BOLTON PLANNING & ZONING COMMISSION
REGULAR MEETING AGENDA
7:30 PM, WEDNESDAY, MAY 11, 2016
BOLTON TOWN HALL, 222 BOLTON CENTER ROAD

1. Call To Order

2. Approval of Minutes:
   March 23, 2016 Special Meeting Minutes

3. Discussion of Possible Extension of Natural Gas Line

4. Residents' Forum (Public Comment for items *NOT* on the agenda)

5. Report of the Zoning Enforcement Officer

6. Report of the Bolton Commission Representatives' Meeting

7. Old Business
   a. *DISCUSSION:* Plan of Conservation & Development Implementation

   b. *REVIEW/DISCUSSION:* 2015 – 2016 Priorities List

   c. Other

8. New Business

   a. Site Plan Review Application for Home Occupation, Gun Transfers/Gun Smithing, Loomis Road, Alex Spears

   b. *DISCUSSION:* CGS 8-7d(f) Referral of Application of CNG Global LLC for a Gas Infusion Station, Route 6 (Christmas Tree Farm) in Andover – Parcel Assessor #1D, Map #33, Block 43, Lot #01

   c. Other

9. Correspondence

10. Adjournment

BOLTON PLANNING & ZONING COMMISSION
SPECIAL MEETING
7:30 PM, March 32, 2016
Bolton Town Hall, 222 Bolton Center Road

Minutes & Motions

Members Present: Chairman Eric Luntta, James Cropley, Neal Kerr, Jeffrey Scala, Arlene Fiano, Adam Teller, Christopher Davey (alternate), Thomas Robbins (alternate), Nancy Silverstein (alternate)

Members Excused: C. Preuss

Staff Present: Patrice Carson, AICP, Director of Community Development, Joyce Stille, Administrative Officer, and Sarah Benitez, Recording Secretary

1. **Call to Order:** Chairman Eric Luntta called the meeting to order at 7:32 pm.

2. **Approval of Minutes:**
   January 13, 2016: A. Teller moved to approve the minutes. J. Cropley seconded. Vote 9:0:0.

3. **Distribution/Discussion of Town Code of Ethics:** The PZC discussed the Code of Ethics distributed by J. Stille. A. Teller was concerned that the language of the code was unconstitutional because it establishes specific numbers of seats for Republicans, Democrats, and unaffiliated, without allowing for other parties. The Code has been reviewed by the town attorney.

4. **Presentation by Aliza Makuch, Project Coordinator, Plan4Health, EHHD Regarding Chart Program:**
   A. Makuch presented on the initiative to advance public health by working with town planning commissions. There will be open workshops on March 31, at the Town Hall Council Chambers in Mansfield, and on April 20, at the Coventry Town Hall Annex. Residents are encouraged to attend and can register through the Facebook page: https://www.facebook.com/EHHDCHART/.

5. **Resolution of Board of Finance:**
   A. Teller proposed a resolution of the PZC that the projects proposed by the Board of Finance Resolution do not require an 8.24 Town Meeting. J. Cropley seconded. Motion carried 9:0.0.

6. **Old Business:**
   a. ***DISCUSSION:* Establish a POCD Implementation Committee:**
   The PZC agreed to hold responsibility for implementing the POCD and go through the BOS to bring in other boards. They discussed semi-quarterly meetings with representatives of the most listed leading groups and 2+2+2 representatives. The PZC will work on prioritization of the policies.

7. **Correspondence:**

Kevin Byam wrote to request an extension of a special permit for a site plan expiring this year. P. Carson will confirm if he will need an extension and the PZC agreed he can seek one if necessary. P. Carson also received an email from someone seeking to add a UHaul dealership – two parking spaces only – to the Valero gas station. The PZC discussed whether it could be considered accessory use to a gas station. They need more information and assurance as to the limited use of the UHaul spaces. P. Carson will research further and check with the DMV.

8. **Adjournment:** J. Scala moved to adjourn. J. Cropley seconded. Meeting adjourned at 8:51 pm.

Respectfully submitted,

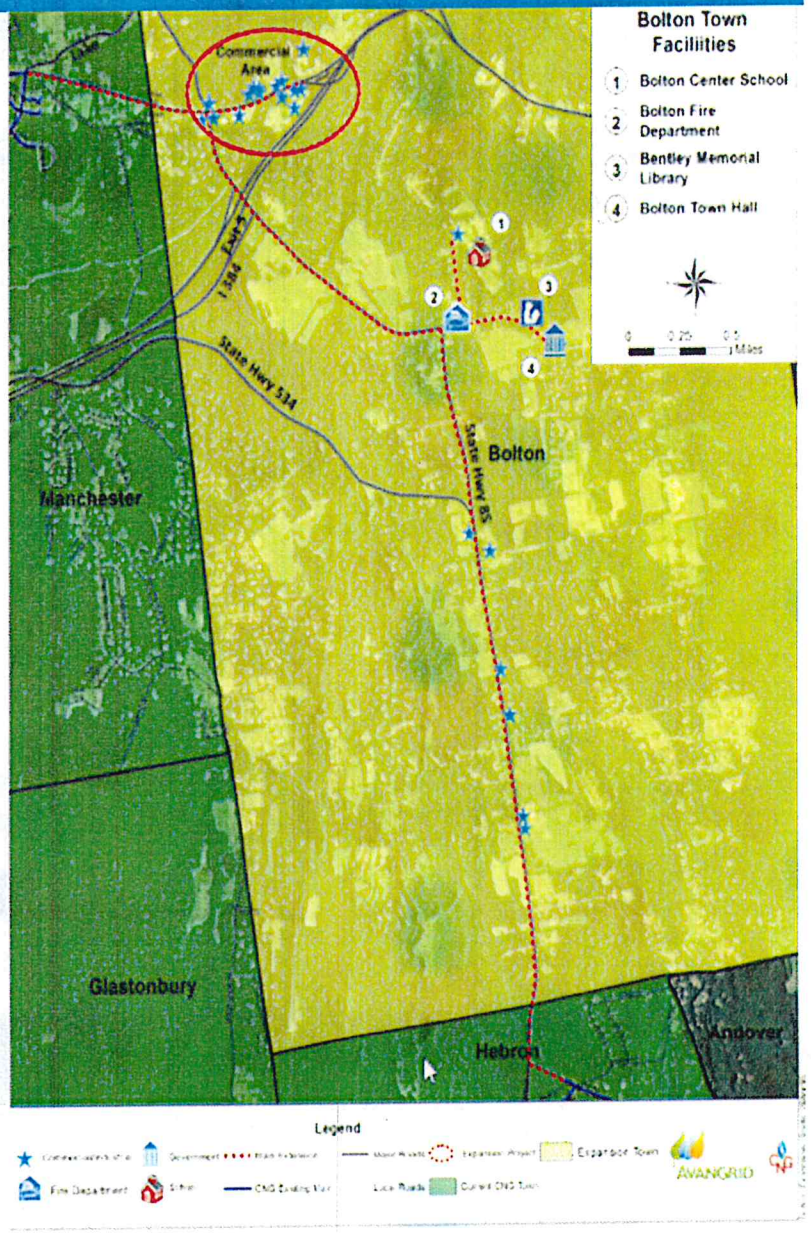
Sarah Benitez

Sarah Benitez

PLEASE SEE MINUTES OF SUBSEQUENT MEETINGS FOR APPROVAL OF THESE MINUTES AND ANY CORRECTIONS HERETO.

Bolton Proposed Expansion

- Proposed 7 miles of gas main
- Main to be installed from current Hebron gate station
- Main would extend into Bolton Town Center and commercial area
- Natural Gas available to:
  - Bolton Center School
  - Bolton Town Hall
  - Bentley Memorial Library
  - Bolton Fire Department
  - Simoniz Facility
- Route would serve areas of commercial and residential customers



CK#104
$185.00
PL-16-1

RECEIVED
MAY - 4 2016
TOWN OF BOLTON
LAND USE DEPT.

Town of Bolton

222 Bolton Center Road • Bolton, CT 06043

BOLTON PLANNING AND ZONING COMMISSION

APPLICATION FOR SPECIAL PERMIT, SITE PLAN REVIEW OR MODIFICATION OF A PREVIOUSLY APPROVED APPLICATION

1. Application Title: _____

2. Check all that apply:

   _____ Special Permit Application _____ Modification of an Approved Special Permit Application*

   ✓ Site Plan Review Application _____ Modification of an Approved Site Plan Review Application*

   _____ Minor Modification by Commission or Land Use staff

   *** The Commission may require a new application if the proposed modification significantly alters the previously approved application.**

3. Street Address of subject property 19 Loomis Road

4. Deed Reference (Bolton Land Records) Volume 143 Page 816

5. Assessor's Records Reference: Map # 17 ; Block # N/A Parcel / Lot # 134

6. Current zone(s) of subject property R1 Acreage: 1.73

7. In Aquifer Protection District? Yes _____ No ✓

8. In FEMA Flood Area? Yes _____ No ✓

9. Wetlands Application Required? Yes _____ No ✓

10. Applicant(s) ALEX SPEARS

    Address 19 Loomis Road Zip 06043

    Phone # 860-916-6262 Fax # _____ E-mail ALEX@TEK-Arms.Com

11. Owner(s) of subject property SHAWN + LEANNE SPEARS

    Address 19 Loomis Road Zip 06043

    Phone # 860-869-0561 Fax # _____ E-mail Shawn@STATE-wide ELECTRIC.Com

12. Official Contact / Representative regarding this Application: ALEX SPEARS

    Address 19 Loomis Road Zip 06043

Phone # 860-916-6262 Fax # _____ E-mail ALEX@TEK-Arms.Com

13. Pro ject Engineer: N/A

Address _____ Zip _____

Phone # _____ Fax # _____ E-mail _____

14. Pro ject Architect: N/A

Address _____ Zip _____

Phone # _____ Fax # _____ E-mail _____

15. Other Experts Retained by Applicant: N/A

16. Briefl y describe the proposed use of the subject property. Provide greater detail in Project Narrative.

Gun TRANSFERS + Gun Smithing - SEE ATTACHED NARRATIVE.

17. Square footage of new / expanded space: N/A # of new parking spaces N/A

18. Lis t the Section(s) of the Zoning Regulations under which application is made:

SECTION 6A.8

19. Provide all the applicable items for a complete application including a completed Checklist for Site Plan Review and Special Permit Applications. A completed checklist must be provided to comprise a complete application.

20. Applican t's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature [signature] Date 5-2-16

21. O wner's Endorsement:

I am a willful participant and fully familiar with the contents of this application.

Signature Shawn W. Spears Date 5-2-16

NOTE: **If there are any material changes to this application, the Applicant shall immediately notify the Town Staff in writing.**

Applicants may be subject to Supplemental Review fees to defray the cost of Professional Review Services such as engineering or legal reviews.

For Town Use Only

Base Fee Paid 125.00 Check # 104

Date application received by Inland Wetlands Commission (if applicable) _____

Date of Inland Wetlands Commission action (if applicable) _____

Date application received by Planning and Zoning Commission _____

Date of public hearing (if required) _____

Date of Planning and Zoning Commission action _____

Date of newspaper publication of Planning and Zoning Commission action _____

Summary of Planning and Zoning Commission action _____

Revised March 11, 2009

Revised May 23, 2011

BOLTON PLANNING & ZONING COMMISSION
CHECKLIST FOR SITE PLAN REVIEW (§ 16A)
AND SPECIAL PERMIT (§ 16B) APPLICATIONS

March 11, 2009

THIS CHECKLIST MUST BE COMPLETED BY THE APPLICANT OR AN AUTHORIZED REPRESENTATIVE AND SUBMITTED WITH THE APPLICATION.

The Planning and Zoning Commission will use this checklist in determining the completeness or incompleteness of the application. The applicant is responsible for providing all the applicable information on this checklist. The applicant is encouraged to provide any additional information to clearly present a proposed activity and its potential effects on the community. The Commission may require additional information not included in this checklist to determine compliance with the regulations.

AN APPROVAL OF AN APPLICATION COULD BE DENIED IF AN APPLICATION LACKS SUFFICIENT INFORMATION.

Some of the items below are essential for any application while others may not be applicable for a particular proposal. The applicant is encouraged to ask the town staff to review the completed application with all supporting information and the completed checklist, prior to submitting the application to the Planning and Zoning Commission so that the staff can provide the applicant an opinion on the completeness of the application.

Pursuant to Section 16A.2.p, at time of application submission, the applicant may request in writing that the Commission determine that all or a part of the information required under Section 16A.2.c through o. (except subsections e., f., i., and j.) is NOT necessary in order to decide on an application.

Applicants may be subject to supplemental review fees to defray the costs of professional review services such as engineering or legal reviews. Please see attached information sheet.

Name of Development Brook Hollow SubDivision

Applicant ALEX SPEARS Date 5-2-16

Item	Description	Applicant		Staff	
		Included	Not Included	Completeness Opinion	
				Yes	No
1	Completed, signed application by applicant and owner	✓			
2	Payment of required application fees	✓			
2A	Statement of Use in accordance with § 16A.2.b	✓			
3	All draft deeds for any roads, road widenings and easements for drainage, conservation, driveways, utilities				
4	Evidence of request for approval by the Health District and/or Sewer Authority for review, as appropriate				
5	Evidence of submission of application to the Inland Wetlands Commission if it is within that Commission's jurisdiction				
6	Evidence of submission of a request for review and approval by the Fire Marshal and Fire Chief of the water supply for fire protection				
7	Copies of any required applications to other local, state or federal regulatory approvals				
8	Written evidence of applicant's legal interest in the subject property (deed, lease option to purchase, bond for deed, etc.)				

Item	Description	Applicant		Staff	
		Included	Not Included	Completeness Opinion	
				Yes	No
9	List of mailing address of all current property owners within 500 feet of the subject property, from the Town Assessor records (for special permit only)				
10	List of all hazardous or potentially hazardous materials which will be present on the property with a full description of procedures that will be used to assure safety with the material safety data sheets	N/A			
12	Digital copy of plans in DXF or DGN format if available				
13	Paper and digital copies of all reports including hydrology, hydraulic and drainage computations and				
14	14 sets of complete stamped and signed site plans measuring 24" x 36				
	THE FOLLOWING ITEMS 15 THROUGH 51 SHALL BE INCORPORATED IN PLANS				
15	A-2 boundary survey of the subject property showing all existing and proposed boundary lines and markers, easements, adjoining property lines and the names of all current abutting property owners				
16	Names of abutting lot owners				
17	USDA Soils boundaries and types				
18	Plan title block in the extreme lower right corner (not sideways) to include the name of the town of Bolton				
19	All plan sheets numbered with the format "sheet x of y"				
20	Clear legible plans with all lines, symbols and features readily identifiable				
21	North arrow on each plan including the reference meridian				
22	Graphic bar scale on each plan sheet, not smaller than 1"= 40' unless otherwise approved by the Commission				
23	Overall plan of site at a smaller scale, with sheet index, if the site does not fit on one sheet at a scale of 1"=40'				
24	Key map at a scale of 1"= 500' showing the relation of the site to abutting properties and streets, shown on plan and zoning district boundaries within 500' of site				
25	Original and revision plan dates and revision explanations shown on the affected plan sheets				
26	Existing and proposed grading with two foot contours to T-2 standards, for all ground surfaces, shown on plan				
27	Existing and proposed structures and features, their uses and those to be removed, shown on the plan				
28	HVAC equipment located outside the building(s)				
29	Existing and proposed driveway entrances to street, parking, loading areas, fire lanes, sidewalks and construction detail drawings, shown on plan				
30	Sight distances from property entrances along public roads shown on plan and on profile if grading is needed				
31	Soil test locations and soil test results shown on plan				
32	Existing and proposed sewage disposal systems and design information, shown on plan				
33	Outside Storage Areas				

Item	Description	Applicant		Staff	
		Included	Not Included	Completeness Opinion	
				Yes	No
34	Underground / overhead utilities, existing and proposed				
35	Existing and proposed water supply shown on plan				
36	Existing wells and sewage disposal systems on other properties that could conflict with proposed site improvements, shown on plan				
37	Existing and proposed footing drains, curtain drains and dry wells, shown on plan				
38	Existing and proposed drainage systems, any affected floodway or floodplain and construction detail drawings, shown on plan, including base flood elevation and floor elevation data.				
39	Existing and proposed bridges and culverts on or adjacent to the site, shown on plan				
40	Existing and proposed signs with dimensions and construction detail drawings, shown on plan				
41	Existing and proposed fences and walls with dimensions and construction detail drawings, shown on plan				
42	Zoning district boundaries affecting the site, shown on plan				
43	Table shown on plan of zoning dimensions required and provided for lot area, street frontage, lot width, yard setbacks, impervious area, building coverage and the height and floor area of each building				
44	Table on plan of parking / loading spaces required / provided				
45	Fire lanes				
46	Sidewalks and other pedestrian ways				
47	Off-site traffic improvements				
48	Limits of wetlands as delineated by a certified soil scientist with the soil scientist's signed certification, shown on plan or a certification signed by a soil scientist that no wetlands are within 100 feet				
49	Natural features including 100 year flood plain areas, ponds, vernal pools, aquifers, slopes steeper than 25% and potential areas of endangered species, shown on plan				
50	Landscaping plan including the locations, numbers, installed sizes, anticipated mature sizes, species and common names of proposed plants plus cost estimate based on published Connecticut DOT unit prices				
51	Existing trees of 6" caliper or greater				
52	Significant archaeological sites				
53	Lighting plan including the location, size, height, light intensity coverage areas and manufacturer's product descriptions for each light type				
54	Erosion and Sedimentation Control Plan, with narrative and construction detail drawings, in accordance with the latest Connecticut Guidelines for Soil Erosion and Sediment Control				

Item	Description	Applicant		Staff	
		Included	Not Included	Completeness Opinion	
				Yes	No
55	Best management practices to remove contaminants, including sediments and oils, from runoff water, shown on plan, in construct detail drawings, and explained in a report by a qualified professional				
56	Architectural elevation drawings of proposed buildings				
57	Architectural floor plans of existing and proposed buildings				
58	Perspective color drawings or digital views of the site as seen from adjacent roads and from abutting property lines showing the proposed conditions including buildings, landscaping and appurtenant features				
59	Traffic Impact Report for applicable sites as described in Zoning Regulations Section 16A.2.k.				
60	Thorough, well organized drainage design report for before and after development conditions, that conforms to the latest Conn. Dept. of Transportation and Conn. Dept. of Environmental Protection guidelines and requirements with appropriate calculations, maps, graphics and narrative descriptions of hydrology, hydraulics, assumptions, erosion controls, drainage paths and systems for the 1, 2, 10, 50 and 100 year storm events				
61	Statement in drainage report that the after development flows for all storm events do not exceed the before development flows				
62	Sanitary Waste Disposal Plan (if community sewerage system)				
63	Evaluation of the impact of proposed development upon existing and potential public surface and ground drinking water supplies, pursuant to CGS, Section 8-2				
64	Certified copy of Certificate of Public Convenience and Necessity in connection with a "water company", in accordance with CGS, Section 8-25a				
65	Existing and proposed Covenants or Restrictions				
66	Engineer's itemized cost estimate for the installation of all erosion and sediment controls based on published Connecticut DOT unit prices				
67	Engineer's itemized cost estimate for public improvements based on published Connecticut DOT unit prices as basis for the establishment of a performance bond.				
68	Engineer's itemized cost estimate in connection with any restoration guarantee required pursuant to Section 12				

Reviewer: _____

Date: _____

Revised 12/11/12

FILING FEES SHALL ALSO BE INCREASED TO INCLUDE ADDITIONAL EXPERT COSTS INCURRED BY THE TOWN OF BOLTON, INCLUDING BUT NOT LIMITED TO, ALL OF THE EXPENSES AND FEES OF UTILIZING CONTRACTED OR RETAINED EXPERTS TO ANALYZE, REVIEW AND REPORT ON AREAS REQUIRING A LEGAL OR TECHNICAL REVIEW IN ORDER TO ASSIST THE PLANNING AND ZONING COMMISSION AND/OR TOWN STAFF IN THEIR DELIBERATIONS. SAID COSTS WILL BE ESTIMATED BY THE COMMISSION OR ITS DESIGNEES, BASED ON PRELIMINARY ESTIMATES FROM SUCH EXPERTS, AND SAID ESTIMATE OF COSTS TIMES 150% WILL BE PAID OVER TO THE TOWN OF BOLTON PRIOR TO PROCEEDING ON THE APPLICATION BY THE TOWN. SAID PAYMENT SHALL CONSTITUTE A PORTION OF THE APPLICATION FEE AND THE APPLICATION SHALL NOT BE DEEMED COMPLETE UNTIL PAID IN FULL. UPON COMPETION OF THE TECHNICAL AND LEGAL REVIEW, INCLUDING BUT NOT LIMITED TO MYLARS, AND A DETERMINATION OF THE COSTS INCURRED, ANY EXCESS WILL BE REFUNDED TO THE APPLICANT. THE APPLICANT SHALL BE RESPONSIBLE FOR ALL CONTRACTED OR RETAINED COSTS INCURRED RELATED TO THE APPLICATION. THIS INCLUDES COSTS ABOVE THE 150% ESTIMATE IF INCURRED BY THE TOWN OF BOLTON.

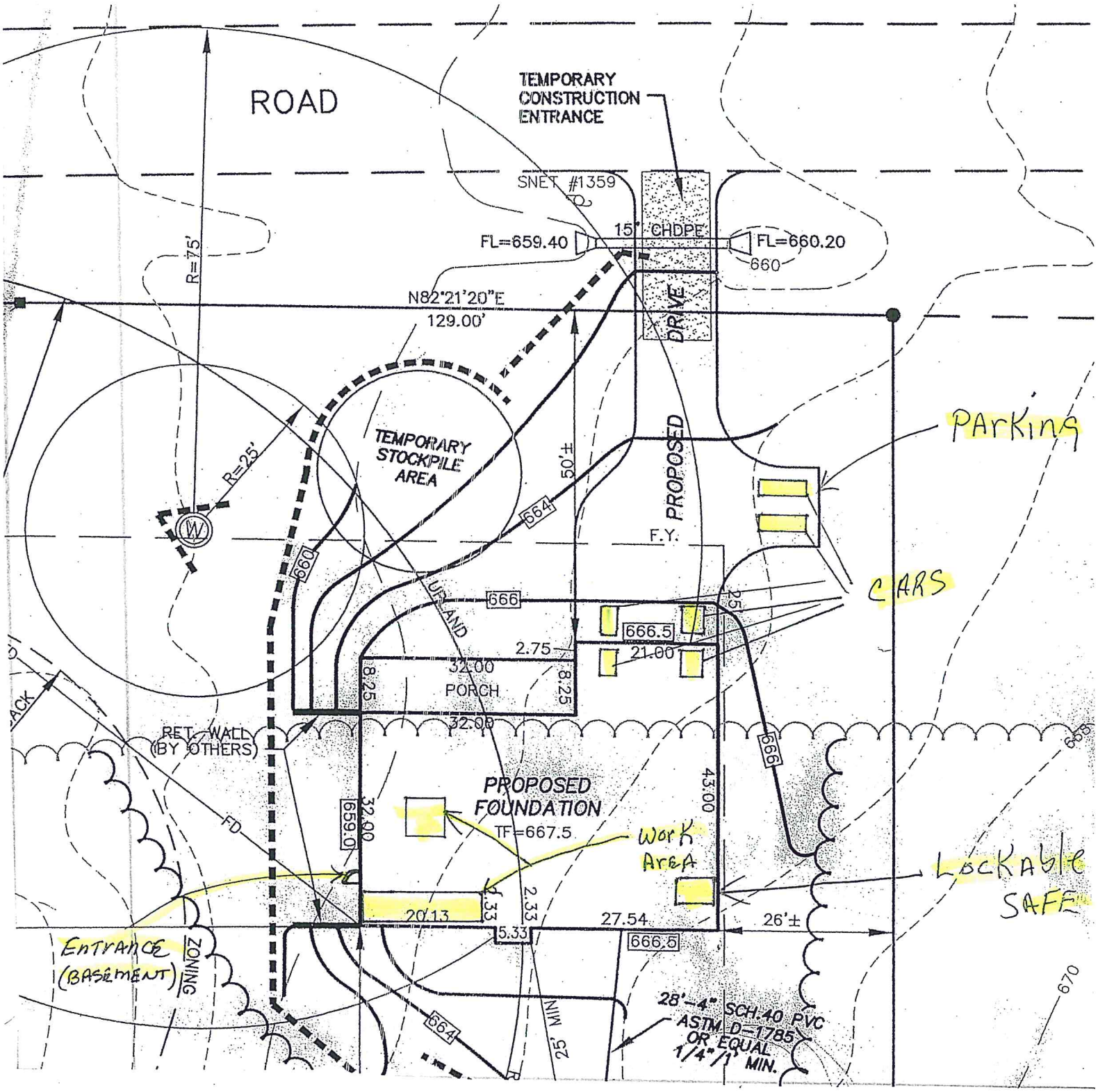
I am starting a business named Trigger Catalyst. This business will consist of doing transfers with firearms and gunsmithing. Doing these services requires the business to have a Federal Firearms License, which would be attached to this business and also the location of the business. The business will follow all regulations and procedures with the Federal Government and the State of Connecticut in having a Federal Firearms License. The business would be located in the basement area of the residence and will not be more than 30% of the residence floor area.

This business will be a side business since I have a full time job as an armorer for the Connecticut National Guard. No physical signs indicating the business will be present at the residence. I will be the only employee (owner) of the business. Business hours will be by appointment after 4pm during the week and varying hours on the weekends. There will be no more than one customer at a time. Traffic will be very limited since the business hours will be by appointment. There is room for parking in the driveway for customers. Firearms will be locked up in a safe securely and will only be out of the safe if gunsmithing, or a customer transfer is occurring. There will be no firearms stock in this business, only firearms that customers have ordered, or have been sent to the business for a transfer.

No hazardous or toxic material will be used in this business. No big tools are required, just small tools such as hammers, vices, punches, etc. There will be no business vehicle.

Spears, Alex (Applicant)

Spears, Shawn (Owner)



RECEIVED

MAY - 6 2016

TOWN OF BOLTON
LAND USE DEPT.

Town of Andover

Inland Wetlands and watercourses Commission

Planning and Zoning Commission

Town Clerks and Planners: Bolton, Columbia and Coventry

Notification to neighboring Towns on pending application of CNG Global LLC.

CT General Statutes 8-7d (f) and 22a-42b require notification of applications before Landuse Boards.

When "A significant portion of the traffic to the completed project on the site will use streets within the adjoining municipality to enter or exit the site".

The property of Robert Russell, Rte. 6, "Christmas Tree Farm" directly across the road from the Extra Mart. Parcel Assessor #1D, Map #33, Block 43, Lot #01. The application of Global CNG holdings for a gas infusion station. The project activity includes the infusion of natural gas into the existing Algonquin line. The project is proposed to operate twenty four hours a day seven days a week for seven months of the year to supply Gas during peak demands. This project will be served by an average of five trucks an hour.

Public Hearing Schedules:

IWWC June 13, 2016 7pm Andover Town Hall

P&Z June 20, 2016 7pm Andover School Gymnasium

Electronic copies of the Plans and Traffic Study are included with this notice and other information can be made available upon request or viewed both at the Andover Building Department and Town Web Site.

SOLLI ENGINEERING

April 14, 2016

Mr. Jim Cassidy, PE
Hallisey, Pearson & Cassidy
35 Cold Spring Road, Unit #511
Rocky Hill, CT 06067

RE: Traffic Impact Assessment
Pentagon Energy Facility
Andover, Connecticut
Project Number: 1603101

Dear Mr. Cassidy,

Solli Engineering has prepared this assessment to provide an analysis of the potential traffic impacts associated with the proposed Pentagon Energy Facility located at 1010 Route 6 in Andover, Connecticut. The analysis has been completed in accordance with Town of Andover requirements as well as standard traffic engineering methodology. The investigation indicates that this proposed development will not have an adverse impact on the area roadway network.

Project Description:

The property is located at 1010 Route 6 in Andover, Connecticut. The subject parcel consists of a 15.58 acre parcel with approximately 4.7 acres at the southern portion of the parcel proposed to be leased for purposes of developing the proposed Pentagon Energy facility. The site is bounded by Route 6 to the north and industrial property to the east, the Hop River State Park Trail to the south, and undeveloped land to the west. Refer to Figure 1, Site Location Map, for more details on the project location.

The site is proposed to be developed with a natural gas injection station containing sixteen (16) injection stations and associated support equipment, circulation aisles, parking, and utilities. The site is proposed to be accessed from Route 6 via the existing un-signalized site access near the southern property line, which is being improved as part of this project.

The facility is proposed to operate on a twenty-four hour per day schedule on a seasonal basis from November to March each year. The proposed operations will result in truck trips at a rate of ten (10) trucks per hour (5 entering, 5 exiting) and two (2) passenger vehicle trips (1 entering, 1 exiting). The trucks visiting the site are proposed to follow a designated route which will begin at the terminus of Interstate 384 in Bolton, north of the project site, and continue along Route 6 approximately 6.7 miles to the project site. See Figure 2, Truck Route for more details on the proposed truck route.

Traffic Impact Analysis:

Existing Conditions

In the vicinity of the project site, Route 6 is a two-lane, principal arterial that runs east to west with a posted speed limit of 40 miles per hour throughout the study area. Route 6 provides regional access to the surrounding area, with a mix of industrial, commercial, municipal, and residential uses along the corridor. There are no sidewalks along Route 6 in the study area.

Long Hill Road is a two-lane, local roadway that runs north to south with a posted speed limit of 30 miles per hour throughout the study area. Long Hill Road provides local access to the surrounding area, with mostly residential use along the corridor. There are no sidewalks along Long Hill Road in the study area.

Hebron Road is a two-lane, major collector roadway that runs north to south with a posted speed limit of 35 miles per hour throughout the study area. Hebron Road provides local and regional access to the surrounding area, with a mix of commercial, residential, and municipal uses along the corridor. There are no sidewalks along Hebron Road in the study area.

Due to the specialized nature of the operations of this facility, it was determined that all signalized intersections along the proposed truck route would be analyzed during the dominant peak hour, the one with the highest volume of the 24-hour period, to determine the greatest potential impacts of the proposed trips to be generated along the corridor. The Connecticut Department of Transportation publishes 24-hour count data along state roadways every three years. This data was evaluated along Route 6 in the vicinity of the study area to determine the highest hour of traffic volume during the 24-hour period and this was determined to be the AM peak hour.

Turning movement count data was collected in March 2016 during the AM peak hour at two (2) signalized intersections along the proposed truck route. The 2016 existing peak hour volumes are illustrated on Figure 3. The Connecticut Department of Transportation data identified the 2014 average daily traffic (ADT) on Route 6, just north of the project site, to be 17,900 vehicles.

Traffic volumes and speed data were collected on Route 6 in the vicinity of the site. This data was collected using an automatic traffic recorder (ATR) that was placed on Route 6 just north of the project site during April 2016. This study recorded an 85th percentile speed of 46 mph and a bidirectional average daily traffic of 17,130, which is in line with the most recently published 2014 CT DOT ADT volumes in the vicinity.

Proposed Conditions

The anticipated number of trips that will be generated by the proposed project was evaluated based on the established number of truck trips and employee passenger vehicle trips to be generated by the proposed facility. It is anticipated that the proposed project will generate twelve (12) trips (10 truck trips, 2 employee trips) during the AM peak hour with six (6) trips entering the site and six (6) trips exiting the site, as illustrated in Table 1 below.

TABLE 1 – TRIP GENERATION SUMMARY
PENTAGON ENERGY FACILITY

	AM Peak Hour		
	Enter	Exit	Total
Infusion Facility - Delivery Trucks	5	5	10
Infusion Facility - Employees	1	1	2
Total Trips	**6**	**6**	**12**

The anticipated distribution of the site generated trips entering and exiting the site was developed based on the proposed truck route to and from the facility and Interstate 384. The anticipated percent distribution of the new site generated trips is illustrated in Figure 4. The new site generated trips were assigned to the study intersections based on the anticipated percent distributions and the resulting trip assignment is illustrated in Figure 5.

As the proposed development is anticipated to be opened in 2017, background traffic growth is estimated to account for the traffic increase as a result of regional population growth. The Connecticut Department of Transportation data publishes historical AADT (Average Annual Daily Traffic) volumes for State roadways every three years which can be evaluated to determine the annual growth rate of traffic on the roadway. The analysis of the historical AADT on Route 6 in the project area indicates a 0.56% average annual growth between 2008 and 2014. The 2016 existing traffic volumes were projected to the 2017 design year using a conservative 1.0 percent per year growth factor. The 2017 background traffic volumes are illustrated in Figure 6.

The trip assignment volumes illustrated in Figure 4 were combined with the 2017 background volumes illustrated in Figure 6 to develop the 2017 build traffic volumes illustrated in Figure 7.

The Connecticut State Department of Transportation Office of the State Traffic Administration (OSTA) was contacted to identify any ongoing or proposed projects within the study area which may impact the analysis. No projects were identified.

Capacity Analysis

To determine the impacts of the increase of traffic volumes on the operating conditions of the study intersections, the network was analyzed using the Synchro 9 capacity analysis software for the existing, background, and build peak hour conditions. Copies of the analysis reports are provided as a supporting document in this assessment. The increase in heavy vehicles travelling through the corridor was evaluated by adjusting the heavy vehicle percentage for the impacted approaches in the Synchro traffic models.

The results of the Synchro capacity analysis describe the traffic impact in terms of Level of Service (LOS). LOS describes the operational condition of the signalized intersection in terms of delay (in seconds per vehicle) and is expressed on a scale of A through F with LOS A being the best and LOS F being the worst. LOS A reflects intersection operations with little to no vehicle delay (less than 10 seconds per vehicle) and LOS F reflects intersection conditions that are over capacity and experience long delays (more than 80 seconds per vehicle at signalized intersections and more than 50 seconds of delay per vehicle at unsignalized intersections). For unsignalized intersections, only the delay on the STOP-controlled approach is reported.

Results of the analysis indicate that the study area intersections are expected to operate at acceptable levels of service under the build condition. Table 2 below summarizes the results of the analysis for the existing, background, and build conditions for the study area intersections during the AM peak hour.

TABLE 2
PEAK HOUR LEVEL OF SERVICE SUMMARY
AM PEAK HOUR

INTERSECTION	2016 Existing	2017 Background	2017 Build
Route 6 & Long Hill Road	D	D	D
Route 6 & Hebron Road	C	C	C
Route 6 & Site Driveway*	--	--	B

*Unsignalized intersection

The 95th percentile queue length reported at the signalized intersections increases less than one vehicle length when comparing the background and build conditions for all movements. The anticipated increase in traffic associated with the project can be accommodated by the surrounding roadway network.

Conclusion:

The proposed project includes the development of a natural gas infusion facility on the property located at 1010 Route 6 in Andover, Connecticut. The proposed facility will result in an additional twelve (12) vehicle trips (6 entering, 6 exiting) during the peak hour along the proposed truck route. The project site is proposed to be accessed from Route 6 via the existing un-signalized site driveway located near the southern property line, which is being improved as part of the project. The proposed truck route to the site will be along Route 6, to/from the terminus of Interstate 384, approximately 6.7 miles north of the project site in Bolton, Connecticut, as identified in Figure 2, Truck Route Map. All signalized intersections along the proposed truck route and the unsignalized site driveway intersection were analyzed during the dominant peak hour of the surrounding roadway network which was determined to be the AM peak hour.

The traffic impact analysis of the study area intersections indicates that the proposed project will maintain similar operating conditions to those of the background condition of the surrounding roadway network. The site driveway is expected to operate at level of service "B" with minimal delay for vehicles exiting the site. It is the professional opinion of Solli Engineering that the proposed project can be accommodated without adverse impact on the operating conditions of the surrounding roadway network.

Sincerely,
Solli Engineering, LLC

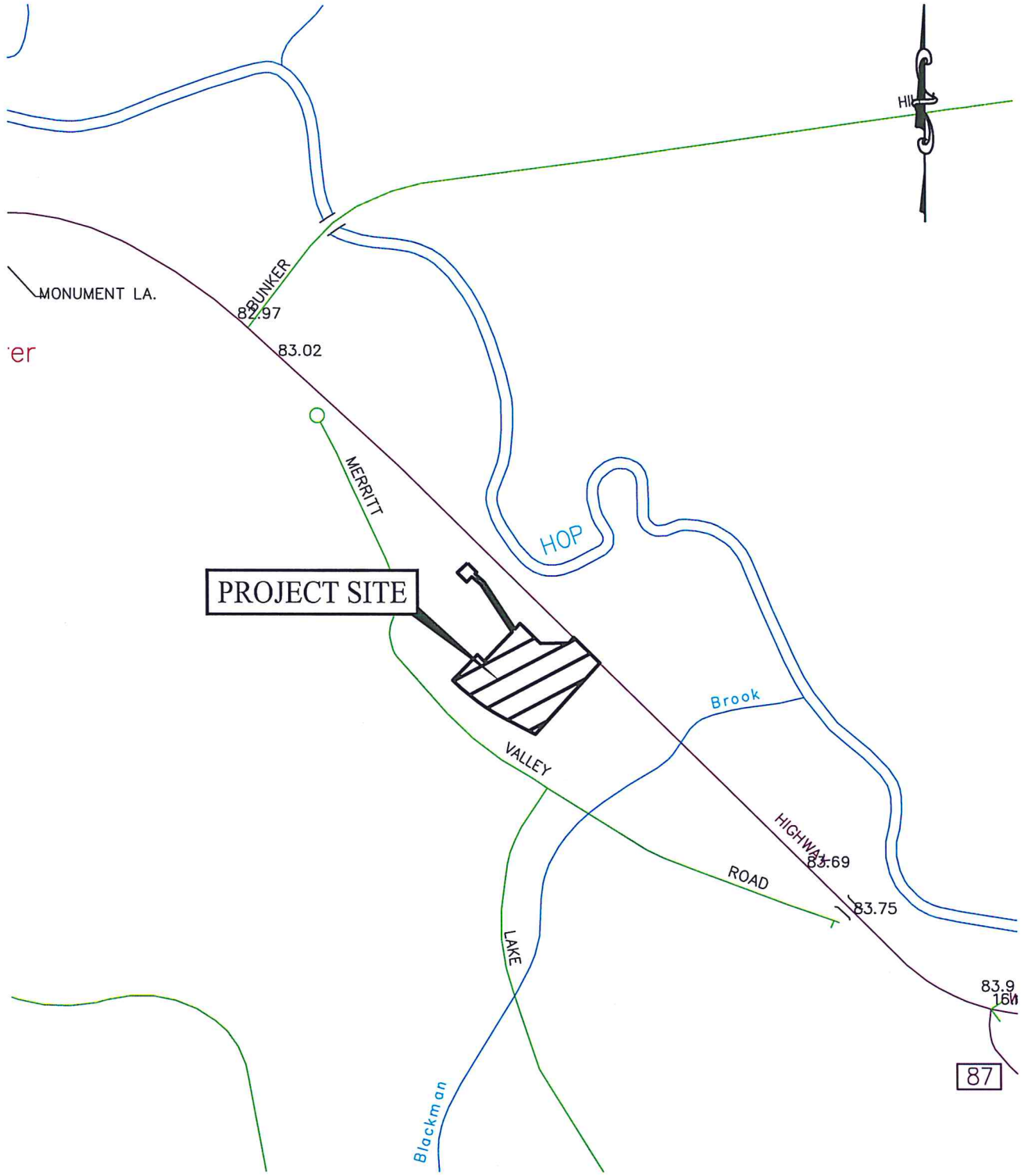
Collene Byrne
Senior Project Engineer

Kevin Solli, P.E.
Principal

Supporting Documents:

Site Location Map	(Figure 1)
Truck Route Map	(Figure 2)
2015 Existing Traffic Volumes	(Figure 3)
Traffic Volume Distribution	(Figure 4)
Traffic Volume Assignment	(Figure 5)
2016 Background Traffic Volumes	(Figure 6)
2016 Build Traffic Volumes	(Figure 7)
Synchro Analysis Reports	

X:\SE Files\Project Data\2016\1603101 - Andover\Office Data\Reports\1508501 Andover Traffic Impact Letter Report.docx



NOTE: BASE MAP INFORMATION TAKEN FROM http://www.ct.gov/dot

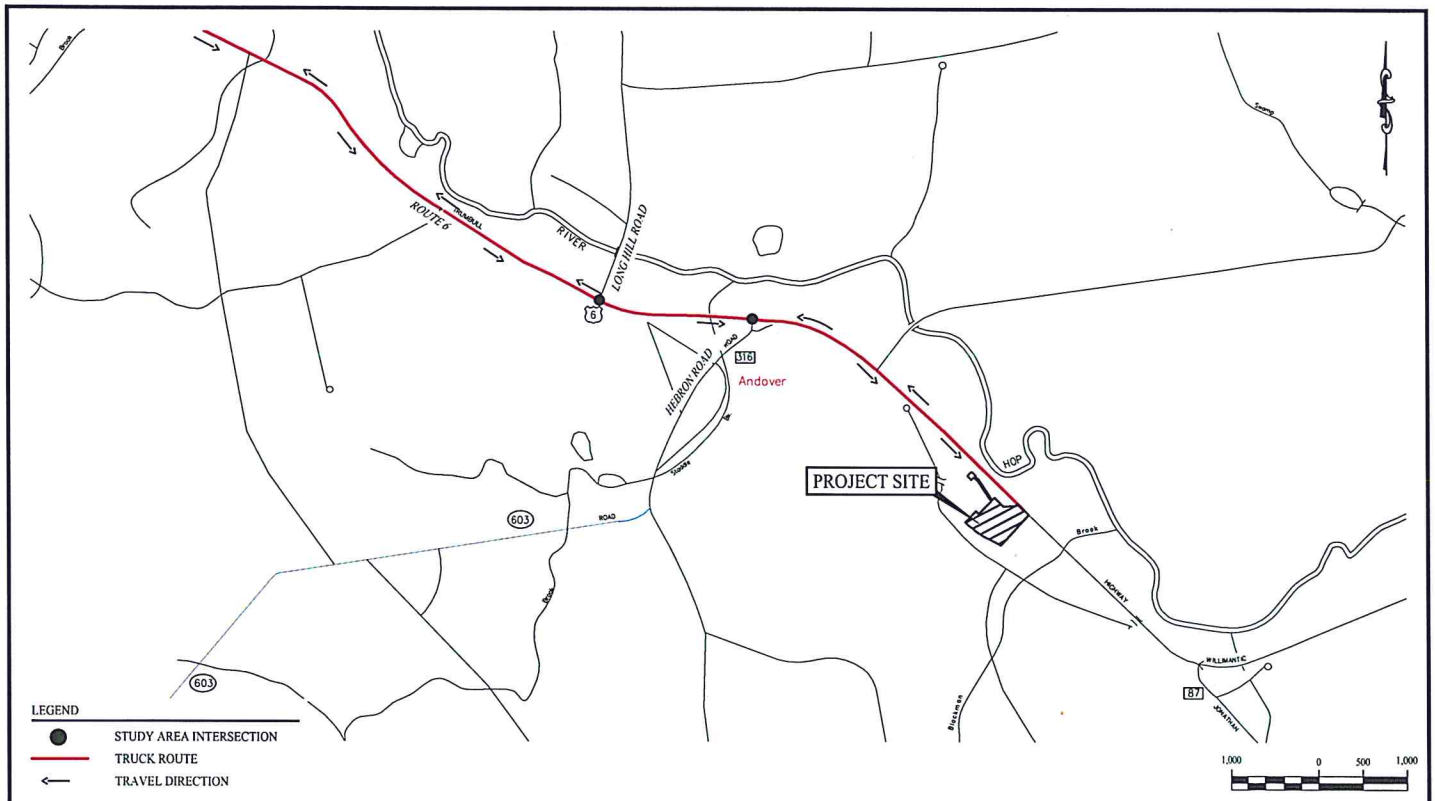
700 0 350 700

SOLLI ENGINEERING
501 Main Street, Monroe, CT 06468
T: (203) 880-5455 | F: (203) 880-9695

SITE LOCATION MAP

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/13/16
Scale:	1"=700'
Figure:	1



Rev. #:	Date	Description

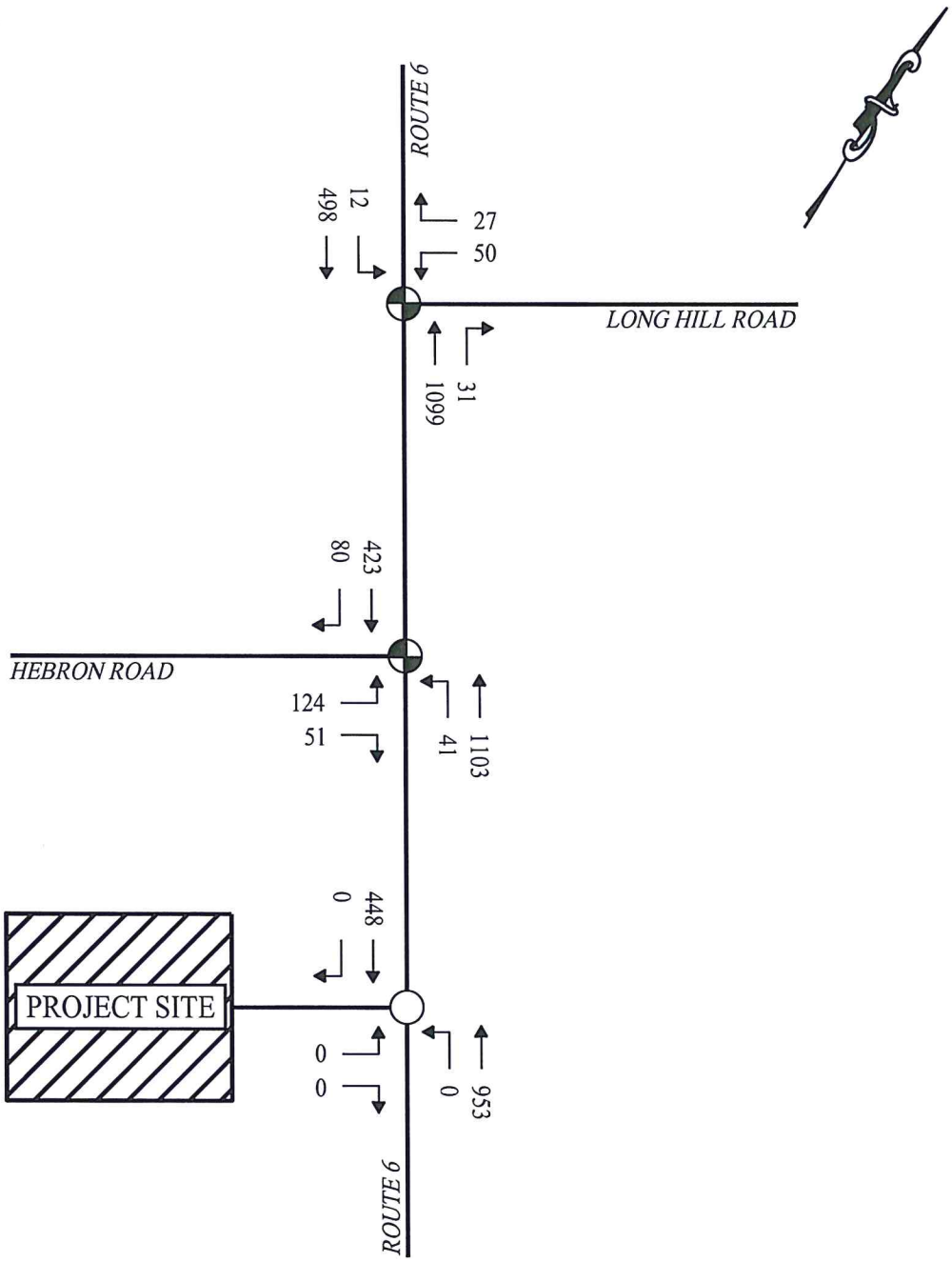
SOLLI ENGINEERING
1428 Monroe Turnpike, Monroe, CT 06468
T: (203) 880-5455 F: (203) 445-9560

Drawn By:	KLO
Checked By:	KMS
Project #:	1603101
Plan Date:	04/11/16
Scale:	1" = 1,000'

Project: PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Sheet Title: TRUCK ROUTE MAP

SHEET #: FIG. 2



LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- AM

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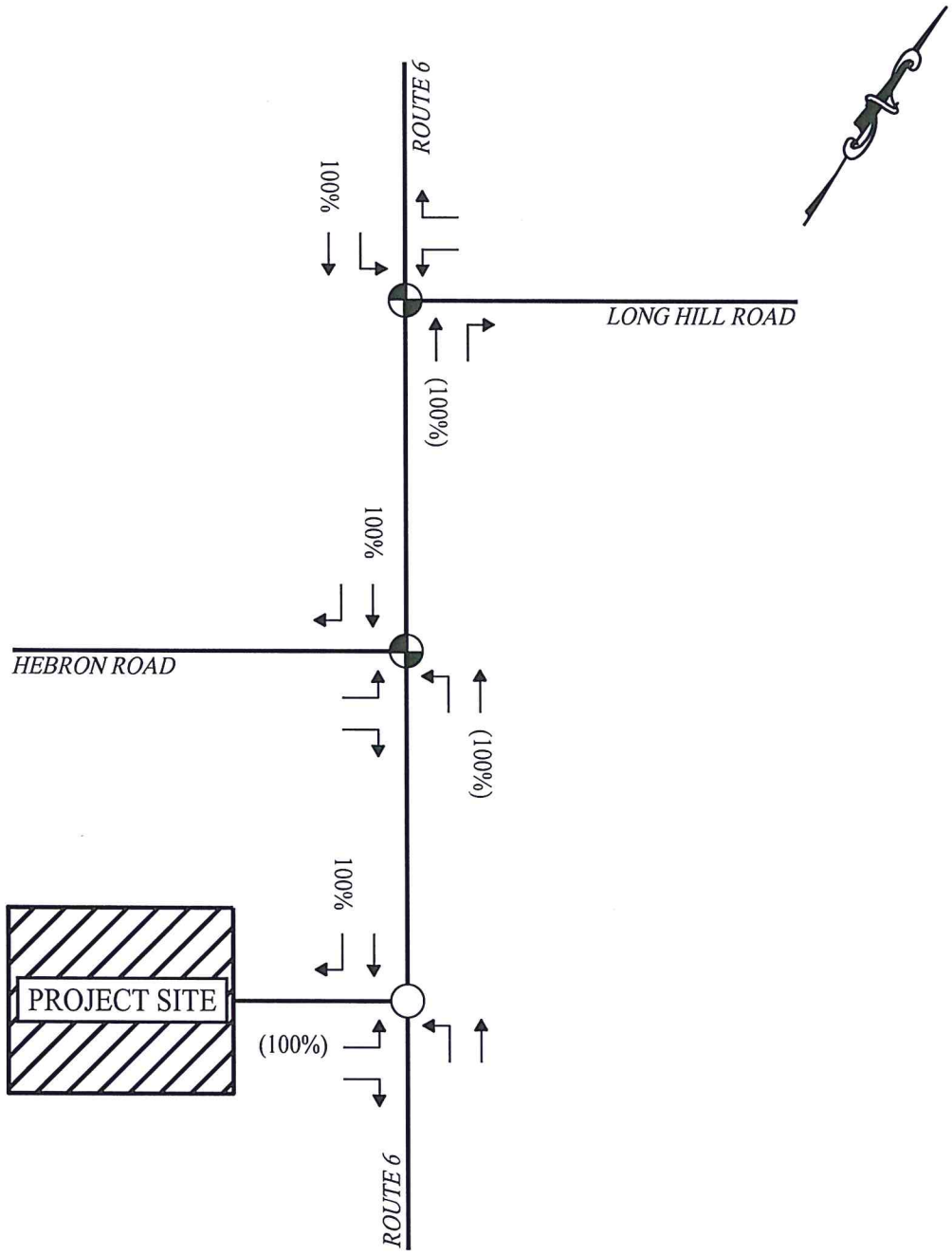
2016 EXISTING TRAFFIC

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/11/16
Scale:	NTS
Figure:	3



LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- ENTER(EXIT)

SOLLI ENGINEERING
1428 Monroe Tpke, Monroe, CT 06468
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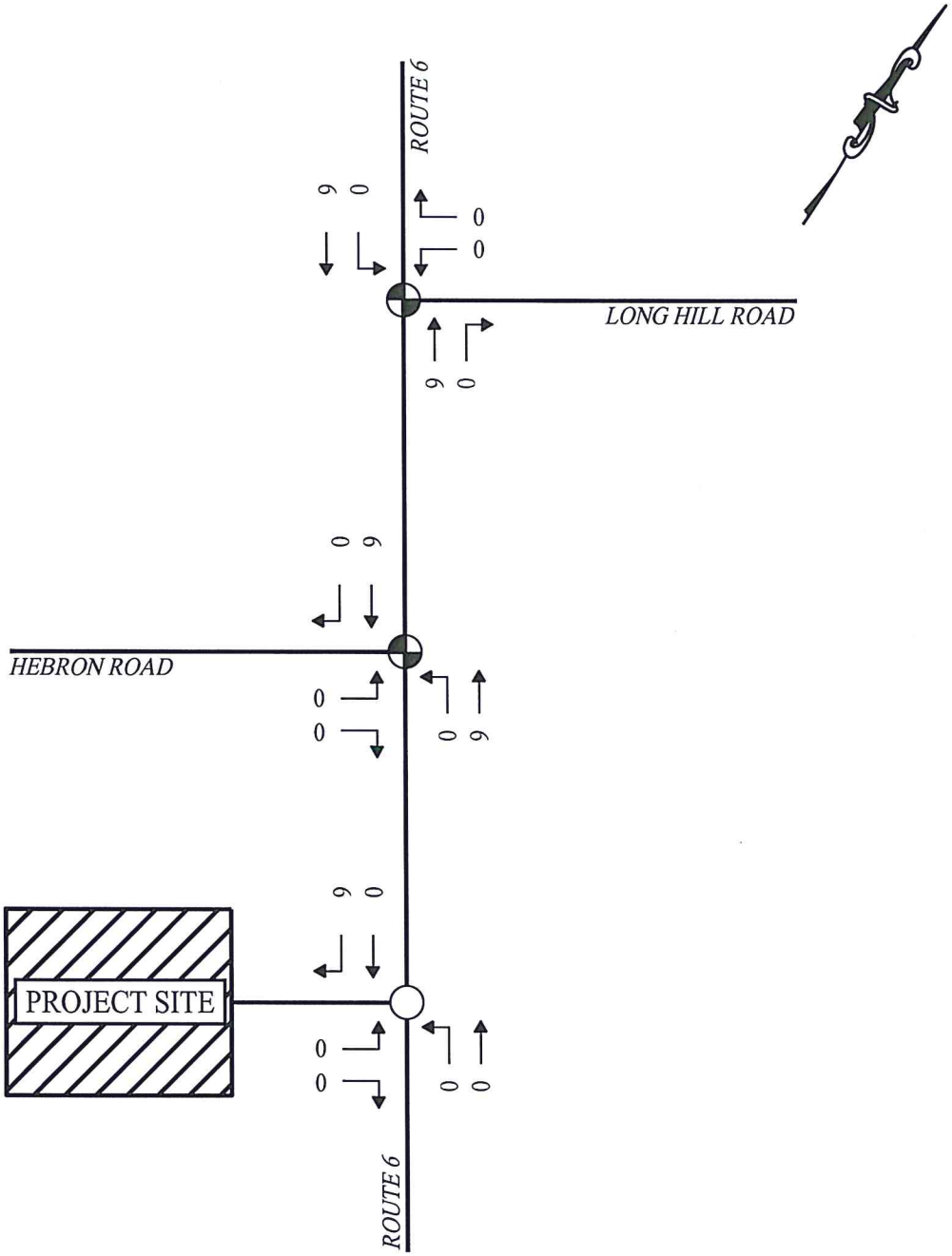
TRIP DISTRIBUTION

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/11/16
Scale:	NTS
Figure:	4



LEGEND

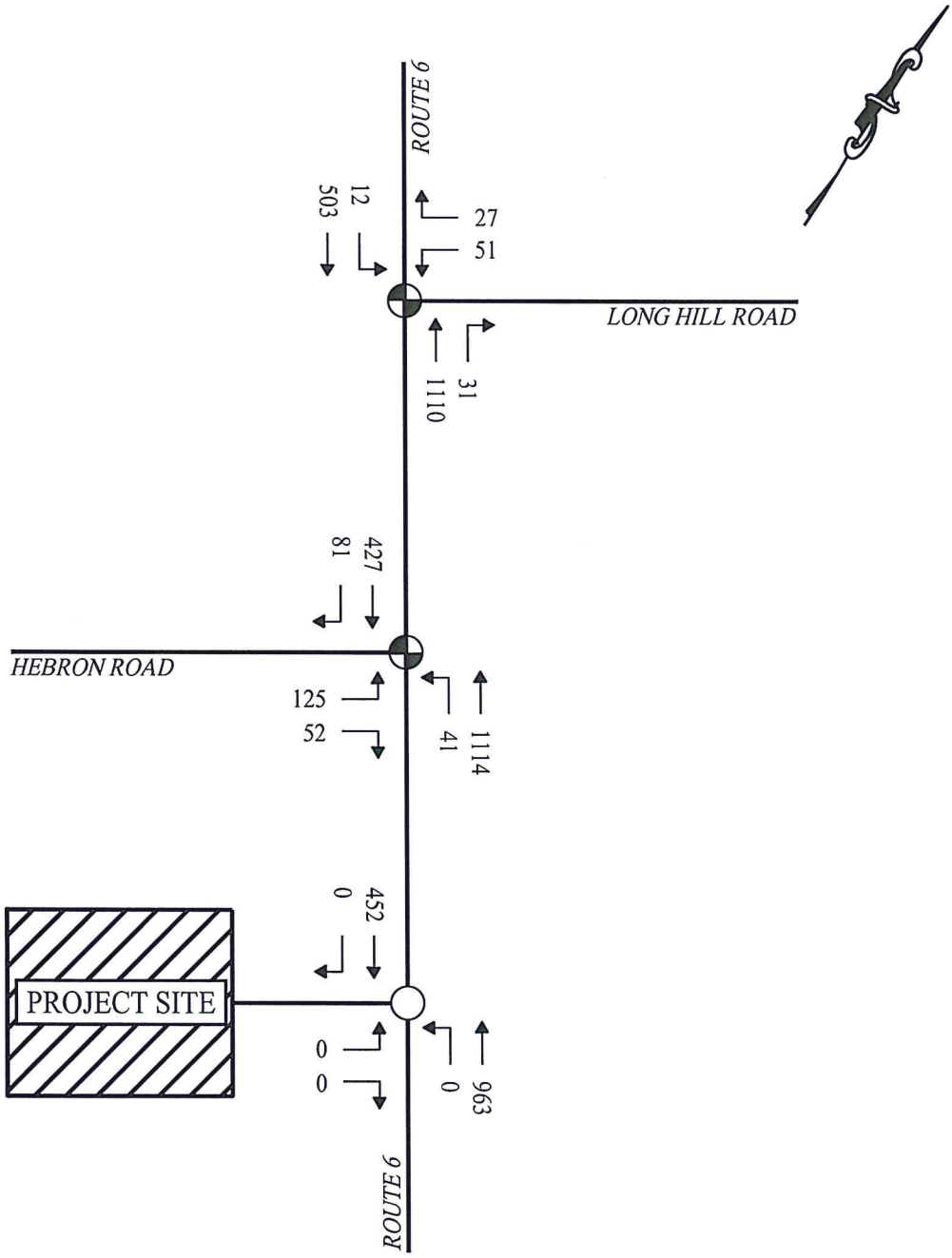
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- AM

SOLLI ENGINEERING
1428 Monroe Tpke, Monroe, CT 06468
T: (203) 880-5455 F: (203) 445-9560

TRIP ASSIGNMENT

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/11/16
Scale:	NTS
Figure:	5



LEGEND

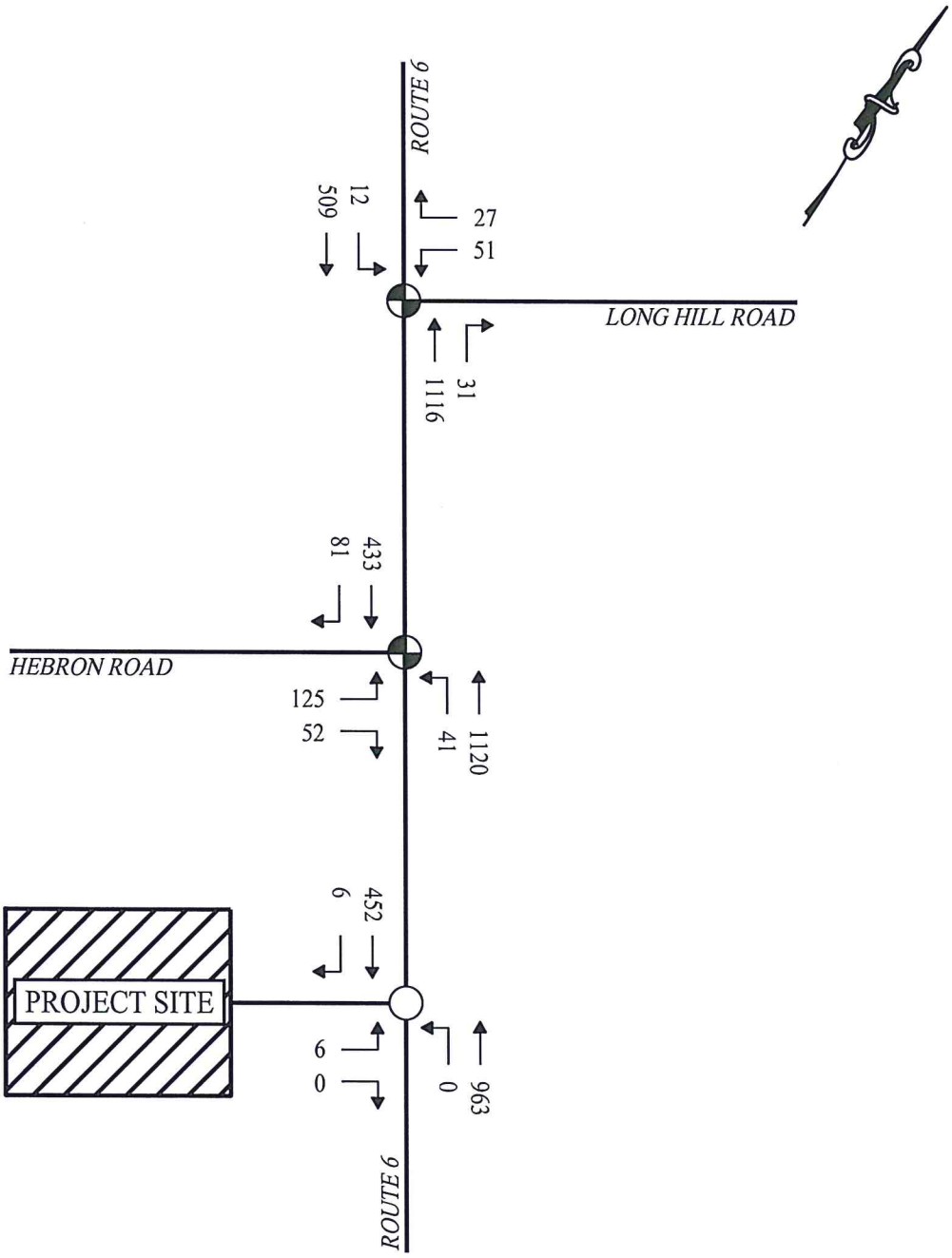
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- AM

SOLLI ENGINEERING
1428 Monroe Tpke, Monroe, CT 06468
T: (203) 880-5455 F: (203) 445-9560

2017 BACKGROUND TRAFFIC

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/11/16
Scale:	NTS
Figure:	6



LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- AM

SOLLI ENGINEERING
1428 Monroe Tpke, Monroe, CT 06468
T: (203) 880-5455 F: (203) 445-9560

2017 BUILD TRAFFIC

PENTAGON ENERGY FACILITY
ANDOVER, CONNECTICUT

Project #:	1603101
Plan Date:	04/11/16
Scale:	NTS
Figure:	7

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	498	1099	31	50	27
Future Volume (vph)	12	498	1099	31	50	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	40				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.952	
Flt Protected	0.950				0.969	
Satd. Flow (prot)	1745	1792	1856	0	1753	0
Flt Permitted	0.097				0.969	
Satd. Flow (perm)	178	1792	1856	0	1753	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3		30	
Link Speed (mph)		40	40		30	
Link Distance (ft)		479	1687		327	
Travel Time (s)		8.2	28.8		7.4	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Adj. Flow (vph)	13	535	1278	36	55	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	535	1314	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	2	2		3	
Detector Template						
Leading Detector (ft)	32	340	351		26	
Trailing Detector (ft)	-5	178	174		-7	
Detector 1 Position(ft)	-5	178	174		-7	
Detector 1 Size(ft)	6	6	6		6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	10	334	345		10	
Detector 2 Size(ft)	6	6	6		6	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)	0.0	0.0	0.0		0.0	
Detector 3 Position(ft)	26				20	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Size(ft)	6				6	
Detector 3 Type	Cl+Ex				Cl+Ex	
Detector 3 Channel						
Detector 3 Extend (s)	0.0				0.0	
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	9.0	10.6	10.6		9.0	
Total Split (s)	9.5	41.5	32.0		23.6	
Total Split (%)	14.6%	63.7%	49.2%		36.3%	
Maximum Green (s)	5.5	35.9	26.4		19.6	
Yellow Time (s)	3.0	4.4	4.4		3.0	
All-Red Time (s)	1.0	1.2	1.2		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	5.6	5.6		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Recall Mode	None	Min	None		None	
Act Effct Green (s)	40.8	41.6	39.9		6.5	
Actuated g/C Ratio	0.79	0.81	0.78		0.13	
v/c Ratio	0.04	0.37	0.91		0.34	
Control Delay	2.8	4.0	24.7		18.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.8	4.0	24.7		18.9	
LOS	A	A	C		B	
Approach Delay		4.0	24.7		18.9	
Approach LOS		A	C		B	

Intersection Summary

Area Type: Other
Cycle Length: 65.1
Actuated Cycle Length: 51.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 18.6 — Intersection LOS: B
Intersection Capacity Utilization 72.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: ROUTE 6 & LONG HILL ROAD

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	13	535	1314	85
v/c Ratio	0.04	0.37	0.91	0.34
Control Delay	2.8	4.0	24.7	18.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.8	4.0	24.7	18.9
Queue Length 50th (ft)	1	53	313	18
Queue Length 95th (ft)	4	117	#785	47
Internal Link Dist (ft)		399	1607	247
Turn Bay Length (ft)	90			
Base Capacity (vph)	310	1463	1440	691
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.37	0.91	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	498	1099	31	50	27
Future Volume (vph)	12	498	1099	31	50	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12
Total Lost time (s)	4.0	5.6	5.6		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1745	1792	1857		1753	
Flt Permitted	0.10	1.00	1.00		0.97	
Satd. Flow (perm)	177	1792	1857		1753	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.91	0.91
Adj. Flow (vph)	13	535	1278	36	55	30
RTOR Reduction (vph)	0	0	1	0	28	0
Lane Group Flow (vph)	13	535	1313	0	57	0
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	42.4	42.4	37.4		4.3	
Effective Green, g (s)	42.4	42.4	37.4		4.3	
Actuated g/C Ratio	0.75	0.75	0.66		0.08	
Clearance Time (s)	4.0	5.6	5.6		4.0	
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Lane Grp Cap (vph)	161	1349	1233		133	
v/s Ratio Prot	0.00	c0.30	c0.71		c0.03	
v/s Ratio Perm	0.06					
v/c Ratio	0.08	0.40	1.06		0.43	
Uniform Delay, d1	14.2	2.4	9.4		24.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.2	44.8		0.8	
Delay (s)	14.3	2.6	54.3		25.6	
Level of Service	B	A	D		C	
Approach Delay (s)		2.9	54.3		25.6	
Approach LOS		A	D		C	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.6
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

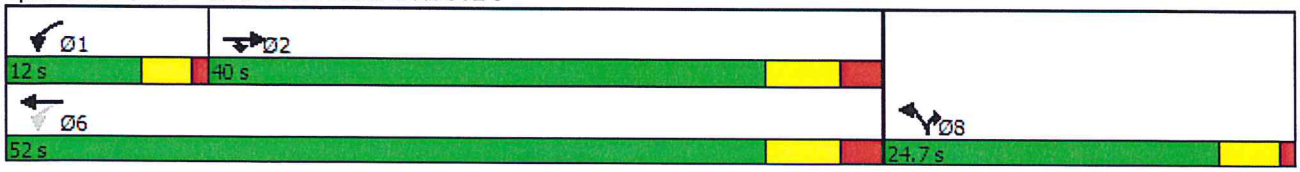
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	423	80	41	1103	124	51
Future Volume (vph)	423	80	41	1103	124	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	12	11	12
Storage Length (ft)		250	95		0	90
Storage Lanes		1	1		1	1
Taper Length (ft)			40		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1776	1546	1745	1845	1728	1615
Flt Permitted			0.389		0.950	
Satd. Flow (perm)	1776	1546	714	1845	1728	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		95				63
Link Speed (mph)	40			40	35	
Link Distance (ft)	1687			3890	285	
Travel Time (s)	28.8			66.3	5.6	
Peak Hour Factor	0.84	0.84	0.89	0.89	0.81	0.81
Heavy Vehicles (%)	7%	1%	0%	3%	1%	0%
Adj. Flow (vph)	504	95	46	1239	153	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	504	95	46	1239	153	63
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.04	1.04	1.00	1.04	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	3	2	3	3
Detector Template						
Leading Detector (ft)	366	186	29	406	27	17
Trailing Detector (ft)	180	180	-4	200	-10	-10
Detector 1 Position(ft)	180	180	-4	200	-10	-10
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	360		13	400	5	0
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			23		21	11

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	Prot	pm+pt	NA	Prot	Prot
Protected Phases	2	2	1	6	8	8
Permitted Phases			6			
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0
Minimum Split (s)	22.0	22.0	9.0	22.0	10.7	10.7
Total Split (s)	40.0	40.0	12.0	52.0	24.7	24.7
Total Split (%)	52.2%	52.2%	15.6%	67.8%	32.2%	32.2%
Maximum Green (s)	33.0	33.0	8.0	45.0	20.0	20.0
Yellow Time (s)	4.4	4.4	3.0	4.4	3.7	3.7
All-Red Time (s)	2.6	2.6	1.0	2.6	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	2.0	3.0	2.0	2.0
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	42.1	42.1	50.9	47.9	10.7	10.7
Actuated g/C Ratio	0.60	0.60	0.72	0.68	0.15	0.15
v/c Ratio	0.47	0.10	0.08	0.99	0.58	0.21
Control Delay	11.8	2.7	3.8	37.1	35.9	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	2.7	3.8	37.1	35.9	9.0
LOS	B	A	A	D	D	A
Approach Delay	10.3			35.9	28.1	
Approach LOS	B			D	C	

Intersection Summary

Area Type: Other
Cycle Length: 76.7
Actuated Cycle Length: 70.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 27.8 — Intersection LOS: C
Intersection Capacity Utilization 74.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: HEBRON ROAD & ROUTE 6



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	504	95	46	1239	153	63
v/c Ratio	0.47	0.10	0.08	0.99	0.58	0.21
Control Delay	11.8	2.7	3.8	37.1	35.9	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	2.7	3.8	37.1	35.9	9.0
Queue Length 50th (ft)	123	0	4	~425	59	0
Queue Length 95th (ft)	217	18	15	#841	99	23
Internal Link Dist (ft)	1607			3810	205	
Turn Bay Length (ft)		250	95			90
Base Capacity (vph)	1062	963	634	1256	493	506
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.10	0.07	0.99	0.31	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	423	80	41	1103	124	51
Future Volume (vph)	423	80	41	1103	124	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12
Total Lost time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1776	1546	1745	1845	1728	1615
Flt Permitted	1.00	1.00	0.39	1.00	0.95	1.00
Satd. Flow (perm)	1776	1546	715	1845	1728	1615
Peak-hour factor, PHF	0.84	0.84	0.89	0.89	0.81	0.81
Adj. Flow (vph)	504	95	46	1239	153	63
RTOR Reduction (vph)	0	39	0	0	0	54
Lane Group Flow (vph)	504	56	46	1239	153	9
Heavy Vehicles (%)	7%	1%	0%	3%	1%	0%
Turn Type	NA	Prot	pm+pt	NA	Prot	Prot
Protected Phases	2	2	1	6	8	8
Permitted Phases			6			
Actuated Green, G (s)	42.1	42.1	49.5	49.5	10.7	10.7
Effective Green, g (s)	42.1	42.1	49.5	49.5	10.7	10.7
Actuated g/C Ratio	0.59	0.59	0.69	0.69	0.15	0.15
Clearance Time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Vehicle Extension (s)	3.0	3.0	2.0	3.0	2.0	2.0
Lane Grp Cap (vph)	1039	905	540	1270	257	240
v/s Ratio Prot	0.28	0.04	0.00	c0.67	c0.09	0.01
v/s Ratio Perm			0.05			
v/c Ratio	0.49	0.06	0.09	0.98	0.60	0.04
Uniform Delay, d1	8.6	6.4	4.1	10.6	28.6	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.0	19.5	2.5	0.0
Delay (s)	9.0	6.4	4.1	30.1	31.0	26.2
Level of Service	A	A	A	C	C	C
Approach Delay (s)	8.6			29.2	29.6	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	15.7
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	448	0	0	953	0	0
Future Volume (vph)	448	0	0	953	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	0	1900	1900	0
Flt Permitted						
Satd. Flow (perm)	1900	0	0	1900	1900	0
Link Speed (mph)	40			40	20	
Link Distance (ft)	3890			559	244	
Travel Time (s)	66.3			9.5	8.3	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.92	0.92
Adj. Flow (vph)	498	0	0	1047	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	498	0	0	1047	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 53.5% ICU Level of Service A
Analysis Period (min) 15

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	448	0	0	953	0	0
Future Volume (Veh/h)	448	0	0	953	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	498	0	0	1047	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			498		1545	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			498		1545	498
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1076		127	576

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	498	1047	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1076	1700
Volume to Capacity	0.29	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	503	1110	31	51	27
Future Volume (vph)	12	503	1110	31	51	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	40				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.953	
Flt Protected	0.950				0.968	
Satd. Flow (prot)	1745	1792	1856	0	1753	0
Flt Permitted	0.097				0.968	
Satd. Flow (perm)	178	1792	1856	0	1753	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3		30	
Link Speed (mph)		40	40		30	
Link Distance (ft)		479	1687		327	
Travel Time (s)		8.2	28.8		7.4	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Adj. Flow (vph)	13	541	1291	36	56	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	541	1327	0	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	3	3		1	
Detector Template	Left	Thru	Thru		Left	
Leading Detector (ft)	32	340	351		26	
Trailing Detector (ft)	-5	178	174		-7	
Detector 1 Position(ft)	-5	178	174		-7	
Detector 1 Size(ft)	37	6	6		33	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	
Detector 2 Position(ft)		256	259			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Detector 3 Position(ft)		334	345			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Size(ft)		6	6			
Detector 3 Type		Cl+Ex	Cl+Ex			
Detector 3 Channel						
Detector 3 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	9.0	10.6	10.6		9.0	
Total Split (s)	9.5	41.5	32.0		23.6	
Total Split (%)	14.6%	63.7%	49.2%		36.3%	
Maximum Green (s)	5.5	35.9	26.4		19.6	
Yellow Time (s)	3.0	4.4	4.4		3.0	
All-Red Time (s)	1.0	1.2	1.2		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	5.6	5.6		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Recall Mode	None	Min	None		None	
Act Effct Green (s)	40.8	41.6	39.8		6.5	
Actuated g/C Ratio	0.79	0.81	0.77		0.13	
v/c Ratio	0.04	0.37	0.92		0.35	
Control Delay	2.8	4.1	25.8		18.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.8	4.1	25.8		18.9	
LOS	A	A	C		B	
Approach Delay		4.0	25.8		18.9	
Approach LOS		A	C		B	

Intersection Summary

Area Type: Other
Cycle Length: 65.1
Actuated Cycle Length: 51.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 19.4 — Intersection LOS: B
Intersection Capacity Utilization 72.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: ROUTE 6 & LONG HILL ROAD

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	13	541	1327	86
v/c Ratio	0.04	0.37	0.92	0.35
Control Delay	2.8	4.1	25.8	18.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.8	4.1	25.8	18.9
Queue Length 50th (ft)	1	54	323	18
Queue Length 95th (ft)	4	117	#794	48
Internal Link Dist (ft)		399	1607	247
Turn Bay Length (ft)	90			
Base Capacity (vph)	310	1463	1439	691
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.37	0.92	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	503	1110	31	51	27
Future Volume (vph)	12	503	1110	31	51	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12
Total Lost time (s)	4.0	5.6	5.6		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1745	1792	1857		1753	
Flt Permitted	0.10	1.00	1.00		0.97	
Satd. Flow (perm)	177	1792	1857		1753	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.91	0.91
Adj. Flow (vph)	13	541	1291	36	56	30
RTOR Reduction (vph)	0	0	1	0	28	0
Lane Group Flow (vph)	13	541	1326	0	58	0
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	42.4	42.4	37.4		4.3	
Effective Green, g (s)	42.4	42.4	37.4		4.3	
Actuated g/C Ratio	0.75	0.75	0.66		0.08	
Clearance Time (s)	4.0	5.6	5.6		4.0	
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Lane Grp Cap (vph)	161	1349	1233		133	
v/s Ratio Prot	0.00	c0.30	c0.71		c0.03	
v/s Ratio Perm	0.06					
v/c Ratio	0.08	0.40	1.08		0.44	
Uniform Delay, d1	14.2	2.5	9.4		24.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.2	48.5		0.8	
Delay (s)	14.3	2.7	58.0		25.7	
Level of Service	B	A	E		C	
Approach Delay (s)		2.9	58.0		25.7	
Approach LOS		A	E		C	

Intersection Summary			
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.6
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

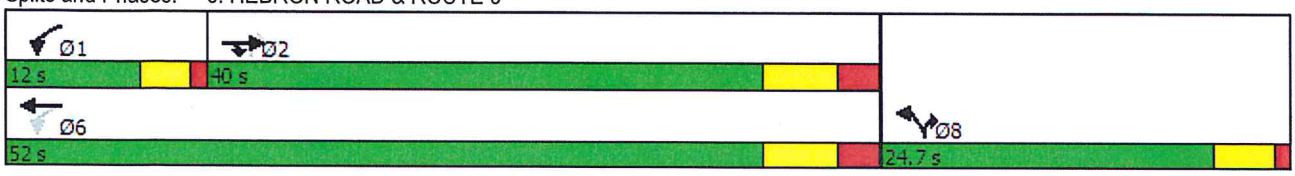
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	81	41	1114	125	52
Future Volume (vph)	427	81	41	1114	125	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	12	11	12
Storage Length (ft)		250	95		0	90
Storage Lanes		1	1		1	1
Taper Length (ft)			40		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1776	1546	1745	1845	1728	1615
Flt Permitted			0.387		0.950	
Satd. Flow (perm)	1776	1546	711	1845	1728	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		96				64
Link Speed (mph)	40			40	35	
Link Distance (ft)	1687			3890	285	
Travel Time (s)	28.8			66.3	5.6	
Peak Hour Factor	0.84	0.84	0.89	0.89	0.81	0.81
Heavy Vehicles (%)	7%	1%	0%	3%	1%	0%
Adj. Flow (vph)	508	96	46	1252	154	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	508	96	46	1252	154	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	11	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.04	1.04	1.00	1.04	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	4	1	1	3	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	366	186	29	406	27	17
Trailing Detector (ft)	0	180	-4	200	-10	-10
Detector 1 Position(ft)	0	180	-4	200	-10	-10
Detector 1 Size(ft)	6	6	33	6	37	27
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	120			300		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Detector 3 Position(ft)	240			400		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)	6			6		
Detector 3 Type	Cl+Ex			Cl+Ex		
Detector 3 Channel						
Detector 3 Extend (s)	0.0			0.0		
Detector 4 Position(ft)	360					
Detector 4 Size(ft)	6					
Detector 4 Type	Cl+Ex					
Detector 4 Channel						
Detector 4 Extend (s)	0.0					
Turn Type	NA	Prot	pm+pt	NA	Prot	custom
Protected Phases	2	2	1	6	8	8
Permitted Phases			6			2
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	6.0	6.0
Minimum Split (s)	22.0	22.0	9.0	22.0	10.7	10.7
Total Split (s)	40.0	40.0	12.0	52.0	24.7	24.7
Total Split (%)	52.2%	52.2%	15.6%	67.8%	32.2%	32.2%
Maximum Green (s)	33.0	33.0	8.0	45.0	20.0	20.0
Yellow Time (s)	4.4	4.4	3.0	4.4	3.7	3.7
All-Red Time (s)	2.6	2.6	1.0	2.6	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	2.0	3.0	2.0	2.0
Recall Mode	Min	Min	None	None	None	None
Act Effct Green (s)	42.1	42.1	50.9	47.9	10.7	61.7
Actuated g/C Ratio	0.60	0.60	0.72	0.68	0.15	0.88
v/c Ratio	0.48	0.10	0.08	1.00	0.59	0.04
Control Delay	11.9	2.7	3.8	39.8	35.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	2.7	3.8	39.8	35.9	0.5
LOS	B	A	A	D	D	A
Approach Delay	10.4			38.5	25.5	
Approach LOS	B			D	C	

Intersection Summary

Area Type: Other
Cycle Length: 76.7
Actuated Cycle Length: 70.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 29.2 — Intersection LOS: C
Intersection Capacity Utilization 75.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: HEBRON ROAD & ROUTE 6



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	508	96	46	1252	154	64
v/c Ratio	0.48	0.10	0.08	1.00	0.59	0.04
Control Delay	11.9	2.7	3.8	39.8	35.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	2.7	3.8	39.8	35.9	0.5
Queue Length 50th (ft)	124	0	4	~453	60	0
Queue Length 95th (ft)	220	18	15	#855	99	4
Internal Link Dist (ft)	1607			3810	205	
Turn Bay Length (ft)		250	95			90
Base Capacity (vph)	1061	963	632	1255	493	1523
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.10	0.07	1.00	0.31	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	81	41	1114	125	52
Future Volume (vph)	427	81	41	1114	125	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	11	11	12	11	12
Total Lost time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1776	1546	1745	1845	1728	1615
Flt Permitted	1.00	1.00	0.39	1.00	0.95	1.00
Satd. Flow (perm)	1776	1546	710	1845	1728	1615
Peak-hour factor, PHF	0.84	0.84	0.89	0.89	0.81	0.81
Adj. Flow (vph)	508	96	46	1252	154	64
RTOR Reduction (vph)	0	40	0	0	0	17
Lane Group Flow (vph)	508	56	46	1252	154	47
Heavy Vehicles (%)	7%	1%	0%	3%	1%	0%
Turn Type	NA	Prot	pm+pt	NA	Prot	custom
Protected Phases	2	2	1	6	8	8
Permitted Phases			6			2
Actuated Green, G (s)	42.1	42.1	49.5	49.5	10.7	52.8
Effective Green, g (s)	42.1	42.1	49.5	49.5	10.7	52.8
Actuated g/C Ratio	0.59	0.59	0.69	0.69	0.15	0.73
Clearance Time (s)	7.0	7.0	4.0	7.0	4.7	4.7
Vehicle Extension (s)	3.0	3.0	2.0	3.0	2.0	2.0
Lane Grp Cap (vph)	1039	905	537	1270	257	1185
v/s Ratio Prot	0.29	0.04	0.00	c0.68	c0.09	0.01
v/s Ratio Perm			0.05			0.02
v/c Ratio	0.49	0.06	0.09	0.99	0.60	0.04
Uniform Delay, d1	8.7	6.4	4.1	10.9	28.6	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.0	21.7	2.5	0.0
Delay (s)	9.0	6.4	4.2	32.5	31.1	2.6
Level of Service	A	A	A	C	C	A
Approach Delay (s)	8.6			31.5	22.7	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	15.7
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	452	0	0	963	0	0
Future Volume (vph)	452	0	0	963	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	0	1900	1900	0
Flt Permitted						
Satd. Flow (perm)	1900	0	0	1900	1900	0
Link Speed (mph)	40			40	20	
Link Distance (ft)	3890			559	244	
Travel Time (s)	66.3			9.5	8.3	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.92	0.92
Adj. Flow (vph)	502	0	0	1058	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	502	0	0	1058	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	452	0	0	963	0	0
Future Volume (Veh/h)	452	0	0	963	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	502	0	0	1058	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			502		1560	502
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			502		1560	502
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1073		125	573

Direction, Lane #	SE 1	NW 1	NE 1
Volume Total	502	1058	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1073	1700
Volume to Capacity	0.30	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	509	1116	31	51	27
Future Volume (vph)	12	509	1116	31	51	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Storage Length (ft)	90			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	40				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.953	
Flt Protected	0.950				0.968	
Satd. Flow (prot)	1745	1776	1839	0	1753	0
Flt Permitted	0.097				0.968	
Satd. Flow (perm)	178	1776	1839	0	1753	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3		30	
Link Speed (mph)		40	40		30	
Link Distance (ft)		479	1687		327	
Travel Time (s)		8.2	28.8		7.4	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	0%	7%	3%	0%	0%	0%
Adj. Flow (vph)	13	547	1298	36	56	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	547	1334	0	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	2	2		3	
Detector Template						
Leading Detector (ft)	32	340	351		26	
Trailing Detector (ft)	-5	178	174		-7	
Detector 1 Position(ft)	-5	178	174		-7	
Detector 1 Size(ft)	6	6	6		6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	10	334	345		10	
Detector 2 Size(ft)	6	6	6		6	
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)	0.0	0.0	0.0		0.0	
Detector 3 Position(ft)	26				20	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Size(ft)	6				6	
Detector 3 Type	Cl+Ex				Cl+Ex	
Detector 3 Channel						
Detector 3 Extend (s)	0.0				0.0	
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	9.0	10.6	10.6		9.0	
Total Split (s)	9.5	41.5	32.0		23.6	
Total Split (%)	14.6%	63.7%	49.2%		36.3%	
Maximum Green (s)	5.5	35.9	26.4		19.6	
Yellow Time (s)	3.0	4.4	4.4		3.0	
All-Red Time (s)	1.0	1.2	1.2		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	5.6	5.6		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Recall Mode	None	Min	None		None	
Act Effct Green (s)	40.8	41.6	39.8		6.5	
Actuated g/C Ratio	0.79	0.81	0.77		0.13	
v/c Ratio	0.04	0.38	0.94		0.35	
Control Delay	2.8	4.1	27.6		18.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.8	4.1	27.6		18.9	
LOS	A	A	C		B	
Approach Delay		4.1	27.6		18.9	
Approach LOS		A	C		B	

Intersection Summary

Area Type: Other
Cycle Length: 65.1
Actuated Cycle Length: 51.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 20.6 — Intersection LOS: C
Intersection Capacity Utilization 73.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: ROUTE 6 & LONG HILL ROAD

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	13	547	1334	86
v/c Ratio	0.04	0.38	0.94	0.35
Control Delay	2.8	4.1	27.6	18.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.8	4.1	27.6	18.9
Queue Length 50th (ft)	1	55	~347	18
Queue Length 95th (ft)	4	121	#803	48
Internal Link Dist (ft)		399	1607	247
Turn Bay Length (ft)	90			
Base Capacity (vph)	310	1450	1426	691
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.38	0.94	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	509	1116	31	51	27
Future Volume (vph)	12	509	1116	31	51	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	12	12	12
Total Lost time (s)	4.0	5.6	5.6		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1745	1776	1839		1753	
Flt Permitted	0.10	1.00	1.00		0.97	
Satd. Flow (perm)	177	1776	1839		1753	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.91	0.91
Adj. Flow (vph)	13	547	1298	36	56	30
RTOR Reduction (vph)	0	0	1	0	28	0
Lane Group Flow (vph)	13	547	1333	0	58	0
Heavy Vehicles (%)	0%	7%	3%	0%	0%	0%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	42.4	42.4	37.4		4.3	
Effective Green, g (s)	42.4	42.4	37.4		4.3	
Actuated g/C Ratio	0.75	0.75	0.66		0.08	
Clearance Time (s)	4.0	5.6	5.6		4.0	
Vehicle Extension (s)	2.0	3.0	3.0		2.0	
Lane Grp Cap (vph)	161	1337	1221		133	
v/s Ratio Prot	0.00	c0.31	c0.72		c0.03	
v/s Ratio Perm	0.06					
v/c Ratio	0.08	0.41	1.09		0.44	
Uniform Delay, d1	14.2	2.5	9.4		24.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.2	54.6		0.8	
Delay (s)	14.3	2.7	64.0		25.7	
Level of Service	B	A	E		C	
Approach Delay (s)		3.0	64.0		25.7	
Approach LOS		A	E		C	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.6
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

WETLANDS PERMIT & SITE PLAN APPLICATION

FOR

PROPOSED CNG STATION

PREPARED FOR

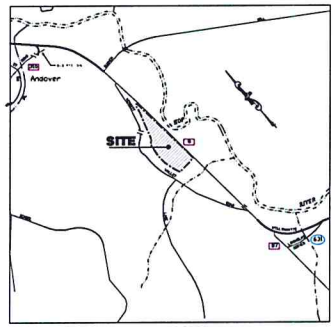
GLOBAL CNG HOLDINGS, A DELAWARE LLC
FOR PROPERTY LOCATED AT
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01
ROUTE #6
ANDOVER, CONNECTICUT

OWNERS:

ROBERT C. SR. & EVELYN H. RUSSELL
#218 ROUTE #6
ANDOVER, CT 06232

APPLICANT & DEVELOPER

GLOBAL CNG HOLDINGS, A DELAWARE LLC
1600 PONCE DeLOEN BLVD.
SUITE #1208
CORAL GABLES, FL 33134



LOCATION MAP
SCALE N.T.S.

SHEET INDEX

SHEET #	DRAWING TITLE
1& 2	PROPERTY AND TOPOGRAPHIC SURVEY
3	SITE LAYOUT PLAN / ZONING IMPROVEMENT LOCATION SURVEY
4	SITE GRADING / DRAINAGE / UTILITIES PLAN
5	EROSION & SEDIMENT CONTROL PLAN
6	STORMWATER QUALITY BASIN PLAN
7	SEDIMENT AND EROSION CONTROL NARRATIVE AND NOTES
8	GENERAL NOTES
9 - 11	SITE DETAILS

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK , UNIT #511
ROCKY HILL, CONNECTICUT

NO.	DATE	DESCRIPTION	BY

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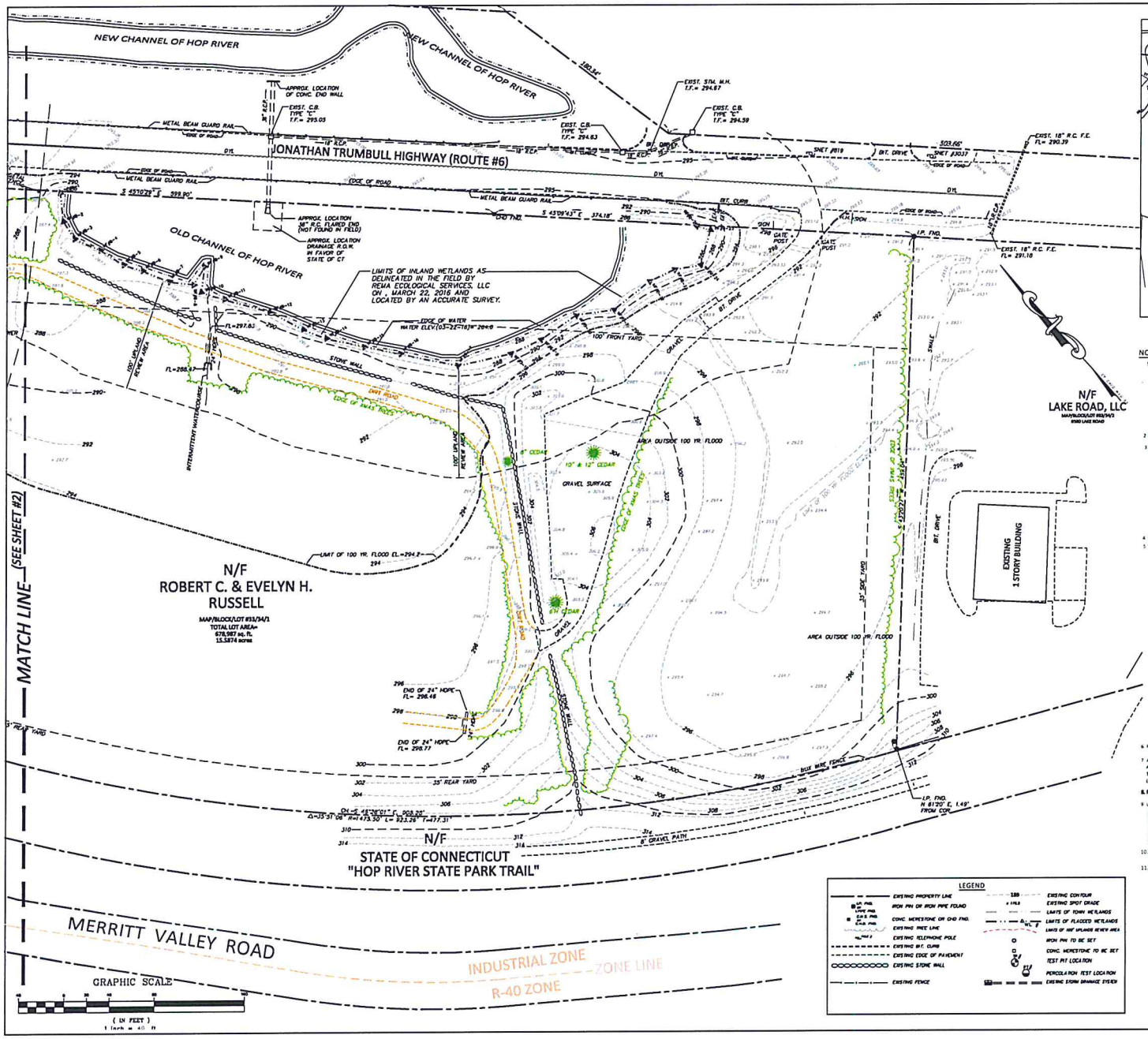

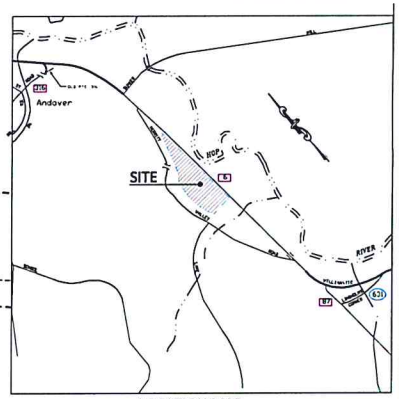

LOCATION MAP
SCALE: 1"=1,000'

NOTES:

1. SURVEY NOTES:

-This survey has been prepared pursuant to the Regulation of Connecticut State Agencies Section 20-300b-1 Through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 20, 1996.

-Type Of Survey is PROPERTY/TOPOGRAPHIC

-Boundary Determination Category is RESURVEY OF MAP REF. 5 A.

-Class of Accuracy is HOR.-"A-2", TOPO.-"T-2", VERT.-"V-2"

2. PROPERTY IS PRESENTLY ZONED INDUSTRIAL

3. LOT REQUIREMENTS INDUSTRIAL ZONE

MINIMUM LOT AREA	40,000 SQ. FT.
MIN. STREET FRONTAGE	200'
MIN. FRONT YARD DEPTH (FROM STREET LINE)	100'
MIN. SIDE YARD	35'
MIN. REAR YARD	75'
MAX. NUMBER OF STORIES	2 STORIES
MAX. BUILDING HEIGHT	35'
MAX. LOT COVERAGE AS % OF NET BLDG. AREA	70%

4. TOTAL PARCEL AREAS = 678,987 sq. ft. or 15.5874 acres

5. MAP REFERENCE: A) "LAND OF ROBERT C. RUSSELL, N.T. ANDOVER, CT. SCALE: 1"= 100', DATED DEC. 24, 1985 PREPARED BY: ROMAN KOWA, LAND SURVEYOR"

B) "PROPERTY SURVEY PREPARED FOR PROTECH SERVICES, JONATHAN TRUMBULL HIGHWAY (U.S. RTE. #6) & LAKE ROAD, ANDOVER, CONNECTICUT. SCALE: 1"= 40', DATED: 8/15/2001, PREPARED BY: PROVOST, ROVERO, FITZBACK ARCHITECTS ENGINEERS SURVEYING"

C) "RIGHT OF WAY SURVEY TOWN OF ANDOVER MAP SHOWING LAND ACQUIRED FROM ROBERT C. RUSSELL BY THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER SHEET 1 & 2 OF 2, DATED: 12/29/98"

D). "SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER, STATE OF CONNECTICUT - DEPT. OF TRANSPORTATION FED. AID PROJ. NO.: (IAA-566(128), PROJ. NO.: 01-99, YEAR: 1998 ROUTE NO.: U.S. RTE. 6, SHEETS NO.: 26 & 27"

E). "RIGHT OF WAY AND TRACK MAP THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM BOSTON TO HUDSON RIVER STATION 4913+20 TO STATION 4966+00 TOWN OF ANDOVER, STATE OF CONN., SCALE: 1"= 100', DATE: JUNE 30, 1915 OFFICE OF VALUATION ENGINEER, BOSTON MASS.

F) " CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF ANDOVER " ANDOVER WILLIMANTIC ROAD FROM THE HERON RD SOUTHEASTERLY & EASTERLY TO THE COLUMBIA T. LINE ROUTE U.S. 6-A SCALE: 1"= 40', DATED: FEB. 29, 1940"

6. PARCEL AS SHOWN OF ASSESSORS MAP #33, BLOCK #34, LOT #01

7. A PORTION OF THE PROPERTY LIES WITHIN A 100 YEAR FLOOD ZONE AE AND A 500 YEAR FLOOD ZONE B AS DESIGNATED ON FIRM (FLOOD INSURANCE RATE MAP) TOWN OF ANDOVER, CONNECTICUT TOLLAND COUNTY PANEL 4 OF 10 COMMUNITY PANEL NUMBER 090161 0004 A EFFECTIVE DATE: FEBRUARY 03, 1982

8. PROPERTY MAY BE BENEFITED AND/OR BURDENED BY RECORDED AND/OR UNRECORDED EASEMENTS.

9. UNDERGROUND UTILITY STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON WERE COMPILED IN PART FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES FROM FIELD TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO HALLISEY, PEARSON AND CASSIDY ENGINEERING ASSOCIATES. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG. CALL 811

10. BEARINGS ARE BASED ON THE CONNECTICUT COORDINATE SYSTEM N.A.D. 83.

11. ELEVATIONS BASED ON NAVD 88. CONTOUR INTERVAL= 2 FEET.

LEGEND

EXISTING PROPERTY LINE	EXISTING CONTOUR
IRON PIN OF IRON PIPE FOUND	EXISTING SPOT GRADE
CONC. MONUMENT OR END ENG.	LIMITS OF TOWN WETLANDS
EXISTING TREE LINE	LIMITS OF FLOODED WETLANDS
EXISTING TELEPHONE POLE	LIMITS OF 100' INLAND REVIEW AREA
EXISTING BIT. CURB	IRON PIN TO BE SET
EXISTING EDGE OF PAVEMENT	CONC. MONUMENT TO BE SET
EXISTING STONE WALL	TEST PIT LOCATION
EXISTING FENCE	PERCOLATION TEST LOCATION
	EXISTING STORM DRAINAGE SYSTEM

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

PAUL A. HALLISEY, LS LIC. NO: 7761 — MARCH 29, 2016 DATE

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED LICENSED PROFESSIONAL. UNAUTHORIZED ALTERATIONS TO THIS PLAN RENDER THE DECLARATION HEREON NULL AND VOID. VALID ONLY ON MAPS BEARING EMBOSSED SURVEYOR'S SEAL.

SCALE: 1"=40'
DATE: APRIL 04, 2016
JOB No.: 7601
DRAWN BY: T.F.C.
CHECKED BY: P.A.H.
FIELD BK.: 767-14
SHEET: 1 OF: 11
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWINDSOR OFFICE PARK #511
ROCKY HILL, CONNECTICUT
PHONE: (860)-529-6812, FAX: (860)-721-7709

PROPERTY/TOPOGRAPHIC SURVEY

SHOWING EXISTING CONDITIONS

PREPARED FOR

GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 - ROUTE #6
ANDOVER, CONNECTICUT

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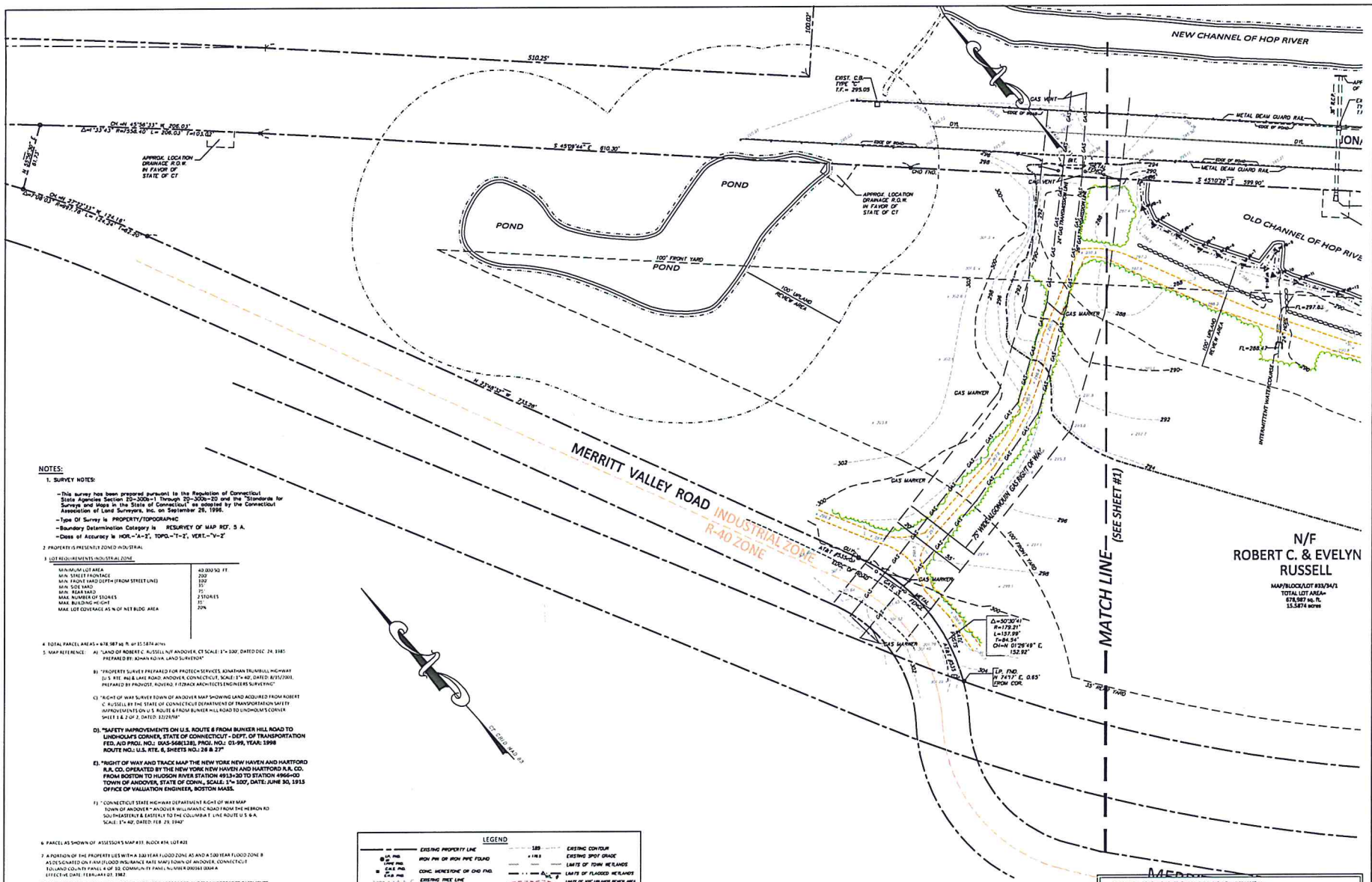

NOTES:

1. SURVEY NOTES:

- This survey has been prepared pursuant to the Regulation of Connecticut State Agencies Section 20-300b-1 Through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996.
- Type Of Survey is PROPERTY/TOPOGRAPHIC
- Boundary Determination Category is RESURVEY OF MAP REF: 5 A.
- Class of Accuracy is HOR.-"A-2", TOPO.-"T-2", VERT.-"V-2"

2. PROPERTY IS PRESENTLY ZONED INDUSTRIAL

3. LOT REQUIREMENTS INDUSTRIAL ZONE

MINIMUM LOT AREA	40,000 SQ. FT.
MIN. STREET FRONTAGE	200'
MIN. FRONT YARD DEPTH (FROM STREET LINE)	100'
MIN. SIDE YARD	35'
MIN. REAR YARD	75'
MAX. NUMBER OF STORIES	2 STORIES
MAX. BUILDING HEIGHT	45'
MAX. LOT COVERAGE AS % OF NET BLDG. AREA	70%

4. TOTAL PARCEL AREA = 678,987 sq. ft. or 15.5874 acres

5. MAP REFERENCE: A) "LAND OF ROBERT C. RUSSELL N/F ANDOVER, CT SCALE: 1"= 100', DATED DEC. 24, 1985 PREPARED BY: JOHN KOVA, LAND SURVEYOR"

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C) "RIGHT OF WAY SURVEY TOWN OF ANDOVER MAP SHOWING LAND ACQUIRED FROM ROBERT C. RUSSELL BY THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER SHEET 1 & 2 OF 2, DATED: 12/29/98"

D). "SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER, STATE OF CONNECTICUT - DEPT. OF TRANSPORTATION FED. A/D PROJ. NO.: (IAS-568(128), PROJ. NO.: 01-99, YEAR: 1998 ROUTE NO.: U.S. RTE. 6, SHEETS NO.: 28 & 27"

E). "RIGHT OF WAY AND TRACK MAP THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM BOSTON TO HUDSON RIVER STATION 4913+20 TO STATION 4966+00 TOWN OF ANDOVER, STATE OF CONN., SCALE: 1"= 100', DATE: JUNE 30, 1915 OFFICE OF VALUATION ENGINEER, BOSTON MASS.

F) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF ANDOVER " ANDOVER WILLIMANTIC ROAD FROM THE HEBRON RD SOUTHEASTERLY & EASTERLY TO THE COLUMBIA T. LINE ROUTE U S 6-A SCALE: 1"= 40', DATED: FEB. 29, 1940"

6. PARCEL AS SHOWN OF ASSESSOR'S MAP #33, BLOCK #34, LOT #2E

7. A PORTION OF THE PROPERTY LIES WITHIN 100 YEAR FLOOD ZONE AS AND A 500 YEAR FLOOD ZONE B AS DESIGNATED ON FIRM (FLOOD INSURANCE RATE MAP) TOWN OF ANDOVER, CONNECTICUT TOLLAND COUNTY PANEL 4 OF 10, COMMUNITY PANEL NUMBER 090361 0004 A EFFECTIVE DATE: FEBRUARY 07, 1982

8. PROPERTY MAY BE BENEFITED AND/OR BURDENED BY RECORDED AND/OR UNRECORDED EASEMENTS.

9. UNDERGROUND UTILITY STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PARCEL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO HALLISEY, PEARSON AND CASSIDY ENGINEERING ASSOCIATES. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG. CALL 811

10. BEARINGS ARE BASED ON THE CONNECTICUT COORDINATE SYSTEM N.A.D. 83.

11. ELEVATIONS BASED ON NAVD 88. CONTOUR INTERVAL = 2 FEET.

LEGEND

EXISTING PROPERTY LINE	EXISTING CONTOUR
IRON PIN OR IRON PIPE FOUND	EXISTING SPOT GRADE
CONC. MONESTONE OR CHD FND.	LIMITS OF TOWN WETLANDS
EXISTING TREE LINE	LIMITS OF FLOODED WETLANDS
EXISTING TELEPHONE POLE	LIMITS OF 100' UPLAND REVIEW AREA
EXISTING BIT. CURB	IRON PIN TO BE SET
EXISTING EDGE OF PAVEMENT	CONC. MONESTONE TO BE SET
EXISTING STONE WALL	TEST PIT LOCATION
EXISTING FENCE	PERCOLATION TEST LOCATION
	EXISTING STORM DRAINAGE SYSTEM

GRAPHIC SCALE

(IN FEET)
1 inch = 40' FL

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

PAUL A. HALLISEY, LS — LIC. NO: 7761 — MARCH 29, 2016 — DATE

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HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
SOUTHWAY EXECUTIVE PARK, UNIT #311
ROCKY HILL, CONNECTICUT
PHONE: (860)-529-6812, FAX: (860)-721-2709

SCALE: 1"= 40'
DATE: APRIL 08, 2016
JOB No.: 2657
CHECKED BY: P.A.H.
DRAWN BY: J.F.C.
ACAD FILE: 2657.DWG
SHEET: 2 OF: 11
REVISIONS:

PROPERTY/TOPOGRAPHIC SURVEY

SHOWING EXISTING CONDITIONS
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 - ROUTE #6
ANDOVER, CONNECTICUT

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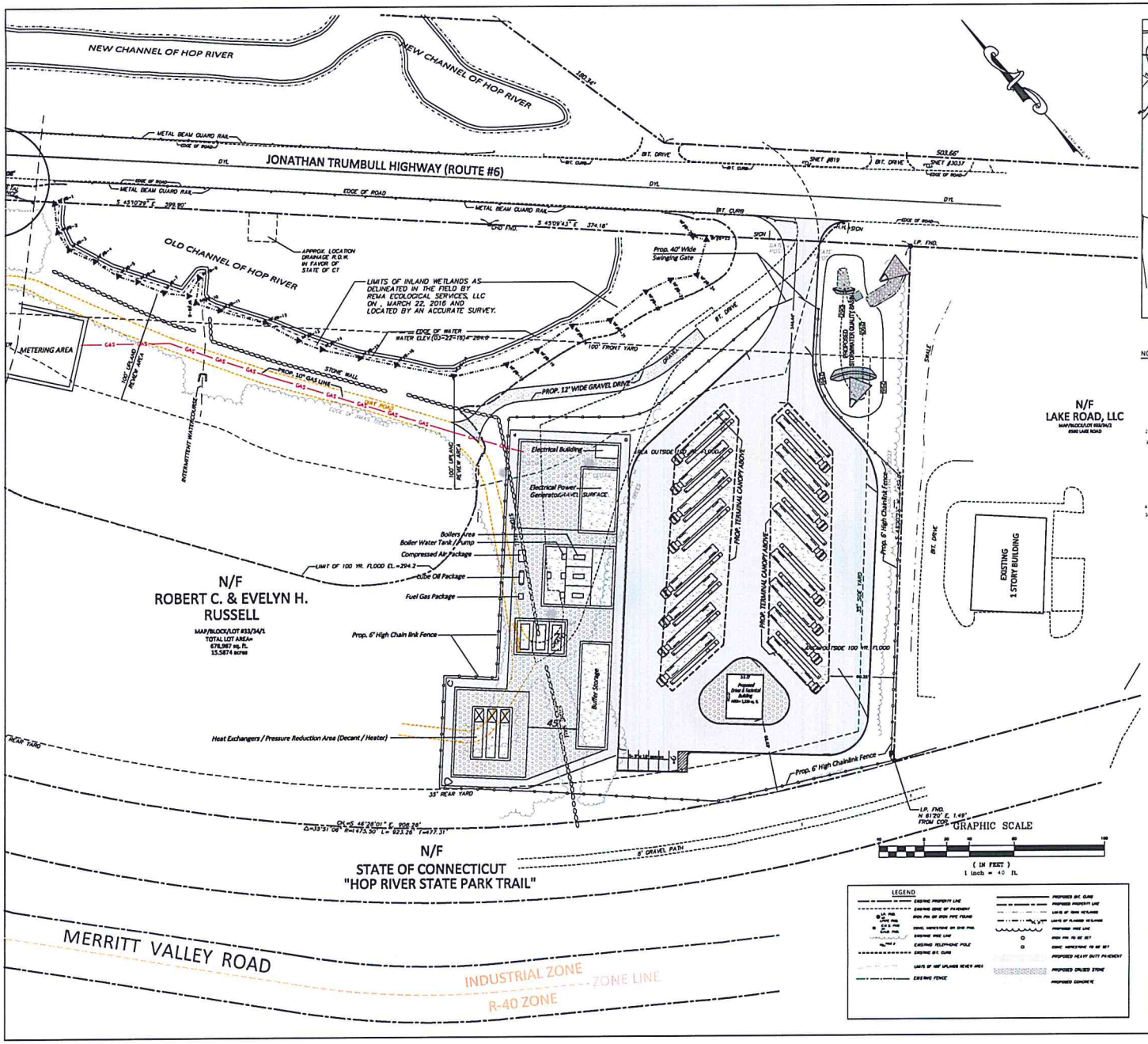

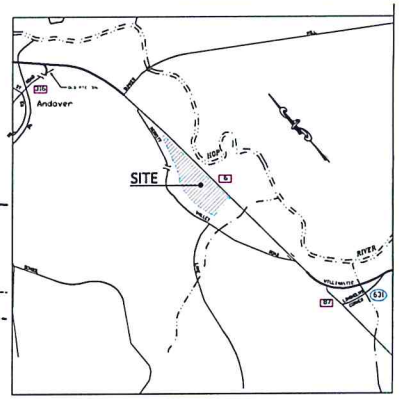

LOCATION MAP
SCALE: 1"=1,000'

NOTES:

1. SURVEY NOTES:
   - This survey has been prepared pursuant to the Regulation of Connecticut State Agencies Section 20-300b-1 Through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996.
   - Type Of Survey is ZONING IMPROVEMENT LOCATION SURVEY
   - Boundary Determination Category is RESURVEY OF MAP REF. 5 A.
   - Class of Accuracy is HOR.="A-2"
2. PROPERTY IS PRESENTLY ZONED INDUSTRIAL
3. LOT REQUIREMENTS INDUSTRIAL ZONE

MINIMUM LOT AREA	40,000 SQ. FT.
MIN. STREET FRONTAGE	200'
MIN. FRONT YARD DEPTH (FROM STREET LINE)	100'
MIN. SIDE YARD	35'
MIN. REAR YARD	35'
MAX NUMBER OF STORIES	2 STORIES
MAX BUILDING HEIGHT	35'
MAX LOT COVERAGE AS % OF NET BLDG. AREA	20%

4. TOTAL PARCEL AREA = 678,987 sq. ft. or 15.5874 acres
5. MAP REFERENCE:
   A) "LAND OF ROBERT C. RUSSELL, N.W. ANDOVER, CT SCALE: 1"=100', DATED DEC. 24, 1985 PREPARED BY: JOHAN KEVIN, LAND SURVEYOR"
   B) "PROPERTY SURVEY PREPARED FOR PROTECH SERVICES, JONATHAN TRUMBULL HIGHWAY (U.S. RTE. #6) & LAKE ROAD, ANDOVER, CONNECTICUT, SCALE: 1"=40', DATED: 8/15/2001, PREPARED BY PROVOST, ROVERO FITZGANCE ARCHITECTS ENGINEERS SURVEYING"
   C) "RIGHT OF WAY SURVEY TOWN OF ANDOVER MAP SHOWING LAND ACQUIRED FROM ROBERT C. RUSSELL BY THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER SHEET 1 & 2 OF 2, DATED 12/2/96"
   D). "SAFETY IMPROVEMENTS ON U.S. ROUTE 6 FROM BUNKER HILL ROAD TO LINDHOLM'S CORNER, STATE OF CONNECTICUT - DEPT. OF TRANSPORTATION FED. AID PROJ. NO.: (RAS-968(128), PROJ. NO.: 01-99, YEAR: 1996 ROUTE NO.: U.S. RTE. 6, SHEETS NO.: 26 & 27"
   E). "RIGHT OF WAY AND TRACK MAP THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. OPERATED BY THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO. FROM BOSTON TO HUDSON RIVER STATION 4913+20 TO STATION 4996+00 TOWN OF ANDOVER, STATE OF CONN., SCALE: 1"= 100', DATE: JUNE 30, 1915 OFFICE OF VALUATION ENGINEER, BOSTON MASS.
   F) "CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF ANDOVER " ANDOVER WILLIMANTIC ROAD FROM THE HEBRON RD SOUTHEASTERLY & EASTERLY TO THE COLUMBIA T. LINE ROUTE U.S 6 A. SCALE: 1" = 40', DATED: FEB. 29, 1940"

ZONING INFORMATION BULK CHART: INDUSTRIAL

ZONE: INDUSTRIAL	REQUIRED	PROVIDED
USE		
MINIMUM LOT AREA	40,000 SQ.FT.	678,987 SQ. FT.
MIN. LOT FRONTAGE	200'	1,760.41'
MIN. FRONT YARD DEPTH (FROM PROPERTY LINE)	100'	144' TO CANOPY
MIN. SIDE YARD	35' (75' TOTAL)	60.3' TO CANOPY
MIN. REAR YARD	35'	85.8' TO DRIVER BUILDING
MAX. BUILDING HEIGHT	35' / 2 STORIES	42' *
MAX. LOT COVERAGE (BUILDING ALONE)	20%	0.2%

PARKING DATA SCHEDULE:

USE	REQUIREMENT	REQUIRED
INDUSTRIAL	1 SPACE FOR EACH 400 SQ. FT.OF FLOOR AREA OR EACH 5 EMPLOYEES, WHICH EVER IS GREATER.	1,200 sq.ft./(1) space/400 sq. ft.= 3.0 spaces 5 EMPLOYEES PER SHIFT/(1) SPACE/5 EMPLOYEES= 1.0 SPACE
TOTAL REQUIRED= 3.3 SPACES		
PARKING SPACES PROVIDED= 8-PVL. 1 Handicapped space		

LEGEND:

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- IRON PIN OR IRON PIPE FOUND
- CONC. HONESTONE OR CMD FND.
- EXISTING TREE LINE
- EXISTING TELEPHONE POLE
- EXISTING B.T. CURB
- LIMITS OF INF UPLAND REVIEW AREA
- EXISTING FENCE
- PROPOSED B.T. CURB
- PROPOSED PROPERTY LINE
- LIMIT OF IWWA WETLANDS
- LIMITS OF PLANNED WETLANDS
- PROPOSED TREE LINE
- IRON PIN TO BE SET
- CONC. HONESTONE TO BE SET
- PROPOSED HEAVY DUTY PAVEMENT
- PROPOSED CRUSED STONE
- PROPOSED CONCRETE

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

Paul A. Halliday MARCH 29, 2016
PAUL A. HALLISEY, LS LIC. NO. 7761 DATE

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SCALE: 1" = 40'
DATE: APRIL 04, 2016
JOB No.: 2657
CHECKED BY: P.A.H.
DRAWN BY: P.F.C.
ACAD FILE: 2657-21
SHEET: 3 OF 11
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD
SOUTHWAY EXECUTIVE PARK - UNIT #511
ROCKY HILL, CONNECTICUT
PHONE: (860)-529-6872, FAX: (860)-721-7709

SITE PLAN / ZONING IMPROVEMENT LOCATION SURVEY

SHOWING EXISTING CONDITIONS
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT
PAUL A. HALLISEY
NO. 20663
LICENSED
PROFESSIONAL ENGINEER

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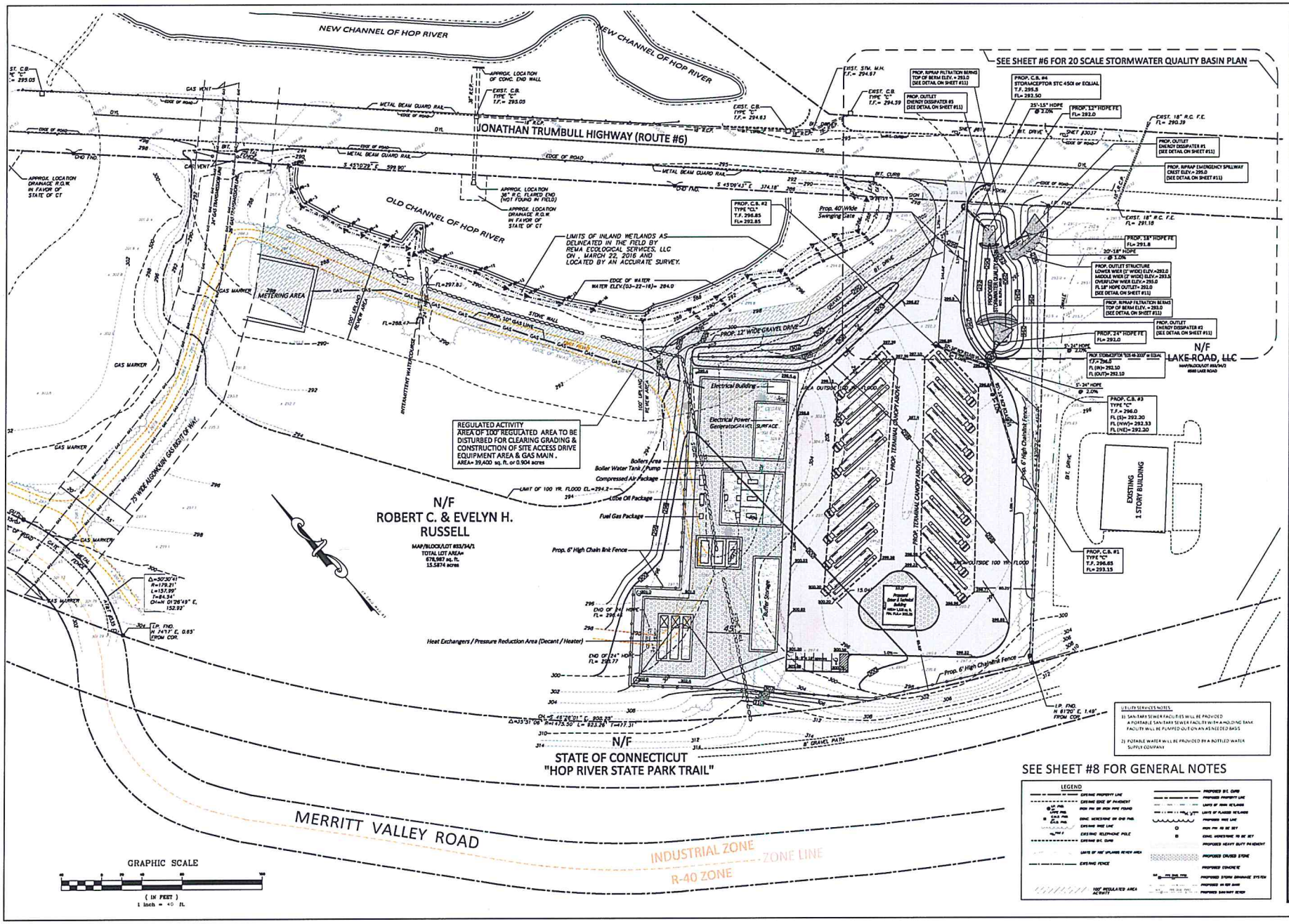

UTILITY SERVICES NOTES

1) SANITARY SEWER FACILITIES WILL BE PROVIDED A PORTABLE SANITARY SEWER FACILITY WITH A HOLDING TANK FACILITY WILL BE PUMPED OUT ON AN AS NEEDED BASIS

2) POTABLE WATER WILL BE PROVIDED BY A BOTTLED WATER SUPPLY COMPANY

SEE SHEET #8 FOR GENERAL NOTES

LEGEND

EXISTING PROPERTY LINE
EXISTING EDGE OF PAVEMENT
IRON PIN OR IRON PIPE FOUND
CONC. MONUMENT OR DRILL HOLE FOUND
EXISTING TREE LINE
EXISTING TELEPHONE POLE
EXISTING BIT. CURB
LIMITS OF 100' UPLAND REVIEW AREA
EXISTING FENCE
100' REGULATED AREA HEIGHT
PROPOSED BIT. CURB
PROPOSED PROPERTY LINE
LIMITS OF INNER WETLANDS
LIMITS OF FLAGGED WETLANDS
PROPOSED TREE LINE
IRON PIN TO BE SET
CONC. MONUMENT TO BE SET
PROPOSED HEAVY DUTY PAVEMENT
PROPOSED CRUSHED STONE
PROPOSED CONCRETE
PROPOSED STORM DRAINAGE SYSTEM
PROPOSED IN-SITU SOIL
PROPOSED SANITARY SEWER

SCALE: 1" = 40'
DATE: APRIL 14, 2016
JOB No.: 3257
CHECKED BY: J.A.H.
DRAWN BY: F.C.
A.C.D. FILE: 3257.DWG
SHEET: 4 OF: 11
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
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ROCKY HILL, CONNECTICUT
PHONE: (860)-529-6812, FAX: (860)-721-7709

SITE GRADING / DRAINAGE / UTILITIES PLAN

PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT
JAMES A. CASSIDY
NO. 20643
LICENSED
PROFESSIONAL ENGINEER

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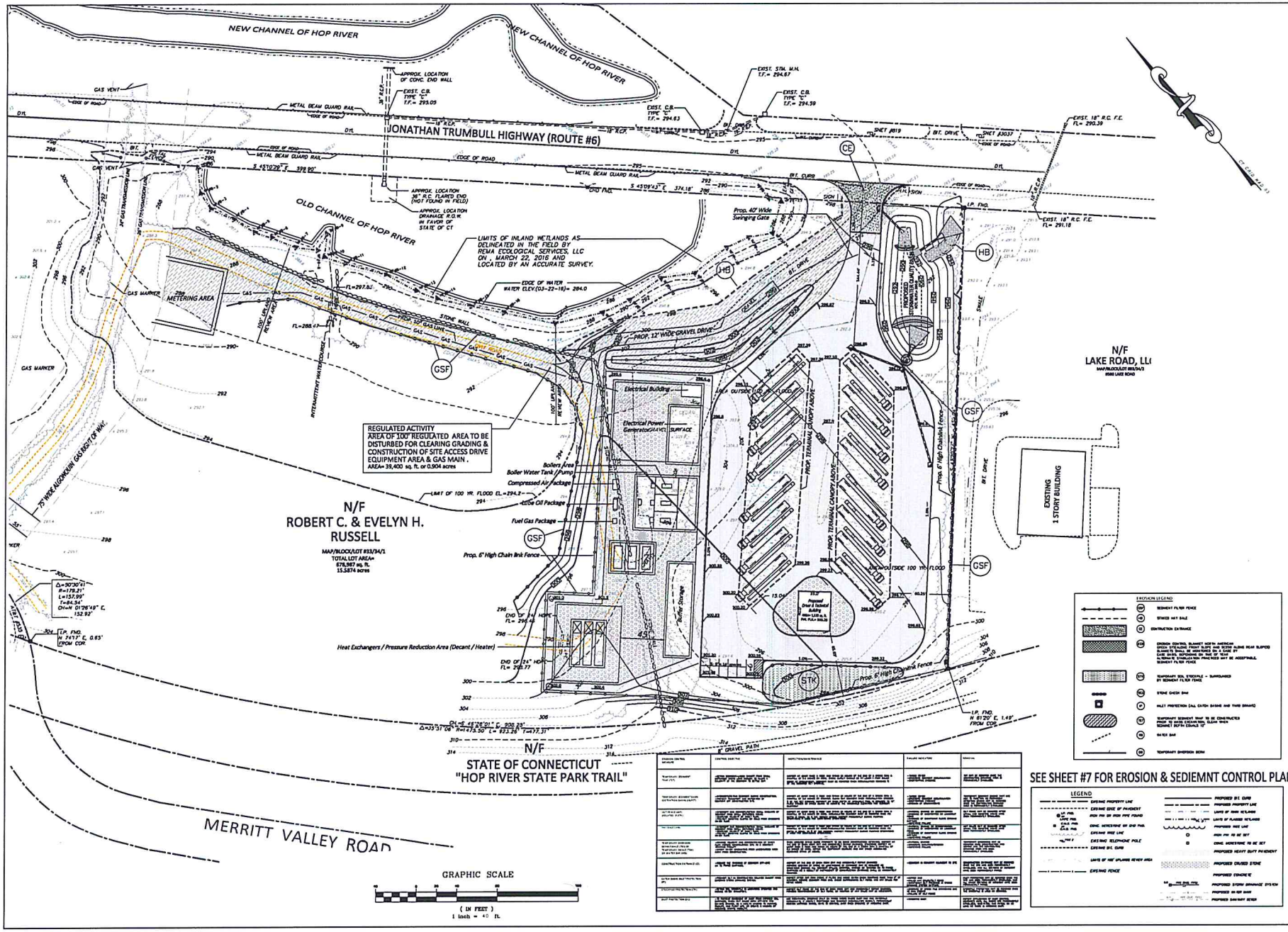

SEE SHEET #7 FOR EROSION & SEDIEMNT CONTROL PLAN

SCALE: 1"=40'	CHECKED BY: F.A.H.
DATE: APRIL 04, 2016	DRAWN BY: F.F.C.
JOB No.: 2657	ACAD FILE: 2657.DWG
SHEET: 5 OF: 11	REVISIONS:

HALLISEY, PEARSON & CASSIDY
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PHONE: (860)-529-6812, FAX: (860)-721-7709

EROSION & SEDIMENT CONTROL PLAN

PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT
FRED H. CASSIDY
NO. 20643
LICENSED
PROFESSIONAL ENGINEER

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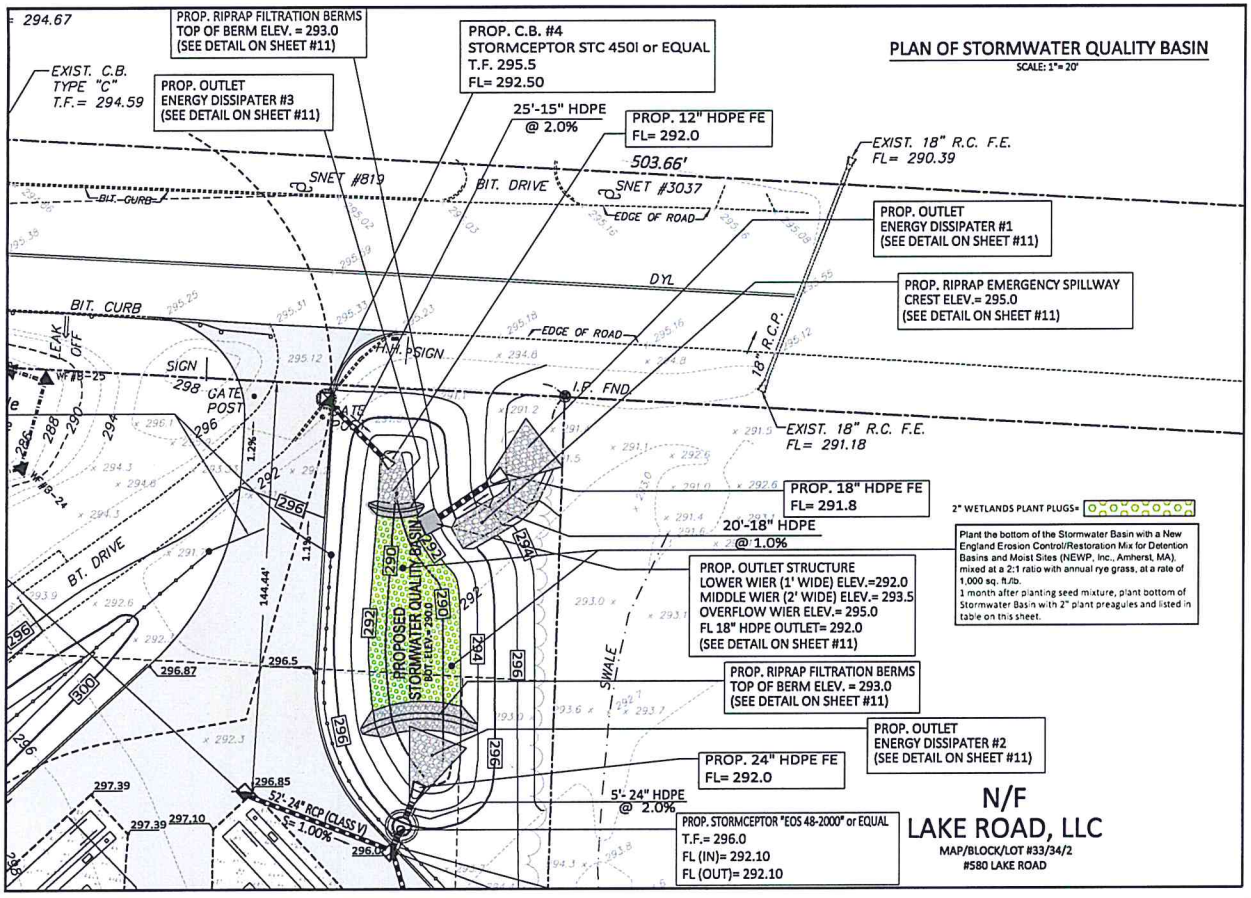
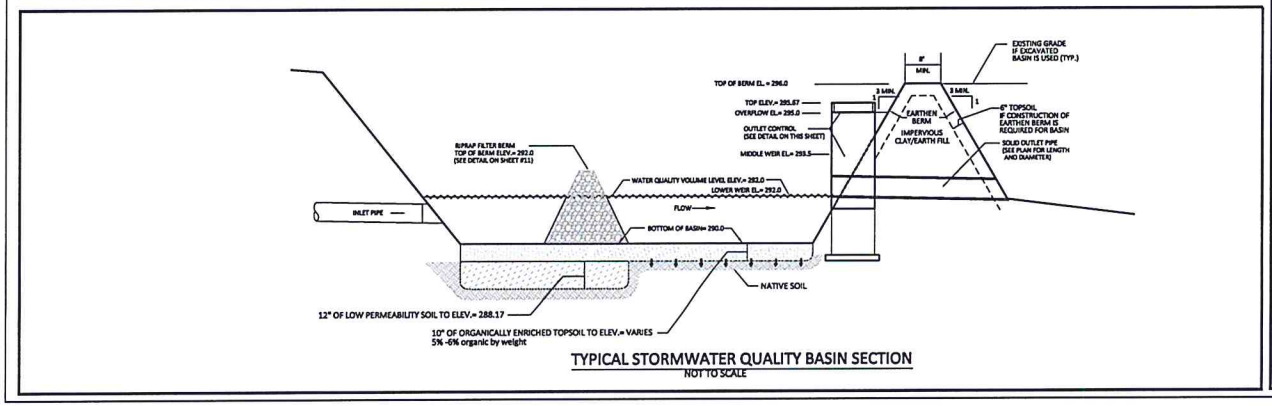




PLANTING SOIL SPECIFICATION:

STORMWATER QUALITY BASIN E CONSTRUCTION SPECIFICATIONS:

1. STORMWATER QUALITY BASIN SHALL BE LOCATED, SO THAT THE BOTTOM OF THE BASIN IS AT LEAST ONE FOOT ABOVE THE SEASONAL HIGH WATER TABLE (BASED ON PRONOUNCED MOTTLING). A TEST PIT SHALL BE DUG IN THE AREA OF THE BASIN PRIOR TO CONSTRUCTION TO DETERMINE SEASONAL GROUNDWATER ELEVATION.
2. OVER EXCAVATE BASIN TO ALLOW FOR 10" OF TOPSOIL. TEXTURE OF THE TOPSOIL SHALL NOT BE FINER THAN SANDY LOAM, TO PREMOTE INFILTRATION & SHALL HAVE AN ORGANIC MATTER CONTENT OF 5%-6% (BY WEIGHT)
3. EXCAVATE FROM THE PERIMETER TO MINIMIZE COMPACTION.

STORMWATER QUALITY BASIN PLANTING NOTES:

1. PLANT THE BOTTOM OF BASIN WITH A NEW ENGLAND EROSIONS CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES (NEWP, Inc. AMHERST, MA) MIXED AT A 2:1 RATIO WITH ANNUAL RYE GRASS, AT A RATE OF 1,000 sq. ft./lbs.
2. PLANT THE BOTTOM OF THE BASIN WITH 2" PROPAGULES FROM THE PLANTING LIST BELOW. THE EXACT LOCATION OF THE PLANTINGS WILL BE DETERMINED BY George T. Logan, MS, PWS, CSE AT THE TIME OF PLANTING, PROPAGUES SHALL BE PLANTED AT ABOUT 1.0' TO 1.5' O.C.

STORMWATER QUALITY BASIN PLANTING LIST

BOTANICAL NAME	COMMON NAME	SIZE	QUANTY
Elymus Virginicus	Virgina Wild Rye	2" propagules	200
Panicum virgatum	Switchgrass	2" propagules	200

3. USE UPLAND MIX ON MID AND UPPER SLOPES OF BASIN AN OTHER DISTURBED AREAS ADJACENT TO BASIN. SEED MIX SPECIFICATION IS AS LISTED BELOW:

UPLAND SEED MIX
Creeping Red Fescue (Festuca rubra), Switchgrass (Panicum virgatum), Little Bluestem (Schyzachyrium scoparius), Indiangrass (Sorghastrum nutans), Big Bluestem (Andropogon gerardii), Deertongue (Panicum clandestinum).

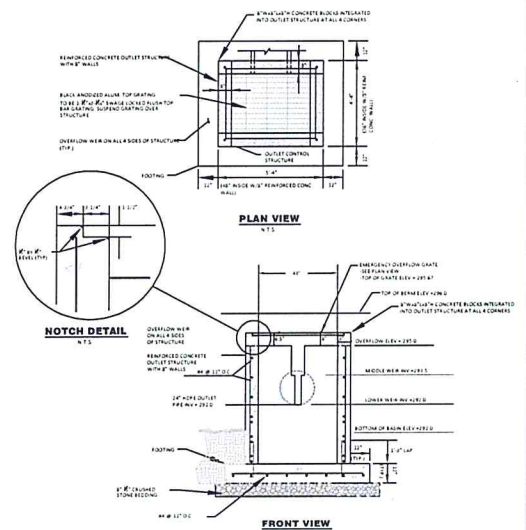
4. WATER AND WEED AS NEEDED DURING ESTABLISHMENT.
5. THE STORMWATER QUALITY BASIN WILL BE MONITORED FOR A 3 YEAR PERIOD BY GEORGE LOGAN, SOIL SCIENTIST OR OTHER QUALIFIED SOIL SCIENTIST. THE MONITORING REPORT WILL ADDRESS THE SUCCESS OF THE PLANTING. THE MONITORING REPORT WILL MAKE RECOMMENDATIONS ON ANY REMEDIAL MEASURES NEEDED IF ANY. PHOTOGRAPHS OF THE STORMWATER QUALITY BASIN WILL BE INCLUDED IN THE REPORT. MONITORING WILL BE SENT TO THE INLAND WETLANDS AND WATERCOURSES COMMISSION.

FIRST YEAR MONITORING

1. BASIN SHALL BE INSPECTED BY A WETLANDS PROFESSIONAL, ON THE DAY FOLLOWING A RAIN EVENT OVER 1.0 INCHES, DURING THE GROWING SEASON, IN THE YEAR FOLLOWING INSTALLATION. A BRIEF AFFIDAVIT THAT THE BASIN HAS BEEN INSPECTED AND APPEARS TO COMPLY WITH SPECIFICATIONS SHALL BE PROVIDED TO THE WETLANDS ENFORCEMENT OFFICER WITHIN ONE MONTH OF INSPECTION. ONLY IF PROBLEMS ARE NOTED, SHALL A DETAILED REPORT BE PROVIDED TO THE TOWN'S INLAND WETLANDS AND WATERCOURSES COMMISSION. WETLANDS PROFESSIONAL SHALL TEACH IDENTIFICATION TO LANDSCAPER DURING INITIAL JOINT MONITORING. LANDSCAPER SHALL BE RESPONSIBLE FOR THEIR REMOVAL OF UNDESIRABLE INVASIVE PLANTS FOR TWO YEARS AFTER PLANTING.

LONG TERM MAINTENANCE NOTES

1. ANNUALLY MOW (6" HEIGHT) OR WEEDWACK BOTTOM OF STORMWATER QUALITY BASIN, AND ANY OTHER AREAS, AS NEEDED TO CONTROL INVASIVE COLONIZERS. A GOOD TIME TO MOW IS LATE WINTER, UNDER FROZEN CONDITIONS. THIS LETS MEADOW VEGETATION SELF-SEED, AND PROVIDE WINTER SHELTER & SEEDS.
2. WOODY SHRUB SPECIES (NOT TREES) OTHER THAN INVASIVES MAY BE ALLOWED TO COLONIZE IN THE PERIMETER BUT BUT NOT WITHIN BOTTOM OF BASIN. MOW OR HAND PULL ANY INVASIVE SHRUB OR VINE SEEDLINGS IN EARLY SUMMER. DO NOT USE HERBICIDES, FUNGICIDES, OR INSECTICIDES.
3. REMOVE SEDIMENT BUILDUP FROM THE FOREBAYS OF THE BASIN WHEN IT REACHES 1/4 OF THEIR CAPACITY.



SCALE: 1"= 20' | DATE: APRIL 04, 2016 | JOB No.: 2657 | CHECKED BY: P.A.H. | DRAWN BY: J.P.C. | ACAD FILE: 2657-SWQB

SHEET: 6 OF: 11

REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK - UNIT #311
ROCKY HILL, CONNECTICUT

STORMWATER QUALITY BASIN PLAN
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT · PAUL A. HALLISEY · NO. 20863 · LICENSED PROFESSIONAL ENGINEER

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EROSION CONTROL NOTES

SEDIMENT & EROSION CONTROL NARRATIVE
THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND THE WETLAND AREA FROM SURFACE RUNOFF AND EROSION. A CONSTRUCTION SEQUENCE IS PROVIDED TO PROVIDE SURFACE RUNOFF CONTROLS PRIOR TO THE PROJECT CONSTRUCTION BEGINNING.

CONSTRUCTION SCHEDULE
THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS JUNE 2016 WITH COMPLETION ANTICIPATED NOVEMBER 2016. APPROPRIATE EROSION CONTROL MEASURES AS DESCRIBED HEREIN, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL CONSTRUCTION ACTIVITY.

CONTINGENCY EROSION PLAN
THE CONTRACTOR SHALL INSTALL ALL SPECIFIED EROSION CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE ZONING ENFORCEMENT AND INLAND WETLANDS ENFORCEMENT OFFICER AND/OR SITE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

CONSTRUCTION SEQUENCE
THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

1. CONTACT TOWN OF ANDOVER AGENT AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT. A PRE-CONSTRUCTION MEETING WITH LOCAL AND/OR STATE OFFICIALS NEEDS TO BE HELD PRIOR TO THE START OF CONSTRUCTION
2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE TOWN OF ANDOVER AGENT PRIOR TO THE START OF WORK ON THE SITE. INSTALL TREE PROTECTION AND PERIMETER SILT FENCE & HAY BALE SEDIMENT BARRIERS.
3. CONSTRUCT TRACKING PADS AT ENTRANCES AND WRAP FILTER FABRIC AROUND GRATE OF CATCH BASINS OR INSTALL SILT SACKS ON CATCH BASIN INLETS ON OFF SITE ROADS. INSTALL SILT FENCE AT PERIMETER OF PROPOSED SITE DISTURBANCE AND INSTALL ALL EROSION CONTROL MEASURES AND TREE PROTECTION INDICATED ON THESE PLANS. INSTALL SEDIMENT TRAPS AND INSTALL SEDIMENT BASINS IN REQUIRED AT LOW AREAS OF SITE OR AS ORDERED BY THE ENGINEER OR AS SHOWN ON THESE PLANS.
4. CLEAR AND GRUB SITE. STOCK PILE CHIPS. STRIP AND STOCKPILE TOPSOIL.
5. INSTALL ADDITIONAL SILT FENCE AS REQUIRED, CONSTRUCT TEMPORARY DIVERSION BERMS AND AND SEDIMENT TRAPS.
6. CONTINUE EARTHWORK. CONSTRUCT FILL SLOPE. INSTALL ADDITIONAL EROSION CONTROL AS REQUIRED. TOPSOIL AND SEED SLOPES WHICH HAVE ACHIEVED FINAL SITE GRADING.
7. CONSTRUCTION STAKING OF ALL BUILDING CORNERS, UTILITIES, ACCESS DRIVES, AND PARKING AREAS.
8. ROUGH GRADING.
9. INSTALLATION OF STORM DRAINAGE.
10. CONSTRUCTION AND CNG EQUIPMENT CONSTRUCTION MAY BEGIN.
11. REMOVE SEDIMENT FROM BEHIND SILT FENCES, AND FROM SEDIMENTATION BASINS AS REQUIRED. REMOVAL SHALL BE ON A PERIODIC BASIS (EVERY SIGNIFICANT RAINFALL). INSPECTION OF EROSION CONTROL MEASURES SHALL BE ON A WEEKLY BASIS. SEDIMENT COLLECTED SHALL BE DEPOSITED AND SPREAD EVENLY UPLAND ON SLOPES DURING CONSTRUCTION.
12. INSTALL SANITARY LATERAL, WATER SERVICE AND ALL OTHER UTILITIES. COMPLETE STORM SEWERS.
13. PAVING OF PARKING AREAS AND DRIVEWAYS MAY BEGIN.
14. FINAL GRADING OF SLOPE AREAS.
15. PLACE 4" TOPSOIL ON SLOPES AFTER FINAL GRADING IS COMPLETED. FERTILIZE SEED AND MULCH. SEED MIXTURE TO BE INSTALLED APRIL 11 TO JUNE 1 OR AUGUST 15 TO OCTOBER 1 USE EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED FOR SLOPES GREATER THAN 3:1. FOR TEMPORARY STABILIZATION BEYOND SEEDING DATES USE ANNUAL RYE AT 4.0 LBS/1,000 S.F. FERTILIZE WITH 10-10-10 AT 1.0 LBS. OF NITROGEN PER 1,000 S.F. AND LIME AT 100 LBS/1,000 S.F. (MAX.).
16. CONSTRUCT STORM WATER QUALITY BASIN AND FINAL OUTLET.
17. LANDSCAPE ISLANDS AND PERIMETER AREAS. INSTALL SIGNING AND PAVEMENT MARKINGS.
18. UPON DIRECTION OF THE TOWN OF ANDOVER AGENT, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED FOLLOWING STABILIZATION OF THE SITE.

SEQUENCE OF OPERATIONS
OPERATION I – CLEARING AND GRUBBING

1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES, INCLUDING THE CONSTRUCTION OF THE TEMPORARY SEDIMENT TRAPS AND ANTI-TRACKING PADS, WILL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.
2. FOLLOWING INSTALLATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL NOT PROCEED WITH OPERATION II UNTIL THE ENGINEER HAS INSPECTED AND APPROVED ALL INSTALLATIONS.
3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING OPERATION I, SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR SEDIMENTATION AND EROSION CONTROL STRUCTURES.

OPERATION II – ROUGH GRADING

1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE SITE PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.
2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH HAY, AND ENCLOSED BY A SALUTATION FENCE.

OPERATION III – FILLING

1. PRIOR TO FILLING, ALL SEDIMENTATION AND EROSION CONTROL STRUCTURES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THIS PLAN.
2. ALL FILL MATERIAL ADJACENT TO ANY WETLAND AREAS SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN CONTRACT SPECIFICATIONS.
3. AS GENERAL GRADING OPERATIONS PROGRESS, THE TEMPORARY DIVERSION DITCHES SHALL BE RAISED OR LOWERED, AS NECESSARY, TO DIVERT SURFACE RUNOFF TO THE BASINS.

OPERATION IV – PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND BUILDING CONSTRUCTION.

1. STAKED SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF BUILDING EXCAVATIONS, DEWATERING PUMP DISCHARGES, AND UTILITY TRENCH MATERIAL STOCKPILES.

OPERATION V – FINAL GRADING AND PAVING

1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS DISCUSSED IN OPERATION IV.
2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND THE ROAD SHOULDER AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.
3. PAVEMENT BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB-GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES HAVE BEEN INSTALLED.
4. CONSTRUCT PAVEMENT, PLACE TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING.
5. REMOVE ALL TEMPORARY EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE HAS BEEN INSPECTED AND APPROVED BY THE TOWN OR GOVERNING WETLAND AGENCY.

SEQUENCE FOR INSTALLATION OF SOIL EROSION & SEDIMENTATION CONTROL MEASURES

PHASE 1
1. ERECT SALUTATION FENCES, SEDIMENT TRAPS, DIVERSION DITCHES, AND ANTI-TRACKING PAD.
2. STRIP TOPSOIL AND STOCKPILE.
3. PERFORM CLEARING AND GRUBBING ACTIVITIES, AND DEMOLITION.
4. STABILIZE STOCK PILE.

PHASE 2
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.
2. ROUGH GRADING.

PHASE 3
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.
2. PERFORM FILLING ACTIVITIES.

PHASE 4
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.
2. CONSTRUCT DRAINAGE STRUCTURES. CONSTRUCT DIVERSION BERMS, RIP RAPPED LINED DITCHES AND SEDIMENTATION BASINS.

PHASE 5
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.
2. PERFORM FINAL GRADING AND PAVING.

PHASE 6
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.
2. RESPREAD TOPSOIL.
3. LIME, FERTILIZE, AND SEED.
4. MULCH.
5. FINAL COVER.

PHASE 7
1. MAINTAIN SALUTATION FENCES UNTIL COVER IS COMPLETELY STABILIZED.
2. PERFORM FINAL INSPECTION.
3. REMOVE SALUTATION FENCES, CLEAN, AND RESTORE ALL AREAS.

INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES
I. SALUTATION FENCE
A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION.
B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE POST AT LEAST 1.5 FEET INTO THE GROUND.
C. LAY THE BOTTOM SIX INCHES OF THE FABRIC IN THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUN-OFF.
D. BACKFILL THE TRENCH AND COMPACT.

OPERATION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES
I. SALUTATION FENCE
A. ALL SALUTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.
B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY EXCEED A HEIGHT OF ONE FOOT.

II. SEDIMENT TRAPS/BASINS
A. CONTRACTOR TO KEEP WEEKLY CHECKLIST LOGS FOR INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL DEVICES AND HAVE THEM READILY AVAILABLE ON-SITE AT ALL TIMES FOR INSPECTION BY DEEP, LOCAL AUTHORITIES OR ENGINEER.
B. ALL PONDS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF SLOPES SHALL BE PROMPTLY MADE AS NEEDED.
C. SEDIMENT DEPOSITS SHALL BE REMOVED FROM PONDS WHEN THEY EXCEED A HEIGHT OF ONE FOOT.
D. SEDIMENT SHALL BE DISPOSED OF ON-SITE OR AS DIRECTED BY THE ENGINEER AND LOCAL GOVERNING OFFICIALS.

EROSION AND SEDIMENT CONTROL PLAN
1. SALUTATION FENCE WILL BE INSTALLED AT ALL CULVERT OUTLETS AND ALONG THE TOE OF ALL CRITICAL CUT AND FILL SLOPES.
2. CATCH BASINS WILL BE PROTECTED WITH SILT SACKS OR SHAY BALES THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE EROSION AND SEDIMENT CONTROL HANDBOOK LATEST EDITION.
4. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE.
5. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
6. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED.
7. SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN.
8. NERP HOLDING & ACQUISITIONS COMPANY, LLC IS THE PERMITEE RESPONSIBLE FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFICATION OF THE ANDOVER WETLANDS ENFORCEMENT OFFICER OR GOVERNING AUTHORITY OF THE TRANSFER OF THIS RESPONSIBILITY AND FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.

EROSION AND SEDIMENT CONTROL PLAN SEDIMENT AND EROSION CONTROL NOTES
1. THE DRAWING IS ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL TREATMENT FOR THIS SITE. SEE SEDIMENT AND EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER PLANS FOR APPROPRIATE INFORMATION.
2. GLOBAL CNG HOLDINGS, A DELAWARE LLC IS THE PERMITEE RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, INFORMING THE GOVERNING AUTHORITY OR INLAND WETLANDS AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
3. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE TOWN OF ANDOVER. THE CONTRACTOR SHALL KEEP A COPY OF THE GUIDELINES ON-SITE FOR REFERENCE DURING CONSTRUCTION.
4. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, TOWN OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED.
5. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS BEFORE AND AFTER EACH STORM, OR AT LEAST WEEKLY, TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS WHERE NECESSARY.
6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, JUTE MESH, ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.
7. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING AT THE DRIP LINE FOR AS SHOWN WITH SNOW FENCE, ANDOVER SAFETY FENCE, OR EQUIVALENT FENCING. ANY LIMB TRIMMING SHOULD BE DONE BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.
8. INSTALL PERIMETER SEDIMENT CONTROLS PRIOR TO CLEARING OR CONSTRUCTION. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SILT FENCE UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE FENCE.
9. ANTI-TRACKING PADS SHALL BE INSTALLED AT START OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED.
10. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE SILT FENCE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN PLACE FOR MORE THAN 2 MONTHS.
11. SEDIMENTATION BASINS SHALL PROVIDE 134 CUBIC YARDS OF SEDIMENT STORAGE PER DISTURBED ACRE CONTRIBUTING TO THE BASIN. PROVIDE BASIN VOLUMES FOR ALL DISTURBANCE ON SITE.
12. COMPLY WITH REQUIREMENTS OF CGS SECTION 22A, 430B FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES AND WITH DEP RECORD KEEPING AND INSPECTION REQUIREMENTS.
13. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.
14. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS PRIOR TO WORK IN ANY UPLAND AREAS.
15. EXCAVATED MATERIAL FROM TEMPORARY SEDIMENT TRAPS MUST BE STOCKPILED ON UPHILL SIDE OF SILT FENCE.
16. INSTALL SILT FENCE ACCORDING TO MANUFACTURER'S INSTRUCTION, PARTICULARLY, BURY LOWER EDGE OF FABRIC INTO GROUND. SILT FENCE SHALL BE MIRAFI ENVIROFENCE, AMOCO SILT STOP OR EQUIVALENT APPROVED BY SITE ENGINEER. FILTER FABRIC USED SHALL BE MIRAFI 100X OR EQUIVALENT.
17. INSTALL TEMPORARY DIVERSION DITCHES, PLUNGE POOLS, SEDIMENT BASINS, SEDIMENT TRAPS AND DEWATERING PITS AS SHOWN AND AS NECESSARY DURING VARIOUS PHASES OF CONSTRUCTION TO CONTROL RUNOFF UNTIL UPHILL AREAS ARE STABILIZED. LOCATION OF TEMPORARY SEDIMENT BASINS WILL REQUIRE REVIEW AND APPROVAL BY THE ENGINEER AND GOVERNING OFFICIAL.
18. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY PITS, SEDIMENT BASINS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM SEWERS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR.
19. BLOCK THE OPEN UPSTREAM ENDS OF DETENTION PIPE SYSTEM OUTLET CONTROL ORIFICE UNTIL SITE IS STABILIZED AND BLOCK END OF STORM SEWERS IN EXPOSED TRENCHES WITH BOARDS AND SANDBAGS AT THE END OF EACH WORKING DAY WHEN RAIN IS EXPECTED.
20. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. OTHER DUST CONTROL MEASURES TO BE USED AS NECESSARY INCLUDES WATERING DOWN DISTURBED AREAS, USING CALCIUM CHLORIDE, AND COVERING LOADS ON DUMP TRUCKS.
21. PERIODICALLY CHECK ACCUMULATED SEDIMENT LEVELS IN THE SEDIMENT TRAPS DURING CONSTRUCTION AND CLEAN ACCUMULATED SILT WHEN NECESSARY OR WHEN ONE FOOT OF SEDIMENT HAS ACCUMULATED. CLEAN ACCUMULATED SEDIMENT FROM CATCH BASIN SUMPS AS NECESSARY. REMOVE ACCUMULATED SEDIMENT FROM BEHIND SILT FENCE WHEN LEVEL REACHES HALF THE HEIGHT OF THE FENCE. DISPOSE OF SEDIMENT LEGALLY EITHER ON SITE IN NON-WETLANDS AREAS..
22. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS WHEN AUTHORIZED BY LOCAL GOVERNING AUTHORITY.
23. THE PARTY RESPONSIBLE FOR THE EROSION AND SEDIMENT CONTROL MEASURES IS:
GLOBAL CNG HOLDINGS, A DELAWARE LLC
C/O DANNY FORD
1329 N. CLASSEN DRIVE
OKLAHOMA CITY, OK 73103
PHONE NUMBER: 405-239-0923 (MOBILE)
24. IF WIND EROSION OCCURS, THEN GROUND SHALL BE COVERED WITH CALCIUM CHLORIDE OR WATER TRACK APPLICATIONS AS REQUIRED TO CORRECT THE PROBLEM.

STATE OF CONNECTICUT · JAMES P. CASSIDY II · NO. 20665 · LICENSED PROFESSIONAL ENGINEER

SEDIMENT AND EROSION CONTROL NARRATIVE AND NOTES
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK , UNIT #511
ROCKY HILL, CONNECTICUT

SCALE: N.A.	CHECKED BY: L.A.P.
DATE: APRIL 04, 2016	DRAWN BY: C.T.
JOB No.: 2657	ACAD FILE: 2657-ES-NOTES
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SITE PLAN NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH TOWN OF ANDOVER STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.

2. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL TOWN CONSTRUCTION PERMITS, INCLUDING DOT PERMITS AND SEWER AND WATER CONNECTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

3. REFER TO OTHER PLANS, DETAILS AND NOTES FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE SITE ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING. ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONFORMED WITH THE LOCAL CONSTRUCTION MANAGER PRIOR TO BIDDING.

4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS AND PLAN SPECIFICATIONS TO THE OWNER AND SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.

5. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN.

7. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.

8. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.

9. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OR PAVING UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.

10. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, TRAFFIC CONTROLLERS AND UNIFORMED TRAFFIC OFFICERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE LOCAL GOVERNING AUTHORITIES.

11. REFER TO DETAIL SHEETS FOR PAVEMENT AND CURBING.

12. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB WITH THE EDGE OF THE SIGN 2' OFF THE FACE OF THE CURB, AND WITH 7' VERTICAL CLEARANCE UNLESS OTHERWISE DETAILED OR NOTED.

13. THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.

14. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAINT MIXTURE PRIOR TO STRIPING.

15. PAVEMENT MARKING KEY:

4" SYDL	4" SOLID YELLOW DOUBLE LINE
4" SYL	4" SOLID YELLOW LINE
4" SWL	4" SOLID WHITE LINE
12" SWSB	12" SOLID WHITE STOP BAR
4" BWL	4" BROKEN WHITE LINE 10' STRIPE 30' SPACE

16. PARKING SPACES SHALL BE STRIPED WITH 4" SWL; HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE, 2' ON CENTER. HATCHING SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED BLUE. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.

17. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE ENGINEER.

18. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.

19. THE ARCHITECT OR ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ARCHITECT AND ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.

20. THE CONTRACTOR SHALL COMPLY WITH CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.

21. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, SITE ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING PROCESS.

22. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT CALL :811 AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.

23. PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH CT DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.

24. CT DOT ENCROACHMENT PERMIT SHALL BE OBTAINED BY CONTRACTOR WHO SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC PROTECTION NECESSARY FOR THE WORK.

25. AN EROSION CONTROL BOND IS REQUIRED TO BE POSTED BY THE CONTRACTOR BEFORE THE START OF ANY ACTIVITY ON OR OFF SITE.

28. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.

28. THESE PLANS ARE FOR PERMITTING.

29. THE SITE IS PROPOSED TO BE SERVICED BY PORTABLE SANITARY SEWER FACILITIES

30. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN FIRE MARSHAL.

31. THE APPLICANT WILL PROVIDE AND MAINTAIN ADEQUATE SIGHT DISTANCES AT ALL DRIVEWAY INTERSECTIONS. CURRENT STATE OF CONNECTICUT HIGHWAY DESIGN STANDARDS WILL APPLY TO REQUIRED SIGHT DISTANCES.

32. THE APPLICANT WILL CONTROL DUST AND DEBRIS ON THE SURROUNDING ROADWAYS DURING CONSTRUCTION. PROPER SAFETY PRECAUTIONS AND EQUIPMENT ARE TO BE UTILIZED WHEN WORKING ON PUBLIC ROADWAYS AND ARE THE APPLICANT'S RESPONSIBILITY TO PROVIDE.

GRADING AND DRAINAGE NOTES

GRADING GENERAL NOTES:

1. SEE THIS PLAN SHEET FOR ADDITIONAL SITE PLAN AND GENERAL NOTES.

2. THE GRADING AND DRAINAGE PLAN IS INTENDED TO DESCRIBE GRADING AND DRAINAGE ONLY. REFER TO SITE PLAN FOR GENERAL INFORMATION, AND DETAIL SHEETS FOR DETAILS. SEE MEP DRAWINGS FOR BUILDING CONNECTION LOCATIONS AND DETAILS.

3. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND NOTES.

4. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING.

5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE LOCAL MUNICIPALITIES REQUIRED TO PERFORM ALL REQUIRED WORK, INCLUDING FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

6. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE STATE AND LOCAL GOVERNING AUTHORITIES.

7. THE CONTRACTOR SHALL COMPACT FILL IN 12" MAXIMUM LIFTS UNDER ALL PARKING, BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST), OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

8. UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE DESIGN OR TOWN ENGINEER AFTER SUBGRADE IS ROUGH GRADED, AS APPROVED BY THE ANDOVER TOWN STAFF.

9. VERTICAL DATUM IS NVGD 1988.

10. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE TOWN OF ANDOVER AGENT PRIOR TO THE START OF WORK ON THE SITE.

11. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR WETLANDS IN ACCORDANCE WITH THE REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION GUIDELINES FOR SOIL EROSION AND SEDIMENT POLLUTION CONTROL. IN ADDITION, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE "EROSION CONTROL PLAN" CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO POST ALL BONDS AS REQUIRED BY THE LOCAL MUNICIPALITIES, OR SOIL CONSERVATION SERVICE WHICH WOULD GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN.

12. ALL SITE WORK, MATERIALS OR CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK STORM DRAINAGE AND UTILITY WORK SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE STATED IN THE PROJECT MANUAL SPECIFICATIONS. ALL FILL MATERIALS UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE SPECIFICATIONS, AND/OR PROJECT GEOTECHNICAL REPORT, AND SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE DOT, UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN 12" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 AT 3 +/- PERCENT OF OPTIMUM MOISTURE CONTENT.

13. ALL DISTURBANCE INCURRED TO TOWN OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN OF ANDOVER AUTHORITY AND STATE OF CONNECTICUT.

PRODUCT NOTES:

1. SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF MATERIALS AND STRUCTURES FOR REVIEW AND APPROVAL PRIOR TO DELIVERY TO THE SITE. ALLOW 14 WORKING DAYS FOR REVIEW.

2. POLY VINYL CHLORIDE PIPE (PVCP) FOR STORM AND SANITART PIPING SHALL HAVE BUILT-IN RUBBER GASKET JOINTS. PVCP SHALL CONFORM TO ASTM D-3034 (SDR35) WITH COMPRESSION JOINTS AND MOLDED FITTINGS. PVCP SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS; ASTM-D2321 AND MANUFACTURERS RECOMMENDED PROCEDURE.

3. ALL RCP SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-76; ALL RCP SHALL BE CLASS IV UNLESS OTHERWISE SHOWN. JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.

4. MANHOLE SECTIONS AND CONSTRUCTION SHALL CONFORM TO ASTM C-478.

5. HIGH DENSITY POLYETHYLENE (HDPE) STORM SEWER 12" OR GREATER IN DIAMETER SHALL BE HI-Q SURE-LOK 10.8 PIPE AS MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH INTERIOR AND CORRUGATED EXTERIOR AND SHALL MEET THE REQUIREMENTS OF ASSHTO M294, TYPE PIPE SECTIONS SHALL BE JOINED WITH BELL-AND-SPIGOT JOINT MEETING THE REQUIREMENTS OF AASHTOS. M294. THE BELL SHALL BE AN INTEGRAL PART OF THE PIPE AND PROVIDE A MINIMUM PULL-APART STRENGTH OF 400 POUNDS. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL BE MADE OF POLYISOPRENE MEETING THE REQUIREMENTS OF ASTM F477. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER PRIOR TO ORDERING.

6. HIGH DENSITY POLYETHYLENE (HDPE) STORM SEWER LESS THAN 12" IN DIAMETER SHALL BE HI-Q PIPE AS MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH INTERIOR AND CORRUGATED EXTERIOR AND SHALL MEET THE REQUIREMENTS OF AASHTO 252, TYPE S. PIPE SECTIONS SHALL BE JOINED WITH COUPLING BANDS OR EXTERNAL SNAP COUPLERS COVERING AT LEAST 2 FULL CORRUGATIONS ON EACH END OF THE PIPE. SILT-TIGHT (GASKET) CONNECTIONS SHALL INCORPORATE A CLOSED SYNTHETIC EXPANDED RUBBER GASKET, MEETING THE REQUIREMENTS OF AASHTO D1056 GRADE 2A2. GASKETS SHALL BE INSTALLED ON THE CONNECTION BY THE PIPE MANUFACTURER. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER PRIOR TO ORDERING.

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE SITE ENGINEER AND ARCHITECT IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.

2. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.

3. THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.

4. THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.

5. THE ARCHITECT OR ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ARCHITECT AND ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.

6. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "CALL 811" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.

7. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN OVER SCALED DIMENSIONS.

8. IF PLANS AND OR SPECIFICATIONS AR IN CONFLICT, THE MOST EFFECTIVE SHALL APPLY AS DETERMINED BY A LICENSED PROFESSIONAL AND APPROVED BY TOWN STAFF.

9. ALL CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN COMPLETE DRAWING PLAN SETS FOR BIDDING AND CONSTRUCTION. PLAN SETS SHALL NOT BE DISASSEMBLED INTO PARTIAL PLAN SETS FOR USE BY CONTRACTORS AND SUBCONTRACTORS OF INDIVIDUAL TRADES. IT SHALL BE THE CONTRACTOR'S AND SUBCONTRACTOR'S RESPONSIBILITY TO OBTAIN COMPLETE PLAN SETS FOR USE IN BIDDING AND CONSTRUCTION.

10. ALL NOTES AND DIMENSIONS DESIGNATED "TYPICAL" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.

11. CONTRACTOR'S TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK AND BE RESPONSIBLE FOR COORDINATION OF SAME. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK.

12. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.

UTILITIES NOTES

1). SANITARY SEWER FACILITIES WILL BE PROVIDED A PORTABLE SANITARY SEWER FACILITY WITH A HOLDING TANK. FACILITY WILL BE PUMPED OUT ON AN AS NEEDED BASIS.

2). POTABLE WATER WILL BE PROVIDED BY A BOTTLED WATER SUPPLY COMPANY.

3). ELECTRICAL SERVICE WILL BE SUPPLIED BY AN ON-SITE GENERATOR.

POST CONSTRUCTION STORM WATER POLLUTION PLAN

RESPONSIBLE PARTIES AND STORMWATER MANAGEMENT SYSTEM OWNER:
GLOBAL CNG HOLDINGS, A DELAWARE LLC
C/O DANNY FORD
1329 N. CLASSEN DRIVE
OKLAHOMA CITY, OK 73103
PHONE NUMBER: 405-239-0923 (MOBILE)

THE FOLLOWING PROCEDURES WILL BE IMPLEMENTED CONTINUALLY BY THE OWNER:

1. PAVEMENT SWEEPING: PARKING LOTS AND DRIVES SHALL BE SWEPT A MINIMUM OF TWICE A YEAR (SPRING AND FALL)

2. CATCH BASIN SUMPS: CATCH BASIN SUMPS SHALL BE INSPECTED ON A REGULAR BASIS (AT LEAST TWICE PER YEAR) AND SEDIMENT WILL BE REMOVED AS NECESSARY (A MINIMUM OF ONCE A YEAR TO ENSURE FUNCTIONING OF THE SYSTEM, UTILIZING A VACUUM TRUCK)

3. THE COLLECTION SYSTEM PIPES SHALL BE AT SIX-MONTH INTERVALS. REGULAR MAINTENANCE INCLUDES THE FOLLOWING ITEMS:
-INSPECTION OF THE OUTLET TO ENSURE THEY ARE NOT BLOCKED.
-CHECKING THE OUTLETS FROM THE DRAINAGE SYSTEM IS CLEAR AND NOT ERODING.
-REMOVING PAPER AND DEBRIS FROM INSIDE THE BASIN.

4. THE SEDIMENT FOREBAY SHALL BE INSPECTED A MINIMUM OF EVERY SIX MONTHS IN THE MONTHS OF APRIL AND OCTOBER. IF TRASH, DEBRIS, SEDIMENT DEPOSITS, ECT. SHALL BE NOTED AND ANY DEPOSITS FOUND TO BE 4 INCHES OR MORE, AS MEASURED FROM THE BOTTOM OF THE FOREBAY SHALL BE CLEANED AND REMOVED. ANY DEBRIS OR TRASH, ECT. SHALL BE REMOVED DURING NORMAL LANDSCAPE MAINTENANCE OPERATIONS. BARE AREAS SHALL BE SEEDED.

5. STORMWATER QUALITY BASIN SLOPES SHALL BE MOWED ONCE A YEAR, MORE FREQUENT MOWING WILL ELIMINATE NATIVE FORBS SEEDES FROM THE MEADOW COVER.

6. LANDSCAPING: LANDSCAPED AREAS WILL BE MAINTAINED. NORMAL LANDSCAPING MAINTENANCE WILL CONSIST OF PRUNING, MULCHING, PLANTING MOWING LAWNS, RAKING LEAVES, ECT. USE OF FERTILIZERS AND PESTICIDE WILL BE CONTROLLED AND LIMITED TO MINIMAL AMOUNTS NECESSARY FOR HEALTHY LANDSCAPE MAINTENANCE. THE LAWN AREAS, ONCE ESTABLISHED, WILL BE MAINTAINED AT A TYPICAL HEIGHT OF 3 1/2". THIS WILL ALLOW THE THE GRASS TO BE MAINTAINED WITH A MINIMAL IMPACT FROM WEEDS AND/OR PEST. THE REAR (EASTERLY) SLOPE AREAS WILL BE MAINTAINED AS A MEADOW OR ALLOWED TO REVERT BACK TO WOODLANDS. PESTICIDE WILL ONLY BE USED AS A CONTROL METHOD WHEN A PROBLEM HAS BEEN IDENTIFIED AND OTHER NATURAL CONTROL METHODS ARE NOT SUCCESSFUL. ALL PESTICIDE APPLICATION SHALL BE BY LICENSED APPLICATORS, WHERE NECESSARY. TOPSOIL, BRUSH, LEAVES, CHIPPINGS, MULCH, EQUIPMENT, AND OTHER MATERIALS SHALL BE STORED OFF SITE.

7. MAINTAIN EXISTING NATIVE VEGETATION: EXISTING VEGETATION ALONG THE EASTERLY EDGE OF THE DEVELOPMENT, ADJACENT TO THE WETLANDS SHALL REMAIN IN ITS NATIVE CONDITIONS NO CLEARING, GRADING, STOCKPILING, STORAGE, OR DEVELOPMENT WILL OCCUR IN THESE AREAS WITHOUT PRIOR APPROVAL FROM THE APPROPRIATE AGENCIES.

8. TRASH COLLECTION: ALL TRASH WILL BE CONTAINED IN DUMPSTERS. ALL DUMPSTERS WILL BE EQUIPPED WITH COVERS. ALL TRASH WILL BE COLLECTED ON A REGULAR BASIS AND DISPOSED OF LEGALLY OFF-SITE.

9. OUTDOOR STORAGE: THERE WILL BE NO OUTDOOR OF HAZARDOUS CHEMICALS, FERTILIZER, PESTICIDES, OR HERBICIDE'S ANYWHERE AT THE FACILITY.

10. THE OWNER SHALL BE KEEP AN ON-SITE LOG OF STORMWATER MAINTENANCE MEASURES PERFORMED AND DATES THEY WERE IMPLEMENTED. THIS LOG BOOK SHALL BE AVAILABLE FOR THE TOWN OF ANDOVER INSPECTION.

SCALE: N.A.	CHECKED BY: P.A.H.
DATE: APRIL 04, 2016	DRAWN BY: J.P.C.
JOB No.: 2657	ACAD FILE: 2657-GEN-NOTES
SHEET: 8	OF: 11
REVISIONS:	

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK , UNIT #511
ROCKY HILL, CONNECTICUT

GENERAL NOTES
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT · JAMES P. CASSIDY II · NO. 20685 · LICENSED · PROFESSIONAL ENGINEER

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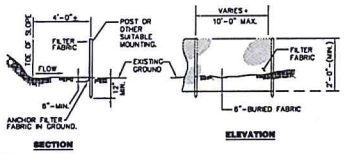


SECTION

ELEVATION

NOTE:
* POST SPACING AND EMBEDMENT VARIES BASED ON THE MANUFACTURERS REQUIREMENTS.

SILT FENCE
NO SCALE

MAINTENANCE OF SILT FENCE

INSPECT THE SILT FENCE AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.5 INCH OR GREATER TO DETERMINE MAINTENANCE NEEDS. WHEN USED FOR DEWATERING OPERATIONS, INSPECT FREQUENTLY BEFORE, DURING AND AFTER PUMPING OPERATIONS.

REMOVE THE SEDIMENT DEPOSITS OR, IF ROOM ALLOWS, INSTALL A SECONDARY SEDIMENT FENCE UP SLOPE OF THE EXISTING FENCE WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE EXISTING FENCE.

REPLACE OR REPAIR THE FENCE WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE FENCE HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE FENCE BECAUSE:

(A) THE FENCE HAS BEEN OVER TOPPED, UNDERCUT OR BYPASSED BY RUNOFF WATER,

(B) THE FENCE HAS BEEN MOVED OUT OF POSITION (KNOCKED OVER), OR

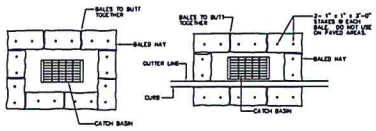
(C) THE GEOTEXTILE HAS DECOMPOSED OF BEEN DAMAGED.

WHEN REPETITIVE FAILURES OCCUR AT THE SAME LOCATION, REVIEW CONDITIONS AND LIMITATION FOR USE AND DETERMINE IF ADDITIONAL CONTROLS (e.g. TEMPORARY STABILIZATION OF CONTRIBUTING AREA, DIVERSIONS, STONE BARRIERS) ARE NEEDED TO REDUCE FAILURE RATE OR REPLACE FENCE.

MAINTAIN THE FENCE UNTIL THE CONTRIBUTING AREA IS STABILIZED.

AFTER THE CONTRIBUTING AREA IS STABILIZED DETERMINE IF SEDIMENT CONTAINED BY THE SILT FENCE REQUIRES REMOVAL OR REGRADING AND STABILIZATION. IF THE DEPTH IS GREATER THAN OR EQUAL TO 8 INCHES, REGRADING OR REMOVAL OF THE ACCUMULATED SEDIMENT IS REQUIRED. NO REMOVAL OR REGRADING IS REQUIRED IF SEDIMENT DEPTH IS LESS THAN 8 INCHES.

REMOVE THE FENCE BY PULLING UP THE SUPPORT POSTS AND CUTTING THE GEOTEXTILE AT GROUND LEVEL. REGRADE OR REMOVE SEDIMENT AS NEEDED, AND STABILIZE DISTURBED SOILS.



CATCH BASIN WITHOUT CURB

CATCH BASIN WITH CURB

SEDIMENTATION CONTROL BALES
NO SCALE

MAINTENANCE OF HAY BALE CHECK DAM

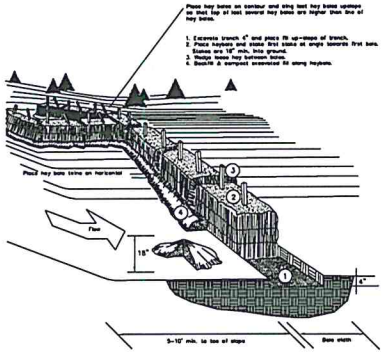
INSPECT THE HAY BALE CHECK DAM AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITHA RAINFALL AMOUNT OF 0.5 INCHES OR GREATER TO DETERMINE MATENANCE NEEDS. FOR DE WATERING OPERATIONS AND, INSPECT FREQUENTLY BEFORE, DURING AND AFTER PUMPING OPERATIONS.

REMOVE THE SEDIMENT DEPOSITS OR INSTALL A SECONDARY BARRIER WHEN SEDIMENT DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. REPLACE OR REPAIR THE BARRIER WITHIN 24 HOURS OF OBSERVED FAILURE. FAILURE OF THE BARRIER HAS OCCURRED WHEN SEDIMENT FAILS TO BE RETAINED BY THE THE BARRIER BECAUSE:

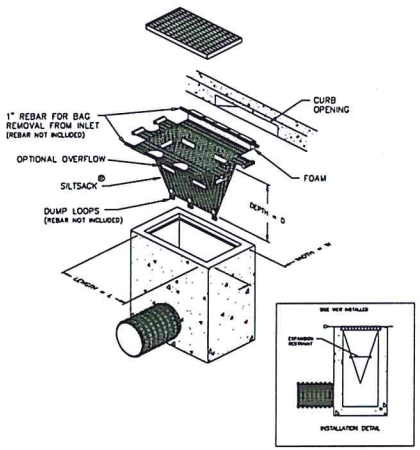
A) THE BARRIER HAS BEEN OVERTOPPED, UNDERCUT, OR BYPASSED BY RUNOFF WATER
B) THE BARRIER HAS BEEN MOVED OUT OF POSITION.
C) THE HAY BALES HAVE DETERIORATED.

WHEN REPETITIVE FAILURE OCCURE AT THE SAME LOCATION REVIEW CONDITIONS AND LIMITATIONS FOR USE AND DETERMINE IF ADDITIONAL CONTROLS ARE NEEDED TO REDUCE FAILURE RATE OR REPLACE HAY BALE BARRIER.

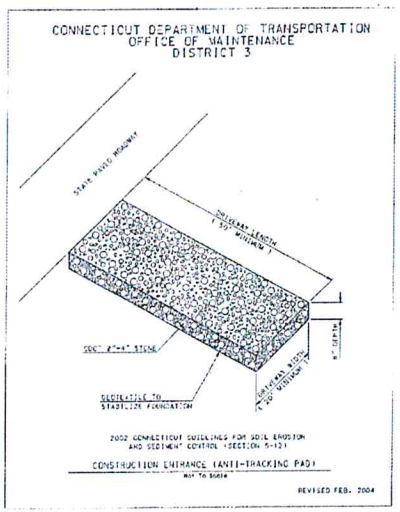
MAINTAIN HAY BALE BARRIER UNTIL CONTRIBUTING AREA IS STABILIZED. AFTER UPSLOPE AREAS HAVE BEEN STABLIZED PULL THE STAKES OUT OF THE HAYBALES. UNLESS OTHERWISE REQUIRED NO REMOVAL OF OR REGRADING OF ACCUMULATED SEDIMENT IS NECESSARY. THE HAY BALES MAY THEN BE LEFT IN PLACE OR BROKEN UP FOR GROUND COVER.



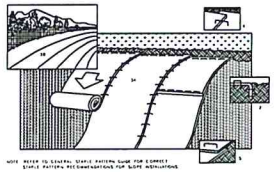
TOE OF SLOPE HAY BALE BARRIER
NO SCALE



DETAIL OF INLET SEDIMENT CONTROL DEVICE WITH CURB DEFLECTOR
NO SCALE



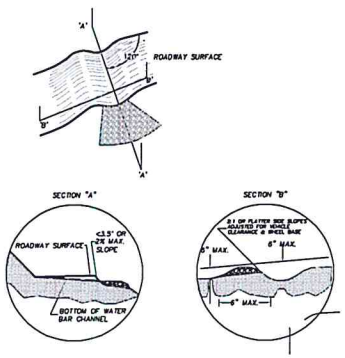
SLOPE INSTALLATION



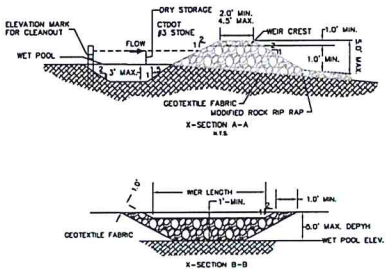
NOTE: REFER TO GENERAL STAKE PATTERN GUIDE FOR CORRECT STAKE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED. MOST AREAS WHERE EXCAVATED SOIL WILL BE SEEDED WILL NOT NEED PREPARED AREA EXCAVATED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH WITH STAPLING.
3. ROLL THE BLANKETS (N) DOWN OR (S) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2' OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

NORTH AMERICAN GREEN



WATER BAR DETAIL
(N.T.S.)



TEMPORARY SEDIMENT TRAP
N.T.S.

SCALE: AS NOTED
DATE: APRIL 04, 2016
JOB No.: 2657
CHECKED BY: P.A.K.
DRAWN BY: J.P.C.
ACAD FILE: 2657-DET
SHEET: 9 OF: 11
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK - UNIT #511
ROCKY HILL, CONNECTICUT

SITE DETAILS
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT
PAUL A. CASSIDY
No. 20683
LICENSED PROFESSIONAL ENGINEER

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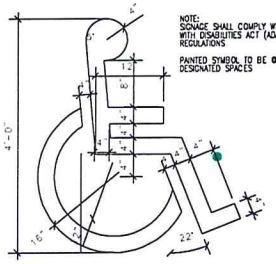
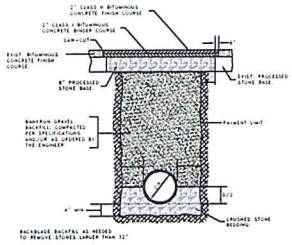


PAINTED H.C. PARKING SYMBOL

NO SCALE



TYPICAL STORM TRENCH CROSS SECTION

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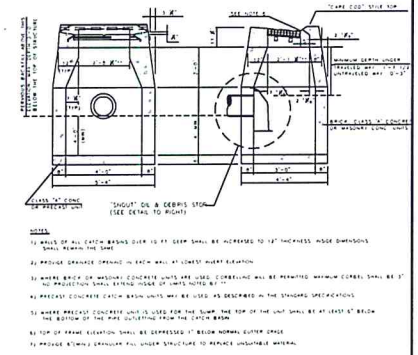
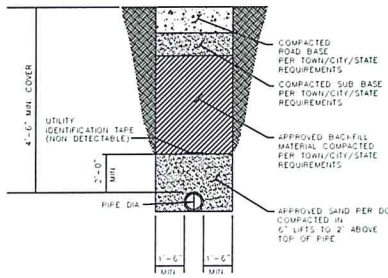


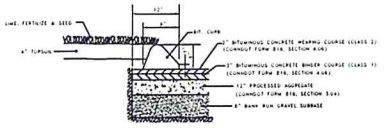
TYPICAL CATCH BASIN

NOT TO SCALE



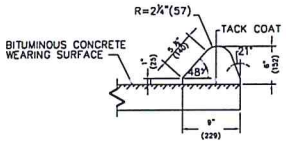
TYPICAL GAS MAIN TRENCH

CROSS SECTION



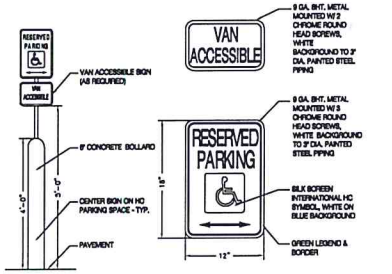
BITUMINOUS CONCRETE PAVEMENT DRIVEWAYS AND ACCESS LANES (HEAVY DUTY)

N.T.S.



6"(150) BITUMINOUS CONCRETE LIP CURBING

NO SCALE



HC HANDICAPPED PARKING SIGN DETAIL

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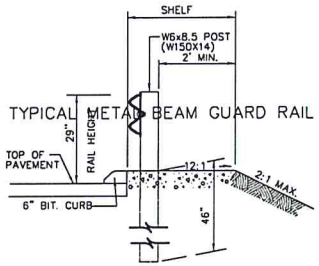

CURB APPLICATION

NO SCALE

SCALE: AS NOTED	CHECKED BY: P.A.H.
DATE: APRIL 04, 2016	DRAWN BY: J.P.C.
JOB No.: 2957	CADD FILE: 2957-DET
SHEET: 10 OF: 11	
REVISIONS:	

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK - UNIT #311
ROCKY HILL, CONNECTICUT

SITE DETAILS
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT PAUL H. CASSIDY No. 20663 LICENSED PROFESSIONAL ENGINEER

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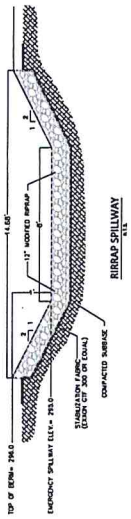
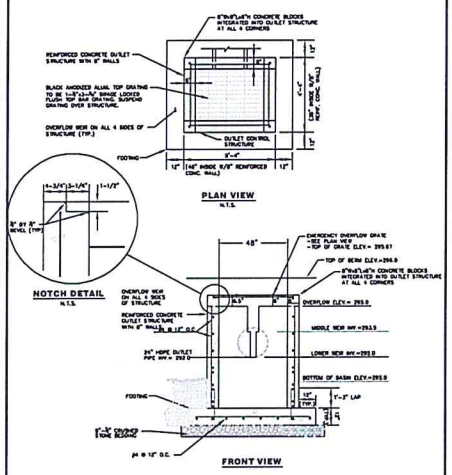


RIPRAP SPILLWAY
N.T.S.

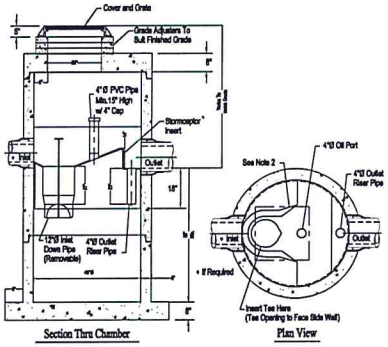


STORMWATER QUALITY BASIN OUTLET CONTROL STRUCTURE
N.T.S.

Rinker MATERIALS

Concrete Pipe Division

STC 450I Precast Concrete Stormceptor (450 U.S. Gallon Capacity)

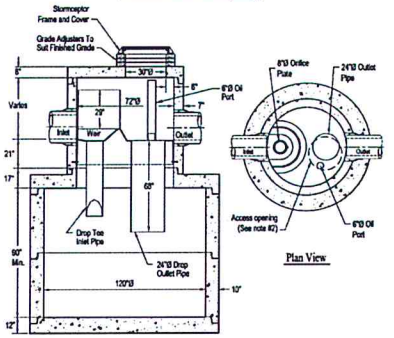


Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5723760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

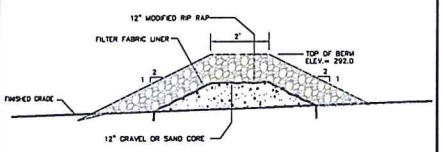
Rinker MATERIALS

Concrete Pipe Division

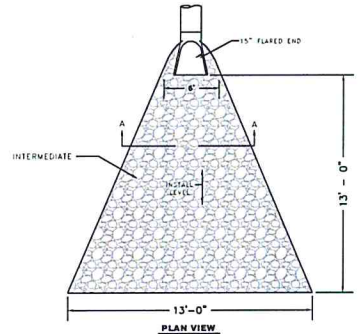
EOS 48-2000 Precast Concrete Stormceptor® (2000 U.S. Gallon Oil Capacity)



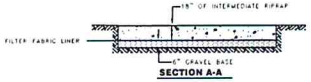
Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Outlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #5753115, #5849181, #6068765, #6371690, #7582216, #7666303.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.



RIPRAP FILTER BERM
N.T.S.

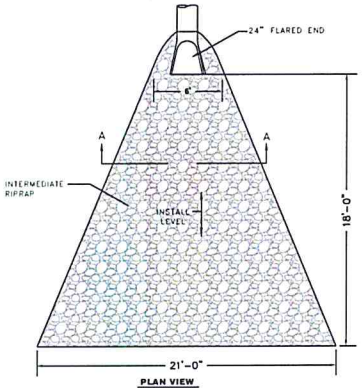


PLAN VIEW

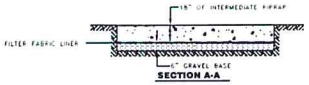


SECTION A-A

RIPRAP ENERGY DISSIPATER #3
N.T.S.



PLAN VIEW



SECTION A-A

RIPRAP ENERGY DISSIPATER # 1 & #2
N.T.S.

SCALE: AS NOTED
DATE: APRIL 04, 2016
JOB No.: 2857
CHECKED BY: P.A.H.
DRAWN BY: J.P.C.
ACAD FILE: 2857-DET
SHEET: 11 OF: 11
REVISIONS:

HALLISEY, PEARSON & CASSIDY
CIVIL ENGINEERS & LAND SURVEYORS
35 COLD SPRING ROAD,
SOUTHWAY EXECUTIVE PARK - UNIT #311
ROCKY HILL, CONNECTICUT

SITE DETAILS
PREPARED FOR
GLOBAL CNG HOLDINGS, A DELAWARE LLC
PROPERTY OF ROBERT C. & EVELYN H. RUSSELL
ASSESSOR'S MAP/BLOCK/LOT#: 33/34/01 ROUTE #6
ANDOVER, CONNECTICUT

STATE OF CONNECTICUT
JAMES P. CASSIDY III
NO. 20885
LICENSED PROFESSIONAL ENGINEER

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