

# LID SPECIFICATIONS

## PART 1 / GENERAL

### DEFINITIONS

- BERM FILL: ON SITE MATERIALS WHICH ARE PRIMARILY USED TO CONSTRUCT STORM WATER BERMS WHERE RELATIVELY LOW TO MODERATE HYDRAULIC CONDUCTIVITY MATERIAL PROPERTIES ARE DESIRABLE.
- ENGINEERED FILL: IMPORTED MATERIALS PRIMARILY USED TO CONSTRUCT STORM WATER BERMS WHERE RELATIVELY LOW TO MODERATE HYDRAULIC CONDUCTIVITY MATERIAL PROPERTIES ARE DESIRABLE.
- EXCAVATION SLOPE: AN INCLINED SURFACE FORMED BY REMOVING MATERIAL FROM BELOW EXISTING GRADE.
- EMBANKMENT SLOPE: AN INCLINED SURFACE FORMED BY PLACEMENT OF MATERIAL ABOVE SURROUNDING GRADE.

### SITE CONDITIONS

- AREAS TO BE BACKFILLED ARE FREE OF DEBRIS, SNOW, ICE, AND WATER, AND SURFACES ARE NOT FROZEN. BACKFILL MATERIAL SHALL BE IN A THAWED STATE BEFORE BEING PLACED, MIXED, OR COMPACTED. COMPENSATORY MEASURES CAN BE USED AND SHALL BE DESCRIBED IN A COLD WEATHER PROTECTION PLAN APPROVED BY LANL.

## PART 2 / MATERIALS

### EMBANKMENT FILL

- EXCAVATED ON-SITE OR IMPORTED FROM OTHER LANL PROPERTIES USUALLY CONSISTING OF, BUT NOT LIMITED TO, CRUSHED TUFF. BLENDING TO MEET MATERIAL REQUIREMENTS IS ACCEPTABLE. MATERIAL SHALL HAVE A PI GREATER THAN 7 AND SHALL CONTAIN LESS THAN 2 PERCENT ORGANIC MATTER, ROCKS OR OTHER DELETERIOUS MATTER WHICH MIGHT IMPEDE COMPACTION OR CAUSE ZONES OF HIGH PERMEABILITY.

### BERM FILL

- EXCAVATED MATERIAL OBTAINED FROM ON SITE MAY BE USED FOR BERM FILL. IF SUFFICIENT MATERIALS ARE NOT AVAILABLE ON SITE OR IF ON-SITE MATERIALS DO NOT HAVE THE SPECIFIED PROPERTIES, MATERIALS FROM AN OFF-SITE BORROW AREA MAY BE USED. OFF-SITE MATERIALS MAY BE MIXED WITH ON-SITE MATERIALS IN THE PROPORTIONS NECESSARY TO MEET THE REQUIREMENTS OF THIS SECTION.

- BERM FILL SHALL CONSIST OF ANY ON-SITE OR IMPORTED CLEAN MATERIAL, CONTAINING LESS THAN 2 PERCENT ORGANIC MATERIAL, DEBRIS AND OTHER DELETERIOUS MATERIALS AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS AS DETERMINED BY ASTM D422 EXCEPT AS OTHERWISE APPROVED BY LANL STR OR LANL PE.

- SIEVE SIZE PERCENT PASSING
- 2.0 INCH 100
- 1/4 INCH 75-100
- NO. 10 60-85
- NO. 40 45-70
- NO. 200 30-45

THE FRACTION PASSING THE NO. 200 SIEVE SHALL NOT BE GREATER THAN 0.667 OF THE FRACTION PASSING THE NO. 40 SIEVE. BERM FILL SHALL HAVE A PI BETWEEN 10 AND 20. TESTING SHALL BE IN CONFORMANCE WITH ASTM D4318.

- FOR MATERIALS MANUFACTURED THROUGH MIXING OR BLENDING, PERFORM CONFORMANCE TESTING ON A MINIMUM OF EVERY 200 TONS, OR WHEN MATERIAL HAS CHANGED, WHICHEVER OCCURS FIRST.

### ENGINEERED FILL

- ENGINEERED FILL SHALL BE PRODUCED FROM MIXING BASE COURSE AGGREGATED WITH CLAY, CONTAINING LESS THAN 2 PERCENT ORGANIC MATERIAL, DEBRIS AND OTHER DELETERIOUS MATERIALS.

- GRANULAR BERM FILL SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS AS DETERMINED BY ASTM D422 EXCEPT AS OTHERWISE APPROVED BY LANL STR OR LANL PE.

- SIEVE SIZE PERCENT PASSING
- 2.0 INCH 100
- 1/4 INCH 75-100
- NO. 10 45-70
- NO. 40 45-70
- NO. 200 30-45

THE FRACTION PASSING THE NO. 200 SIEVE SHALL NOT BE GREATER THAN 0.667 OF THE FRACTION PASSING THE NO. 40 SIEVE.

## PART 3 / EXECUTION

### INSPECTIONS

- AT PROJECT START, INSPECTION POINTS FOR STORM WATER IMPROVEMENTS SHALL BE ESTABLISHED AND INTEGRATED WITH GENERAL PROJECT INSPECTIONS. INCLUDE WITHIN THOSE INSPECTION POINTS THE FOLLOWING:
  - INITIAL LAYOUT OF STORM WATER IMPROVEMENTS FOR FIELD ADJUSTMENTS AS NEEDED.
  - VERIFICATION THAT OVER-COMPACTION OF SOILS WHERE INFILTRATION IS REQUIRED HAS NOT OCCURRED.
  - PROPER SEEDING METHODS AND MATERIALS (E.G., SEED TAGS, MULCH TYPES, APPLICATION RATES).
  - INSTALLATION OF EROSION CONTROL MATERIALS PER MANUFACTURER RECOMMENDATIONS (I.E., TURF REINFORCEMENT MAT ANCHOR TRENCHES AND STAPLE PATTERNS).
  - USE APPROPRIATE LID CONSTRUCTION AND SITE STABILIZATION MATERIALS.
  - COMPLIANCE WITH PREDEFINED HOLD POINTS.

### SUB-GRADE PREPARATION

- UNDER STORM WATER STRUCTURES EXISTING SUB-GRADE SHALL BE COMPACTED TO NINETY (90) PERCENT MAXIMUM DRY DENSITY TO A MIN. 8" DEPTH BELOW THE BOTTOM OF THE STRUCTURE OR AS NOTED ON THE PLANS.
- WHERE INFILTRATION IS REQUIRED, SOILS SHALL NOT BE COMPACTED GREATER THAN EIGHTY-FIVE (85%) MAXIMUM DRY DENSITY.
- UNLESS SPECIFICALLY NOTED ON PLANS, STORM WATER FEATURES SHALL NOT HAVE GEOTEXTILES, OR OTHER SIMILAR MATERIALS LAID UNDER RIP-RAP, GRAVELS, MULCHES OR OTHER SIMILAR POROUS LAYERS.

					REVISIONS PER [DCF] [DRN] [FCR]				
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NO	DATE	CLASS REV	DC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

# ENGINEERING STANDARDS

## CIVIL LOW IMPACT DEVELOPMENT SPECIFICATIONS STANDARDS

DRAWN	E. ATENCIO
DESIGN	T. LEMKE
CHECKED	S. RAEL
DATE	02-10-20

TA-XX	BLDG XXXX
SUBMITTED	APPROVED FOR RELEASE
DISCIPLINE POC: JOHN O'BRIEN	STANDARDS MANAGER: TOBIN ORUCH
SHEET	
<b>1</b>	
<b>3</b> OF <b>16</b>	
D.C.: UNCLASSIFIED	REVIEWER: DONALD YARDMAN
PROJECT ID	DATE:
<b>CHAPTER 3</b>	DRAWING NO <b>ST-G20GEN-1.3</b>
	REV <b>0</b>

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NOT FOR CONSTRUCTION