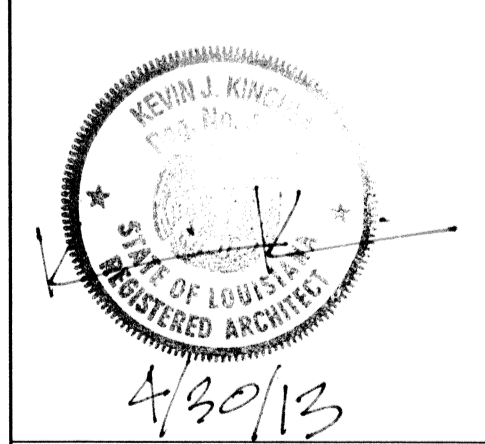
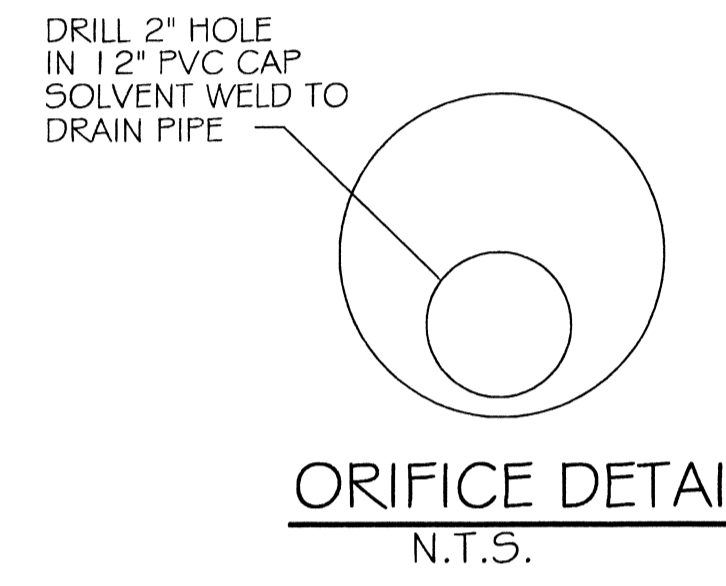
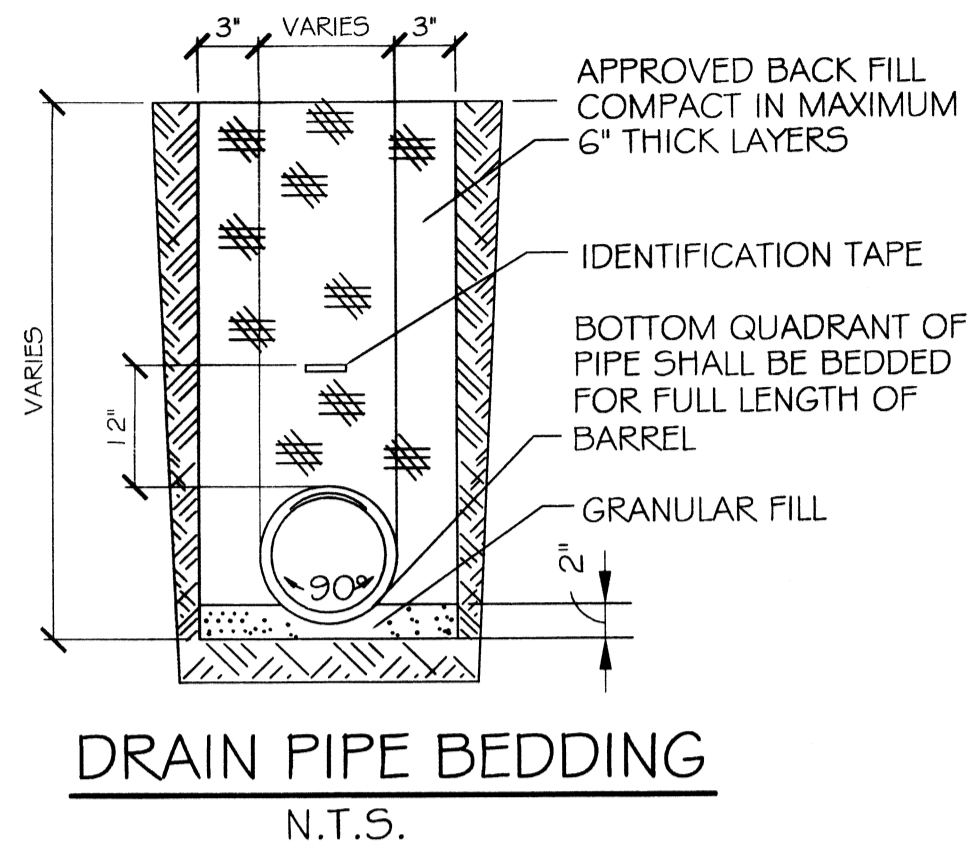
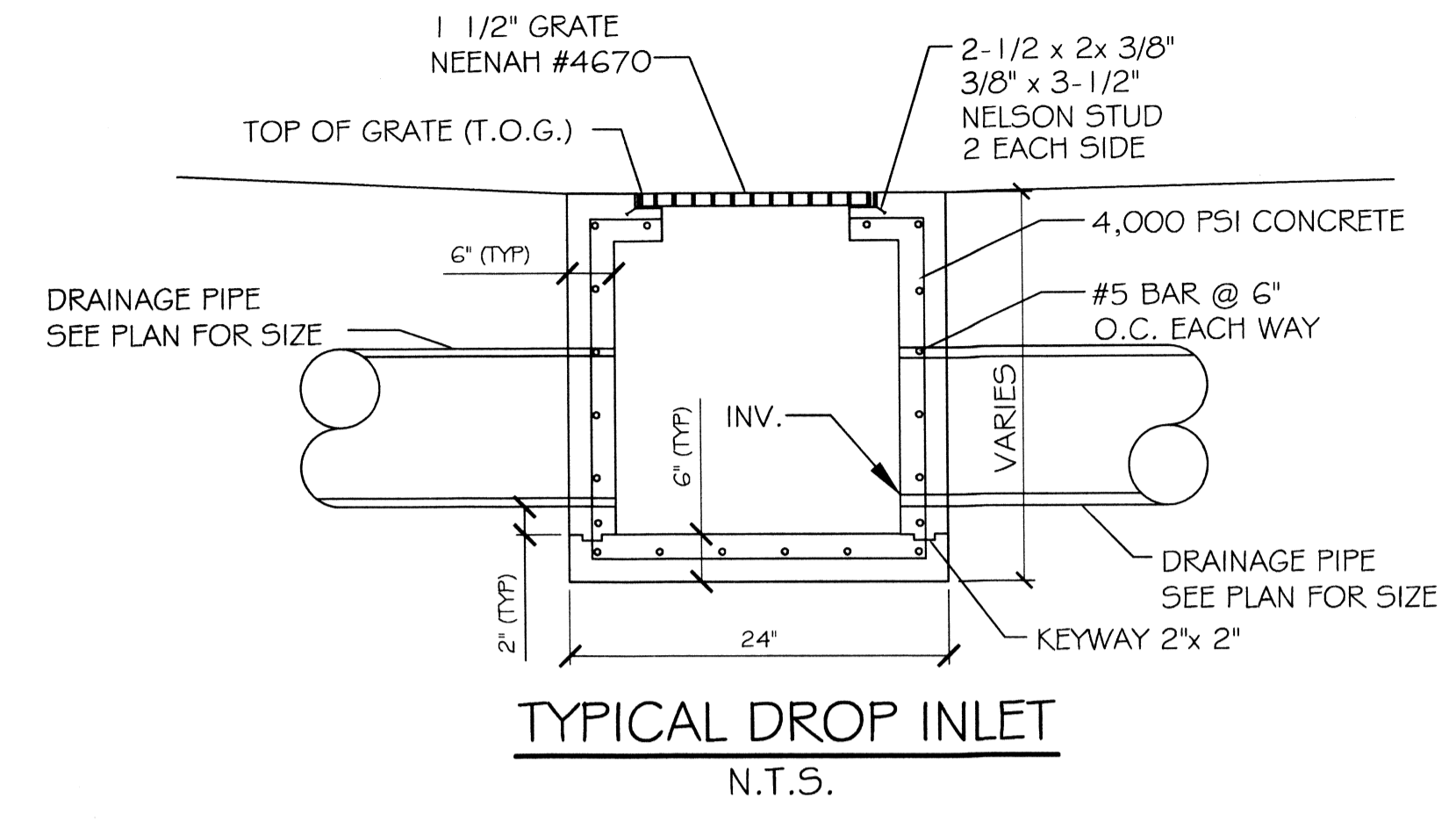


#	DESCRIPTION	DATE



SITE DRAINAGE PLAN

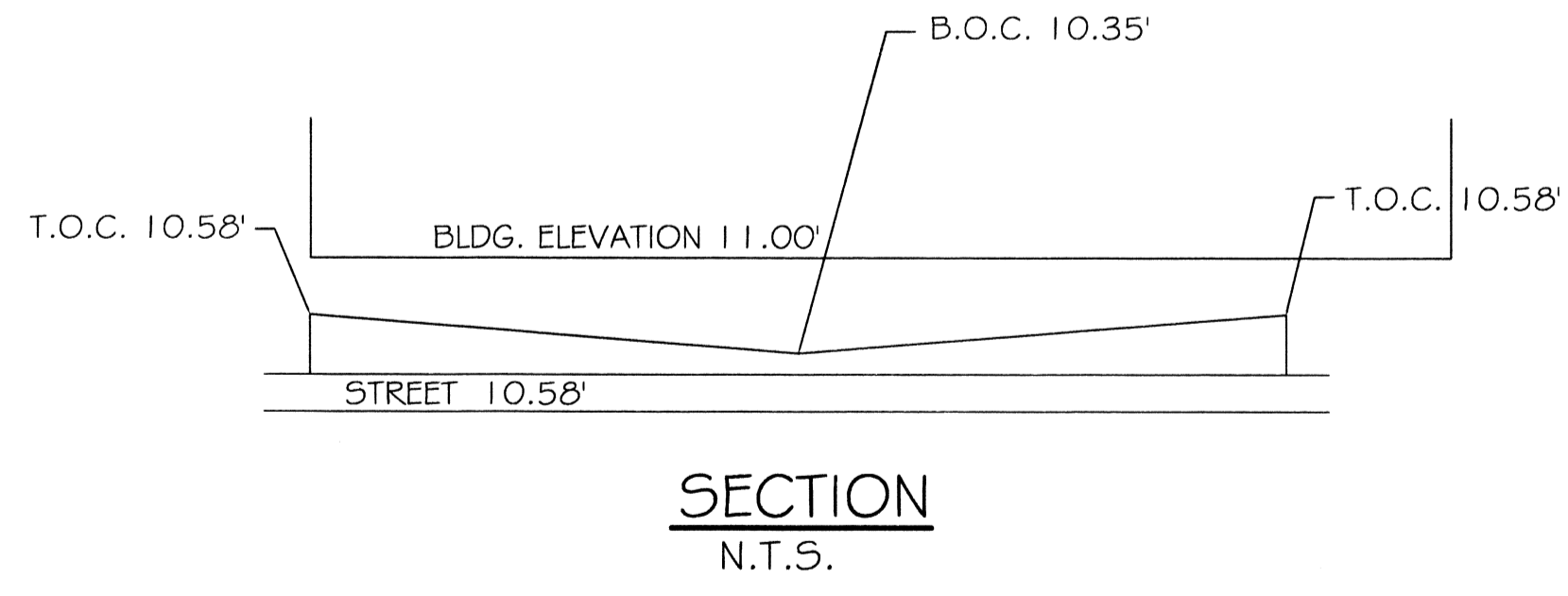
C4



- LEGEND**
- - - PROPERTY LINE
 - - - SETBACK LINE
 - - - TEMPORARY SILT FENCING
 - - - NEW DRAIN LINE
 - - - 6" OPAQUE FENCE
 - ▣ NEW DROP INLET w/TEMP. SILT FENCING
 - - - SLOPE LINES
 - # T.O. GRATE ELEVATION
 - # INVERT ELEVATION
 - 00.00 NEW ELEVATIONS
 - x00.00' EXISTING ELEVATIONS

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.

- 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-SURFACE DRAINAGE.
 - 6) THERE IS NO EVIDENCE OF EXISTING OFF-SITE FLOW CROSSING THE PROPERTY. NEW DRAINAGE CALCULATIONS ARE DETERMINED ACCORDINGLY.



PROJECT: BULK SYSTEMS
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 =
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 = Aci		
Watertight Surfaces	4144	sqft = 0.095 Acres
c(1) =	0.9	
Gravel Surface	0	sqft = 0.000 Acres
c(2) =	0.25	
Green Space	37188	sqft = 0.854 Acres
c(3) =	0.15	
Summary	41332	sqft = 0.949 Acres
c =	0.23	

Duration (D) = Time of concentration (TC)
where L = 208 run-off length ft
c = 0.23 run-off coef
S = 0.4808 percent slope
therefore TC = D 45.53 minutes
Expected rainfall intensity i = 3.64 in/hr

POST DEVELOPMENT
25 Year Frequency

Q = Aci		
Watertight Surfaces	11517	sqft = 0.264 Acres
c(1) =	0.9	
Gravel Surface	0	sqft = 0.000 Acres
c(2) =	0.25	
Green Space	29815	sqft = 0.684 Acres
c(3) =	0.15	
Summary	41332	sqft = 0.949 Acres
c =	0.36	

Duration (D) = Time of concentration (TC)
where L = 170 run-off length ft
c = 0.36 run-off coef
S = 0.8824 percent slope
therefore TC = D 42.90 minutes
Expected rainfall intensity i = 3.64 in/hr

DETECTION REQUIREMENTS

Detention required Q-Q	0.4cfs
ONE HOUR DETENTION	1663.5cfs
DETECTION DIMENSIONS	
WIDTH	65 feet
LENGTH	90 feet
DEPTH	0.28 feet

DISCHARGE END AREA REQUIREMENTS
10 Year Frequency

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 = 0.078 cfs
c = 0.82 coefficient
32.18 ft/sec²

h = 2.50 feet
A = 0.010sqft

REQUIRED CONDUIT = 1.35 inch inside diameter

References:
1. Chen, W.F. The Civil Engineering Handbook. 1995. Eq # 31.1, pg. 1036
2. Seeley, Elwyn E. Data Book for Civil Engineers. Vol. 1 1980. Tbl. B, pg. 18-02
3. Seeley, Elwyn E. Data Book for Civil Engineers. Vol. 1 1980. Fig. B, pg. 18-01
4. Chen, W.F. The Civil Engineering Handbook. 1995. Tbl. 31.2 Regan Equation (=0.013)
5. Chen, W.F. The Civil Engineering Handbook. 1995. Eq # 28.32, pg. 969

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REVIEWED FOR
STATE FIRE MARSHAL
AS PER REVIEW LETTER
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