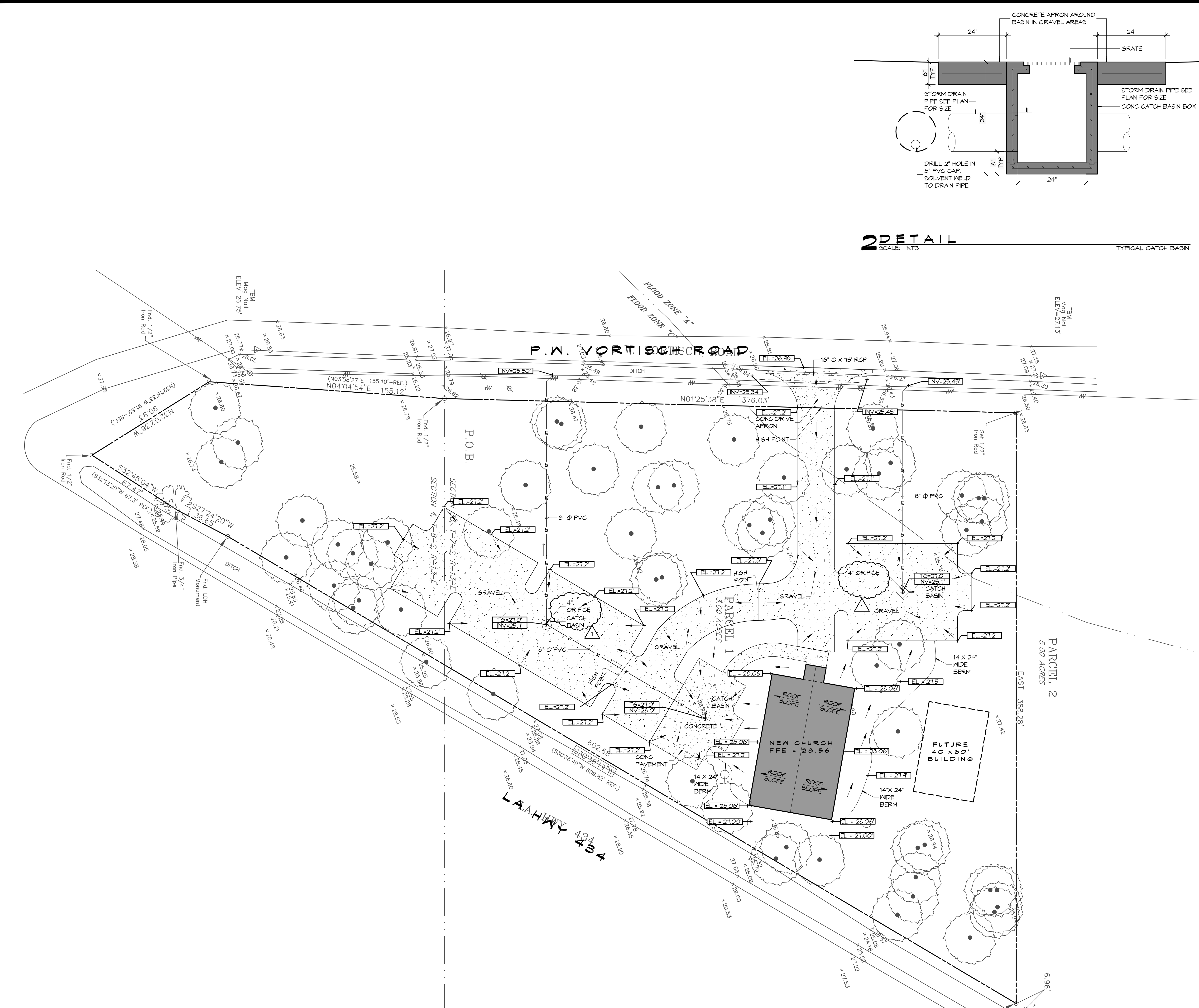


DATE: 08/11/2015 10:53:25 AM; USER: JACOB; PROJECT: P.W. VORTIS CHURCH; SHEET: C102

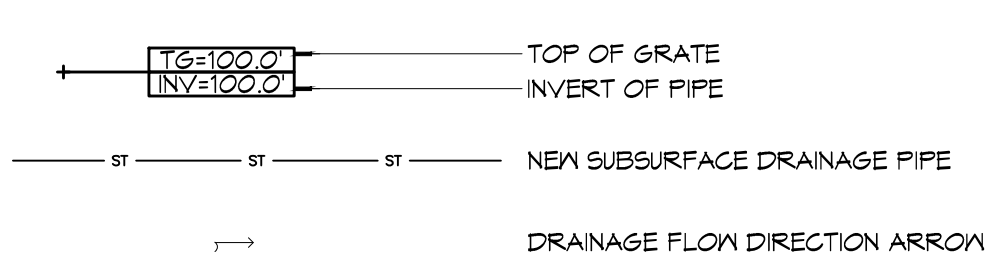


2 DETAIL
SCALE: NTS
TYPICAL CATCH BASIN

GENERAL SITE DRAINAGE NOTES

1. DRAIN PIPE(S) ALONG AIRPORT MUST BE THE BELL AND SPIGOT TYPE WITH "O" RING RUBBER GASKETS. THE BELLS OF THE PIPES SHALL BE LAID UPSTREAM. ALL JOINTS SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. ALL PIPES SHALL REQUIRE A 3" COMPACTED SAND OR LIMESTONE BASE.
2. REMOVE DEBRIS AND CLEAN BOTTOM OF DITCHES DOWN 6" IN DEPTH - REPLACE ANY BROKEN/CRUSHED PIPES OR CULVERTS WITH SAME SIZE AND TYPE.
3. DRAIN PIPE AND FITTINGS WITHIN PROPERTY LINE SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE, MEETING CLASS 100 C-400 PVC.
4. ELEVATIONS SHOWN ARE M.S.L.
5. FIELD VERIFY ALL ELEVATIONS AND AND DRAINAGE SYSTEM PLACEMENT PRIOR TO START OF WORK.
6. PROVIDE VERTICAL ELBOW AT DOWNSPOUTS FOR CONNECTION TO SUBSURFACE DRAINAGE WHERE INDICATED. ELBOW ID SHALL BE SIZED SUCH THAT THE DOWNSPOUT CAN BE INSERTED INTO THE PIPE OPENING.

SITE DRAINAGE LEGEND



STORM WATER RUN-OFF CALCULATIONS

PROJECT: **New Church**
FORMULAS USED: **STORMWATER RUN-OFF CALCULATIONS**

Formulas used: **[1] RATIONAL METHOD: Q=ACI**

where: Peak discharge of watershed in cubic feet per second (cfs) due to maximum storm assumed.
Area of watershed in acres.
Coefficient of run-off (C).
Intensity of rainfall in inches per hour based on concentration time (I).

$$Q = \frac{(1.48)(C)(A)(I)}{3.6}$$

where: Time of concentration time required for rain falling at most remote point to reach discharge point.
Site run-off coefficient based on conditions shown.
Percent slope of overland flow.

PRIOR DEVELOPMENT
25 Year Frequency

Waterlight Surfaces	c(1) = 0.4	0	sqft = 0.000 Acres
Gravel Surface	c(2) = 0.25	0	sqft = 0.000 Acres
Green Space	c(3) = 0.15	131697	sqft = 3.023 Acres
Summary	c = 0.15	131697	sqft = 3.023 Acres

Duration (D) = Time of concentration (TC)
where: L = 602 run-off length ft. Elev diff 1
c = 0.15 run-off coef
S = 0.1661 percent slope
therefore TC = D = 28.40 minutes
Expected rainfall Intensity I = 3.64 in/hr

Q_p = 1.651 cfs 10% reduction **0.165 cfs**

POST DEVELOPMENT
25 Year Frequency

Waterlight Surfaces	c(1) = 0.4	0	sqft = 0.188 Acres
Gravel Surface	c(2) = 0.25	24954	sqft = 0.569 Acres
Green Space	c(3) = 0.15	49163	sqft = 2.276 Acres
Summary	c = 0.22	131697	sqft = 3.023 Acres

Duration (D) = Time of concentration (TC)
where: L = 120 run-off length ft. Elev diff 1.2
c = 0.22 run-off coef
S = 1.0000 percent slope
therefore TC = D = 14.90 minutes
Expected rainfall Intensity I = 3.64 in/hr

Q_p = 2.367 cfs

DETENTION REQUIREMENTS

Detention required Q_p-Q₁: 0.72 cfs
ONE HOUR DETENTION: 28712 cuft

DETENTION DIMENSIONS: WIDTH 8.4 feet, LENGTH 317 feet, DEPTH 0.19 feet

DISCHARGE END AREA REQUIREMENTS
10 Year Frequency

$$A = \frac{Q}{(c\sqrt{2gh})} \quad [5] A =$$

where: A Discharge Area required
Acceleration of gravity
Discharge coefficient
h Hydraulic head
Q Flow volume from run-off

Pipe Servicing Site Drainage

Q	0.165 cfs	h	3.00 feet
c	0.82 coefficient	A	0.014 sqft
g	32.16 ft/sec/sec		

REQUIRED CONDUIT = 1.87 inch inside diameter

References:
1. Chen, M.F. The Civil Engineering Handbook, 1999, Eq* 311, pg. 1039
2. Seelye, Elwyn E. Data Book for Civil Engineers, Vol.1 1960, Tbl. B, pg. 18-02
3. Seelye, Elwyn E. Data Book for Civil Engineers, Vol.1 1960, Fig. B, pg. 18-01
4. Chen, M.F. The Civil Engineering Handbook, 1999, Tbl. 312 Regan Equation (n=0.015)
5. Chen, M.F. The Civil Engineering Handbook, 1999, Eq* 2832, pg. 684

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DATE	10-26-15	
REVISIONS		
#	DESCRIPTION	ORIGINATOR
1	ENLARGED	

**P R O M U L T I S
L A C O M B E C H A P E L**

P.W. VORTIS CHURCH AND LA HWY 434
LACOMBE, LOUISIANA 70448
JOB No: 2250
DATE: SEPTEMBER 3, 2015
DRAWN BY: KJK
CHECKED BY: CKD

SHEET TITLE: **SITE PLAN - DRAINAGE**

DRAWING NUMBER: **C102**

SHEET No: 4 of 14

1 SITE PLAN
SCALE: 1" = 30'

DRAINAGE