

ATTACHMENT VI-2
STORMWATER MANAGEMENT

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STORMWATER MANAGEMENT

Stormwater management at the Clean Harbors Grassy Mountain Facility (CHGM) provides for the control of surface water drainage resulting from precipitation falling on areas that are tributary to or from the landfill cells. Precipitation that falls on the site will do one of the following: infiltrate directly into the ground, evaporate, adhere directly to vegetation, run off into the drainage ways and be transported to collection points, or run off directly into collection points. The stormwater management plan consists of facilities to control runoff inside and outside of the landfill cells. The control facilities outside of the cells will control runoff from precipitation that falls outside the landfill cells, whereas the control facilities inside the cells will control runoff from precipitation that falls inside the landfill cells. These together make up the “runoff management system.”

The control facilities inside the cells must be capable of collecting and controlling the runoff water volume resulting from a 25-year, twenty-four-hour storm as required by Utah Administrative Code (UAC) R315-264-301(g), (h), and (i). The system is designed to manage the volume of runoff that would be produced by a 100-year, twenty-four-hour storm event by allowing enough capacity in the open cells to contain the necessary amount of water. The design exceeds the requirements of R315-264 UAC.

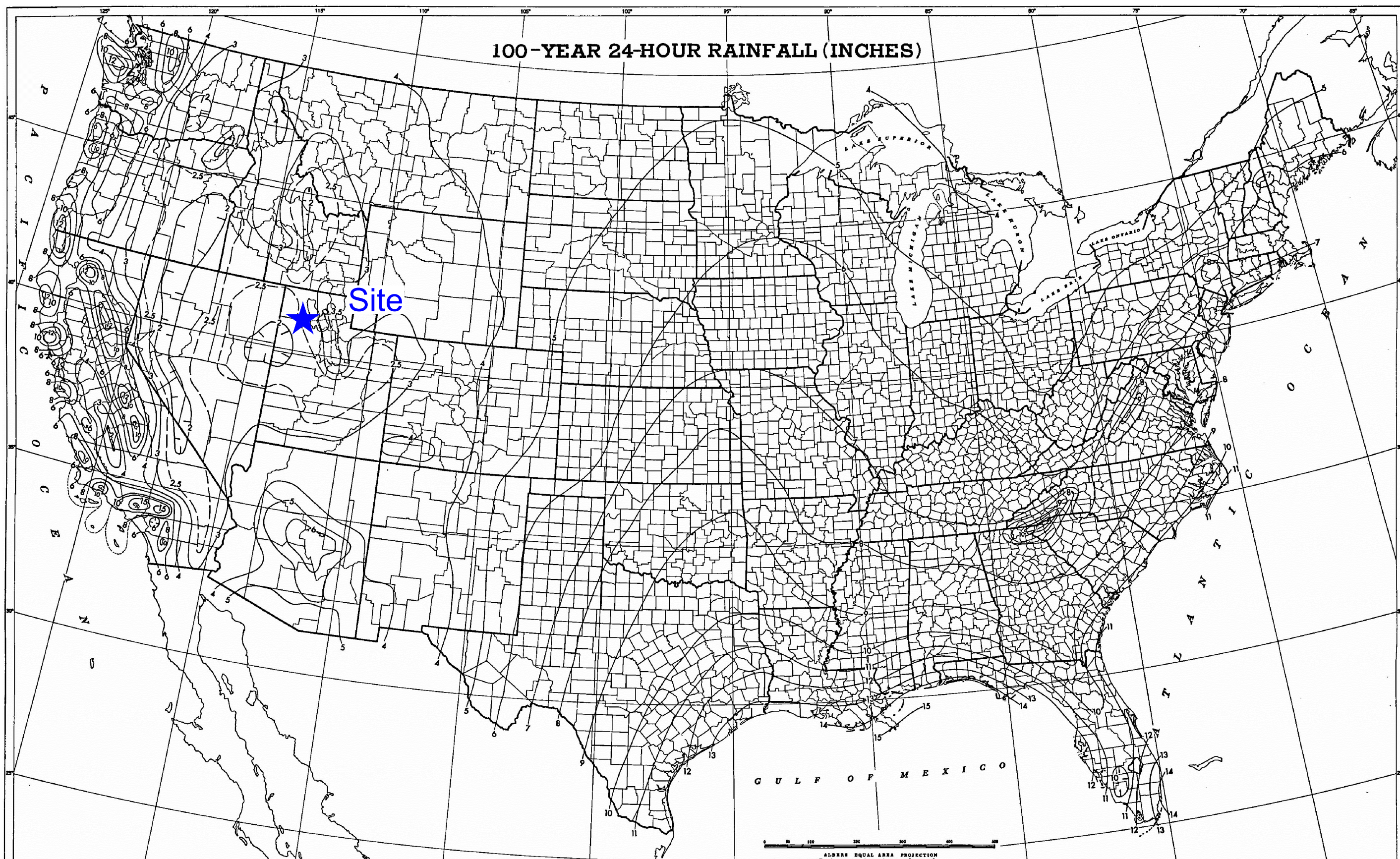
Outside the cells, the stormwater runoff from uncontaminated surfaces, which includes cell embankment surfaces and caps of closed cells, is managed via dikes, conveyance facilities (ditches, culverts, drain boxes, etc.), and ponds. The facility is relatively flat. The stormwater controls are designed to prevent stormwater from accumulating around the toe of the cell berms and interfering with CHGM operations.

The facility has six stormwater run-off ponds and a seventh proposed pond that are designed to provide drainage from each RCRA, PCB, and Industrial Waste Landfill Cells, as well as the Bulk Solids Storage Units East and West. A series of ditches provides for containment of run-off from parking and sampling areas.

Figures 1a and 1b presents the rainfall frequency distribution for the Clive Area (U.S. Department of Commerce Weather Bureau Technical Paper No 40. (Jershfield, D.M)). As illustrated on Figure 1a, the rainfall depth for the 100-year, 24-hour precipitation event in the Clive area is approximately 2.5 inches. Based on Figure 1b, estimated 25-year 24-hour rainfall is approximately 2.0 inches.

Figure 2 shows the design of the stormwater drainage system. The size of the stormwater containment ponds was based on the assumed rainfall amounts and runoff generated from the embankments and cell caps that are tributary to the ponds.

100-YEAR 24-HOUR RAINFALL (INCHES)



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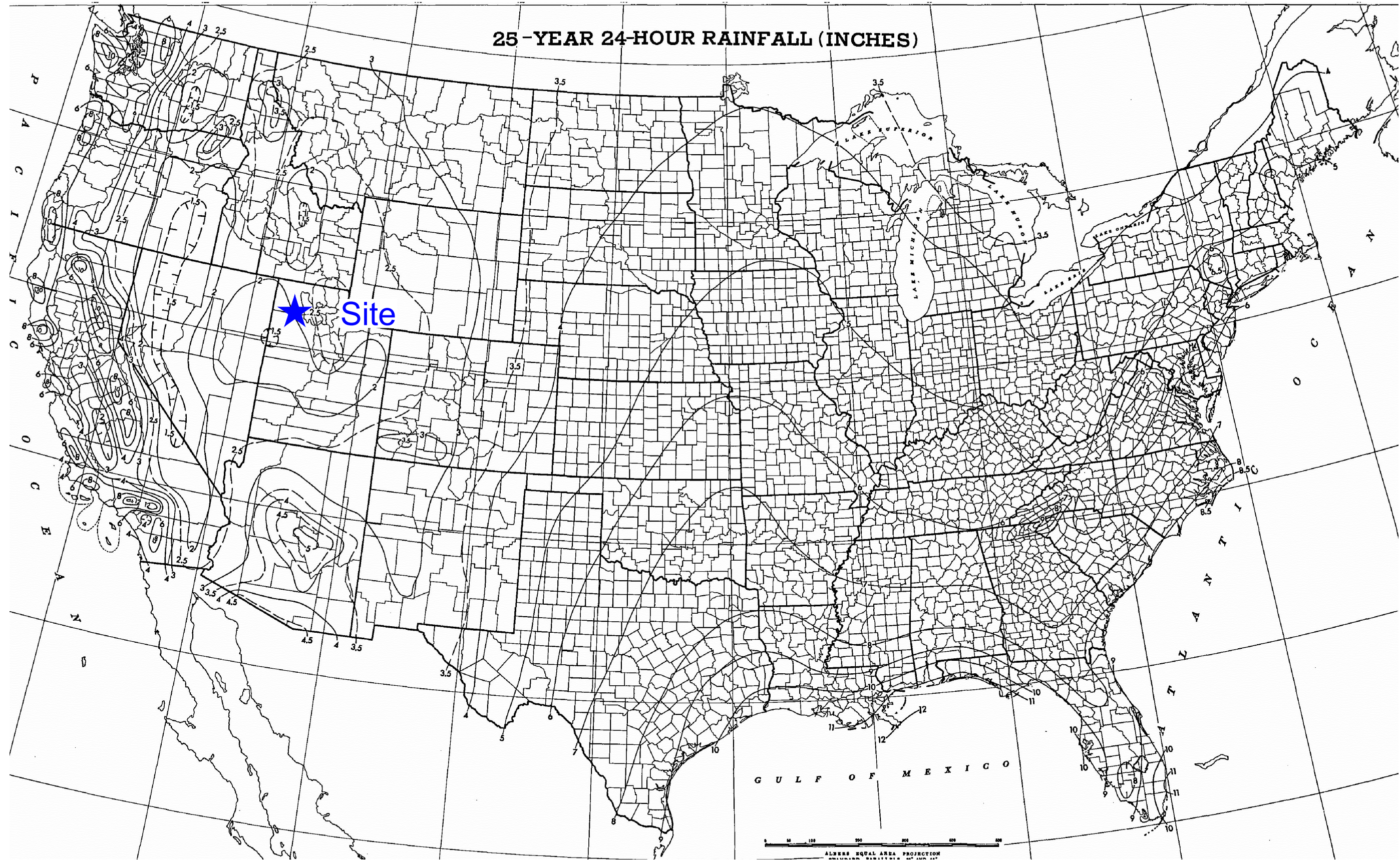
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FIGURE 1a

100-YEAR 24-HOUR RAINFALL (INCHES)
 CLEAN HARBORS GRASSY MOUNTAIN, LLC

SCALE:	AS SHOWN	PROJECT:	1968
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25-YEAR 24-HOUR RAINFALL (INCHES)



★ Site

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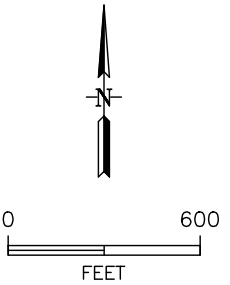
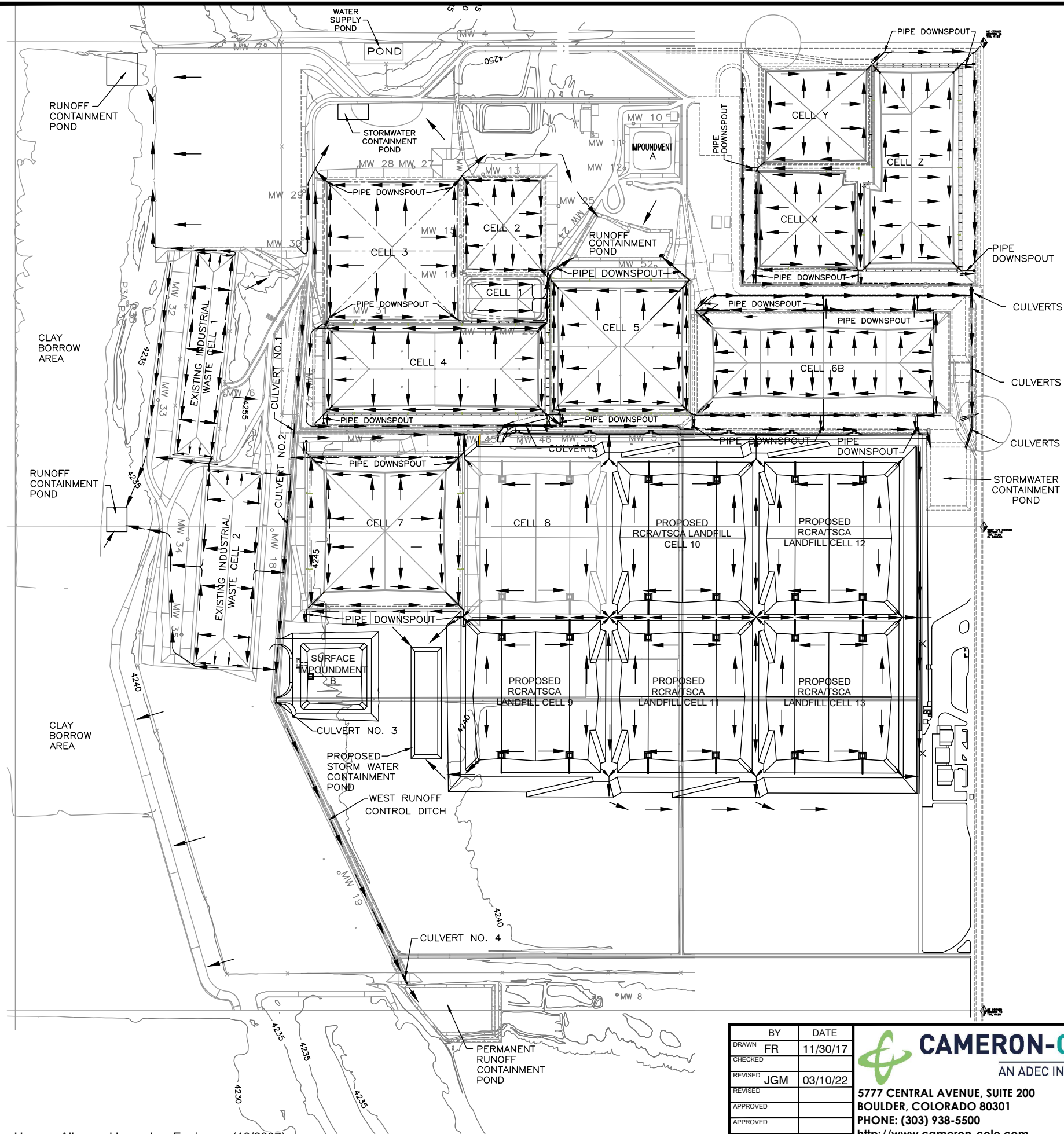
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FIGURE 1b

25-YEAR 24-HOUR RAINFALL (INCHES)
 CLEAN HARBORS GRASSY MOUNTAIN, LLC

SCALE:	AS SHOWN	PROJECT:	1968
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Note: Modified from Hansen Allen and Luce, Inc. Engineers (10/2007)

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FIGURE 2

STORMWATER DRAINAGE PATTERNS AFTER CLOSURE
OF ALL LANDFILL CELLS
CLEAN HARBORS GRASSY MOUNTAIN, LLC

SCALE:	AS SHOWN	PROJECT:	1968
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