

CONDITION NO. 1: SOIL EMBANKMENT OVER DEEP OVERBURDEN WITH OPEN SINKHOLES

ORIGINAL GROUND LINE SEE DETAIL "1 A" MAINTAIN POSITIVE DRAINAGE

SOIL EMB. CLAY SOIL CAP GRANULAR EMBANKMENT

TYPE IV GEOTEXTILE FABRIC

SOIL OVERBURDEN > 15'

SOIL EMBANKMENT

ROCK LINE

EXIST. SOIL CLAY SOIL CAP (2' MIN.) TYPE IV GEOTEXTILE FABRIC GRANULAR EMB.

DETAIL "1 A"

PROCEDURE:

- REMOVE DEBRIS. DO NOT EXCAVATE SOIL OVERBURDEN.
- LINE OPENING WITH TYPE IV GEOTEXTILE FABRIC.
- REFILL WITH GRANULAR EMBANKMENT.
- PLACE TYPE IV GEOTEXTILE FABRIC ON TOP OF GRANULAR EMBANKMENT.
- REFILL WITH (2' MINIMUM) CLAY SOIL CAP.

CONDITION NO. 2: SOIL EMBANKMENT OVER SHALLOW OVERBURDEN WITH SINKHOLE OPENING IN ROCK

ORIGINAL GROUND LINE SEE ALTERNATE NO. 2A & NO. 2B MAINTAIN POSITIVE DRAINAGE

SOIL EMB. CLAY SOIL CAP (2' MIN.) SOIL EMB. 1' REINFORCED CONCRETE CAP

TYPE IV GEOTEXTILE FABRIC

SOIL OVERBURDEN < 15'

ROCK LINE GRANULAR EMB.

EXIST. SOIL GRANULAR EMB.

ROCK EXIST. EMB. LINE SOIL (CLAY SOIL CAP) ALTERNATE NO. 2A

ROCK LINE (CONC. CAP) ALTERNATE NO. 2B

PROCEDURE FOR ALTERNATE NO. 2A

- REMOVE DEBRIS AND SOIL OVERBURDEN.
- REFILL OPENING WITH GRANULAR EMBANKMENT TO 2' MIN. BELOW ROCK LINE.
- PLACE TYPE IV GEOTEXTILE FABRIC ON TOP OF GRANULAR EMB. OVERLAPPING ORIG. GROUND LINE.
- REFILL WITH (2' MIN.) CLAY SOIL CAP.

PROCEDURE FOR ALTERNATE NO. 2B

- REMOVE DEBRIS AND SOIL OVERBURDEN.
- REFILL OPENING WITH GRANULAR EMBANKMENT TO 1' MIN. BELOW ROCK LINE.
- CONST. 1' REINFORCED CONC. CAP. CAP SHOULD BE INTERLOCKED WITH ROCK FOR SUPPORT.

CONDIT. NO. 3: ROCK EMB. OVER DEEP OVERBURDEN WITH OPEN SINKHOLES

ORIGINAL GROUND LINE

ROCK EMBANKMENT

TYPE IV GEOTEXTILE FABRIC GRANULAR EMB.

SOIL OVERBURDEN > 15'

ROCK LINE

PROCEDURE:

- REMOVE DEBRIS. DO NOT EXCAVATE SOIL OVERBURDEN.
- LINE OPENING WITH TYPE IV GEOTEXTILE FABRIC.
- REFILL OPENING WITH GRANULAR EMBANKMENT TO TOP OF DEPRESSION.

CONDITION NO. 4: ROCK EMBANKMENT OVER SHALLOW OVERBURDEN WITH SINKHOLE OPENINGS IN ROCK

ORIGINAL GROUND LINE SEE ALTN. 4B SEE ALTN. 4A MAINTAIN POSITIVE DRAINAGE

ROCK LINE ROCK EMB. GRANULAR EMBANKMENT

SOIL OVERBURDEN < 15'

SOIL OVERBURDEN < 15'

ROCK LINE

EXIST. SOIL ROCK EMB. GRANULAR EMBANKMENT

ROCK EMB. 1' REINFORCED CONCRETE CAP EXIST. SOIL

ROCK LINE (CONC. CAP) ALTERNATE NO. 4B

ALTERNATE NO. 4A

PROCEDURE FOR ALTERNATE NO. 4A

- REMOVE DEBRIS AND SOIL OVERBURDEN.
- REFILL OPENING TO ROCK LINE WITH GRANULAR EMBANKMENT.

PROCEDURE FOR ALTERNATE NO. 4B

- REMOVE DEBRIS AND SOIL OVERBURDEN.
- REFILL OPENING WITH GRANULAR EMBANKMENT TO 1' MIN. BELOW ROCK LINE.
- CONST. 1' REINFORCED CONC. CAP. CAP SHOULD BE INTERLOCKED WITH ROCK FOR SUPPORT.

CONDITION NO. 5: CUT SECTIONS WITH SINKHOLE OPENINGS IN ROCK

EXIST. SOIL

ROCK LINE

ROCK ROADBED

SOIL SUBGRADE

SEE ALTN. 5A OR SEE ALTN. 5B

TYPE IV GEOTEXTILE FABRIC GRANULAR EMB.

CLAY SOIL CAP (2' MIN.)

(ROCK ROADBED) ALTERNATE NO. 5A

(SOIL SUBGRADE) ALTERNATE NO. 5B

PROCEDURE FOR ALTERNATE NO. 5A

- REFILL OPENING WITH GRANULAR EMBANKMENT. IF CONCRETE CAP IS USED IT SHALL BE INTERLOCKED WITH THE BEDROCK FOR SUPPORT AS DETAILED IN CONDITION NO. 2 ALTERNATE NO. 2B.

PROCEDURE FOR ALTERNATE NO. 5B

- REFILL OPENING WITH GRANULAR EMBANKMENT TO 2' MINIMUM BELOW SOIL SUBGRADE.
- PLACE TYPE IV GEOTEXTILE FABRIC OVER GRANULAR EMBANKMENT.
- REFILL WITH (2' MIN.) CLAY SOIL CAP. IF CONCRETE CAP IS USED THE FABRIC SHALL BE OMITTED AND CAP SHALL BE INTERLOCKED WITH THE BEDROCK FOR SUPPORT AS DETAILED IN COND. NO. 2 ALTERNATE NO. 2B.

CONDITION NO. 6: CUT SECTIONS WITH SINKHOLE OPENINGS IN SOIL

ORIGINAL GROUND LINE SEE ALTN. 6A SEE ALTN. 6B

SOIL OVERBURDEN WITH LIMESTONE BOULDERS

TYPE IV GEOTEXTILE FABRIC

SOIL OVERBURDEN < 15'

SOIL SUBGRADE

ROCK LINE

SOIL

TYPE IV GEOTEXTILE FABRIC GRANULAR EMB.

SINKHOLE EXCAVATION SLOPE

CLAY SOIL CAP (2' MIN.)

ALTN. 6A

ALTN. 6B

ALTERNATE NO. 6A SOIL OVERBURDEN GREATER THAN 15'

- REMOVE DEBRIS. DO NOT EXCAVATE SOIL OVERBURDEN.
- LINE OPENING WITH TYPE IV GEOTEXTILE FABRIC.
- REFILL WITH GRANULAR EMB.
- PLACE TYPE IV GEOTEXTILE FABRIC OVER GRANULAR EMBANKMENT OVERLAPPING ORIG. GROUND LINE.
- REFILL WITH (2' MIN.) CLAY SOIL CAP. IF ROCK SUBGRADE IS USED OMIT SOIL CAP AND FABRIC UNDERLYING SOIL CAP.

ALTERNATE NO. 6B SOIL OVERBURDEN LESS THAN 15'

- REMOVE DEBRIS AND SOIL OVERBURDEN.
- REFILL OPENING WITH GRANULAR EMBANKMENT TO 2' MIN. BELOW ROCK LINE.
- PLACE TYPE IV GEOTEXTILE FABRIC OVER GRANULAR EMB. OVERLAPPING ORIG. GROUND LINE.
- REFILL WITH (2' MIN.) CLAY SOIL CAP. IF CONCRETE CAP IS USED THE FABRIC SHALL BE OMITTED AND CAP SHALL BE INTERLOCKED WITH THE BEDROCK FOR SUPPORT AS DETAILED IN COND. NO. 2 ALTERNATE NO. 2B.

THE CONC. CAP SHALL BE CLASS "B" CONC. AND CONTAIN NO. 8 REINFORCING BARS PLACED AT 12" CTRS. IN BOTH DIRECTIONS AND LOCATED 3" FROM THE BOTTOM SURFACE OF THE CAP.

KENTUCKY DEPARTMENT OF HIGHWAYS

TREATMENT OF OPEN SINKHOLES

SUBMITTED *William S. Galbraith* 12-1-99
TECH. DIVISION OF HIGHWAY DESIGN DATE

FILE NAME: G:\PWORK\JEFF.LAIL\00512631\SEPIA_003.DGN
 USER: Jeff.Lail
 DATE PLOTTED: August 17, 2012
 E-SHEET NAME:
 MicroStation v8.1i.7.180