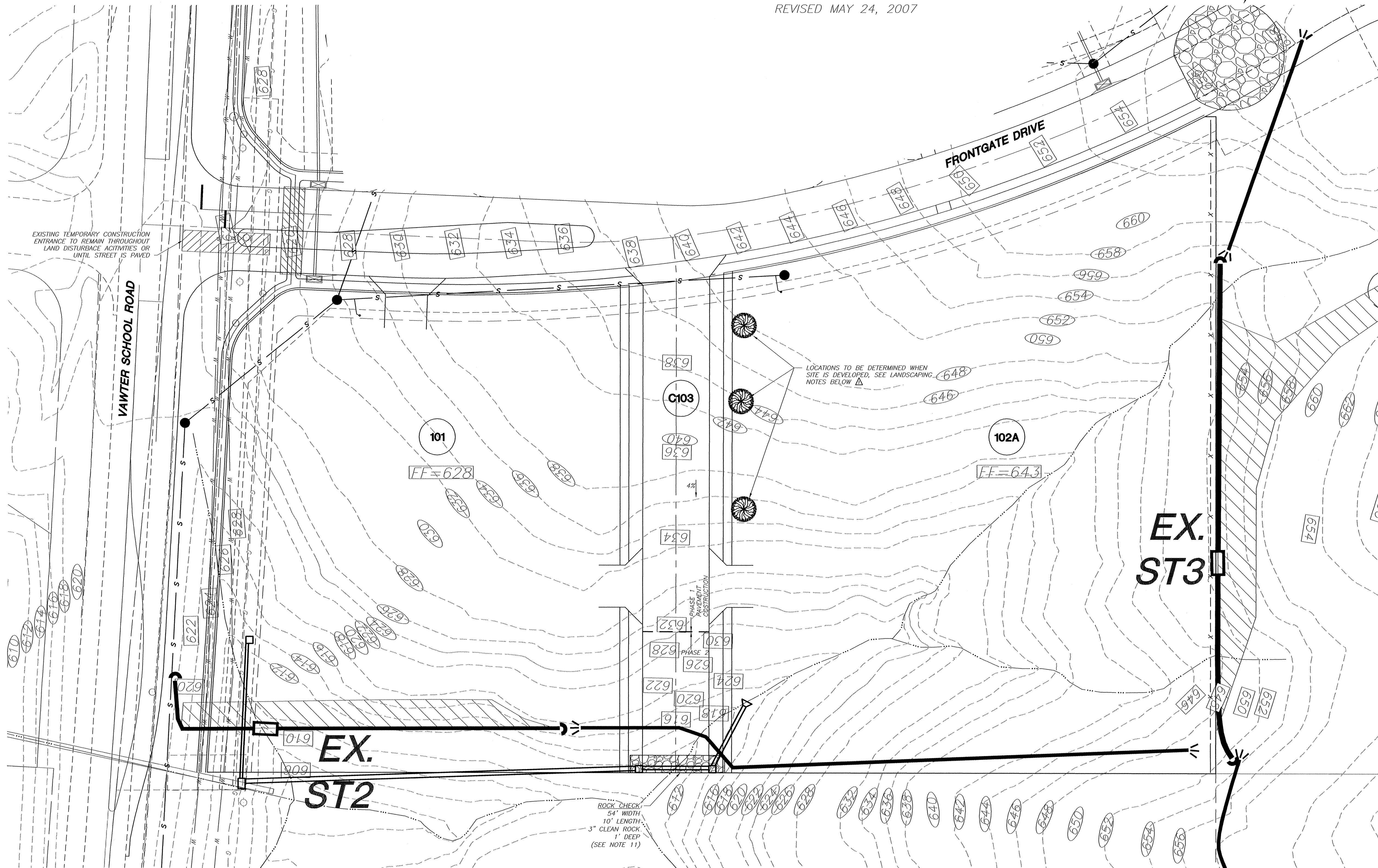


LAND PRESERVATION / LANDSCAPING PLAN
COPPERSTONE COMMERCIAL

APRIL 11, 2007
 REVISED MAY 24, 2007

TEMPORARY TURNAROUND TO BE INSTALLED WHEN FRONTGATE DRIVE IS PAVED AS PER COPPERSTONE COMMERCIAL PLAT 1 STREET PLANS



GENERAL NOTES:

- ALL WORK SHALL COMPLY WITH THE CITY OF COLUMBIA AND STATE OF MISSOURI D.N.R. REGULATIONS IN REGARDS TO LAND DISTURBANCE.
- THE EROSION CONTROL MEASURES ARE SHOWN ON THE PLAN USING SYMBOLS. REFER TO THE LEGEND FOR A LIST AND MEANING OF THE SYMBOLS.
- ALL AREAS DISTURBED SHALL BE SEEDED AND MULCHED AFTER ALL CONSTRUCTION IS COMPLETE AND BE IN COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN. SEEDING MAY BE PHASED SO THAT GROUND COVER IS ESTABLISHED SOONER.
- THE FINAL CONTOURS SHOWN ARE APPROXIMATE, AND MAY BE CHANGED IN THE FIELD WITH THE PUBLIC WORKS ENGINEERING DEPT. APPROVAL. THE GOAL BEING TO GRADE THE SITE TO MINIMIZE OR ELIMINATE POSSIBLE DRAINAGE PROBLEMS FROM OCCURRING IN THE FUTURE.
- THE LOW FLOOR ELEVATIONS SHOWN ARE FOR THE LOWEST LIVING FLOOR OF A STRUCTURE. THIS ELEVATION MAY BE REVISED TO FIT A BUILDING DESIGN THAT TAKES INTO ACCOUNT DRAINAGE CONSIDERATIONS. ANY CHANGE TO THE MINIMUM LOW FLOOR ELEVATION MUST BE SUBMITTED BY THE DESIGN ENGINEER AND APPROVED BY THE CITY OF COLUMBIA PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR SHALL BE REQUIRED TO HAVE COMPACTION TESTING PERFORMED ON ALL FILL AREAS. THIS DATA MUST BE RECORDED IN A FORM THAT THE AREAS TESTED CAN BE RELOCATED ON A PLAN. THE TESTING REQUIRED SHALL BE ONE PASSING TEST FOR EACH 8 INCHES OF FILL ON EACH LOT WITHIN THE FILLED AREAS.
- THIS TRACT IS LOCATED IN THE NORTHWEST QUARTER OF SECTION 33, TOWNSHIP 48 NORTH, RANGE 13 WEST, CITY OF COLUMBIA, BOONE COUNTY, MISSOURI.
- DISPOSE OF MATERIAL REMOVED FROM MAINTENANCE OF TRAPS IN BLACK DIRT STOCK PILES.

MDNR REQUIREMENTS

- SUBSTANCES REGULATED BY FEDERAL LAW UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) OR THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA) WHICH ARE TRANSPORTED, STORED OR USED FOR MAINTENANCE, CLEARING OR REPAIRS SHALL BE MANAGED ACCORDING TO THE PROVISIONS OF RCRA AND CERCLA.
- ALL PAINTS, SOLVENTS, PETROLEUM PRODUCTS AND PETROLEUM WASTE PRODUCTS (EXCEPT FUELS) AND STORAGE CONTAINERS (SUCH AS DRUMS, CANS, OR CARTONS) SHALL BE STORED SUCH THAT THESE MATERIALS ARE NOT EXPOSED TO STORM WATER. SUFFICIENT PRACTICES OF SPILL PREVENTION, CONTROL AND/OR MANAGEMENT SHALL BE PROVIDED TO PREVENT ANY SPILLS OF THESE POLLUTANTS FROM ENTERING A WATER OF THE STATE. ANY CONTAINMENT SYSTEM USED TO IMPLEMENT THIS REQUIREMENT SHALL BE CONSTRUCTED OF MATERIALS COMPATIBLE WITH THE SUBSTANCES CONTAINED AND SHALL ALSO PREVENT THE CONTAMINATION OF GROUNDWATER.
- THE APPLICANT SHALL NOTIFY BY TELEPHONE AND IN WRITING THE DEPARTMENT OF NATURAL RESOURCES, WATER POLLUTION CONTROL PROGRAM, POST OFFICE BOX 1726, JEFFERSON CITY, MO 65102, 1-800-361-4827, OF ANY OIL SPILLS OR IF HAZARDOUS SUBSTANCES ARE FOUND DURING THE PROSECUTION OF WORK UNDER THIS PERMIT.

EROSION CONTROL NARRATIVE:

- THE PROJECT CONSISTS OF CREATING LOW DENSITY RESIDENTIAL LOTS ALONG WITH THE REQUIRED INFRASTRUCTURE. THIS INCLUDES CONSTRUCTION OF THE HOUSES, STREETS, SIDEWALKS, SANITARY SEWERS, STORM SEWERS, ELECTRIC, GAS, WATER, TELEPHONE, AND CABLE TV UTILITIES. IN MY OPINION, THERE ARE NO SIGNIFICANT SILTATION OR EROSION CONTROL PROBLEM AREAS ON THE SITE AT THIS TIME. HOWEVER, CONSTRUCTION OF THESE IMPROVEMENTS WILL CREATE THE POTENTIAL OF SILTATION AND EROSION PROBLEMS IF NOT CAREFULLY MANAGED.
- TO MY KNOWLEDGE THERE ARE NO EXISTING OFF-SITE EROSION, SILTATION PROBLEMS DOWN STREAM FROM THIS DEVELOPMENT. THE DEVELOPMENT WILL HAVE MINOR IMPACTS TO THE RECEIVING STREAMS IMMEDIATELY DOWN STREAM FROM THE SITE DURING THE 1 TO 2 YEARS OF CONSTRUCTION OF THE DEVELOPMENT. AFTER CONSTRUCTION, LAND DISTURBANCE ACTIVITIES WILL DIMINISH AND THEIR EFFECTS OFF-SITE WILL DECREASE TO VERY MINOR IMPACT.
- THE CURRENT RUNOFF FACTORS INCLUDE SEASONAL LEAF COVER ON TREES AND PLANTS, FESCUE PASTURES, AND LIMITED STEEP GRADES. THE SITE WILL CHANGE FROM APPROXIMATELY 1% IMPERVIOUS AREA TO APPROXIMATELY 25% IMPERVIOUS AREA.
- THE PEAK DISCHARGE FOR THE 25-YEAR STORM ON THE ENTIRE SITE= Q= CIAK= 0.90 X 8 X 3.90 X 1.008= 28.30 CFS.
- THE MANAGEMENT OF THE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER UNTIL ALL AREAS ARE ESTABLISHED WITH NEW GROUND COVER.
- THE CONSTRUCTION OF THE PROJECT SHALL INCLUDE THE PHASES OF: GRADING AND STREET AND SIDEWALK CONSTRUCTION. THE ENTIRE SITE SHALL BE GRADED AT ONE TIME AND ALL SURFACES SHALL NOT BE DENIED FOR, AND SHALL BE STABLE AND NON-EROSIVE WITHIN THE LESSER OF 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER COMPLETION OF THE WORK AUTHORIZED BY THE LAND DISTURBANCE PERMIT. ALL STOCKPILES SHALL BE PROTECTED W/ SILT FENCE. ALL GRADING ACTIVITIES SHALL BE DONE IN A MANNER THAT CONFORMS TO THE MEASURES SHOWN ON THE PLAN.
- THE EROSION CONTROL MEASURES SHOWN ON THE PLAN WERE CHOSEN AS THE BEST MANAGEMENT PRACTICES APPROPRIATE FOR THE SITE.
- THE EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY, TO INSURE MAXIMUM EFFECTIVENESS OF THE PROTECTIVE MEASURES AND TO ASSURE THAT PREVENTATIVE MAINTENANCE EFFORTS WILL BE CARRIED OUT WHEN NEEDED. ALL AREAS SHALL BE RESEEDED AFTER GRADING IS COMPLETE. ALL STRUCTURAL MEASURES SHALL BE MAINTAINED AND THE WASTE MATERIALS REMOVED AND DISPOSED OF PROPERLY.
- ALL STORM INLETS WILL HAVE SILT FENCE PLACED AROUND THEM FOR EROSION CONTROL.
- SEE ORIGINAL OVERALL LAND DISTURBANCE PLAN FOR COPPERSTONE FOR DETAILS.
- ROCK CHECK, OR EQUIVALENT OTHER, IS TO BE INSTALLED WHEN ROAD IS NEAR FINAL GRADE AND IS TO REMAIN THROUGH STREET PAVING UNTIL CONTRIBUTING AREAS ARE STABILIZED.

TREE PRESERVATION

THERE IS NO CLIMAX FOREST LOCATED ON THIS SITE.

LANDSCAPING NOTES

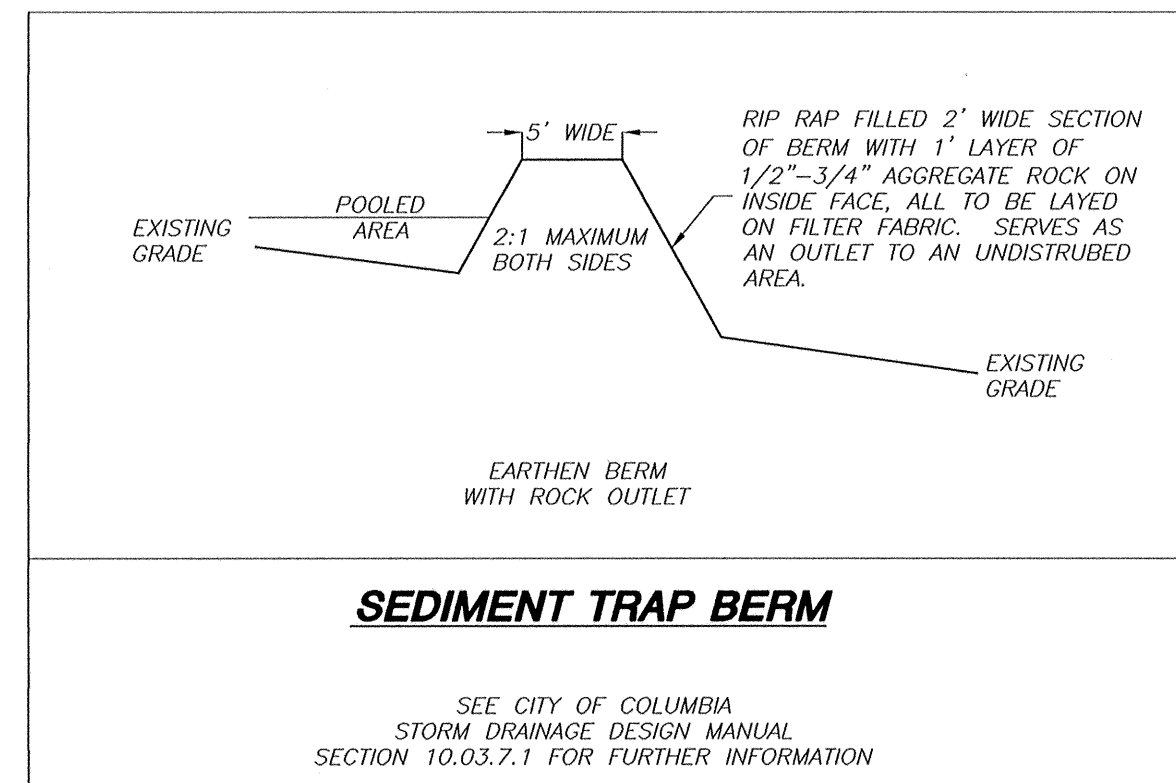
13,104 SQUARE FEET OF PAVED AREA
 @ 1 TREE/4,500 SQ.FT. = 3 TREES (1 LARGE).
 LOCATION TO BE DETERMINED AND TREES PLANTED WITH PRIVATE STREET CONSTRUCTION.

STORM WATER MANAGEMENT

STORM WATER MANAGEMENT FOR LOTS 101, 102A AND 103 SHALL BE PER THIS APPROVED C-P PLAN.

DRAINAGE NOTES (SEE COPPERSTONE STREET PLANS)

- R1 265 L.F. 15" HDPE @ 4.12% W/ F.E.S. & 1'X4'X12" RIPRAP
- R2 20+44.02 8'X3' TYPE-M INLET, TOP =626.4', 6" IN =621.52' 6" OUT =621.42'
- R3 46 L.F. 15" CMP @ 2.41%
- R4 20+44.02 8'X3' TYPE-M INLET, TOP =626.4', 6" OUT =622.63'
- Q1 80 L.F. 15" CMP @ 20.03% W/ F.E.S. & 1'X4'X12" RIPRAP
- Q2 3+39.18 6'X3' TYPE-M INLET, TOP =631.5', 6" OUT =627.50'



EROSION CONTROL PHASING

THE LAND DISTURBANCE ACTIVITIES FOR THIS PROJECT WILL OCCUR IN THE FOLLOWING ORDER:

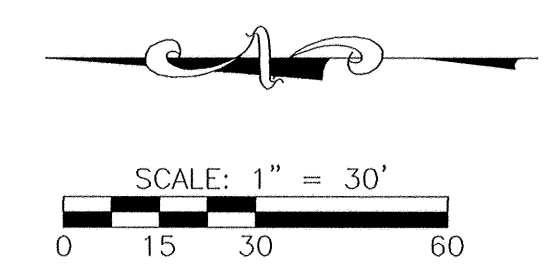
- CLEAR BRUSH AND STRIPPING AND STOCKPILING TOPSOIL
- OVERALL SITE GRADING
- PARKING LOT PAVING
- EXCAVATION OF FOOTINGS FOR BUILDINGS
- BACKFILLING AROUND FOUNDATIONS
- FINISHED SITE GRADING

THE PLACEMENT OF THE BMP'S SHALL OCCUR ON THE FOLLOWING SCHEDULE:

- THE BMP'S LABELED (1) SHALL BE IN PLACE BEFORE ANY LAND DISTURBANCE ACTIVITY TAKES PLACE AND REMAIN FOR THE PROJECT DURATION EXCEPT IF REMOVED TO INSTALL REQUIRED INFRASTRUCTURE AND MAY INCLUDE: CONSTRUCTION ENTRANCES AND SILT FENCE.
- ALL BMP'S LABELED (2) SHALL BE IN PLACE IMMEDIATELY AFTER THE SITE IS CLEARED AND MAY INCLUDE: SOIL DIVERSION BERMS AND SEDIMENT TRAPS
- ALL SOIL STOCK PILE BMP'S SHALL BE IN PLACE IMMEDIATELY AFTER THE SITE IS CLEARED AND THE TOPSOIL IS STOCKPILED AND SHALL REMAIN UNTIL THE FINISHED SITE GRADING OCCURS.
- ANY AREAS THAT HAVE BEEN GRADED WILL BE TEMPORARILY SEEDED BEFORE EXCEEDING THE 30 DAY PERIOD.
- ALL AREAS SHALL BE PERMANENTLY SEEDED AFTER ALL PROPOSED STRUCTURES FOR THE PROJECT ARE IN PLACE AND THE TOPSOIL HAS BEEN SPREAD OR REAPPLIED. PERMANENT SEEDED SHALL OCCUR AS SOON AS POSSIBLE TO PROTECT ANY EARTHEN STRUCTURES SUCH AS DIKES, CHANNELS OR EMBANKMENTS. ALL DISTURBED AREAS PROPOSED TO REMAIN UNDEVELOPED FOR PERIODS LONGER THAN 12 MONTHS SHALL BE PERMANENTLY SEEDED.

SEDIMENT TRAP ID	CONTRIBUTING AREA (ACRES)	PONDED AREA (SQ. FT.)	HEIGHT OF SEDIMENT TRAP, FT (5" MAX)	BASE ELEVATION (FT)	PROVIDED VOLUME, CU. FT. (PONDED AREA X HEIGHT X 0.4)	REQUIRED VOLUME, CU. FT. (ACREAGE X 1800)	OUTLET STRUCTURE (ROCK OR PIPE)
ST2	3.36	3031	5	612	6062	6050	PIPE

* CONTRIBUTING AREAS OF EACH TRAP ARE DETERMINED FOR PRE AND POST ROUGH GRADING, THE LARGER VALUE IS USED TO CALCULATE THE REQUIRED VOLUME OF THE TRAP.



LAND PRESERVATION PLAN - COPPERSTONE COMMERCIAL

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DATE: 4/11/07	DRWN BY: TAK	DATE: 4/11/07
ENGR: JAG	CHK: JTK	DRAWING NO.: KEAR07.05
NO CHANGES THIS SHEET	NO CHANGES THIS SHEET	
NO. DATE DESCRIPTION	NO. DATE DESCRIPTION	
		JOB NO.: KEAR07.07
		SHEET 2 OF 2