Western Union Telegraph Company Severn Relay Station Tower
MIHP No. AA-2297
Severn, Anne Arundel County
Constructed: 1945
Access: Private

Capsule Summary

This historic property is the site of a microwave relay station built in 1945 by the Western Union Telegraph Company as part of its New York-Washington-Pittsburgh radio relay triangle. The site consists of a fenced compound in the interior of a residential lot north of Thompson Road, approximately one mile southeast of Severn. The compound includes the tower, a concrete block building, and a modern communications equipment cabinet.

Maryland Historical Trust
Maryland Inventory of
Historic Properties Form

Inventory No. AA-2297

1. Name of Property (indicate preferred name)

historic	Western Union Telegraph Company, Severn Relay Station Tower
other	American Tower Corporation Severn Tower

2. Location

street and number	1620 Thompson Road	__ not for publication
city, town	Severn	__ vicinity
county	Anne Arundel	

3. Owner of Property (give names and mailing addresses of all owners)

name	American Tower Corporation				
street and number	116 Huntington Avenue			telephone	617-585-7600
city, town	Boston	state	MA	zip code	02116

4. Location of Legal Description

courthouse, registry of deeds, etc.	Anne Arundel Courthouse				liber	9264	folio 179
city, town	Annapolis	tax map 15	tax parcel	415	tax ID number	04-06267800	

5. Primary Location of Additional Data

_____ Contributing Resource in National Register District
_____ Contributing Resource in Local Historic District
_____ Determined Eligible for the National Register/Maryland Register
_____ Determined Ineligible for the National Register/Maryland Register
_____ Recorded by HABS/HAER
__X__ Historic Structure Report or Research Report at MHT
_____ Other:_____

6. Classification

Category	Ownership	Current Function		Resource Count	
				Contributing	Noncontributing
_____district	_____public	_____agriculture	_____landscape	1	_____ buildings
_____building(s)	__X__private	__X__commerce/trade	_____recreation/culture		_____ sites
__X__structure	_____both	_____defense	_____religion	1	1 structures
_____site		_____domestic	_____social		_____ objects
_____object		_____education	_____transportation	2	1 Total
		_____funerary	_____work in progress		
		_____government	_____unknown		
		_____health care	_____vacant/not in use		
		_____industry	_____other:		

Number of Contributing Resources previously listed in the Inventory

_____

7. Description

Inventory No. AA-2297

Condition

___ excellent ___ deteriorated
___ good ___ ruins
X fair ___ altered

Prepare both a one paragraph summary and a comprehensive description of the resource and its various elements as it exists today.

This historic property is the site of a microwave relay station built in 1945 by the Western Union Telegraph Company as part of its New York-Washington-Pittsburgh radio relay triangle. The site consists of a fenced compound in the interior of a residential lot north of Thompson Road. The compound includes the tower, a concrete block building, and a modern communications equipment cabinet.

The tower is a metal trestle tower structure constructed on four legs mounted on concrete footings and rises approximately 132 feet above the ground. The tower is constructed of steel members (legs) and steel diagonal and horizontal cross-braces. The tapered trestle tower is constructed in 8 segments with interior stairs (8 flights) leading to a metal catwalk around the tower crown. There are modern telecommunications antennae mounted on several levels. These antennae include radome-covered parabola antennae, whip antennae, and panel antennae.

The one-story rectangular concrete block equipment building is located to the west of the tower. The building has a shed roof and has doors in the south and west façades. The concrete block building measures 16 feet by 38 feet and is constructed according to the standards specified by the Western Union Telegraph Company.

8. Significance

Inventory No. AA-2297

Period	Areas of Significance	Check and justify below		
__ 1600-1699	__ agriculture	__ economics	__ health/medicine	__ performing arts
__ 1700-1799	__ archeology	__ education	__ industry	__ philosophy
__ 1800-1899	__ architecture	X engineering	__ invention	__ politics/government
X 1900-1999	__ art	__ entertainment/ recreation	__ landscape architecture	__ religion
__ 2000-	__ commerce		__ law	__ science
	X communications	__ ethnic heritage	__ literature	__ social history
	__ community planning	__ exploration/ settlement	__ maritime history	__ transportation
	__ conservation		__ military	__ other: _____

Specific dates 1945-1990 **Architect/Builder** The Western Union Telegraph Co.

Construction dates 1945

Evaluation for:

_____ National Register _____ Maryland Register ____X____ not evaluated

Prepare a one-paragraph summary statement of significance addressing applicable criteria, followed by a narrative discussion of the history of the resource and its context. (For compliance projects, complete evaluation on a DOE Form – see manual.)

The Western Union Telegraph Company developed this property as a microwave relay station in its New York-Washington-Pittsburgh radio relay triangle, the nation's first private-sector microwave communications system. Between 1945 and 1947, Western Union developed twenty-five stations in this system: four terminals (located in New York City, Washington, DC, and Pittsburgh, PA) and twenty-one relay towers constructed at regular intervals between the terminal stations. The Severn relay station was built according to Western Union standards that called for a "Forestry Type Tower" and associated concrete block equipment building.

On 18 September 1945 the Western Union Telegraph Company acquired a portion of a parcel located in the Thompson Farms subdivision north of Thompson Road. Headquartered in New York City, Western Union purchased the 19,602-square foot parcel to construct a microwave relay station in its New York-Pittsburgh-Washington radio relay triangle. The parcel in Anne Arundel County was one of more than twenty properties acquired by Western Union to construct the nation's first private-sector microwave relay system. Improvements in telecommunications realized during the Second World War were seized upon by the private sector and implemented by companies such as Western Union and AT&T. The Western Union system was designed to accommodate high volumes of telegraph and telephone traffic via point-to-point high frequency radio transmission. Collaborating with RCA, Western Union designed and implemented its system in experimental stages beginning in 1945.

The system required two types of station: terminal stations (located in New York City, Washington, DC, and Pittsburgh, Pennsylvania) and relay stations located in rural areas at regularly spaced intervals along the system. According to the RCA manual developed to implement the system, relay stations such the one at Severn were sited "by the nature of the terrain, geographic locality, and other factors ... Typical relay stations are located in rural districts." According to an unpublished Western Union engineering study, "Height and spacing of the towers has been selected to obtain a minimum clearance for the radio beam in each direction."[1]

Western Union evaluated several tower options, including tubular steel and masonry towers, before settling on "a design generally known as the Department of Agriculture Heavy Type Forestry Tower."[2] "In the interests of universitality, it was decided to standardize on steel towers of different heights, all with the same size apparatus cabin on top," wrote Western Union engineer Julian Z. Millar in a 1946 article on the system.[3] Most of the Western Union towers measured from 60 to 120 feet high, depending on the location.

In addition to constructing a system that used standardized tower types, Western Union also standardized the construction of associated equipment buildings. "At the base of each tower, a building about 16 feet by 30 feet will be erected," wrote Millar. "The building will house the major portion of the radio equipment, which is connected to the high frequency cabinets [located in the cabin atop the tower] by coaxial, control and power cables. The building will be heated in winter and ventilated in summer to insure dryness."[4]

Each of the Western Union relay stations was built to be operated remotely: "It is planned to operate the relay stations on an unattended basis. Maintenance personnel will be stationed at the terminals and suitable fault locating equipment will be provided for determining the location of any station in trouble."[5] Located approximately forty miles from Washington, DC, the Severn relay station would have been accessible to Western Union engineers at the Tenley (Washington, DC) terminal station or the company's Georgetown office.

The concept behind construction of the microwave system was initially geared towards Western Union's telegraphy and nascent facsimile (fax) business. In 1948, the new system was adapted to carry television broadcasts. "It was envisioned from the beginning that the same physical facilities, such as towers, buildings, power plants, and the same maintenance personnel which were used for the telegraph circuits, could be shared with television systems, thereby obtaining economic advantages for both classes of service."[6] The Severn relay station initially was licensed for telegraphy, telephony, facsimile, and "composite transmission." According to a 1948 article on the microwave relay system, the New York-Washington-Pittsburgh radio relay triangle could "accommodate two television relay channels."[7]

The Severn facility was constructed before January 1947 and its equipment had been delivered by the first week in February 1947. The New York-Washington-Pittsburgh radio relay triangle went online in 1948. Western Union owned and operated the facility until 1990 when Micronet, Inc., a communications facility construction and management company purchased it. In 1997, American Tower Systems, Inc. (predecessor to American Tower Corporation, Inc.), acquired Micronet's assets in a $70.25 million purchase. In 1998, the property was transferred from American Tower Systems, Inc., to American Tower, L.P.

The Severn relay station has been continuously used in the communications industry since its construction in 1947. It was a component in a nationally significant communications system that was a forerunner to today's wireless telecommunications systems. The relay station played an important role in the emergence of modern telephony and the expansion of television as a consumer communications medium. As a part of a regional communications system with terminal sites in New York City, Washington, DC, and Pittsburgh, Pennsylvania, as well as other relay stations situated between these points, the Severn relay station was a key link in the nation's first private-sector microwave communications system.

NOTES

[1] Archives Center, National Museum of American History, Smithsonian Institution, Western Union Telegraph Company Records, Box 546, Folder 1, 4 April, 1947, Microwave Radio Relay Equipment Instructions.

[2] Archives Center, National Museum of American History, Smithsonian Institution, Western Union Telegraph Company Records, Box 2, Folder 9, n.d., Uncompleted Manuscript for Engineering Progress 1945-1950, The Western Union Telegraph Company.

[3] "Engineering Progress 1945-1950"; "Microwave Radio Relay Equipment Instructions."

[4] Julian Z. Millar, "A Preview of the Western Union System of Radio Beam Telegraphy, Part II," *Journal of the Franklin Institute* 242, no. 1 (July 1946): 33.

[5] Millar, "Western Union System of Radio Beam Telegraphy, Part II," 33.

[6] Millar, "Western Union System of Radio Beam Telegraphy, Part II," 36.

[7] Samuel Freedman, "Microwaves for Relaying TV Programs," Radio & Television News, November 1948, 152.

9. Major Bibliographical References

Inventory No. AA-2297

Leland E. Thompson, "A Microwave Relay System," *Proceedings of the I.R.E.* 34, no. 12 (December 1946): 936-41; Julian Z. Millar, "A Preview of the Western Union System of Radio Beam Telegraphy, Part II," Journal of the Franklin Institute 242, no. 1 (July 1946): 23-40; Archives Center, National Museum of American History, Smithsonian Institution, Western Union Telegraph Company Records, Box 2, Folder 9, n.d., Uncompleted Manuscript for Engineering Progress 1945-1950, The Western Union Telegraph Company; Samuel Freedman, "Microwaves for Relaying TV Programs," Radio & Television News, November 1948, 35-38, 150, 152-53.

10. Geographical Data

Acreage of surveyed property	15,000 sq. feet		
Acreage of historical setting	15,000 sq. feet		
Quadrangle name	Relay, MD	Quadrangle scale:	1:24,000

Verbal boundary description and justification

This historic property's boundaries are confined to the 0.34-acre compound comprising the former Western Union Telegrapch Company's property acquired from Leonard M. Griffith and Bowie Building Association and recorded in Anne Arundel Deed Book 341, p. 150. Western Union acquired a portion of the larger parent parcel (3.98 acres) specifically for its microwave relay station. The smaller tract's boundaries comprise the historic property's boundary.

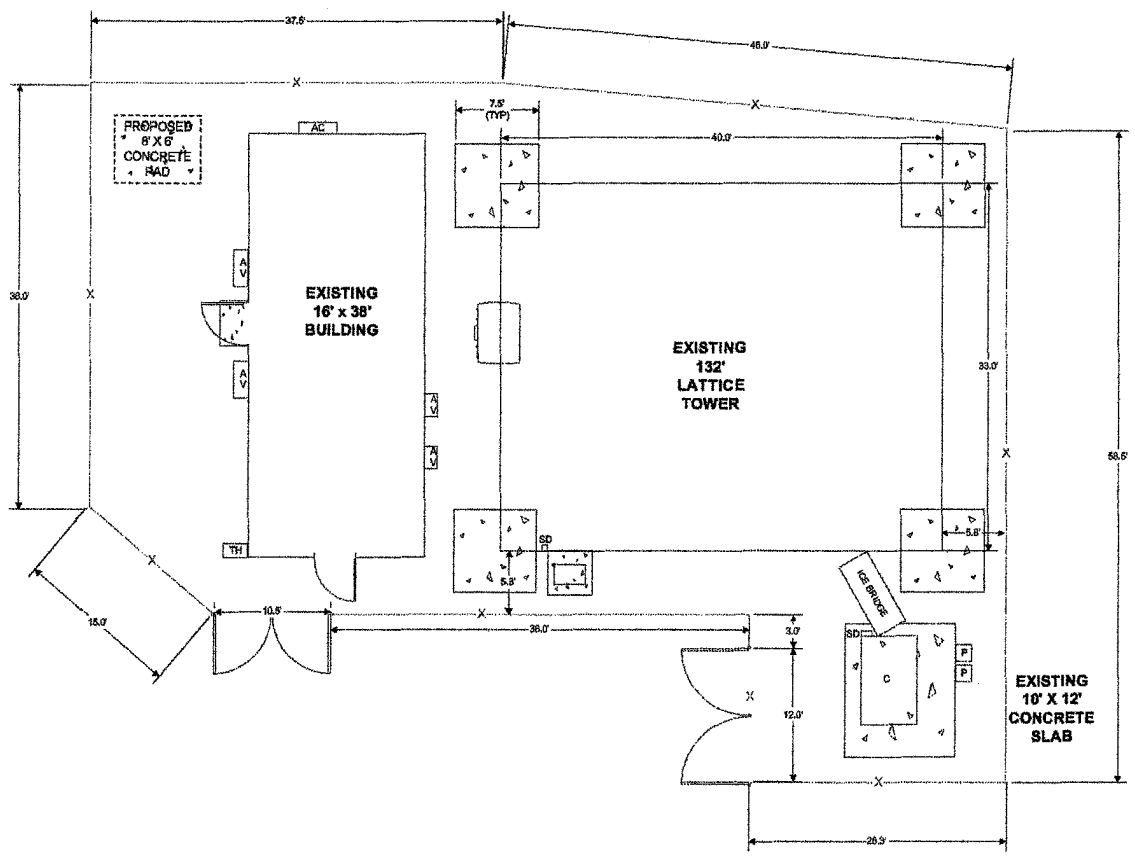
11. Form Prepared by

name/title	David S. Rotenstein, Ph.D.		
organization	Consulting Historian	date	July 2003
street & number	10308 Edgewood Ave.	telephone	301-592-0646
city or town	Silver Spring	state	MD

The Maryland Inventory of Historic Properties was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
DHCD/DHCP
100 Community Place
Crownsville, MD 21032-2023
410-514-7600



0ft. 6ft. 10ft. 20ft.

Kimley-Horn and Associates, Inc.
Post Office Box 33068
Raleigh, North Carolina 27636

American Tower Corporation

SEVERN

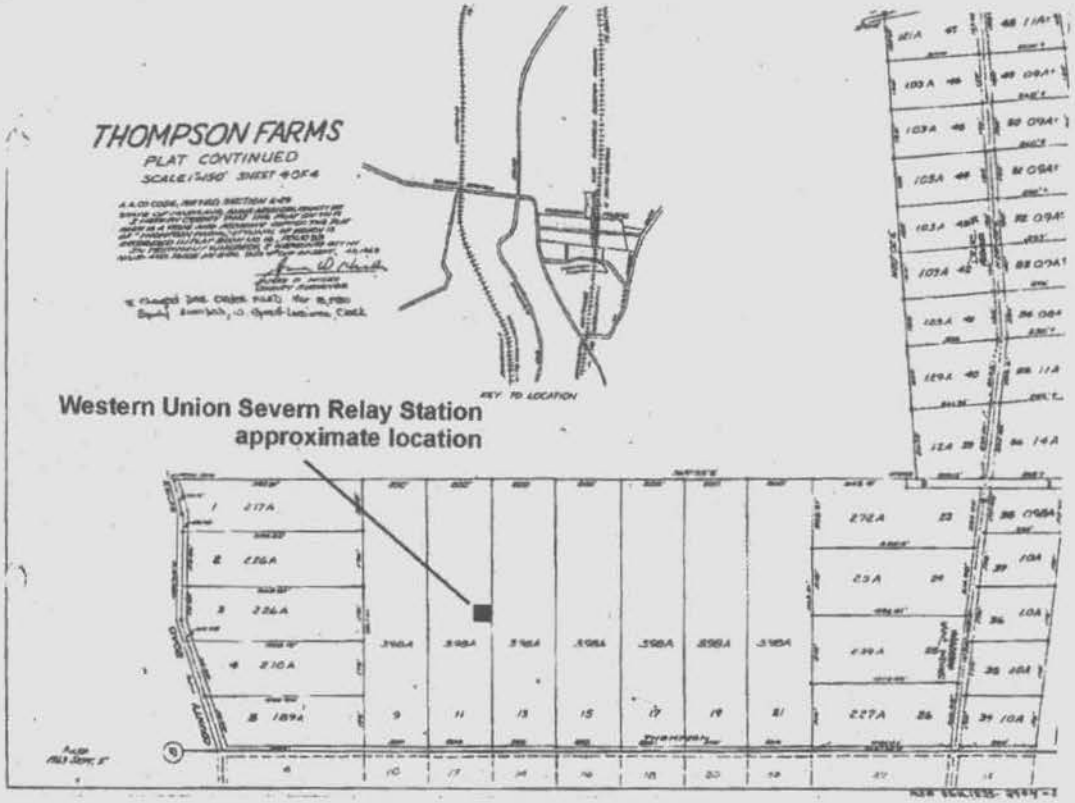
SITE LAYOUT PLAN

SIZE	FSCM NO	DWG NO	REV
B		48	0

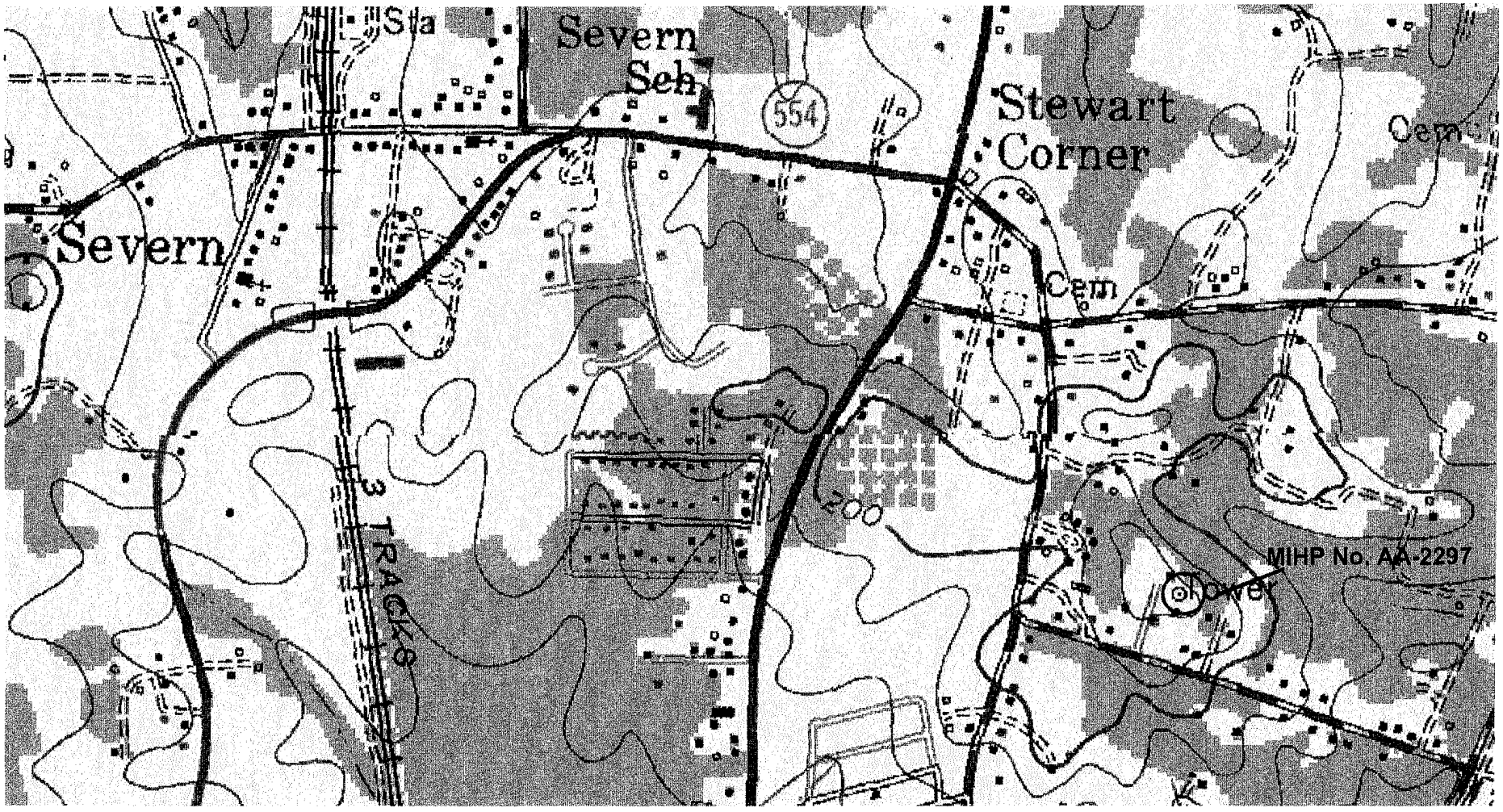
SCALE 1" = 10' SHEET 1 OF 5

Source: American Tower Corporation Web Site <americantower.com>

AN-2297


THOMPSON FARMS
PLAT CONTINUED
SCALE 1"=150' SHEET 4 OF 4
KEY TO LOCATION
Western Union Severn Relay Station
approximate location

AA-2297



N
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Relay, MD, USGS Quadrangle (7.5-minute series)
Western Union Telegraph Company Severn Relay Station Tower
MIHP No. AA-2297
Anne Arundel County, MD

AA-2202

WESTERN UNION TELEGRAPH
Co. SEVERN RELAY STATION
TOWER

~~Anne~~ Arundel Co, MD

PAS Rothstein

July 2002

MD SHPO

Tower site as viewed from
Thompson Road. Private
Residence is to the left.
View to the North

#1/3

AA-2297

WESTERN UNION TELEGRAPH Co. Severn
RELAY STATION TOWER
Anne Arundel Co, MD
D.S. ROTENSTEIN
July 2002
MD SHPO

Tower (Right) and concrete block equipment building (left). Private residence garages in Middleground
View to the North

#2/3

AA-2297

WESTERN UNION TELEGRAPH Co. Severn
RELAY STATION TOWER

Anne Arundel Co., MD

D.S. Rotenstein

July 2002

MD SHPO

Tower and equipment
Building, alternate view
Showing construction details
and modern antennae.

#3/3