

STORMWATER MANAGEMENT PLAN
FOR
OCHSNER HEALTH EMERGENCY ROOM
CITY OF NEW ORLEANS, ORLEANS PARISH, LA

DDG PROJECT NO. 15-209

LOCATED AT THE SOUTHWEST INTERSECTION
OF CANAL STREET AND SOUTH CARROLLTON AVENUE



DUPLANTIS DESIGN GROUP, PC
34 LOUIS PRIMA DRIVE
COVINGTON, LA 70433
985.249-6180

October 9, 2015
Revised December 16, 2015

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Sub-watersheds

The existing development is divided into 2 major catchment areas that make up the sub-watersheds, which is being considered in this study. See Appendix A for the “Pre-Development Drainage Map” and “Post-Development Drainage Map”. In the existing site conditions, rainfall hits the roof then disperses onto the pavement then sheetflows into South Carrollton Avenue and Canal Street where it’s then received by curb inlets via gutter flow.

Soils & Topography

The entire site consists of a single soil group classification: Schriever Clay, 0 to 1 percent slope (Sk) according the NRCS Web Soil Survey. The Schriever Clay (Sk) soil has a high runoff class with a very low infiltration rate thereby giving this soil a Hydrological Group Type D rating. See Appendix B – NRCS Web Soil Survey.

The overall existing topography of the site slopes from the west to northeast and slopes from the west to southeast. Site elevations range from elevation 19 at the western property corner to elevation +/-17 where the drive connects to the street. This elevation range puts the site have slopes in the 1% slope range. See Appendix C – Topographic and Boundary Survey.

Two separate percolation tests were performed on site by a geotechnical engineer. Test Hole Location 1, located neast the northwesterly portion of the site, consisted of 2.5 inches of asphalt underlain by 5 inches of shell base, 2.5 inches of cement treated base, then followed by bluish grey fat clay to the terminal point. The test hole 1 location was prepared in accordance to the city’s percolation test requirements but was found to be inconclusive as water from the pre-soak period had not drained completely from the test hole. Test Hole Location 2, located near the southwest portion of the site, was prepared and consisted of 2 inches of asphalt underlain by 3.5 inches of concrete, 6 inches of sand fill and bricks followed by brown and gray lean to fat clay with some sandy fill material. The infiltration rate was tested in accordance to the city’s Infiltration Test Guidelines and determined to have a rate of 1.20 inches per hour. See Appendix D – Percolation Test Report.

Based on the poorly drained and slowly permeable soils located over the site, infiltration BMP’s will not be the most effective type of BMP’s for use on this site. A vegetated swale and water quality treatment units will be the most effective type of BMP’s.

Land Cover

The existing site is 0.72 acres (31,430 square feet) that consist of 4,130 square feet of roof, 21,364 square feet of pavement, and 5,936 square feet of lawns/landscaping.

Existing Land Cover (31,430 SF)		
Roofs	4,130 SF	13.14%
Paving	21,364 SF	67.97%
Lawns/Landscaping	5,936 SF	18.89%

B. Proposed Conditions

Sub watersheds

In the post development condition, a vegetated swale and two (2) stormwater treatment units will be constructed on the site. The vegetated swale and stormwater treatment units are labeled on the Post Developed Drainage Map. The proposed development will be divided into four (4) drainage areas, referred to as D1 through D4 on the Post-Development Drainage Map. Drainage Area D1 will discharge into Stormwater Treatment Unit #1 then outfall into the Canal Street sub-surface drainage system. Drainage Area D2 will discharge into the vegetated swale then into the Stormwater Treatment Unit #2, which outfalls into the South Carrollton Avenue sub-surface drainage system. Drainage Areas D3 and D4 will sheet flow in South Carrollton Avenue and Canal Street, respectively. All the discharges from the site eventually flow into city's box culvert beneath South Carrollton Avenue, which ultimately get to Pump Station 7, which pumps into Bayou St. John.

Land Cover

The proposed site, which is 31,430 square feet, will consist of 8,100 sf of roof, 13,631 sf of pavement, 2,958 sf of pervious pavement and 6,741 sf of lawns/landscaping. The lawns/landscaped area will be comprised of a mix of sod, mulch, trees (shade and ornamental), shrubs and plants. There are several large trees that will remain on the site and be protected throughout construction that consist of a 20" caliper oak, 18" caliper hackberry, 15" caliper oak, and 30" caliper oak.

Proposed Land Cover (31,430 SF)		
Roofs	8,100 SF	25.77%
Paving	13,631SF	43.37%
Pervious Pavement	2,958 SF	9.41%
Lawns/Landscaping	6,741 SF	21.45%

Expected Pollutants

A commercial development on a site that was previously vacant produces a number of pollutants not previously found in the site's stormwater runoff. Roadways, parking lots, and rooftops typically make up a large portion of the developed land area and therefore produce a large portion of the pollutants collected on site. These pollutants include oil, grease, Freon, heavy metals and other chemicals. Lawn and landscape maintenance produces pollutants that enter the stormwater runoff. These pollutants typically include oil and grease from machinery. Also, pesticides, herbicides, nutrients and other

chemicals are used to maintain the manicured landscape commonly seen on most developed sites. Native plant materials will be used in all public areas of the site to help minimize the use of harmful pesticides and herbicides. Runoff from building roofs and gutters collects pollutants such as organic material, roofing materials, coatings, and heavy metals. The activities associated with these buildings also produce pollutants such as oil, heavy metals, and a variety of other chemicals. All of these pollutants are then carried through the stormwater runoff to the BMPs, which will then be filtered before leaving the site.

Using the Spreadsheet Tool for the Estimation of Pollutant Load (STEPL) Version 4.0, developed by Tetra Tech, Inc. for the U.S. Environmental Protection Agency, the site existing and proposed site will produce the following loads:

Estimated Pre-Developed Pollutant Loads			
	TN (lbs/yr)	TP (lbs/yr)	TSS(lbs/yr)
Roofs/Parking	10.68	1.07	400
Lawns/Landscaping	1.47	0.15	60
Total	12.15	1.22	460

Estimated Post-Developed Pollutant Loads			
	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
Roofs/Parking	9.60	0.96	360
Lawns/Landscaping	1.35	0.14	64
Paved (By-Pass BMP)	0.34	0.03	16
Lawn/Landscaping (By-Pass BMP)	0.36	0.04	14
Total	12.01	1.20	468

C. Proposed Water Quality Treatment

The majority of the stormwater treatment occurs in the stormwater treatment unit. There will be two treatment units, Stormwater Treatment Unit #1 and Stormwater Treatment Unit #2, due to the site having two sub-basins. Each unit is sized to capture, filter, and release the first one and one quarter inch (1-1/4") of rainfall. The units will allow capture and filtration for Total Nitrogen (TN), Total Phosphorus (TP), and Total Suspended Solids (TSS). The technical report, details, and unit calculations for each unit can be found in Appendix F. The below table identifies the estimated Post-Developed Pollutant Loads after BMP treatment:

Estimated Post-Developed Pollutant Load after BMP's			
	TN (lbs/yr)	TP (lbs/yr)	TSS (lbs/yr)
Roofs/Parking	2.23	0.10	6
Lawns/Landscaping	0.47	0.04	14
Paved (By-Pass BMP)	0.34	0.03	16
Lawns/Landscaping (By-Pass BMP)	0.36	0.04	14
Total	3.40	0.21	50

Operation and Maintenance

Proper operation and maintenance of all BMPs will ensure that they work effectively and continuously, minimizing future costs. Keeping the site cleaned and free of litter and sediment build up, as well as regular cleaning of structures and surfaces to remove oil and grease, will ensure that those systems put in place to filter stormwater runoff continue to be effective. Below is a generalized schedule of maintenance actions that the owner will follow:

MAINTENANCE ACTION	SCHEDULE
Remove litter & debris	Bi-weekly
Mow/Trim vegetation in Swales (as needed)	Every 2 – 8 weeks
Manage pesticides & fertilizer	Monthly
Remove invasive species	Twice annually
Ensure conveyance is operational	Twice annually
Check for erosion at discharge points & repair if necessary	Twice annually
Check for plant pests and diseases	Twice annually
Ensure conveyance & overflow outlets are clear and operational	Twice annually
Check for sediment accumulation in forebay areas	Annually
Remove sediment from forebay areas	Every 5-7 years

In the first year of operation, the stormwater treatment system(s) requires visual inspections every six months. This inspection schedule will be modified in subsequent years based on the first year's operation results. Once in operation, visual inspections will include measuring the depth of sediment. Should the sediment depth measures at or above three inches (3") in depth then jetting and vactoring with a jetvac will be used to remove the sediment. The pump-out must be performed until the backflush water is clean. Additionally, inspection and cleaning of basins upstream and downstream of the system will be required.

The pervious pavement, over time, will get sand, dirt, vegetation, and other debris can collect in it thereby reducing its porosity and functionality of the system. Thus, periodic

inspections and maintenance will be needed. Below is a generalized maintenance schedule for pervious concrete:

MAINTENANCE ACTION	SCHEDULE
Visually inspect pervious pavement area: <ul style="list-style-type: none"> • Is clean of debris • De-waters between storms • Is clean of sediments 	Monthly
Deep Cleaning/Unclogging <ul style="list-style-type: none"> • Maintain upland and adjacent grassy areas • Seed upland and adjacent bare areas • Keep the pervious pavement surface free of sediment by blowing, sweeping, or vacuuming • Excessive water flow carrying debris toward flow carrying debris toward the pavement should be diverted 	As Needed
Inspect the pervious pavement surface for deterioration or spalling	Annually
Pervious Concrete Maintenance Log	Annually or As Needed

References: NRMCA and www.perviouspavement.org

D. Implementation and Cost Estimate

The stormwater treatment units, vegetated swale, and sub-surface drainage systems will be installed after all site demolition is completed. Landscaping will be installed after all paving operations and building are complete. Temporary sediment control devices will be implemented at the start of construction and continue to be implemented, adjusted and modified throughout until the site is stabilized. A chart showing the items to be implemented is included and shown on the Erosion Control Plan, see Appendix E.

The cost to install the storm treatment units, storm pipes, trench drains, inlets and manholes, erosion control measures (i.e. silt fencing, silt sacks, curb inlet protection, etc.), and maintenance cost is estimated to be \$318,940, which includes a 10% contingency. Below is the itemized list:

SWMP COST ESTIMATE					
Item	Description	Quantit	Unit	Unit	Cost
001	Stormwater Treatment Unit	2	EA	\$60,000	\$120,000
002	Pervious Concrete (including stone)	2,958	SF	\$15.00	\$44,370
003	Inlets	2	EA	\$4,500	\$9,000
004	Trench Drain	44	LF	\$150	\$6,600
005	Drain Manhole	8	EA	\$4,500	\$36,000
006	8" Storm Pipe	168	LF	\$95	\$15,960

007	10" Storm Pipe	172	LF	\$105	\$18,060
008	12" Storm Pipe	27	LF	\$115	\$3,105
009	4" Perforated Pipe (wrapped)	155	LF	\$40	\$6,200
010	8" Perforated Pipe (wrapped)	113	LF	\$50	\$5,650
011	Erosion Control	1	LS	\$10,000	\$10,000
012	Stormwater Unit Maintenance*	1	Annual	\$8,000	\$8,000
013	Landscaping/Lawn Maintenance**	1	Annual	\$5,000	\$5,000
014	Pervious Concrete Maintenance***	1	Annual	\$1500	\$2,000
Sub-Total					\$289,945
10% Contingency					\$28,995
Total					\$318,940

**Annual maintenance on the stormwater treatment unit assumes 4 trips per year at \$2000 per trip.*

***Annual maintenance of landscaping and lawn assumes 42 weeks of maintenance at \$120/week.*

****Annual maintenance includes visual inspections and 1 pressure washing or deep vacuuming per year*

E. Conclusion

Based on the existing and proposed site information, the site has an overall deduction in impervious area thereby decrease the flow and volume of runoff. Furthermore, the first 1-1/4" of rainfall is captured, filtered, and released within the on-site BMP's; therefore, satisfying the intent of the stormwater management requirements.

APPENDIX A

REVISION	BY

DDG
 DUPLANTIS DESIGN GROUP, PC
 CIVIL ENGINEERING - ARCHITECTURE
 34 LOUIS PRIMA DRIVE COVINGTON, LA 70433
 WWW.DDGPC.COM Phone: 952.49.6180 | Fax: 952.49.6190
 THIBODAUX | COVINGTON | HOUSTON | BATON ROUGE | HOUMA | DALLAS

Thomas H. Buckel
 SIGNATURE: _____ DATE: 11/9/15
 STATE OF LOUISIANA
 THOMAS H. BUCKEL
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING

OCHSNER HEALTH EMERGENCY ROOM
 SOUTH CARROLLTON AVE. AND CANAL STREET
 NEW ORLEANS, LOUISIANA
 ORLEANS PARISH
 FOR ICR
 DALLAS, TX

DRAWN JJR
CHECKED THB
ISSUED DATE 10/22/15
ISSUED FOR REVIEW
PROJECT NO. 15-209
FILE PRE2
SHEET PRE

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LEGEND - EXISTING

EXISTING LOT	1	EXISTING LOT	1
EXISTING ROAD	2	EXISTING ROAD	2
EXISTING SIDEWALK	3	EXISTING SIDEWALK	3
EXISTING DRIVE	4	EXISTING DRIVE	4
EXISTING UTILITY	5	EXISTING UTILITY	5
EXISTING FENCE	6	EXISTING FENCE	6
EXISTING CURB	7	EXISTING CURB	7
EXISTING MANHOLE	8	EXISTING MANHOLE	8
EXISTING STREET LIGHT	9	EXISTING STREET LIGHT	9
EXISTING SIGN	10	EXISTING SIGN	10

LEGEND - PROPOSED

DRAINAGE AREA	
DRAINAGE AREA LABEL	
PERVIOUS SURFACE AREA	
NRCS SOIL TYPE	

EXISTING CONDITION DRAINAGE CHART

AREA NO.	AREA (AC)	C	I ₁₀ (in/hr)	T _c (min)	Q ₁₀ (cfs)	Q ₁₀ (gpm)	DESCRIPTION
D1	0.47	0.79*	8.06	5 MIN.	2.99	1,341.91	SHEET FLOWS INTO CANAL STREET
D2	0.25	0.77**	8.06	5 MIN.	1.55	695.64	SHEET FLOWS INTO SOUTH CARROLLTON AVENUE

*D1 COMPOSITE RUNOFF:

$$D1 = \frac{(0.39 \times 0.90) + (0.08 \times 0.25)}{0.47} = 0.79$$

**D2 COMPOSITE RUNOFF:

$$D2 = \frac{(0.20 \times 0.90) + (0.05 \times 0.25)}{0.25} = 0.77$$

GPM (GALLONS PER MINUTE) IS CALCULATED BY THE FOLLOWING FORMULA:

$$GPM = CFS \times 448.8$$

EXISTING SITE CONDITIONS

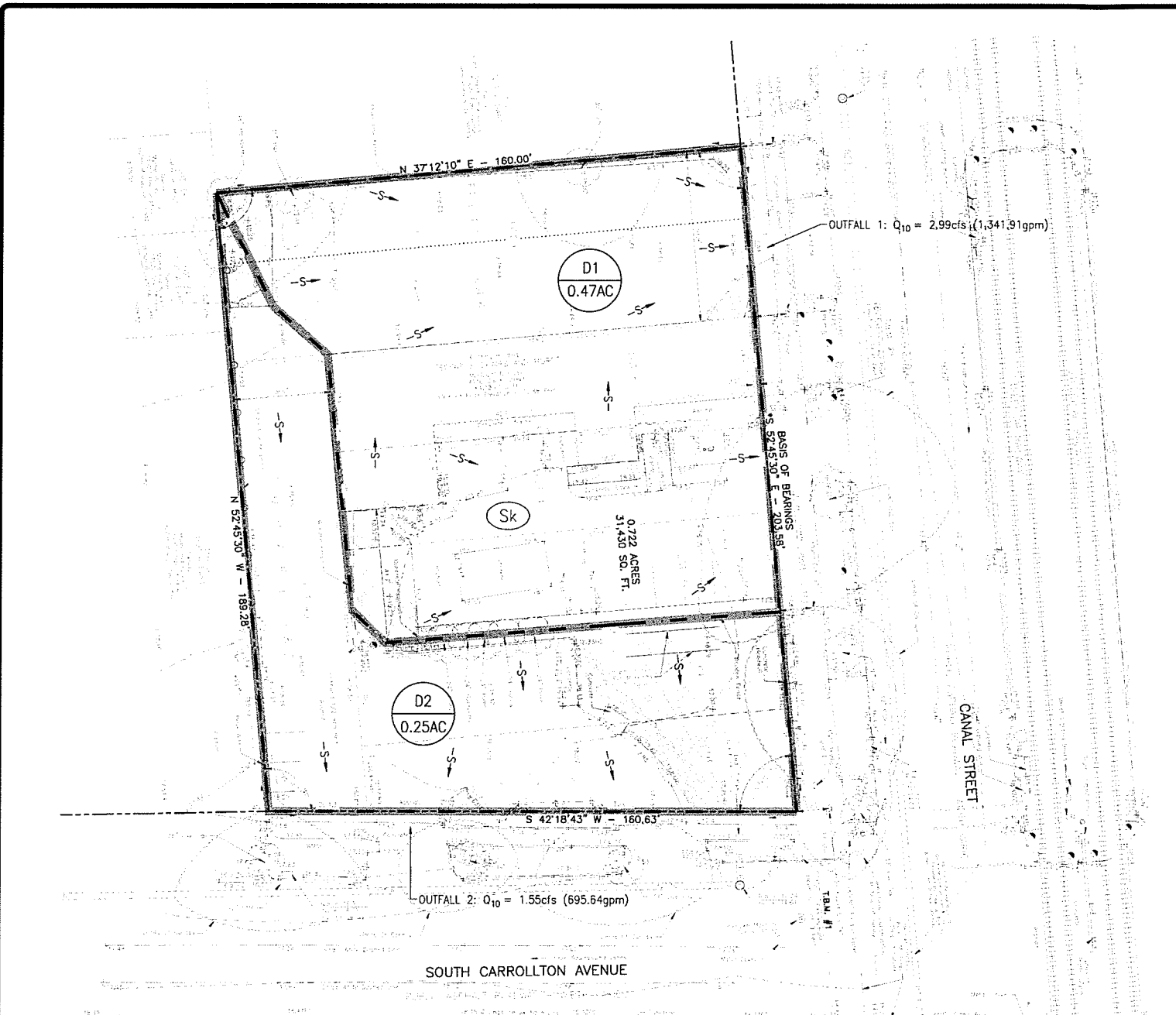
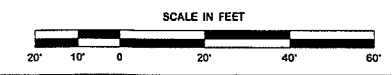
GROUND COVER	AREA (SQ.FT.)	ANNUAL RUNOFF VOLUME (GALLONS)
IMPERVIOUS AREA		
ROOFS	4,130	144,576
PAVEMENT	21,364	747,877
SUB-TOTAL	25,494	892,453
PERVIOUS AREA		
LAWNS/LANDSCAPING	5,936	57,722
SUB-TOTAL	5,936	57,722
NET TOTAL	31,430	950,175

- PER NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA), THE CITY OF NEW ORLEANS HAS AN ANNUAL RAINFALL OF 62.45" (5.20') PER YEAR.
- 1 CUBIC FEET = 7.48 GALLONS
- CONVERSION TO GET ANNUAL RUNOFF IN GALLONS:

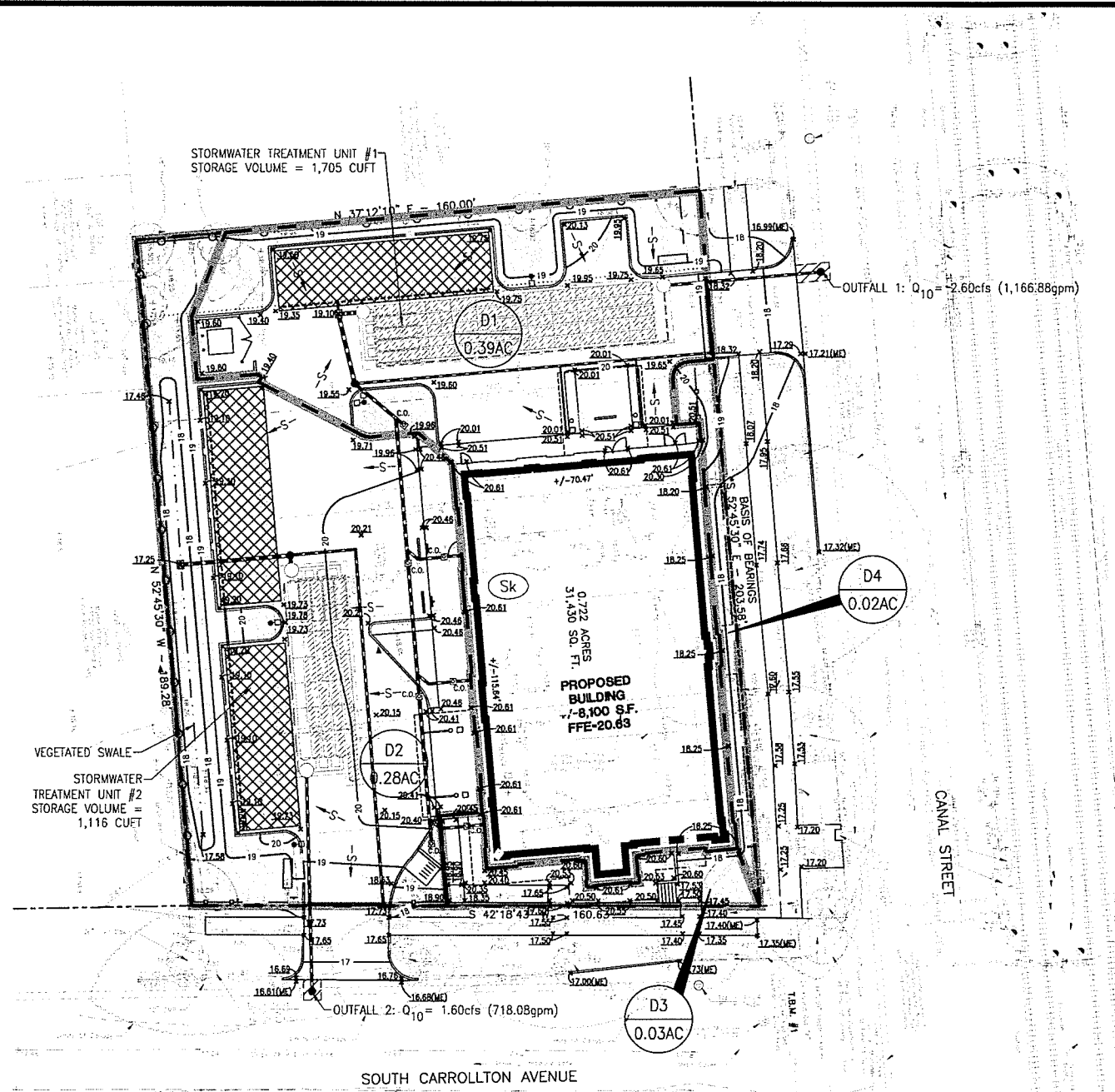
$$\text{RUNOFF} = \text{AREA(SF)} \times \text{RAINFALL(FT)} \times 7.48 \text{ GAL} \times \text{RUNOFF COEFFICIENT (C)}$$

$$\text{RAINFALL} = \frac{62.45''}{12''} = 5.20'$$
- ANNUAL RUNOFF ACCOUNTS FOR A C_n VALUE OF 0.90 FOR ROOFS AND PAVEMENTS, AND A C_n VALUE OF 0.25 FOR LAWNS AND LANDSCAPING TO ACCOUNT FOR EVAPORATION AND INFILTRATION.

PRE-DEVELOPED DRAINAGE MAP



NEW ORLEANS CITY PLANNING DEPARTMENT
STORMWATER MANAGEMENT PLAN APPROVED
 DOCKET: SW004/15
 INITIAL: JJR
 DATE: 12/30/15



LEGEND - EXISTING

EXISTING SUBSURFACE DRAINAGE	EXISTING MANHOLE	EXISTING AREA INLET	EXISTING CURB INLET	EXISTING OUTLET CONTROL STRUCTURE	EXISTING CLEANOUT	EXISTING CONTOUR	EXISTING SPOT ELEVATION	EXISTING SLOPE	EXISTING DRAINAGE AREA	EXISTING DRAINAGE AREA LABEL	EXISTING PERVIOUS AREA	EXISTING PERVIOUS CONCRETE	EXISTING NRCS SOIL TYPE
(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)	(Symbol)

LEGEND - NEW IMPROVEMENTS

SUBSURFACE DRAINAGE	(Symbol)	DRAINAGE AREA	(Symbol)
MANHOLE	(Symbol)	DRAINAGE AREA LABEL	(Symbol)
AREA INLET	(Symbol)	PERVIOUS AREA	(Symbol)
CURB INLET	(Symbol)	PERVIOUS CONCRETE	(Symbol)
OUTLET CONTROL STRUCTURE	(Symbol)	NRCS SOIL TYPE	(Symbol)
CLEANOUT	(Symbol)		
CONTOUR	(Symbol)		
SPOT ELEVATION	(Symbol)		
SLOPE	(Symbol)		

PROPOSED CONDITION DRAINAGE CHART

AREA NO.	AREA (AC)	C	I ₁₀ (in/hr)	T _c (min)	Q ₁₀ (cfs)	Q ₁₀ (gpm)	DESCRIPTION
D1	0.39	0.83*	8.06	5	2.60	1,166.88	FLOW INTO CANAL STREET VIA SUB-SURFACE.
D2	0.28	0.71**	8.06	5	1.60	718.08	FLOW INTO SOUTH CARROLLTON AVE. VIA SUB-SURFACE.
D3	0.03	0.68***	8.06	5	0.16	71.81	SHEET FLOW INTO SOUTH CARROLLTON AVE.
D4	0.02	0.25	8.06	5	0.04	17.95	SHEET FLOW INTO CANAL STREET

*D1 COMPOSITE RUNOFF: $D1 = \frac{(0.35 \times 0.90) + (0.04 \times 0.25)}{0.39} = 0.83$

**D2 COMPOSITE RUNOFF: $D2 = \frac{(0.2 \times 0.90) + (0.08 \times 0.25)}{0.28} = 0.71$

***D3 COMPOSITE RUNOFF: $D3 = \frac{(0.02 \times 0.90) + (0.01 \times 0.25)}{0.03} = 0.68$

NOTE: GPM (GALLONS PER MINUTE) IS CALCULATED BY THE FOLLOWING FORMULA: GPM = CFS x 44.8

PROPOSED SITE CONDITIONS

GROUND COVER	AREA (SQ.FT.)	ANNUAL RUNOFF VOLUME (GALLONS)
IMPERVIOUS AREA		
ROOFS	8,100	283,552
PAVEMENT	13,631	477,172
SUB-TOTAL	21,731	760,724
PERVIOUS AREA		
LAWNS/LANDSCAPING	6,741	65,549
PERVIOUS CONCRETE	2,958	63,280
SUB-TOTAL	9,699	128,829
NET TOTAL	31,430	889,553

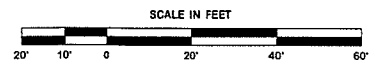
- PER NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA), THE CITY OF NEW ORLEANS HAS AN ANNUAL RAINFALL OF 62.45" (5.20") PER YEAR.
- 1 CUBIC FEET = 7.48 GALLONS
- CONVERSION TO GET ANNUAL RUNOFF IN GALLONS:
RUNOFF = AREA(SF) x RAINFALL(FT) x 7.48 GAL x RUNOFF COEFFICIENT (C)
RAINFALL = $\frac{62.45}{12} = 5.20$ "
- ANNUAL RUNOFF ACCOUNTS FOR A C_n VALUE OF 0.90 FOR ROOFS AND PAVEMENTS, A C_n VALUE OF 0.25 FOR LAWNS AND LANDSCAPING, AND A C_n VALUE OF 0.55 FOR PERVIOUS CONCRETE TO ACCOUNT FOR EVAPORATION AND INFILTRATION.



REQUIRED STORAGE VOLUME:

- A. STORMWATER TREATMENT/STORAGE UNIT #1:
REQUIRED STORAGE (FT³) = 0.10' X 16,945SF = 1,695 FT³
PROVIDED VOLUME=1,705 FT³
- B. STORMWATER TREATMENT/STORAGE UNIT #2:
REQUIRED STORAGE (FT³) = 0.10' X 9,197SF = 920 FT³
PROVIDED VOLUME=1,116 FT³
- NOTE: 1.25" = 0.10'

POST-DEVELOPED DRAINAGE MAP



REVISION	BY

DDG
DUPLANTIS DESIGN GROUP, PC
CIVIL ENGINEERING - ARCHITECTURE
34 LOUIS PRIMA DRIVE COVINGTON, LA 70433
WWW.DDGP.COM Phone: 985.249.6180 | Fax: 985.249.6190
THIBODAUX | COVINGTON | HOUSTON | BATON ROUGE | MOBILE | DALLAS

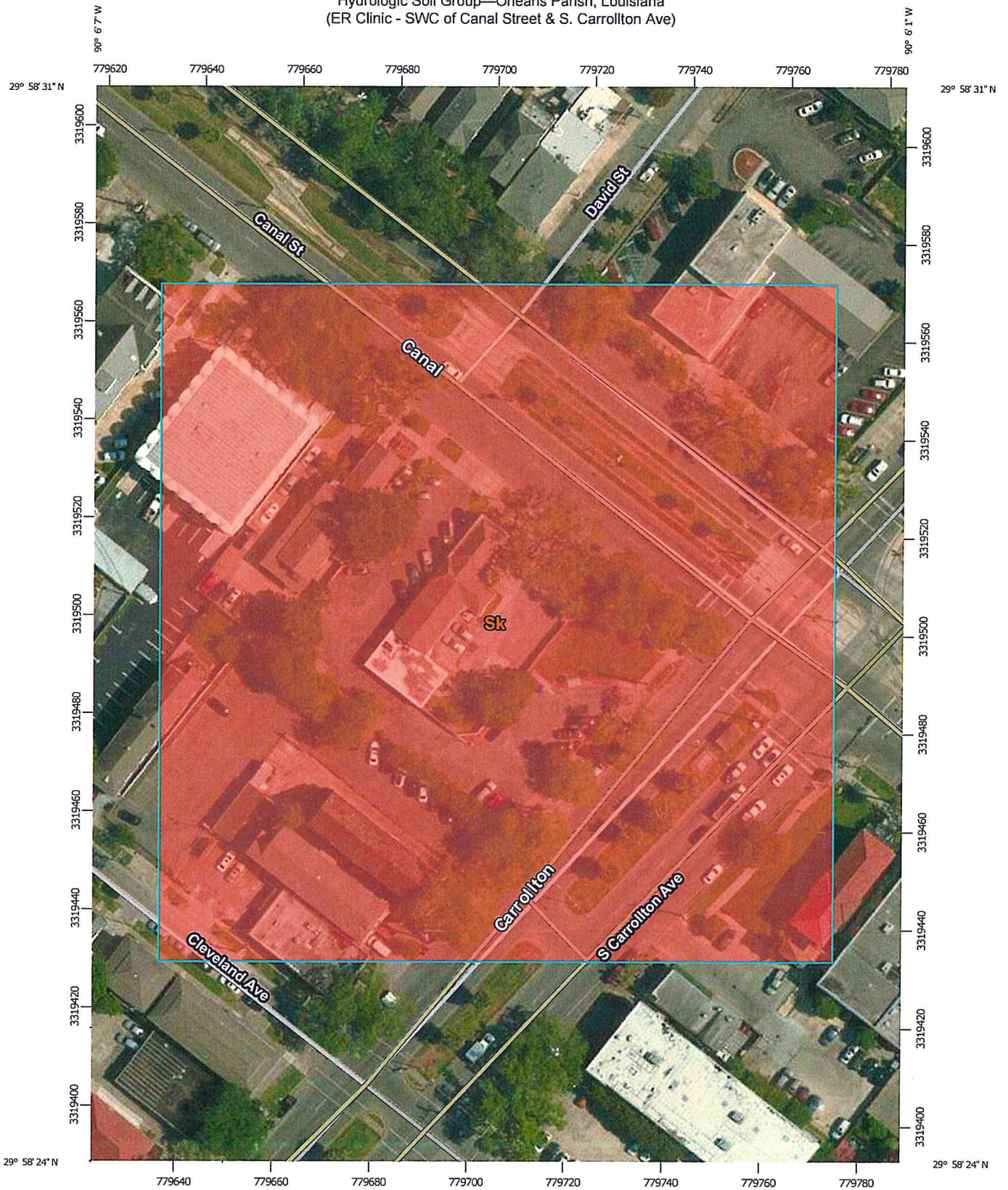
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PROGRESS SET - BOX SUBMITTAL
Issued 12/17/15
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Thomas H. Buckel, P.E. #31022
Duplantis Design Group, P.C.

OCHSNER HEALTH EMERGENCY ROOM
SOUTH CARROLLTON AVE. AND CANAL STREET
NEW ORLEANS, LOUISIANA
ORLEANS PARISH
FOR UCR
DALLAS, TX

DRAWN JUR
CHECKED THB
ISSUED DATE 10/22/16
ISSUED FOR REVIEW
PROJECT NO. 16-209
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APPENDIX B

Hydrologic Soil Group—Orleans Parish, Louisiana
(ER Clinic - SWC of Canal Street & S. Carrollton Ave)



Map Scale: 1:1,070 if printed on A portrait (8.5" x 11") sheet.

0 15 30 60 90 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)	C
Area of Interest (AOI)	C/D
Soils	D
Soil Rating Polygons	Not rated or not available
A	Water Features
A/D	Streams and Canals
B	Transportation
B/D	Rails
C	Interstate Highways
C/D	US Routes
D	Major Roads
Not rated or not available	Local Roads
Soil Rating Lines	Background
A	Aerial Photography
A/D	
B	
B/D	
C	
C/D	
D	
Not rated or not available	
Soil Rating Points	
A	
A/D	
B	
B/D	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orleans Parish, Louisiana
Survey Area Data: Version 9, Sep 22, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 23, 2014—May 3, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Orleans Parish, Louisiana (LA071)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Sk	Schriever clay, 0 to 1 percent slopes	D	4.7	100.0%
Totals for Area of Interest			4.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

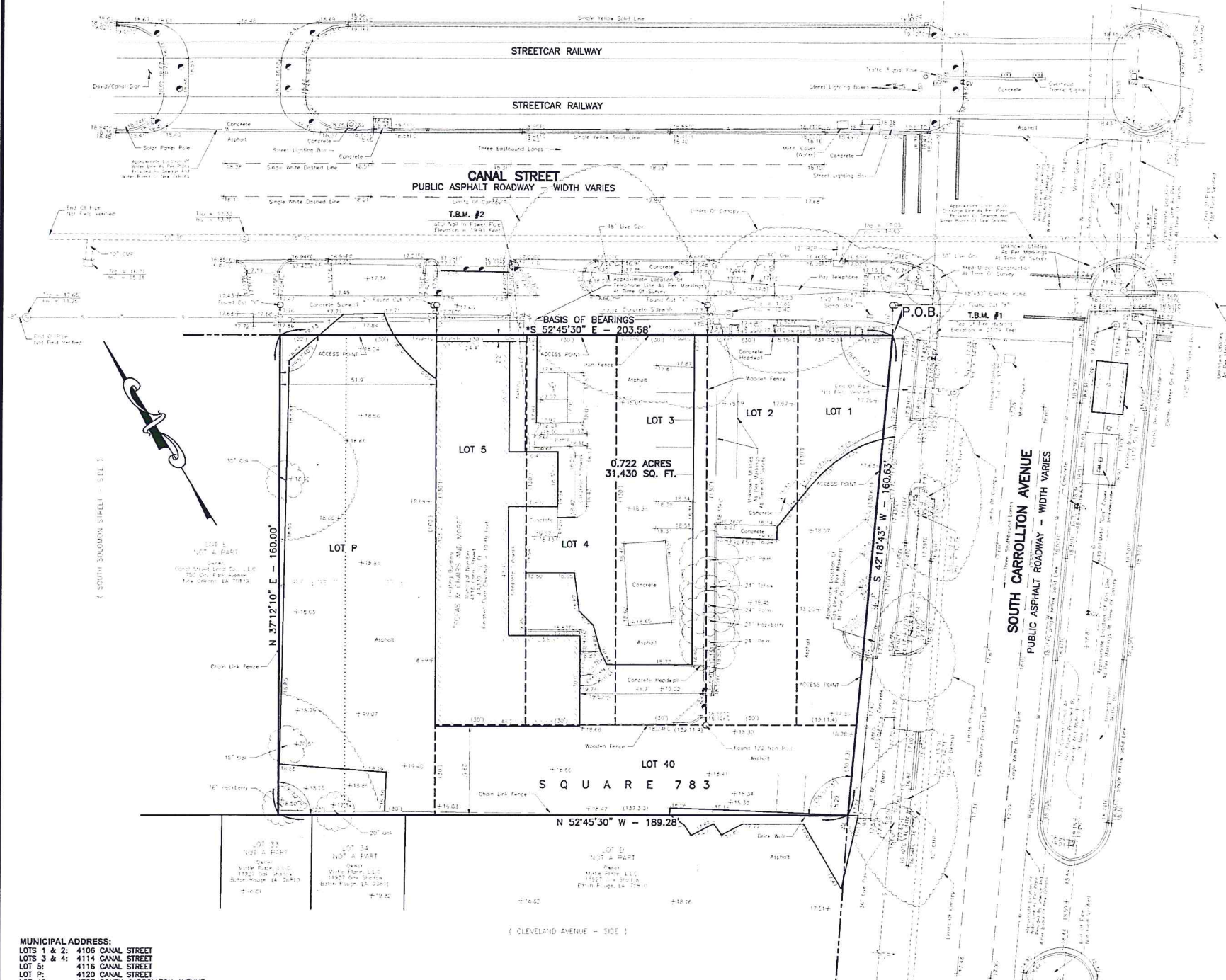
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C

FIRST DISTRICT
SQUARE 783



MUNICIPAL ADDRESS:
 LOTS 1 & 2: 4106 CANAL STREET
 LOTS 3 & 4: 4114 CANAL STREET
 LOT 5: 4116 CANAL STREET
 LOT P: 4120 CANAL STREET
 LOT 40: 4727 SOUTH CARROLLTON AVENUE

LEGEND

FOUND PROPERTY CORNER (AS NOTED)	○	ELEVATION OF TOP OF STRUCTURE	TOP = 15.00
SET 3/4" IRON ROD (AS NOTED)	●	ELEVATION OF BOTTOM OF STRUCTURE	NO = 15.00
FOUND/SET BY NAIL (AS NOTED)	▲	EXISTING SPOT ELEVATION	X = 10.63
EXISTING POWER POLE	○	ELEVATION OF TOP OF CURB	15.50 TO
EXISTING POWER POLE WITH LIGHT	○	ELEVATION OF FACE OF CURB	18.00 TO
EXISTING PARKING LOT LIGHT	○	EXISTING GROUND CONTOUR LINE	--- 5 ---
EXISTING GUY ANCHOR	○	EXISTING SEWER MANHOLE	⊕
EXISTING ELECTRIC PEDESTAL	⊕	EXISTING GAS MANHOLE	⊕
EXISTING OVERHEAD POWER LINE	—	EXISTING SEWER CLEANOUT	⊕
EXISTING UNDERGROUND POWER LINE	—	EXISTING GRAVITY SEWER LINE	—
EXISTING TELEPHONE PEDESTAL	⊕	EXISTING DRAINAGE MANHOLE	⊕
EXISTING TELEPHONE MANHOLE	⊕	EXISTING SUBSURFACE DRAINAGE	====
EXISTING TELEPHONE LINE	—	EXISTING DRAINAGE DROP INLET	⊕
EXISTING GAS METER	⊕	EXISTING DRAINAGE CATCH BASIN	⊕
EXISTING GAS VALVE	⊕	EXISTING FIRE HYDRANT	⊕
EXISTING GAS LINE	—	EXISTING WATER METER	⊕
EXISTING UNKNOWN UTILITY	—	EXISTING WATER VALVE	⊕
EXISTING CHAIN LINK FENCE	—	EXISTING TERRA-COTTA PIPE	⊕
EXISTING WOOD FENCE LINE	—	EXISTING REINFORCED CONCRETE PIPE	⊕
EXISTING BARBED POST	—	EXISTING CORRUGATED METAL PIPE	⊕
EXISTING TRAFFIC SIGNAL BOX	⊕	EXISTING POLYVINEYL CHLORIDE PIPE	⊕
EXISTING STREET LIGHTING BOX	⊕	EXISTING TRAFFIC SIGNAL LIGHT	⊕

CONVERSION NOTE:
 137.28' = survey feet
 (137.3.3) = feet, inches, lines
 1 line = 1/8 inch

LEGAL DESCRIPTION - LOTS 1 AND 2:
(ACT OF SALE DATED JANUARY 14, 2014, RECORDED AT NA# 2014-03092)

TWO CERTAIN LOTS OF GROUND, situated in the First District of New Orleans, in square bounded by Canal Street and Cleveland Avenue and Canal and Solomon Streets designated by the Nos. 1 and 2 square No. 783 on a survey made by Edgar Pille, Surveyor, dated February 2, 1893, being a sale by Gormard and Guillemet to Lefevre, and according to which survey said lots measure as follows: Lot No. 1 forms the corner of Canal Street and Carrollton Avenue and measures 31 feet, 6 inches front on Canal Street, 19 feet, 10 inches and 5 lines in width in the rear, by 130 feet in depth on the side line of Lot No. 2 and 130 feet, 5 inches and 2 lines in depth and front on Carrollton Avenue; Lot No. 2 measures 30 feet front on Canal Street, by 130 feet in depth, between equal and parallel lines. According to a print of survey made by F. C. Gandolfo, Jr., Surveyor, dated April 10, 1950, and certified correct on April 18, 1950, annexed to act of sale by Hampton A. Gormard, et al. to Agard Theatre, Inc., passed before August H. Ritter, Notary Public, on May 8, 1950, the hereinabove described property constitutes one portion of ground forming the corner of Canal Street and South Carrollton Avenue, and measures thence 61 feet, 7 inches and 0 lines front on Canal Street, a width across the rear of 49 feet, 11 inches, 4 lines, a depth and front on South Carrollton Avenue of 130 feet, 5 inches, 1 line and a depth on the opposite line of 130 feet.

LEGAL DESCRIPTION - LOTS 3, 4 & 5:
(ACT OF SALE DATED DECEMBER 16, 2010, RECORDED AT NA# 2010-46328)

THREE CERTAIN LOTS OF GROUND, situated in the First District of the City of New Orleans, Parish of Orleans, State of Louisiana, in SQUARE NO. 783, bounded by Canal Street, Cleveland Avenue, S. Solomon Street and S. Carrollton Avenue, designated as LOTS 3, 4, 5 on a survey made by J. J. Krebs & Sons, Inc., Surveyors, dated January 22, 1974, according thereto the said lots contain and measure together 90 feet front on Canal Street, same width in the rear, by a depth of 130 feet between equal and parallel lines. Lot 3 lines nearer to and commences at a distance of 81.6 feet from the corner of Canal Street and S. Carrollton Avenue. All in accordance with a survey by Gilbert, Kelly & Couturie, Inc., dated May 4, 1998.

LEGAL DESCRIPTION - LOT P:
(ACT OF SALE DATED DECEMBER 16, 2010, RECORDED AT NA# 2010-46328)

A CERTAIN LOT OF GROUND, situated in the First District of the City of New Orleans, Parish of Orleans, State of Louisiana, in SQUARE NO. 783, bounded by Canal Street, Cleveland Avenue, S. Solomon Street and S. Carrollton Avenue, designated as LOT P on a survey made by J. J. Krebs & Sons, Inc., Surveyors, dated May 8, 1958, according thereto the said lot commences at a distance of 151.60 feet from the corner of Canal Street and S. Carrollton Avenue and measures 52 feet front on Canal Street, same width in the rear, by a depth of 160 feet between equal and parallel lines and is composed of the whole of original Lot 6 and 22 feet taken from the side nearest S. Carrollton Avenue of Lot No. 7.

LEGAL DESCRIPTION - LOT 40:
(ACT OF SALE DATED JANUARY 14, 2014, RECORDED AT NA# 2014-03092)

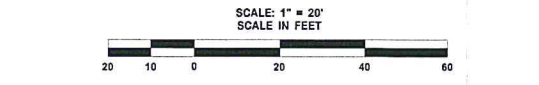
A CERTAIN LOT OF GROUND, situated in the First District of New Orleans, in the SQUARE NO. 783, bounded by Carrollton Avenue, Cleveland, Canal and Solomon Streets, designated as LOT NO. 40 on a survey made by Edgar Pille, Surveyor, dated February 2, 1893, annexed to an act of sale before T. Ducros, late Notary, dated March 5, 1893; according to which said lot measures 30 feet, 1 inch, 3 lines front on S. Carrollton Avenue, with a width in the rear of 30 feet, by a depth of 139 feet, 10 inches, 5 lines on the line dividing it from Lots Nos. 1, 2, 3, 4, and 5, on a depth of 137 feet, 2 inches, 2 lines on the line dividing it from Lot No. 39 towards Cleveland Avenue.

LEGAL DESCRIPTION - OVERALL PROPERTY

A certain parcel of land containing 0.722 acres or 31,430 square feet, located in Square 783, First District, City of New Orleans, Orleans Parish, State of Louisiana, being the same property collectively described in Act of Sale dated December 16, 2010, recorded at NA# 2010-46328 and Act of Sale dated January 14, 2014, recorded at NA# 2014-03092 and being more particularly described as follows:
 Commencing at the intersection of the westerly right of way line of South Carrollton Avenue and the southerly right of way line of Canal Street, said point being the "POINT OF BEGINNING" and labeled P.O.B.;
 Then, continuing along westerly right of way of South Carrollton Avenue, South 42 degrees 18 minutes 43 seconds West a distance of 160.63 feet to a point;
 Then, departing the westerly right of way of South Carrollton Avenue, North 52 degrees 45 minutes 30 seconds West a distance of 169.28 feet to a point;
 Then, North 37 degrees 12 minutes 10 seconds East a distance of 160.00 feet to a point, said point being located along the southerly right of way line of Canal Street;
 Then, continuing along the southerly right of way line of Canal Street, South 52 degrees 45 minutes 30 seconds East a distance of 203.58 feet to the "POINT OF BEGINNING".

TITLE EXCEPTION NOTES:

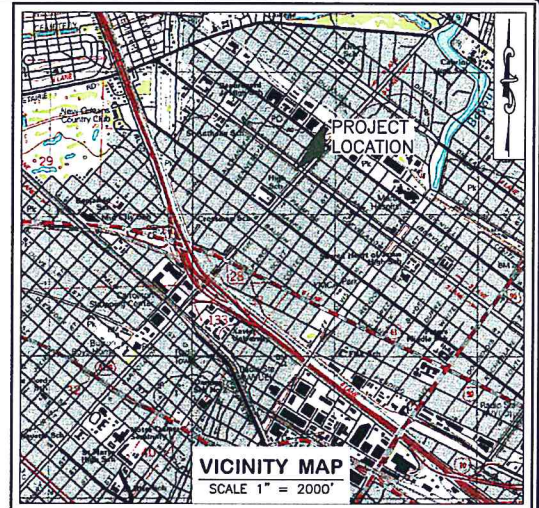
Surveyor's Comments on exceptions to title as listed in Schedule BII of a Commitment for Title Insurance provided by First American Title Insurance Company of Louisiana, File No.: 64,894, Effective Date: April 23, 2015:
 SCHEDULE BII, EXCEPTIONS
 Items #1 thru 8: Non Survey Issue
 Item #9: Utility servitude in favor of Southern Bell Telephone & Telegraph Company, Inc. for the right to maintain telephone and telegraph lines, conduits, pipes, wires, etc. over and under the property, recorded at COB 543, folio 108.
 Affects subject property (not plottable)



CERTIFICATION:
 To OpFree RE Investments, Ltd., First American Title Insurance Company of Louisiana, New Orleans Firemen's Federal Credit Union and Carondelet Title Services, LLC.
 This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 5, 6b, 7a, 8, 9, 11b, 13, 14, 15, 17 & 18 of Table A thereof. The field work was completed on June 16, 2015.
 This survey was done by me or under my direct supervision and control, that the survey was done on the ground and was done in accordance with the most recent Standards of Practice for Boundary Surveys as set forth by the State of Louisiana, Board of Registration for Professional Engineers and Land Surveyors, and that the accuracy specification and positional tolerances are in accordance with Class "C" surveys indicated in the above standards. I also certify there are no visible encroachments across any property lines except as shown.

THIS PRELIMINARY DOCUMENT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES, OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.

Byron J. Oncala, P.L.S., Reg. No. 5011
 This survey map is not valid without the signed and sealed original one (1) copy of the Registered Land Surveyor's Certificate.



- NOTES:**
- Zoning: C-1A General Commercial District
 Maximum height: None
 Minimum depth of front yard: None
 Minimum yard on a side street: None
 Minimum interior side yard: None
 Minimum interior side yard abutting a residential district: 5 feet
 Minimum yard on a side street when rear yard abuts a residential district: 10 feet
 Minimum side or rear yard if any is provided: 3 feet
 Minimum rear yard abutting a residential district: 20 feet
 Zoning information acquired from <http://property.nola.gov/> accessed on June 3, 2015.
 Zoning and setbacks are subject to change and should be verified with the local authority's Zoning Department before any design or construction.
 - Reference Maps:
 A) ALTA/ACSM Land Title Survey Sq. No. 783, First District, Orleans Parish, New Orleans
 Prepared by: Gilbert, Kelly & Couturie, Inc. Dated: November 3, 2010
 - Basis of Bearings:
 The bearings shown herein are based on the "Louisiana Coordinate System of 1983 South Zone - NAD 83" using GPS C4Net-RTN System accessed on June 16, 2015.
 (*) Represents the Basis of Bearings. Distances shown are U.S. Survey feet.
 - Basis of Elevations:
 The elevations are based on the "North American Vertical Datum of 1988 - NAVD 88" (Geoid 12a) using GPS C4Net-RTN System accessed on June 22, 2015.
 Elevations shown herein have been converted to CAIRO DATUM:
 -2.31 NAVD.88 = 20.43 C.D.
 -2.31 NAVD.88 = 18.12 C.D.
 - Flood Note: The property herein is located in Flood Zone "A4" (EL 0.0) (Ponding Area 7) in accordance with FEMA Flood Insurance Rate Map, Community-Panel Number 22503 0005 E, dated March 1, 1984, for the City of New Orleans and Orleans Parish, Louisiana. In accordance with the Hurricane Katrina Surge Inundation and Advisory Base Flood Elevation (ABFE) Map, Orleans Parish, Louisiana, Map Number: LA-DB30, Date of Map: June 5, 2006, the property herein is located within the limits of the ABFE (EL 0 ft or 3 ft above HEAG). Base Flood Elevation is subject to change and should be verified with the local authority's Flood Plain Administrator before any design or construction.
 - Utilities: The underground utilities shown have been located from "LA ONE CALL Ticket Number 150226314," visible utility features, and previous construction drawings. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities, except for above ground visible utility features. No excavations were made during the progress of this survey to locate buried utilities/structures.
UTILITY COMPANIES NOTIFIED VIA LOUISIANA ONE CALL TICKET NUMBER 150226314:
 COX COMMUNICATIONS
 ENERGY NEW ORLEANS
 AT&T DISTRIBUTION
 LEVEL 3 COMMUNICATIONS
 - No attempt has been made by Acadia Land Surveying, LLC, to verify title, actual legal ownership, deed restrictions, servitudes, easements, liens, right-of-ways or other burdens on the property, other than that furnished by the client or his representative. There is no representation that all applicable servitudes and restrictions are shown hereon. The surveyor has made no title search or public record search in compiling the data for this survey.
 - Acadia Land Surveying, LLC, has not and does not provide Definition of Jurisdictional Wetlands. Acadia Land Surveying, LLC, did not receive nor research the location of wetland areas as delineated by the appropriate authorities.
 - The words "Certify," "Certifies" or "Certification" used herein is understood to be an expression of professional opinion by the surveyor, based upon his best knowledge, information, and belief, as such, it does not constitute a guarantee nor a warranty, expressed or implied.
 - Site T.B.M.'s (Temporary Bench Marks):
 #1 - Top of fire hydrant at corner of Canal Street and South Carrollton Avenue.
 Elevation = 21.29 feet C.D.
 #2 - 600 rail in power pole with two transformers on South side of Canal Street
 Elevation = 19.91 feet C.D.
 - The surveyor has no knowledge or observed any evidence of the site used as a solid waste dump, pump or sanitary landfill.
 - The surveyor has no knowledge or observed any evidence of current earth moving work, building construction or building additions.
 - The surveyor has no knowledge or observed any evidence of proposed changes in street right of ways.
 - The property described and shown hereon is the same property as described in the Commitment for Title Insurance provided by First American Title Insurance Company of Louisiana, File No.: 64,894, Effective Date: April 23, 2015.

ACADIA LAND SURVEYING, LLC
 LOUISIANA • MISSISSIPPI • TEXAS
 206 EAST 2ND STREET, THIBODAUX, LOUISIANA 70301
 Phone • (985) 449-0094 Fax • (985) 449-0085
 EMAIL • ACADIA@ACADIALANDSURVEYING.COM

DATE	BY	CHECKED BY	REVISION DESCRIPTION	APPROVED BY	NO.
DRAWN BY: DAJ					
FIELD BOOK: 204, PD 20-25			FIELD WORK COMPLETED ON: JUNE 22, 2015		ALS FILE: 2015/15-206/15-2705.DWG

APPENDIX D



September 28, 2015

Duplantis Design Group, PC
34 Louis Prima Drive
Covington, Louisiana 70433
Phone: (985) 249-6180

Attn: Mr. Paul Whittington

Re: Additional Geotechnical Engineering Services
Proposed UCR Building
S. Carrollton Avenue & Canal Street
New Orleans, Louisiana
SE Project No. G15-086

Dear Paul:

Stratum Engineering, LLC (SE) has completed the requested additional geotechnical engineering services at the above referenced project which included performing percolation tests in the proposed stormwater management areas. The services were provided in accordance with SE Proposal No. G15-150, dated September 21, 2015.

SE completed an initial investigation at the site and our recommendations were submitted in SE Report No. G15-052, dated July 10, 2015. However, due to new requirements adopted by the City of New Orleans, we understand that all new projects will require design infiltration rates be determined for any planned stormwater management systems. The infiltration rates can be evaluated through a variety of methods including in-situ infiltrometer and percolation testing. Consequently, percolation tests will be required at two (2) separate locations for this site where stormwater management systems are planned.

Project Information

The project includes the construction of a single story structure having a footprint of 7,278 square feet along with associated parking area and drives. A stormwater management system is being considered on the north and west sides of the new building. The proposed bottom elevation of the west side system will be approximately 3 ½ feet below the existing surface elevation while the north side system will be about 4 feet below the existing surface elevation.

Site Description

The site of the proposed UCR Building is located near the intersection of S. Carrollton Avenue and Canal Street in New Orleans, Louisiana. The site encompasses about 0.86 acre of property currently occupied by the Sofas & Chairs, Inc. Store and associated paved parking areas and drives. We understand that the existing structure and pavement will be demolished and removed to accommodate the new construction. In addition, a fast food restaurant previously occupied the southeast corner of the property, but was demolished and removed sometime prior to our investigation. The site is bounded by Canal Street to the north, S. Carrollton Avenue to the south and east, and commercial properties to the west.

Preliminary grading information provided to us indicates the existing surface elevations range from +17.8 to +19.3 feet. Considering a finished floor elevation of +20.63 feet, about 2 ½ feet of fill will be needed in the building area to reach the finished floor elevation. In addition, one (1) to 1 ½ feet of fill may be required in the parking areas and drives.

Percolation Tests

SE conducted an initial geotechnical investigation at the site which included drilling five (5) borings in the building area to a depth of 20 to 65 feet and four (4) borings in the parking area to a depth of 6 feet. Based on those initial borings, the near surface material at the site consisted of 6 to 8 inches of silty sandy topsoil, 1 ½ to 4 inches of asphalt, about 4 inches of concrete, or a combination of both. The surficial material was generally underlain by firm to stiff gray lean clay to a depth of approximately 2 feet and was followed by soft to firm gray fat clay to a depth of about 52 feet. Some construction debris was also noted between 2 and 4 feet below the surface near the former fast food restaurant location.

Based on the locations being considered for the proposed stormwater management systems and grading information provided to us, the bottom design elevations will be about 3 ½ to 4 feet below the existing surface elevations. However, since the site is currently developed, removal of a section of the pavement was necessary to provide access before the percolation tests could be conducted. Two (2) foot square sections of the pavement were saw cut at the indicated locations. Anchor bolts were then set into the cut panels and the panels were removed using a hydraulic or chain driven hoist lift. Eight (8) inch diameter test holes were then advanced to the required depths.

The existing pavement section at Test Location No. 1 consisted of 2 ½ inches of asphalt underlain by 5 inches of shell base followed by 2 ½ inches of cement treated base material. Underlying the pavement and base was bluish gray fat clay extending to at least 49 inches, the bottom design elevation. The pavement section at Test Location No. 2 consisted of 2 inches of asphalt underlain by 3 ½ inches of concrete followed by 6 inches of sand fill and a layer of bricks. The pavement and base materials were underlain by brown and gray lean to fat clay along with some sandy fill material extending to about 42 inches below the existing ground surface. Groundwater was not encountered at either location during the testing operations.

A two (2) inch layer of pea gravel was added to the bottom of each test hole prior to presoaking the holes overnight. Upon inspection the following day, Test Location No. 1 had not completely drained following a 24 hour presoak period. Therefore, testing at that location was halted in accordance with the test method. However, Test Location No. 2 was filled with clean water to a reference point and the drop in water elevation was measured at 10 minute time intervals until steady-state conditions were maintained over four (4) consecutive time intervals at which time the test was concluded. The results of the test indicate a percolation rate of 4.5 inches per hour. After applying the required reduction factor, a design infiltration rate of 1.200 inches per hour was determined from the percolation test results.

The test locations were abandoned and backfilled as required, and the paved areas were repaired utilizing a combination of the removed saw cut panels and cold asphalt patch. The test locations are indicated on a diagram included in the Appendix along with a few photographs.

The percolation tests were conducted in general accordance with the New Orleans City Planning Commission Infiltration Rate Evaluation Guidelines which were provided to us by Duplantis Design Group.

Report Limitations

The information and results submitted in this letter report are based on the available subsurface information obtained by SE and design details furnished by Duplantis Design Group, PC. If there are any revisions to the proposed stormwater management system locations, or if deviations from the subsurface conditions noted in this report are encountered during construction, SE should be notified immediately to determine if further testing or evaluation is required. If SE is not notified of such changes, SE will not be responsible for the impact of those changes on the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

Proposed UCR Building
S. Carrollton Avenue & Canal Street
New Orleans, Louisiana
SE Project No. G15-086

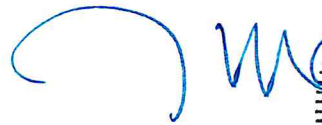
September 28, 2015
Page 4 of 4

After the plans and specifications are more complete, the Geotechnical Engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated in to the design documents. At that time, it may be necessary to submit supplementary recommendations. If SE is not retained to perform these functions, SE will not be responsible for the impact of those conditions on the project. This report has been prepared for the exclusive use of Duplantis Design Group, PC for the specific application to the proposed UCR Building to be constructed near the intersection of S. Carrollton Avenue and Canal Street in New Orleans, Louisiana.

Respectfully submitted,
STRATUM ENGINEERING, LLC



William "Dean" McInnis, P.E.
Project Manager



Tony Y. Maroun, P.E.
Principal

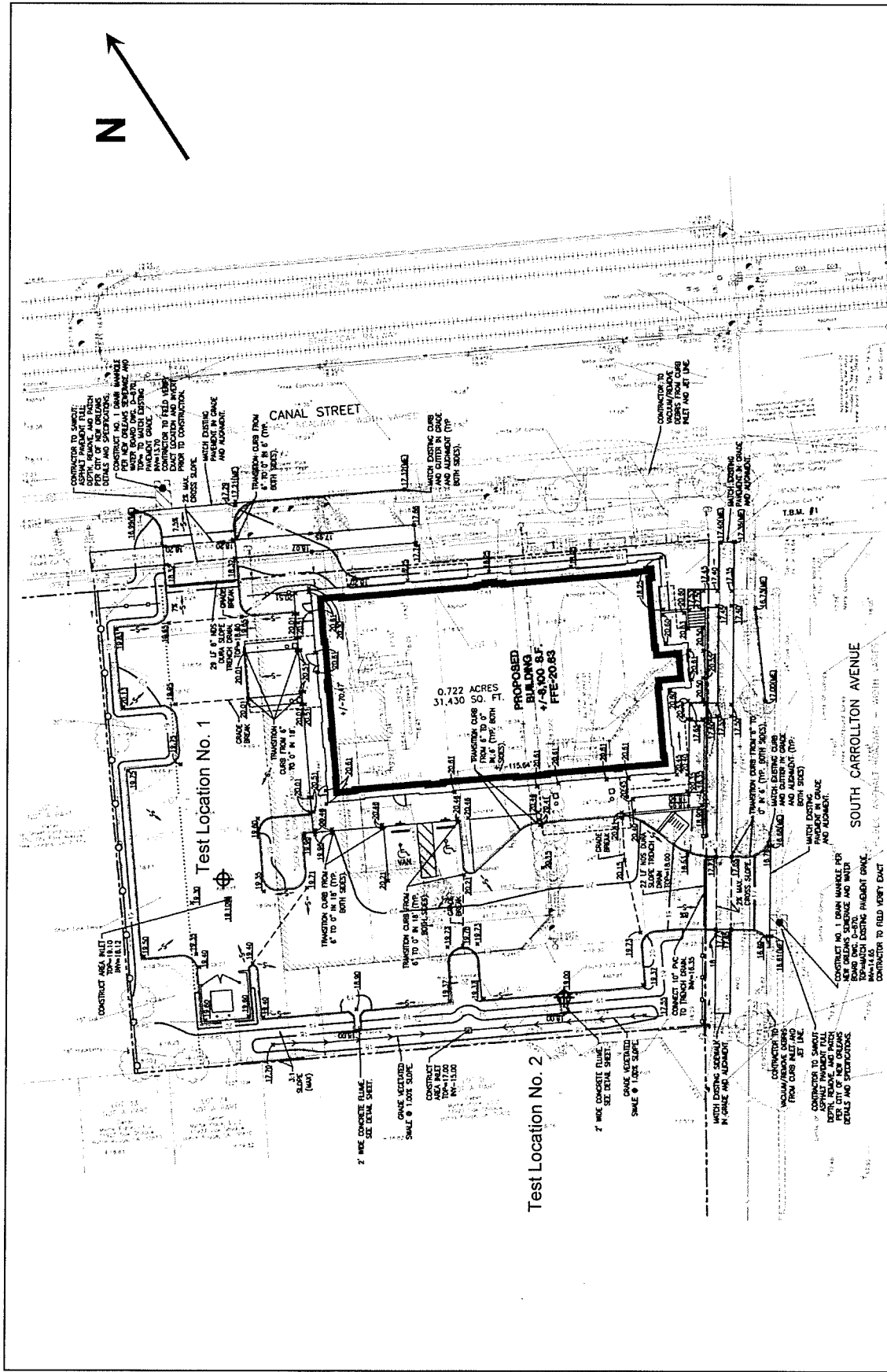


WDM/TYM:wdm

Attachment: APPENDIX - Percolation Test Location Plan
Pictures

APPENDIX





ADDITIONAL GEOTECHNICAL ENGINEERING SERVICES
 PROPOSED UCR BUILDING
 S. CARROLLTON AVENUE AND CANAL STREET
 NEW ORLEANS, LOUISIANA

TEST LOCATION PLAN



Test Location No. 1



Test Location No. 1



Test Location No. 1



Test Location No. 2



Test Location No. 2



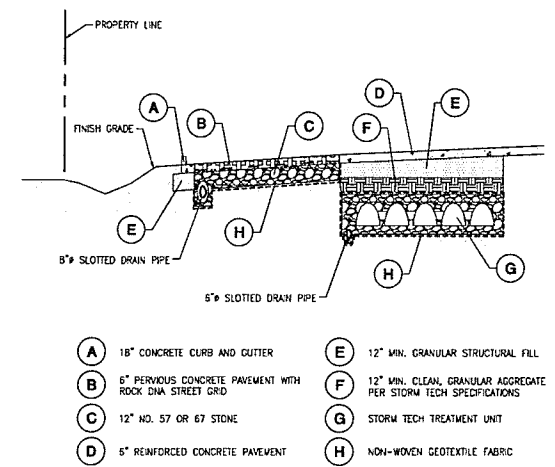
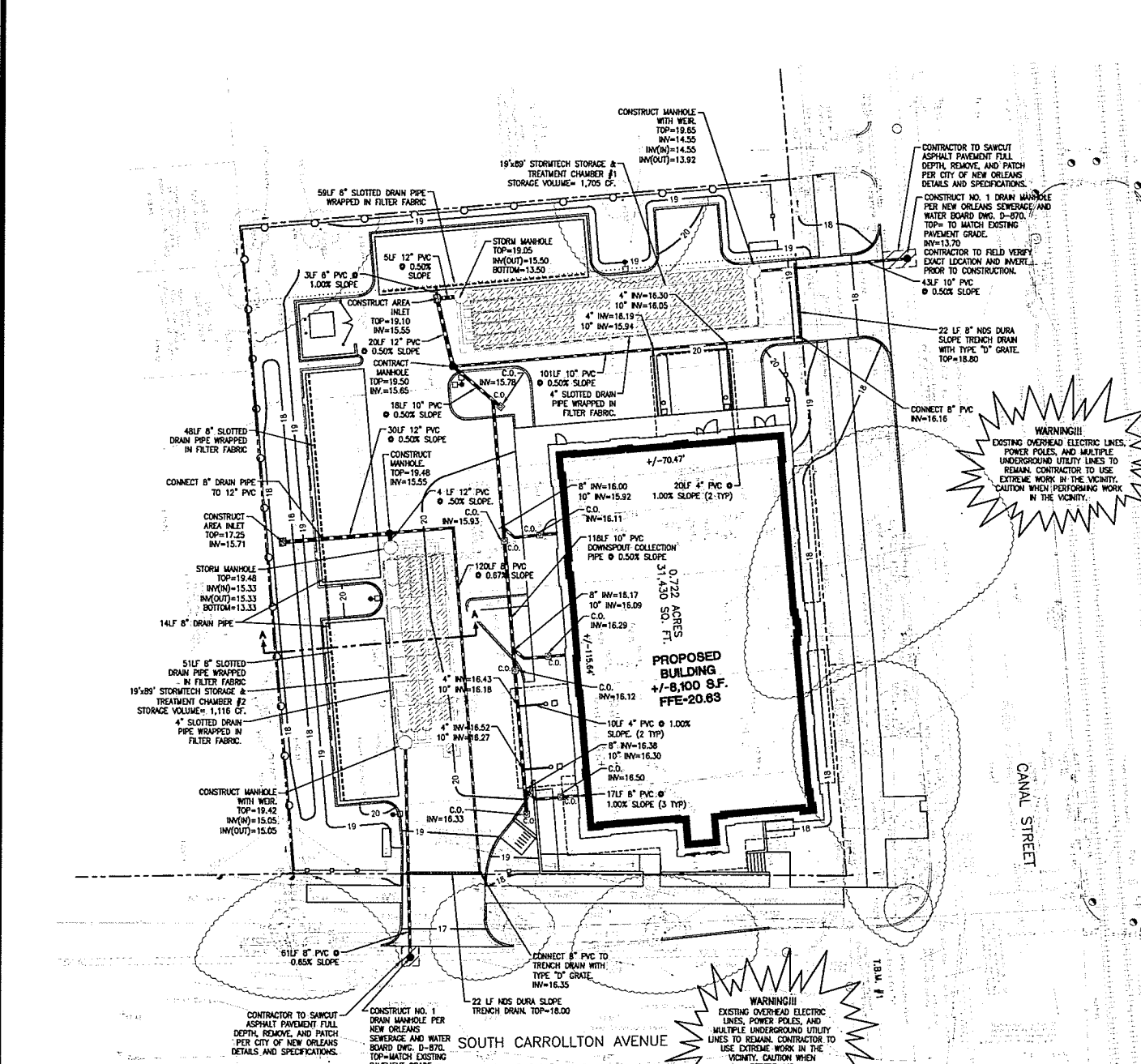
Test Location No. 2



Test Location No. 2



APPENDIX E



- (A) 18\"/>
- (B) 6\"/>
- (C) 12\"/>
- (D) 6\"/>
- (E) 12\"/>
- (F) 12\"/>
- (G) STORM TECH TREATMENT UNIT
- (H) NON-WOVEN GEOTEXTILE FABRIC

SECTION A-A
SCALE=10'

EXISTING LEGEND

18\"/>	
6\"/>	
12\"/>	
6\"/>	
12\"/>	
12\"/>	
STORM TECH TREATMENT UNIT <tr> <td>NON-WOVEN GEOTEXTILE FABRIC </td></tr>	NON-WOVEN GEOTEXTILE FABRIC
NON-WOVEN GEOTEXTILE FABRIC	

LEGEND - NEW IMPROVEMENTS

SUBSURFACE DRAINAGE		SLOPE	-5-
TRENCH DRAIN		MATCH EXISTING	X 16.50(M)
MANHOLE		SPOT GRADE	X 20.00
AREA INLET		VEGETATED SWALE	
CLEANOUT		CONTOUR	19

- GRADING NOTES:**
1. TOPOGRAPHIC INFORMATION WAS TAKEN FROM A TOPOGRAPHIC SURVEY BY ACADIA LAND SURVEYING DATED 7/23/2015. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR & SUBMIT IT TO THE OWNER FOR REVIEW.
 2. EXISTING GRADE CONTOURS INTERVAL SHOWN AT ONE FOOT (1').
 3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION &/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES & WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE REQUIRED IMPROVEMENTS SHOWN ON THE PLANS.
 4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES & NOTIFYING THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION.
 5. CONTRACTOR SHALL VERIFY HORIZONTAL & VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES, PIPES, & ALL UTILITIES PRIOR TO CONSTRUCTION.
 6. CLEARING & GRUBBING LIMITS SHALL INCLUDE ALL AREAS DISTURBED BY GRADING OPERATIONS. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UNDISTURBED AREAS, ALL PROPERTY CORNERS, & REPLACING ALL PINS ELIMINATED OR DAMAGED DURING CONSTRUCTION.
 7. THE EARTHWORK FOR ALL PAVED AREAS SHALL BE IN ACCORDANCE WITH THE SITE PREPARATION NOTE.
 8. FINISHED GRADE CONTOUR INTERVALS SHOWN AT ONE FOOT (1').
 9. CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL PLANS, POWER COMPANY, & TELEPHONE COMPANY FOR ACTUAL ROUTING OF POWER & TELEPHONE SERVICE TO THE BUILDING.
 10. CONSTRUCTION SHALL COMPLY WITH ALL GOVERNING CODES & BE CONSTRUCTED TO THE SAME.
 11. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURBS, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
 12. ALL UNDISTURBED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE SOO OR 4 INCHES OF TOPSOIL, SEED, MULCH, WATER, ETC. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH LANDSCAPING PLAN UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
 13. FOR GENERAL NOTES, SEE DRAWING C-1.
 14. THE SITEWORK FOR THIS PROJECT SHALL MEET OR EXCEED SITEWORK RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT PREPARED BY STRATUM ENGINEERING, LLC OR THE SITEWORK SPECIFICATIONS FOR THE UTILITY COMPANY, WHICHEVER IS MORE STRINGENT.
 15. GEOTECHNICAL REPORT NO. G15-052 PREPARED BY STRATUM ENGINEERING, LLC ON JULY 10, 2015 IS CONSIDERED A PART OF THIS DOCUMENT. THE CONTRACTOR MUST REVIEW IT FOR CONSTRUCTION REQUIREMENTS. IF DIFFERENCES ARE NOTED BETWEEN THESE PLANS AND THE GEOTECHNICAL REPORT, THE REQUIREMENTS OUTLINED IN THE GEOTECHNICAL REPORT WILL GOVERN. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLANS AND GEOTECHNICAL REPORT, PLEASE NOTIFY THE CIVIL ENGINEER FOR DIRECTION.

- STORM DRAINAGE NOTES:**
1. ALL PIPES ENTERING STORM SEWER STRUCTURES SHALL BE SEALED TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
 2. ALL PIPES & STRUCTURES ON STREET RIGHT-OF-WAY SHALL BE PER CITY OF NEW ORLEANS DEPARTMENT OF TRANSPORTATION STANDARDS & SPECIFICATIONS.
 3. REFERENCE DETAIL SHEETS FOR CONSTRUCTION DETAILS.

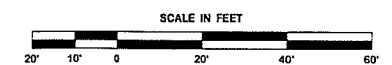
- NOTES:**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THAT THE CMP PIPE HAS ADEQUATE COVER PER THE MANUFACTURER'S RECOMMENDATIONS.
 2. THE CONTRACTOR SHALL SUBMIT BUOYANCY CALCULATIONS ON ALL RUNS OF PIPE THAT DO NOT UTILIZE CONCRETE PIPE. BUOYANCY CALCULATIONS SHALL BE PREPARED, SIGNED, & SEALED BY A REGISTERED ENGINEER. SHALL REPRESENT ACTUAL FIELD CONDITIONS & SHALL DEMONSTRATE THAT THE PIPE UTILIZED WILL NOT BECOME BUOYANT UNDER ANY CONDITIONS. THE CONTRACTOR MAY ELECT TO PROVIDE A RESTRAINING SYSTEM, DESIGNED BY A REGISTERED ENGINEER, ADEQUATE TO RESIST BUOYANT FORCES WHERE NECESSARY.

- STRUCTURE TYPES:**
1. ON-SITE DRAINAGE STRUCTURES SHALL BE PRECAST OR CAST-IN-PLACE CONCRETE IN ACCORDANCE WITH BOTH REQUIREMENTS AS FOLLOWS:
AREA INLETS CB-01 (PIPE SIZE 36" & SMALLER)
MANHOLES RCB-11 MOD.
 2. ALL INLET FRAMES & GRATES SHALL BE EAST JORDAN IRON WORKS, INC. Y-4430 OR EQUAL.
 3. DRAIN MANHOLES IN CANAL STREET AND SOUTH CARROLLTON AVENUE BE PER CITY OF NEW ORLEANS SEWERAGE AND WATER BOARD (NOSWB) DWG. NO. D-870.

NOTE:
THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE.



DRAINAGE PLAN



NEW ORLEANS CITY PLANNING COMMISSION
STORMWATER MANAGEMENT PLAN APPROVED

DOCKET: SW004/15
INITIAL: JJA
DATE: 12/30/16

REVISION BY

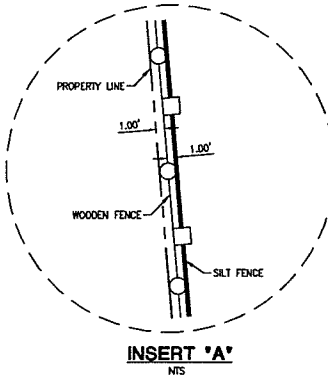
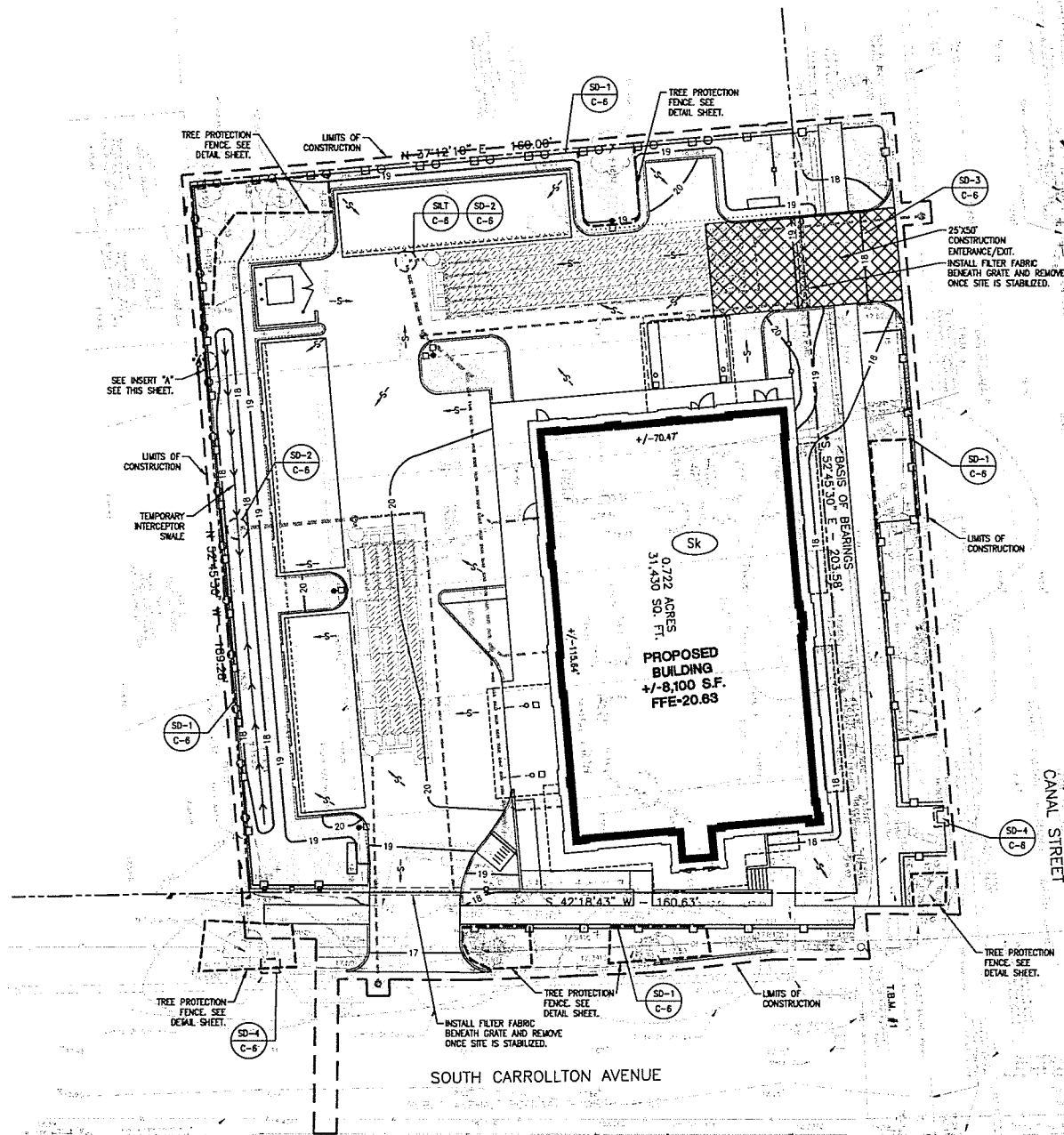
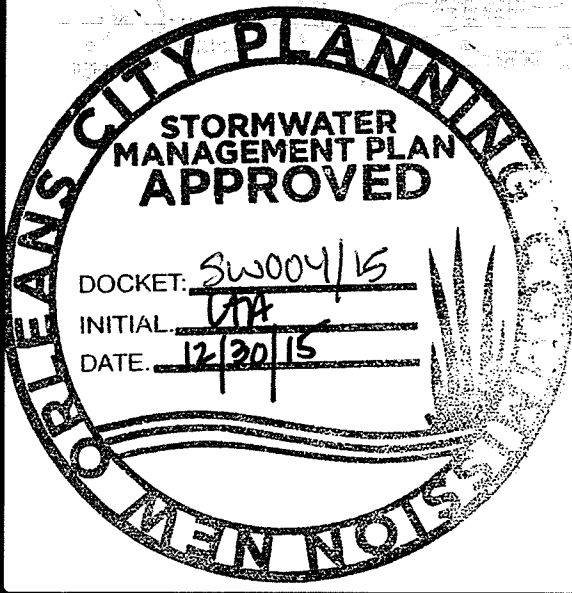
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DUPLANTIS DESIGN GROUP, PC
CIVIL ENGINEERING • ARCHITECTURE
34 Louis Prima Drive Covington, LA 70433
WWW.DDGPC.COM PHONE: 985-449-6160 || Fax: 985-449-6190
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Thomas H. Buckel, P.E. #31022
Duplantis Design Group, P.C.

OCHSNER HEALTH EMERGENCY ROOM
SOUTH CARROLLTON AVE. AND CANAL STREET
NEW ORLEANS, LOUISIANA
ORLEANS PARISH
FOR UCR
DALLAS, TX

DRAWN: JJR
CHECKED: THB
ISSUED DATE: 12/8/16
ISSUED FOR: SWMP APPROVAL
PROJECT NO.: 15-209
FILE: 15-209 Grading
SHEET: C-2.1

M:\CAD\Draw\15-000\15-209\DWG\15-209 Grading.dwg



NOTE:
EXTENT OF CRITICAL ROOT ZONE IS EQUIVALENT TO 1" FOR EVERY 1" OF DBH OR TO THE EXTENT OF THE TREE CANOPY, WHICHEVER IS FURTHERST. TREES IN RIGHT-OF-WAY WERE IMPACTED HEAVILY DURING CONSTRUCTION OF STREET CAR SYSTEM. CONTRACTOR TO MINIMIZE DISTURBANCE AND IMPACT GIVEN TO THE TREES LOCATION, SIZE, AND CONCRETE COVERED CRITICAL ROOT ZONE.

EXISTING LEGEND

---	EXISTING PROPERTY LINE
---	EXISTING EROSION CONTROL MEASURES
---	EXISTING SILT FENCE
---	EXISTING SILT SACK
---	EXISTING TEMPORARY STONE CONSTRUCTION EXIT
---	EXISTING CURB INLET PROTECTION
---	EXISTING DIRECTION OF OVERLAND FLOW
---	EXISTING PROPOSED CONTOUR
---	EXISTING PROPERTY LINE

LEGEND - NEW IMPROVEMENTS

---	SD-1 SILT FENCE	---	LIMITS OF DISTURBANCE
---	SILT FENCE INLET PROTECTION (PRIOR TO PAVING)	---	PROPOSED BUILDING
---	SILT SACK (AFTER PAVING & PRIOR TO FINAL SITE STABILIZATION)	---	PROPOSED STORM DRAINAGE
---	SD-2 SILT SACK	---	SOD
---	SD-3 TEMPORARY STONE CONSTRUCTION EXIT	---	NRCS SOIL TYPE
---	SD-4 CURB INLET PROTECTION	---	SD-1 REFERENCES LEGEND
---	DIRECTION OF OVERLAND FLOW	---	C-6 REFERENCES SHEET FOR DETAIL
---	PROPOSED CONTOUR	---	TEMPORARY INTERCEPTOR SHALE
---	PROPERTY LINE	---	TREE PROTECTION FENCE

BMP MAINTENANCE EROSION NOTES:

- ALL MEASURES STATED ON THIS SITE MAP, & IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION & SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, & REPAIRED IN ACCORDANCE WITH THE FOLLOWING:
- INLET PROTECTION DEVICES & BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
- ALL SODDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, & RESEED AS NEEDED.
- SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
- THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
- THE TEMPORARY PARKING & STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING & STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
- OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITION AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
- PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL BE CLEANED OF DEBRIS, ANY DEBRIS &/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

EROSION CONTROL NOTES:

- SEDIMENT & EROSION CONTROL FACILITIES & STORM DRAINAGE FACILITIES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN EROSION CONTROL FACILITIES DURING THE ENTIRE CONSTRUCTION PERIOD. FACILITIES ARE NOT TO BE REMOVED UNTIL COMPLETION OF THE PROJECT.
- ADDITIONAL DEVICES MAY BE REQUIRED AS DEEMED NECESSARY BY GOVERNING AUTHORITIES.
- SILT FENCES SHALL BE CLEANED OR REPLACED WHEN SILT BUILDS UP TO 1" FROM THE BOTTOM OF THE FENCE.
- EROSION CONTROL MEASURES ARE TO BE INSPECTED WEEKLY & AFTER EACH RAINFALL & REPAIRED AS NECESSARY.
- ALL GRADED AREAS SHALL BE STABILIZED WITH A PERMANENT FAST GROWING COVER &/OR MULCH UPON COMPLETION OF GRADING OPERATIONS. COMPLETION OF GRADING OPERATIONS DOES NOT MEAN AT THE END OF THE PROJECT, AS SOON AS FINAL GRADES ARE ESTABLISHED IN AN UNPAVED AREA, THE CONTRACTOR SHALL STABILIZE WITH A TEMPORARY GRASS OR PERMANENT SOD. IF A TEMPORARY GRASS IS APPLIED, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO APPLY A PERMANENT SEED OR SOD AT THE PROPER TIME OF YEAR.
- FILL SLOPES SHOULD BE PLANTED AS SOON AS AN AREA OF THE SITE IS BROUGHT TO FINAL GRADE. SURFACE RUNOFF SHALL BE INTERCEPTED AT THE TOP OF TEMPORARY & PERMANENT SLOPES DURING CONSTRUCTION SO THAT WATER IS NOT ALLOWED TO FLOW OVER THE SLOPE FACE.
- THE GENERAL CONTRACTOR & THE GRADING CONTRACTOR SHALL REVIEW THEIR GRADING SEQUENCE TO INSURE THAT THE LEAST AMOUNT OF LAND POSSIBLE AT ANY ONE TIME IS DISTURBED WITHOUT PERMANENT STABILIZATION.
- CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ENTRANCES PRIOR TO ANY DIRTWORK OPERATIONS.
- CONTRACTOR SHALL MAINTAIN SILT FENCES FOR THE DURATION OF THE PROJECT UNTIL ACCEPTED BY THE OWNER AT NO EXPENSE TO OWNER.
- CONTRACTOR SHALL INSPECT ON A DAILY BASIS FOR NEEDED REMOVAL OF ANY ACCUMULATED SILTS, DEBRIS, OR REPAIR OF DAMAGED SILT FENCE AT NO ADDITIONAL EXPENSE TO OWNER.
- PRIOR TO CONSTRUCTION, THE EROSION & SEDIMENT CONTROL MEASURES SHOWN HEREON SHALL BE IN PLACE. CLEARING & GRUBBING OPERATIONS WILL BE ENGAGED IN ONLY AS NECESSARY TO ALLOW THE PLACEMENT OF EROSION & SEDIMENT CONTROL MEASURES AS SHOWN HEREON UNTIL ALL SUCH MEASURES ARE IN PLACE.
- LAND DISTURBING ACTIVITIES WILL BE KEPT TO A MINIMUM & WILL NOT EXTEND BEYOND THE LIMITS SHOWN.
- SEDIMENT & EROSION CONTROL MEASURES WILL BE INSPECTED ON A DAILY BASIS & WILL BE REPAIRED, ADJUSTED & MAINTAINED AS NEEDED OR REQUIRED BY GOVERNING AGENCIES AT NO ADDITIONAL EXPENSE TO THE OWNER TO PROVIDE EROSION & SEDIMENT CONTROL FOR THE DURATION OF CONSTRUCTION & UNTIL ALL DISTURBED AREAS ARE STABILIZED.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING THE "THIRD PARTY CONTRACTOR CERTIFICATION" & THE MONTHLY INSPECTION REPORT & CERTIFICATION FORM FOR EROSION & SEDIMENT CONTROLS" LOCATED IN THE SITEMARK SPECIFICATIONS & SUBMITTING THE FORMS TO THE OFFICE OF POLLUTION CONTROL.
- THE CONTRACTOR SHALL ALSO CONSTRUCT THE SILT FENCING AS SHOWN AT THE PERIMETER OF THE SITE PLAN PRIOR TO LAND CLEARING ACTIVITIES.
- ALL EROSION CONTROL MEASURES EXCEPT THE REQUIRED RIP RAP ARE TEMPORARY DEVICES. THESE TEMPORARY DEVICES SHALL BE REMOVED PRIOR TO COMPLETION OF CONSTRUCTION ONCE STABILIZATION OF ALL GRASSED AREAS IS COMPLETE.

ACREAGE SUMMARY

TOTAL PROJECT AREA	+/- 0.72 ACRES
DISTURBED AREA	+/- 0.95 ACRES
UNDISTURBED AREA	+/- 0.00 ACRES
EXISTING PERVIOUS SURFACE	+/- 0.03 ACRES
EXISTING IMPERVIOUS SURFACE	+/- 0.89 ACRES
PROPOSED PERVIOUS SURFACE	+/- 0.24 ACRES
PROPOSED IMPERVIOUS SURFACE	+/- 0.67 ACRES

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

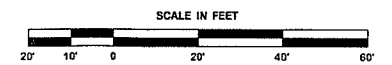
NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
TEMPORARY CONSTRUCTION EXITS																			
TEMPORARY CONTROL MEASURES																			
SEDIMENT CONTROL BASINS																			
STRIP & STOCKPILE TOPSOIL																			
ROUGH GRADE																			
STORM FACILITIES																			
SITE CONSTRUCTION																			
PERMANENT CONTROL STRUCTURES																			
FOUNDATION / BUILDING CONSTRUCTION																			
FINISH GRADING																			
LANDSCAPING / SEED / FINAL STABILIZATION																			

1) CONTRACTOR SHALL UPDATE THE TABLE BY SHADING OR DATING THE APPLICABLE ACTIVITIES AS PROJECT PROGRESSES.
2) THE SCHEDULE MUST COINCIDE WITH SEQUENCE OF CONSTRUCTION.



EROSION CONTROL PLAN



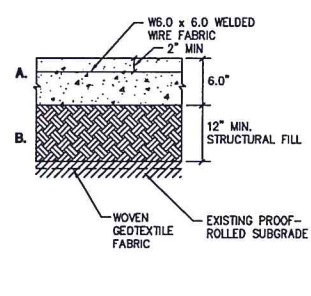
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DUPLANTIS DESIGN GROUP, PC
CIVIL ENGINEERING - ARCHITECTURE
34 LOUIS PRIMA DRIVE COVINGTON, LA 70433
WWW.DDPC.COM Phone: 985-496960 || Fax: 985-496990
THIBODAUX | COVINGTON | HOUSTON | BATON ROUGE | HOUMA | DALLAS

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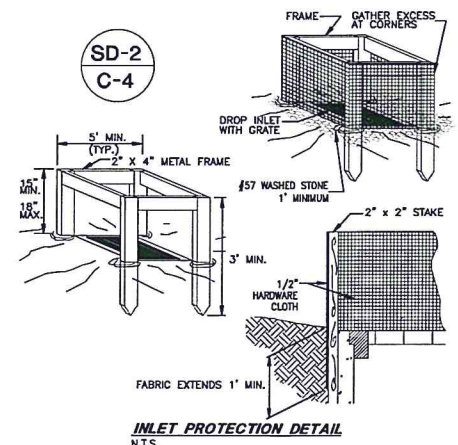
OCHSNER HEALTH EMERGENCY ROOM
SOUTH CARROLLTON AVE. AND CANAL STREET
NEW ORLEANS, LOUISIANA
ORLEANS PARISH
FOR UCR
DALLAS, TX

DRAWN: JJR
CHECKED: THB
ISSUED DATE: 12/8/15
ISSUED FOR: SWMP APPROVAL
PROJECT NO.: 15-209
FILE: 15-209 Erosion Control Plan
SHEET: C-4

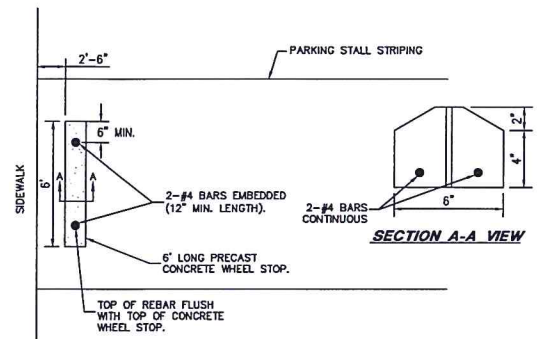


STANDARD DUTY CONCRETE PAVEMENT
N.T.S.

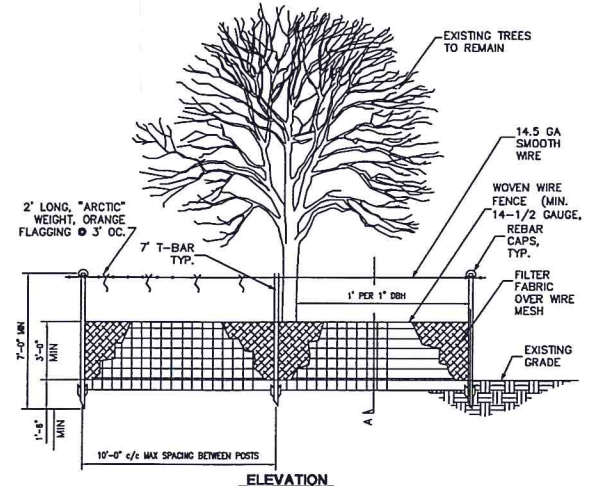
- A.** 6.0" PORTLAND CEMENT CONCRETE TYPE B (4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS) COMPLYING WITH THE LOUISIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROADS & BRIDGES. THE CONCRETE SHALL ALSO BE DESIGNED WITH 5+/- 1 PERCENT EXTRA DRY AIR.
- B.** 12.0" MIN. COMPACTED GRANULAR STRUCTURAL FILL (SAND). GRANULAR FILL SHALL MEET THE REQUIREMENTS OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION AND BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
- NOTES:**
- 1) ALL STRUCTURAL FILL SHALL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS, HAVE A MAXIMUM PARTICLE SIZE LESS THAN 2 INCHES, A LIQUID LIMIT LESS THAN 40, AND A PLASTICITY INDEX LESS THAN 18. SANDY CLAY OR CLAYEY SANDS ARE RECOMMENDED FOR USE AS STRUCTURAL FILL. THE ON-SITE SILTY SANDS MAY BE SUITABLE FOR USE AS FILL.
 - 2) FILL SHALL BE PLACED IN A MAXIMUM OF 6" LOOSE LIFTS & COMPACTED WITHIN 1% BELOW TO 3% ABOVE OPTIMUM MOISTURE CONTENT VALUE. IF WATER MUST BE ADDED, IT SHALL BE UNIFORMLY APPLIED AND THOROUGHLY MIXED INTO THE SOIL BY DISKING OR SCARIFYING. EACH LIFT SHALL BE TESTED PRIOR TO SUB SEQUENT LIFTS.
 - 3) EXISTING SUBGRADE IN PARKING AREAS SHALL BE PROOF-ROLLED WITH A LOADED TANDUM AXLE DUMP TRUCK OR SIMILAR HEAVY RUBBER Tired VEHICLE. SOILS THAT RUT OR DEFLECT EXCESSIVELY UNDER THE MOVING LOAD SHALL BE UNDERCUT AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL.
 - 4) ALL SUBGRADE, BASE & PAVEMENT CONSTRUCTION OPERATIONS SHOULD MEET MINIMUM REQUIREMENTS OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION.
 - 5) CONTROL JOINT SPACING SHALL BE A MAXIMUM OF 12 FEET. IF SAWCUT, CONTROL JOINTS SHALL BE CUT WITHIN 6 TO 12 HOURS OF CONCRETE PLACEMENT.
 - 6) EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 75 FT.
 - 7) DOMELS AT EXPANSION JOINTS SHALL BE 3/4 INCH BARS, 18 INCHES IN LENGTH, WITH ONE END TREATED TO SLIP, SPACED AT 12 INCHES ON CENTERS AT EACH JOINT.



INLET PROTECTION DETAIL
N.T.S.

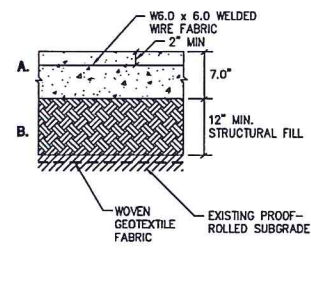


PRECAST CONCRETE WHEEL STOP DETAIL
N.T.S.



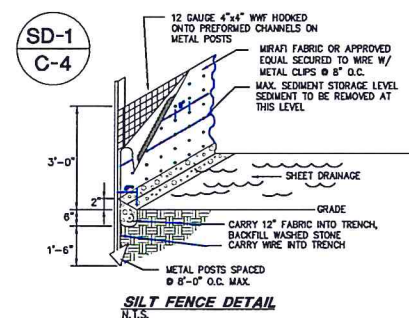
- ELEVATION**
- NOTE:**
1. DUE TO SIGHT CONSTRAINTS SPECIAL CARE SHOULD BE TAKEN WHEN INSTALLING TREE PROTECTION AS NOT TO DISTURB THE ROOT ZONE.
 2. TREE PROTECTION FENCE SHALL BE PLACED NO LESS THAN 1' PER 1" DBH. IF SITE CONDITIONS PREVENT THIS SPACING, THEN APPROVAL FROM THE LOCAL JURISDICTION SHALL BE REQUIRED.
 3. SEE CITY DETAIL SHEET STD10 FOR ROOT PRUNING AND ADDRESSING TREE ROOTS IN THE VICINITY OF PROJECT IMPROVEMENTS.

COMBINATION SILT & TREE PROTECTION FENCE
N.T.S.

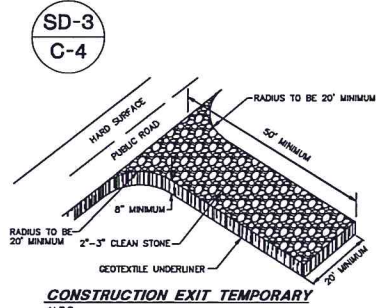


HEAVY DUTY CONCRETE PAVEMENT
N.T.S.

- A.** 7.0" PORTLAND CEMENT CONCRETE TYPE B (4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS) COMPLYING WITH THE LOUISIANA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR ROADS & BRIDGES. THE CONCRETE SHALL ALSO BE DESIGNED WITH 5+/- 1 PERCENT EXTRA DRY AIR.
- B.** 12.0" MIN. COMPACTED GRANULAR STRUCTURAL FILL (SAND). GRANULAR FILL SHALL MEET THE REQUIREMENTS OF THE LOUISIANA STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION AND BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
- NOTES:**
- 1) ALL STRUCTURAL FILL SHALL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS, HAVE A MAXIMUM PARTICLE SIZE LESS THAN 2 INCHES, A LIQUID LIMIT LESS THAN 40, AND A PLASTICITY INDEX LESS THAN 18. SANDY CLAY OR CLAYEY SANDS ARE RECOMMENDED FOR USE AS STRUCTURAL FILL. THE ON-SITE SILTY SANDS MAY BE SUITABLE FOR USE AS FILL.
 - 2) FILL SHALL BE PLACED IN A MAXIMUM OF 6" LOOSE LIFTS & COMPACTED WITHIN 1% BELOW TO 3% ABOVE OPTIMUM MOISTURE CONTENT VALUE. IF WATER MUST BE ADDED, IT SHALL BE UNIFORMLY APPLIED AND THOROUGHLY MIXED INTO THE SOIL BY DISKING OR SCARIFYING. EACH LIFT SHALL BE TESTED PRIOR TO SUB SEQUENT LIFTS.
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 - 6) EXPANSION JOINT SPACING SHALL BE A MAXIMUM OF 75 FT.
 - 7) DOMELS AT EXPANSION JOINTS SHALL BE 3/4 INCH BARS, 18 INCHES IN LENGTH, WITH ONE END TREATED TO SLIP, SPACED AT 12 INCHES ON CENTERS AT EACH JOINT.



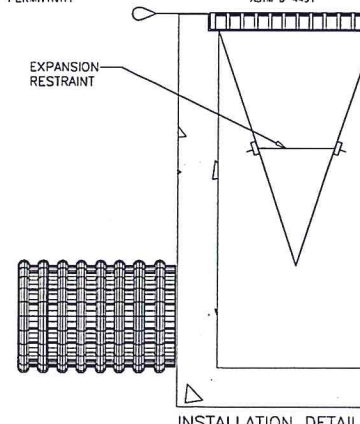
SILT FENCE DETAIL
N.T.S.



CONSTRUCTION EXIT TEMPORARY
N.T.S.

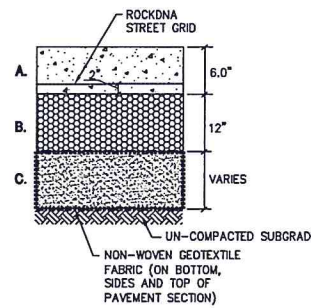
HI-FLOW SILTSACK
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4832	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4832	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SEVE
FLOW RATE	ASTM D-4491	200 GAL/IN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



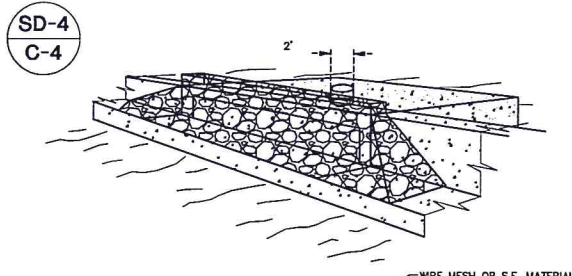
DETAIL OF INLET SEDIMENT CONTROL DEVICE
PAVED AREAS
N.T.S.

SILT C-4
(PROTECTION SHALL BE SILTSACK OR APPROVED EQUIVALENT)
SOURCE: SILK SACK.
SILTSACK
SPECIFICATIONS
NOTE: THE SILTSACK #8 WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.



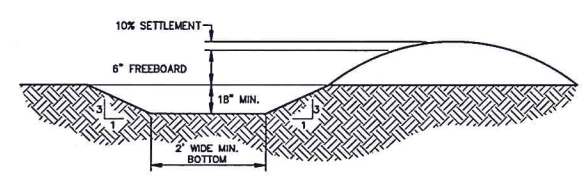
PERVIOUS CONCRETE PAVEMENT
N.T.S.

- A.** 6.0" PERVIOUS CONCRETE PAVEMENT DESIGNED IN ACCORDANCE WITH ACI 522.1-13. CONCRETE SHALL MEET 4000 P.S.I. COMPRESSIVE STRENGTH @ 28 DAYS.
- B.** 12.0" NO. 57 OR 67 STONE BASE COURSE WITH VOID RATIO BETWEEN 30% AND 40%.
- C.** 12.0" MIN. GRANULAR STRUCTURAL FILL (SAND). PROOF ROLLED WITH A SINGLE PASS OF NON-VIBRATORY ROLLER.
- NOTES:**
- 1) ALL STRUCTURAL FILL SHALL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS.
 - 2) FILL SHALL BE PLACED IN A RELATIVELY UNIFORMED HORIZONTAL LIFTS AND SHALL BE ADEQUATELY KEVED INTO STRIPPED AND SACRIFICED SOILS.
 - 3) EXISTING SUBGRADE SHALL BE STRIPPED OF ANY DELETERIOUS MATERIAL AND ORGANICS AND REMAIN UN-COMPACTED.
 - 4) PLACE NO. 57 STONE IN RELATIVELY UNIFORMED 12" LIFTS USING TRACK EQUIPMENT. COMPACT LIFT WITH A SINGLE PASS OF A LIGHT ROLLER OR NON-VIBRATORY COMPACTOR.
 - 5) CONTRACTOR SHALL RESTRICT ANY TRAFFIC ROLLING ON CONCRETE FOR A MINIMUM 21 DAYS.
 - 6) CONTRACTOR TO PROTECT PERVIOUS CONCRETE PAVING DURING AND AFTER CONSTRUCTION UNTIL ALL SEDIMENT LADEN WATER AND CONSTRUCTION DEBRIS IS REMOVED FROM SITE.
 - 7) CONTRACTOR TO BE A "NIRWA" CERTIFIED INSTALLER OF PERVIOUS CONCRETE.



GRAVEL CURB INLET SEDIMENT FILTER
N.T.S.

SPECIFIC APPLICATION
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.
* GRAVEL SHALL BE 2"-3" CLEAN STONE



TYPICAL TRAPEZOIDAL DIVERSION

NOTE: PURPOSE OF THE INTERCEPTOR DITCH IS TO INTERCEPT STORMWATER & SEDIMENTATION FROM DISCHARGING ONTO ADJACENT PROPERTY. INTERCEPTOR DITCH IS TO DISCHARGE TO THE TEMPORARY SEDIMENT BASIN.

TEMPORARY INTERCEPTOR DITCH
N.T.S.



REVISION	BY

DDG
DUPLANTIS DESIGN GROUP, PC
Civil Engineering & Architecture
34 LOUISIANA DRIVE CONVINGTON, LA 70433
WWW.DDGP.COM Phone: 982-495-6801 | Fax: 982-495-6190
THIBODAUX | CONVINGTON | HOUSTON | BATON ROUGE | HOUMA | DALLAS

PROGRESS SET - BOX SUBMITTAL
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These documents are for Design Review and not for construction. They are prepared by, or under the supervision of, Thomas H. Buckel, P.E., #21022 Duplantis Design Group, P.C.

OCHSNER HEALTH EMERGENCY ROOM
SOUTH CARROLLTON AVE. AND CANAL STREET
NEW ORLEANS, LOUISIANA
ORLEANS PARISH
FOR UCR
DALLAS, TX

DRAWN	JJR
CHECKED	THB
ISSUED DATE	12/8/16
ISSUED FOR	SWMP APPROVAL
PROJECT NO.	15-209
FILE	15-209 DETAILS
SHEET	C-6

DETAILS

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APPENDIX F



ADVANCED DRAINAGE SYSTEMS, INC.



FCER - Canal at Carrollton

4116 Canal Street

STORMWATER CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.55 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
 - b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET, THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922, MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
 - c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
 - STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONEHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
 - USE OF A DOZER TO RUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-992-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

COMPUTER GENERATED CONCEPTUAL LAYOUT - NOT FOR CONSTRUCTION

CONCEPTUAL LAYOUT

(55) STORMTECH SC-310 CHAMBERS
 (10) STORMTECH SC-310 END CAPS
 INSTALLED WITH 6" COVER STONE, 6" BASE STONE, 40% STONE VOID
 AREA OF SYSTEM: 1809 FT²
 PERIMETER OF SYSTEM: 215 FT



INSPECTION PORT

ISOLATOR ROW

12" PREFABRICATED END CAP PARTS
 SC310E12B TYP OF ALL SC-310 12"
 CONNECTIONS AND ISOLATOR ROWS

PROPOSED STRUCTURE W/WEIR (DESIGN BY
 ENGINEER / PROVIDED BY OTHERS)

10" x 10" ADS N-12 BOTTOM MANIFOLD, INV 0.70"
 ABOVE CHAMBER BASE (SIZE TBD BY ENGINEER /
 SEE TECH SHEET #7 FOR MANIFOLD SIZING
 GUIDANCE)

PLACE MINIMUM 12" OF ADS GEOSYNTHETICS
 315WTK WOVEN GEOTEXTILE COVER BEDDING
 STONE AND UNDERNEATH CHAMBER FEET FOR
 SCOUR PROTECTION AT ALL CHAMBER INLET
 ROWS

10" ADS N-12 BOTTOM
 CONNECTION, INV 0.90"
 ABOVE CHAMBER BASE
 (SIZE TBD BY ENGINEER /
 SEE TECH SHEET #7 FOR
 MANIFOLD SIZING
 GUIDANCE)

6" ADS N-12 DUAL WALL PERFORATED HOPE UNDERDRAIN
 (SIZE TBD BY ENGINEER)

PROPOSED OUTLET CONTROL STRUCTURE
 (DESIGN BY ENGINEER / PROVIDED BY
 OTHERS)

4116 Canal Street FCER - Canal at Carrollton		DATE: 09/23/2015 DRAWN: PW CHECKED: --	PROJECT #: Tool
70 INWOOD ROAD, SUITE 3 FROCKY HILL, CT 06087 860.529.8188 FAX: 860.529.2911 WWW.STORMTECH.COM StormTech DESIGN AND CONSTRUCTION SYSTEMS, INC.		NOT TO SCALE 4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473	

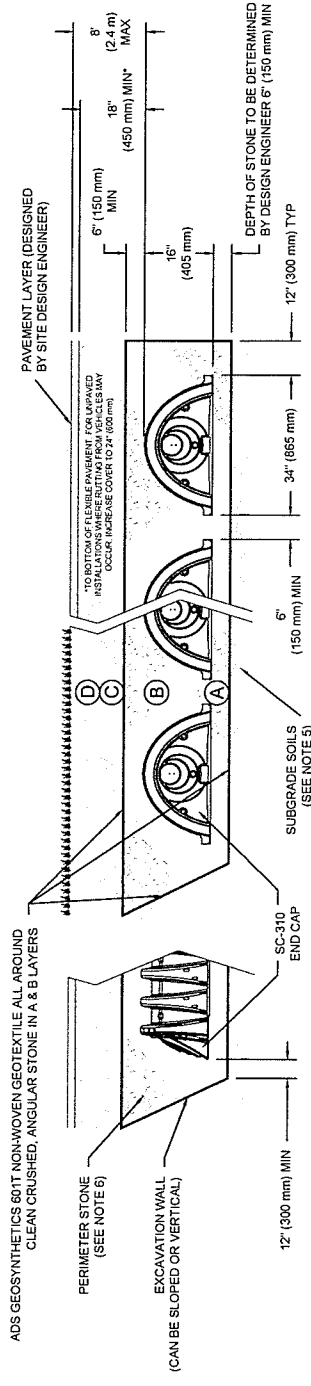
THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCTS SHOWN ARE APPLICABLE LAWS, REGULATIONS AND PROJECT REQUIREMENTS.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2, A-3 OR AASHTO M43 ¹ 3, 357, 4, 487, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX. LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 487, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 487, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ¹

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'X' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

- SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOLID MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

DATE: 09/23/2015
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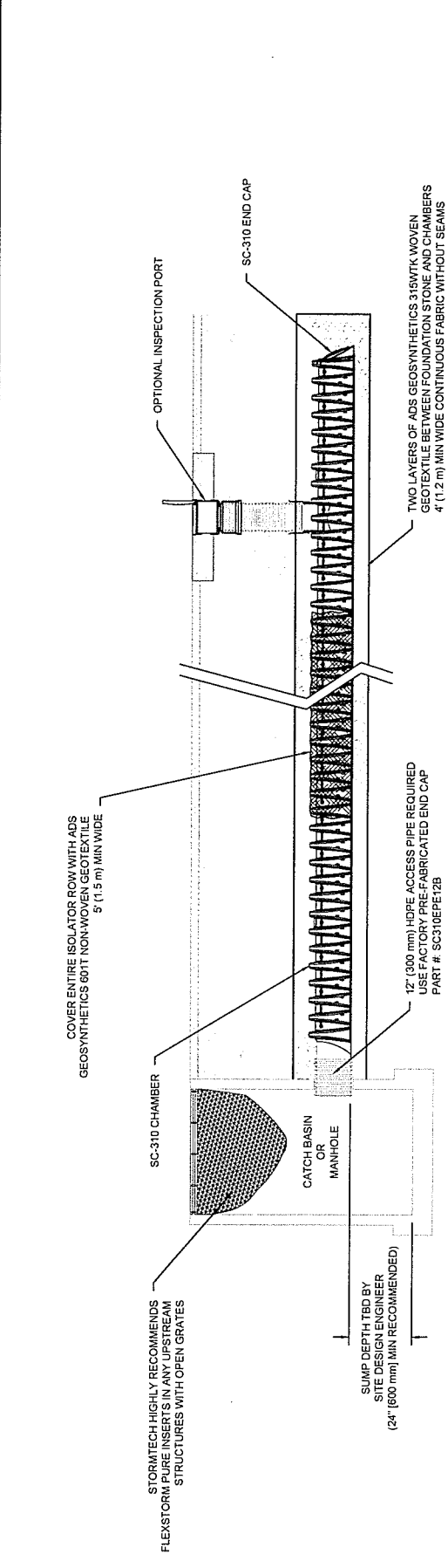
FICER - Canal at Carrollton
4116 Canal Street

StormTech
CORPORATION
20 WOODROW ROAD SUITE 3 ROCKY HILL CT 06867
860-529-6188 1888-892-2834 1 WWW.STORMTECH.COM

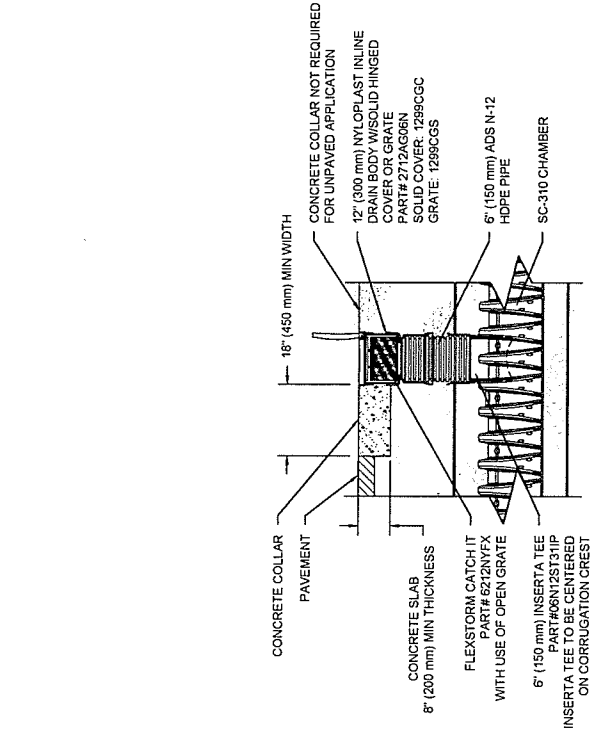
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

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3 OF 5 SHEET



SC-310 ISOLATOR ROW DETAIL
NTS



SC-310 6" INSPECTION PORT DETAIL
NTS

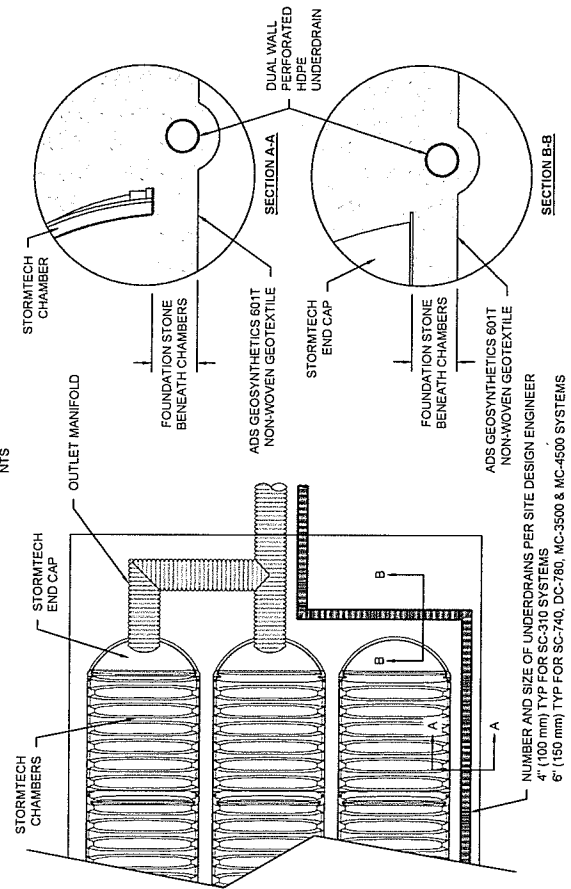
INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 - B. ALL ISOLATOR ROWS
 - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
 - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULTURE CLEANING NOZZLE WITH REMOTE CONTROL USING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS, RECORD OBSERVATIONS AND ACTIONS
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

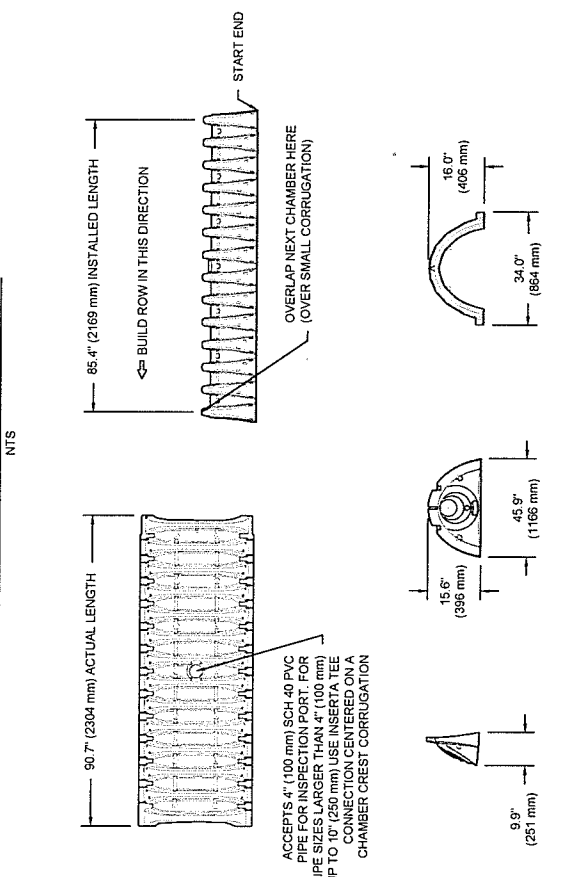
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

UNDERDRAIN DETAIL
NTS



NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER
4" (100 mm) TYP FOR SC-310 SYSTEMS
6" (150 mm) TYP FOR SC-740, DC-780, MC-3500 & MC-4500 SYSTEMS

SC-310 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

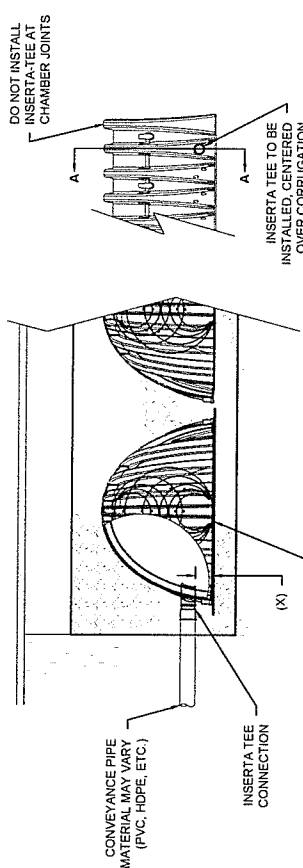
SIZE (W X H X INSTALLED LENGTH)
CHAMBER STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT

34.0" X 16.0" X 85.4"
14.7 CUBIC FEET
31.0 CUBIC FEET
35.0 lbs.

(864 mm X 406 mm X 2169 mm)
(0.42 m³)
(0.88 m³)
(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS

INSERTA TEE DETAIL
NTS



PLACE ADS GEOSYNTHETICS 315 WOVEN GEOTEXTILE (CENTERED OVER INSERTA TEE INLET) OVER BEDDING STONE FOR CONNECTION PROTECTION AT SIDE INLET CONNECTIONS. GEOTEXTILE MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS CONTACT STORMTECH FOR MORE INFORMATION

REV	DRW	CHK	DESCRIPTION

DATE: 09/23/2015
DRAWN: PW
PROJECT # Tool
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FCEP - Canal at Carrollton
4116 Canal Street

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ADVANCED DRAINAGE SYSTEMS, INC.



FCER - Canal at Carrollton

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 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
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COMPUTER GENERATED CONCEPTUAL LAYOUT - NOT FOR CONSTRUCTION

CONCEPTUAL LAYOUT
 (36) STORMTECH SC-310 CHAMBERS
 (10) STORMTECH SC-310 END CAPS
 INSTALLED WITH 6" COVER STONE, 6" BASE STONE, 40% STONE VOID
 AREA OF SYSTEM: 1116 CF
 PERIMETER OF SYSTEM: 165 FT

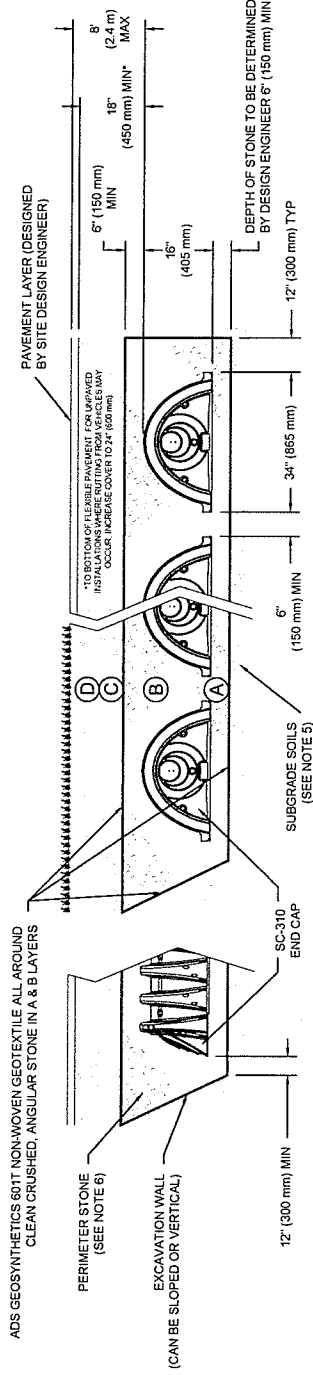


ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145* A-1, A-2-4, A-3 OR AASHTO M43* 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 127 (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43* 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43* 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. †

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

- SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS," OR ASTM F2822 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS": TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

DATE: 09/23/2015
DRAWN: PW
PROJECT # 4116 Canal at Carrollton
CHECKED: —

75 WOOD ROAD SUITE 1100 ROCKY HILL CT 10607
860-529-1818 1864-997-2544 WWW.STORMTECH.COM

Stormtech
CORPORATION

DESCRIPTION

REV

DRW

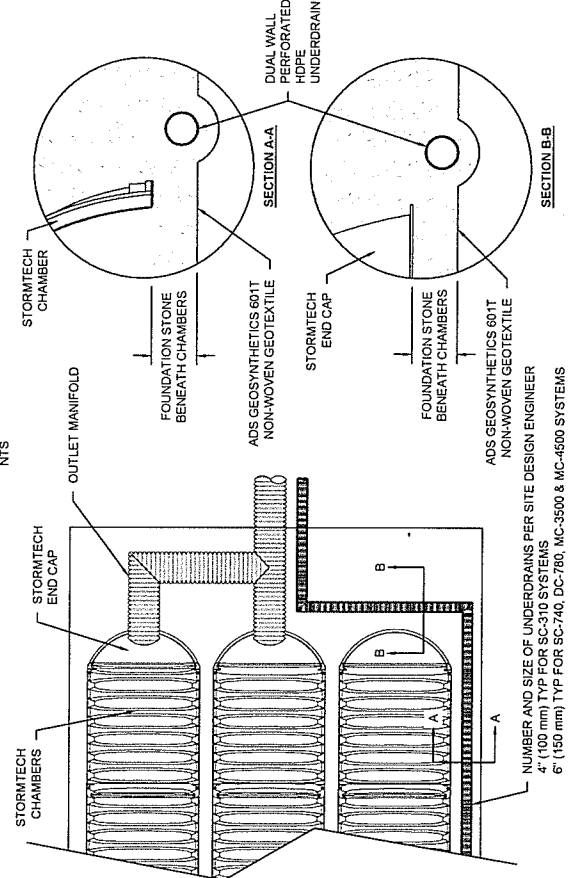
CHK

4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473
ADVANCED DRAINAGE SYSTEMS, INC.

1:5 DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE LIABILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PROJECT IS ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

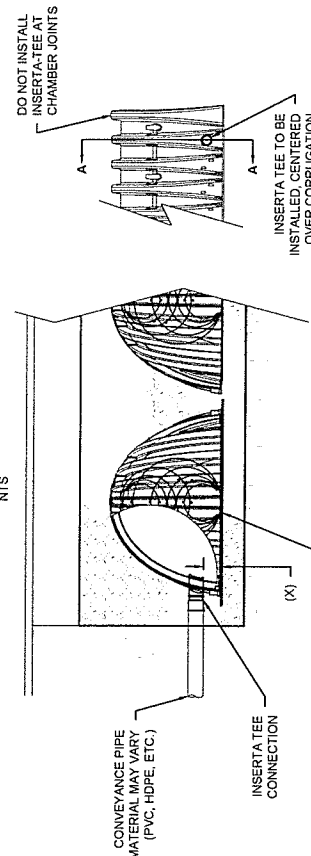
SHEET 3 OF 5

UNDERDRAIN DETAIL
NTS



NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER
4" (100 mm) TYP FOR SC-310 SYSTEMS
6" (150 mm) TYP FOR SC-740, DC-780, MC-3500 & MC-4500 SYSTEMS

INSERTA TEE DETAIL
NTS



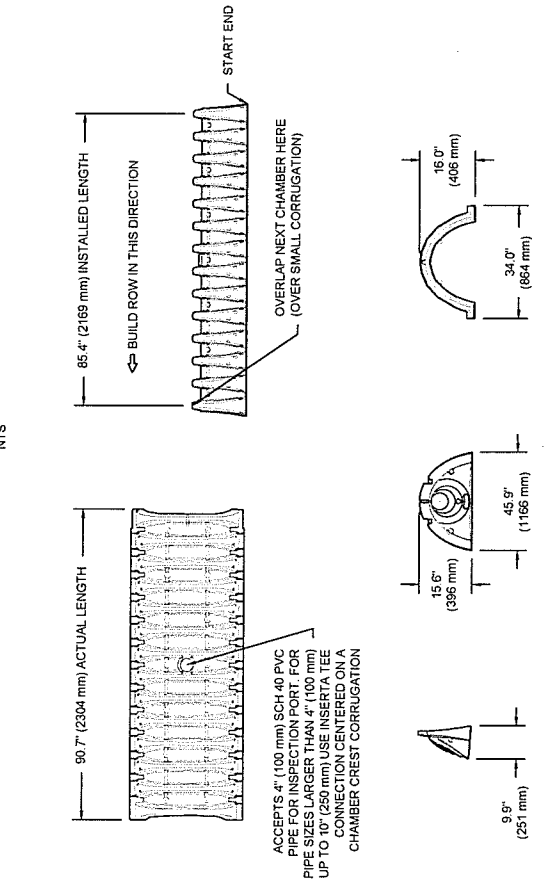
PLACE ADS GEOSYNTHETICS 315 WOVEN GEOTEXTILE CENTERED ON INSERTA-TEE INLET PIPE TO PROVIDE SCOUR PROTECTION AT SIDE INLET CONNECTIONS. GEOTEXTILE MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON

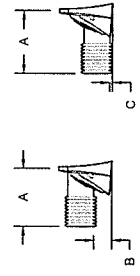
NOTE: PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

SC-310 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)
CHAMBER STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC	6" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	0.5" (13 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	0.6" (15 mm)
SC310EPE10B / SC310EPE10BPC	12" (300 mm)	13.5" (343 mm)	---	0.7" (18 mm)
SC310ERE12B	12" (300 mm)	---	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

*FOR THE SC310ERE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL.

STORMTECH
79 WOOD ROAD SUITE J | ROCKY HILL, CT | 06867
860-529-6188 | 1-888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADVANCED DRAINAGE SYSTEMS INC.
1-800-733-7473

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PROJECT # 00923/2015
DATE 09/23/2015
DRAWN: PW
CHECKED: ---

FCER - Canal at Carrollton
4116 Canal Street

DESCRIPTION
REV
DRW
CHK