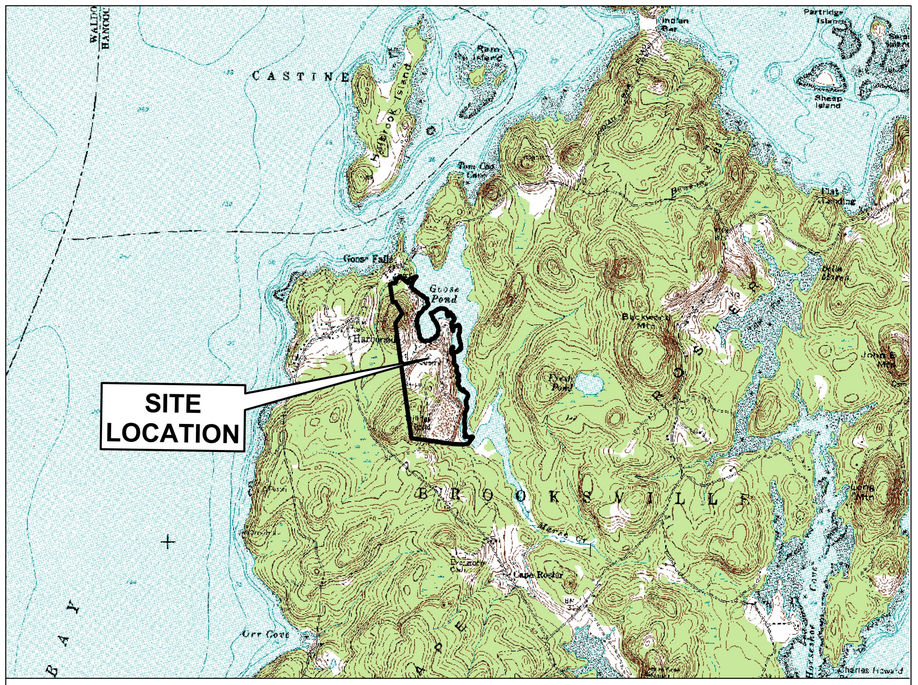
APPENDIX M
DRAWINGS

MAINE DEPARTMENT OF TRANSPORTATION
OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE



LOCUS MAP

DRAWING INDEX

INCLUDED THIS SUBMITTAL	SHEET NUMBER	DRAWING TITLE	DISCIPLINE NUMBER
•	1	COVER SHEET	G–001
•	2	LEGEND ABBREVIATIONS AND GENERAL NOTES	G–002
•	3	OVERALL SITE PLAN	C–101
•	4	EXISTING CONDITIONS PLAN – TAILINGS IMPOUNDMENT	C–102
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•	22	COMPOST BIOREACTOR AND HORIZONTAL DRAIN DETAILS	C–303
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NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	BJB
DSGN			TDD	BY	APVD

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OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

COVER SHEET

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PROJ	3612-11-2201
DWG	G-001
SHEET	1 OF 27

EXISTING

LEGEND

PROPERTY BOUNDARY

INTERIOR BOUNDARY LINES

EXISTING BUILDING

EXISTING FOUNDATION

70 — CONTOUR

14.67 — SPOT GRADE

EXISTING RETAINING WALL

PAVED ROAD

SIGNS

EDGE OF WATER

EDGE OF WATER

X — X — FENCE

SS — SS — SANITARY SEWER

SANITARY SEWER MANHOLE

WELL

BOLLARD

CATCH BASIN

MANHOLE

TREE LINE

SINGLE TREE

CP–603 — CONE PENETROMETER TEST

SB–706 — SOIL BORING

MW–722R — MONITORING WELL

UTILITY POLE

LIGHT POLE

STORM DRAIN LINE

HORIZONTAL DRAIN

PERIMETER EROSION CONTROL

STONE CHECK DAM

DRAINAGE FLOW PATH

LIMIT OF PCB SOIL

LIMIT OF ORE PAD ROCK AND CONCRETE

WETLAND LINE

100–YEAR FLOOD LINE

LIMIT OF INFILTRATION BARRIER CAP

CUT/FILL BOUNDARY LINE

LIMIT OF EQ DRAINS/WORKING SURFACE

PROPOSED

70 — CONTOUR

TREE LINE

SD — SD — SD — STORM DRAIN LINE

HORIZONTAL DRAIN

SF — SF — PERIMETER EROSION CONTROL

STONE CHECK DAM

DRAINAGE FLOW PATH

LIMIT OF PCB SOIL

LIMIT OF ORE PAD ROCK AND CONCRETE

WETLAND LINE

100–YEAR FLOOD LINE

LIMIT OF INFILTRATION BARRIER CAP

CUT/FILL BOUNDARY LINE

LIMIT OF EQ DRAINS/WORKING SURFACE

REFERENCE LEGEND:

A / C–103 / C–301

DETAIL LETTER

WHERE DETAIL APPEARS

WHERE DETAIL TAKEN

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACM	ASBESTOS CONTAINING MATERIAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE AWWA AMERICAN WATER WORKS ASSOCIATION
BGS	BELOW GROUND SURFACE
CJ	CONTROL JOINT
CLR	CLEAR
CS	CARBON STEEL
℄	CENTER LINE
CPT	CONE PENETRATION TEST
CON	CONCRETE
DI	DUCTILE IRON
DOT	DEPARTMENT OF TRANSPORTATION
DPE	DIFFERENTIAL POINT SENSOR
DPI	DIFFERENTIAL POINT INDICATOR
DR	DIMENSION RATIO
E	ELECTRICAL
EF	EFFLUENT
EL	ELEVATION
ELEV	ELEVATION
EW	EACH WAY
EX	EXISTING
F	FILTER
FE	FLOW ELEMENT
FF	FINISHED FLOOR
FM	FORCE MAIN
FT	FEET
G	GAS
GAC	GRANULATED LIQUID CARBON
GW	GROUND WATER
HD	HORIZONTAL DRAIN
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
H/O/A	HAND/ON/AUTO
HS	HAND SWITCH
I	INSTRUMENTATION
INST	INSTRUMENTATION
INV	INVERT
LC	LIQUID CARBON
LP	LOW POINT
LS	LEVEL SWITCH
MPT	MALE PIPE THREAD
MIN	MINIMUM
MAX	MAXIMUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NTS	NOT TO SCALE
OC	ORGANOCLAY
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	PUMP
PI	PRESSURE INDICATOR
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RET	RETAINING
RCP	REINFORCE CONCRETE PIPE
R.O.W.	RIGHT OF WAY
S	SAMPLE
SAN	SANITARY
SCB	SOIL CEMENT BENTONITE
SCH	SCHEDULE
SS	SANITARY SEWER
STA	STATION
STB	SOIL BORING
T	TANK
THW	TRANSIENT HOT WIRE
TOC	TOP OF CONCRETE
TOS	TOP OF STEE
TYP	TYPICAL
W	WATER
ø	DIAMETER

GENERAL NOTES

GN1. CONTRACTOR SHALL VISUALLY INSPECT THE SITE TO ASCERTAIN THE CONDITION IF EXISTING FEATURES AND FAMILIARIZE THEMSELVES WITH THE PROPOSED WORK.

GN2. THE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PERMITS NECESSARY TO COMPLETE THE WORK.

GN3. IT IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING FEATURES AS SHOWN ON THESE PLANS ARE BASED ON EXISTING RECORDS AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. EXISTING CONDITIONS SHOWN ON THE PLANS OUTSIDE OF OR WITHIN THE PROJECT WORK AREAS MAY NOT REFLECT ALL ABOVE OR BELOW GROUND FEATURES. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE AND ALL FIELD CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING WORK

GN4. ALL SPECIFIED WORK SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS AND ORDINANCES.

GN5. BITUMINOUS PAVEMENT, CURBS, UTILITIES, FENCING AND ALL OTHER OFF–SITE FEATURES SHALL BE RESTORED UPON COMPLETION OF THE WORK UNLESS OTHERWISE INDICATED. ON–SITE DISTURBED AREAS SHALL BE FINISHED WITH A GRAVEL SURFACE.

GN6. CONSTRUCTION WATER MANAGEMENT WILL BE REQUIRED DURING REMEDIATION ACTIVITIES. SURFACE WATER THAT POTENTIALLY CONTACTS IMPACTED MATERIALS WILL BE STORED IN APPROPRIATE TANKS FOR OFF–SITE DISPOSAL OR TREATMENT PRIOR TO RELEASE.

GN7. SITE PREPARATION AND WORK ACTIVITIES SHALL BE COORDINATED WITH THE SEQUENCE OF CONSTRUCTION.

GN8. ELEVATIONS ARE BASED ON NAVD 88 DATUM. HORIZONTAL CONTROL BASED ON NORTH AMERICAN DATUM (NAD) OF 1983, MAINE STATE PLANE, EAST ZONE, U.S. FEET.

GN9. EXISTING CONDITIONS SHOWN ON THESE PLANS ARE BASED ON THE FOLLOWING MAPS AND SURVEYS:

1. AERIAL MAPPING PROVIDED BY MAINE DEPARTMENT OF TRANSPORTATION.
2. SUPPLEMENTAL GROUND SURVEY PROVIDED BY MEDOT IN APRIL 2012.
3. AS–BUILT SURVEY FOR PLACEMENT OF PCB IMPACTED MATERIAL WITHIN THE TAILINGS IMPOUNDMENT PROVIDED BY CES, INC IN JANUARY 2014.

GENERAL CONSTRUCTION SEQUENCE:

PHASE 1: REMEDIAL CONSTRUCTION (INITIAL IMPOUNDMENT DEWATERING AND INSTRUMENTATION INSTALLATION)

1. MOBILIZE TO SITE
2. INSTALL E&SC
3. ESTABLISH ON–SITE QUARRY & CRUSHING OPERATION
4. CONSTRUCT/IMPROVE ACCESS ROAD TO IMPOUNDMENT TOE
5. CONSTRUCT BIOREACTOR TREATMENT AREAS
6. CONSTRUCT TEMPORARY DRILL PADS FOR HORIZONTAL DRAINS
7. INSTALL UPPER N/S HORIZONTAL DRAIN AND ASSOCIATED COLLECTION PIPING
8. CONSTRUCT WORKING SURFACE
9. INSTALL PREFABRICATED VERTICAL DRAINS (PVDS). FOR PURPOSES OF THIS DESIGN, PVDS WILL BE REFERRED TO AS "EQ DRAINS".
10. INSTALL GEOTECHNICAL INSTRUMENTATION PER GMP
11. MONITOR WATER LEVELS FOR 1 YEAR (+/–)

PHASE 2: REMEDIAL CONSTRUCTION (SITE RE–GRADING/EARTHWORKS AND COVER SYSTEM)

1. INSTALL E&SC
2. INSTALL ADDITIONAL HORIZONTAL DRAINS (LOWER N/S DRAIN AND/OR E/W DRAINS) IF NECESSARY (IF ADEQUATE DEWATERING HAS NOT OCCURRED) TO BEGIN CONSTRUCTION
3. STAGED CUT/FILL OPERATIONS. FILL PLACEMENT RATES GOVERNED BY RESPONSE OF TAILINGS TO LOADING/UNLOADING EVIDENCED BY GEOTECHNICAL INSTRUMENTATION AND MONITORING (SEE GMP)
4. CUT/FILL BALANCE AND GRADING ADJUSTMENTS
5. COVER SYSTEM INSTALLATION

EARTHWORK NOTES

WASTE ROCK REMOVAL:
REMOVAL OF WASTE ROCK SHALL BE COORDINATED WITH THE SEQUENCE OF CONSTRUCTION AND EARTHWORK SPECIFICATIONS. ALL WASTE ROCK NOT TO BE REUSED SHALL BE PLACED IN THE STINK COVE SEDIMENT AREA.

FILL PLACEMENT:
PLACEMENT OF FILL SHALL BE COORDINATED WITH THE VERTICAL DRAIN INSTALLATION, DEWATERING SPECIFICATION AND THE GEOTECHNICAL SPECIFICATIONS.

DEWATERING PHASES:
PHASE 1: INSTALL HORIZONTAL DRAINS HD–1, HD–2, VERTICAL DRAINS, COMPOST BIOREACTORS AND STORMWATER PONDS.

PHASE 2: INSTALL HORIZONTAL DRAINS HD–3 THROUGH 8.

WELL ABANDONMENT AND REMOVAL:
ALL WELLS IN CUT SECTIONS SHALL BE ABANDONED AND GROUTED IN ACCORDANCE WITH MAINE DEP.

HORIZONTAL DRAIN NOTES

GUIDANCE AND TRACKING DOCUMENTATION:
SEE SPECIFICATION SECTION 33 05 23 HORIZONTAL DRILLING

STEEL CASING/ADDITIONAL ATTEMPTS:
SEE SPECIFICATION SECTION 33 05 23 HORIZONTAL DRILLING

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	REVISION	BY	APVD
B	12/5/14	TDD	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP
A	11/5/14	DR	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM
		TDD	BJB CHK MAP APVD		PSB

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

LEGEND ABBREVIATIONS AND GENERAL NOTES

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DATE	03/26/13
PROJ	3612-11-2201
DWG	G-002
SHEET	2 OF 27

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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\G-002 Legend Abbreviations and General Notes.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:24 PM

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0 75 150 300
SCALE IN FEET

NO.	DATE	REVISION	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	APVD
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CALLAHAN MINE SUPERFUND SITE
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DWG	C-101
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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-101 Overall Site Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:26 PM

NOTES:

1. SEE GENERAL NOTES ON SHEET G-002 FOR MAPPING SOURCES USED TO DEVELOP EXISTING CONDITIONS PLANS.

MATCH LINE SHEET C-103

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	
		TDD BJB MAP PSB			

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OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

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EXISTING CONDITIONS PLAN
TAILINGS IMPOUNDMENT

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DWG	C-102
SHEET	4 OF 27

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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-102 Existing Conditions Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:25 PM

NOTES:

1. SEE GENERAL NOTES ON SHEET G-002 FOR MAPPING SOURCES USED TO DEVELOP EXISTING CONDITIONS PLANS.

MATCH LINE SHEET C-102

LIMIT OF ORE PAD ROCK AND CONCRETE PLACEMENT

EXISTING ARTESIAN WELL

SB-601
CP-601
CP-602
CP-603
CP-615
SB-602
CP-604
SB-706
SB-703
SB-704
MW-722R
PZ-712

100-YEAR FLOOD PLAIN
WETLAND LIMITS

WETLAND GP
PF04, PSS1, PERM1

WETLAND C
PERM1

N83°00'26"W
802.90

N87°42'26"W
273.60

N79°47'34"E±
115±

0 20 40 80
SCALE IN FEET

NOT FOR CONSTRUCTION

FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-103 Existing Conditions Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:26 PM

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	BJB	MAP
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SHEET	5 OF 27

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NOTES:

1. PROPOSED HORIZONTAL DRAINS SHALL BE INSTALLED IN PHASES TO ASSIST IN DEWATERING AND DEVELOPING STABILITY PRIOR TO GRADING ACTIVES. REFER TO SHEETS C-107 THRU C-109 FOR PLAN AND PROFILE INFORMATION. HORIZONTAL DRAIN 2 (HD-2) SHALL BE INSTALLED IN THE INITIAL PHASE PRIOR TO CONSTRUCTION ACTIVITIES. REMAINING HORIZONTAL DRAINS WILL BE INSTALLED DURING EARTHWORK ACTIVITIES.

   EXPECTED HORIZONTAL DRAIN SEQUENCE
   1. HD-2: XXX MONTHS PRIOR TO CONSTRUCTION
   2. HD-1: XXX MONTHS PRIOR TO CONSTRUCTION
   3. HD-3 THRU HD-8: XXX MONTHS PRIOR TO CONSTRUCTION

2. CONTOURS SHOWN ON THIS DRAWING REPRESENT THE TOP OF SUBGRADE. REFER TO DETAIL A ON SHEET C-308 FOR PROPOSED CAP BUILD UP.

PREVIOUSLY PLACED PCB CONCRETE

EXISTING ARTESIAN WELL TO BE EXTENDED TO FINAL GRADE W/ DISCHARGE PIPE TO DITCH

A C-104 C-301

PREVIOUSLY PLACED PCB IMPACTED SOIL

PREVIOUSLY PLACED ORE PAD STOCKPILE AREA

PROPOSED TREELINE (TYP)

HD-1 HD-2 HD-3 HD-4 HD-5 HD-6 HD-7 HD-8

1.5-INCH PERFORATED PVC HORIZONTAL DRAIN (TYP) SEE NOTE 1

HD VAULT 1 HD VAULT 2 HD VAULT 3 HD VAULT 4 HD VAULT 5 HD VAULT 6

DISCHARGE STRUCTURE 1 DISCHARGE STRUCTURE 2 DISCHARGE STRUCTURE 3

COMPOST BIOREACTOR 1 COMPOST BIOREACTOR 2

STORMWATER TREATMENT POND 1 STORMWATER TREATMENT POND 2

4" HDPE COLLECTION PIPE (TYP)

GRAVEL ACCESS ROAD (TYP) E C-104 C-302

0 30 60 120
SCALE IN FEET

NOT FOR CONSTRUCTION

FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-104 Overall Horiz Drain Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:28 PM

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
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		REVISION	BJB	MAP	APVD

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DRAWING STATUS
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OVERALL
HORIZONTAL DRAIN PLAN

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0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-104
SHEET	6 OF 27

NOTES:

1. REFER TO SHEETS C-107 THRU C-109 FOR HORIZONTAL DRAIN PROFILES.
2. REFER TO DETAILS SHEETS C-303 AND C-304 FOR HORIZONTAL DRAIN VAULT AND DISCHARGE STRUCTURE DETAILS.

MATCH LINE SHEET C-106

N

GRAVEL ACCESS ROAD (TYP) — E C-105 C-302

HD-5

HD VAULT 5 — B C-105 C-304

HD-4

HD-3

HD-2

HD-1

1.5-INCH PERFORATED HORIZONTAL DRAIN (TYP)

COLLECTION PIPE 1
4" SOLID HDPE (SDR26) (TYP)

COMPOST BIOREACTOR 1

CLEANOUT

RIPRAP OVERFLOW WEIR
D_{50}= 4-INCH

B C-105 C-303 DISCHARGE STRUCTURE 1

B C-105 C-303 DISCHARGE STRUCTURE 2

HORIZONTAL DRILL PAD GRADING (TYP)

4" PERFORATED HDPE (SDR 26) (TYP)

6" UNDERDRAIN

A C-105 C-304 HD VAULT 2

A C-105 C-304 HD VAULT 1

WETLAND GP
PF04, PSS1, PERM1

PROPOSED TREELINE (TYP)

STORMWATER TREATMENT POND 1

0 20 40 80
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	BJB	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	APVD
DSGN				BY	PSB

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LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
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DRAFT FINAL DESIGN DRAWINGS

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HORIZONTAL DRAIN PAD
GRADING PLAN

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DWG	C-105
SHEET	7 OF 27

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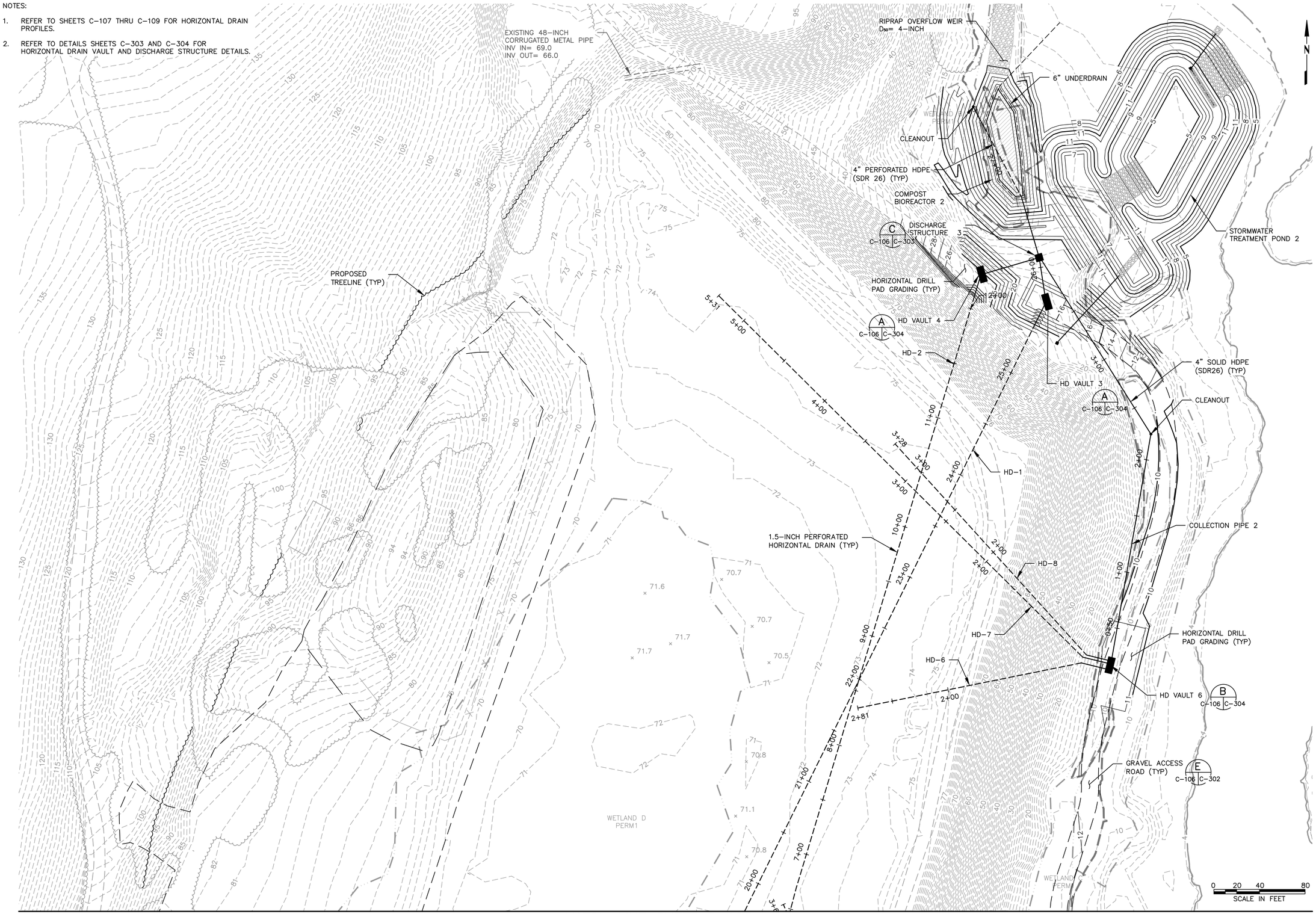
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-105 Horiz Drain Pad Grading Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:28 PM

NOTES:

1. REFER TO SHEETS C-107 THRU C-109 FOR HORIZONTAL DRAIN PROFILES.
2. REFER TO DETAILS SHEETS C-303 AND C-304 FOR HORIZONTAL DRAIN VAULT AND DISCHARGE STRUCTURE DETAILS.



MATCH LINE SHEET C-105

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM

DSGN TDD | DR BJB | CHK MAP | APVD PSB

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DRAFT FINAL DESIGN DRAWINGS

CIVIL

HORIZONTAL DRAIN PAD GRADING PLAN

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(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-106
SHEET	8 OF 27

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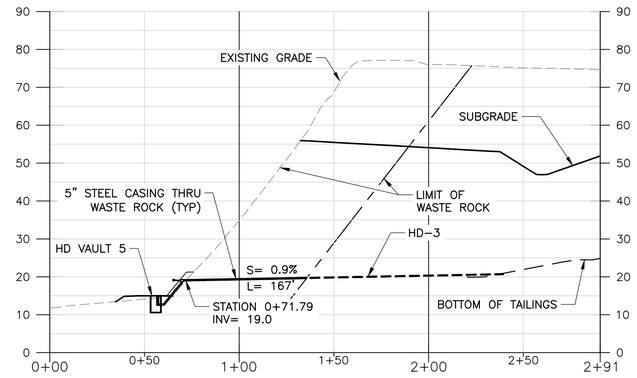
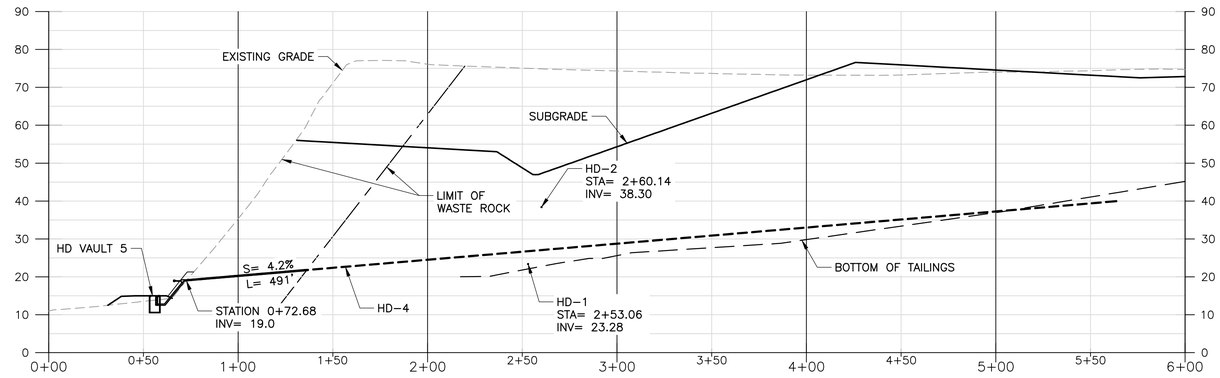
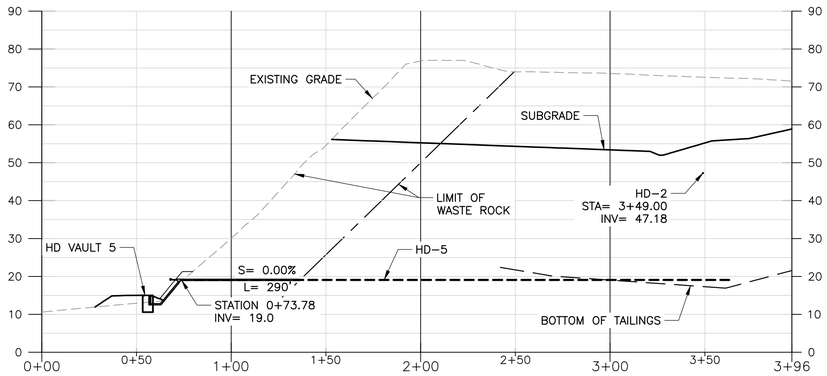
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-106 Horiz Drain Pad Grading Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:28 PM



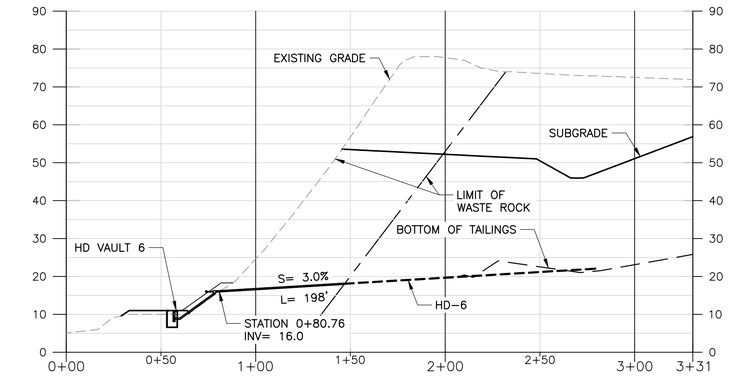
HORIZONTAL DRAIN 3 (HD-3)



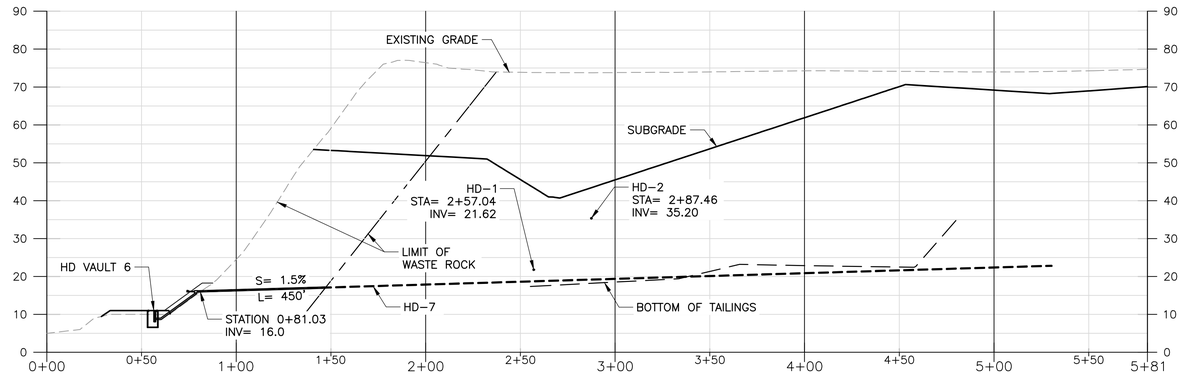
HORIZONTAL DRAIN 4 (HD-4)



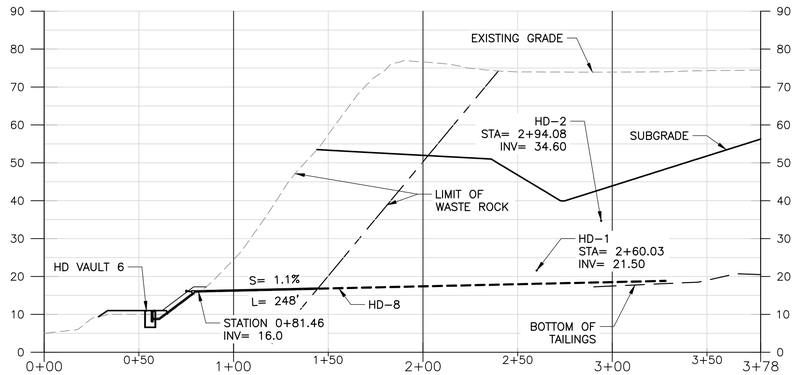
HORIZONTAL DRAIN 5 (HD-5)



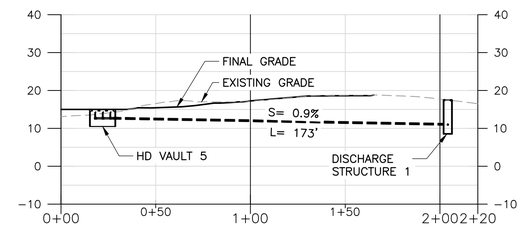
HORIZONTAL DRAIN 6 (HD-6)



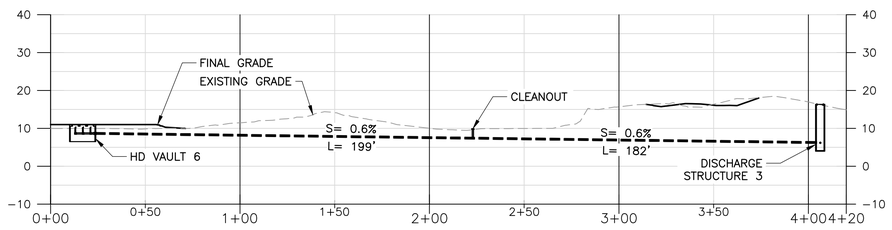
HORIZONTAL DRAIN 7 (HD-7)



HORIZONTAL DRAIN 8 (HD-8)



COLLECTION PIPE 1



COLLECTION PIPE 2

NOTES:

1. REFER TO PROFILE SHEETS C-303 THRU C-305 FOR HD VAULT AND DISCHARGE STRUCTURE DETAILS.

HORIZONTAL SCALE: 1" = 40'
0 20 40 80
SCALE IN FEET

VERTICAL SCALE: 1" = 20'
0 10 20 40
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM

DSGN TDD | DR BJB | CHK MAP | APVD PSB

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL
HORIZONTAL DRAIN PROFILES

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DATE	03/26/13
PROJ	3612-11-2201
DWG	C-107
SHEET	9 OF 27

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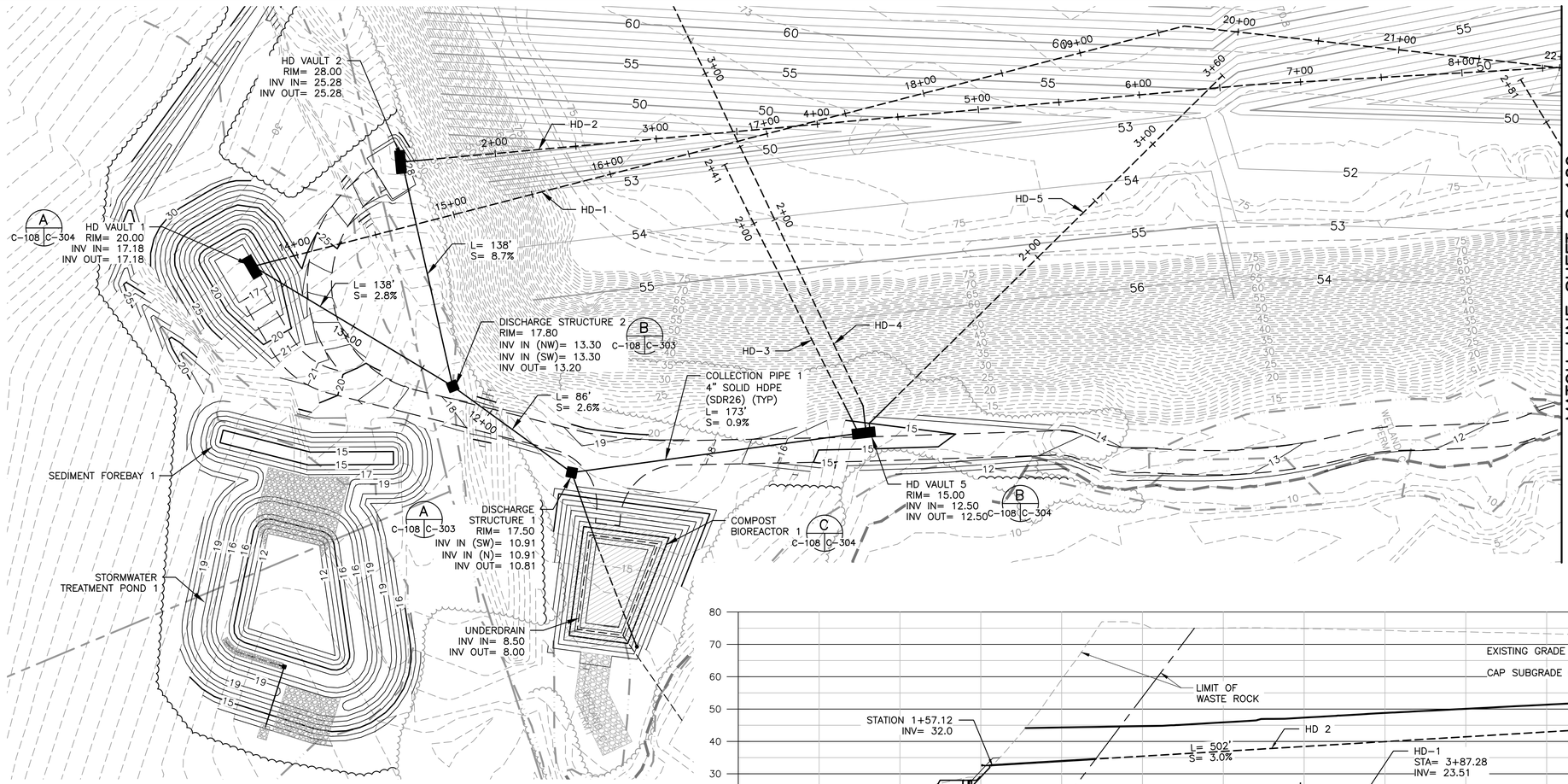
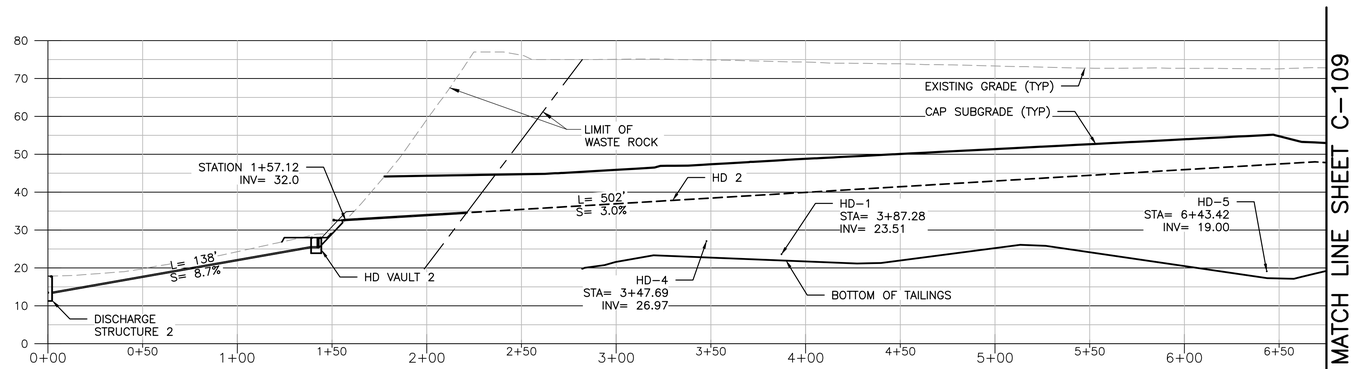
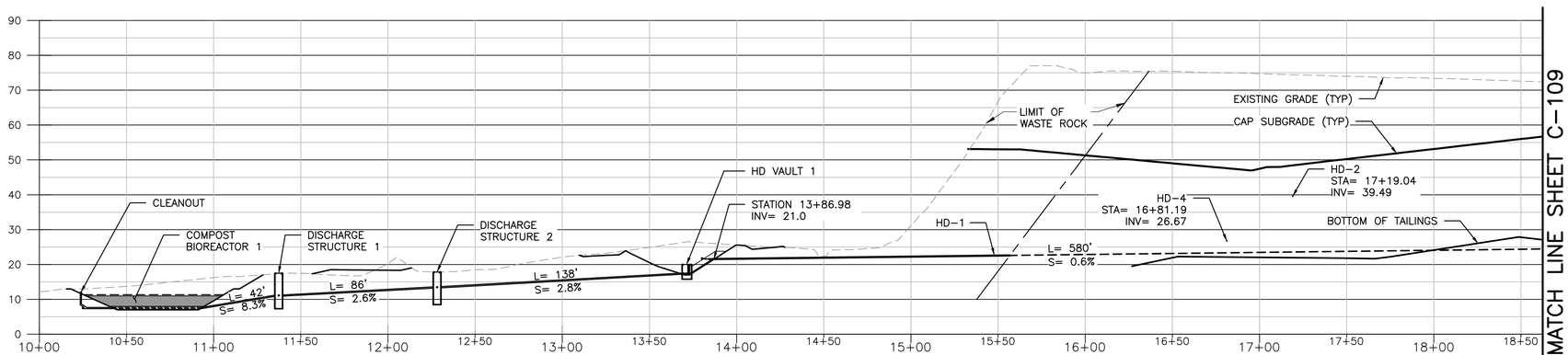
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-107 Horiz Drain EW Profile.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:30 PM



HORIZONTAL DRAIN PLAN



HORIZONTAL DRAIN 2 PROFILE



HORIZONTAL DRAIN 1 PROFILE

HORIZONTAL SCALE: 1" = 40'
0 20 40 80
SCALE IN FEET

VERTICAL SCALE: 1" = 20'
0 10 20 40
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

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HORIZONTAL DRAIN PROFILES

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0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-108
SHEET	10 OF 27

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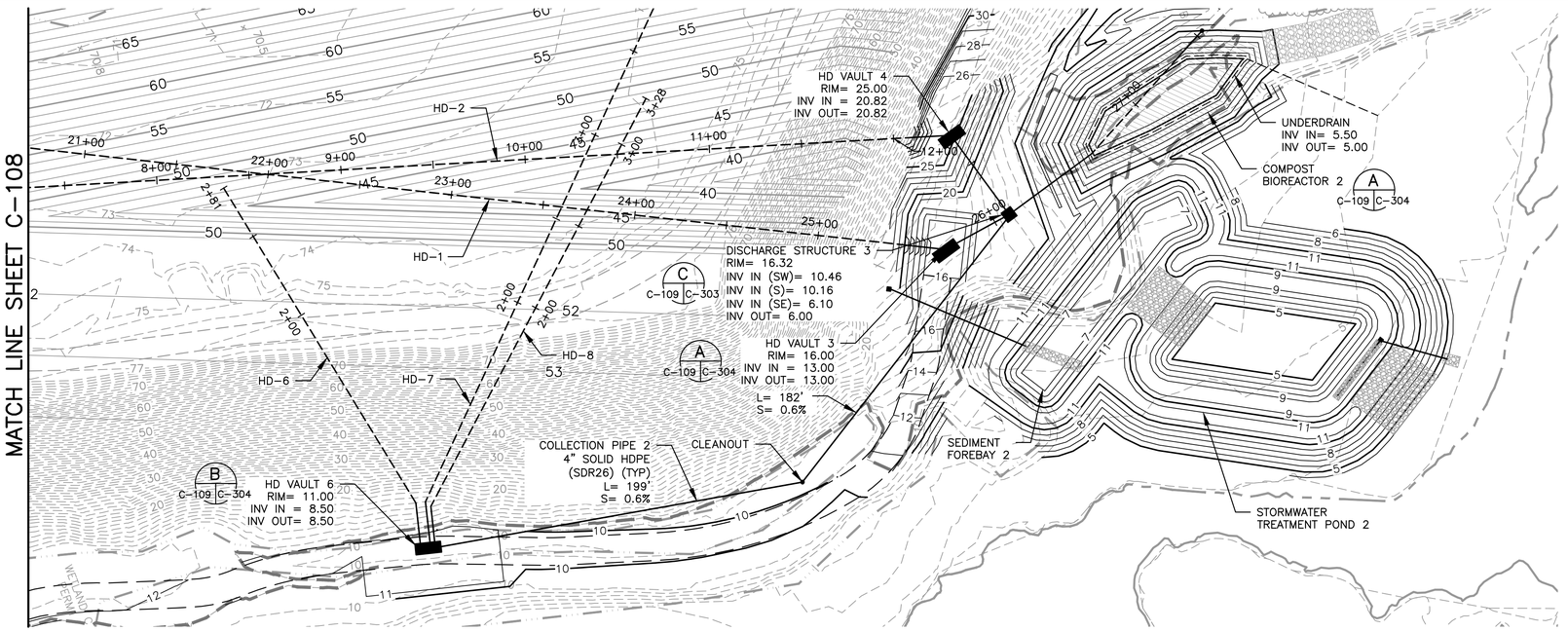
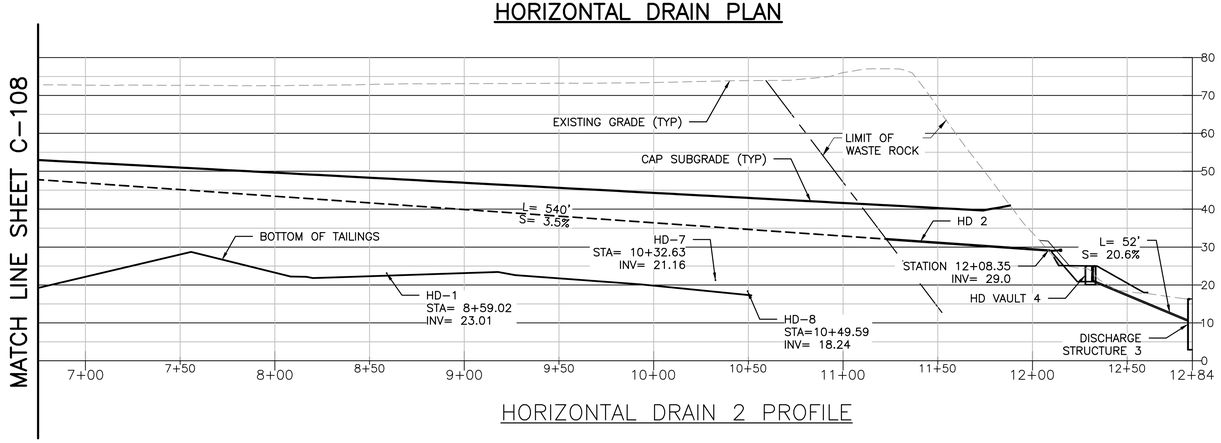
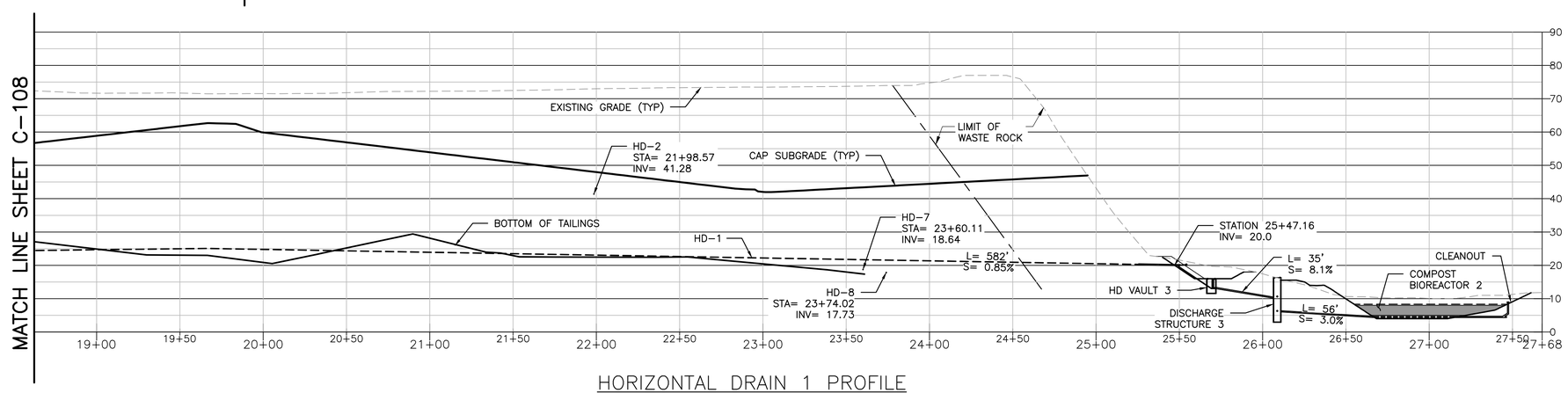
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-108 Horiz Drain NS Profile-1.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:30 PM



HORIZONTAL DRAIN PLAN



HORIZONTAL DRAIN 2 PROFILE



HORIZONTAL DRAIN 1 PROFILE

HORIZONTAL SCALE: 1" = 40'
0 20 40 80
SCALE IN FEET

VERTICAL SCALE: 1" = 20'
0 10 20 40
SCALE IN FEET

NOT FOR CONSTRUCTION

FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-109 Horiz Drain NS Profile-2.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:31 PM

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	

TDD BJB MAP

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

HORIZONTAL DRAIN PROFILES

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VERIFY SCALE
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0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-109
SHEET	11 OF 27

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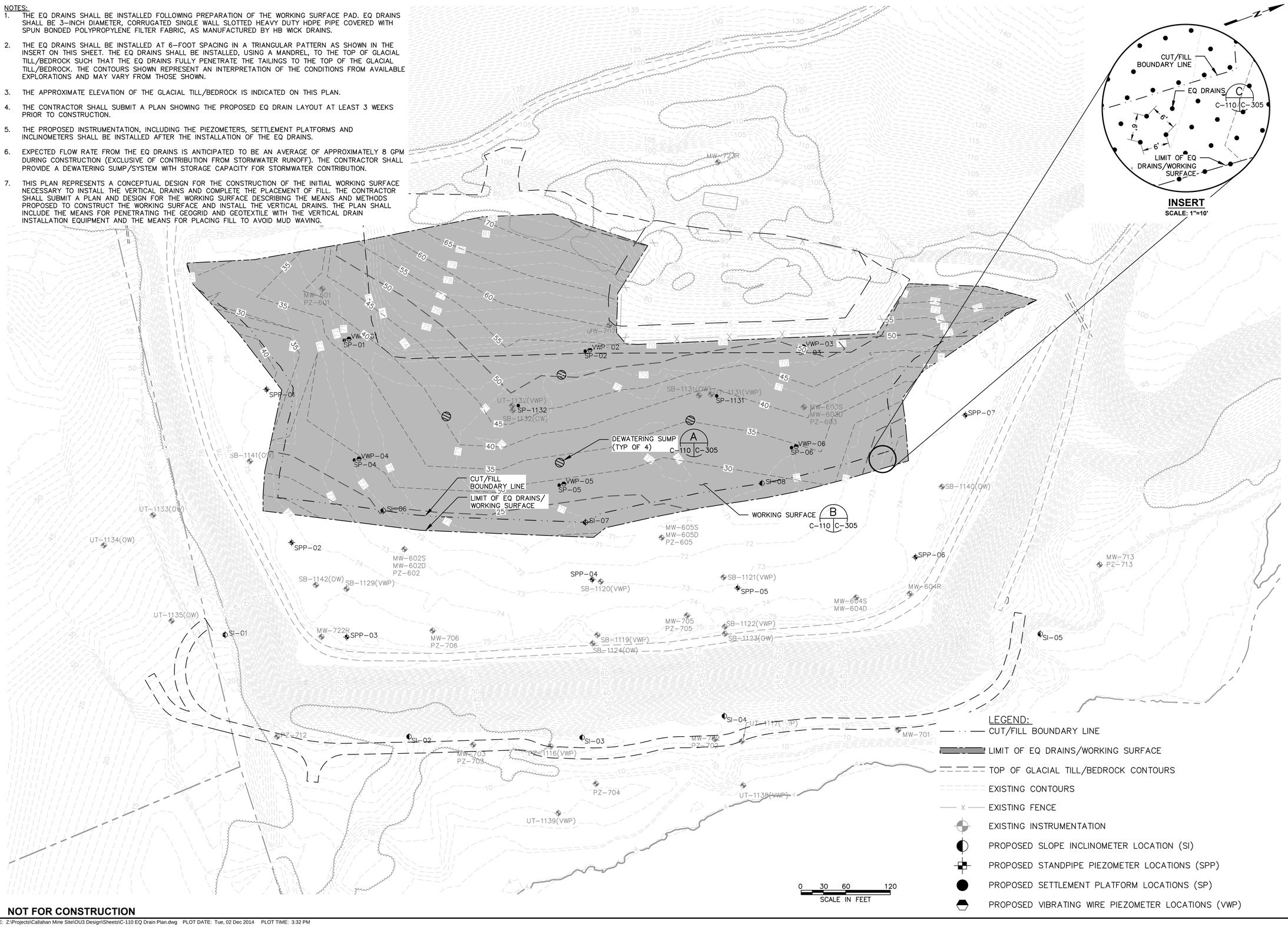
NOTES:

1. THE EQ DRAINS SHALL BE INSTALLED FOLLOWING PREPARATION OF THE WORKING SURFACE PAD. EQ DRAINS SHALL BE 3–INCH DIAMETER, CORRUGATED SINGLE WALL SLOTTED HEAVY DUTY HDPE PIPE COVERED WITH SPUN BONDED POLYPROPYLENE FILTER FABRIC, AS MANUFACTURED BY HB WICK DRAINS.
2. THE EQ DRAINS SHALL BE INSTALLED AT 6–FOOT SPACING IN A TRIANGULAR PATTERN AS SHOWN IN THE INSERT ON THIS SHEET. THE EQ DRAINS SHALL BE INSTALLED, USING A MANDREL, TO THE TOP OF GLACIAL TILL/BEDROCK SUCH THAT THE EQ DRAINS FULLY PENETRATE THE TAILINGS TO THE TOP OF THE GLACIAL TILL/BEDROCK. THE CONTOURS SHOWN REPRESENT AN INTERPRETATION OF THE CONDITIONS FROM AVAILABLE EXPLORATIONS AND MAY VARY FROM THOSE SHOWN.
3. THE APPROXIMATE ELEVATION OF THE GLACIAL TILL/BEDROCK IS INDICATED ON THIS PLAN.
4. THE CONTRACTOR SHALL SUBMIT A PLAN SHOWING THE PROPOSED EQ DRAIN LAYOUT AT LEAST 3 WEEKS PRIOR TO CONSTRUCTION.
5. THE PROPOSED INSTRUMENTATION, INCLUDING THE PIEZOMETERS, SETTLEMENT PLATFORMS AND INCLINOMETERS SHALL BE INSTALLED AFTER THE INSTALLATION OF THE EQ DRAINS.
6. EXPECTED FLOW RATE FROM THE EQ DRAINS IS ANTICIPATED TO BE AN AVERAGE OF APPROXIMATELY 8 GPM DURING CONSTRUCTION (EXCLUSIVE OF CONTRIBUTION FROM STORMWATER RUNOFF). THE CONTRACTOR SHALL PROVIDE A DEWATERING SUMP/SYSTEM WITH STORAGE CAPACITY FOR STORMWATER CONTRIBUTION.
7. THIS PLAN REPRESENTS A CONCEPTUAL DESIGN FOR THE CONSTRUCTION OF THE INITIAL WORKING SURFACE NECESSARY TO INSTALL THE VERTICAL DRAINS AND COMPLETE THE PLACEMENT OF FILL. THE CONTRACTOR SHALL SUBMIT A PLAN AND DESIGN FOR THE WORKING SURFACE DESCRIBING THE MEANS AND METHODS PROPOSED TO CONSTRUCT THE WORKING SURFACE AND INSTALL THE VERTICAL DRAINS. THE PLAN SHALL INCLUDE THE MEANS FOR PENETRATING THE GEOGRID AND GEOTEXTILE WITH THE VERTICAL DRAIN INSTALLATION EQUIPMENT AND THE MEANS FOR PLACING FILL TO AVOID MUD WAVING.



INSERT
SCALE: 1"=10'

LEGEND:
- CUT/FILL BOUNDARY LINE
- LIMIT OF EQ DRAINS/WORKING SURFACE
- TOP OF GLACIAL TILL/BEDROCK CONTOURS
- EXISTING CONTOURS
- EXISTING FENCE
- EXISTING INSTRUMENTATION
- PROPOSED SLOPE INCLINOMETER LOCATION (SI)
- PROPOSED STANDPIPE PIEZOMETER LOCATIONS (SPP)
- PROPOSED SETTLEMENT PLATFORM LOCATIONS (SP)
- PROPOSED VIBRATING WIRE PIEZOMETER LOCATIONS (VWP)

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	

TDD BJB MAP

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

WORKING SURFACE,
EQ DRAIN AND GEOTECHNICAL
MONITORING PLAN

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Portland, ME 04101
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VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-110
SHEET	12 OF 27

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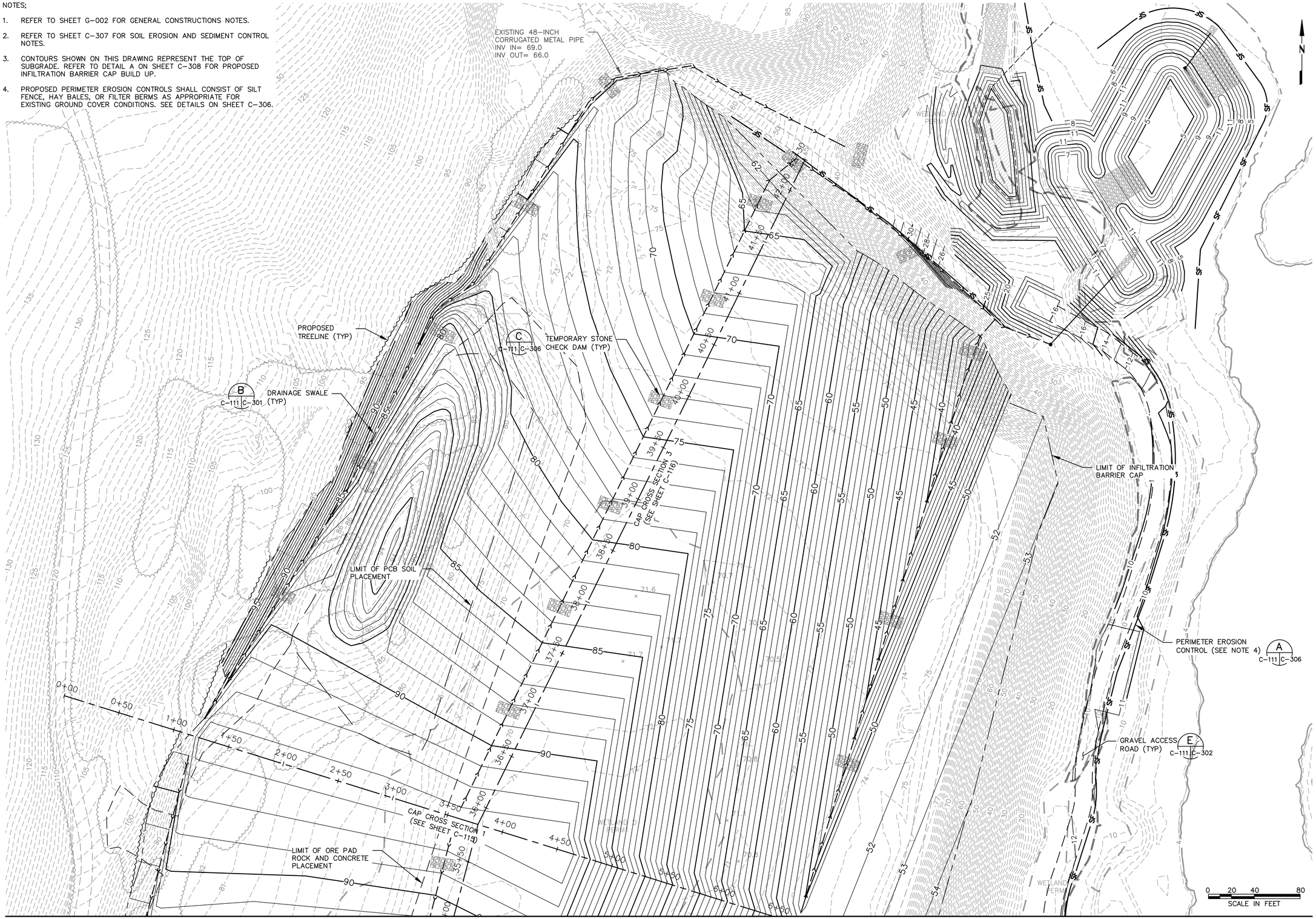
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-110 EQ Drain Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:32 PM

NOTES;

1. REFER TO SHEET G-002 FOR GENERAL CONSTRUCTIONS NOTES.
2. REFER TO SHEET C-307 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES.
3. CONTOURS SHOWN ON THIS DRAWING REPRESENT THE TOP OF SUBGRADE. REFER TO DETAIL A ON SHEET C-308 FOR PROPOSED INFILTRATION BARRIER CAP BUILD UP.
4. PROPOSED PERIMETER EROSION CONTROLS SHALL CONSIST OF SILT FENCE, HAY BALES, OR FILTER BERMS AS APPROPRIATE FOR EXISTING GROUND COVER CONDITIONS. SEE DETAILS ON SHEET C-306.



MATCH LINE SHEET C-112

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM

DSGN TDD | DR BJB | CHK MAP | APVD PSB

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CAP SUBGRADE AND EROSION CONTROL PLAN

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DATE	03/26/13
PROJ	3612-11-2201
DWG	C-111
SHEET	13 OF 27

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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-111 Cap Subgrade Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:32 PM

MATCH LINE SHEET C-111

LIMIT OF ORE PAD ROCK AND CONCRETE PLACEMENT

EXISTING ARTESIAN WELL TO BE EXTENDED TO FINAL GRADE W/ DISCHARGE PIPE TO DITCH (A C-112 | C-301)

TEMPORARY STONE CHECK DAM (TYP) (C C-112 | C-306)

DRAINAGE SWALE (TYP) (B C-112 | C-301)

CAP CROSS SECTION 1 (SEE SHEET C-115)

CAP CROSS SECTION 2 (SEE SHEET C-115)

CAP CROSS SECTION 3 (SEE SHEET C-116)

GRAVEL ACCESS ROAD (TYP) (E C-112 | C-302)

PERIMETER EROSION CONTROL (SEE NOTE 4 ON C-103) (A C-112 | C-306)

LIMIT OF INFILTRATION BARRIER CAP

WETLAND GP
PF04, PSS1, PERM1

DRAINAGE SWALE (TYP) (B C-113 | C-301)

PROPOSED TREELINE (TYP)

0 20 40 80
SCALE IN FEET

NOT FOR CONSTRUCTION

FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-112 Cap Subgrade Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:32 PM

NO.	DATE	REVISION	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
DSGN			BJB	MAP	PSB

BY APVD

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OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CAP SUBGRADE AND EROSION CONTROL PLAN

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DATE	03/26/13
PROJ	3612-11-2201
DWG	C-112
SHEET	14 OF 27

NOTES;

1. REFER TO SHEET G-002 FOR GENERAL CONSTRUCTIONS NOTES.
2. REFER TO SHEET C-307 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES.
3. CONTOURS SHOWN ON THIS DRAWING REPRESENT THE TOP OF SUBGRADE. REFER TO DETAIL A ON SHEET C-308 FOR PROPOSED INFILTRATION BARRIER CAP BUILD UP.
4. PROPOSED PERIMETER EROSION CONTROLS SHALL CONSIST OF SILT FENCE, HAY BALES, OR FILTER BERMS AS APPROPRIATE FOR EXISTING GROUND COVER CONDITIONS. SEE DETAILS ON SHEET C-306

EXISTING 48-INCH CORRUGATED METAL PIPE
INV IN= 69.0
INV OUT= 66.0

PROPOSED TREELINE (TYP)

B C-113 C-301 DRAINAGE SWALE (TYP)

C C-113 C-302 6" CULVERT
INV OUT= 4.0
L= 37'
S= 4.9%

CLEANOUT
RIM= 9.0
INV IN= 5.82
INV OUT= 5.82

F C-113 C-301 RIPRAP OUTLET PROTECTION

D C-113 C-302 RIPRAP EMERGENCY SPILLWAY

C C-113 C-302 6" PERFORATED UNDRDRAIN
INV IN= 6.0
L= 35'
S= 0.51%

B C-113 C-302 STORMWATER TREATMENT POND 2

D C-113 C-302 RIPRAP EMERGENCY SPILLWAY

E C-113 C-307 GABION MATTRESS

A C-113 C-302 SEDIMENT FOREBAY 2

C C-113 C-301 18" CULVERT
INV OUT= 9.0
L= 81
S= 3.7%

E C-113 C-301 CATCH BASIN
RIM= 18.5
INV OUT= 12.0

GRAVEL ACCESS ROAD (TYP)

WETLAND FLAG (TYP)

N

0 20 40 80
SCALE IN FEET

NOT FOR CONSTRUCTION

MATCH LINE SHEET C-114

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	
		TDD BJB MAP PSB			

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

FINAL GRADING AND DRAINAGE PLAN

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DATE	03/26/13
PROJ	3612-11-2201
DWG	C-113
SHEET	15 OF 27

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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-113 Final Grading Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:34 PM

MATCH LINE SHEET C-113

EXISTING ARTESIAN WELL TO BE EXTENDED TO FINAL GRADE W/ DISCHARGE PIPE TO DITCH — A — C-114 | C-301

DRAINAGE SWALE (TYP) — B — C-114 | C-301

GRAVEL ACCESS ROAD (TYP) — E — C-114 | C-302

GABION MATTRESS — E — C-114 | C-307

WETLAND GP PF04, PSS1, PERM1

WETLAND PERM1

PROPOSED TREELINE (TYP)

SEDIMENT FOREBAY 2 — A — C-114 | C-302

6" PERFORATED UNDRDRAIN INV IN= 13.0 L= 37' S= 0.54% — C — C-114 | C-302

RIPRAP EMERGENCY SPILLWAY — D — C-114 | C-302

STORMWATER TREATMENT POND 2 — B — C-114 | C-302

RIPRAP EMERGENCY SPILLWAY — D — C-114 | C-302

CLEANOUT RIM= 16.0 INV IN= 12.80 INV OUT= 12.80

RIPRAP OUTLET PROTECTION — F — C-114 | C-301

6" CULVERT INV OUT= 12.0 L= 39' S= 2.0%

0 20 40 80
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	BJB	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	BY	APVD
		REVISION	TDD	SHM	PSB

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

FINAL GRADING AND DRAINAGE PLAN

amec
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME 04101
(207) 775 - 5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-114
SHEET	16 OF 27

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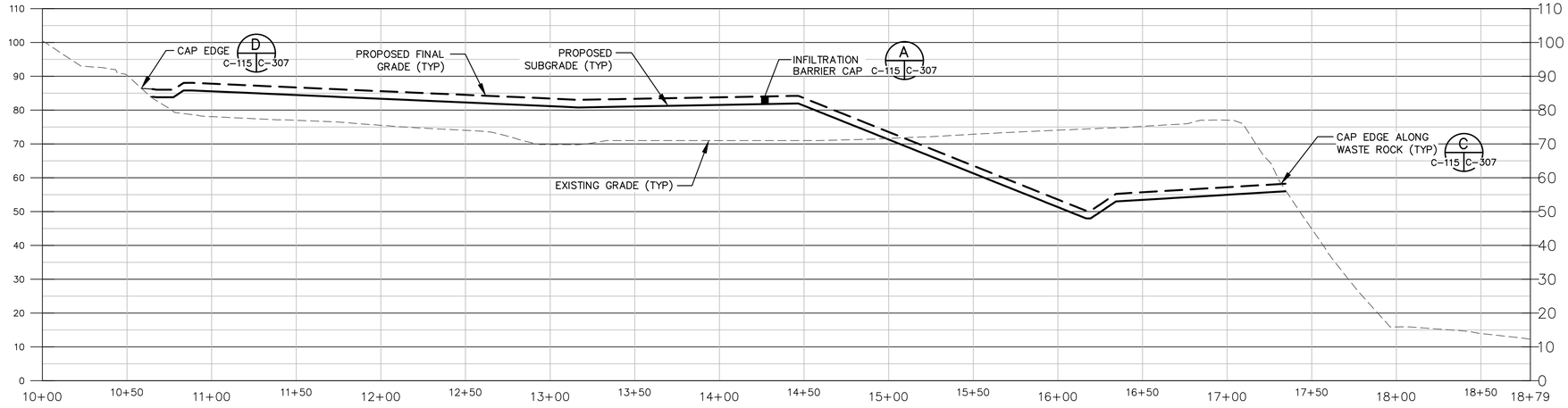
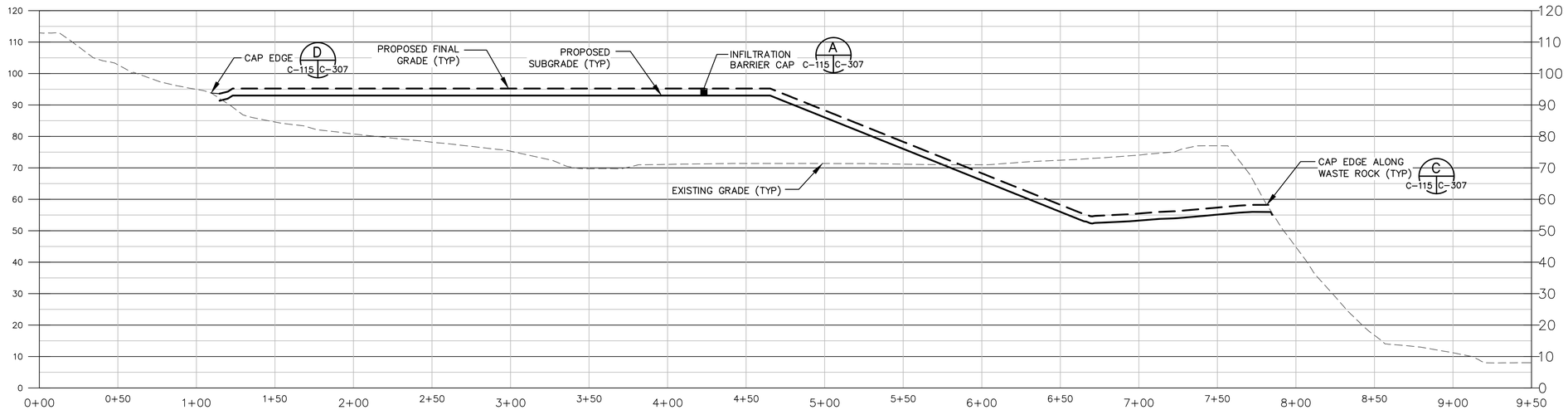
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-114 Final Grading Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:34 PM



CAP CROSS SECTION 2



CAP CROSS SECTION 1

HORIZONTAL SCALE: 1" = 40'
0 20 40 80
SCALE IN FEET

VERTICAL SCALE: 1" = 20'
0 10 20 40
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	BJB	MAP

BY APVD
PSB

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CAP CROSS SECTIONS

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VERIFY SCALE
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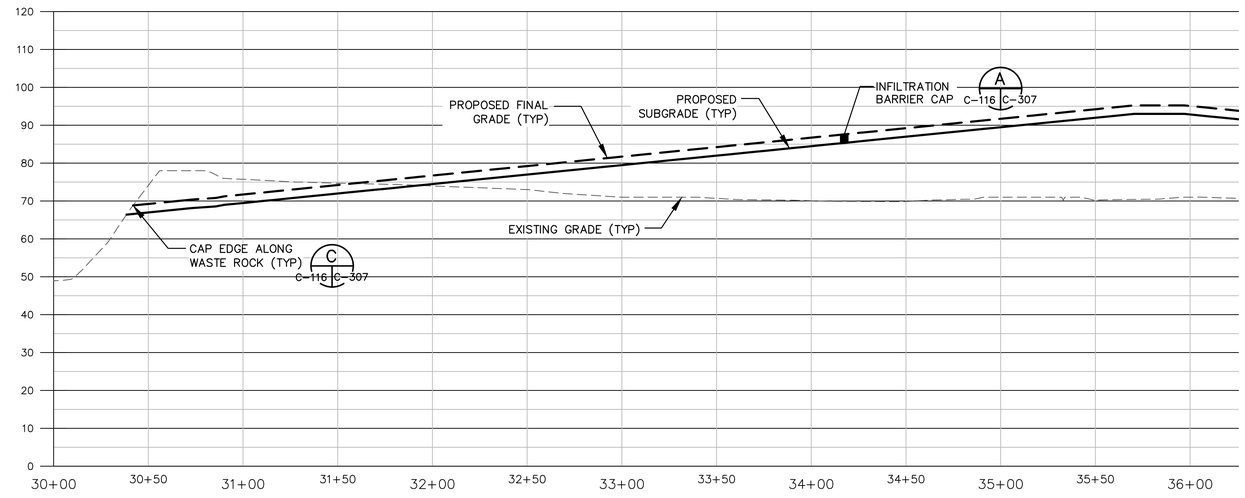
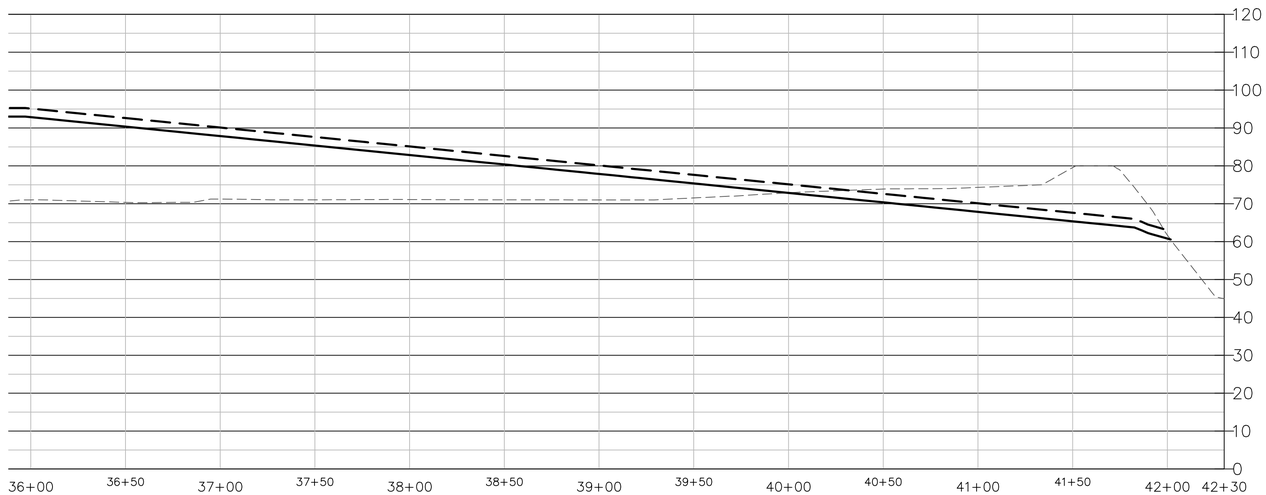


CAP CROSS SECTION 3



CAP CROSS SECTION 3

HORIZONTAL SCALE: 1" = 40'
0 20 40 80
SCALE IN FEET

VERTICAL SCALE: 1" = 20'
0 10 20 40
SCALE IN FEET

NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
DSGN	TDD	BJB	MAP	APVD	

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OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CAP CROSS SECTIONS

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VERIFY SCALE
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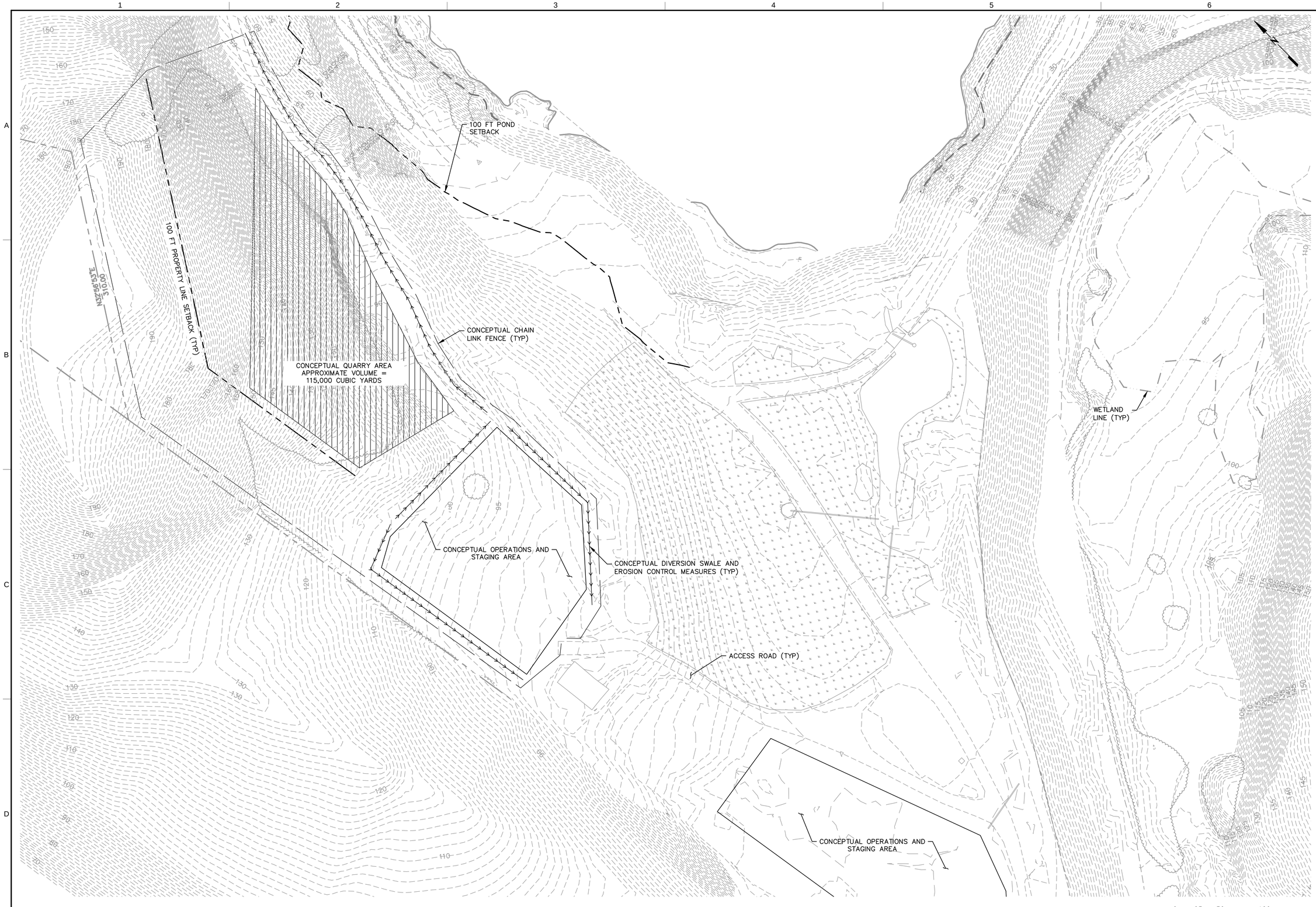
0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-116
SHEET	18 OF 27



NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	BJB	MAP	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW				TDD	SHM
		REVISION				BY	APVD

PSB ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

ON-SITE QUARRY PLAN

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VERIFY SCALE
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0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-117
SHEET	19 OF 27

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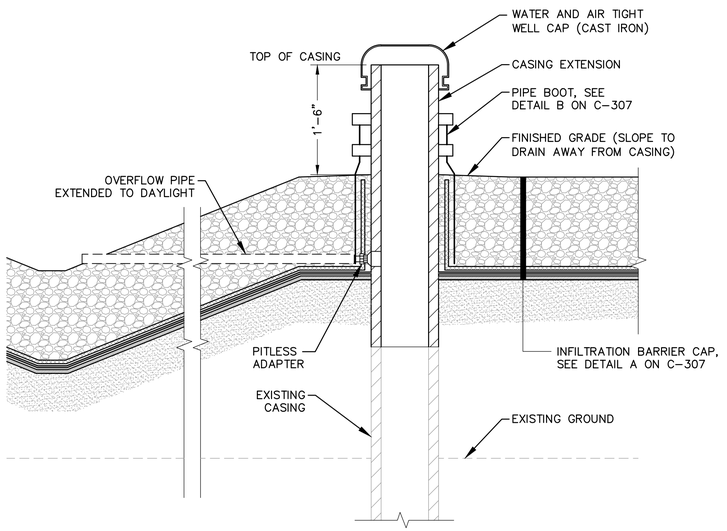
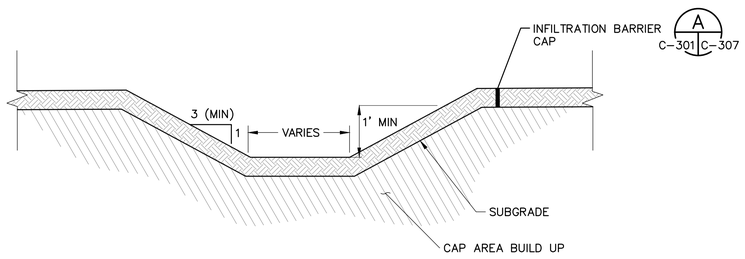
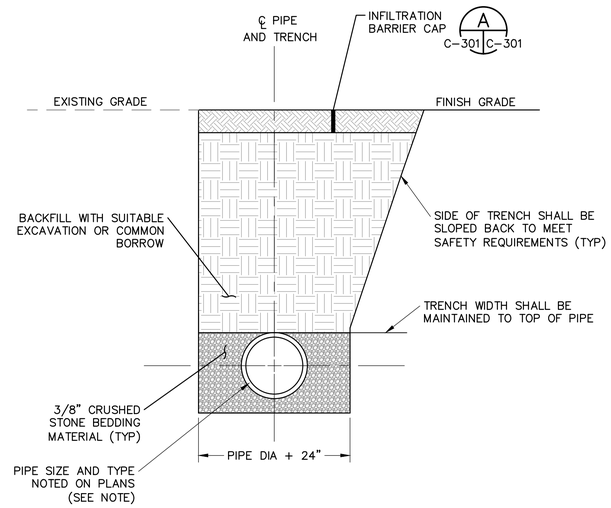
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-117 On-Site Quarry Plan.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:37 PM



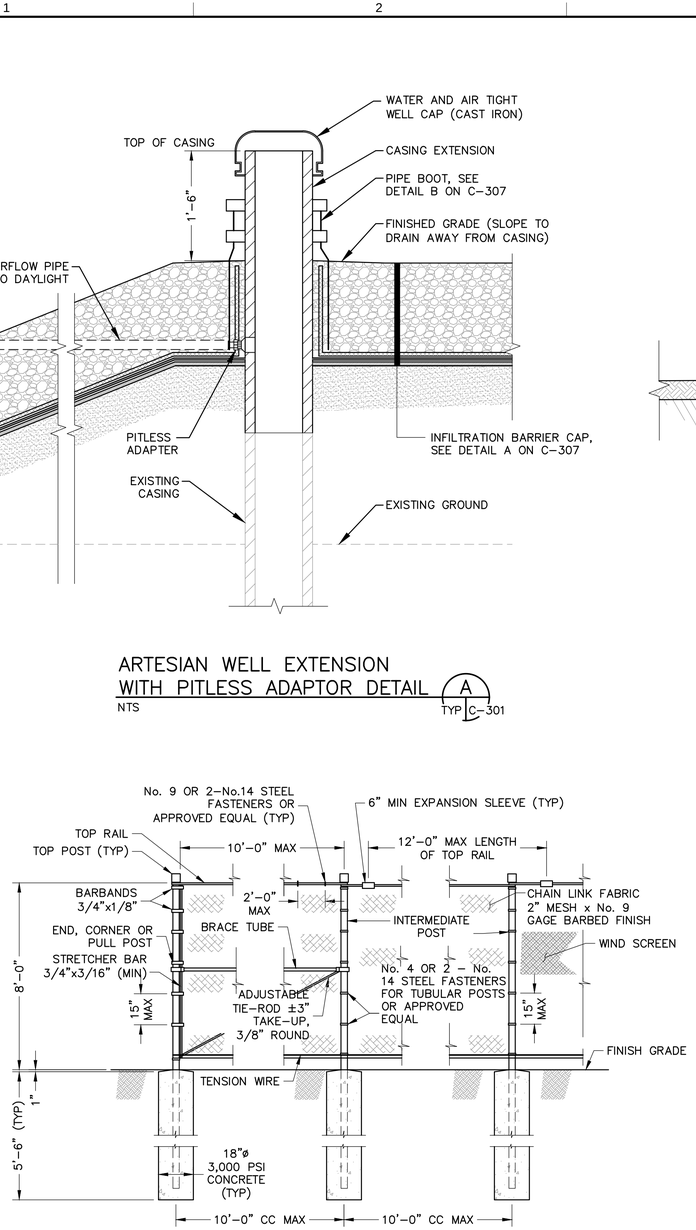
ARTESIAN WELL EXTENSION WITH PITLESS ADAPTOR DETAIL A
NTS
TYP C-301



TYPICAL DRAINAGE SWALE B
NTS
TYP C-301



TYPICAL STORM TRENCH C
NTS
TYP C-301



DESCRIPTION

POST DIMENSIONS SHOWN ARE OD NOMINAL

END, CORNER AND PULL POSTS:
ROUND 2.375"ø SCHEDULE 40 STEEL PIPE

INTERMEDIATE POSTS:
ROUND 1.90"ø SCHEDULE 40 STEEL PIPE

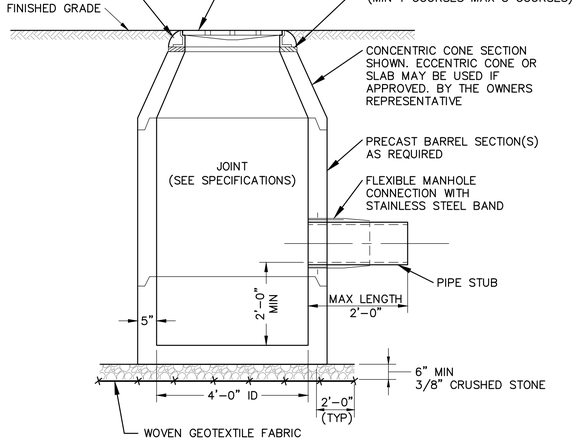
BRACE TUBES:
1.625" OD SCHEDULE 40 STEEL PIPE.

STRETCHER BARS:
LENGTH TO BE 1" LESS THAN FULL HEIGHT OF FABRIC. ONE STRETCHER BAR FOR EACH GATE AND END POST. TWO STRETCHER BARS FOR CORNERS AND BRACING.

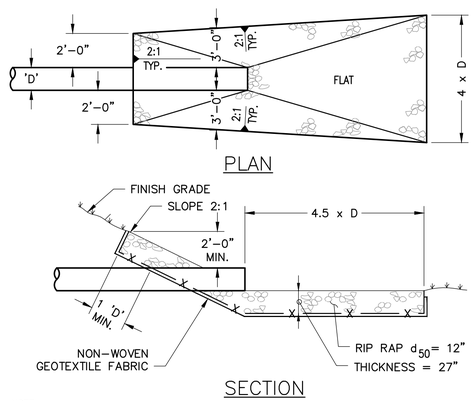
TENSION WIRE:
7 GA GALVANIZED COIL SPRING WIRE

TOP RAIL:
1.66"OD SCHEDULE 40 STEEL PIPE.

CHAIN LINK FENCE D
NTS
TYP C-301



PRECAST CONCRETE CATCH BASIN E
NTS
TYP C-301



NOTE:
'D' = PIPE DIAMETER

RIPRAP OUTLET PROTECTION F
NTS
TYP C-301

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	BY	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM
		REVISION	BJB	APVD
			CHK	MAP
			DR	PSB
			TDD	

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CIVIL DETAILS

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DWG	C-301
SHEET	20 OF 27

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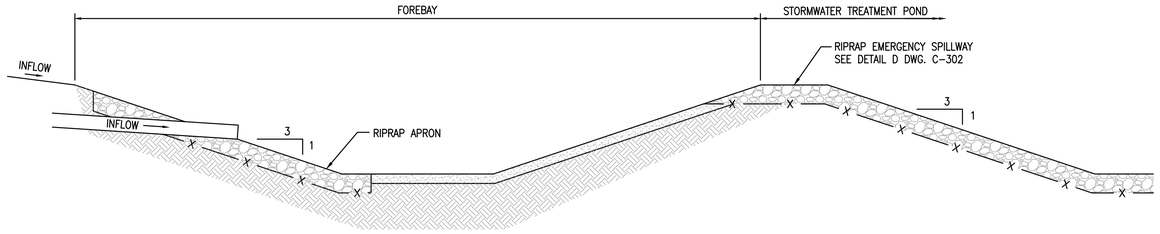
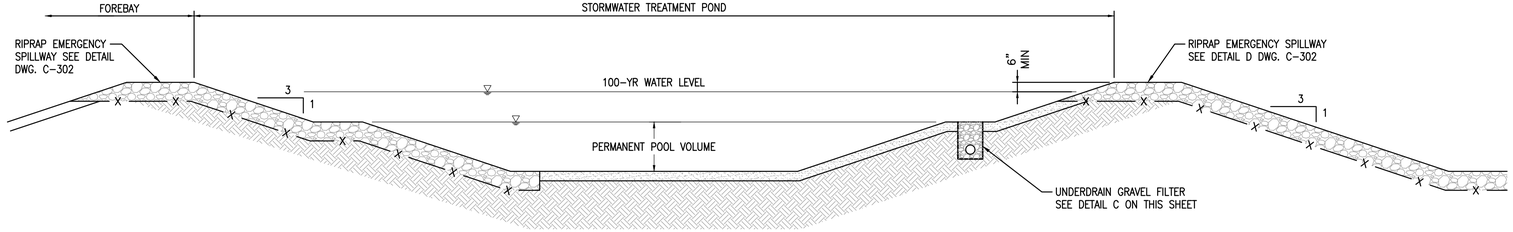
SEDIMENT FOREBAY	EMERGENCY SPILLWAY ELEV.	BOTTOM ELEV.
SEDIMENT FOREBAY #1	17.50	15.00
SEDIMENT FOREBAY #2	9.50	7.00

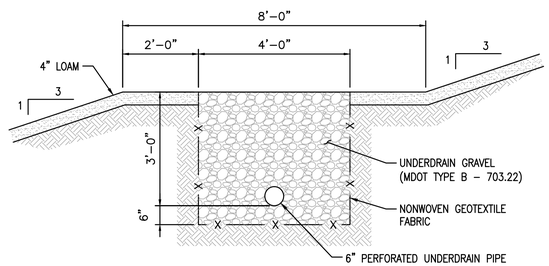


SEDIMENT FOREBAY A
NTS
TYP C-302

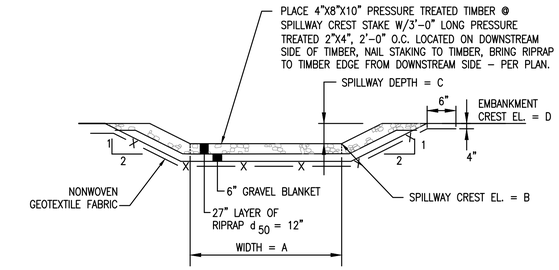
STORWATER POND	BOTTOM ELEV.	UNDERDRAIN INLET ELEV.	POND BENCH ELEV.	EMERGENCY SPILLWAY ELEV.
POND #1	12.00	13.00	16.00	17.64
POND #2	5.00	6.00	9.00	9.90



STORMWATER TREATMENT POND B
NTS
TYP C-302

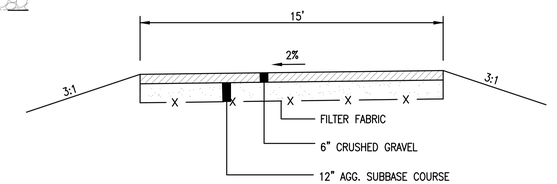


UNDERDRAIN GRAVEL FILTER C
NTS
TYP C-302



EMERGENCY SPILLWAY LOCATION	A	B	C	D	100 YR WATER SURFACE ELEV
SEDIMENT FOREBAY #1	50'	17.50'	1.50'	19.00'	18.50'
SEDIMENT FOREBAY #2	28'	9.50'	1.50'	11.00'	10.59'
STORMWATER TREATMENT POND #1	34'	17.64'	1.36'	19.00'	18.41'
STORMWATER TREATMENT POND #2	40'	9.90'	1.10'	11.00'	10.45'

RIPRAP EMERGENCY SPILLWAY SECTION D
NTS
TYP C-302



GRAVEL ACCESS ROAD E
NTS
TYP C-302

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	BJB	MAP
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	BY	APVD
		REVISION			

ME PROFESSIONAL ENGINEER
PSB
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

CIVIL DETAILS

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0 1"

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DWG	C-302
SHEET	21 OF 27

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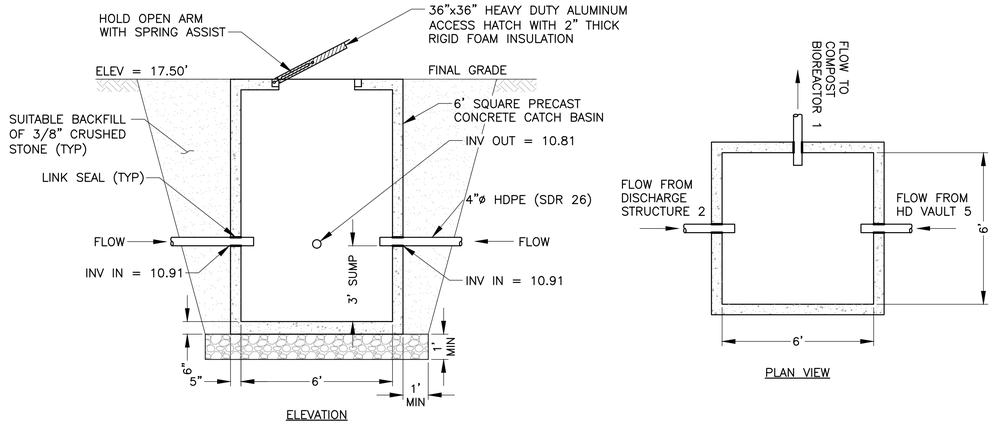
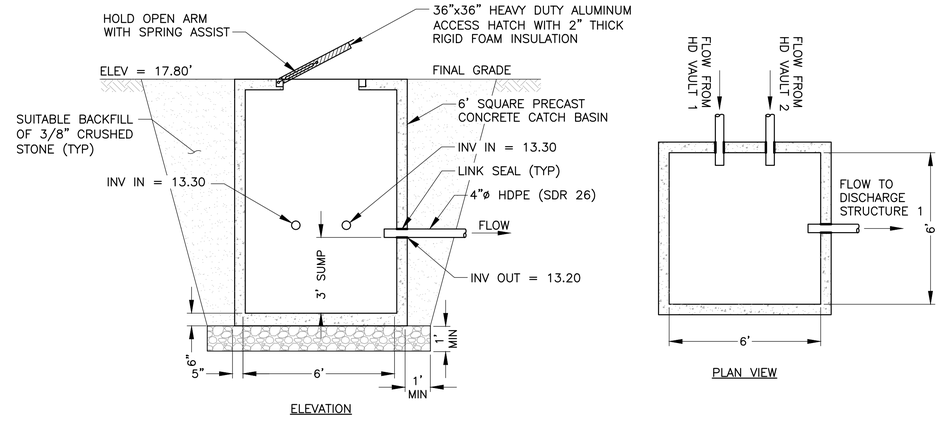
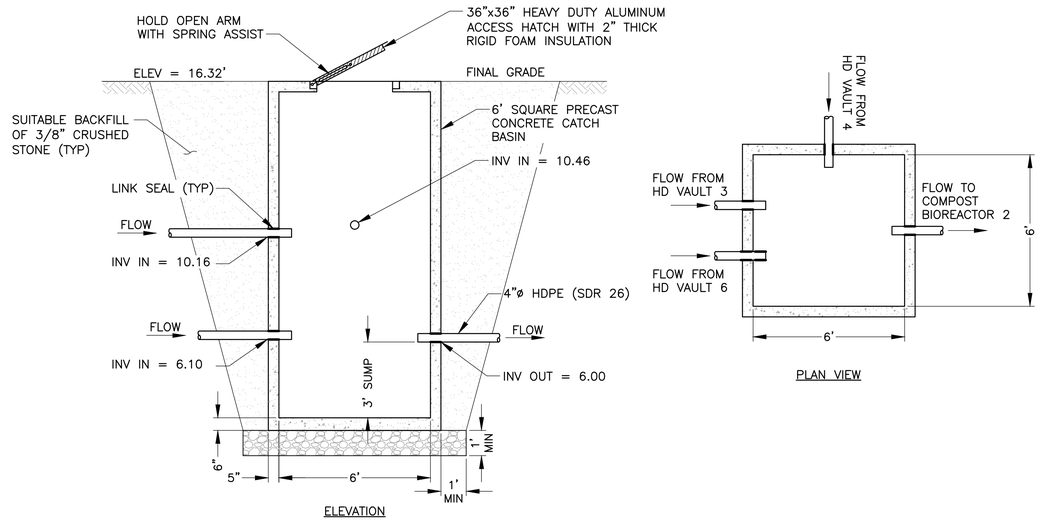


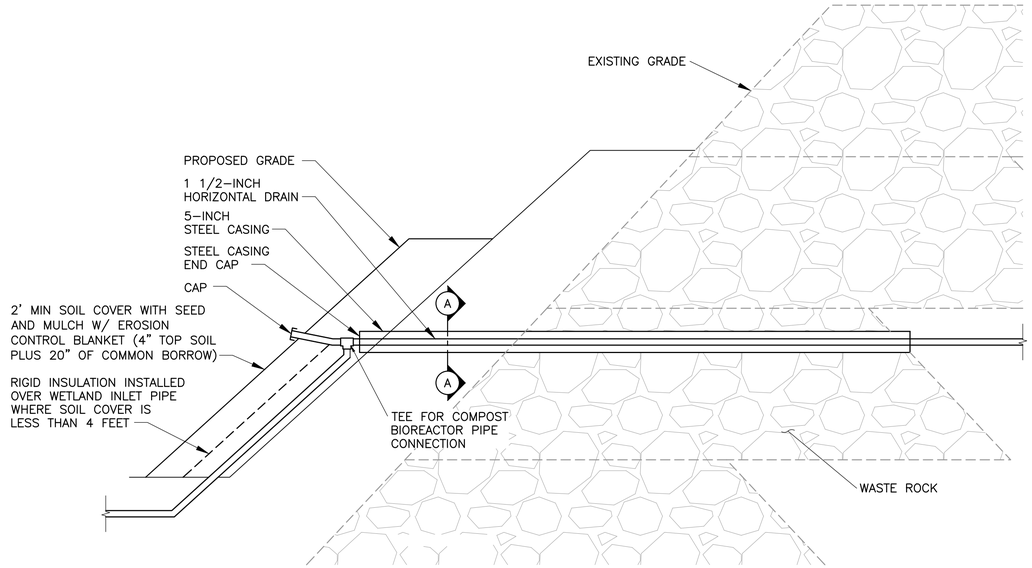
DISCHARGE STRUCTURE 1 (A)
NTS
TYP C-303

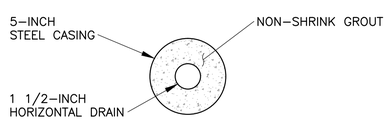


DISCHARGE STRUCTURE 2 (B)
NTS
TYP C-303



DISCHARGE STRUCTURE 3 (C)
NTS
TYP C-303





SECTION A
HORIZONTAL DRAIN
CASING END VIEW

NOTE:
CONTRACTOR SHALL VERIFY THE LOCATION OF THE END OF THE STEEL CASING AFTER DRILLING THROUGH THE WASTE ROCK AND PRIOR TO INSTALLING THE HORIZONTAL DRAIN PIPE. SEE SPECIFICATIONS FOR HORIZONTAL AND VERTICAL TOLERANCES.

HORIZONTAL DRAIN CASING DETAIL (D)
NTS
TYP C-303

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	TDD	BJB	MAP	PSB
A	11/5/14				

REVISION

A - ISSUED FOR DRAFT FINAL REVIEW - TDD - BY
B - ISSUED FOR 30% DESIGN REVIEW - TDD - SHM

ME PROFESSIONAL ENGINEER
LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

WETLAND TREATMENT AND
HORIZONTAL DRAIN DETAILS

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DWG	C-303
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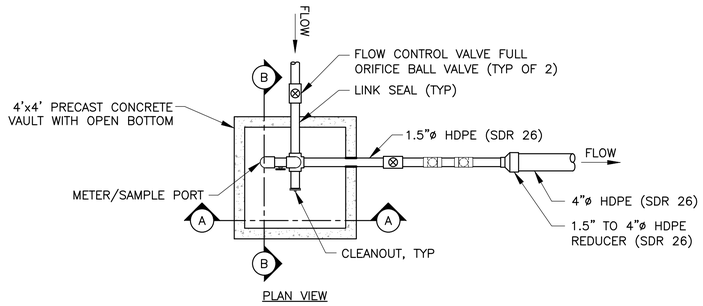
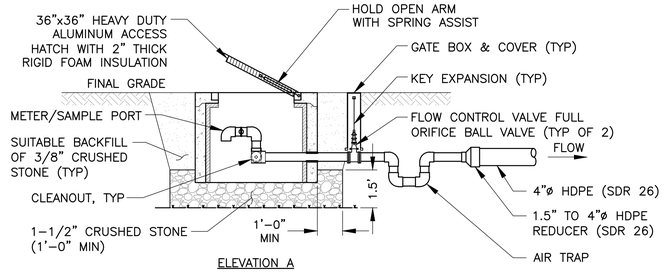
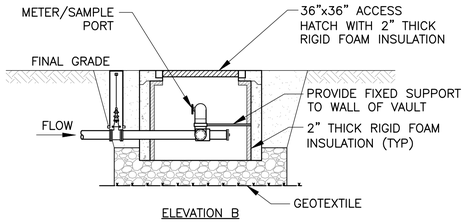
FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-303 Wetland Treatment Details.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:39 PM



PLAN VIEW



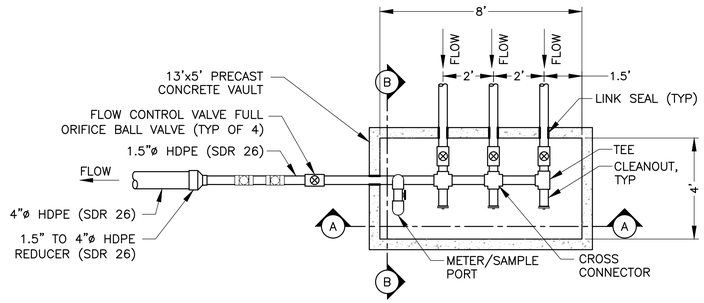
ELEVATION A



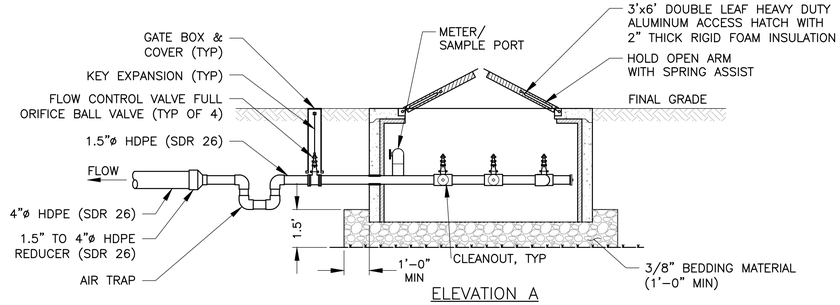
ELEVATION B

NOTE:
ALL PIPE WITHIN VAULT SHALL BE INSULATED.

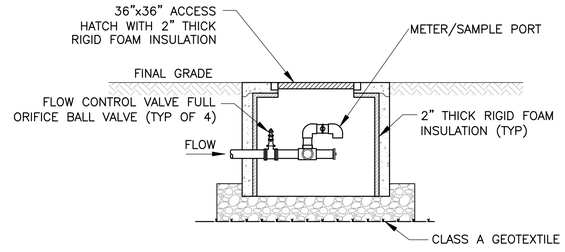
HD VAULT 1 THRU 4 (A)
NTS
TYP C-304



PLAN VIEW



ELEVATION A

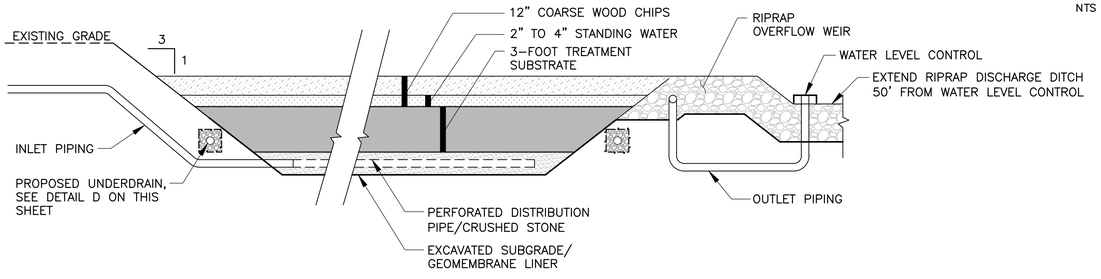


ELEVATION B

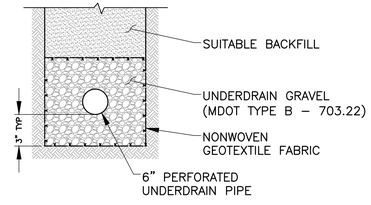
NOTE:
ALL PIPE WITHIN VAULT SHALL BE INSULATED.

HD VAULT 5 AND 6 (B)
NTS
TYP C-304

COMPOST BIOREACTOR	TOP OF TREATMENT SUBSTRATE	BOT OF TREATMENT SUBSTRATE	INLET PIPING INV	UNDERDRAIN INV IN/ INV OUT	EMERGENCY SPILLWAY INV
COMPOST BIOREACTOR #1	11.00	8.00	7.34	8.50/8.00	12.00
COMPOST BIOREACTOR #2	8.00	5.00	4.34	5.50/5.00	9.00



COMPOST BIOREACTOR (C)
NTS
TYP C-304



COMPOST BIOREACTOR UNDERDRAIN (D)
NTS
TYP C-304

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
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		REVISION	BY	APVD	MAP

TDD BJB

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LICENSE NUMBER

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CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

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DRAFT FINAL DESIGN DRAWINGS

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WETLAND TREATMENT AND HORIZONTAL DRAIN DETAILS

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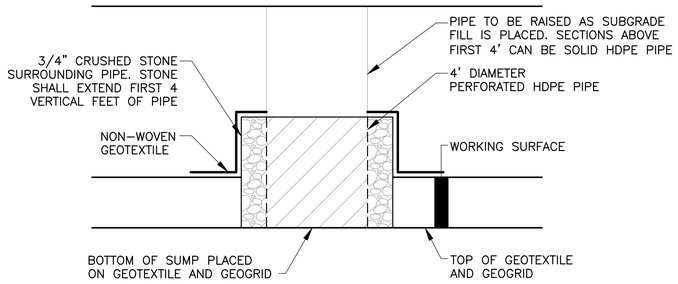
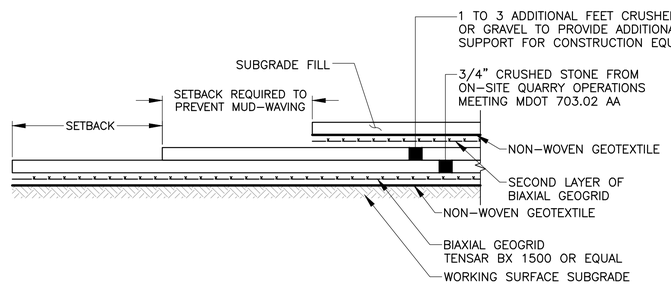
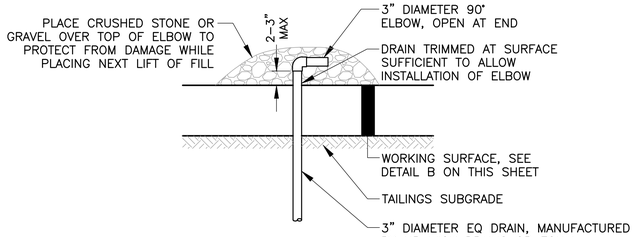


NOTE:
DEWATERING SUMP TO BE FILL WITH CRUSHED STONE FOLLOWING COMPLETION OF SUBGRADE FILL PLACEMENT, JUST PRIOR TO LINER CONSTRUCTION.

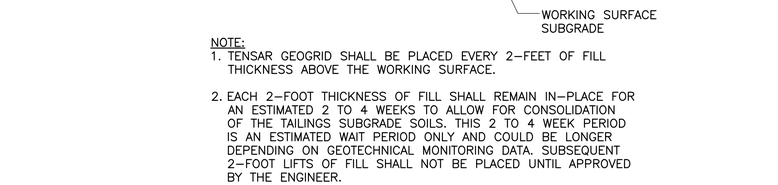
DEWATERING SUMP DETAIL A
NTS — TYP C-305



WORKING SURFACE DETAIL B
NTS — TYP C-305



EQ DRAIN DETAIL C
NTS — TYP C-305



NOTE:
1. TENSAR GEOGRID SHALL BE PLACED EVERY 2-FEET OF FILL THICKNESS ABOVE THE WORKING SURFACE.

2. EACH 2-FOOT THICKNESS OF FILL SHALL REMAIN IN-PLACE FOR AN ESTIMATED 2 TO 4 WEEKS TO ALLOW FOR CONSOLIDATION OF THE TAILINGS SUBGRADE SOILS. THIS 2 TO 4 WEEK PERIOD IS AN ESTIMATED WAIT PERIOD ONLY AND COULD BE LONGER DEPENDING ON GEOTECHNICAL MONITORING DATA. SUBSEQUENT 2-FOOT LIFTS OF FILL SHALL NOT BE PLACED UNTIL APPROVED BY THE ENGINEER.

WORKING SURFACE DETAIL D
TYP C-305

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	TDD		BJB	MAP
A	11/5/14	TDD		BY	APVD
			REVISION		
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW		TDD	SHM
B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW			MAP

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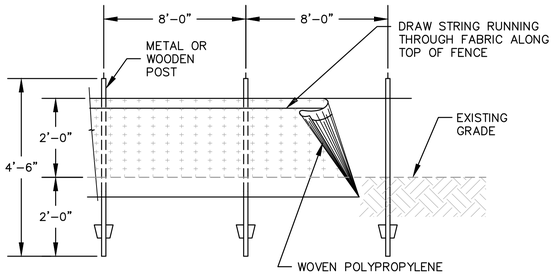
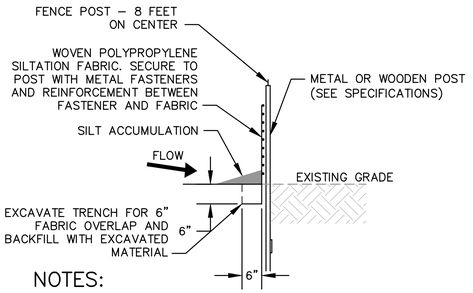
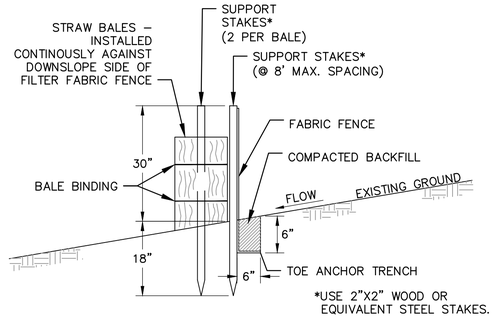




NOTES:

1. WHERE REQUIRED SILTATION FENCE SHALL BE REINFORCED WITH HOG OR CHICKEN WIRE OR INTEGRAL PLASTIC MESH.
2. SILT FENCE MAY NOT BE INSTALLED WITHIN CONCENTRATED DRAINAGE FLOW PATHS.
3. FILTER BERM (DETAIL E THIS SHEET) MAY BE USED IN PLACE OF OR IN CONJUNCTION WITH SILTATION FENCE.

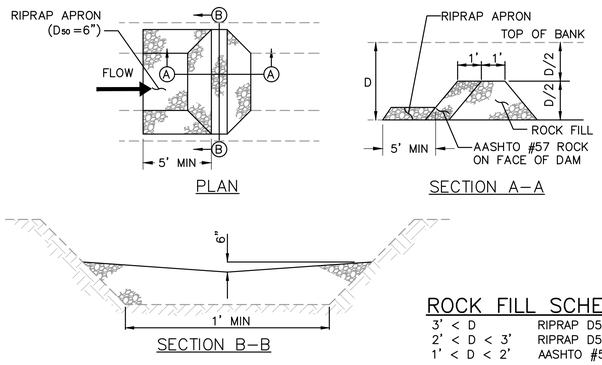
SILT FENCE (TYP) — NTS — A — TYP C-306



FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

AUGMENTED SILT FENCE — NTS — B — TYP C-306



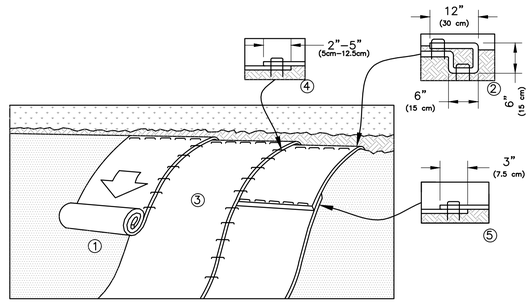
ROCK FILL SCHEDULE

3' < D	RIPRAP D50=6"
2' < D < 3'	RIPRAP D50=3"
1' < D < 2'	AASHTO #57 ROCK

NOTES:

1. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.
2. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

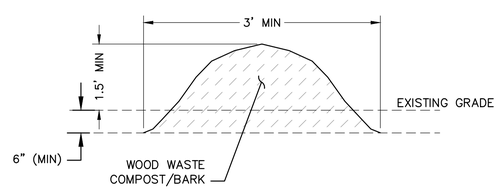
TEMPORARY STONE CHECK DAM — NTS — C — TYP C-306



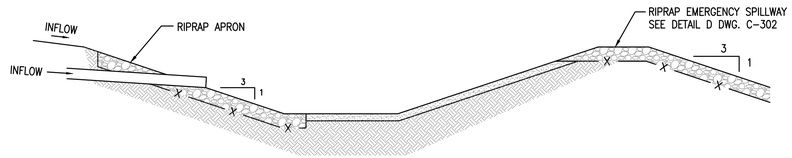
NOTE:

1. PREPARE GROWING MEDIUM BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED GROWING MEDIUM AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED GROWING MEDIUM. SECURE BLANKET OVER COMPACTED GROWING MEDIUM WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS DOWN THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE GROWING MEDIUM SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO GROWING MEDIUM SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING MANUFACTURER STAPLE PATTERN MARKING, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED MARKS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"–5" (5cm–12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
6. DETAIL PROVIDED BY NORTH AMERICAN GREEN ®.

SLOPE EROSION CONTROL BLANKET — NTS — E — TYP C-306



FILTER BERM (TYP) — NTS — D — TYP C-306



NOTE:
1. STORMWATER TREATMENT POND SHALL BE USED AS A SEDIMENT POND DURING CONSTRUCTION.
2. ALL SEDIMENT SHALL BE REMOVED FROM POND AFTER CONSTRUCTION.

SEDIMENT POND — NTS — F — TYP C-306

NOT FOR CONSTRUCTION

DSGN	NO.	DATE	REVISION	DR	CHK	APVD
TDD	B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	PSB
	A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
				BJB	MAP	APVD

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EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. INTRODUCTION

THE FOLLOWING PLAN FOR CONTROLLING EROSION AND SEDIMENT ON THIS PROJECT IS BASED UPON THE STANDARDS DETAILED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS", BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE PRACTICES PRESENTED HEREIN.

IN ACCORDANCE WITH MAINE REVISED STATUTES, TITLE 38, §439B, AN EXCAVATION CONTRACTOR CONDUCTING EXCAVATION ACTIVITY IN A SHORELAND AREA SHALL ENSURE THAT A PERSON CERTIFIED IN EROSION CONTROL PRACTICES BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION IS RESPONSIBLE FOR MANAGEMENT OF EROSION AND SEDIMENT CONTROL PRACTICES AT THE SITE; AND IS PRESENT AT THE SITE EACH DAY EARTH-MOVING ACTIVITY OCCURS FOR A DURATION THAT IS SUFFICIENT TO ENSURE THAT PROPER EROSION AND SEDIMENTATION CONTROL PRACTICES ARE FOLLOWED. THE REQUIREMENTS APPLY UNTIL EROSION CONTROL MEASURES THAT WILL PERMANENTLY STAY IN PLACE HAVE BEEN INSTALLED AT THE SITE OR, IF THE SITE IS TO BE REVEGETATED, EROSION CONTROL MEASURES THAT WILL STAY IN PLACE UNTIL THE AREA IS SUFFICIENTLY COVERED WITH VEGETATION NECESSARY TO PREVENT SOIL EROSION HAVE BEEN INSTALLED.

2. GENERAL EROSION CONTROL MEASURES

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMIZE EROSION AND SEDIMENTATION BEFORE, DURING, AND AFTER THE CONSTRUCTION OF THIS PROJECT. ALL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO COMMENCEMENT OF SOIL DISTURBANCE, AND SHALL BE MAINTAINED BY THE SUBCONTRACTOR FOR THE DURATION OF THE PROJECT UNTIL FINAL SITE RESTORATION HAS BEEN IMPLEMENTED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. THE SUBCONTRACTOR SHALL EXERCISE SPECIAL CARE AT ALL TIMES TO LIMIT EXTENT OF DISTURBANCE, REGULARLY MONITOR THE EFFECTIVENESS OF EROSION CONTROL MEASURES, AND IMMEDIATELY CORRECT ANY EROSION PROBLEMS THAT MAY DEVELOP.

TEMPORARY EROSION CONTROL MEASURES INCLUDE THE FOLLOWING:

A. SILT FENCE

SILT FENCE SHALL BE INSTALLED AT THE PROPERTY BOUNDARY AS SHOWN ON THE DRAWINGS AND TO THE SATISFACTION OF THE ENGINEER. ALTERNATELY, AUGMENTED SILT FENCE SHALL BE USED IF ADDITIONAL PROTECTION IS REQUIRED. AUGMENTED SILT FENCE SHALL INCLUDE A ROW OF HAY BALES INSTALLED ADJACENT TO THE SILT FENCE.

B. FILTER BERM

FILTER BERM SHALL BE INSTALLED AROUND ALL MATERIAL STOCKPILES OR AS PERIMETER EROSION CONTROL AS REQUIRED.

C. TEMPORARY ROCK FILTERS

TEMPORARY ROCK FILTERS SHALL BE INSTALLED ALONG ALONG PROPOSED SWALES UNTIL PERMANENT STABILIZATION HAS BEEN ACHIEVED.

D. TEMPORARY SEDIMENTATION BASINS

PROPOSED STORMWATER RETENTION PONDS TO BE CONSTRUCTED DURING INITIAL PHASES AND UTILIZED AS TEMPORARY SEDIMENTATION BASINS.

3. DURING CONSTRUCTION

A. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION SHALL BE GRUBBED AND LEFT IN AN UNTREATED CONDITION. PERMANENT STABILIZATION SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED. IF PLACEMENT OF FINAL SURFACE MATERIAL WILL NOT TAKE PLACE WITHIN SEVEN DAYS OF FINAL GRADING, THE AREA SHALL BE TREATED WITH TEMPORARY MULCH.

B. CONSTRUCTION MATERIALS SHALL BE STOCKPILED IN AREAS THAT HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM WETLAND AREAS, EXISTING DRAINAGE COURSES, ETC. ALL STOCKPILES EXPECTED TO BE IN PLACE FOR MORE THAN 7 DAYS SHALL BE STABILIZED WITH MULCH.

C. ALL GRADING SHALL BE HELD TO A MAXIMUM 3H:1V SLOPE WHERE PRACTICAL, UNLESS OTHERWISE INDICATED. ALL SLOPES SHALL BE STABILIZED AS SOON AS WORK HAS CEASED.

D. TEMPORARY MULCH SHALL BE APPLIED OVER ALL DISTURBED AREAS PRIOR TO ANY PREDICTED RAIN EVENT.

4. FINAL STABILIZATION

THE FOLLOWING GENERAL PRACTICES SHALL BE IMPLEMENTED AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING AND STABILIZATION.

A. FINAL SURFACING SHALL BE COMPLETED UPON COMPLETION OF GRADING

5. MONITORING SCHEDULE

A. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING, AND REMOVING ALL OF THE EROSION AND SEDIMENT CONTROL MEASURES AND STRUCTURES REQUIRED FOR THE SUCCESSFUL EXECUTION OF THIS PROJECT. MAINTENANCE MEASURES SHALL BE IMPLEMENTED AS NECESSARY DURING THE ENTIRE DURATION OF THE PROJECT. AFTER EACH RAINFALL, A VISUAL INSPECTION SHALL BE MADE OF ALL EROSION AND SEDIMENT CONTROL MEASURES AS FOLLOWS:

SEDIMENT BARRIERS:

PURPOSE:

TO FILTER SHEET FLOW RUNOFF FROM DISTURBED UPGRADIENT AREAS PRIOR TO DISCHARGE FROM THE WORK AREA.

1. STRAW/HAY BALES

A. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

B. ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.

C. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILD UP TO 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. IDEALLY, BALES SHOULD BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.

D. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR REBARS SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.

E. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. LOOSE STRAW SHALL BE SCATTERED OVER THE AREA IMMEDIATELY UPHILL FROM A STRAW BALE BARRIER TO INCREASE BARRIER EFFICIENCY.

F. IN SLOPING AREAS WHERE SURFACE FLOW FOLLOWS THE BALE LINE, PERPENDICULAR BALE CHECKS SHALL BE INSTALLED AT APPROPRIATE INTERVALS (50 FEET MAXIMUM).

G. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

H. BALE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

2. SILT FENCE

THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH GEOTEXTILE. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET AND OVERLAND FLOWS ARE EXPECTED.

A. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).

B. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.

C. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.

D. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

E. WHEN STANDARD STRENGTH GEOTEXTILE IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

F. THE STANDARD STRENGTH GEOTEXTILE SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. GEOTEXTILE SHALL NOT BE STAPLED TO EXISTING TREES.

G. WHEN EXTRA STRENGTH GEOTEXTILE AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE GEOTEXTILE IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM (F) APPLYING.

H. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE GEOTEXTILE.

I. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAS BEEN PERMANENTLY STABILIZED.

3. FILTER BERMS

A. GRUB THE EXISTING GROUND SURFACE AT THE INSTALLATION LOCATION OF THE FILTER BERM.

B. EXCAVATE A MINIMUM 4 INCH DEPTH OF TOPSOIL FROM THE SURFACE TO PROVIDE A KEY-IN FOR THE FILTER BERM.

C. INSTALL WOOD WASTE COMPOST/BARK IN A LOOSE PARABOLIC-SHAPED BERM TO THE DIMENSIONS SHOWN ON THE DRAWINGS. INSTALL THE FILTER BERM BEYOND THE LIMIT OF THE KEY-IN.

4. SEQUENCE OF INSTALLATION

A. SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

B. HAY BALE AND SILT FENCE BARRIERS SHALL BE USED IN CONJUNCTION WHERE INDICATED ON THE DRAWINGS OR WHERE A HIGHER LEVEL OF PROTECTION IS REQUIRED.

SEDIMENT BARRIERS (CONTINUED):

5. MAINTENANCE

A. STRAW/HAY BALE BARRIERS, SILT FENCES, AND FILTER BERMS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. THEY SHALL BE INSPECTED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.

B. SHOULD THE GEOTEXTILE ON A SILT FENCE OR FILTER BERM DECOMPOSE, SETTLE, OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE GEOTEXTILE/FILTER BERM MATERIAL SHALL BE REPLACED PROMPTLY.

C. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

D. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BERM IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

DUST CONTROL:

PURPOSE:

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, AND REDUCE THE PRESENCE OF DUST WHICH MAY CAUSE OFF-SITE DAMAGE, BE A HEALTH HAZARD TO HUMANS, WILDLIFE AND PLANT LIFE, OR BECOME A TRAFFIC SAFETY HAZARD.

APPLICABILITY:

AREAS SUBJECT TO DUST BLOWING AND SOIL MOVEMENT WHERE ON-SITE AND OFF-SITE DAMAGE IS LIKELY TO OCCUR IF PREVENTIVE MEASURES ARE NOT TAKEN.

ENVIRONMENTAL CONSIDERATIONS:

AIR-BORNE SOIL PARTICLES CAN BE A SOURCE OF POLLUTION AS WELL AS A NUISANCE FACTOR.

PLANNING CONSIDERATIONS:

USE TRAFFIC CONTROL TO RESTRICT TRAFFIC TO PREDETERMINED ROUTES. MAINTAIN AS MUCH NATURAL VEGETATION AS IS PRACTICABLE. USE PHASING OF CONSTRUCTION TO REDUCE THE AREA OF LAND DISTURBED AT ANY ONE TIME. THE USE OF TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, PERMANENT VEGETATIVE COVER, OR SODDING WILL REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. STATIONARY SOURCES OF DUST (I.E., ROCK CRUSHERS) SHOULD UTILIZE FINE WATER SPRAYS TO CONTROL DUST.

SPECIFICATIONS:

1. MATERIALS

A. WATER

THE EXPOSED SOIL SURFACE SHOULD BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.

B. STONE

COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. IN AREAS ADJACENT TO WATERWAYS, USE CHEMICALLY STABLE AGGREGATE.

2. MAINTENANCE

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

TEMPORARY MULCHING:

SPECIFICATIONS:

1. ORGANIC MULCHES

ORGANIC MULCHES INCLUDES HAY AND STRAW WHICH ARE FREE OF WEED SEEDS, EXCELSIOR, AND WOOD FIBER.

2. TIMING

MULCHING SHALL BE APPLIED WITHIN SEVEN (7) DAYS OF STABILIZATION OR PRIOR TO A SIGNIFICANT STORM EVENT. IT WILL BE NECESSARY TO MONITOR WEATHER PREDICTIONS. THIS CAN BE DONE THROUGH THE NATIONAL WEATHER SERVICE IN ORDER TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.

3. MAINTENANCE

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. MULCH ANCHORING MUST BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE-INSTALL ANCHORING AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE.

STORM DRAINAGE RETENTION PONDS:

REMOVE ACCUMULATED SEDIMENT UPON STABILIZATION OF DISTURBED AREAS AND FINALIZED SHADING AND OTHER STORM DRAIN RETENTION POND COMPONENTS.

NOT FOR CONSTRUCTION

NO.	DATE	DSGN	DR	CHK	APVD
B	12/5/14	TDD	BJB	MAP	PSB
A	11/5/14	REVISION			

A ISSUED FOR DRAFT FINAL REVIEW - TDD MAP
B ISSUED FOR 30% DESIGN REVIEW - TDD SHM

ME PROFESSIONAL ENGINEER LICENSE NUMBER

OU3 DRAFT FINAL REMEDIAL DESIGN
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

DRAWING STATUS
DRAFT FINAL DESIGN DRAWINGS

CIVIL

SOIL EROSION AND SEDIMENT CONTROL NOTES

amec
Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, ME 04101
(207) 775-5401

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	03/26/13
PROJ	3612-11-2201
DWG	C-307
SHEET	26 OF 27

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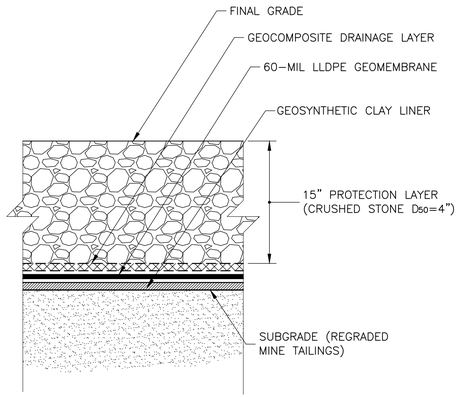
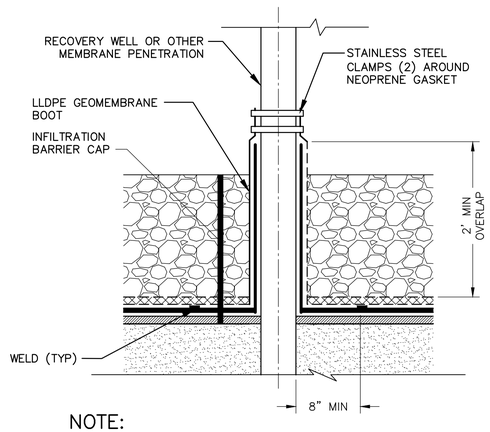
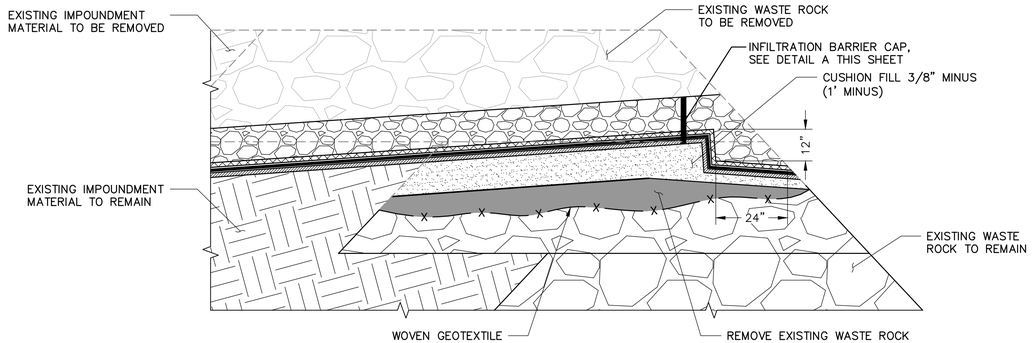


INFILTRATION BARRIER CAP (A)
NTS
TYP C-307

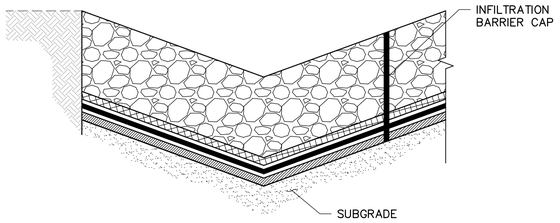


NOTE:
THIS DETAIL APPLIES TO ALL MEMBRANE PENETRATIONS.

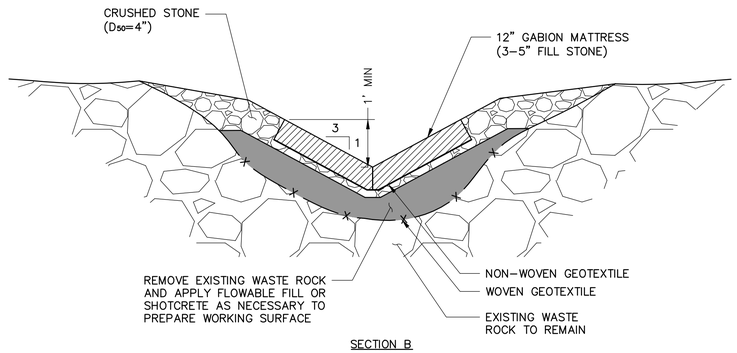
PIPE BOOT (B)
NTS
TYP C-307



CAP EDGE DETAIL
ALONG WASTE ROCK (C)
NTS
TYP C-307



EDGE DETAIL
ALONG UPGRADIENT SIDE (D)
NTS
TYP C-307



SECTION B

GABION MATTRESS DETAIL
ALONG WASTE ROCK (E)
NTS
TYP C-307

NOT FOR CONSTRUCTION

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B	12/5/14	ISSUED FOR DRAFT FINAL REVIEW	TDD	MAP	
A	11/5/14	ISSUED FOR 30% DESIGN REVIEW	TDD	SHM	
		REVISION	BY	APVD	

TDD BJB MAP PSB

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FILE NAME: Z:\Projects\Callahan Mine Site\OU3 Design\Sheets\C-308 Cap Details.dwg PLOT DATE: Tue, 02 Dec 2014 PLOT TIME: 3:41 PM