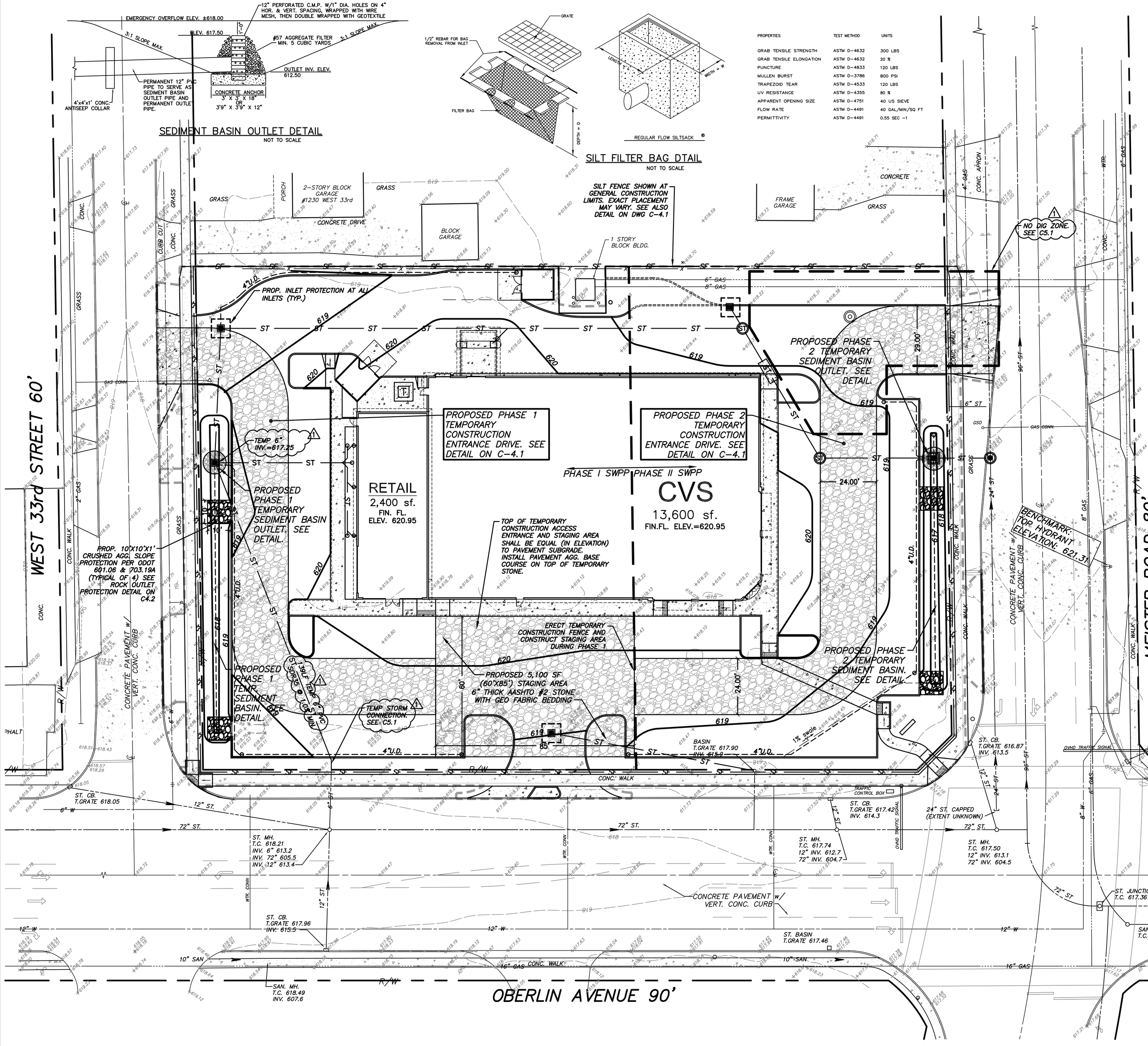
SEDIMENT BASIN OUTLET DETAIL
NOT TO SCALE

SILT FILTER BAG DTAIL
NOT TO SCALE

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1



STORM WATER POLLUTION PREVENTION NOTES

1. THIS CONTRACT DRAWING SHALL BE MADE AVAILABLE ON SITE AT ALL TIMES AND PRESENTED UPON REQUEST.

2. ALL APPLICABLE TEMPORARY CONSTRUCTION SWPPP PRACTICES WILL BE INSTALLED FIRST BEFORE ANY OTHER EARTH-MOVING OCCURS. PERIMETER CONTROLS SHALL BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED.

3. EROSION AND SEDIMENT CONTROL PRACTICES NOT ALREADY SPECIFIED ON THIS PLAN MAY BE NECESSARY DUE TO UNFORESEEN ENVIRONMENTAL CONDITIONS AND/OR CHANGES IN GRADING PATTERNS CAUSED BY EARTH-MOVING ACTIVITY.

4. ALL EROSION AND SEDIMENTATION CONTROL ITEMS SHALL BE INSTALLED AS SHOWN ON THIS SHEET AND ALSO SHALL BE INSTALLED AROUND ALL DIRT OR TOPSOIL STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS SHOWN ON THESE PLANS AND AS DIRECTED BY THE CITY.

5. THE EXISTING USE OF THE SITE IS RETAIL STRIP CENTER. THE SOIL CLASSIFICATION OF THE SOILS ON-SITE ARE PRODOMENENTLY CL-ML: SILTY CLAY, INCLUDES CLAYEY SILT OF LOW PLASTICITY. THE EXISTING SITE IS ±90% IMPERVIOUS AND THE PROPOSED SITE IS ±75% IMPERVIOUS. THE PERCENT DECREASE IN IMPERVIOUSNESS CREATED BY CONSTRUCTION ACTIVITY IS ±15%. THE PERCENT IMPERVIOUS TAKES INTO ACCOUNT THE EXISTING USE OF THE LAND AND EXISTING RUNOFF PATTERNS. THE PROPOSED C FACTORS SHOWN ARE THE AVERAGE TAKEN FOR THE ENTIRE SITE AND AS DIRECTED BY THE EXISTING ORDINANCE FOR THE CITY. THE EXISTING C FACTOR WAS CALCULATED AS 0.90 AND THE SITE DRAINS INTO VARIOUS CITY SEWERS. THE EXISTING C FACTOR AND DRAINAGE PATTERN HAS NOT BEEN SHOWN ON THE PLAN TO AVOID CLUTTER, BUT IS BEING NOTED HERE INSTEAD. TO THE KNOWLEDGE OF THE DESIGN ENGINEER, THERE ARE NO WETLANDS, STREAMS, LAKES, WATER WELLS, ETC ON OR WITHIN 200' OF THE PROPOSED CONSTRUCTION SITE.

6. THE NATURE OF THE PROJECT IS NEW BUILDING CONSTRUCTION AND SITE IMPROVEMENTS, INCLUDING A PAVED PARKING AREA. THE TOTAL AREA OF DISTURBANCE FOR THIS PROJECT IS APPROXIMATELY 75,771 S.F. (1.74 ACRES). THE REQUIRED SEDIMENT VOLUME PER 67 C.Y./ACRE IS 116 CUBIC YARDS. MORE THAN 116 C.Y. HAVE BEEN PROVIDED IN THE TEMPORARY SEDIMENT BASINS. A SEDIMENT BASIN IS NOT REQUIRED ON SUCH A SMALL SITE BUT IS BEING PROVIDED AS A BMP DUE TO THE PROPOSED GRADING AND DRAINAGE PATTERNS. THERE SHALL BE NO SEDIMENT-LADEN DISCHARGES TO SURFACE WATERS OF THE STATE RESULTING FROM DEWATERING ACTIVITIES. TRENCH OR GROUND WATER CONTAINING SEDIMENT MUST PASS THROUGH THE SEDIMENT POND.

7. PROVIDE TEMPORARY SEEDING AND MULCHING WITHIN 7 DAYS IN ALL AREAS THAT SHALL REMAIN INACTIVE FOR 21 DAYS OR MORE. PROVIDE PERMANENT SEEDING AT ANY AREAS AT FINAL GRADE OR THAT WILL LIE DORMANT FOR ONE YEAR OR MORE WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE. A 70% VEGETATIVE DENSITY IS REQUIRED ON ALL DISTURBED SOIL AREAS FOR STABILIZATION.

8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND EROSION CONTROL ITEMS AT ALL TIMES UNTIL ALL UP SLOPE AREAS ARE PERMANENTLY STABILIZED AND FINAL ACCEPTANCE OF THE SITE BY THE OWNER/DEVELOPER.

9. THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES WILL BE USED ON THIS SITE: - TEMPORARY SEDIMENT BASIN, SILT FENCES, ROCK OUTLET PROTECTION, AND CONSTRUCTION DRIVE ENTRANCES.

10. NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF.

11. ALL CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH PER 24 HOUR PERIOD. IF THE INSPECTION REVEALS THAT A CONTROL PRACTICE IS IN NEED OF REPAIR OR MAINTENANCE, WITH THE EXCEPTION OF A SEDIMENT SETTLING POND, IT MUST BE REPAIRED OR MAINTAINED WITHIN 3 DAYS OF THE INSPECTION. SEDIMENT SETTLING PONDS MUST BE REPAIRED WITHIN 10 DAYS OF THE INSPECTION. PERMITTEE SHALL MAINTAIN FOR 3 YEARS FOLLOWING THE SUBMITTAL OF A NOTICE OF TERMINATION FORM (N.O.T.) FORM, A RECORD SUMMARIZING THE RESULTS OF THE INSPECTION, NAME(S) AND THE QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS AND CERTIFICATION AS TO WHETHER THE FACILITY IS IN COMPLIANCE AND IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE.

POST CONSTRUCTION BMP'S (BEST MANAGEMNT PRACTICES)

1. PER OHIO EPA PERMIT NO. OHC000002 (GENERAL PERMIT) REDEVELOPMENT PROJECTS SHALL EITHER PROVIDE A 20% NET REDUCTION OF THE SITE IMPERVIOUS AREA, PROVIDE FOR TREATMENT OF AT LEAST 20% OF THE WQv, OR A COMBINATION OF THE TWO.

2. TWO BIORENTION CELLS ARE PROPOSED AS THE POST CONSTRUCTION BMP FOR THIS PROJECT. OTHER BMP'S WERE CONSIDERED FOR THIS PROJECT BUT BIORETENTION CELLS OFFER AN AESTHETICALLY PLEASING AND EFFECTIVE TREATMENT FOR THE LIMITED SPACE ON-SITE FOR STORMWATER QUALITY TREATMENT. THE TOTAL WQv = C*P*A/12 = 0.8*0.75*1.57/12 = 0.0785 ACRE-FT = 3,420 CF. THE REQUIRED WQv FOR THE REDEVELOPMENT (20% OF TOTAL WQv) IS 0.20*3,420=684 CF. A TOTAL WQv LARGER THAN 684 CF HAS BEEN PROVIDED IN THE BIORETENTION CELLS.

3. PERMANENT SEEDING IN ALL GRASS AREAS WILL ALSO BE PROVIDED AS PERMANENT STABILIZATION AND DESIGNATED TRASH PICKUP AREAS WILL BE PROVIDED FOR NON-SEDIMENT POLLUTANTS AS WELL AS RECYCLABLES.

PROPOSED CONSTRUCTION SEQUENCE

SITEWORK SHALL GENERALLY CONSIST OF INSTALLING EROSION CONTROL MEASURES, DEMOLITION, GRADING, INSTALLATION OF UTILITIES, PAVEMENT, LANDSCAPING, AND TEMPORARY & PERMANENT SEEDING. THE SITE WILL BE CONSTRUCTED IN 2 PHASES. THE FOLLOWING SHALL APPLY FOR EACH RESPECTIVE PHASE.

1. INSTALL SILT FENCE. INSTALL STORM INLET PROTECTION.

2. THE TEMPORARY SEDIMENT BASIN AREA (SAME AS BIORETENTION AREAS) SHALL BE CLEARED, STRIPPED AND GRUBBED. THE TEMPORARY SEDIMENT BASIN SHALL BE CONSTRUCTED.

3. THE ENTIRE PROJECT SITE SHALL BE DEMOLISHED/CLEARED, STRIPPED AND GRUBBED WITHIN THE GRADING LIMITS AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL STOCKPILE TOPSOIL WITHIN THE SILT FENCE AND GENERAL GRADING AREA BOUNDARIES.

4. COMMENCE GENERAL SITE GRADING OPERATION.

5. COMMENCE UTILITY CONSTRUCTION.

6. AT COMPLETION OF GRADING OPERATION, TEMPORARY OR PERMANENT SEEDING AND MULCHING SHALL BE INSTALLED. STABILIZE BIORETENTION CONTRIBUTING AREA PRIOR TO BIORETENTION CONSTRUCTION.

7. FINAL PAVING. FINAL SEEDING SHALL OCCUR IN ALL PERMANENT SEEDING AREAS.

8. ALL TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED ONCE FINAL STABILIZATION HAS BEEN ESTABLISHED.

9. AFTER 70% VEGETATIVE DENSITY, REMOVE SEDIMENT BASIN OUTLET RISER, REMOVE SEDIMENT FROM DETENTION BASIN, PREPARE AND CONSTRUCT BIORETENTION AREA AND INSTALL HEADWALL. CLEAN OUT SEDIMENT FROM OUTLET CONTROL STRUCTURE SUMP. INSTALL BAFFLE PLATE IN OUTLET CONTROL STRUCTURE.

LONG TERM MAINTENANCE SCHEDULE OF BIORETENTION PONDS

THE OWNER OF THE PROPERTY OR A QUALIFIED REPRESENTATIVE PAID FOR BY THE OWNER SHALL BE RESPONSIBLE FOR INSPECTION OF THE BIORETENTION OUTLET CONTROL STRUCTURE, EMBANKMENT DAMAGE, OUTLET DAMAGE, PROPER FLOW AND SEDIMENT ACCUMULATIONS. THE OWNER SHALL BE RESPONSIBLE FOR PAYMENT RELATED TO MAINTENANCE OF THE BASIN AND APPURTANCES.

INSPECTIONS AND MAINTENANCE SHALL TAKE PLACE AT A MINIMUM AS FOLLOWS:
MONTHLY-MOW EMBANKMENT. GRASS CLIPPINGS SHALL BE COLLECTED AND HAULED OFF SITE. NO DUMPING OF CLIPPINGS SHALL BE PERMITTED IN THE BIORETENTION AREA. REMOVE LEAVES, TRASH AND DEBRIS FROM THE BIORENTION CELL, STONE LEVELING TRENCH, AND STONE RIP RAP. REMOVE ANY NOTICEABLE SEDIMENT ACCUMULATION CAUSED BY EROSION OR AFTER STRONG STORM EVENTS. ADDRESS ANY ACCUMULATION OF HYDROCARBONS.
ANNUALLY-CLEAN OUT 2" SUMP IN BIOSWALE INLET STRUCTURE. INSPECT BIORETENTION EMBANKMENTS AND OUTLET STRUCTURE FOR DAMAGE AND PROPER FLOW. REPAIR ANY ERODING AREAS AND REPLACE LEVELING TRENCH STONE AND STONE RIP RAP IF CONTAMINATED.

GRAPHIC SCALE: 0' 10' 20'

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

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STATE OF OHIO
FRANK R. VILLANTI E-68702
REGISTERED PROFESSIONAL ENGINEER

DATE	REVISION	BY
03/14/08	FOR OWNER REVIEW	FRV
03/29/08	FOR PERMIT / BID	FRV
06/30/08	ENVIRO RELATED REVISIONS	FRV
	Revised storm sewer layout at northwest and related grading.	

CVS #3353
SWC of OBERLIN AVE & MEISTER ROAD LORAIN, OH 44052
CIVCON Engineering Consultants, Inc.
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STORM WATER POLLUTION PREVENTION PLAN

DESIGNED BY:	DRAWN BY:	CHECKED BY:
FRV	FRV	FRV

DATE 03/14/08
SCALE 1"=20'
JOB NO. JOB # C07155
SHEET NO.

C-4.1
SWPPP SHEET 1 of 2

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