

STORMWATER CONTROL MEASURE 'A' CONSTRUCTION SPECIFICATIONS

GENERAL NOTES

- PRIOR TO CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
- PRIOR TO ANY CONSTRUCTION OR PLACEMENT OF ANY BACKFILL, THE ON-SITE GEOTECHNICAL ENGINEER SHALL INSPECT THE EXCAVATION AREA FOR THE UNDERGROUND SCM WITHIN THIS AREA TO ASSESS WHETHER SUITABLE SOILS EXIST AT THE SUBGRADE LEVEL. IF THE CONTRACTOR CONSTRUCTS AND COVERS UP THE UNDERGROUND SCM PRIOR TO INSPECTION, THEN THIS AREA SHALL BE UNCOVERED AND TESTED (TO THE ENGINEER'S AND OWNER'S APPROVAL) AT THE CONTRACTOR'S EXPENSE.
- THE FACILITY SHALL NOT BE USED AS A TEMPORARY EROSION CONTROL DEVICE (I.E. SEDIMENT TRAP OR SEDIMENT BASIN) DURING CONSTRUCTION.
- PRIOR TO PLACING STORMFILTER CARTRIDGES WITHIN THE UNDERGROUND SYSTEM, THE CONTRACTOR SHALL REQUEST AN ON-SITE MEETING WITH THE DESIGN ENGINEER AND THE EROSION CONTROL INSPECTOR TO ENSURE THE UPSTREAM DRAINAGE AREA IS COMPLETELY STABILIZED (I.E. GOOD VEGETATIVE COVER). IF THE CONTRACTOR DECIDES TO PLACE THE STORMFILTER CARTRIDGES PRIOR TO APPROVAL FROM THE DESIGN ENGINEER AND THE EROSION CONTROL INSPECTOR, THEN THE CONTRACTOR SHALL EXCAVATE/REPLACE, AS NECESSARY, THE COMPONENTS NEEDED FOR THE SYSTEM TO FUNCTION PROPERLY AT HIS / HER EXPENSE SHOULD THE STORMFILTER CARTRIDGES NOT FUNCTION PROPERLY (I.E. WILL NOT DRAIN DUE TO SEDIMENT DEPOSITION) DUE TO AN UNSTABILIZED UPSTREAM DRAINAGE AREA.
- ONCE CONSTRUCTED, THE STORMFILTER CARTRIDGES SHALL NOT RECEIVE STORMWATER RUNOFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE UNDERGROUND SYSTEM HAS BEEN COMPLETELY STABILIZED AND SITE CONSTRUCTION IS COMPLETE.
- ALL COMPONENTS OF THE UNDERGROUND SCM SYSTEM (STORMFILTER VAULT, CMP SECTIONS, JOINT / RISER CONNECTIONS, ENDCAPS, ACCESS MANHOLES, ETC.) SHALL BE DESIGNED BY OTHERS. ANY VARIATIONS OR CHANGES MADE FROM THESE SPECIFICATIONS AND DRAWINGS DURING THE ORDERING AND/OR INSTALLATION OF ALL COMPONENTS MUST BE APPROVED BY THE DESIGN ENGINEER. THE STRUCTURAL DESIGN OF THE UNDERGROUND SCM, ALONG WITH ITS ASSUMPTIONS, IS ALSO BY OTHERS. THE JOHN R. McADAMS COMPANY, INC. AND ITS EMPLOYEES ASSUME NO LIABILITY WITH RESPECT TO ANY ASPECT OF THE STRUCTURAL DESIGN FOR THE UNDERGROUND SCM SYSTEM.
- ALL PIPE / RISER CONNECTIONS AND JOINTS ASSOCIATED WITH THE UNDERGROUND SCM SYSTEM SHALL BE WATER TIGHT. THE MECHANISM FOR ACHIEVING THIS SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW.
- THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE UNDERGROUND SCM SYSTEM SITE. IT IS ANTICIPATED THAT PUMPING WILL BE NECESSARY IN THE EXCAVATION AREAS DURING PLACEMENT OF FILL WITHIN THIS AREA (OR OTHER AREAS AS NECESSARY). THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADHERE TO ALL CURRENT OSHA REGULATIONS FOR CONFINED SPACE ENTRY AND PROVIDE SUCH DURING ENGINEER WALK-THROUGH/INSPECTION.
- ALL PIPE PENETRATIONS THROUGH A CONCRETE STRUCTURE (I.E. STORMFILTER CARTRIDGE / DETENTION SYSTEM, STORM DRAINAGE MANHOLES, ETC.) SHALL BE MADE WATER TIGHT USING NON-SHRINK CEMENTITIOUS GROUT.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

STORMWATER MANAGEMENT SYSTEM MATERIAL SPECIFICATIONS

- THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM IS TO BE DESIGNED BY OTHERS. ANY CHANGES TO THE PLANS SHALL BE PROVIDED TO THE DESIGN ENGINEER FOR REVIEW. PRIOR TO INSTALLATION, SHOP DRAWINGS OF THE STORMWATER MANAGEMENT SYSTEM SHALL BE PROVIDED TO THE DESIGN ENGINEER AND TO THE CITY OF RALEIGH FOR REVIEW.
- FILTER CARTRIDGES SHALL BE CONTECH STORMFILTERS WITH PHOSPHOSORB MEDIA. INSTALLATION OF THE STORMWATER DEVICE SHALL BE PER THE MANUFACTURER'S INSTALLATION GUIDELINES AND SPECIFICATIONS.
- ACCESS RISERS SHALL BE INSTALLED PER STRUCTURAL SPECIFICATIONS. ACCESS STEPS / LADDERS SHALL BE ATTACHED TO THE RISERS TO ALLOW FOR ACCESS INTO THE STORMWATER MANAGEMENT SYSTEM.
- THE 24" RCP OUTLET BARREL OF THE DETENTION SYSTEM SHALL BE CLASS III RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS OF ASTM C76 LATEST. THE PIPE JOINTS SHALL BE TYPE R-4.
- GEOTEXTILE FABRIC FOR THE 24" OUTLET BARREL JOINTS SHALL BE MIRAF 180N OR ENGINEER APPROVED EQUAL (NON-WOVEN FABRIC). THE ON-SITE GEOTECHNICAL ENGINEER SHALL APPROVE FABRIC FOR USE.
- THE CONTRACTOR SHALL INSTALL THE STORMFILTER SYSTEM PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO PROVIDE A LETTER FROM MATERIAL SUPPLIER(S) STATING MATERIALS MEET THE SPECIFIED STANDARDS PRIOR TO INSTALLATION.
- COVER AND REVIEW OF SITE CONDITIONS TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE SYSTEM TO BE THE RESPONSIBILITY OF THE MANUFACTURER.

STATEMENT OF RESPONSIBILITY

- ALL REQUIRED MAINTENANCE AND INSPECTIONS OF THIS FACILITY SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER, PER THE EXECUTED OPERATION AND MAINTENANCE AGREEMENT FOR THIS FACILITY.

FOUNDATION NOTES

- ONCE THE EXCAVATION IS COMPLETE AND PRIOR TO INSTALLATION OF THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM, THE ON-SITE GEOTECHNICAL ENGINEER SHALL VERIFY THE BEARING CAPACITY OF THE UNDERLYING SOILS TO SERVE AS A FOUNDATION FOR THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM. IF THE ON-SITE GEOTECHNICAL ENGINEER DETERMINES THE FOUNDATION SOILS ARE UNSUITABLE, THEN THE UNSUITABLE MATERIAL SHOULD BE REMOVED DOWN TO A SUITABLE DEPTH AND THEN BUILT BACK UP TO THE CORRECT ELEVATION WITH A COMPACTED BACKFILL MATERIAL THAT IS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE APPROVED BACKFILL MATERIAL SHOULD HAVE A GRADATION THAT WILL NOT ALLOW THE MIGRATION OF FINES, WHICH COULD CAUSE SETTLEMENT OF THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM. IF NECESSARY, A GEOTEXTILE FABRIC CAN BE USED TO SEPARATE THE UNDERLYING SOILS AND THE BACKFILL MATERIAL. THIS GEOTEXTILE FABRIC (IF USED) IS TO BE SPECIFIED BY THE ON-SITE GEOTECHNICAL ENGINEER.
- PLEASE NOTE THAT IF THE CONTRACTOR CONSTRUCTS AND COVERS UP THE EXCAVATION FOR THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM PRIOR TO INSPECTION, THEN THIS AREA SHALL BE UNCOVERED AND TESTED (TO THE ENGINEER'S AND OWNER'S APPROVAL) AT THE CONTRACTOR'S EXPENSE.
- THE FOUNDATION SUBGRADE SHALL BE GRADED TO A UNIFORM OR SLIGHTLY SLOPING GRADE PRIOR TO PLACEMENT OF THE BEDDING MATERIAL. IF THE FOUNDATION SUBGRADE WILL BE EXPOSED FOR AN EXTENDED PERIOD OF TIME DURING CONSTRUCTION, THEN IT SHOULD BE GRADED TO A SLIGHT SLOPE SUCH THAT SATURATION OF THE SUBGRADE DOES NOT OCCUR.
- THE BEDDING MATERIAL FOR THE UNDERGROUND STORMWATER MANAGEMENT SYSTEM SHALL BE SPECIFIED BY THE ON-SITE GEOTECHNICAL ENGINEER. TYPICALLY, A WELL-GRADED GRANULAR MATERIAL WILL BE USED FOR THE BEDDING. PLEASE NOTE THAT IF CONSTRUCTION EQUIPMENT WILL BE OPERATING FOR AN EXTENDED PERIOD OF TIME ON THE BEDDING, THEN THE APPROPRIATE MEASURES (E.G. ENGINEERED FABRIC, STIFF GEOTGRID, ETC.) SHALL BE TAKEN TO ENSURE THE INTEGRITY OF THE BEDDING IS NOT COMPROMISED.
- THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM THE EXCAVATION. IT IS BEST TO BEGIN THE CONSTRUCTION OF THE DETENTION SYSTEM AND THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR WATER TO ESCAPE.
- THE ON-SITE GEOTECHNICAL ENGINEER SHALL DETERMINE IF FOUNDATION DRAINS ARE REQUIRED FOR THE UNDERGROUND SCM SYSTEM. THE DESIGN ENGINEER SHALL BE NOTIFIED FOLLOWING THIS DETERMINATION. IF REQUIRED, THE FOUNDATION DRAINS ARE TO BE DESIGNED ENTIRELY BY THE ON-SITE GEOTECHNICAL ENGINEER. THE FOUNDATION DRAIN SYSTEMS SHALL TIE TO THE NEAREST STORM SEWER INLET / JUNCTION BOX WITH INVERT LOWER THAN THE INVERT OF THE FOUNDATION DRAIN. FOUNDATION DRAIN SYSTEM SHALL NOT TIE INTO THE UNDERGROUND SCM AT ANY POINT.

BEDDING NOTES

- THE EXCAVATION SUB GRADE MUST BE TRANSIT LEVEL.
- THE EXCAVATION PIT SHALL BE LINED (ON THE BOTTOM AND ALL FOUR SIDES) WITH A NON-WOVEN GEO-TEXTILE (GEOTEX 401 OR APPROVED EQUIVALENT). THE ON-SITE GEOTECHNICAL ENGINEER SHALL APPROVE FABRIC FOR USE.
- THE SUBGRADE FOR THE DETENTION SYSTEM CAN BE A CONCRETE SLAB, OR CLEAN GRANULAR MATERIAL WITH A MAXIMUM AGGREGATE SIZE OF 3/4". THE BEDDING SHALL BE FREE FROM ROCK FORMATIONS, PROTRUDING STONES, FROZEN LUMPS, ROOTS, AND OTHER FOREIGN MATERIAL.
- PREPARE THE SUBGRADE PER THE ON-SITE GEOTECHNICAL ENGINEER'S DIRECTION (APPROXIMATELY 5'-6" BELOW GRADE ON WHICH SLAB WILL SET). THE BEDDING MATERIAL SHOULD BE GRADED SUCH THAT A SMOOTH UNIFORM GRADE IS ESTABLISHED TO ALLOW FOR OPTIMUM PLACEMENT OF THE SAND FILTER.
- THE SUBGRADE MUST SUPPORT THE DETENTION SYSTEM WITHOUT DIFFERENTIAL SETTLEMENT BETWEEN PIECES.
- IF CONSTRUCTION EQUIPMENT WILL BE OPERATING FOR AN EXTENDED PERIOD OF TIME ON THE BEDDING, THEN THE APPROPRIATE MEASURES (E.G. STIFF GEOTGRID, ETC.) SHALL BE TAKEN TO ENSURE THE INTEGRITY OF THE BEDDING IS NOT COMPROMISED.

BACKFILL MATERIAL NOTES

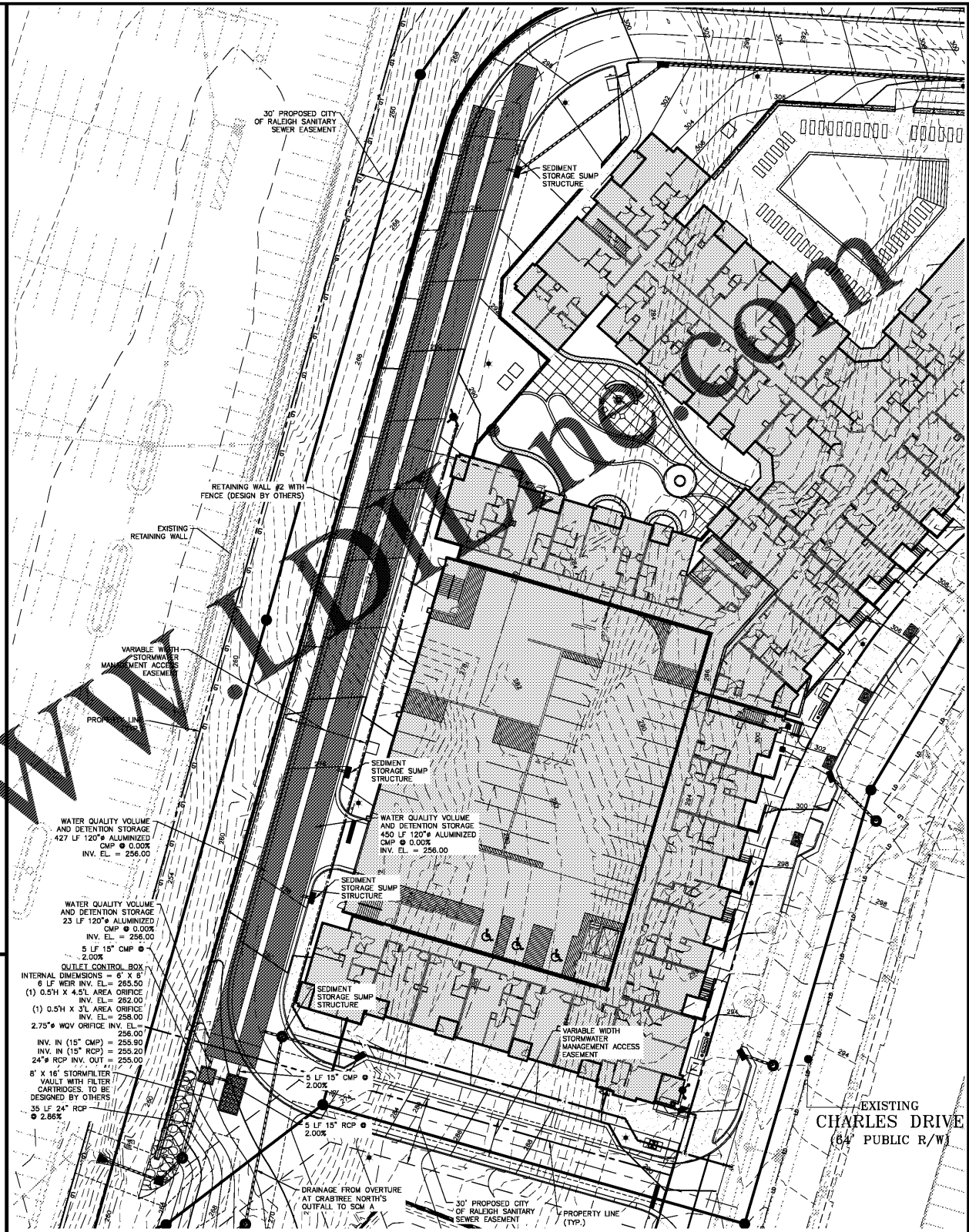
- THE ON-SITE GEOTECHNICAL ENGINEER SHALL SPECIFY THE BACKFILL MATERIAL FOR THE STORMWATER MANAGEMENT SYSTEM.
- THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FROZEN LUMPS, AND OTHER FOREIGN MATTER THAT COULD CAUSE HARD SPOTS WITHIN THE BACKFILL MATERIAL, OR THAT COULD DECOMPOSE AND CREATE VOIDS.
- HIGHLY PLASTIC SILTS, HIGHLY PLASTIC CLAYS, ORGANIC SILTS, ORGANIC CLAYS, AND PEATS SHOULD NOT BE USED AS A BACKFILL MATERIAL.
- THE BACKFILL MATERIAL SHOULD BE PLACED IN 6" LOOSE LIFTS AND COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN +/- TWO PERCENT OF ITS OPTIMUM MOISTURE CONTENT.
- ANY MATERIAL STOCKPILING ON TOP OF THE STORMWATER MANAGEMENT SYSTEM SHALL BE APPROVED BY THE STRUCTURAL DESIGN ENGINEER OR DETENTION SYSTEM MANUFACTURER.

STORMFILTER VAULT CONSTRUCTION NOTES

- STORMFILTER VAULT CONFIGURATION IS TO BE DESIGNED AND PROVIDED BY OTHERS.
- ABSOLUTELY NO RUNOFF SHALL ENTER THE STORMFILTER VAULTS UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
- MANHOLE ACCESS SHALL BE PROVIDED FOR THE STORMFILTER VAULTS. MANHOLES SHALL BE IN COMPLIANCE WITH CITY OF RALEIGH STANDARD DETAILS BUT SHALL BE A MINIMUM OF 24 INCHES IN DIAMETER TO COMPLY WITH OSHA CONFINED SPACE REQUIREMENTS (OR MINIMUM OSHA REQUIREMENTS APPLICABLE AT TIME OF CONSTRUCTION). CONTRACTOR SHALL PROVIDE ACCESS FOR ACCESS FOR ACCESS BELOW ALL MANHOLES. MANHOLE COVERS SHALL ALLOW FOR PROPER VENTILATION.

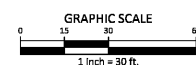
SYSTEM TESTING NOTES

- PRIOR TO PLACEMENT OF THE BACKFILL MATERIAL AND STORM FILTER CARTRIDGES, CONTRACTOR SHALL TEST FOR WATER TIGHTNESS. ENTRANCES AND EXITS SHALL BE PLUGGED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DEMONSTRATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO SIGNIFICANT LEAKAGE AS DETERMINED BY THE DESIGN AND STRUCTURAL ENGINEER FOR PERIOD OF 24 HOURS. CONTRACTOR SHALL CALL AND SCHEDULE THE FIELD TESTING BY THE SYSTEM BOTH WATER TIGHTNESS AND FLOW DISTRIBUTION WITH THE ENGINEER AT LEAST 2 WORKING DAYS PRIOR TO THE TEST. THE CONTRACTOR SHALL PROVIDE WRITTEN REPORTS TO THE ENGINEER VERIFYING THE WATER TIGHTNESS OF THE STORMWATER VAULT AND ADEQUATE FLOW DISTRIBUTION PRIOR TO PLACEMENT OF THE FILTER MEDIA.



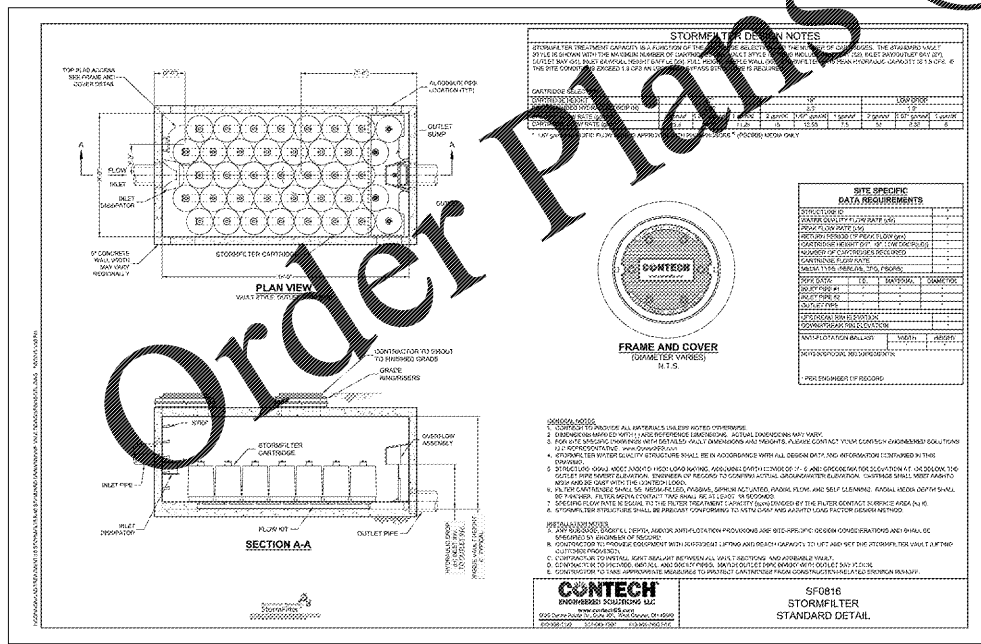
STORMWATER CONTROL MEASURE 'A' PLAN VIEW

1" = 30'



ALL CONSTRUCTION SHALL CONFORM WITH THE LATEST VERSION OF THE CITY OF RALEIGH, SPECIFICATIONS AND DETAILS.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



STORMFILTER VAULT
N.T.S.

CONTECH
STORMFILTER
STANDARD DETAIL

SF0816
STORMFILTER
STANDARD DETAIL

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CRABTREE NORTH APARTMENTS
ADMINISTRATIVE SITE REVIEW
RALEIGH, NORTH CAROLINA, 27716



REVISIONS

NO.	DATE	REVISION DESCRIPTION
1	11.19.19	REVISED PER CITY OF RALEIGH COMMENTS

PLAN INFORMATION

PROJECT NO. EYC-18000
FILENAME HIN19000-SW
CHECKED BY KEG
DRAWN BY KEG
SCALE 1"=30'
DATE 07.08.2019

SHEET
STORMWATER CONTROL
MEASURE 'A' PLAN VIEW
C10.00

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