Attachment A

Prevailing Wage Documentation

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

Below are additional clarifications of specific job duties performed for certain classifications:

Asbestos Insulator

- Handle, install, apply, fabricate, distribute, prepare, alter, repair, or dismantle heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

Carpenter

- Assembly and installation of modular fumiture/fumiture systems.
  [New] a. Free-standing furniture is not covered. This includes: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two- position information access station, file cabinets, storage cabinets, tables, etc.
- Applies fire stopping materials on fire resistive joint systems only.
- Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings.
- Installation of curtain/window walls only where attached to wood or metal studs.

Cleaning Laborer

- The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

Delivery Personnel (Revised)

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.
- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

Electrician

- Installation or maintenance of telecommunication, LAN wiring or computer equipment.
- Low voltage wiring.

Fork Lift Operator

- Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
- Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

Glaziers

- Installs light metal sash, head sills, and 2-story aluminum storefronts.
- Installation of aluminum window walls and curtain walls is the 'Soidtwork of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce.

Ironworkers

- Handling, sorting, and installation of reinforcing steel (rebar).
- Installation of aluminum window walls and curtain walls is the "joint work" of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.

Insulator

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

Lead Paint Removal

- Painter Rate
    1. Removal of lead paint from bridges.
    2. Removal of lead paint as preparation of any surface to be repainted.
    3. Where removal is on a Demolition project prior to reconstruction.
- Laborer Rate
    1. Removal of lead paint from any surface NOT to be repainted.
    2. Where removal is on a *TOTAL* Demolition project only.

Roofers

- Preparation of surface, tear-off and/or removal of any type of roofing, and/or clean-up of any areas where a roof is to be relaid.

Sheet Metal Worker

- Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

Truck Drivers

- Truck Drivers delivering asphalt are covered under prevailing wage while on the site and directly involved in the paving operation.
- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as hs is part of the construction process.

 Any questions regarding the proper classification should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd, Wethersfield, CT 06 109 at (860) 263-6543.

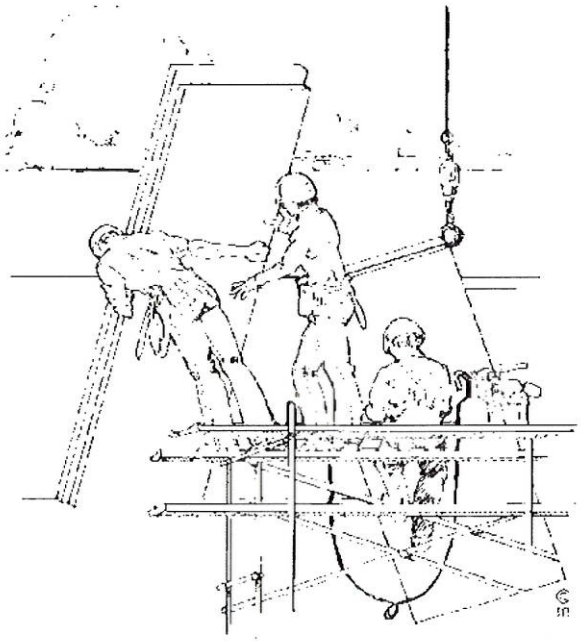
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine

Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Statute 31-55a

Last Updated: April 22, 2010

- Special Notice -

To All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

◂-- Workplace Laws

Published by the Connecticut Department of Labor, Project Management Office

Project: Multi Use Path At Smith Middle School To Bell Street

Minimum Rates and Classifications
for Heavy/Highway Construction
H 14503

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: GL-2011-20 Project Town Glastonbury
FAP Number: State Number:
Project: Multi Use Path At Smith Middle School To Bell Street

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**		
1) Boilermaker	$33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	$32.43	21.58
2) Carpenters, Piledrivermen	$29.03	19.27
2a) Diver Tenders	$29.03	19.27

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

3) Divers	$37.49	19.27
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	$40.25	14.75
4a) Painters: Brush and Roller	$28.47	15.40
4b) Painters: Spray Only	$31.47	15.40
4c) Painters: Steel Only	$30.47	15.40
4d) Painters: Blast and Spray	$31.47	15.40
4e) Painters: Tanks, Tower and Swing	$30.47	15.40
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	$35.40	20.76

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

6) Ironworkers: (Ornamental, Reinforcing, Structural, and Precast Concrete Erection	$33.00	26.58 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	$37.62	22.51
----LABORERS---- - Last updated 5/10/10		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	$25.00	15.00
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen, air tool operator	$25.25	15.00
10) Group 3: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license)	$25.50	15.00
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block pavers and curb setters	$25.50	15.00
12) Group 5: Toxic waste removal (non-mechanical systems)	$27.00	15.00

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

13) Group 6: Blasters	$26.75	15.00
Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe)	$26.00	15.00
Group 8: Traffic control signalmen	$16.00	15.00
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.---- Last updated 5/10/10----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	$29.44	15.00 + a
13b) Brakemen, Trackmen	$28.58	15.00 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----Last updated 5/10/10----		
14) Concrete Workers, Form Movers, and Strippers	$28.58	15.00 + a

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

15) Form Erectors	$28.88	15.00 + a

----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----Last updated 5/10/10----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	$28.58	15.00 + a
17) Laborers Topside, Cage Tenders, Bellman	$28.48	15.00 + a
18) Miners	$29.44	15.00 + a

----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----Last updated 5/10/10----

18a) Blaster	$35.21	15.00 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	$35.04	15.00 + a

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	$33.27	15.00 + a
21) Mucking Machine Operator	$35.75	15.00 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	$27.88	14.53 + a
Three axle trucks; two axle ready mix	$27.98	14.53 + a
Three axle ready mix	$28.03	14.53 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	$28.08	14.53 + a
Four axle ready-mix	$28.13	14.53 + a

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

Heavy duty trailer (40 tons and over)	$28.33	14.53 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	$28.13	14.53 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	$35.05	18.60 + a
Group 2: Cranes (100 ton rate capacity and over); Backhoe/Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer). (Trade License Required)	$34.73	18.60 + a
Group 3: Excavator; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	$33.99	18.60 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	$33.60	18.60 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	$33.01	18.60 + a

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	$33.01	18.60 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	$32.70	18.60 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	$32.36	18.60 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	$31.96	18.60 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	$31.53	18.60 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	$29.49	18.60 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	$29.49	18.60 + a
Group 12: Wellpoint Operator.	$29.43	18.60 + a

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

Group 13: Compressor Battery Operator.	$28.85	18.60 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	$27.71	18.60 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	$27.30	18.60 + a
Group 16: Maintenance Engineer/Oiler	$26.65	18.60 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	$30.96	18.60 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	$28.54	18.60 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----Last updated 9/3/2010----

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

20) Lineman, Cable Splicer, Dynamite Man	$44.36	3% + 13.70
21) Heavy Equipment Operator	$39.92	3% + 13.70
22) Equipment Operator, Tractor Trailer Driver, Material Men	$37.71	3% + 13.70
23) Driver Groundmen	$33.27	3% + 13.70

----LINE CONSTRUCTION----Last updated 4/17/09----

24) Driver Groundmen	$30.92	6.5% + 9.70
25) Groundmen	$22.67	6.5% + 6.20
26) Heavy Equipment Operators	$37.10	6.5% + 10.70

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

27) Linemen, Cable Splicers, Dynamite Men	$41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	$35.04	6.5% + 10.45

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

As of: Friday, December 10, 2010

Project: Multi Use Path At Smith Middle School To Bell Street

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: Friday, December 10, 2010

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers (including caulking), Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Bricklayer (Residential- Fairfield County)

a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours.

Electricians
Fairfield County: West of the Five Mile River in Norwalk

a. $2.00 per hour not to exceed $14.00 per day.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

ATTACHMENT B – INLAND WETLANDS PERMIT

Town of Glastonbury

2155 MAIN STREET • P.O. BOX 6523 • GLASTONBURY, CONNECTICUT 06033-6523

March 23, 2009

CONSERVATION COMMISSION AND INLAND
WETLANDS & WATERCOURSES AGENCY

Steve Braun
Assistant Town Engineer
Town of Glastonbury
2155 Main Street
Glastonbury, Connecticut 06033

Re: Application of the **Town of Glastonbury, Department of Physical Services** for: an **inland wetlands and watercourses permit**; and a recommendation to the Town Plan and Zoning Commission concerning a Section 4.11 (Flood Zone) Special Permit – **proposed Multi-Use Path connecting Smith Middle School to Bell Street and a Parking Lot just west of Bell Street**

Dear Steve:

At its Regular Meeting of March 12, 2009, the Conservation Commission/Inland Wetlands & Watercourses Agency approved an Inland Wetlands and Watercourses Permit, in accordance with the plans and conditions cited in the **attached** motion.

Please read the conditions of approval carefully and comply with them. Some of the conditions may require interacting with the Environmental Planner (e.g. inspection of soil erosion and sediment control); it will be your responsibility to schedule such interactions. Any questions you may have about the stated conditions can be directed to the Office of Community Development at 652-7511.

This Permit:

- requires that the approved regulated activities be completed within one (1) year from commencement of said activities;
- is valid for five (5) years and thus expires on March 12, 2014; and
- may not be transferred unless authorized by the Inland Wetlands & Watercourses Agency

This Permit may be revoked if you exceed the conditions or limitations of this Permit or have secured this Permit through inaccurate information.

Once again should you have any questions, please do not hesitate to contact this office.

Sincerely,

Tom Mocko
Environmental Planner

TM:gfm
Attachment

APPROVED WETLANDS PERMIT MOTION

MOVED, that the Inland Wetlands and Watercourses Agency grants an inland wetlands and watercourses permit to the Town of Glastonbury Department of Physical Services for the construction of a multi-use trail and a parking lot within the wetlands regulated areas as part of the larger project connecting Smith Middle School to Bell Street, in accordance with the application materials (application dated 1-15-09, Town Engineer's memorandum dated March 5, 2009 and plans dated 3-4-2009) on file in the Office of Community Development and in compliance with the following conditions:

1. If any Federal wetlands permitting from the United States Army Corps of Engineers (ACOE) is required for this project, then any ACOE wetlands permit, along with the plans submitted for said permit, shall be provided to the Town's Environmental Planner and the Town's Inland Wetlands and Watercourses Agency. Any and all discrepancies between the ACOE and local wetlands permitting shall be satisfied to the satisfaction of the Inland Wetlands and Watercourses Agency prior to the start of construction.

2. All land areas that are encumbered with a conservation restriction or conservation easement shall be identified on the construction plans. All nearby areas (within 100 feet of this project area) that are encumbered with a conservation restriction or conservation easement shall be clearly flagged and placarded on the land by the Permittee prior to the start of construction.

3. In order to protect and conserve the State-listed Eastern Box Turtle (Terrapene carolina) that is known to exist within the project area:

    a. Construction activities that occur during the species dormant time period (from November 1 to April 1) shall not require any mitigation measures relative to protection of the Eastern Box Turtle.

    b. If construction activities are to occur between April 1 and November 1, then:
        1.) Alternative construction staging areas shall be investigated and used, under consultation with the Environmental Planner, in order to avoid the species' prime, more preferable habitat. Such alternative locations shall be restricted to the species' non-prime, less preferable habitat, as determined by the Environmental Planner.
        2.) The construction staging areas and the wetlands areas where construction will occur shall have their perimeters completely ringed with silt fence in order to create turtle-proof "play pens" for the heavy equipment/machinery/vehicles to stay in and for the turtles to stay out of these "play pen" areas while they are in use. Construction workers shall be mindful of "opening and closing the door" (maintaining the functional integrity) of such protected "play pen" areas.

        3.) The Permittee shall provide all construction workers and inspectors with relevant information pertaining to the Eastern Box Turtle including, but not limited to, their physical description, that these turtles are State-protected and that harming or collecting them is illegal, that these turtles may be present at the site on any given work day, that on each workday the project work area be searched for turtles prior to the start of construction, and that any turtles encountered shall be carefully moved to a safe location not too far away from their encountered location.

c. Signage that informs trail users of the presence and relevant characteristics of the State Species of Special Concern Eastern Box Turtle shall be established and posted at various points along the trail by the Permittee, under consultation with the Environmental Planner. A minimum of four such signs shall be established in both directions of the trail, thus requiring a minimum of eight such signs for the trail.

d. All sightings of the Eastern Box Turtle during construction shall be reported to the Environmental Planner.

4. In order to protect and conserve the obligate vernal pool species that are known to migrate through the project area:

   a. All construction workers and inspectors shall be provided with relevant information pertaining to such obligate vernal pool species that could potentially migrate through the project area.

   b. Temporary and permanent land grading activities, along with other potential physical barriers, that may prevent or hinder the movement of these migrating obligate vernal pool species shall not occur.

   c. Special mitigation measures or other precautions may be required of the Permittee to address any unforeseen problems or situations, as deemed necessary by the Environmental Planner.

   d. Signage that informs trail users of the presence and relevant characteristics of the obligate vernal pool species that migrate across the trail shall be established and posted by the Permittee, under consultation with the Environmental Planner.

5. Healthy mature trees shall be preserved and saved when possible. Said trees shall be protected with the use of high visibility construction fence during construction or otherwise protected as required by staff.

6. Installation of soil erosion and sedimentation control and stabilization measures shall be the Permittee's responsibility. Once installed these measures shall then be inspected by the Environmental Planner prior to land disturbance activities. Afterwards it then shall be the Permittee's responsibility to inspect these control measures during, and immediately following, substantial storm events and maintain and/or replace the control measures, when needed, on a regular basis until the site is vegetatively stabilized. Hay bales shall be replaced every 60 days. The Environmental Planner is hereby authorized to require additional soil erosion and sediment controls and stabilization measures to address situations that arise on the site.

7. Material shall not be stockpiled in wetland areas.

8. Metal waste containers shall be provided at the site to facilitate the collection of refuse material generated from construction activities. Such material shall not be buried or burned at the site.

9. All heavy vehicles, equipment and/or machinery shall be prohibited to cross the wetlands between proposed trail stations 40+00 and 43+00. Such vehicles, equipment and/or machinery that is capable of being supported by the proposed boardwalk, shall be allowed to cross the boardwalk for construction purposes once said boardwalk is constructed.

10. All of the proposed boardwalk components, except that of its supporting piers, shall be constructed above the 100-year flood elevation.

11. All existing problem areas (i.e. wheel ruts, currently eroded and unstabilized areas, impaired culverts, etc.) shall be remedied, to the satisfaction of the Environmental Planner, within the existing sanitary sewer corridor on the north side of Salmon Brook that lies generally south of the proposed trail between trail stations 42+00 and 57+00.

12. Any groundwater seep problem area(s) that arises from the project due to excavation(s) shall be remedied and permanently stabilized to the satisfaction to the Environmental Planner.

13. In order to ensure adherence to the submitted plans, along with their associated environmental mitigation measures, and these assigned conditions of approval:

    a. A qualified individual shall be assigned or retained by the Permittee to supervise or direct proper implementation of said mitigation measures and conditions, shall provide monthly progress reports on the same to the Environmental Planner, and shall serve as liaison between the Permittee and site contractor(s) side of the project and the Environmental Planner.

    b. As-built and as-performed statements and/or drawings/plans shall be required in order to demonstrate compliance with the environmental mitigation measures and the assigned conditions of approval.

14. There shall be no snow removal or other winter maintenance on the completed trail.

15. A pre-construction meeting shall be required for this project in order to promote compliance/adherence to the environmental mitigation measures and these assigned conditions of approval.

16. The Permittee shall be fully responsible for damages caused by all activities undertaken pursuant to this permit that may have a detrimental effect on wetlands and/or watercourses, and all such activities that cause erosion and sedimentation problems.

****

ATTACHMENT C – TOWN PLAN AND ZONING COMMISSION FLOOD ZONE PERMIT

Town of Glastonbury

2155 MAIN STREET • P.O. BOX 6523 • GLASTONBURY, CONNECTICUT 06033-6523

TOWN PLAN AND
ZONING COMMISSION

March 11, 2010

Daniel A. Pennington
Town Engineer/Manager of Physical Services
Physical Services Department
P.O. Box 6523
Glastonbury, CT 06033

Re: Paved Multi-Use Recreational Path

Dear Mr. Pennington:

At its meeting of March 2, 2010, the Town Plan and Zoning Commission approved your application for a Section 4.11 (Flood Zone) Special Permit and a Section 12 Special Permit with Design Review for a paved multi-use recreational path connecting Smith Middle School property to Bell Street and construction of a parking lot west of Bell Street - Flood Zone and Reserved Lane Zone, in accordance with the attached Special Permit Motion.

- **Please forward a paper set of the approved plans to the Office of Community Development.** Once these have been reviewed, you will be notified to forward one set of plans on fixed line mylar and one set of blueprints. Each mylar sheet shall be sealed and contain a live signature of the preparer.

- **When the mylar plans are signed by the Chairman or Secretary of the Commission and Town Officials, you will be notified that they are ready to be picked up for filing on the Glastonbury Land Records in the Office of the Town Clerk.**

- **The Special Permit Motion must also be recorded in the Town Clerk's Office. This approval is not effective until the motion and mylar plans are filed.** A building permit may not be issued nor any use activity begun until the above filings have been completed.

Please be advised that this Special Permit authorizes new construction/site or building modifications or operation of a new use only in accordance with specified plans and any conditions of approval. Accordingly, no modifications to specified plans or conditions shall be made unless authorization has been received from the Town Plan and Zoning Commission or their authorized agents within the Community Development Department.

If substantial construction has not begun on a building or structure, or use established on a lot within one (1) year from the date of approval, the special permit shall become null and void. The Town Plan and Zoning Commission, upon request of the applicant, may extend for an additional one (1) year the period for beginning substantial construction or establishment of a use.

Please contact the Office of Community Development if you have any questions.

Sincerely,

TOWN PLAN AND ZONING COMMISSION
For the Secretary

Kenith E. Leslie
Community Development Director

KEL:bjw
Attach.

cc: Richard J. Johnson, Town Manager
Edward P. Pietrycha, Building Official

Town of Glastonbury

2155 MAIN STREET • P.O. BOX 6523 • GLASTONBURY, CONNECTICUT 06033-6523

TOWN PLAN AND
ZONING COMMISSION

SECTION 4.11 (FLOOD ZONE) SPECIAL PERMIT AND
A SEC. 12 SPECIAL PERMIT WITH DESIGN REVIEW

APPLICANT: TOWN OF GLASTONBURY
PHYSICAL SERVICES DEPARTMENT
P.O. BOX 6523
GLASTONBURY, CT 06033-6523

OWNER: TOWN OF GLASTONBURY
P.O. BOX 6523
GLASTONBURY, CT 06033

FOR: PAVED MULTI-USE
RECREATIONAL PATH

MOVED, that the Town Plan and Zoning Commission approve the application of the Town of Glastonbury, Physical Services Department, for a Section 4.11 (Flood Zone) Special Permit and a Section 12 Special Permit with Design Review – paved multi-use recreational path connecting Smith Middle School property to Bell Street and construction of a parking lot west of Bell Street – Flood Zone and Reserved Lane Zone, in accordance with the following plans:

"TYPICAL SECTIONS FOR PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY DATE: 1-8-2009 CHECKED BY: S.M.B. APPROVED BY: D.A.P. SHEET NO. 2 OF 18 REVISION NO. 1 ISSUED FOR PERMITTING 3-4-2009"

"EROSION CONTROL NOTES AND DETAILS FOR PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY CHECKED BY: S.M.B. APPROVED BY: D.A.P. DATE: 1-8-2009 SHEET NO. 3 OF 18 REVISION NO. 1 ISSUED FOR PERMITTING 3-4-2009"

"OVERVIEW PLAN DEPICTING PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY CHECKED BY: S.M.B. APPROVED BY: D.A.P. DATE: 1-8-2009 SHEET NO. 4 OF 18 REVISION NO. 1 ISSUED FOR PERMITTING 3-4-2009"

"PLAN AND PROFILE PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY CHECKED BY: S.M.B. APPROVED BY: D.A.P. DATE: 1-8-2009 SHEET NO. 5 OF 18, SHEET NO. 6 OF 18, SHEET NO. 7 OF 18, SHEET NO. 8 OF 18, SHEET NO. 9 OF 18 REVISION NO. 1 ISSUED FOR PERMITTING 3-4-2009"

"PLAN DEPICTING MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY CHECKED BY: S.M.B. APPROVED BY: D.A.P. DATE: 12-31-2009 SHEET NO. 10 OF 18 REVISION NO. 1 PARKING LOT MODIFICATION 2-18-2010"

"PLAN DEPICTING WETLAND VEGETATION ENHANCEMENT FOR PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY CHECKED BY: S.M.B. APPROVED BY: D.A.P. DATE: 1-8-2009 SHEET NO. 16 OF 18 REVISION NO. 1 ISSUED FOR PERMITTING 3-4-2009"

"PLAN DEPICTING PEDESTRIAN BRIDGE PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT SCALE: AS SHOWN DRAWN BY: S. TROY DATE: 5-11-2009 SHEET NO. 17 OF 18, SHEET NO. 18 OF 18"

and in compliance with the following condition:

1. Compliance with conditions assigned to the issuance of an Inland Wetlands and Watercourses Agency permit on March 12, 2009 for this project.

2. Following completion of construction of the project, certification from a Professional Engineer shall be required confirming no loss of flood storage capacity.

3. Speed bumps shall be installed if deemed necessary by Town Plan and Zoning Commission Leadership in consultation with the Town Engineer/Manager of Physical Services

APPROVED: TOWN PLAN AND ZONING COMMISSION
MARCH 2, 2010

SHARON M. JAGEL, CHAIRMAN

APPROVED WETLANDS PERMIT MOTION

MARCH 12, 2009

MOVED, that the Inland Wetlands and Watercourses Agency grants an inland wetlands and watercourses permit to the Town of Glastonbury Department of Physical Services for the construction of a multi-use trail and a parking lot within the wetlands regulated areas as part of the larger project connecting Smith Middle School to Bell Street, in accordance with the application materials (application dated 1-15-09, Town Engineer's memorandum dated March 5, 2009 and plans dated 3-4-2009) on file in the Office of Community Development and in compliance with the following conditions:

1. If any Federal wetlands permitting from the United States Army Corps of Engineers (ACOE) is required for this project, then any ACOE wetlands permit, along with the plans submitted for said permit, shall be provided to the Town's Environmental Planner and the Town's Inland Wetlands and Watercourses Agency. Any and all discrepancies between the ACOE and local wetlands permitting shall be satisfied to the satisfaction of the Inland Wetlands and Watercourses Agency prior to the start of construction.

2. All land areas that are encumbered with a conservation restriction or conservation easement shall be identified on the construction plans. All nearby areas (within 100 feet of this project area) that are encumbered with a conservation restriction or conservation easement shall be clearly flagged and placarded on the land by the Permittee prior to the start of construction.

3. In order to protect and conserve the State-listed Eastern Box Turtle (Terrapene carolina) that is known to exist within the project area:

   a. Construction activities that occur during the species dormant time period (from November 1 to April 1) shall not require any mitigation measures relative to protection of the Eastern Box Turtle.

   b. If construction activities are to occur between April 1 and November 1, then:
      1.) Alternative construction staging areas shall be investigated and used, under consultation with the Environmental Planner, in order to avoid the species' prime, more preferable habitat. Such alternative locations shall be restricted to the species' non-prime, less preferable habitat, as determined by the Environmental Planner.
      2.) The construction staging areas and the wetlands areas where construction will occur shall have their perimeters completely ringed with silt fence in order to create turtle-proof "play pens" for the heavy equipment/machinery/vehicles to stay in and for the turtles to stay out of these "play pen" areas while they are in use. Construction workers shall be mindful of "opening and closing the door" (maintaining the functional integrity) of such protected "play pen" areas.

      3.) The Permittee shall provide all construction workers and inspectors with relevant information pertaining to the Eastern Box Turtle including, but not limited to, their physical description, that these turtles are State-protected and that harming or collecting them is illegal, that these turtles may be present at the site on any given work day, that on each workday the project work area be searched for turtles prior to the start of construction, and that any turtles encountered shall be carefully moved to a safe location not too far away from their encountered location.

c. Signage that informs trail users of the presence and relevant characteristics of the State Species of Special Concern Eastern Box Turtle shall be established and posted at various points along the trail by the Permittee, under consultation with the Environmental Planner. A minimum of four such signs shall be established in both directions of the trail, thus requiring a minimum of eight such signs for the trail.

d. All sightings of the Eastern Box Turtle during construction shall be reported to the Environmental Planner.

4. In order to protect and conserve the obligate vernal pool species that are known to migrate through the project area:

   a. All construction workers and inspectors shall be provided with relevant information pertaining to such obligate vernal pool species that could potentially migrate through the project area.

   b. Temporary and permanent land grading activities, along with other potential physical barriers, that may prevent or hinder the movement of these migrating obligate vernal pool species shall not occur.

   c. Special mitigation measures or other precautions may be required of the Permittee to address any unforeseen problems or situations, as deemed necessary by the Environmental Planner.

   d. Signage that informs trail users of the presence and relevant characteristics of the obligate vernal pool species that migrate across the trail shall be established and posted by the Permittee, under consultation with the Environmental Planner.

5. Healthy mature trees shall be preserved and saved when possible. Said trees shall be protected with the use of high visibility construction fence during construction or otherwise protected as required by staff.

6. Installation of soil erosion and sedimentation control and stabilization measures shall be the Permittee's responsibility. Once installed these measures shall then be inspected by the Environmental Planner prior to land disturbance activities. Afterwards it then shall be the Permittee's responsibility to inspect these control measures during, and immediately following, substantial storm events and maintain and/or replace the control measures, when needed, on a regular basis until the site is vegetatively stabilized. Hay bales shall be replaced every 60 days. The Environmental Planner is hereby authorized to require additional soil erosion and sediment controls and stabilization measures to address situations that arise on the site.

7. Material shall not be stockpiled in wetland areas.

8. Metal waste containers shall be provided at the site to facilitate the collection of refuse material generated from construction activities. Such material shall not be buried or burned at the site.

9. All heavy vehicles, equipment and/or machinery shall be prohibited to cross the wetlands between proposed trail stations 40+00 and 43+00. Such vehicles, equipment and/or machinery that is capable of being supported by the proposed boardwalk, shall be allowed to cross the boardwalk for construction purposes once said boardwalk is constructed.

10. All of the proposed boardwalk components, except that of its supporting piers, shall be constructed above the 100-year flood elevation.

11. All existing problem areas (i.e. wheel ruts, currently eroded and unstabilized areas, impaired culverts, etc.) shall be remedied, to the satisfaction of the Environmental Planner, within the existing sanitary sewer corridor on the north side of Salmon Brook that lies generally south of the proposed trail between trail stations 42+00 and 57+00.

12. Any groundwater seep problem area(s) that arises from the project due to excavation(s) shall be remedied and permanently stabilized to the satisfaction to the Environmental Planner.

13. In order to ensure adherence to the submitted plans, along with their associated environmental mitigation measures, and these assigned conditions of approval:

    a. A qualified individual shall be assigned or retained by the Permittee to supervise or direct proper implementation of said mitigation measures and conditions, shall provide monthly progress reports on the same to the Environmental Planner, and shall serve as liaison between the Permittee and site contractor(s) side of the project and the Environmental Planner.

    b. As-built and as-performed statements and/or drawings/plans shall be required in order to demonstrate compliance with the environmental mitigation measures and the assigned conditions of approval.

14. There shall be no snow removal or other winter maintenance on the completed trail.

15. A pre-construction meeting shall be required for this project in order to promote compliance/adherence to the environmental mitigation measures and these assigned conditions of approval.

16. The Permittee shall be fully responsible for damages caused by all activities undertaken pursuant to this permit that may have a detrimental effect on wetlands and/or watercourses, and all such activities that cause erosion and sedimentation problems.

****

ATTACHMENT D – DEPARTMENT OF THE ARMY PERMIT

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

June 4, 2010

Regulatory Division
CENAE-R-PEB
Permit Number: NAE-2008-3392

Town of Glastonbury
Attn: Richard J. Johnson, Town Manager
2155 Main Street, P.O. Box 6523
Glastonbury, CT 06033

Dear Mr. Johnson:

Enclosed are two copies of a Department of the Army permit authorizing the work described therein. Your signature is necessary to execute this permit. The authorized work cannot start until we receive a complete, signed copy of the permit. If the conditions are acceptable, please sign both copies and return one signed copy of the entire permit to "Regulatory Division" at the address above.

You are also required to complete and return these enclosed forms to this office:

a. Work Start Notification Form at least two weeks before the work start date.

b. Compliance Certification Form within one month following the completion of the authorized work.

This letter also includes an approved jurisdictional determination for your project site as well as the proffered permit for your project. If you object to this jurisdictional determination and/or proffered permit decision, you may request an administrative appeal under Corps regulations at 33 CFR 331. A combined Notification of Appeal Process (NAP) and Request for Appeal (RFA) form and flow chart explaining the appeals process and your options are enclosed with this letter. If you desire to appeal, you must submit a completed RFA form along with any supporting or clarifying information to Michael G. Vissichelli, Administrative Appeals Review Officer, North Atlantic Division, Corps of Engineers, North Atlantic Fort Hamilton Military Community, Bldg. 301, General Lee Avenue, Brooklyn, NY 11252-6700. Additional contact info for Mr. Vissichelli is (718) 765-7163 (phone) and michael.g.vissichelli@usace.army.mil.

In order for the Corps to accept an RFA, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP.

This permit is a limited authorization containing a specific set of conditions. Please read the permit thoroughly to familiarize yourself with those conditions. If a contractor does the work for you, both you and the contractor are responsible for ensuring that the work is done in

DEPARTMENT OF THE ARMY PERMIT

Permittee Town of Glastonbury

Permit No. 2008-3392

Issuing Office New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Construction of a 5,400 foot-long segment of a multi-use pathway/trail that includes a 10 foot-wide paved cross section with a 2 foot-wide stone dust jogging path on the south side and minor drainage improvements. The project will result in the placement of approximately 0.25 acres (11,010 square feet) of fill in the non-tidal wetlands abutting Salmon Brook.

The work is shown on the attached plans entitled, "Plan Depicting Proposed Multi-Use Path from Smith Middle School to Bell Street Glastonbury, Connecticut" on 13 sheets and dated "11/26/2008, 5/22/2009 and 5/26/2009."

Project Location:

The path will run between 216 Addison Road and Lot W-1H Bell Street, Glastonbury, Connecticut

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2015 **. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.**

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Richard T. Johnson, Town Manager

7-13-10

(PERMITTEE) *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

6/3/10

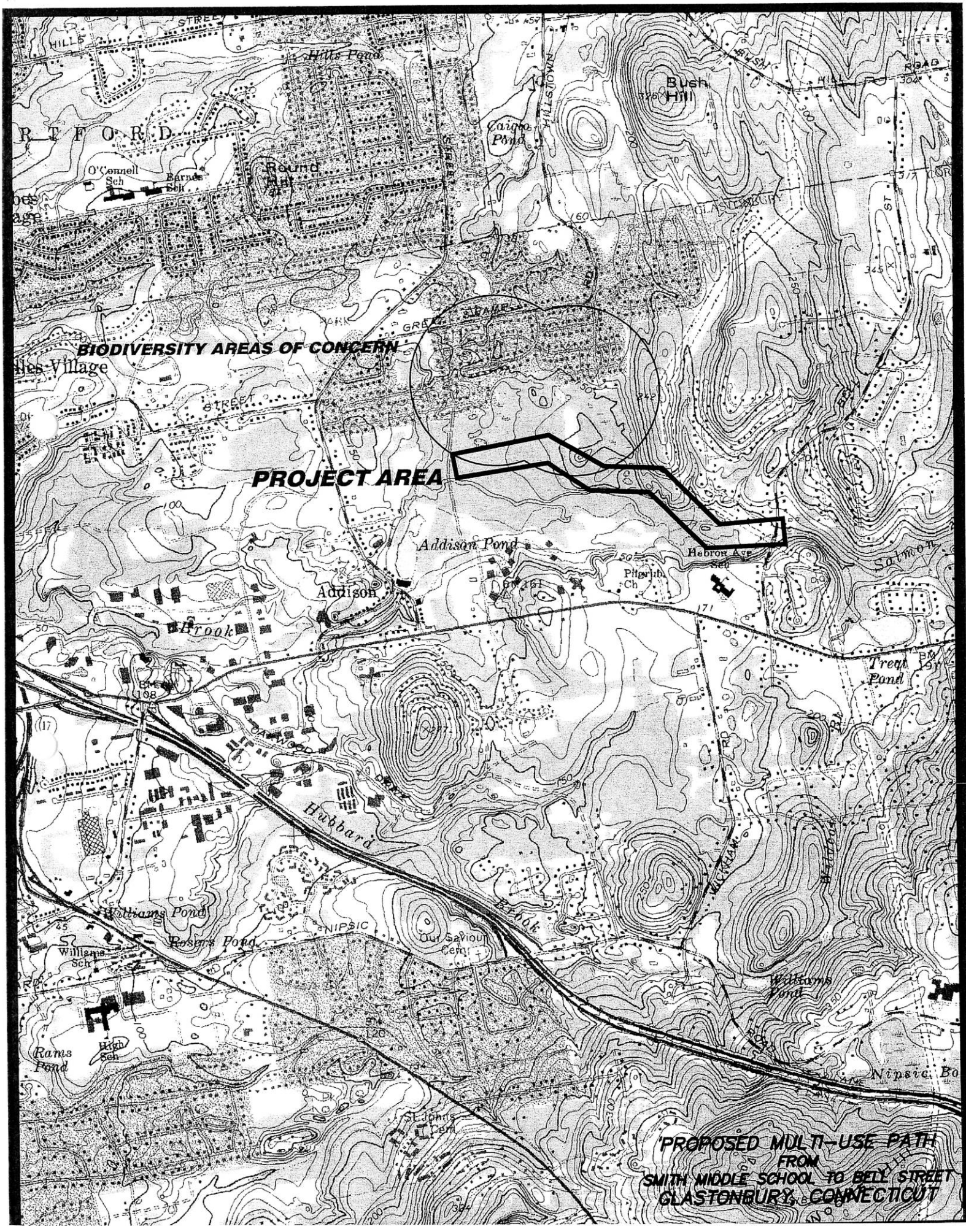
(DISTRICT ENGINEER) *(DATE)*

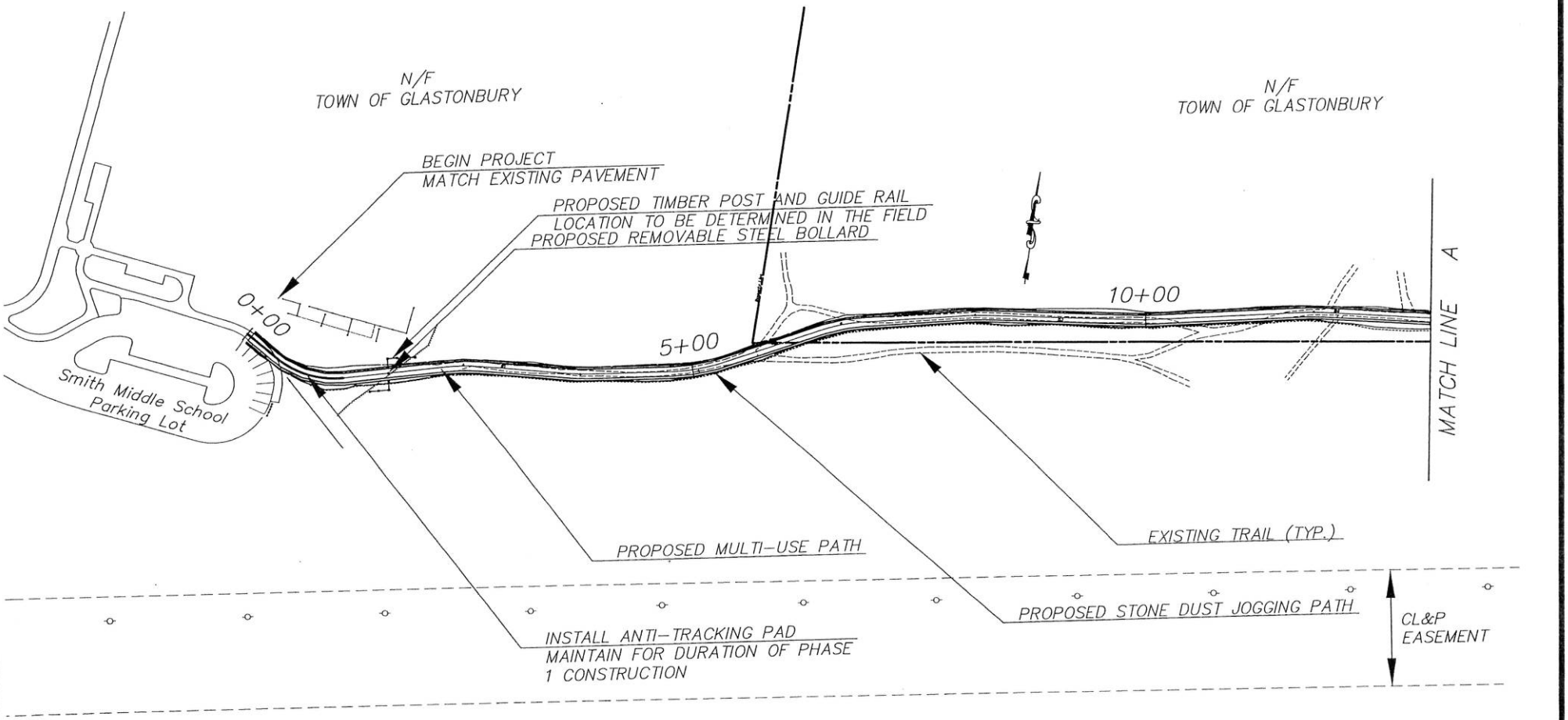
Philip T. Feir
Colonel, Corps of Engineers

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425


BIODIVERSITY AREAS OF CONCERN
PROJECT AREA
Hills Pond
Bush Hill
Cargo Pond
Round Hill
O'Connell Sch
Barnes Sch
Addison Pond
Addison
Brook
Hebron Ave Sch
Pilgrim Ch
Treat Pond
Hubbard Brook
Williams Pond
Rosins Pond
Williams Sch
Our Saviour Cem
Rams Pond
High Sch
St Johns Cem
Nipsic Bo
PROPOSED MULTI-USE PATH
FROM
SMITH MIDDLE SCHOOL TO BELL STREET
GLASTONBURY, CONNECTICUT



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

N

SHEET 1

SCALE : N.T.S.	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

OVERVIEW PLAN - UPLAND AREA

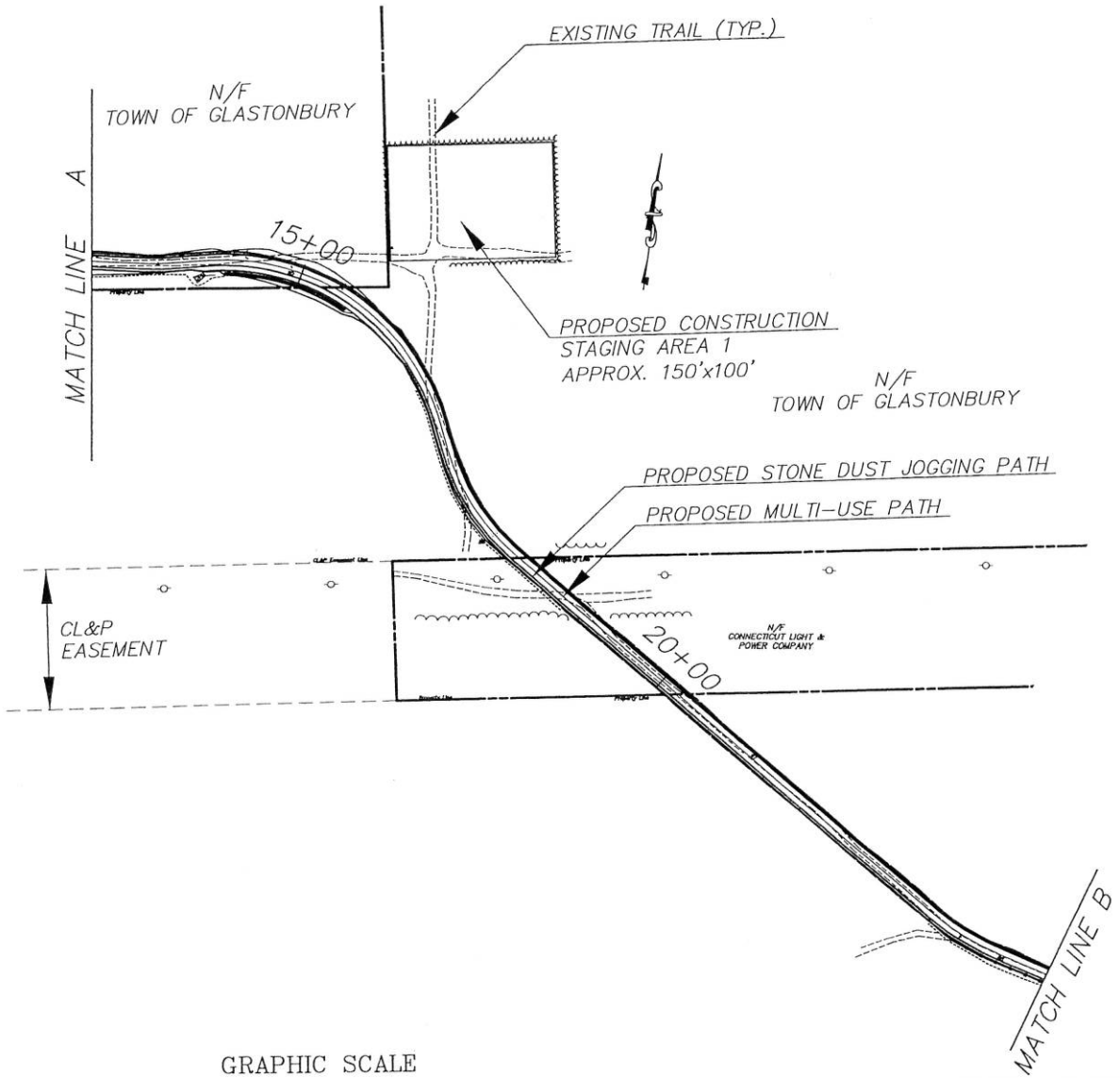
PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

GLASTONBURY, CONNECTICUT

DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 11/26/2008 DRAWN: STEVEN TROY



GRAPHIC SCALE

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(IN FEET)

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SHEET 2

SCALE : N.T.S.	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

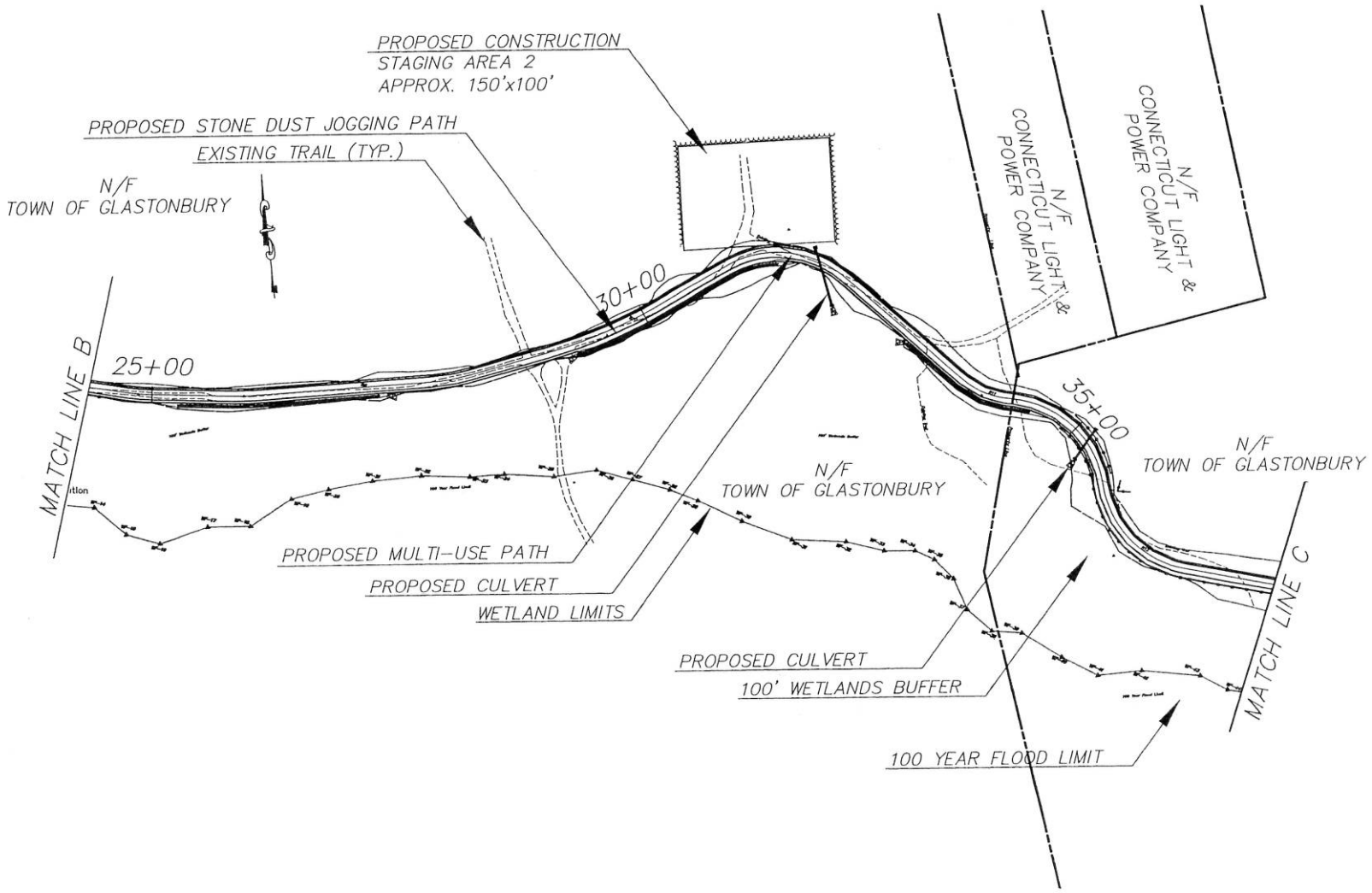
OVERVIEW PLAN - UPLAND AREA

PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

GLASTONBURY, CONNECTICUT



GRAPHIC SCALE

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(IN FEET)

N

SHEET 3

SCALE : N.T.S.	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

OVERVIEW PLAN - UPLAND AREA

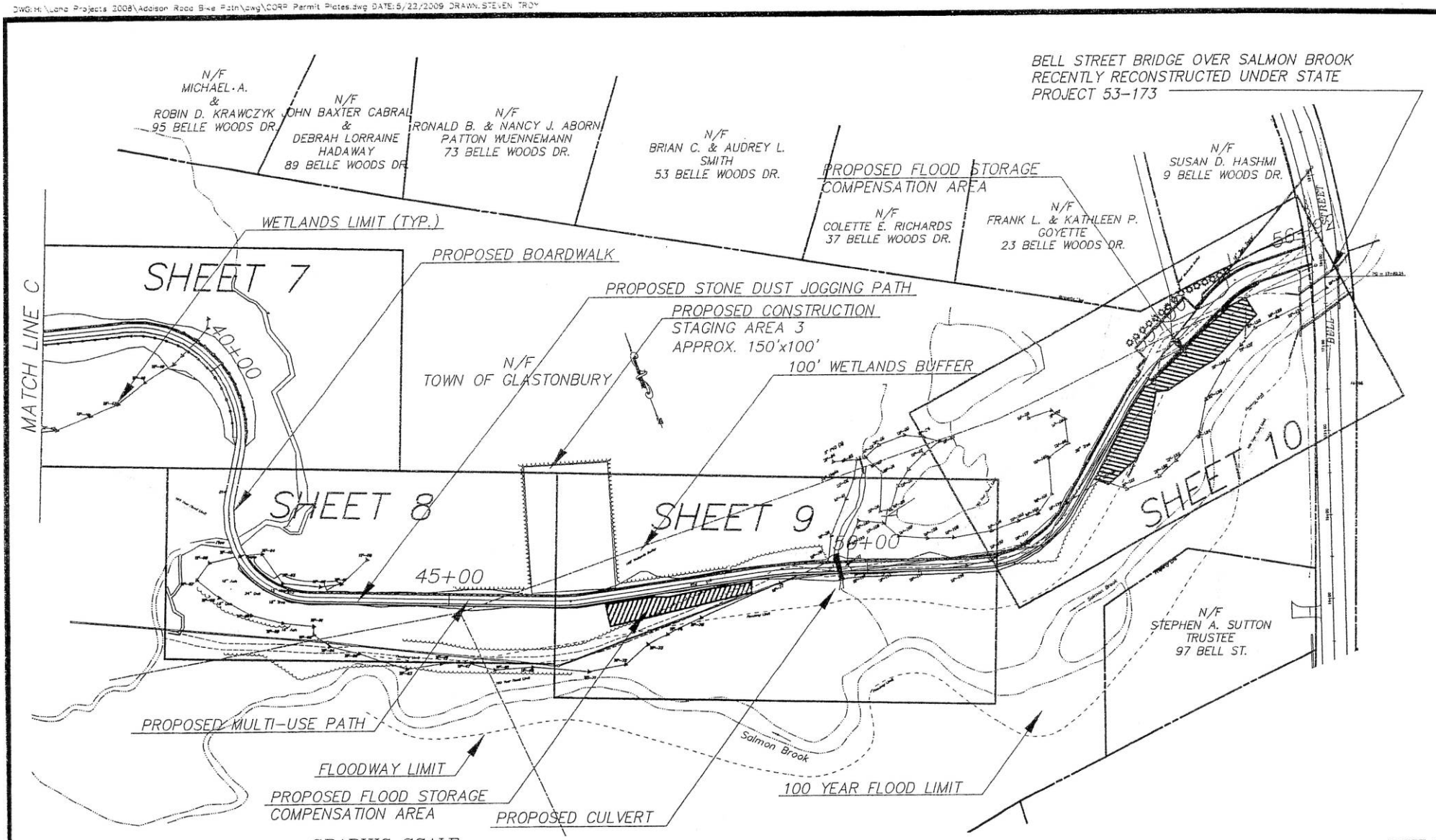
PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

GLASTONBURY, CONNECTICUT

DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 5/22/2009 DRAWN: STEVEN TROY



SHEET 4

SCALE : N.T.S.	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

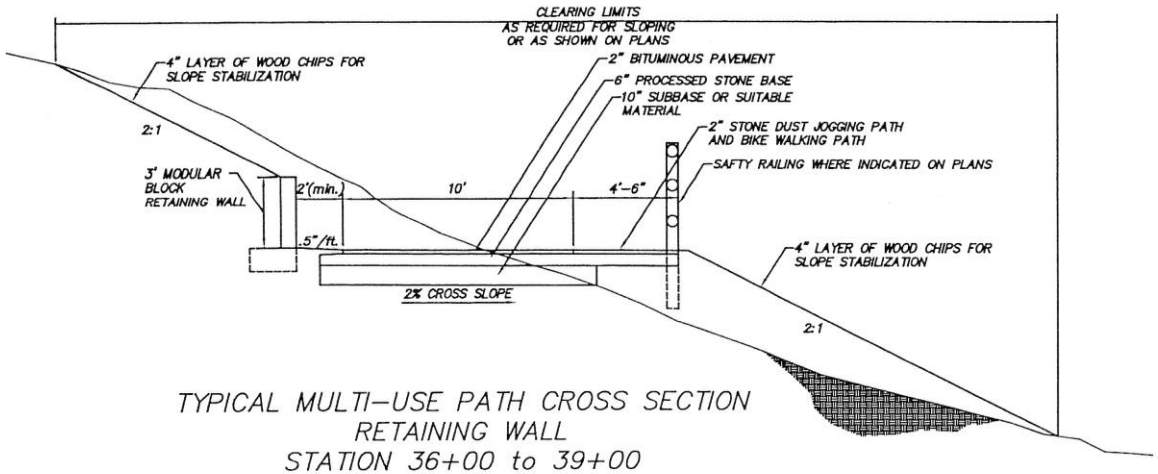
OVERVIEW PLAN - WETLAND AREA

PROPOSED MULTI-USE PATH

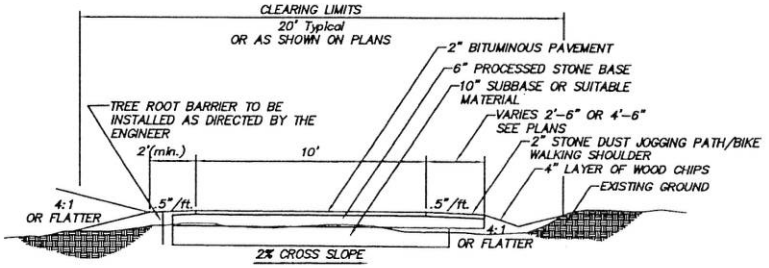
FROM

SMITH MIDDLE SCHOOL TO BELL STREET

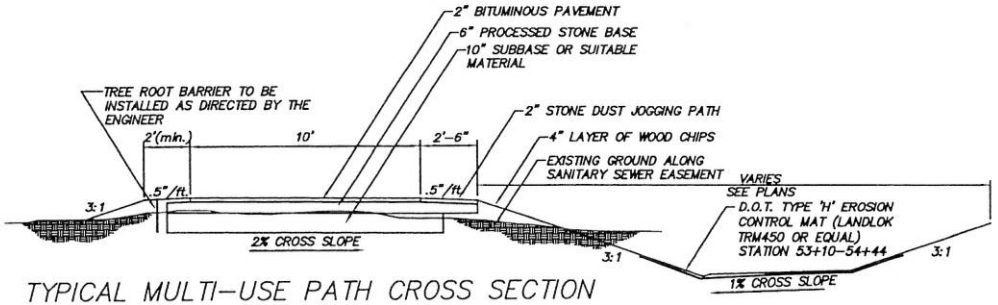
GLASTONBURY, CONNECTICUT



TYPICAL MULTI-USE PATH CROSS SECTION
RETAINING WALL
STATION 36+00 to 39+00
SCALE : N.T.S.

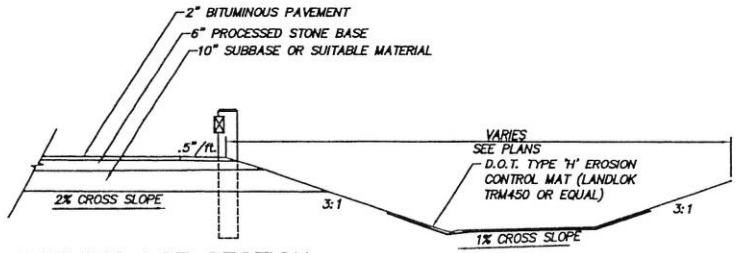


TYPICAL MULTI-USE PATH CROSS SECTION
UPPER HIGHLANDS SECTION
STATION 0+00 to 24+00
SCALE : N.T.S.



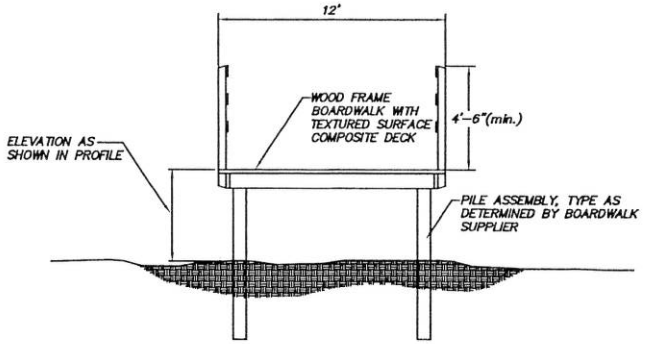
TYPICAL MULTI-USE PATH CROSS SECTION
LOWER WETLANDS SECTION
STATION 42+40 to 54+44
SCALE : N.T.S.

SCALE : N.T.S.	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: S.TROY	TYPICAL SECTIONS PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	



PARKING LOT SECTION

SCALE : N.T.S.



TYPICAL MULTI-USE PATH CROSS SECTION
WETLANDS BOARD WALK
STATION 40+90 to 42+40

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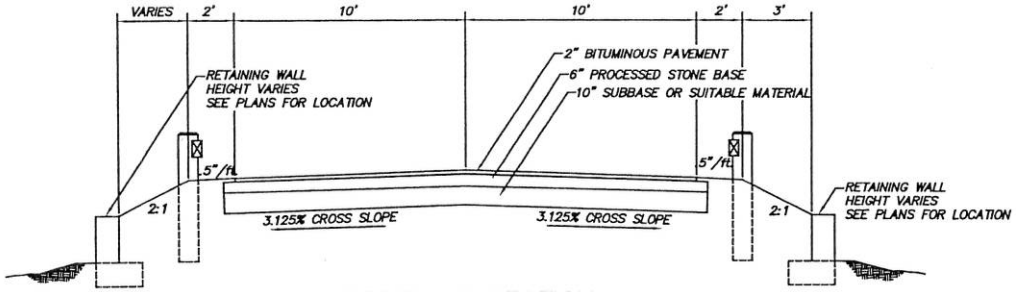


DRIVEWAY SECTION

SCALE : N.T.S.

SCALE : N.T.S.	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

TYPICAL SECTIONS

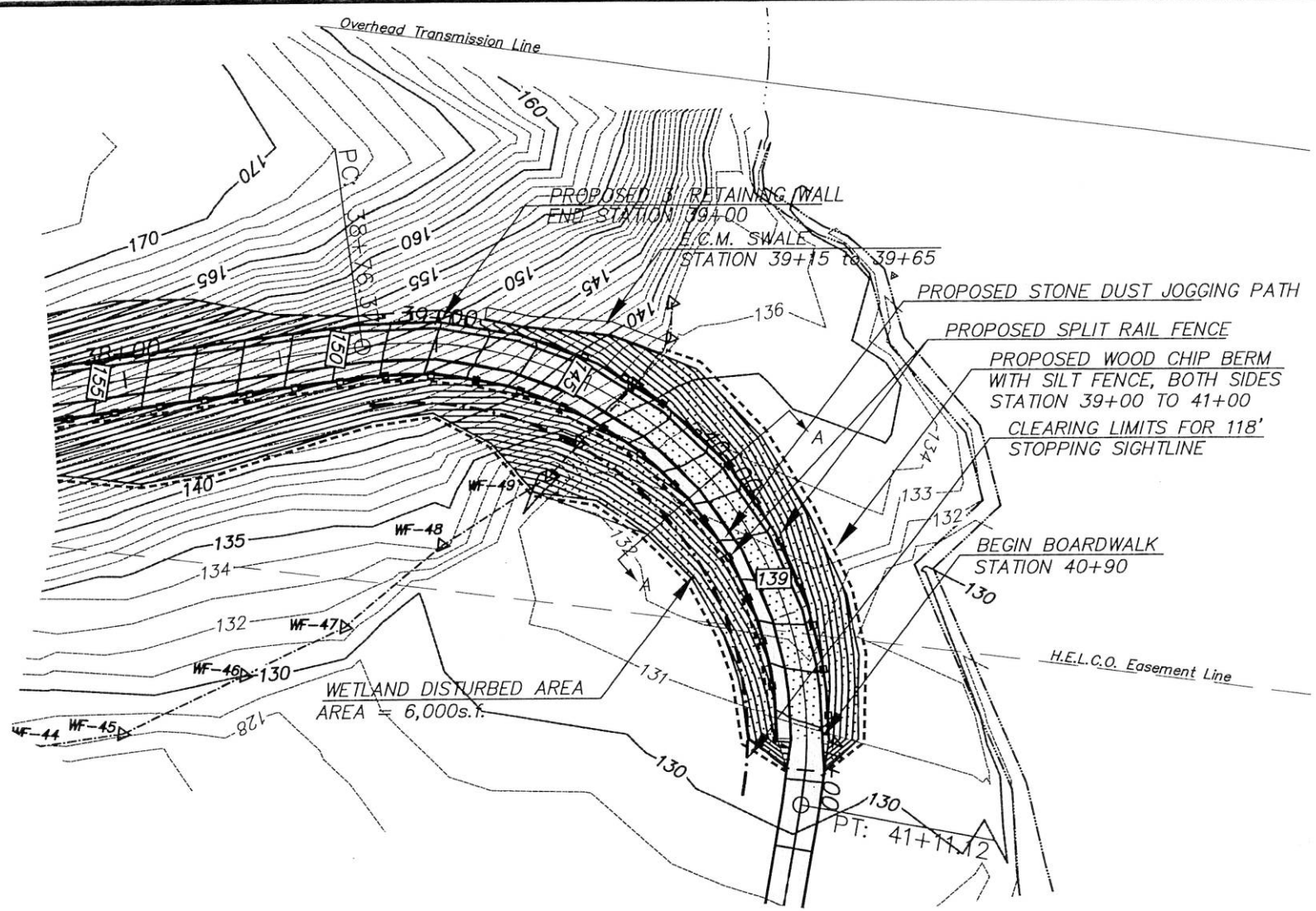
PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

GLASTONBURY, CONNECTICUT

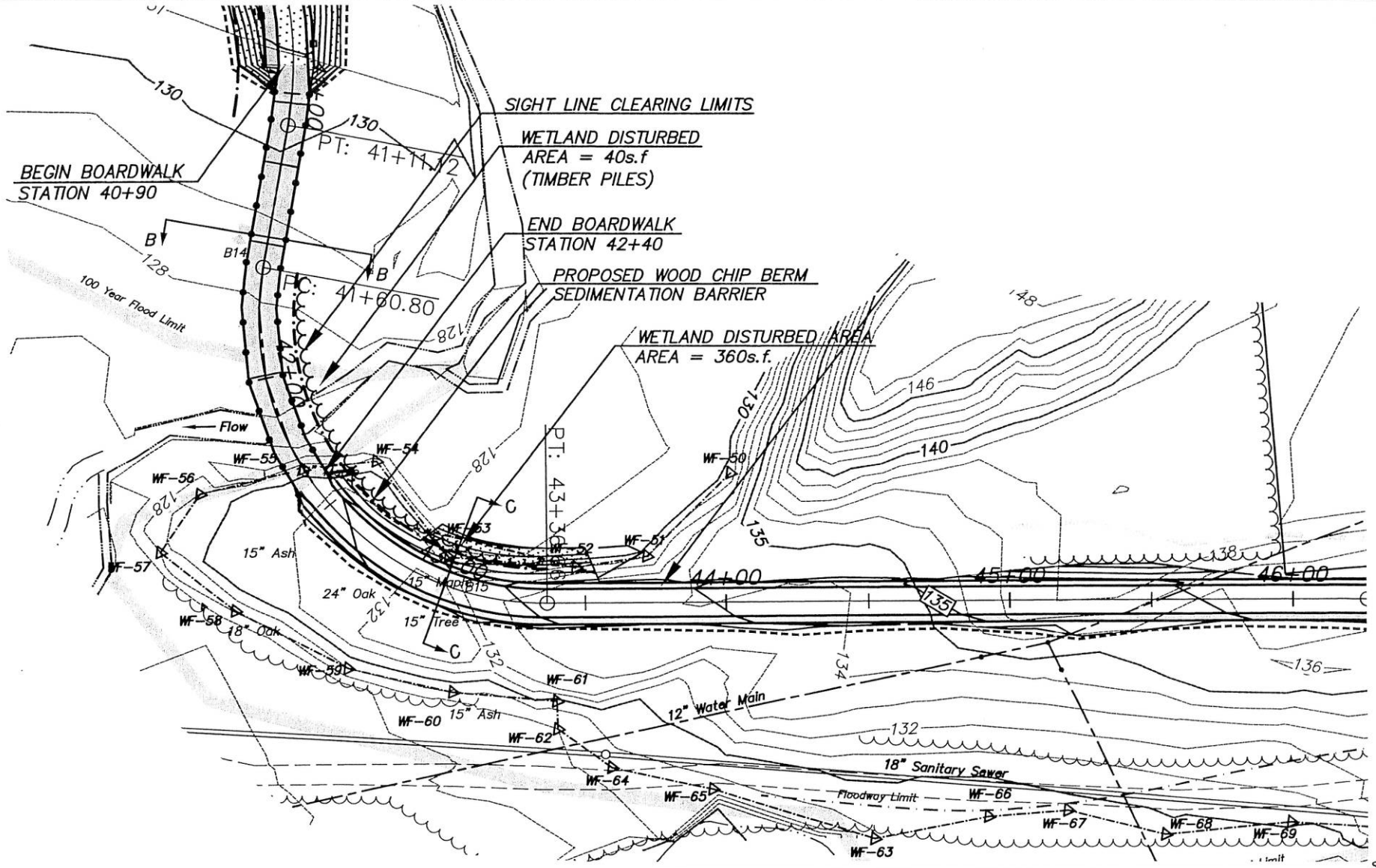
DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 5/22/2009 DRAWN: STEVEN TROY



SHEET 7

SCALE : 1"=50'	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: S.TROY	SITE PLAN
CHECKED BY: ---	PROPOSED MULTI-USE PATH FROM SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 5/22/2009 DRAWN: STEVEN TROY



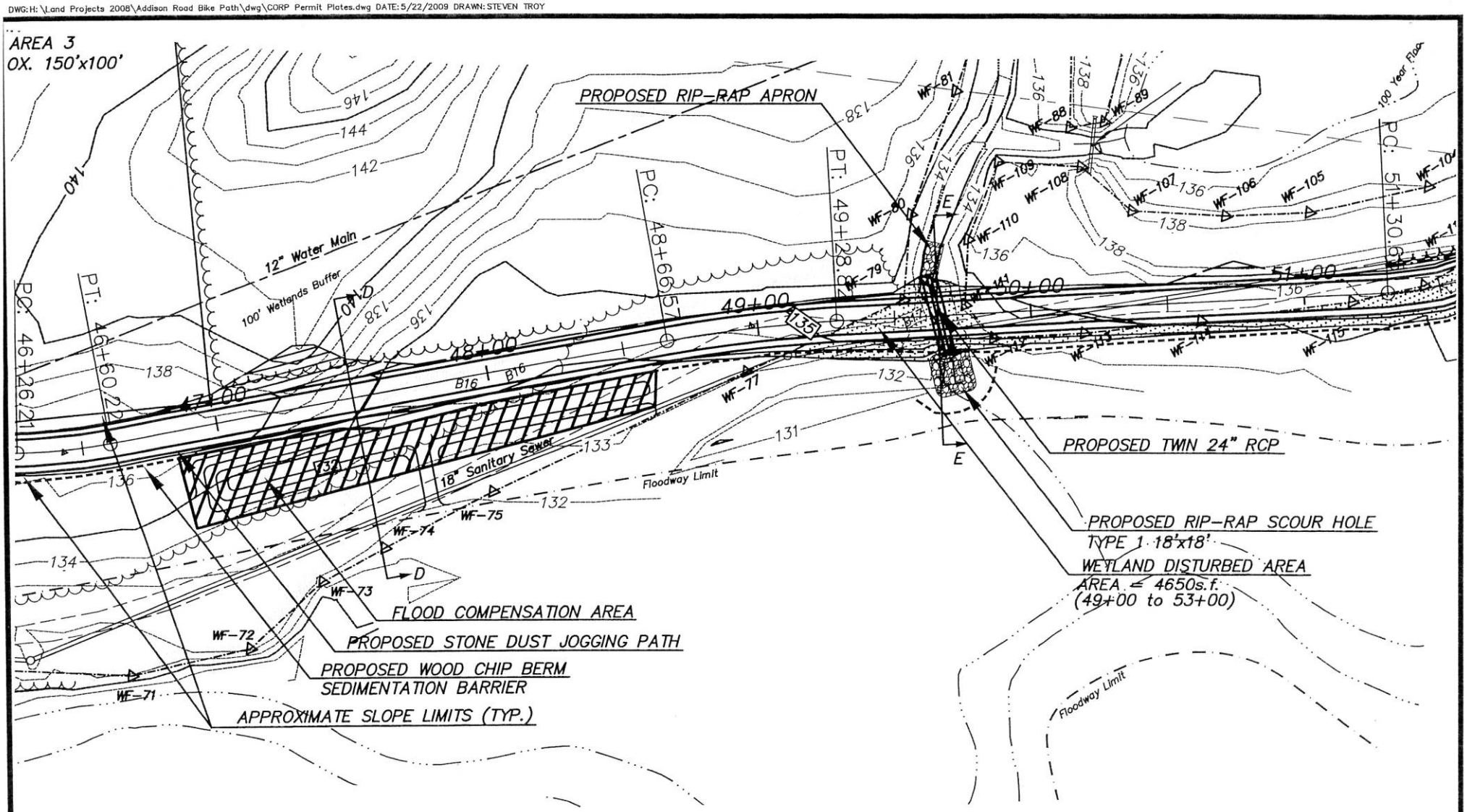
SCALE : 1"=50'	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

SITE PLAN

PROPOSED MULTI-USE PATH
FROM
SMITH MIDDLE SCHOOL TO BELL STREET
GLASTONBURY, CONNECTICUT

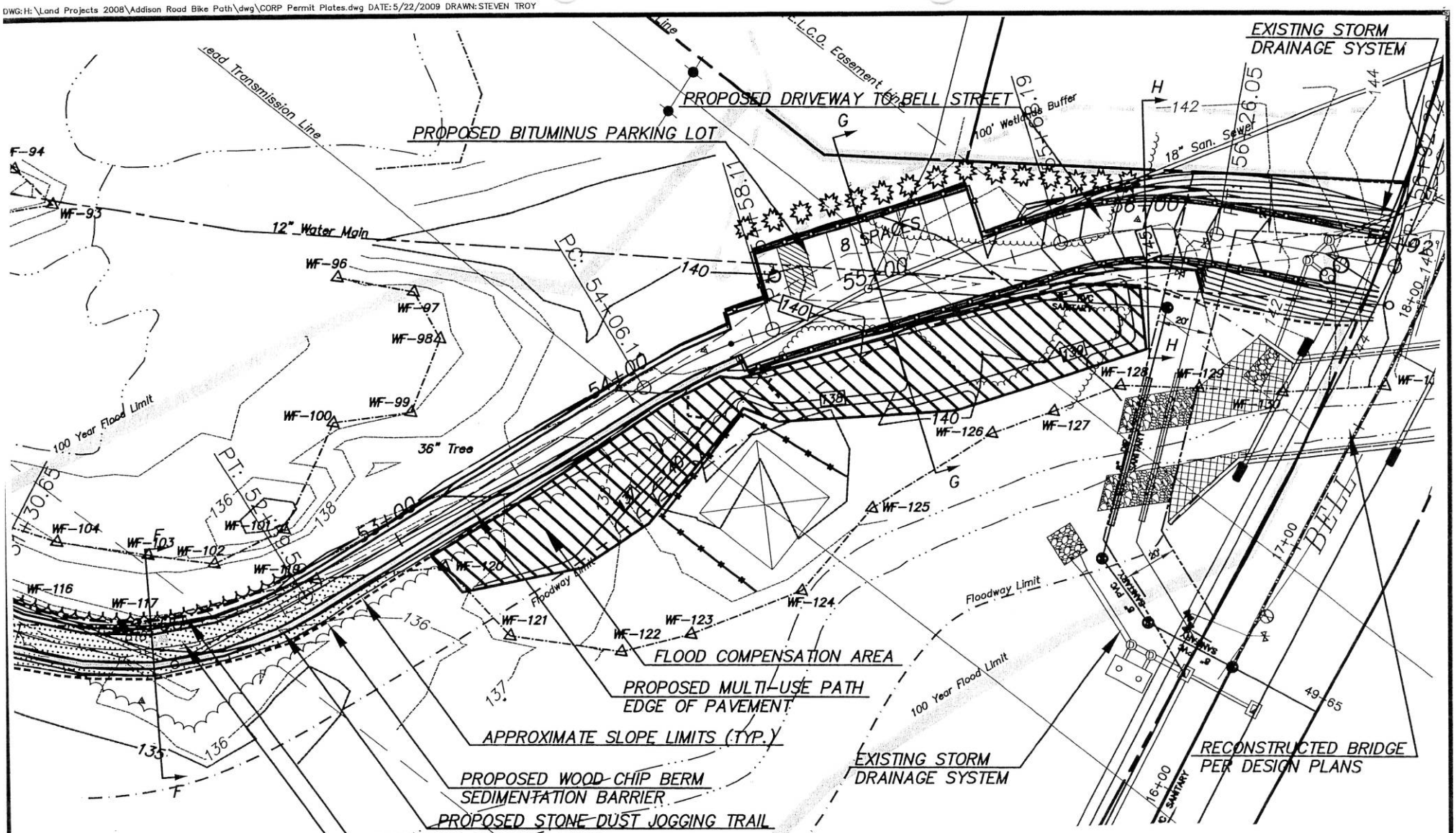
DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 5/22/2009 DRAWN: STEVEN TROY



SHEET 9

SCALE : 1"=50'	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: S.TROY	SITE PLAN
CHECKED BY: ---	PROPOSED MULTI-USE PATH
APPROVED BY: ---	FROM
USGS QUAD. MAP: GLASTONBURY	SMITH MIDDLE SCHOOL TO BELL STREET GLASTONBURY, CONNECTICUT

DWG: H:\Land Projects 2008\Addison Road Bike Path\dwg\CORP Permit Plates.dwg DATE: 5/22/2009 DRAWN: STEVEN TROY



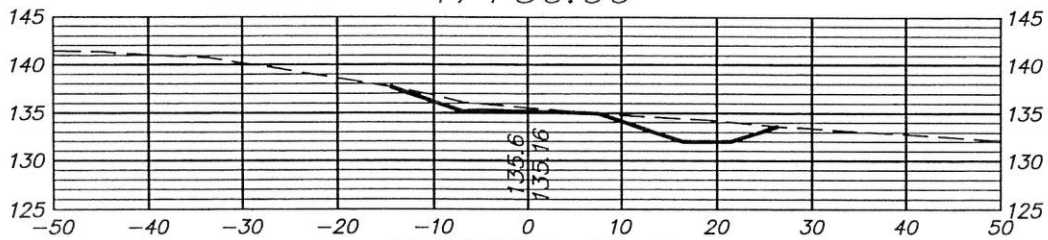
SCALE : 1"=50'	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

SITE PLAN

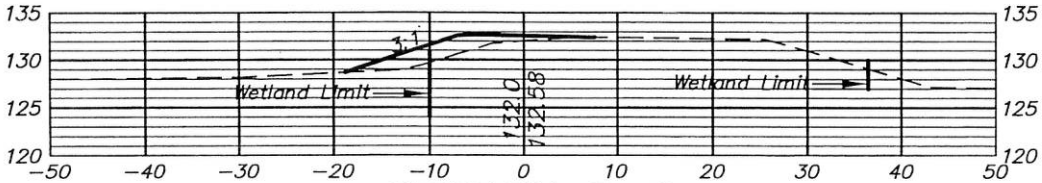
PROPOSED MULTI-USE PATH
FROM
SMITH MIDDLE SCHOOL TO BELL STREET
GLASTONBURY, CONNECTICUT

47+50.00



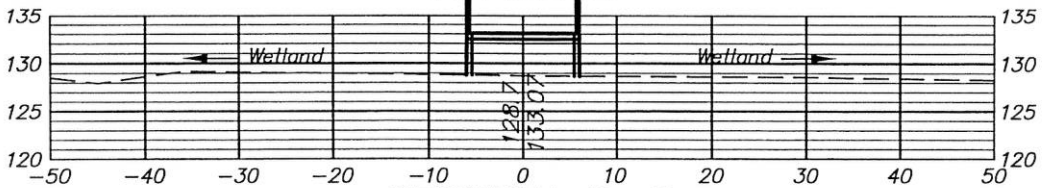
SECTION D−D

43+00.00



SECTION C−C

41+50.00



SECTION B−B

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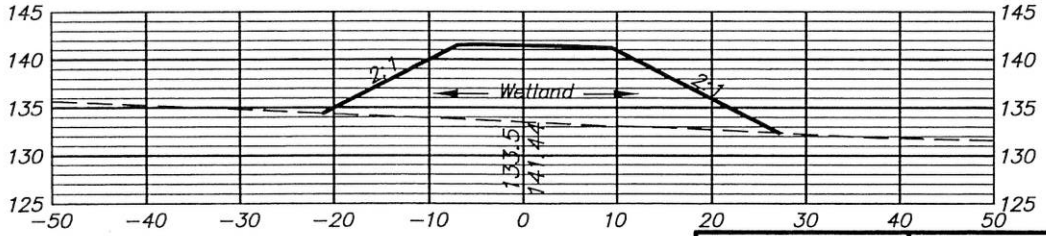


SECTION A−A

SHEET 11

SCALE : 1"=20'	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

CROSS SECTIONS

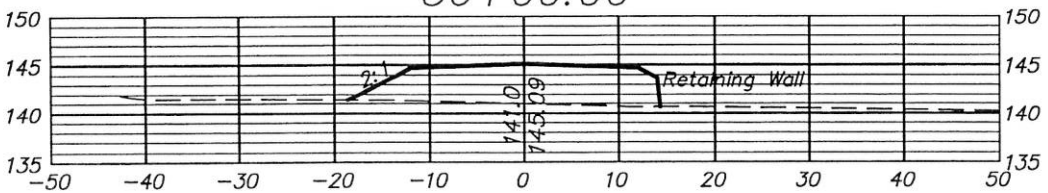
PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

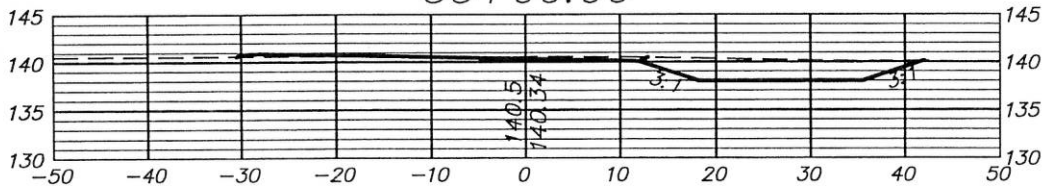
GLASTONBURY, CONNECTICUT

56+00.00



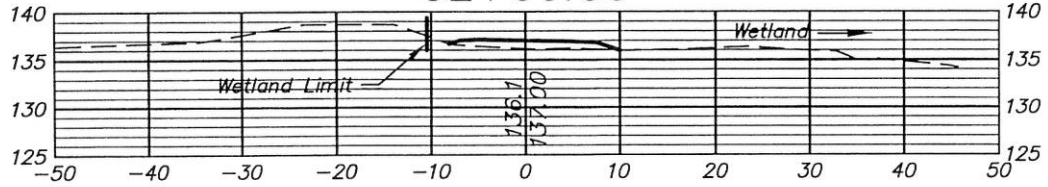
SECTION H–H

55+00.00



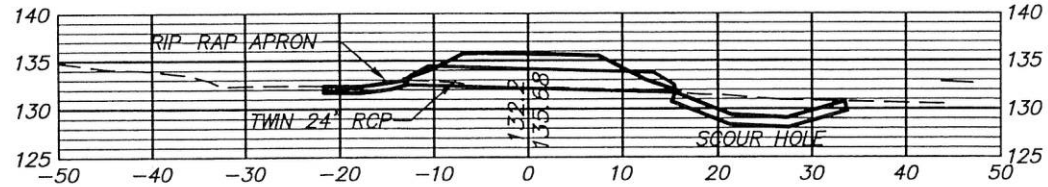
SECTION G–G

52+00.00



SECTION F–F

49+66.00



SECTION E–E

SHEET 12

SCALE : 1"=20'	
DRAWN BY: S.TROY	
CHECKED BY: ---	
APPROVED BY: ---	
USGS QUAD. MAP: GLASTONBURY	

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

CROSS SECTIONS

PROPOSED MULTI-USE PATH

FROM

SMITH MIDDLE SCHOOL TO BELL STREET

GLASTONBURY, CONNECTICUT

US Army Corps of Engineers®
New England District

INDIVIDUAL PERMIT
WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Corps of Engineers Permit No. 2008-3392 was issued to Richard Johnson, Town Manager, Town of Glastonbury on May 27, 2010. This work is located in Salmon Brook between Addison Road and Bell Street, Glastonbury, CT. The permit authorizes the permittee to construct a 5,400 foot-long segment of a multi-use path that includes the placement of 0.25 acres of fill in non-tidal wetlands.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

_____

_____

_____

Telephone Numbers: (___) _____ (___) _____

Proposed Work Dates: **Start:** _____ **Finish:** _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: _____ **Date Permit Expires:** _____

****

FOR USE BY THE CORPS OF ENGINEERS

PM: Amy Bourne **Submittals Required:** _____

Inspection Recommendation: _____

_____

_____

US Army Corps of Engineers®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: 2008-3392

Project Manager Amy Bourne

Name of Permittee: Richard Johnson, Town Manger

Permit Issuance Date: May 27, 2010

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

```
**************************************************************************
* MAIL TO: U.S. Army Corps of Engineers, New England District            *
*          Policy Analysis/Technical Support Branch                      *
*          Regulatory Division                                           *
*          696 Virginia Road                                             *
*          Concord, Massachusetts 01742-2751                             *
**************************************************************************
```

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

_____ _____

Printed Name Date of Work Completion

( ) _____ ( ) _____

Telephone Number Telephone Number

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

JD Status: DRAFT

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: New England District, NAE-2008-03392-JD1

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State :	CT - Connecticut
County/parish/borough:	Hartford
City:	glastonbury
Lat:	
Long:	
Universal Transverse Mercator	Folder UTM List *UTM list determined by folder location* • NAD83 / UTM zone 18N Waters UTM List *UTM list determined by waters location*

Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW):
Name of watershed or Hydrologic Unit Code (HUC):

☐ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc¿) are associated with the action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION:

☑ Office Determination Date: 09-Dec-2009

☐ Field Determination Date(s): ☐

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There [ ] "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There [ ] "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area:[1]

Water Name	Water Type(s) Present
Glastonbury - 2008-3392 - wetland1	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Area: (m^2)
Linear: (m)

c. Limits (boundaries) of jurisdiction:

based on: [ ]
OHWM Elevation: (if known)

2. Non-regulated waters/wetlands:[3]

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

1.TNW
Not Applicable.

2. Wetland Adjacent to TNW
Not Applicable.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: [ ]
Drainage area: [ ]
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics
(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through [ ] tributaries before entering TNW.

:Number of tributaries

Project waters are [ ] river miles from TNW.
Project waters are [ ] river miles from RPW.
Project Waters are [ ] aerial (straight) miles from TNW.
Project waters are [ ] aerial(straight) miles from RPW.

Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:[5]

Tributary Stream Order, if known:
Not Applicable.

(b) General Tributary Characteristics:

Tributary is:
Not Applicable.

Tributary properties with respect to top of bank (estimate):
Not Applicable.

Primary tributary substrate composition:
Not Applicable.

Tributary (conditions, stability, presence, geometry, gradient):
Not Applicable.

(c) Flow:
Not Applicable.

Surface Flow is:
Not Applicable.

Subsurface Flow:
Not Applicable.

Tributary has:
Not Applicable.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction:

High Tide Line indicated by:
Not Applicable.

Mean High Water Mark indicated by:
Not Applicable.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality;general watershed characteristics, etc.).
Not Applicable.

(iv) Biological Characteristics. Channel supports:
Not Applicable.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:

Wetland Name	Size (Acres)	Wetland Type	Wetland Quality	Cross or Serve as State Boundaries. Explain
Glastonbury - 2008-3392 - wetland1	1	-	-	-

(b) General Flow Relationship with Non-TNW:
Flow is:

Wetland Name	Flow	Explain
Glastonbury - 2008-3392 - wetland1	Perennial flow.	-

Surface flow is:

Wetland Name	Flow	Characteristics
Glastonbury - 2008-3392 - wetland1	-	-

Subsurface flow:

Wetland Name	Subsurface Flow	Explain Findings	Dye (or other) Test
Glastonbury - 2008-3392 - wetland1	-	-	-

(c) Wetland Adjacency Determination with Non-TNW:

Wetland Name	Directly Abutting	Discrete Wetland Hydrologic Connection	Ecological Connection	Separated by Berm/Barrier
Glastonbury - 2008-3392 - wetland1	Yes	-	-	-

(d) Proximity (Relationship) to TNW:

Wetland Name	River Miles	Aerial Miles	Flow Direction	Within Floodplain

	From TNW	From TNW		
Glastonbury - 2008-3392 - wetland1	2-5	2-5	Wetland to navigable waters	-

(ii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Wetland Name	Explain	Identify specific pollutants, if known
Glastonbury - 2008-3392 - wetland1	-	-

(iii) Biological Characteristics. Wetland supports:

Wetland Name	Riparian Buffer	Characteristics	Vegetation	Explain
Glastonbury - 2008-3392 - wetland1	X	forested, perhaps 400' width(from USGS topo)	-	-

3. Characteristics of all wetlands adjacent to the tributary (if any):

All wetlands being considered in the cumulative analysis:
Not Applicable.

Summarize overall biological, chemical and physical functions being performed:
Not Applicable.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:
Not Applicable.

2. RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

3. Non-RPWs that flow directly or indirectly into TNWs:[8]
Not Applicable.

Provide estimates for jurisdictional waters in the review area:

Not Applicable.

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

Wetland Name	Flow	Explain
Glastonbury - 2008-3392 - wetland1	PERENNIAL	Drainage area of Salmon Brook is 5.9 square miles upstream of Bell Street (upstream end of this reach), more than enough to demonstrate that Salmon Br is perennial. Also, Salmon Br is shown as perennial on the USGS Glastonbury 7.5' topo map. A FEMA floodway has also been delineated for this reach - not typically done for non-perennial streams.

Provide acreage estimates for jurisdictional wetlands in the review area:

Wetland Name	Type	Size (Linear) (m)	Size (Area) (m^2)
Glastonbury - 2008-3392 - wetland1	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs	-	4046.856
Total:		**0**	**4046.856**

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:
Not Applicable.

Provide acreage estimates for jurisdictional wetlands in the review area:
Not Applicable.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:
Not Applicable.

Provide estimates for jurisdictional wetlands in the review area:
Not Applicable.

7. Impoundments of jurisdictional waters:[9]
Not Applicable.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:[10]
Not Applicable.

Identify water body and summarize rationale supporting determination:
Not Applicable.

Provide estimates for jurisdictional waters in the review area:
Not Applicable.

F. NON-JURISDICTIONAL WATERS. INCLUDING WETLANDS

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements:

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce:

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based soley on the "Migratory Bird Rule" (MBR):

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

☐ Other (Explain):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (ie., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:
Not Applicable.

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Not Applicable.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD
(listed items shall be included in case file and, where checked and requested, appropriately reference below):

Data Reviewed	Source Label	Source Description
--Maps, plans, plots or plat submitted by or on behalf of the	wetlands delineation	wetland delineation shown on Sheets 3 and 4 of the 8.5" x 11" sheets entitled "Overview Plan - Wetland Area, Proposed Multi-Use Path from

applicant/consultant		Smith Middle School to Bell Street, Glastonbury, CT", undated
--Data sheets prepared/submitted by or on behalf of the applicant/consultant	two transects dated 11/25/08	-
----Office concurs with data sheets/delineation report	-	-
--U.S. Geological Survey map(s).	USGS Glastonbury 7.5' topo map	-
--FEMA/FIRM maps	Hartford County FIRMs dated 9/26/08	panels 527 and 531

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Description
the subject wetlands are directly abutting the Salmon River with JD limits as shown on Sheets 3 and 4 of the applicant-supplied 8.5" x 11" plans

[1]-Boxes checked below shall be supported by completing the appropriate sections in Section III below.

[2]-For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

[3]-Supporting documentation is presented in Section III.F.

[4]-Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5]-Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

[6]-A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

[7]-Ibid.

[8]-See Footnote #3.

[9]-To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10]-Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

ATTACHMENT E – 401 WATER QUALITY CERTIFICATION

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECTION 401 WATER QUALITY CERTIFICATION

Dan/Reg
FYI
1-13-10

Permittee:	Richard Johnson, Town Manager Town of Glastonbury Glastonbury, CT 06033 Attn: Richard Johnson
Permit No.:	WQC-200901832
Permit Type:	Section 401 Water Quality Certificate
Town:	Glastonbury
Project:	Multi-Use Path, Smith Middle School to Bell Street

Pursuant to Section 401 of the Federal Clean Water Act (33 USC 1341) Water Quality Certification is hereby issued to the Town of Glastonbury (the federal permittee), for activities, including but not limited to the construction and operation of facilities, that may result in any discharge(s) of material into waters of the State in accordance with the application referenced above and filed with this Department on June 1, 2009 and described herein. The purpose of the discharge(s) is to construct a segment of multi-use pathway from Smith Middle School to Bell Street in Glastonbury, Connecticut (the "project").

AUTHORIZED ACTIVITY

Specifically, the permittee is authorized to discharge material(s) associated with the construction and operation of a 5,400 long segment of multi-use pathway that includes a 10 foot-wide paved cross section with a 2 foot-wide stone dust jogging path on the south side, and minor drainage improvements in accordance with said application and plans which are a part thereof entitled: **"Plan Depicting Proposed Multi-Use Path From Smith Middle School to Bell Street Glastonbury, Connecticut"**, dated March 4, 2009, prepared by the Town of Glastonbury (the "site"). Approximately 0.25 acres of wetlands and waterway will be affected by the discharge(s).

Said discharge(s) will comply with the applicable provisions of Section 301, 302, 303, 306 and 307 of said Act and will not violate Connecticut's Water Quality Standards.

This authorization is subject to the following conditions:

SPECIAL CONDITIONS

If construction work for this project will be done during the Eastern Box Turtle's active period of

April 1 to November 1, then the following precautionary measures shall be implemented to protect the turtles:

1. The construction crew shall be apprised to the species description and possible presence and the area shall be searched for turtles each day prior to construction;
2. Any turtles encountered during construction shall be relocated to another area of similar habitat outside of the limits of construction;
3. Work conducted in these habitats during the early morning and evening hours shall occur with special care not to harm basking or foraging individuals;
4. **No heavy machinery or vehicles be parked in any turtle habitat. Therefore, the existing clearing shall not be used as a construction staging area. The vehicles shall be staged on existing pavement;** and
5. All silt fencing shall be removed after soils have been restored and vegetated so that reptile and amphibian movement between uplands and wetlands is not restricted.

GENERAL TERMS AND CONDITIONS

1. **Rights.** This certificate is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby. This certification does not comprise the permits or approvals as may be required by Chapters 440, 446i, 446j and 446k of the Connecticut General Statutes.

2. **Expiration of Certificate.** This certificate shall expire upon the expiration of the U.S. Army Corps of Engineers (USACOE) Section 404 permit for the same activity.

3. **Compliance with Certificate.** All work and all activities authorized herein conducted by the permittee at the site shall be consistent with the terms and conditions of this certificate. Any regulated activities carried out at the site, including but not limited to, construction of any structure, excavation, fill, obstruction, or encroachment, that are not specifically identified and authorized herein shall constitute a violation of this certificate and may result in its modification, suspension, or revocation. In carrying out the certified discharge(s) authorized herein, the permittee shall not store equipment or construction material, or discharge any material including without limitation, fill, construction materials or debris in any wetland or watercourse on or off site unless specifically authorized by this certificate. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions

of this certificate.

4. **Transfer of Certificate.** This authorization is not transferable without the written consent of the Commissioner.

5. **Reliance on Application.** In evaluating the permittee's application, the Commissioner has relied on information provided by the permittee. If such information subsequently proves to be false, deceptive, incomplete or inaccurate, this certificate may be modified, suspended or revoked.

6. **Best Management Practices.** In constructing or maintaining the activities authorized herein, the permittee shall employ best management practices, consistent with the terms and conditions of this certificate, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the permittee at the site include, but are not necessarily limited to:

   a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;

   b. Immediately informing the Commissioner's Oil and Chemical Spill Response Division at (860) 424-3338 (24 hours) of any adverse impact or hazard to the environment, including any discharges, spillage, or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;

   c. Separating staging areas at the site from the regulated areas by silt fences or straw/hay bales at all times;

   d. Prohibiting storage of any fuel and refueling of equipment within twenty-five (25) feet from any wetland or watercourse;

   e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and Sediment Control" as revised. Said controls shall be inspected by the permittee for deficiencies at least once per week and immediately after each rainfall and at least daily during prolonged rainfall. The permittee shall correct any such deficiencies within 48 hours of said deficiencies being found;

   f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a

grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.

g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the permittee or the permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.

h. Immediately informing the Commissioner's Inland Water Resources Division at (860) 424-3019 and the U.S. Army Corps of Engineers' Permit Compliance Section at (617) 647-8674, of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation of this certificate. The permittee shall, no later than 48 hours after the permittee learns of a violation of this certificate, report same in writing to the Commissioner. Such report shall contain the following information:

(i) the provision(s) of this certificate that has been violated;

(ii) the date and time the violation(s) was first observed and by whom;

(iii) the cause of the violation(s), if known

(iv) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;

(v) if the violation(s) has not ceased, the anticipated date when it will be corrected;

(vi) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;

(vii) the signatures of the permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with section 7 of this certificate.

For information and technical assistance, contact the Inland Water Resources Division at (860) 424-3019.

7. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this certificate shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, or a duly authorized representative of the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense in accordance with Section 22a-6 under Section 53a-157 of the Connecticut General Statutes."

8. **Submission of Documents.** The date of submission to the Commissioner of any document required by this certificate shall be the date such document is received by the Commissioner. Except as otherwise specified in this certificate, the word "day" as used in this certificate means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter.

Any document or notice required to be submitted to the Commissioner under this certificate shall, unless otherwise specified in writing by the Commissioner, be directed to:

Director

Department of Environmental Protection
Bureau of Water Protection and Land Reuse
Inland Water Resources Division
79 Elm Street, Third Floor
Hartford, Connecticut 06106-5127

Issued by the Commissioner of Environmental Protection on December 1, 2009.

Amey Marrella
Commissioner

ATTACHMENT F – GEOTECHNICAL INVESTIGATION REPORT

DR. CLARENCE WELTI, P.E., P.C.

GEOTECHNICAL ENGINEERING

227 Williams Street • P.O. Box 397
Glastonbury, CT 06033

(860) 633-4623 / FAX (860) 657-2514

April 28, 2008

Mr. Stephen M. Braun, Assistant Town Engineer
Town of Glastonbury
2155 Main Street
Glastonbury, CT 06033

Re: Geotechnical Study for Proposed Multi Use Trail from Smith School to Bell Street Glastonbury, CT

Dear Mr. Braun:

1.0 Herewith are the data from the test borings taken at the above referenced site. Fifteen borings were drilled along the proposed paved section of the path to a depth of 6 feet and two borings were drilled in the area of the boardwalk to a maximum depth of 15.3 feet. The borings were sampled continuously to 6 feet. *The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed by Dr. Clarence Welti, P. E., P. C to evaluate subsurface environmental conditions.* Grain size gradation test were performed on eight soil samples taken from the borings. The results of those tests are included with the boring logs.

2.0 The subject project will be a multi use path extending from the parking lot to the west of the Smith School to Bell Street. The total length of the path will be about 5,700 lf. The existing ground elevations range from about Elev.124 to Elev.170. Most of the path will have bituminous concrete pavement. There is a 150 foot section (Sta.40+90 to Sta.42+40), located at Salmon Brook and surrounding wetlands, where there will be an elevated boardwalk. The paved path and boardwalk will have a width of 10 feet.

2.1 The proposed trail route and grades are generally as follows:

Sta.0+00 to Sta.30+00 - The trail will be in close proximity to the existing walking trails. The existing grades range from about Elev.124 at Smith School to Elev.164. The proposed trail will be in cuts and fills within 2± feet of the existing grades.

Sta. 30+00 to Sta.36+50 - The trail is in an undisturbed wooded area. There will be cut and fills up to 6± feet.

Sta.36+50 to 40+90 - The trail traverse an existing slope which is at about 2H:1V and runs into an embankment which ends at the board walk section. The existing slope falls from about Elev.170 to

DR. CLARENCE WELTI, P.E., P.C.
GEOTECHNICAL ENGINEERING
227 Williams Street • P.O. Box 397
Glastonbury, CT 06033

the wetlands area at about Elev.135. There will be a fill up to 8± feet in the wetlands area leading to the boardwalk.

Sta.40+90 to Sta.44+40 - The trail will be atop a boardwalk which is elevated up to 4 feet above the existing grades. The preliminary plans indicate a boardwalk supported by helical piles.

Sta.44+40 to end of trail at Sta. 57+00 - The trail runs in close proximity to or atop an existing sanitary sewer. The proposed grades are generally within 1 to 2 feet of the existing grades. There is a stream crossing at about Sta.49+70 where the plans indicate a 36" diameter RCP will be placed.

3.0 The **Soils Cross Section** from the borings is generally as follows:

Borings B-1 thru B-12 (Sta.0+0 to Sta.39+00)

Topsoil to 3" to 12" (deeper at tree root bulbs)

Locally Subsoils; SILT, some fine to medium Sand, trace Gravel and Roots to about 2 feet, loose frost disturbed soils

Fine to coarse SAND, trace to little Silt and Gravel to 3 to 6+ feet, medium compact to dense

Locally; Stratified SILT, little fine Sand; or fine SAND, little Silt to 6+ feet, medium compact to dense

Locally Moraine (see boring B-11); fine to medium SAND, some Silt, trace Gravel from to 4 to 6+ feet, dense

The water table was not encountered within 6 feet of grade at the completion of these borings

Borings B-14 and B-15 (Sta.40+90 to Sta.42+50, Boardwalk)

Topsoil or Organic Deposits to 8" to 18"

Fine to coarse SAND, some Gravel, little Silt to 5.5 to 7 feet, loose to medium compact

SILT and fine SAND to 10.5 to 11 feet, medium compact to dense

Fine SAND and SILT, trace Gravel to 12.5 to 15+ feet

The water table was at 6" to 9 feet below the existing grades at the completion of the borings. The differences in depths are related to the grade elevations at the borings and the silt stratum at boring B-15 which did not permit an accurate reading at the completion of the borings. It should be assumed that the water table will be close to the water level in Salmon Brook. The area is

subject to flooding.

Borings B-16 thru B-18 (Sta.42+50 to Sta.57+00)

Topsoil to about 6"

Locally (see borings B-17 and B-18) existing FILL; fine to medium SAND, trace to some Silt and Gravel to 2 to 2.5 feet, loose

Locally (see boring B-18); Organic SILT to 3 feet

Fine to coarse SAND, little to some Gravel, trace to little Silt to 5 to 6+ feet, medium compact to dense

At boring B-18; Fine SAND, some Silt to 6+ feet, medium compact

The water table was 2.5 to 6+ feet below the existing grades. Some of this area is located within the 100 year flood zone.

5.0 The recommended criteria for the design of the pavements is generally as follows:

1. The depth of frost free (free draining) material beneath the pavements should be at least equal to 60 % of the frost depth in 90% of the years.

2. The long term water table should be at least 20" below the pavement grade.

5.1 The required depth of free draining material (frost free) would be about 18" (this depth includes the bituminous concrete). The pavement section indicated on the preliminary plan includes 2" of Bituminous Concrete atop 6" of Processed Stone Base. The plans noted to remove unsuitable soils and replace with gravel. The proposed grading over most of the trail will require cuts and fill within 2± feet of the existing grades. In some area this will place the bottom of the Processed Stone Base in the silty subsoils. These soils would need to stripped where within 18" of the pavement grades. Below that level the subsoils could remain in place provided they can be proof rolled without significant rutting or movements. During wet periods the subsoils would probably need to be stripped to provide a stable base for controlled fills and the pavement sections. There should be at least 10" of subbase beneath the 8" pavement section (i.e., 2" of Bituminous Concrete + 6" of Processed Stone Base). The subbase should be material which conforms to the following gradation.

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"

25 - 100	No.4

The fraction, passing the No.4 sieve shall have less than 15%, passing the No. 200 sieve.

The processed stone base and subbase must be compacted to at least 95% of modified optimum density in accordance with ASTM D-1557.

Some of the soil from below the topsoil and subsoils will conform to the above gradation. Where the pavement section sub grades are stop these soils no subbase would be required. These soils could also be used as subbase and controlled in other areas.

5.2 The existing fills can remain in place beneath new pavement section provided the following conditions are met:

1. There is no more then 12" of organic soils beneath the fills.

2. The sub grades can be proof rolled without significant rutting of movements.

3. There is at least 18" of controlled fill, material conforming to section 5.1 above, beneath the pavement sections.

6.0 Controlled fills for proposed embankments should generally conform to the gradation and compaction requirements in section 5.1 above.

6.1 Long term Slopes should be no steeper then 2H:1V. Where slopes are exposed to seepage or flood waters the slopes should be no steeper then 3H:1V.

7.0 The foundations for the board walk section can be with the helical piles or with drilled piers. The drilled piers would extend below the water level and would require a temporary casing or mud slurry for placement of a concrete pier. The helical piles or drilled piers should extend to a minimum depth of 8 feet below the existing grades. The actual depths must be determined by the designers, based on the pier design loading. It is possible that there may be consideration of scour for piers in proximity to the river. A scour analysis was not within the scope of the work of this study. Based on the 50 year flood elevation, the design of the boardwalk should address possible structure floatation.

7.1 The following is a **Summary of Design Parameters and Soil Properties**:

Parameter	Value
Allowable Bearing Pressure for drilled pier at 6+ feet below the existing grades	4,000 PSF

Allowable Side Friction for drilled pier from 3 feet below finished grades to bottom of pier	200 psf
Unit Weight of natural soils	125 pcf
Unit Weight of natural soils submerged	65 pcf
Angle of Internal Friction	34°
At rest coefficient	0.45
Active coefficient	0.28
Passive coefficient	3.53
Lateral Coefficient of Sub grade Reaction (from 3 to 15 feet)	50 pci
Frost Protection Depth	3.5 feet

8.0 Regarding earthwork, this will generally be in soils which are defined as OSHA Type C. This will require sloping excavations, which are not shored and exceed 5 feet in height, to be cut back to slopes less than 34° from horizontal (1.5H:1V).

6.0 This report has been prepared for specific a application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Dr. Clarence Welti, P.E., P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions please call me.

Very truly yours

Max Welti, P. E.

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-1**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	7-12-21-26	0.00'-2.00'		TOPSOIL 0.25	
					BR.FINE-MED.SAND, SOME SILT, TRACE FINE GRAVEL 0.7	
	2	27-60	2.00'-3.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, TRACE SILT	
					RED/BR.SILT, TRACE FINE SAND 3.5	
5	3	11-14-15-23	4.00'-6.00'		BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-1**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL

LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 6+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-2

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	4-7-19-60	0.00'-1.83'		TOPSOIL, LITTLE GRAVEL 0.25	
					BR.FINE-MED.SAND, SOME SILT, LITTLE GRAVEL 0.5	
					RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT	
	2	6-7-7-7	3.00'-5.00'		RED/BR.FINE-CRS.SAND, TRACE SILT 3.0	
5	3	7-8	5.00'-6.00'		BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-2**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL

LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 9+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-3**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-7-10	0.00'-2.00'		TOPSOIL	
					BR.FINE-MED.SAND, SOME SILT, LITTLE GRAVEL	1.0
	2	13-60	2.00'-2.92'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT	1.5
					BR.FINE SAND, LITTLE SILT	3.5
	3	9-9-14-17	4.00'-6.00'		BOTTOM OF BORING @ 6.0'	6.0
5						
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-3**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 12+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-4**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-2-3-4	0.00'-2.00'		TOPSOIL 0.33	
					BR.SILT,SOME FINE-MED.SAND, TRACE FINE GRAVEL	
	2	9-13-14-16	2.00'-4.00'		BR.FINE-MED.SAND, LITTLE GRAVEL, TRACE SILT 2.5	
	3	11-15-20-23	4.00'-6.00'		BR.FINE-MED.SAND, TRACE SILT 4.5	
5					BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-4**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1,375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 15+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV. -
HOLE NO. B-5

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-3-3-8	0.00'-2.00'		TOPSOIL 0.5	
					BR.SILT AND FINE-MED.SAND, TRACE FINE GRAVEL	
	2	15-25-35-40	2.00'-4.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT 2.0	
	3	44-23-19-22	4.00'-6.00'			
5					BR.FINE SAND, LITTLE SILT 5.0	
					BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-5**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 18+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-6**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-2-4-8	0.00'-2.00'		TOPSOIL 0.33	
					BR.SILT, LITTLE FINE-MED.SAND, TRACE GRAVEL	
	2	20-19-15-16	2.00'-4.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT 2.0	
	3	11-16-19-20	4.00'-6.00'		BR.FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT 4.0	
5						
					BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-6**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140LBS	
HAMMER FALL			30"	

OFFSET
LINE & STA. 21+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-7**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-3-5	0.00'-2.00'		TOPSOIL 0.33	
					BR.SILT, SOME FINE-MED.SAND, TRACE FINE GRAVEL	
					RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT 2.0	
	2	14-17-22-16	3.00'-5.00'			
					RED/BR.FINE-CRS.SAND, TRACE SILT 4.0	
5	3	20-23	5.00'-6.00'			
					BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-7**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL

LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 24+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-8

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 417/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-2-3	0.00'-2.00'		TOPSOIL	
					BR.SILT, SOME FINE SAND, TRACE FINE GRAVEL	0.5
	2	13-17-25-23	2.00'-4.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, TRACE SILT	2.0
	3	20-25-29-23	4.00'-6.00'			
5					BOTTOM OF BORING @ 6.0'	6.0
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-8**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 27+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-9**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-2-2-3	0.00'-2.00'		TOPSOIL 0.33	
					RED/BR. FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT	
	2	5-5-7-9	2.00'-4.00'		3.0	
					RED/BR.FINE SAND, LITTLE SILT	
	3	7-7-7-8	4.00'-6.00'			
5					6.0	
					BOTTOM OF BORING @ 6.0'	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-9**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 30+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-10**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/18/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-2-2-4	0.00'-2.00'		TOPSOIL	
					BR.SILT, SOME FINE-MED.SAND	0.66
	2	12-10-11-10	2.00'-4.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT	2.0
	3	15-21-30-40	4.00'-6.00'			
5					BOTTOM OF BORING @ 6.0'	6.0
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-10**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 34+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-11

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-1-2	0.00'-2.00'		TOPSOIL 0.5	
					BR.SILT, SOME FINE SAND, TRACE GRAVEL	
	2	5-9-18-21	2.00'-4.00'		RED/BR.FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT 2.5	
	3	18-18-23-25	4.00'-6.00'		RED/BR.SILT, SOME FINE-MED. SAND, TRACE GRAVEL 4.5	
5					BOTTOM OF BORING @ 6.0'	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-11**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 36+50
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-12

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/17/08
FINISH DATE 4/17/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	1-1-2-5	0.00'-2.00'		TOPSOIL	
					RED/BR.FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT	0.66
	2	7-8-9-10	2.00'-4.00'			
	3	8-8-9-10	4.00'-6.00'			
5						
					BOTTOM OF BORING @ 6.0'	6.0
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-12**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL

LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE			SS	
SIZE I.D.			1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 41+50
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-14

GROUND WATER OBSERVATIONS
AT 0.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/08
FINISH DATE 4/18/08

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	2-2-2-11	0.00'-2.00'		BR.TOPSOIL, LITTLE ORGANICS	
					BR.FINE-MED.SAND AND SILT, TRACE FINE GRAVEL 1.5	
	2	11-15-19-22	2.00'-4.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, LITTLE SILT 3.0	
5	3	16-16-14-11	4.00'-6.00'		RED/BR.SILT, LITTLE FINE-MED.SAND 5.5	
	4	7-9-12-14	6.00'-8.00'			
	5	11-11-13-14	8.00'-10.00'			
10	6	14-18-34-50	10.00'-12.00'		RED/BR.FINE SAND AND SILT, TRACE GRAVEL 11.0	
	7	60	12.00'-12.42'		REFUSAL @ 12.5' 12.5	
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-14**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 43+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. B-15

GROUND WATER OBSERVATIONS
AT 9.0 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/08
FINISH DATE 4/18/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	3-3-3-3	0.00'-2.00'		TOPSOIL	
					RED/BR.FINE-MED.SAND, SOME GRAVEL, TRACE SILT — 0.66	
	2	4-3-5-7	2.00'-4.00'			
5	3	8-9-11-11	4.00'-6.00'			
					RED/BR.SILT AND FINE SAND — 7.0	
10	4	7-14-22	10.00'-11.50'			
					RED/BR. SILT AND FINE SAND, TRACE FINE GRAVEL - POSSIBLE WEATHERED ROCK — 10.5	
15	5	60	15.00'-15.25'			
					BOTTOM OF BORING @ 15.3' — 15.3	
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-15**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 46+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-16**

GROUND WATER OBSERVATIONS
AT none FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/08
FINISH DATE 4/18/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	5-3-6-14	0.00'-2.00'		TOPSOIL 0.5	
					BR.FINE-MED.SAND, SOME SILT, TRACE FINE GRAVEL	
	2	11-16-18-27	2.00'-4.00'		RED/BR.FINE-CRS.SAND, LITTLE GRAVEL, TRACE SILT 2.5	
5	3	13-22-24-22	4.00'-6.00'			
					BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-16**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL

LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 49+50
N. COORDINATE
E. COORDINATE

SURFACE ELEV.

HOLE NO. B-17

GROUND WATER OBSERVATIONS
AT 2.5 FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/08
FINISH DATE 4/18/08

DEPTH	SAMPLE NO.	SAMPLE BLOWS/6"	SAMPLE DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	5-6-8-8	0.00'-2.00'		TOPSOIL 0.5	
					BR.FINE-MED.SAND, SOME GRAVEL, LITTLE SILT	
	2	2-2-6-2	2.00'-4.00'		GREY FINE-MED.SAND, TRACE SILT 2.5	
					BR.FINE-MED.SAND, SOME GRAVEL, LITTLE SILT 3.5	
5	3	22-26-60	4.00'-5.50'		BOTTOM OF BORING @ 6.0' 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-17**

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TOWN OF GLASTONBURY

PROJECT NAME
MULTI USE TRAIL
LOCATION
SMITH SCHOOL TO BELL STREET
GLASTONBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	
SIZE I.D.	3.75"		1.375"	
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA. 52+00
N. COORDINATE
E. COORDINATE

SURFACE ELEV.
HOLE NO. **B-18**

GROUND WATER OBSERVATIONS
AT 2.5' FT. AFTER 0 HOURS
AT FT. AFTER HOURS

START DATE 4/18/08
FINISH DATE 4/18/08

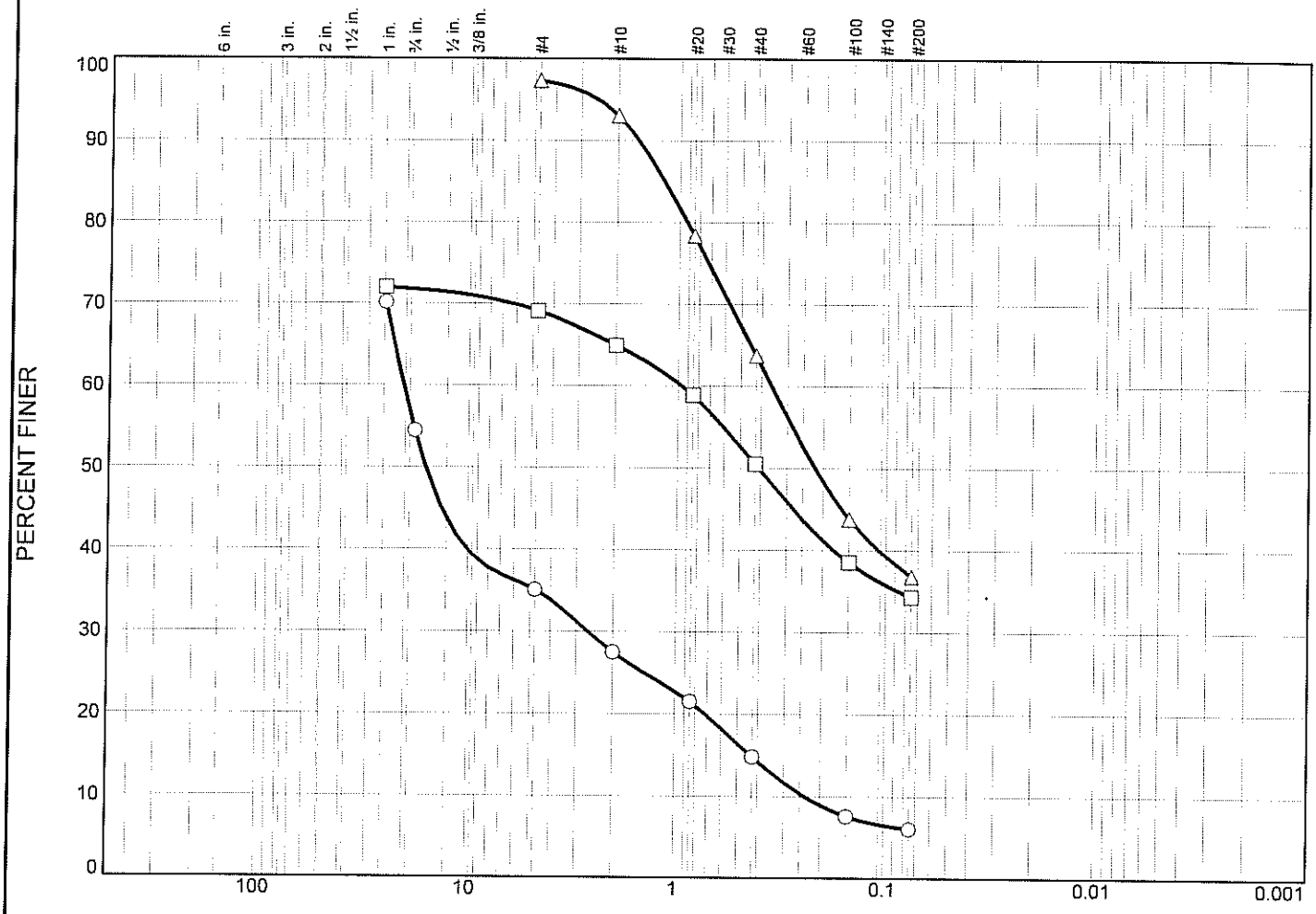
DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	6-6-7-2	0.00'-2.00'		BR.FINE-MED.SAND, LITTLE GRAVEL, TRACE SILT-FILL	
	2	5-30-60	2.00'-3.17'		BLACK ORGANIC SILT — 2.0	
	3	37-19-12-12	4.00'-6.00'		RED/BR.FINE-CRS.SAND, SOME GRAVEL, FEW COBBLES, LITTLE SILT — 3.0	
5					RED/BR.FINE SAND, SOME SILT — 5.0	
					BOTTOM OF BORING @ 6.0' — 6.0	
10						
15						
20						
25						
30						
35						

LEGEND: COL. A:RECOVERY "
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: LINDENBERGER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-18**

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○			22	7	13	9	6	
□			3	4	15	16	34	
△				4	29	27	37	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				20.4180	15.9614	2.6285	0.4328	0.2365	1.43	86.32
□				0.9602	0.4098					
△			1.1860	0.3585	0.2193					

	Material Description	USCS	AASHTO
○			
□			
△			

Project No. **Client:** TOWN OF GLASTONBURY

Project: MULTI USE TRAIL

○ **Source of Sample:** B-1 **Depth:** 0'-2' **Sample Number:** 1

□ **Source of Sample:** B-3 **Depth:** 0'-1.5' **Sample Number:** 1

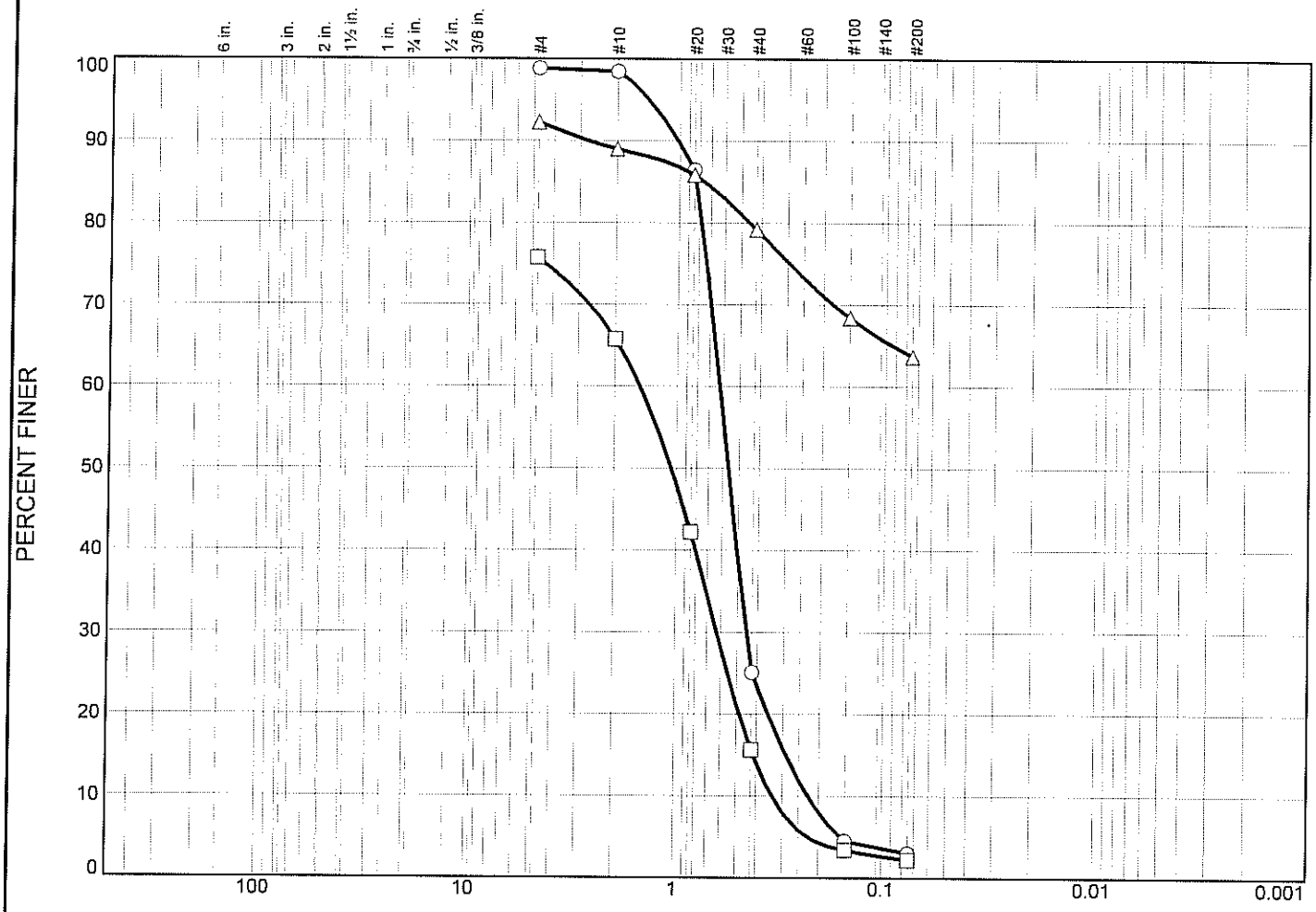
△ **Source of Sample:** B-5 **Depth:** 0.5-2.0' **Sample Number:** 1

Remarks:

CLARENCE WELTI ASSOCIATES, INC.

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				1	73	22	3	
□				10	50	14	2	
△				3	10	15	64	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8315	0.6225	0.5624	0.4525	0.2900	0.2261	1.46	2.75
□				1.5155	1.0600	0.6280	0.4159	0.3370	0.77	4.50
△			0.7584							

	Material Description	USCS	AASHTO
○			
□			
△			

Project No. **Client:** TOWN OF GLASTONBURY

Project: MULTI USE TRAIL

○ **Source of Sample:** B-7 **Depth:** ~~3.0~~ 4'-5' **Sample Number:** 2

□ **Source of Sample:** B-9 **Depth:** 0.33-2' **Sample Number:** 1

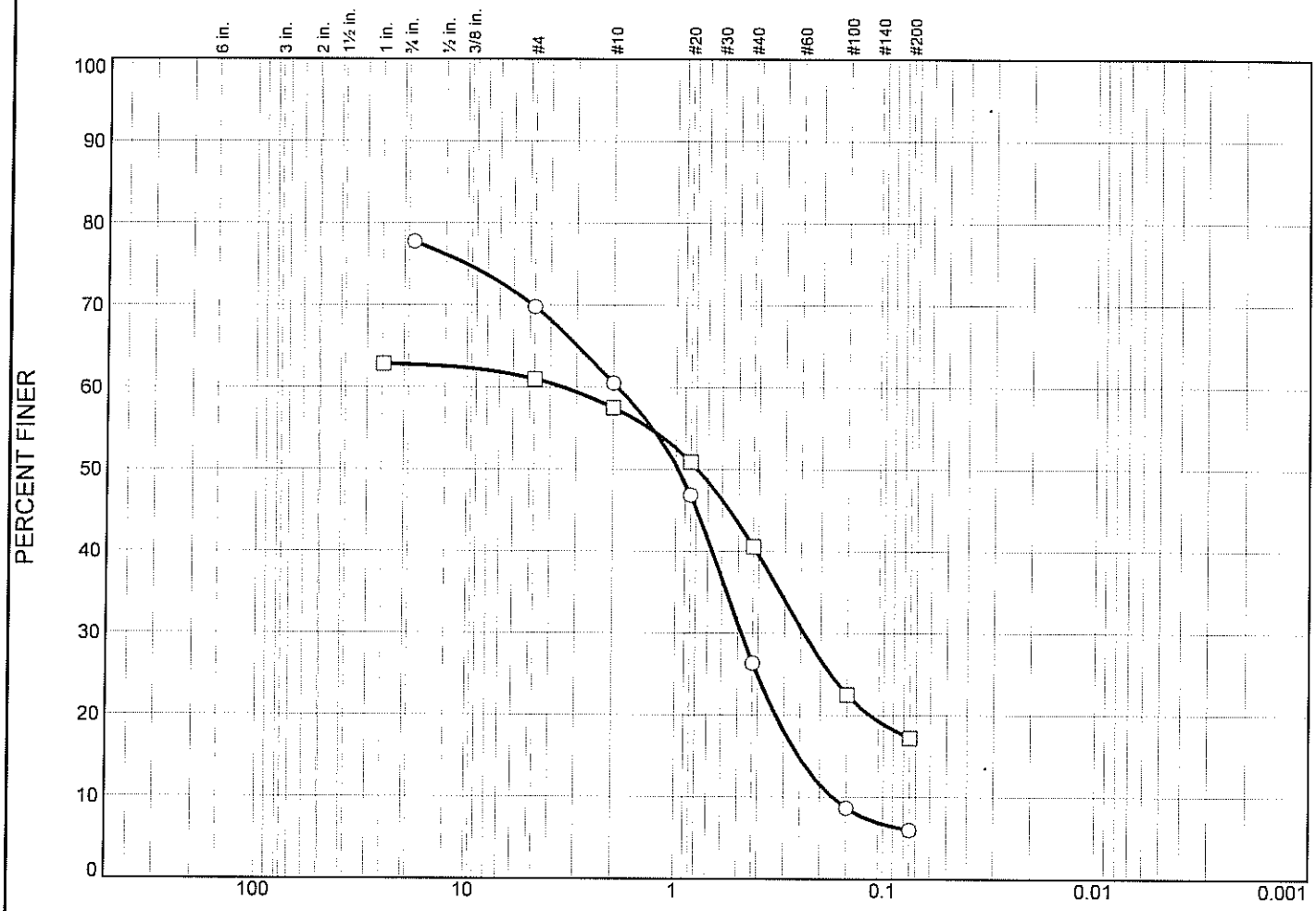
△ **Source of Sample:** B-11 **Depth:** ~~4.0~~ 4.5-6' **Sample Number:** 3

Remarks:

CLARENCE WELTI ASSOCIATES, INC.

Figure

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○				10	34	20	6	
□			2	4	16	24	17	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				1.9186	0.9753	0.4818	0.2545	0.1746	0.69	10.99
□				3.5066	0.7892	0.2420				

	Material Description	USCS	AASHTO
○			
□			

Project No. **Client:** TOWN OF GLASTONBURY

Project: MULTI USE TRAIL

○ **Source of Sample:** B-15 **Depth:** 2.0'-4.5' **Sample Number:** 2

□ **Source of Sample:** B-17 **Depth:** 0'-2.0' **Sample Number:** 1

Remarks:

CLARENCE WELTI ASSOCIATES, INC.

Figure

ATTACHMENT G - MODEL DRILLED SHAFT SPECIFICATION

FOR FOUNDATION SYSTEM DESIGN

DRILLED SHAFT FOUNDATION SYSTEM
MODEL SPECIFICATION

Description: This work shall consist of all labor, materials, equipment and services necessary to perform all operations to complete the drilled shaft installation in accordance with this specification, the special provisions and with the details and dimensions shown on the plans. Drilled shafts shall consist of reinforced or unreinforced concrete.

Materials: Materials for Drilled Shafts shall consist of the following:

1-Portland Cement Concrete: Concrete used in the construction of the shaft shall conform to the plans, Article M.03.01 of the Form 816, and as follows:

(a) The concrete shall have a minimum initial slump of 8 inches.

(b) The concrete mix shall maintain a slump of 4 inches or greater for a minimum 3 hours beyond the expected time for placement of concrete and removal of temporary casing (if used), as demonstrated by trial mix and slump loss tests. The trial mix and slump loss tests shall be conducted using concrete and maximum temperatures appropriate for site conditions.

(c) Admixtures such as water reducers, plasticizers, and retarders shall not be used in the concrete mix unless permitted in the contract documents or by the Engineer. All admixtures, when approved for use, shall be adjusted for the conditions encountered on the job so as to conform to the slump loss requirements within this specification and not to adversely affect the timing of, taking of and/or interpretation of any Nondestructive Testing that may be called out for in the contract.

(d) Coarse aggregate shall conform to Article M.01.01 of the Form 816, No. 8 Gradation.

2-Reinforcing Steel: Reinforcing steel used in construction of the shaft shall conform to the plans and Article M.06.01 of the Form 816.

3-Permanent Casing: Casing shall conform to Article M.06.02 of the Form 816. Casings shall be steel, smooth, clean, watertight, and of ample strength to withstand both handling and installation and the pressure of both concrete and the surrounding earth materials. The outside diameter of casing shall not be less than the specified diameter of shaft and the outside diameter of any excavation made below the casing shall not be less than the specified diameter of the shaft.

DRILLED SHAFT FOUNDATION SYSTEM
MODEL SPECIFICATION

Construction Methods:

1-Qualifications of Drilled Shaft Contractor and Submittals: The Contractor performing the work described in this specification shall have installed drilled shafts of both diameter and length similar to those shown on the plans for a minimum of three (3) years prior to the bid date for this project.

The Contractor shall submit both a list containing at least three (3) projects completed in the last three (3) years on which the Contractor has installed drilled shafts of a diameter and length similar to those shown on the plans. The list of projects shall contain names and phone numbers of owner's representatives who can verify the Contractors' participation on those projects.

As early as possible and no later than 30 days prior to constructing drilled shafts, the Contractor shall submit an installation plan for review by the Engineer. This plan shall provide information on the following:

(a) A list identifying the on-site supervisor(s) and drill operator(s) for approval by the Engineer. The on-site supervisor(s) shall have a minimum two years experience in supervising the construction of drilled shafts of a diameter and length similar to those shown on the plans. The drill operator(s) shall have a minimum one-year experience in drilling for the construction of drilled shafts of a diameter and length similar to those shown on the plans. The list shall contain a summary of each individual's experience. Should the Contractor elect to change personnel during construction of the shaft, the same approval process will need to be completed for the new personnel prior to them starting work on the project. The Contractor shall not be compensated for any delays resulting from their changing of personnel.

(b) List of proposed equipment to be used, including cranes, drills, augers, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, core sampling equipment, tremies or concrete pumps, casing. etc. Drilling equipment shall be track mounted in order to minimize disturbance to environmentally sensitive wetland areas.

(c) Details of overall construction operation sequence and the sequence of shaft construction in bents or groups.

(d) Details of shaft excavation methods, including methods of handling and disposal of excavated material within the environmentally sensitive wetland areas.

(e) When the use of slurry is anticipated, details of the mix design and its suitability for the subsurface conditions at the construction site, mixing and storage methods, maintenance methods, and disposal procedures.

(f) Details of methods to clean the shaft excavation.

(g) Details of reinforcement placement, including support and centralization methods.

(h) Details of concrete mix design and test results of both a trial mix and a slump loss test. The tests shall be conducted by an approved testing laboratory using approved methods to demonstrate that the concrete meets slump loss requirements.

(i) Details of concrete placement, including proposed operational procedures for free fall, tremie or pumping methods, proposed concreting log form and computations for time duration of shaft pour estimates.

(j) Details of casing installation and removal methods.

(k) Details of methods for removal of obstructions. Obstructions the Contractor shall provide details of methods for removal including, but are not necessarily be limited to, boulders, concrete, riprap, steel, timber, etc.

The Engineer will evaluate the drilled shaft installation plan for conformance with the plans, specifications and special provisions and will then notify the Contractor of any additional information required and/or changes necessary to meet the contract requirements. All procedural approvals given by the Engineer shall be subject to trial in the field and shall not relieve the Contractor of the responsibility to satisfactorily complete the work as detailed in the plans and specifications. The Contractor shall not commence construction of the drilled shafts until the Engineer has approved the installation plans.

If integrity and/or load testing of the drilled shafts are called for, this submittal shall be developed in coordination with and submitted concurrently working drawing submittals as required in the testing specifications.

All submittals shall comply with the working drawing submittal requirements as outlined in Article 1.05.02 of the Form 816.

2-Protection of Existing Structures: The Contractor shall control his operations to prevent damage to existing structures and utilities in accordance to Articles 1.07.09 and 1.07.10 of the Form 816. Preventive measures shall include, but are not limited to, selecting construction methods and procedures that will prevent caving of the shaft excavation and monitoring and controlling the vibrations from construction activities such as the driving of casing or sheeting, drilling of the shaft, or from blasting, if permitted.

3-Construction Sequence: Excavation to footing elevation shall be completed before shaft construction begins unless otherwise noted in the contract documents or approved by the Engineer.

Any disturbance at or below the footing area caused by shaft installation shall be repaired by the Contractor prior to the footing pour. .

When drilled shafts are to be installed in conjunction with embankment placement, the Contractor shall construct drilled shafts after the placement of fills unless shown otherwise in the contract documents or approved by the Engineer.

Drilled shafts, constructed prior to the completion of the fills, shall not be capped until the fills have been placed as near to final grade as possible, leaving only the necessary workroom for construction of the caps.

4-General Methods and Equipment: The Contractor shall perform the excavations required for shafts through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by the specifications and special provisions. The Contractor's methods and equipment shall be suitable for the intended purpose and materials encountered. The permanent casing method shall be used only at locations shown on the plans or when authorized by the Engineer in writing. Blasting shall only be permitted if specifically stated on the plans or authorized in writing by the Engineer.

5-Uncased Construction Method: This method consists of using water or slurry (mineral or polymer) to maintain stability of the borehole perimeter while advancing the excavation to final depth, placing the reinforcing cage, and concreting the shaft. Where drilled shafts are located in open water areas, exterior casings shall be extended from above the water elevation into the ground to protect the shaft concrete from water action during placement and curing of the concrete. The exterior casing shall be installed in a manner that will produce a positive seal at the bottom of the casing so that no piping of water or other materials occurs into or from the shaft excavation.

6-Casing Construction Method: The casing method may be used either when shown on the plans or at sites where the uncased construction methods are inadequate to prevent hole caving or excessive deformation of the hole. In this method the casing may be either placed in a predrilled hole or advanced through the ground by twisting, driving or vibration before being cleaned out.

7-Excavation and Drilling Equipment: The excavation and drilling equipment shall have adequate capacity, including power, torque and down thrust to excavate a hole of both the maximum diameter and to a depth of 20 percent beyond the depths shown on the plans. The equipment shall be track mounted in order to minimize damage to environmentally sensitive wetland areas.

The excavation and overreaming tools shall be of adequate design, size and strength to perform the work shown in the plans or described herein. When the material encountered cannot be drilled using conventional earth augers with soil or rock teeth, drill buckets, grooving tools, and/or underreaming tools, the Contractor shall provide special drilling equipment, including but not limited to: rock core barrels, rock tools, air tools, blasting materials, and other equipment as necessary to construct the shaft excavation to the size and depth required. Approval of the Engineer is required before excavation by blasting is permitted.

8-Excavation: Shaft excavations shall be made at locations and to the top of shaft elevations, estimated bottom of shaft elevations, shaft geometry and dimensions shown in the contract documents. The Contractor shall extend drilled shaft tip (base) elevations when the Engineer determines that the material encountered during excavation is unsuitable and/or differs from that anticipated in the design of the drilled shaft.

The Contractor shall maintain a construction method log during shaft excavation. The log shall contain information such as: the description and approximate top and bottom elevation of each soil or rock material encountered, seepage or ground water, and remarks, including a description of the tools and drill rigs used and any changes necessitated by changing ground conditions.

Excavated materials that are removed from shaft excavations shall be disposed of by the Contractor in accordance with the applicable specifications for disposal of excavated materials and in conformance with Article 1.10 of the Form 816.

The Contractor shall not permit workers to enter the shaft excavation for any reason unless: both a suitable casing has been installed and the water level has been lowered and stabilized below the level to be occupied, and adequate safety equipment and procedures have been provided to workers entering the excavation.

9-Drilled Shaft Earth Excavation: Drilled shaft earth excavation is excavation accomplished with conventional tools such as augers, and drilling buckets attached to drilling equipment of the size, power, torque, and down thrust (crowd) as proposed by the Contractor in their construction procedure that has been approved for use by the Engineer and/or successful construction of a trial drilled shaft. Earth excavation may included, but not necessarily be limited to, clay, silt, sand, gravel, cobbles, boulders, weathered rock, and miscellaneous fill.

10-Drilled Shaft Rock Excavation: Drilled shaft rock excavation is excavation of competent rock, accomplished with conventional rock drilling tools, such as core barrels, attached to drilling equipment of the size, power, torque, and down thrust (crowd) as proposed by the Contractor in their construction procedure that has been approved for use by the Engineer and/or successful construction of a trial drilled shaft. Top of competent rock is as defined on the contract drawings.

11-Obstructions: When obstructions are encountered, the Contractor shall notify the Engineer immediately. Obstructions are defined as a impenetrable objects that a) cannot be removed or excavated using conventional augers fitted with soil or rock teeth, underreaming tools, and/or drilling buckets, and b) cause a significant decrease in the rate of excavation advancement, relative to the rate of advancement for the rest of the shaft excavation within the particular strata that the obstruction is located in, if removed using the techniques and equipment used successfully to excavate the shaft.

The Engineer will be the sole judge of the significance of any reduced rate of shaft advancement and the classification of obstruction excavation. The Engineer shall be present to evaluate the occurrence of obstructions, to authorize, and to approve the designation of such.

Sloping bedrock and/or higher than anticipated bedrock shall not be considered obstruction excavation. Shallow obstructions are those obstructions located within 5 feet of the top level of the shaft. Shallow obstructions at shaft locations shall be removed at the expense of the Contractor.

The Contractor shall remove all subsurface obstructions at drilled shaft locations. Such obstructions may include man-made materials such as old concrete foundations and natural materials such as boulders. Such special procedures/tools may include but are not limited to: chisels, boulder breakers, core barrels, down the hole hammers, air tools, hand excavation, temporary casing, and increasing the hole diameter. Blasting shall not be permitted unless specifically approved in writing by the Engineer.

12-Lost Tools: Drilling tools that are lost in the excavation shall not be considered obstructions and shall be promptly removed by the Contractor without compensation. All costs due to lost tool removal shall be borne by the Contractor including, but not limited to, costs associated with the repair of hole degradation due to removal operations or an excessive time that the hole remains open.

13-Casing: Casings shall be steel, smooth, clean, watertight, and of ample strength to withstand both handling and installation and the pressure of both concrete and the surrounding earth materials. The outside diameter of casing shall not be less than the specified diameter of shaft, and the outside diameter of any excavation made below the casing shall not be less than the specified diameter of the shaft. No extra compensation will be allowed for concrete required to fill an oversized casing or oversized excavation. All casings, except permanent casings, shall be removed from shaft excavations. Any length of permanent casing installed below the shaft cutoff elevation, shall remain in place.

When the shaft extends above ground or through a body of water, the portion exposed above ground or through a body of water may be formed with removable casing except when the permanent casing is specified. Removable casing shall be stripped from the shaft in a manner that will not damage the concrete. Casings can be removed when the concrete has attained sufficient strength provided: curing of the concrete is continued for a 72-hour period; the shaft concrete is not exposed to salt water or moving water for 7 days; and the concrete reaches a compressive strength of at least 2500 psi, as determined from concrete cylinder breaks.

14-Temporary Casing: All subsurface casing shall be considered temporary unless specifically shown as permanent casing in the contract documents. The Contractor shall be required to remove temporary casing before or immediately after completion of concreting the drilled shaft. Casing should never be pulled after the concrete begins to set due to probable entrapment of drilling fluid in the shaft concrete and probable separation of the concrete within the shaft

If the Contractor elects to remove a casing and substitute a longer or larger-diameter casing through caving soils, the excavation shall be either stabilized with slurry or backfilled before the new casing is installed. Other methods, as approved by the Engineer, may be used to control the stability of the excavation and protect the integrity of the foundation materials.

Before the casing is withdrawn, the level of fresh concrete in the casing shall be a minimum

of 5 feet above either the hydrostatic water level in the formation or the level of drilling fluid in the annular space behind the casing, whichever is higher. As the casing is withdrawn, care shall be exercised to maintain an adequate level of concrete within the casing so that fluid trapped behind the casing is displaced upward and discharged at the ground surface without contaminating or displacing the shaft concrete.

Temporary casings that become bound or fouled during shaft construction and cannot be practically removed shall constitute a defect in the drilled shaft. The Contractor shall be responsible to improve such defective shafts to the satisfaction of the Engineer. Such improvement may consist of, but is not limited to, removing the shaft concrete and extending the shaft deeper to compensate for loss of frictional capacity in the cased zone, providing straddle shafts to compensate for capacity loss, grouting around the exterior of the shaft, or providing a replacement shaft. All corrective measures including redesign of footings caused by defective shafts shall be done to the satisfaction of the Engineer by the Contractor without either compensation or an extension of the completion date of the project. In addition, no compensation will be paid for casing remaining in place.

15-Permanent Casing: Permanent casing shall be used when specified by the contract documents. The casing shall be continuous between top and bottom elevations prescribed in the plans. After installation is complete, the permanent casing shall be cut off at the prescribed elevation.

In cases where special temporary casings are shown on the plans or authorized in writing by the Engineer to be used in conjunction with permanent casing, the Contractor shall maintain both alignment of the temporary casing with the permanent casing and a positive, watertight seal between the two casings during excavation and concreting operations.

Permanent casing shall maintain intimate contact with the surrounding earth after installation. Use of an oversized hole or temporary casing outside the permanent casing beneath the ground surface will not be allowed without written permission by the Engineer. Should an oversized hole or temporary casing outside the permanent casing beneath the ground surface be allowed by the Engineer, grouting of the exterior annular space shall be provided by the Contractor to create intimate contact between the casing and the surrounding ground. The grouting shall extend from the bottom of the annular space to an elevation determined by the Engineer. No compensation will be paid to the Contractor for grouting of the exterior annular space.

16-Slurry: Mineral or polymer slurries shall be employed when slurry is used in the drilling process unless other drilling fluids are approved in writing by the Engineer. Mineral slurry shall have both a mineral grain size that will remain in suspension and sufficient viscosity and gel characteristics to transport excavated material to a suitable screening system. The percentage and specific gravity of the material used to make the mineral suspension shall be sufficient to maintain the stability of the excavation and to allow proper concrete placement.

During construction, the level of the slurry shall be maintained at a height sufficient to prevent caving of the hole. The slurry head shall remain above the piezometric head of the groundwater. This includes initial drilling of the borehole down to the piezometric level. Slurry should be introduced when the depth of the borehole is still above the piezometric level, not after the

inflow of water can be detected and/or sloughing has begun. In the event of a sudden significant loss of slurry to the hole, the construction of that foundation shall be stopped until either a method to stop slurry loss or an alternate construction procedure has been approved by the Engineer.

Mineral slurry shall be premixed thoroughly with clean fresh water and adequate time (as prescribed by the mineral manufacturer) allotted for hydration prior to introduction into the shaft excavation. Slurry tanks of adequate capacity will be required for slurry circulation, storage, and treatment. No excavated slurry pits will be allowed in lieu of slurry tanks without the written permission of the Engineer. Desanding equipment shall be provided by the Contractor as necessary to control slurry sand content to less than 4 percent by volume at any point in the borehole at the time the slurry is introduced, including situations in which temporary casing will be used. The Contractor shall take all steps necessary to prevent the slurry from "setting up" in the shaft. Such methods may include but are not limited to: agitation, circulation and/or adjusting the properties of the slurry. Disposal of all slurry shall be done off site in suitable areas by the Contractor. Disposal of the slurry shall also be in conformance with Article 1.10 of the Form 816.

Control tests using suitable apparatus shall be carried out on the mineral slurry by the Contractor to determine density, viscosity and pH. An acceptable range of values for those physical properties is shown in the table given in this section:

MINERAL SLURRY
(Sodium Bentonite or Attapulgite in Fresh Water)

	Acceptable Range of Values		
Property (Units)	At Time of Slurry Introduction	In Hole at Time of Concreting	Test Method
Density (pcf)	64.3* - 69.1*	64.3* - 75.0*	Density Balance
Viscosity (sec. /quart)	28 - 45	28 - 45	Marsh Funnel
pH	8 - 11	8 - 11	pH paper, pH meter

* Increase by 2 pcf in salt water

Notes: a. Tests should be performed when the slurry temperature is above 40 degrees Fahrenheit.

b. If desanding is required; sand content shall not exceed 4 per cent (by volume) at any point in the borehole as determined by the American Petroleum Institute sand content test when the slurry is introduced.

Tests to determine density, viscosity and pH value shall be performed during the shaft excavation to establish a consistent working pattern. A minimum of four sets of tests shall be made

during the first 8 hours of slurry use. When the results show consistent behavior the testing frequency may be decreased to one set every four hours of slurry use.

If the Contractor proposes to use polymer slurry, either natural or synthetic, the product is subject to approval by the Engineer. Slurry properties at the time of mixing and at the time of concreting must be in conformance with the written recommendations of the manufacturer. However, whatever product is used, the sand content at the base of the drilled shaft excavation shall not exceed 1 per cent when measured by Method API 13B-1, Section 5, immediately prior to concreting.

If the Contractor proposes to use blended mineral-polymer slurry, the Contractor shall submit a detailed report specific to the project prepared and signed by a qualified slurry consultant describing the slurry materials, the mix proportions, mixing methods and quality control methods.

If polymer slurry, or blended mineral-polymer slurry, is proposed, the Contractor′s slurry management plan shall include detailed provisions for controlling the quality of the slurry, including tests to be performed, the frequency of those tests, the test methods, and the maximum and/or minimum property requirements that must be met to ensure that the slurry meets its intended functions in the subsurface conditions at the construction site and with the construction methods that are to be used. The slurry management plan shall include a set of the slurry manufacturer′s written recommendations and shall include the following tests, as a minimum: Density test (API 13B-1, Section 1), viscosity test (Marsh funnel and cup, API 13B-1, Section 2.2, or approved viscometer), pH test (pH meter, pH paper), and sand content test (API sand content kit, API 13B-1, Section 5).

If approved by the Engineer, the Contractor may use only water as a drilling fluid. In that case, all of the provisions in the table shown in this section for mineral slurries shall be met, except that the maximum density shall not exceed 70 pcf.

The Contractor shall insure that a heavily contaminated slurry suspension, which could impair the free flow of concrete, has not accumulated in the bottom of the shaft. Prior to placing concrete in any shaft excavation, the Contractor shall take slurry samples using a sampling tool approved by the Engineer. Slurry samples shall be extracted from the base of the shaft and at intervals not exceeding 10 feet up the slurry column in the shaft, until two consecutive samples produce acceptable values for density, viscosity, and pH.

When any slurry samples are found to be unacceptable, the Contractor shall take whatever action is necessary to bring the slurry within specification requirements. Concrete shall not be poured until the slurry in the hole is re-sampled and test results produce acceptable values.

Reports of all tests required above signed by an authorized representative of the Contractor, shall be furnished to the Engineer on completion of each drilled shaft.

During construction, the level of mineral or blended mineral-polymer slurry in the shaft excavation shall be maintained at a level not less than 4 feet above the highest expected piezometric pressure head along the depth of the shaft, and the level of polymer slurry shall be maintained at a level not less than 6 feet above the highest expected piezometric pressure head along the shaft. If at any time the slurry construction method fails, in the opinion of the Engineer, to produce the desired final results, then the Contractor shall both discontinue this method and propose an alternate method for approval of the Engineer.

Drilling tools should contain vents to stabilize hydrostatic pressure above and below the tool during insertion and extraction. The rate of tool extraction should not cause any noticeable turbulence in the slurry column in the borehole.

The Contractor shall retain the slurry manufacturer's technical representative to be present at the site during project startup, or throughout the entire project if continual difficulty is expected, to ensure that the slurry is mixed and managed properly.

17-Excavation Inspection: The Contractor shall check the dimensions and alignment of each shaft excavation. Final shaft depths shall be measured with a suitable weighted tape or other approved methods after final cleaning. The Contractor shall provide equipment and access to the Engineer for confirming dimension, alignment, and bottom cleanliness. Required shaft cleanliness will be determined by the Engineer.

18-Construction Tolerances: The following construction tolerances apply to drilled shafts unless otherwise stated in the contract documents:

(a) The center of the drilled shaft shall be within 3 inches of plan position in the horizontal plane at the plan elevation for the top of the shaft.

(b) The vertical alignment of a vertical shaft excavation shall not vary from the plan alignment by more than 1/4 inch per foot of depth.

(c) After all the concrete is placed, the top of the reinforcing steel cage shall be no more than 6 inches above and no more than 3 inches below plan position.

(d) All casing diameters shown on the plans refer to outside diameter (OD) dimensions. The dimensions of casings are subject to American Pipe Institute tolerances applicable to regular steel pipe. When approved, the Contractor may elect to provide a casing larger in diameter than shown in the plans.

(e) The top elevation of the shaft shall have a tolerance of plus 1 inch or minus 3 inches from the plan top-of-shaft elevation.

(f) Excavation equipment and methods shall be designed so that the completed shaft excavation will have a planar bottom. The cutting edges of excavation equipment shall be normal to the vertical axis of the equipment within a tolerance of +/– 3/8 inch per foot of diameter.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. The Contractor shall be responsible for correcting all unacceptable shaft excavations and completed shafts to the satisfaction of the Engineer. Materials and work necessary, including engineering analysis and redesign, to complete corrections for out-of-tolerance drilled

shaft excavations shall be furnished without either cost to the Town or an extension of the completion date of the project.

19-Reinforcing Steel Cage Construction and Placement: The reinforcing steel cage, consisting of longitudinal bars, ties, cage stiffener bars, spacers, centralizers, and other necessary appurtenances, shall be completely assembled and placed as a unit immediately after the shaft excavation is inspected and accepted, and prior to concrete placement. Internal stiffeners shall be removed as the cage is placed in the borehole so as not to interfere with the placement of concrete.

The reinforcing steel in the shaft shall be tied and supported so that the reinforcing steel will remain within allowable tolerances given in this specification. Concrete spacers or other approved noncorrosive spacing devices shall be used at sufficient intervals near the bottom and at intervals not exceeding 10 feet up the shaft to ensure concentric spacing for the entire cage length. Spacers shall be constructed of approved material equal in quality and durability to the concrete specified for the shaft. The spacers shall be of adequate dimension to insure a minimum 3 inch annular space between the outside of the reinforcing cage and the side of the excavated hole. Approved cylindrical concrete feet (bottom supports) shall be provided to insure that the bottom of the cage is maintained the proper distance above the base.

The elevation of the top of the steel cage shall be checked before and after the concrete is placed. If the upward displacement of the rebar cage exceeds 2 inches or if the downward displacement exceeds 6 inches per 20 feet of shaft length, the drilled shaft will be considered defective. Corrections shall be made by the Contractor to the satisfaction of the Engineer. No additional shafts shall be constructed until the Contractor has modified his rebar cage support in a manner satisfactory to the Engineer.

20-Concrete Placement: Concrete placement shall be performed in accordance with the applicable portions of the general specifications on concrete materials of this specification and with the requirements herein.

Concrete shall be placed as soon as possible after reinforcing steel placement and after the Engineer has accepted the cleanliness of the shaft. The Engineer may re-inspect the shaft for cleanliness should there be any delays between initial acceptance of shaft cleanliness and commencement of the concrete pour. If during the delay the Engineer has determined that shaft cleanliness has deteriorated, the Engineer may require the Contractor to re-clean the shaft If necessary, the Contractor may be required to remove the cage, should it be necessary to achieve the required shaft cleanliness. The Contractor shall not be compensated for any cost and/or lost of time due to the need for re-cleaning of the shaft.

Concrete placement shall be continuous from the bottom to the top elevation of the shaft. Concrete placement shall continue after the shaft excavation is filled until good quality concrete is evident at the top of shaft. Concrete shall be placed either by free fall or through a tremie or concrete pump. The free fall placement shall only be permitted in dry holes. Concrete placed by free fall shall fall directly to the base without contacting either the rebar cage or hole sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

The Contractor shall maintain a Concreting Logs during all pours. The log shall include, but not necessarily be limited to, concreting curves that shall plot Depth to Top of Concrete vs. Volume of Concrete Poured (for both theoretical and actual volumes of concrete poured) The Contractor shall provide the Engineer a copy of each log upon completion of each drilled shaft pour. A sample of the proposed log to be used by the Contractor shall be submitted as part of the installation plan working drawing submittal.

21-Tremies: Tremies may be used for concrete placement in either wet or dry holes. Tremies used to place concrete shall consist of a tube of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. The tremie shall not contain aluminum parts that will have contact with the concrete. The tremie inside diameter shall be at least 6 times the maximum size of aggregate used in the concrete mix but shall not be less than 10 inches. The inside and outside surfaces of the tremie shall be clean and smooth to permit both flow of concrete and unimpeded withdrawal during concreting. The wall thickness of the tremie shall be adequate to prevent crimping or sharp bends, which restrict concrete placement.

The tremie used for wet excavation concrete placement shall be watertight. Underwater or under-slurry placement shall not begin until the tremie is placed to the shaft base elevation, and the concrete shall be kept completely separated from the water or slurry prior to the time it is discharged. Valves, bottom plates or plugs may be used for this purpose only if concrete discharge can begin within one tremie diameter of the base of the drilled shaft. Plugs shall either be removed from the excavation or be of a material, approved by the Engineer, which will not cause a defect in the shaft if not removed. The discharge end of the tremie shall be constructed to permit the free radial flow of concrete during placement operations. The tremie discharge end shall be immersed at least 5 feet in concrete at all times after starting the flow of concrete. The flow of the concrete shall be continuous. The level of the concrete in the tremie shall be maintained above the level of slurry or water in the borehole at all times to prevent water or slurry intrusion into the shaft concrete.

If at any time during the concrete pour, the tremie line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete level, the shaft shall be considered defective. All costs of repair or replacement of defective shafts shall be the responsibility of the Contractor.

22-Pumped Concrete: Concrete pumps and lines may be used for concrete placement in either wet or dry excavations. All pump lines shall have a minimum 4 inch diameter and be constructed with watertight joints. Concrete placement shall not begin until the pump line discharge orifice is at the shaft base elevation.

For wet excavations, a plug or similar device shall be used to separate the concrete from the fluid in the hole until pumping begins. The plug shall either be removed from the excavation or be of a material, approved by the Engineer, that will not cause a defect in the shaft if not removed.

The discharge orifice shall remain at least 5 feet below the surface of the fluid concrete. When lifting the pump line during concreting, the Contractor shall temporarily reduce the line pressure until the orifice has been repositioned at a higher level in the excavation.

If at any time during the concrete pour the pump line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete level, the shaft shall be considered defective. All costs of repair or replacement of defective shafts shall be the responsibility of the Contractor.

23-Drop Chutes: Drop chutes may be used to direct placement of free-fall concrete in excavations where the maximum depth of water does not exceed 3 inches. Free fall placement is not permitted in wet excavations. Drop chutes shall consist of a smooth tube of either one piece construction or sections that can be added and removed. A drop chute can also be a hopper with a short tube to direct the flow of concrete. Concrete may be placed through either the hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. If concrete placement causes the shaft excavation to cave or slough, or if the concrete strikes the rebar cage or sidewall, the Contractor shall reduce the height of free fall and/or reduce the rate of concrete flow into the excavation. If caving or sloughing of the borehole walls occurs during free-fall placement of concrete, the shaft shall be considered defective. All costs of repair or replacement of defective shafts shall be the responsibility of the Contractor. If concrete placement cannot be satisfactorily accomplished by free fall in the opinion of the Engineer, the Contractor shall use either tremie or pumping techniques to accomplish the pour.

24-Evaluation and Acceptance/Rejection of Drilled Shafts: Upon completion and testing (if called for) of a drilled shaft, the Engineer shall review all available drilling logs, drilled shaft construction logs, concreting logs, inspection reports, load test results, and/or integrity test results to determine the acceptability of the drilled shaft. If the Engineer determines that available data in inconclusive, the Engineer may call for additional testing, coring, or other appropriate actions necessary for evaluating the acceptability of the drilled shaft. Should the additional testing confirm the presence of anomalies, the Contractor shall not be compensated for the cost of the additional testing (even if the anomalies are determined to be non-critical and the shaft is found to be acceptable). Should additional testing demonstrate that anomalies are not present (prior to any remedial work), the additional testing shall be paid for by the Town. The Contractor may continue to construct drilled shafts before receipt of notice of acceptance of the tested shaft or shafts by the Engineer. If the Engineer finds previously constructed shaft(s) to be unacceptable, the Contractor shall be required to repair, at the Contractor′s expense, the unacceptable shaft(s) to the satisfaction of the Engineer. The Contractor shall prove to the satisfaction of the Engineer, at no expense to the Town, the acceptability of all shafts constructed since the time that the unacceptable shaft was constructed and the acceptability of the procedure to construct future shafts. If the Engineer deems the construction procedure to be unacceptable, the Contractor shall cease all drilled shaft construction until a new construction procedure is submitted by the Contractor and accepted by the Engineer.

The Contractor shall submit any repair procedures to the Engineer for review and approval. If these plans involve change or impact the structural design of the shafts or shaft caps, or to the geometry of the shafts, any redesign proposed in the Contractor′s plan shall be performed at the

Contractor's expense by a qualified Professional Engineer registered in the State of Connecticut.

The Engineer may require that additional shafts be tested. If the testing of the additional shaft(s) indicates the presence of a defect in any additional shaft, the testing cost for that shaft will be borne by the Contractor and the Contractor shall repair the shaft at the Contractor's expense, as above. Any additional testing required by the Engineer on repaired drilled shafts shall be considered part of the Contractors remediation plan and its cost shall be borne by the Contractor.

ATTACHMENT H – CONSTRUCTION PLANS