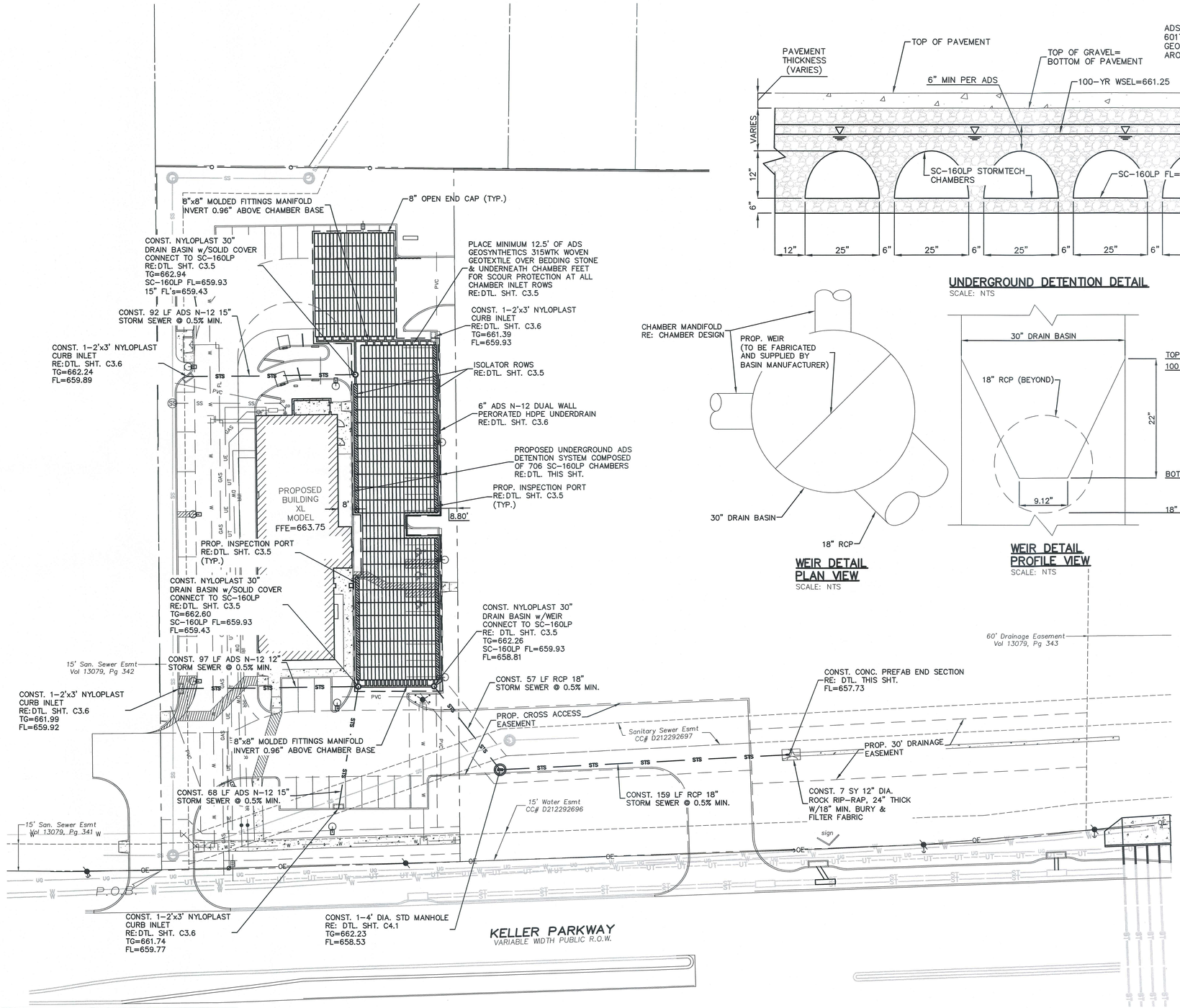
BRAUM'S ICE CREAM & DAIRY STORES
KELLER PARKWAY & KELLER-SMITHFIELD RD
KELLER, TEXAS
DETENTION CALCULATIONS & DRAINAGE AREA MAPS

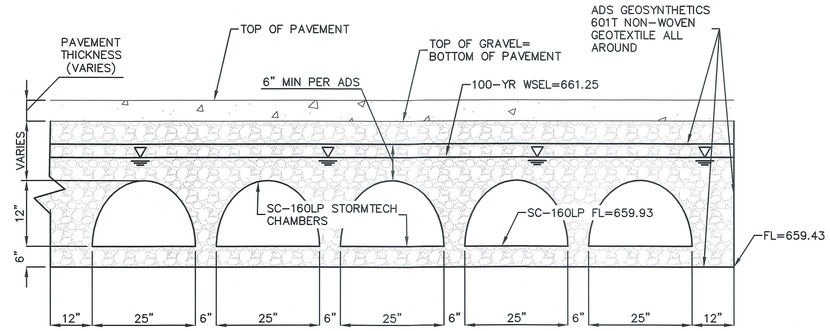
REVISIONS

NO.	DESCRIPTION	DATE

Proj. No.: 17-010
Date: 10-20-17
Scale: (Horiz.) 1"=50'
(Vert.)
Drawn By: SGB
Checked By: SGB
Approved By: MCG

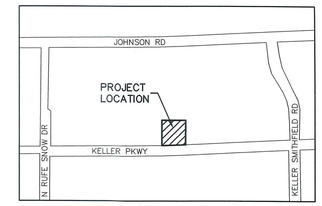
SHEET NUMBER
DR1





UNDERGROUND DETENTION DETAIL

SCALE: NTS

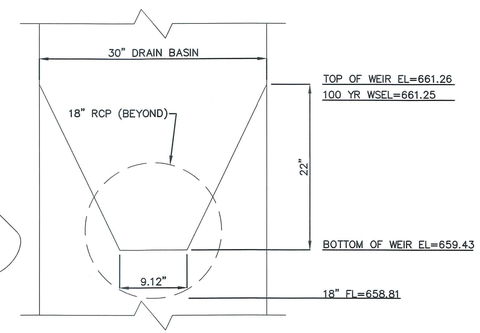


VICINITY MAP

NOT TO SCALE

WEIR DETAIL PLAN VIEW

SCALE: NTS



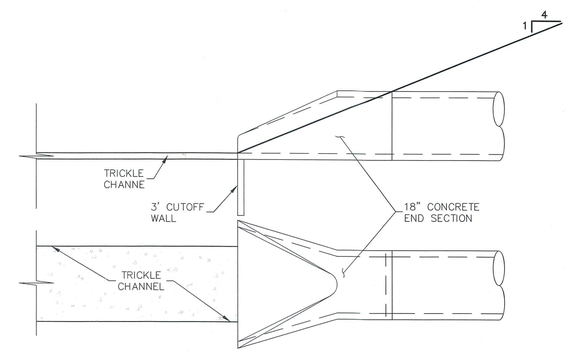
WEIR DETAIL PROFILE VIEW

SCALE: NTS

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.



CONC. PREFAB END SECTION DETAIL

NOT TO SCALE

ONE CALL UTILITY SERVICE LOCATION
811
CONTRACTOR IS TO CONTACT TEXAS ONE-CALL SYSTEM OR OTHER UTILITY LOCATING SERVICES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

REVIEWED BY THE CITY OF KELLER AND RELEASED FOR CONSTRUCTION

DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

DATE

APPROVED BY
CITY COUNCIL ACTION
RESOLUTION # 3932
Date: 10/17/17

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CIVIL ENGINEERING & LAND PLANNING
1819 S. Morgan Road
Oklahoma City, OK 73128
Phone: (405) 265-0641
Fax: (405) 265-0649
GRUBBS CONSULTING, LLC CERTIFICATE OF AUTHORIZATION NO. CA F-12322 EXP. 06/30/18

STATE OF TEXAS
MARK C. GRUBBS
105496
LICENSED
PROFESSIONAL ENGINEER
10/24/17

BRAUM'S ICS CREAM & DAIRY STORES
KELLER PARKWAY & KELLER-SMITHFIELD RD
KELLER, TEXAS
DETENTION POND PLAN

REVISIONS		
NO.	DESCRIPTION	DATE

Proj. No.: 17-010
Date: 10-20-17
Scale: (Horiz.) 1"=30'
(Vert.)
Drawn By: BAC
Checked By: SCB
Approved By: MCG

SHEET NUMBER
C3.3