Attachment 1

1. Floodplain Management

The federal government's policy for controlling development in the floodplain is described in Executive Orders 11988 – *Floodplain Management* and 11990 – *Protection of Wetlands* and regulated through 44 CFR 9 *Floodplain Management and Protection of Wetlands.*

That *Stafford Act* explicitly dictates that FEMA will include, as the minimum net eligible cost to restore facilities, the costs associated with floodplain regulation compliance. Floodplain regulation compliance is a code-requirement – a requirement that must be met or a building permit cannot be issued by the local building official.

This procedure is created by national policy for floodplain management – control of development within a floodplain must be enforced where and when building permits are issued.

We believe that any federal grant obligation that does not comply with 44 CFR 9 *floodplain management* regulations is inconsistent with the *Stafford Act*, regulation and FEMA's Mitigation Policy. Our understanding and conclusions are not based upon on a single interpretation of fact – rather there is consistent support and application of these principles through a multitude of governing rules and requirements. We provide the following excerpts from a) law, b) regulation, c) policy, and d) program guidance for discussion and consideration.

a. Law

The Stafford Act, as amended, states that when calculating the eligible cost of permanent repairs, FEMA shall include the costs of floodplain management regulations: ***"shall, at a minimum, be treated as the net eligible cost of such repair, restoration, reconstruction, or replacement."***

The intent of Congress is clear – floodplain management compliance costs are eligible and must be considered as the part of the cost to repair to pre-disaster condition.

Stafford Act excerpt:

Sec. 406. Repair, Restoration, and Replacement of Damaged Facilities (42U.S.C. 5172)

(e) Net Eligible Cost –

(1) General Rule – For purposes of this section, **the cost of repairing,** restoring, reconstructing, or replacing a public facility or private nonprofit facility on the basis of the design of such facility as it existed

immediately prior to the major disaster and in conformity with current applicable codes, specifications, and standards (**including floodplain management** and hazard mitigation criteria required by the President or by the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.)) **shall, at a minimum, be treated as the net eligible cost of such repair, restoration, reconstruction, or replacement.**

(Emphasis added)

b. Regulation

The code of federal regulations requires that FEMA shall take no action unless the requirements of the floodplain management regulations are complied with. This is significant language that indicates the importance of floodplain policy and control of floodplains.

FEMA is required to review alternatives to funding actions in a floodplain. The subject project is located within a flood zone, can only be protected from flood via a massive structural flood wall and is subject to repetitive damage.

FEMA is required by regulation to 1) avoid development in the floodplain and support practicable alternatives and 2) promote the use of non structural methods to reduce flooding. The alternative provided via a relocation project meets these policy goals.

Rather than protect an existing facility that lies within a floodplain through the use of structural methods that are likely to negatively impact the environment – a practicable amount of funding can be applied to a new facility that is not in a floodplain.

44 CFR § 9.2 Floodplain Management Policy

(a) **FEMA shall take no action unless and until the requirements of this regulation are complied with.**

(b) It is the policy of the Agency to provide leadership in floodplain management and the protection of wetlands. Further, the Agency shall integrate the goals of the Orders to the greatest possible degree into its procedures for implementing NEPA. The Agency shall take action to:

(1) Avoid long- and short-term adverse impacts associated with the occupancy and modification of floodplains and the destruction and modification of wetlands;

(2) **Avoid direct and indirect support of floodplain development and new construction in wetlands wherever there is a practicable alternative;**

(3) Reduce the risk of flood loss;

(**4) Promote the use of nonstructural flood protection methods to reduce the risk of flood loss;**

(5) Minimize the impact of floods on human health, safety and welfare;

(6) Minimize the destruction, loss or degradation of wetlands;

(7) Restore and preserve the natural and beneficial values served by floodplains;

(8) Preserve and enhance the natural values of wetlands;

(9) Involve the public throughout the floodplain management and wetlands protection decision-making process;

(10) Adhere to the objectives of the Unified National Program for Floodplain Management; and

(11) Improve and coordinate the Agency's plans, programs, functions and resources so that the Nation may attain the widest range of beneficial uses of the environment without degradation or risk to health and safety.

44 CFR § 9.11* (d) *Minimization Standards.

The code listed here is the requirement to protect the flood-damaged critical facility to a 500-year level. This code requires the district's architect to evaluate the site and determine what method can protect and withstand hydrostatic pressures of flooding.

(3) *Elevation of structures.*

(i) **There shall be no new construction or substantial improvement of structures unless the lowest floor of the structures (including basement) is at or above the level of the base flood.**

(ii) There shall be no new construction or substantial improvement of structures involving a critical action unless the lowest floor of the structure (including the basement) is at or above the level of the 500-year flood.

(iii) **If the subject structure is nonresidential, FEMA may, instead of elevating the structure to the 100-year or 500-year level, as appropriate, approve the design of the structure and its attendant utility and sanitary facilities so that below the flood level the structure is water tight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.**

(Emphasis added)

44 CFR, § 60.3 Flood plain management criteria for flood-prone areas

The architect and local coded enforcement official are in agreement that a floodwall will meet the code – and therefore is eligible work.

(c) When the Federal Insurance Administrator has provided a notice of final flood elevations for one or more special flood hazard areas on the community's FIRM and, if appropriate, has designated other special flood hazard areas without base flood elevations on the community's FIRM, but has not identified a regulatory floodway or coastal high hazard area, the community shall:

(1) Require the standards of paragraph

(b) of this section within all A1– 30 zones, AE zones, A zones, AH zones, and AO zones, on the community's FIRM;

(2) Require that all new construction and substantial improvements of residential structures within Zones A1–30,AE and AH zones on the community's FIRM have the lowest floor (including basement) elevated to or above the base flood level, unless the community is granted an exception by the Federal Insurance Administrator for the allowance of basements in accordance with § 60.6 (b) or (c);

(3) Require that all new construction and substantial improvements of nonresidential structures within Zones A1– 30, AE and AH zones on the community's firm

(i) have the lowest floor (including basement) elevated to or above the base flood level or,

(ii) together with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;

(4) Provide that where a non-residential structure is intended to be made watertight below the base flood level,

(i) **a registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction** are in accordance with accepted standards of practice for meeting the applicable provisions of paragraph (c)(3)(ii) or (c)(8)(ii) of this section, and

(ii) a record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are flood proofed shall be maintained with the official designated by the community under § 59.22(a)(9)(iii);

c. Policy

FEMA policies, meant to clarify ambiguity in law or regulation, state that floodplain compliance is a code requirement and explains that it is NOT considered as part of hazard mitigation measures.

Hazard Mitigation Funding Under Section 406 (Stafford Act)
Disaster Assistance Policy 9526.1

V. Policy (e)

The cost of meeting applicable codes/standards in accordance with 44 CFR §206.226(d) Restoration of damaged facilities, **Standards and minimum National Flood Insurance Program requirements are regulatory requirements that are distinct from hazard mitigation.** Funding for these costs is considered separately.

(Emphasis added)

Construction Codes and Standards
Disaster Assistance Policy 9527.4

BACKGROUND:

The Stafford Act authorizes FEMA to fund the repair and restoration of eligible facilities damaged in a presidentially declared disaster. Section 406(e) of the Stafford Act requires that the cost of repair and restoration be "on the basis of the design of such facility as it existed immediately prior to the major disaster and **in conformity with current applicable codes, specifications and standards (including floodplain management** and hazard mitigation criteria required by the President or by the Coastal Barrier Resources Act (16 U.S.C. §3501 et seq.))…" (42 U.S.C. §5172(e)(1)).

(Emphasis added)

d. PROGRAM GUIDANCE

FEMA publications explain that FEMA must comply with floodplain management regulations by applying the 8-step process as described in 44CFR part 9.

FEMA Public Assistance Guide 322[1]:

…. FEMA must perform the 8-step process to determine if it is practicable to avoid restoration in the floodplain or wetland.

FEMA must perform floodplain management reviews for critical facilities located in any floodplain up to and including the 500-year floodplain.

[1] Pg 136

Attachment 2

HIGHLAND
ASSOCIATES

6/25/2012

Mr. James Mead

Code Enforcement Officer
Village of Owego
20 Elm Street
Owego, NY 13827

RE: Owego Apalachin Central School District - Administration Building
36 Talcott Street
Owego, NY 13827

Dear Mr. Mead,

On behalf of the Owego Apalachin Central School District (OACSD), I am writing to ask you to review and approve our evaluation of flood proofing measures proposed for the OACSD Administration Building.

The 10,500 square foot Administration Building, built in 1912, located at 36 Talcott Street in Owego New York, is a 2 story, non-combustible/combustible type of construction. (Type IIIB per NYSBC) the existing facility is a mixed use occupancy consisting of a "B" (Business) and A-3 (Assembly-Community Hall).

The Administration Building sustained damages in the flood of September 7 and 8, 2011. The estimated cost to repair the building to pre-disaster condition is $449,422 as per FEMA repair cost estimate[1]. The buildings current appraised value is $336,000[2]. The repair costs are 133.8% of the current appraised value. We believe this qualifies the building as a "substantially damaged" building under NFIP flood plain management regulations.

The existing finish first floor elevation is 812.2' (See attachment A for Certified Elevation Certificates). The entire building is within the flood zone and has a 100 year base flood elevation (B.F.E.) of 816.0'. Flood plain compliance will be required which is +2' above the B.F.E. (818.0'). Refer to Attachment B for flood map.

Finish Floor.....	812.2'
B.F.E.....	816.0'
Design Requirement (BFE + 2').....	818.0'
Flood Proofing Design Required.....	5.8'

The structure is partially constructed of CMU with a brick veneer. The majority of the building is constructed on a dry laid stone foundation. It is unknown if flood waters altered the structural integrity of foundations, footings and wall systems but it assumed some level of damage has occurred based on visual inspections. We do feel the building is safe and is not a concern form a structural standpoint. The building

[1] FEMA Project Worksheet 0C3DE97, CEF Total Project Summary, Part A
[2] Summary Appraisal Report of 36 Talcott Street, Owego, NY, by Congdon & Company Inc., dated 01/12/2012

Highland Center | 102 Highland Avenue | Clarks Summit, PA 18411 | (570) 586-4334 | fax(570) 586-5990 | www.highlandassociates.com

Donald Kalina, Director Dominic Provini, RA Kevin Smith, PE Gil Ben-Ami, PE Charles Consagra, AIA Dennis Dench, AIA Michael G Dench, AIA Michael Wolf, AIA
Thomas G Hauck, Jr., AIA Jeffrey Pencek, AIA M Bilal Hasan, PE William M. Flynn, AIA Teddy T Muliawan, PE Richard J Guditus, PE Glenn Leitch, AIA
Highland Associates, Ltd Architecture Engineering Interior Design Highland Associates Architecture Engineering Design, P.C

had no design features to prevent flood water intrusion. The water level within the building rapidly equalized to the level of external flooding thereby preventing large scale structural damage to the building.

In an effort to achieve floodplain compliance in accordance with FEMA Regulations[i], we have evaluated options to waterproof the structure. The existing buildings walls cannot support the lateral loading associated 5.8' of flood water against the exterior walls of the building. We have determined the only practical means of obtaining flood plain compliance would be to install a flood wall around the perimeter of the structure and back flow preventers on all service piping. Please refer to Attachment C for site drawing and flood wall design.

If you concur with our conclusion that: 1) the building is "substantially damaged" as defined by NFIP Floodplain Management regulations and 2) installing a flood wall and back flow preventers is the only practical means to obtain flood plain compliance, as mandated by NFIP requirements for "substantially damaged" buildings, please respond with a letter confirming your conclusions.

Should you have any questions, concerns or require additional information, please contact me.

Sincerely,

William Flynn, Principal, AIA, Highland Associates

cc: Dr. William Russell, Superintendent of Schools, Owego Apalachin Central School District

[i] Title 44 CFR, § 60.3 Flood plain management criteria for flood-prone areas,
(c) When the Federal Insurance Administrator has provided a notice of final flood elevations for one or more special flood hazard areas on the community's FIRM and, if appropriate, has designated other special flood hazard areas without base flood elevations on the community's FIRM ,but has not identified a regulatory floodway or coastal high hazard area, the community shall:
(1) Require the standards of paragraph (b) of this section within all A1– 30 zones, AE zones, A zones, AH zones, and AO zones, on the community's FIRM;
(2) Require that all new construction and substantial improvements of residential structures within Zones A1–30,AE and AH zones on the community's FIRM have the lowest floor (including basement) elevated to or above the base flood level, unless the community is granted an exception by the Federal Insurance Administrator for the allowance of basements in accordance with § 60.6 (b) or (c);
(3) Require that all new construction and substantial improvements of nonresidential structures within Zones A1– 30, AE and AH zones on the community's firm (i) have the lowest floor (including basement) elevated to or above the base flood level or, (ii) together with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
(4) Provide that where a non-residential structure is intended to be made watertight below the base flood level, (i) a registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting the applicable provisions of paragraph (c)(3)(ii) or (c)(8)(ii) of this section, and (ii) a record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are flood proofed shall be maintained with the official designated by the community under § 59.22(a)(9)(iii);

Attachment A

U.S. DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
National Flood Insurance Program

ELEVATION CERTIFICATE

OMB No. 1660-0008
Expires March 31, 2012

Important: Read the instructions on pages 1-9.

SECTION A - PROPERTY INFORMATION

For Insurance Company Use:
Policy Number
Company NAIC Number

A1. Building Owner's Name Owego Apalachin Central School District No. 1

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
36 Talcott Street
City Owego State NY ZIP Code 13827

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
Tax Parcel #: 117.19-2-27

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) Non-Residential

A5. Latitude/Longitude: Lat. 42.1103° Long. 76.2704° Horizontal Datum: ☐ NAD 1927 ☒ NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number 1

A8. For a building with a crawlspace or enclosure(s):
a) Square footage of crawlspace or enclosure(s) N/A sq ft
b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade N/A
c) Total net area of flood openings in A8.b N/A sq in
d) Engineered flood openings? ☐ Yes ☒ No

A9. For a building with an attached garage:
a) Square footage of attached garage N/A sq ft
b) No. of permanent flood openings in the attached garage within 1.0 foot above adjacent grade N/A
c) Total net area of flood openings in A9.b N/A sq in
d) Engineered flood openings? ☐ Yes ☒ No

SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number	B2. County Name	B3. State
Village of Owego 360840	Tioga County	New York

B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Panel Effective/Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use base flood depth)
0001	B	4/06/1973	5/16/1977	A-9, A-3	816.5

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9.
☐ FIS Profile ☒ FIRM ☐ Community Determined ☐ Other (Describe) ____

B11. Indicate elevation datum used for BFE in Item B9: ☒ NGVD 1929 ☐ NAVD 1988 ☐ Other (Describe) ____

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? ☐ Yes ☒ No
Designation Date ____ ☐ CBRS ☐ OPA

SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☐ Construction Drawings* ☐ Building Under Construction* ☒ Finished Construction
*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO. Complete Items C2.a-h below according to the building diagram specified in Item A7. Use the same datum as the BFE.
Benchmark Utilized U 138 Vertical Datum NGVD 1929
Conversion/Comments ____

			Check the measurement used.
a)	Top of bottom floor (including basement, crawlspace, or enclosure floor)	812.6	☒ feet ☐ meters (Puerto Rico only)
b)	Top of the next higher floor	823.7	☒ feet ☐ meters (Puerto Rico only)
c)	Bottom of the lowest horizontal structural member (V Zones only)	N/A	☐ feet ☐ meters (Puerto Rico only)
d)	Attached garage (top of slab)	N/A	☐ feet ☐ meters (Puerto Rico only)
e)	Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	813.1	☒ feet ☐ meters (Puerto Rico only)
f)	Lowest adjacent (finished) grade next to building (LAG)	812.3	☒ feet ☐ meters (Puerto Rico only)
g)	Highest adjacent (finished) grade next to building (HAG)	816.2	☒ feet ☐ meters (Puerto Rico only)
h)	Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	N/A	☐ feet ☐ meters (Puerto Rico only)

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. *I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*

☒ Check here if comments are provided on back of form. Were latitude and longitude in Section A provided by a licensed land surveyor? ☒ Yes ☐ No

Certifier's Name Scott E. Edsall License Number 49784

Title V.P. Company Name Williams & Edsall Land Surveyors, P.C.

Address 24 NYS Route 96 City Owego State NY ZIP Code 13827

Signature Scott E Edsall Date 2/6/12 Telephone 607-687-8953

Scott E. Edsall #49784 2/6/12

IMPORTANT: In these spaces, copy the corresponding information from Section A.	For Insurance Company Use:
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 36 Talcott Street	Policy Number
City Owego State NY ZIP Code 13827	Company NAIC Number

SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments C2.e) Furnace: 813.1'
Electrical Panel: 815.0'
Communication: 814.5'

* High Water (September 2011) = 817.2'

Signature Scott E Ebell Date 2/06/12

☐ Check here if attachments

SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1-E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1-E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.
b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ ☐ feet ☐ meters ☐ above or ☐ below the LAG.

E2. For Building Diagrams 6-9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8-9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E3. Attached garage (top of slab) is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E4. Top of platform of machinery and/or equipment servicing the building is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.

SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. *The statements in Sections A, B, and E are correct to the best of my knowledge.*

Property Owner's or Owner's Authorized Representative's Name

Address City State ZIP Code

Signature Date Telephone

Comments

☐ Check here if attachments

SECTION G - COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8 and G9.

G1. ☐ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4-G9) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate Of Compliance/Occupancy Issued

G7. This permit has been issued for: ☐ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ ☐ feet ☐ meters (PR) Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ ☐ feet ☐ meters (PR) Datum _____

G10. Community's design flood elevation _____ ☐ feet ☐ meters (PR) Datum _____

Local Official's Name Title

Community Name Telephone

Signature Date

Comments

☐ Check here if attachments

Building Photographs

See Instructions for Item A6.

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 36 Talcott Street	For Insurance Company Use: Policy Number
City Owego State NY ZIP Code 13827	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least two building photographs below according to the instructions for Item A6. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." If submitting more photographs than will fit on this page, use the Continuation Page on the reverse.

Front View

November 11, 2011

Building Photographs

Continuation Page

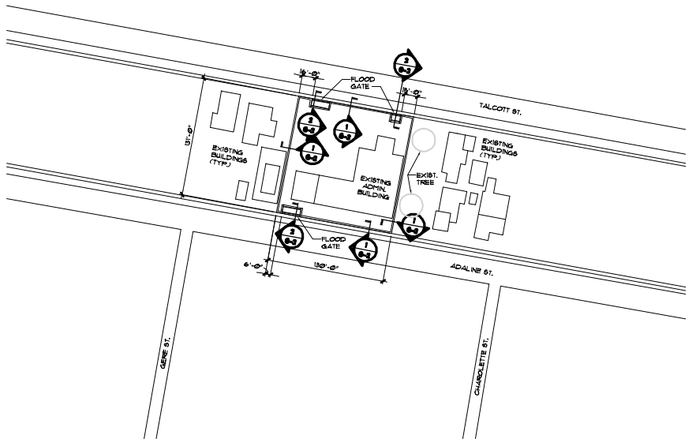
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.	For Insurance Company Use:
Talcott Street	Policy Number
City Owego State NY ZIP Code 13827	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View."

Rear View

November 11, 2011


Town of Tioga 360842
Village of Owego 360840
MAP SCALE 1" = 500'
0
500
1000
FEET
METER
SHELDON GUILE BOULEVARD
GLEN MARY DRIVE
CHRISTA MCAULIFFE DRIVE
BROWNS LANE
770000 FT
EECHER HILL ROAD
HILL STREET
GEORGE STREET
SPRUCE STREET
TALCOTT ST
ADALINE STREET
GERE STREET
NORTH AVENUE
MOUNTAIN
MCMASTER STREET
COMMERCE STREET
EAST AVENUE
ERIE ST
WEST AVENUE
CHARLOTTE STREET
DELPHINE STREET
COVE STREET
STATE ST
JOHN R ST
FOX STREET
S DEPOT STREET
CENTRAL AVE
CHESTNUT ST
SPENCER AV
Owego Creek
RAILROAD
NB0278
NB0280
FOUNDRY STREET
LIBERTY ST
CHURCH
JOINS PANEL 0381
817
818
816
814
813
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0382E
FIRM
FLOOD INSURANCE RATE MAP
for TIOGA COUNTY, NEW YORK (ALL JURISDICTIONS)
CONTAINS
COMMUNITY NUMBER
OWEGO, TOWN OF 360839
OWEGO, VILLAGE OF 360840
TIOGA, TOWN OF 360842
PANEL 382 OF 551
MAP SUFFIX: E
MAP NUMBER
36107C0382E
EFFECTIVE DATE
APRIL 17, 2012
Federal Emergency Management Agency
Attachment B
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

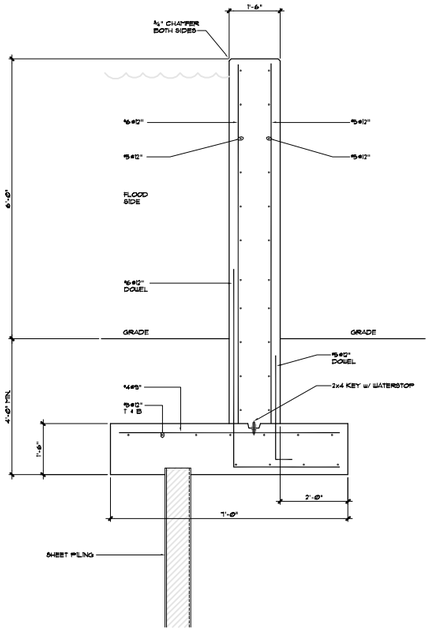


FLOOD WALL PLAN
SCALE: 1" = 50'

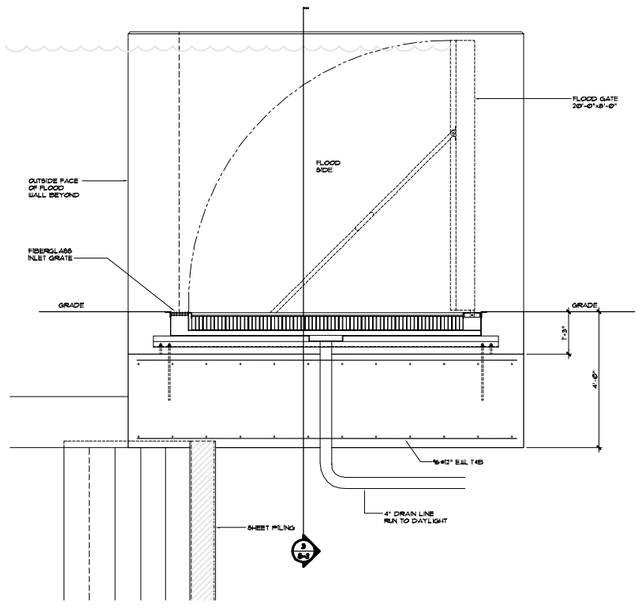
GENERAL NOTES

UNLESS OTHERWISE NOTED OR SHOWN ON PLAN, THE FOLLOWING NOTES SHALL APPLY:

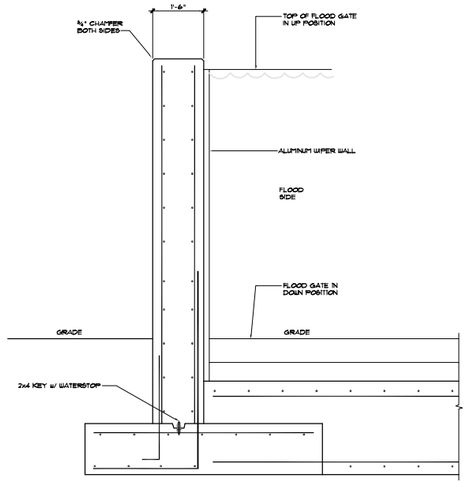
1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE ACI 318 (LATEST EDITION).
2. ALL POURED-IN-PLACE STONE CONCRETE SHALL DEVELOP A STRENGTH OF 3000 PSI AT 28 DAYS (U.O.N.).
3. ALL REINFORCEMENT SHALL BE DEFORMED BARS ASTM DESIGNATION A615, GRADE 60.
4. CONCRETE PROTECTION FOR REINFORCEMENT SHALL CONFORM TO LATEST A.C.I. SPECIFICATION.
5. ALL TEMPERATURE REINFORCING SHALL BE SUFFICIENTLY EMBEDDED TO DEVELOP FULL STRENGTH IN ALL CONCRETE WALLS AND SLABS.
6. PROVIDE ADEQUATE TIES FOR ALL REINFORCEMENT IN FOOTINGS AND WALLS. REINFORCEMENT TO BE HELD AT CORRECT DISTANCE FROM FORMS AND EARTH BY STEEL CHAIRS OR TIES.
7. FOLLOW C.R.S.I. RULES FOR PLACING OF ALL REINFORCING STEEL AND ACCESSORIES.
8. NO CONCRETE SHALL BE POURED UNTIL THE PRELIMINARY TESTS REQUIRED HAVE BEEN MADE, REPORTS THEREOF FILED WITH THE ENGINEER, AND APPROVED. THE CONTROLLED CONCRETE TO BE USED SHALL CONFORM TO THE APPROVED DESIGN MIX OBTAINED AS A RESULT OF THE PRELIMINARY TESTS. THE USE OF ANY ADDITIVES NOT PRESENT IN THE PRELIMINARY TEST MIX IS PROHIBITED.
9. REPRESENTATIVE TEST CYLINDERS WILL BE TAKEN FROM THE CONCRETE PLACED EACH DAY IN ACCORDANCE WITH CONCRETE SPECIFICATIONS.
10. THE CONTRACTOR SHALL COOPERATE WITH OTHER TRADES AND WHERE REQUIRED INSTALL ALL BUILT-IN WORK, SLEEVES, INSERTS, ETC. AS REQUIRED FOR A COMPLETE JOB.
11. ALL WALLS SHALL BE POURED FOR THEIR FULL DEPTHS IN ONE OPERATION. CONSTRUCTION JOINTS SUCH AS A DAY'S POUR JOINTS SHALL BE LOCATED BY THE CONTRACTOR. MAIN REINFORCING TO RUN THROUGH THE JOINT AND 2"X4" KEY. ROUGHEN JOINTS TO EXPOSE AGGREGATE FOR CHEMICAL BOND.
12. NO HORIZONTAL JOINTS SHALL BE PLACED IN WALLS.
13. ALL BACKFILL TO BE PLACED IN 6" LAYERS AND COMPACTED TO 95% OF MAXIMUM MODIFIED DENSITY.
14. FOOTINGS ARE DESIGNED FOR A SOIL BEARING PRESSURE OF 1.5 TONS PER SQUARE FOOT (3000 PSF.) DESIGN SOIL BEARING PRESSURE SHALL BE VERIFIED BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NEW YORK. NOTIFY E.O.R. OF ANY DISCREPANCIES.
15. MAXIMUM STEP OF FOOTINGS IF REQUIRED SHALL BE ONE VERTICALLY TO TWO HORIZONTALLY WHERE ELEVATIONS CHANGE.
16. LOCATIONS OF FOOTING STEPS SHOWN ON THE FOUNDATION PLAN ARE APPROXIMATE. GENERAL CONTRACTOR SHALL FIELD VERIFY EXACT GRADE LOCATIONS AROUND THE WALL AND LOCATE ANY FOOTING STEPS ACCORDINGLY. IN ORDER TO MAINTAIN A MINIMUM OF 4'-0" OF COVER AT ALL LOCATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
17. ELEVATION OF TOP OF FOOTINGS INDICATED THUS: (0'-0").
18. FOUNDATION EXCAVATIONS TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT. ALL SOFTENED OR OTHERWISE UNSUITABLE BEARING MATERIALS SHALL BE REMOVED AND REPLACED WITH LOAD-BEARING FILL OR WITH LEAN CONCRETE (1000 PSI).
19. ALL EXCAVATIONS SHALL BE KEPT DRY BY PUMPING UNTIL ALL UNDERGROUND CONSTRUCTION IS COMPLETE.
20. LOOSENED BEARING SOILS SHALL BE RECOMPACTED WITH A SMALL VIBRATORY PLATE COMPACTOR PRIOR TO PLACEMENT OF REINFORCING BARS.
21. FOUNDATION EXCAVATIONS SHALL BE CUT TO FINAL GRADE AND FOUNDATIONS CONSTRUCTED AS SOON AS POSSIBLE TO MINIMIZE POTENTIAL DAMAGE TO BEARING SOILS.
22. ALL BACKFILL SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF FOUNDATION WALLS UNTIL THE FINAL ELEVATION IS ACHIEVED. VARIATIONS SHALL NOT EXCEED 2'-0" BETWEEN BACKFILL ELEVATIONS ON EITHER SIDE WITHOUT ENGINEER'S APPROVAL.
23. THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS AND FOR THE SUPERIMPOSED LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, UNDERPINNING, ETC.
24. ALL SITE UTILITIES TO BE SURVEYED AND CLEARLY MARKED.
25. PROPERTY LINES TO BE SURVEYED AND CLEARLY MARKED.
26. A WATER REPELLANT ADMIXTURE, EITHER LIQUID OR POWDER, SHALL BE ADDED TO THE CONCRETE MIX (INTEGRAL WATERPELLER BY THE EUCLID CHEMICAL CO.) OR EQUAL.
27. SHEET PILING SIZE AND DEPTH TO BE VERIFIED BY A GEOTECHNICAL ENGINEER LICENSED BY THE STATE OF NEW YORK.
28. FLOOD GATES BY "FLOODBREAK" CONTACT MICHAEL J. EINSIDLER AT FLOODBREAK AUTOMATIC FLOOD GATES. PHONE NO. (716) 250-0978.



1 S-2 SECTION
SCALE: ¾" = 1'-0"



2 S-2 SECTION
SCALE: ¾" = 1'-0"



SEE SECTIONS 1 & 2 FOR REINFORCING AND DIMENSIONS

3 S-2 SECTION
SCALE: ¾" = 1'-0"

HIGHLAND ASSOCIATES
ARCHITECTURE | ENGINEERING | INTERIOR DESIGN
Highland Center (570) 586-4334
102 Highland Avenue fax(570) 586-3890
Clarks Summit, PA 18411
www.highlandassociates.com

REVISION NO:

Attachment C

ISSUED FOR PRICING
NOT FOR CONSTRUCTION

PROJECT TITLE:

Owego-Apalachin Central School District

Flood Remediation
Owego, New York

SEALS:

DRAWING TITLE:

FLOOD WALL PLAN
SECTIONS & DETAILS
GENERAL NOTES

DRAWN BY:	CHECKED BY:
J.T.J.	D.W.I.
DATE:	PROJECT NO:
11/16/11	2011-414

DRAWING NO:

S-2

CAD FILE: WW-02 PLOT DATE: 12/9/11

Attachment 3

FOUNDED 1787

Village of Owego

20 Elm Street

Owego, New York 13827

Office of the Mayor	607/687-1710	Village Police Dept.	607/687-2233
Village Clerk/Treas.	607/687-3555	FAX	607/687-2235
FAX	607/687-1787	Dept. of Public Works/Code	607/687-1101
Sewer Dept.	607/687-2282	FAX	607/687-1062
FAX	607/687-2344	Village Garage	607/687-1221

TO: Owego Apalachin Central School District Administration

DATE: July 24, 2012

RE: Owego Apalachin Central School District - Flood Proofing

To Whom It May Concern;

After reviewing the reports by Highland Associates on the flood proofing measures for the Owego Apalachin School bus garage/storage building, administration building and the maintenance building, it is our opinion that the conclusion that flood walls around the three separate properties is the only practical means of flood proofing compliance.

Having said that, the Village of Owego feels that the best true remediation of the structures is to demolish and remove all three structures.

Sincerely,

Jeffery J. Soules
Superintendent of Public Works

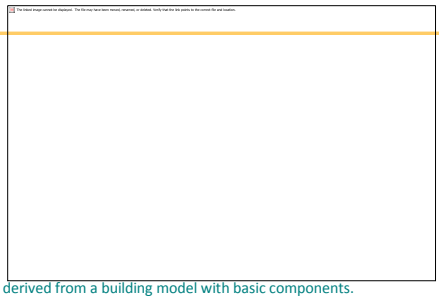
Attachment 4


360839
Allen Glen Cr
ZONE AE
Owego Creek
GLEN MARY D
824
823
822
821
820
819
818
817
816
96
BALLOU ROAD
Dam
MILL ROCK ROAD
Huntington Creek
Existing School
Proposed location of Administration Building
DEAN STREET
Town of Tioga 360842
Village of Owego 360840
SHELDON GUILE BOULEVARD
GLEN MARY DRIVE
CHRISTA MCAULIFFE DRIVE
BROWNS LANE
GEORGE STREET
HILL STREET
SPRUCE STREET
TALCOTT ST
ADALINE STREET
GERE STREET
NORTH AVENUE
MOUNTAIN ROAD
PROSPECT ST
GREEN STR
MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0382E
FIRM
FLOOD INSURANCE RATE MAP
for TIOGA COUNTY, NEW YORK
(ALL JURISDICTIONS)
CONTAINS:
COMMUNITY NUMBER
OWEGO, TOWN OF 360839
OWEGO, VILLAGE OF 360840
TIOGA, TOWN OF 360842
PANEL 382 OF 551
MAP SUFFIX: E
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
36107C0382E
EFFECTIVE DATE
APRIL 17, 2012
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Attachment 5

Square Foot Cost Estimate Report

Estimate Name:	**Owego CSD - Admin Building**
Building Type:	**Office, 2-4 Story with Face Brick with Concrete Block Back-up / Wood Joists**
Location:	**OWEGO, NY**
Story Count:	**2**
Story Height (L.F.):	**12**
Floor Area (S.F.):	**10,500**
Labor Type:	**Union**
Basement Included:	**No**
Data Release:	**Year 2011 Quarter 4**
Cost Per Square Foot:	**$240.35**
Building Cost:	**$2,523,670**



Costs are derived from a building model with basic components.

Scope differences and market conditions can cause costs to vary significantly.

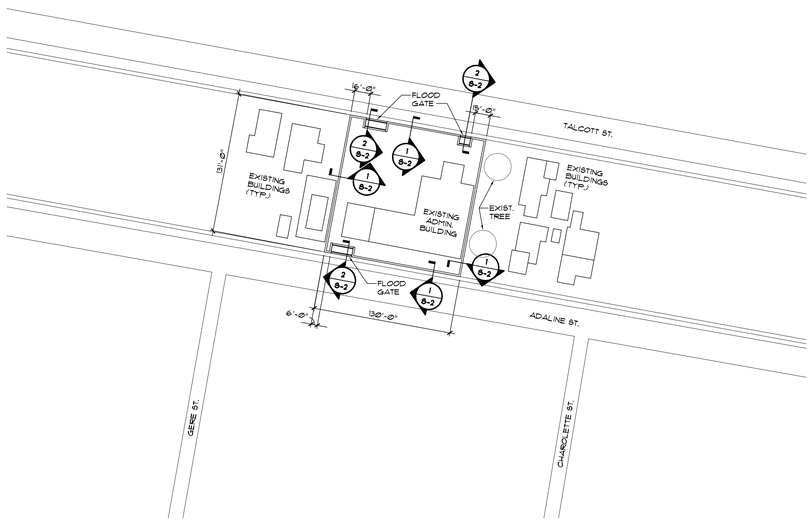
		% of Total	Cost Per S.F.	Cost
A Substructure		**4.25%**	**$7.57**	**$79,500**
A1010	**Standard Foundations** Strip footing, concrete, reinforced, load 11.1 KLF, soil bearing capacity 6 KSF, 12" deep x 24" wide Spread footings, 3000 PSI concrete, load 200K, soil bearing capacity 6 KSF, 6' - 0" square x 20" deep Spread footings, 3000 PSI concrete, load 300K, soil bearing capacity 6 KSF, 7' - 6" square x 25" deep		**$2.67**	**$28,000**
A1030	**Slab on Grade** Slab on grade, 4" thick, non industrial, reinforced		**$2.38**	**$25,000**
A2010	**Basement Excavation** Excavate and fill, 10,000 SF, 4' deep, sand gravel, or common earth, on site storage		**$0.14**	**$1,500**
A2020	**Basement Walls** Foundation wall, CIP, 4' wall height, direct chute, .099 CY/LF, 4.8 PLF, 8" thick Foundation wall, CIP, 4' wall height, direct chute, .148 CY/LF, 7.2 PLF, 12" thick		**$2.38**	**$25,000**
B Shell		**36.84%**	**$65.60**	**$688,750**
B1010	**Floor Construction** Wood column, 8" x 8", 20' x 20' bay, 10' unsupported height, 133 BF/MSF, 160 PSF total allowable load joists @ 16", 20'x20' bay, 75 PSF LL, 102 PSF total load		**$11.24**	**$118,000**
B1020	**Roof Construction** Wood roof, flat rafter, 2" x 12", 16" O.C.		**$1.90**	**$20,000**
B2010	**Exterior Walls** Brick wall, composite double wythe, standard face/CMU back-up, 8" thick, perlite core fill		**$32.00**	**$336,000**
B2020	**Exterior Windows** Windows, aluminum, insulated glass, 4'-5" x 5'-3"		**$9.50**	**$99,750**
B2030	**Exterior Doors** Door, aluminum & glass, with transom, narrow stile, double door, hardware, 6'-0" x 10'-0" opening Door, aluminum & glass, with transom, bronze finish, hardware, 3'-0" x 10'-0" opening		**$0.95**	**$10,000**

	Door, steel 18 gauge, hollow metal, 1 door with frame, no label, 3'-0" x 7'-0" opening			
B3010	**Roof Coverings**		**$10.00**	**$105,000**
	EPDM w/ insulation			
	Roof edges, aluminum, duranodic, .050" thick, 6" face			
	Flashing, aluminum, no backing sides, .019"			
C Interiors		**22.28%**	**$39.66**	**$416,430**
C1010	**Partitions**		**$15.00**	**$157,500**
	Metal partition, 5/8" water resistant gypsum board face, no base layer, 3-5/8" @ 24" OC framing ,same opposite face, no insulation			
	1/2" fire rated gypsum board, taped & finished, painted on metal furring			
C1020	**Interior Doors**		**$5.00**	**$52,500**
	Door, single leaf, kd steel frame, hollow metal, commercial quality, flush, 3'-0" x 7'-0" x 1-3/8"			
C1030	**Fittings**		**$1.45**	**$15,225**
	Toilet partitions, cubicles, ceiling hung, plastic laminate & Accessories			
C2010	**Stair Construction**		**$1.19**	**$12,495**
	Stairs, wood, prefab box type, oak treads, wood rails 3'-6" wide, 14 risers			
C3010	**Wall Finishes**		**$3.50**	**$36,750**
	Painting, interior on plaster and drywall, walls & ceilings, roller work, primer & 2 coats			
	Cermic Wall Tile			
C3020	**Floor Finishes**		**$7.62**	**$80,010**
	Carpet, tufted, nylon, roll goods, 12' wide, 36 oz			
	Carpet, padding, add to above, minimum			
	Vinyl, composition tile, maximum			
	Tile, ceramic natural clay			
C3030	**Ceiling Finishes**		**$5.90**	**$61,950**
	Acoustic ceilings, 3/4"mineral fiber, 2' x 4' tile, concealed 2" bar & channel grid, suspended support			
	PTD GWB Ceilings in Toilet Rooms			
D Services		**36.63%**	**$65.21**	**$684,705**
D1010	**Elevators and Lifts**		**$12.38**	**$130,000**
	Hydraulic passenger elevator, 3000 lb, 3 floors,12' story height, 2 car group,125 FPM			
D2010	**Plumbing Fixtures**		**$5.00**	**$52,500**
	Water closet, vitreous china, bowl only with flush valve, wall hung			
	Urinal, vitreous china, wall hung			
	Lavatory w/trim, vanity top, PE on CI, 20" x 18"			
	Service sink w/trim, PE on CI,wall hung w/rim guard, 24" x 20"			
	Water cooler, electric, wall hung, 8.2 GPH			
	Water cooler, electric, wall hung, wheelchair type, 7.5 GPH			
D2020	**Domestic Water Distribution**		**$2.50**	**$26,250**
	Gas fired water heater, commercial, 100< F rise, 100 MBH input, 91 GPH			
D2040	**Rain Water Drainage**		**$1.50**	**$15,750**

	Roof drain, CI, soil,single hub, 4" diam, 10' high			
	Roof drain, CI, soil,single hub, 4" diam, for each additional foot add			
	Under Floor Drainage		$2.67	$28,000
D3050	**Terminal & Package Units**		$15.52	$163,000
	Rooftop, multizone, air conditioner, offices, 25,000 SF, 79.16 ton			
D4010	**Sprinklers**		$3.29	$34,500
	Wet pipe sprinkler systems, steel, light hazard, 1 floor, 5000 SF			
	Wet pipe sprinkler systems, steel, light hazard, each additional floor, 5000 SF			
	Standard High Rise Accessory Package 3 story			
D4020	**Standpipes**		$0.81	$8,500
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, 1 floor			
	Wet standpipe risers, class III, steel, black, sch 40, 4" diam pipe, additional floors			
D5010	**Electrical Service/Distribution**		$3.81	$40,005
	Service installation, includes breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 V, 600 A			
D5020	**Lighting and Branch Wiring**		$11.52	$120,950
	Receptacles incl plate, box, conduit, wire, 16.5 per 1000 SF, 2.0			
	Miscellaneous power, 1.2 watts			
	Central air conditioning power, 4 watts			
	Motor installation, three phase, 460 V, 15 HP motor size			
	Fluorescent fixtures recess mounted in ceiling, 1.6 watt per SF, 40 FC, 10 fixtures @32watt per 1000 SF			
D5030	**Communications and Security**		$5.71	$60,000
	Telephone wiring for offices & laboratories, 8 jacks/MSF			
	Communication and alarm systems, fire detection, addressable, 50 detectors, includes outlets, boxes, conduit and wire			
	Fire alarm command center, addressable with voice, excl. wire & conduit			
D5090	**Other Electrical Systems**		$0.50	$5,250
	Generator sets, w/battery, charger, muffler and transfer switch, Diesel , 3 phase, 4 wire, 277/480 V, 7.5 kW			
E Equipment & Furnishings		**0.00%**	**$0.00**	**$0**
E1090	**Other Equipment**		**$0.00**	**$0**
F Special Construction		**0.00%**	**$0.00**	**$0**
G Building Sitework		**0.00%**	**$0.00**	**$0**
SubTotal		**100%**	**$178.04**	**$1,869,385**
Contractor Fees (General Conditions,Overhead,Profit)		**25.00%**	**$44.51**	**$467,346**
Architectural Fees		**8.00%**	**$17.80**	**$186,938**

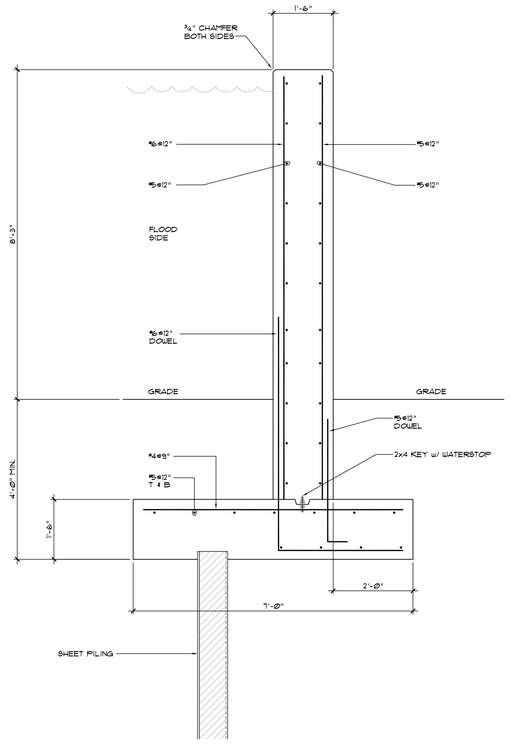
User Fees	**0.00%**	**$0.00**	**$0**
Total Building Cost		**$240.35**	**$2,523,670**

Attachment 6a

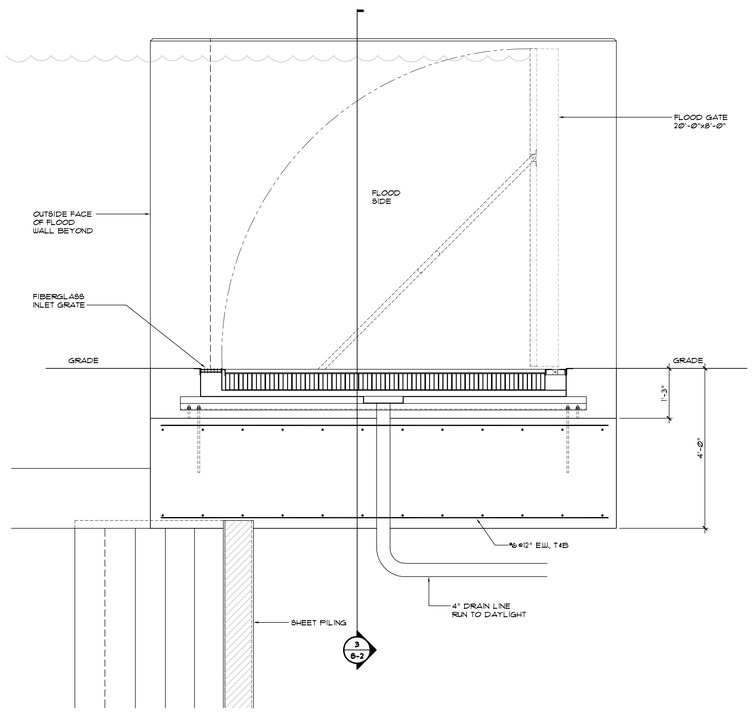


NORTH

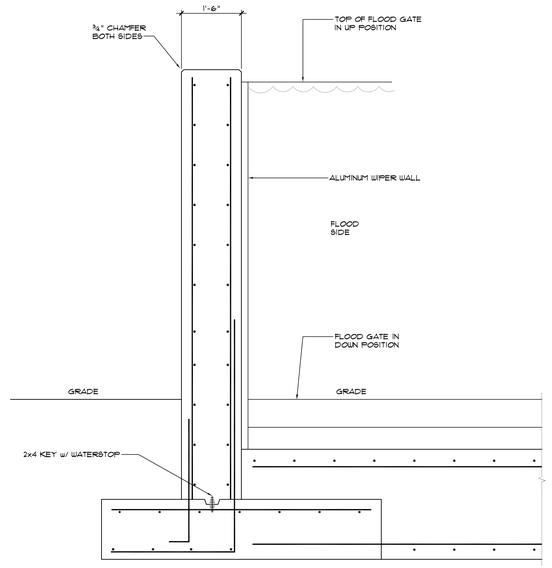
FLOOD WALL PLAN
SCALE: 1" = 50'



1 B-2 SECTION
SCALE: ¾" = 1'-0"



2 B-2 SECTION
SCALE: ¾" = 1'-0"



SEE SECTIONS 1 & 2 FOR REINFORCING AND DIMENSIONS

3 B-2 SECTION
SCALE: ¾" = 1'-0"

GENERAL NOTES

UNLESS OTHERWISE NOTED OR SHOWN ON PLAN, THE FOLLOWING NOTES SHALL APPLY:

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE ACI 318 (LATEST EDITION).
2. ALL POURED-IN-PLACE STONE CONCRETE SHALL DEVELOP A STRENGTH OF 3000 PSI AT 28 DAYS (U.O.N.).
3. ALL REINFORCEMENT SHALL BE DEFORMED BARS ASTM DESIGNATION A615, GRADE 60.
4. CONCRETE PROTECTION FOR REINFORCEMENT SHALL CONFORM TO LATEST A.C.I. SPECIFICATION.
5. ALL TEMPERATURE REINFORCING SHALL BE SUFFICIENTLY EMBEDDED TO DEVELOP FULL STRENGTH IN ALL CONCRETE WALLS AND SLABS.
6. PROVIDE ADEQUATE TIES FOR ALL REINFORCEMENT IN FOOTINGS AND WALLS. REINFORCEMENT TO BE HELD AT CORRECT DISTANCE FROM FORMS AND EARTH BY STEEL CHAIRS OR TIES.
7. FOLLOW C.R.S.I. RULES FOR PLACING OF ALL REINFORCING STEEL AND ACCESSORIES.
8. NO CONCRETE SHALL BE POURED UNTIL THE PRELIMINARY TESTS REQUIRED HAVE BEEN MADE, REPORTS THEREOF FILED WITH THE ENGINEER, AND APPROVED. THE CONTROLLED CONCRETE TO BE USED SHALL CONFORM TO THE APPROVED DESIGN MIX OBTAINED AS A RESULT OF THE PRELIMINARY TESTS. THE USE OF ANY ADDITIVES NOT PRESENT IN THE PRELIMINARY TEST MIX IS PROHIBITED.
9. REPRESENTATIVE TEST CYLINDERS WILL BE TAKEN FROM THE CONCRETE PLACED EACH DAY IN ACCORDANCE WITH CONCRETE SPECIFICATIONS.
10. THIS CONTRACTOR SHALL COOPERATE WITH OTHER TRADES AND WHERE REQUIRED INSTALL ALL BUILT-IN WORK, SLEEVES, INSERTS, ETC. AS REQUIRED FOR A COMPLETE JOB.
11. ALL WALLS SHALL BE POURED FOR THEIR FULL DEPTHS IN ONE OPERATION. CONSTRUCTION JOINTS SUCH AS A DAY'S POUR JOINTS SHALL BE LOCATED BY THE CONTRACTOR. MAIN REINFORCING TO RUN THROUGH THE JOINT AND 2"x4" KEY. ROUGHEN JOINTS TO EXPOSE AGGREGATE FOR CHEMICAL BOND.
12. NO HORIZONTAL JOINTS SHALL BE PLACED IN WALLS.
13. ALL BACKFILL TO BE PLACED IN 6" LAYERS AND COMPACTED TO 95% OF MAXIMUM MODIFIED DENSITY.
14. FOOTINGS ARE DESIGNED FOR A SOIL BEARING PRESSURE OF 15 TONS PER SQUARE FOOT (3000 PSF.) DESIGN SOIL BEARING PRESSURE SHALL BE VERIFIED BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NEW YORK. NOTIFY E.O.R. OF ANY DISCREPANCIES.
15. MAXIMUM STEP OF FOOTINGS IF REQUIRED SHALL BE ONE VERTICALLY TO TWO HORIZONTALLY WHERE ELEVATIONS CHANGE.
16. LOCATIONS OF FOOTING STEPS SHOWN ON THE FOUNDATION PLAN ARE APPROXIMATE. GENERAL CONTRACTOR SHALL FIELD VERIFY EXACT GRADE LOCATIONS AROUND THE WALL AND LOCATE ANY FOOTING STEPS ACCORDINGLY, IN ORDER TO MAINTAIN A MINIMUM OF 4'-0" OF COVER AT ALL LOCATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
17. ELEVATION OF TOP OF FOOTINGS INDICATED THUS: (0'-0").
18. FOUNDATION EXCAVATIONS TO BE INSPECTED BY GEOTCHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT. ALL SOFTENED OR OTHERWISE UNSUITABLE BEARING MATERIALS SHALL BE REMOVED AND REPLACED WITH LOAD-BEARING FILL OR WITH LEAN CONCRETE (2000 PSI.).
19. ALL EXCAVATIONS SHALL BE KEPT DRY BY PUMPING UNTIL ALL UNDERGROUND CONSTRUCTION IS COMPLETE.
20. LOOSENED BEARING SOILS SHALL BE RECOMPACTED WITH A SMALL VIBRATORY PLATE COMPACTOR PRIOR TO PLACEMENT OF REINFORCING BARS.
21. FOUNDATION EXCAVATIONS SHALL BE CUT TO FINAL GRADE AND FOUNDATIONS CONSTRUCTED AS SOON AS POSSIBLE TO MINIMIZE POTENTIAL DAMAGE TO BEARING SOILS.
22. ALL BACKFILL SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF FOUNDATION WALLS UNTIL THE FINAL ELEVATION IS ACHIEVED. VARIATIONS SHALL NOT EXCEED 2'-0" BETWEEN BACKFILL ELEVATIONS ON EITHER SIDE WITHOUT ENGINEER'S APPROVAL.
23. THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS AND FOR THE SUPERIMPOSED LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, UNDERPINNING, ETC.
24. ALL SITE UTILITIES TO BE SURVEYED AND CLEARLY MARKED.
25. PROPERTY LINES TO BE SURVEYED AND CLEARLY MARKED.
26. A WATER REPELLANT ADMIXTURE, EITHER LIQUID OR POUDER, SHALL BE ADDED TO THE CONCRETE MIX, (INTEGRAL WATERPELLER BY THE EUCLID CHEMICAL CO.) OR EQUAL.
27. SHEET PILING SIZE AND DEPTH TO BE VERIFIED BY A GEOTECHNICAL ENGINEER LICENSED BY THE STATE OF NEW YORK.
28. FLOOD GATES BY "FLOODBREAK", CONTACT MICHAEL J. EINSIDLER AT FLOODBREAK AUTOMATIC FLOOD GATES. PHONE NO. (516) 250-0698.

HIGHLAND ASSOCIATES

Architecture
Highland Center
(570) 586-4334

Engineering
102 Highland Avenue
fax(570) 586-5990

Interior Design
Clarks Summit, PA 18411
www.highlandassociates.com

REVISION NO:

ISSUED FOR PRICING
NOT FOR CONSTRUCTION

PROJECT TITLE:

Owego-Apalachin Central School District

Flood Study
Owego, New York

SEALS:

DRAWING TITLE:

FLOOD WALL PLAN
SECTIONS & DETAILS
GENERAL NOTES

DRAWN BY:	CHECKED BY:
J.T.J.	D.W.J.
DATE:	PROJECT NO:
11/16/11	2011-414

DRAWING NO:

S-2

CAD FILE: 1414-S2 PLOT DATE: 1/3/12

Attachment 6b

Owego CSD - Flood Assessment
Flood Wall / Barrier
Administration Building
2/6/2012

Concrete Wall	**lnft**	**height**	**thickness**	**volume**	**volume**	**$ / cy**	**$**	
Wall (incl formwork, reinf)	625 ft	11 ft	2 ft	10,078 cf	373 cy	$ 425.00	$ 158,637	
Footing (incl formwork, reinf)	625 ft	2 ft	7 ft	6,563 cf	243 cy	$ 325.00	$ 78,993	
Excavation	625 ft	4 ft	7 ft	17,500 cf	648 cy	$ 30.00	$ 19,444	
Backfill	625 ft	3 ft	6 ft	8,594 cf	318 cy	$ 20.00	$ 6,366	
							$ 263,440	**$421.50 / lf**

Sheet Piling	**lnft**	**height**	**area**	**$ /sf**	**$**	
Sheet Piling	625 ft	28 ft	17,500 sf	$ 48.00	$ 840,000	
					$ 840,000	**$1,344.00 / lf**

Flood Gates & Utilities	**Quantity**	**$ / unit**	**$**
Flood Gate, 20'0" x 8'0" (Floodbreak)	2 ea	$ 250,000	$ 500,000
4" Drain Line (incl excv / backfill)	200 ft	$ 20.00	$ 4,000
Backflow Preventer	5 ea	$ 4,000.00	$ 20,000
Sitework Modifications (landscaping/pavement)	1 ls	$ 25,000.00	$ 25,000
Existing Utility Modification	1 ls	$ 7,500.00	$ 7,500
			$ 556,500

	Total	**$ 1,659,940**