

outfalls from the surrounding developments have contributed to instability and rapid erosion of the streambanks. Existing conditions facilitate high velocity flows that will eventually cause failure of the sewer line and continue the dangerous loss of residential property.

PROPOSED WORK:

- The current proposal is for the installation of approximately 1,040 linear feet x 10 feet wide (0.24 acre) of articulating concrete block mat lining with hollow cores to repair the tributary's eroded headwater reach located at Stations 0+00 through 10+40. Headcuts are scattered throughout the reach, ranging from 1-5 foot drops at the upper reaches to 10-12 foot drops as the stream nears Marian Drive (Sheets 3, 8-23, 48-49). This headwater area collects water from "back-to-back" residential developments into channels of various widths that exhibit unstable, incised banks. Installation of the articulating concrete block mats will require filling eroded and head cut areas to grade for installation. The 20% voids between blocks will allow for the establishment of both natural and planted vegetation along the channel bottom. Note that in 2000, the City installed mesh netting along the reach in order to maintain a more natural character of the channel. However, flow velocities and further erosion have dislodged the structures, rendering them non-functional.
 - A portion of the stream located at approximately Station 0+00 through Station 7+00 exhibits ephemeral stream characteristics. Stormwater discharges from adjacent residential streets enter the channel along this reach. At approximately Station 7+00, the stream becomes intermittent for the remainder of the project area. (Sheets 3, 8-19)
- Replace 300 linear feet of existing 30-inch and 60-inch piping with 300 linear feet of 72-inch pipe. (Sheets 3, 23-29)
- Installation of 360 linear feet of new 72-inch pipe to connect with the 300 linear feet of replacement pipe described above (Stations 10+40 – 13+40). This area has been eroded to a deep gully-like channel approximately 15-20 feet deep, with trees and residential lawn areas literally sliding down the slope. At approximately Station 15+00, an existing sanitary sewer line is totally exposed with approximately 3-5 feet of eroded channel under the pipe. (Sheets 3, 29-34)
 - Installation of new aluminized corrugated metal pipe is proposed in this severe erosion area because physical constraints, existing easements, and close proximity of existing residential structures do not allow room to establish stable bank slopes.
- Replacement of an existing 100-foot long 60-inch culvert with a 100-foot long 72-inch culvert that extends under the Indian Ridge Apartment entrance road Stations 17+00-18+00) (Sheets 3, 33-35). The inlet fills with medium to large stone carried down the eroded channel, reducing flow capacity. Periodically, flow overtops the entrance road, causing further hazard to residents. The proposed pipe is designed to pass the 100-year 24-hour storm event.
- Replace a 17-foot long 18-inch diameter culvert outlet near station 24+57 and install approximately 100 cubic yards of riprap for scour protection (Sheet 3, 37).

- Install three 126-inch storm manhole structures (STMH) between Stations 11+00 – 15+00 are proposed with drops as much as 6 feet in order to flatten the pipe runs and dissipate energy throughout the section. (Sheets 3, 5, 27-34, 50)
- Replace concrete headwall at Station 28+06 and install 24-inch A-Jacks Concrete Armor Units (16-foot wide x 20-foot long) for scour protection and energy dissipation. (Sheets 3, 38-39, 51-52)
- Repair the headwall to protect an existing 60-inch culvert outlet at Station 28+52 (Sheets 3, 38-39, 51-52). This culvert carries stormwater from Dellapenna Drive and outfalls on the bank of the main tributary channel and was installed to carry a sanitary sewer main crossing above the channel invert. Approximately 50 feet of stream was previously piped under the sewer main. New concrete headwalls with apron and turndown are proposed on the inlet and outlet side to increase efficiency and protect the inlet. In addition, 24-inch A-Jacks Concrete Armor Units (16-foot wide x 20-foot long) will be installed for scour protection, energy dissipation and protection of the culvert outlet.

Summary:

- 1,040 linear feet 10,040 square feet articulating concrete block = 0.24 acre
- 300 linear feet new 72-inch diameter pipe (.15 acre)
- 360 linear feet replacement 72-inch diameter pipe (.11 acre)
- 100 linear feet pipe replacement 72-inch diameter pipe (0.05 acre)
- 17 linear feet replacement 18-inch diameter pipe (0.005 acre)
- 50 linear feet of existing 60-inch diameter pipe (0.007 acre) that did not receive previous written authorization
- 1,580 square feet of various – headwall, A-Jacks Concrete Armor Units, riprap (.04 acre)

- The project will result in approximately 0.6 acre of permanent impact.
- The entire stream reach within the project area is approximately 2,850 linear feet. The stream channel will be concrete lined or piped for approximately 1,850 linear feet.

PROJECT PURPOSE:

Basic: Erosion Control

Overall: Improve water quality and protect private property on tributary between Penna Road and Tokas Grove Road.

Avoidance and Minimization Information:

Alternatives for Headwater Area Stations 0+00 to Station 10+42 (Penna Avenue to Marian Drive)

Alternative 1: Do Nothing. This alternative would not address 1) the origin for the continued loss of private property into the gully-like stream channel; 2) personal safety issues to residents; 3) protection for the exposed sanitary sewer line; 3) water quality concerns caused by the substantial sediment load to downstream waters (Choconut Creek); 4) dissipating/controlling destructive flow velocities.

Alternative 2: Install flexible fabric erosion control matting in the headwater area. This method was tried in 2000 and failed several years later due to the high headwater velocities during storm events that dislodged and undercut the structures.

Alternative 3: Install hollow core articulating concrete matting system which will withstand high stream velocities. This is a semi-rigid lining with hollow cores that will allow natural vegetation to develop and which will be supplemented with plantings within the core hollows. This is the preferred alternative.

Alternatives Stations 0+40 to Station 18+07 (Marian Drive to Indian Ridge Apartment Entrance Driveway)

Alternative 1: Do Nothing. This alternative would not address 1) the continued loss of private property into the gully-like stream channel; 2) personal safety issues to residents; 3) protection for the exposed sanitary sewer line; 3) water quality concerns caused by the substantial sediment load to downstream waters (Choconut Creek); 4) dissipating/controlling destructive flow velocities.

Alternative 2: Provide improvements to the locations exhibiting the most severe erosion and protect the sanitary sewer line. If the entire section is not addressed as a whole, the spot improvements will stabilize the local area, but will transfer stream energy to other areas of the section, moving the erosion problem to new locations.

Alternative 3: Pipe the entire section. This alternative will address erosion along the entire reach, including protection of the sanitary sewer and protection and restoration of property loss. Energy dissipation can be controlled with the use of drop structures (STMH) and placement of an energy dissipation system (A-Jacks Concrete Armor Units) at pipe outlets downstream. This is the preferred alternative.

Alternatives Lower Section Station 28+06 Sanitary Sewer Crossing, repair 18-inch culvert outlet

Alternative 1: Do Nothing. This alternative will not protect the outlet end of the pipe. Further erosion will occur, eventually undermining enough of the pipe to cause collapse, resulting in the discharge of raw sewage into the stream.

Alternative 2: Install a new concrete headwall and an energy dissipation system. This alternative will repair the existing damage to the pipe outlet and prevent future erosion. Replacing the damaged 18-inch pipe outlet protection from erosion will stabilize both the pipe and outlet. This is the preferred alternative.

Proposed Mitigation: No additional compensatory mitigation has been proposed for the loss of approximately 1800 linear feet of open stream channel. The improvements gained from the proposed project include reduction/prevention of what is estimated to be thousands of cubic yards of sediment to downstream waters and protection of two sanitary sewer lines that have been compromised by severe erosion. The gully-like banks are highly unstable and do not allow establishment of natural vegetation. Given the residential property constraints, there is no opportunity to conduct restoration activities to try to establish streambank integrity, such as changing the slope, planting buffers, integrating bio-engineering, etc. The stream is located between Reynolds Road and the back yards of the housing developments between Penna Road

and Tokas Grove Road. Early second-growth trees have re-established in the adjacent area that acts as a visual/noise shield between Reynolds Road and residential areas.

The ephemeral/intermittent tributary provides limited wildlife habitat; it does not support fish, and the gully-like channel and steep slopes likely impede accessibility to the channel by mammals for uses such as corridor travel or drinking pools. Movement of aquatic organisms is currently impeded due to the various existing culverts and concrete energy dissipater already in place at approximately Station 13+50. Although the majority of the project area is adjacent to maintained lawns, some second growth forested areas will be cut in order to conduct work activities. This may have a minor impact on use by avian species, but the surrounding area will remain forested and the impacted areas will be restored and replanted.

The tributary functions primarily for the conveyance of stormwater from surrounding roads and housing developments. Piping the stream would facilitate safer and less damaging stormwater management by controlling velocity and sediment load.

Location and details of the above described work are shown on the attached maps and drawings.

Comments or questions pertaining to the work described in this notice should be reference the Application Number and be directed to the attention of **Judy Robinson** who can be contacted at the above address, by calling **(315) 704-0255**, or by e-mail at: **judy.a.robinson@usace.army.mil**. A lack of response will be interpreted as meaning that there is no objection to the work as proposed.

The following authorization is required for this project:

Water Quality Certification (WQC) (or waiver thereof) from the New York State Department of Environmental Conservation (NYSDEC). WQC was issued by the NYSDEC on June 21, 2012 (Permit No. 7-0346-00181/00001).

The project permit area, as shown on Sheet 3 of 53, is not mapped as an archaeologically sensitive area as identified by the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) and does not contain any known properties listed in, or eligible for listing in, the National Register of Historic Places. Further, the proposed work will occur within a stream channel with active erosion and deposition. Due to the scope of the work proposed, the USACE has determined that the project will have No Effect on historic resources listed in, or eligible for listing in the National Register of Historic Places. This notice constitutes initiation of consultation with the NYSOPRHP per Section 106 of the National Historic Preservation Act and the USACE hereby requests the NYSOPRHP to concur with this determination. All currently available historic resource information pertaining to this proposed project, if any, has been provided to the NYSOPRHP. Additional information concerning historic properties should be submitted to the USACE before the end of the comment period of this notice. The USACE will forward that information to the NYSOPRHP for their review.

Available evidence indicates that the proposed work will not affect a species proposed or designated by the U.S. Department of the Interior as threatened or endangered, or will it affect the critical habitat of any such species. There are no species listed as protected pursuant to the Endangered Species Act in Broome County, New York, and therefore the USACE is not consulting with the U.S. Fish and Wildlife Service beyond this Public Notice.

This notice is promulgated in accordance with Title 33, Code of Federal Regulations, parts 320-330. Any interested party desiring to comment on the work described herein may do so by submitting their comments, in writing, so that they are received no later than 4:30 pm on the expiration date of this notice.

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. All written comments will be made a part of the administrative record which is available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any individual may request a public hearing by submitting their written request, stating the specific reasons for holding a hearing, in the same manner and time period as other comments.

Public hearings for the purposes of the Corps permit program will be held when the District Commander determines he can obtain additional information, not available in written comments, that will aid him in the decision making process for this application. A Corps hearing is not a source of information for the general public, nor a forum for the resolution of issues or conflicting points of view (witnesses are not sworn and cross examination is prohibited). Hearings will not be held to obtain information on issues unrelated to the work requiring a permit, such as property ownership, neighbor disputes, or the behavior or actions of the public or applicant on upland property not regulated by the Department of the Army. Information obtained from a public hearing is given no greater weight than that obtained from written comments. Therefore, you should not fail to make timely written comments because a hearing might be held.

The decision to approve or deny this permit request will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people.

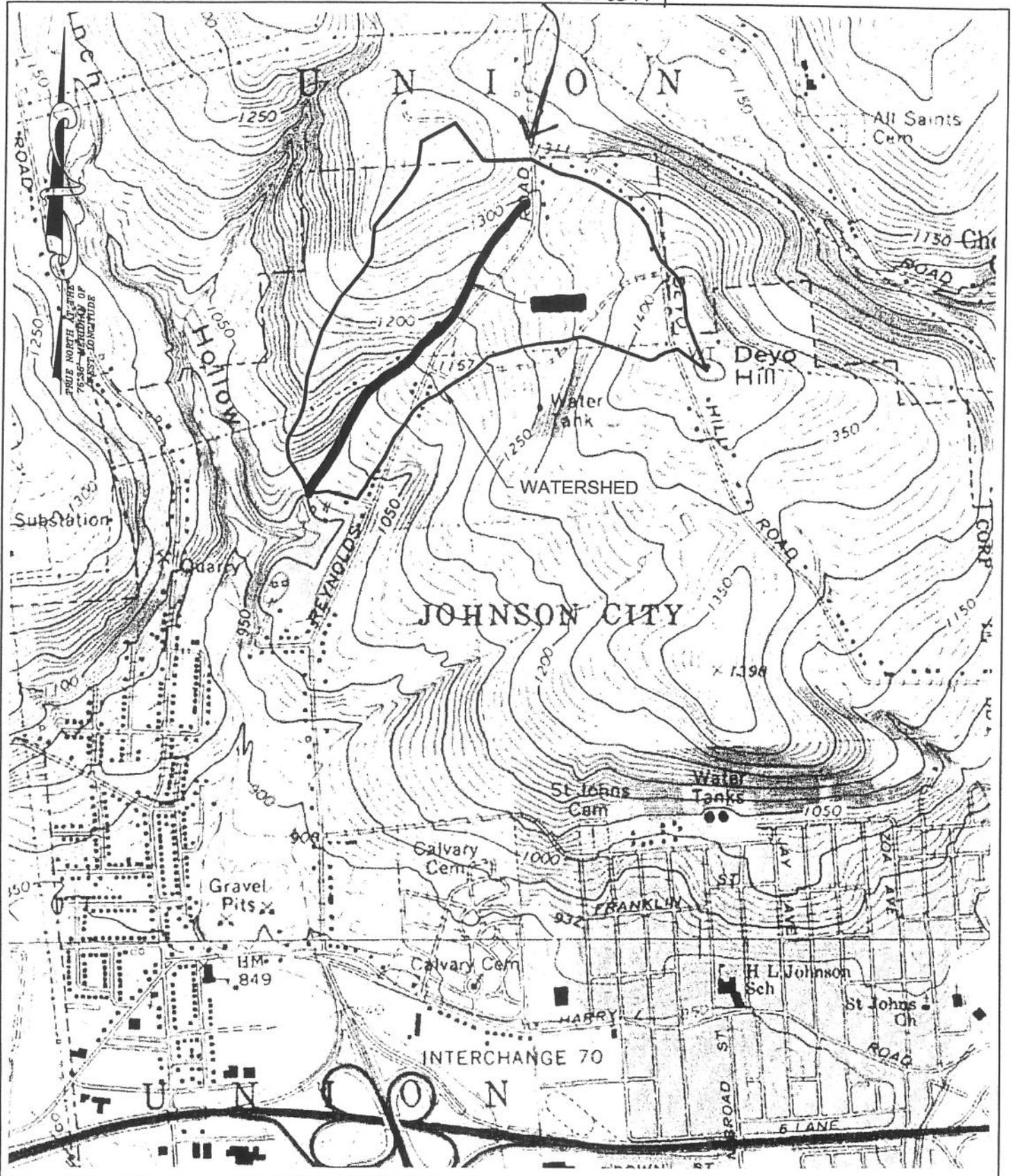
The Corps of Engineers is soliciting comments from the public; Federal, state and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

SIGNED

Diane C. Kozlowski
Chief, Regulatory Branch

NOTICE TO POSTMASTER: It is requested that this notice be posted continuously and conspicuously for 15 days from the date of issuance.

Stream



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 ARCHITECTS, ENGINEERS AND SURVEYORS, LLC

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VILLAGE OF JOHNSON CITY
DRAINAGE STUDY
 VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
 Broome County, New York
 Quad: Castle Creek, NY



DRAINAGE SWALE AND DITCH REHABILITATION

REYNOLDS ROAD

VILLAGE OF JOHNSON CITY

COUNTY OF BROOME

STATE OF NEW YORK

* ORIGINAL CONSTRUCTION PLAN SET REDUCED TO 8.5x11 FOR PERMIT ATTACHMENTS.
THE FOLLOWING INDEX REFERENCES ORIGINAL SHEET NUMBERS.

INDEX OF DRAWINGS

SHEET	TITLE
C010	EXISTING CONDITIONS PLAN
C100	OVERALL SITE PLAN
C200	PLAN AND PROFILE STATIONS 0+00 - 5+50
C210	PLAN AND PROFILE STATIONS 5+50 - 11+50
C220	PLAN AND PROFILE STATIONS 11+50 - 17+50
C230	PLAN AND PROFILE STATIONS 17+50 - 23+50
C240	PLAN AND PROFILE STATIONS 23+50 - 29+50
C250	PLAN AND PROFILE STATIONS 29+50 - 34+78
C300	CROSS SECTIONS STATIONS 0+00 - 17+00
C310	CROSS SECTIONS STATIONS 17+50 - 34+50
C400	EROSION AND SEDIMENT CONTROL PLAN
C410	EROSION AND SEDIMENT CONTROL DETAILS
C500	SITE DETAILS
C510	SITE DETAILS

DRAWINGS PREPARED BY



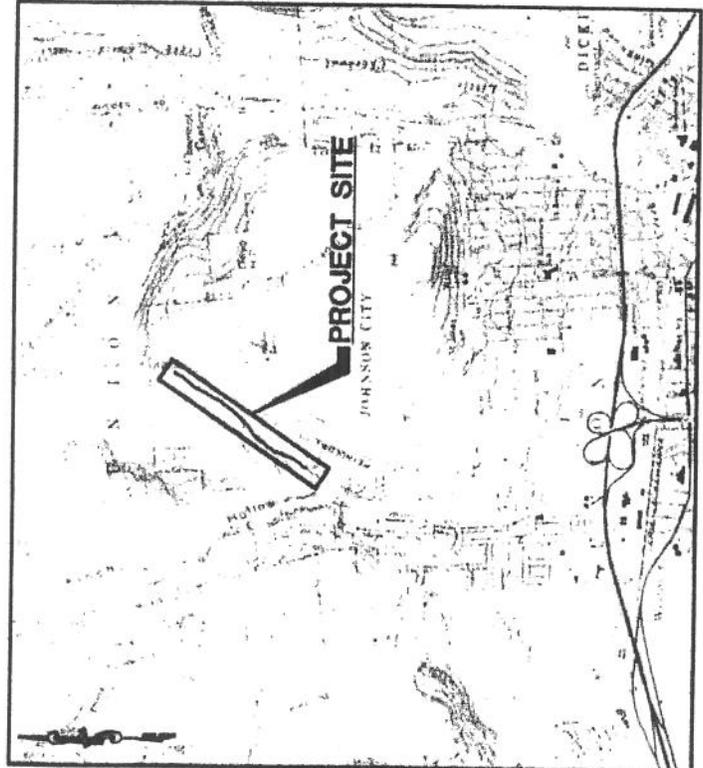
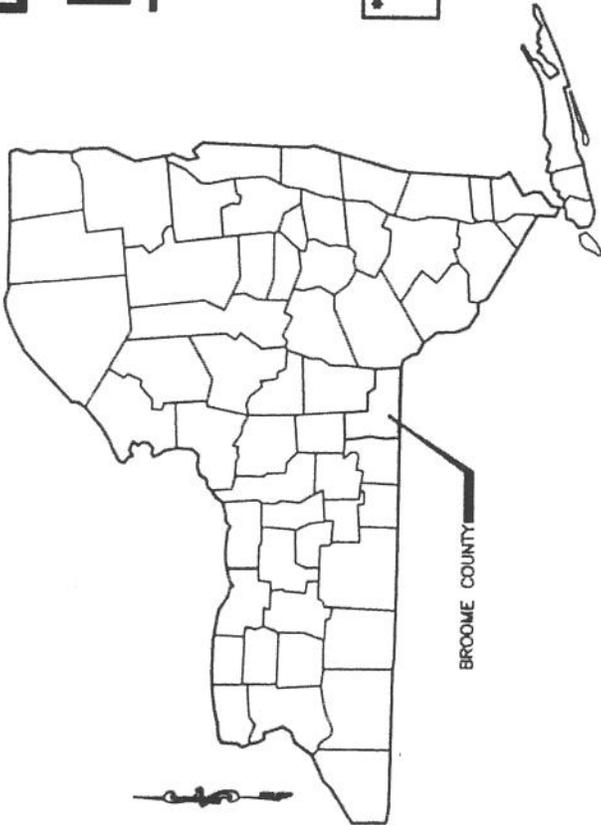
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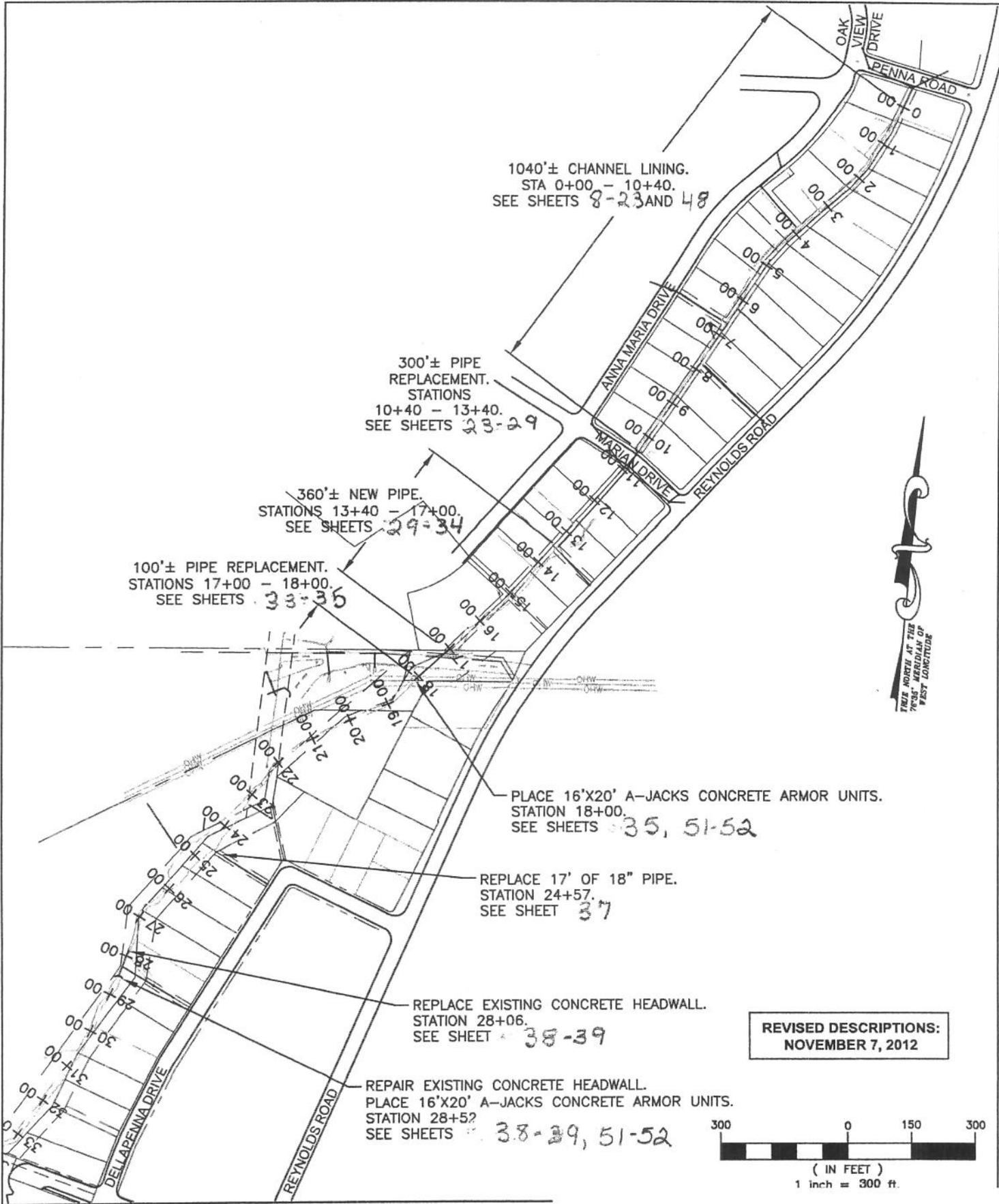
Broome County, New York

Quad: Castle Creek, NY



LOCATION MAP





1040'± CHANNEL LINING.
 STA 0+00 - 10+40.
 SEE SHEETS 8-23 AND 48

300'± PIPE
 REPLACEMENT.
 STATIONS
 10+40 - 13+40.
 SEE SHEETS 23-29

360'± NEW PIPE.
 STATIONS 13+40 - 17+00.
 SEE SHEETS 29-34

100'± PIPE REPLACEMENT.
 STATIONS 17+00 - 18+00.
 SEE SHEETS 33-35

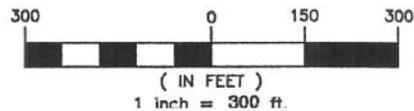
PLACE 16'X20' A-JACKS CONCRETE ARMOR UNITS.
 STATION 18+00.
 SEE SHEETS 35, 51-52

REPLACE 17' OF 18" PIPE.
 STATION 24+57.
 SEE SHEET 37

REPLACE EXISTING CONCRETE HEADWALL.
 STATION 28+06.
 SEE SHEET 38-39

REPAIR EXISTING CONCRETE HEADWALL.
 PLACE 16'X20' A-JACKS CONCRETE ARMOR UNITS.
 STATION 28+52
 SEE SHEETS 38-39, 51-52

REVISED DESCRIPTIONS:
 NOVEMBER 7, 2012



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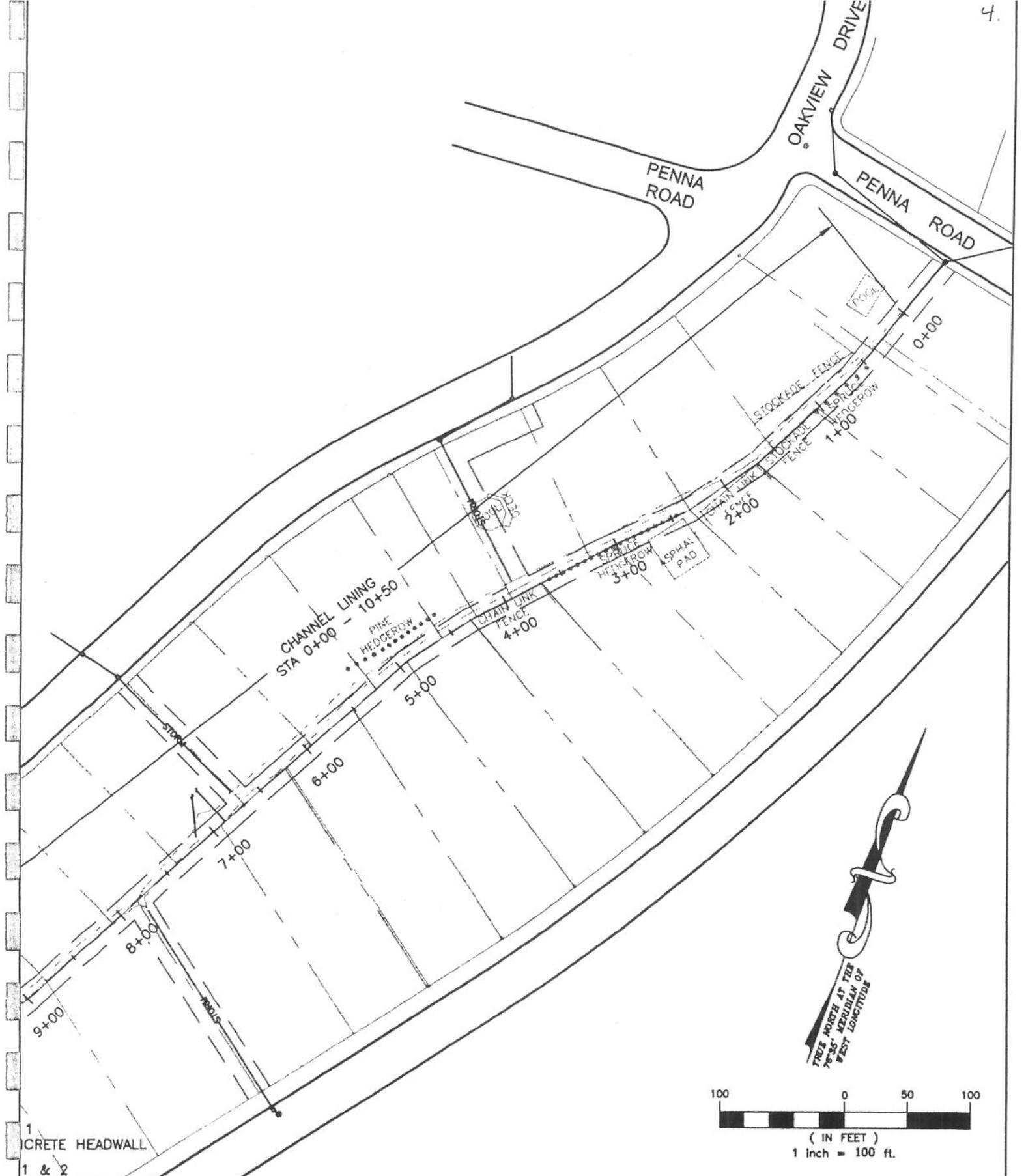
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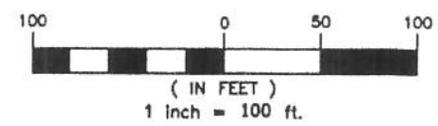
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**DRAINAGE SWALE
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 REHABILITATION**
 VILLAGE OF JOHNSON CITY BROOME COUNTY, N

Johnson City, Village of (Permit)
 (Stream Piping)
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1
CRETE HEADWALL
1 & 2
CRETE CATCH BASIN



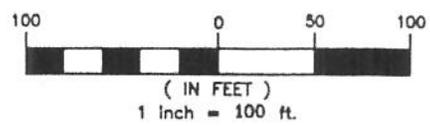
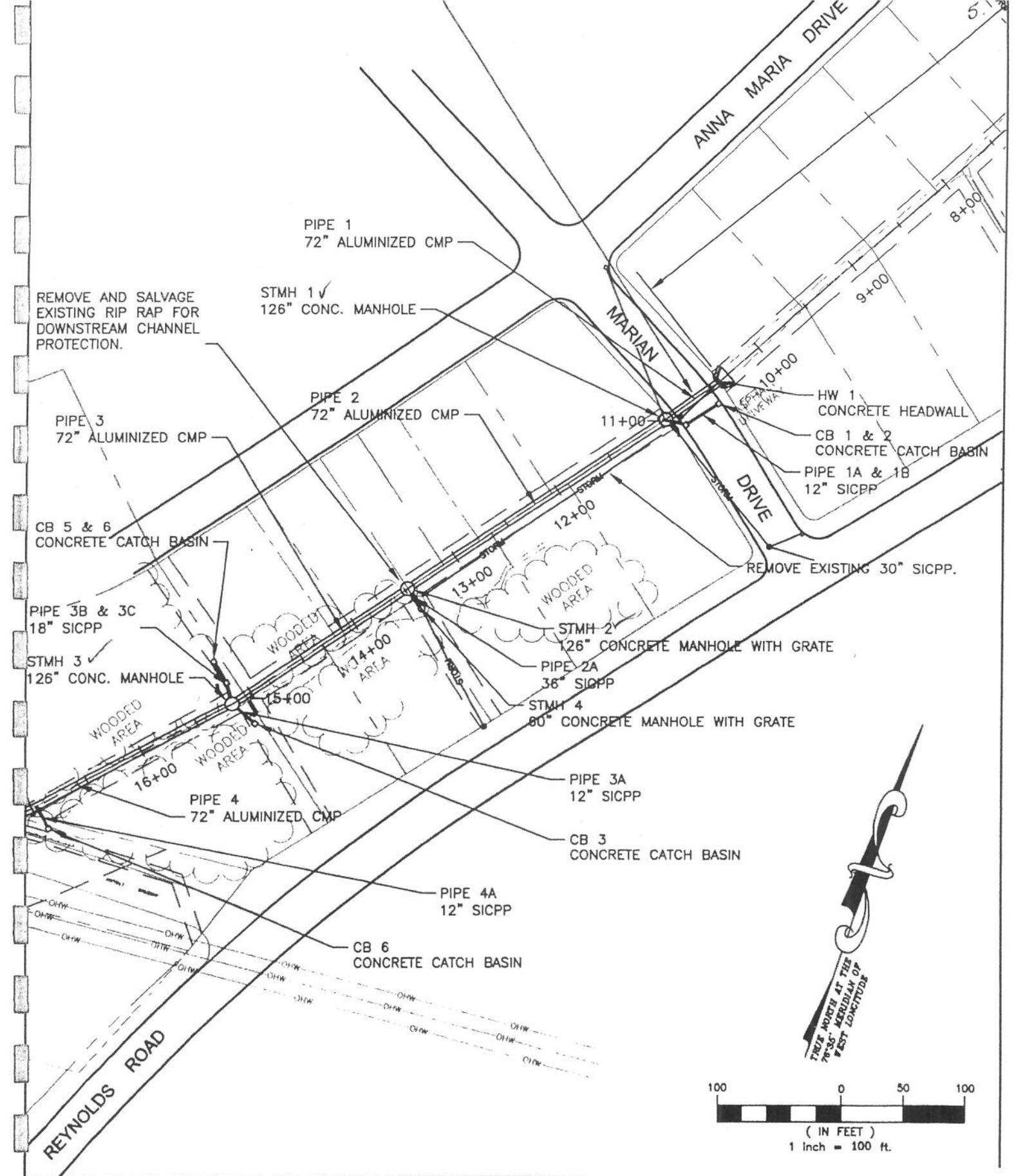
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Broome County, New York
Quad: Castle Creek, NY





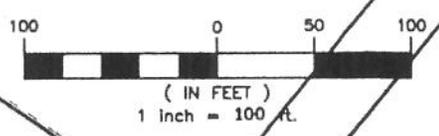
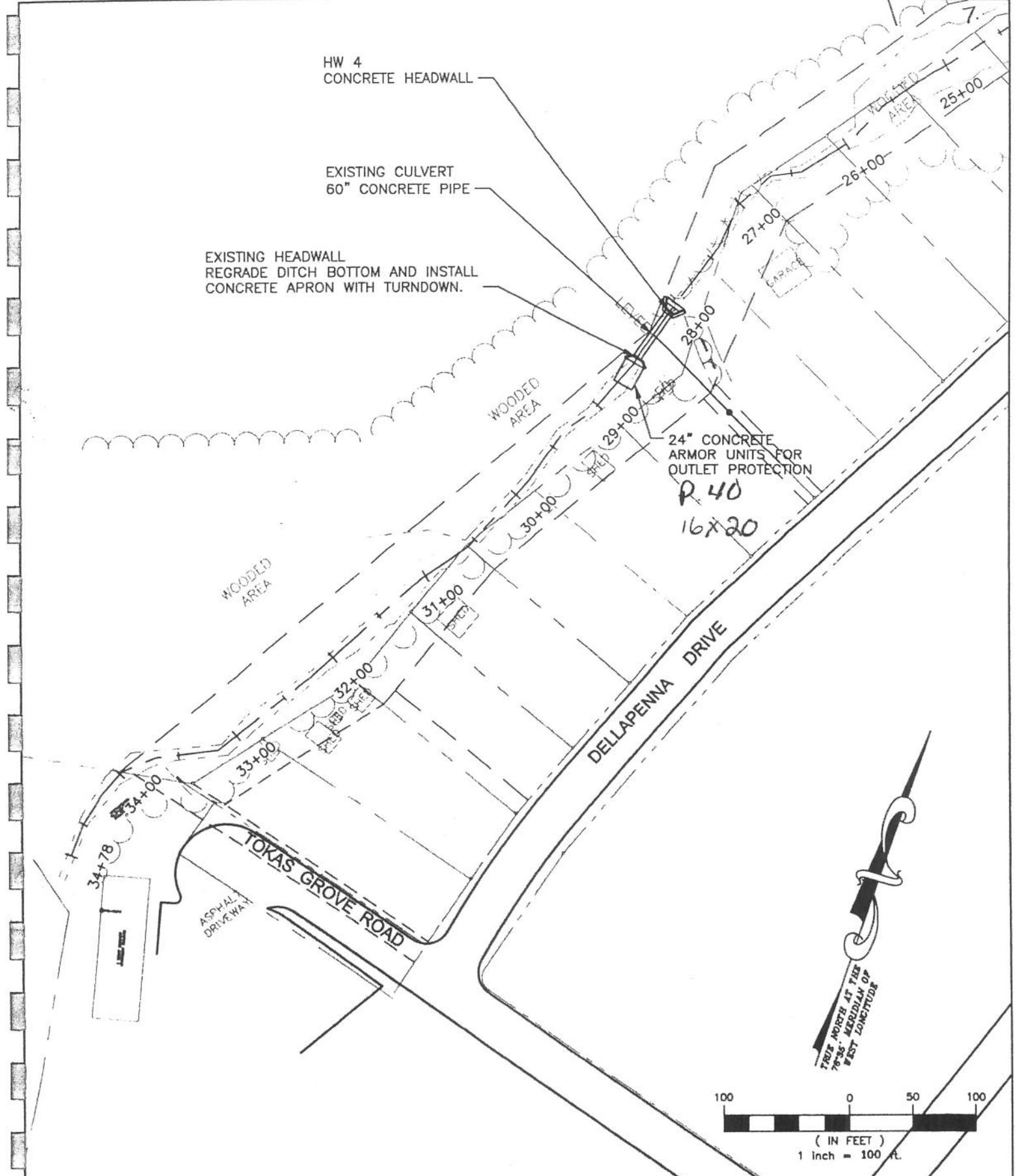
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Johnson City, Village of (Permit)
 (Stream Piping)
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 Broome County, New York
 Quad: Castle Creek, NY



N/F
THOMAS F. TROEGER
SHERRY L. TROEGER
L. 1294 P. 499
REC. AUG. 23, 1979
TM# 127.06-1-22

TRUE NORTH AT THE
76°38' MERIDIAN OF
WEST LONGITUDE

CONCRETE CURB

PENNA. ROAD

BEGIN CHANNEL LINING STA 0+00
AT EXISTING 36" RCP OUTLET

POOL

10'
CONSTRUCTION
EASEMENT

ACE

24" RCP

36" RCP

10'
CONSTRUCTION
EASEMENT

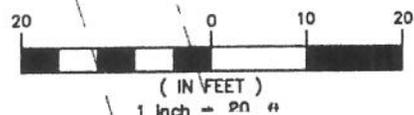
1V:1.5H MAX. CUT SLOPE

FLAT BOTTOM,
1.5' MIN. DEPTH.

REMOVE SPRUCE
HEDGEROW

N/F
ROBERT BERRY
MICHELLE BERRY
L. 1605 P. 322
REC. APRIL 7, 1987
TM# 127.06-1-24

N/F
RONALD W. FURCH
KATHLEEN FURCH
L. 1741 P. 257
REC. FEB. 06, 1980
TM# 127.06-1-23



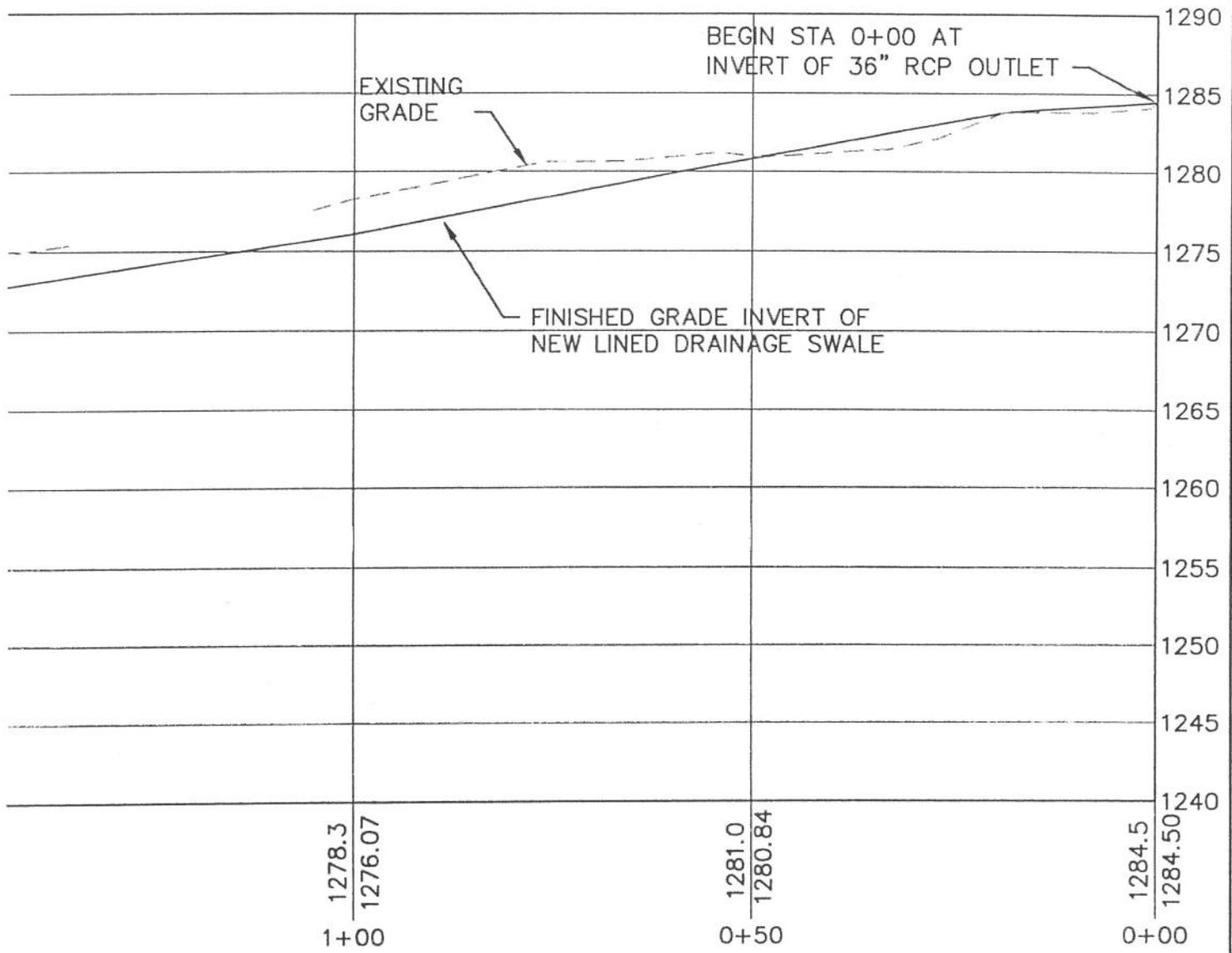
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REGISTERED
Professional Engineer
No. 1294 P. 499
Professional Surveyor
No. 1294 P. 499
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**DRAINAGE SWALE
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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY





PROFILE STATIONS 0+00 - 5+50

SCALE: HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'



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 VILLAGE OF JOHNSON CITY BROOME COUNTY,

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
 Broome County, New York
 Quad: Castle Creek, NY



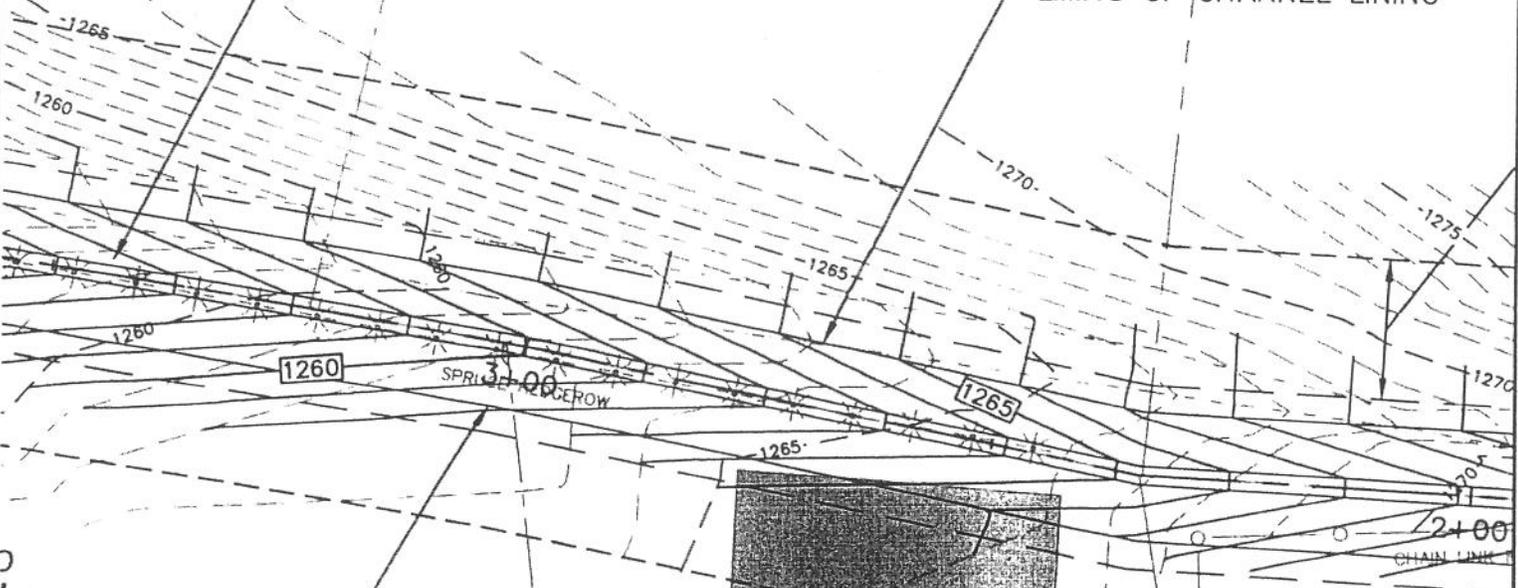
N/F
TIMOTHY CARR
JENNIFER M. CAMPBELL
JAIME M. MCMURRAY
JENNIFER HENSEL
MARK RADICCHI
L. 2277 P. 435
REC. APRIL 20, 2009
TM# 127.10-1-35

TRUE NORTH AT THE
76°36' MERIDIAN OF
WEST LONGITUDE

20' DRAINAGE
EASEMENT
1968 P. 271

REMOVE HEDGEROW

LIMITS OF CHANNEL LINING



FLAT BOTTOM,
2' MIN. DEPTH.

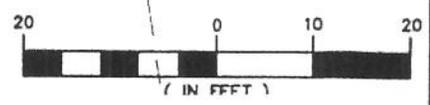
CHANNEL LINING

REMOVE FENCE
DRAINAGE EA

REMOVE ASPHALT TO
DRAINAGE EASEMENT

N/F
CHUKYM ALEXIS JOHNSON
BEATRICE JOHNSON
L. 2128 P. 431
REC. NOV. 04, 2009
TM# 127.10-1-36

EDWARD
DEBRA
L. 179
REC. DEC
TM# 12



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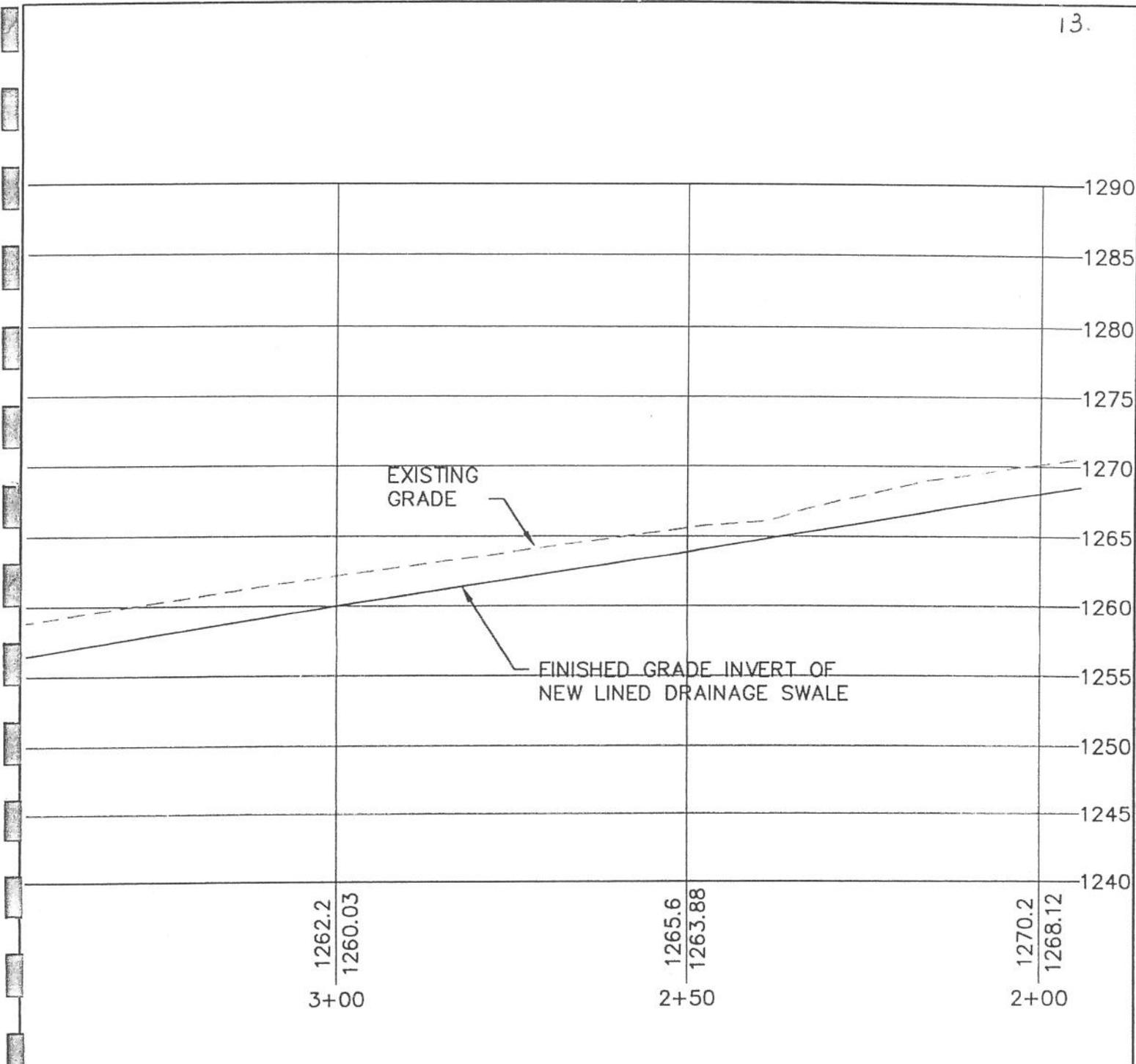
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REGISTERED PROFESSIONAL ENGINEER
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VILLAGE OF JOHNSON CITY
DRAINAGE SWALE
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REHABILITATION

VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY





PROFILE STATIONS 0+00 - 5+50

SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 10'



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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
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REHABILITATION**
VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

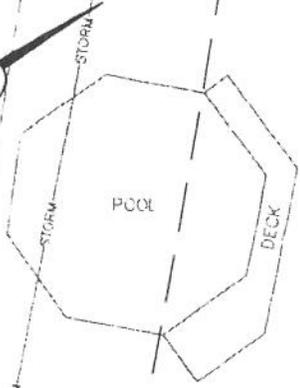
Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



MOHANTY
L. 489
REC. SEPT. 28, 2007
TM# 127.10-1-33

N/F
RADHARANI MOHANTY
L. 2204 P. 489
REC. SEPT. 28, 2007
TM# 127.10-1-34.1

TRUE NORTH AT THE
76°36' MERIDIAN OF
WEST LONGITUDE



REMOVE AND REPLACE
HEDGEROW AS NEEDED

20' DRAINAGE
EASEMENT
L. 1968 P. 271



10'
CONSTRUCTION
EASEMENT

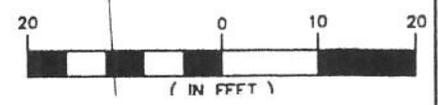
REMOVE FENCE TO
DRAINAGE EASEMENT

STATIONS 1+50 - 4+00
CHANNEL LINING WITH 2' FLAT BOTTOM,
1V:3H SIDE SLOPES AND 2' MIN. DEPTH.
SEE DETAIL SHEET C510

LIMITS OF CHANNEL LINING

N/F
WILLIAM M. MUSKA
L. 2116 P. 653
REC. JULY 27, 2005
TM# 127.10-1-18

N/F
SCOTT C. LADD
WENDY M. LADD
L. 2295 P. 489
REC. OCT. 07, 2009
TM# 127.10-1-17



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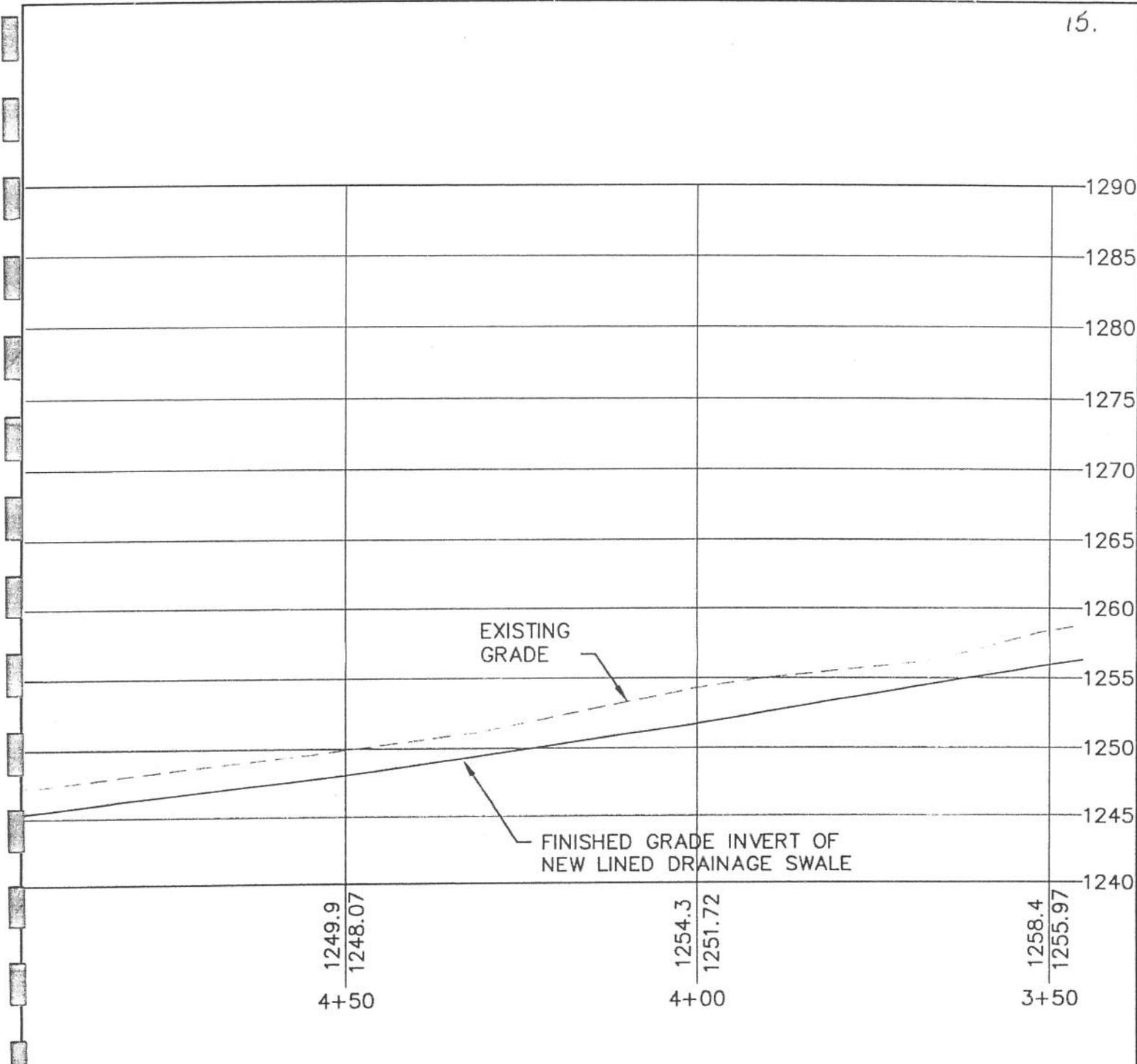
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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
AND DITCH
REHABILITATION**

VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
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PROFILE STATIONS 0+00 - 5+50

SCALE: HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'



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**DRAINAGE SWALE
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 VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
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 Quad. Castle Creek, NY



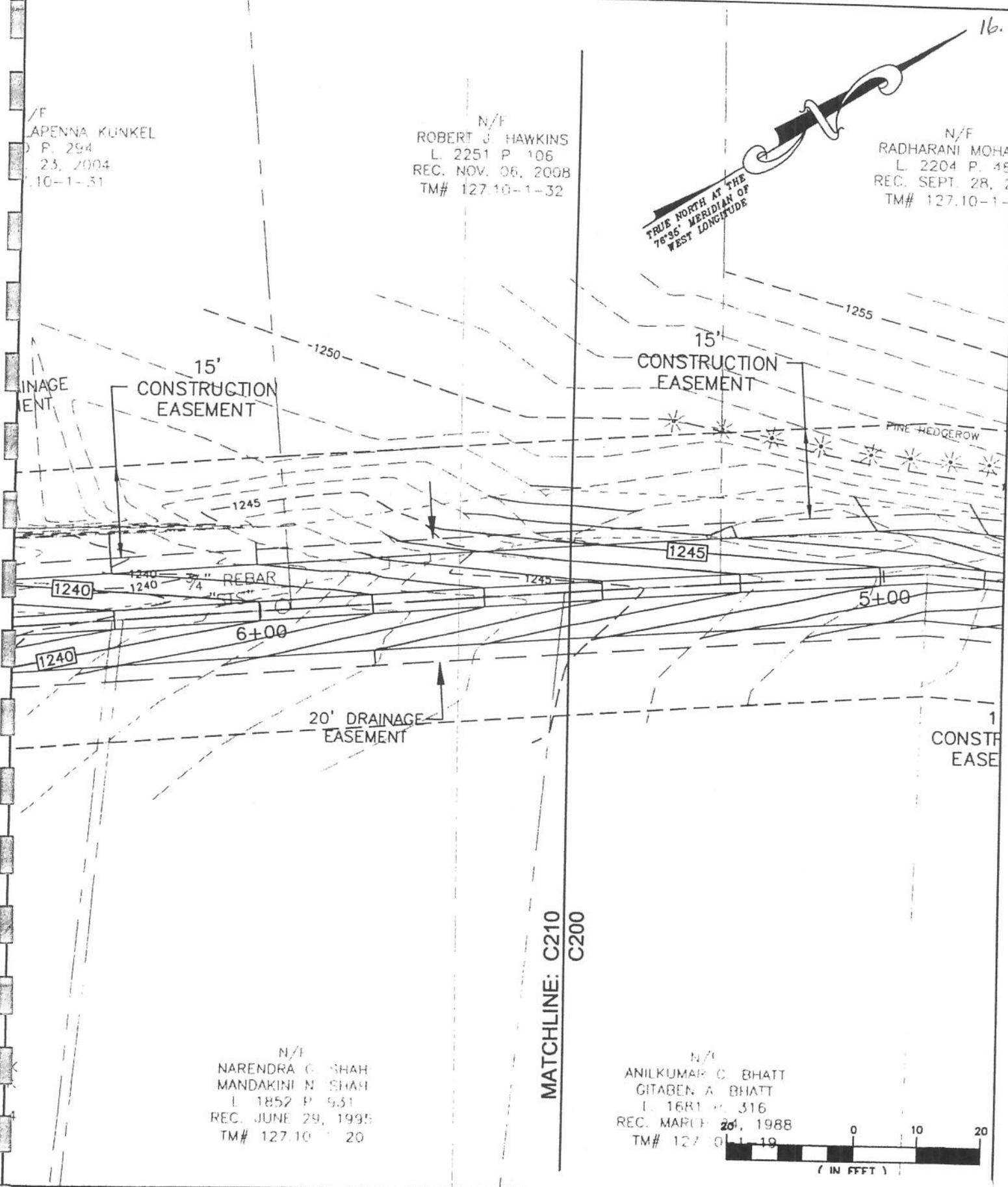
N/F
APENNA KUNKEL
L. P. 294
REC. 03.23.2004
TM# 127.10-1-31

N/F
ROBERT J. HAWKINS
L. 2251 P. 106
REC. NOV. 06, 2008
TM# 127.10-1-32

N/F
RADHARANI MOHA
L. 2204 P. 48
REC. SEPT. 28, 2008
TM# 127.10-1-33

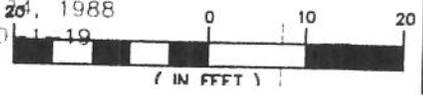
TRUE NORTH AT THE
78°36' MERIDIAN OF
WEST LONGITUDE

16.



N/F
NARENDRA C. SHAH
MANDAKINI N. SHAH
L. 1852 P. 931
REC. JUNE 29, 1995
TM# 127.10-1-20

N/F
ANILKUMAR C. BHATT
GITABEN A. BHATT
L. 1681 P. 316
REC. MARCH 20, 1988
TM# 127.10-1-19



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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
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Broome County, New York
Quad: Castle Creek, NY



N/F
ERNISITINE DELLAPENNA KUNKEL
L. 2080 P. 294
REC. AUG. 23, 2004
TM# 127.10-1-31

N/F
ERNISITINE DELLAPENNA KUNKEL
L. 2080 P. 294
REC. AUG. 23, 2004
TM# 127.10-1-30

TON
438
8, 2011
1-29

TRUE NORTH AT THE
76°36' MERIDIAN OF
WEST LONGITUDE

15'
CONSTRUCTION
EASEMENT

20' DRAINAGE
EASEMENT

20' DRAINAGE
EASEMENT

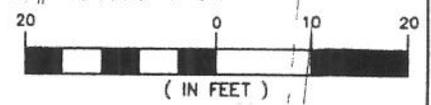
10'
CONSTRUCTION
EASEMENT

20' DRAINAGE
EASEMENT

STATIONS 4+00 - 7+50
CHANNEL LINING WITH 3' FLAT BOTTOM,
1V:3H SIDE SLOPES AND 2' MIN. DEPTH.
SEE DETAIL SHEET C510

N/F
BONNIE A. FORCONI
L. 2105 P. 158
REC. APRIL 07, 2005
TM# 127.10 1-22

N/F
WALTER N. CZEBINIAK
CHRYSITINA CZEBINIAK
L. 1836 P. 1112
REC. APRIL 13, 1994
TM# 127.10 1-21



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Professional Engineer
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No. 127.10-1-31
No. 127.10-1-22
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VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)
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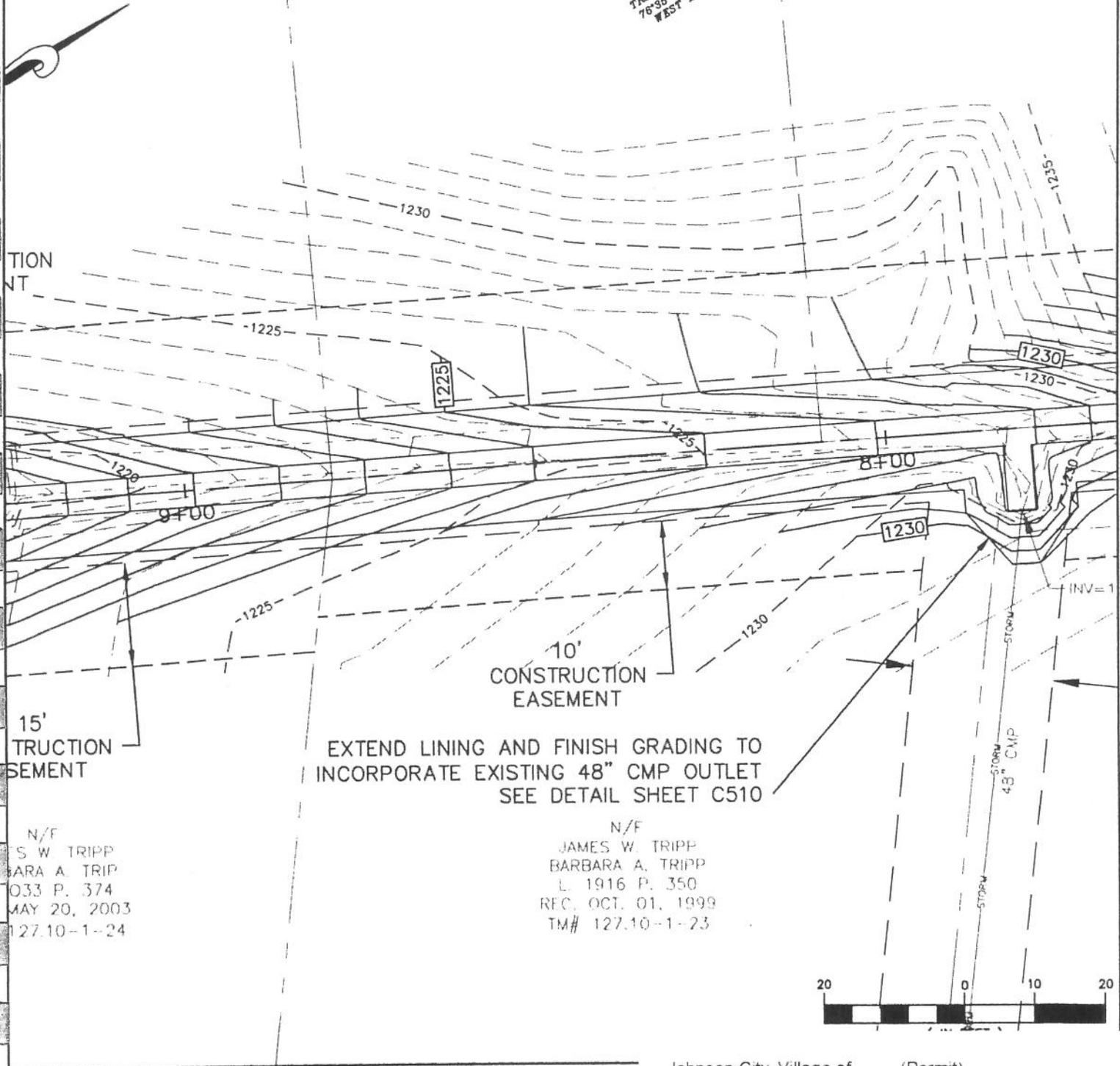


N/F
ENNA RESIDUARY TRUST,
ENNA, JR., TRUSTEE
7 P. 262
T. 24, 2010
7.10-1-27

N/F
LANCE HAMILTON
L. 2341 P. 438
REC. MARCH 28, 2011
TM# 127.10-1-28

N/F
LANCE HAMILTON
L. 2341 P. 438
REC. MARCH 28, 2011
TM# 127.10-1-29

TRUE NORTH AT THE
76°35' MERIDIAN OF
WEST LONGITUDE



15'
CONSTRUCTION
EASEMENT

10'
CONSTRUCTION
EASEMENT

EXTEND LINING AND FINISH GRADING TO
INCORPORATE EXISTING 48" CMP OUTLET
SEE DETAIL SHEET C510

N/F
JAMES W. TRIPP
BARBARA A. TRIPP
L. 033 P. 374
MAY 20, 2003
7.10-1-24

N/F
JAMES W. TRIPP
BARBARA A. TRIPP
L. 1916 P. 350
REC. OCT. 01, 1999
TM# 127.10-1-23



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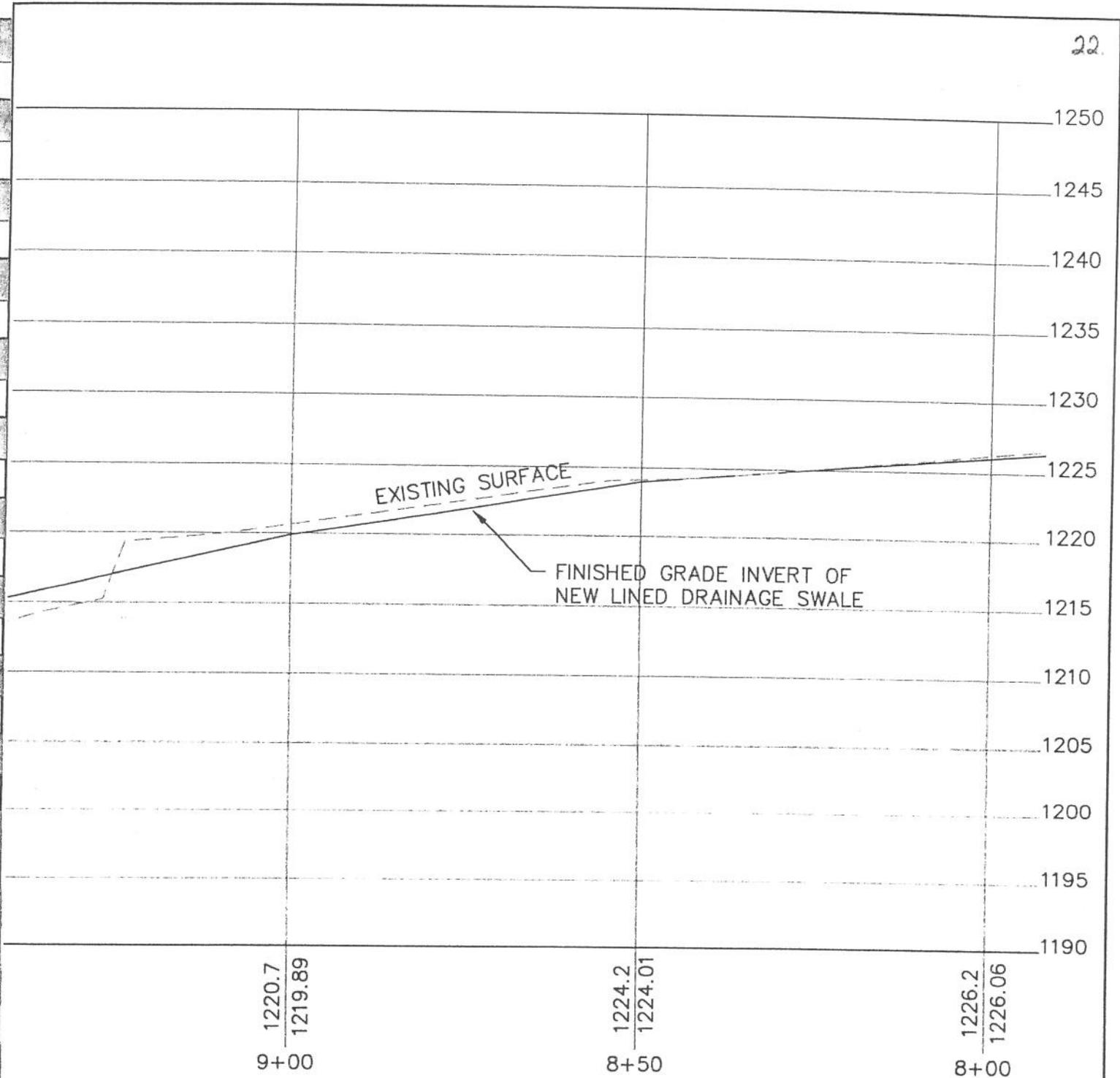
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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY





PROFILE STATIONS 5+50 - 11+50

SCALE: HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'



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 VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
 Broome County, New York
 Quad: Castle Creek, NY



N/F
THOMAS J. DELLAPENNA RESIDUARY TRUST,
THOMAS DELLAPENNA, JR., TRUSTEE
L. 2327 P. 262
REC. SEPT. 24, 2010
TM# 127.10-1-26

N/F
THOMAS J. DELLAPENNA RESIDUARY TRUST,
THOMAS DELLAPENNA, JR., TRUSTEE
L. 2327 P. 262
REC. SEPT. 24, 2010
TM# 127.10-1-27

49LF of 72" AL. CMP @ 1.72%

HW 1 (CONCRETE HEADWALL)
STA: 10+41.63
INV OUT: 1206.00 72" AL. CMP

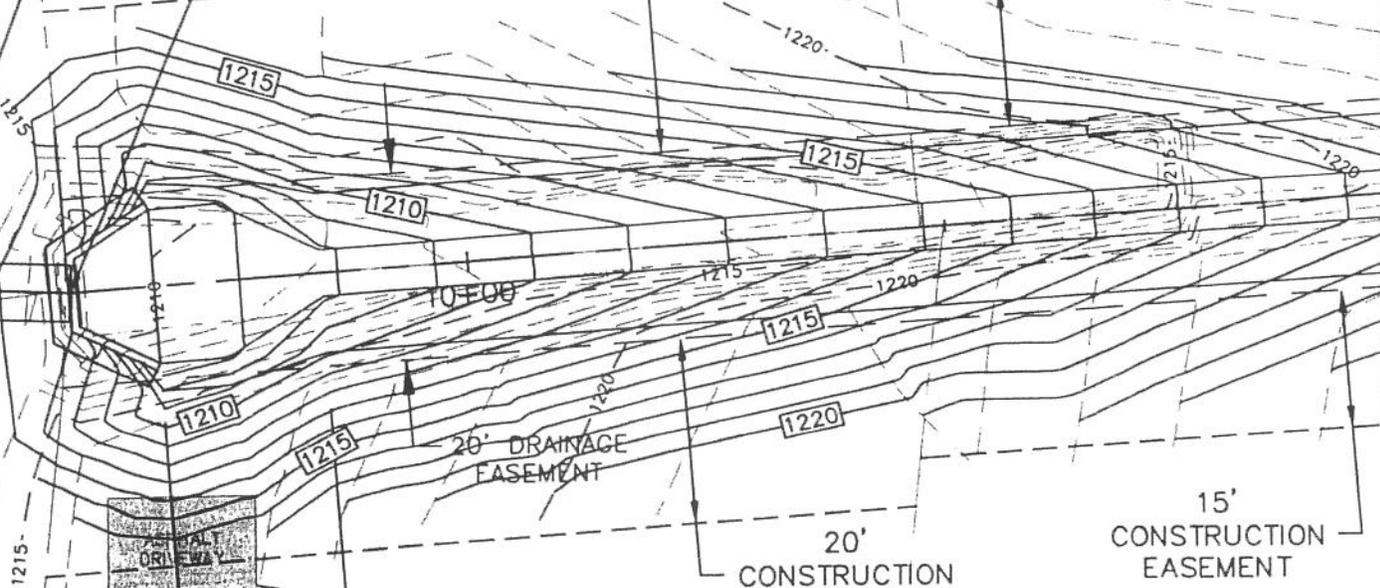
20'
CONSTRUCTION
EASEMENT

15'
CONSTRUCTION
EASEMENT

TRUE NORTH AT THE
90°36' MERIDIAN OF
WEST LONGITUDE

CONCRETE CURB

30'



20' DRAINAGE
EASEMENT

20'
CONSTRUCTION
EASEMENT

15'
CONSTRUCTION
EASEMENT

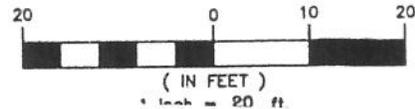
REMOVE ASPHALT AND
REPLACE AS NEEDED

N/F
CARTUS FINANCIAL CORPORATION
L. 2177 P. 240
REC. JAN. 23, 2007
TM# 127.10-1-25

N/F
JAMES W. TRIPP
BARBARA A. TRIP
L. 2033 P. 374
REC. MAY 20, 2003
TM# 127.10-1-24

STATIONS 7+50 - 10+15
CHANNEL LINING WITH 5' FLAT BOTTOM,
1V:3H SIDE SLOPES AND 2' MIN. DEPTH.
SEE DETAIL SHEET C510

STATIONS 10+15 - 10+45
CHANNEL LINING WITH FLAT BOTTOM
FLARED TO MATCH HEADWALL, 1V:3H SIDE
SLOPES AND 2' MIN. DEPTH. SEE DETAIL
SHEET C510



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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



MATCHLINE: C220
C210

N/F
RAJINDER RAI
RAMINDER RAI
L. 1881 P. 192
REC. JUNE 23, 1997
TM# 127.10-1-36

TRUE NORTH AT THE
76°39' MERIDIAN OF
WEST LONGITUDE

MARIAN

TIE IN EXISTING
15" PVC PIPE

STMH 1 (126" CONC. MANHOLE)
STA: 10+95.00 OFFSET: 0.00'
RIM: 1213.31
INV IN: 1205.15 72" AL. CMP
INV IN: 1209.00 12" SICPP
INV IN: 1205.10 15" PVC
INV IN: 1205.10 18" PVC
INV OUT: 1198.77 72" AL. CMP

CONCRETE CURB

CONCRETE CURB

LIMITS OF
PAVEMENT REMOVAL
APPROXIMATELY 30'

12+00

32" SICRP

INV=1205.1

20' DRAINAGE
EASEMENT

TIE IN EXISTING
18" PVC PIPE

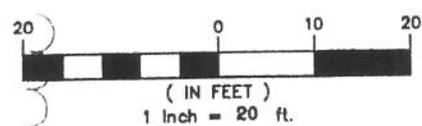
17LF of 12" SICPP @ 7.13%

CB 2 (CONCRETE CATCH BASIN)
STA: 10+84.55 OFFSET: -13.00'
RIM: 1213.19
INV IN: 1210.19 12" SICPP
INV OUT: 1210.19 12" SICPP

32LF of 12" SICPP @ 1.31%

N/F
WILLIAM YONKOSKI BUILDERS, LLC
L. 2124 P. 10
REC. SEPT 27, 2005
TM# 127.10-1-37

CB 1 (CONCRETE CATCH BASIN)
STA: 10+52.58 OFFSET: -14.35'
RIM: 1213.61
INV OUT: 1210.61 12" SICRP



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CHECKED BY
DATE
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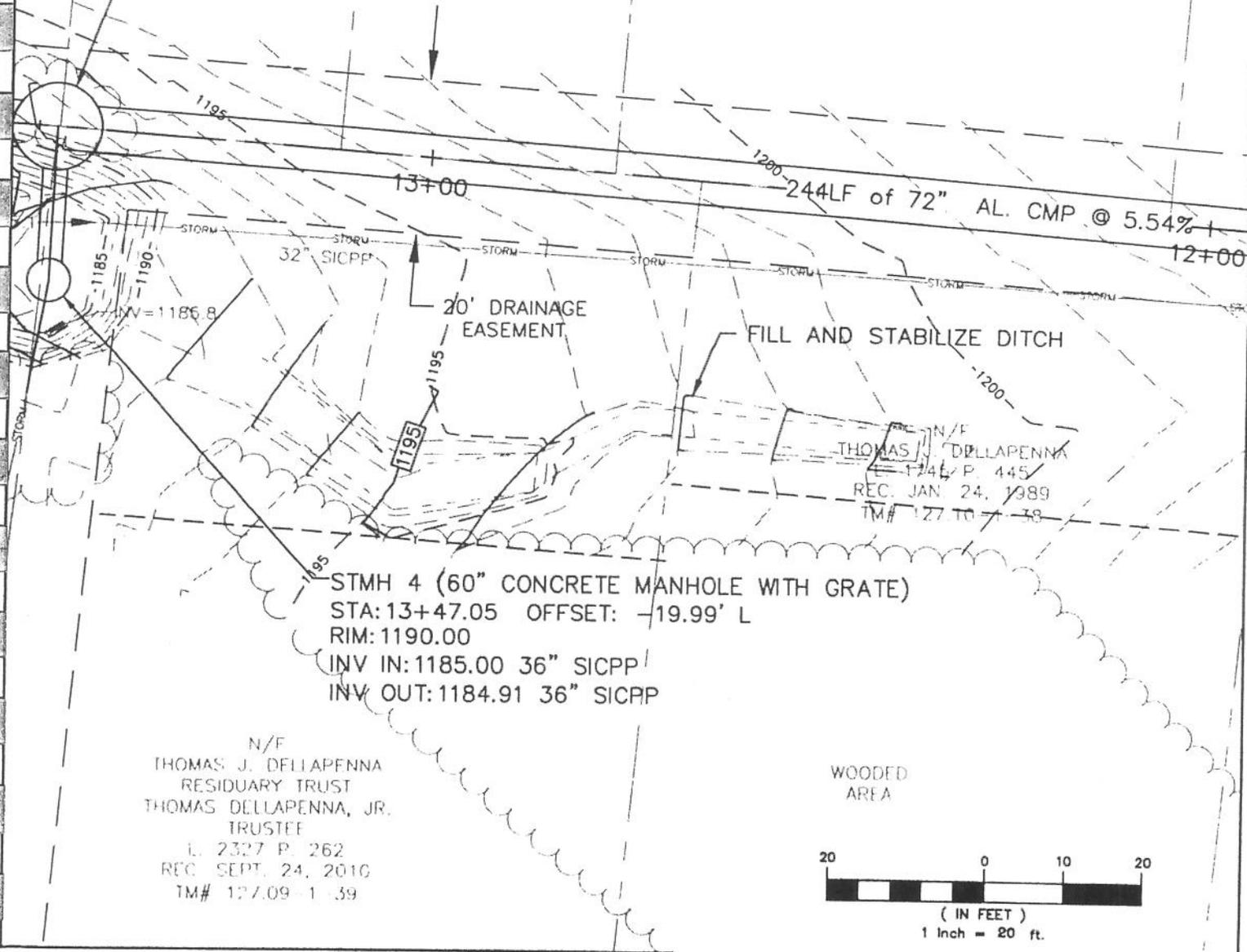
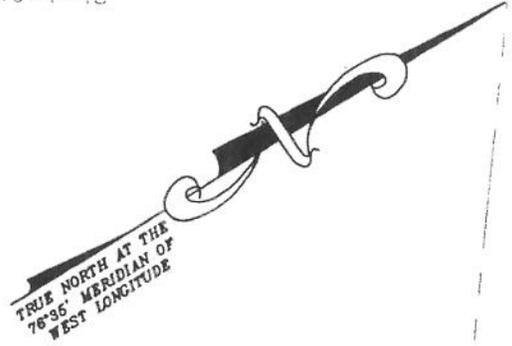
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Broome County, New York
Quad. Castle Creek, NY



STOUGHTON
STOUGHTON
P. 683
04, 1993
10-1-44

N/F
JEFFREY A. STOUGHTON
DENISE B. STOUGHTON
L. 2095 P. 592
REC. JAN. 10, 2005
TM# 127.10-1-45

STMH 2 (126" CONCRETE MANHOLE WITH GRATE)
STA: 13+47.63 OFFSET: 0.00'
RIM: 1192.67
INV IN: 1185.25 72" AL. CMP
INV IN: 1184.00 36" SICPP
INV OUT: 1182.75 72" AL. CMP

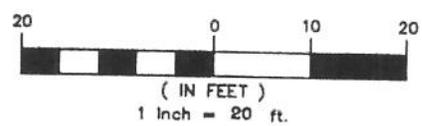


N/F
THOMAS J. DELLAPENNA
L. 1746 P. 445
REC. JAN. 24, 1989
TM# 127.10-1-38

STMH 4 (60" CONCRETE MANHOLE WITH GRATE)
STA: 13+47.05 OFFSET: -19.99' L
RIM: 1190.00
INV IN: 1185.00 36" SICPP
INV OUT: 1184.91 36" SICPP

N/F
THOMAS J. DELLAPENNA
RESIDUARY TRUST
THOMAS DELLAPENNA, JR.
TRUSTEE
L. 2327 P. 262
REC. SEPT. 24, 2010
TM# 127.09-1-39

WOODED
AREA



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Professional Engineer
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VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



N/F
SALMA, LLC
L. 2162 P. 76
REC. SEPT. 06, 2006
TM# 127.10-1-43

N/F
JEFFREY A. STOUGHTON
DENISE B. STOUGHTON
L. 1813 P. 683
REC. SEPT. 04, 1993
TM# 127.10-1-44

TRUE NORTH AT THE
76°36' MERIDIAN OF
WEST LONGITUDE

17LF of 18" SICPP @ 9.20%

CB 4 (CONCRETE CATCH BASIN)
STA:15+12.06 OFFSET: 17.12' R
RIM:1176.13
INV IN:1174.13 18" SICPP
INV OUT:1173.92 18" SICPP

20' DRAINAGE &
SANITARY SEWER
EASEMENT

17LF of 18" SICPP @ 5.47%

WOODED
AREA

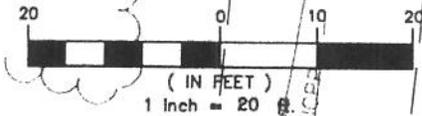
161LF of 72" AL CMP @ 5.88%

20' DRAINAGE
EASEMENT

18LF of 36" SICPP @ 4.96%

PROTECT EXISTING
SANITARY SEWER LINE

N/F
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RESIDUARY TRUST
THOMAS DELLAPENNA, JR
TRUSTEE
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REC. SEPT. 24, 2010
TM# 127.09 1-40



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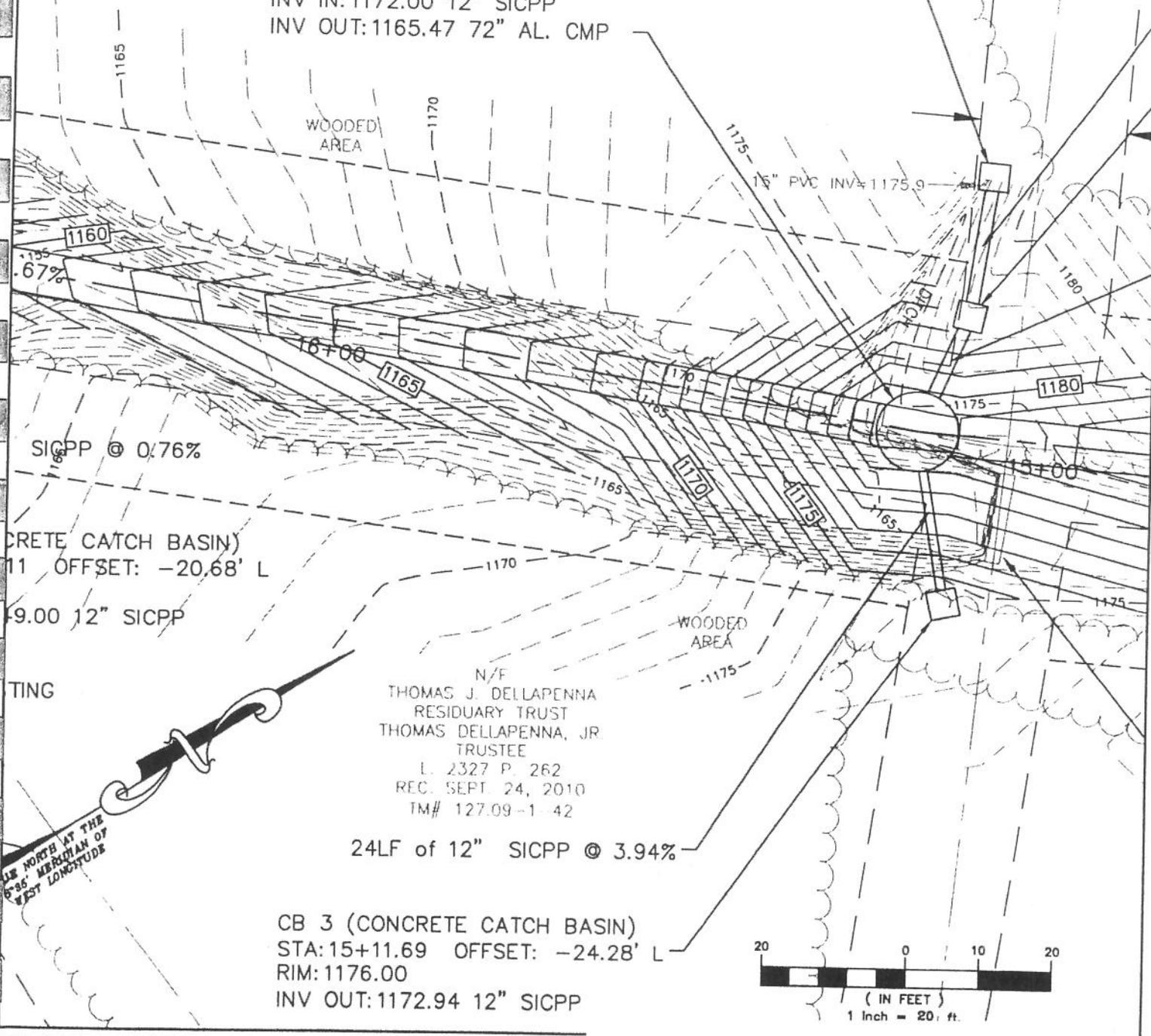
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D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



BASIN) THOMAS J. DELLAPENNA
 12.00' R RESIDUARY TRUST
 PP THOMAS DELLAPENNA, JR.
 TRUSTEE
 L. 2327 P. 262
 REC. SEPT. 24, 2010
 TM# 127.09-1-31

CB 5 (CONCRETE CATCH BASIN)
 STA:15+10.82 OFFSET: 37.08' R
 RIM:1177.97
 INV IN:1175.90 15" PVC
 INV OUT:1175.72 18" SICPP

STMH 3 (126" CONC. MANHOLE)
 STA:15+17.63 OFFSET: 0.00'
 RIM:1181.30
 INV IN:1173.26 72" AL. CMP
 INV IN:1173.00 18" SICPP
 INV IN:1172.00 12" SICPP
 INV OUT:1165.47 72" AL. CMP



CRETE CATCH BASIN)
 11 OFFSET: -20.68' L
 9.00 12" SICPP

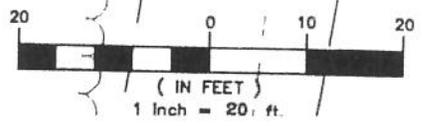
TING

NE NORTH AT THE
 5°35' MERIDIAN OF
 WEST LONGITUDE

N/F
 THOMAS J. DELLAPENNA
 RESIDUARY TRUST
 THOMAS DELLAPENNA, JR
 TRUSTEE
 L. 2327 P. 262
 REC. SEPT. 24, 2010
 TM# 127.09-1-42

24LF of 12" SICPP @ 3.94%

CB 3 (CONCRETE CATCH BASIN)
 STA:15+11.69 OFFSET: -24.28' L
 RIM:1176.00
 INV OUT:1172.94 12" SICPP



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 VILLAGE OF JOHNSON CITY BROOME CO

Johnson City, Village of (Permit)
 (Stream Piping)
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 Broome County, New York
 Quad: Castle Creek, NY



STMH 3 (126" CONC. MANHOLE)
 STA: 15+17.63 OFFSET: 0.00'
 RIM: 1181.30
 INV IN: 1173.26 72" AL. CMP
 INV IN: 1173.00 18" SICPP
 INV IN: 1172.00 12" SICPP
 INV OUT: 1165.47 72" AL. CMP

286LF of 72" AL. CMP @ 10.67%

EXISTING GRADE

APPROXIMATE LOCATION OF EXISTING SANITARY SEWER CROSSING. FIELD VERIFY.

1159.5 1165.04 16+00	1168.9 1172.23 15+50	1174.8 1181.73 15+00
----------------------------	----------------------------	----------------------------

PROFILE STATIONS 11+50 - 17+50

SCALE: HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'



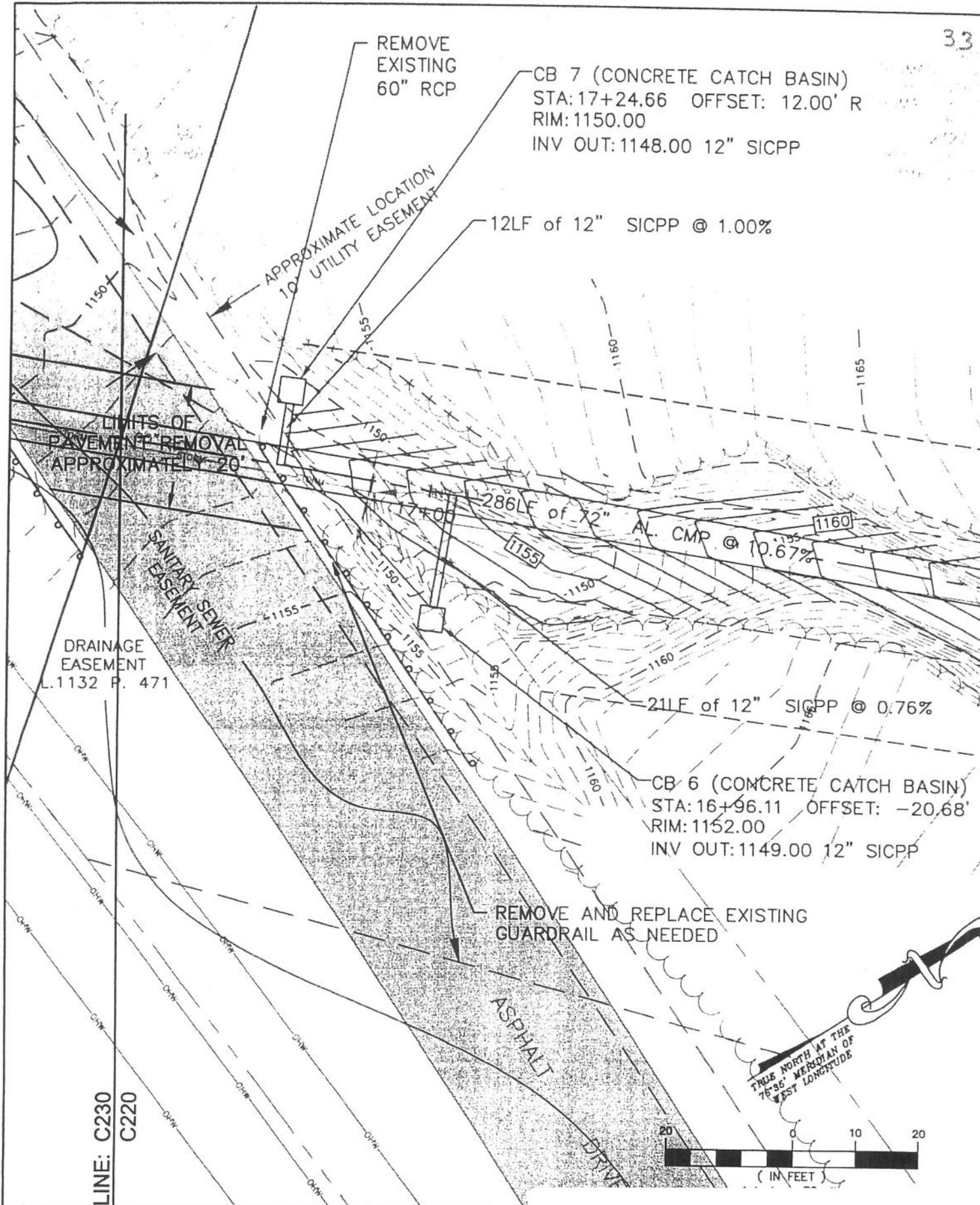
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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
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 REHABILITATION**
 VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
 Broome County, New York
 Quad: Castle Creek, NY





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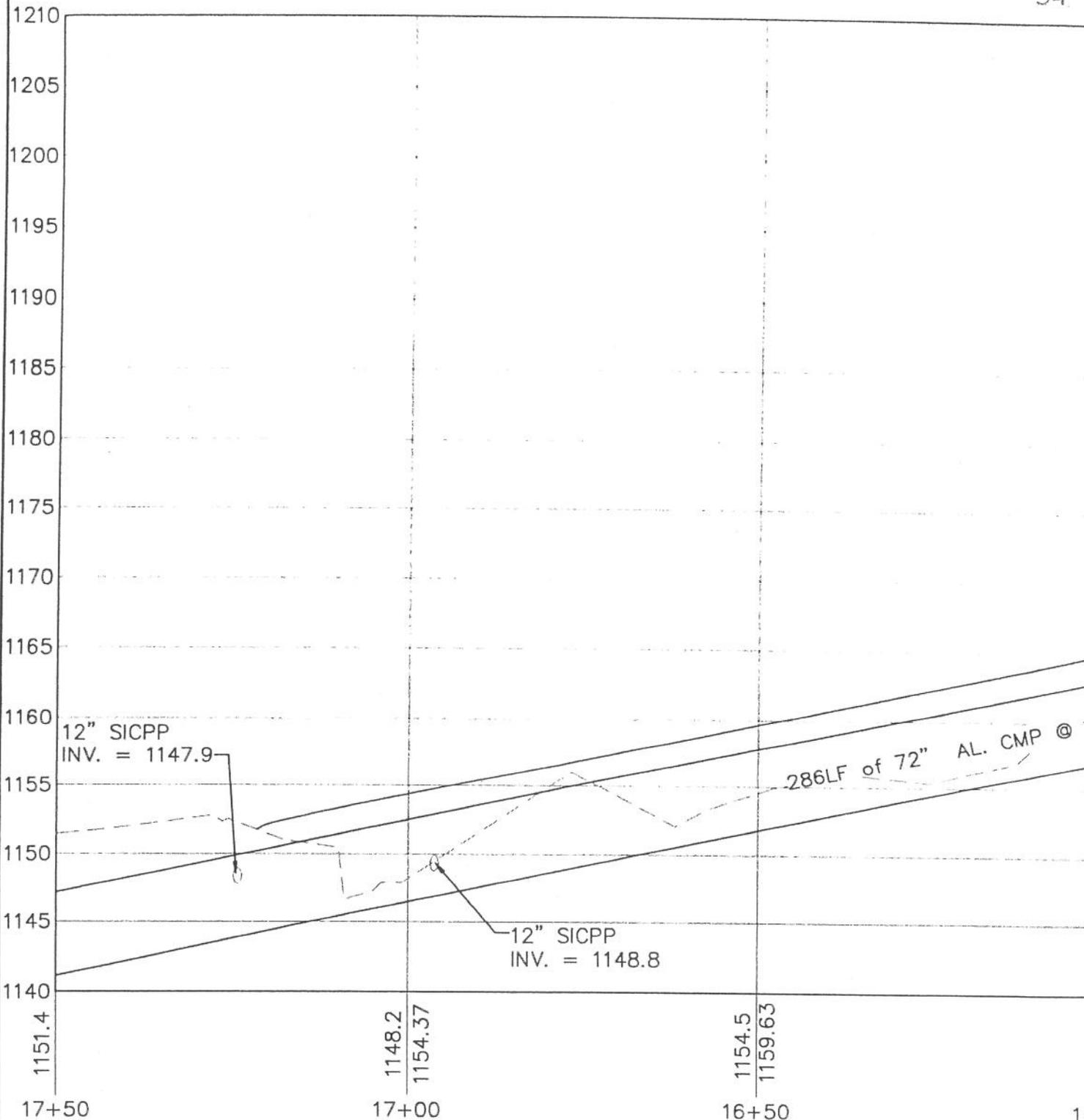
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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
 AND DITCH
 REHABILITATION**
 VILLAGE OF JOHNSON CITY BROOME COUN

Johnson City, Village of (Permit)
 (Stream Piping)
 D/A Processing No. 2012-00244
 Broome County, New York
 Quad: Castle Creek, NY





PROFILE STATIONS 11+50 - 17+50

SCALE: HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'

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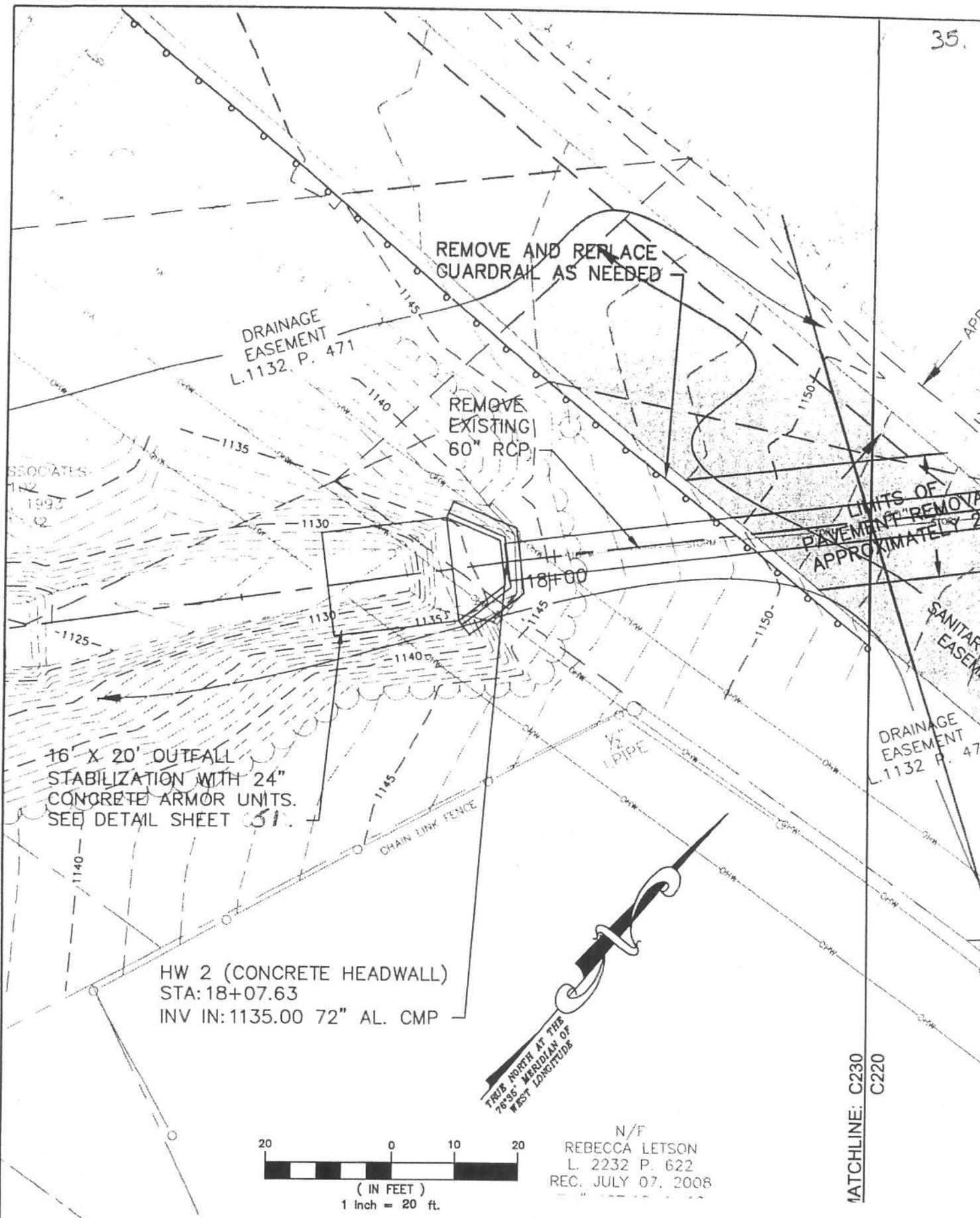
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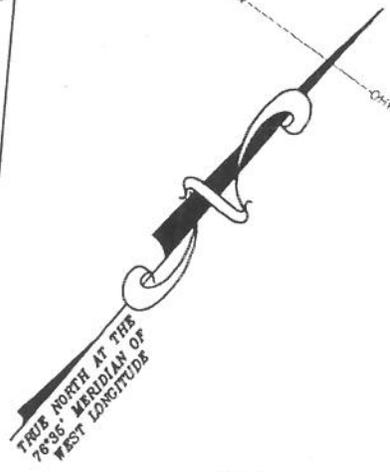
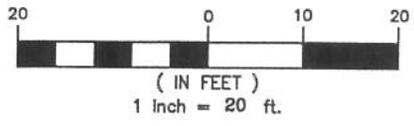
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16' X 20' OUTFALL STABILIZATION WITH 24" CONCRETE ARMOR UNITS. SEE DETAIL SHEET 31.

HW 2 (CONCRETE HEADWALL)
 STA: 18+07.63
 INV IN: 1135.00 72" AL. CMP



N/F
 REBECCA LETSON
 L. 2232 P. 622
 REC. JULY 07, 2008

MATCHLINE: C230
C220

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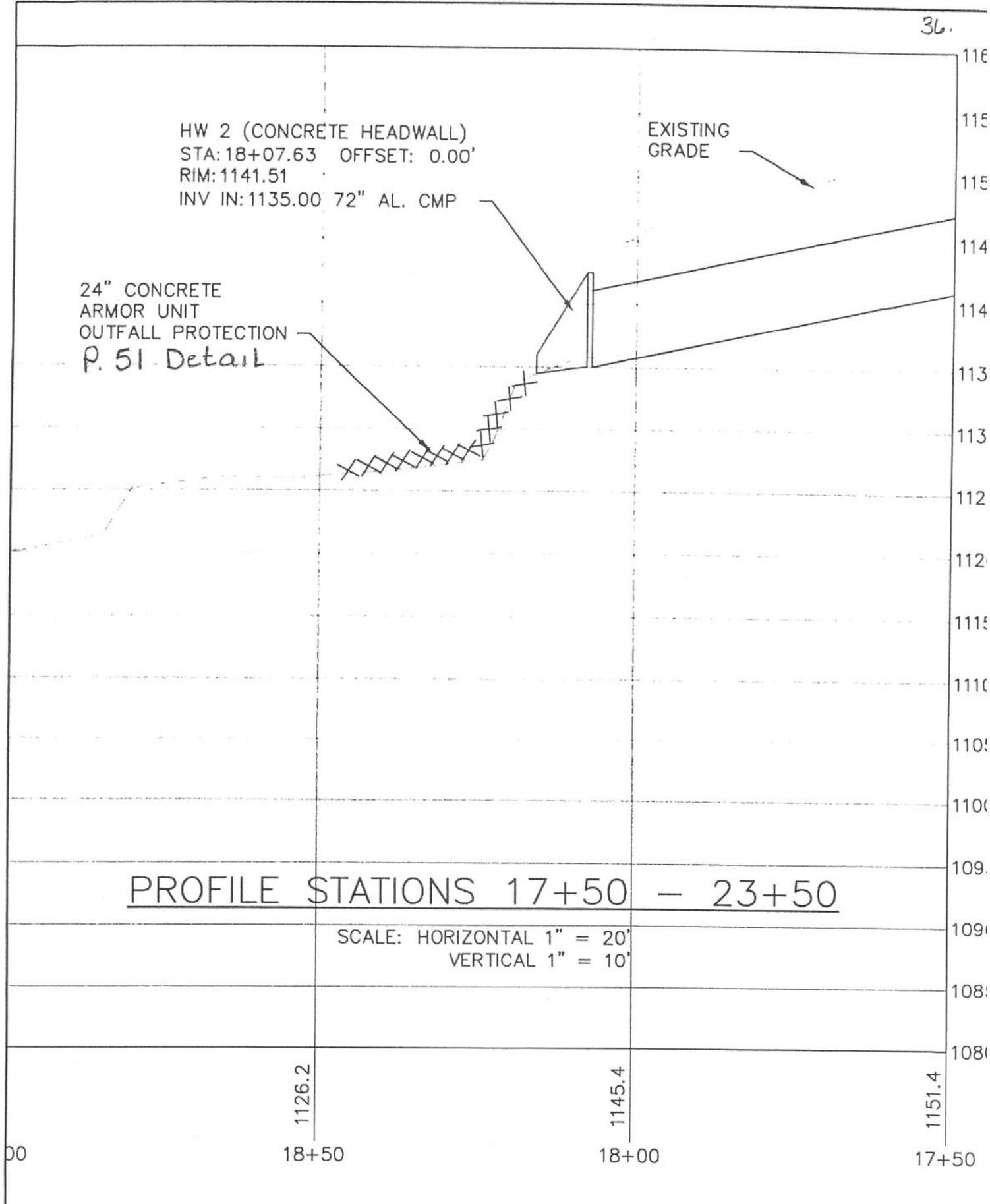
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PROFILE STATIONS 17+50 - 23+50

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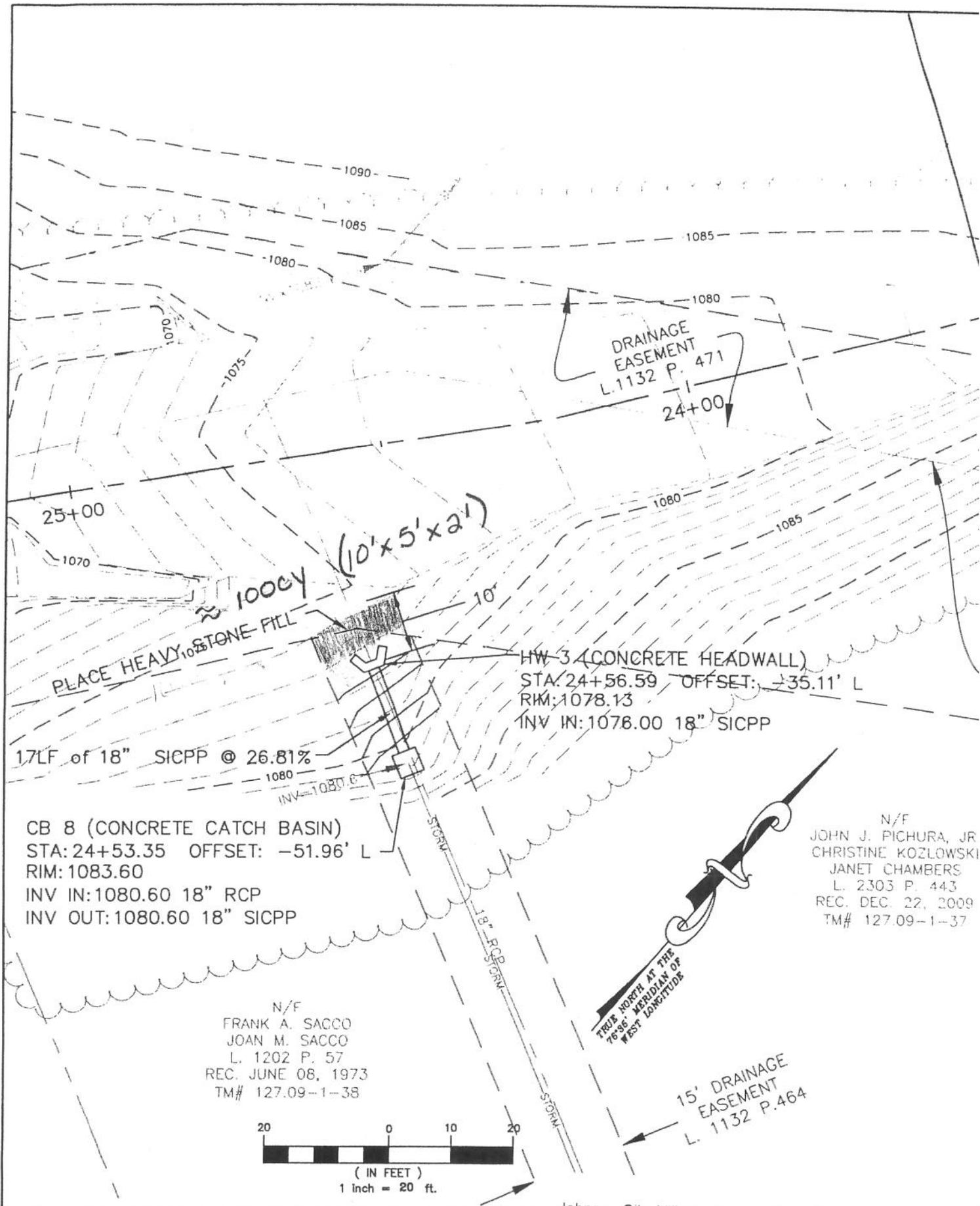
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100CY (10'x5'x2')

PLACE HEAVY STONE-FILL

DRAINAGE EASEMENT
L. 1132 P. 471
24+00

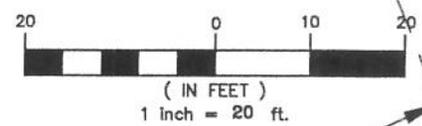
HW-3 (CONCRETE HEADWALL)
STA: 24+56.59 OFFSET: +35.11' L
RIM: 1078.13
INV IN: 1078.00 18" SICPP

17LF of 18" SICPP @ 26.81%
INV = 1080.6

CB 8 (CONCRETE CATCH BASIN)
STA: 24+53.35 OFFSET: -51.96' L
RIM: 1083.60
INV IN: 1080.60 18" RCP
INV OUT: 1080.60 18" SICPP

N/F
FRANK A. SACCO
JOAN M. SACCO
L. 1202 P. 57
REC. JUNE 08, 1973
TM# 127.09-1-38

N/F
JOHN J. PICHURA, JR
CHRISTINE KOZLOWSKI
JANET CHAMBERS
L. 2303 P. 443
REC. DEC. 22, 2009
TM# 127.09-1-37



15' DRAINAGE EASEMENT
L. 1132 P. 464

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EXISTING HEADWALL
(CONSTRUCT NEW APRON AND TURNDOWN)
STA: 28+51.97
INV IN: 1039.70 60" RCP

HW 4 (CONCRETE HEADWALL)
FIT TO EXISTING 60" RCP
STA: 28+06.17
INV OUT: 1043.80 60" RCP

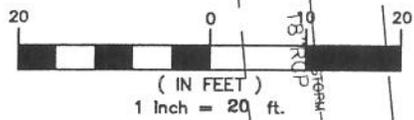
EXISTING 60" RCP

BACKFILL AND
CONSTRUCT CONCRETE
APRON WITH TURNDOWN.
SEE DETAIL SHEET C510.

16" X 20' OUTFALL STABILIZATION WITH
24" CONCRETE ARMOR UNITS. SEE
DETAIL SHEET

N/F
COLIN D. LASHIER
ALECIA K. LASHIER
L. 2161 P. 12
REC. AUG. 28, 2006
TM# 127.13-1-19

N/F
DAVID J. ALLEN
VALERIE E. ALLEN
L. 1539 P. 215
REC. JUNE 27, 1986
TM# 127.13-1-18



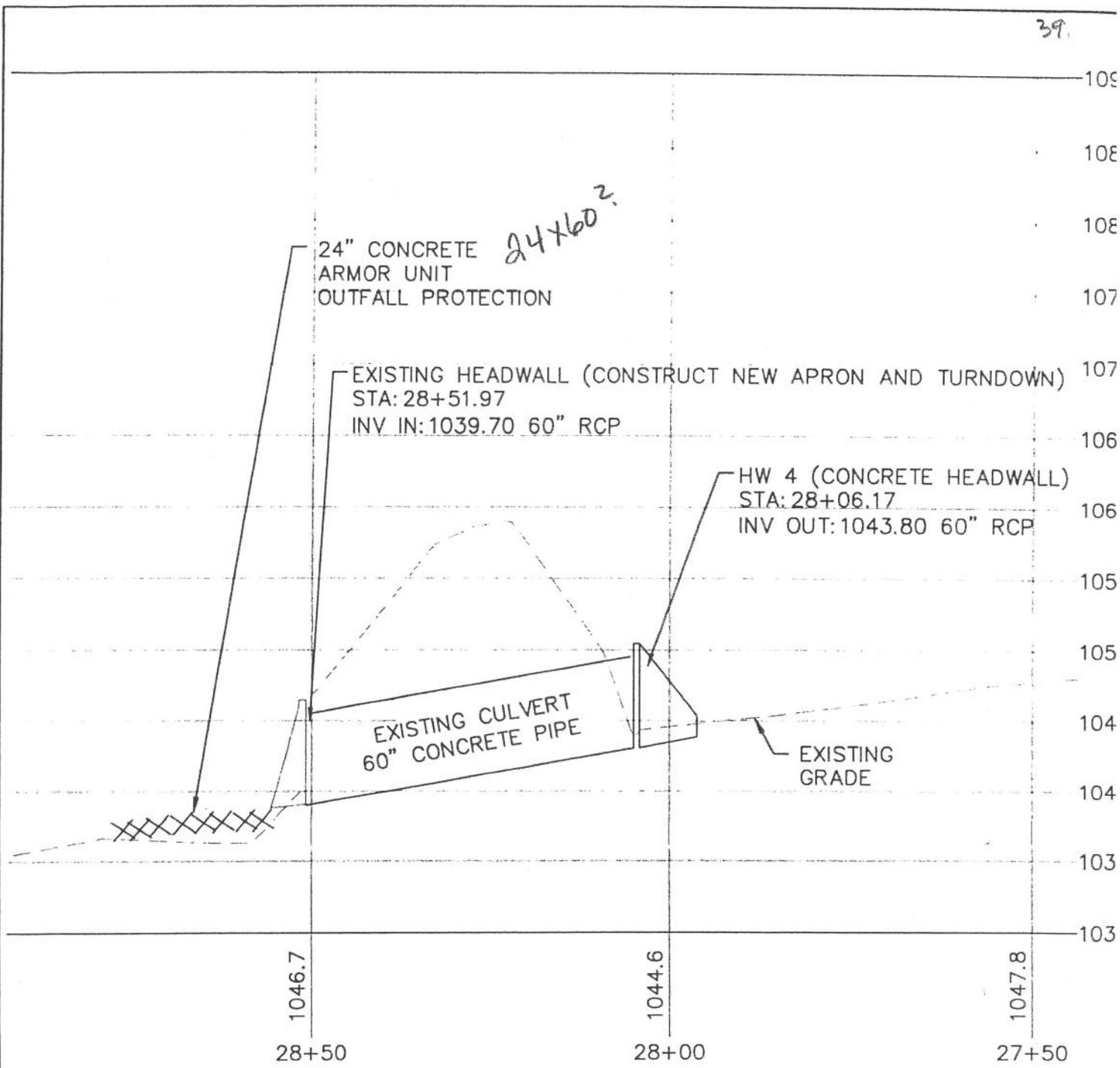
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PROFILE STATIONS 23+50 - 29+50

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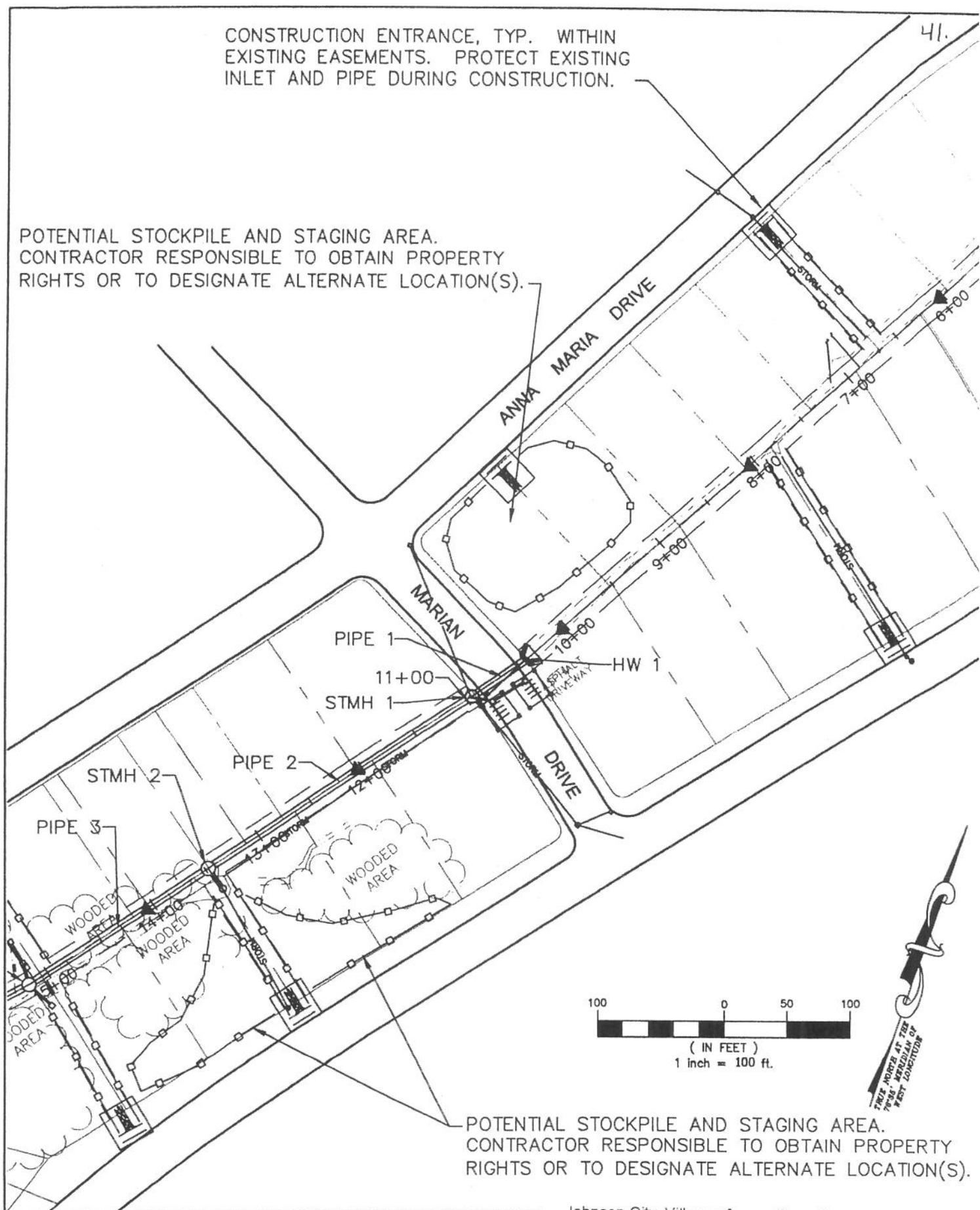
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CONSTRUCTION ENTRANCE, TYP. WITHIN EXISTING EASEMENTS. PROTECT EXISTING INLET AND PIPE DURING CONSTRUCTION.

POTENTIAL STOCKPILE AND STAGING AREA. CONTRACTOR RESPONSIBLE TO OBTAIN PROPERTY RIGHTS OR TO DESIGNATE ALTERNATE LOCATION(S).



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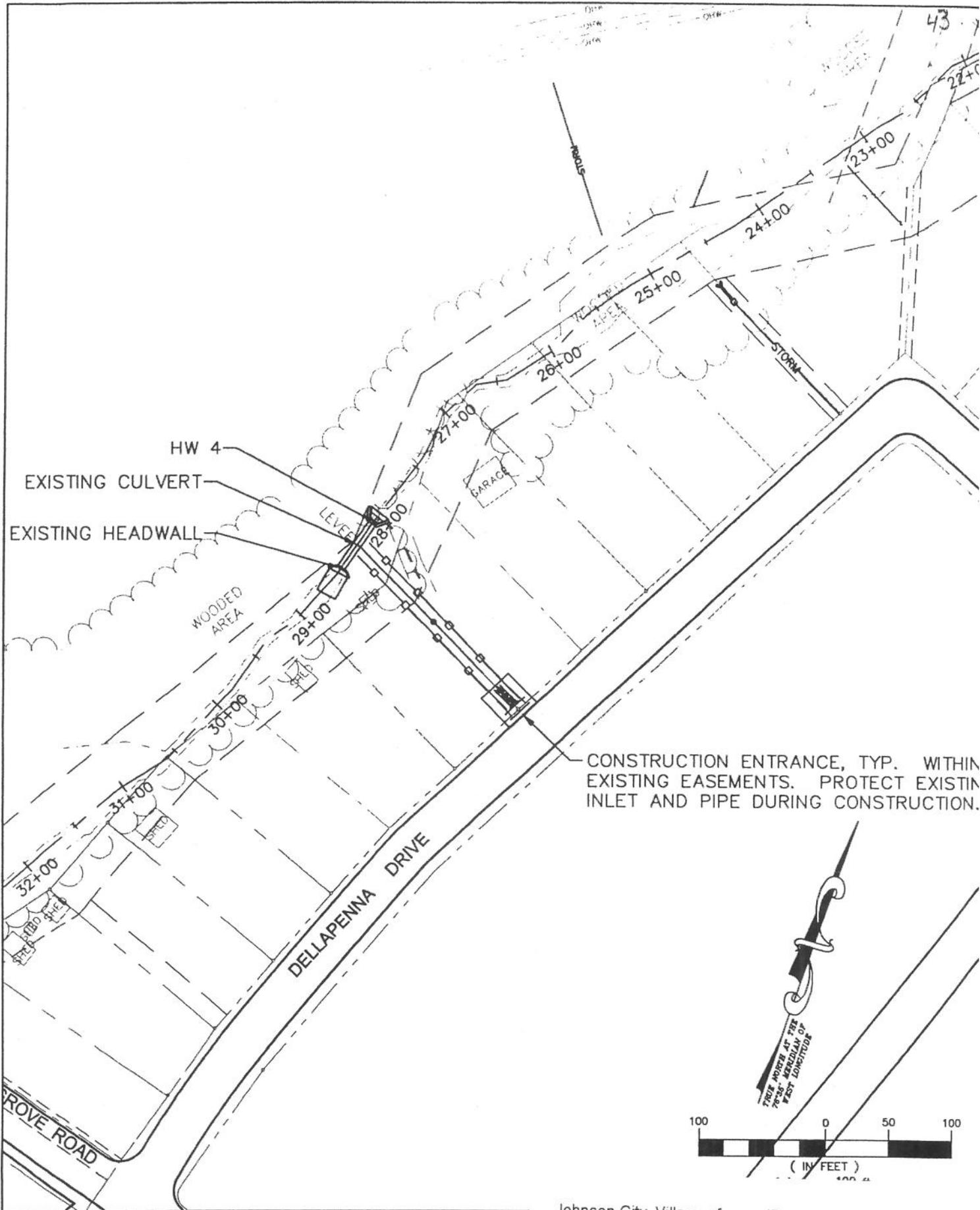


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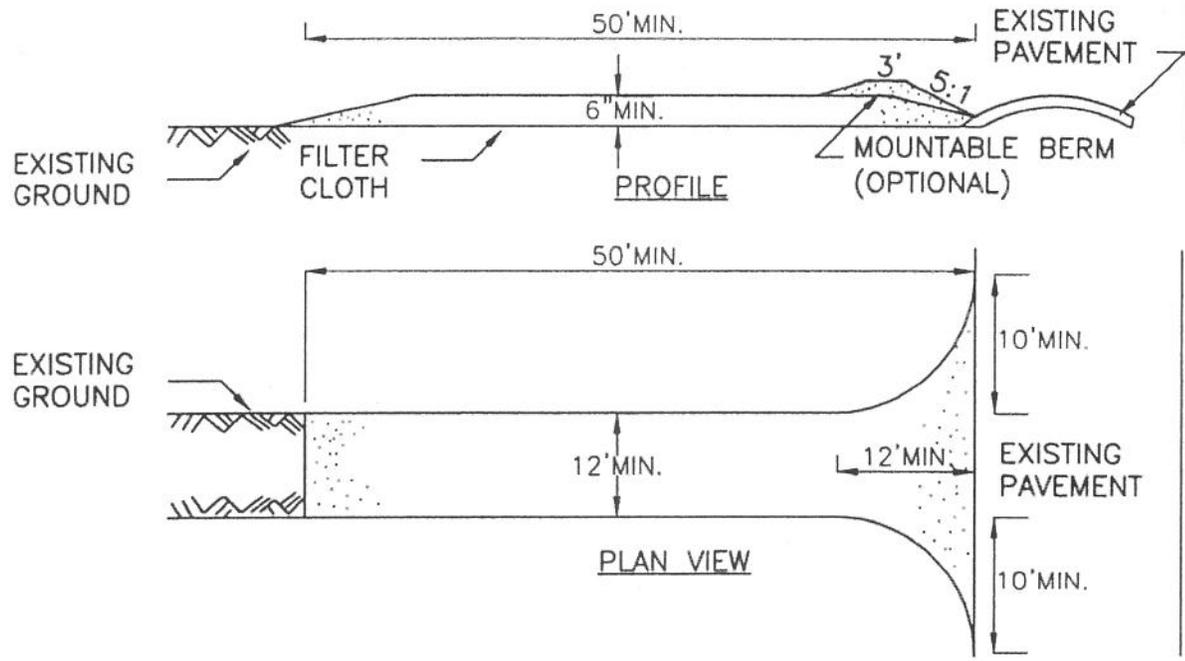
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 (Stream Piping)
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 Broome County, New York
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SYMBOL



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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STABILIZED
 CONSTRUCTION
 ENTRANCE



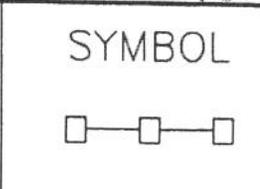
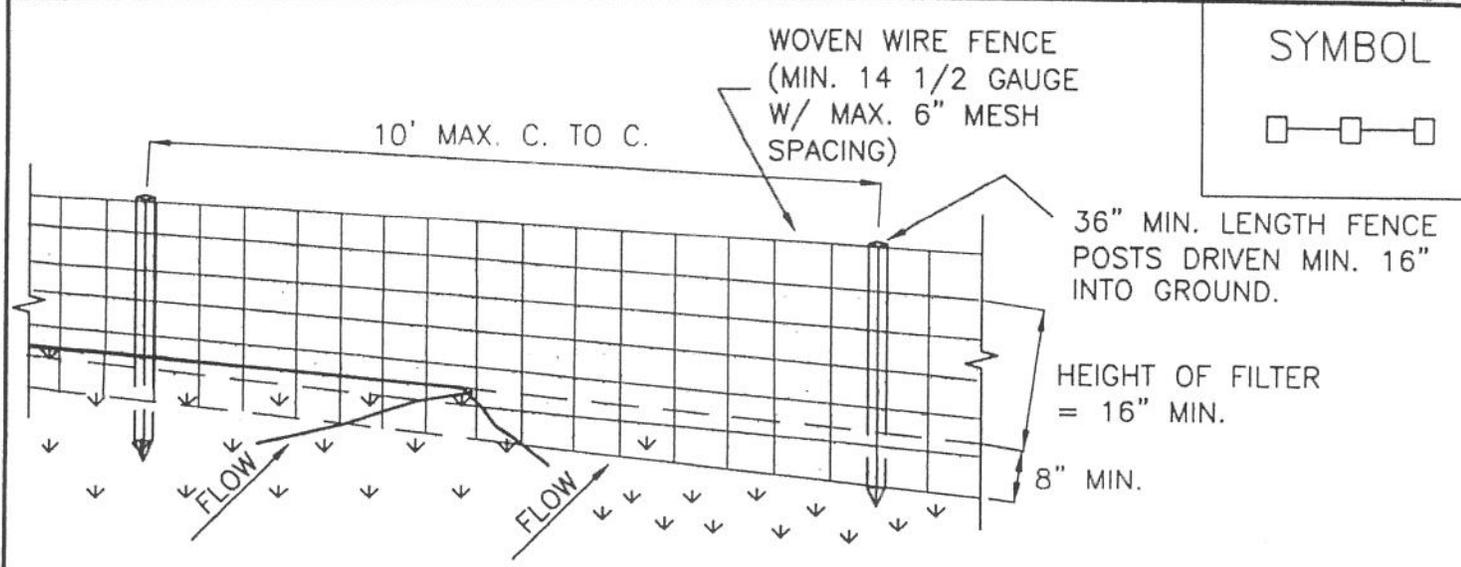
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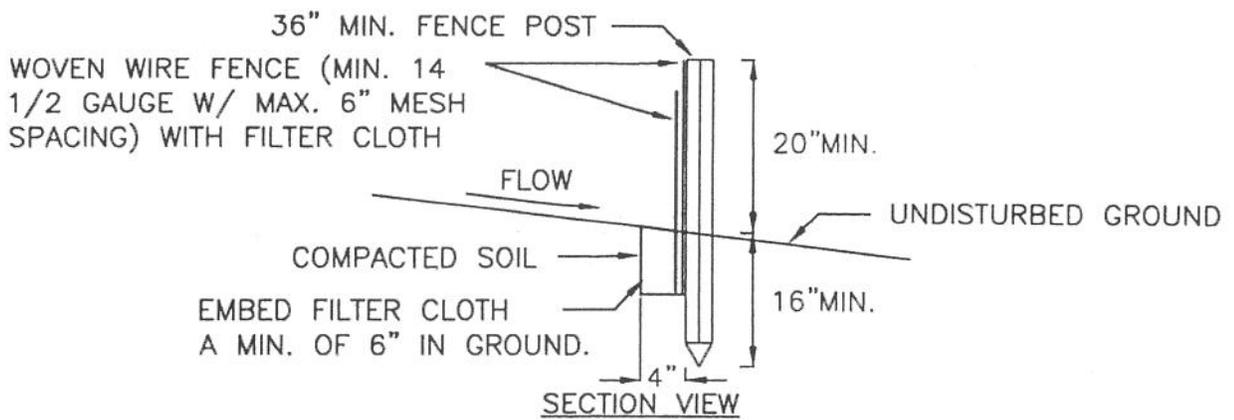
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**DRAINAGE SWALE
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 VILLAGE OF JOHNSON CITY BROOME COUNTY

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PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

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 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 NEW YORK STATE SOIL & WATER CONSERVATION CC

SILT FENCE

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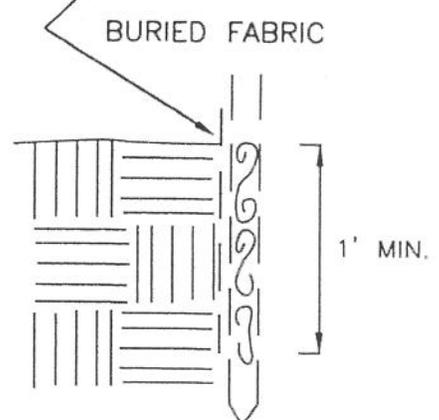
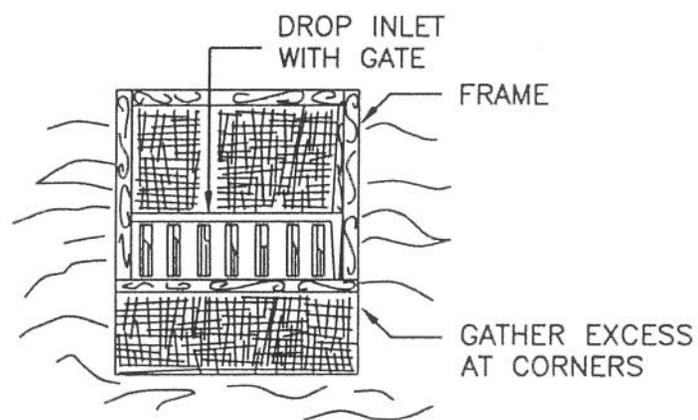
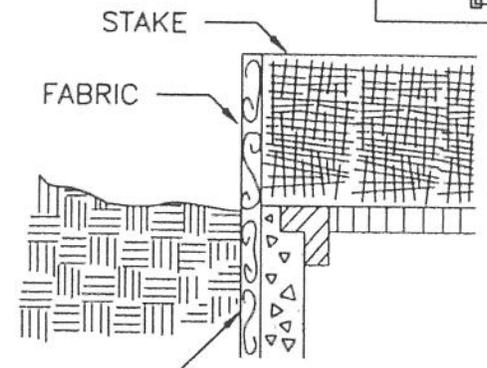
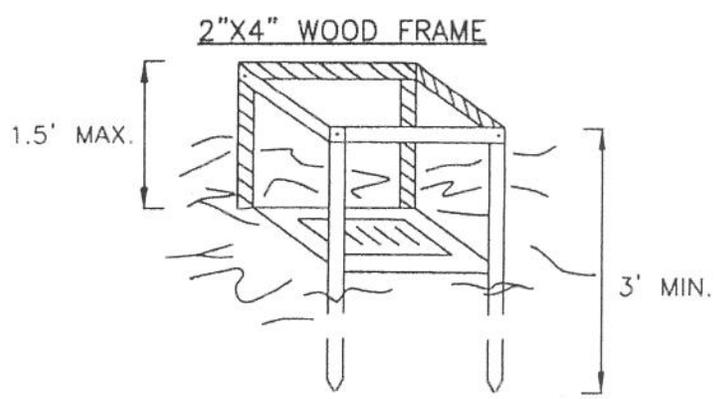
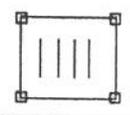
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Johnson City, Village of (Permit)
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 Broome County, New York
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SYMBOL



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

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FILTER FABRIC DROP INLET PROTECTION



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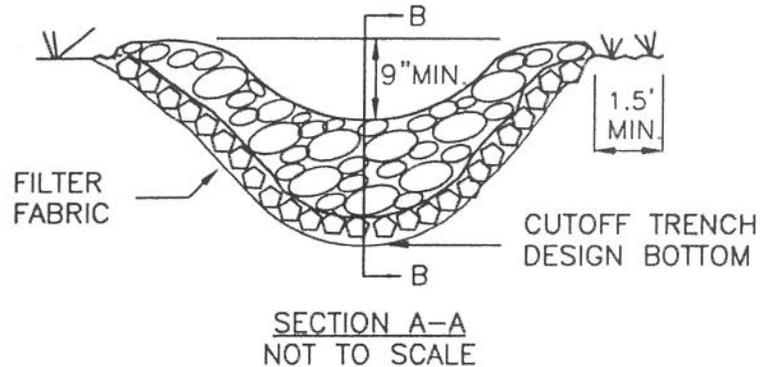
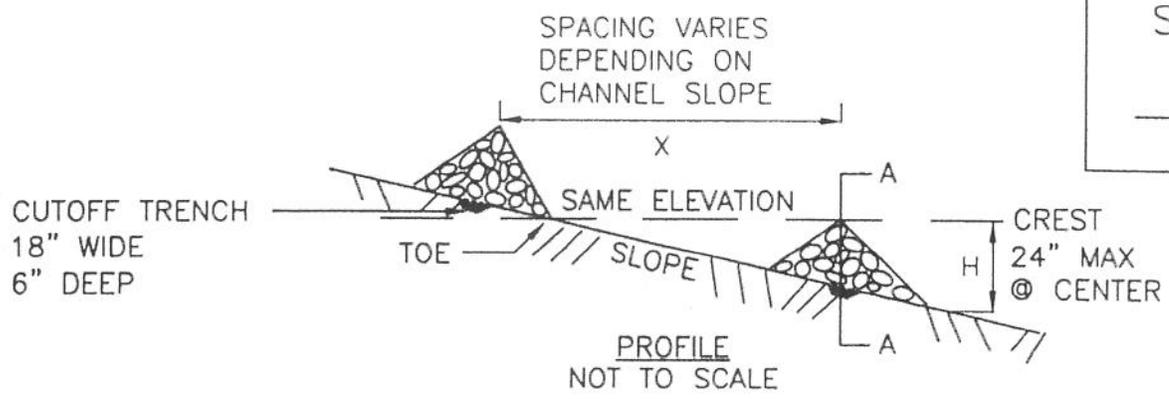
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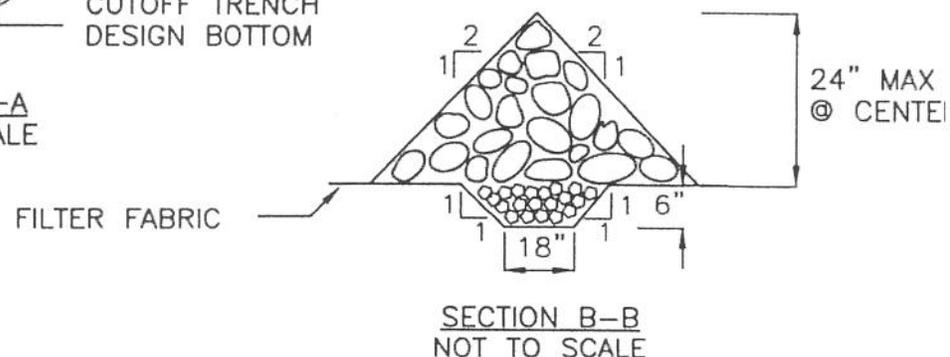
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SYMBOL



$$X = \frac{H \text{ (Ft)}}{\text{SLOPE (FT/FT)}}$$



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
 2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
 3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
 4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
 5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
- MAXIMUM DRAINAGE AREA 2 ACRES.

U.S. DEPARTMENT OF AGRICULTURE
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CHECK DAM

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INFORMED: I, the undersigned, hereby certify that the information furnished herein is true and correct to the best of my knowledge and belief, and that I am a duly licensed Professional Engineer in the State of New York.

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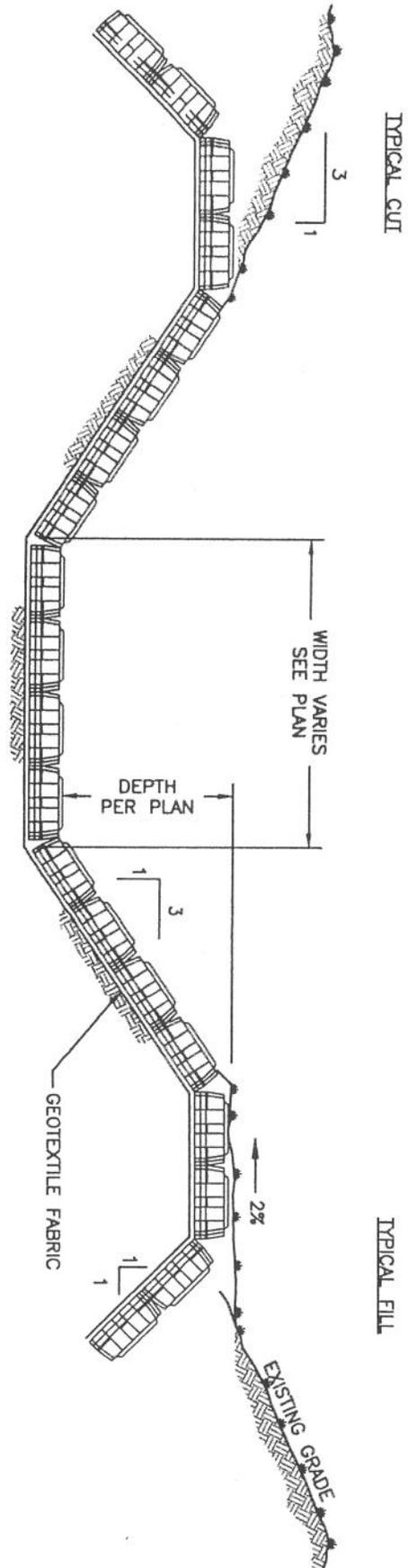
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ARTICULATING CONCRETE BLOCK (ACB) REVETMENT SYSTEM

N.T.S.



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49.

Figure 1: Example ACB Bank Restoration During Construction

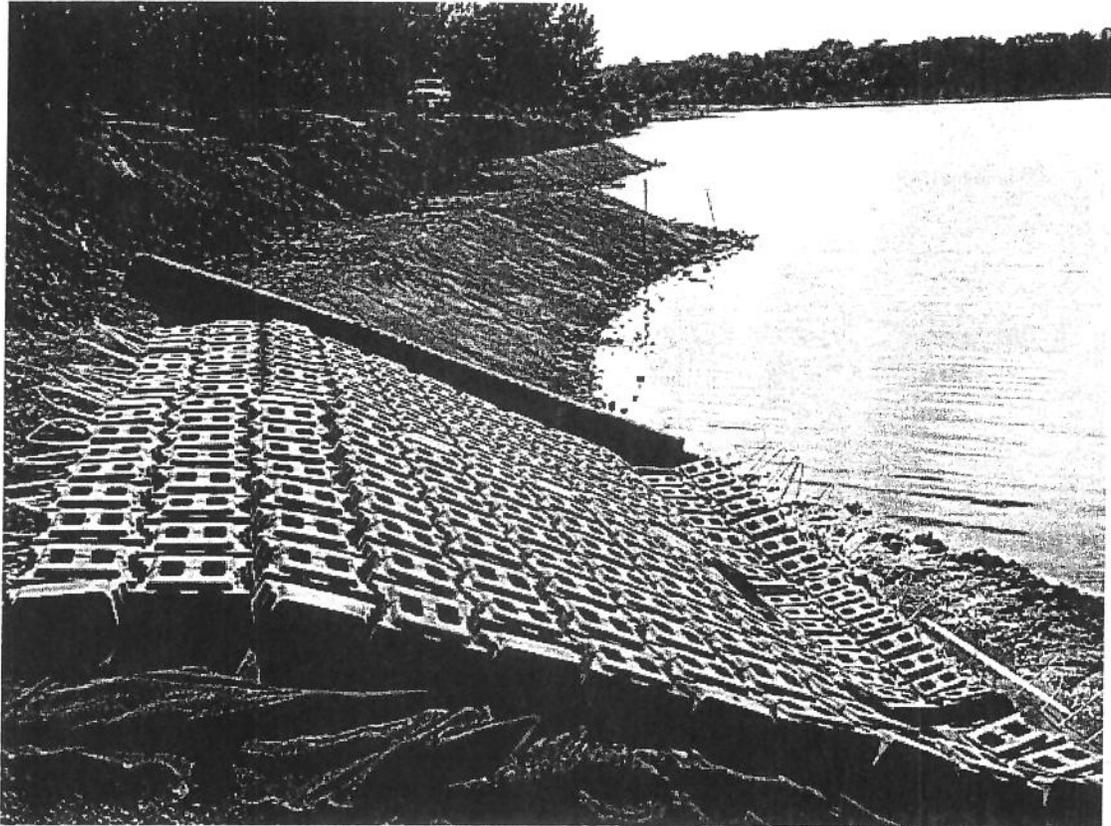


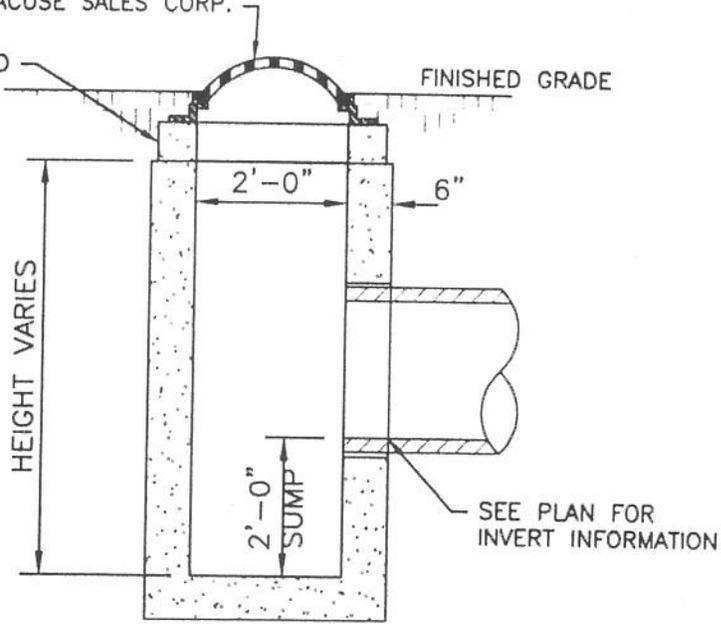
Figure 2: Example ACB Bank Restoration After Construction (vegetated)



HEAVY DUTY FRAME AND GRATE
#1255DC BY SYRACUSE SALES CORP.

SHIM AS REQUIRED

FINISHED GRADE



DROP INLET DETAIL (DI)

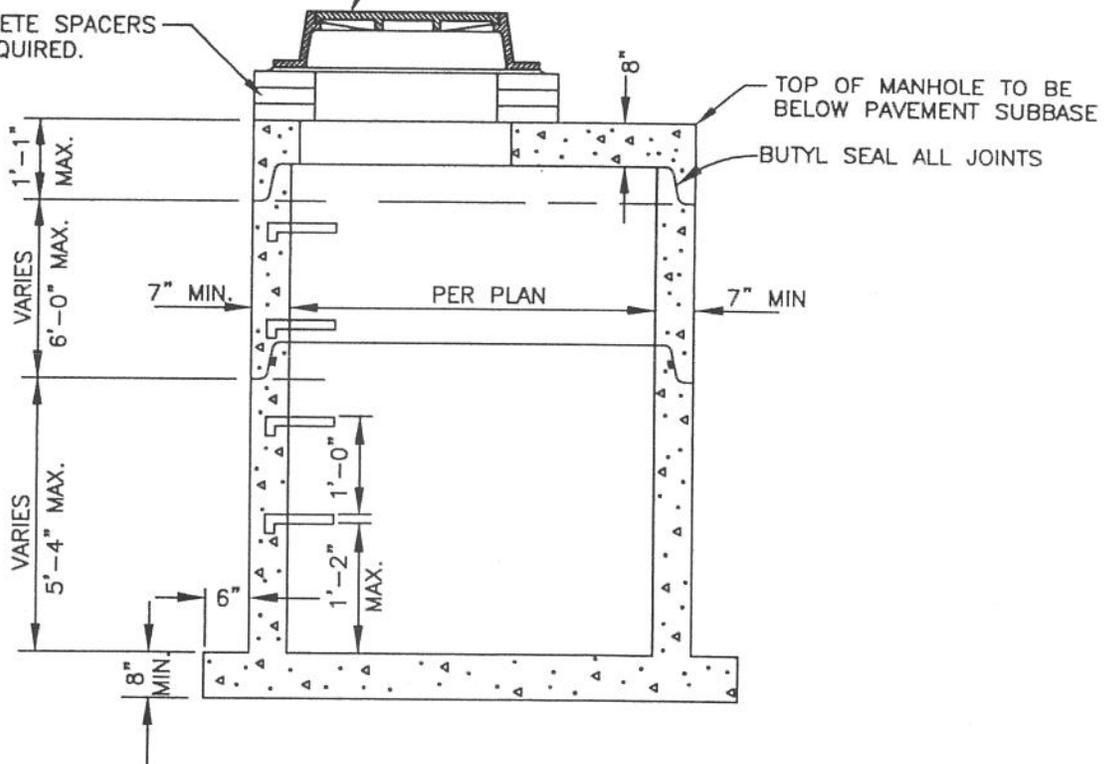
N.T.S.

Precast Concrete Storm Manhole is Referred to as 126-inch STMH in the Plan Sheets

These Structures function as Energy Dissipators

MANHOLE FRAME, SOLID LID - NEENAH NO. R-1726-A
SINGLE PICK HOLE IN COVER, WEIGHT = 350 LBS.

CONCRETE SPACERS AS REQUIRED.



STANDARD PRECAST CONCRETE STORM MANHOLE



58 Exchange Street
Binghamton, New York 13901
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Fax: 607.722.2515
Email: info@keystone.com
www.keystone.com

WARNING:
It is a violation of public law 101-508 and 101-510 to use any product or service without the proper permits and licenses. The user of this product or service is responsible for obtaining all necessary permits and licenses. The user of this product or service is also responsible for ensuring that all work is done in accordance with all applicable codes and standards. The user of this product or service is also responsible for ensuring that all work is done in a safe and sound manner. The user of this product or service is also responsible for ensuring that all work is done in a timely and efficient manner. The user of this product or service is also responsible for ensuring that all work is done in a cost-effective manner. The user of this product or service is also responsible for ensuring that all work is done in a professional manner. The user of this product or service is also responsible for ensuring that all work is done in a high-quality manner. The user of this product or service is also responsible for ensuring that all work is done in a safe and sound manner. The user of this product or service is also responsible for ensuring that all work is done in a timely and efficient manner. The user of this product or service is also responsible for ensuring that all work is done in a cost-effective manner. The user of this product or service is also responsible for ensuring that all work is done in a professional manner. The user of this product or service is also responsible for ensuring that all work is done in a high-quality manner.

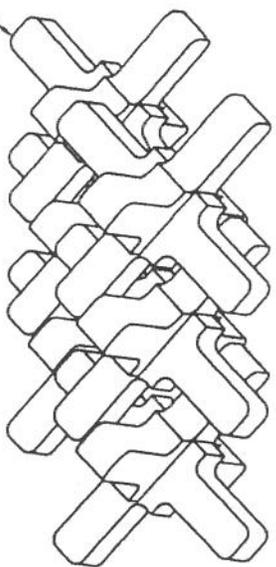
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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
AND DITCH
REHABILITATION**
VILLAGE OF JOHNSON CITY BROOME COUNTY

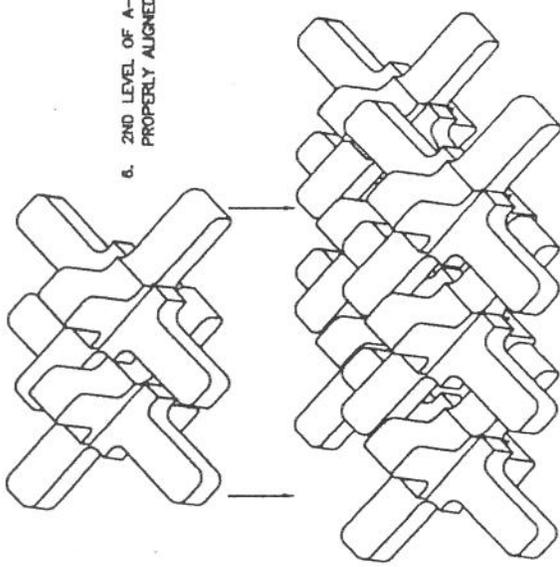
Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



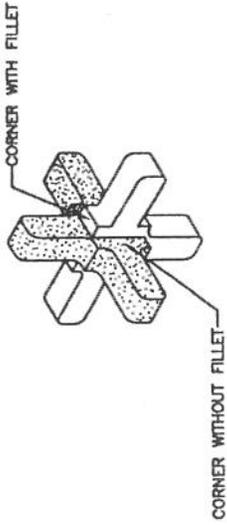
5. INSTALL 2ND ROW OF A-Jacks USING SAME ALIGNMENT.
2ND ROW OF A-Jacks



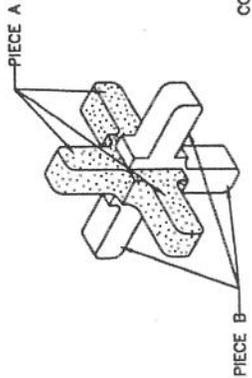
6. 2ND LEVEL OF A-Jacks WILL FIT WHEN PROPERLY ALIGNED WITH 1ST LEVEL.



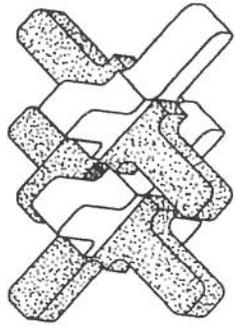
2. IDENTIFY CORNERS WITH AND WITHOUT FILLETS.



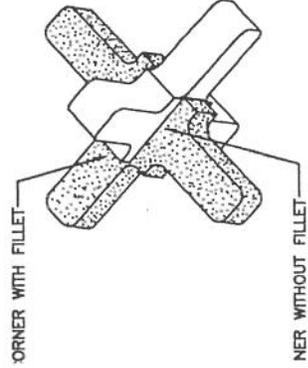
1. IDENTIFY A-Jacks COMPONENTS.



4. ALIGN ALL A-Jacks IN SAME DIRECTION. CORNERS WITHOUT FILLET MUST LINE UP.



3. PROPER ROTATION OF A-Jacks.



24" CONCRETE ARMOR UNITS
N.T.S.

A-Jacks

KEYSTONE ASSOCIATES
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www.keystone.com

WARNING:
It is a violation of Section 208 of the State Environmental Conservation Law to use any product or material in the construction of a drainage swale or ditch which does not meet the minimum standards set forth in the State Environmental Conservation Law, unless such product or material is specifically approved by the State Department of Environmental Conservation.

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VILLAGE OF JOHNSON CITY
**DRAINAGE SWALE
AND DITCH
REHABILITATION**
VILLAGE OF JOHNSON CITY BROOME CO.

Johnson City, Village of (Permit)
(Stream Piping)
D/A Processing No. 2012-00244
Broome County, New York
Quad: Castle Creek, NY



A-Jacks: Concrete Armor Units

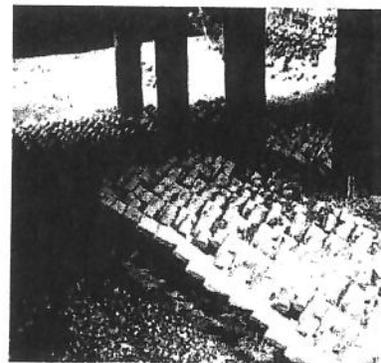
A-Jacks® are high stability concrete armor units designed to interlock into a flexible, highly permeable matrix. A-Jacks can be installed either randomly or in a uniform pattern. The voids formed within the A-Jacks matrix provide approximately 40% open space in the uniform placement pattern. These voids provide habitat for fish and other marine life when applied as a reef, revetment or as a soil support system in river applications. In addition, the voids may be backfilled with suitable soils and planted with a variety of vegetation including grasses, shrubs and trees above the normal base flow.

Applications

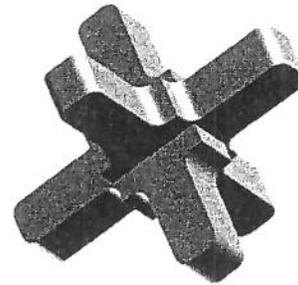
- Drop structures
- Weirs
- Energy dissipation
- Bridge scour protection
- Streambank/toe stabilization

Streambank Applications

Streambank erosion often produces steep banks with little or no vegetation. These unprotected banks are even more susceptible to erosion due to over steepening, loss of ground cover, groundwater discharge and stream erosion at the base of the bank. A-Jacks concrete armor units provide an alternative which when used with bio stabilization technique, develops a cost-effective solution.



A-Jacks Unit



Bridge Scour Applications

The ability of the A-Jacks system to dissipate energy and resist the erosive forces of flowing water allows this system to protect channel boundaries from scour and erosion. Extensive laboratory research was performed on both model and full scale units in order to evaluate the hydraulic properties of the A-Jacks units. An A-Jacks Design Manual for the hydraulic design of open-channel conveyance ways and pier scour countermeasure is available upon request.

Energy Dissipation

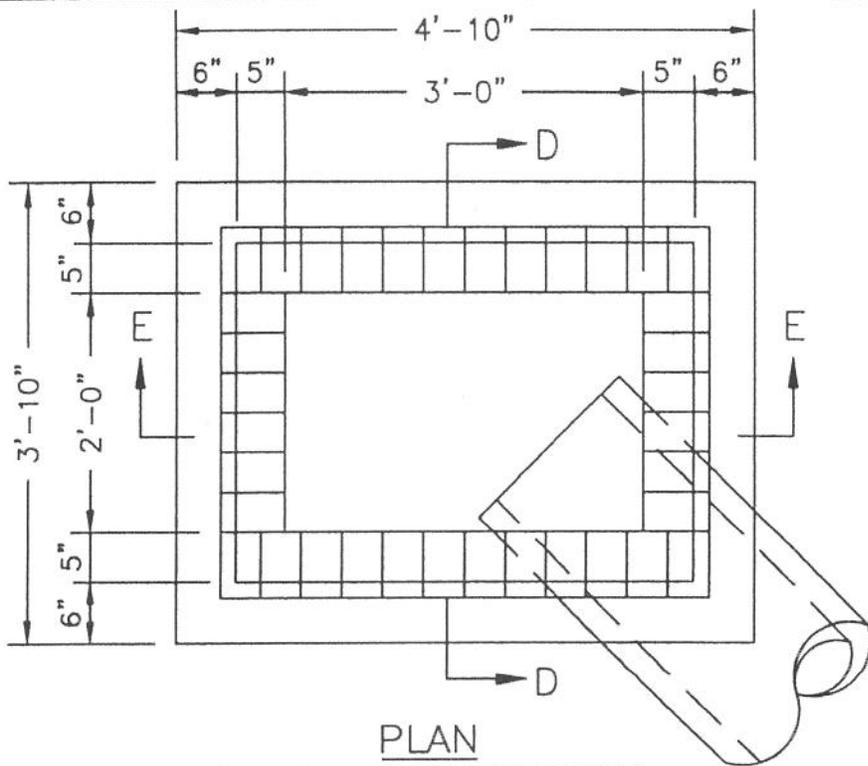
A-Jacks' ability to dissipate energy in channel, spillway or culvert outfall applications relies on the inherent roughness of the units. For A-Jacks, the design value for Manning's roughness coefficient is $n=0.1$. This value was determined from extensive full and quarter scale laboratory testing. The ability of A-Jacks to increase roughness creates a hydraulic jump when flow encounters the units. Creating the hydraulic jump effectively releases the energy associated with high velocity and/or steep embankment flow conditions. By releasing the energy, the erosive forces associated with the hydraulic jump are also greatly diminished. As the flow travels downstream through the A-Jacks matrix, the energy grade line slope continues to be reduced until the desired flow conditions are obtained downstream of the A-Jacks units.

ArmorFlex Design Software and Guidelines are available through

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Sheet 52 of 53

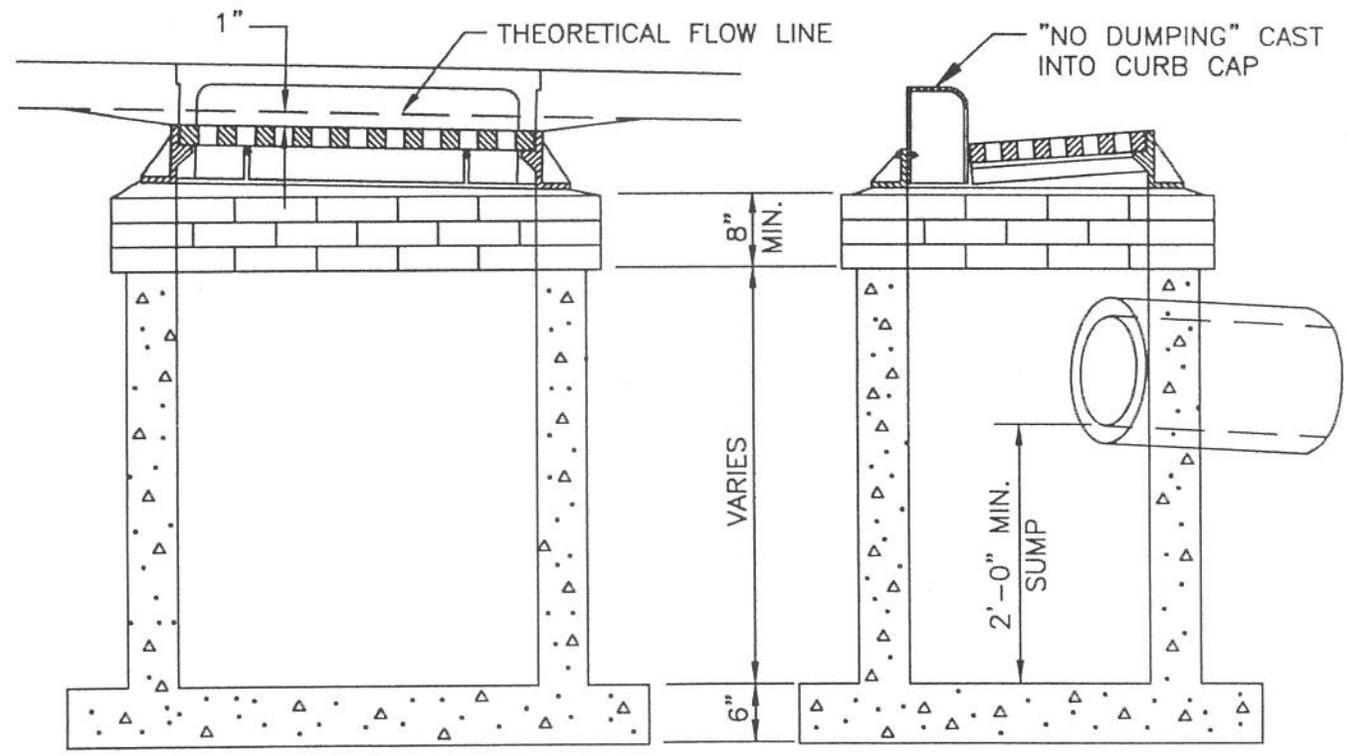




PLAN

(FRAME & GRATE NOT SHOWN)

SEE STANDARD PRE-CAST CONCRETE MANHOLE FOR ADDITIONAL NOTES.



SECTION E-E

SECTION D-D

CATCH BASIN

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