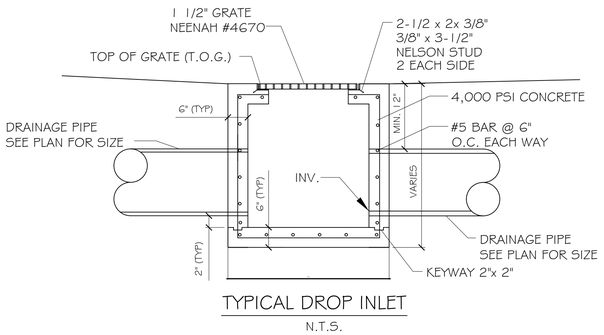
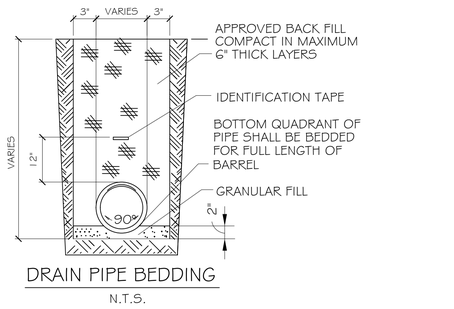


TYPICAL DROP INLET

N.T.S.



DRAIN PIPE BEDDING

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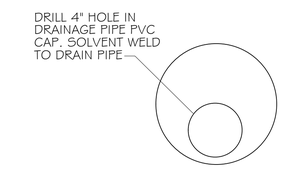
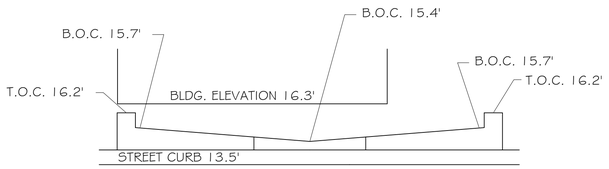


ORIFICE DETAIL

N.T.S.



SECTION

N.T.S.

GUTTERS AND DOWN SPOUTS TO BE SEAMLESS ALUMINUM 24 GAUGE, COLOR TO BE SELECTED BY OWNER. GUTTERS TO BE "OGEE" IN CROSS SECTION, MINIMUM 6" WIDTH.

PROJECT:	ADULI
	STORMWATER RUN-OFF CALCULATIONS

Formulas used:

[1] RATIONAL METHOD: Q=Aci

where:
- Q= Peak discharge of watershed in cubic feet per second (cfs) due to maximum storm assumed.
- A= Area of watershed in acres.
- c= Coefficient of run-off [2].
- i= Intensity of rainfall in inches per hour based on concentration time. [3]

[4] $TC = \frac{\left(L^{0.8}\left(\frac{1000}{S}-9\right)^{0.7}\right)}{(1140(s^{0.5}))}$

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

PRIOR DEVELOPMENT
25 Year Frequency

Q_1 = Aci

Watertight Surfaces		0	sqft =	0.000	Acres
	c(1) = 0.9				
Gravel Surface		0	sqft =	0.000	Acres
	c(2) = 0.25				
Green Space		54513.4	sqft =	1.251	Acres
	c(3) = 0.15				
Summary		54513.4	sqft =	1.251	Acres
	c = 0.15				

Duration (D) = Time of concentration (TC)

where	L = 388	run-off length ft	Elev diff = 1
	c = 0.15	run-off coef	
	S = 0.2577	percent slope	
therefore	TC = D = 24.89	minutes	
Expected rainfall intensity	i = 3.64	in/hr	

Q_1 = 0.683 cfs | 10% reduction 0.068 cfs

POST DEVELOPMENT
25 Year Frequency

Q_2 = Aci

Watertight Surfaces		25467	sqft =	0.585	Acres
	c(1) = 0.9				
Gravel Surface		0	sqft =	0.000	Acres
	c(2) = 0.25				
Green Space		29046.4	sqft =	0.667	Acres
	c(3) = 0.15				
Summary		54513.4	sqft =	1.251	Acres
	c = 0.50				

Duration (D) = Time of concentration (TC)

where	L = 170	run-off length ft	Elev diff = 1.5
	c = 0.50	run-off coef	
	S = 0.8824	percent slope	
therefore	TC = D = 10.22	minutes	
Expected rainfall intensity	i = 3.64	in/hr	

Q_2 = 2.279 cfs

DETENTION REQUIREMENTS

Detention required	Q_2-Q_1	1.60	cfs
ONE HOUR DETENTION		5745.9	cuft
DETENTION DIMENSIONS	WIDTH	84	feet
	LENGTH	188	feet
	DEPTH	0.37	feet

DISCHARGE END AREA REQUIREMENTS
10 Year Frequency

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

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

Pipe Servicing Site Drainage

Q =	0.068	cfs	h =	1.50 feet
c =	0.62	coefficient	A =	0.011 sqft
g =	32.16	ft/sec/sec		

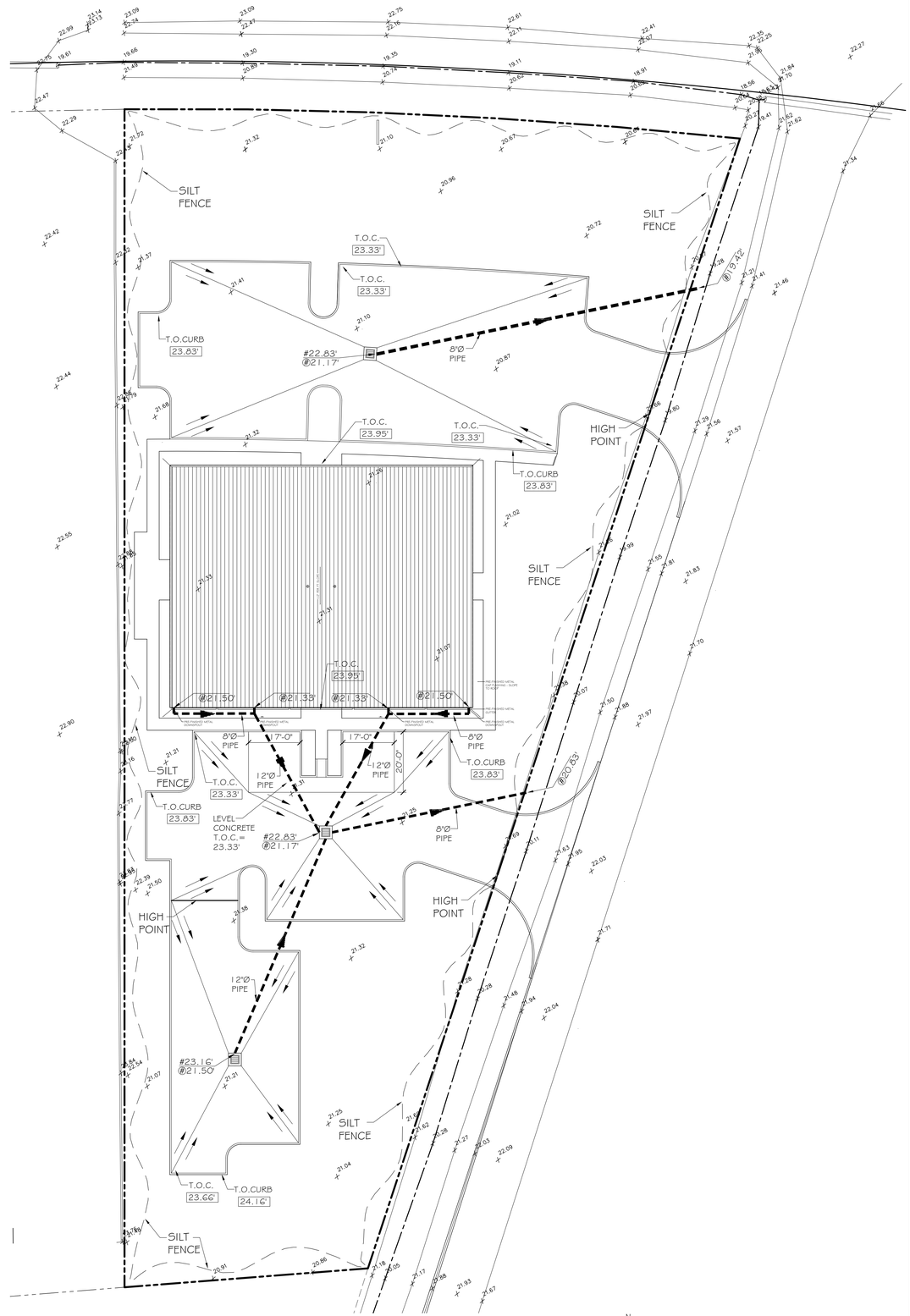
REQUIRED CONDUIT = 1.43 inch inside diameter

References:
1. Chen, W.F. The Civil Engineering Handbook. 1995. Eq.# 31.1, pg. 1036
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, W.F. The Civil Engineering Handbook. 1995. Tbl. 31.2 Regan Equation (n=0.013)
5. Chen, W.F. The Civil Engineering Handbook. 1995. Eq.# 28.32, pg. 969

NOTES:
1) DRAIN PIPE & FITTINGS WITHIN PROPERTY LINE SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE, MEETING CLASS 100 C-900 PVC.
2) ELEVATIONS SHOWN ARE M.S.L.
3) FIELD VERIFY ALL ELEVATIONS AND DRAINAGE SYSTEM PLACEMENT PRIOR TO START OF WORK.
4) MUCK OUT 24" DEEP FOR FOUNDATION PAD MINIMUM, OR TO UNDISTURBED SOIL CAPABLE OF 1500 PSF BEARING.
5) DOWN SPOUTS SHALL FLOW INTO SUB-SUFRACE DRAINAGE.
6) THERE IS NO EVIDENCE OF EXISTING OFF-SITE FLOW CROSSING THE PROPERTY. NEW DRAINAGE CALCULATIONS ARE DETERMINED ACCORDINGLY.

LEGEND:

- PROPERTY LINE
- SERVITUDE / EASEMENT
- NEW DRAIN LINE
- NEW DROP INLET w/TEMP. SILT FENCING
- SLOPE LINES
- # T.O. GRATE ELEVATION
- Ø INVERT ELEVATION
- 00.00 NEW ELEVATIONS
- x00.00' EXISTING ELEVATIONS
- TEMPORARY SILT FENCING



SITE DRAINAGE PLAN

SCALE: 1" = 20'

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NEW COMMERCIAL BUILDING
DR. FARHAD ADULI
LOT 288 MARIGOLD DRIVE
COVINGTON, LA

JOB No:	2178	DATE:	09-03-2013
DRAWN BY:	JTL	CHECKED BY:	KJK

#	DESCRIPTION	DATE
REVISIONS		

SITE DRAINAGE PLAN & DETAILS

SHEET No: 8 of 22

C4