

LIFE SPRING CHURCH

LIFE SPRING CHURCH ADDITION

LOT 1, BLOCK 2

200 LIFE SPRING ROAD

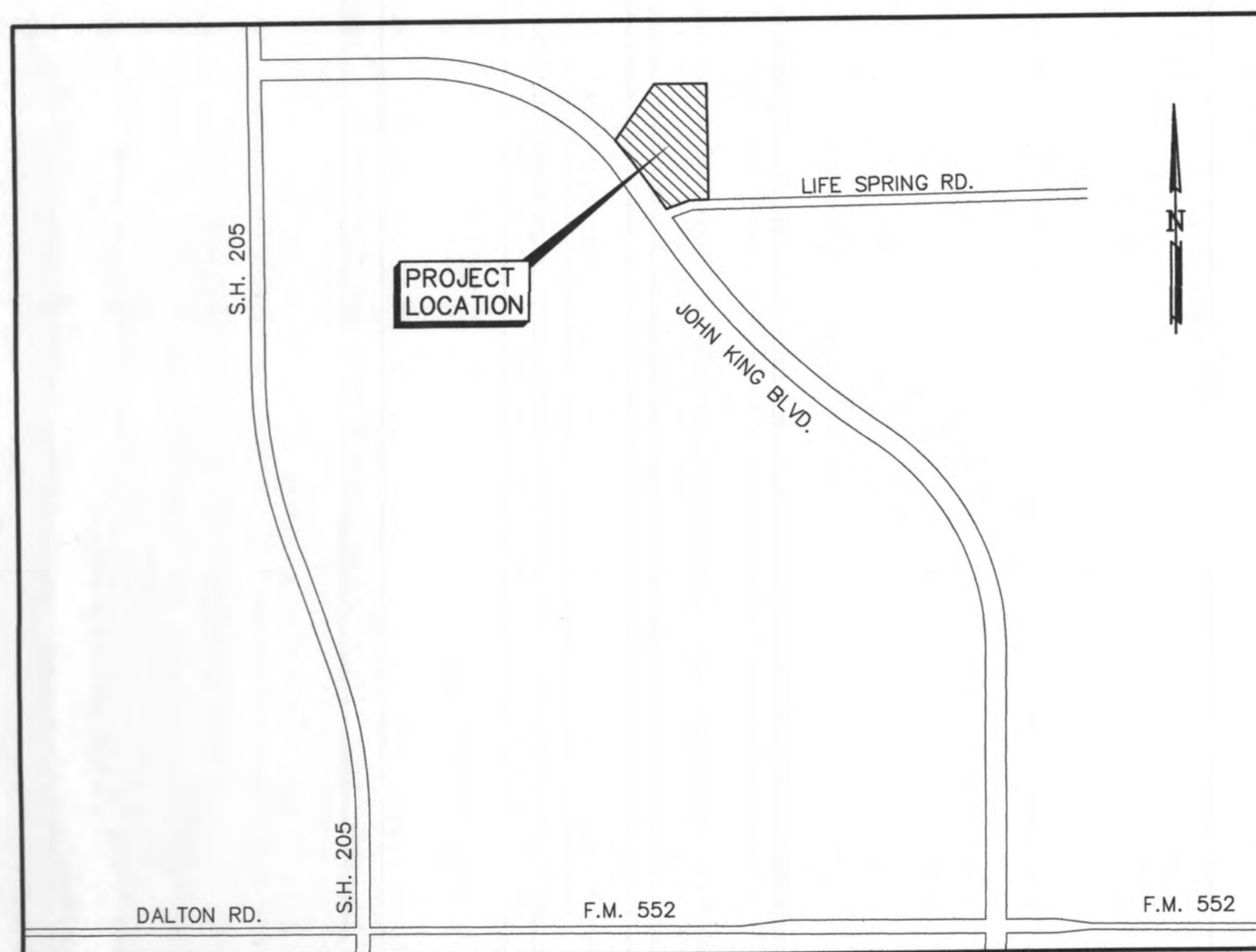
ROCKWALL, TEXAS 75087

SITE IMPROVEMENTS

SEPTEMBER 2016

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VICINITY MAP

N.T.S.



City of Rockwall

The New Horizon

PREPARED BY :

LAM CONSULTING ENGINEERING

6804 WILHELMINA DRIVE

SACHSE, TEXAS 75048

(214) 766-1011

www.lamcivil.com

Firm# F-9763

NOTE:
CITY OF ROCKWALL ENGINEERING DEPARTMENT LATEST STANDARD DETAILS AND NCTCOG 3RD EDITION SHALL BE USED FOR CONSTRUCTION OF THIS PROJECT UNLESS OTHERWISE NOTED WITHIN THESE PLANS. THE CONTRACTOR SHALL OBTAIN THE STANDARD DETAIL BOOK FROM THE CITY'S ENGINEERING DEPARTMENT.

LIFE SPRING CHURCH
P.O. BOX 886
ROCKWALL, TEXAS 75087
(214) 497-7206

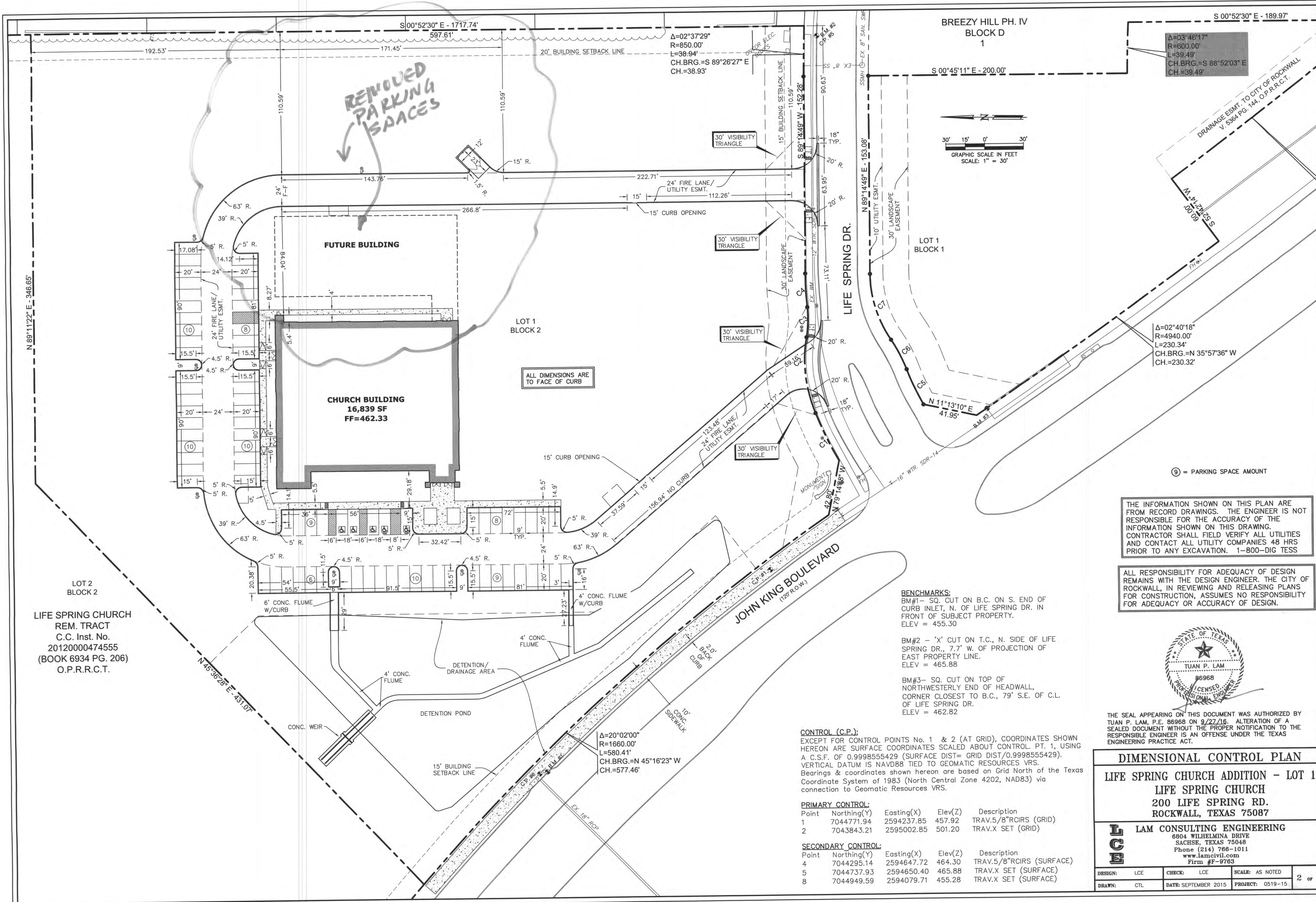
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THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY TUAN P. LAM, P.E. 86968 ON 9/27/16. ALTERATION OF A SEALED DOCUMENT WITHOUT THE PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.

SURVEY INFORMATION ON THIS DRAWING WAS PROVIDED BY OTHERS. LAM CONSULTING ENGINEERING IS NOT RESPONSIBLE FOR THE ACCURACY OF THE TOPOGRAPHIC MAPPING NOR BENCHMARK DATUM.

THE INFORMATION SHOWN ON THIS PLAN ARE FROM RECORD DRAWINGS. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES AND CONTACT ALL UTILITY COMPANIES 48 HRS PRIOR TO ANY EXCAVATION. 1-800-DIG TESS



REMOVED
PARKING
SPACES

ALL DIMENSIONS ARE
TO FACE OF CURB

$\Delta=03^{\circ}46'17''$
R=600.00'
L=39.49'
CH.BRG.=S 88^{\circ}52'03" E
CH.=39.49'

$\Delta=02^{\circ}40'18''$
R=4940.00'
L=230.34'
CH.BRG.=N 35^{\circ}57'36" W
CH.=230.32'

BENCHMARKS:
BM#1 - SQ. CUT ON B.C. ON S. END OF CURB INLET, N. OF LIFE SPRING DR. IN FRONT OF SUBJECT PROPERTY. ELEV = 455.30
BM#2 - 'X' CUT ON T.C., N. SIDE OF LIFE SPRING DR., 7.7' W. OF PROJECTION OF EAST PROPERTY LINE. ELEV = 465.88
BM#3 - SQ. CUT ON TOP OF NORTHWESTERLY END OF HEADWALL, CORNER CLOSEST TO B.C., 79' S.E. OF C.L. OF LIFE SPRING DR. ELEV = 462.82

CONTROL (C.P.):
EXCEPT FOR CONTROL POINTS No. 1 & 2 (AT GRID), COORDINATES SHOWN HEREON ARE SURFACE COORDINATES SCALED ABOUT CONTROL PT. 1, USING A C.S.F. OF 0.9998555429 (SURFACE DIST= GRID DIST/0.9998555429). VERTICAL DATUM IS NAVD88 TIED TO GEOMATIC RESOURCES VRS. Bearings & coordinates shown hereon are based on Grid North of the Texas Coordinate System of 1983 (North Central Zone 4202, NAD83) via connection to Geomatic Resources VRS.

PRIMARY CONTROL:

Point	Northing(Y)	Easting(X)	Elev(Z)	Description
1	7044771.94	2594237.85	457.92	TRAV.5/8"RCIRS (GRID)
2	7043843.21	2595002.85	501.20	TRAV.X SET (GRID)

SECONDARY CONTROL:

Point	Northing(Y)	Easting(X)	Elev(Z)	Description
4	7044295.14	2594647.72	464.30	TRAV.5/8"RCIRS (SURFACE)
5	7044737.93	2594650.40	465.88	TRAV.X SET (SURFACE)
8	7044949.59	2594079.71	455.28	TRAV.X SET (SURFACE)

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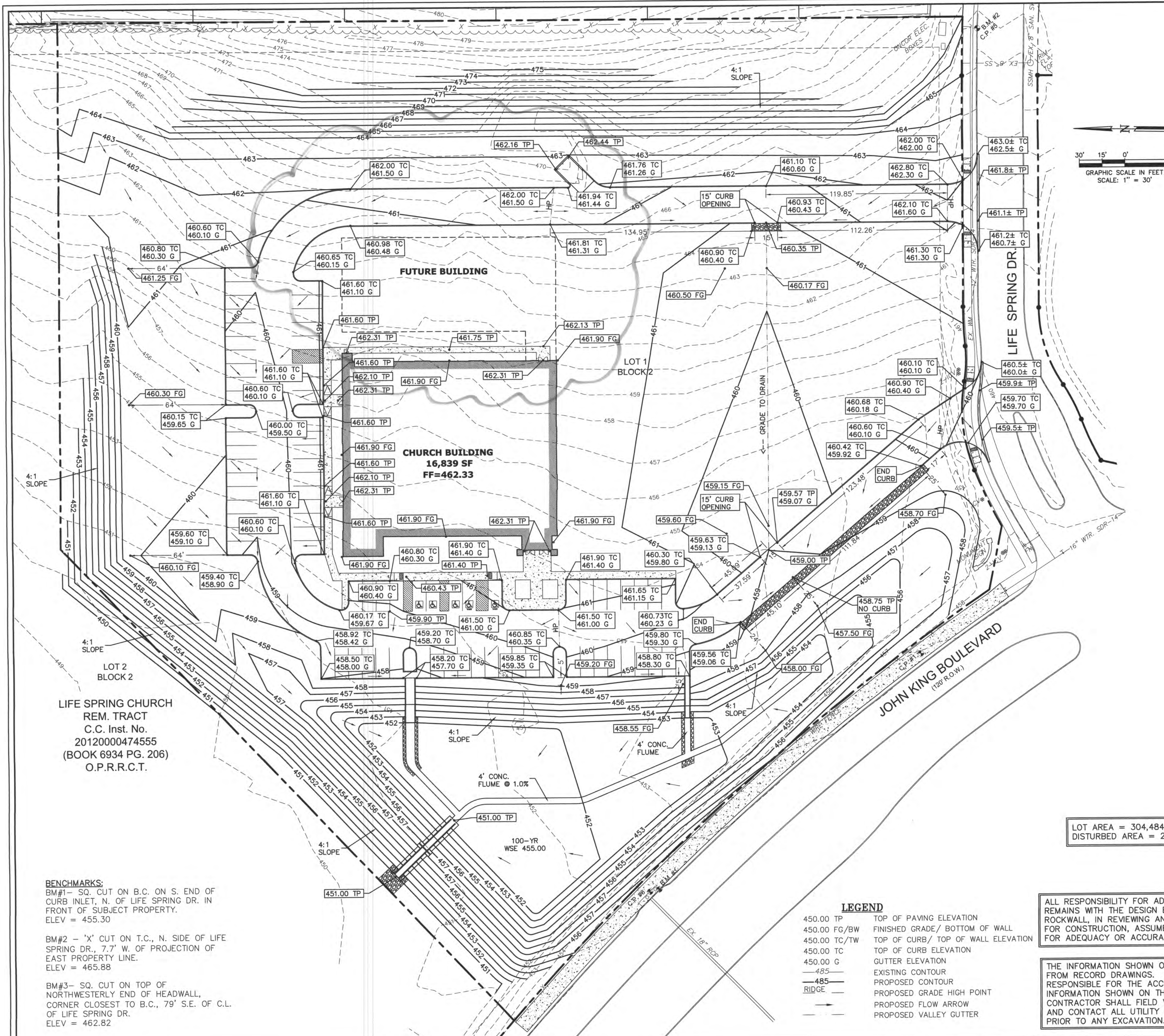


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DIMENSIONAL CONTROL PLAN
LIFE SPRING CHURCH ADDITION - LOT 1
LIFE SPRING CHURCH
200 LIFE SPRING RD.
ROCKWALL, TEXAS 75087

LCE LAM CONSULTING ENGINEERING
6804 WILHELMINA DRIVE
SACHSE, TEXAS 75048
Phone (214) 766-1011
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Firm #E-9763

DESIGN:	LCE	CHECK:	LCE	SCALE:	AS NOTED
DRAWN:	CTL	DATE:	SEPTEMBER 2015	PROJECT:	0519-15

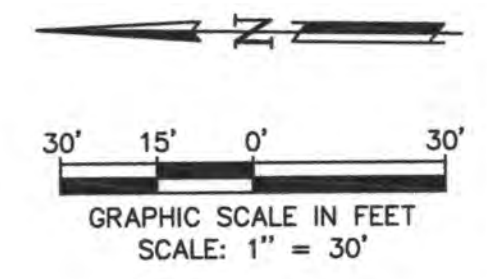


LIFE SPRING CHURCH
 REM. TRACT
 C.C. Inst. No.
 20120000474555
 (BOOK 6934 PG. 206)
 O.P.R.R.C.T.

BENCHMARKS:
 BM#1 - SQ. CUT ON B.C. ON S. END OF CURB INLET, N. OF LIFE SPRING DR. IN FRONT OF SUBJECT PROPERTY.
 ELEV = 455.30
 BM#2 - 'X' CUT ON T.C., N. SIDE OF LIFE SPRING DR., 7.7' W. OF PROJECTION OF EAST PROPERTY LINE.
 ELEV = 465.88
 BM#3 - SQ. CUT ON TOP OF NORTHWESTERLY END OF HEADWALL, CORNER CLOSEST TO B.C., 79' S.E. OF C.L. OF LIFE SPRING DR.
 ELEV = 462.82

GRADING NOTES:

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S PLANS AND SPECIFICATIONS, EXCEPT AS NOTED HEREIN AND APPROVED BY THE CITY AND NCTCOG 3RD EDITION.
- THE LOCATION OF ALL UTILITIES LOCATED ON THESE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEAN-OUTS, VALVE BOXES, FIRE HYDRANTS, ETC. MUST BE ADJUSTED TO PROPER LINE AND GRADE BY THE CONTRACTOR PRIOR TO AND AFTER THE PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS DEVELOPMENT.
- DRAINAGE SHOULD BE MAINTAINED AWAY FROM THE FOUNDATIONS, BOTH DURING AND AFTER CONSTRUCTION.
- GEOTECH REPORT TO BE PROVIDED BY OTHERS. ALL RECOMMENDATIONS CONTAINED WITHIN GEOTECHNICAL REPORT SHALL BE FOLLOWED IN THE CONSTRUCTION OF THIS PROJECT. ALL EARTHWORK OPERATIONS SHALL CONFORM TO THE RECOMMENDATIONS PER THE GEOTECHNICAL REPORT.
- THE SUBGRADE IN AREAS TO BE FILLED SHOULD BE STRIPPED OF VEGETATION AND ANY MAJOR ROOT SYSTEMS. IT SHOULD THEN BE PROOFROLLED WITH HEAVY PNEUMATIC EQUIPMENT. ANY SOFT PUMPING AREAS SHOULD BE UNDERCUT AND PROPERLY BACKFILLED. THE SUBGRADE SHOULD THEN BE SCARIFIED TO A MINIMUM +2 PERCENTAGE POINTS ABOVE THE SOIL'S OPTIMUM MOISTURE DETERMINED BY THAT TEST.
- ALL BACKFILL SHALL BE COMPACTED TO 95% PROCTOR DENSITY. BACKFILL SHOULD BE STRIPPED OF VEGETATION AND ANY MAJOR ROOT SYSTEMS. IT SHOULD THEN BE PROOFROLLED WITH HEAVY PNEUMATIC EQUIPMENT. ANY SOFT PUMPING AREAS SHOULD BE UNDERCUT AND PROPERLY BACKFILLED. THE BACKFILL SHOULD THEN BE SCARIFIED TO A MINIMUM +2 PERCENTAGE POINTS ABOVE THE SOIL'S OPTIMUM MOISTURE DETERMINED BY THAT TEST. THE FILL MATERIALS SHOULD THEN BE SPREAD IN LOOSE LIFTS, LESS THAN 8 INCHES THICK, AND UNIFORMLY COMPACTED TO THE SAME CRITERIA. IF FILLING IS SUSPENDED AND THE SUBGRADE BECOMES DESICCATED OR RUTTED, IT SHOULD BE REWORKED PRIOR TO PLACEMENT OF A SUBSEQUENT LIFT. ALL FILL TO BE COMPACTED USING A SHEEP FOOT ROLLER.
- COMPACTION TEST SHALL BE DONE FOR EACH 8" OF FILL, BUT NOT LESS THAN ONE TEST FOR EVERY CUBIC YARDS, OR MORE FREQUENTLY IF REQUIRED BY THE SOILS ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS INCURRED FOR THE INSPECTION AND TESTING OF SOILS DUE TO FAILURE TO COMPLY WITH THE MINIMUM REQUIREMENTS OF THE SOILS REPORT.
- ALL PROPOSED SPOT SHOTS ARE TOP OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- ALL DISTURBED AREAS SHALL BE STABILIZED WITH BROADCAST SEED AND FERTILIZER UPON COMPLETION OF GRADING AND PAVING. CONTRACTOR SHALL PROVIDE WATER AS NECESSARY TO ESTABLISH PERMANENT VEGETATION. 75%-80% OF ALL DISTURBED AREA TO HAVE 1" TALL ESTABLISHED GRASS PRIOR TO ENGINEERING ACCEPTANCE. ALL RIGHT-OF-WAYS TO BE SODDED.
- DETENTION SYSTEMS TO BE FULLY INSTALLED WITH EITHER SOD OR ANCHORED SEEDDED CURLEX ON THE SIDES AND BOTTOM AND FUNCTIONING PER PLAN PRIOR TO ANY PAVING INSTALLATION.



LOT AREA = 304,484 Sq. Ft. ~ 6.99 Ac.
 DISTURBED AREA = 289,260 Sq. Ft. ~ 6.64 Ac.

LEGEND

450.00 TP	TOP OF PAVING ELEVATION
450.00 FG/BW	FINISHED GRADE/ BOTTOM OF WALL
450.00 TC/TW	TOP OF CURB/ TOP OF WALL ELEVATION
450.00 TC	TOP OF CURB ELEVATION
450.00 G	GUTTER ELEVATION
-485-	EXISTING CONTOUR
-485-	PROPOSED CONTOUR
RIDGE	PROPOSED GRADE HIGH POINT
→	PROPOSED FLOW ARROW
—	PROPOSED VALLEY GUTTER

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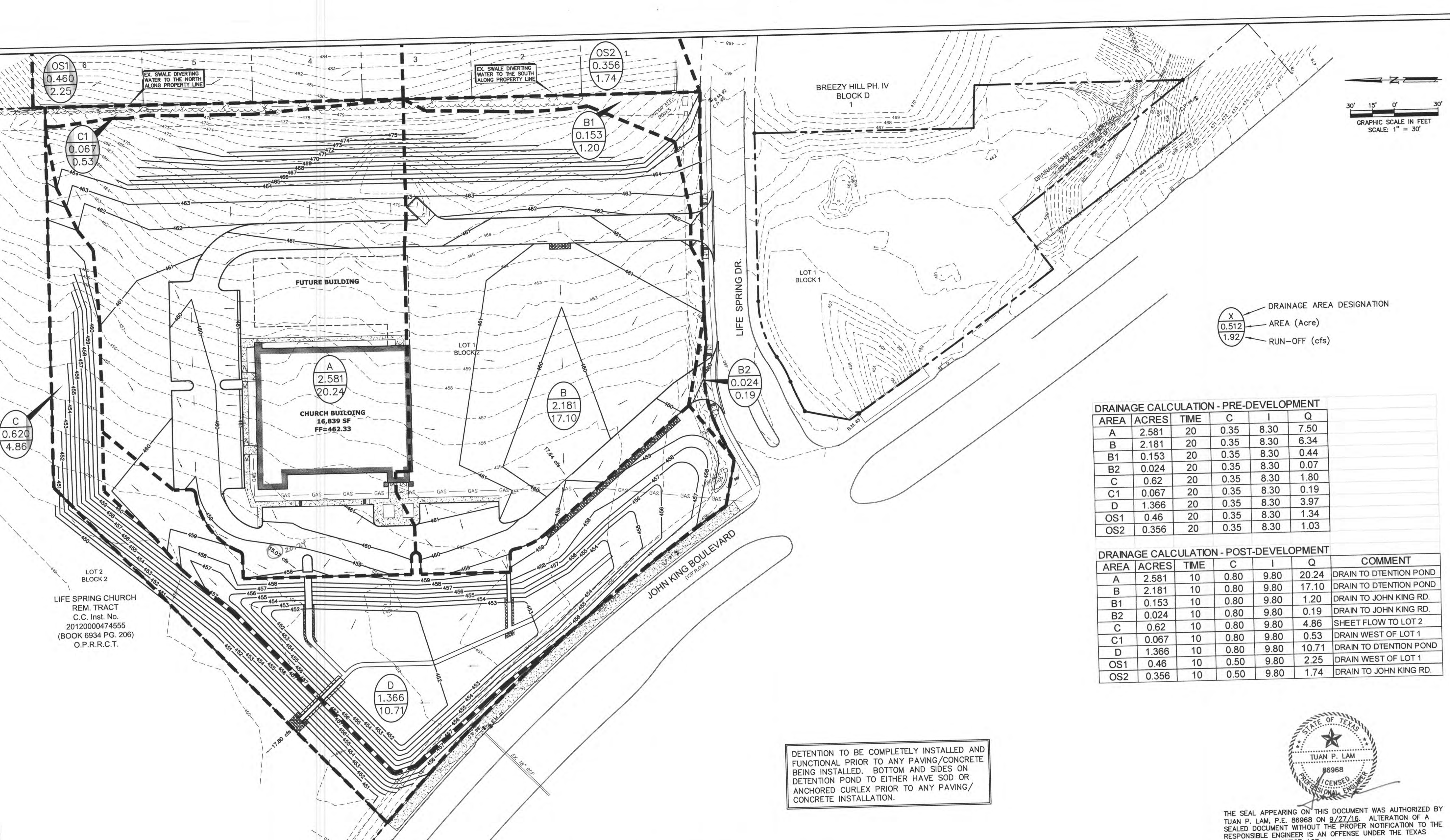
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GRADING PLAN

LIFE SPRING CHURCH ADDITION - LOT 1
LIFE SPRING CHURCH
200 LIFE SPRING DR.
ROCKWALL, TEXAS 75087

LCE LAM CONSULTING ENGINEERING
 6804 WILHELMINA DRIVE
 SACHSE, TEXAS 75048
 Phone (214) 766-1011
 www.lamcivil.com
 Firm #F-9763

DESIGN: LCE	CHECK: LCE	SCALE: AS NOTED	3 of 9
DRAWN: CTL	DATE: SEPTEMBER 2015	PROJECT: 0519-15	



LIFE SPRING CHURCH
REM. TRACT
C.C. Inst. No.
20120000474555
(BOOK 6934 PG. 206)
O.P.R.R.C.T.

DRAINAGE CALCULATION - PRE-DEVELOPMENT

AREA	ACRES	TIME	C	I	Q
A	2.581	20	0.35	8.30	7.50
B	2.181	20	0.35	8.30	6.34
B1	0.153	20	0.35	8.30	0.44
B2	0.024	20	0.35	8.30	0.07
C	0.62	20	0.35	8.30	1.80
C1	0.067	20	0.35	8.30	0.19
D	1.366	20	0.35	8.30	3.97
OS1	0.46	20	0.35	8.30	1.34
OS2	0.356	20	0.35	8.30	1.03

DRAINAGE CALCULATION - POST-DEVELOPMENT

AREA	ACRES	TIME	C	I	Q	COMMENT
A	2.581	10	0.80	9.80	20.24	DRAIN TO DETENTION POND
B	2.181	10	0.80	9.80	17.10	DRAIN TO DETENTION POND
B1	0.153	10	0.80	9.80	1.20	DRAIN TO JOHN KING RD.
B2	0.024	10	0.80	9.80	0.19	DRAIN TO JOHN KING RD.
C	0.62	10	0.80	9.80	4.86	SHEET FLOW TO LOT 2
C1	0.067	10	0.80	9.80	0.53	DRAIN WEST OF LOT 1
D	1.366	10	0.80	9.80	10.71	DRAIN TO DETENTION POND
OS1	0.46	10	0.50	9.80	2.25	DRAIN WEST OF LOT 1
OS2	0.356	10	0.50	9.80	1.74	DRAIN TO JOHN KING RD.

DETENTION POND VOLUME

ELEV	AREA	VOL. (CF)
452.00	10954.58	5477.29
453.00	18778.34	14866.46
454.00	23948.68	21363.51
455.00	26042.79	24995.73
TOTAL		66703.00

VOLUME PROVIDED = 66703
VOLUME REQUIRED = 55320

$Q=3.367 \cdot b \cdot h^{1.5}$
Side slope 1:4 (horz:vert)
TRAPEZOIDAL WEIR - ACTUAL

YEAR	h (Ft.)	b (Ft.)	Q	Elevation
100	4.01	0.5	13.50	455.01
25	3.39	0.5	10.51	454.39
10	3.09	0.5	9.16	454.09
5	2.74	0.5	7.66	453.74

RUN-OFF CALCULATIONS - ALLOWED

YEAR	TIME	C	I	AREA (Ac.)	Q (cfs)	Q (allowed)
100	20	0.35	8.30	6.990	20.31	13.53
25	20	0.35	6.65	6.99	16.27	10.53
10	20	0.35	5.80	6.99	14.19	9.18
5	20	0.35	4.90	6.99	11.99	7.67

DETENTION CALCULATION:
Based on 100-yr storm requirements

Q (cfs)	Time	I	Q(cfs)	Vol (cf) Req.
20.31	15	9.00	44.11	29547
C	15	9.00	44.11	29547
C	20	8.30	40.68	36633
I	30	6.90	33.82	44629
A	40	5.80	28.42	47921
6.990	50	5.00	24.50	49154
20	60	4.50	22.05	50975
	70	4.00	19.60	49856
	80	3.70	18.13	50501
	90	3.50	17.15	52029
	100	3.40	16.66	55320
	110	3.20	15.68	54789

Future Conditions (Church)

Q (cfs)	Time	I	Q(cfs)	Vol (cf) Req.
54.80	15	9.00	44.11	29547
C	15	9.00	44.11	29547
C	20	8.30	40.68	36633
I	30	6.90	33.82	44629
A	40	5.80	28.42	47921
6.990	50	5.00	24.50	49154
20	60	4.50	22.05	50975
	70	4.00	19.60	49856
	80	3.70	18.13	50501
	90	3.50	17.15	52029
	100	3.40	16.66	55320
	110	3.20	15.68	54789

DETENTION TO BE COMPLETELY INSTALLED AND FUNCTIONAL PRIOR TO ANY PAVING/CONCRETE BEING INSTALLED. BOTTOM AND SIDES ON DETENTION POND TO EITHER HAVE SOD OR ANCHORED CURLEX PRIOR TO ANY PAVING/CONCRETE INSTALLATION.

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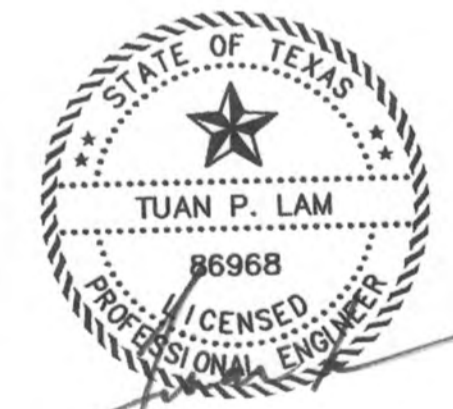
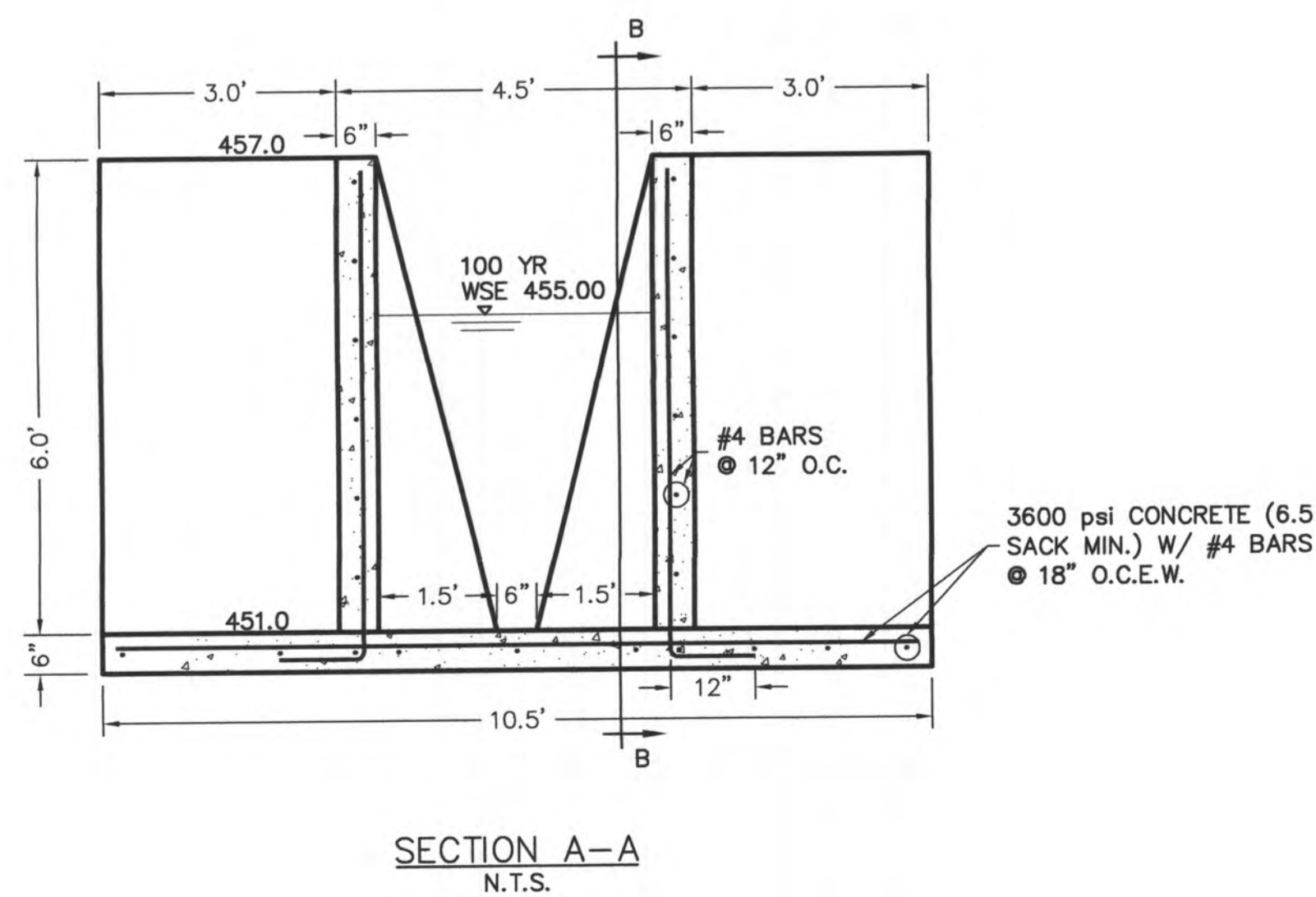
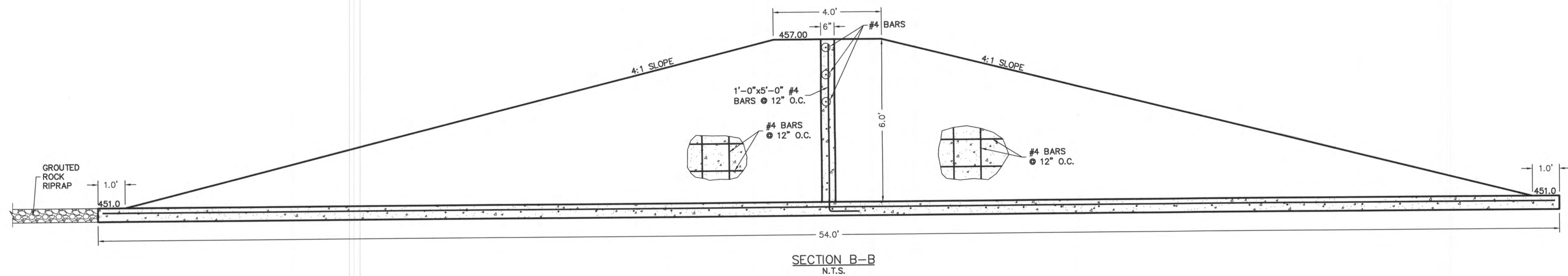
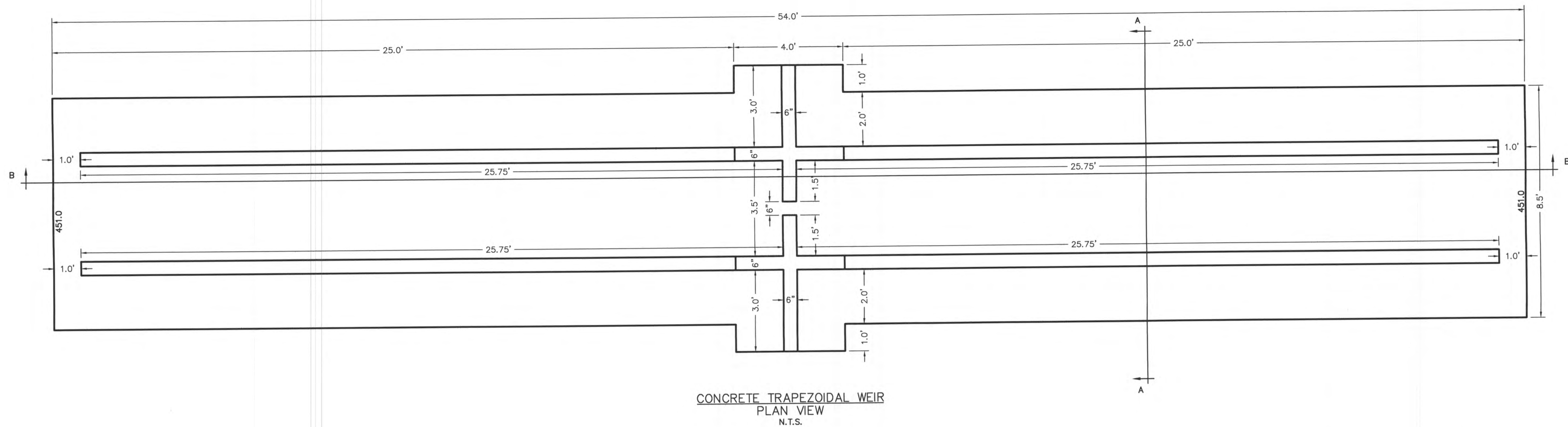
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DRAINAGE AREA MAP
LIFE SPRING CHURCH ADDITION - LOT 1
LIFE SPRING CHURCH
200 LIFE SPRING RD.
ROCKWALL, TEXAS 75087

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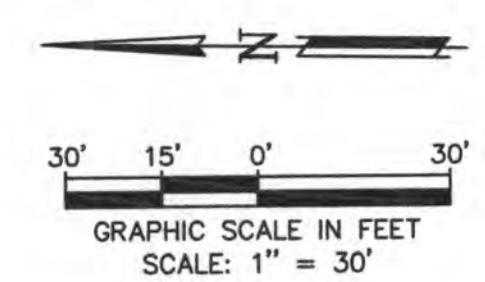
DETENTION STRUCTURE DETAILS
LIFE SPRING CHURCH ADDITION - LOT 1
LIFE SPRING CHURCH
200 LIFE SPRING RD.
ROCKWALL, TEXAS 75087

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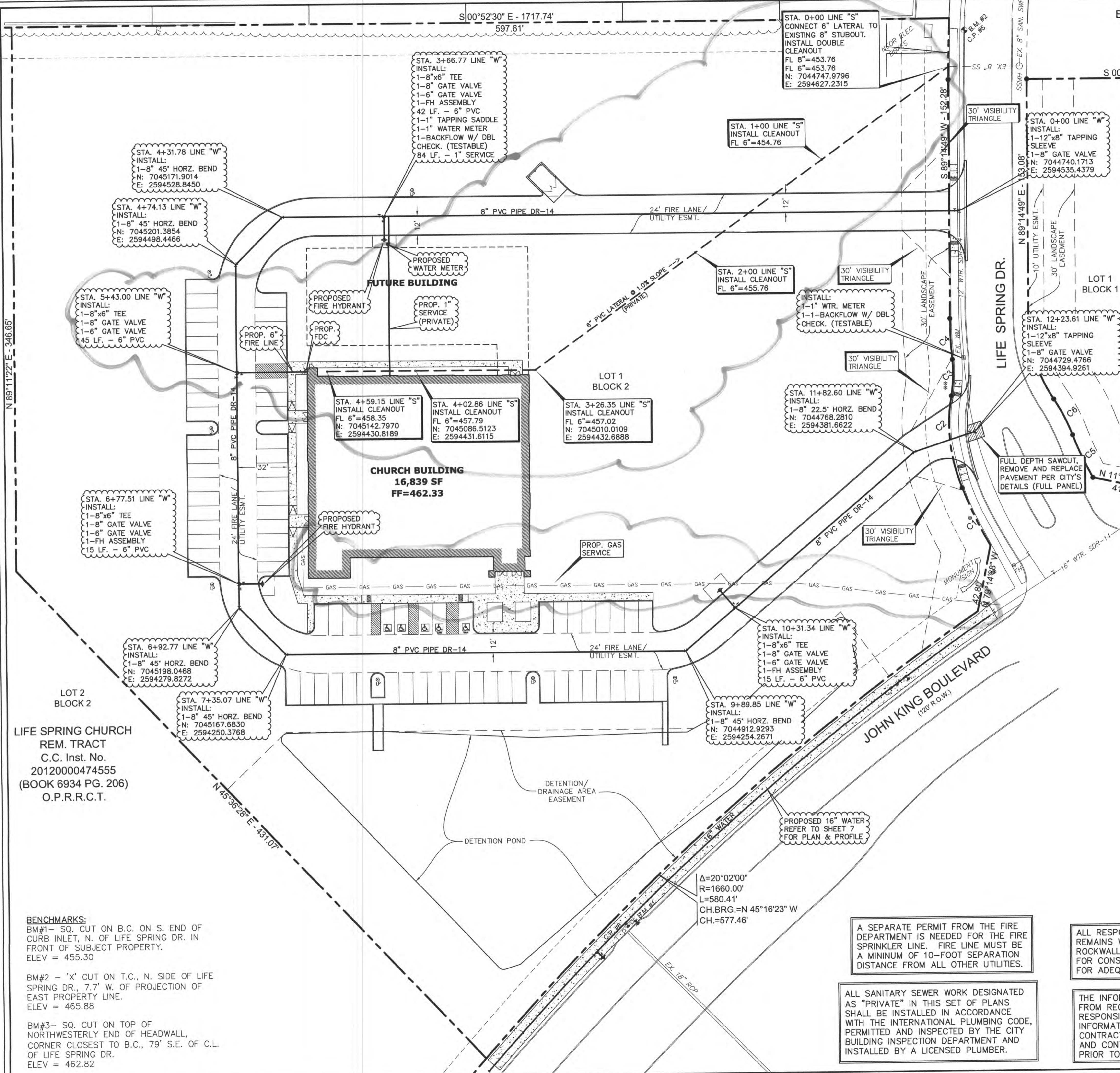
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S 00°52'30" E - 1717.74'
597.61'



WATER & SANITARY SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY'S STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY STANDARDS, TEXAS STATE LAW, AND O.S.H.A. STANDARDS FOR ALL EXCAVATION IN EXCESS OF FIVE FEET IN DEPTH.
3. THE LOCATION OF ALL UTILITIES LOCATED ON THESE PLANS ARE TAKEN FROM EXISTING PUBLIC RECORDS. THE EXACT LOCATION AND ELEVATION OF ALL PUBLIC UTILITIES MUST BE DETERMINED BY THE CONTRACTOR. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC INFRASTRUCTURE IN THE CONSTRUCTION OF THIS PROJECT.
5. ANY UTILITY INSTALLED OUTSIDE OF AN EASEMENT SHALL BE INSTALLED BY A PLUMBER AND INSPECTED BY BUILDING DEPT.
6. BACKFILL FOR UTILITY LINES SHOULD BE CAREFULLY PLACED SO THAT THE UTILITY WILL BE STABLE. WHERE UTILITY LINES CROSS THE PARKING LOT, THE TOP 6" SHOULD BE COMPACTED SIMILARLY TO THE REMAINDER OF THE LOT. UTILITY DITCHES SHOULD BE VISUALLY INSPECTED DURING THE EXCAVATION PROCESS TO ENSURE THAT UNDESIRABLE FILL IS NOT USED.
7. IF ROCK IS ENCOUNTERED IN THE TRENCH, ROCK SPOIL SHALL NOT BE USED IN THE UPPER 1.5 FEET OF THE TRENCH. THE UPPER 1.5 FEET OF THE TRENCH IS TO BE BACKFILLED ONLY WITH QUALITY TOPSOIL.
8. ALL WATER MAINS SHALL MEET AWWA C-900, PVC DR-14 CLASS 200. ALL FITTINGS SHALL MEET ASTM F477 SPECIFICATIONS.
9. ALL DUCTILE IRON FITTINGS SHALL BE OF THE MECHANICAL JOINT TYPE OR SLIP JOINT AND SHALL BE CLASS D, OR CLASS 250 ON SIZES 12" AND SMALLER IN ACCORDANCE WITH A.W.W.A. SPECIFICATION C-110-64 AND C-111-64.
10. EMBEDMENT FOR PVC WATER MAIN SHALL COMPLY WITH THE CITY DETAILS AND SPECIFICATIONS.
11. ALL WATER METERS TO BE PLACED IN A NON-TRAFFIC AREA.
12. ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 42", OR SUFFICIENT COVER TO CLEAR OTHER UTILITIES AS MEASURED FROM TOP OF PIPE TO EXISTING GROUND LEVEL OR FINISHED GRADE, WHICHEVER IS GREATER.
13. ALL WATER AND SANITARY SEWER MAINS AND SERVICES SHALL HAVE A 10' MIN. LATERAL SEPARATION DISTANCE.
14. ALL SANITARY SEWER PIPES AND FITTINGS SHALL MEET ASTM D 3034, PVC SEWER PIPE SDR35. PIPE OVER 10' IN DEPTH, USE ASTM D 2241, PVC PIPE, SDR 26 (160).
15. ALL WATER AND SANITARY SEWER TESTINGS SHALL BE ACCOMPLISHED BY A TESTING LAB APPROVED BY THE CITY AND PAID BY CONTRACTOR.
16. REFER TO MECHANICAL PLANS FOR EXACT WATER AND SEWER SERVICE LOCATIONS.



LOT 2
BLOCK 2
LIFE SPRING CHURCH
REM. TRACT
C.C. Inst. No.
20120000474555
(BOOK 6934 PG. 206)
O.P.R.R.C.T.

BENCHMARKS:
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DETENTION / DRAINAGE AREA EASEMENT
DETENTION POND

A SEPARATE PERMIT FROM THE FIRE DEPARTMENT IS NEEDED FOR THE FIRE SPRINKLER LINE. FIRE LINE MUST BE A MINIMUM OF 10'-FOOT SEPARATION DISTANCE FROM ALL OTHER UTILITIES.

ALL SANITARY SEWER WORK DESIGNATED AS "PRIVATE" IN THIS SET OF PLANS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE, PERMITTED AND INSPECTED BY THE CITY BUILDING INSPECTION DEPARTMENT AND INSTALLED BY A LICENSED PLUMBER.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

THE INFORMATION SHOWN ON THIS PLAN ARE FROM RECORD DRAWINGS. THE ENGINEER IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES AND CONTACT ALL UTILITY COMPANIES 48 HRS PRIOR TO ANY EXCAVATION. 1-800-DIG TESS

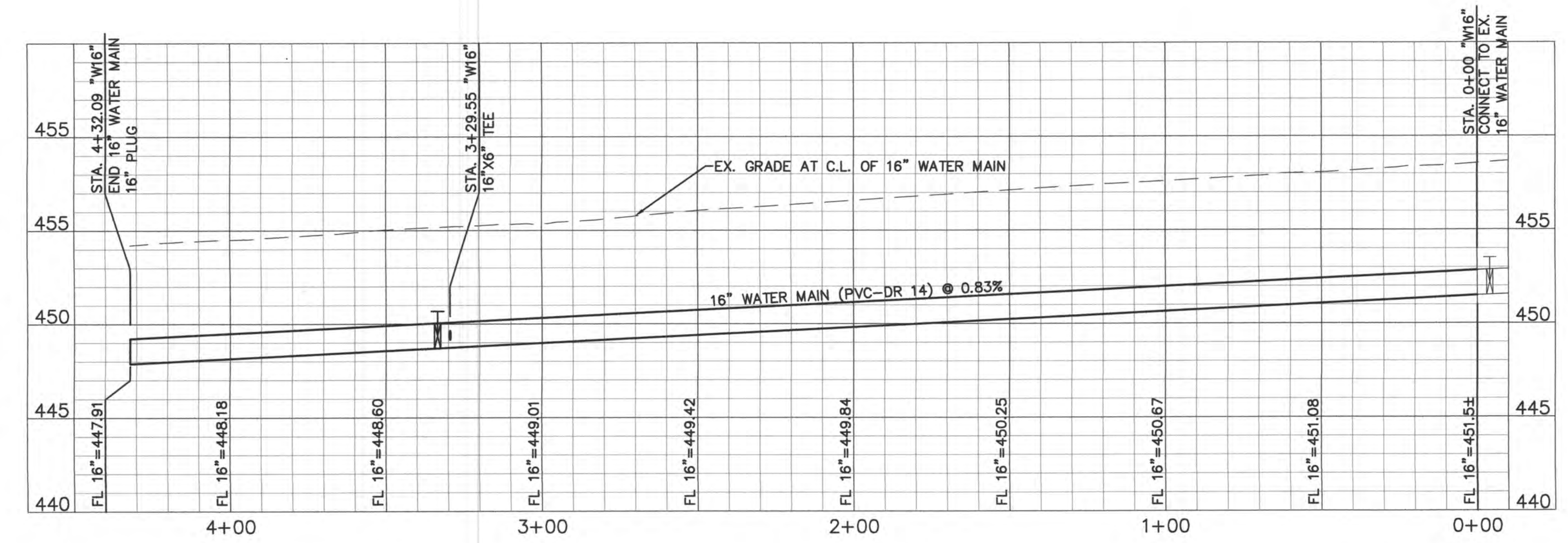
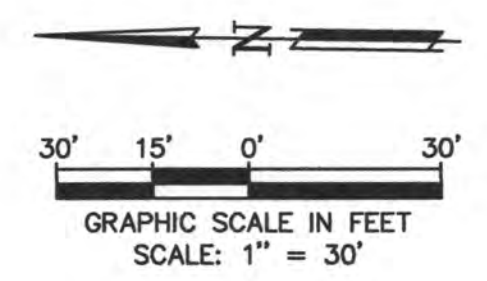
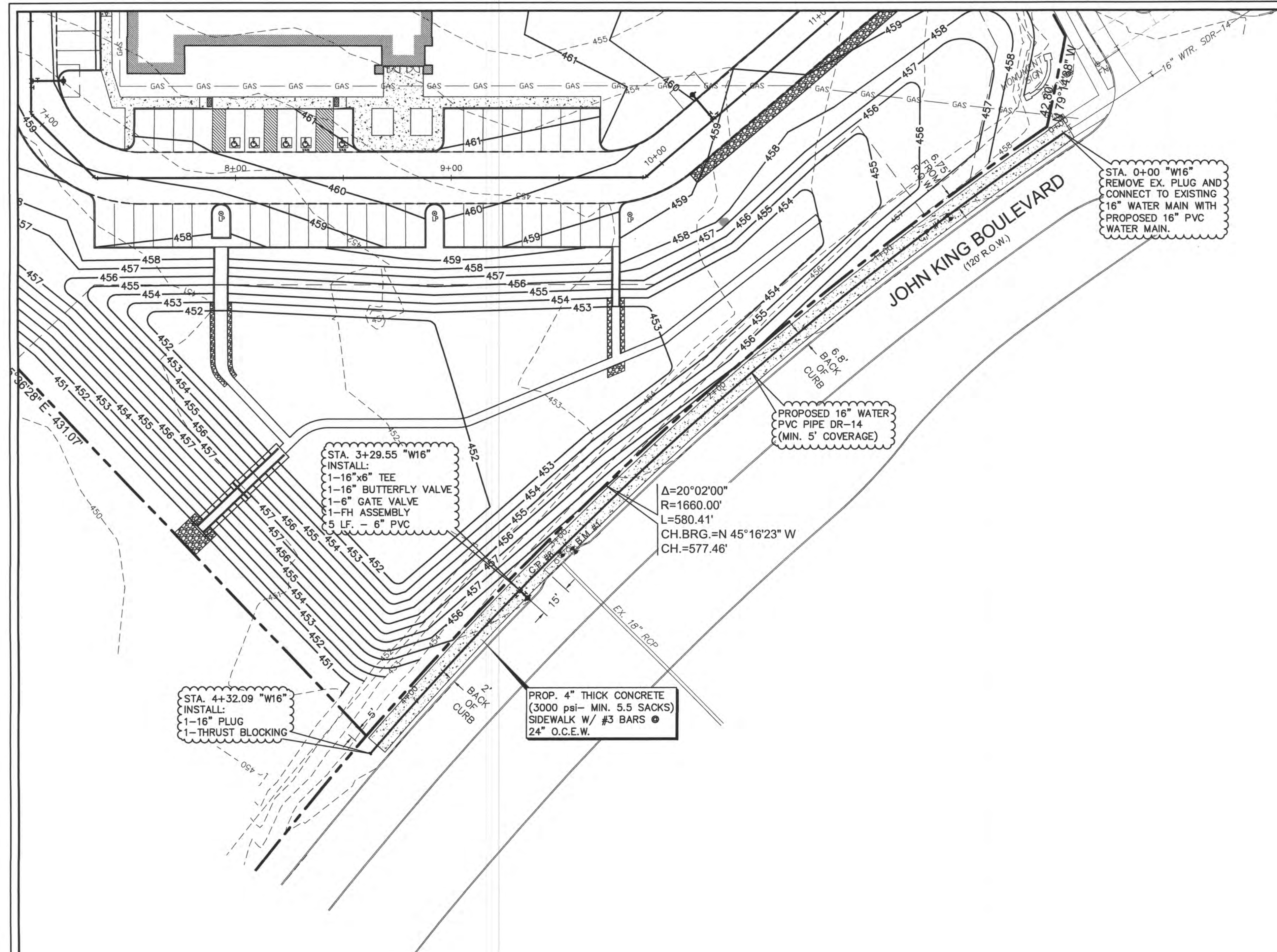


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UTILITY PLAN
LIFE SPRING CHURCH ADDITION - LOT 1
LIFE SPRING CHURCH
200 LIFE SPRING DR.
ROCKWALL, TEXAS 75087

LAM CONSULTING ENGINEERING
6804 WILHELMINA DRIVE
SACHSE, TEXAS 75048
Phone (214) 766-1011
www.lamcivil.com
Firm #P-9763

DESIGN: LCE	CHECK: LCE	SCALE: AS NOTED	6 of 9
DRAWN: CTL	DATE: SEPTEMBER 2015	PROJECT: 0519-15	



16" WATER MAIN PROFILE
SCALE: H=30' V=5'

CONTRACTOR SHALL PAY ALL PERMIT FEES AND WILL SETUP PRE-CONSTRUCTION MEETING PRIOR TO COMMENCING ANY WORK.

SURVEY INFORMATION ON THIS DRAWING WAS PROVIDED BY OTHERS. LAM CONSULTING ENGINEERING IS NOT RESPONSIBLE FOR THE ACCURACY OF THE TOPOGRAPHIC MAPPING NOR BENCHMARK DATUM.

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