

ROANOKE/FRANKLIN COUNTY WATERLINE EXTENSION PHASE II  
BOONE MAGISTERIAL DISTRICT  
FRANKLIN COUNTY, VIRGINIA  
JANUARY 14, 2009  
PROJECT #FCPP1004

- ## SOIL AND EROSION CONSTRUCTION SEQUENCE

1. CONTRACTOR RESPONSIBLE FOR FOLLOWING WESTERN VIRGINIA WATER AUTHORITY EROSION AND SEDIMENT CONTROL STANDARDS AS APPROVED FOR UTILITY LINE CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO OR AS THE FIRST STEP IN CLEARING/GRADING.
3. TO THE EXTENT POSSIBLE, GRADING IS TO BE PERFORMED IN SEQUENCE TO MINIMIZE TOTAL DISTURBED AREA AND CHANNEL RUNOFF TO STORMWATER CONVEYANCE DITCHES.
4. TEMPORARY OR PERMANENT SEEDING IS TO BE INSTALLED ON ALL DENUDED AREAS LEFT UNDISTURBED MORE THAN SEVEN DAYS.
5. CONTRACTOR IS TO BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY SOIL STABILIZATION MEASURES ONCE STABILIZATION HAS BEEN ACHIEVED.
6. MISS UTILITY LOCATOR SERVICE (1-800-552-7001) TO BE CONTACTED AT LEAST SEVENTY-TWO HOURS PRIOR TO DIGGING.
7. ALL TEMPORARY DITCHES AND SILT FENCES ARE TO BE REMOVED ONCE STABILIZATION HAS BEEN ACHIEVED.

## GENERAL SOIL AND EROSION NOTES

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL SOIL AND EROSION MEASURES REQUIRED BY THE PLAN APPROVING AUTHORITY.

ES-7: SITE GRADING IS TO DRAIN TO THE STORMWATER CONVEYANCE DITCHES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

## MINIMUM STANDARDS FOR CONTROLLING EROSION AND SEDIMENT

MS-1 STABILIZATION OF DENUDED AREAS

PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS ACHIEVED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

MS-2 STABILIZATION OF SOIL STOCKPILES

DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

MS-3 PERMANENT VEGETATION

A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

MS-4 TIMING AND STABILIZATION OF SEDIMENT TRAPPING MEASURES  
SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES  
INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING  
ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

MS-5 STABILIZATION OF EARTHEN STRUCTURES  
STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND  
DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

MS-6 SEDIMENT BASINS

SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

B. SURFACE RUNOFF FROM DISTURBED AREAS, THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTLET SYSTEM SHALL AT ALL TIMES MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING THE TWENTY-ONE YEAR DESIGN LIFE OF OUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXISTED WHILE THE SEDIMENT BASIN IS UTILIZED.

MS-7 CUT AND FILL SLOPES

CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

MS-8 CONCENTRATED RUNOFF FLOW DOWN CUT OR FILL SLOPES  
CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN  
ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

MS-9 WATER SEEPS FROM A SLOPE FACE  
WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL  
BE PROVIDED.

MS-10 STORM SEWER INLET PROTECTION  
ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

MS-11 STABILIZATION OF OUTLETS

BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

MS-12 WORK IN LIVE WATERCOURSES

WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE EROSION, ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

MS-13 CROSSING A LIVE WATERCOURSE  
WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.

MS-14 APPLICABLE REGULATIONS  
ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING  
LIVE WATERCOURSES SHALL BE MET.

MS-15 STABILIZATION OF BED AND BANKS  
THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

MS-16 UNDERGROUND UTILITY CONSTRUCTION  
UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS  
IN ADDITION TO OTHER APPLICABLE CRITERIA:

- B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
- D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
- E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
- F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

MS-17 CONSTRUCTION ACCESS ROUTES

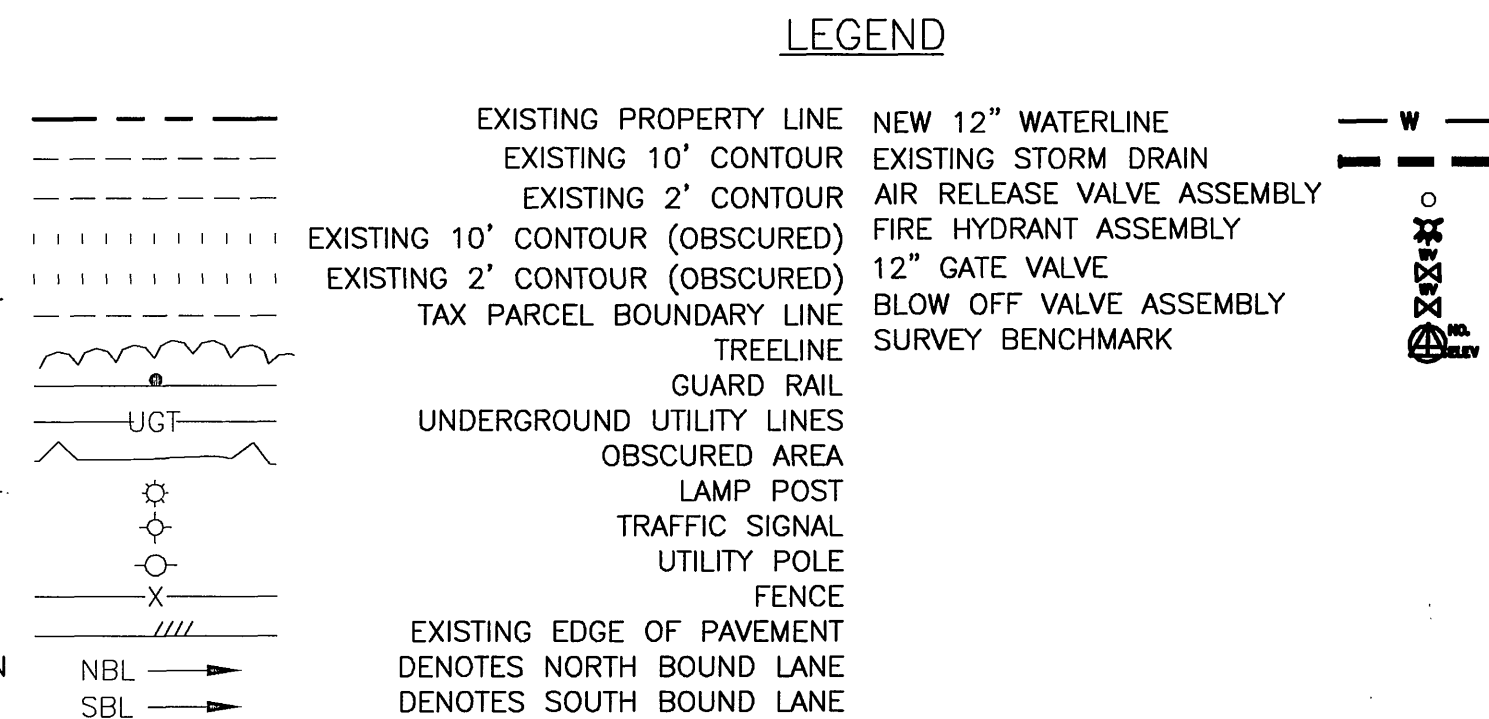
WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO THE SEDIMENT CONTROL BASIN. SEDIMENT REMOVED FROM THE ROADS SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.

MS-18 TEMPORARY EROSION & SEDIMENT CONTROL MEASURE REMOVAL

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OF AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

MS-19 PROTECTION OF DOWNSTREAM PROPERTIES AND WATERWAYS

PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A PERMIT TO IMPROVE EROSION AND SEDIMENT CONTROL FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND HIGHWAYS. EROSION AND SEDIMENT CONTROL HANDBOOK SHALL BE USED IN ADDITION TO THE APPROVED NARRATIVE AND PLAN.



### ABBREVIATIONS

ARV	AIR RELEASE VALVE	EX	EXISTING	REQ'D	REQUIRED
BC	BACK OF CURB	FH	FIRE HYDRANT	RT	RIGHT
BM	BENCH MARK	HB	HORIZONTAL BEND	R/W	RIGHT OF WAY
C/C	CENTER TO CENTER	HC	HANDICAP	SS	SANITARY SEWER
C G	CURB AND GUTTER	INV	INVERT	STA	STORM
CIP	CAST IRON PIPE	IPS	IRON PIN SET	STA	STATION
CL	CENTER LINE	IPF	IRON PIN FOUND	STD	STANDARD
CMP	CORRUGATED METAL PIPE	LF	LINEAR FEET	SW	SIDEWALK
CO	CLEAN OUT	LH	LEFT	TBA	TO BE ABANDONED
CONC	CONCRETE	MT	MANHOLE	TBR	TO BE REMOVED
CPP	CORRUGATED PLASTIC PIPE	NTS	NOT TO SCALE	TC	TOP OF CURB
CY	CUBIC YARDS	O.C.	ON CENTER	TOB	TOP OF BANK
DIA	DIAMETER	PE	POLYETHYLENE	TYP	TYPICAL
DIP	DUCTILE IRON PIPE	PROP	PROPOSED	UGE	UNDERGROUND
EL	ELEVATION	RPC	REINFORCED CONCRETE PIPE	WL	WATERLINE
ELEC	ELECTRIC	RESTR	RESTRAINED	WW	WOVEN WIRE
NOTES				YDS	YARDS


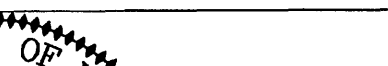
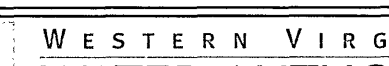
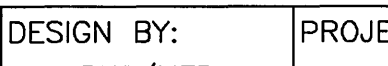
NOTES:

1. THE SIZE OF THE SYMBOLS MAY VARY FROM THOSE SHOWN.
2. ALL ABBREVIATIONS AND SYMBOLS SHOWN MAY NOT BE USED.

## TABLE OF CONTENTS

<u>DRAWING NUMBER</u>	<u>SHEET NUMBER</u>	<u>DESCRIPTION</u>
G1	1 OF 28	COVER SHEET
G2	2 OF 28	OVERALL PLAN
C1	3 OF 28	PLAN AND PROFILE STA 10+00 to 25+00
C2	4 OF 28	PLAN AND PROFILE STA 25+00 to 40+00
C3	5 OF 28	PLAN AND PROFILE STA 40+00 to 55+00
C4	6 OF 28	PLAN AND PROFILE STA 55+00 to 70+00
C5	7 OF 28	PLAN AND PROFILE STA 70+00 to 85+00
C6	8 OF 28	PLAN AND PROFILE STA 85+00 to 100+00
C7	9 OF 28	PLAN AND PROFILE STA 100+00 to 115+00
C8	10 OF 28	PLAN AND PROFILE STA 115+00 to 130+00
C9	11 OF 28	PLAN AND PROFILE STA 130+00 to 145+00
C10	12 OF 28	PLAN AND PROFILE STA 145+00 to 160+00
C11	13 OF 28	PLAN AND PROFILE STA 160+00 to 175+00
C12	14 OF 28	PLAN AND PROFILE STA 175+00 to 190+00
C13	15 OF 28	PLAN AND PROFILE STA 190+00 to 205+00
C14	16 OF 28	PLAN AND PROFILE STA 205+00 to 220+00
C15	17 OF 28	PLAN AND PROFILE STA 220+00 to 235+00
C16	18 OF 28	PLAN AND PROFILE STA 235+00 to 250+00
C17	19 OF 28	PLAN AND PROFILE STA 250+00 to 265+00
C18	20 OF 28	PLAN AND PROFILE STA 265+00 to 280+00
C20	21 OF 28	PLAN AND PROFILE STA 280+00 to 295+00
C21	22 OF 28	PLAN AND PROFILE STA 295+00 to 310+00
C22	23 OF 28	PLAN AND PROFILE STA 310+00 to 325+00
C23	24 OF 28	PLAN AND PROFILE STA 325+00 to 340+00
C24	25 OF 28	PLAN AND PROFILE STA 340+00 to 355+00
C25	26 OF 28	PLAN AND PROFILE STA 355+00 to 371+42
D1	27 OF 28	EROSION & SEDIMENT CONTROL NARRATIVE
D2	28 OF 28	EROSION & SEDIMENT CONTROL DETAILS

Rt 220-Phase 2  
As-Built  
12/13/2010

No:	Revisions:	Date:	 <div>EARTH ENVIRONMENTAL CONSULTANTS, INC.</div> <div>235 Claiborne Ave.. Phone: (540) 483-5975 Rocky Mount, VA 24151 Fax: (540) 483-2221 www.earthenv.com</div>	 <div>COMMONWEALTH OF VIRGINIA Marty E. Prillaman MARTY EUGENE PRILLAMAN Lic. No. 043205 3/2/09 PROFESSIONAL ENGINEER</div>	 <div>Franklin County A Natural Setting for Opportunity</div>		DESIGN BY:	PROJECT:		DATE:
1	FRANKLIN COUNTY COMMENTS	02/27/09					BKS/MEP	ROANOKE/FRANKLIN COUNTY WATERLINE EXTENSION PHASE II		01/14/09
							DRAWN BY:	U.S. ROUTE 220		DRAWING NUMBER:
							BKS	FRANKLIN COUNTY, VA		G1
							REVIEWED BY:	TITLE:		SHEET NUMBER:
			MEP	G1 COVER SHEET		1 of 28				
			PROJECT NUMBER:	DRAWING NAME:	SCALE:					
			FCPP1004	G1 COVER SHEET.dwg	NTS					