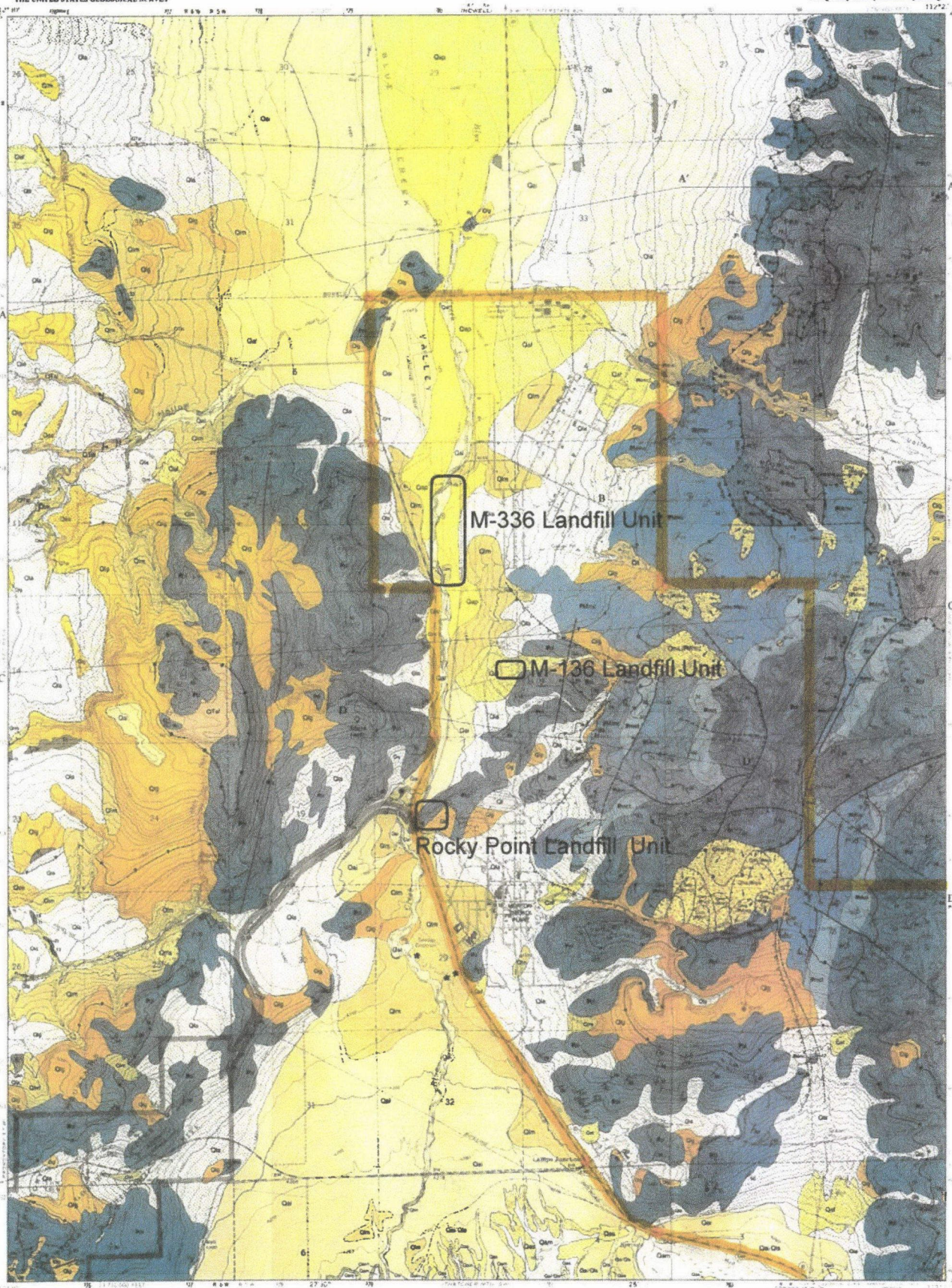
Attachment 2

Site Diagrams
and
Geologic Maps

UTAH GEOLOGICAL SURVEY
UTAH DEPARTMENT OF NATURAL RESOURCES
In cooperation with
THE UNITED STATES GEOLOGICAL SURVEY

Plate 1
Utah Geological Survey Map 136
Geologic Map of Lampo Junction Quadrangle



SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

GEOLOGIC MAP OF THE LAMPO JUNCTION QUADRANGLE BOX ELDER COUNTY, UTAH

by

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[1]U.S. Geological Survey, [2]Deceased

1991

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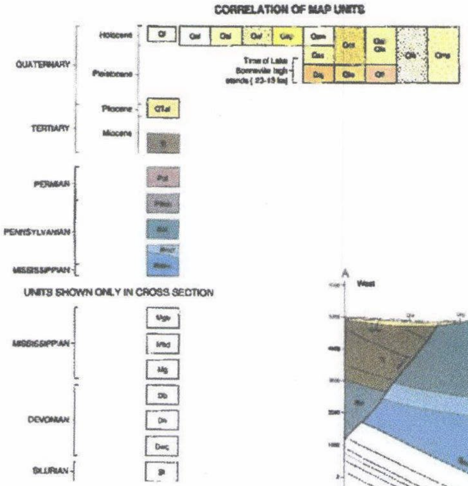
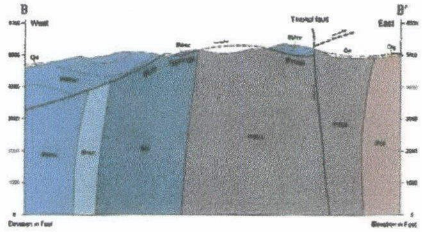
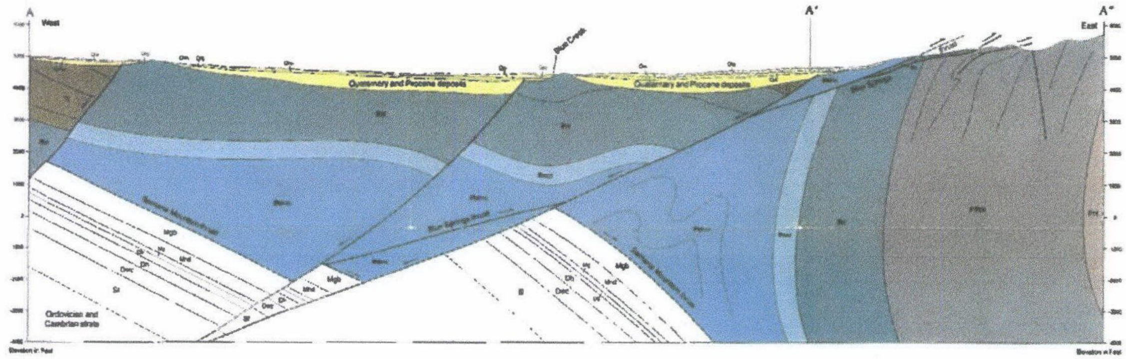
CORRELATION OF MAP UNITS

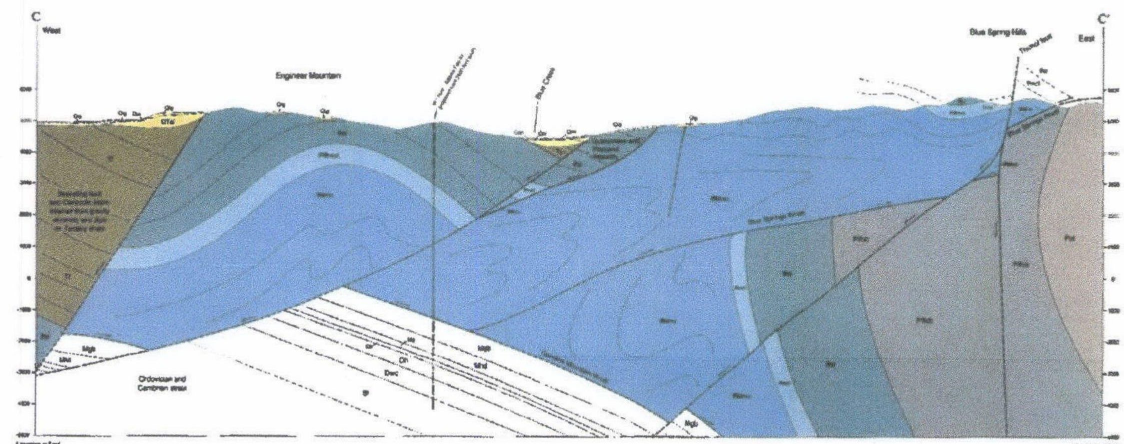


MAP SYMBOLS

- CONTACT -- Dashed where gradational; dotted where covered
- HIGH ANGLE FAULT -- Dashed where location inferred, queried where uncertain, dotted where covered; bar and ball on downthrown side; dip indicated
- THRUST FAULT -- Dashed where location inferred, dotted where covered; sawteeth on upper plate
- LOW-ANGLE NORMAL FAULT -- Dashed where location inferred, dotted where covered; teeth on downthrown side
- BOUNDARY OF MAJOR SLUMP OR SLIDE BLOCK-- Dashed where location inferred, hachured on downthrown side, arrow shows major direction of movement
- BEDDING: Upright
- Vertical
- Overturned
- Facing confirmed
- ANTICLINE -- Showing plunge of axis
- OVERTURNED SYNCLINE
- OVERTURNED ANTICLINE
- BONNEVILLE SHORELINE -- Indicated by shoreline deposits and abrasion platforms
- PROVO SHORELINE -- Indicated by shoreline deposits and abrasion platforms
- PROSPECT
- LOCATION OF PALEONTOLOGIC SAMPLE
- LOCATION OF THIOKOL BASALTIC ASH
- LOCATION OF ADAMS FEE NO.1 ABANDONED WELL







DESCRIPTION OF MAP UNITS

Qf Fill (Holocene) — *Material used to construct building pads and railroad grades.*

Qal Alluvium (Holocene) — *Poorly sorted gravel, sand, silt, and clay in and near ephemeral and perennial stream channels.*

Qas Alluvial silt (Holocene) — *Dark-brown silt, sand, and clay occupying flood plains, distal alluvial fans, and low-gradient stream channels. Includes ponded deposits behind lacustrine bars of Lake Bonneville about 5140 feet (1567 m) elevation, west of Engineer Mountain.*

Qaf Alluvial-fan deposits (Holocene) — *Poorly sorted gravel, sand, silt, and clay forming fans and terraces.*

Qap Alluvial-plain deposits (Holocene) — *Brown, thin-bedded sand, silt, and clay deposits chiefly located along the Blue Creek flood plain.*

Qam Alluvial mud (Holocene) — *Dark-brown organic-rich clay and silt deposits forming mud flats.*

Qes Eolian sand (Holocene and Pleistocene) — *Medium-brown sand in dunes and sheets. Commonly contains more than 75% volcanic glass shards.*

Qas/Qls Thin alluvial silt overlying lacustrine sand (Holocene and Pleistocene) — *Brown, well-sorted, unbedded sand deposited in the Gilbert shoreline overlain by thin deposits of alluvial silt and sand.*

Qla Lacustrine and alluvial deposits, undivided (Holocene and Pleistocene) — *Unsorted alluvial deposits partly reworked by shoreline processes, patches of lacustrine silt and marl, local alluvium covering lacustrine deposits, and marly sand of mixed alluvial and lacustrine origin.*

Qms Mass-movement slides (Holocene and Pleistocene) — *Slumped material and slide blocks. Rock units in slide indicated in parentheses where other than colluvium. Hachures indicate head-wall scarp.*

Qas Alluvial sand and silt (Pleistocene) — *Red sand and silt beds deposited on lacustrine (white) marl and overlain by shoreline sand deposited by the Gilbert stage of Lake Bonneville.*

Qlg Lacustrine gravel (Pleistocene) — *Unconsolidated and tufa-cemented gravel as large as cobbles, with silt matrix. Forms bars and foreslots.*

Qlm Lacustrine marl (Pleistocene) — *White to pale-brown, laminated marl with dropstones. Locally includes sand beds, gravel lenses, and a basalt tuff bed. Deposited in Lake Bonneville. Lower parts of unit show convolute lamination and roll structures in valleys west of Blue Creek Valley.*

Qlf Lacustrine fine-grained sediment (Pleistocene) — *Light-colored clay, silt, and sand, in places with interbeds of sand and gravel.*

QTal Alluvium and loess, undivided (Pleistocene to Miocene) — *Unconsolidated to cemented, white caliche-coated boulders, cobbles, and pebbles near terrace crests. Underlain by red, moderately consolidated, well-bedded alluvium and locally thick accumulations of fine sand and silt-sized loess. Thin to thick bedded. Clasts mostly rounded quartzite and subangular shale and siltstone.*

Tt Tuff (Miocene) — *Moderately consolidated, gray to brown tuff and tuff redeposited in streams and lakes. Air-fall tuff is 100% glass shards; redeposited tuff contains varying amounts of sand grains and lithic fragments, and is size-sorted and bedded. Interbedded with sand, silt, and marl. Generally dips 10 to 30 degrees eastward.*

Oquirrh Formation-divided into:

Pot Thinly bedded member (Lower Permian) — *Thin-bedded siltstone and calcisilties with common lenses of dark-brown chert.*

PPob Bioturbated limestone member (Lower Permian and Upper and Middle? Pennsylvanian) — *Light-medium-gray, silty and sandy limestone and brown, calcareous, very-fine-grained sandstone. Bioturbated beds and laminated beds are interbedded on medium to thick scale.*

Pol Limestone member (Middle? and Lower Pennsylvanian)-Light to medium-gray limestone and minor brown sandstone. Thickly to medium bedded, fossiliferous, and locally cherty.

Manning Canyon Shale-divided into:

PMmct Transitional member (Lower Pennsylvanian) — *Interbedded quartzite, siltstone, and medium-bedded fossiliferous limestone; transitional into the limestone member of the Oquirrh Formation.*

PMmc Lower member (Pennsylvanian and Upper Mississippian) — *Medium- to coarse-grained sandstone, boldly exposed dark-brown quartzite, and poorly exposed interbedded gray and black shale and siltstone. Rare fossiliferous limestone.*

SHOWN ONLY IN CROSS SECTIONS

Mgb Great Blue Limestone (Mississippian) — *Locally cherty, thick-bedded limestone containing corals.*

Mhd Humbug Formation and Deseret Limestone, undivided (Mississippian) — *Brown sandy and silty limestone and calcareous siltstone.*

Mg Gardison Limestone (Mississippian) — *Dark-gray, thin-bedded fossiliferous limestone.*

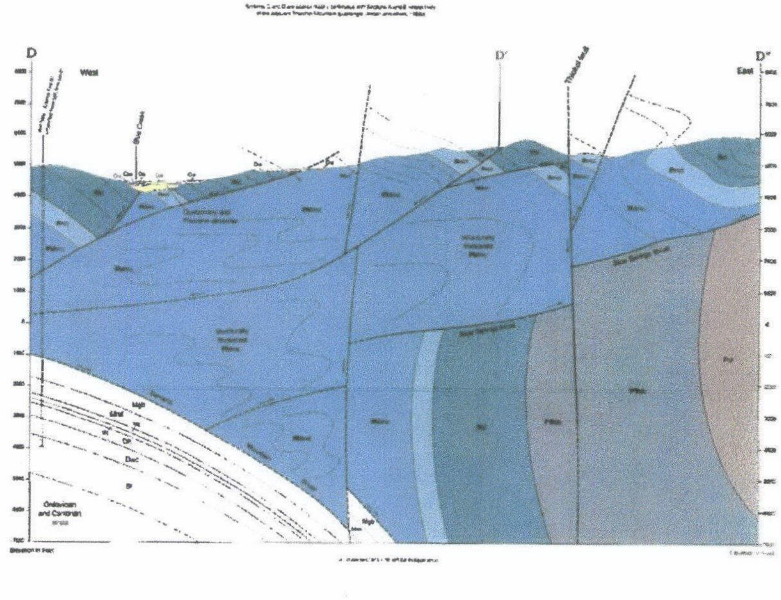
Db Beirdneau Formation (Devonian) — *Calcareous sandstone, dark dolomite, and limestone.*

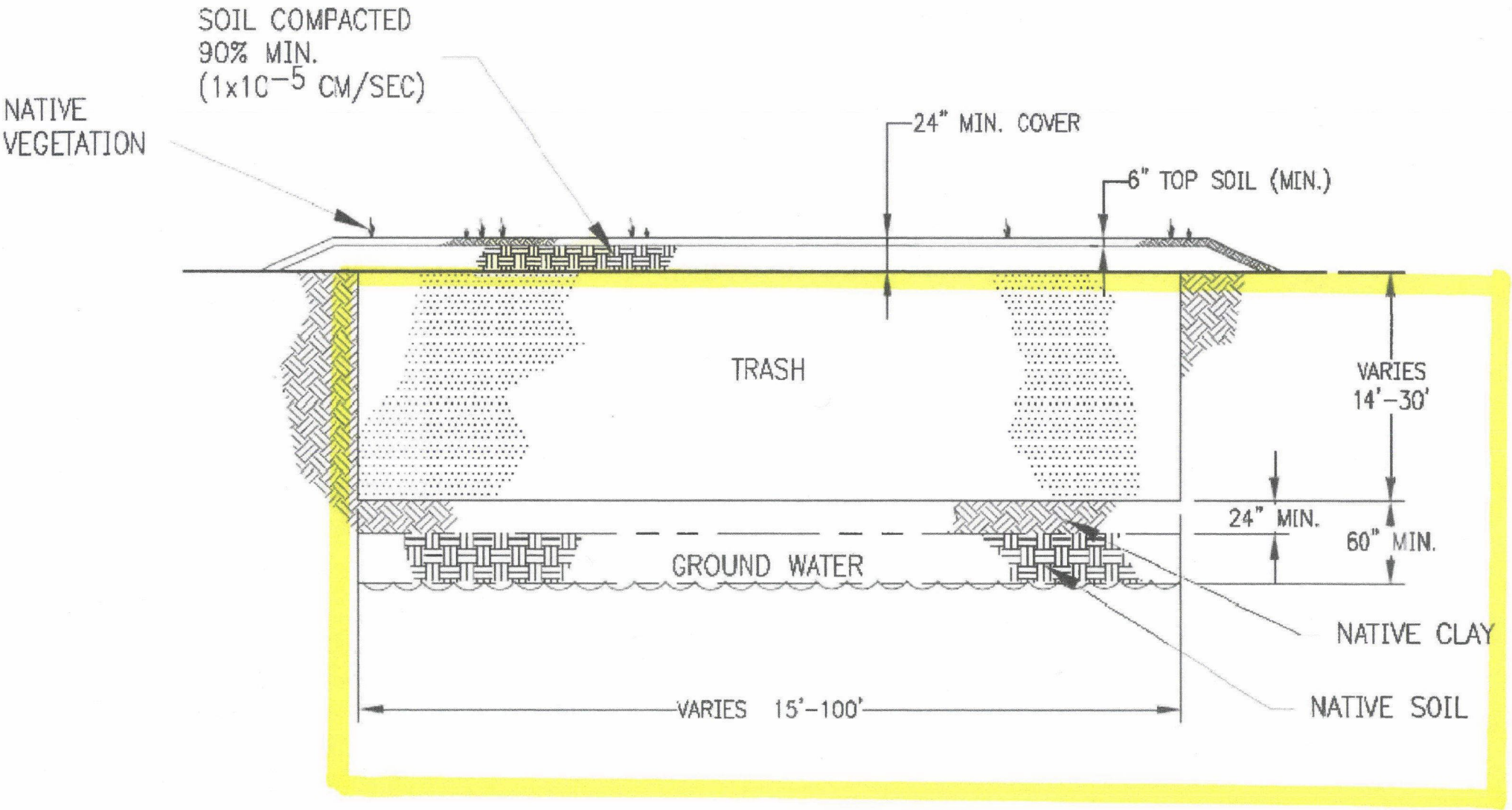
Dh Hyrum Dolomite (Devonian) — *Dolomite and limestone.*

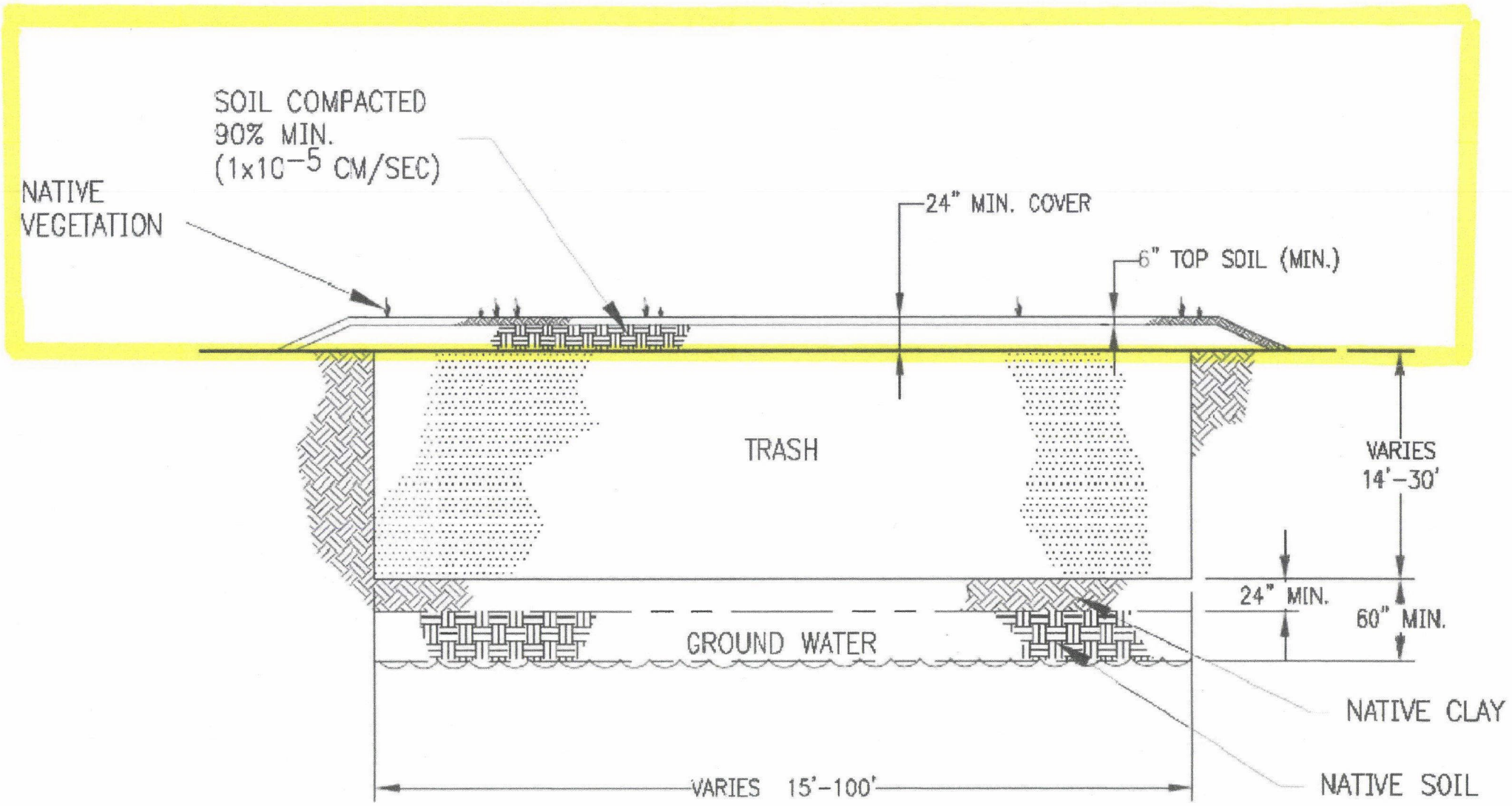
Dwc Water Canyon Formation (Devonian) — *Conspicuously laminated light- and dark-gray dolomite.*

Sl Laketown Dolomite (Silurian) — *Pale-gray to white dolomite.*

FORMATION	MEMBER	SYMBOL	THICKNESS feet (meters)	LITHOLOGY
Oquirrh Formation	Thinly bedded member	Pot	> 2000 (> 610)	
	Bioturbated limestone member	PPob	5500 (1675)	
	Limestone member	Pol	3000 (915)	
Manning Canyon Shale	Transitional member	PMmct	600 (183)	
	Lower member	PMmc	> 3000 (> 915)	




SOIL COMPACTED
90% MIN.
(1x10^{-5} CM/SEC)
NATIVE
VEGETATION
24" MIN. COVER
6" TOP SOIL (MIN.)
TRASH
VARIES
14'-30'
24" MIN.
60" MIN.
GROUND WATER
NATIVE CLAY
NATIVE SOIL
VARIES 15'-100'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