

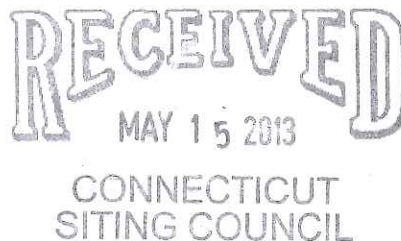
STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:

NEW CINGULAR PCS, LLC (AT&T) APPLICATION
FOR A CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AND PUBLIC NEED FOR
THE CONSTRUCTION, MAINTENANCE AND
OPERATION OF A TELECOMMUNICATIONS
TOWER FACILITY AT 8 BARNES ROAD IN
THE TOWN OF CANAAN (FALLS VILLAGE),
CONNECTICUT. REOPENING OF THIS DOCKET
PURSUANT TO CONNECTICUT GENERAL
STATUTES § 4-181a(b) LIMITED TO COUNCIL
CONSIDERATION OF CHANGED CONDITIONS,
REVISED TOWER SITE LOCATION AND MODIFIED
FACILITY

DOCKET NO. 409A

May 14, 2013



AT&T'S RESPONSES TO SITING COUNCIL INTERROGATORIES - SET II

- Q1. Regarding the visibility analysis, please field check the number of residences with year-round and/or seasonal visibility in the Huntsville section of Canaan, and along Barnes Road between Wangum Brook and Under Mountain Road.
- A1. APT field-checked these two areas during the balloon float activities on the afternoon of the Siting Council Hearing (April 30, 2013). With respect to the Huntsville section, along Route 63, a total of four (4) properties were observed to have year-round views of the Modified Facility Site and two (2) residential properties exhibited seasonal views. The Certificate Location was visible from five (5) of these locations (year-round) and one (1) on a seasonal basis. Along the east side of Barnes Road, one small residential lot lies approximately 500 feet south of the intersection with Under Mountain Road, where views of the Modified Facility Site could be achieved from the road through deciduous trees; conservatively, we would inventory this property as having year-round views from some portions of the parcel. The remaining developed properties that abut Barnes Road in this area (and could have views of the Modified Facility Site) are large parcels with addresses along Under Mountain Road, and were accounted for in the April 2013 Visibility Analysis included with AT&T's Responses to Siting Interrogatories (Docket 409A AT&T's Exhibit 3, Tab 4).
- Q2. Provide an updated Avian Resource Map for the area (see D 409 - AT&T 8, R. 11).
- A2. Included in Tab 1 is the updated Avian Resource Map for the area. As shown therein, no Important Bird Areas, Hawk Watch Sites, Bald Eagle Watch Sites, Important Bird Sites or Migratory Waterfowl areas are mapped within the site area.

- Q3. How was the site property line delineated along the Pills (sic) Property?
- A3. The source documentation for the property line for 96 Barnes Road (Pilz) shown in the drawings for the Modified Facility Site (Docket 409A, AT&T's Exhibit 3, AT&T's Responses to Siting Council Interrogatories, Tab 2 dated April 15, 2013) included a warranty deed dated March 9, 1984 recorded at volume 43 page 160 and subdivision map #369 showing the subdivision of a portion of property of Louise Foster conveyed to Clayton S. Pilz dated November 1, 1988. The boundary of the Pilz property at 96 Barnes Road shown on the Modified Facility Site drawings is also accurate with respect to the quiet title decree of the Superior Court Judicial District of Litchfield, Docket No. CV 03-0091191, Clayton S. Pilz and Sharon A Pilz v. Dorothy Forino, Executrix of the Estate of Anthony J. Forino and Dorothy A. Forino dated February 17, 2004.
- Q4. Does AT&T have other sites in New England/New York with roads of similar sustained grades? If so, provide an example and any maintenance issues associated with the road.
- A4. Yes. The access drive for AT&T's existing site at 1990 Litchfield Turnpike in Woodbridge, Connecticut (Docket 388) includes grades of approximately 25% and switchbacks. There have been no long term issues with the access drive regarding its maintenance. It should also be noted that several considerable storm events occurred post construction and there were no issues with access or site washout.
- Q5. Would development of the road and tower site affect downslope areas, including wetlands and/or intermittent streams, on adjacent properties in regards to runoff, siltation? Please explain.
- A5. No. With respect to runoff, the property is characterized by mountainous terrain with existing runoff drainage patterns. The proposed facility and improvements to the access drive are designed to maintain existing drainage patterns and to protect the access drive and facility area from washout. During construction and while disturbed areas are establishing vegetation, silt fencing will be in place to prevent silt from leaving the area of disturbance. Thus, any siltation will not affect downslope areas.
- Q6. What drainage features are present on the existing road?
- A6. No drainage features are present on the existing access drive.
- Q7. Would reconstruction of the road require 1:1 slopes armored erosion control netting and rip-rap? If so, please identify these areas.
- A7. To maintain the access drive within the proscribed easement area, the proposed access drive design includes 1:1 slopes in some areas. The drawings included in Tab 2 show areas of the 1:1 slope shaded in blue. All 1:1 slopes and 2:1 slopes will be treated with turf reinforcement mats within the limits of grading. As shown in the attached drawings, rip rap is proposed is for two swale outfalls and these two areas are shaded green on the attached drawings.

The drawings included in Tab 1 also include revisions to the access drive at the beginning of the access drive where it abuts the property at 6 Barnes Road (Marc Rosen and Susan Pinsky). No trees will be removed along this property boundary and grading within the easement in this area was moved as far from this property boundary as possible. Also, the access drive entrance at Barnes Road has been straightened.

It should be noted that the ConnDOT drainage design manual supports the use of vegetated mats for erosion control and that the proposed vegetated mats included in the access drive design are included in the ConnDOT qualified products list. Indeed, their use in projects demonstrates the efficacy and success of vegetated mats for erosion control. Included in Tab 3 are a few case study summaries of projects that implemented vegetated mats successfully for stormwater and erosion control. As noted in the Illinois DOT case study, vegetated mats performed well to control erosion in a situation where runoff velocities and shear stresses were higher than runoff velocities and shear stresses for the proposed access drive.

As stated at the April 30th hearing, the improvements to the existing access drive will result in a reduction of the rate of runoff from current conditions. Access to AT&T's facility is needed for construction and limited maintenance visits for an unoccupied public utility facility. Thus, standards for public roads that provide access to occupied structures are not applicable. Nevertheless, the proposed upgrades to the existing access drive represent an improvement of access conditions and erosion control over current conditions.

Q8. Compare the D 409 site and the D 409A modified site in regards to the amount of land disturbance and tree removal for the section of access road from Barnes Road to the cabin.

A8. Please see the table below:

Section including the Access Drive from Barnes Road to the Cabin	Docket 409	Docket 409A Modified Facility Site
Land Disturbance	1.57 acres	1.81 acres
Tree Removal >6" DBH	63	85

Q9. Would guardrails be installed along the access road? If so, please identify guardrail locations.

A9. No. Guardrails are not proposed along the access drive to continue to minimize land disturbance.

Q10. Would a gate be installed at the entrance to the access road to deter unauthorized vehicles?

- A10. A new gate is not proposed at the entrance to the driveway which would continue to be used by the property owners.
- Q11. Provide estimates of cut and fills.
- A11. The estimates include 570 CY of cut and 3700 CY of fill with 2,300 CY of the fill material gravel associated with the driveway.
- Q12. Please comment on the Council on Environmental Quality letter dated April 25, 2013 in regards to forest fragmentation (p. 2) and wildlife species that depend on lowland wetlands and adjacent upland habitat (p. 3).
- A12. For the reasons set forth below, the proposed Modified Facility will not cause significant forest fragmentation or impact wildlife species.

Forest fragmentation, or the division of contiguous forest land into smaller or more complex patches, has the potential to change local hydrology, reduce forest interior habitat, increase site disturbances, and promote the invasion of exotic plant species. Road building, farming, suburban development, and other activities may cause a disruption in continuity of the natural landscape as a result of increased level of human activity and resulting traffic.¹ Wildlife biologists have found that breaking up large tracts of forest into many smaller forests can be detrimental to many species of wildlife that rely on large blocks of contiguous forest. Some forest interior species may be affected by forest fragmentation while other wildlife species benefit by providing edge habitat along the forested area borders.² It is important to point out that the proposed AT&T development consists of construction of an unmanned 40-foot by 90-foot gravel surface compound and 12-foot wide gravel access drive that results in very low traffic generation and very low level of human activity. Proposed improvements to the existing gravel access drive and woods road (proposed extension of gravel access drive to reach the Modified Location) would result in discontinuous narrow forest canopy openings interspersed with areas of forest canopy closure over the proposed access road. The footprint of the proposed compound area and associated clearing will be similar in scale to the existing clearing where the property owner maintains a hunting cabin near the top of Cobble Hill.

Reviewing the University of Connecticut College of Agriculture & Natural Resources Center for Land Use Education and Research (“CLEAR”) forest fragmentation analysis from 2006³, the core forest block associated with Cobble Hill has been identified as a ‘large’ core forest (totaling 650± acres); refer to the Forest Fragmentation Map included in Tab 4. The existing clearing at the top of Cobble Hill is identified in this study as a perforation in the core forest (a core forest fragmentation feature) indicating that this forest block has already experienced some level of fragmentation. The development of the proposed access drive would result in approximately 4,865 linear feet of access drive,

¹ The Forests of Connecticut. 2004. United States Department of Agriculture Resource Bulletin NE-160. Pg. 8

² Forest Fragmentation Extension Programming: A National Initiative. September 9, 2002. USDA Cooperative State Research, Extension and Education Service. Pg. 7

³ Wilson E. and Arnold C. Forest Fragmentation in Connecticut: 1985 – 2006. Research Summary. September 2009. UCONN CLEAR

representing a potential fragmentation to this large core forest. Using CLEAR's guideline of 300 feet from any edge of development/non-forest area (a metric called "edge width")⁴, the proposed access drive and compound would conservatively result in approximately 70 acres of developed areas⁵. This would drop the total area of this core forest from approximately 650 acres to approximately 580 acres, which would still retain the 'large' core forest designation (> 500 acres). Therefore, based on the existing level of fragmentation of this large core forest block and a conservative analysis of the potential effect of the proposed development's impact resulting in no change of the large core forest designation, the proposed development would not cause significant forest fragmentation.

The major concerns associated with roads and their effects on forest fragmentation are road mortality, road aversion and other behavioral modifications affecting wildlife; the introduction of non-native plant species; noise, chemical, and sediment pollution (typically associated with heavy traffic, which would not occur here); and the fragmentation and isolation of fauna populations. However, traffic on the proposed access drive would consist of low-frequency maintenance and service inspections by AT&T technicians resulting in a trip generation of approximately one to two vehicles per month. The existing access currently serves a hunting cabin that receives low levels of traffic by the property owner. The relatively small increase in traffic associated with the proposed AT&T development should not result in significant road-related mortality to wildlife. The proposed access drive will improve existing road drainage and correct existing erosion and sedimentation discharges that are currently impacting surrounding forested habitat. Cut and fill have been carefully designed to minimize impact to the surrounding forest so that canopy opening widths are kept to a minimum and forest canopy closure over the access drive maintained where possible. Improvement to existing access drive drainage, along with the implementation of an Invasive Species Control/Management Plan would minimize the disruption of core forest habitat associated with forest fragmentation.

The spread of invasive plant species⁶ is a concern for both biological reasons (e.g., the maintenance of endemic vegetation, the preservation of habitat for native wildlife species) and for cultural reasons (e.g., adverse aesthetic effects or nuisance impacts associated with the invasion of exotic species that out-compete native plants). Temporary disturbance of existing vegetation in association with the proposed construction activities presents a risk of colonization of invasive species along the access drive and compound areas. For areas where disturbance is proposed, the composition and abundance of existing invasive plant species varies. The most common invasive species identified along the margins of the existing access drive include garlic mustard (*Alliaria officinalis*), Japanese barberry (*Berberis thunbergii*), Morrow's honeysuckle (*Lonicera morrowii*), multiflora rose (*Rosa multiflora*), and mullein (*Verbascum thapusus*) while areas of the proposed access drive extension and compound are generally void of invasive plant species. The proposed extension of the existing access drive to the

⁴ Wilson E. and Arnold C. Forest Fragmentation in Connecticut: 1985 – 2006. Research Summary. September 2009. UCONN CLEAR. Pg. 2.

⁵ 4,865 linear feet x 612 foot total edge width (edge width + 12' wide access) = 2,977,380 sq. ft. ÷ 43,560 sq. ft./acre = 68.35 acres

⁶ Connecticut Invasive Plant List. October 2012. The list includes Invasive and Potentially Invasive Plants as determined by the Connecticut Invasive Plants Council in accordance with Connecticut General Statutes [22a-381a](#) through [22a-381d](#).

compound location at the Modified Facility Site could potentially provide a vector for those existing invasive species to extend their range into areas currently dominated by native plants.

Recommendations

As a result of the potential risk for introduction of invasive plants into areas dominated by native vegetation in a large core forest area, an Invasive Species Control/Management Plan is proposed to control existing invasive species and the potential spread of those species along the proposed access drive extension and within the compound development area. The focus of the Invasive Species Control/Management Plan will consist of three main components:

- 1) control⁷ existing populations of invasive species along the existing gravel access drive;
- 2) minimize potential colonization by invasive species as a result of temporary impacts associated with the construction activities (i.e., construction equipment shall be cleaned before mobilizing to and from the property); and
- 3) monitor the access drive and compound areas for a 5-year period and provide invasive species control as necessary.

The proposed Invasive Species Control/Management Plan would result in an overall benefit to the forest community on Cobble Hill as the existing invasive species located along the property owner's access drive will only continue to migrate into the interior of this forest over time, displace native plants and adversely affect wildlife. Should the development be approved by the Connecticut Siting Council, complete details of the Invasive Species Control/Management Plan will be provided during the Development and Management Plan review and approval process.

In addition to implementation of the Invasive Species Control/Management Plan, additional measures are recommended to minimize the potential affect to wildlife movement caused by development of the proposed gravel access drive and compound. Coarse woody debris (i.e., logs and brush) should be distributed along the proposed access drive edges to enhance cover for various small mammals and amphibians and to improve soil moisture and temperature. Also, the understory vegetation within the clearance zone should be supplemented through the planting of native shrubs indigenous to the site (i.e., serviceberry (*Amelanchier arborea*), northern arrowwood (*Viburnum recognitum*), lowbush blueberry (*Vaccinium pallidum*, *V. angustifolia*, *V. stamineum*) to minimize edge contrast. Canopy and mast-producing trees in proximity to the proposed access drive should be preserved where possible to maintain canopy closure. Finally, road salting of the proposed gravel access drive should be prohibited. These recommendations would mitigate the "edge contrast"⁸ by improving wildlife permeability⁹ of the proposed gravel access drive.

⁷ In general, there are three broadtypes of invasive species controls: biological, mechanical, and chemical.

⁸ "edge contrast" is referred to as the edge effect caused by the change in structure of the transition between forest and adjacent disturbed areas (de-Maynadier and Hunter 1998, Gehlhausen et al. 2000)

⁹ "wildlife permeability" is defined as the ability of a landscape to provide for the passage of animals

Q13. Provide a revised cost estimate.

A13. The cost estimate for the Modified Facility Site includes:

Tower/Foundation:	\$90,000
Site Development:	\$260,000
Utility Installation:	\$175,000
Facility Installation:	\$93,000
Total:	\$618,000

Q14. In IWCC's pre-filed testimony of Walter Cooper, a town-owned parcel along route 63 south of the Huntsville section of Canaan is described as having the potential for offering comparable coverage to the modified site location.

- a) Has the Town offered this property as an alternative to the Cobble Hill sites?
- b) Would a tower in this area provide adequate coverage to the proposed service area?

A14. a) The Town did not and has not offered this property as an alternative location. As set forth in detail in the Docket 409 record, as part of the municipal consultation process for this site, certain Town officials requested that AT&T investigate certain locations, none of which included this Town owned location. (See Docket 409, AT&T's Exhibit 1, Tab 2). As part of its search for sites, AT&T reviewed the Town owned landfill location on Route 63 and determined that a tower facility at this location would not provide service to the proposed service area. (See Docket 409, AT&T's Exhibit 1, Tab 2, location number 4).

b) A tower in the area noted in Walter Cooper's pre-filed testimony would not provide adequate coverage to the proposed service area due to the distance of this location (over one mile south from the Modified Facility Site) and the intervening terrain, which prevents reliable coverage significantly to the north of this location. Based on the map included with Walter Cooper's testimony, coordinates for this location were estimated and a propagation map was created from the estimated coordinates and is included in Tab 5. The estimated coordinates are 41 56 11.14N and 73 17 34.03 W and the tower height shown in the propagation map in Tab 5 is 140' AGL. The propagation map demonstrates that a tower at this location would not provide adequate coverage to the proposed service area.

Q15. Canaan belongs to a regional public safety system for Litchfield County, with towers in Sharon and Norfolk. Where/how does that network cover Falls Village? Can AT&T offer coverage to Falls Village from the same location that the regional system uses?

A15. The referenced towers are a Litchfield County Dispatch tower in Sharon and a State DPS tower in Norfolk as follows:

Sharon: 7 Surdan Road, approximately 7.5 miles from the Modified Facility Site
Norfolk: 746 Winchester Road, approximately 8.5 miles from the Modified Facility Site

AT&T does not have information regarding the extent of the regional public safety system coverage from these sites, but has contacted LCD and State DPS for further information to the extent available. Regardless, AT&T cannot provide coverage to the proposed service area from these existing towers. These towers are located too far from the proposed service area in Falls Village. Of note, AT&T already maintains a facility on the Sharon tower (AT&T Site CT1235), which provides service well to the south and west and to areas outside of the proposed service area sought to be remedied in Docket 409A.

Q16. The state police have towers in N. Canaan, Sharon, and Cornwall. Where/how does that network cover Falls Village? Can AT&T offer coverage to Falls Village from the same location that the state police use?

A16. The referenced towers in these communities include:

Sharon: 7 Surdan Road, Litchfield County Dispatch, approximately 7.5 miles from the Modified Facility Site

North Canaan: Route 7 (Ashley Falls Road), DPS tower, approximately 6 miles from the Modified Facility Site

38 Lower Rd, DPS tower, approximately 3.9 miles from the Modified Facility Site

Cornwall: Mohawk Mountain Rd, approximately 9.5 miles from the Modified Facility Site

AT&T does not have information regarding the extent of the state police coverage from these locations. Regardless, AT&T cannot provide coverage to the proposed service area from any of these existing towers. These towers are located too far from the proposed service area in Falls Village. Of note, AT&T currently maintains facilities on the towers in Sharon (AT&T's Site CT1235), Cornwall (AT&T's Site 1025) and the North Canaan tower at 38 Lower Road (AT&T's Site 1134). The tower located on Route 7 in North Canaan is approximately 6 miles north of the Modified Facility Site and approximately 300 feet lower in elevation than the North Canaan tower at 38 Lower Road. Thus, AT&T cannot provide coverage to the proposed service area from this tower.

CERTIFICATE OF SERVICE

I hereby certify that on this day, a copy of the foregoing was sent electronically and by overnight delivery to the Connecticut Siting Council with copy to:

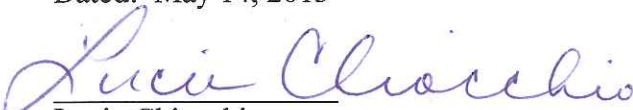
Ellery W. Sinclair
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(860) 824-7454
wml61@comcast.net

Patty & Guy Rovezzi
36 Barnes Road
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(860) 824-0358
rovezzi2005@yahoo.com

Frederick J. Laser
Town of Canaan
Planning and Zoning Commission
Town Hall
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(860) 824-0707
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Marc Rosen and Susan Pinsky
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860-824-5367
pinskyrosen@me.com

Dated: May 14, 2013


Lucia Chiochio

cc: Michele Briggs, AT&T
David Vivian, SAI
Anthony Wells, C Squared
Dean Gustafson, APT
Michael Libertine, APT
Peter Perkins, CHA
Paul Lusitani, CHA
Christopher B. Fisher, Esq.

Avian Resources Map

Proposed AT&T Wireless Communications Facility

8 Barnes Road
Falls Village, Connecticut

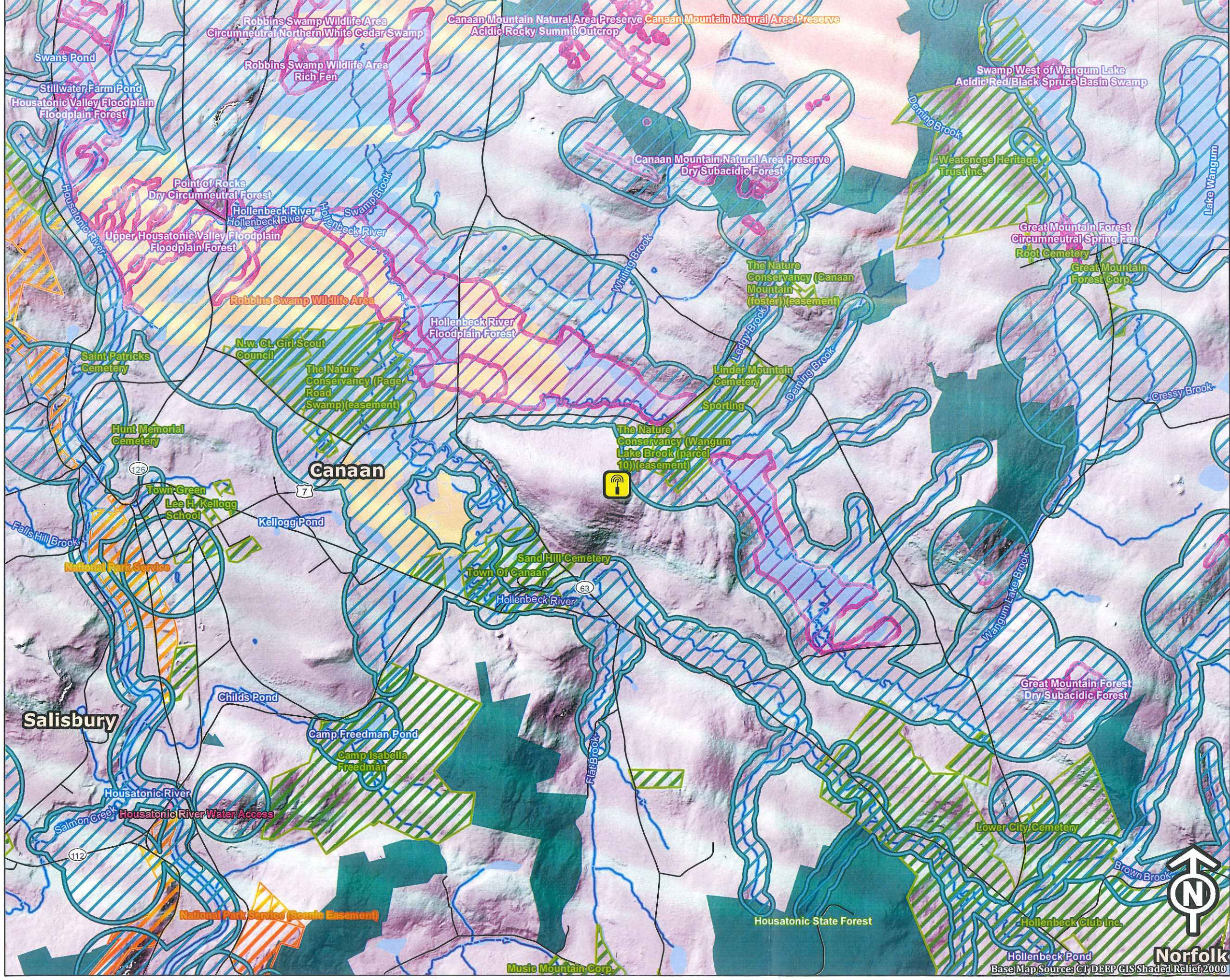
Legend

-  Proposed Tower Location
 -  Hawk Watch Site*
 -  Bald Eagle Watch Site*
 -  Important Bird Site*
 -  Watercourse
 -  Waterbody
 -  Breeding Bird Survey Route
 -  Important Bird Area*
 -  Migratory Waterfowl (CT DEEP, 1999)*
 -  Natural Diversity Database Area (CT DEEP, 12/2012)
 -  Critical Habitat (CT DEEP, 07/2009)
 -  Federal Property (CT DEEP, 2004)*
 -  Municipal and Private Open Space (CT DEEP, 1997)
 - DEP Property (CT DEEP, 2010)**
 -  State Forest
 -  State Park*
 -  State Park Scenic Reserve*
 -  State Park Trail*
 -  Natural Area Preserve
 -  Wildlife Area
 -  Wildlife Sanctuary*
 -  Historic Preserve*
 -  Flood Control*
 -  Fish Hatchery*
 -  DEP Owned Waterbody*
 -  Water Access*
 -  Other*
 -  Road
 -  Town Line*
- *None within mapped extents

Last Updated Friday, May 10, 2013

Avian Source Information:
 Bald Eagle Sites: Midwinter Bald Eagle Count Survey website
http://ocid.nacse.org/nbi/eagles/state.php?php_screen=first&stateIn=Connecticut
 Hawk Watch Sites: Hawk Migration Association of North America (HMANA), Hawk Count website:
<http://hawkcount.org/sitesel.php?country=USA&stateprov=Connecticut>
 Migratory Waterfowl: CTDEP GIS, 1999
 Important Bird Sites/Areas: National Audubon Society, Audubon Connecticut
http://ct.audubon.org/BirdSci_IBAs.html
 Breeding Bird Survey Routes: Patuxent Wildlife Research Center of the U.S. Geological Survey and the Canadian Wildlife Service's National Wildlife Research Centre
<http://www.nationalatlas.gov/ml/d/bbsrts.html>

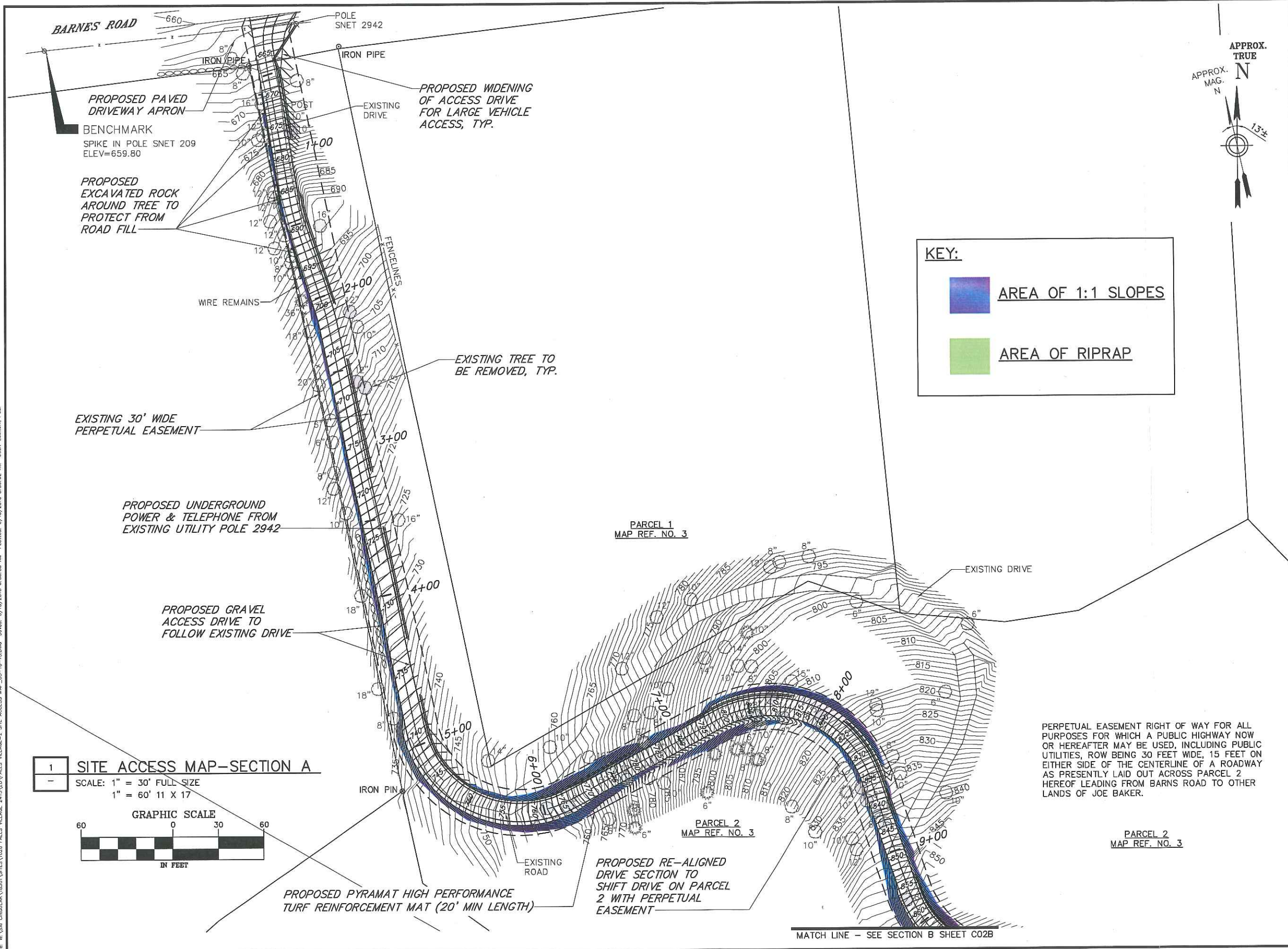
1 inch equals 2,420 feet
 0 0.15 0.3 0.6 Miles



Norfolk

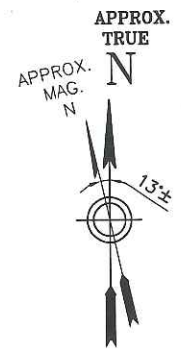
Base Map Source: CT DEEP GIS Shaded Relief 2000

File: W:\SAI\CINGULAR\18001\SITES\1026 FALLS VILLAGE 2413\VD\FALLS VILLAGE--2 SITE ACCESS MAP_05-10-13.DWG Sweet: 5/13/2013 8:35:39 AM Plotter: 5/13/2013 8:36:32 AM User: Lulliant_Paul



KEY:

- AREA OF 1:1 SLOPES
- AREA OF RIPRAP



1 SITE ACCESS MAP-SECTION A

SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE

IN FEET

PERPETUAL EASEMENT RIGHT OF WAY FOR ALL PURPOSES FOR WHICH A PUBLIC HIGHWAY NOW OR HEREAFTER MAY BE USED, INCLUDING PUBLIC UTILITIES, ROW BEING 30 FEET WIDE, 15 FEET ON EITHER SIDE OF THE CENTERLINE OF A ROADWAY AS PRESENTLY LAID OUT ACROSS PARCEL 2 HEREOF LEADING FROM BARNES ROAD TO OTHER LANDS OF JOE BAKER.

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

22 KEEWAYDIN DRIVE
SALEM, NH 03079

Drawing Copyright © 2013

2139 Silas Deane Highway, Suite 212 - Rocky Hill, CT 06067-2338
Main: (860) 257-4557 - www.ciacompanies.com

CHA PROJECT NO:
18301 - 1026 - 43000

NO.	SUBMITTAL		
0	05/17/11	ISSUED FOR CSC CERTIFICATE	
	BY: JDM	CHK: PAL	APP'D: JPS
1	04/05/13	MOVED TOWER/ABUTTER UPDATE	
	BY: PAL	CHK: PAL	APP'D: JPS

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
SR2413
SITE NAME:
FALLS VILLAGE/CANAAN
SITE ADDRESS:
8 BARNES ROAD
FALLS VILLAGE, CT
06031
LITCHFIELD COUNTY

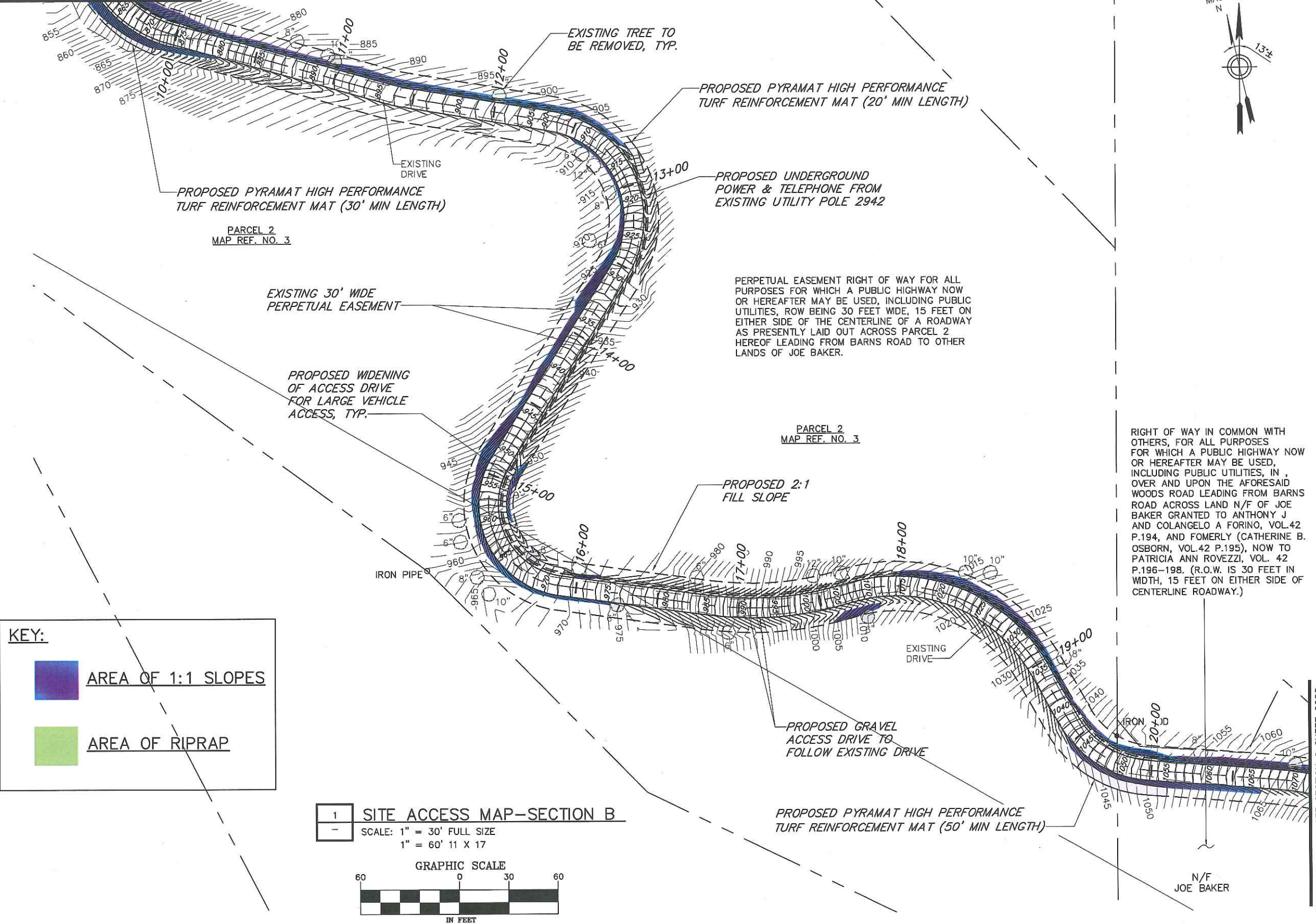
SHEET TITLE
SITE ACCESS MAP

SHEET NUMBER
C02A

MATCH LINE - SEE SECTION B SHEET C02B

File: W:\SAI\CINGULAR\1801\SITES\1026 FALLS VILLAGE_2413\2D\FALLS VILLAGE-2 SITE ACCESS MAP.DWG Saved: 5/8/2013 4:26:11 PM Plotted: 5/9/2013 4:31:25 PM User: Luellon, Paul

MATCH LINE - SEE SECTION A SHEET C02A



KEY:

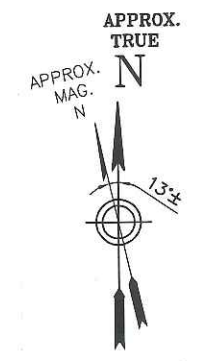
- AREA OF 1:1 SLOPES
- AREA OF RIPRAP

1 SITE ACCESS MAP-SECTION B

SCALE: 1" = 30' FULL SIZE
1" = 60' 11 X 17

GRAPHIC SCALE

IN FEET



NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

22 KEEWAYDIN DRIVE
SALEM, NH 03079

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Main: (860) 257-4557 - www.chacompanies.com

CHA PROJECT NO:
18301 - 1026 - 43000

NO.	SUBMITTAL		
0	05/17/11	ISSUED FOR CSC CERTIFICATE	
	BY: JDM	CHK: PAL	APP'D: JPS
1	04/05/13	MOVED TOWER/ABUTTER UPDATE	
	BY: PAL	CHK: PAL	APP'D: JPS

RIGHT OF WAY IN COMMON WITH OTHERS, FOR ALL PURPOSES FOR WHICH A PUBLIC HIGHWAY NOW OR HEREAFTER MAY BE USED, INCLUDING PUBLIC UTILITIES, IN, OVER AND UPON THE AFORESAID WOODS ROAD LEADING FROM BARNES ROAD ACROSS LAND N/F OF JOE BAKER GRANTED TO ANTHONY J AND COLANGELO A FORINO, VOL.42 P.194, AND FOMERLY (CATHERINE B. OSBORN, VOL.42 P.195), NOW TO PATRICIA ANN ROVEZZI, VOL. 42 P.196-198. (R.O.W. IS 30 FEET IN WIDTH, 15 FEET ON EITHER SIDE OF CENTERLINE ROADWAY.)

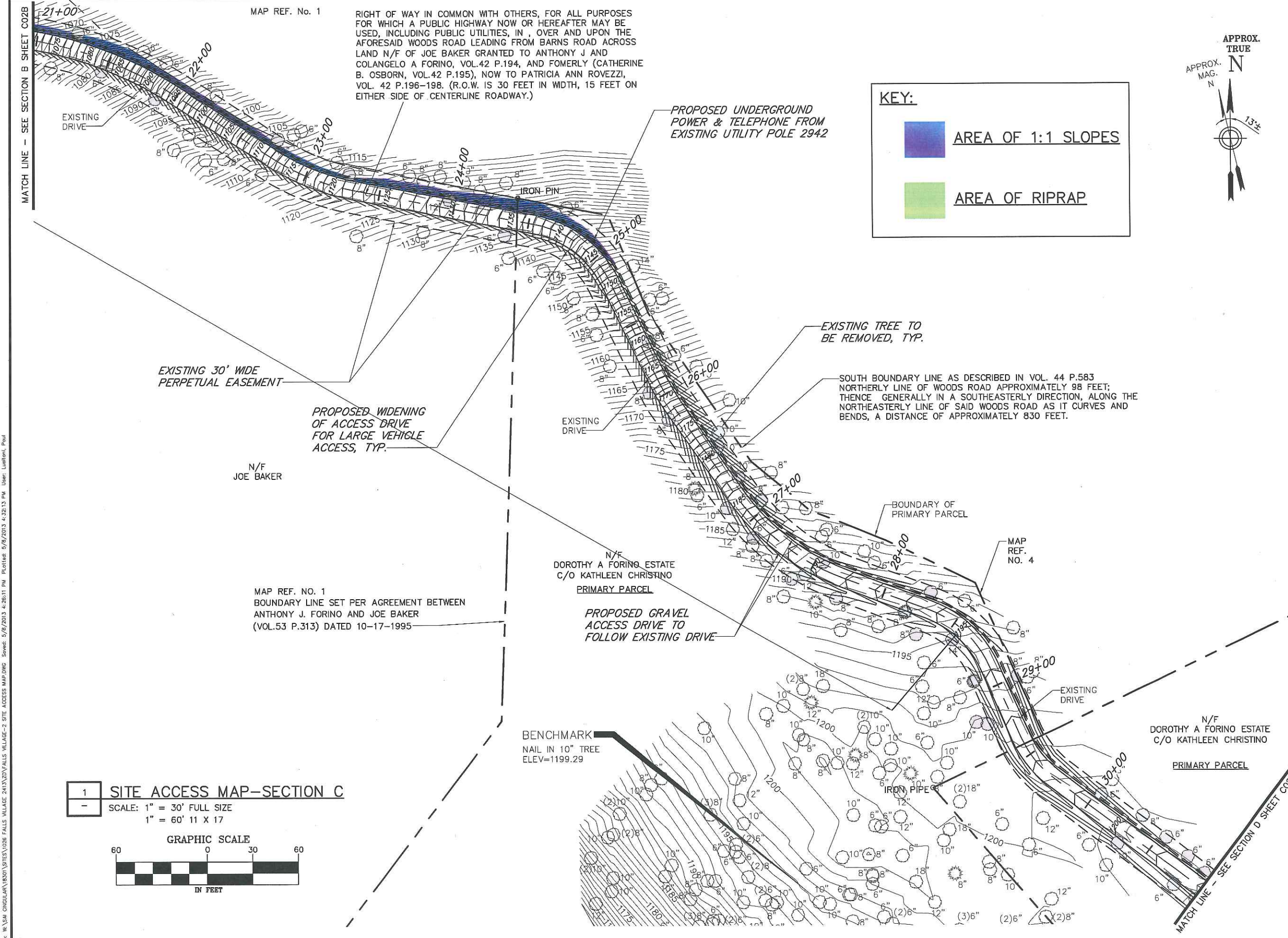
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE ID:
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SITE NAME:
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SITE ADDRESS:
8 BARNES ROAD
FALLS VILLAGE, CT
06031
LITCHFIELD COUNTY

SHEET TITLE
SITE ACCESS MAP

SHEET NUMBER
C02B

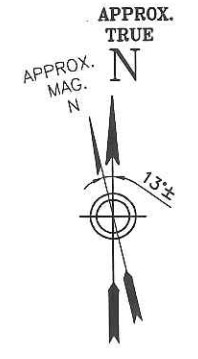
MATCH LINE - SEE SECTION C SHEET C02C



MAP REF. No. 1
 RIGHT OF WAY IN COMMON WITH OTHERS, FOR ALL PURPOSES FOR WHICH A PUBLIC HIGHWAY NOW OR HEREAFTER MAY BE USED, INCLUDING PUBLIC UTILITIES, IN , OVER AND UPON THE AFORESAID WOODS ROAD LEADING FROM BARNES ROAD ACROSS LAND N/F OF JOE BAKER GRANTED TO ANTHONY J AND COLANGELO A FORINO, VOL.42 P.194, AND FOMERLY (CATHERINE B. OSBORN, VOL.42 P.195), NOW TO PATRICIA ANN ROVEZZI, VOL. 42 P.196-198. (R.O.W. IS 30 FEET IN WIDTH, 15 FEET ON EITHER SIDE OF CENTERLINE ROADWAY.)

KEY:

- AREA OF 1:1 SLOPES
- AREA OF RIPRAP



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 ROCKY HILL, CT 06067

22 KEEWAYDIN DRIVE
 SALEM, NH 03079

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CHA PROJECT NO:
 18301 - 1026 - 43000

NO.	SUBMITTAL		
0	05/17/11	ISSUED FOR CSC CERTIFICATE	
	BY: JDM	CHK: PAL	APP'D: JPS
1	04/05/13	MOVED TOWER/ABUTTER UPDATE	
	BY: PAL	CHK: PAL	APP'D: JPS

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SITE ID:
 SR2413
 SITE NAME:
 FALLS VILLAGE/CANAAN
 SITE ADDRESS:
 8 BARNES ROAD
 FALLS VILLAGE, CT
 06031
 LITCHFIELD COUNTY

SHEET TITLE
 SITE ACCESS MAP

SHEET NUMBER
 C02C

1 SITE ACCESS MAP-SECTION C

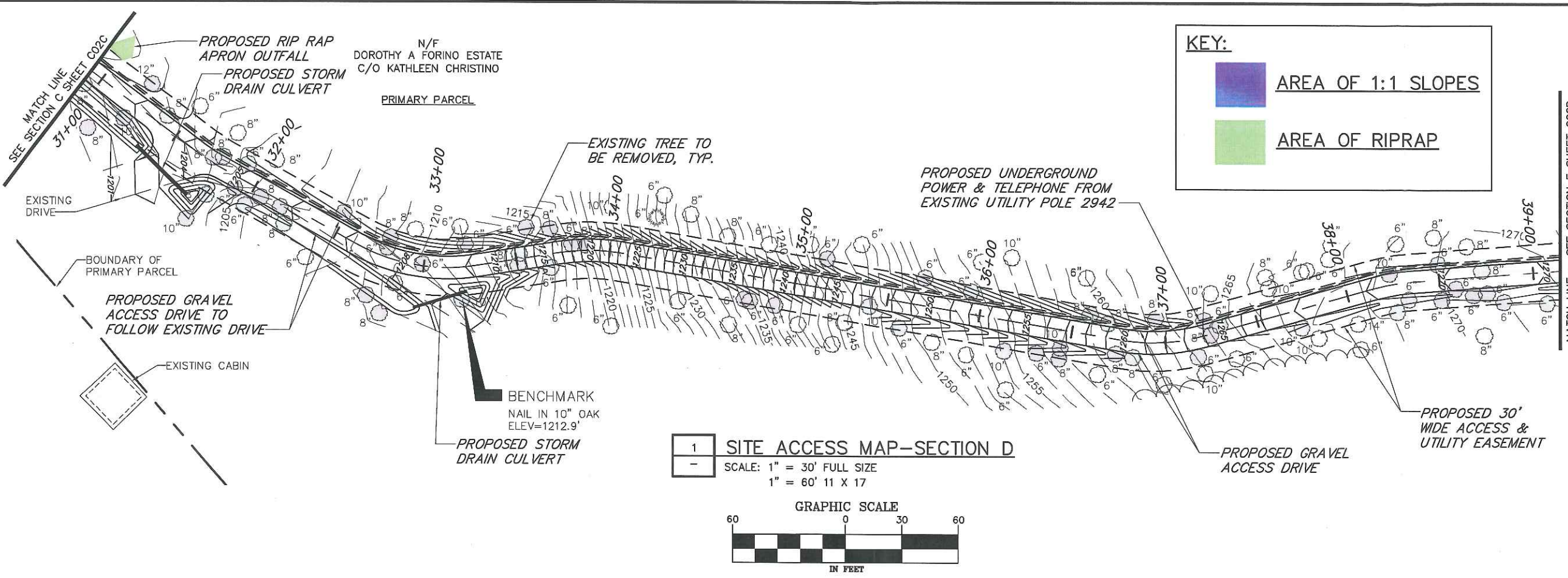
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GRAPHIC SCALE

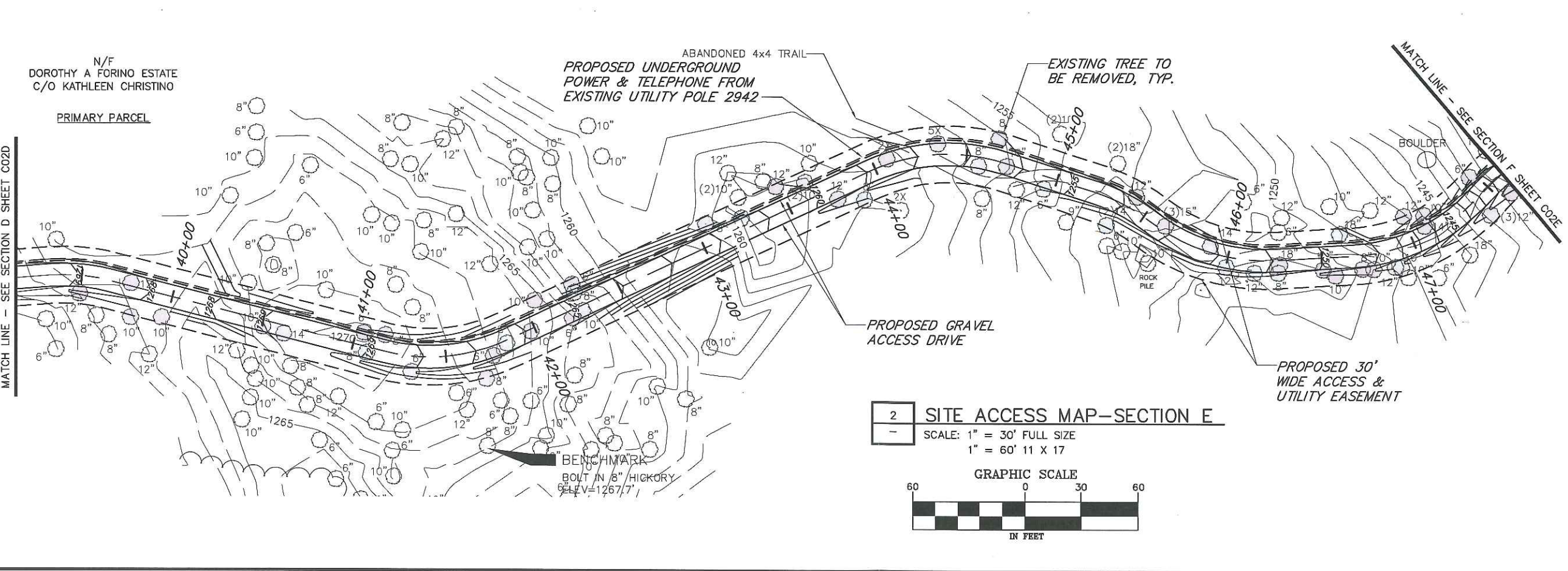
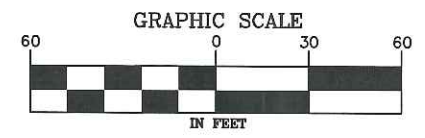
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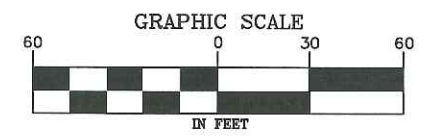
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1 SITE ACCESS MAP-SECTION D
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 1" = 60' 11 X 17



2 SITE ACCESS MAP-SECTION E
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 1" = 60' 11 X 17



KEY:

AREA OF 1:1 SLOPES

AREA OF RIPRAP

NEW CINGULAR WIRELESS PCS, LLC
 500 ENTERPRISE DRIVE
 ROCKY HILL, CT 06067

22 KEEWAYDIN DRIVE
 SALEM, NH 03079

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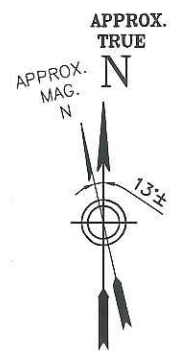
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 FALLS VILLAGE/CANAAN
 SITE ADDRESS:
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 FALLS VILLAGE, CT
 06031
 LITCHFIELD COUNTY

SHEET TITLE
 SITE ACCESS MAP

SHEET NUMBER
 C02D

N/F
DOROTHY A FORINO ESTATE
C/O KATHLEEN CHRISTINO

PRIMARY PARCEL



KEY:

- AREA OF 1:1 SLOPES
- AREA OF RIPRAP

NEW CINGULAR WIRELESS PCS, LLC
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

22 KEEWAYDIN DRIVE
SALEM, NH 03079

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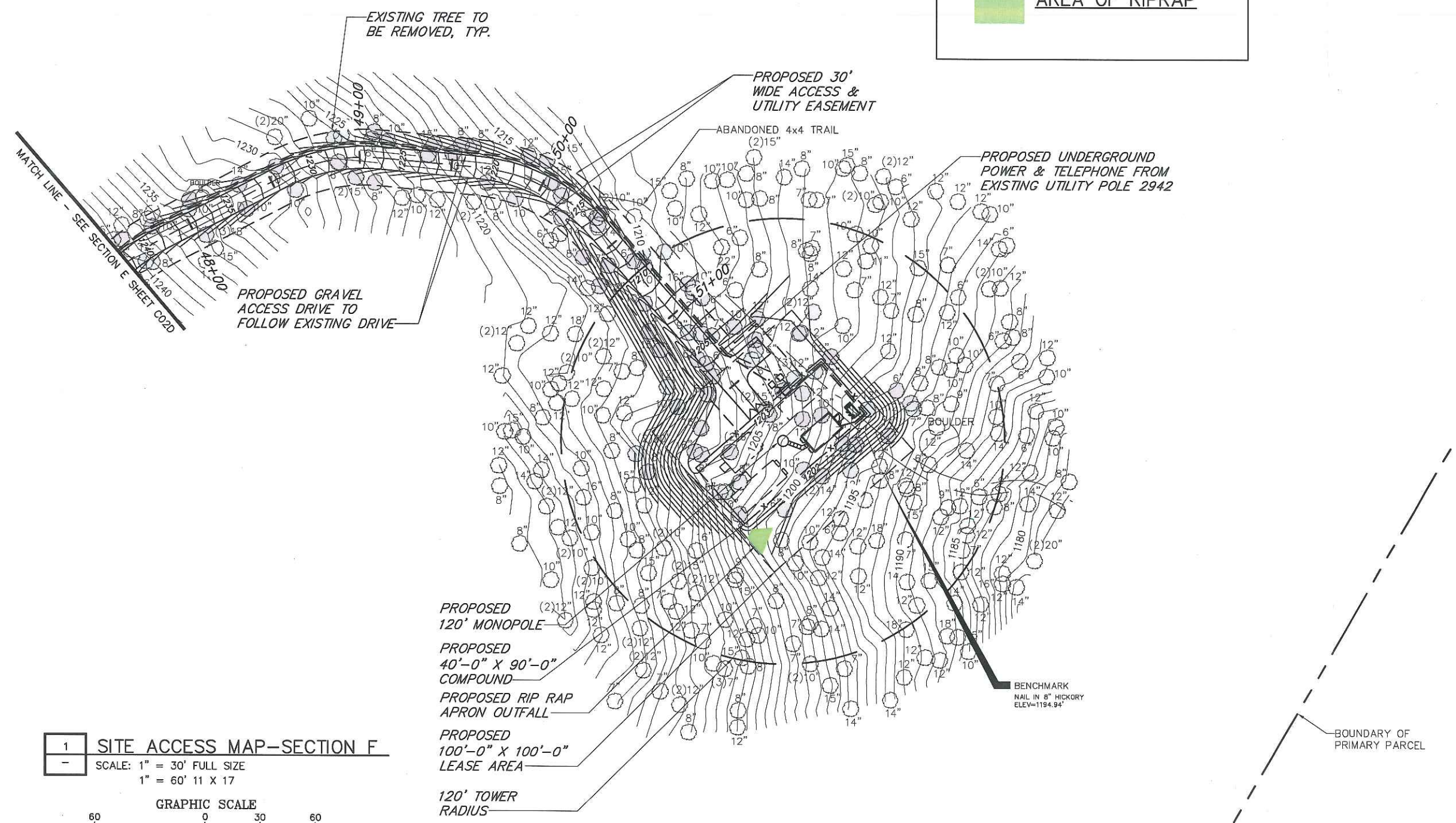
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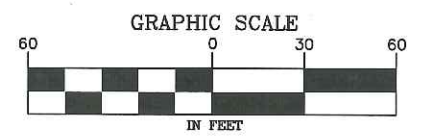
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SITE ADDRESS:
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LITCHFIELD COUNTY

SHEET TITLE
SITE ACCESS MAP

SHEET NUMBER
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1 SITE ACCESS MAP-SECTION F
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1" = 60' 11 X 17



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FEATURED

CASE STUDY: High Performing Turf Reinforcement Mats Provide Stormwater Control in Large Drainage Channel

Date posted: 10.22.2012

North American Green P550 Offers Stormwater Management for Illinois DOT

Background

During the summer of 2004, Engineers at District 2 of the Illinois Department of Transportation were busy preparing plans for a major project in the Quad cities area in Rock Island County of Northwestern Illinois. The project, an extension of the Milan Beltway, was to include a long and highly visible drainage channel. The channel was built directly adjacent to the junction of the beltway extension and the busy John Deere Expressway in Moline, Illinois. The channel needed to withstand the stormwater runoff created by the large roadways. During storm events the channel needed to withstand velocities of 20 ft/s and shear stress forces reaching 13 lbs/ft². Because of the high visibility of the project, the IL DOT wanted a solution that would permanently protect the channel, while still offering an aesthetically pleasing view for motorists.

Initial plans called for a rock riprap channel lining with cost estimates for this solution totaling about one million dollars. In addition to obvious concerns about the high price tag, the engineers were also concerned about aesthetics and maintenance of a rock lined channel. For all these reasons, the IL DOT engineers sought out a vegetated solution for this project.

Vegetated Solution

After several discussions with the District 2 Engineers, the suggestion of using the P550 permanent Composite Turf Reinforcement Mats was offered as an alternative to using rock riprap. After going through extensive designs using erosion control design software, the IL DOT chose to specify a high-performing composite turf reinforcement mat (C-TRM) for the Milan beltway extension project. The P550 is composed of a three-dimensional permanent netting structure, and also contains a permanent polypropylene fiber matrix. One of the main reasons they choose a North American Green's P550 over other TRMs on the market, was that the CTRM offered both immediate erosion control protection as well as long-term vegetation reinforcement. Another reason for selecting the P550 C-TRM is because it is a surface applied product which does not require soil in-filling the product after installation. Because the P550 could be surface applied, the labor and installations costs were reduced. Additionally, this method did not create a sacrificial seed/soil layer that could be eroded when exposed to storm forces. By early 2005, the project was designed and bid, with initial construction set to start by the summer of 2005. After many delays, the majority of the C-TRM installation was completed in November of 2005, with approximately 20,000 square yards of product installed.



P550 was installed to provide long term erosion control protection for the Illinois DOT stormwater channel.



Project Setbacks

The late installation of the TRM provided a real challenge for the project. Because the site would not have a chance to establish any vegetation prior to the winter months, dormant seeding was the only alternative. Since the seed would sit dormant all winter, and not start germinating until mid-spring, the bottom line was that the product itself, without the benefit of vegetation, was going to have to withstand any high flows that might occur throughout the winter months and into early spring. The area was seeded prior to matting installation with the Illinois DOT standard roadside mix which includes Kentucky 31 Fescue, perennial ryegrass, creeping red fescue, red top, as well as additional wetland grass species.

Complicating matters further was the fact that 20% of the project was not finished before winter set in, and that the 20% of the project unfinished was upstream from the TRM installation. This area, just north of the twin 10 foot by 10 foot box culverts that feed the main channel, was only protected by straw bale ditch checks for the winter. Periodic TRM inspections during the winter proved most satisfactory, with the P550 protected channel holding up very well. However, an extremely intense storm in late March put the newly installed channel to the test. This storm produced 3.5 inches of rain within one day creating flashflood conditions. Additionally, spring storms occurring only a few weeks later produced 2 in/hr rainfalls resulting in water several feet deep. During these storm events, the upstream temporary straw bale ditch checks blew out completely, but the turf reinforcement mat provided the necessary erosion control to protect the channel.

Results

A site review in the spring of 2006 concluded that the lined channel had performed exceptionally well, and that very few minor repairs would need to be made after the stormy spring season. Additionally, the site review concluded that the minimal damage to the P550 TRM installation was caused by the inadequate sediment control devices that were installed upstream from the site. As one engineer pointed out, the minimal cost of these repairs was dwarfed by the cost saving realized by the state. In comparison, the total cost of the P550 installation was less than one-third the estimated one million dollar rock riprap cost.

A site visit during the summer of 2006 revealed a fully vegetated and functional drainage channel. The Illinois Department of Transportation was so pleased with the benefits of using turf reinforcement mats including cost savings, aesthetics, and function that they released a special provision allowing the use of surface applied composite turf reinforcement mats on department projects.

For more information on this project, contact North American Green at 800-772-2040

Sources: nagreen.com; tensarcorp.com

After the P550 was installed (top) the site experienced storm events that brought in unprotected debris (middle); just months later the P550 had established a fully vegetated channel (bottom).

our max is 7.23 MPH

our max is 10.56 ft/s

CASE STUDY

LANDLOK® TRM 450 PERMANENTLY REINFORCES CHANNEL VEGETATION



THE CHALLENGE

Trailwood West Limited Partnership, a local developer in the Town of Payson, Arizona, wanted to develop 90 acres (36.4 hectares) of forested farmland into a 313-home subdivision. An existing channel with intermittent flow levels, known as the North Tributary of American Gulch, meandered through the project site, raising a stormwater concern with the Town. This channel collected rainwater and runoff from the surrounding 3.55 square mile (9.2 square kilometer) drainage basin, carrying it through the site. Further downstream was natural grass-lined channel, but localized erosion and greater anticipated flows convinced the project engineers, ASL Sierra Consulting Engineers, Inc. (ASL), that advanced channel lining techniques must be employed.

THE SOLUTION

Because of the anticipated velocities and shear stresses, ASL's initial thoughts focused on hard armor systems such as rock riprap or a cellular confinement system filled with gravel. These systems were cost prohibitive and not as aesthetically pleasing as natural vegetation. These factors led ASL to further explore alternate, cost-effective solutions. After extensive review of technical literature and test reports, the project engineers discovered that using a permanent

turf reinforcement mat (TRM) designed to induce vegetation and enhance long-term performance was the optimal solution.

Therefore, the engineers incorporated Synthetic Industries' Landlok® TRM 450 into the project specifications. This product consists of a dense web of polypropylene fibers positioned between

▶ CONTINUED ON BACK

WE HAVE FOUND IT DIFFICULT TO STABILIZE THIS TYPE OF SOIL USING TRADITIONAL ROCK RIPRAP METHODS WITHOUT CREATING ONGOING MAINTENANCE PROBLEMS. THE LANDLOK® TRM 450 HAS SOLVED THAT PROBLEM AND ALSO SATISFIED THE DEVELOPER'S AESTHETIC CONCERNS."
-TOM LOOMIS, PROJECT MANAGER, ASL

PROJECT FILE

PROJECT ▶ BELL ROAD IMPROVEMENTS
LOCATION ▶ SCOTTSDALE, AZ
PRODUCT ▶ LANDLOK® TRM 450
APPLICATION ▶ FLOOD CONTROL CHANNEL
DESIGNER ▶ GANNETT-FLEMING, INC.
INSTALLER ▶ ACHEN-GARDNER
DATE ▶ AUGUST 2002



June, 1995 Installation of Landlok® TRM 450

CASE STUDY CONTINUED

two high strength nets, and mechanically bound by parallel stitching. All components of the matrix are UV-stabilized to resist degradation caused by the intense sunlight characteristic of a semi-arid site at an elevation of 7,000 feet (2134 meters). Because TRM's are porous, as opposed to concrete lining materials, the infiltration benefits of TRM's were equally appealing to the engineers since the Town is adopting a groundwater recharge program.

INSTALLATION

Revegetation Services, an Arizona based erosion control contractor, began construction in June, 1995 following design completion and Town approval. After subgrade preparation, the TRM was installed, seeded with a mix including: Indian blanket, California poppy, burnet clover, crested wheatgrass, Boer lovegrass, Madrid sweetclover, and green sprangletop, then soilfilled to a depth of 3/4" (1.9 cm). The soil cover was specified to accelerate germination and seedling development, maximize root entanglement with the matrix, add ballast to the installation, and provide additional UV protection prior to vegetative development. According to an area consultant, Marty Koether, of Enviro-Control (Tucson, Arizona), "The weather cooperated beautifully for the contractor. The installation ran smoothly because Revegetation Services had prior experience with the product. Upon completion, the anticipated summer rains severely tested the TRM prior to vegetation being established."

"Since the TRM was designed to handle flows associated with a maximum storm event in an unvegetated condition, the establishment was a bonus and added to the factor of safety considered in the original design," Koether stated.

RESULTS

Nearly two years later, vegetation is flourishing in this semi-arid section of Arizona, and the channels are performing well. As a result of the successful performance of the product, Synthetic Industries supplied the material for a second phase of this project.



Aesthetically pleasing channel provides permanent protection.

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UPGRADE MUNGABAREENA

OPEN STORM WATER DRAIN

CLIENT: CITY OF ALBURY
MAIN CONTRACTOR: BTL AUSTRALIA
LOCATION: ALBURY, NSW
DATE: AUGUST 2005
PRODUCT: PYRAMAT & LANDLOK 450
QUANTITY: 6,500 m²



FIG.1: PYRAMAT & LANDLOK 450 INSTALLED



FIG.2: ORIGINAL DRAIN

PROBLEM:

Increasing flows due to development saw the need to widen the existing drain as heavy flows frequently breached the existing drain banks.

SOLUTION:

The original design was to line this drain with 230mm Reno mattresses. Pyramat was chosen over the original mattress design for the following reasons:

- 50%+ cost savings compared to Reno mattresses
- installation time was halved
- Aesthetically pleasing end-finish

The functional nature of the TRM lined drain solution was the definitive factor in deciding upon this option over hard engineering alternatives.

The contractor selected Landlok 450 and Pyramat.

PROJECT INFORMATION:

Following recent flooding the drain was increased in capacity by approximately 200% by reducing the angles of the batters to allow increased discharge capacity. As the channel experienced permanent flow in the base with flow velocities up to 6m/sec Pyramat was used to line the base. Additionally, to reinforce the vegetation just above the invert in case of high flow conditions, Landlok 450 was also installed to reinforce the vegetation in this zone. In total, the client installed TRM's across a 6mt width of this open drain and also around the headwalls and culverts of outfall pipes

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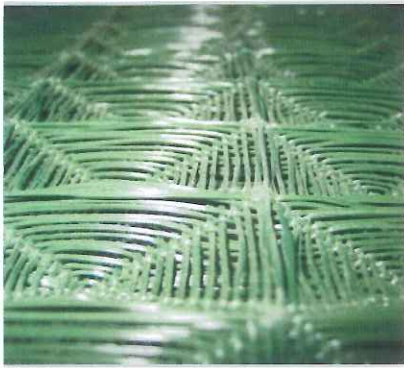


FIG.3: PYRAMAT STRUCTURE



FIG.4: 4 - BRIDGE BEFORE



FIG.5: BRIDGE AFTER



FIG.6: NOV.2009

TRM INFORMATION:

Pyramat is a High Performance Turf Reinforcement Mat (HPTRM), has a three dimensional matrix with no loose fibres and is made using UV stabilised polypropylene. The three-dimensional structure increases the surface area by 40%, thus reducing water velocities. A fully vegetated HPTRM drain can resist velocities of up to 7.6 m/sec. A partially vegetated HPTRM drain can resist velocities of up to 6.1 m/sec, and an un-vegetated HPTRM drain can resist velocities of up to 4.6 m/sec. HPTRMs promote revegetation within the drain by slowing water velocities and trapping sediment. After the area is vegetated the mat then provides a stable and durable reinforcement for the roots of the vegetation. As HPTRMs are synthetic, they don't break down over time, thus continuing to stabilise the drain, and ultimately reinforcing the vegetation, for up to 50 years or more.

BENEFITS:

In addition to 50%+ cost savings over the originally specified Reno mattress construction, installation was quick and easy. Both Landlok 450 and Pyramat were easily cut with scissors allowing complicated detail around pipes and culverts to be achieved.

By utilising HPTRM technology this allows storm water to infiltrate back into the soil and facilitates groundwater recharge benefiting the local environment as a whole.



DISCLAIMER: All information provided in this publication is correct to the best knowledge of the company and is given out in good faith. The information presented herein is intended only as a general guide to the use of such products and no liability is accepted by Global Synthetics Pty Ltd and Global Synthetics QLD Pty Ltd for any loss or damage however arising, which results either directly

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BRISBANE

P: (07) 3865 7000

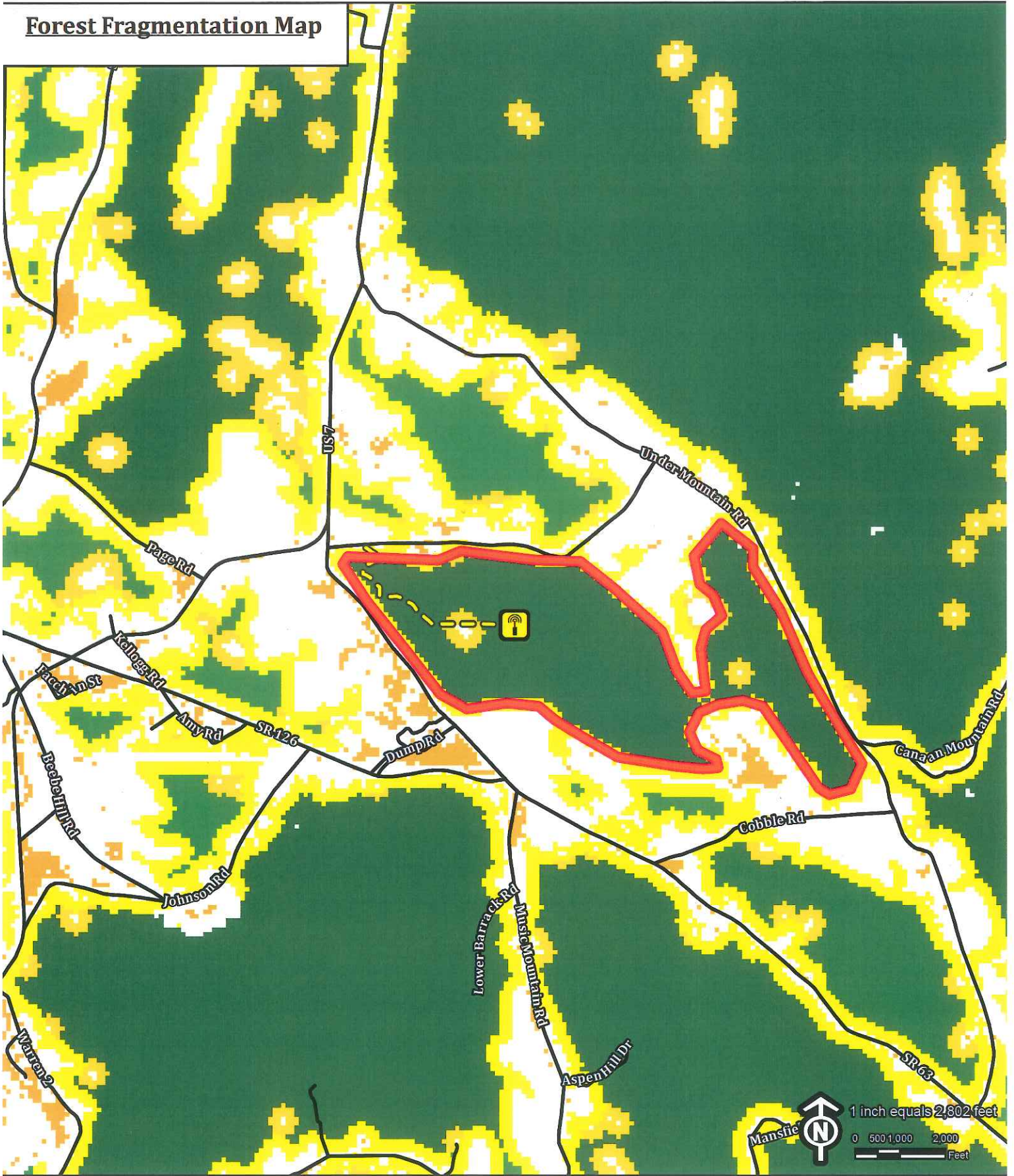
F: (07) 3865 4444

PERTH

P: (08) 9459 4300

F: (08) 9459 4311

Forest Fragmentation Map



1 inch equals 2,802 feet
 0 500 1,000 2,000 Feet
 Mansfield N

Legend

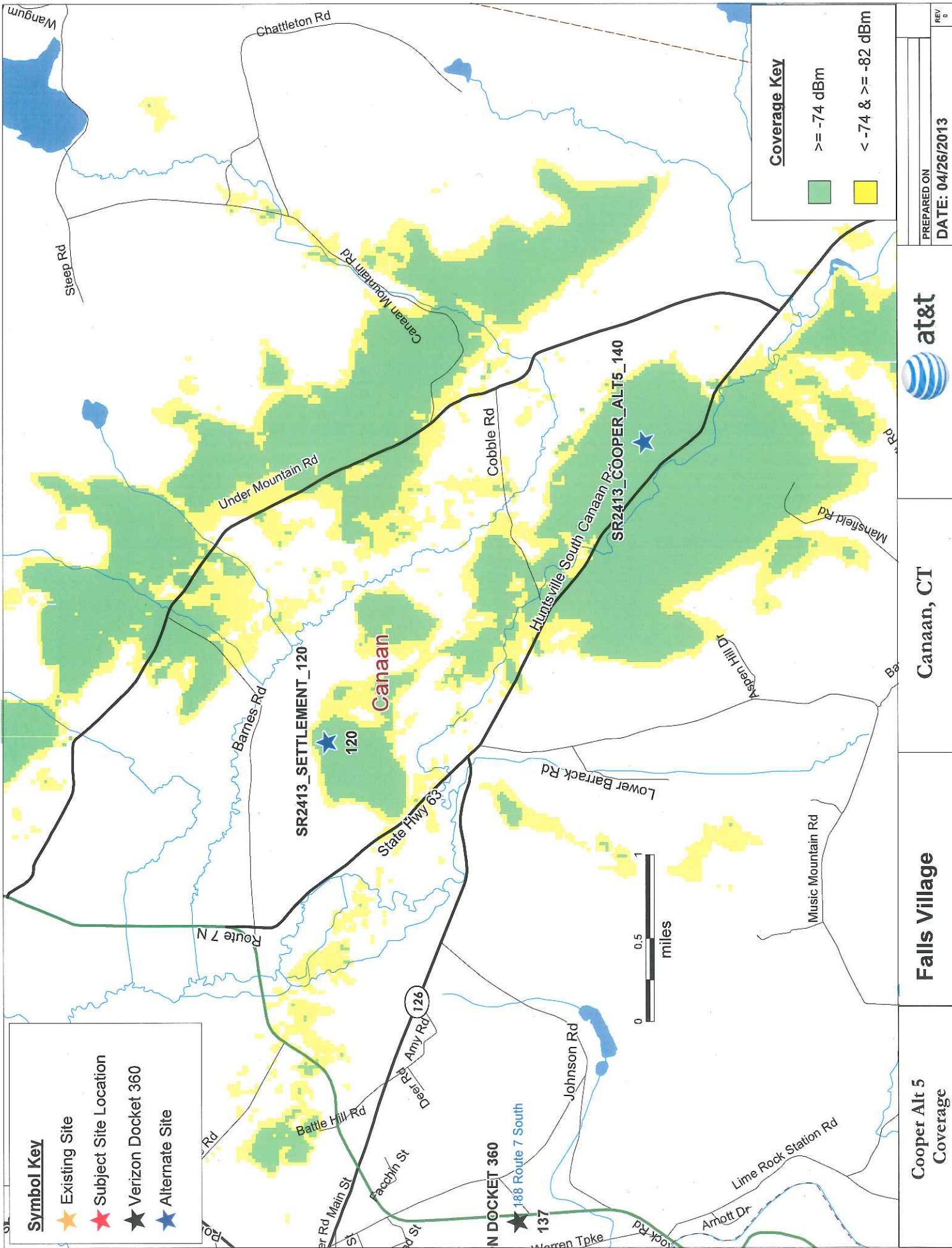
- Proposed Modified Location
- Proposed Access
- Cobble Hill Core Forest Area (~650 Acres)
- CT DEEP Road

- UCONN CLEAR Forest Fragmentation Data**
- Non-Forest or Development
 - Patch Forest
 - Edge Forest
 - Perforated Forest
 - Core Forest (<250 ac)
 - Core Forest (250-500 ac)
 - Core Forest (>500 ac)

**8 Barnes Road
 Falls Village, Connecticut**

Friday, May 10, 2013





Symbol Key

- ★ Existing Site
- ★ Subject Site Location
- ★ Verizon Docket 360
- ★ Alternate Site

Coverage Key

- >= -74 dBm
- < -74 & >= -82 dBm

Cooper Alt 5 Coverage

Falls Village

Canaan, CT



PREPARED ON
DATE: 04/26/2013

REV 0