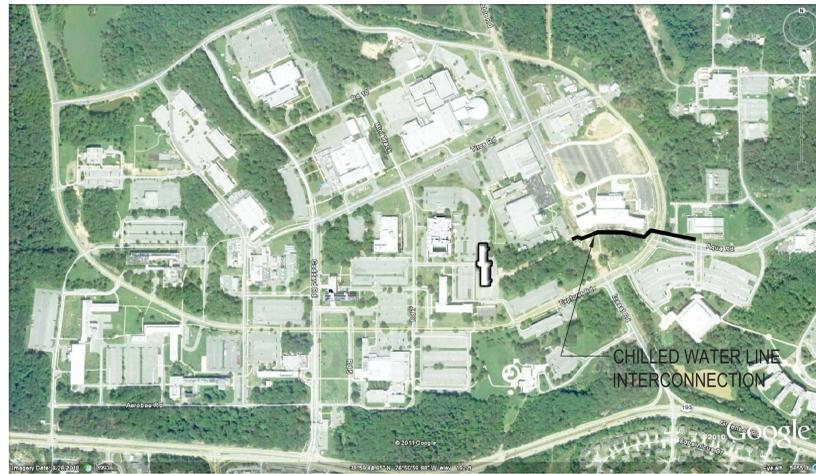


VICINITY MAP



DRAWING LIST

SHEET NUMBER	SHEET NAME	35% SUBMITTAL	90% SUBMITTAL	100% SUBMITTAL
G-000	COVER SHEET	•	•	•
C-001	GENERAL NOTES AND LEGENDS	•	•	•
C-101	PLAN AND PROFILE	•	•	•
C-110	EXISTING AND EROSION & SEDIMENT CONTROL PLAN	•	•	•
C-501	UTILITY DETAILS	•	•	•
C-510	EROSION & SEDIMENT CONTROL DETAILS	•	•	•
C-511	EROSION & SEDIMENT CONTROL NOTES	•	•	•
M-001	MECHANICAL LEGENDS AND NOTES	•	•	•
M-101	FLOOR PLAN, SECTIONS AND DETAILS	•	•	•

GENERAL NOTES

- CONSTRUCTION SHALL COMPLY WITH NASA STANDARDS AND REGULATIONS.
- CONSTRUCTION OF WORK INDICATED ON THE DRAWINGS AS (N.I.C.) IS NOT IN CONTRACT.
- ALL WORK SHALL BE OF BEST PRACTICE OF EACH TRADE.
- VERIFY DIMENSIONS IN FIELD BEFORE PROCEEDING WITH THE WORK. NOTIFY GOVERNMENT OF DISCREPANCIES, CONFLICTS, AND MODIFICATIONS.
- DO NOT SCALE DRAWINGS. WHERE DIMENSIONS OR EXACT LOCATIONS ARE REQUIRED AND NOT INCLUDED ON THE DRAWINGS, REQUEST INFORMATION FROM GOVERNMENT.
- PROVIDE PROPER ANCHORAGE OF ESSENTIAL EQUIPMENT IN ACCORDANCE WITH APPLICABLE CODES.

CODES AND REGULATIONS

- STANDARD REFERENCE DOCUMENT FOR FACILITIES, JULY, 2010
- INTERNATIONAL BUILDING CODE (IBC), 2009
- NFPA 70, NATIONAL ELECTRICAL CODE, 2011
- NFPA 72, NATIONAL FIRE ALARM CODE, 2010
- NFPA 101, LIFE SAFETY CODE, 2009
- NFPA 170, FIRE SAFETY AND EMERGENCY SYMBOLS, 2009
- NFPA 1901, AUTOMOTIVE FIRE APPARATUS, 2009



CHILLED WATER LINE INTERCONNECTION NASA GODDARD SPACE FLIGHT CENTER

100% SUBMITTAL

 AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 900 ARLINGTON, VA 22201 T: 703-692-4900 F: 703-692-4901 www.aecom.com		SEAL AREA 					
KEY PLAN							
REV	DATE	DESCRIPTION	S&R BR.	CUSTOMER	PM	SECT. HEAD	
INITIALS	DATE						
DRAWN				COVER SHEET		G-000	
CHECKED BY							
A-E							
A-E MANAGER							
NASA A-E							
S&E BRANCH							
CM							
PM							
CUSTOMER							
SECTION HEAD							
GENERAL		DATE ISSUED 05/24/2012		C of CODE OR WRK ---		AECOM PROJECT NO. 60248437	
				SCALE		NONE	

FILE DATE: 5/24/2012 8:55:52 AM

SURVEY LEGEND

BENCHMARK	STEAM (DATR)
WATER VALVE	GAS PAINT MARK
TRAVERSE STATION	TELEPHONE PAINT MARK
SANITARY SEWER MANHOLE	ELECTRIC PAINT MARK
CLEANOUT	CONDENSATE LINE
FIRE HYDRANT	COMMUNICATION LINE
GROUND LIGHT	HIGH PRESSURE DRIP LINE
STORM DRAIN MANHOLE	POWER LINE
ELECTRIC BOX	CHILLED WATER SUPPLY/RETURN
DATR	DATA ACCORDING TO RECORD
CPP	CORRUGATED PLASTIC PIPE

SURVEY NOTES:

- HORIZONTAL DATUM:
BASED ON MARYLAND STATE PLANE DATUM, (NAD 83/2007)
- VERTICAL DATUM:
BASED ON NAVD 1988
- THE LOCATION OF ALL UTILITIES AND VAULTS SHOWN HEREON ARE FROM FIELD INVESTIGATION, VISIBLE FIELD EVIDENCE, AND AVAILABLE RECORDS AND CANNOT BE GUARANTEED. CONTRACTOR/ENGINEERS SHOULD DIG TEST PITS BY HAND AT ALL UTILITY CROSSINGS TO VERIFY EXACT LOCATION, FOR MARKING OF UNDERGROUND UTILITY LINES, CALL MISS UTILITY AT 1-800-257-7777 AT LEAST 48-HOURS PRIOR TO EXCAVATION OR CONSTRUCTION.
- UTILITY PAINT MARKINGS PERFORMED BY OTHERS WERE OBSERVED DURING THE FIELD SURVEY AND ARE SHOWN HEREON. SURVEYED PAINT MARKINGS ARE SHOWN ON SEPARATE CAD LAYERS IDENTIFIED AS "MARK". AMT ACCEPTS NO RESPONSIBILITY OR LIABILITY AS TO THE CORRECTNESS OF THE PAINT MARKINGS.
- NO PROPERTY LINES SHOWN HEREON.

GENERAL NOTES:

- THE EXISTING CONDITIONS SHOWN ON THESE PLANS IS BASED ON TOPOGRAPHIC SURVEY TITLED "GODDARD SPACE CENTER, NASA INTERCONNECTOR, GREENBELT, MARYLAND," DATED MARCH, 2012, PREPARED BY A. MORTON THOMAS AND ASSOCIATES, INC., CONSULTING ENGINEERS, 12750 TWINBROOK PARKWAY, ROCKVILLE, MD (AMT FILE 112-112.001).
- THE EXISTING UNDERGROUND UTILITIES & FACILITIES SHOWN HEREON ARE BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE GSFC PROJECT MANAGER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE UTILITIES AND ASSURE CONTINUANCE OF SERVICES. CONTRACTOR SHALL TEST PIT WHERE NEW UTILITIES INTERSECT WITH OR CONNECT TO EXISTING UTILITIES AS PART OF THE CONSTRUCTION PROCESS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND LICENSES REQUIRED BY THE STATE OF MARYLAND, OR OTHER GOVERNING AGENCIES INVOLVED UNDER THIS CONTRACT.
- THE CONTRACTOR SHALL COORDINATE FINISHED PAVEMENT GRADES WITH ELEVATIONS AND LOCATIONS OF EXISTING ROADS AND STREETS.
- CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AND GSFC PROJECT MANAGER PRIOR TO THE START OF WORK.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT". THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPLICABLE MEASURES CONTAINED THEREIN WHICH MAY BE PERTINENT TO THIS PROJECT. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS THE FIRST STEP IN GRADING OPERATIONS. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER COMPLETION OF THE PROJECT.
- OTHER WORK (GRADING, EXCAVATING, AND CONSTRUCTION) ON THE PROJECT SHALL NOT COMMENCE UNTIL THE APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE AS SPECIFIED ON THE PLAN.
- ALL TOPSOIL AND EXCAVATED MATERIAL SHALL BE STOCKPILED IN AN APPROVED AREA.
- LENGTHS OF LINES INDICATED ON THE DRAWING FOR UTILITY SYSTEMS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR DETERMINING THE EXACT AMOUNT OF PIPING, CONDUIT, WIRE, AND/OR DUCT REQUIRED TO FURNISH A COMPLETE WORKING SYSTEM IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS.
- WHERE UNDERGROUND UTILITIES ARE TO BE INSTALLED BENEATH EXISTING UTILITIES/DUCTBANKS TO REMAIN, ALL BACKFILL MATERIALS SHALL ACHIEVE 95% COMPACTION. IF MINIMUM COMPACTION REQUIREMENTS CANNOT BE MET, ALL UTILITIES UNDERCUT BY NEW UTILITY CONSTRUCTION SHALL BE BACKFILLED WITH FLOWABLE FILL AS DIRECTED BY THE GSFC PROJECT MANAGER AT THE CONTRACTOR'S EXPENSE.
- PROVIDE POSITIVE DRAINAGE AT ALL GRADED AREAS.
- PROVIDE UNIFORM (STRAIGHT) GRADE BETWEEN SPOT ELEVATIONS, FINISH CONTOURS, TOP OF INLETS, ETC.
- ALL UNPAVED DISTURBED AREAS SHALL BE SEEDED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- ALL SITE FEATURES INDICATED TO REMAIN AND DAMAGED OR REMOVED AS PART OF THIS PROJECT SHALL BE REPAIRED OR REPLACED IN-KIND OR AS DIRECTED BY THE GSFC PROJECT MANAGER AT THE CONTRACTOR'S EXPENSE.

SANITARY SEWER DATA

SHOWN AS ①

- TOP=217.14
INV=210.79
- TOP=215.93
BOLTED
NO ENTRY
- TOP=215.53
INV IN=207.48
INV OUT=207.35
- TOP=214.24
INV IN=206.19
INV OUT=206.00
- TOP=207.44
INV IN=204.24
INV OUT=204.14
- TOP=204.92
a INV IN=200.22
b INV IN=194.77
c INV IN=194.42
- TOP=207.35
INV=194.22

STORM DRAIN DATA

SHOWN AS ②

- MANHOLE
TOP=216.91
INV IN=212.91
INV OUT=212.51
- MANHOLE
TOP=216.60
a INV IN=212.40
b INV IN=212.55
INV OUT=212.35
- GRATE
TOP=216.10
INV IN=213.05
INV OUT=212.70
- MANHOLE
TOP=215.80
a INV IN=212.70
b INV IN=211.70
c INV IN=211.65
INV OUT=211.55
- GRATE
TOP=215.20
INV IN=212.75
INV OUT=211.55
- GRATE
TOP=214.88
INV IN=210.88
INV OUT=210.78
- GRATE
TOP=214.22
a INV IN=210.37
b INV IN=210.52
INV OUT=210.27
- GRATE
TOP=213.75
INV IN=209.60
INV OUT=209.45
- MANHOLE
TOP=213.68
a INV IN=206.93
b INV IN=207.92
c INV IN=208.92
INV OUT=206.53
- END PIPE
INV=209.85
- INLET
TOP=210.72
INV IN=200.88
INV OUT=200.80
- INLET
TOP=212.21
INV IN=201.76
INV OUT=201.70

TRAVERSE DATA

POINT	NORTHING	EASTING	ELEV	DESCRIPTION
1	484172.159	1356401.731	217.17	REBAR AND CAP
2	484075.635	1356890.142	215.04	REBAR AND CAP

BENCHMARK DATA

BM	ELEV	DESCRIPTION
510	217.32	SQUARE CUT AT THE CORNER OF CONCRETE
511	215.93	SQUARE CUT AT THE CORNER OF VAULT

ABBREVIATIONS

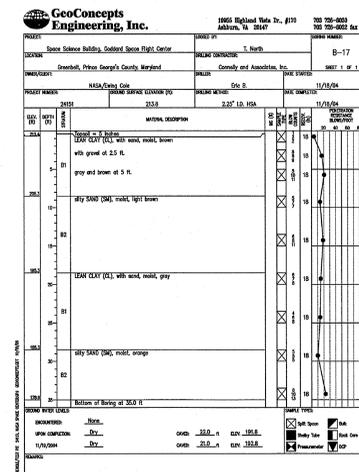
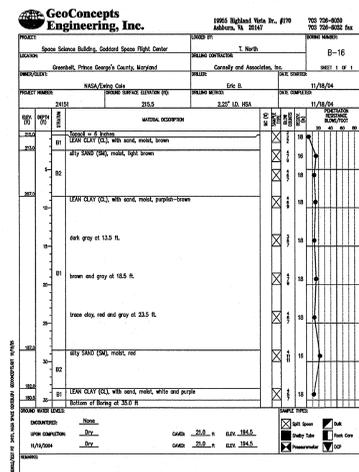
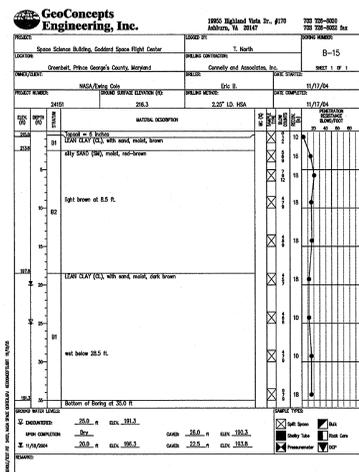
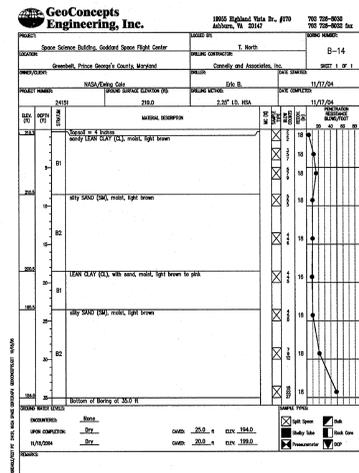
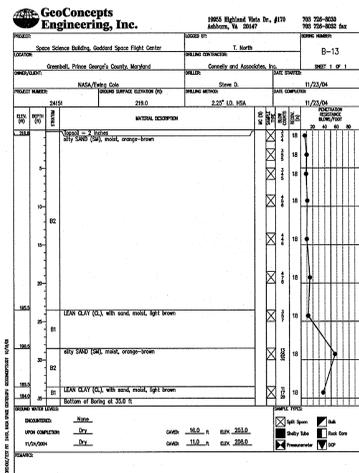
APPROX BLDG	APPROXIMATE BUILDING
BV	BUTTERFLY VALVE
BVCS	BEGINNING VERTICAL CURVE ELEVATION
CEN	CENTRATE
CONC	CONCRETE
CW	COAGULATED WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DOM	DOMESTIC WATER
DW	DEWATERING
EJB	ELECTRIC JUNCTION BOX
EL OR ELEV	ELEVATION
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX OR EXST	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FFE	FINISHED FLOOR ELEVATION
FM	FORCE MAIN
FW	FIRE SERVICE WATER
GV	GATE VALVE
HB	HORIZONTAL BEND
HBX	HANDBOX
IAW	IN ACCORDANCE WITH
INV	INVERT
LOW	LIMITS OF WORK
LVC	LENGTH OF VERTICAL CURVE
MECH	MECHANICAL
MH	MANHOLE
NG	NATURAL GAS
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RCS	RECLAIM SLUDGE
RD	ROOF DRAIN
RED	REDUCER
SAN	SANITARY SEWER
SD	STORM DRAIN
SEWER	SEWER
SH	SHEET
SMH	SEWER MANHOLE
TC	TOP OF CURB
TJB	TELEPHONE JUNCTION BOX
TP	TOP OF PAVEMENT
TS&V	TAPPING SLEEVE AND VALVE
UNK	UNKNOWN
VB	VERTICAL BEND
VERT	VERTICAL
W	POTABLE WATER
WM	WATER MAIN

PIPELINE NOTES:

- PROVIDE RESTRAINED JOINTS FOR ALL PRESSURE PIPE. PROVIDE RESTRAINED MECHANICAL JOINT FITTINGS FOR ALL DUCTILE IRON PRESSURE PIPE BENDS.
- CHILLED WATER LINES AND RETURN LINES SHALL BE CONSTRUCTED WITH 3.5 FEET MINIMUM COVER UNLESS OTHERWISE INDICATED.
- ALL PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS SHOWN UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER.
- FINAL LOCATION OF TEES, VALVES, BENDS AND OTHER APPURTENANCES ARE TO BE FIELD LOCATED DURING CONSTRUCTION.
- PIPE DEFLECTION IN JOINTS IS ALLOWED. PIPE DEFLECTION SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION.

BORING LOGS

NOTE: THE BORINGS INDICATED ARE FOR INFORMATION ONLY AND WERE DEVELOPED BY OTHERS IN CONJUNCTION WITH ADJACENT DESIGNS. BORINGS AND LOGS INDICATE SUBSURFACE CONDITIONS AT BORING LOCATION ONLY AND SUBSURFACE CONDITIONS MAY VARY FROM THOSE SHOWN.



100% SUBMITTAL

<p>AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 800 ARLINGTON, VA 22201 T: 703-692-4900 F: 703-692-4901 www.aecom.com</p>		REV	DATE	DESCRIPTION	S&R BR.	CUSTOMER	PM	SECT. HEAD
		INITIALS	DATE	GENERAL NOTES AND LEGENDS				
DRAWN	MLF	05/23/12	C-001					
CHECKED BY	FM							
A-E MANAGER	SSH							
NASA A-E	DN							
S&E BRANCH								
CM								
PM								
CUSTOMER								
SECTION HEAD								
KEY PLAN			<p>CHILLED WATER LINE INTERCONNECTION</p> <p>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</p> <p>GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND FACILITIES MANAGEMENT DIVISION</p> <p>DATE ISSUED: 05/24/2012 C&F CODE OR WR# 120XAZ AECOM PROJECT NO. 60187636 SCALE</p>					

CHILLED WATER STAKE OUT SCHEDULE

POINT NO.	NORTHING	EASTING	REMARKS
100	484063.67	1356173.58	CONN EXST
101	484077.12	1356202.40	45° HB
102	484070.73	1356219.96	45° HB
103	484088.60	1356258.24	11-1/4" HB
104	484132.01	1356415.12	11-1/4" HB
105	484132.12	1356563.35	11-1/4" HB
106	484098.94	1356755.01	45° HB
107	484123.76	1356790.23	45° HB
108	484072.79	1357107.07	45° HB
109	484056.71	1357123.15	45° HB
110	484056.71	1357131.50	FACE WALL

TRAVERSE DATA

POINT	NORTHING	EASTING	ELEV	DESCRIPTION
1	484172.159	1356401.731	217.17	REBAR AND CAP
2	484075.635	1356890.142	215.04	REBAR AND CAP

BENCHMARK DATA

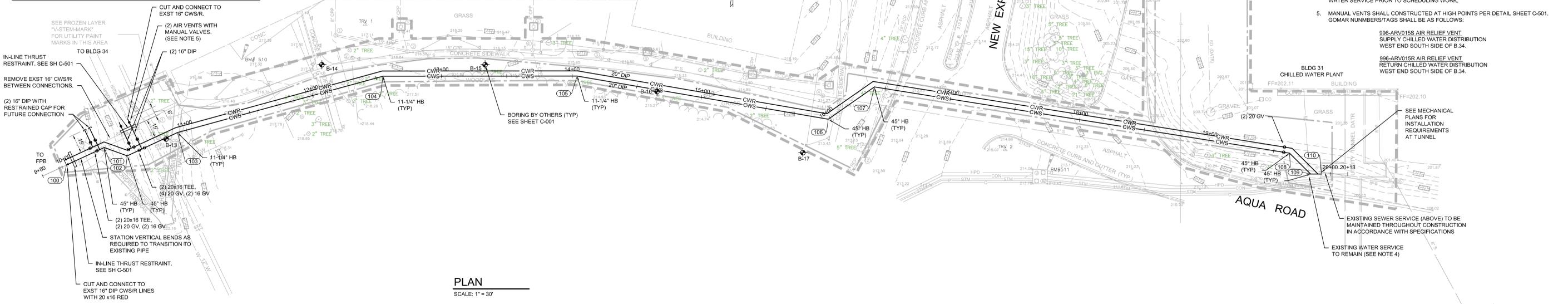
BM	ELEV	DESCRIPTION
510	217.32	SQUARE CUT AT THE CORNER OF CONCRETE
511	215.93	SQUARE CUT AT THE CORNER OF VAULT

UTILITY LEGEND

- LIMIT OF PROJECT
- - - - - LIMIT OF DISTURBANCE
- CWS— CHILLED WATER SUPPLY
- CWR— CHILLED WATER RETURN
- WV WATER VALVE

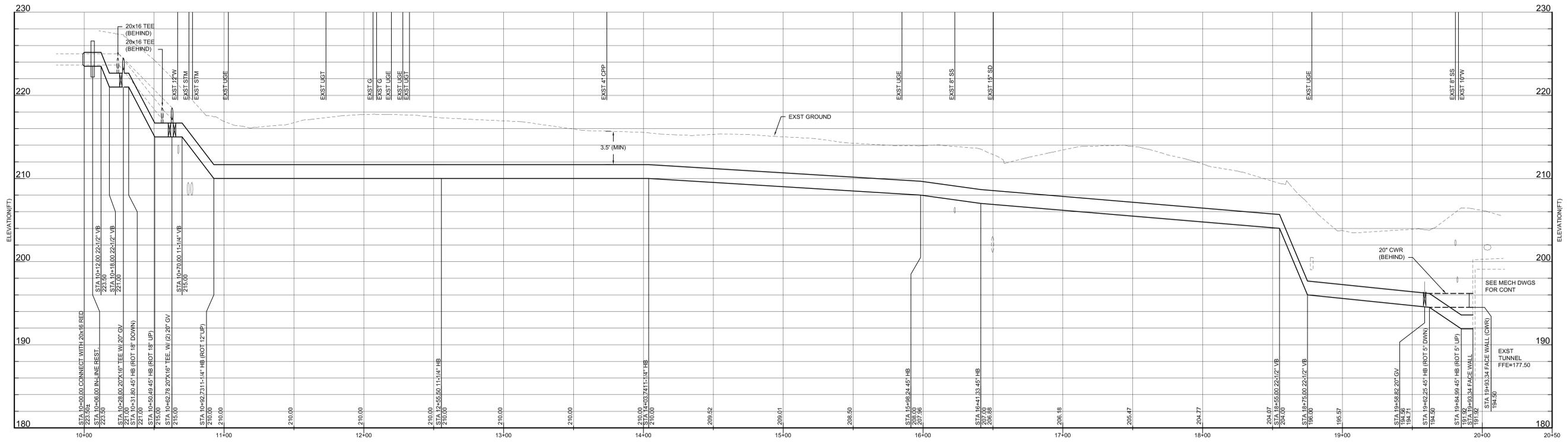
NOTES THIS SHEET:

- SEE SHEET C001 FOR GENERAL NOTES AND LEGENDS.
- THE BASELINE PROFILE INDICATED IS FOR THE 20" CHILLED WATER SUPPLY LINE. THE 20" CHILLED WATER RETURN LINE IS OFFSET 4" O.C. UNLESS OTHERWISE INDICATED.
- SURFACE FEATURES DISTURBED BY THE CONTRACTOR ACTIVITIES SHALL BE RETURNED TO PRE-CONSTRUCTION CONDITION OR BETTER AS DIRECTED BY THE GSFC PROJECT MANAGER.
- THE CONTRACTOR SHALL VERIFY CLEARANCE FROM THE EXISTING BUILDING 31 WATER SERVICE PRIOR TO SCHEDULING WORK.
- MANUAL VENTS SHALL CONSTRUCTED AT HIGH POINTS PER DETAIL SHEET C-501. GOMAR NUMBERS/TAGS SHALL BE AS FOLLOWS:



PLAN

SCALE: 1" = 30'



NOTE: THE BASELINE PROFILE INDICATED IS FOR THE 20" CHILLED WATER SUPPLY LINE. THE 20" CHILLED WATER RETURN LINE IS OFFSET 4" O.C. FROM THE SUPPLY LINE AT THE SAME ELEVATION, UNLESS OTHERWISE INDICATED.

PROFILE

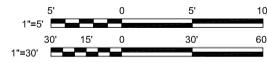
SCALE: 1" = 30H; 1" = 5V

PROJECT SEQUENCING

THE FOLLOWING GENERAL SEQUENCE SHALL BE FOLLOWED (REFER TO OUTAGE TABLE):

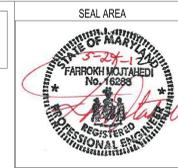
- CONSTRUCT CHILLED WATER AND RETURN LINES FROM STA. 10+50+1 TO CONNECTION IN TUNNEL.
- ISOLATE LINE FROM FFB TO BUILDING 34 AND REMOVE FROM SERVICE.
- REMOVE 90° BENDS AND CONNECT TO BUILDING 34 SERVICE LINE.
- RESTORE BUILDING 34 SERVICE FROM NEW CHILLED WATER LINE INTERCONNECTION.
- CONSTRUCTED CHILLED WATER AND RETURN LINES FROM START TO STA. 10+45+1.
- OPEN VALVES AS DIRECTED BY OWNER FOR FINAL SERVICE CONFIGURATION.

OUTAGE TABLE				
UTILITY	LOCATION	IMPACTED BLDGS	# DAYS	WORK HOURS
CHILLED WATER	16" CHILLED WATER SERVICE TO BUILDING 34.	34		WEEKEND HRS



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REV	DATE	DESCRIPTION	INITIALS	DATE	S&R BR.	CUSTOMER	PM	SECT. HEAD
DRAWN	MLF	05/23/12						
CHECKED BY	FM							
A-E	SSH							
NASA A-E	EEW							
S&E BRANCH								
CM								
PM								
CUSTOMER								
SECTION HEAD								

PLAN AND PROFILE C-101

CHILLED WATER LINE INTERCONNECTION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND
 FACILITIES MANAGEMENT DIVISION
 DATE ISSUED 05/24/2012 Cof CODE OR WRN 12QXAZ AECOM PROJECT NO. 60187636 SCALE

SEQUENCE OF CONSTRUCTION

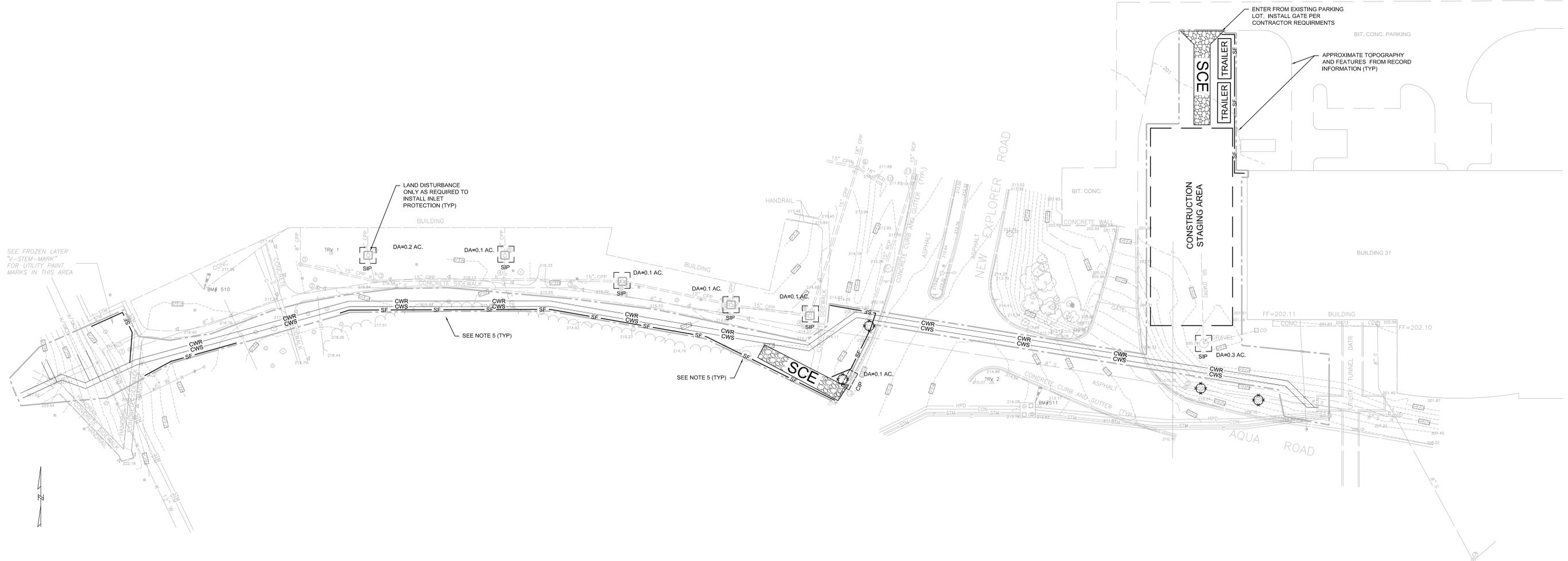
1. THE CONTRACTOR SHALL NOTIFY THE WATER MANAGEMENT ADMINISTRATION (WMA) AT (410)537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION SHALL BE REQUIRED TO HOLD A PRE CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.
2. LOCATE LIMITS OF DISTURBANCE AND TREE PROTECTION MEASURES AS SHOWN ON PLAN.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE), SILT FENCE, AND INLET PROTECTION AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN.
4. ESTABLISH CONSTRUCTION TRAILERS AND STAGING AREAS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN.
5. CONSTRUCT UTILITIES AS INDICATED AND RESTORE SURFACE FEATURES TO THE EXISTING CONDITIONS. ALL AREAS OUTSIDE OF LIMITS OF DISTURBANCE SHALL RECEIVE SAME DAY STABILIZATION. SILT FENCE ADJACENT TO NEW EXPLORER ROAD CURB SHALL BE REMOVED DURING ADJACENT CWSR TRENCHING AND REINSTALLED IMMEDIATELY AFTER GRADES ARE RESTORED.
6. UPON SITE STABILIZATION AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE EROSION AND SEDIMENT CONTROL MEASURES.
7. STABILIZE ALL AREAS DISTURBED DURING REMOVAL OF EROSION AND SEDIMENT CONTROLS.

EROSION & SEDIMENT CONTROL LEGEND

- LIMIT OF DISTURBANCE
- [SCE] STABILIZED CONSTRUCTION ENTRANCE
- SF- SILT FENCE
- [SIP] STANDARD INLET PROTECTION
- [CIP] CURB INLET PROTECTION
- [X] TP TREE PROTECTION
- X- CONSTRUCTION FENCING

NOTES THIS SHEET:

1. SEE SHEET C001 FOR GENERAL NOTES AND LEGENDS.
2. SEE SHEETS C510 & C511 FOR EROSION & SEDIMENT CONTROL NOTES AND DETAILS.
3. FOR UTILITY CONSTRUCTION OUTSIDE OF THE DESIGNED SEDIMENT CONTROLS, SEE NOTE 22 OF THE EROSION AND SEDIMENT CONTROL PLAN NOTES ON SHEET C-511.
4. EROSION AND SEDIMENT CONTROL WILL BE STRICTLY ENFORCED.
5. CONTRACTOR SHALL COORDINATE WITH GSFC PROJECT MANAGER PRIOR TO PERFORMING NECESSARY TREE REMOVAL, LIMBING AND ROOT CUTTING IN ADJACENT WOODED AREA.
6. EXCAVATED SOILS STORED ADJACENT TO THE UTILITY TRENCH SHALL BE ON THE HIGH SIDE AND COVERED WITH POLY SHEETING.
7. RUNOFF FROM DISTURBED AREAS WITHIN ROADWAY SHALL NOT DISCHARGE FROM FROM WORK AREA WITHOUT TREATMENT (FILTERING OR SAME DAY STABILIZATION).



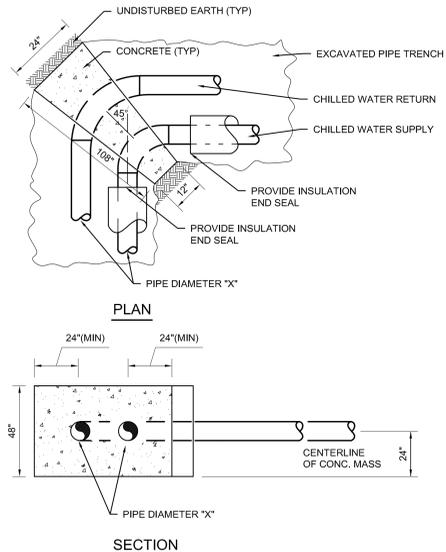
EROSION & SEDIMENT CONTROL PLAN - PHASE 1

SCALE: 1" = 30'

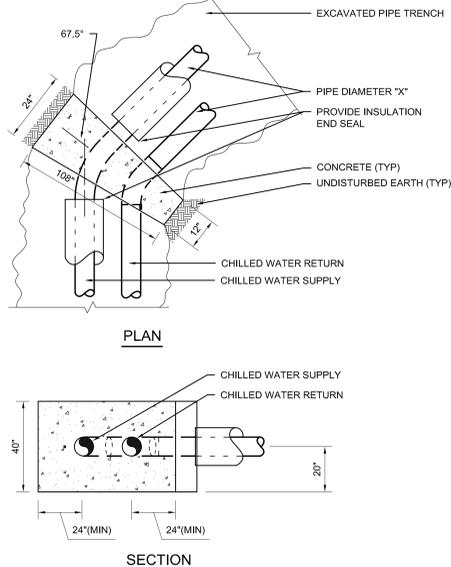
100% SUBMITTAL



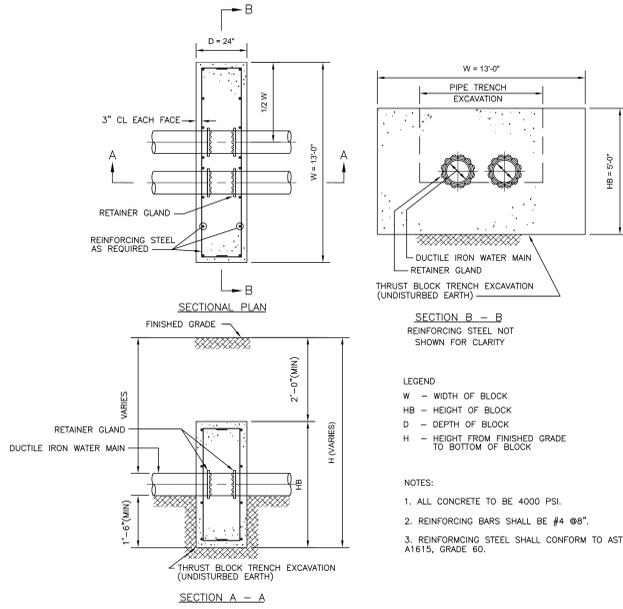
<p>AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 800 ARLINGTON, VA 22201 T: 703-682-4900 F: 703-682-4901 www.aecom.com</p>				<p>KEY PLAN</p>				
REV	DATE	DESCRIPTION	INITIALS	DATE	S&R BR.	CUSTOMER	PM	SECT. HEAD
DRAWN	MLF	05/23/12						
CHECKED BY	FM							
A-E	SSH							
A-E MANAGER	EEW							
NASA A-E								
S&E BRANCH								
CM								
PM								
CUSTOMER								
SECTION HEAD								
<p>EXISTING AND EROSION & SEDIMENT CONTROL PLAN</p>				<p>C-110</p>				
<p>CHILLED WATER LINE INTERCONNECTION</p>				<p>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</p>				
<p>GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND FACILITIES MANAGEMENT DIVISION</p>				<p>GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND FACILITIES MANAGEMENT DIVISION</p>				
<p>DATE ISSUED 05/24/2012</p>		<p>C&F CODE OR WR# 12GXAZ</p>		<p>AECOM PROJECT NO. 60187636</p>		<p>SCALE</p>		



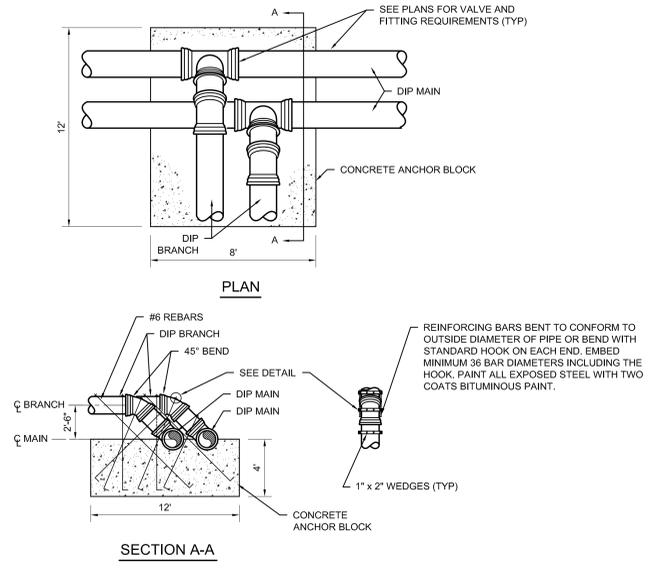
90° ELBOW PIPE INSTALLATION DETAIL
NO SCALE



45° ELBOW PIPE INSTALLATION DETAIL
NO SCALE



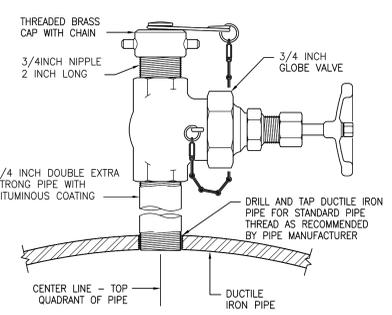
IN-LINE THRUST RESTRAINT FOR CHILLED WATER LINES
NO SCALE



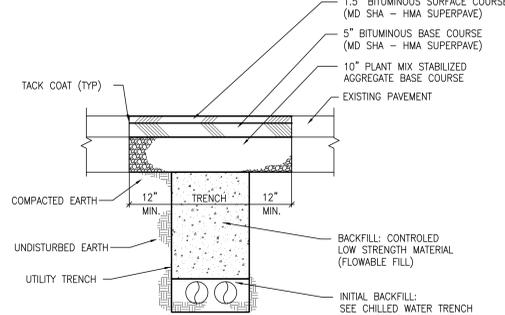
BRANCH CONNECTION DETAIL
NO SCALE

NOTE
THRUST BLOCK & ANCHORS SHALL BE POURED TO THE SHOWN DESIGN DIMENSIONS (NOT LARGER) UNLESS APPROVED OTHERWISE BY THE COFR.

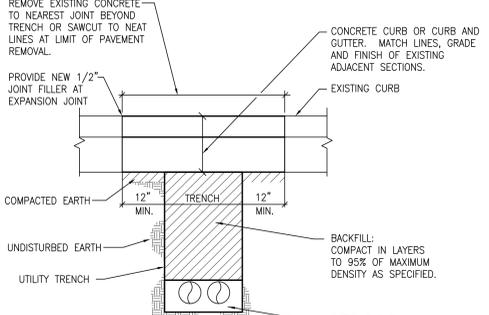
THRUST BLOCK DIMENSIONS FOR 90° AND 45° FITTINGS ON CWS/R LINES
NO SCALE



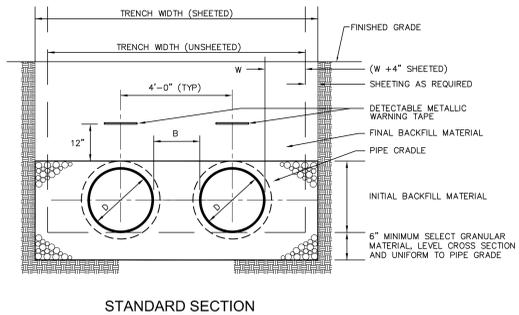
MANUAL AIR VENT VALVE DETAIL
NO SCALE



SECTION AT PAVED ROADWAY
NO SCALE

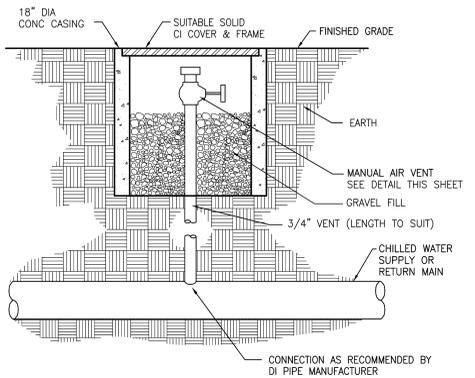


SECTION AT CURB CROSSING
NO SCALE

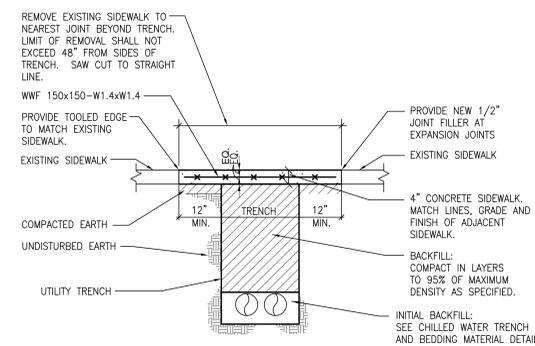


PIPE DIAMETER D	MIN. CLEAR BETWEEN PIPE B	MIN. CLEAR EACH SIDE W
16	12	12
20	12	12

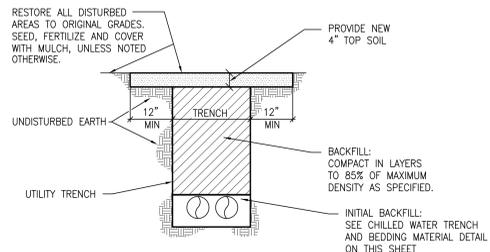
CHILLED WATER TRENCH AND BEDDING DETAIL
NO SCALE



AIR VENT STATION DETAIL
NO SCALE



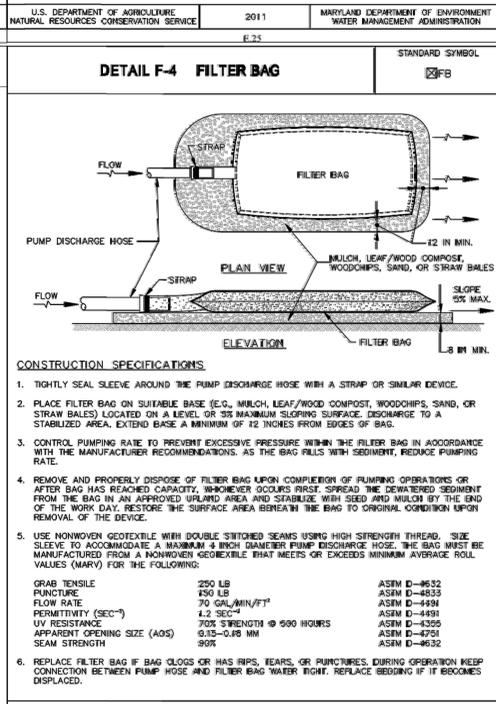
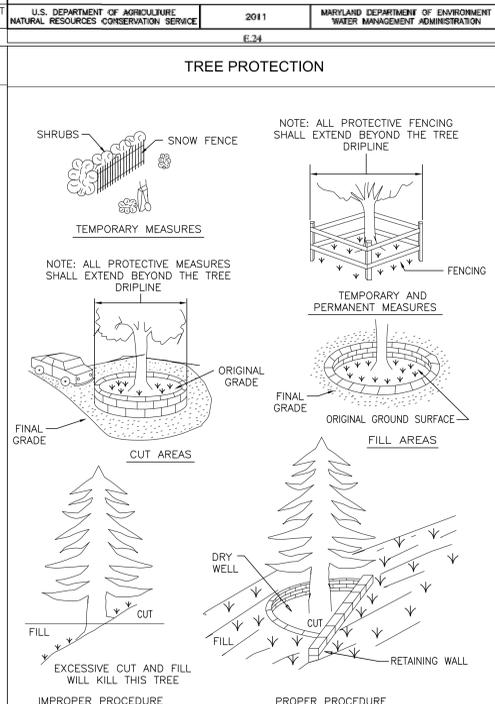
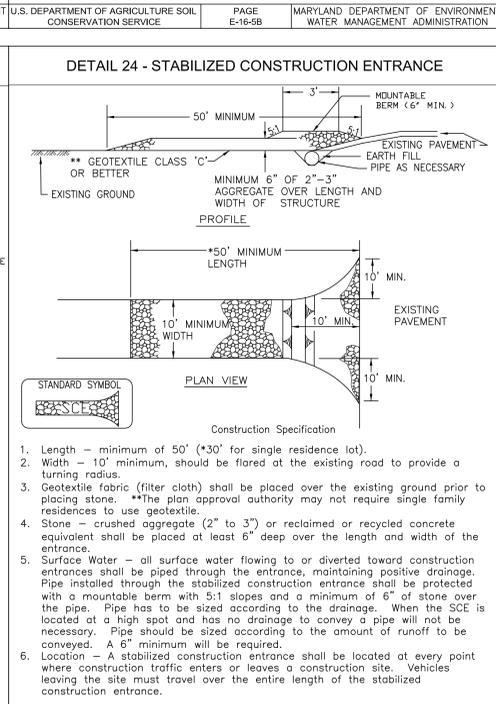
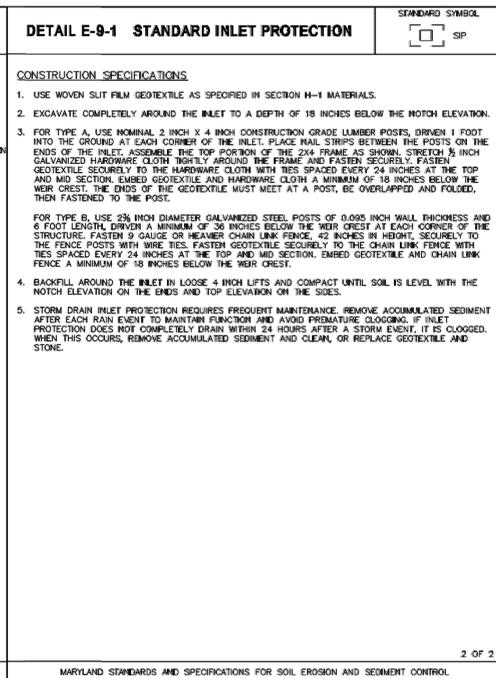
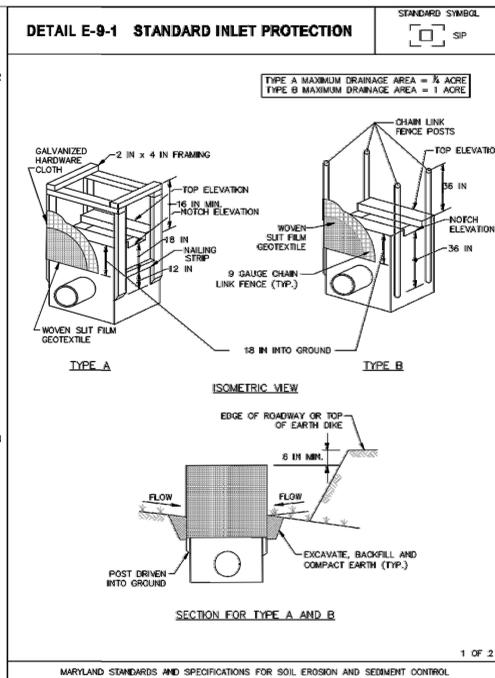
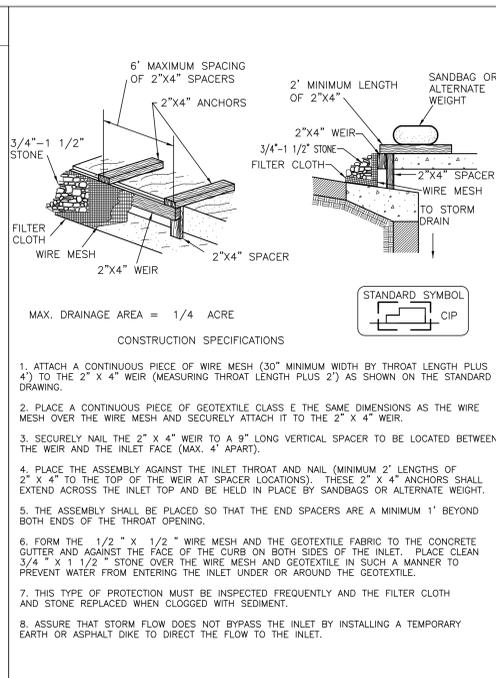
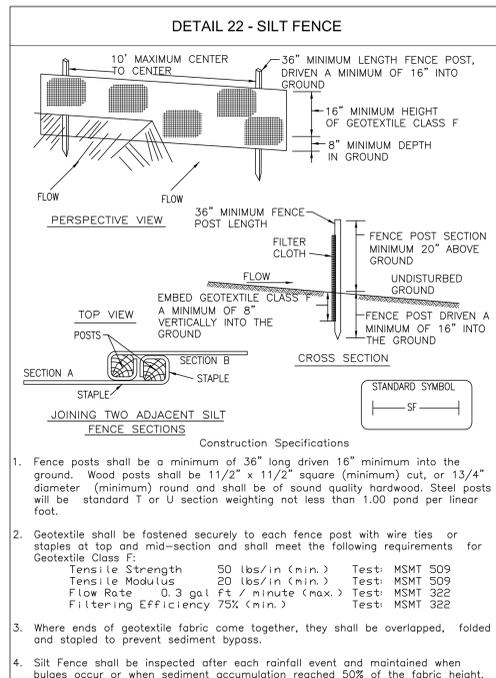
SECTION AT SIDEWALK CROSSING
NO SCALE



SECTION THROUGH LAWN AREA
NO SCALE

100% SUBMITTAL

<small>AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 800 ARLINGTON, VA 22201 7-703-682-4900 F: 703-682-4901 www.aecom.com</small>		<small>KEY PLAN</small>		<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>S&R BR.</th> <th>CUSTOMER</th> <th>PM</th> <th>SECT. HEAD</th> </tr> </thead> <tbody> <tr> <td> </td> </tr> </tbody> </table>				REV	DATE	DESCRIPTION	S&R BR.	CUSTOMER	PM	SECT. HEAD																															
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-153 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-153B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION E-24

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION E-25

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AECOM TECHNICAL SERVICES, INC.
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KEY PLAN

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A-E	SSH						
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NASA A-E							
S&E BRANCH							
CM							
PM							
CUSTOMER							
SECTION HEAD							

EROSION & SEDIMENT CONTROL DETAILS

C-510

CHILLED WATER LINE INTERCONNECTION

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND FACILITIES MANAGEMENT DIVISION

DATE ISSUED: 05/24/2012 C&F CODE OR WRN: 120XAZ AECOM PROJECT NO.: 60187636 SCALE:

EROSION AND SEDIMENT CONTROL NOTES

THE WATER MANAGEMENT ADMINISTRATION REQUIRES THAT THESE NOTES, IN THEIR ENTIRETY, BE INCLUDED ON THE EROSION AND SEDIMENT CONTROL PLAN. IT IS RECOGNIZED THAT EVERY NOTE MAY NOT APPLY TO ALL PROJECTS. THE REQUIREMENT OF ANY INDIVIDUAL NOTE NOT APPLICABLE TO THE SUBJECT PROJECT IS NOT BINDING UPON THE APPLICANT OR THE APPLICANT'S CONTRACTOR.

- THE CONTRACTOR SHALL NOTIFY THE ADMINISTRATION (WMA) AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY THE ADMINISTRATION, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF WMA.
- THE CONTRACTOR MUST NOTIFY WMA IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:
 - THE REQUIRED PRE-CONSTRUCTION MEETING.
 - FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.
 - DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN), NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
 - PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
 - PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
 - PRIOR TO FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE AGENCY INSPECTOR OR WMA INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE WMA INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR. THE CONTRACTOR MUST OBTAIN PRIOR AGENCY AND WMA APPROVAL FOR CHANGES TO THE SEDIMENT CONTROL PLAN AND /OR SEQUENCE OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
- THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM WMA INSPECTOR AND AGENCY INSPECTOR.
- ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES, PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN SEVEN (7) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST BE MINIMIZED. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT FOR STABILIZATION MAY BE REDUCED TO THREE (3) DAYS FOR SENSITIVE AREAS.)
- THE CONTRACTOR SHALL APPLY SOD OR SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES TO ALL DISTURBED AREAS AND STOCKPILES WITHIN FOURTEEN (14) CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. (REQUIREMENT MAY BE REDUCED TO SEVEN (7) DAYS FOR SENSITIVE AREAS.)
- PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.
- THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF WMA AND THE AGENCY RESPONSIBLE FOR PROJECT.
- SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO LOWER THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF A CUT OR FILL SLOPE UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED. AT WHICH TIME THEY MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. PROTECTIVE METHODS MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.

OWNER/DEVELOPER'S CERTIFICATION:

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY APPROPRIATE INSPECTION AND ENFORCEMENT AUTHORITY OR THE STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT.

DATE	OWNER/DEVELOPER SIGNATURE
CARD NO.	PRINTED NAME AND TITLE

PROFESSIONAL CERTIFICATION:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

NAME (PRINTED)	SIGNATURE	DATE
MARYLAND LICENSE NUMBER	EXPIRATION DATE	

DESIGN CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II INCLUDING SUPPLEMENTS, THE ENVIRONMENTAL ARTICLE SECTIONS 4-101 THROUGH 116 AND SECTIONS 4-201 AND 215, AND THE CODE OF MARYLAND REGULATIONS (COMAR) 26.17.01 AND COMAR 26.17.02 FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, RESPECTIVELY.

NAME (PRINTED)	SIGNATURE
MARYLAND REGISTRATION NUMBER P.E., R.L.S. OR R.L.A. (CIRCLE)	DATE

EROSION AND SEDIMENT CONTROL NOTES(CONT'D)

- PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED WITH AN APPROVED EROSION CONTROL MATTING, RIP-RAP, OR BY OTHER APPROVED STABILIZATION MEASURES.
- TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF WMA INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.
- NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATIVE STABILIZATION.
- FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.
- SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION THAT EXIST OR IS UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.
- THE WMA INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.
- ALL TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS MUST HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.
- VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING, AND GROUND COVERS.
- SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.
- SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA, WHEN PUMPING SEDIMENT (LADEN WATER) IS DISCHARGED. IT MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SLUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.
- ALL WATER REMOVED FROM EXCAVATED AREAS (E.G. UTILITY TRENCHES) SHALL BE PASSED THROUGH AN APPROVED Dewatering PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE FROM THE SITE (I.E. VIA FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE).
- SEDIMENT CONTROL FOR UTILITY CONSTRUCTION FOR AREAS OUTSIDE OF DESIGNED CONTROLS OR AS DIRECTED BY ENGINEER OR WMA INSPECTOR.
 - CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK.
 - EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
 - TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY, UNLESS:
 - TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.
- WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES, THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.
- OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL BY WMA AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES; OTHERWISE APPROVAL MUST BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.
- SITES WHERE INFILTRATION DEVICES ARE USED FOR THE CONTROL OF STORMWATER, EXTREME CARE MUST BE TAKEN TO PREVENT RUNOFF FROM UNSTABILIZED AREAS FROM ENTERING THE STRUCTURE DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISH GRADE BOTTOM ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.
- WHEN A STORM DRAIN SYSTEM OUTFALL IS DIRECTED TO A SEDIMENT TRAP OR SEDIMENT BASIN AND THE SYSTEM IS TO BE USED FOR TEMPORARILY CONVEYING SEDIMENT LADEN WATER, ALL STORM DRAIN INLETS IN NON-SUMP AREAS SHALL HAVE TEMPORARY ASPHALT BERMS CONSTRUCTED AT THE TIME OF BASE PAVING TO DIRECT GUTTER FLOW INTO THE INLETS TO AVOID SURCHARGING AND OVERFLOW OF INLETS IN SUMP AREAS.
- SITE INFORMATION:

A. TOTAL AREA OF FACILITY (BASE, CAMPUS, PARK, ETC.)	1,270	ACRES
B. TOTAL AREA OF PROJECT SITE (LIMIT OF WORK)	2.0	ACRES
C. AREA DISTURBED	0.8	ACRES
D. AREA TO BE ROOFED OR PAVED (EXISTING)	0.1	ACRES
E. TOTAL CUT	3,000	CUBIC YARDS
F. TOTAL FILL	3,000	CUBIC YARDS
G. OFF-SITE WASTE / BORROW AREA LOCATION	TBD	

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- SITE PREPARATION
 - INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 - SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
 - FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL BE DELIVERED TO THE SITE, FULLY LABELED ACCORDING TO APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK, AND WARRANTY OF THE PRODUCER.
 - LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE, AND 98 TO 100% WILL PASS THROUGH A #20 MESH SIEVE.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 - 5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- SEEDBED PREPARATION
 - TEMPORARY SEEDING
 - SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3 INCHES TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS, CHISEL PLOWS, OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED BY A REZGER LEAVING THE SURFACE IN A REGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT SEEDING
 - MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
 - SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
 - SULFUR SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
 - THE SOIL SHALL CONTAIN LESS THAN 40% CLAY, BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERGIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 "STANDARD AND SPECIFICATION FOR TOPSOIL" OF THE 1994 MD STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 - AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARPED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED IN THE CONTRACT DOCUMENTS.
 - MIX SOIL AMENDMENTS INTO THE TOP 3 - 5 INCHES OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE; REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3 INCHES OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.
 - SEED SPECIFICATIONS
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS (CONT'D)

- INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 - 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE INOCULANT LESS EFFECTIVE.
- METHODS OF SEEDING
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - SEED SPREAD SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)
 - STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAWD, DECAYED, OR EXCESSIVELY DUSTY, AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
 - NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE A STAND OFF ONE SPECIES OF GRASS IS DESIRED.
 - MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AND PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS, AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
 - WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1 AND TWO INCHES. MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOW IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.
 - SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:
 - APPLICATIONS OF LIQUID BINDERS SHOULD BE APPLIED HEAVIER AT EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD BE UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DRL (AGRO-TACK), DCA-70, PETHOCRET, TERRA TAX II, TERRA TACK AR, OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR
 - LIGHTWEIGHT: PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.
 - TURF GRASS ESTABLISHMENT
 - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. AREAS TO RECEIVE SEED SHALL BE TILLED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVELED AND RAKED TO PREPARE A PROPER SEEDBED. STONES AND DEBRIS OVER 1/2 INCHES IN DIAMETER SHALL BE REMOVED. THE RESULTING SEEDBED SHALL BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
 - NOTE: CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.
 - TURFGRASS MIXTURES
 - TALL FESCUE/KENTUCKY BLUEGRASS - FULL SUN MIXTURE - FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 - 100%, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 - 5%. SEEDING RATE: 5 TO 1 LB/1000 SF. ONE OR MORE CULTIVARS MAY BE BLENDED.
- NOTE: TURFGRASS VARIETIES SHOULD BE SELECTED FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MIMED #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".
- IDEAL TIMES OF SEEDING
 - WESTERN MD: MARCH 15 - JUNE 1, AUGUST 1 - OCTOBER 1 (HARDINESS ZONES - 5b, 6a)
 - CENTRAL MD: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDINESS ZONES - 6b)
 - SOUTHERN MD, EASTERN SHORE: MARCH 1 - MAY 15, AUGUST 15 - OCTOBER 15 (HARDINESS ZONES - 7a, 7b)

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO TWELVE MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 7a) (FROM TABLE B.1)					FERTILIZER	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	DATE	SEEDING DEPTHS	RATE (10-20-20)	
	BARLEY (COOL SEASON)	96	2-15 TO 4-30, 8-15 TO 11-30	1 INCH	486 lb/ac (10 lb/1000 st)	2 tons/ac (100 lb/1000 st)
	FOXTAIL MILLET (WARM SEASON)	30	5-1 TO 8-14	0.5 INCH	486 lb/ac (10 lb/1000 st)	2 tons/ac (100 lb/1000 st)

SECTION III - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

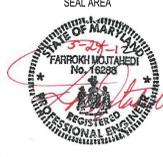
PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 7a) (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			
NO.	SPECIES	APPLICATION RATE (lb/ac)	DATE	SEEDING DEPTHS	N	P205	K20	LIME RATE
9	TALL FESCUE	60	2-15 TO 4-30, 8-15 TO 10-31	1/4 TO 1/2 INCH				
	PERENNIAL RYEGRASS	40	2-15 TO 4-30, 8-15 TO 10-31	1/4 TO 1/2 INCH	45 lb/ac (1.0 lb/ 1000 st)	90 lb/ac (2 lb/ 1000 st)	90 lb/ac (2 lb/ 1000 st)	2 tons/ac (90 lb/ 1000 st)
	KENTUCKY BLUEGRASS	20	2-15 TO 4-30, 8-15 TO 10-31	1/4 TO 1/2 INCH				

SECTION IV - SOD TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER)

- GENERAL SPECIFICATIONS
 - CLASS OF TURFGRASS SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 - SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIER'S WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5 PERCENT. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
 - STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
 - SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- SOD INSTALLATION
 - DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
 - THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 - WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED, OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
 - SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING, AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.
- SOD MAINTENANCE
 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
 - AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE FINAL SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3", UNLESS OTHERWISE SPECIFIED.

100% SUBMITTAL

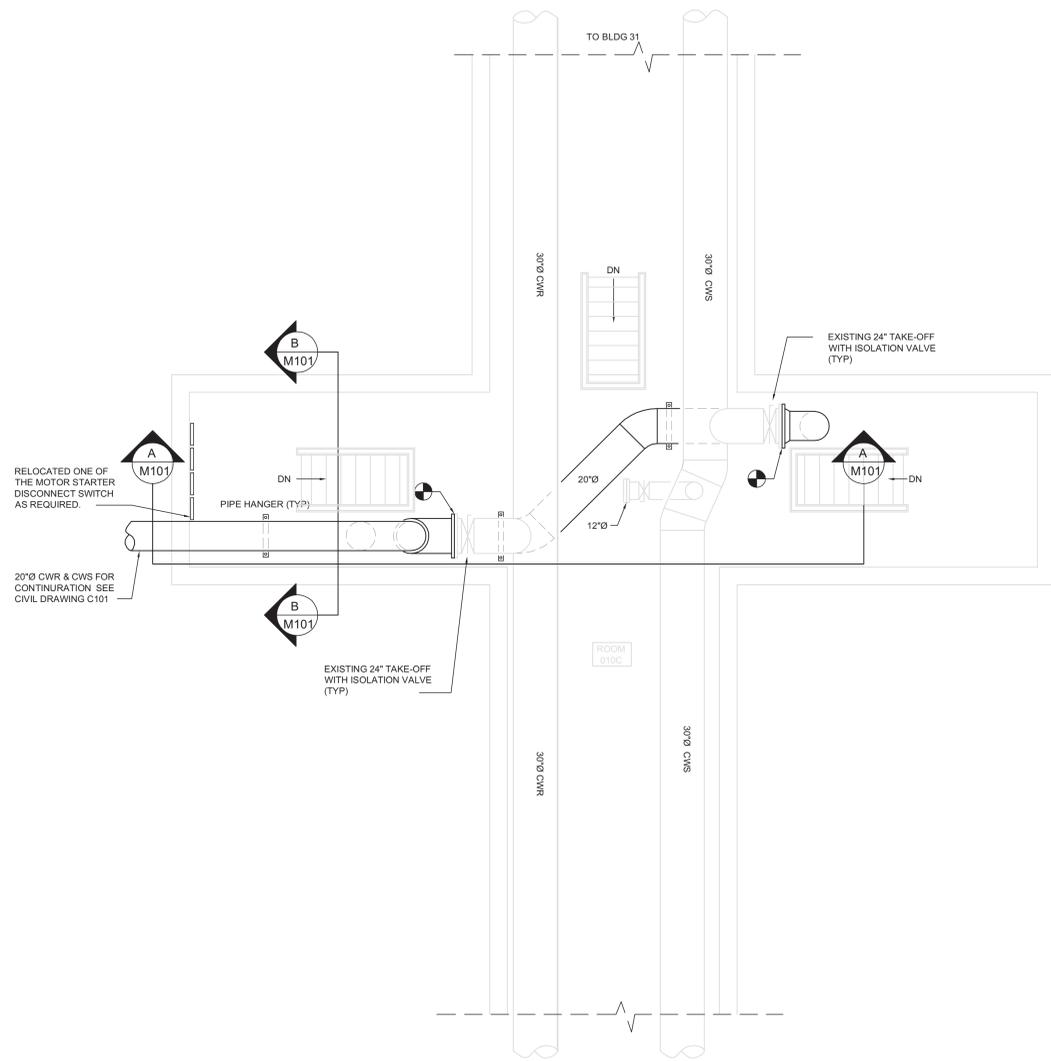
AECOM		SEAL AREA					
AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 800 ARLINGTON, VA 22201 7-703-624-0000 F: 703-682-4901 www.aecom.com							
REV#	DATE	DESCRIPTION	DATE	S&R BR.	CUSTOMER	PM	SECT. HEAD
DRAWN		MLF	05/23/12				
CHECKED BY		FSH					
A-E		SSH					
A-E MANAGER		EEW					
NASA A-E							
S&E BRANCH							
CM							
PM							
CUSTOMER							
SECTION HEAD							
KEY PLAN		EROSION & SEDIMENT CONTROL NOTES		C-511			
		CHILLED WATER LINE INTERCONNECTION					
		NATIONAL AERONAUTICS AND SPACE ADMINISTRATION					
		GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND FACILITIES MANAGEMENT DIVISION					
		DATE ISSUED 05/24/2012		SCALE			
		C&F CODE OR WRM 120X&Z		AECOM PROJECT NO. 60187636			

PIPING LEGEND

(E)	EXISTING PIPING TO REMAIN		AUTOMATIC FLOW CONTROL VALVE
---	EXISTING PIPING TO BE REMOVED		STEAM TRAP
HRS	HEAT RECOVERY SUPPLY		DRIP STATION
HRR	HEAT RECOVERY RETURN		PRESSURE REDUCING STATION
HPS	HIGH PRESSURE STEAM		PIPE ANCHOR
HPC	HIGH PRESSURE CONDENSATE		PIPE GUIDE
MPS	MEDIUM PRESSURE STEAM		EXPANSION JOINT
MPC	MEDIUM PRESSURE CONDENSATE		VENTURI
LPS	LOW PRESSURE STEAM		GATE VALVE
LPC	LOW PRESSURE CONDENSATE		GLOBE VALVE
SV	STEAM VENT		HOSE VALVE WITH CAP
HWS	HEATING-HOT WATER SUPPLY		BUTTERFLY VALVE
HWR	HEATING-HOT WATER RETURN		CHECK VALVE
CHWS	CHILLED WATER SUPPLY		BALANCING VALVE
CHWR	CHILLED WATER RETURN		CALIBRATED BALANCING VALVE
B	BRINE SUPPLY		BALL VALVE
BR	BRINE RETURN		PLUG VALVE
CWS	CONDENSER WATER SUPPLY		SOLENOID VALVE
CWR	CONDENSER WATER RETURN		SAFETY OR PRESSURE RELIEF, ANGLE VALVE
MU	MAKE-UP WATER		SAFETY OR PRESSURE RELIEF, STRAIGHT THRU VALVE
HG	REFRIGERANT HOT GAS		PRESSURE REDUCING VALVE (PRV)
RS	REFRIGERANT SUCTION		AUTOMATIC CONTROL VALVE, 2 WAY
RL	REFRIGERANT LIQUID		AUTOMATIC CONTROL VALVE, 3 WAY
PC	CONDENSATE PUMP DISCHARGE		ELECTRICALLY OPERATED VALVE
BFW	BOILER FEEDWATER		BLIND FLANGE
BBD	BOILER BLOW DOWN		LATERALLY
FOS	FUEL-OIL SUPPLY		CAP
FOR	FUEL-OIL RETURN		ELBOW, 90°
FOV	FUEL-OIL VENT		ELBOW, 90° TURNED UP
SAN	SANITARY DRAIN		ELBOW, 90° TURNED DOWN
V	VENT		ELBOW, 45°
D	DRAINLINE		TEE
CW	COLD WATER		TEE, OUTLET TURNED UP
A	COMPRESSED AIR		TEE, OUTLET TURNED DOWN
GS	GLYCOL SUPPLY		TRANSITION
GR	GLYCOL RETURN		UNION
HCS	HOT CHILLED WATER SUPPLY		FLEXIBLE PIPE CONNECTION
HCR	HOT CHILLED WATER RETURN		
C	COLD CONDENSER WATER		
CR	HOT CONDENSER WATER		

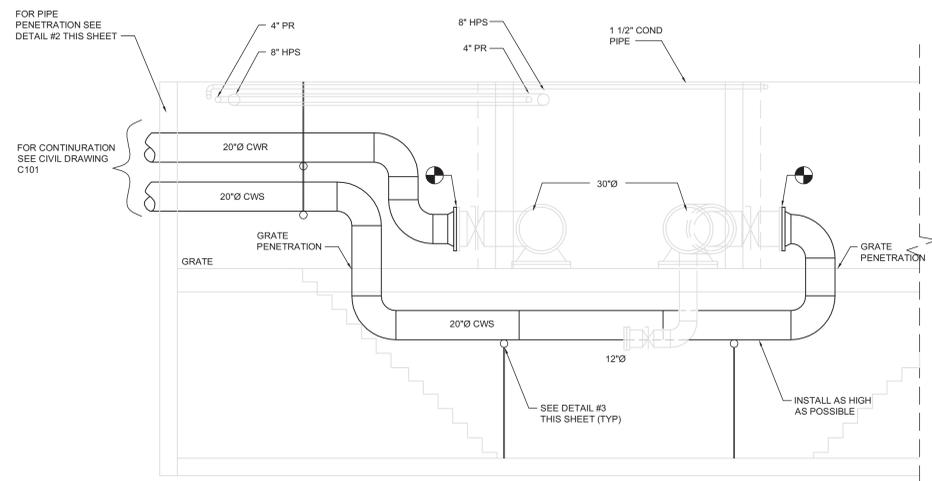
ABBREVIATIONS

ABV	ABOVE	BAS	BUILDING AUTOMATION SYSTEM
ACU	AIR CONDITIONING UNIT	BBD	BOILER BLOW DOWN
AD	ACCESS	BDD	BACKDRAFT DAMPER
AD	ACCESS DOOR	BET	BETWEEN
AF	ABOVE FINISHED FLOOR	BF	BOILER FEEDWATER DISCHARGE
AFMS	AIR FLOW MEASURING STATION	BS	BOTTOM GRILLE
AGU	AIR HANDLING UNIT	BLDG	BUILDING
AP	ACCESS PANEL	BLR	BOILER
APD	AIR PRESSURE DROP	BLW	BELOW
APPR	APPROVED	BLW FL	BELOW FLOOR
APPROX	APPROXIMATE	BT	BOTTOM
AS	ARCHITECTURAL	BT REG	BOTTOM REGISTER
AS	AIR SEPARATOR	BMT	BASEMENT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	BTU	BRITISH THERMAL UNIT
AV	AIR VENT	BU	BUILT-UP
AUX	AUXILIARY		
		*C	DEGREES CELSIUS
		CA	COMPRESSED AIR
		CAF	CAPACITY
		CC	COOLING COIL
		CG	CEILING GRILLE
		CENT.	CENTRIFUGAL
		CFM	CUBIC FEET PER MINUTE
		CG	CEILING GRILLE
		CH	CHILLER
		CHR	CHILLED WATER RETURN
		CHS	CHILLED WATER SUPPLY
		CLG	CAST IRON
		CONC	CONCRETE
		COND	CONDENSER
		CONN	CONNECT, CONNECTION
		CONST	CONSTRUCTION
		CONT	CONTINUOUS, CONTINUATION
		CONT	CONTRACT CONTRACTOR
		COORD	COORDINATE
		COP	COPPER
		CP	CONDENSATE PUMP
		CR	CEILING REGISTER
		CT	COOLING TOWER
		CU	CONDENSING UNIT, CUBIC
		CUH	CABINET UNIT HEATER
		CONST	CONSTANT VOLUME
		CW	COLD WATER
		CWR	CONDENSER WATER RETURN
		CWS	CONDENSER WATER SUPPLY
		D	DRAIN LINE
		DB	DRY BULB TEMPERATURE
		DEG	DEGREES
		DEMO	DEMOLITION, DEMOLISH
		DH	DUCT HEATER
		DIA	DIAMETER
		DIA	DIAGRAM
		DIFF	DIFFUSER
		DM	DIMENSION
		DISC	DISCONNECT
		DISCH	DISCHARGE
		DMPR	DAMPEN
		DN	DOWN
		DWG	DRAWING
		E	EAST
		EA	EXHAUST AIR, EACH
		E.A.T.	ENTERING AIR TEMPERATURE
		EER	ENERGY EFFICIENCY RATIO
		EFF	EFFICIENCY
		EJ	EXPANSION JOINT
		ELEC	ELECTRICAL
		ELEV.	ELEVATION
		EMER	EMERGENCY
		ENGR	ENGINEER
		ENT	ENTERING
		EQUPT	EQUIPMENT
		ERU	ENERGY RECOVER UNIT
		ESP	EXTERNAL STATIC PRESSURE
		EST	ESTIMATED
		ET	EXPANSION TANK
		EUH	ELECTRIC UNIT HEATER
		EXH	EXHAUST
		EXP	EXPOSED
		EXPN	EXPANSION
		EXT	EXTERIOR
		EXTN	EXTENSION
		E.W.T.	ENTERING WATER TEMPERATURE
		*F	DEGREES FAHRENHEIT
		FCU	FAN COIL UNIT
		FD	FIRE DAMPER, FLOOR DRAIN
		FL	FLOOR
		FLA	FULL LOAD AMPS
		FLEX	FLEXIBLE
		FLG	FLANGE
		FOF	FUEL-OIL FILL
		FOR	FUEL-OIL RETURN
		FOS	FUEL-OIL SUPPLY
		FOV	FUEL-OIL VENT
		FPM	FEET PER MINUTE
		FT	FEET
		FT WG	FEET OF WATER GAUGE
		FTR	FIN-TUBE RADIATOR
		G	GAS
		GA	GAUGE
		GAL	GALLONS
		GALV	GALVANIZED
		GEN	GENERATOR
		GRND	GROUND
		GOVT	GOVERNMENT
		GPM	GALLONS PER HOUR
		GR	GRADE
		GRL	GRIFF
		GTV	GATE VALVE
		H	HUMIDIFIER
		HB	HOSE BIBB
		HC	HEATING COIL
		HD	HEAT DETECTOR
		HGT	HEIGHT
		HORIZ	HORIZONTAL
		HP	HORSE POWER
		HPC	HIGH PRESSURE CONDENSATE
		HPS	HIGH PRESSURE STEAM
		HPU	HEAT PUMP UNIT
		HR	HOUR
		HRR	HEAT RECOVERY RETURN
		HRS	HEAT RECOVERY SUPPLY
		HTR	HEATER
		HVAC	HEATING, VENTILATING & AIR-CONDITIONING
		HWC	HOT WATER CIRCULATING LINE
		HWL	HIGH-WATER LINE
		HWR	HOT WATER HEATING RETURN
		HWS	HOT WATER HEATING SUPPLY
		HV	HEAT EXCHANGER
		HYD	HYDRANT
		HZ	HERTZ
		IN	INCH
		IN WG	INCHES OF WATER GAUGE
		INSTL	INSTALL
		INSUL	INSULATION, INSULATED, INSULATOR, INSULATING
		INTMD	INTERMEDIATE
		IRN	IRON PIPE
		JC	JANITOR CLOSET
		KG	KILOGRAM
		KW	KILOWATT
		KWH	KILOWATT HOUR
		L	LABORATORY
		L.A.T	LEAVING AIR TEMPERATURE
		LAV	LAVATORY
		LBS	POUNDS
		LBS/HR	POUNDS PER HOUR
		LC	LINEAR CEILING DIFFUSER
		LF	LINEAR FOOT, LINEAR FEET
		LG	LENGTH, LONG
		LQ	LIQUID
		LPC	LOW PRESSURE CONDENSATE
		LPS	LOW PRESSURE STEAM
		LRA	LOCKED ROTOR AMP
		LVR	LOUVER
		LWL	LOW-WATER LINE
		LWT	LEAVING WATER TEMPERATURE
		M	METER
		MATL	MATERIAL
		MAX	MAXIMUM
		MBH	1000 BTU PER HOUR
		MCA	MINIMUM CIRCUIT AMPACITY
		MCC	MOTOR CONTROL CENTER
		MD	MOTORIZED DAMPER
		MECH	MECHANICAL
		MER	MECHANICAL EQUIPMENT ROOM
		MET	METAL
		MFR	MANUFACTURER
		MH	MANHOLE, MOUNTING HEIGHT
		MIN	MINIMUM
		MISC	MISCELLANEOUS
		MM	MILLIMETER
		MOC	MAXIMUM OVERCURRENT PROTECTION
		MP	MEDIUM PRESSURE
		MPH	MILES PER HOUR
		MPC	MEDIUM PRESSURE CONDENSATE
		MPS	MEDIUM PRESSURE STEAM
		MOUNT	MOUNTED
		MTD	MOUNTED
		MTG	MOUNTING
		MTR	MOTOR
		MTZ	MOTORIZED
		N	NORTH
		N/A	NOT APPLICABLE
		NC	NORMALLY CLOSED, NOISE CRITERIA
		N.I.C.	NOT IN CONTRACT
		NO	NORMALLY OPEN, NUMBER
		NOM	NOMINAL
		NTS	NOT TO SCALE
		OA	OUTSIDE AIR
		OAI	OUTSIDE AIR INTAKE
		OD	OUTSIDE DAMPER
		OL	OVERLOAD
		OPNG	OPENING
		OSD	OPEN SIGHT DRAIN
		OSBY	OUTSIDE SCREW AND YOKE OVERHEAD
		P	PUMP
		PA	PIPE ANCHOR
		PART	PART
		PC	PUMPED CONDENSATE
		PCHWR	PRIMARY CHILLED WATER RETURN
		PCHWS	PRIMARY CHILLED WATER SUPPLY
		PCR	PERFORATED CEILING RETURN
		PD	PRESSURE DROP
		PDCV	PRESSURE DIFFERENTIAL CONTROL VALVE
		PG	PIPE GUIDE
		PH	PHASE, PENTHOUSE
		PHC	PREHEAT COIL
		PANEL	PANEL
		PPH	POUNDS PER HOUR
		PRESS.	PRESSURE
		PRI	PRIMARY
		PROP	PROPELLER
		P.R.S.	PRESSURE REDUCING STATION
		PRI	PRIMARY
		PRV	PRESSURE REDUCING VALVE, PRESSURE RELIEF VALVE, POWER ROOF VENTILATOR
		PSI	POUNDS PER SQUARE INCH
		PSIG	POUNDS PER SQUARE INCH GAUGE
		PT	POINT
		PVC	POLYVINYL CHLORIDE
		PWR	POWER
		R	RISER, RIGHT
		RA	RETURN AIR
		RAD	RADIUS
		RD	ROOF DRAIN, REFRIGERANT DISCHARGE
		RECIR	RECIRCULATING
		RECT	RECTANGULAR
		RED	REDUCER, REDUCING
		REHT	REQUIRE
		REIN	REINFORCE, REINFORCEMENT, REINFORCED
		REO	REVISION
		REV	RETURN AIR FAN, ROOF
		RFGT	REFRIGERANT
		RFL	ROOF FLAT
		RHA	REFRIGERANT LIQUID
		RLD	RUNNING LOAD AMP
		RLD	RETURN LINEAR DIFFUSER
		RM	ROOM
		ROUND	ROUND
		RPM	REVOLUTIONS PER MINUTE
		RTE	REFRIGERANT SUCTION
		RTE	ROUTE
		RV	RELIEF VALVE, RELIEF VENT
		S	SOUTH
		SA	SUPPLY AIR
		SAN	SANITARY
		SAU	SOUND ATTENUATING UNIT
		SB	SECURITY BARS
		SCHED	SCHEDULE
		SDC	SMOKE DAMPER
		SEC	SECONDARY
		SF	SYSTEM DIGITAL CONTROLLER
		SK	SKETCH
		S.L.	SOUND LINING
		SLOPE	SLOPE
		SP	STATIC PRESSURE
		SPEC	SPECIFICATION(S)
		SUPP	SUPPORT
		SPS	STATIC PRESSURE SENSOR
		SQ	SQUARE
		SQ.FT	SQUARE FEET
		SS	SOLIDS SEPARATOR, STAINLESS STEEL, SANITARY SEWER
		SST	SYSTEM STATIC PRESSURE TOTALIZER
		STD	STEAM
		STANDARD	STANDARD
		SYS	SYSTEM
		T	TOP
		TAO	TEMPERATURE AND PRESSURE
		TAO	TRANSFER AIR OPENING
		TD	TRANSFER DUCT, TEMPERATURE DIFFERENCE
		TEFC	TOTALLY ENCLOSED FAN COOLED TEMPERATURE
		TEMP	TEMPERATURE
		TEG	TRANSFER GRILLE, TOP GRILLE
		TERM	THERMOMETER
		TOT	TOTAL
		TR	TRANSFER
		TSP	TERMINAL STATIC PRESSURE
		TSTAT	THERMOSTAT
		TYP	TERMINAL UNIT TYPICAL
		U	UPBLAST
		UC	UNDERCUT



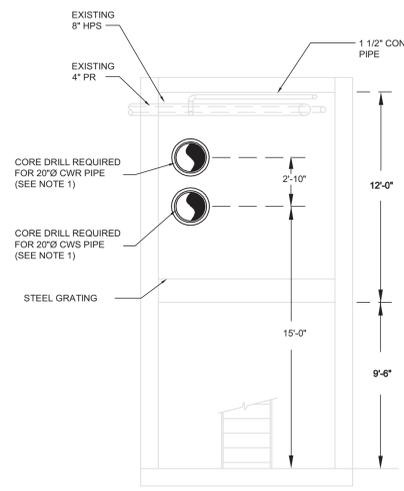
PLAN VIEW OF TUNNEL

SCALE: 1/4" = 1'-0"



SECTION A-A

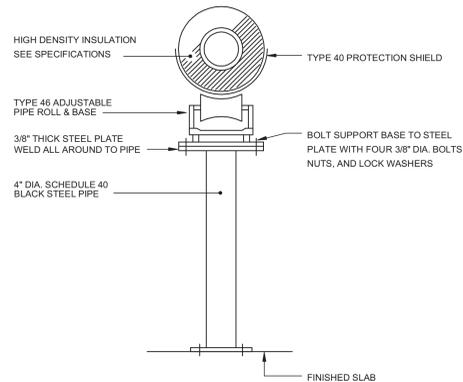
SCALE: 1/4" = 1'-0"



SECTION B-B

SCALE: 1/4" = 1'-0"

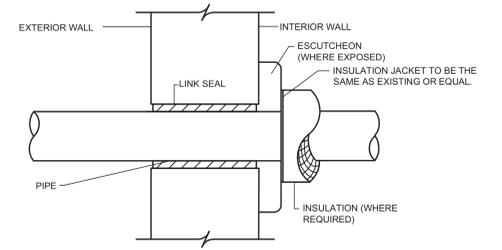
NOTE:
1. CORE DRILL SIZE TO BE DETERMINED BY THE CONTRACTOR TO SUFFICIENT FIT THE PIPE THROUGH OPENING.
2. OPENING SHALL BE MINIMUM 12" AWAY FROM THE CORNER OF THE TWO WALLS COME TOGETHER.



3 PIPE SUPPORT DETAIL INSULATED PIPE

M101 REF.

Scale: NTS

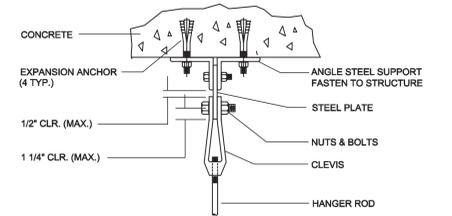


NOTE: THIS DETAIL IS FOR NON-FIRE-RATED CONSTRUCTION. PIPE PENETRATIONS IN FIRE-RATED CONSTRUCTION SHALL BE FIRESTOPPED WITH A UL-CLASSIFIED SYSTEM.

2 PIPE PENETRATION THRU WALLS

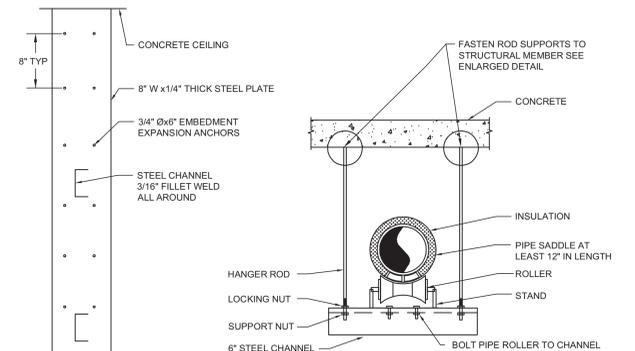
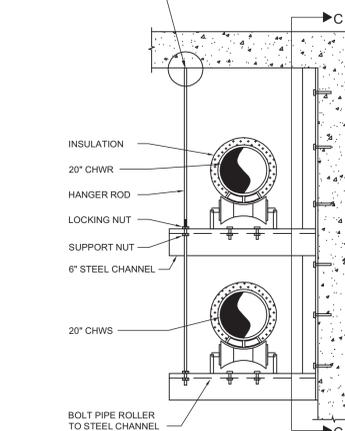
M101 REF.

Scale: NTS



FASTENER ENLARGED PLAN

FASTEN ROD SUPPORTS TO STRUCTURAL MEMBER SEE ENLARGED DETAIL.



SECTION C-C

1 PIPE SUPPORT

M101 REF.

Scale: NTS

100% SUBMITTAL

<p>AECOM TECHNICAL SERVICES, INC. 3101 WILSON BOULEVARD SUITE 300 ARLINGTON, VA 22201 T: 703-882-4900 F: 703-882-4901 www.aecom.com</p>											
KEY PLAN											
REV.	DATE	DESCRIPTION	S&R BR.	CUSTOMER	PM	SECT. HEAD					
						M-101					
						CHILLED WATER LINE INTERCONNECTION					
						NATIONAL AERONAUTICS AND SPACE ADMINISTRATION					
						GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND					
						FACILITIES MANAGEMENT DIVISION					
						DATE ISSUED 05/03/2012		C&F CODE OR WR#		AECOM PROJECT NO. 60248437	
						SCALE		AS NOTED			