Operation & Maintenance Modification Review Document (MRD)

for

NY-FY16-008

Vestal, NY

Abandonment of Drainage Structure #17 (Well 1-1)

U.S. Army Corps of Engineers
Baltimore District
June 16, 2016

NY-FY16-008

DESCRIPTION OF PROPOSED WORK

The Sponsor submitted a request to abandon drainage structure #17 (DS-17), which is an 8-inch steel discharge pipe. This conduit discharges water from the Vestal Water Supply Site (Site 1-1), which is located on Pumphouse Road in Vestal, New York. DS-17 formerly served as a blow-off and bypass line so that water from the Well 1-1 pump house or the treatment plant could bypass a State Flood Management Area and be discharged directly to the Susquehanna River. The pipes exit the pump house and treatment plant below grade, then wye together before passing through a flood control levee that is regulated by the NYSDEC Region 7 Division of Water and United States Army Corps of Engineers (USACE). The pipe then extends down the levee embankment to the bed of the Susquehanna River. The well and treatment plant are currently off-line and no longer in use. The Sponsor intends to remove the pipe back to the levee embankment where there is a flange connection and small concrete headwall. The remaining pipe under the levee will be grouted in place in accordance with the USACE Standard Operating Procedure (SOP) to Abandon and Seal an Existing Pipe (USACE, September 2011).

NY-FY16-008

SPONSOR / AGENCY

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Environmental Engineer 1
Region 7 NYSDEC
1679 NY Route 11
Kirkwood, NY 13795-1602

PH 607-775-2545 x106

PERMITTEE

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DOCUMENTATION PROVIDED TO USACE FOR REVIEW REQUEST

- Scope of Work provide by NYSDEC Region 7
- Photographs of Location and Pipe to be Abandoned
- Map of Access Route to Site

ADDITIONAL DOCUMENTATION REVIEWED FOR FINAL EVALUATION

- Vestal As-Built Drawings
- US EPA As-Built Drawings of Vestal Well Site 1-1

(Any As-Built(s) noted above have not been reproduced for inclusion in this MRD, these documents are on file and maintained by the Baltimore District of USACE)

NY-FY16-008

USACE COMMENTS

Civil Section – March 14, 2016 – No further comments

Geotechnical Section – June 3, 2016 – No further comments

H&H Section -- N/A

Structural Section -- N/A

Contingency(s)

Observation-1 = N/A

Required Action-1 = N/A
End contingencies

Reviewed by:
Name of Engineer: Alex Baldowski, P.E. (Civil)
Name of Engineer: Chuck Frey, P.E. (Geotechnical)

USACE contact: Joseph Reed, P.E., CFM – Levee Safety Program Manager at 410-962-4550.

Attachment(s):

- As noted on page 3, Documentation Provided to USACE for Review Request.
- BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS SPECIAL CONDITIONS and DESIGN AND SPECIFICATION GUIDELINES FOR UTILITY INSTALLATIONS ON FLOOD CONTROL LANDS are included as part of this MRD and shall be considered part of the design/construction documents. If you are missing either of these documents, please request another copy from Joe Reed at 410-962-4550

Regulatory- This document does not provide authorization to perform work in waters;

It should be noted that the proposed work may require Department of the Army authorization under Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act. In accordance with Section 404 of the Clean Water Act, a Department of the Army authorization is required for the discharge of dredged and/or fill material into waters of the United States, including jurisdictional wetlands. Section 10 of the Rivers and Harbors Act also requires Department of the Army Authorization for work in, over, or under a navigable water of the United States. If you are proposing work that may be regulated under these authorities, it is recommended that you contact our Regulatory Branch to schedule a pre-application meeting.

CLASSIFICATION

The level of impact provided by this modification: **Minor – Operations & Maintenance**

RECOMMENDATION

No-Objection - Having reviewed the attachments outlined on page 3, considering the USACE comments and providing attachments listed on page 4, this review team has No-Objection to this proposed project.

Attachments

SCOPE OF WORK
DISCHARGE PIPE ABANDONMENT
VESTAL WATER SUPPLY SITE (SITE 1-1)
NYSDEC SITE #704009A
VESTAL, BROOME COUNTY, NEW YORK

1. PROJECT DESCRIPTION

The Vestal Water Supply Site (Site 1-1) is located on Pumphouse Road in Vestal, New York (See Figure 1). The site contains a former groundwater well pump station and chlorination station that was previously used for the Town of Vestal municipal water supply. The well has been impacted by volatile organic compounds (VOC). In 1995, the EPA converted the well, pump house and chlorination system to include a packed bed air stripping tower to address the VOC contaminants. The well and treatment plant are currently off-line.

An 8–inch iron discharge pipe formerly served as a blow-off and bypass line so that water from the Well 1-1 pumphouse or the treatment plant could bypass a State Flood Management Area and be discharged directly to the Susquehanna River. The pipes exit the pump house and treatment plant below grade, then wye together before passing through a flood control levee that is regulated by the NYSDEC Region 7 Division of Water and United States Army Corps of Engineers (USACE). The pipe then extends down the levee embankment to the bed of the Susquehanna River (Figure 2).

The discharge pipe is no longer used and, per the NYSEC Region 7 Division of Water, needs to be abandoned and grouted in place in accordance with the USACE Standard Operating Procedure (SOP) to Abandon and Seal an Existing Pipe (USACE, September 2011) (Attachment A). The following Scope describes the procedures that will be used to properly abandon the discharge pipe.

Deviations from this Scope will be approved by the NYSDEC Project Manager (Payson Long).

2. SCOPE

Figure 2 shows the approximate areas of work.

Arcadis (and/or its subcontractors) will provide all necessary labor, materials, tools, and equipment to perform the following work:

- Prior to initiation of ground-intrusive work, Arcadis will implement One-Call/Dig Safe process to locate utilities in the vicinity of the work area. Buried utilities (including a gas pipeline) are known to be present in the levee embankment. If additional utility locating services are required (i.e. private utility mark-out company), Arcadis will notify the NYSDEC PM.
- Mobilization/demobilization.
- Remove existing 8-inch elbow from discharge pipe at pipe bulkhead on northern side of levee.
- Provide and install new 8-inch “MJ”-type iron cap, lock ring, gasket, and bolts to seal discharge end of pipe at levee bulkhead.

- The pipe extending down the levee embankment to Susquehanna River will be dismantled and cut into 10-foot sections, where safely accessible and not submerged. The remainder will be left in place or removed by NYSDEC Region 7. NYSDEC Region 7 will provide equipment and personnel to remove the pipe sections from the embankment, load the pipe sections into a truck, and coordinate off-site disposal. No machines will be allowed to operate on the levee embankment. Work to remove the pipe sections will be performed only during dry conditions to limit ruts from machinery.
- Excavate, expose, remove, and discard existing stand-pipe that tees into the 8-inch discharge line and is no longer required for treatment plant operations. The standpipe connection with the 8-inch discharge line is between the pumphouse and levee embankment, immediately adjacent to the perimeter fencing for the pumphouse. Based on field data, the depth of the 8-inch discharge line at the connection with the stand pipe is approximately 12-inches below grade. Excavation for removal of the stand-pipe will be limited to the depth required to access and remove the flange bolt connections with the 8-inch discharge line. It is estimated that the total depth of the excavation will be no greater that three feet. Excavated materials will be segregated based on the type of material (i.e. sod, topsoil, gravel, etc.) and staged for re-use as backfill and restoration. Limits of the excavation will be marked and barricaded at the completion of each work day while excavation remains open.
- An 8-inch flange blank will be installed on the treatment plant end of the exposed pipe where the stand-pipe is removed. The exposed end of the pipe extending through the levee will be the access point for grouting.
- Construct a grout form and place at southern extent of 8-inch discharge pipe extending through levee. The grout form will be constructed so that grout can completely fill 8-inch pipe with no voids. The grout form will be a minimum of 2-inches larger than the maximum diameter of the pipe.
- Tremie-grout 8-inch pipe from exposed opening in excavation. The tremie line will be inserted through the 8-inch pipe so that grout discharges into opposite (north) end inside of pipe (approximately 60 ft).
- Fill pipe with pre-calculated volume of USACE approved grout mixture (approx. 21 ft^3 or 0.8 yd^3). Sika 212 grout is available locally. Grout mixtures other than specified in USACE SOP will be pre-approved by the NYSDEC PM, prior to commencement of site work.
- Allow additional grout to fill constructed form to complete the grout plug.
- Record total volume of grout used to abandon pipe.
- Allow grout to cure in accordance with manufacturer's specifications.
- Backfill will be placed in loose lifts not to exceed 6-inches and compacted with a vibratory-plate compactor until the excavation conforms to the existing grade. The excavation and disturbed areas will be restored by seeding with grass and covering with straw.

3. ADDITIONAL INFORMATION

It is anticipated that the work for this assignment will begin May/June 2016. The actual project schedule will be determined by the NYSDEC.

As the work involves activity at an Inactive Hazardous Waste Site, all field personnel must have successfully completed the requisite OSHA HAZWOPER training.

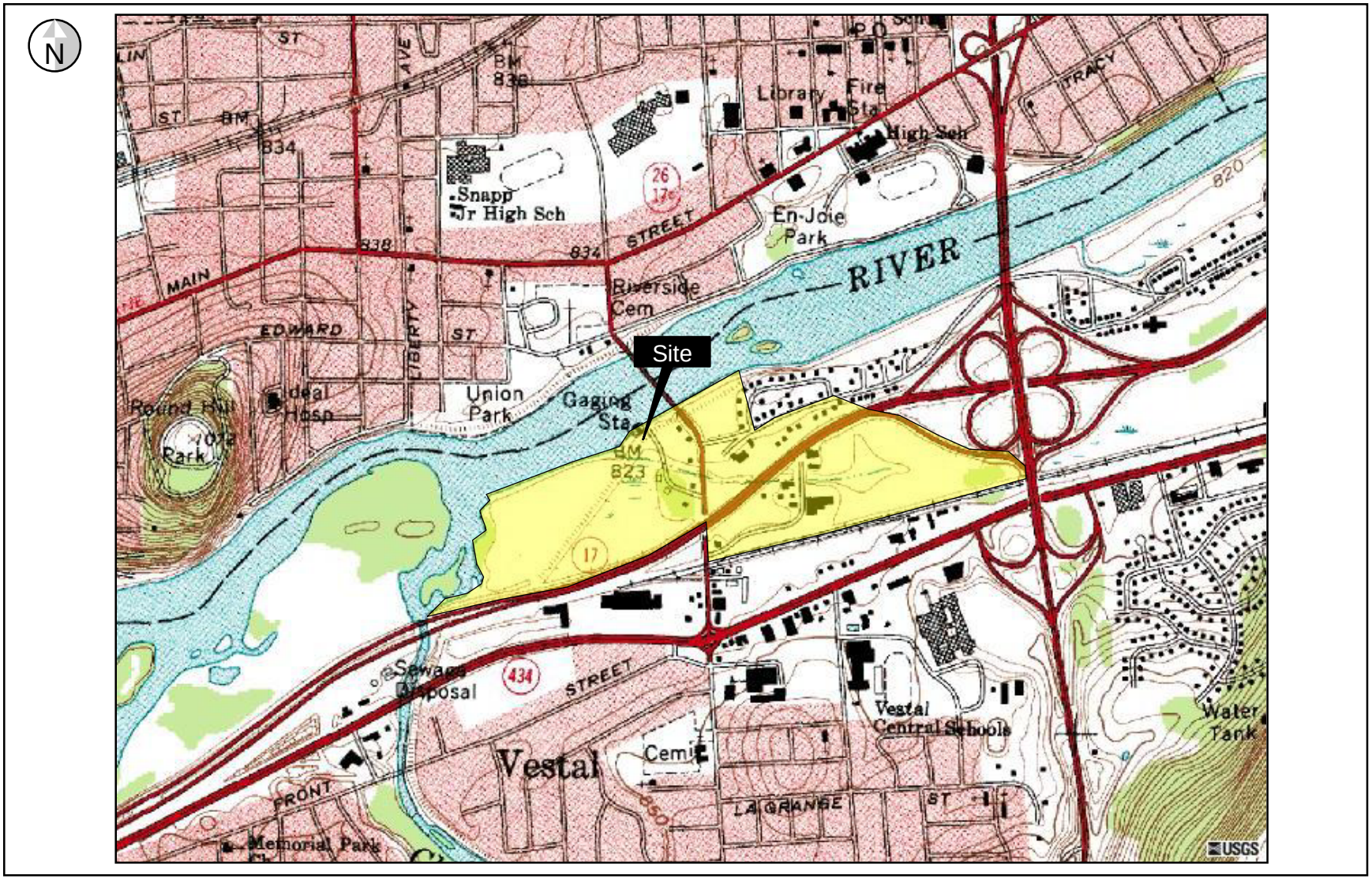
Arcadis and/or its subcontractors will provide photographs documenting all stages of work.

Arcadis and/or its subcontractors will provide specifications for all supplies/materials used during construction. Alternatives will not be used without prior approval from the NYSDEC PM.

ARCADIS

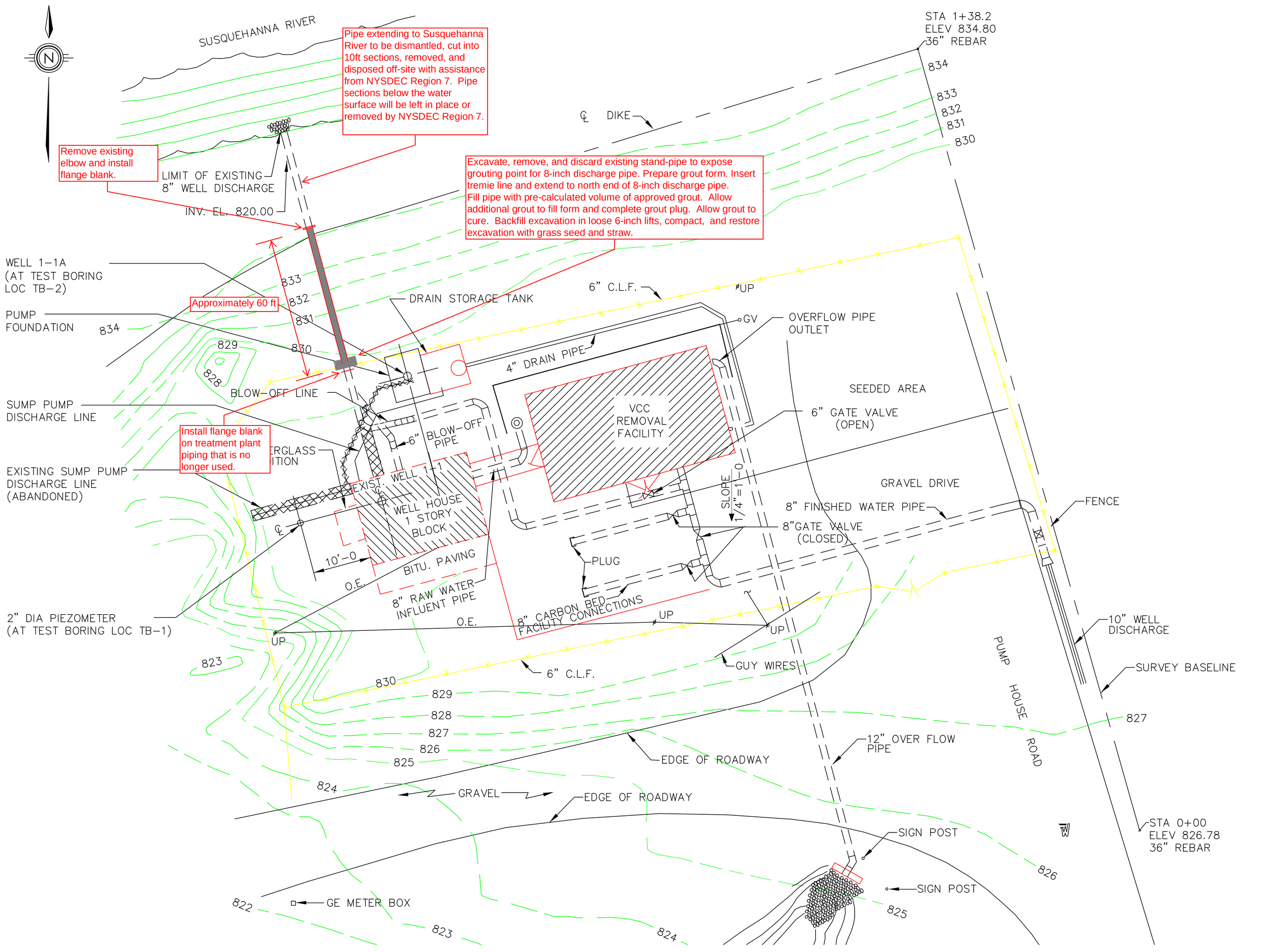
Figure 1
Site Location
Vestal Water Supply Site
Vestal, New York
NYSDEC Site # 7-04-009A

0 2,000 ft



Source: USGS 7.5-minute Series Topographic Quadrangle, Endicott (1988).

G:\project\00266401.0000\file\reports\Figure 2-1.ppt



SITE PLAN

20 0 20

SCALE IN FEET

THIS DRAWING PRODUCED ON AUTOCAD
DO NOT REVISE IT MANUALLY

U.S. ENVIRONMENTAL PROTECTION AGENCY

VESTAL WELL 1-1 SITE
BROOME COUNTY, VESTAL N.Y.

FIGURE 2

DETAILS OF BLOW-OFF (BY-PASS) PIPING TO WASTE

FOSTER WHEELER ENVIRONMENTAL CORPORATION
LYNDHURST, NEW JERSEY

CAD FILE NAME: VW-26964.DWG DATE: 2/7/96
PLOT SCALE: 1"=20' TIME: 8:04 AM

FWB3R12.DWG

STANDARD OPERATING PROCEDURE
TO
ABANDON AND SEAL AN EXISTING PIPE

Revised 15 September 2011

Abandonment and sealing of pipes requires a USACE Levee System Permit and appropriate project plans and specifications are submitted with the permit application. In addition to the normal Levee Safety Team permit review, USACE Hydraulics and Hydrology staff will review these permits to ensure that any permanent pipe abandonment does not create any adverse flooding conditions.

Procedures and specifications to abandon in place an existing pipe shall be as follows: The existing pipe shall be cleaned and completely filled with a shrinkage-compensating grout. Cleaning the pipe maximizes the potential for a good bond between the host pipe and grout. Small quantity applications shall meet the requirements of ASTM C-1107 such as SIKA 212, Edoco Grout or approved equal (see information below for the Specs on these products). Large quantity applications shall be filled using 3000 psi sanded grout with a shrinkage compensating admixture such as SIKA Intraplast N, BASF Tetraguard AS20, or approved equal. The pipe shall be completely filled and the quantity of grout required to fill the pipe should be determined in advance to equal the volume of the inside of the pipe for its full length between the inlet and outlet headwalls. Filling of the pipe should be monitored and inspected to ensure the pipe has been completely filled for its entire length .

Edoco Grout:
http://67.192.65.138/weavecmsresources//c_TechData_sheets/TDS_Edoco2/E_NFNSGrout_TDS.pdf

SikaGrout 212 Grout:
http://www.sikaconstruction.com/tds-cpd-SikaGrout212-us.pdf

Sika Intraplast-N:
http://www.sika.ca/con-tds-intraplastn-ca.pdf

BASF Tetraguard AS 20:
http://www.basf-admixtures.com/en/products/shrinkage_reducing/tetraguard_as20/Pages/default.aspx

Google earth

feet 1000
meters 300

BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
SPECIAL CONDITIONS
For Construction Activities on Federal Flood Control Projects

1. Prior to commencement of any work, (at least 15 days in advance of any excavation, drilling or levee restoration) on flood control lands, and immediately upon completion, written notice must be given to:

Mr. Joe Reed, P.E., CFM
Levee Safety Program Manager
ATTN: CENAB-EN-WE
U.S. Army Corps of Engineers
Baltimore District
10 South Howard Street
Baltimore, MD 21201
Ph. 410-962-4550
joseph.c.reed@usace.army.mil

And to;

Mr. Leon Skinner
Construction Control Rep.
U.S. Army Corps of Engineers
Whitney PointLake
P.O. Box 706
Whitney Point, NY 13862-0706
Ph. 607-692-3915

   Along with the written notice, the construction contractor's point of contact, and a schedule containing construction activities such as any excavation, drilling, levee restoration or backfilling on flood control lands shall be submitted. A Corps Representative will visit the site during excavation, backfilling and levee restoration activities.

2. Continuation of design during construction, such as horizontal drilling and micotunneling techniques, (installation data, calculations for the maximum allowable fluid pressures for the drilling mud & grout mixtures, determination of setback distances from the levee toe for entry pit, etc.), and changes to the approved construction project which would impact the integrity of the local flood control project shall be submitted to the above mentioned offices in section 1.

3. Underground utility lines of any type that cross the levee shall have markers placed on the surface to indicate location, type, and usage of the line.

4. The contractor must comply with applicable federal, state and local environmental regulations.

5. No equipment or materials may be stored or stockpiled within 15 feet of the levee toe, floodwall, or any other flood protection project features without prior consent from the Corps.

6. To the extent possible, access to flood protection project features shall not be impeded during construction. If access will be impeded, prior coordination and permission from the Corps is required.

7. Any damage to federal flood control structures resulting from this proposed construction shall be reported to the Corps representative for this project, and repaired to their satisfaction.

8. If approved excavations are made into the levee embankment, particularly the levee crest, then the contractor must submit an emergency plan for Corps approval that details how the levee embankment and top of protection will be restored in case of a flood. This plan shall include a list of emergency contacts, and explain the materials and procedures utilized. The contractor shall ensure that an adequate supply of materials, equipment, and personnel are available to temporarily restore the embankment to its required protection level until the flood threat has passed.

9. All disturbed areas shall be restored and flood control lands should be cleared of all materials and debris upon completion of work. Temporary sediment control features shall be removed. Newly seeded areas that are disturbed should be reseeded.

10. All facilities constructed on flood control lands shall be maintained by the facility owner.

11. After construction is complete, as-built drawings must be provided for any constructed facilities on flood control lands. Please provide 3 sets of half-size drawings and electronic files to Mr. Joe Reed. Digital photos of these facilities shall also be provided.

BALTIMORE DISTRICT
U.S. ARMY CORPS OF ENGINEERS
DESIGN & SPECIFICATION
GUIDELINES FOR UTILITY INSTALLATIONS
ON FLOOD CONTROL LANDS

November 2009

DESIGN GUIDELINES

Utility Crossings of Levees

1. Where there is an existing levee to be crossed by a pipeline or conduit which is less than 12 inches in diameter, it is desirable to have the line pass over the levee, rather than under or through it. The pipe or conduit should be flexible or provided with flexible couplings and the invert placed within 3 feet of the levee surface (see Figures 1 and 2).

2. In general, closed systems such as water, gas, electric, and telephone lines, and sanitary force mains are located over the levee for ease of access for maintenance and repair. Gravity lines, such as drainage culverts, sanitary and storm sewers, are placed through or beneath the levee with provisions for positive closure using slide gates in control manholes located on the riverside of the levee crown. Riprap should be placed on the riverside slope around the manhole for a distance of at least 5 feet. This riprap should be properly sized and underlain with an appropriate thickness of filter material. Storm sewers with outlet pipes emptying into the river also will include a flapgate, as a secondary closure.

3. The use of anti-seepage collars on pipes or conduits is not permitted.

4. Where pipes or conduits are to be constructed through or under a levee at a depth greater than 3 feet, an 18-inch thickness of drainage fill should be provided around the landside third of the pipe, regardless of the size and type of pipe to be used. For pipe installations within the levee foundation, the 18-inch annular thickness of drainage fill shall also be provided, to include a landside outlet through a blind drain to ground surface at the levee toe connection with pervious underseepage features, or through an annular drainage fill outlet to ground surface around a manhole structure (Figures 3 and 4).

5. Drainage fill shall consist of sand containing 10% to 30% passing the No. 50 sieve and 2% to 10% passing the No. 100 sieve.

6. The criteria given in paragraph 3 and 4 above are satisfactory for levees consisting of homogeneous impervious fill. Each permit request, however, will be treated on an individual basis to evaluate special conditions, particularly for zoned embankments or where relief wells or landside collector toe drains have been provided as underseepage protection.

7. In general, except for shallow cuts into the levee that can be backfilled quickly, a temporary cofferdam extending the full height of the flood protection is required for the protection of landward areas during construction. The proposed cofferdam scheme should be submitted to the Baltimore District Office at least 15 days before start of construction.

DESIGN GUIDELINES

Utility Excavations
Adjacent to Levees or Floodwalls

1. Where possible, excavations for utility lines running parallel to a levee or floodwall should be kept as far away from the levee or floodwall alignment as possible to eliminate the possibility of disturbing the flood control structure and/or altering foundation conditions near the levee toe, which could affect underseepage conditions.

2. All excavations extending below a projected slope of 1 vertical on 4 horizontal from either the landside or riverside levee toe (Figure 5) shall be tight sheeted, except as noted below (*), and braced as necessary as excavation proceeds, in accordance with the following:

a. Sheeting shall not be withdrawn, but shall be left in place, and cut off about 1 foot below ground surface as backfilling proceeds.

b. Open excavation shall be limited to no more than 100 feet in advance, and backfilling shall commence prior to any further excavation. Provisions shall be made to quickly and temporarily backfill the excavation on short notice in the event of high water during construction.

3. Shallow excavations not extending below the project 1V:4H slope shall be made by open cutting with side slopes no steeper than 1V:1.5H.

4. Backfill may consist of materials from required excavation, and placement shall conform to the requirements for density and moisture control as outlined in "Guide Specifications - Permits for Utility Crossings of Levees." All fill shall be placed in the dry and no fill shall be placed against frozen ground.

* NOTE: Excavations extending into the landward levee toe or on the landside of the levee shall be slightly open sheeted with minimum opening of 1/4 inch and maximum opening of 1 inch. Also, sheeting shall be cut off 6 inches below ground or levee surface. Pervious material shall be used as backfill, or as a minimum, used to provide a positive drain over a minimum width of 3 feet, adjacent to the sheeting closest to the levee extending from the pipe to the ground surface (see requirement for drainage fill, paragraph 6, of "Guide Specifications".)

GUIDE SPECIFICATIONS

Utility Crossings of Levees

Material Requirements & Construction Procedures for Impervious Embankment Construction at Levee Crossings

1. MATERIAL: Impervious embankment fill and backfill shall be reasonably well graded containing at least 25% passing the No. 200 mesh sieve and have a PI of at least 6. No organic or other undesirable materials such as frozen soil, ice, snow, etc., shall be permitted in the fill; however, material from required excavation may be used if the above criteria is satisfied. In addition, no stones or rock fragments greater than 2/3 the lift thickness shall be permitted in the fill.

2. EQUIPMENT:

2.1 Mechanical Tampers: Mechanical tampers shall be of the internal combustion or pavement breaker type operated by pneumatic pressure and having sufficient weight and striking power to produce the required compaction.

2.2 Tamping Rollers: Tamping rollers shall consist of one or more units. Each unit shall consist of a cylindrical drum not less than 48 inches in length and not less than 40 inches in diameter. The drums shall be water or sand and water ballasted. Each drum shall have staggered feet uniformly spaced over the cylindrical surface such as to provide approximately three tamping feet for each two square feet of drum surface. The tamping feet shall be 7 to 9 inches in clear projection from the cylindrical surface of the roller and shall have a face area of not less than 5 nor more than 7 square inches. The units shall be equipped with a suitable device for cleaning the feet. The rolling units of multi-type tamping rollers shall be pivoted on the main frame in a manner which will permit the units to adapt themselves to uneven ground surfaces and to rotate independently. The weight of the roller shall be not less than 1300 pounds per linear foot of drum length weighted, and shall be not more than 750 pounds per foot of drum length empty. The roller shall be self propelled or tractor drawn at a speed not to exceed 3.5 miles per hour.

3. EXCAVATION: Any excavation through the levee, its foundation or adjacent berms shall be made by open cutting with side slopes no steeper than 1 vertical on 1-1/2 horizontal.

4. DRAINAGE AND WATER DIVERSION: The excavation receiving fill and all partially completed fill shall be kept thoroughly drained. A temporary cofferdam extending the full height of the flood protection shall be employed for water diversion until construction of the levee embankment is completed.

5. EMBANKMENT CONSTRUCTION:

5.1 General: Materials shall be placed and spread in layers not exceeding 8 inches in thickness prior to compaction with heavy equipment and graded to provide satisfactory drainage during construction. All fill shall be placed in the dry. No fill shall be placed against frozen ground. Immediately prior to the placement of fill, the entire earth surface, including the excavated side slopes on or against which fill is to be placed, shall be scarified in a direction parallel to the centerline. This shall be done at the beginning of each backfill operation.

5.2 Moisture Control: The intent of these specifications is to obtain an embankment having the maximum density obtainable with the natural moisture content. Materials too wet or too dry should be conditioned by aerating or sprinkling before placing. The moisture content should generally not exceed the limits of plus or minus 2% above or below optimum as obtained by the Standard ASTM Compaction Test (Method D-698).

5.3 Compaction: When the moisture content and condition of the spread layers are satisfactory, each layer of fill shall be compacted by at least four passes of a tamping roller conforming to the requirement of paragraph 2.2. If the minimum number of passes does not produce densities of 95% of maximum obtained at optimum moisture content using the Standard ASTM Compaction Test cited in paragraph 5.2 above, then additional rolling shall be performed until the desired compaction is obtained. In inaccessible areas, and within 3 feet of concrete structures, the desired compaction shall be obtained through the use of mechanical tampers conforming to the requirements of paragraph 2.1. When employing mechanical tampers, the compacted lift thickness shall be restricted to 3 inches and each lift thoroughly compacted to the minimum density required above.

6. DRAINAGE BACKFILL:

6.1 Material: Drainage backfill required around structures shall be clean well-graded sand and gravel mixture containing between 5% and 20% on the No. 40 sieve and between 0% and 8% on the No. 200 sieve.

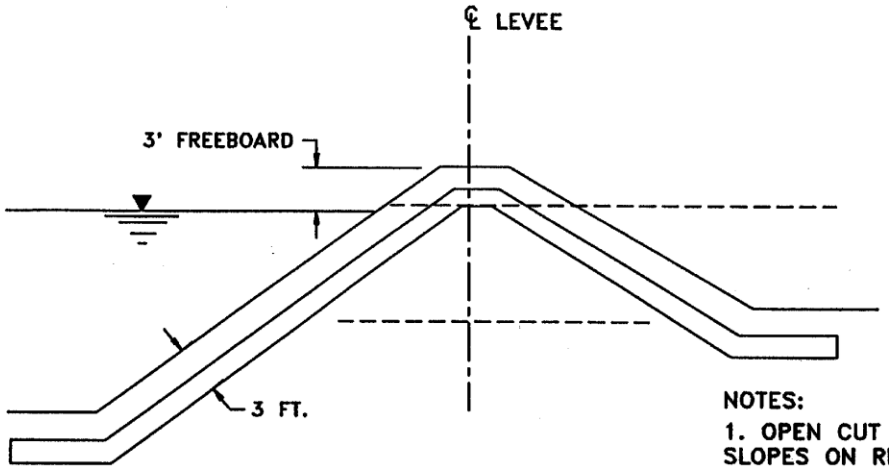
6.2 Placement: Drainage fill may be placed in 8-inch lifts without consideration to temperature and moisture requirements.

6.3 Compaction: Compaction shall be accomplished by at least four coverages with mechanical hand tampers.

7. LEVEE PROTECTION:

7.1 Vehicular Traffic: No vehicular traffic of any kind shall be allowed on the levee system of the project except that portion of the levee which is specifically involved in this contract work.

7.2 Levee Protection from Heavy Equipment: When necessary to move heavy equipment on or over the levee system, a protective blanket of granular fill material with a minimum thickness of 2 feet (1 foot for short durations) shall be placed and maintained in the immediate area of this movement. When such protective blanket is no longer required, it shall be carefully removed to maintain the underlying sod. The general area shall be regraded to its original section and reseeded where necessary.

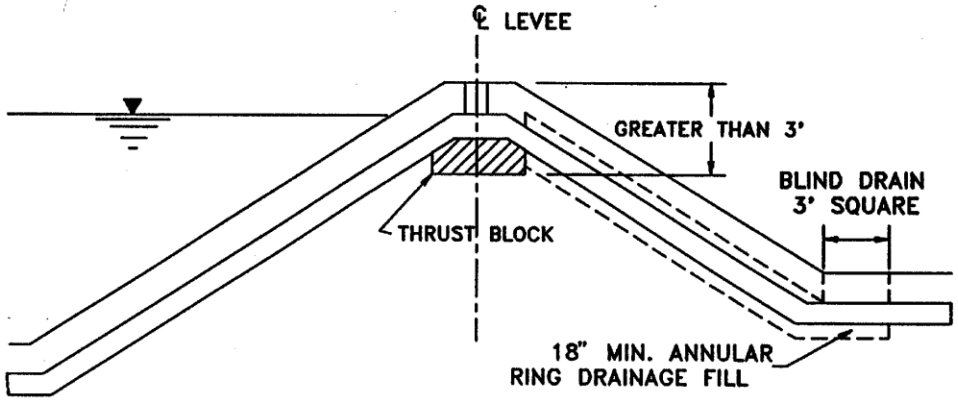


NOTES:

1. OPEN CUT 1 ON 1 1/2 SIDE SLOPES ON RIVERSIDE OF LEVEE AND ACROSS LEVEE CROWN
2. TRENCHING PERMITTED LANDWARD OF LEVEE CREST

SMALL PIPES OR CONDUITS

FIGURE – 1



NOTE:

OPEN CUT 1 ON 1 1/2 SIDE SLOPE BOTH RIVER AND LAND SIDE OF LEVEE

PRESSURE CONDUIT WITH THRUST BLOCK REQUIRING EXCAVATION BELOW FREEBOARD AT LEVEE CROWN

FIGURE – 2

NOT TO SCALE

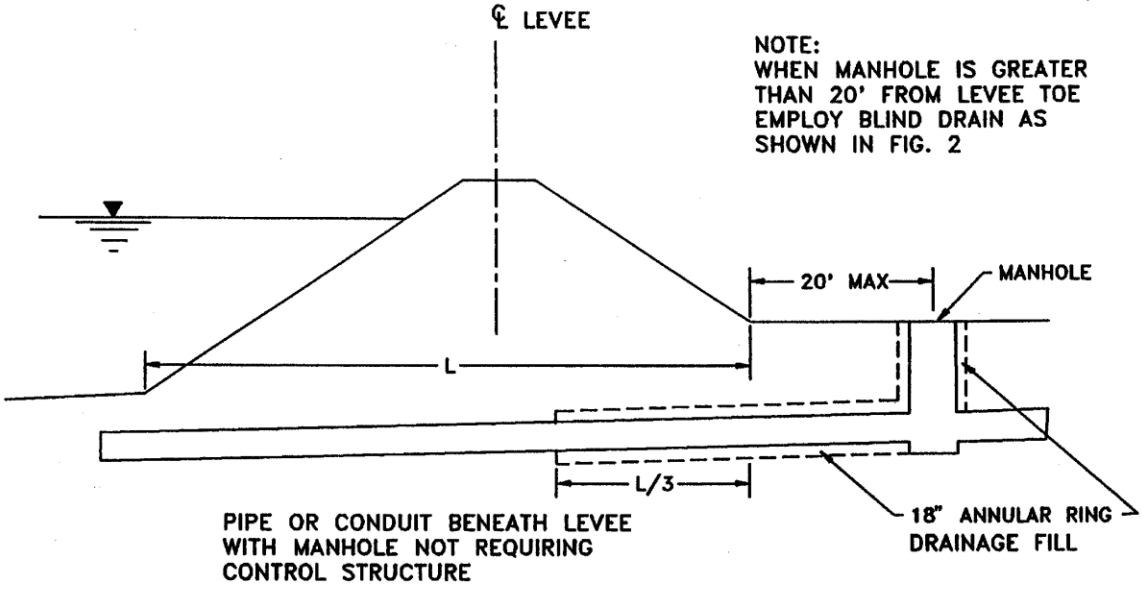


FIGURE – 3

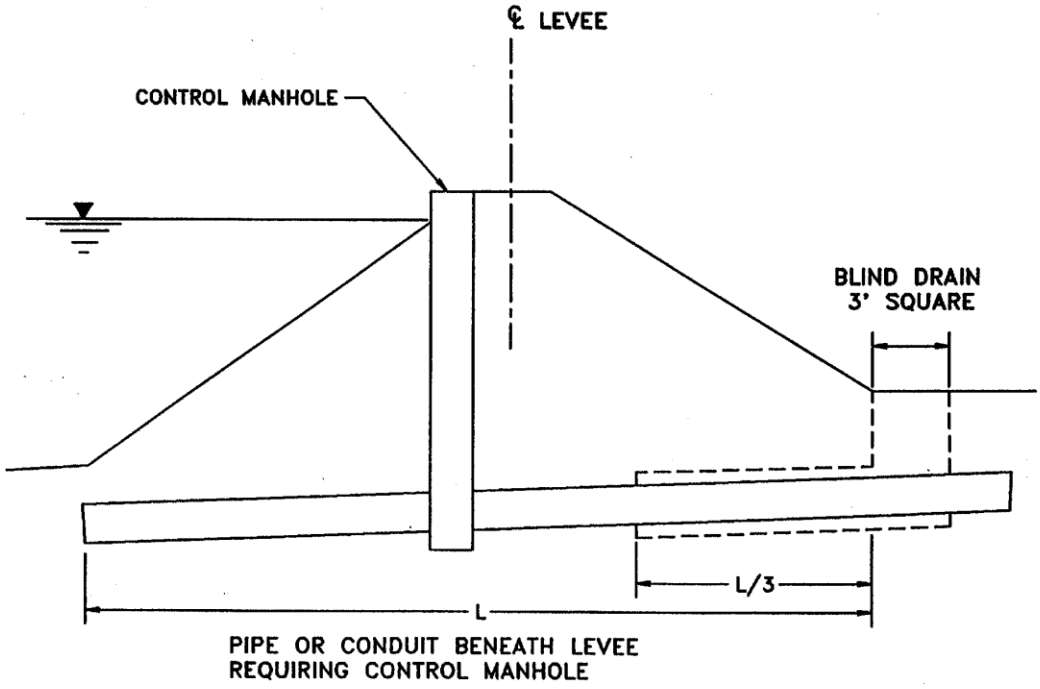


FIGURE – 4

NOT TO SCALE

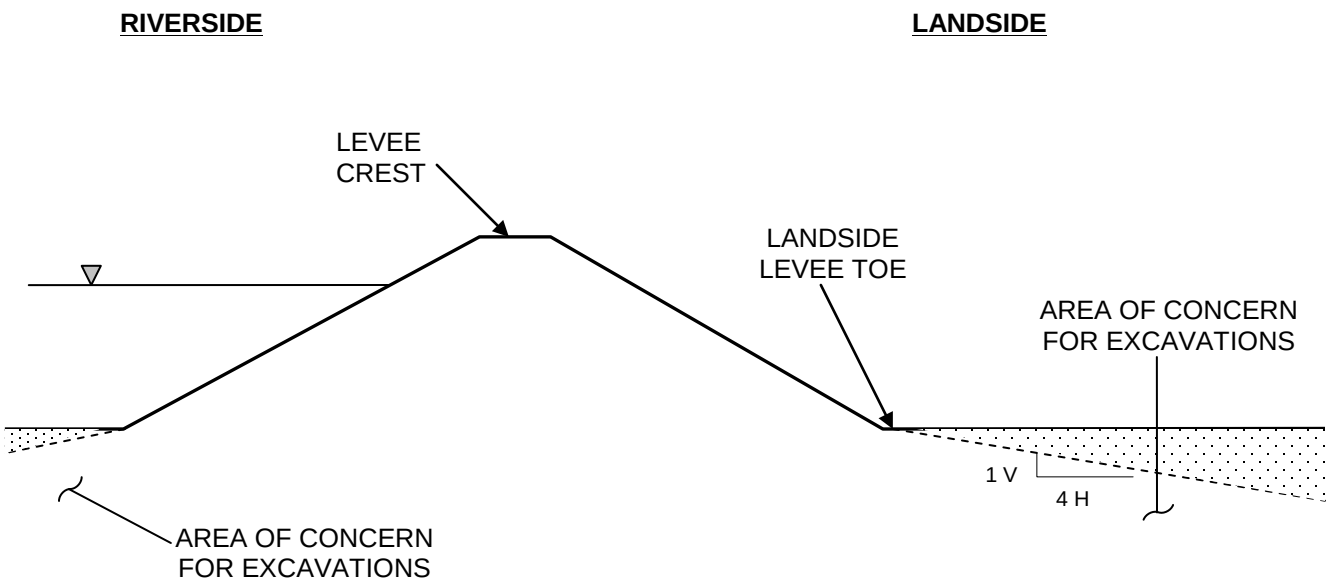

RIVERSIDE
LANDSIDE
LEVEE
CREST
LANDSIDE
LEVEE TOE
AREA OF CONCERN
FOR EXCAVATIONS
1 V
4 H
AREA OF CONCERN
FOR EXCAVATIONS

FIGURE 5