**AGENDA PACKET**

**Part 3 of 3**

**OCTOBER 16, 2018 MEETING**

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| Wetland Delineation Report, Evans Associates, dated July 17, 2018 | | **376** |
| Wetland Restoration Plan, Evans Associates, dated September 26, 2018 | | **380** |
| Wetland Permit application, dated October 9, 2018 | | **381** |
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| ***LORDI RESIDENCE, 2 CHEYENNE COURT, KATONAH*** | **Cal #04-18WV** | |
| Cover letter, Evans Associates, dated August 15, 2018 | | **384** |
| Wetland Delineation Report, Evans Associates, dated July 17, 2018 | | **386** |
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| ***REQUESTS FOR RELAXATION ON SEPTIC REQUIREMENTS PER PLANNING BOARD RESOLUTIONS AND WETLAND PERMITS*** | | |
| Brownstone Residence, 41 & 43 Lake Shore Drive, South Salem | **Cal #02-02 WP** | **391** |
| Marra/Roberts Residence, 24 Indian Lane, South Salem | **Cal #04-03 WP** | **410** |
| Wachtell Residence, 50 Twin Lakes Road, South Salem | **Cal #10-03 WP** | **414** |
| Walsh/Amerling Residence, 33 Lake Shore Drive, South Salem | **Cal #25-03 WP** | **432** |
| Dover Residence, 11 Mount Holly Road, Katonah | **Cal #72-06 WP** | **449** |
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| ***"SILVERMINE PRESERVE," SILVERMINE DRIVE & LOCKWOOD ROAD, SOUTH SALEM*** | **Cal#03-13PB** | **Cal# 03-16WP** |
| Extension Request Letter; Geraldine Totorella, Esq.; dated September 13, 2018 | | **487** |
| | | |
| ***PETRUCELLI/BADAGLIACCA, OSCALETA ROAD, SOUTH SALEM*** | **Cal# 8-12PB** | |
| Extension Request Email; Michael Sirignano, Esq.; dated September 24, 2018 | | **489** |
| | | |

**TOWN OF LEWISBORO**
**Westchester County, New York**

**Planning Board**
**79 Bouton Road**
**South Salem, New York 10590**

**Tel: (914) 763-5592**
**Fax: (914) 875-9148**
**Email: planning@lewisborogov.com**

**AGENDA**

**Tuesday, October 16, 2018** **79 Bouton Road, South Salem**

Note: Meeting will start at 7:30 p.m. and end at or before 11:00 p.m.

## I. DECISION

***Cal #11-15PB, Cal#04-16 SW, Cal#09-16 WP***
**Elegant Banquets – Le Chateau, 1410 Route 35, South Salem, NY 10590, Sheet 39, Block 10549, Lot 17 (1410 Rte. 35 LLC, owner of record) –** Application for amendment of site development plan for shed installation.

## II. PUBLIC HEARINGS

***Cal #08-17PB, 16-17SW***
**Oakridge Commons, 450 Oakridge Common, South Salem, NY 10590, Sheet 49D, Block 9829, Lot 10 (Smith Ridge Associates, owner of record)** - Application for Site Plan Review for installation of a car wash.

***Cal# 8-02PB***
**JVG Estates (formerly Popoli Subdivision), 1437 Route 35, South Salem, NY 10590 Sheet 0040, Block 10552, Lot 003 (John Luciano, owner of record)** - Request for subdivision bond reduction and referral to the Town Board.

***Cal #06-18PB***
**King Lumber, Meadow Street, Goldens Bridge, NY 10526, Sheet 4A, Block 11111, Lot 2, Sheet 4A, Block 11113, Lots 7 & 9, Sheet 4A, Block 12035, Lot 5 (King Lumber Realty and King Meadow Street Realty – owners of record)** - Application for Site Plan Review for lumber yard and U-Haul rental facility.

## III. WETLAND PERMIT REVIEWS

***Cal# 78-18WP***
**Handler Residence, 25 Woodway Road, South Salem, NY 10590, Sheet 38, Block 10549, Lots 12 & 20 (Martha and Richard Handler, owners of record) –** Application for habitat restoration and herbicide application.

***Cal #56-18WP, #09-18SW***
**Hidden Point Farms, 153 Silver Springs Road, South Salem, NY 10590, Sheet 48, Block 10057, Lot 46 (Hidden Point Farms, LLC, owner of record)** – Application for a pool, related structures, utilities and construction access road.

## IV. SKETCH PLAN REVIEWS

***Cal #06-17PB***
**Wolf Conservation Center, Buck Run, South Salem, NY 10590, Sheet 21, Block 10803, Lots 3, 65, 67, 81, 82, 83, 86 & 88 (Wolf Conservation Center, owner of record)** - Application for a Subdivision and Special Use Permit associated with a private nature preserve.

***Cal #10-17PB***
**Mercedes Benz of Goldens Bridge, 321 Main Street, Goldens Bridge, NY 10526, Sheet 4E, Block 11135, Lots 1, 2, 3, 4, 5, 6, 7 & Block 11137, Lot 42 (Charisma Holding Corp., owner of record)** – Application for Site Plan Review for additions to existing auto showroom and service buildings, additional parking spaces and construction of a parking garage.

## V. SITE DEVELOPMENT PLAN

***Cal #10-15 PB, Cal #20-17WP, Cal #5-17SW***
**Wilder Balter Partners, NY State Route 22, Goldens Bridge, NY 10526, Sheet 5, Block 10776, Lots 19, 20 & 21 (Property Group Partners, LLC, owner of record)** – Application for a 46 unit MF development on a ±35.4 acre parcel.

## VI. WETLAND VIOLATIONS

***Cal #3-16WV, 06-17WP***
**McGuinness Residence, 17 Schoolhouse Road, South Salem, NY 10590, Sheet 22, Block 10802, Lot 35 (Annette and Peter McGuinness, owners of record)**

***Cal #02-18WV, Cal# 79-18WP***
**Lupienski Residence, 23 Elmwood Road, South Salem, NY 10590, Sheet 43, Block 10067, Lot 23 and 24 (Jeffrey Lupienski, owner of record)**

***Cal #04-18WV***
**Lordi Residence, 2 Cheyenne Court, Katonah, NY 10536, Sheet 10, Block 11152, Lot 140 (William and Marieanne Lordi, owners of record)**

## VII. REQUESTS FOR RELAXATION ON SEPTIC REQUIREMENTS PER PLANNING BOARD RESOLUTIONS AND WETLAND PERMITS

## VIII. DISCUSSION

Press Requests

Distribution of late materials to the Planning Board and its consultants

Adjournments and Wetland Violations

Hardcopies of Materials

## IX. EXTENSION OF TIME REQUEST

***Cal# 3-13PB, 03-16WP***
**"Silvermine Preserve," Silvermine Drive & Lockwood Road, South Salem, NY, 10590 Sheet 48, Block 10057, Lot 15 and Sheet 51, Block 10057, Lot 104 (Ridgeview Designer Builders, Inc. & Daniel Higgins, owners of record)-** Applications for Subdivision, Wetland Activity and Stormwater Permits for the construction of a 13-lot subdivision.

***Cal #8-12PB***
**Petruccelli/Badagliacca, Oscaleta Road, South Salem, NY 10590 Sheet 33B, Block 11157, Lot 46 (Steven Petruccelli and Teresa Badagliacca, owners of record) -** Request for a 90-day Extension of Time to resolution granting Preliminary/Final Subdivision Plat, Negative Declaration Under SEQRA, dated October 21, 2014.

***Cal #1-16 SW, Cal#1-16 WP***
**Lichtman Residence, 192 Kitchawan Road, South Salem, NY 10590, Sheet 45, Block 10300, Lot 012 (Aaron Lichtman, owners of record) -** Application for demolition and removal of existing five-bedroom house and cottage. Application for Wetland Activity Permit and Stormwater Permit for the construction of a new five-bedroom house, garage, courtyard and modified driveway.

## X. MINUTES OF January 16, 2018; MINUTES OF February 27, 2018; MINUTES OF March 20, 2018; MINUTES OF March 27, 2018; MINUTES OF April 17, 2018, MINUTES OF June 19, 2018, MINUTES OF July 21, 2018 MINUTES OF August 14, 2018; MINUTES OF August 21, 2018 and MINUTES OF September 11, 2018.

KELLARD SESSIONS

John Kellard, P.E.
David Sessions, RLA, AICP
Joseph M. Cermele, P.E., CFM
Jan K. Johannessen, AICP

# MEMORANDUM

TO: Chairman Jerome Kerner, AIA and
Members of Lewisboro Planning Board

CC: Ciorsdan Conran
Judson Siebert, Esq.
Joseph Angiello

FROM: Jan K. Johannessen, AICP
Joseph M. Cermele, P.E., CFM
Town Consulting Professionals

DATE: October 11, 2018

RE: Wilder Balter Partners, Inc.
New York State Route 22
Sheet 5, Block 10776, Lot 19, 20 & 21

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As requested, this office has drafted a series of recitals and conditions that would likely be included within a resolution pertaining to the Wilder Balter Partners, Inc. application, located at the above referenced property. The text set forth below is offered as a starting point and we expect there will be modifications as the Board deliberates with respect to this application

**Anticipated Recitals to be Included within the Body of the Resolution:**

1. The Planning Board has received an application submitted by Wilder Balter Partners, Inc. ("the applicant") for approval of a Site Development Plan, and the issuance of a Wetland Activity Permit and Town Stormwater Permit, authorizing the development of property located on the east side of New York State Route 22, at a point north of the I-684 northbound exit (Exit 6A)/Route 22 intersection.

2. The property involved in this application consists of three (3) tax parcels identified on the Tax Map of the Town of Lewisboro as Sheet 5, Block 10776, Lots 19, 20 & 21 ("the subject property").

3. The subject property is currently owned by Property Group Partners, LLC and the applicant is a contract vendee.

4. The subject property totals ±35.4 acres of land, is currently vacant, undeveloped and is not serviced by utilities.

5. The subject property is predominantly wooded and contains wetlands that are jurisdictional to the Town of Lewisboro and the New York State Department of Environmental Conservation (NYSDEC). The subject property is located within the New York City Department of Environmental Protection (NYCDEP) East of Hudson Watershed.

6. The subject property is located within the Campus Commercial (CC-20) and the One-Family Residence (R-4A) Zoning Districts, with the proposed multifamily buildings being located entirely within the CC-20 Zoning District.

7. The applicant is proposing a 42-unit multifamily residential development that will include five (5) buildings; the buildings will house the residential units and a clubhouse. The development also includes recreational facilities, an access road off of New York State Route 22, on-site parking for 116 vehicles and stormwater management facilities. The project will be served by on-site potable wells and a septic system ("the proposed action").

8. The Step 1 Site Development Plan application was submitted to the Planning Board on October 20, 2015 and the Step 2 Site Development Plan, Wetland Permit and the Town Stormwater Permit applications were submitted on March 30, 2017.

9. The development is proposed to comply with Westchester County's fair and affordable housing programs and policies and 41 of the units are proposed to be Affordable Affirmatively Furthering Fair Housing (AFFH) Units; one (1) unit will be devoted to a site manager/superintendent.

10. In accordance with Section 220-26B(1) of the Zoning Code, the average gross density shall not exceed two (2) density units per acre of net lot area. Based on the number of units and bedrooms proposed, the maximum number of density units permitted is 31.1 density units, while 21.7 density units are proposed; no units are proposed within the Density Transition Area.

11. Buildings 1 – 3 are proposed to be two (2) story multifamily buildings containing eight (8) units each with each unit being individually accessed and with no common entries or hallways.

12. Building 4 is proposed to be a 2 ½-story multifamily building, which will contain eight (8) units and a ±2,496 s.f. clubhouse on the first floor. The second and third residential floors will be accessed via a common residential staircase and common hallways.

13. Building 5 is proposed to be a 2 ½-story multifamily building, which will contain 10 units with each unit be accessed via a common staircase and hallway; Building 5 is proposed to include an elevator.

14. The proposed development will consist of the following number of bedrooms for a total of 84 bedrooms:

    - 10 – One (1) bedroom dwelling units
    - 22 – Two (2) bedroom dwelling units
    - 10 – Three (3) bedroom dwelling units

15. In accordance with Section 220-26D(3) of the Zoning Code, multi-family developments shall be improved with common recreational facilities for use by its residents; the minimum size of the recreation area shall be 300 s.f. per density unit. With a total of 21.7 density units, the proposed action requires 6,510 s.f. of recreation area. The proposed action includes the installation of a 3,000 s.f. sport court and perimeter area, a 1,400 s.f. play area, and a 2,496 s.f. clubhouse (6,896 s.f. total).

16. In accordance with Section 220-26E and 220-56C of the Zoning Code, multi-family dwellings require two (2) parking spaces for each dwelling unit, plus one (1) additional space for each dwelling unit with two (2) or more bedrooms. Based on the number of units and bedrooms proposed, the proposed action requires and is providing 116 off-street parking spaces.

17. Pursuant to Section 220-24A (1)(B) of the Zoning Code, the proposed use is a principally permitted use within the underlying CC-20 Zoning District and the proposed action complies with the requirements of Section 220-26, R-MF Multi-family Residence District, of the Zoning Code.

18. The proposed action is zoning compliant and no variances are being sought by the applicant from the Zoning Board of Appeals.

19. Reference is made to memorandums from the Building Inspector dated April 28, 2016 and June 7, 2017. In addition, reference is made to a plan review letter provided by the International Code Council, dated July 17, 2017.

20. The project has been reviewed by the Town's Professional Engineering, Planning and Wetland Consultants, Kellard Sessions Consulting (KSC), and reference is made to review memorandums by KSC dated December 9, 2015; January 20, 2016; March 9, 2016; April 14, 2016; May 11, 2016; June 15, 2016; November 30, 2016; May 10, 2017; June 14, 2017; July 12, 2017; February 22, 2018, March 16, 2018; July 11, 2018; August 16, 2018 and September 6, 2018.

21. The subject property is located within the Goldens Bridge Fire District (GBFD) and the GBFD has reviewed and provided comments on the proposed action during the planning process. Further, the applicant has met with GBFD officials to discuss the project plans. Reference is made to comment letters provided by the GBFD dated September 8, 2016; June 19, 2017 and August 9, 2018.

22. The Planning Board has acted as Lead Agency with respect to the proposed action under the State Environmental Quality Review Act (SEQRA).

23. Following review of the applicant's Full Environmental Assessment Form (EAF), dated (last revised) September 29, 2016, the Planning Board (as Lead Agency) adopted a Negative Declaration of Significance on December 20, 2016 pursuant to SEQRA.

24. Throughout the Site Development Plan review process, the applicant has provided a matrix comparing the potential impacts of the project analyzed at the time of the adoption of the SEQRA Negative Declaration (plans dated March 31, 2016) to that of an Alternative Plan (dated April 27, 2017) and its most current Site Development Plan.

25. The Planning Board referred the application to the Westchester County Planning Board in accordance with Section 239-m of the General Municipal Law and the County Planning Board was identified as an Interested Agency during the SEQRA process. Reference is made to comment letters provided by the Westchester County Planning Board, dated February 12, 2016 and March 11, 2016.

26. The applicant proposes to permanently preserve ±20.06 acres of undeveloped land as open space on the easternmost part of the property located within the R-4A Zoning District. The open space area to be preserved will be subject to a conservation easement to be held by the Lewisboro Land Trust. The area to be preserved is immediately adjacent to other open spaces, including lands owned by the Bedford Audubon Society and the NYCDEP.

27. The subject property contains wetlands and watercourses that are jurisdictional to the Town of Lewisboro, the NYSDEC, the NYCDEP and the Army Corps of Engineers (ACOE).

28. On-site wetlands and watercourses were delineated by Tim Miller Associates, Inc. and adjusted and confirmed by Kellard Sessions Consulting, the Town's Wetland Consultant. On-site wetlands and watercourses were also verified by the NYSDEC and the NYCDEP, as applicable.

29. Reference is made to a Wetland/Watercourse Delineation Report and Assessment, prepared by Tim Miller Associates, Inc.

30. The project will result in no direct impact to the wetland proper. Disturbances to wetland buffers on the subject property (14,500 s.f. of Town of Lewisboro wetland buffer; 7,000 s.f. of NYSDEC adjacent area) are necessitated by project design and site conditions, and will be mitigated pursuant to a wetland mitigation plan prepared by Tim Miller Associates, Inc., entitled "Wetland Buffer Restoration and Enhancement Plan", dated (last revised) August 2, 2018.

31. Mitigation efforts focus on the portion of the buffer located to the north of the wetland boundary, between the portion of the property to be developed and the wetland corridor. Invasive plant species will be removed during stormwater basin construction and the buffer will be planted with native plant material that will regenerate and compete with the more aggressive invasive species that currently exist.

32. The wetland buffer restoration and enhancement plan to be employed by the applicant provides for the planting of trees, shrubs and herbaceous plants to enhance the existing vegetation. The proposed enhancement of the wetland buffer is intended to minimize any erosion from the developed site and maintain water quality.

33. While the Town's wetland mitigation protocol establishes a 1:1 mitigation ratio, the applicant is proposing to restore 54,000 s.f. of the buffer which equates to a 7.7:1 mitigation ratio within the NYSDEC 100-foot wetland adjacent area and a 3.7:1 mitigation ratio within the Town's 150-foot wetland buffer.

34. Reference is made to the NYSDEC Article 24 Freshwater Wetland Permit, dated October 24, 2017, which authorizes proposed work within the NYSDEC 100-foot Wetland Adjacent Area.

35. Nine (9) of the 35.4 acres are proposed to be disturbed for the construction of the new residences, parking facilities and stormwater management basins. The development will retain approximately 75 percent of the existing vegetation and wildlife habitat. The construction activities will occur primarily within the wooded upland areas of the site, in both the successional hardwood forest and the oak-tulip dominated forest. Based upon the anticipated clearing of nine (9) acres of woodland, approximately 650 trees will be removed during construction. Tree protection notes and details are provided on the plans to guide the contractors with appropriate measures to protect the root zones of trees outside of the limits of disturbance.

36. A list of observed plant and animal species is contained within the Ecology section of the Environmental Assessment Form (EAF) and impacts to plan and animal species was evaluated as part of the SEQRA process and is documented within the EAF and the Planning Board's Negative Declaration of Significance.

37. An Integrated Pest Management Plan (IPM) has been prepared and provides specific procedures and criteria for the limited future use of pesticides and herbicides at the development. Pesticides and herbicides will be used in the minimum quantities needed and only after other, non-chemical means of pest control are found to be ineffective. Reference is made to the IPM, prepared by Tim Miller Associates, Inc., dated August 30, 2016.

38. Reference is made to the Stormwater Pollution Prevention Plan (SWPPP) prepared by Insite Engineering, dated December 28, 2017, which has been reviewed and approved by the NYCDEP. Mitigation for the proposed impervious surfaces resulting from the development will be provided by the proposed Stormwater Management Practices (SMP's) described within the SWPPP. The proposed SMP's have been designed to capture and treat runoff from the impervious surfaces associated with the proposed buildings, parking areas and access drive.

39. The proposed stormwater management system for the development has been designed to meet the requirements of Local, City and State stormwater ordinances and guidelines, including but not limited to those of the Town of Lewisboro, the NYSDEC and the NYCDEP. Reference is made to NYCDEP SWPPP approval, dated January 29, 2018.

40. The proposed action requires coverage under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002). In order to meet the requirements set forth by this permit, the latest edition of the NYSDEC New York State Stormwater Management Design Manual (NYS SMDM), including Chapter 10: *Enhanced Phosphorus Removal Standards* (Chapter 10), was referenced for the design of the proposed stormwater management system.

41. A Sediment and Erosion Control Plan has been developed in accordance with the latest New York State Standards and Specifications for Erosion and Sediment Control Manual. A Sediment and Erosion Control Management Program will be established for the project, beginning at the start of construction and continuing throughout its course. A continuing maintenance program will be implemented for the control of sediment transport and erosion control after construction and throughout the useful life of the project.

42. The sediment and erosion controls that will be used during the development of the site include silt fence, stabilized construction entrance, seeding, mulching and inlet protection. Until the site is stabilized, all sediment and erosion controls will be maintained in accordance with the notes and procedures depicted on the Site Development Plans. Maintenance will include inspections of all sediment and erosion controls at the end of each construction day and immediately following each runoff event.

43. Construction of the development will require the grading of approximately nine (9) acres of the 35.4 acre property or 25 percent, with approximately 4.6 acres of grading on slopes of 15% or greater. Grading on such slopes is unavoidable, but has been minimized to the extent practical through the proposed layout of the buildings, parking areas, driveways and septic fields. Stabilization and erosion control techniques will be implemented by means of a Sediment and Erosion Control Plan to minimize the potential for resulting soil erosion.

44. The proposed action will require an estimated water demand of approximately 9,240 gallons per day (gpd), or 6.4 gallons per minute (gpm) based upon the total number of bedrooms and engineering estimates.

45. As required by the Westchester County Department of Health (WCDH), the applicant conducted a 72-hour pumping test on three (3) of its on-site wells (Wells 2, 3 and 4); the test was conducted between July 23, 2018 and July 26, 2018 and from July 31, 2018 through August 3, 2018. The purpose of the test was to confirm that the water supply could provide twice the average daily water demand of the development, with the best well out of service, as required. The pump test was conducted in accordance with New York State Department of Health Regulations and a Pumping Test Plan, prepared by LBG Hydrogeologic & Engineering Services, P.C. (now WSP), dated December 20, 2017, which was reviewed on behalf of the Town by HydroEnvironmental Solutions, Inc. (HES). Reference is made to a Memorandum from HES, dated January 11, 2017.

46. Reference is made to a report entitled "Wilder Balter Partners 72-Hour Pumping Test Program", prepared by WSP, dated September, 2018.

47. The WSP 72-Hour Pump Test Report demonstrates that Well 3 is the best yielding well and that Wells 2 and 4 have a combined yield of 13.6 gpm or 19,584 gpd, which is more than sufficient to meet twice the average water demand to support the proposed 84 bedrooms and 18,480 gpd. Water level measurements were collected from onsite monitoring wells, the on-site wetland, and off-site residential wells during the pump test period; water level monitoring measurements and results are included in the above-referenced WSP Report.

48. Water samples were collected from Wells 2, 3 and 4 during the pumping test and samples were analyzed by a laboratory for all parameters listed in the New York State Department of Health (NYSDOH) Sanitary Code.

49. The Pump Test Report was reviewed by HES on behalf of the Town and their comments and conclusions are contained in a memorandum, dated September 27, 2018.

50. Reference is made to a "Water Facilities Engineer's Report," prepared by Insite Engineering and dated (last revised) September 14, 2018.

51. The Site Development Plan incorporates the use of a subsurface wastewater disposal system. The subsurface wastewater disposal system has been designed to meet NYSDOH and WCDH Requirements.

52. Reference is made to the "Wastewater System Report", prepared by Insite Engineering and dated (last revised) September 14, 2018.

53. Reference is made to the NYSDEC SPDES General Permit (GP-0-15-001), required for discharging 1,000 gpd of treated sanitary sewage to groundwater, dated May 15, 2018. As the number of bedrooms and design flow has been modified by the applicant since obtaining this Permit, an amended NYSDEC SPDES Permit is required.

54. Reference is made to the following traffic related impact studies prepared by the applicant's traffic engineer, Maser Consulting:

- Response to comments letter, dated March 30, 2016
- Traffic Impact Study, dated (last revised) April 22, 2016
- Executive Summary-Traffic and Access Evaluation, dated September 28, 2016
- Letter regarding parking demand and requirements, dated April 25, 2017
- Updated Traffic Volume Data, dated May 11, 2017
- Highway Improvement Plans, last revised January 3, 2018

55. The Planning Board retained its own traffic engineer, Adler Consulting ("Adler"), to review transportation related impacts on behalf of the Planning Board. Adler presented comments to the Planning Board on December 21, 2016 and prepared a review letter, dated December 27, 2016.

56. Proposed improvements within the NYS Route 22 right-of-way have been approved by the New York State Department of Transportation (NYSDOT). Reference is made to a "Notice to Permittee", issued by the NYSDOT on October 1, 2018.

57. The introduction of the proposed access driveway onto NYS Route 22 will result in additional turning movements and potential traffic conflict; however, the sight distance for vehicles approaching the proposed access location is in excess of 1,000 feet with a required stopping distance of 500 feet. NYS Route 22 has paved shoulders of 8 to 10 feet in the area surrounding the access location and the applicant, as part of its NYSDOT Highway Work Permit will upgrade the shoulder and provide a separate right hand turn lane for entering traffic to remove vehicles making this turn from Route 22.

58. During construction, as required as part of the NYSDOT Highway Work Permit, a Maintenance and Protection of Traffic Plan will be implemented to ensure than any impacts to the adjacent state highway are minimized during construction. These plans include appropriate signage, limits of hours of work within the State right-of-way associated with the project and also maintenance of the construction entrance to the site, all in accordance with state standards and requirements.

59. The applicant has coordinated with the Katonah-Lewisboro Union Free School District (KLUFSD) regarding the pickup and drop-off of school children. KLUFSD has expressed its preference not to enter the site but to stop on the roadway and restrict buses to use of the proposed northbound NYS Route 22 right turn lane for pickup and drop-off of students.

60. To enhance safety and improve operation of the off-ramp during peak hours, the proposed action includes the following improvements, which have been approved by the NYSDOT:

    a. Install a luminaire in the vicinity of the I-684 off ramp.

    b. Undertake a signal warrant analysis at the intersection of the I-684 off ramp (Exit 6A)/NYS Route 22 to establish whether or not a traffic signal is warranted. This analysis will be undertaken when the proposed action is 50% occupied and within one (1) year of completion of the proposed action.

    c. Install traffic calming signage ("Intersection Ahead") along Route 22 in the vicinity of the entrance warning motorist of the project's entrance/I-684 ramp.

    d. Install "School Bus Stop Ahead" on the approach to the project access drive.

    e. Use of passenger shuttle bus on the site, so as to further reduce traffic generation.

61. While not a requirement or request by the Planning Board, the applicant has stated that it will donate $50,000.00 to the Town of Lewisboro for use in recreational or pedestrian improvements within the Goldens Bridge community.

62. Development of the site for residential building pads, parking lots and the access drive is likely to encounter bedrock where bedrock is exposed or within five (5) feet of the surface. The applicant has developed a grading plan, as well as a cut and fill map and analysis. According to the applicant, the earthwork calculation identifies a total cut and fill of 32,000 c.y., resulting in a balanced site.

63. Reference is made to a Blasting Mitigation Plan, prepared by Tim Miller Associates, Inc., dated March 30, 2016. Blasting is anticipated and the applicant will be required to obtain a Blasting Permit from the Building Inspector and demonstrate compliance with Section 91-17 of the Town Code.

64. Reference is made to a Geotechnical Evaluation report prepared by Tectonic Engineering and dated September 5, 2018.

65. The project site is located in close proximity to a major transportation corridor which has greater influence on ambient noise at the site than project-generated noise. Noise will be generated during construction by construction related equipment and during excavation, rock removal, grading, and construction activities. Construction is expected to take 18 months to complete and all work will be conducted during time periods authorized under the Town Code. Reference is made to the noise assessment report, prepared by Tim Miller Associates, Inc., dated (last revised) December 12, 2016.

66. No historic or archeological resources have been identified on or near the subject property and impacts to cultural resources was evaluated during the SEQRA process. Reference is made to the Phase 1A Literature Review and Sensitivity Assessment and Phase 1B Archeological Fieldwork, prepared by STRATA Cultural Resource Management, LLC, dated March 2016.

67. The Planning Board referred the proposed action to the Architecture and Community Appearance Review Council (ACARC); reference is made to ACARC's approval, dated September 27, 2017. As the architectural elevations have been modified by the applicant since receiving ACARC approval, amended approval from ACARC is required.

68. Based upon demographic multiplies published by the Rutgers University Center for Urban Policy Research, it is projected that the proposed action will result in an additional 17 resident students, which would increase school enrollment by less than half of 1%.

69. The proposed action has been referred to a reviewed by the Conservation Advisory Council; reference is made to comment Memorandums from the CAC dated November 9, 2015; April 11, 2016; and September 16, 2016.

**Anticipated Conditions to be Satisfied Prior to the Signing of the Approved Site Development Plans by the Secretary and Chairman:**

1. The applicant shall prepare and submit a stormwater maintenance easement and agreement, prepared in accordance with Section 189-13A and B of the Town Code, for review and approval by the Town Engineer and Planning Board Attorney. Said easement and maintenance agreement shall be filed in the office of the Westchester County Clerk. The applicant shall pay all recording charges and shall provide proof of filing to the Planning Board Secretary.

2. The average grade calculations and the building heights of all buildings shall be reviewed and accepted by the Building Inspector.

3. It is the applicant's responsibility to identify and secure any and all necessary permits/approvals from outside agencies having jurisdiction over the proposed action. Copies of all outstanding outside agency permits/approvals shall be submitted to the Planning Board. The applicant has identified the following outstanding outside agency approvals, which shall be obtained prior to the signing of the approved plans, unless otherwise noted.

    a. Amended approval from the ACARC.
    b. WCHD approval of the water and sewage systems.
    c. Amended NYSDEC General Permit for discharging 1,000 gpd or more of treated sanitary sewage to groundwater (GP-0-15-001). This Permit shall be issued prior to the commencement of construction.

d. NYSDEC SPDES General Permit for Stormwater Discharges to Construction Activity (GP-0-15-002). This Permit shall be issued prior to commencement of construction.

4. The name of the proposed road and the name of the proposed development (as it will appear on any project related signage) shall be identified on the Site Development Plans.

5. The applicant shall submit to the Planning Board Secretary an engineering/inspection fee equal to 5% of the estimated cost of construction (site work only as determined by the Town Engineer). Said estimate shall be prepared by a Licensed Professional Engineer and shall include unit costs, total costs and quantities for proposed site improvements; said estimate shall be provided by the applicant, in writing, and approved by the Town Engineer.

6. In accordance with Section 220-46G of the Zoning Code, the applicant shall supply a performance bond to guarantee completion of project infrastructure in a sum approved by the Town Engineer based on a cost estimate to be prepared by the applicant's design engineer. The form of the bond shall be acceptable to the Planning Board Attorney. The delivery and acceptance of this security does not relieve the applicant of the obligation to complete the project infrastructure. Said bond shall provide for project infrastructure to be completed within 18 months of commencement of work and for the retention by the Town of 10% of the originally fixed amount for a period of one (1) year after the last Certificate of Occupancy has been issued.

7. The wetland mitigation plantings shall be bonded in the amount approved by the Town Wetland Consultant based on a wetland planting cost estimate to be provided by the applicant. Said bond shall be released after a period of three (3) years, measured from the date of the Wetland Certificate of Completion, provided that the Town Wetland Inspector verifies that a minimum of 85% of the planted species have survived.

8. The approximate location of existing trails, potential future trails, and potential future trail connections to adjacent properties and to the development shall be illustrated on the plans.

9. The plans shall be revised to include a proposed bike rack in the vicinity of the clubhouse (Building 4).

10. Each and every sheet of the approved Site Development Plans shall contain a common revision date; shall contain an original seal and signature of the Design Professional; shall contain the Town's standard signature blocks; and shall contain an original signature of the applicant(s) and owner(s).

11. The applicant shall submit a "check set" (2 copies) of the approved Site Development Plans, prepared in final form and in accordance with the conditions of this Resolution, for review by the Planning Board's consultants.

12. Following review and revision (if necessary) of the final plans, the applicant shall furnish the Planning Board with two (2) complete mylar sets of the approved Site Development Plans for final review by the Town's consultants and endorsement by the Town Engineer, Planning Board Chairman and Secretary.

13. The applicant shall obtain a Wetland Implementation Permit, as issued by the Town Wetland Inspector.

14. The applicant shall provide a written statement identifying the person or firm responsible for mandatory SWPPP inspections required under the NYSDEC SPDES General Permit (GP-0-15-002). A copy of all inspection reports shall be submitted on a weekly basis to the Planning Board, Town Engineer and Building Inspector during construction.

15. The applicant shall provide a written statement to the Planning Board Secretary acknowledging that they have read and will abide by all conditions of this Resolution.

16. The applicant shall pay to the Town of Lewisboro, by certified check, all outstanding professional review fees.

**Anticipated Conditions to be Satisfied Prior to the Issuance of a Building Permit:**

17. Following the endorsement of the approved Site Development Plans by the Town Engineer, Planning Board Chairman and Secretary, one (1) mylar set will be returned to the applicant for copying and the second mylar set will be retained by the Planning Board as a record copy.

18. Within 10 days after endorsement of the approved Site Development Plans by the Town Engineer, Planning Board Chairman and Planning Board Secretary, the applicant shall deliver to the Planning Board Secretary nine (9) printed sets of the signed plans, collated and folded.

19. The conservation easement agreement shall be in form and content satisfactory to the Town Planner and Planning Board Attorney and shall be filed in the Office of the Westchester County Clerk. The applicant shall pay all recording charges and shall provide proof of filing to the Planning Board Secretary.

20. All proposed retaining walls more than four (4) feet in height shall be fully designed by a New York State Licensed Professional Engineer and to the satisfaction of the Building Inspector.

21. The applicant shall demonstrate that coverage has been obtained under the NYSDEC SPDES General Permits GP-0-15-001 and GP-0-15-002, as referenced above.

22. In the event blasting is required, the applicant shall comply with the Blasting Mitigation Plan, prepared by Tim Miller Associates, Inc., dated March 30, 2016, shall obtain a Blasting Permit from the Building Inspector and shall demonstrate compliance with Section 91-17 of the Town Code.

**Anticipated Conditions to be Satisfied Prior to Commencement of Work:**

23. Prior to commencement of any site work or construction activity, a site visit shall be conducted with the applicant, contractor, design engineer, Building Inspector, and the Town's consultants. Prior to the site visit, all erosion and sedimentation controls shall be properly installed and the limits of disturbance shall be staked in the field by a licensed land surveyor as specified on the approved Site Development Plans. All trees to be preserved in proximity to the limit of disturbance line shall be marked in the field and protected in accordance with the Site Development Plans.

**Anticipated Conditions to be Satisfied During Construction:**

24. During construction, the Town's consultants may conduct site inspections, as necessary, to determine compliance with the provisions of this Resolution and the approved Site Development Plans.

25. A copy of this Resolution, approved Site Development Plans, Wetland Implementation Permit, and SWPPP shall be kept on site at all times during construction.

26. Unless otherwise authorized by the Town Planner, all plant material shall be installed between April 1st and October 15th. Plant substitutions, if any, must be previously approved by the Town Planner.

27. The applicant shall employ the services of a NYS Licensed Professional Engineer to supervise and inspect site work during construction.

28. The applicant shall employ the services of a Qualified Inspector, as defined by the NYSDEC SPDES General Permit, who shall conduct bi-weekly site inspections and shall deliver reports of each inspection to the Building Inspector and Town Engineer, all in compliance with the aforementioned Permit.

**Anticipated Conditions to be Satisfied Prior to the Issuance of the first Certificate of Occupancy:**

29. Substantial completion of the road, driveways, and parking areas (including curbing and binder course of asphalt), to the satisfaction of the Town Engineer and Building Inspector.

30. Completion of the water and sewer systems, to the satisfaction of the WCDH and Town Engineer.

31. The applicant shall provide certificates or completion from the WCDH.

32. Substantial completion of the drainage systems to the satisfaction of the Town Engineer and Building Inspector.

33. Submission of an as-built survey of the building within which the unit(s) for which a Certificate of Occupancy is to be issued, prepared by a New York State Licensed Land Surveyor and to the satisfaction of the Town Engineer, demonstrating compliance with the approved Site Development Plans.

34. The applicant shall demonstrate that the three (3) existing tax lots that comprise the subject property have been merged into one (1) parcel, to the satisfaction of the Town Assessor and Planning Board Attorney.

35. The underground water storage tank shall be filled with water and a flow test shall be conducted by either the Goldens Bridge Fire District or an outside vendor approved by the Town Engineer; written verification shall be provided.

**Anticipated Conditions to be Satisfied Prior to the Issuance of a Certificate of Occupancy within the Last Building to be Constructed:**

36. No Certificate of Occupancy shall issue until all proposed improvements, both site and building related, are complete to the satisfaction of the Building Inspector and the Town's consultants.

37. Completion of the road, driveways and parking areas, including the final course of asphalt, to the satisfaction of the Town Engineer and Building Inspector.

38. An as-built plan of the stormwater management practices and associated improvements shall be submitted and shall be certified by a New York State Professional Engineer.

39. Certification by a New York State Professional Engineer that all stormwater management practices and associated improvements have been installed in conformance with the approved Site Development Plans shall be submitted to the Building Inspector and Planning Board.

40. Submission of an as-built survey of the entire site, prepared by a New York State Licensed Land Surveyor and to the satisfaction of the Town Engineer, demonstrating compliance with the approved Site Development Plans shall be submitted to the Building Inspector and Planning Board.

41. Completion of all on-site landscaping and wetland mitigation. In the event that the request for a certificate(s) of occupancy within the last building to be constructed is made outside of the growing season and this condition cannot be satisfied due to weather conditions, the applicant may elect

to establish a landscaping bond, or other form of security found acceptable to the Planning Board Attorney, for the full plant and installation costs (plus 10% contingency), all to the satisfaction of the Town Engineer and Planning Board Attorney. Prior to the issuance of a certificate of occupancy or the release of the bond, an as-built planting plan shall be prepared to the satisfaction of the Town's consultants and submitted to the Planning Board.

42. The Building Inspector and Town's consultants shall conduct a final site visit to determine conformance with the approved Site Development Plans and this Resolution. A final inspection report shall be prepared by the Town Consulting Engineer.

43. The applicant shall obtain a Wetland Certificate of Compliance from the Town of Lewisboro Wetland Inspector.

44. The applicant shall obtain and submit all applicable certificates of compliance from the NYSDOT, NYSDEC, WCHD, NYCDEP or any other regulatory agency having jurisdiction (to the extent said agencies require issuance of same).

45. The applicant shall pay to the Town of Lewisboro, by certified check, all outstanding professional review and inspection fees.

**Other Potential Conditions:**

46. The applicant is responsible for the implementation of all plans and documents referenced herein.

47. Following completion and stabilization of all land construction activities, the owner/operator shall submit a completed Notice of Termination (NOT) to the NYSDEC, Division of Water and the Planning Board Secretary.

48. All on-site infrastructure, utilities, facilities and systems shall be privately owned and maintained by the applicant.

49. One (1) of the units shall be occupied by an on-site (full time) site manager/superintendent who shall be employed by the applicant.

50. There shall be no change in unit or bedroom count or change of use without the prior approval of the Planning Board through an amended Site Development Plan application.

51. The applicant shall monitor the off-site wells and on-site surface water body for a period of two (2) years following full occupancy. The off-site monitoring program shall include the four (4) existing supply wells monitored during the 72-hour test and the on-site nested piezometers set in the wetland. Pressure transducer dataloggers shall be set in these wells to monitor water levels at a

minimum interval of hourly. The collected water level readings from the data loggers shall be downloaded on a quarterly basis and the datalogger function should be checked during each quarterly visit by collecting manual measurements using an electronic water level indicator (M-Scope). The water level data shall be compiled and plotted on hydrographs and an annual summary report shall be submitted to the Town Engineer for review.

52. The underground water storage tank, to be used as a water source for fire suppression, shall be maintained by the applicant, including ensuring that the tank is filled with water and conducting annual flow tests. The Goldens Bridge Fire District shall have the right, but not the obligation, to utilize the tank for training purposes with a minimum of 48 hours notice given to the applicant.

53. Wetland mitigation areas shall be monitored for the next three (3) growing seasons, in accordance with the NYSDEC's Freshwater Wetlands Enforcement Guidance Memorandum. Monitoring reports shall detail the success of the plantings (survival rate), success of the invasive species removal program, and shall provide recommendations/action items for the next year (if any). Monitoring reports shall be submitted to the Town Wetland Inspector and Planning Board no later than December 1st of each year and shall be based upon site reconnaissance conducted by the qualified professional prior to October 15th. The first year of monitoring will be the first year that the mitigation areas have completed a full growing season. For monitoring purposes, a growing season starts no later than May 31st.

54. Landscaping shall be maintained for the life of the facility and in accordance with the approved landscaping plan. The applicant shall be responsible for any re-grading, replanting, or irrigation necessary to ensure that the landscaping is installed and maintained in accordance with the approved plan.

55. The applicant shall be responsible for proper irrigation of trees, shrubs and herbaceous plantings shown on the landscaping and mitigations plans. The applicant shall initiate an irrigation program immediately following plant installation through the month of November and shall resume watering throughout an additional full growing season.

56. At 50% occupancy and again within one (1) year of full occupancy, the applicant shall undertake a signal warrant analysis at the intersection of the I-684 off ramp (Exit 6A)/NYS Route 22 to establish whether a traffic signal is warranted. The signal warrant analysis shall be prepared by a NYS Professional Engineer and to the satisfaction of the Town's Consulting Traffic Engineer.

57. The applicant shall comply with Section 220-60 of the Zoning Code which regulates noise levels as taken from the property line.

58. All signage, if any, shall be fully compliant with Chapter 185, Signs, of the Town Code of the Town of Lewisboro. No signs, lights or other materials or devices, except as approved and detailed on

the approved plans, shall be permitted to be supported, hung, flown, or otherwise attached to site buildings, structures or the site grounds. The applicant shall obtain any and all approvals from the ACARC relating to signage.

59. The applicant shall implement the IPM, prepared by Tim Miller Associates, Inc., dated August 30, 2016. The applicant shall manage the site in accordance with this IPM for the life of the project, unless an amended IPM is approved by the Planning Board.

60. The applicant shall maintain an on-site shuttle bus service for its residents which shall provide daily service to the Goldens Bridge/Metro-North Railroad Train Station, local shopping opportunities and medical service providers.

61. The applicant shall be responsible for keeping the driveways, parking areas, sidewalks, and walkways clear of snow and ice in a reasonable amount of time following a storm event.

62. An Automated External Defibrillator (AED) shall be located within the clubhouse.

63. Each building shall be served by an automatic emergency back-up generator. At a minimum, the generators shall provide emergency lighting to each building and shall power the central alarm systems. The generator to serve Building 4 shall also provide lighting, heating, air conditioning, and hot water to the clubhouse. The generator to serve Building 5 shall also power the elevator.

64. Mailboxes shall be located within Building 4 (the clubhouse) or, if located outside, in proximity to Building 4.

65. The proposed buildings shall include fire sprinkler systems meeting all applicable regulatory requirements.

66. The proposed buildings shall include central station monitored fire alarm systems with smoke and carbon monoxide detectors, including heat detectors in unfinished, non-habitable attic spaces.

67. All proposed buildings shall include a Knox Box Rapid Entry Systems and truss construction placards.

68. All proposed buildings shall be outfitted with fire connections at locations to be coordinated with the Goldens Bridge Fire District.

69. Oversized vehicles (length greater than 18 feet) shall not be permitted to be parked on the site other than in those parking spaces specifically labeled as "Oversized Vehicle Parking Permitted".

70. The designated open space area, to be preserved by conservation easement, shall be open to the general public.

71. The septic areas, once established, shall be designated as "limited mow areas" and shall not be mowed more than twice per year. Once established, the meadow areas and "Buffer Enhancement Areas", as denoted on the Site Development Plans, are not intended to be mowed. Stormwater basins are intended to be maintained in accordance with the project SWPPP and the Permanent Stormwater Facilities Maintenance Schedule provided on the Site Development Plans.

72. The continued validity of a Certificate of Occupancy shall be subject to continued conformance with the approved Site Development Plans and the conditions of this Resolution.

JKJ/JMC/dc

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INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

September 27, 2018

Town of Lewisboro Planning Board
79 Bouton Road
South Salem, New York 10590

RE: Wilder Balter Partners, Inc.
Proposed Affordable Rental Housing Development
NYS Route 22
Tax Map No. 5-10766-19, 20, 21

Dear Chairman Kerner and Members of the Board:

In support of the permits for the above referenced project, please find the following documents (including 9 sets of plans – 6 full scale and 3 reduced scale):

- Site Plan Set (consisting of 18 sheets), last revised September 27, 2018.
- Wetland Buffer Restoration and Enhancement Plan prepared by Tim Miller Associates Inc., last revised August 2, 2018, included in the Site Plan Set as Sheet #18.
- Building 1, 2, 3, 4 & 5 Elevations, prepared by L & M Design LLC, dated September 10, 2018.
- Building 4 Floor Plan, prepared by L & M Design LLC, dated September 21, 2018.
- Table 3.9-1 of the Expanded EAF, last revised September 25, 2018.

Enclosed please find one (1) copy of each of the following plans and documents submitted to the Westchester County Department of Health:

- OWTS Drawings (HD-1, thru HD-11), last revised September 14, 2018.
- Wastewater System Report, last revised September 14, 2018.
- Water Facilities Engineer's Report dated September 14, 2018.
- 72-Hour Pumping Test Program by WSP, dated September 2018.

With regard to comments from the Planning Board at their September 11, 2018 meeting, we offer the following responses:

1. A revised floor plan for Building 4 has been provided as part of this submission, including cross-hatching of the Clubhouse area and a table noting the square footages of the first floor spaces. In addition, the Table of Recreation Requirements has been updated to reflect the Clubhouse area provided per the floor plan.
2. The maximum occupancy of the Clubhouse area is 158 people, as calculated by the project architect.

4. Table 3.9-1 of the Expanded EAF set forth the population projections for the then proposed 46 unit, 82 bedroom program, including the CUPR residential population multipliers. The table is attached and includes hand written notes showing how the projected population was calculated for the currently proposed 42 unit, 84 bedroom program.
5. The applicant advises that upon closing of the purchase of the property and the financing of the project, beneficial ownership will be in a single purpose entity in which (i) the managing member/general partner will be controlled by Wilder Balter Partners and its principals, and (ii) the investor member/limited partner will be a financial institution such as Key Bank, TD Bank or The Bank of New York. The investor member requires that the managing member provide guarantees for construction completion and operating deficits, and also requires that the managing member maintain its ownership interest in the property and act as the managing agent for a minimum of 30 years. The investor member, NYSHCR and Westchester County each have asset managers to oversee management and reporting and require annual audits by a CPA, including a review of all leases to ensure compliance with the restrictions on household population, income and rents.
6. The applicant has scheduled a meeting with the Goldens Bridge Fire Department on October 10th, 2018 to further discuss the project.

With regard to the selected comments offered by Kellard Sessions Consulting, P.C. in their memorandum to the Board dated September 6, 2018, we offer the following responses:

1. The Preservation Easement Area is shown on Drawing OP-1 of the site plan set.
2. Building Elevations for Buildings 1, 2, 3, 4 & 5 are included in this submission.
3. The report for the 72-hour pump test is included as part of this submission.
4. Updated average grade elevations have been provided on Drawing SP-2.2.
5. The project identification sign location has been provided on Drawing SP-1 of the site plan set.

We look forward to meeting with the Board on October 16, 2018 to discuss the final plans and permits.

Should you have any questions or comments regarding this information, please feel free to contact our office.

Very truly yours,

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

By: _____
Jeffrey J. Contelmo, PE
Senior Principal Engineer

JJC/dlm

Enclosures

cc: John Bainlardi

Insite File No. 15246.100

Based upon the CUPR residential multipliers, approximately 110 persons, including 16 school age children are projected to reside in the anticipated housing. This projection is based on the demographic modeling and represents a static moment in time. In reality, individual family sizes change over time. Families that already have school age students will see them move through the grade levels and eventually graduate from the student population while at the same time, young families that did not have any children, will increase the student population by having babies that will eventually fill in the spots vacated by students graduating. The factors below represent a modeling of the average number of students projected to be in the district at any given time.

**Table 3.9-1**
**Population Projections**

| Unit Type | Number of Units | Population Multiplier | Population | School Age Children Multiplier | School Age Population |
|---|---|---|---|---|---|
| 1-BR 50% AMI | 3 2 | 1.99 | 6 4 | 0.30 | 0.9 0.6 |
| 2-BR 50% AMI | 5 4 | 2.31 | 11 9 | 0.23 | 1.15 0.92 |
| 3-BR 50% AMI | 1 2 | 3.81 | 4 8 | 1.50 | 1.5 3.0 |
| 1-BR 60% AMI | 11 8 | 1.67 | 18 13 | 0.08 | 0.88 0.64 |
| 2-BR 60% AMI | 18 17 | 2.31 | 42 39 | 0.23 | 4.14 3.91 |
| 3-BR 60% AMI | 7 8 | 3.81 | 27 30 | 1.00 | 7 8.0 |
| 2-BR Superintendent Apartment | 1 1 | 2.31 | 2 2 | 0.23 | 0.23 0.23 |
| **TOTAL** | **46** 42 | | **110** 105 | | **16** 17 |

Source: Rutgers University Center for Urban Policy Research, June 2006. Table prepared by TMA, 2016. Values are based upon 5+ Unit Structures for Rent at more than $1,000 per month for one, two and three bedroom units as noted in the table.

Note: Hand-written numbers reflect Updated 8.23.2018 Site Plan

### 3.9.2 Fiscal Resources

#### *Existing Conditions*

*Current Assessed Value*

The proposed AFFH multifamily community is contained on the following Town Tax Parcels:

- Sheet 5 - Block 10776 - Lot 19
- Sheet 5 - Block 10776 - Lot 20
- Sheet 5 - Block 10776 - Lot 21

The current equalized assessed value of the three undeveloped parcels is $87,300. This represents 9.9 percent of the total market value of the three parcels. According to a review of the 2015 tax bills for the subject parcels, the total annual property taxes paid to the Town of Lewisboro are $1,639 and the municipal taxes paid to the Goldens Bridge Fire Department are $890. The municipal taxes paid to Westchester County are $2,990. Thus, the total municipal taxes paid are $5,520 while the annual property taxes paid to the Katonah Lewisboro School District (KLSD) are $17,061.

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September 14, 2018

Mr. Frederick Beck, Jr., P.E.
Westchester County Department of Health
25 Moore Avenue
Mt. Kisco, New York 10549

RE: OWTS for Wilder Balter Partners, Inc.
NYS Route 22, Town of Lewisboro
Tax Map # 5-10766-19, 20 & 21

Dear Mr. Beck:

Enclosed please find the following information:

- OWTS Drawings (HD-1, thru HD-11), last revised September 14, 2018. (5 copies)
- Engineers Report, last revised September 14, 2018. (1 copy)

In response to the remaining outstanding comments offered in your letter dated October 23, 2017, we offer the following:

1. It is acknowledged that prior to issuance of the OWTS approval the three (3) tax parcels which on which the subject project is located shall be merged into one (1) tax parcel. The applicant is committed to merging the lots and it is requested that this be a condition of approval.

2. As you are aware a NYSDEC SPDES Permit for Groundwater Discharge of Treated Sanitary Waste has been obtained (Permit ID 3-5530-00223/00002) for the previous configuration of the project, which had a design flow of 7,920 gallons per day (gpd). As seen with this submission the design flow for the project has been increased to 9,240 gpd and we are formally requesting that your Department issue a revised Flow Confirmation Letter for the project so that we can amend the SPDES permit with the NYSDEC.

8. The responses to the items identified in comment #8 are provided below:
   - The project plans have been revised to include profile drawings for the primary and expansion absorption trench areas.
   - Proposed sewer main and forcemain profiles are shown on the enclosed revised plans.
   - Additional detail has been added to the plans regarding the pump pits and the valve pits have been removed from the proposed pump system.

Should you have any questions or comments regarding this information, please feel free to contact our office.

Very truly yours,

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

By: _____
Jeffrey J. Contelmo, P.E.
Senior Principal Engineer

3 Garrett Place, Carmel, New York 10512 (845) 225-9690 Fax (845) 225-9717
*www.insite-eng.com*

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JJC/zmp

Enclosure(s)

cc: J. Bainlard
J. Johannessen
C. Conran

Insite File No. 15246.100

**NEW YORK STATE DEPARTMENT OF HEALTH**
Bureau of Water Supply Protection

**Application for Approval of Plans for Public Water Supply Improvement**

| Applicant | Location of works (C,V,T) | County | Water District (specific area served) |
|---|---|---|---|
| Property Group Partners, LLC | Route 22, Lewisboro, NY | Westchester | N/A |

Type of ownership
- ☐ Municipal
- ☐ Industrial
- ☐ Commercial
- ☐ Water Works Corp.
- ☑ Private – Other
- ☐ Private – Institutional
- ☐ Board of Education
- ☐ Authority
- ☐ Federal
- ☐ State
- ☐ Interstate
- ☐ International
- ☐ Native American Reservation

☐ Modifications to existing system. If checked, provide PWS ID # NY ___ ___ ___ ___ ___ ___ ___

New System. If checked, provide capacity development (viability) analysis*

If this project involves a new system, new water district, or a district extension provide boundary description location details in digital format on CD or Floppy Disk. If digital boundary location details are not available provide a text description.
☐ Digital GIS Data Provided ☐ Digital CAD Data Provided ☐ Other Digital Data Provided ☑ Text Description Provided ☐ N/A

Funding Source ☑ Private ☐ DWSRF** ☐ Federal ☐ Other ___

If DWSRF is checked, provide DWSRF # ___ ___ ___ ___ ___

Estimated Project Cost

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Source | $ 10,000 | Treatment | $ 200,000 | Storage | $ 45,000 | Distribution | $ 100,000 |
| Pumping | $ 25,000 | Engineering | $ 20,000 | Legal/Permitting | $ 10,000 | Total | $ 410,000 |

Type of Project
- ☑ Source
- ☐ Transmission
- ☐ Corrosion Control
- ☐ Pumping Unit
- ☐ Chlorination
- ☐ U.V. Light Disinfection
- ☐ Fluoridation
- ☐ Other Treatment
- ☐ Distribution
- ☐ Storage
- ☐ Other

Project Description: Disinfection for three wells, storage, and distribution system for Community Public Water Supply.

Population

| Total population of Service area | % population actually served | % population served affected by project |
|---|---|---|
| ~72 | 100% | 100% |

Latest total consumption data (in MGD)

| | | | |
|---|---|---|---|
| Avg. day | 0.092 | Year | Calculated |
| Max. day | 0.084 | Year | Calculated |
| Peak hr. | 27 gpm | Year | Calculated |

14. NYS Professional Licensed Engineer Stamp & Signature ***

STATE OF NEW YORK
JEFFREY J. CONTELMO
6192
LICENSED PROFESSIONAL ENGINEER
2017

Name of design engineer: Jeffrey J. Contelmo, P.E., Insite Engineering, Surveying & Landscape Architecture, P.C.

Address: 3 Garrett Place, Carmel, NY 10512 Telephone No. (845) 225-9690

E-Mail: jcontelmo@insite-eng.com Fax No. (845) 225-9717

Name and title of applicant or designated representative: Jeffrey J. Contelmo, P.E. as Agent for Property Group Partners, LLC

Address: 375 Park Ave., 35th Floor, New York, NY 10152

Signature of applicant

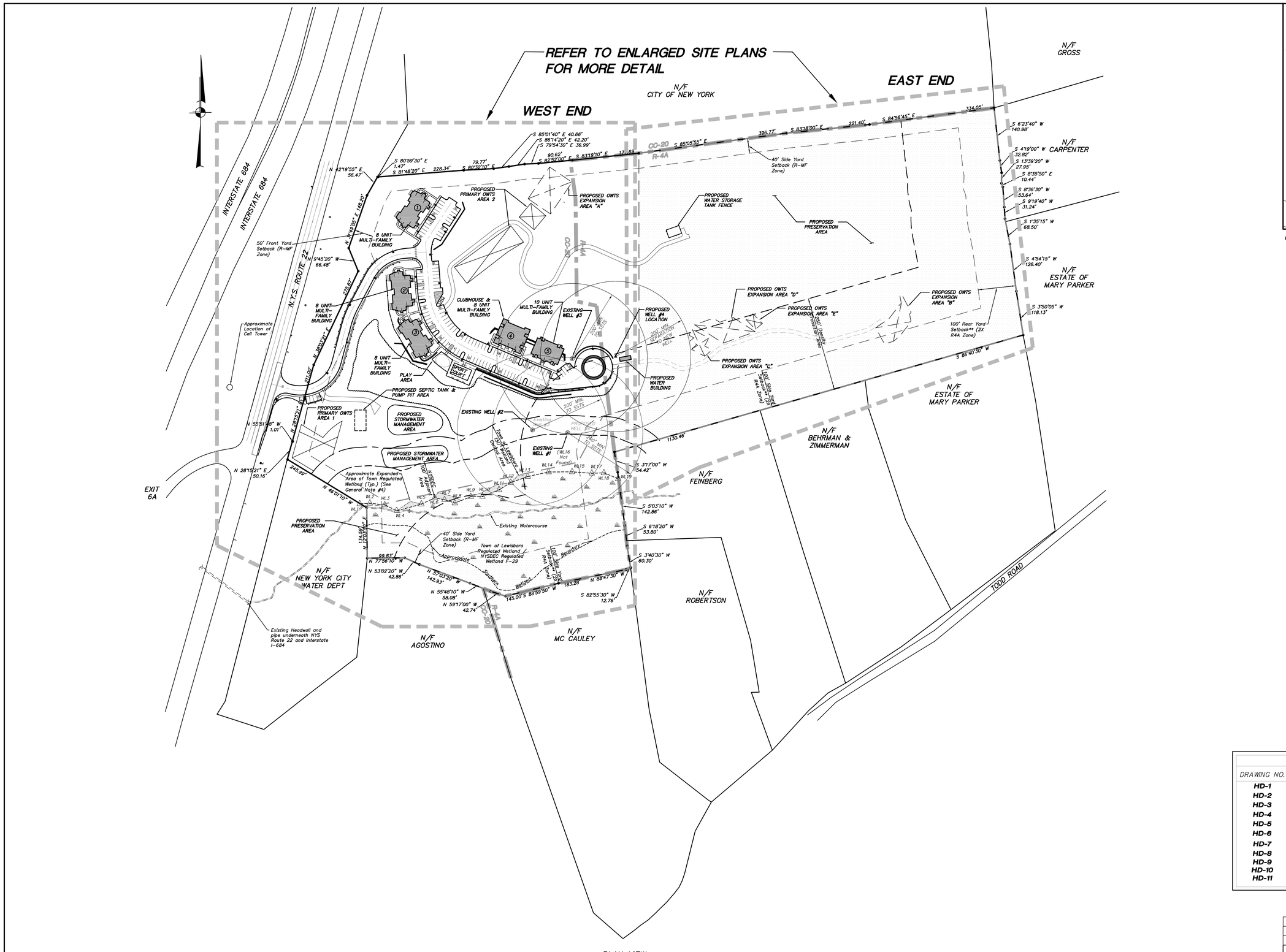
09 / 18 / 18
Date

**NOTE:** All applications must be accompanied by 3 sets of plans, 3 sets of specifications and an engineer's report describing the project in detail. The project must first be discussed with the appropriate city, county, district or regional public health engineer. Signature by a designated representative *must* be accompanied by a letter of authorization.

* Additional information regarding capacity development may be found at: http://www.health.state.ny.us/nysdoh/water/main.htm

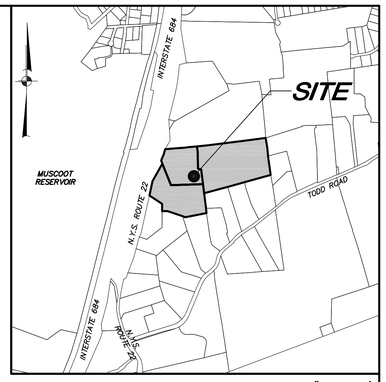
**Current DWSRF project listings may be found at: http://www.health.state.ny.us/nysdoh/water/main.htm

***By affixing the stamp and signature the Design Engineer agrees that the plans and specifications have been prepared in accordance with the most recent version of the recommended standards for water works and in accordance with the NYS Sanitary Code




## PLAN VIEW

SCALE: 1" = 100'




LOCATION MAP SCALE: 1" = 1000'±

## OWNER:

Property Group Partners, LLC
Attn: Jeffrey Sussman, President
609 Fifth Avenue, 6th Floor
New York, NY 10017

## APPLICANT:

Wilder Balter Partners, Inc.
570 Taxter Road
Elmsford, NY 10523

## SITE DATA:

Address: Route 22, Goldens Bridge, NY 10526
Zone: CC-20 (Campus Commercial) R-4A
Total Acreage: 35.43 AC. ±
Tax Map No.: Sheet 5, Block 10766, Lots 19, 20 & 21
Proposed Use: Multi-family Dwellings
Watershed Basin: Muscoot Reservoir

## GENERAL NOTES:

1. Property lines as shown hereon are based on a Survey of Property prepared by Bunney Associates Land Surveyors, last revised October 31, 1984.
2. Topography as shown hereon is based on aerial photography dated April 2008, as prepared by Geomaps International. Contour interval is 2'.
3. The wetland flagging as shown hereon was delineated by Steve Marino on November 16, 2015 and survey located by Insite Engineering, Surveying & Landscape Architecture PC, completed November 25, 2015.
4. Approximate location of expanded Town Regulated Wetland area as shown hereon based on sketch provided by Town Wetland Consultant, Kellard Sessions, January 2016.
5. There are no FEMA 100-year flood plains on the subject property.

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL

## SOILS LEGEND

| SOILS | DESCRIPTION | HYDROLOGICAL GROUP |
|---|---|---|
| CrC | Charlton–Chatfield complex, rolling, very rocky | B |
| CtC | Chatfield–Hollis–Rock outcrop complex, rolling | B |
| CuD | Chatfield–Hollis–Rock outcrop complex, hilly | B |
| HrF | Hollis–Rock outcrop complex, very steep | C |
| LcB | Leicester loam, 3% to 8% slopes, stony | C |
| Pa | Palms muck | A/D |
| RhB | Riverhead loam, 3% to 8% slopes | B |

## DRAWING LIST



## OWTS SCHEDULE

| Lot Area (in ac) | Typical Deep Test Hole Description | Mottling and/or Ground Water Elevation | Impervious Layer El. | Percolation Rate (Min./In) | % Slope S.S.D.S. Area | Design Flow | Required Amount of Absorption Trenches (lf) | Required Septic Tank Size | Alternate Dosing | R.O.B. Gravel Fill Depth | Curtain Drain Depth | Curtain Drain Length (LF) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35± | 0"–8": Topsoil<br>8"–36": Red/Brown Fine Sandy Loam<br>36"–84": Gray Fine To Medium Sand With Gravel | None | None | 3 – 5 | Varies 3% to 9% | 10 1–Bedroom Units x 110 gpd/unit = 1,100 gpd<br>22 2–Bedroom Units x 220 gpd/unit = 4,840 gpd<br>10 3–Bedroom Units x 330 gpd/unit = 3,300 gpd<br>Total 9,240 gpd | 3,850 LF PRIMARY REQUIRED<br>3,900 LF PRIMARY PROVIDED<br>3,850 LF EXPANSION REQUIRED<br>3,886 LF EXPANSION PROVIDED | 10,680 GALLONS REQUIRED<br>11,000 GALLONS PROVIDED | Primary OWTS Area 1 will receive Alternating dose volume of 490 gallons from 750 gallon dosing chamber<br>Primary OWTS Area 2 will receive alternating pump dose of 504 & 516 gallons from 2,000 gallon pump plt | No Fill Required For Vertical Separation For OWTS Primary Areas 1 And 2, And Expansion Areas A & C.<br>2' For Vertical Separation in OWTS Expansion Area "B."<br>2' For Vertical Separation in OWTS Expansion Area "D."<br>2' For Vertical Separation in OWTS Expansion Area "E." | N/A | N/A | 2,900 C.Y. ROB Gravel Fill<br>Soil Air Enhanced Treatment Units Proposed For Enhacing Treatment. |

GRAPHIC SCALE

100 0 50 100 200 400

( IN FEET )
1 inch = 100 ft.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 09–14–18 | REVISED PER WCDOH COMMENTS | TMB |
| 1 | 12–12–17 | REVISED PER WCDOH COMMENTS | SVW |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3 Garrett Place
Carmel, NY 10512
(845) 225–9690
(845) 225–9717 fax
www.insite–eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

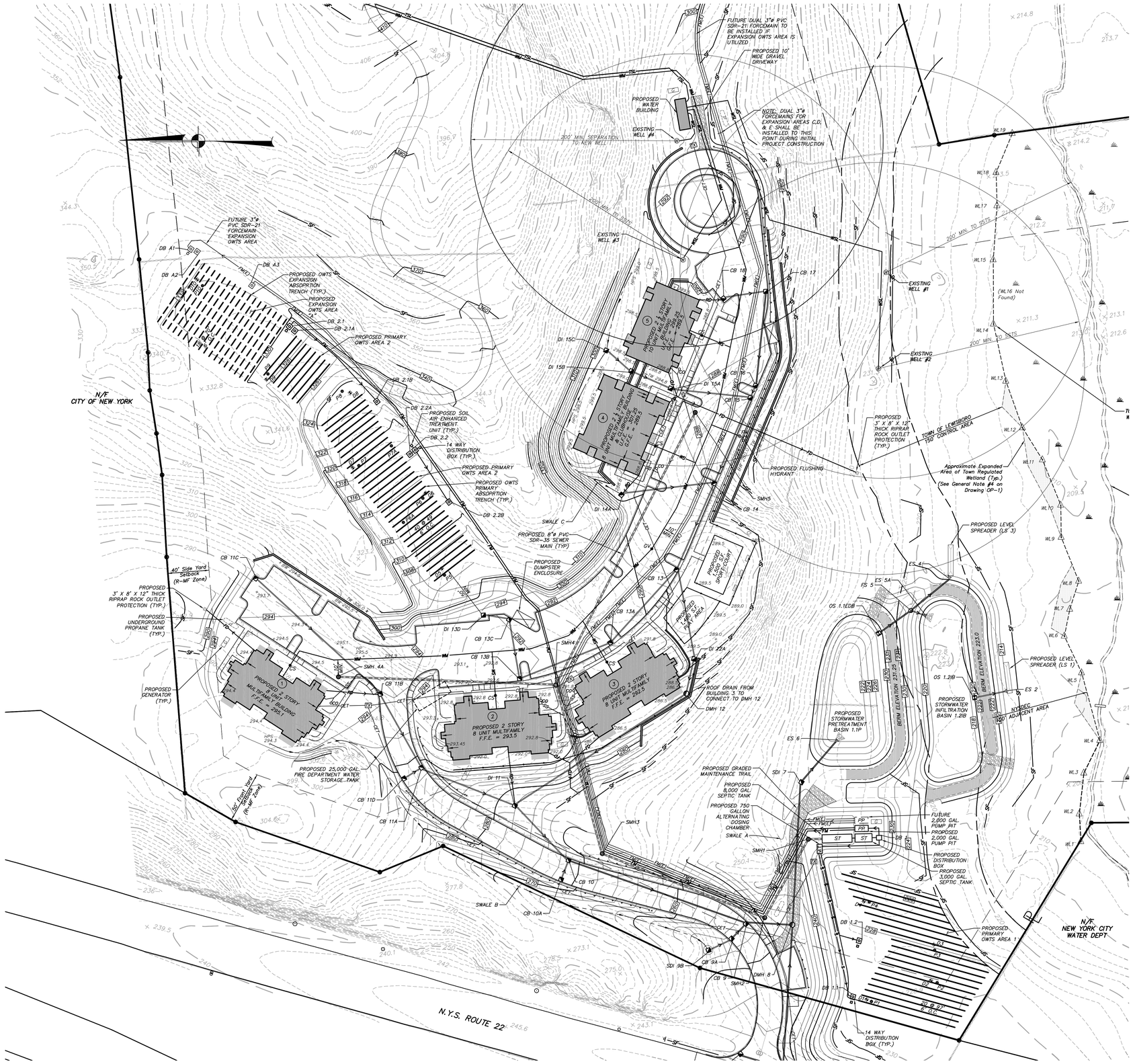
DRAWING:
OVERALL SITE DEVELOPMENT PLAN

| | | | |
|---|---|---|---|
| PROJECT NO. | 15246.100 | PROJECT MANAGER | J.J.C |
| DATE | 09–27–17 | DRAWN BY | P.L.M |
| SCALE | 1"=100' | CHECKED BY | Z.M.P. |

DRAWING NO. HD–1 SHEET 1 / 11



Z:\15246\WDS\SITE\01 HD-1.dwg, 9/14/2018 8:02:27 AM, eyeonbaker, 1:1




## OWTS PLAN

SCALE: 1" = 40'

## OWTS AREA TEST DATA

### DEEP TESTS

NOTE: NO GROUNDWATER, MOTTLING, OR ROCK ENCOUNTERED UNLESS NOTED.

D1, D2, D3, D4: 0"–8": TOPSOIL
8"–24": LIGHT BROWN FINE SAND AND SILT
24"–84"+: LIGHT BROWN SAND AND GRAVEL

D5: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84" GRAY FINE TO MEDIUM SAND WITH GRAVEL
*ROCK AT 84"

D6: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84"+ GRAY FINE TO MEDIUM SAND WITH GRAVEL

D7: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84"+ GRAY FINE TO MEDIUM SAND WITH GRAVEL

D8: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84"+ GRAY FINE TO MEDIUM SAND WITH GRAVEL
*GROUNDWATER AT 54"

D9: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84": GRAY FINE TO MEDIUM SAND WITH GRAVEL
*ROCK AT 84"

D10: 0"–8": TOPSOIL
8"–36": RED/BROWN FINE SANDY LOAM
36"–84": GRAY FINE TO MEDIUM SAND WITH GRAVEL
*ROCK AT 84"

### PERCOLATION TESTS

| | |
|---|---|
| P 1: | 4 MIN/IN |
| P 2: | 3 MIN/IN |
| P 3: | 4 MIN/IN |
| P 4: | 4 MIN/IN |
| P 5: | 6 MIN/IN |
| P 6: | 4 MIN/IN |
| P 6A: | 3 MIN/IN |
| P 7: | 4 MIN/IN |
| P 7A: | 3 MIN/IN |
| P 8: | 6 MIN/IN |
| P 9: | 5 MIN/IN |
| P 10: | 4 MIN/IN |

## OWTS AREA DESIGN DATA:

DESIGN FLOW: 9,240 GPD

PERCOLATION RATE: 3 TO 5 MIN/IN

ABSORPTION TRENCHES: 3,850 LF PRIMARY TRENCHES REQUIRED. 3,900 LF PRIMARY TRENCHES PROVIDED. 3,850 LF EXPANSION TRENCHES REQUIRED. 3,886 LF EXPANSION TRENCHES PROVIDED. TOTAL PROVIDED 7,786 LF.

ADDITIONAL REQUIREMENTS: OWTS PUMP PIT AND SOIL AIR TREATMENT UNITS REFER TO THE WASTEWATER ENGINEER'S REPORT FOR ADDITIONAL DESIGN INFORMATION

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- PROPOSED ROOF DRAIN
- PROPOSED FOOTING DRAIN
- PROPOSED GRASS SWALE
- PROPOSED 8"ø PVC DR-18 WATER MAIN
- PROPOSED 4"ø PVC DR-18 WATER SERVICE
- PROPOSED 4"ø PVC DR-18 TANK SUPPLY LINE
- PROPOSED 1.5"ø PE WELL SERVICE LINE
- PROPOSED SEWER MAIN
- PROPOSED SEWER SERVICE WITH CLEANOUT
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (PRIMARY)
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (EXPANSION)
- PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH
- PROPOSED TRANSFORMER
- PROPOSED UNDERGROUND PROPANE TANK
- PROPOSED GENERATOR
- PROPOSED CURB STOP
- PROPOSED GATE VALVE
- PROPOSED FLUSHING HYDRANT WITH GATE VALVE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE
- PROPOSED 14-WAY DISTRIBUTION BOX
- DEEP TEST LOCATION
- PERCOLATION TEST LOCATION
- PROPOSED SILT FENCE

## SOILS LEGEND

| SOILS | DESCRIPTION | HYDROLOGICAL GROUP |
|---|---|---|
| CrC | Charlton–Chatfield complex, rolling, very rocky | B |
| CtC | Chatfield–Hollis–Rock outcrop complex, rolling | B |
| CuD | Chatfield–Hollis–Rock outcrop complex, hilly | B |
| HrF | Hollis–Rock outcrop complex, very steep | C |
| LcB | Leicester loam, 3% to 8% slopes, stony | C |
| Pa | Palms muck | A/D |
| RhB | Riverhead loam, 3% to 8% slopes | B |

## SEWER MAIN TABLE

| STRUCTURE | RIM | INV. | PIPE SIZE | LENGTH | SLOPE |
|---|---|---|---|---|---|
| SMH 4A | 295.7 | 291.5 | 8" | 211 L.F. | 1.7% |
| SMH 4 | 292.1 | INV IN 289.5<br>INV OUT 289.4 | | | |
| SMH 5 | 288.0 | 284.0 | 8" | 297 L.F. | 1.0% |
| SMH 4 | 292.1 | INV IN 289.5<br>INV OUT 289.4 | 8" | 170 L.F. | 12.3% |
| SMH 3 | 267.5 | INV IN 263.5<br>INV OUT 263.4 | 8" | 169 L.F. | 10.4% |
| SMH 2 | 248.6 | INV IN 243.7<br>INV OUT 243.6 | 8" | 87 L.F. | 9.7% |
| SMH 1 | 237.8 | INV IN 233.9<br>INV OUT 233.9 | | | |

GRAPHIC SCALE

40 0 20 40 80 160

( IN FEET )
1 inch = 40 ft.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 09–14–18 | REVISED PER WCDOH COMMENTS | TMB |
| 1 | 12–12–17 | REVISED PER PCDOH COMMENTS | SVW |

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www.insite–eng.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
ENLARGED OWTS PLAN – WEST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C | DRAWING NO. | SHEET |
| DATE | 09–27–17 | DRAWN BY | P.L.M | HD–2 | 2 / 11 |
| SCALE | 1" = 30' | CHECKED BY | Z.M.P. | | |


## OWTS AREA TEST DATA

### PERCOLATION TESTS

| | |
|---|---|
| P 11: | 3 MIN/IN |
| P 11A: | 3 MIN/IN |
| P 12: | 3 MIN/IN |
| P 13: | 3 MIN/IN |
| P 14: | 3 MIN/IN |
| P 14A: | 3 MIN/IN |
| P 15: | 6 MIN/IN |
| P 15A: | 4 MIN/IN |
| P 16: | 3 MIN/IN |
| P 17: | 3 MIN/IN |
| P 18: | 4 MIN/IN |
| P 19: | 5 MIN/IN |
| P 20: | 8 MIN/IN |
| P 20A: | 3 MIN/IN |
| P 21: | 3 MIN/IN |
| P 21A: | 3 MIN/IN |
| P 22: | 3 MIN/IN |
| P 22A: | 3 MIN/IN |
| P 23: | 3 MIN/IN |
| P 23A: | 3 MIN/IN |

### DEEP TESTS

NOTE: NO GROUNDWATER, MOTTLING, OR ROCK ENCOUNTERED UNLESS NOTED.

| | | |
|---|---|---|
| D11: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D11A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–52": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 52" |
| D12: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–52": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 52" |
| D13: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D14: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 84" |
| D14A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 84" |
| D15: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D15A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–72": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 72" |
| D16: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D17: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D18: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D19: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 84" |
| D20: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL |
| D20A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL |
| D21: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–84": | GRAY FINE TO MEDIUM SAND WITH GRAVEL |
| D21A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–72": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 72" |
| D22: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–72": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 72" |
| D22A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D23: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–60": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 60" |
| D23A: | 0"–8": | TOPSOIL |
| | 8"–36": | RED/BROWN FINE SANDY LOAM |
| | 36"–66": | GRAY FINE TO MEDIUM SAND WITH GRAVEL *ROCK AT 66" |

## OWTS AREA DESIGN DATA:

| | |
|---|---|
| DESIGN FLOW: | 9,240 GPD |
| PERCOLATION RATE: | 3 TO 5 MIN/IN |
| ABSORPTION TRENCHES: | 3,850 LF PRIMARY TRENCHES REQUIRED. 3,900 LF PRIMARY TRENCHES PROVIDED 3,850 LF EXPANSION TRENCHES REQUIRED. 3,886 LF EXPANSION TRENCHES PROVIDED. TOTAL PROVIDED 7,786 LF. |
| ADDITIONAL REQUIREMENTS: | OWTS PUMP PIT AND SOIL AIR TREATMENT UNITS REFER TO THE WASTEWATER ENGINEER'S REPORT FOR ADDITIONAL DESIGN INFORMATION |

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- PROPOSED ROOF DRAIN
- PROPOSED FOOTING DRAIN
- PROPOSED GRASS SWALE
- PROPOSED 8"ø PVC DR-18 WATER MAIN
- PROPOSED 4"ø PVC DR-18 WATER SERVICE
- PROPOSED 4"ø PVC DR-18 TANK SUPPLY LINE
- PROPOSED 1.5"ø PE WELL SERVICE LINE
- PROPOSED SEWER MAIN
- PROPOSED SEWER SERVICE WITH CLEANOUT
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (PRIMARY)
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (EXPANSION)
- PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH
- PROPOSED TRANSFORMER
- PROPOSED UNDERGROUND PROPANE TANK
- PROPOSED GENERATOR
- PROPOSED CURB STOP
- PROPOSED GATE VALVE
- PROPOSED FLUSHING HYDRANT WITH GATE VALVE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE
- DB 1.1 PROPOSED 14-WAY DISTRIBUTION BOX
- D13 DEEP TEST LOCATION
- P13 PERCOLATION TEST LOCATION
- PROPOSED SILT FENCE

GRAPHIC SCALE

40 0 20 40 80 160

( IN FEET )
1 inch = 40 ft.

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

## OWTS PLAN

SCALE: 1" = 40'

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 09–14–18 | REVISED PER WCDOH COMMENTS | TMB |
| 1 | 12–12–17 | REVISED PER PCDOH COMMENTS | SVW |


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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
ENLARGED OWTS PLAN – EAST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C | DRAWING NO. | SHEET |
| DATE | 09–27–17 | DRAWN BY | P.L.M | HD–3 | 3 / 11 |
| SCALE | 1" = 30' | CHECKED BY | Z.M.P. | | |

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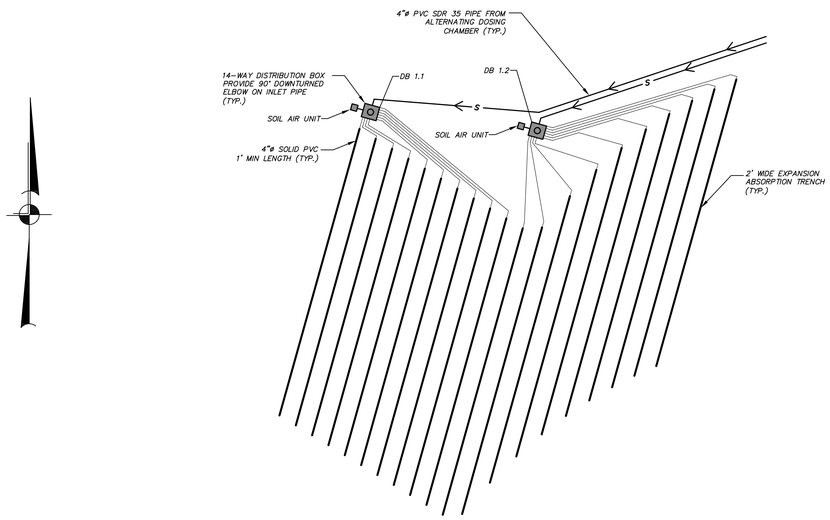
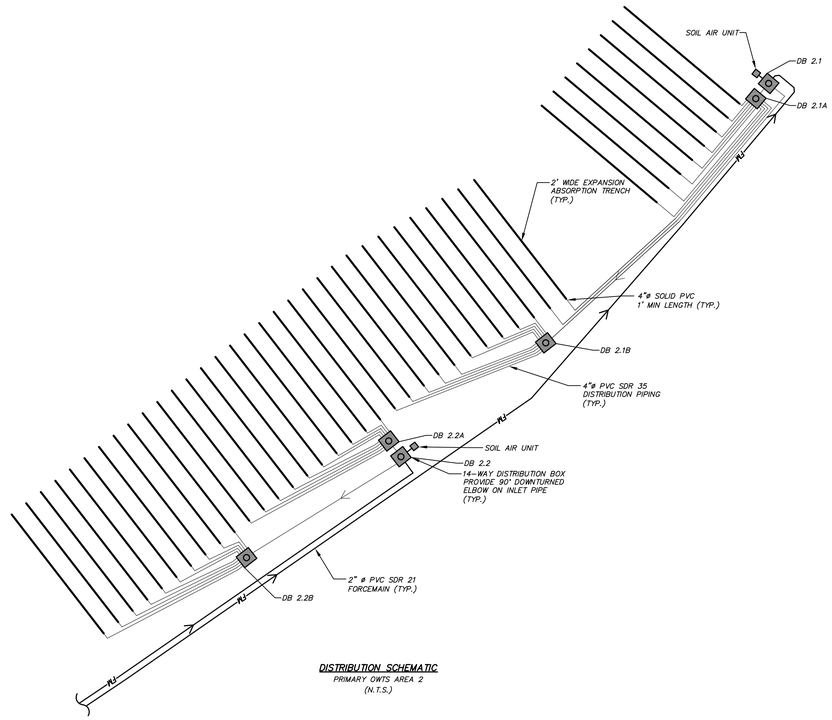
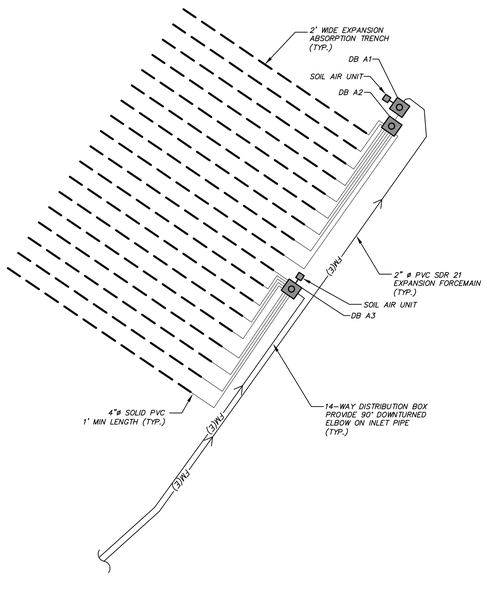


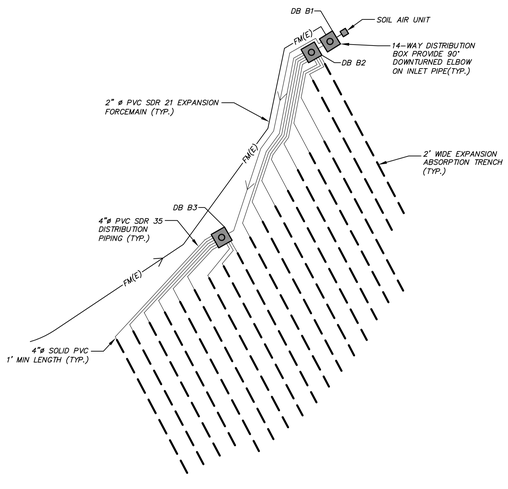

**DISTRIBUTION SCHEMATIC**
PRIMARY OWTS AREA 1
(N.T.S.)



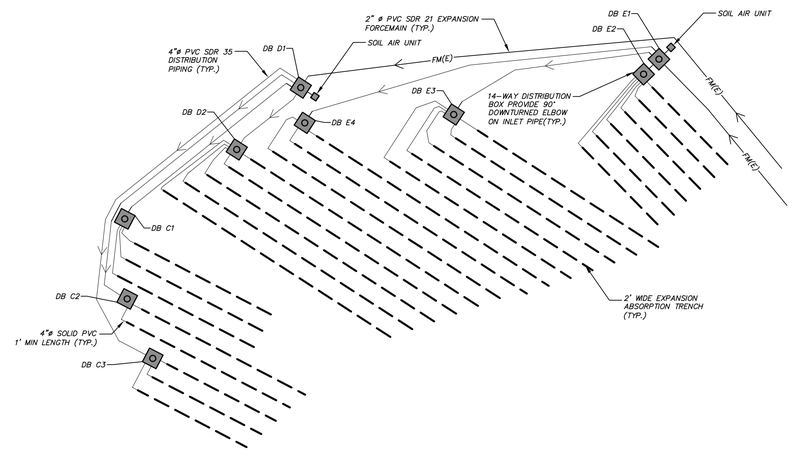

**DISTRIBUTION SCHEMATIC**
PRIMARY OWTS AREA 2
(N.T.S.)




**DISTRIBUTION SCHEMATIC**
EXPANSION AREA "A"
(N.T.S.)




**DISTRIBUTION SCHEMATIC**
EXPANSION AREA "B"
(N.T.S.)




**DISTRIBUTION SCHEMATIC**
EXPANSION AREAS "C", "D" & "E"
(N.T.S.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 09-14-18 | REVISED PER WCDOH COMMENTS | TMB |
| 1 | 12-12-17 | REVISED PER WCDOH COMMENTS | SVW |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www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWSBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
OWTS DISTRIBUTION SCHEMATICS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C | DRAWING NO. | SHEET 4 / 11 |
| DATE | 09-27-17 | DRAWN BY | S.V.W. | HD-4 | |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |




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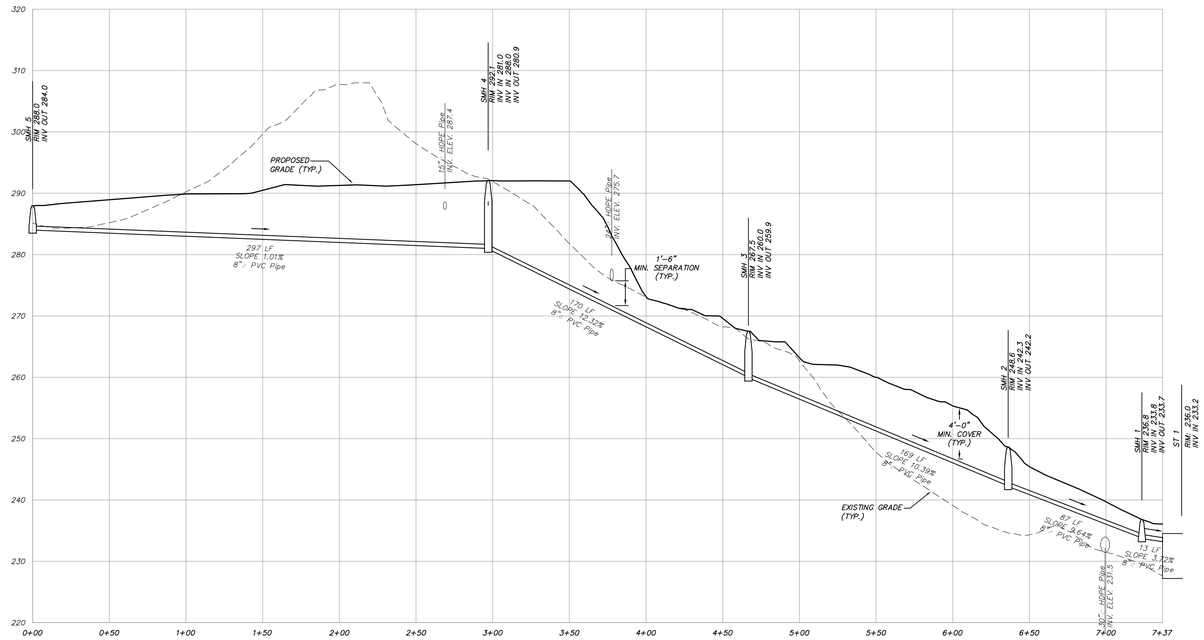
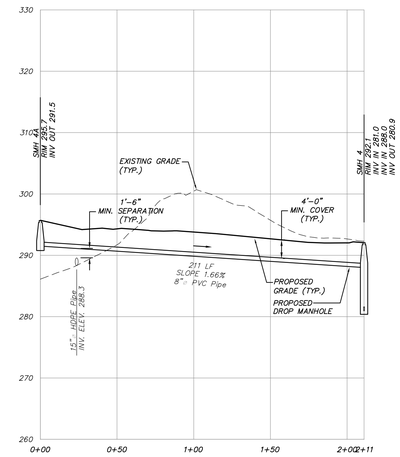


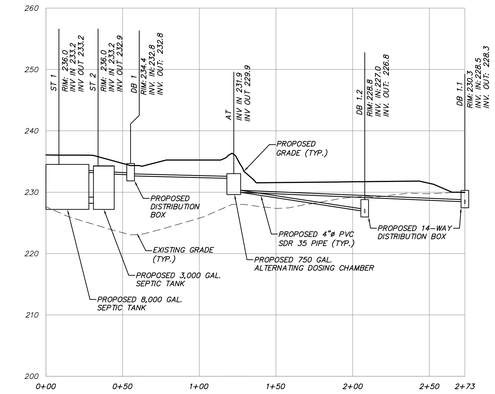

## SMH 5 TO SEPTIC TANK

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



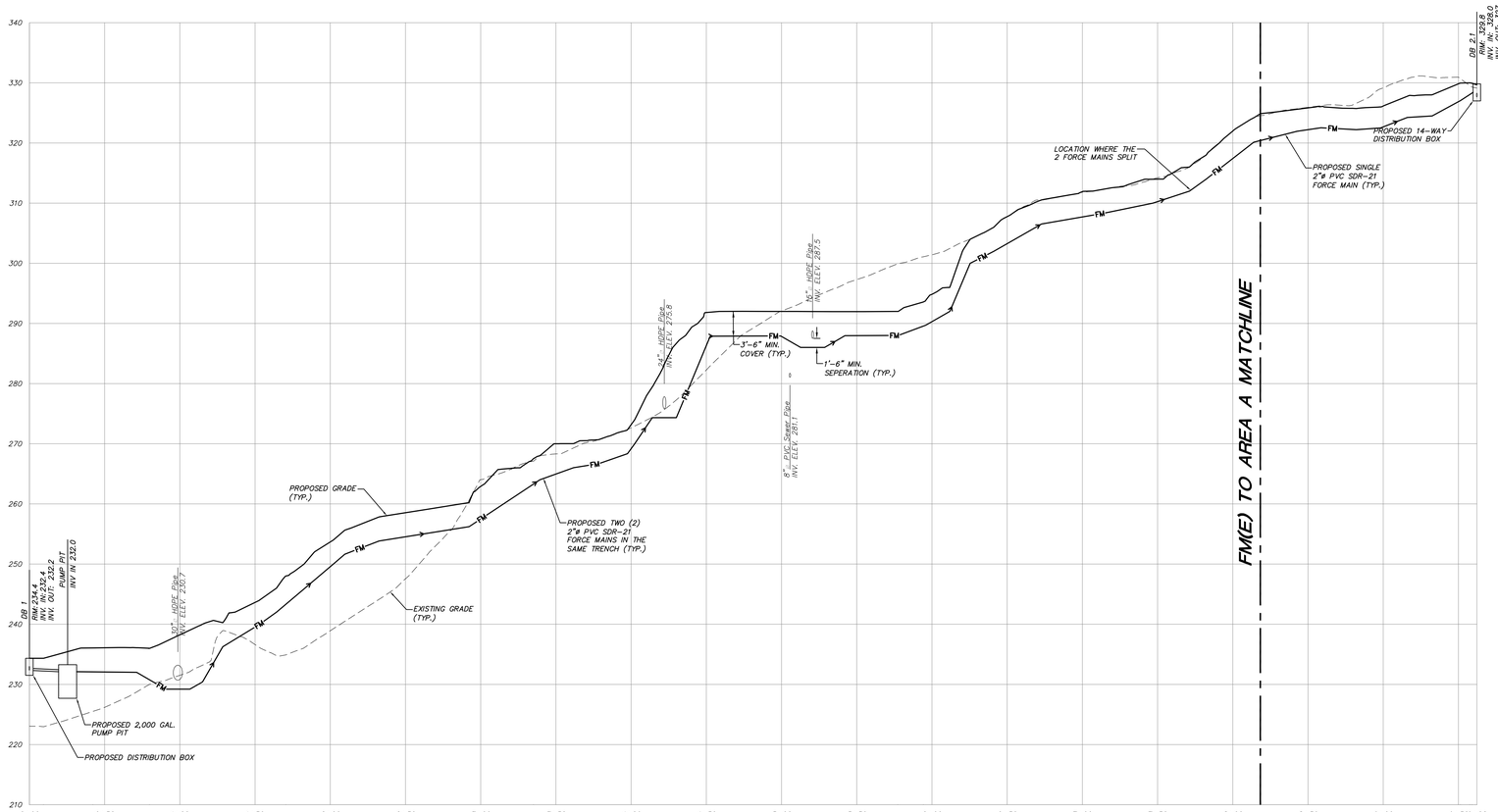

## SMH 4A TO SMH 4

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



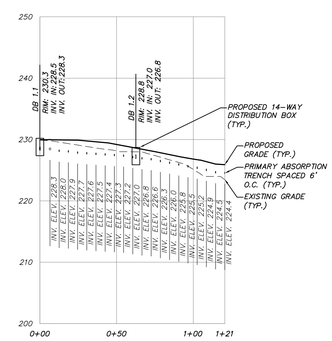

## ST1 TO PRIMARY AREA 1

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



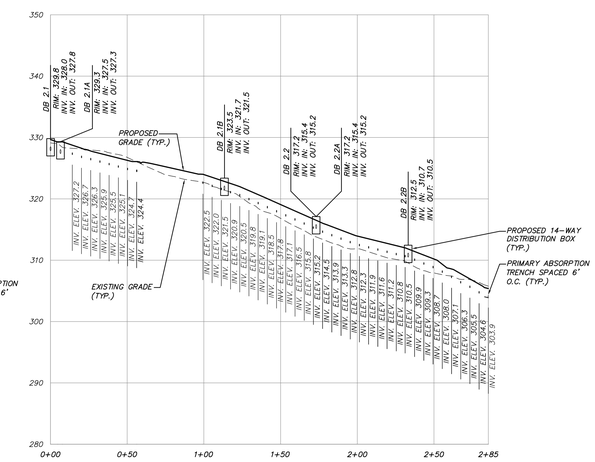

## FM TO PRIMARY AREA 2

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## PRIMARY AREA 1

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## PRIMARY AREA 2

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'

| NO. | DATE | REVISION | BY |
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| 1 | 09-14-18 | REVISED PER WCDOH COMMENTS | TMB |


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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SEWER PROFILES

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 10-25-17 | DRAWN BY | E.J.P. | HD-5 | 5 / 11 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |




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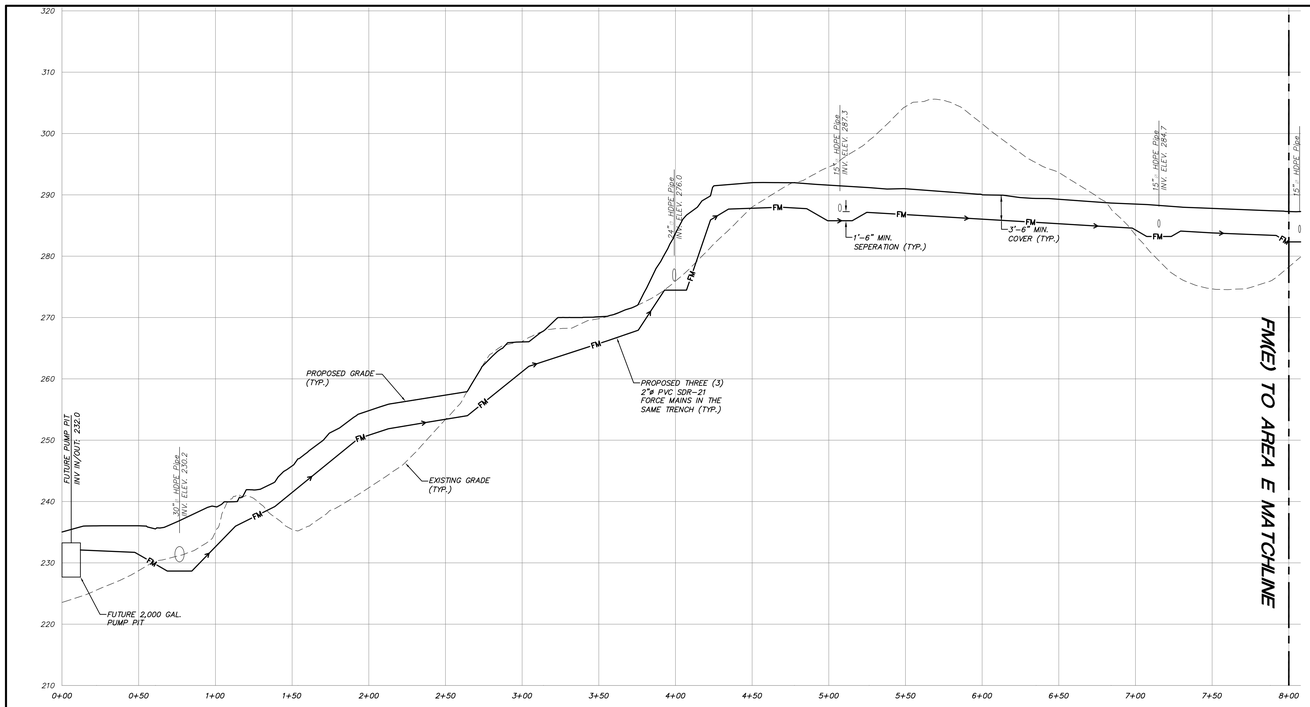


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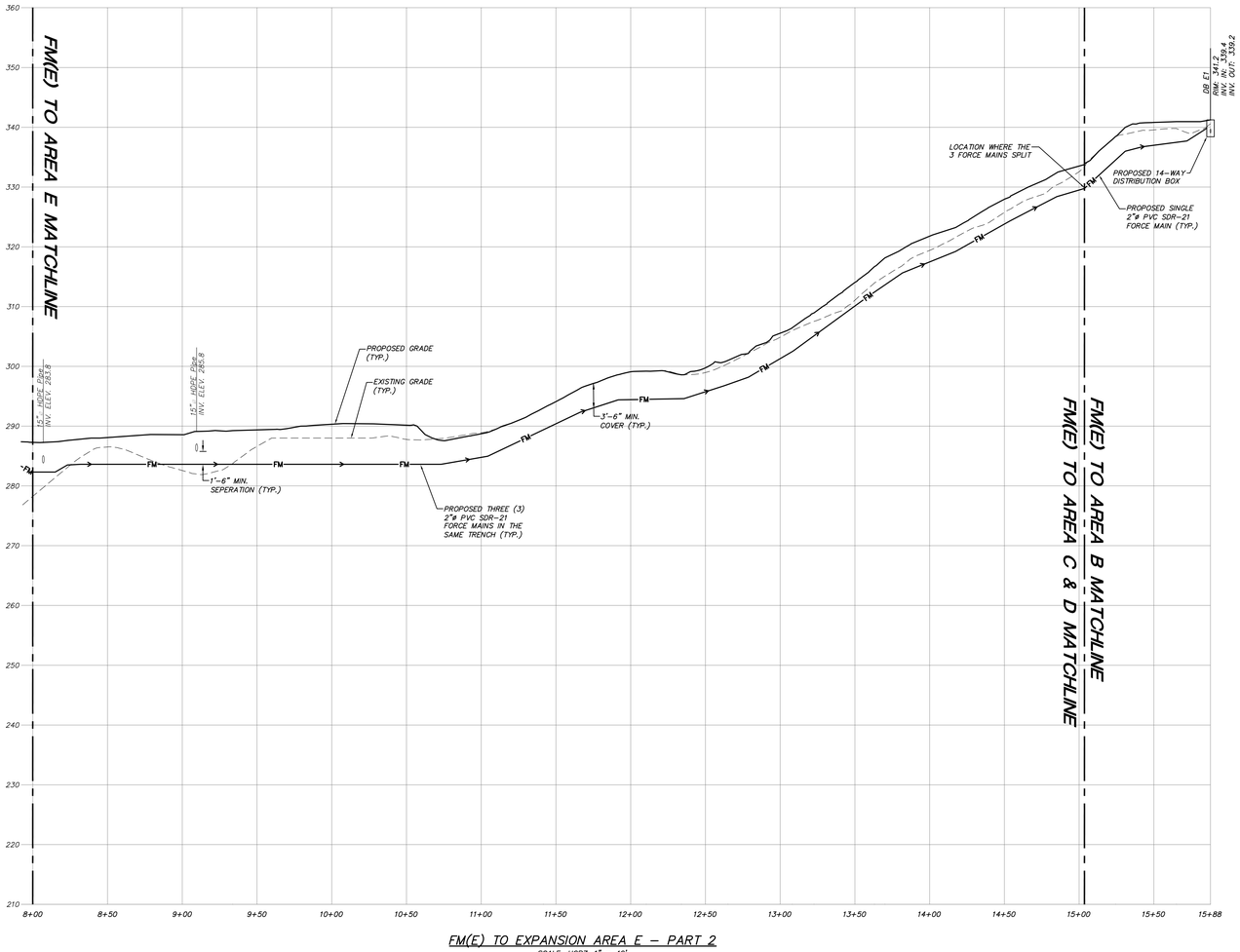


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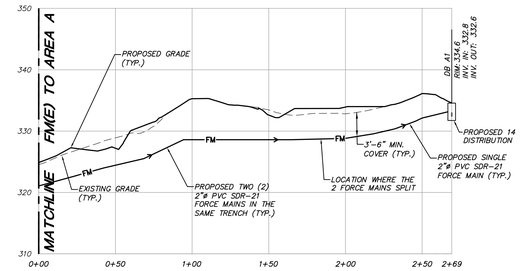


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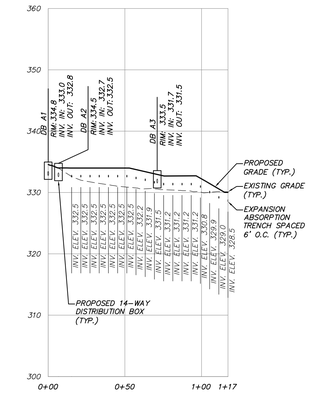
VERT. 1" = 10'

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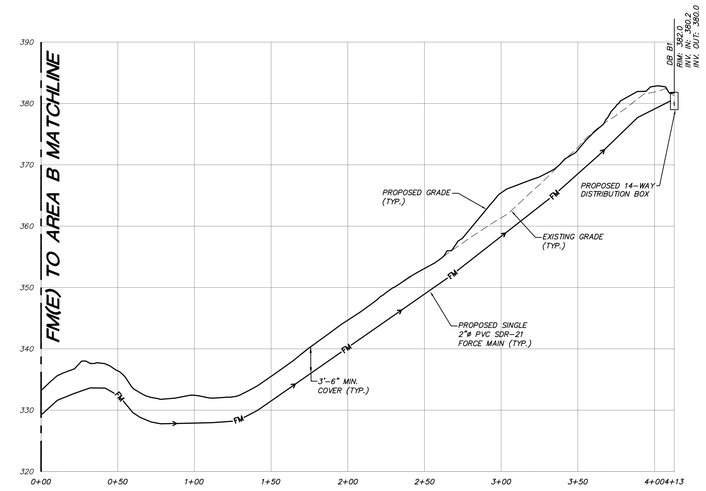


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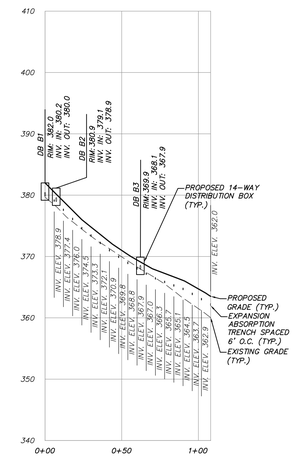
VERT. 1" = 10'

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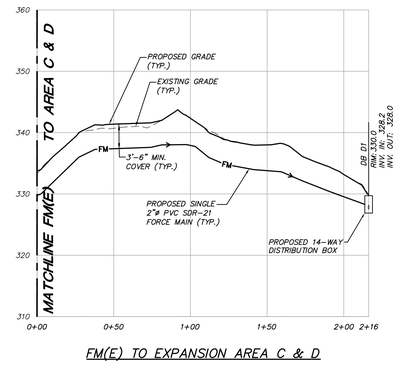


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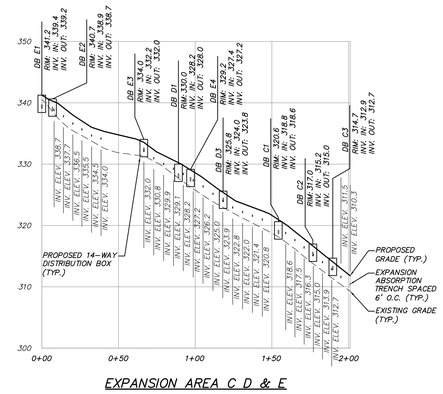


EXPANSION AREA C D & E

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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SEWER PROFILES

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 10-25-17 | DRAWN BY | E.J.P. | HD-6 | 6 / 11 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |



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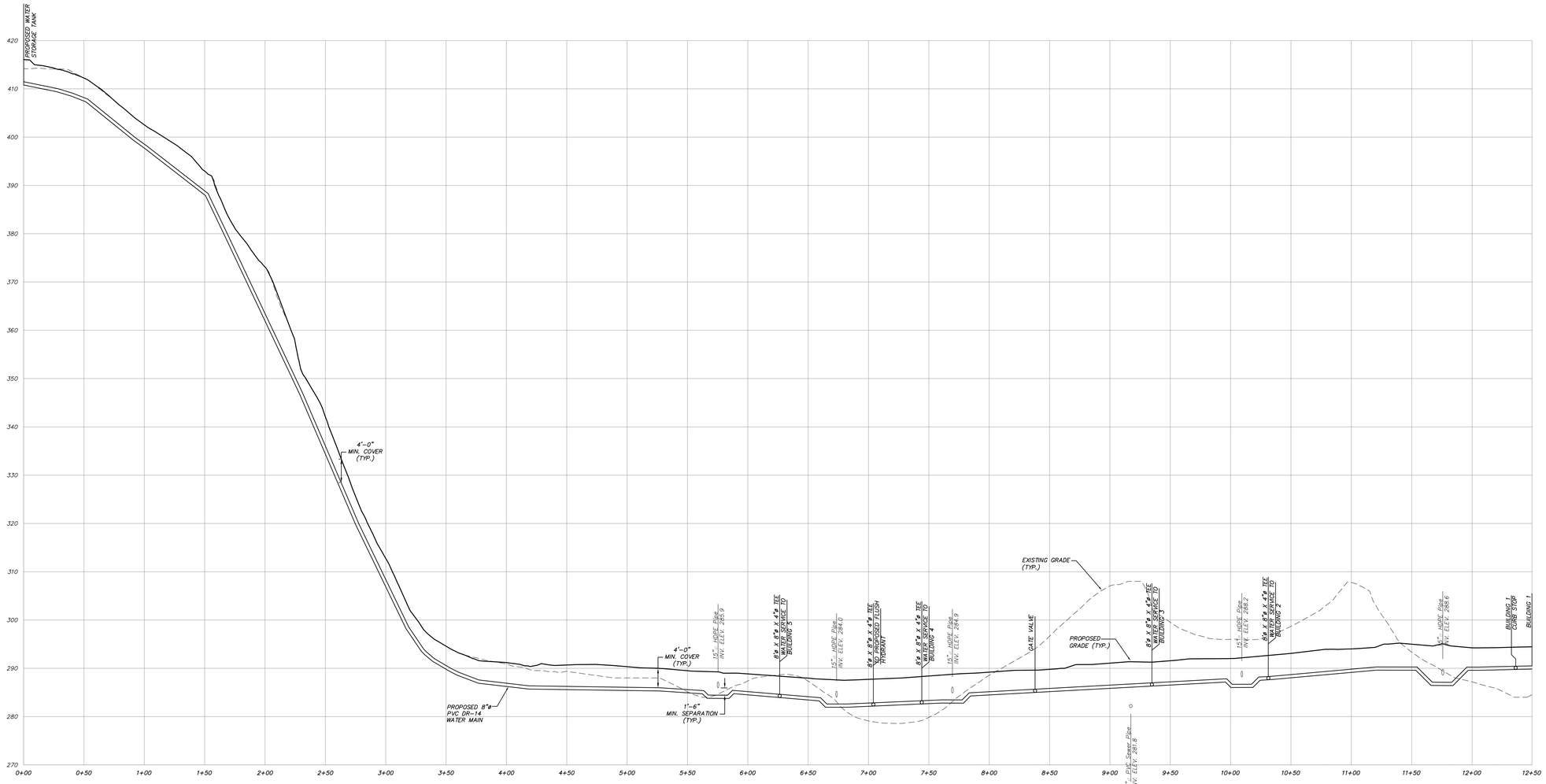


## PROPOSED WATER STORAGE TANK TO BUILDING 1

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

| NO. | DATE | REVISION | BY |
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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
WATER PROFILE

| | | | | | |
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| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 9-14-18 | DRAWN BY | E.J.P. | HD-7 | 7 / 11 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |

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## SEWER TESTING PROCEDURES

### TESTS FOR NON-PRESSURE PIPELINES FOR TRANSPORT OF SEWAGE

*The leakage shall be determined by exfiltration, infiltration or low pressure air.*

A. Exfiltration Testing

1. Exfiltration tests shall be made by filling a section of pipeline with water and measuring the quantity of leakage.
2. The head of water at the beginning of the test shall be at least 2 feet (5 feet for WCDEF sewers) above the highest pipe within the section being tested.
   a. Should groundwater be present within the section being tested, the head of water for the test shall be 2 feet above the hydraulic gradient of the groundwater.
   b. Should the requirement of 2 feet of water above the highest pipe subject any joint at the lower end of the test section to a differential head of greater than 11.5 feet, another method of testing shall be employed.

B. Infiltration Testing

1. Infiltration tests will be allowed only when the water table gauges determine the groundwater level to be 2 feet or more above the highest pipe of the section being tested.
2. Infiltration test shall be made by measuring the quantity of water leaking into a section of pipeline.
3. Measurement of the infiltration shall be by means of a calibrated weir constructed at the outlet of the section being tested.

C. Allowable Leakage for Non-Pressure Pipelines

1. The allowable leakage (exfiltration or infiltration) for non-pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per mile of pipe:

| Type of Pipe | Leakage |
|---|---|
| Ductile iron – mechanical or push-on joints | 100 |
| Polyvinyl chloride, thermal plastic or fiberglass with rubber joints | 100 |
| Cast iron soil pipe | 0 |

2. Regardless of the above allowable leakage, any spurting leaks detected shall be permanently stopped.

D. Low Pressure Air Testing

1. Air testing for acceptance shall not be performed until the backfilling has been completed.
2. Low pressure air tests shall conform to ASTM C 828 or ASTM F1417-92, Section 6.2.2, Time-Pressure Drop Method for a 0.5 psi drop, except as specified herein and shall not be limited to type or size of pipe.
3. All sections of pipelines shall be cleaned and flushed prior to testing.
4. The air test shall be based on the starting pressure of 3.5 to 4.0 psi gauge. The time allowed for the 0.5 psi drop in pressure, measured in seconds, will be computed based on the size and length of the test section by the Engineer.
   a. When groundwater is present, the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.
   b. The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 1.3 feet above the top of the pipe.
5. The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves, gauges and plugs to allow for the monitoring of the pressure, release of pressure and a separable test gauge.
   a. The test gauge shall be sized to allow for the measuring of the 0.5 psig loss allowed during the test period and shall be on a separate line to the test section.

E. Deflection Testing

1. Deflection testing shall be performed 30 days after backfilling. The test shall be made by passing a ball or cylinder no less then 95% of the pipe diameter through the pipe. The test shall be performed without mechanical pulling devices.

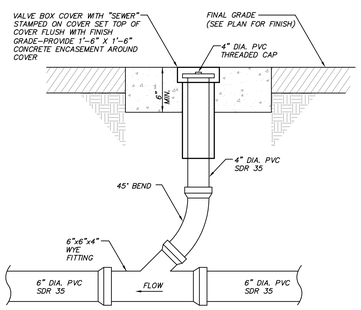
F. Manhole Testing

1. General
   a. Each manhole shall be tested by either exfiltration, infiltration or vacuum testing.
   b. A manhole will be acceptable if the leakage does not exceed an allowance of one gallon per vertical foot of depth for 24 hours. Regardless of the allowable leakage, any leaks detected shall be permanently stopped.
2. Exfiltration tests shall be performed after backfilling. The test shall be made by filling the manhole with water and observing the level for a minimum of eight hours.
3. Infiltration tests shall be performed after backfilling when the groundwater level is above the joint of the top section of a precast manhole.
4. Vacuum testing shall be performed after backfilling in accordance with the latest revision of ASTM C1244-02 as follows:
   a. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.
   b. A vacuum of 10 in. of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 in. of mercury.
   c. The manhole shall pass if the time for the vacuum reading to drop from 10 in. of mercury to 9 in. of mercury meets or exceeds the values indicated below:

Minimum Test Times for Various Manhole Diameters in Seconds:

| Depth (ft) | Diameter (inches) 48 | 60 |
|---|---|---|
| | Time (seconds) | |
| 8 or less | 20 | 26 |
| 10 | 25 | 33 |
| 12 | 30 | 39 |
| 14 | 35 | 46 |
| 16 | 40 | 52 |
| 18 | 45 | 59 |
| 20 | 50 | 65 |

   d. If the manhole fails the initial test, necessary repairs shall be made by an approved method. The manhole shall then be retested until a satisfactory test is obtained.
5. Vacuum testing is not permissible for pipelines.




### SEWER LINE CLEANOUT DETAIL

(N.T.S.)

## SEWER MAIN NOTES

1. All sewer mains & sewer services shown on these plans shall be polyvinyl chloride (PVC) SDR 35. Sewer main shall be 8" diameter and all services shall be 6" diameter.
2. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot horizontal separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer. The horizontal separation also applies to service connections.
3. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. In cases where it is not practical to maintain a 10 foot horizontal separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to sewer line installation. The vertical separation also applies to service connections.
4. Sanitary sewer service lines shall be tested in conjunction with the sewer mains to the property line or easement line, and in accordance with the latest Westchester County Department of Health Rules & Regulations.
5. Exfiltration/Infiltration test: Leakage shall not exceed 100 gallons per inch of pipe diameter per mile per day. Water tests shall be performed under a minimum positive head of two (2) feet (five (5) feet for WCDEF sewers). Low pressure air testing is permitted for pipe lines and should conform to ASTM C-828. Vacuum testing is permitted for manholes, but is not permissible for pipelines.
6. Testing of the manholes with the pipeline shall not be permitted. Manholes & sanitary sewer lines shall be tested independently of each other.
7. The owner/applicant shall be responsible for acquiring supervision of the construction of the sanitary sewer main system by a person or firm qualified to practice professional engineering in the state of New York.
8. The owner/applicant shall be responsible for providing Three (3) copies of as-built drawings signed and sealed by a licensed and registered New York State Professional Engineer to the Westchester County Department of Health at the completion of the construction.
9. The Design Engineer, Westchester County Department of Health, and Town Engineering Department shall be notified forty eight (48) hours before construction is started.
10. The sanitary sewer mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Westchester County Department of Health.
11. The Westchester County Department of Health and the New York City Department of Environmental Protection must be notified in writing forty eight (48) hours prior to pressure testing the sewer main improvements.
12. Manhole frames & covers to be campbell pattern #1007C for 24" opening or approved equal. M.H. covers to be marked "SEWER".
13. The exterior of all manholes shall be covered with an approved asphalt waterproofing.
14. Concrete base slabs shall be air entrained concrete with a minimum design strength of 3,000 psi.
15. The contractor shall submit shop drawings of the precast manholes to the Design Engineer for review and acceptance.
16. Precast manholes shall have minimum reinforcement of 0.12 sq. in. per lin. ft. for 48" barrel & be designed in accordance with A.S.T.M. C-478, and withstand an H-20 design loading.
17. Precast base sections to have the required number of gaskets and openings as shown and specified.
18. Precast manhole sections shall employ a watertight gasket arrangement between each section approved by the Design Engineer.
19. Openings for pipes shall be precast or machine cored. Gaskets or collars for pipe connections to manholes shall be resilient and watertight and compatible with the type of pipe being used.
20. The length of pipes entering or leaving any manhole shall be greater than 2'-0".
21. Precast manholes under 6'-0" deep shall have a "Flat Top" slab roof.
22. Gaskets or collars for pipe connections to manhole shall provide a minimum of 0.1' drop across the manhole.
23. All electrical equipment installed or used in sewer manholes shall comply with NEC Class 1, Division 1, Group D requirements.
24. All sewer main joints shall have factory installed push-on gaskets. Sewer service line to sewer mains shall be "TEE WYE" connections. Sewer main to sewer manhole connections shall be made with flexible watertight gaskets.
25. The project consists of approximately 950 linear feet of 8"ø PVC SDR 35 sewer main and 7 concrete sewer manholes.

## SEWER FORCEMAIN TESTING PROCEDURES

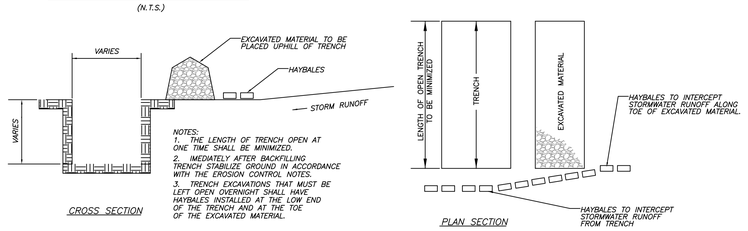
### TESTS ON PRESSURE PIPING FOR TRANSPORT OF SEWAGE

A. Hydrostatic Pressure and Leakage Test

1. Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 100 psi.
2. Test pressure shall be held on the piping for a period of at least 30 minutes, unless a longer period is requested by the Engineer.
   a. At the completion of the test, the pressure shall be released at the furthermost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The allowable leakage for forcemain pressure pipelines shall not exceed 0.5 gallons per 1,000 LF of pipe for any 30-minute period.
5. Regardless of the above allowables, any visible leaks shall be permanently stopped.
6. The test medium shall be water.

## Run-Of-Bank (R.O.B.) Gravel Fill Notes:

1. R.O.B. fill must be stabilized by allowing the R.O.B. fill to settle naturally for a period of at least 6 months and include at least one freeze-thaw cycle; or, fill stabilization may be achieved by mechanical compaction in approximately 6 inch lifts to the approximate density of the undisturbed underlying soil.
2. The required depth of R.O.B. gravel fill within the sewage treatment system area varies from 0' to 3.0' feet which is approximates to 3,300 +/- cubic yards.
3. Site modification activities involving placement of fill to be conducted during relatively dry periods to minimize soil smearing and excessive soil compaction.
4. Fill shall be run of bank (R.O.B.) gravel suitable for sewage absorption, be free of fines or other unsuitable material and shall have an in place percolation rate at least equal to or faster than the natural soil after the required stabilization period.
5. Fill suitable for sewage absorption should contain no more than 5% and preferably no more than 2% fines by weight. Fines are clay and silt particles that pass a #200 sieve. No more than 10% by weight of the fill material, should pass a #100 sieve.
6. The impervious fill and clay barrier shall be a dense clay type soil with little or no sewage absorption capacity. Impervious barrier to be placed around the entire fill section.
7. The contractor shall be responsible for having a sieve analysis performed on the fill prior to final placement. Analysis results shall be submitted to the Engineer and display conformance to the above noted gradation limits. Samples shall be taken from stockpiles on the project site.



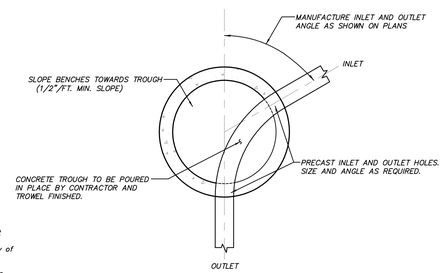

### UTILITY TRENCH EXCAVATION EROSION CONTROL DETAIL

(N.T.S.)



## OWTS Construction Notes:

1. The proposed OWTS area shall be isolated (survey staked out and surrounded by construction fence) and protected against damage by erosion, storage of earth or materials, displacement, compaction or other adverse physical change in the characteristics of the soil or in the drainage area.
2. Contractor must notify the design engineer 72 hours prior to the installation of any portion of the OWTS so the design engineer can supervise the construction of the OWTS and make an open works inspection. Within 24-hours of the completion of the OWTS, the design professional must notify the Westchester County Department of Health (WCDH) that the OWTS is ready for inspection by submitting a completed request for an open works inspection on the appropriate form to WCDH. No backfilling of a completed OWTS can occur until after it has been inspected and accepted by the Westchester County Department of Health.
3. Westchester County Department of Health and New York City Department of Environmental Protection approval is based on the location of the sewage system, well, building, setbacks, roads and driveways as well as building size and use as shown on the approved drawing. Any modifications or revisions are to have prior approval from both agencies.
4. Unauthorized modifications made to this drawing after the date of the Westchester County Department of Health approval voids said approval. If for any reason the approved construction plan can not be followed, a revised plan must be prepared, submitted, and approved by WCDH.
5. Westchester County Department of Health and NYCDEP approval is based on maximum flow of 9,240 gallons per day. An increase in the flow will require prior approval from the departments.
6. A master water meter shall be installed in the water control building.
7. The OWTS is to receive sanitary waste only. The discharge of industrial wastes, contaminated cooling water, or other deleterious substances into or onto the surface of the ground is prohibited. The Westchester County Department of Health reserves the right of inspection of the premises to insure compliance with these requirements.
8. Westchester County Department of Health shall be promptly notified in the event that any wastes other than strictly domestic sanitary wastes are produced at this facility.
9. Occupancy of the building(s) will not be permitted until the Construction Compliance Application has been received and approved by the Westchester County Department of Health and forwarded to the building inspector of the respective municipality as part of the Certificate of Occupancy Application.
10. After backfilling the system, the OWTS area shall be covered with a minimum of 6 inches of topsoil, and seeded and mulched.
11. There shall be no trees within 10' of the OWTS.
12. There are no existing and/or proposed OWTS's and wells within 200 feet of proposed OWTS and wells unless shown on this plan.
13. Cut or fill is not permitted in the sewage treatment area(s), except if so specified on this plan.
14. All stone walls in and within 10 feet of the OWTS area shall be removed to their entire depth and the resulting void replaced with similar on site soil.
15. If any pre-cast concrete tank is delivered to the site in sections, then it shall be demonstrated to the Department and/or certifying Design Professional that the tank is sealed, watertight and acceptable for use. This shall require, as a minimum, the filling of the tank with water and observing the water level after a 24-hour period to demonstrate if it is in fact sealed, watertight and acceptable for use.
16. All erosion control measures for building(s), well(s) and OWTS(s) are to be installed prior to any construction.
17. The conditions noted on the Westchester County Department of Health Letter of Approval are an integral part of this approval and compliance is required.
18. This plan is approved for sewage treatment and/or water supply only, and all other permits and/or approvals are the responsibility of the permittee.
19. Property lines as shown hereon are based on a Survey of Property prepared by Bunney Associates Land Surveyors, last revised October 31, 1984.
20. Topography as shown hereon is based on aerial photography dated April 2008, as prepared by Geomaps International. Contour interval is 2'.
21. There are no floodways or special flood hazard areas on this property in accordance with the official Flood Insurance Rate Map and/or Flood Boundary and Floodway Map.
22. All precast concrete tanks to be H-20 loading and have access to grade manhole frames and covers.
23. Refer to site plan drawings prepared by Insite Engineering, Surveying, & Landscape Architecture, P.C. for additional details of site improvements.
24. The contractor shall verify the minimum invert out of the buildings prior to the start of construction, and maintain the minimum slopes and elevations shown hereon. The design engineer shall be notified immediately of any discrepancies.
25. The following items shall be staked out by a N.Y.S. licensed land surveyor prior to the start of construction: OWTS, and 100' NYSDEC Wetland Adjacent Area in the vicinity of the proposed OWTS.
26. It shall be the Contractor's responsibility to identify and protect all underground utilities. The contractor shall contact Dig Safely New York at 811 and any other required utility locators prior to the start of construction.
27. The wetland flagging as shown hereon was delineated by Steve Marino on November 16, 2015 and survey located by Insite Engineering, Surveying & Landscape Architecture PC. completed November 25, 2015.
28. The Westchester County Health Department approval expires one (1) year from the date on the approval stamp and is required to be renewed on or before the expiration date. The approval is revocable for cause or may be amended or modified when considered necessary by the Department.
29. The estimated start date for the project is December 2018 and the estimated completion date is October 2020.
30. Total project limit of disturbance is 8.9 acres.
31. The grading within 5 feet of all distribution boxes will be raised 0.5 feet from the surrounding area in order to maintain the rim elevations shown on these drawings.
32. Distribution piping from distribution boxes to absorption trenches shall be installed at 1.0% minimum slope.
33. Install concrete monuments for permanent delineation of the OWTS sections.
34. The contractor shall provide permanent labels or tags for the following OWTS components: forcemains (2), 14-way distribution boxes (6).
35. All pipes connecting to tanks and boxes shall be cut 1 inch from the inside wall of the tank or box.
36. There are no NYSDEC wetlands, streams, ponds or watercourses within 200', and no reservoirs, reservoir stems, or controlled lakes within 500' of the proposed OWTS unless noted otherwise.
37. The installation of the OWTS shall be in accordance with the WCDOH's Rules and Regulations for the Design and Construction of Residential Subsurface Sewage Disposal Systems and Drilled Wells in Westchester County, NY.
38. The proposed OWTS shall be installed by a Westchester County licensed septic contractor.
39. There are no known sources of contamination within 200' of the proposed wells.
40. NYCDEP must be contacted at least two days prior to start of construction of the OWTS so that the NYCDEP may inspect and monitor the installation.




### MANHOLE TROUGH DETAIL

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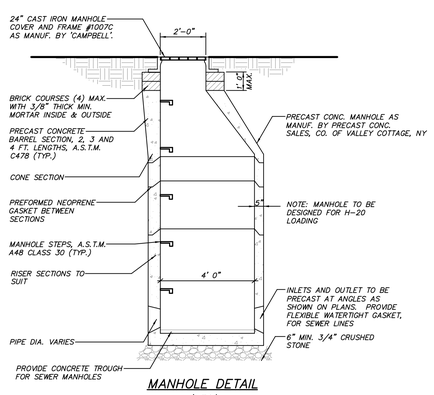


### MANHOLE DETAIL

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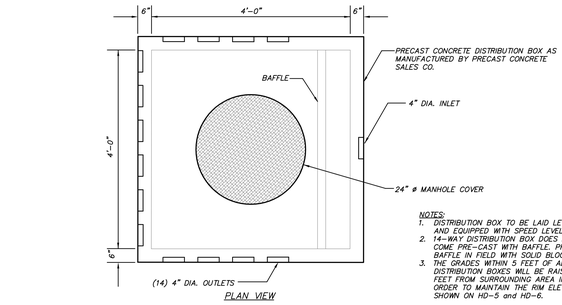
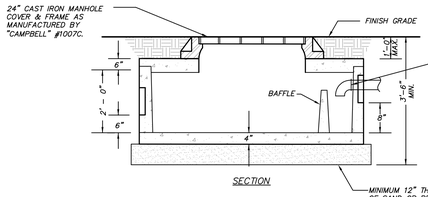
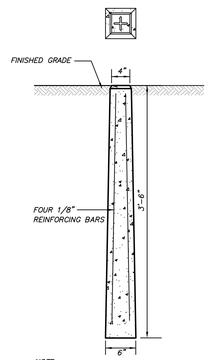


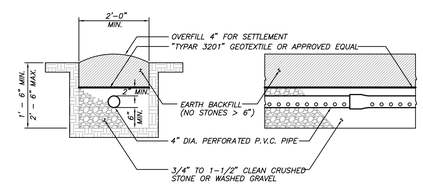

### 14 WAY DISTRIBUTION BOX DETAIL

(N.T.S.)




### CONCRETE MONUMENT DETAIL

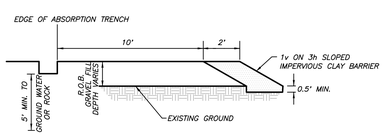
(N.T.S.)




NOTES:
1. PROVIDE 1' OF SOLID PIPE AT THE BEGINNING OF EVERY TRENCH.
2. PROVIDE END CAPS AT THE END OF EACH ABSORPTION TRENCH.
3. THE SLOPE OF THE PERFORATED PIPES SHALL BE BETWEEN A MINIMUM OF 1/32"/FT AND A MAXIMUM OF 1/16"/FT. UNLESS THE TRENCHES ARE DOSED BY PUMPING OR BY A DOSING TANK. DOSED TRENCHES SHALL BE LEVEL.
4. ALL STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST SIX INCHES BELOW THE BOTTOM OF THE PIPE.
5. A MINIMUM OF 5' OF VERTICAL SEPARATION SHALL BE PROVIDED FROM THE BOTTOM OF ABSORPTION TRENCH TO LEDGE ROCK AND/OR GROUNDWATER

### ABSORPTION TRENCH DETAIL

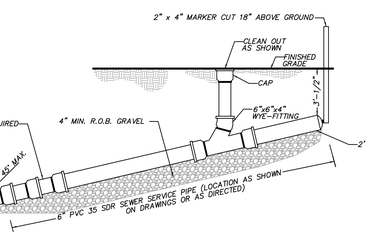
(N.T.S.)




1. Fill pad material (gravel) must extend three (10') feet beyond center of trench. An additional two (2') feet of impervious soil with a one (1) vertical to three (3) horizontal slope. The toe of the slope shall shall extend into the virgin soil 6 to 12 inches deep and 24 inches wide. Topsoil shall be applied in accordance with Appendix 75-A, Section 75-A.9 (a-4-iv). All restrictive distances shall be measured from the toe of slope.
2. R.O.B. gravel fill to be compacted in 6" lifts.
3. Fill and impervious barrier must be placed and a professional engineer shall certify in writing that all soil conditions are satisfactory to allow installation of the sewage disposal system. Engineering certification shall include but not be limited to inspection of soil materials, dimensions and site location.

### FILL SECTION DETAIL

(N.T.S.)




### SEWER MAIN/SERVICE LINE TRENCH DETAIL

(N.T.S.)

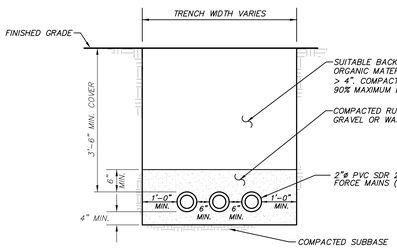



### SANITARY SEWER SERVICE CONNECTION DETAIL

(N.T.S.)

SANITARY SEWER SERVICE CONNECTION NOTES:

1. MINIMUM SLOPE OF LATERAL-1/4" PER FOOT, EXCEPT AS OTHERWISE NOTED.
2. MAXIMUM SLOPE OF LATERAL AS DETERMINED BY GRADES OF MAIN LINE AND HOUSE ELEVATION.
3. NO "CHIMNEY TYPE" CONSTRUCTION SHALL BE PERMITTED. LATERALS MUST REST ON UNDISTURBED GROUND.
4. CLEAN OUTS TO BE INSTALLED EVERY 50', OR WHERE SHOWN OR AS DIRECTED.




### SEWER FORCE MAIN TRENCH DETAIL

(N.T.S.)

## SEWER FORCEMAIN NOTES

1. The sewer forcemain from the sewer pump pit to the 14 way distribution boxes shall be 2" diameter forcemains.
2. The forcemain pipe shall be 2" diameter PVC SDR 21 with bell and spigot joints and factory installed gaskets.
3. All fittings shall be Schedule 80 glued fittings. Thrust blocks shall be provided at all bends.
4. Provide transition fittings and transition gaskets as needed.
5. Provide metallic marking tape labeled 'sewer' over the forcemains.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 1 | 09-14-18 | REVISED PER WCDOH COMMENTS | TMB |

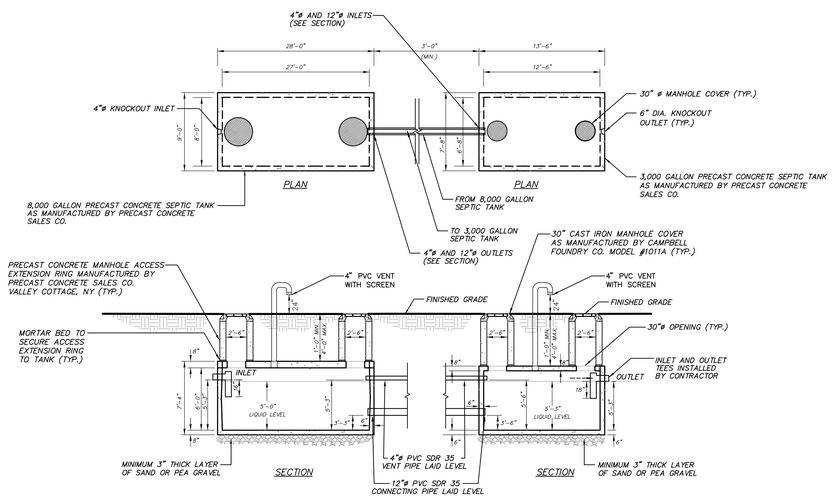
INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SEWER, AND OWTS DETAILS

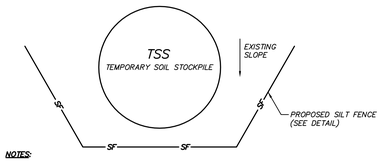
| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C | DRAWING NO. | SHEET |
| DATE | 09-27-17 | DRAWN BY | P.L.M | HD-8 | 8 / 11 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |

Z:\01SITE\05SSTS\HD-1.dwg, 9/14/2018 9:20:30 AM, epostlewis, 1:1




## SEPTIC TANK DETAIL

(TO BE DESIGNED FOR H-20 LOADING)
(N.T.S.)

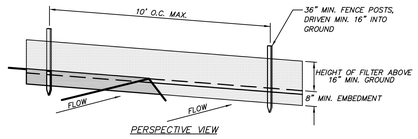



**NOTES:**

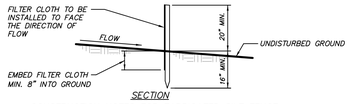
1. AREA CHOSEN FOR STOCKPILE LOCATION SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE IMMEDIATELY SEEDED WITH K31 PERENNIAL TALL FESCUE.
4. ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING INSTALLED ON THE DOWNGRADIENT SIDE.

## TEMPORARY SOIL STOCKPILE DETAIL

(N.T.S.)




PERSPECTIVE VIEW




SECTION

### CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. FILTER CLOTH TO BE FASTENED SECURELY TO POSTS AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

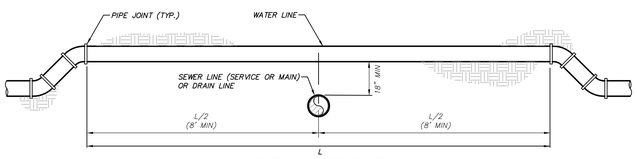
POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL

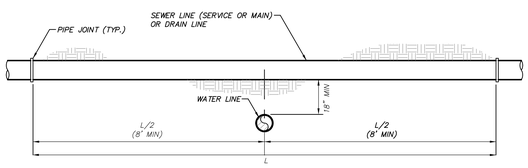
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

## SILT FENCE DETAIL

(N.T.S.)




**WATER LINE CROSSING OVER SANITARY SEWER LINE OR STORM DRAIN LINE**



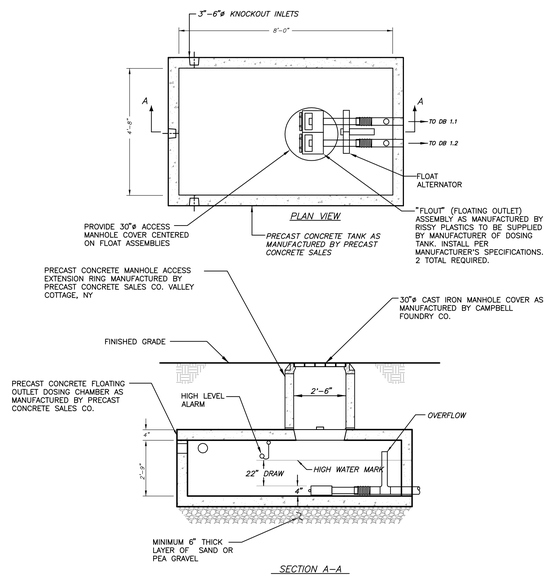

**WATER LINE CROSSING UNDER SANITARY SEWER LINE OR STORM DRAIN LINE**

NOTES:

1. WHEN 18" SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. PROVIDE PIPE AND FITTING RESTRAINT AS REQUIRED.
3. THE 18" SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

## WATER LINE CROSSING DETAIL

(N.T.S.)




SECTION A-A

DOSING VOLUME CALCULATIONS

DOSE VOLUME = APPROXIMATELY 75% OF PIPE VOLUME FOR EACH ABSORPTION AREA

ABSORPTION TRENCH PIPE VOLUME = 970 LF x $\pi\left(\frac{4"}{12"}\right)^2$ x $\frac{7.48\ GAL}{C.F.}$ = 633 GALLONS

APPROXIMATE DOSING VOLUME = 75% TO 85% OF ABSORPTION TRENCH VOLUME

0.75 X 633 GALLONS = 475 GALLONS, 0.85 X 633 GALLONS = 538 GALLONS,

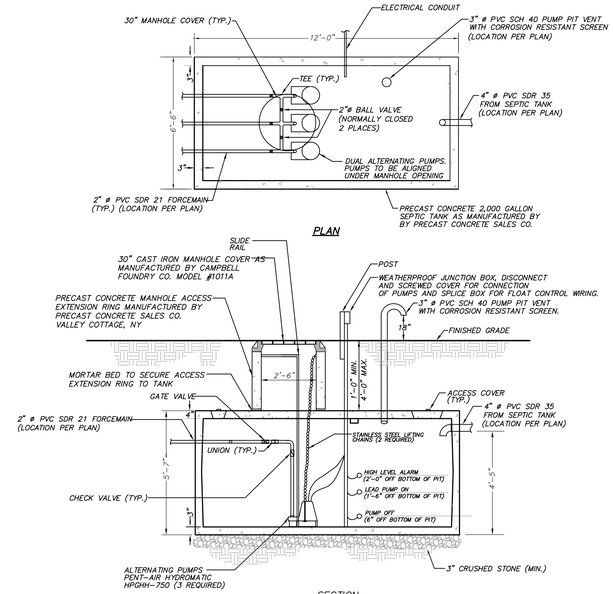
USE DOSING TANK WITH 512 GALLON DOSE

NOTE:

1. THE DOSE SETTINGS NOTED ARE FOR A DOSING TANK WITH THE SPECIFIC DIMENSIONS SHOWN HEREON. CONTACT THE DESIGN ENGINEER FOR THE PROPER DOSE SETTING IF A DOSING TANK WITH DIFFERENT DIMENSIONS IS USED.
2. HIGH LEVEL ALARM TO BE CONNECTED TO EXTERIOR MOUNTED VISUAL ALARM ON PROPOSED PUMP CONTROL PANEL.

## ALTERNATING DOSING TANK DETAIL (SSTS AREA #1)

(N.T.S.)

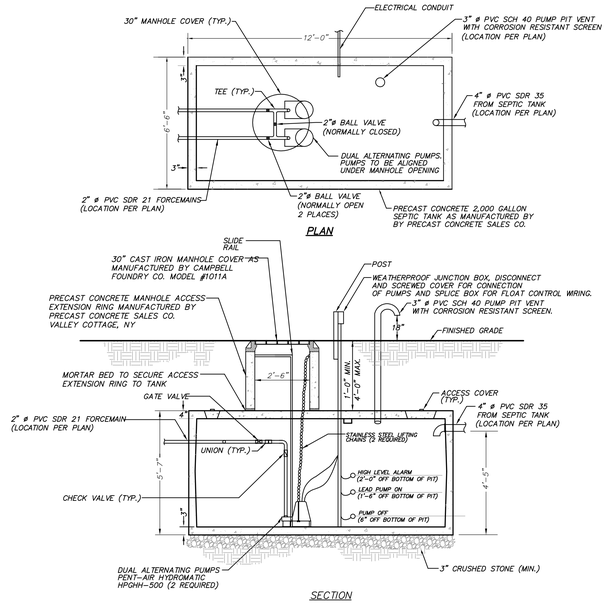



## FUTURE 2,000 GALLON TRIPLEX ALTERNATING PUMP PIT DETAIL (EXPANSION OWTS AREAS B, C/D, & E)

(TO BE H-20 LOADING)
(N.T.S.)

### PUMP PIT NOTES:

1. PUMP CONTROL PANEL AND AUDIO/VISUAL ALARM SHALL BE LOCATED ON THE PROPOSED CONTROL PANEL.
2. ALL ELECTRICAL WORK AND MATERIAL TO COMPLY WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS FOR CLASS I GROUP D, DIVISION 1 LOCATIONS.
3. ALL MODEL NUMBERS SPECIFIED ARE FROM PENTAIR COMMERCIAL AQUATICS THEY CAN BE SUBSTITUTED FOR ONLY WITH APPROVAL FROM DESIGN ENGINEER. AND WESTCHESTER COUNTY HEALTH DEPARTMENT.
4. AN ELECTRICAL UNDERWRITER'S CERTIFICATE FOR THE PUMP CHAMBER MUST BE PROVIDED TO THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH PRIOR TO THE ISSUANCE OF A CONSTRUCTION COMPLIANCE.
5. EACH PUMP AND ALARM TO BE CONNECTED TO SEPARATE CIRCUITS.
6. A DOSE COUNTER FOR EACH PUMP SHALL BE PROVIDED ON THE PUMP CONTROL PANEL. THE PUMPS SHALL BE EQUIPPED WITH TIMED DOSE CONTROLS. REFER TO PUMP DOSE TIMER CONTROL SEQUENCE OF OPERATION.
7. PUMPS, GATE VALVE AND UNION MUST BE LOCATED UNDER MANHOLE OPENING AND BE ACCESSIBLE WITHOUT HAVING TO ENTER THE PUMP PIT.
8. REMOVE ALL BAFFLES FROM THE TANK.
9. THE PUMP SETTINGS NOTED ARE FOR A PUMP PIT WITH THE SPECIFIC DIMENSIONS SHOWN HEREON. CONTACT THE DESIGN ENGINEER FOR THE PROPER FLOAT SETTINGS IF A PUMP PIT WITH DIFFERENT DIMENSIONS IS USED.
10. A SPARE PUMP SHALL BE KEPT ONSITE FOR EMERGENCY REPLACEMENT IF NECESSARY.
11. THE EMERGENCY STORAGE IN THE TANK ABOVE HIGH LEVEL ALARM IS 1,290 GALLONS.




## 2,000 GALLON DUAL ALTERNATING PUMP PIT DETAIL (PRIMARY OWTS AREA #2 AND EXPANSION OWTS AREAS A)

(TO BE H-20 LOADING)
(N.T.S.)

### PUMP PIT NOTES:

1. PUMP CONTROL PANEL AND AUDIO/VISUAL ALARM SHALL BE LOCATED ON THE PROPOSED CONTROL PANEL.
2. ALL ELECTRICAL WORK AND MATERIAL TO COMPLY WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS FOR CLASS I GROUP D, DIVISION 1 LOCATIONS.
3. ALL MODEL NUMBERS SPECIFIED ARE FROM PENTAIR COMMERCIAL AQUATICS THEY CAN BE SUBSTITUTED FOR ONLY WITH APPROVAL FROM DESIGN ENGINEER. AND WESTCHESTER COUNTY HEALTH DEPARTMENT.
4. AN ELECTRICAL UNDERWRITER'S CERTIFICATE FOR THE PUMP CHAMBER MUST BE PROVIDED TO THE WESTCHESTER COUNTY DEPARTMENT OF HEALTH PRIOR TO THE ISSUANCE OF A CONSTRUCTION COMPLIANCE.
5. EACH PUMP AND ALARM TO BE CONNECTED TO SEPARATE CIRCUITS.
6. A DOSE COUNTER FOR EACH PUMP SHALL BE PROVIDED ON THE PUMP CONTROL PANEL. THE PUMPS SHALL BE EQUIPPED WITH TIMED DOSE CONTROLS. REFER TO PUMP DOSE TIMER CONTROL SEQUENCE OF OPERATION.
7. PUMPS, GATE VALVE AND UNION MUST BE LOCATED UNDER MANHOLE OPENING AND BE ACCESSIBLE WITHOUT HAVING TO ENTER THE PUMP PIT.
8. REMOVE ALL BAFFLES FROM THE TANK.
9. THE PUMP SETTINGS NOTED ARE FOR A PUMP PIT WITH THE SPECIFIC DIMENSIONS SHOWN HEREON. CONTACT THE DESIGN ENGINEER FOR THE PROPER FLOAT SETTINGS IF A PUMP PIT WITH DIFFERENT DIMENSIONS IS USED.
10. A SPARE PUMP SHALL BE KEPT ONSITE FOR EMERGENCY REPLACEMENT IF NECESSARY.
11. THE EMERGENCY STORAGE IN THE TANK ABOVE HIGH LEVEL ALARM IS 1,290 GALLONS.

| OWTS ABSORPTION TRENCH DESIGNATION | ABSORPTION TRENCH LENGTH (LF) | PUMP | OPERATION POINT FLOW RATE (GPM) | PUMP RUN TIME (MIN.) | DOSE VOLUME (GALLONS) | DOSE VOLUME (GAL./LF TRENCH) |
|---|---|---|---|---|---|---|
| Primary 2 (Pump Pit to DB 2.1) | 980 | Pentair Hydromatic HPGHH/HPGHHX-500 | 42 | 12 | 504 | 0.51 |
| Primary 2 (Pump Pit to DB 2.2) | 980 | Pentair Hydromatic HPGHH/HPGHHX-500 | 43 | 12 | 516 | 0.53 |
| Expansion Area A (Pump Pit to DB A1) | 630 | Pentair Hydromatic HPGHH/HPGHHX-500 | 35 | 9 | 315 | 0.50 |
| Expansion Area A (Pump Pit to DB A3) | 630 | Pentair Hydromatic HPGHH/HPGHHX-500 | 36 | 9 | 324 | 0.51 |
| Expansion Area B (Pump Pit to DB B1) | 966 | Pentair Hydromatic HPGHH/HPGHHX-750 | 25 | 20 | 500 | 0.52 |
| Expansion Area C/D (Pump Pit to DB D1) | 830 | Pentair Hydromatic HPGHH/HPGHHX-750 | 40 | 11 | 440 | 0.53 |
| Expansion Area E (Pump Pit to DB E1) | 830 | Pentair Hydromatic HPGHH/HPGHHX-750 | 39 | 11 | 429 | 0.52 |

## PUMP PIT PUMP DOSE TIMER CONTROL SEQUENCE OF OPERATION

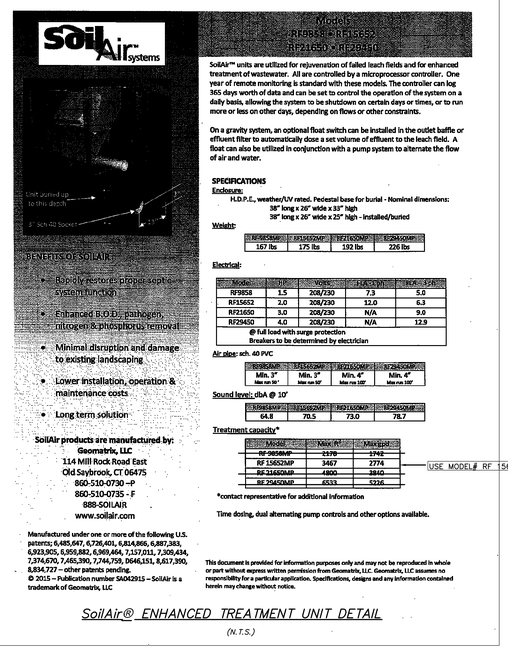
THE PUMP CONTROL PANEL SHALL BE EQUIPPED WITH FOUR SETTINGS ON A SUBMERSIBLE LEVEL CONTROL PROBE TO CONTROL THE TIMED DOSES TO BE DISCHARGED. THE WATER LEVEL MUST BE HIGH ENOUGH TO OVERCOME THE "BOTH PUMPS OFF" (BOTTOM) SETTING IN ORDER FOR THE PUMPS TO BE PERMITTED TO RUN. WHEN THE WATER LEVEL RISES HIGH ENOUGH TO OVERCOME THE "LEAD PUMP ON" (SECOND) SETTING, AND THE TIME CLOCK IS IN A PUMP ENABLE MODE, THE LEAD PUMP WILL ACTIVATE. THE LEAD PUMP SHALL CONTINUE TO RUN FOR THE LENGTH OF TIME AS PROGRAMMED ON THE PUMP RUN TIMER, AND SHALL THEN SHUT OFF. THE PUMP CONTROLLER WILL ALTERNATE THE LEAD PUMP AT THE END OF EACH PUMP CYCLE.

THE PUMPS SHALL REMAIN OFF UNTIL THE TIME CLOCK ENTERS A NEW PUMP ENABLE MODE, AT WHICH TIME THE LEAD PUMP SHALL ACTIVATE (AS LONG AS THE "LEAD PUMP ENABLE" SETTING IS STILL TRIGGERED) AND WILL RUN UNTIL THE PUMP RUN TIMER FINISHES TIMING OUT. THE PUMP RUN TIMER SHALL CONTINUE TO OPERATE A FULL PUMPING CYCLE. THIS PROCESS SHALL REPEAT UNTIL THE WATER LEVEL DROPS BELOW THE "BOTH PUMP OFF" SETTING AND THE PUMP HAS TIMED OUT.

SHOULD EITHER PUMP FAIL TO RUN WHEN CALLED FOR, THE PUMP FAIL CIRCUIT SHALL REMOVE THE FAILED PUMP FROM SERVICE AND ACTIVATE THE AUDIO/VISUAL ALARM. THE ALARM SHALL REMAIN LATCHED UNTIL MANUALLY RESET.

THE CONTROL SYSTEM SHALL INCLUDE AN ALTERNATOR OVERRIDE SWITCH TO ALLOW FOR MANUAL SELECTION OF THE LEAD PUMP IF NECESSARY, AND WILL BE SETUP SUCH THAT IT WILL NOT INTERFERE WITH THE NORMAL TIMING FUNCTIONS OF THE SYSTEM.
THE CONTROL SYSTEM SHALL BE EQUIPPED WITH A TIMER OVERRIDE CIRCUIT. IF THE WATER LEVEL CONTINUES TO RISE ENOUGH TO OVERCOME THE "LAG PUMP ON" (THIRD) SETTING, AND THE OVERRIDE SELECTOR SWITCH IS ON, THE PUMP SHALL BE ACTIVATED, REGARDLESS OF THE TIME CLOCK POSITION. THE PUMP WILL CONTINUE TO RUN UNTIL DEACTIVATED BY THE OVERRIDE CIRCUIT, AT WHICH TIME THE PUMP WILL SHUT OFF AND THE NORMAL PUMPING CYCLE SHALL RESUME.

IF THE WATER LEVEL CONTINUES TO RISE ENOUGH TO OVERCOME THE "HIGH LEVEL ALARM" (FOURTH) SETTING, THE AUDIO/VISUAL ALARM SHALL ACTIVATE THE REMAIN LATCHED UNTIL THE SILENCE SWITCH IS PRESSED. WHEN THE SILENCE SWITCH IS PRESSED, THE AUDIBLE ALARM SHALL BE SILENCED AND THE TOP MOUNTED ALARM LIGHT WILL REMAIN LIT UNTIL THE WATER LEVEL DROPS BELOW THE "HIGH LEVEL ALARM" SETTING, AT WHICH TIME THE ALARM CIRCUIT MUST BE MANUALLY RESET. THE PUMP CONTROLS SHALL PROVIDE A TIME DELAY OF 10 SECONDS BETWEEN ALTERNATING PUMP CYCLES.




## SoilAir® ENHANCED TREATMENT UNIT DETAIL

(N.T.S.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 09-14-18 | REVISED PER WCDOH COMMENTS | TMB |
| 1 | 12-12-17 | REVISED PER WCDOH COMMENTS | SVW |


INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SEWER, AND OWTS DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C | DRAWING NO. | SHEET |
| DATE | 09-27-17 | DRAWN BY | S.V.W. | HD-9 | 9 / 11 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |

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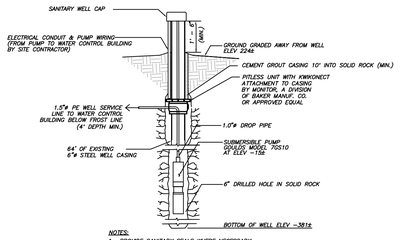
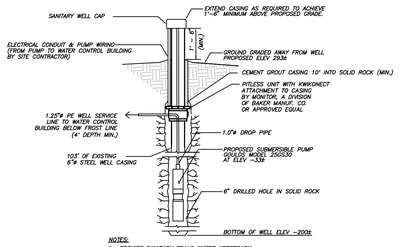


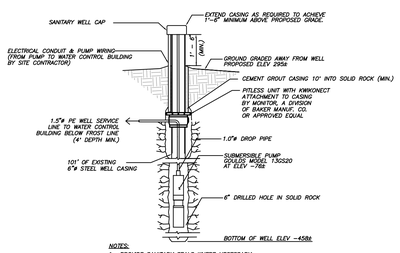

NOTES:
1. PROVIDE SANITARY SEALS WHERE NECESSARY.
2. TOP OF CASING 2' FEET ABOVE HIGHWATER LEVEL OR WATER TIGHT.
3. ALL APPURTENANCES EXCEPT DRILLED WELL AND CASING ARE PROPOSED

## EXISTING WELL #2 DETAIL
(N.T.S.)



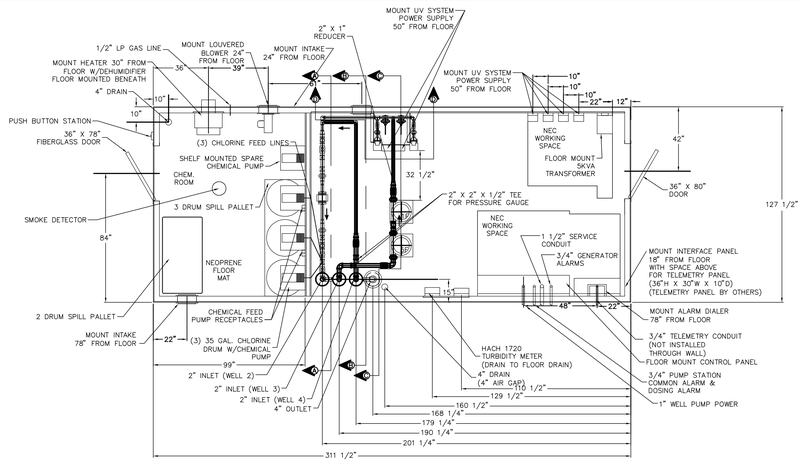

NOTES:
1. PROVIDE SANITARY SEALS WHERE NECESSARY.
2. TOP OF CASING 2' FEET ABOVE HIGHWATER LEVEL OR WATER TIGHT.
3. ALL APPURTENANCES EXCEPT DRILLED WELL AND CASING ARE PROPOSED.

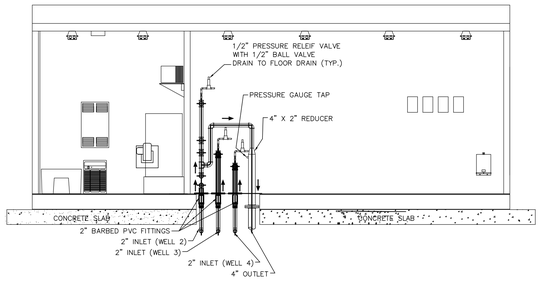
## EXISTING WELL #3 DETAIL
(N.T.S.)

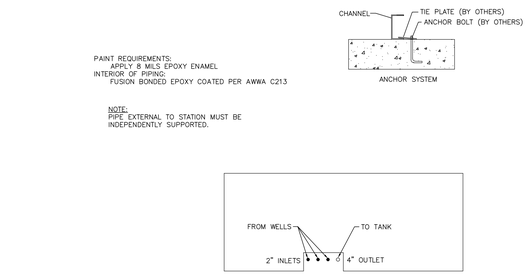



NOTES:
1. PROVIDE SANITARY SEALS WHERE NECESSARY.
2. TOP OF CASING 2' FEET ABOVE HIGHWATER LEVEL OR WATER TIGHT.
3. ALL APPURTENANCES EXCEPT DRILLED WELL AND CASING ARE PROPOSED.

## EXISTING WELL #4 DETAIL
(N.T.S.)

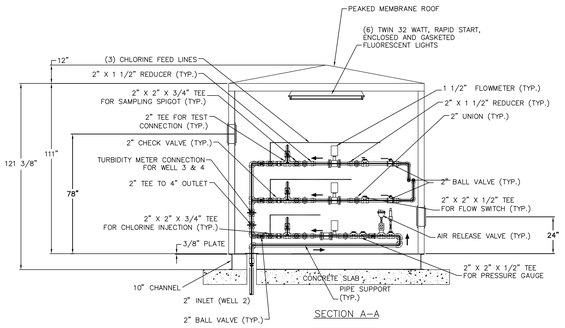


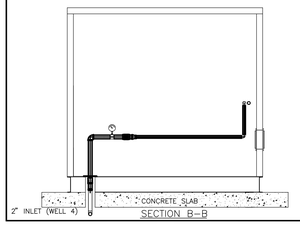




PAINT REQUIREMENTS:
APPLY 8 MILS EPOXY ENAMEL
INTERIOR OF PIPING:
FUSION BONDED EPOXY COATED PER AWWA C213

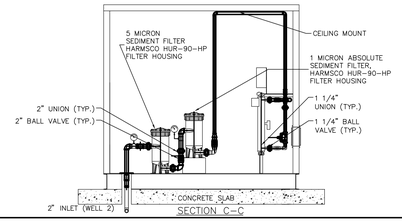
NOTE:
PIPE EXTERNAL TO STATION MUST BE INDEPENDENTLY SUPPORTED.



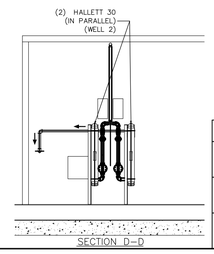

SECTION A–A




SECTION B–B




SECTION C–C



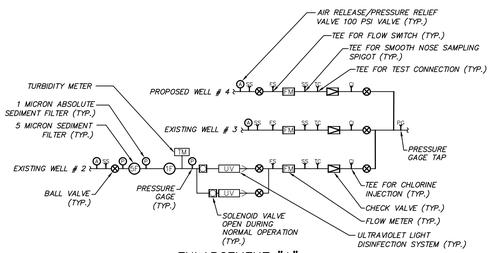

SECTION D–D

| REV. NO. | REVISION | BY CHK'D | DATE |
|---|---|---|---|
| A | REMOVED ONE FILTER & UV SYSTEM, ONE WALL, ADDED BYPASS AND SHORTENED STATION | JB | 8/29 |
| | | WK | 18 |

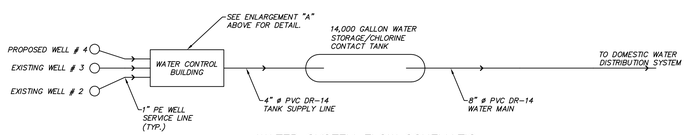
| | | |
|---|---|---|
| DESIGNED BY: | DATE | |
| DRAWN BY: LJG | DATE 7/17 | |
| CHECKED BY: W.K. | DATE 17 | |
| SCALE | DWG. NO. S4386 | JOB NO. |

USEMCO
USEMCO INCORPORATED
P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660
DESCRIPTION

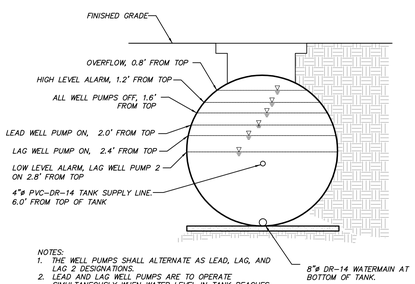
NOTES:
1. INTERIOR FINISH OF WATER CONTROL BUILDING TO BE EMBOSSED GALVANIZED STEEL PANEL WITH A SPRAY BAKED WHITE FINISH.
2. EXTERIOR FINISH AND ROOF BY OTHERS.
3. THE PIPES INTERIOR TO THE WATER CONTROL BUILDING SHALL BE COLOR CODED AS FOLLOWS:
   - CHLORINE LINES – YELLOW
   - WELL LINES – OLIVE GREEN
4. THE FOLLOWING CONDITIONS SHALL TRIGGER AN AUDIBLE AND VISUAL ALARM AND BE CONNECTED WITH THE AUTO DIALER:
   - WELL PUMP FAILURE
   - LOSS OF POWER
   - WATER TANK HIGH AND LOW ALARM
   - UV SYSTEM FAILURE
   - TURBIDITY GREATER THAN 1 NTU
   - CHLORINE CONCENTRATION LESS THAN 0.6 MG/L
5. A FOURTH CHLORINE FEED PUMP SHALL BE KEPT ON THE SHELF AS A BACK UP.
6. CHLORINE INJECTION SHALL BE AT A CONCENTRATION AT 0.5%. A MINIMUM 30 DAY SUPPLY OF CHLORINE SHALL BE STORED ON SITE.
7. ALL RAW WATER SAMPLING SPIGOTS SHALL BE SMOOTH NOSE.
8. A FLOW SWITCH SHALL BE PROVIDED ON EACH WELL LINE. THE SWITCH SHALL TURN OFF THE WELL PUMP AND CHEMICAL FEED PUMP IN A NO FLOW CONDITION.
9. WELL 2 SHALL BE EQUIPPED WITH TWO UV SYSTEMS IN PARALLEL. THE WELL PUMPS AND CHEMICAL FEED PUMPS SHALL HAVE A FIVE MINUTE DELAY TO ALLOW FOR UV LAMP WARM UP. PRIMARY OR BACKUP UV SYSTEM FAILURE SHALL CLOSE A SOLENOID VALVE TO ISOLATE THE RESPECTIVE UV SYSTEM. THE UV SYSTEMS SHALL HAVE A DISPLAY SHOWING THE UV INTENSITY LEVEL.
10. THE UV TREATMENT WAS ADDED TO WELL 2 UNTIL A GWUDI DETERMINATION CAN BE MADE. IF IN THE FUTURE THE WELLS ARE DETERMINED TO NOT BE GWUDI THEN THE UV TREATMENT CAN BE REMOVED.




ENLARGEMENT "A"




## WATER SYSTEM FLOW SCHEMATIC
(N.T.S.)




NOTES:
1. THE WELL PUMPS SHALL ALTERNATE AS LEAD, LAG, AND LAG 2 DESIGNATIONS.
2. LEAD AND LAG WELL PUMPS ARE TO OPERATE SIMULTANEOUSLY WHEN WATER LEVEL IN TANK REACHES LAG WELL PUMP ON. LEAD, LAG, AND LAG 2 WELL PUMPS ARE TO OPERATE SIMULTANEOUSLY WHEN WATER LEVEL IN TANK REACHES LAG 2 WELL PUMP ON.

## WELL PUMP CONTROL AND ALARM LEVEL SCHEMATIC
(N.T.S.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-enp.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
WATER DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. HD-10 | SHEET 10/11 |
| DATE | 9-14-18 | DRAWN BY | S.V.W. | | |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |



Z:\0\15246\100\S3T3\HD-10.dwg, 9/17/2018 2:24:07 PM, eyoshikawa, 1:1

## PVC PIPE WATER TESTING PROCEDURES

### TESTS ON PRESSURE PIPING FOR TRANSPORT OF WATER

A. Hydrostatic Pressure Test
Hydrostatic testing shall be performed in accordance with the revision of AWWA C605, Section 7.3, "Hydrostatic Testing".

1. Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 150 psi, or 1.25 times the static operating pressure, whichever is higher.
2. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the Engineer.
3. The test medium shall be water.

B. Hydrostatic Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.
2. The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.
   a. At the completion of the test, the pressure shall be released at the furthermost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The allowable leakage will be determined by the following formula.

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Where:
Q = quantity of makeup water, in gallons per hour
L = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the hydrostatic test, in pounds per square inch (gauge)

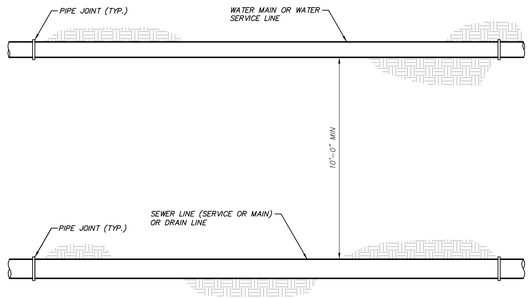
5. Regardless of the above allowables, any visible leaks shall be permanently stopped.
6. The test medium shall be water.

C. Disinfection
Prior to placing the water main into service, the new pipe shall be cleaned and disinfected in accordance with the latest revision of AWWA C651, Section 4.4.3, "The Continuous Feed Method". The "Tablet Method" will not be accepted.

1. All work under this section shall be performed in the presence of the Design Engineer, and a representative of the public health authority having jurisdiction, as required.
2. Chlorination shall be scheduled such that sampling and flushing will be performed during normal daylight working hours. The contractor shall provide acceptable backflow prevention on all supply water to prevent any potential backflow contamination or cross connection.
3. Chlorination shall be by the use of a solution of water and liquid chlorine, calcium hypochlorite or sodium hypochlorite and the solution shall be contained in the pipe or structure as specified.
4. Prior to chlorination, all dirt and foreign matter shall be removed by a thorough cleaning and flushing of the pipeline or structure.
5. The chlorine solution shall be introduced to pipelines through corporation stops placed in the horizontal axis of the pipe, to structures by means of tubing extending directly into the structure, or other approved methods.
6. The application of the chlorine solution shall be by means of a controlled solution feed device. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe or structure that the resulting free chlorine residual shall be between 25 and 50 parts per million (PPM) or milligrams per liter (mg/l).
7. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period, all valves and hydrants within the treated sections shall be operated.
8. The chlorine residual shall be not less than 10 PPM (or mg/l) at any point in the pipe or structure at the end of the 24-hour retention period.
9. When making repairs to, or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing not less than 200 PPM (mg/l) of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes or structures. The structures disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.
10. After the required retention of chlorinated water in the pipe or structures, they shall be thoroughly flushed until the replacement water shall, upon test, both chemically and bacteriological, be proven equal to water quality served by the public from the existing water supply system.
11. The disposal of chlorinated water from any pipe or structure shall be such that it will not cause damage to any vegetation, fish, or animal life.
12. The Contractor shall make all arrangements for the testing of water quality by an approved independent laboratory. Two acceptable bacteriological test, taken at least 24 hours apart, shall be collected from the new water main. At least 1 set of samples must be collected from every 1,000 LF of the new water main, plus one set from the end of the line and at least one set from each branch. The results for all tests shall be forwarded to the Design Engineer and the public health authority having jurisdiction.
13. All water quality requirements shall be fulfilled prior to the passage of any water through the new system to a public supply or the use of the new system.

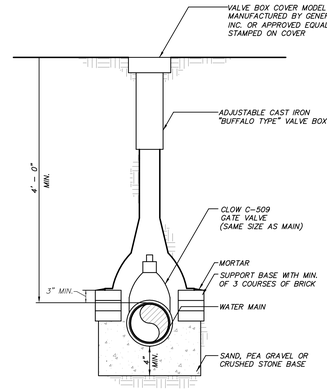
## PVC PIPE WATER MAIN NOTES:

1. All water mains shall be PVC Class 200 DR 14 pipe with factory installed push-on gaskets. All pipe shall be in conformance with the latest edition AWWA C900.
2. All water main fittings shall be Class 350 ductile iron mechanical joints in accordance with the latest edition of AWWA/ANSI Standards C111/A21.11. "GRIP RING" restrained joint connections shall be provided at every fitting (as manufactured by ROMAC Industries, Inc. or approved equal).
3. Thrust blocks shall be installed at all changes in horizontal or vertical alignment.
4. All water mains and appurtenances shall be installed in accordance with the latest edition of AWWA C605.
5. Gate valves shall be "Clow" or approved equal, iron body, non-rising stem conventional packing, resilient seated, mechanical joint with restrained joint gaskets, pressure class 350, opening shall be left (CCW) and operation shall be by 2" square wrench nut.
6. All water mains and appurtenances (including water service lines up to the curb stop) shall be pressure tested and leakage tested to the satisfaction of the Design Engineer, and the Westchester County Department of Health. This shall be done in accordance with the latest edition of AWWA Standard C605.
7. All water mains and appurtenances shall be flushed, disinfected, and tested to the satisfaction of the Design Engineer, and the Westchester County Department of Health. This shall be done in accordance with the latest edition of AWWA Standard C651, section 4.4.3, the "Continuous Feed Method". The "Tablet method" will not be allowed.
8. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary or storm sewer main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The horizontal separation shall also apply to service connections.
9. Water mains crossing sanitary or storm sewer mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. In cases where it is not practical to maintain the 18 inch vertical separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The vertical separation also applies to water service connections.
10. The Design Engineer, Westchester County Department of Health, and Town's Authorized Representative shall be notified forty eight (48) hours before construction is started.
11. The water mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Westchester County Department of Health.
12. The Westchester County Department of Health must be notified forty eight (48) hours prior to pressure testing the water main improvements.
13. The contractor shall notify the Design Engineer every day that water main construction shall occur.

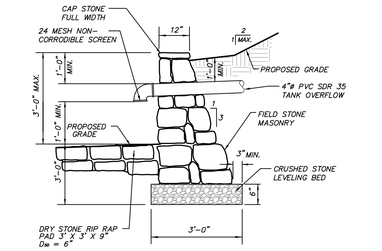



NOTES:
1. WHEN THE 10' SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. THE 10' SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

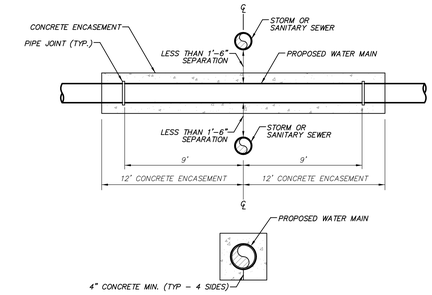
### WATER LINE HORIZONTAL SEPARATION DETAIL
(N.T.S.)




### WATER MAIN GATE VALVE AND VALVE BOX DETAIL
(N.T.S.)

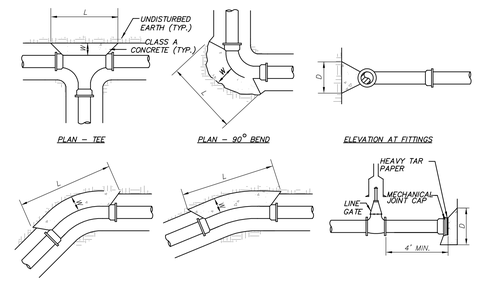


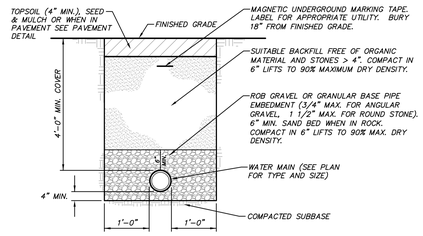

### WATER STORAGE TANK OVERFLOW SPLASH PAD DETAIL
(N.T.S.)



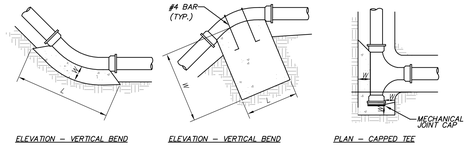

### WATER MAIN CONCRETE ENCASEMENT DETAIL
(N.T.S.)

NOTE: CONCRETE ENCASEMENT IS ONLY TO BE USED WHEN 18" MINIMUM SEPARATION IS NOT POSSIBLE. CONCRETE ENCASEMENT REQUIRES PRIOR APPROVAL BY THE DESIGN ENGINEER & THE DEPARTMENT OF HEALTH.



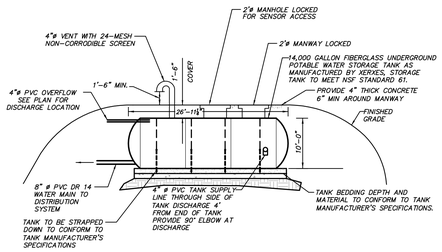




### WATER MAIN TRENCH DETAIL
(N.T.S.)

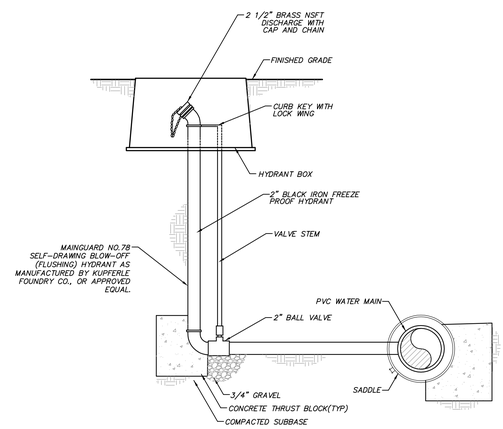



| THRUST BLOCK SCHEDULE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PIPE | CAP/TEE | | 22 1/2° | | 45° | | 90° | | W |
| SIZE | L | D | L | D | L | D | L | D | |
| 4" | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 1.5' |
| 6" | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 1.5' |
| 8" | 3' | 2' | 2' | 2' | 2' | 2' | 3' | 2' | 1.5' |

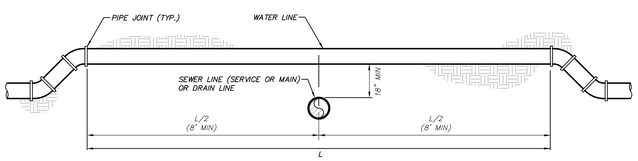
### THRUST BLOCK DETAILS
( N.T.S. )



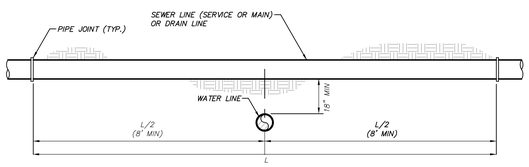

### POTABLE WATER STORAGE TANK DETAIL
(NTS)




### FLUSHING HYDRANT DETAIL
( N.T.S.)




**WATER LINE CROSSING OVER SANITARY SEWER LINE OR STORM DRAIN LINE**

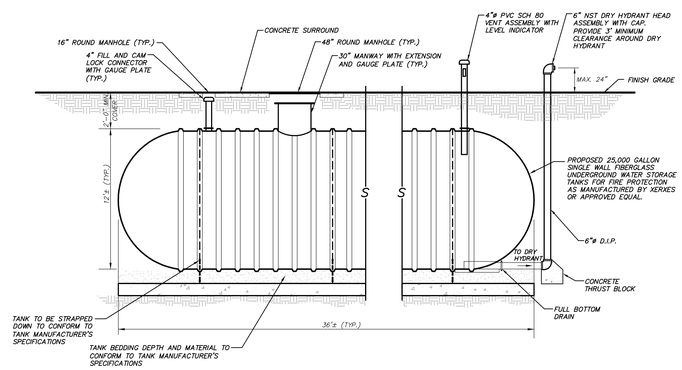



**WATER LINE CROSSING UNDER SANITARY SEWER LINE OR STORM DRAIN LINE**

NOTES:
1. WHEN 18" SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. PROVIDE PIPE AND FITTING RESTRAINT AS REQUIRED.
3. THE 18" SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

### WATER LINE CROSSING DETAIL
(N.T.S.)

NOTES:
1. PROVIDE CONCRETE THRUST BLOCKS AT ALL CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS FOR THE DRY HYDRANT AND CONNECTION PIPE
2. PROVIDE LOW LEVEL ALARM IN CLUBHOUSE BUILDING.




### FIRE PROTECTION STORAGE TANK DETAIL
(N.T.S.)



| NO. | DATE | REVISION | BY |
|---|---|---|---|

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
WATER DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 9-14-18 | DRAWN BY | S.V.W. | HD-11 | 11 / 11 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |

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INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

September 18, 2018

Mr. Zaw Thein
Westchester County Department of Health
25 Moore Avenue
Mount Kisco, New York 10549

RE: Wilder Balter Partners, Inc
Application for Water System Approval
NYS Route 22
Lewisboro, New York
TM# 5-10765-19, 20, and 21

Dear Mr. Thein:

Enclosed please find three (3) copies of the following:

- NYSDOH Form 348.
- Drawings HD-1 through HD-11, last revised September 14, 2018.
- Water Facilities Engineer's Report dated September 14, 2018.
- Water Supply Report by WSP, dated September 2018.
- Check #7418 for $3,234.00 - Application Fee.

As you may recall, your Department approved the drilling of a third and fourth well proposed for use as a public water supply on August 11, 2017. It is proposed to use three of the four existing bedrock wells located on the project site, as supply wells for a small public water supply system. The system would supply an apartment complex. The water demand for the complex would be about 9,240 gallons per day (gpd) or about 6.4 gallons per minute (gpm).

The attached report from WSP includes the results of the 72-hour pump test and water quality testing.

The enclosed information is provided for review of the Application for Approval of Plans for a Public Water Supply Improvement. Please note, Letter of Authorization was previously provided. If you have any question concerning this application or require additional information, please do not hesitate to contact our office.

Very truly yours,

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

By: _____
Jeffrey J. Contelmo, P.E.
Senior Principal Engineer

JJC/EMS/amk

Enclosures

Insite File No. 15246.100

3 Garrett Place, Carmel, New York 10512 (845) 225-9690 Fax (845) 225-9717
www.insite-eng.com

Z:\E\15246100\Correspondence\Admin\2018\091418zt.doc

# WATER FACILITIES ENGINEER'S REPORT

**For**

**Wilder Balter Partners, Inc.**
**NYS Route 22**

**Town of Lewisboro, New York**

**September 14, 2018**

Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

# CONTENTS

## 1.0 INTRODUCTION

The project sponsor, Wilder Balter Partners, Inc. (the "Applicant"), proposes a 42-unit multifamily residential development comprised of five (5) buildings, including indoor and outdoor recreational facilities, an access road off of New York State Route 22, onsite parking for 116 vehicles and associated stormwater management facilities on 35.4± acres of land located on the east side of New York State Route 22 north of the I-684 northbound Exit 6A ramp.

The development site is currently vacant wooded land and is not served by public water and sewer service. Water service will be provided by a new community water system supplied by on-site wells and wastewater will be treated by a new community on-site septic system. The community water and sewer systems will be designed and constructed in accordance with the standards and subject to the approval of the Westchester County Department of Health (WCDOH) and the New York State Department of Environmental Conservation (NYSDEC).

The subject property currently consists of three separate tax parcels which are proposed to be merged. The property is located in two zoning districts: the western portion of the site near Route 22 is in the CC-20 Campus Commercial District and the eastern portion of the site in the R4-A residential district. Multi-family housing is a permitted use in the CC-20 zoning district. Surrounding and nearby properties to the north, east and west are generally undeveloped, and transportation uses (Interstate 684). Properties to the south are mostly developed low density residential lots.

## 2.0 DESIGN FLOW

Flow rates for the anticipated uses at the proposed facility and the design flow for the proposed project are listed in the table below. The average daily water and sewer design flows for the proposed project are based on the hydraulic loading rates given in the New York State Department of Environmental Conservation (NYSDEC) publication *Design Standards for Intermediate Sized Wastewater Treatment Systems – 2014 (DEC 14).*

The water and wastewater flow will be designed for the proposed ten (10) 1-bedroom units, twenty-two (22) 2-bedroom units, and ten (10) 3-bedroom units. A design flow of 110 gpd/bedroom is used. Since the clubhouse will primarily be used by residents of the development, no additional gallon per day allotment is provided for the clubhouse.

| **Average Daily Design Flow** | | | |
|---|---|---|---|
| **Use** | **# of Units** | **Flow Rate (gpd/unit)** | **Design Flow (gpd)** |
| One Bedroom Unit | 10 | 110 | 1,100 |
| Two Bedroom Unit | 22 | 220 | 4,840 |
| Three Bedroom Unit | 10 | 330 | 3,300 |
| **Total** | | | **9,240** |

A design flow of 9,240 gallons per day will be used for the sewer and water facilities.

The average hourly flow rate for the project is calculated as follows:

Average Hourly Flow = 9,240 gpd ÷ 24 hr/day ÷ 60 min/hr = 6.4 gpm

The peak hourly flow for the water system is calculated using a peaking factor of ten as required by the Westchester County Department of Health.

Peak Hourly Flow = 6.4 gpm x 10 = 64 gpm

The peak hourly flow will be used to size the proposed distribution system.

Each building will be equipped with fire sprinklers. Initial estimates for the fire sprinkler demand are 300 gpm for a 30 minute duration (9,000 gallons).

The final fire sprinkler demands for the system will be confirmed by the project's mechanical engineer and provided in the Final Engineer's Report. The combined peak flow for domestic and fire sprinkler will be used to size the system. The combined peak flow for design is 300 + 64 = 364 gpm.

## 3.0 WATER SUPPLY SOURCE

The water supply for the project is proposed to be provided by three existing onsite wells. For quantity and quality testing of the wells proposed to be used, see the Wilder Balter Partners 72-hour Pumping Test Program by WSP, dated September 2018. The wells will be required to meet the maximum day demand of 18,480 gpd (2 times average daily flow), or 12.8 gpm with the best well out of service. It is anticipated that two (2) wells may be required to meet the 12.8 gpm max daily flow with the best well out of service. The stabilized pumping rates for wells 2, 3, and 4 are 5.3 gpm, 8.5 gpm, and 8.3 gpm. With Well 3 out of service (best well) the remaining wells can provide 13.6 gpm meeting the max day demand.

Well 2 had an iron concentration of 0.865 mg/L exceeding the MCL (0.3 mg/L). The manganese result was 0.124 mgl/L below the MCL, but the well is above the combined iron and manganese MCL of 0.5 mg/L. Well 2 also had a turbidity result of 2.85 MCL exceeding the MCL.

Well 2 has sat idle for many years prior to the recent pump test. It is anticipated that the turbidity and iron is elevated due to this long idle period. These parameters are expected to be reduced when the well is put into production. The blended water from all the wells will meet the iron MCL and combined iron and manganese MCL, so no treatment is proposed. Well 2 is currently considered GWUDI (until proven otherwise) by the Westchester County Department of Health, therefore a 5 micron and 1 micron filter preceding a UV treatment system is proposed to reduce the turbidity.

The three wells tested positive for total coliform, which was potentially caused by installation of the temporary pumping equipment. Prior to use, the wells will be disinfected and retested for total coliform and e-coli.

As the blended water will meet the MCL for iron and manganese, no treatment beyond the cartridge filters on Well 2 for turbidity, UV on Well 2 for GWUDI and chlorine disinfection for all wells is proposed.

### 3.1 Well Pumps

A Gould's 7GS10 is proposed for Well 2 and will pump between 5.5 and 8 gpm as noted in Appendix A. A Gould's Model 25GS30 is proposed for Well 3. As calculated in Appendix A, the pump will produce 9 to 23 gpm. For Well 4, a Gould's Model 13GS20 is proposed. The pump will provide 8 to 18 gpm as calculated in Appendix A.

## 4.0 WATER CONTROL BUILDING

A control/treatment building is proposed in the northeastern portion of the site. The building will be locked except for maintenance and repair. The discharge from the three supply wells will be piped to this building through separate 1.5" pipes. After entering the building, the raw water will be chlorinated before the well lines combine into a single 4" pipe to transport the treated water to the storage/contact tank. The building will contain meters, water sampling spigots, UV treatment for well 2 and chlorinator equipment for each well source.

## 5.0 DISINFECTION

### 5.1 Ultraviolet Light Disinfection System

Well 2 is located within the 150-foot Town of Lewisboro wetland control area. Due to its proximity to wetlands the well must be tested to determine if the groundwater is under the direct influence of surface water (GWUDI). Per conversations with the Westchester County Department of Health, this determination cannot be made prior to construction of the subject project. If well 2 is GWUDI it would require an ultraviolet disinfection system and continuous turbidity monitoring. It is proposed to install sediment filters, turbidity meters and an ultraviolet disinfection system for the required treatment for well 2 while the GWUDI determination is made. If it is determined at a later date that the wells are not GWUDI, these systems could be removed.

A 5-micron and 1-micron absolute filter are proposed on the well line from well 2. The proposed filters are manufactured by Harmsco, model numbers HC/40-5, and PP-HC/40-1.

The UV system proposed is Hallett 30 as manufactured by UV Pure Technologies . The systems are NSF/ANSI Standard 55 Class A certified and will provide a UV dosage of 40 mj/cm$^2$ to meet the New York State Department of Health requirements. The system will be installed in the water control building. Refer to the project plans for a water system schematic for system layout along with location of valves, meter, filters, and appurtenances.

Two Hallett 30 units will be installed in parallel on the well service line for well 2. The Hallett 30 is rated to approximately 30 gpm and contains a flow restrictor, which limits flow to less than 30 gpm.

The self-contained monitoring system for each UV unit will be connected to an audio and visual alarm. The self-contained monitoring system for each UV unit will also be connected to a solenoid valve on the individual pipe serving the UV unit it monitors. The solenoid valve for the primary units is open during normal operating conditions and closes during times of improper function such as when power is interrupted, the proper dose is not delivered as measured by the UV intensity monitor, a quartz bulb goes out, or the self-diagnostic computer shuts down due to other malfunctions.

The UV lamps should be replaced once a year at a minimum, and the intensity checked monthly. Should a decrease in the intensity be observed the quartz sleeve should be cleaned in accordance with the manufacturer's specifications.

A turbidity meter is proposed for well 2. A single turbidity meter will continuously monitor the level of turbidity of the water in the well 2 service line. A Hach 1720E Turbidity Meter is proposed for the project. The monitor will be connected to an alarm and auto dialer that will be triggered if the turbidity exceeds 1 NTU.

The UV system and all piping is to be disinfected upon completion of work in accordance with AWWA Standard C651-05 (except section 4.4.2.). Acceptable bacteriological results must be submitted and accepted by the Westchester County Department of Health prior to utilization of the water system. Manufactures information sheets for the filters, turbidity meter, and UV system can be found in Appendix E.

### 5.2 Chlorine Disinfection

Disinfection will be provided by sodium hypochlorite. A separate chemical solution crock and feed pump will inject chlorine into each of the three raw well water sources prior to the vented storage tank. The vented storage tank and the pipes from the tank to the water control building will provide chlorine contact prior to the water being pumped to the distribution system. The chlorination systems will be housed in a separate room within the water control building.

The New York State Department of Health Fact Sheet on Microbial Log removal/inactivation Rule Requirements was used to determine the required CT value to achieve 4-log virus inactivation. For water with a pH range between 6 to 9 and a minimum temperature of 5 degree Celsius, a CT of 8.0 min*mg/l is required. The system CT value is calculated below.

| | | |
|---|---|---|
| Peak flow in tank supply line (see section 3.0) | = | 49 gpm |
| Volume of water in tank supply line | = | 254 gallons |
| Contact time in tank supply line (254 gallons / 49 gpm) | = | 5.1 min |
| Peak flow from tank to first user (see Section 2.0) | = | 364 gpm |
| Normal minimum water in tank (see Section 6.0) | = | 10,920 gallons |
| Baffling factor | = | 0.3 |
| Minimum effective volume provided in tank (0.3 x 10,920) | = | 3,276 gallons |
| Travel time in tank (3,276 gallons / 364 gpm) | = | 9.0 min |
| Volume of water in the watermain | = | 900 gallons |
| Travel time in the watermain (900 gallons / 364 gpm) | = | 2.4 min |
| Minimum travel time to first user | = | 16.5 min |
| Minimum chlorine residual | = | 0.5 mg/l |

Minimum CT value (16.5 min*0.5 mg/l) = 8.2 min*mg/l > 8.0 ok

## 6.0 STORAGE TANK

A 14,000 gallon vented storage tank is proposed to provide chlorine contact and supplemental storage during times of peak flow. The Health Department's policy requires that the volume of the storage tank be approximately equal to or greater than the average daily flow. Additional storage is provided for the fire sprinkler demand.

The tank will be sized so at the normal low water elevation in the tank will have a minimum reserve volume to provide 30 minutes of combined peak flow. The minimum reserve volume for 30 minutes of combined peak flow (364 gpm) is 10,920 gallons. The 14,000 gallon tank will allow for normal operation and cycling of the well pumps above the minimum reserve volume.

The tank is proposed to be a fiberglass potable water tank that conforms to NSF Standard 61. The tank levels will be used to control the well pumps. The well pumps will be set to rotate as lead pump, so all wells will be utilized.

Average daily flow (see Section 2.0) = 9,240 gallons

The well pumps will be set to alternate as lead and lag or lag 2. The lead pump will turn on when the water level in the tank falls below the lead pump on level. Two well pumps will operate simultaneously if the level in the tank drops below the lag level and all three well pumps will operate if the tank falls below the lag 2 level.

| | |
|---|---|
| Low Level Alarm and Lag 2 On | 2.8' From top (10,920 gallons in tank) |
| Lag Pump On | 2.4' From top (11,400 gallons in tank) |
| Lead Pump On | 2.0' From top (12,000 gallons in tank) |

| | |
|---|---|
| Pumps Off | 1.6' From top (12,500 gallons in tank) |
| High Level Alarm | 1.2' From top (13,000 gallons in tank) |
| Overflow | 0.8' From top (13,400 gallons in tank) |

## 7.0 SYSTEM OPERATION PRESSURES

The elevation of the storage tank above the users will provide the pressure for the distribution system. The static pressure is based upon relative elevation. The system will be designed to meet *Recommended Standard for Water Works* 2012 minimum pressure at each service connection of 35 psi.

| | |
|---|---|
| Minimum Water Elevation of Storage Tank (Empty) | 405.0 ft |
| First Elevation of highest grade level floor | 301.3 ft |
| Elevation of lowest grade level floor | 289.5 ft |
| Static Head | 103.7 ft to 115.5 ft |
| | |
| Static Pressure at lowest grade level floor | 50 psi |
| Static Pressure at highest grade level floor | 44 psi |

To calculate the pressures during peak flow conditions, the head loss in the watermain must be calculated. As noted in Appendix C, a head loss of 4 feet (2 psi) was calculated at the combined peak flow of 364 gpm. This results in a pressure range of 42 psi to 48 psi. This exceeds the RSWW minimum requirement of 35 psi.

## 8.0 DISTRIBUTION SYSTEM

The distribution system is proposed to be 8" diameter PVC DR-14 watermain. The system will contain isolation gate valves and flushing hydrants. Gate valves will be located strategically to minimize the number of units out of service due to a service disruption. Fire service and domestic service lines will be installed for each building. Flushing hydrants will be installed at low points in the system, as well as at dead ends.

No fire hydrants are proposed since the system is only designed to meet domestic and fire sprinkler use requirements.

# APPENDIX A

## Proposed Well Pump Curves and Calculations

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 2 (Well Low)**

| | | | |
|---|---|---|---|
| **Static Head** | | 382 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 235 ft | Length of Drop Pipe |
| | Q | 6 gpm | Flow Rate |
| | V | 2.2 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 245 ft | Total Length = $L + L_e$ |
| Head Loss in Drop Pipe | | 9 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 390 ft | Length of 1.5" PE water line from well to water control building |
| | Q | 6 gpm | Flow Rate |
| | V | 1.4 ft/s | Velocity |
| | $L_e$ | 39 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 429 ft | Total Length = $L + L_e$ |
| Head Loss in Well Service Line | | 4 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

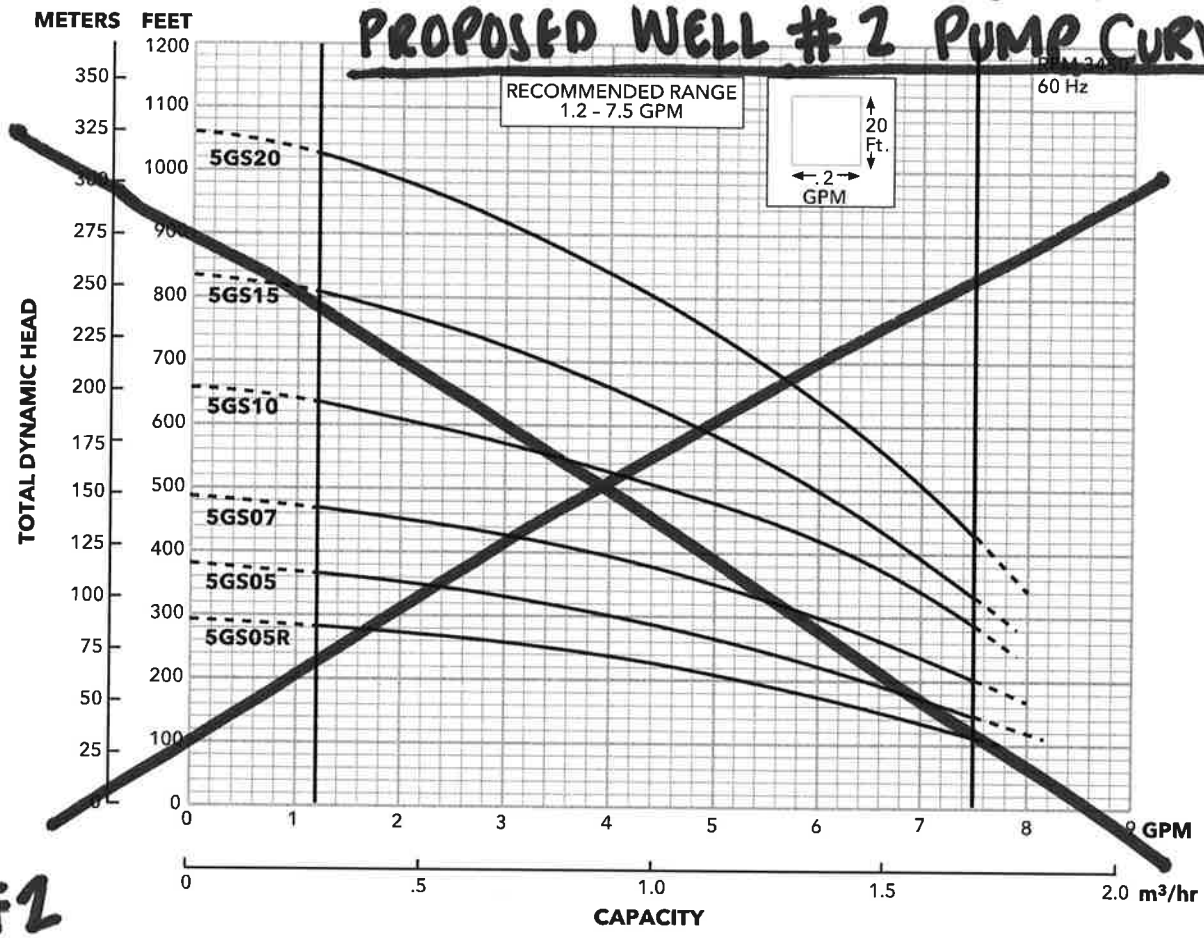
**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 2 (Well High)**

| | | | |
|---|---|---|---|
| **Static Head** | | 205 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 235 ft | Length of Drop Pipe |
| | Q | 8 gpm | Flow Rate |
| | V | 3.3 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 245 ft | Total Length = $L + L_e$ |
| Head Loss in Drop Pipe | | 17 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 390 ft | Length of 1.5" PE water line from well to water control building |
| | Q | 8 gpm | Flow Rate |
| | V | 2.1 ft/s | Velocity |
| | $L_e$ | 39 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 429 ft | Total Length = $L + L_e$ |
| Head Loss in Well Service Line | | 8 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

Goulds Water Technology

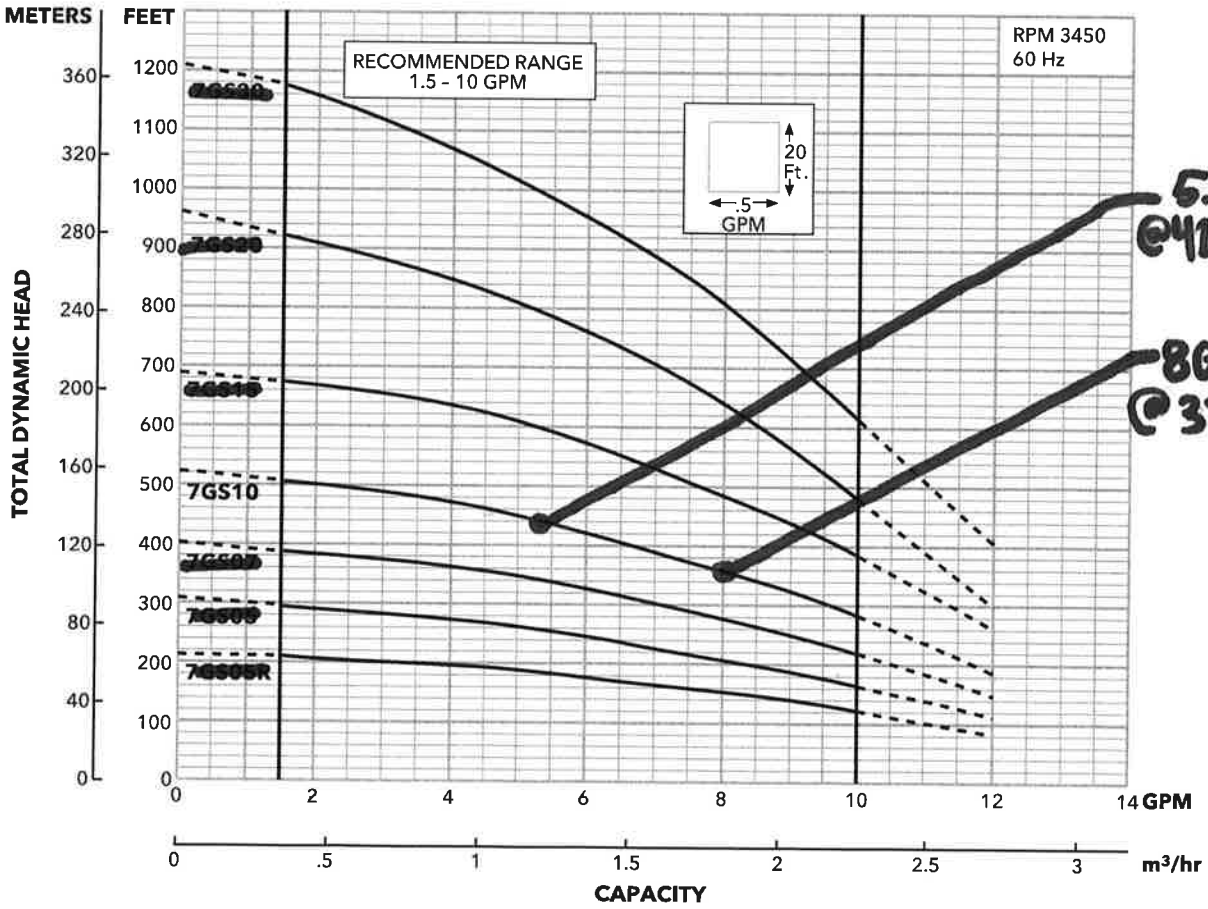
WILDER BALTER PARTNERS, INC.
PROPOSED WELL #2 PUMP CURVE

~~Model 5GS~~




WELL #2

**Model 7GS**



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**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 3 (Well Low)**

| | | | |
|---|---|---|---|
| **Static Head** | | 400 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 319 ft | Length of Drop Pipe |
| | Q | 9 gpm | Flow Rate |
| | V | 3.7 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 329 ft | Total Length = $L + L_e$ |
| Head Loss in Drop Pipe | | 28 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 165 ft | Length of 1.5" PE water line from well to water control building |
| | Q | 9 gpm | Flow Rate |
| | V | 2.4 ft/s | Velocity |
| | $L_e$ | 16.5 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 181.5 ft | Total Length = $L + L_e$ |
| Head Loss in Well Service Line | | 4 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

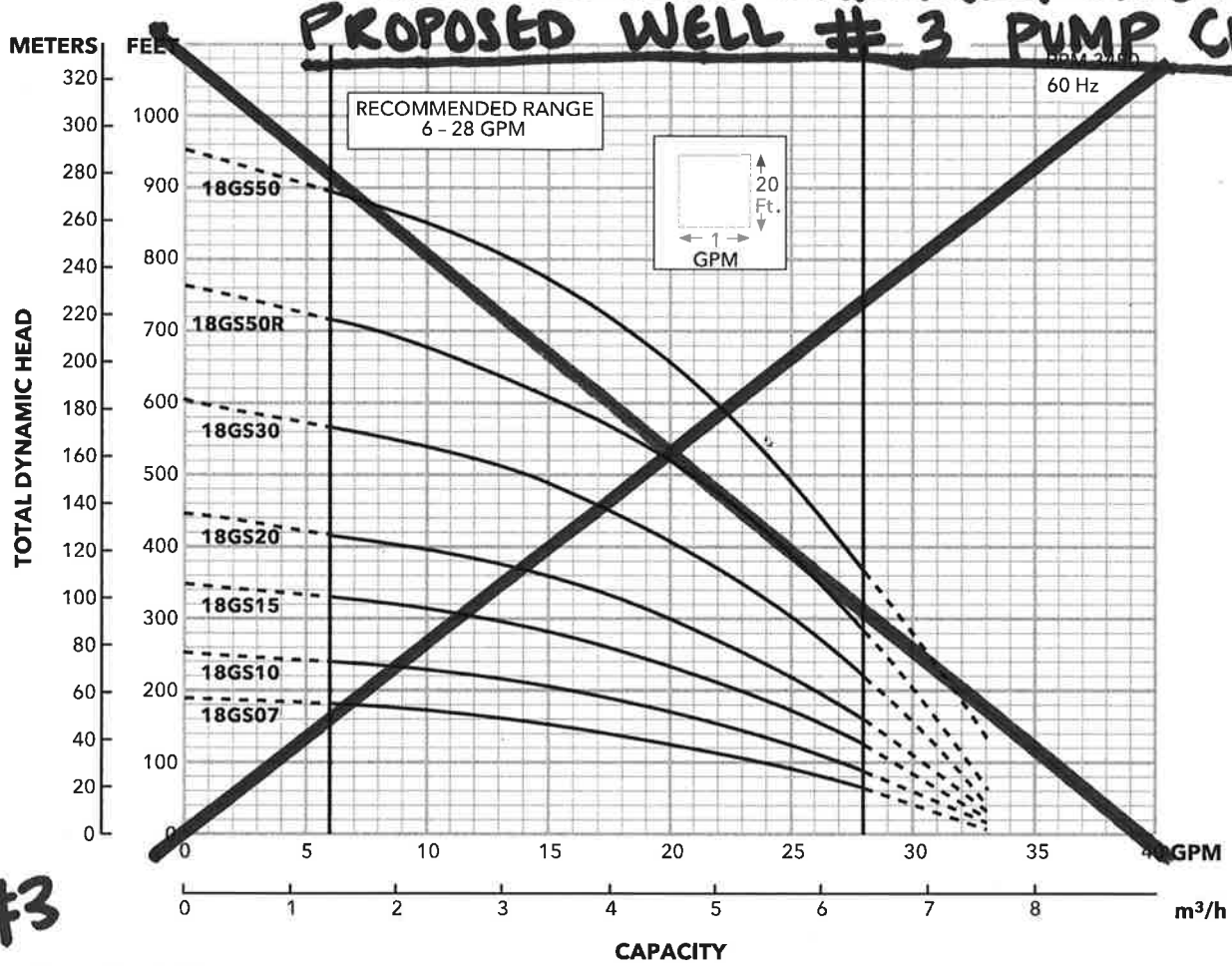
**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 3 (Well High)**

| | | | |
|---|---|---|---|
| **Static Head** | | 146 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 319 ft | Length of Drop Pipe |
| | Q | 23 gpm | Flow Rate |
| | V | 9.4 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 329 ft | Total Length = L + $L_e$ |
| Head Loss in Drop Pipe | | 162 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 165 ft | Length of 1.5" PE water line from well to storage tank |
| | Q | 23 gpm | Flow Rate |
| | V | 6.0 ft/s | Velocity |
| | $L_e$ | 16.5 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 181.5 ft | Total Length = L + $L_e$ |
| Head Loss in Well Service Line | | 23 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

Goulds Water Technology

WILDER BALTER PARTNERS, INC.
PROPOSED WELL #3 PUMP CURVE

~~Model 18GS~~

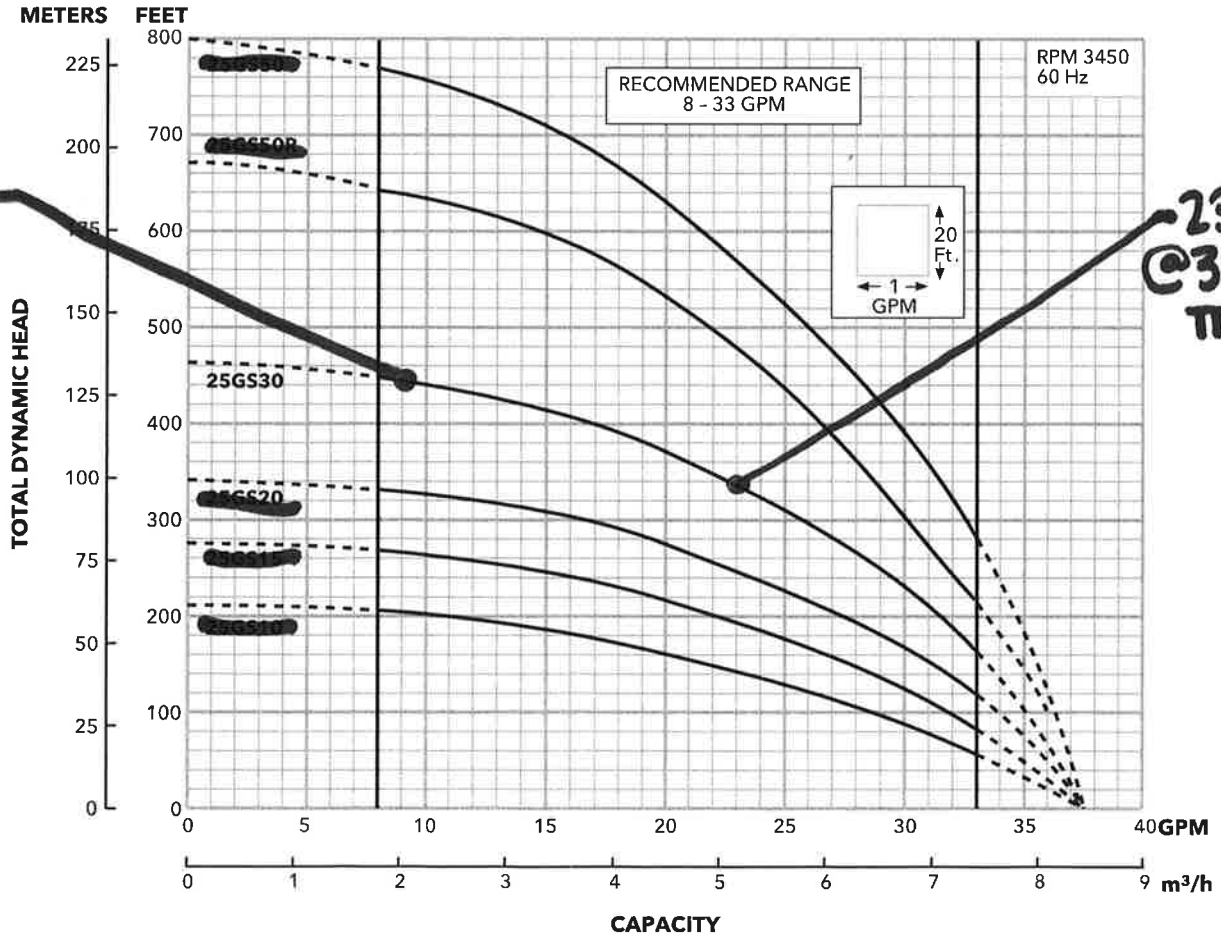



WELL#3

**Model 25GS**

9GPM @44 TDH

23GPM @340 TDH



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**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 4 (Well Low)**

| | | | |
|---|---|---|---|
| **Static Head** | | 443 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 364 ft | Length of Drop Pipe |
| | Q | 8 gpm | Flow Rate |
| | V | 3.4 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 374 ft | Total Length = $L + L_e$ |
| Head Loss in Drop Pipe | | 28 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 46 ft | Length of 1.5" PE water line from well to water control building |
| | Q | 8 gpm | Flow Rate |
| | V | 2.2 ft/s | Velocity |
| | $L_e$ | 4.6 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 50.6 ft | Total Length = $L + L_e$ |
| Head Loss in Well Service Line | | 1 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

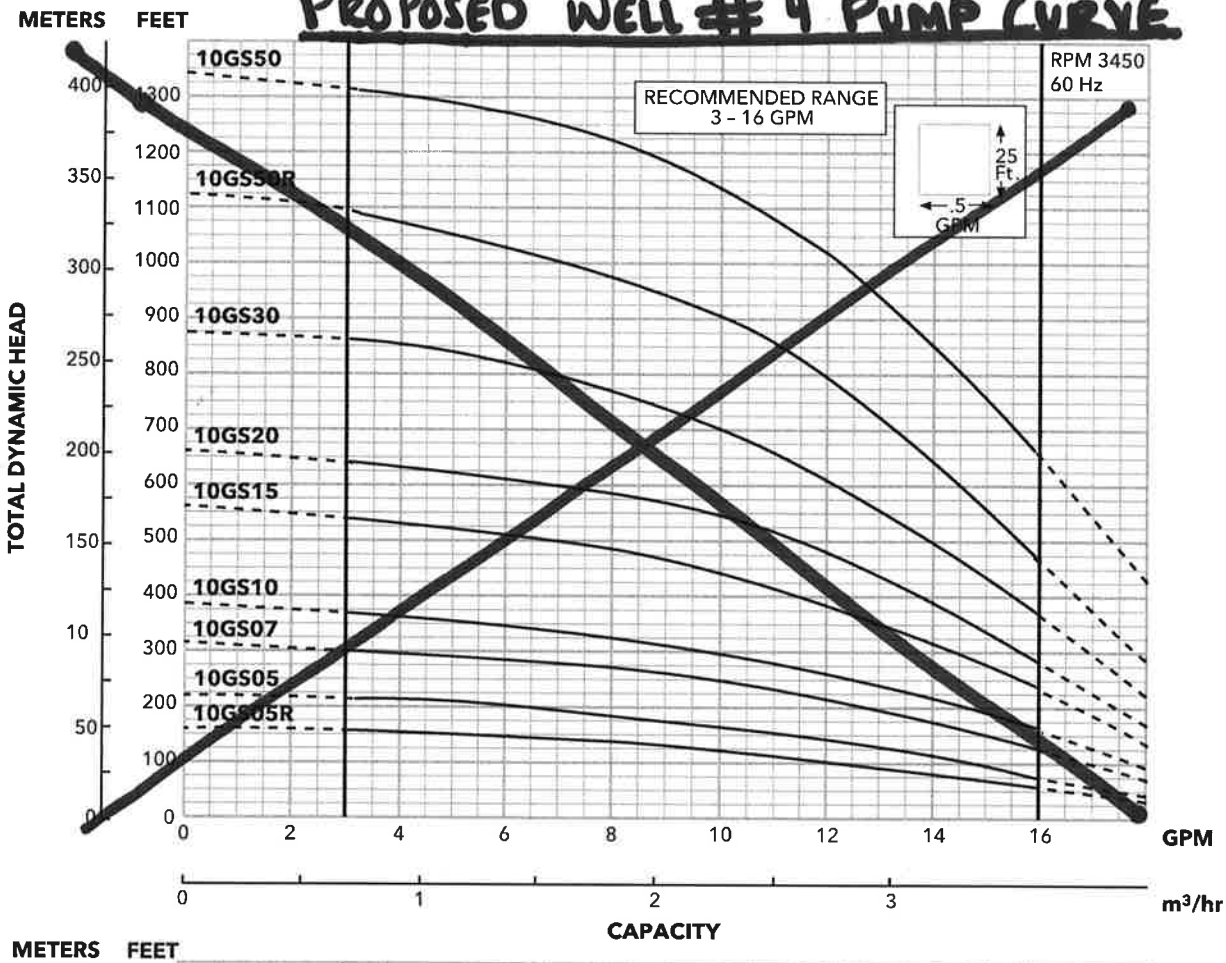
**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Well Pump Design Calculations: Well 4 (Well High)**

| | | | |
|---|---|---|---|
| **Static Head** | | 141 ft | Vertical distance from static water level to tank water level |
| **Loss in Drop Pipe** | | | |
| | C | 120 | Roughness coefficient for smooth plastic pipe |
| | d | 1 in | Diameter of Drop Pipe |
| | L | 364 ft | Length of Drop Pipe |
| | Q | 18 gpm | Flow Rate |
| | V | 7.4 ft/s | Velocity |
| | $L_e$ | 10 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 374 ft | Total Length = L + $L_e$ |
| Head Loss in Drop Pipe | | 117 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |
| **Well Service Line** | | | |
| | C | 140 | Roughness coefficient for smooth plastic pipe |
| | d | 1.25 in | Diameter of water line |
| | L | 46 ft | Length of 1.5" PE water line from well to water control building |
| | Q | 18 gpm | Flow Rate |
| | V | 4.7 ft/s | Velocity |
| | $L_e$ | 4.6 ft | Equivalent length to account for losses in valves and bends |
| | $L_t$ | 50.6 ft | Total Length = L + $L_e$ |
| Head Loss in Well Service Line | | 4 ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

Goulds Water Technology

WILDER BALTER PARTNERS, INC.
PROPOSED WELL #4 PUMP CURVE

## Model 10GS

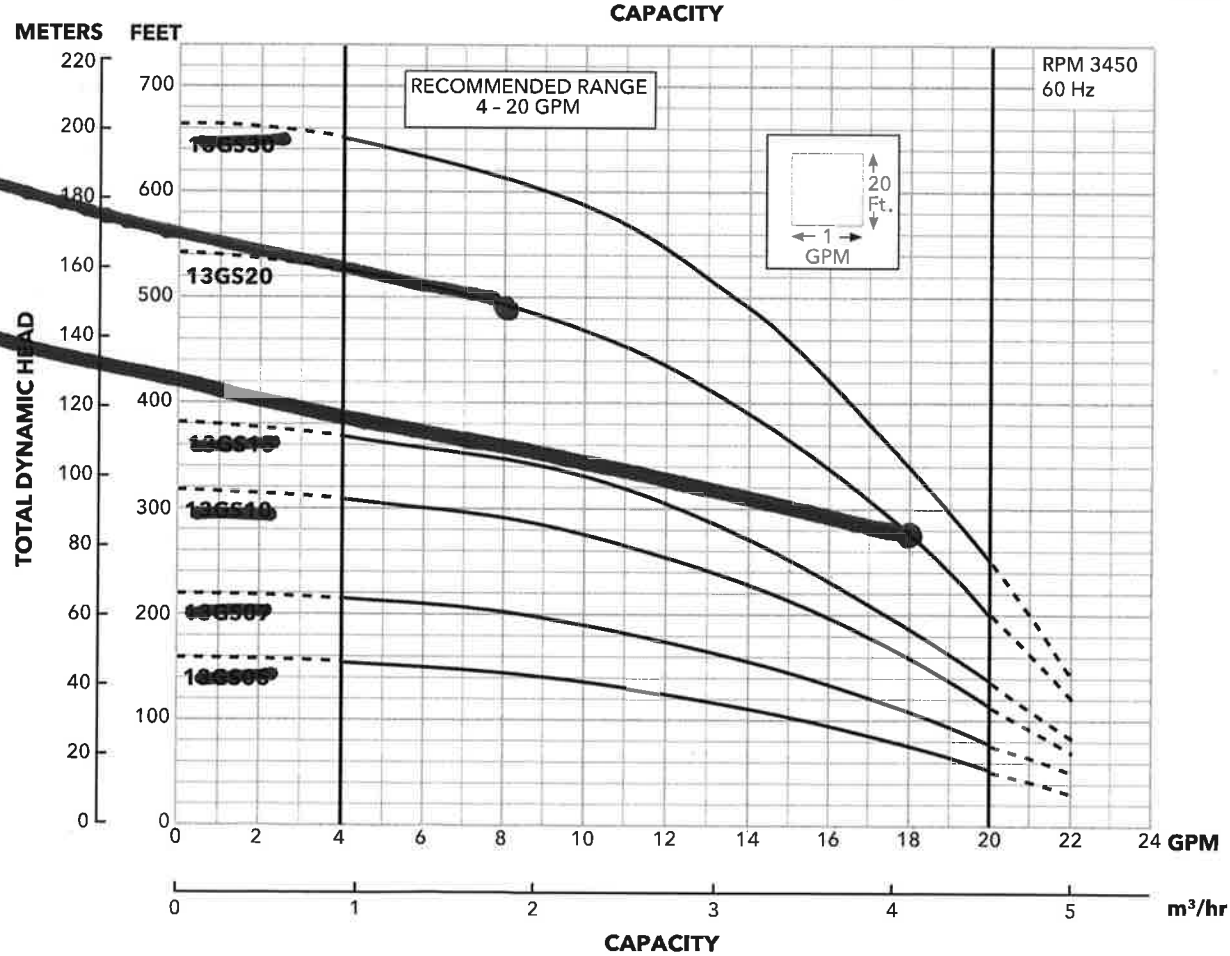



WELL #4

## Model 13GS

8 GPM @ 481 TDH

18 GPM @ 271 TDH



# APPENDIX B

## Chlorination System

# Data Sheet

## ROYTRONIC® Series A

## Electronic Metering Pumps

### Model Code Configuration

A 1 4 1 9 1 0 H 1

Model A | 7 | 5 | 1 | 8 | 2 | 8 | 6 | 1 |

**Drive**

**Control Code**

1 – Dual Manual Control:
Speed (stroking frequency) and stroke length manually adjustable

7 – Pulse Input / Dual Manual Control:
External control capability through pulse input and low level float switch plus manual control adjustments of control code 1

8 – Analog Input / Dual Manual Control:
External control capability through 4-20mA input and low level float switch plus manual control adjustments of control code 1

**Output Codes with FastPrime™ Liquid End** See Autoprime

| Max Capacity | Max Pressure |
|---|---|
| 1 – 0.25 GPH (1.0 l/h) | 250 psi (17.2 Bar) |
| 4 – 0.5 GPH (1.9 l/h) | 250 psi (17.2 Bar) |
| 5 – 1.0 GPH (3.8 l/h) | 110 psi (7.6 Bar) |
| 6 – 2.0 GPH (7.6 l/h) | 50 psi (3.4 Bar) |

**Voltage Code**

1 – 110-120V US Plug
2 – 220-240V US Plug
3 – 220-240V DIN Plug
5 – 220-240V UK Plug
6 – 220-240V Aust/NZ Plug
7 – 220-240V Swiss Plug
8 – 110-120V No Plug

**Liquid End**

**Liquid End Code**

See accompanying pages for options

**Liquitrans™ Size Code**

1 – 0.2 in²
2 – 0.4 in²
3 – 0.8 in²

**Material Code**

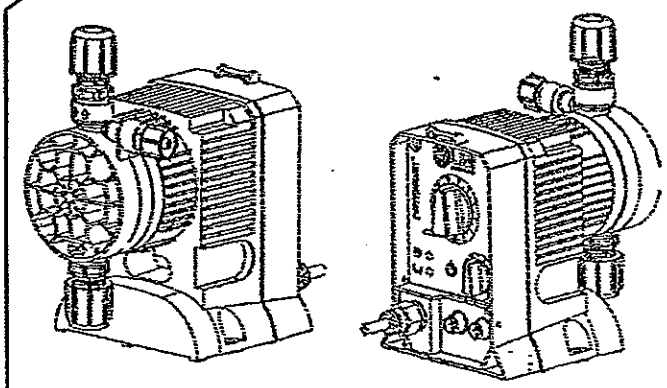
See accompanying pages for options

**Head/Valve Code**

S – FastPrime™ Head + 4FV
N – FastPrime™ Head
H – AutoPrime™ Head + 4FV
A – AutoPrime™ Head

**Connection Code**

I – Inch Tube connections with tubing
M – Metric Tube connection without tubing
U – Inch Tube connection with Black UV resistant suction/discharge tubing
P – NPT only (316 ss Heads)



### Specifications

| Series | Strokes Per Minute (Adjustable) Min | Max | Stroke Length (Adjustable) Recommended Minimum | Average Input Power @ Max Speed and Pressure | Max. Shipping Weight |
|---|---|---|---|---|---|
| A81, A71, A11 | 1 | 120 | 20% | 42 watts | 10 lbs (4.75 kg) |
| A84, A74, A14<br>A85, A75, A15<br>A86, A76, A16 | 1 | 240 | 20% | | |

LMI

201 Ivyland Road
Ivyland, PA 18974 USA
TEL: (215) 293-0401
FAX: (215) 293-0445
http://www.lmipumps.com

Replaces same of Rev.B 2/2011
2022.C 11/2014

## AutoPrime™ Liquid End Configuration Data & Materials of Construction

| Drive Assembly | Liquid End | Size Code | Materials of Construction: Head/Fittings | Balls | Liquiflram™ | Seat/O-Ring | Accs. Valve | Tubing & Connections |
|---|---|---|---|---|---|---|---|---|
| A81 ■ A71 ■ A11 ■ A84 ■ A74 ■ A14 ■ | 910HI† | 1 | Acrylic/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 1/4" O.D. |
| | ~~918HI†~~ | 1 | PVC/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 1/4" O.D. |

| Drive Assembly | Liquid End | Size Code | Materials of Construction: Head/Fittings | Balls | Liquiflram™ | Seat/O-Ring | Accs. Valve | Tubing & Connections |
|---|---|---|---|---|---|---|---|---|
| A85 ■ A75 ■ A15 ■ | 920HI† | 2 | Acrylic/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 3/8" O.D. |
| | 928HI† | 2 | PVC/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 3/8" O.D. |

| Drive Assembly | Liquid End | Size Code | Materials of Construction: Head/Fittings | Balls | Liquiflram™ | Seat/O-Ring | Accs. Valve | Tubing & Connections |
|---|---|---|---|---|---|---|---|---|
| A86 ■ A76 ■ A16 ■ | 930HI† | 3 | Acrylic/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 3/8" O.D. |
| | 938HI† | 3 | PVC/PVC | Ceramic | Fluorofilm™ | PTFE/Polyprel® | 4FV | PE 3/8" O.D. |

## Output Information with AutoPrime™ Liquid End

| Series | Gallons per Hour Min | Gallons per Hour Max | Liters per Hour Min | Liters per Hour Max | mL/cc per Minute Min | mL/cc per Minute Max | mL/cc per Stroke Min | mL/cc per Stroke Max | Maximum Injection Pressure |
|---|---|---|---|---|---|---|---|---|---|
| AX1* | 0.001 | 0.13 | 0.005 | 0.5 | 0.082 | 8.2 | 0.0007 | 0.068 | 150 psi (10.3 Bar) |
| AX4* | 0.003 | 0.25 | 0.01 | 0.9 | 0.157 | 15.7 | 0.0013 | 0.13 | 150 psi (10.3 Bar) |
| AX5* | 0.006 | 0.65 | 0.02 | 2.5 | 0.41 | 41.0 | 0.0017 | 0.17 | 110 psi (7.6 Bar) |
| AX6* | 0.017 | 1.7 | 0.06 | 6.4 | 1.07 | 107.2 | 0.0045 | 0.45 | 50 psi (3.4 Bar) |

*Minimum output is based on one stroke per minute. Minimum output can be reduced further in external mode. (Where X = Control Code 0,1,3,7,8).

AUTOPRIME™ liquid ends have 3 check valves: suction on the bottom; discharge on the front; autoprime bleed on the top. By design, a repeatable portion of the process fluid continuously bleeds through the top check valve to be returned to the chemical supply. The result is the assurance that any gas in the head is automatically relieved thus eliminating air-binding. Depending on application, output may be reduced up to 50%. Variables include supplier piping, stroke length and speed setting. Maximum pressure is 150 psi (10.3 Bar) for AX1, AX4, 110 psi (7.6 Bar) for AX5, 50 psi (3.4 Bar) for AX6 models. (Where X = control codes 0,1,3,7,8).

■ See front page for voltage code specifications.

† To specify black, UV resistant tubing, change 'I' to 'U'. To specify head only and no 4FV, change 'S' to 'N' for FastPrime or change 'H' to 'A' for AutoPrime. To specify 1/2" NPT Male, change 'I' to 'P'.

4FV Indicates that the pump is equipped with an LMI Four Function Valve. This diaphragm type, anti-syphon/pressure relief valve is installed on the pump head. It provides anti-syphon protection and aids priming, even under pressure.

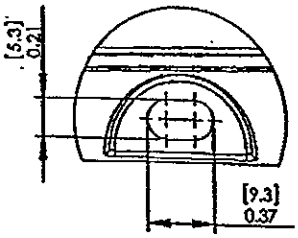
Fluorofilm™ is a copolymer of PTFE and PFA. Polyprel® is an elastomeric PTFE copolymer.

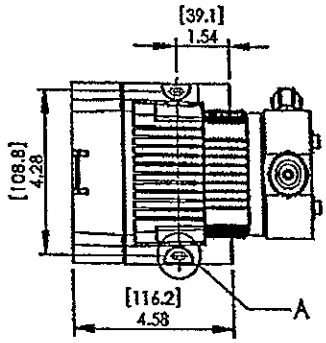
Polyprel is a registered trademark of Milton Roy, LLC.

Fluorofilm and Liquiflram are trademarks of Milton Roy, LLC

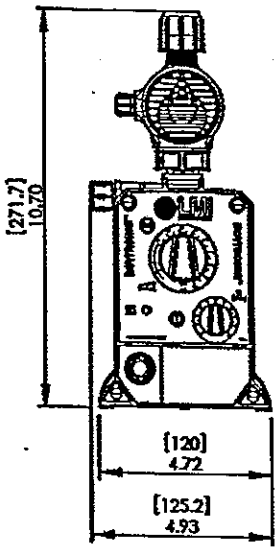
MOUNTING INFORMATION

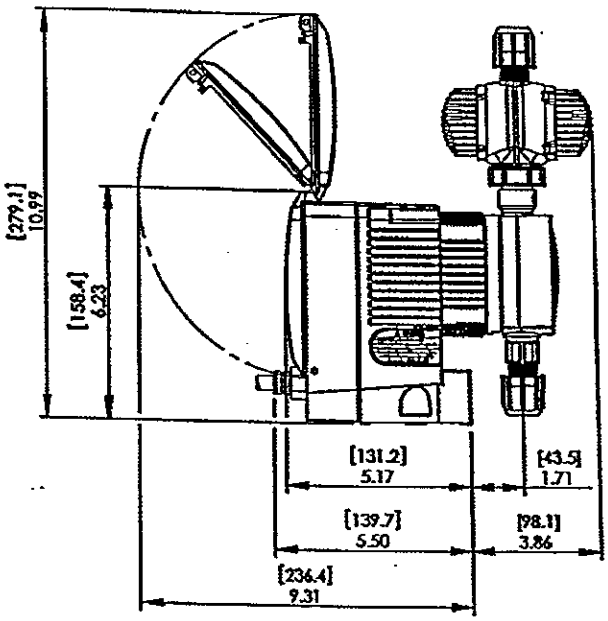
VIEW A



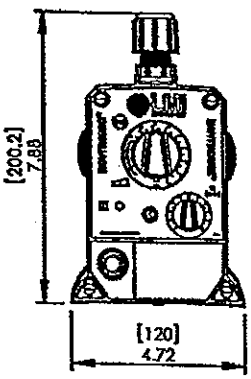



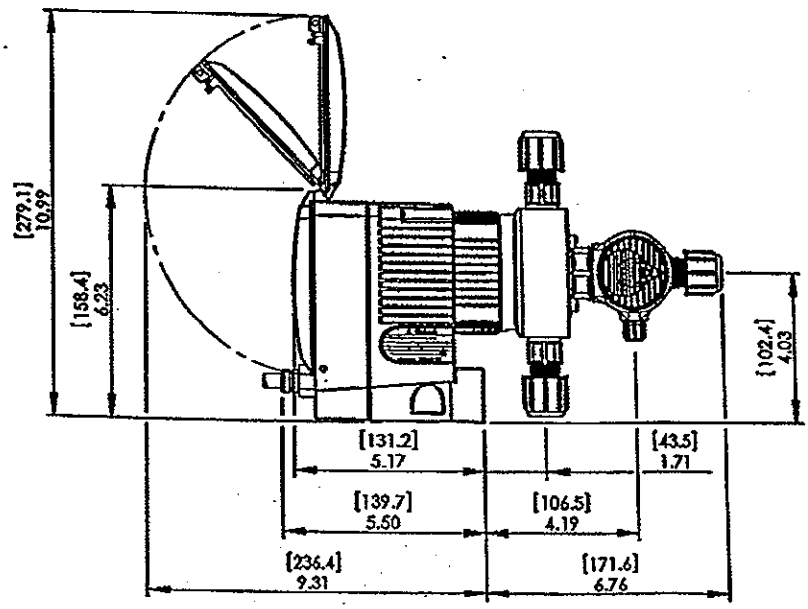

FASTPRIME LIQUID ENDS




AUTOPRIME LIQUID ENDS




NOTE: ALL DIMENSIONS IN INCHES [MM]. DIMENSIONS SHOWN ARE FOR LARGEST LIQUID END. DIMENSIONS WILL VARY DEPENDING ON LIQUID END SELECTED.

# Instruction Sheet

## 35 Gallon Polyethylene Tank Assembly
## Model No. 27400

The LMI 35 gallon polyethylene tank assembly (Model No. 27400) can be used for flooded suction or suction lift applications.

When using the tank for a flooded suction application, LMI pumps are placed in the tank's designed recess area near the bottom of the tank. The following pump models can be utilized: AA, ROYTRONIC® Series A, J, P and ROYTRONIC EXCEL™ Series AD with FASTPRIME™ liquid ends.

When using the tank for a suction lift application, LMI pumps are placed on the molded recess at the top of the tank. The following pump models can be utilized: AA, ROYTRONIC® Series A, J, P, B, C and ROYTRONIC EXCEL™ Series AD.

NSF
Certified to NSF/ANSI 61 & 372

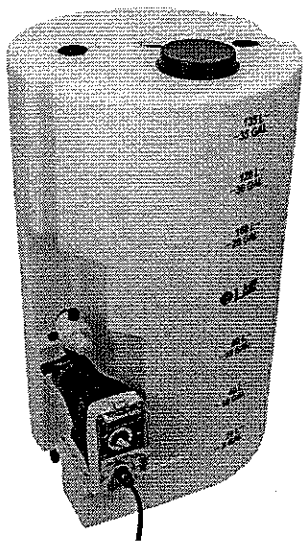
***NOTE:***

*(a) LMI **Model No. 27400** comes with the combination drain valve and pump suction connection disassembled.*

*(b) Full, flat bottom support is required.*

***Flooded Suction Instructions:***

1. Wrap Teflon® tape or apply pipe thread compound to the threads of the nipple at the rear of the drain valve.
2. Thread the valve into the drain port of the tank. Hand tighten enough to prevent leakage or apply a 7/8" open end wrench to the hex nut behind the valve knob. Leave the valve with its branch pointing up toward the pump shelf.
3. Choose correct size tubing connector for your LMI pump's tubing. Wrap Teflon® tape or apply pipe thread compound to the 1/4" NPT male pipe threads of the connector.
4. Thread connector onto the vertical branch of the gray PVC drain valve. It may be necessary to apply a 13/16" open end wrench to the hexagonal portion of the connector to fully tighten this fitting.
5. Unpack the LMI Series pump which will be used with your tank assembly. Remove the coupling nut from the tubing connection at the suction side (bottom) of the pump head.
6. Cut a short length of suction tubing (about 5" [12.5 cm] long). Install this tubing on the pump's suction connection as instructed in the pump's instruction manual.
7. Apply Velcro® strip halves to the pump bottom and tank shelf checking to be sure that spacing is the same on the pump as on shelf.
8. Slide white tubing coupling nut onto the tubing with threads pointing downward.



**Model No. 27400 Tank Assembly**

9. Set the pump on the tank shelf with the short length of suction tubing inserted into the white connector in the drain valve. Check that the tubing is long enough that it seats fully in the socket.
10. Remove the black foam rubber tubing retainer from the vertical groove in the tank. Insert the discharge tubing through the center hole of this retainer. Connect the discharge tubing to the discharge side of the pump head as instructed in the pump's instruction manual. Hand tighten coupling nut.
11. Fill tank with approximately 6" (13 cm) of water and check all connection points for leakage. Tighten connections where necessary.
12. When all connections are tight, remove water from tank and fill with solution to be pumped.

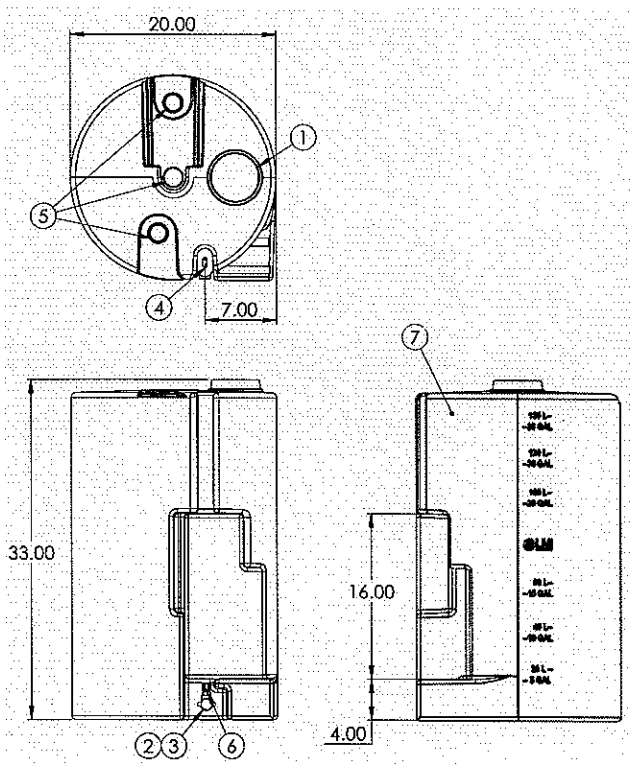
LMI

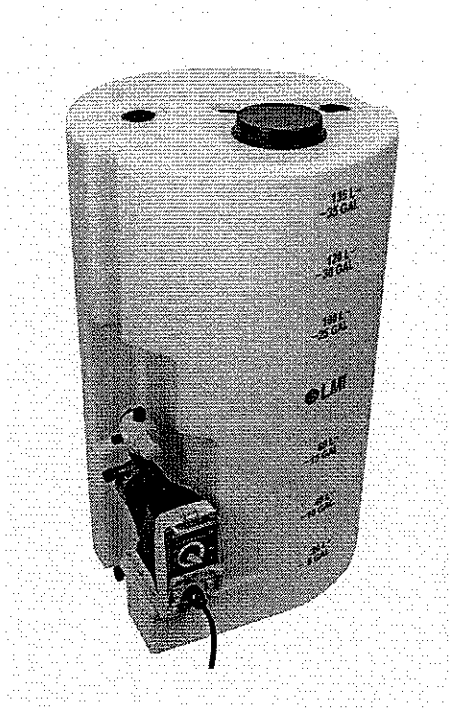
**201 Ivyland Road**
**Ivyland, PA 18974 USA**
**TEL: (215) 293-0401**
**FAX: (215) 293-0445**
**http://www.lmipumps.com**

Replaces same of Rev. E 9/2012
1366.F 9/2014

# No. 27400
# 35 Gallon Tank Assembly

- Ultraviolet resistant, yellow polyethylene tank with recess for mounting of any LMI Series AA, J, P pump, ROYTRONIC® Series A or ROYTRONIC EXCEL™ Series AD Pump with FASTPRIME™ liquid ends.
- Fitted for mounting of agitator and liquid level switch.
- Provides an economical, all-in-one flooded suction installation. Less to assemble, less to maintain.
- Shut off valve, discharge tubing retainer and large upper fill hole complete this unique design.
- 5 gallon graduations. 20 liter graduations.
- Suitable for most corrosive and non-corrosive solutions.
- Certified to NSF/ANSI standard 61 and 372.



**Model No. 27400 Tank Assembly**
(Pump must be ordered separately.)

NSF
Certified to NSF/ANSI 61 & 372

| COMPONENT PARTS<br>Model 27400 Tank Assembly | | | |
|---|---|---|---|
| Ref No. | Part No. | Description | Qty |
| 1 | 27039 | Capplug, PE, large | 1 |
| 2 | 27300 | Valve, 1/4", PVC | 1 |
| 3* | 10482 | Fitting, 3/8", 1/4" NPT PP | 1 |
| 3* | 27397 | Fitting, 1/4", 1/4" NPT PP | 1 |
| 4 | 27398-1 | Retainer, Tube | 1 |
| 5 | 10346 | Capplug, PE, small | 3 |
| 6 | 27401 | Nipple, 1/4" PVC | 1 |
| 7 | 27325 | Tank, 35 Gallon PE | 1 |
| 8 | 27903 | Velcro® | 2 |
| 9 | 77382 | Connector Kit, 1/4" | 1 |
| 10 | 77383 | Connector Kit, 3/8" | 1 |

Shipping Weight: 18 lbs (8.2 kg)

*Two fittings are supplied with each tank assembly for connection to either 3/8" OD or 1/4" OD tubing.

***NOTES:***

1. Full, flat bottom support required.
2. Maximum solution/ambient temperature 110° F (43° C).
3. Minimum solution/ambient temperature 0° F (-18° C).
4. Not suitable for use with slurries, concentrated organic solvents, oils and related materials.

# APPENDIX C

## System Calculations

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**
**Watermain Sizing**

**Loss in Watermain**

| | | | |
|---|---|---|---|
| C | 120 | | Roughness coefficient for smooth plastic pipe |
| d | 8 | in | Diameter of Watermain |
| L | 1250 | ft | Length of Pipe from Tank to Furthest Building |
| Q | 364 | gpm | Flow Rate |
| V | 2.3 | ft/s | Velocity |
| $L_e$ | 125 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1375 | ft | Total Length = $L + L_e$ |
| Head Loss in Watermain | 4 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ |

# APPENDIX D

## Potable Water Tank Information Sheet

# Xerxes Tank Data

*(Listed in U.S. Gallons, Feet/Inches and Pounds)*

| | Nominal Tank Capacity (gallons) | Single-Wall and Double-Wall Tank Length | Single-Wall Tank Weights (lbs) | Double-Wall Tank Weight (lbs) |
|---|---|---|---|---|
| **4-foot-diameter tanks** | 600 | 6'-11 7/8" | 600 | 900 |
| | 1,000 | 11'-3 7/8" | 900 | 1,400 |
| | 1,500 | 16'-0" | 1,400 | 2,100 |
| **6-foot-diameter tanks** | 1,500 | 10'-7 1/4" | 1,000 | 1,700 |
| | 2,000 | 13'-5 3/4" | 1,300 | — |
| | 2,500 | 13'-5 3/4" | — | 2,200 |
| | 3,000 | 16'-4 1/4" | 1,600 | 2,600 |
| | 4,000 | 21'11 1/8" | 2,200 | 3,600 |
| | 5,000 | 26'-5" | 2,600 | 4,300 |
| | 6,000 | 30'-8 3/4" | 3,000 | 5,000 |
| **8-foot-diameter tanks** | 3,000 | 12'-3" | 1,400 | 2,100 |
| | 4,000 | 15'- 1/2" | 1,800 | 2,700 |
| | 5,000 | 17'-8 1/2" | 2,200 | 3,200 |
| | 6,000 | 20'-6 1/2" | 2,600 | 3,700 |
| | 7,000 | 23'-1" | 3,000 | 4,300 |
| | 8,000 | 26'- 1/2" | 3,400 | 4,800 |
| | 9,000 | 28'-9" | 3,800 | 5,400 |
| | 10,000 | 31'-6 1/2" | 4,200 | 5,900 |
| | 11,000 | 34'-4" | 4,700 | 6,400 |
| | 12,000 | 37'- 1/2" | 5,100 | 7,000 |
| | 13,000 | 41'-2" | 5,600 | 7,600 |
| | 14,000 | 43'-11 1/2" | 6,000 | 8,200 |
| | 15,000 | 46'- 9" | 6,600 | 9,100 |
| **10-foot-diameter tanks** | 10,000 | 21'-5 1/4" | 4,500 | 4,900 |
| | 11,000 | 22'-9 3/4" | 4,800 | 5,200 |
| | 12,000 | 24'- 1/4" | 5,100 | 5,600 |
| | 13,000 | 25'-6 3/4" | 5,500 | 5,900 |
| | 14,000 | 26'-11 1/4" | 5,800 | 6,300 |
| | 15,000 | 29'-5 3/4" | 6,600 | 7,000 |
| | 20,000 | 37'-8 3/4" | 8,600 | 9,000 |
| | 22,000 | 42'- 3/4" | 9,700 | 10,500 |
| | 25,000 | 47'-6 3/4" | 11,100 | 11,800 |
| | 30,000 | 55'-9 3/4" | 13,200 | 14,000 |
| | 35,000 | 64'- 3/4" | 15,400 | 16,500 |
| | 40,000 | 73'-8 1/4" | 17,900 | 19,000 |
| **12-foot-diameter tanks** | 20,000 | 29'-4" | 9,200 | 14,000 |
| | 25,000 | 35'-7" | 10,800 | 16,600 |
| | 30,000 | 43'-1" | 13,100 | 19,900 |
| | 35,000 | 49'-4" | 14,700 | 22,500 |
| | 40,000 | 54'-4" | 16,100 | 24,600 |
| | 48,000 | 65'-7" | 19,300 | 29,500 |
| | 50,000 | 68'-1" | 20,000 | 30,500 |

# ZCL Tank Data

*(Listed in Litres, Millimeters and Kilograms)*

| | Nominal Tank Capacity (litres) | Single-Wall and Double- Wall Tank Length (millimeters) | Single-Wall Tank Weights (kilograms) | Double-Wall Tank Weights (kilograms) |
|---|---|---|---|---|
| **4-foot-diameter tanks** | 2,500 | 2,538 | 300 | 400 |
| | 3,900 | 3,395 | 400 | 500 |
| | 5,000 | 4,380 | 500 | 600 |
| **6-foot-diameter tanks** | 10,000 | 4,520 | 500 | 900 |
| | 15,000 | 6,604 | 800 | 1,300 |
| | 20,000 | 8,465 | 1,000 | 1,700 |
| | 25,000 | 10,420 | 1,300 | 2,200 |
| **8-foot-diameter tanks** | 15,000 | 3,994 | 500 | 900 |
| | 20,000 | 5,137 | 900 | 1,200 |
| | 25,000 | 6,090 | 1,100 | 1,400 |
| | 30,000 | 7,264 | 1,300 | 1,700 |
| | 35,000 | 8,185 | 1,500 | 2,000 |
| | 40,000 | 9,392 | 1,800 | 2,300 |
| | 45,000 | 10,363 | 1,900 | 2,500 |
| | 50,000 | 11,328 | 2,100 | 2,700 |
| | 60,000 | 13,500 | 2,600 | 3,400 |
| | 65,000 | 14,522 | 2,900 | 3,700 |
| **10-foot-diameter tanks** | 50,000 | 7,449 | 2,600 | 2,900 |
| | 55,000 | 8,280 | 2,900 | 3,200 |
| | 60,000 | 8,827 | 3,100 | 3,300 |
| | 65,000 | 9,576 | 3,400 | 3,600 |
| | 70,000 | 10,395 | 3,600 | 3,900 |
| | 75,000 | 10,903 | 3,800 | 4,100 |
| | 80,000 | 11,582 | 4,000 | 4,400 |
| | 85,000 | 12,268 | 4,200 | 4,700 |
| | 90,000 | 13,068 | 4,500 | 5,000 |
| | 100,000 | 14,345 | 5,000 | 5,400 |
| | 110,000 | 15,723 | 5,400 | 5,900 |
| | 115,000 | 16,097 | 5,500 | 6,100 |
| | 135,000 | 18,745 | 6,400 | 7,100 |
| | 150,000 | 21,406 | 7,300 | 8,100 |
| **12-foot-diameter tanks** | 80,000 | 8,941 | 4,200 | 6,400 |
| | 95,000 | 10,846 | 4,900 | 7,600 |
| | 120,000 | 13,132 | 6,000 | 9,100 |
| | 135,000 | 15,037 | 6,700 | 10,300 |
| | 150,000 | 16,561 | 7,400 | 11,200 |
| | 185,000 | 19,990 | 8,800 | 13,400 |
| | 190,000 | 20,752 | 9,100 | 13,900 |

# Potable Water Applications

Designers and owners of water systems recognize that when the intended use is for potable drinking water, careful consideration is needed when choosing the tank material and manufacturer. Unlike other water storage tanks, such as those used for rainwater or stormwater, potable water tanks have clear health and safety considerations. This is why third-party standards, such as the National Sanitation Foundation (NSF) Standard 61, are relied upon to evaluate the suitability of products and the materials used to manufacture these products.

The majority of potable water storage tanks available on the market today refer to the NSF Standard 61 listing. Upon close examination, systems designers learn that the completed storage tank itself is not listed. Rather, the materials used in producing the tank (or, more commonly, the lining of the tank interior) are the listed materials. Material manufacturers, such as resin producers, submit their raw materials to NSF for evaluation. These listed materials are then used by tank manufacturers for the interior surface of a tank without the engineering restrictions or third-party oversight of the materials application that comes with a listed and labeled tank.

## The Xerxes/ZCL Difference

While we offer aboveground and underground tanks that use NSF-61 listed resin in their construction, we go a step beyond that by submitting tank samples for lab testing and opening our manufacturing facilities for random, third-party inspections. This much more thorough evaluation and testing of a potable water tank enables us to certify compliance with NSF Standard 61 by applying a unique label to the tank. With very few manufacturers able to provide this certification, it's another clear example of the Xerxes/ZCL difference. When selecting a potable water tank, project designers and owners should require that the completed tank be listed to NSF Standard 61, and that a label verifying the listing is attached to it.

When it comes to storage of potable water, why accept anything short of the highest possible standard?

# APPENDIX E

## Ultraviolet Disinfection System

# Hallett™ 30

Ultraviolet Water Purification Systems

Hallett™ UV systems are the world's only NSF/ANSI 55 Class A Certified UV water purification systems with patented Crossfire Technology.™ UV Pure's Hallett™ 30 for community and commercial applications, outperforms conventional systems for disinfection of all pathogens including viruses, bacteria, cryptosporidium, giardia, legionella and E. coli.

CROSSFIRE™ TECHNOLOGY

CROSSFIRE TECHNOLOGY IS THE MOST EFFECTIVE UV TREATMENT

- NSF/ANSI 55 CLASS A CERTIFIED to 30 US gpm, 113 L/min, 6.7 m³/hr
- Highest UV Dose – proprietary high-output long-life lamps
- UV dose rate at max flow is 40 mJ/cm² at end of lamp life
- Elliptical reflectors target and deactivate pathogens from 360°
- Lamps air-cooled – operate at most effective UV output at all times

CROSSFIRE TECHNOLOGY IS ENGINEERED TO BE RISK FREE AND FAIL-SAFE

- Dual smart UV sensors monitor both UV output and water quality
- Built-in microprocessor monitoring with both visual & audible alarm notification
- Automatic shut-off fail-safe solenoid valve – if the water is running, the water is safe

CROSSFIRE TECHNOLOGY IS SELF-CLEANING

- Automatic mechanical quartz cleaning system – quartz does not foul
- No quartz cleaning or system drainage required, so no risk of quartz breakage
- Water softening is not required, saving money and the environment

CROSSFIRE TECHNOLOGY IS VIRTUALLY MAINTENANCE FREE

- Lamps mounted in air – easy to replace, no system draining required

CROSSFIRE TECHNOLOGY IS SIMPLE TO INSTALL

- Flexible stainless FIP connections for quick and simple installation
- Compact size

Find out everything. www.uvpure.com

* should consider adding Purge Valve.

Pure, safe water. UV PURE

Always.

NSF/ANSI 55 CLASS A CERTIFIED

ULTRAVIOLET WATER PURIFICATION SYSTEMS

Hallett systems with patented Crossfire Technology provide microbiological purification of drinking water. With a Hallett system properly installed, fail-safe engineering ensures that no potentially dangerous microorganisms can enter a drinking water distribution system. UV Pure recommends the use of other filtration systems to treat chemical and other non-microbiological contaminants. To find out everything visit www.uvpure.com

# Hallett™ 30 with Crossfire Technology™ Specifications

| | |
|---|---|
| Certification | NSF/ANSI 55 Class A Certified |
| Flow Capacity | 30 US gpm, 113 L/min, 6.7 m³/hr |
| Multiple System Flow Capacity | Run in parallel – up to 600 US gpm |
| UV Dose | 40 mJ/cm² at end of lamp life |
| Built-in microprocessor | Dual smart sensors monitor UV output and water quality |
| Alarms | Visual & audible notification of: 1. System is working & water is safe 2. Lamp output alarm 3) Water quality alarm |
| Monitoring | Continuous UV transmittance feedback |
| Solenoid Valve | Auto shut-off fail-safe valve so only safe water can enter your water distribution system |
| Self-Cleaning | Stainless steel wiper prevents quartz fouling |
| Maintenance | Automatic alarm reminder – 2 lamps – replacement required every 12 months, a simple 2 minute process |
| Redundancy | Additional back-up systems can be installed cost effectively |
| Inlet & Outlet Connections | Flexible FIP Connections – 1" inlet and 1" outlet |
| Pre-filtration | 5 micron sediment filter recommended and or carbon filter for taste and odour |
| Maximum Pressure | 100 PSI, 690 kPa (tested to 240 PSI) |
| Pressure Drop | 20 PSI @ 22 gpm (138 kPa @ 83L/min) |
| Voltage | 120/220 VAC – 140W |
| Electronic ballast | Auto power regulated, protected from power fluctuations |
| Dry Contacts | Available for remote monitoring or auto dialers |
| Electrical | Entela (UL & CSA equivalent) |
| Dimensions | 32" H x 8" W x 9" D (81cm H x 20 cm W x 23 cm D) |
| Warranty | 3 years on all electrical components, 5 years on housing |

## Hallett™ System Pre-treatment Conditions

WITH CROSSFIRE TECHNOLOGY™ – NO WATER SOFTENER REQUIRED

| Water Conditions | Effective Treatment Range | |
|---|---|---|
| | MIN | MAX |
| Hardness | 0 | 50 Grain (855 mg/L) |
| Iron | 0 | 3 mg/L (ppm) |
| Manganese | 0 | 0.5 mg/L |
| % UV Transmittance | 75% | 100% |
| pH | 6.00 | 9.00 |
| Total Dissolved Solids (TDS) | 0 | 1000 mg/L |
| Water Temperature | 1° C (34° F) | 38° C (100° F) |
| Air Temperature | 7° C (45° F) | 38° C (100° F) |
| Turbidity | 0 NTU | 1 NTU |
| Water Pressure | 10 PSI (69 kPa) | 100 PSI (690 kPa) |

## Microbiological Drinking Water Purification Scorecard

THE HALLETT™ SYSTEM WITH CROSSFIRE TECHNOLOGY™ SCORES 10/10

| | HALLETT SYSTEM | CONVENTIONAL UV | OZONE | REVERSE OSMOSIS | CHLORINATOR | SAND FILTER |
|---|---|---|---|---|---|---|
| Real-time indicator of water quality | ✓ | – | – | – | – | – |
| NSF certified | ✓ | selected units | – | – | – | – |
| Works in high TDS | ✓ | – | ✓ | ✓ | ✓ | ✓ |
| No softener required | ✓ | – | ✓ | ✓ | ✓ | ✓ |
| Self-cleaning/low maintenance | ✓ | – | – | – | – | ✓ |
| Not hazardous to your health | ✓ | ✓ | – | ✓ | – | ✓ |
| Economical | ✓ | ✓ | – | – | – | – |
| Effective removal of all pathogens | ✓ | ✓ | – | – | – | – |
| Fail-safe shut-off | ✓ | selected units | – | – | – | – |
| Doesn't put contaminants back in the environment | ✓ | ✓ | ✓ | – | – | – |
| **SCORE** | **10/10** | 5/10 | 3/10 | 3/10 | 2/10 | 4/10 |

Printr Canada Rev. 02/16/06

UV PURE TECHNOLOGIES INC.
T 416.208.9884 TF 1.888.407.9997 F 416.208.5808 E safe@uvpure.com 60 Venture Drive, Unit 19, Toronto, Canada M1B 3S4

Catalog Number 6010018

# 1720E Low Range Turbidimeter

USER MANUAL

04/2016, Edition 8

# Section 1 Specifications

Specifications are subject to change without notice.

**Table 1 1720E Low Range Specifications**

<table>
<tr><td>Range</td><td>0–100 nephelometric turbidity units (NTU)</td></tr>
<tr><td>Measurement Units</td><td>mg/L, NTU, TE/F, FTU, Degree</td></tr>
<tr><td>Accuracy[1]</td><td>± 2% of reading or ± 0.02 NTU (whichever is greater) from 0 to 40 NTU;<br>± 5% of reading from 40 to 100 NTU (when calibration is performed at 20.0 NTU with the offset turned off).</td></tr>
<tr><td>Linearity[1]</td><td>Better than 1% 0–40 NTU on formazin. Allows for accurate calibration at high turbidity values.</td></tr>
<tr><td>Resolution (Displayed)</td><td>0.0001 NTU up to 9.9999 NTU; 0.001 NTU from 10.000 to 99.999 NTU; 0.01 NTU at 100.00 NTU</td></tr>
<tr><td>Repeatability</td><td>Better than ±1.0% of reading or ±0.002 NTU, whichever is greater</td></tr>
<tr><td>Response Time</td><td>For a full-scale step change, initial response in 1 minute, 15 seconds. Varies with flow rate, see the table below. The response time is also dependent on the signal averaging time, which is user selectable.
<table>
<tr><th rowspan="2">% Step Change</th><th colspan="3">Flow Rate</th></tr>
<tr><th>750</th><th>500</th><th>250</th></tr>
<tr><td>10</td><td>1¼ minutes</td><td>1½ minutes</td><td>2½ minutes</td></tr>
<tr><td>50</td><td>2 minutes</td><td>2½ minutes</td><td>6 minutes</td></tr>
<tr><td>90</td><td>3½ minutes</td><td>3½ minutes</td><td>9 minutes</td></tr>
<tr><td>99</td><td>4 minutes</td><td>5 minutes</td><td>12 minutes</td></tr>
</table></td></tr>
<tr><td>Sample Flow Required</td><td>250 to 750 mL/minute</td></tr>
<tr><td>Storage Temperature</td><td>–20 to 60 °C (–4 to 140 °F)</td></tr>
<tr><td>Operating Temperature</td><td>0 to 50 °C (32–122 °F) for single sensor system, 0 to 40 °C (32–104 °F) for two sensor system</td></tr>
<tr><td>Sample Temperature Range</td><td>0 to 50 °C</td></tr>
<tr><td>Operating Humidity</td><td>5 to 95% non-condensing</td></tr>
<tr><td>Power Requirements</td><td>12 VDC ± 5%, 12.5 Watts maximum</td></tr>
<tr><td>Sample Inlet Fitting</td><td>1/8 barb fitting to ¼-inch NPT male adapter</td></tr>
<tr><td>Signal Average Time</td><td>no averaging, 6, 30, 60, and 90 seconds, user selectable. Default is 30 seconds.</td></tr>
<tr><td>Dimensions</td><td>Turbidimeter body and cap: 25.4 x 30.5 x 40.6 cm (10 x 12 x 16 inches)</td></tr>
<tr><td>Sensor Cable Length</td><td>1.8 m (5.9 ft); optional 7.62 m (25 ft)</td></tr>
<tr><td>Mounting Options</td><td>Turbidimeter Body and Head Assembly: Wall; floor stand</td></tr>
<tr><td>Shipping Weight</td><td>1720E Series 2 Turbidimeter and Controller: 6.31 kg (13.5 lb); 1720E Turbidimeter only: 4.71 kg (10 lb)</td></tr>
<tr><td>Calibration Methods</td><td>1. StablCal® (stabilized formazin) – primary or wet calibration of the instrument. Recommended at 20.0 NTU.<br>2. Formazin – user-prepared primary or wet calibration of the instrument. Recommended at 20.0 NTU.<br>3. Multi-sensor calibration – Performed with a specialized calibration procedure for up to eight sensors on a single set of fresh StablCal® standards.</td></tr>
</table>

**Table 1 1720E Low Range Specifications (continued)**

| | |
|---|---|
| **Verification (Wet) Method** | **1.** StablCal® (stabilized formazin) – recommended for verification in the appropriate application range of measurement. For regulatory verification, standards of 0.1 to 50 NTU.<br>**2.** Formazin – fresh user-prepared standard |
| **Verification (Dry) Method** | **1.** ICE-PIC™ Verification Module with factory-set values of 20.0 or 1.0 ±25%. Unique value is assigned when dry verification is done immediately after calibration and is used as pass/fail criteria for subsequent verifications. |
| **Recommended Maintenance** | **1.** Lamp replacement: once per year.<br>**2.** Cleaning: mandatory before calibration, optional before calibration, and mandatory upon verification failure. |
| **Installation Environment** | Indoor |
| **Primary Compliance Method** | USEPA 180.1; Hach Method 8195; ASTM D 6698; Standard Methods 2130B |
| **Limit of Detection**[1] | 0.0032 NTU (according to criteria specified by ISO 15839) |

[1] All specifications are based on a calibration with 20.0 NTU formazin and with the offset turned off.

# HARMSCO®
# HP Hurricane® Filter Housings

*Two Technologies in One*

## Lower Operation Cost

- **Harmsco® HP Hurricane® filters provide unsurpassed performance. Our unique design separates dense solids prior to cartridge filtration for extended filter life, increased dirt holding capacity and reduced maintenance costs.**

NSF

Certified to ANSI-NSF 61

Excluding High Temp Cartridges


## Features

- Combination cyclone separator and cartridge filter in a single compact design
- Patented Up-flow design with tangential entry - prevents air entrapment
- Rotational flow “flutters” media pleats - improving loading performance
- Electropolished 304 stainless steel housing
- Fail-Safe closure system
- Three sizes for greater media surface area
- CPVC standpipe (standard) - stainless steel optional
- Extensive choice of cartridge micron ratings and media, including carbon block
- NSF 61 listed

## Applications

- Commercial/Residential Drinking Water
- Cooling Tower Filtration
- Desalination Pre-filtration (316 and coated options)
- Surface Water Treatment Rule (SWTR) I, II
- Process Water
- Whole House Filtration
- Industrial Waste Water Treatment
- Reverse Osmosis Pre-filtration
- Small Community Compliance (cysts)
- Well Water
- Ground Water Remediation
- Ground Water Under Direct Influence (GUDI)

40 90 170

## Cartridge Selection

Hurricane® Cartridge Family

| | | Sediment Removal | Turbidity Reduction | Chlorine Removal | Taste & Odor Reduction | Cyst Removal | Pre-Filtration | Post-Filtration | Antimicrobial | Absolute Rated | Nominal Rated | 100% Synthetic | Non Potable Use | Course Filtration | High Temperature | All Polypropylene | NSF Listed | Cleanable/ Reuseable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Polyester** - engineered for high efficiency, low pressure drops; NSF 61 Listed | | | | | | | | | | | | | | | | | | |
| HC/40-0.35 | Hur 40 Cartridge - 0.35 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/40-1 | Hur 40 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/40-5 | Hur 40 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | ● |
| HC/40-10 | Hur 40 Cartridge - 10 Micron | ● | ● | | | ● | | | | | ● | | | | | | ● | ● |
| HC/40-20 | Hur 40 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/40-50 | Hur 40 Cartridge - 50 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/40-100 | Hur 40 Cartridge - 100 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/40-150 | Hur 40 Cartridge - 150 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/90-0.35 | Hur 90 Cartridge - 0.35 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/90-1 | Hur 90 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/90-5 | Hur 90 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | ● |
| HC/90-10 | Hur 90 Cartridge - 10 Micron | ● | ● | | | ● | | | | | ● | | | | | | ● | ● |
| HC/90-20 | Hur 90 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/90-50 | Hur 90 Cartridge - 50 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/90-100 | Hur 90 Cartridge - 100 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/90-150 | Hur 90 Cartridge - 150 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/170-0.35 | Hur 170 Cartridge - 0.35 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/170-1 | Hur 170 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | |
| HC/170-5 | Hur 170 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | | | | | | ● | ● |
| HC/170-10 | Hur 170 Cartridge - 10 Micron | ● | ● | | | ● | | | | | ● | | | | | | ● | ● |
| HC/170-20 | Hur 170 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/170-50 | Hur 170 Cartridge - 50 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/170-100 | Hur 170 Cartridge - 100 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| HC/170-150 | Hur 170 Cartridge - 150 Micron | ● | ● | | | ● | | | | | ● | | | ● | | | ● | ● |
| **High Temperature** - up to 200°F (93°C)* | *250°F (121°C) with metal end caps, using suffix "HTM" | | | | | | | | | | | | | | | | | |
| HC/40-20HT | Hur 40 Cartridge - 20 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| HC/40-50HT | Hur 40 Cartridge - 50 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| HC/90-5CPHT | Hur 90 Cartridge - 5 Micron High Temp | ● | ● | | | | ● | | | | ● | | ● | ● | ● | | | ● |
| HC/90-5HT | Hur 90 Cartridge - 5 Micron High Temp | ● | ● | | | | ● | | | | ● | | | ● | ● | | | ● |
| HC/90-10HT | Hur 90 Cartridge - 10 Micron High Temp | ● | ● | | | | ● | | | | ● | | | ● | ● | | | ● |
| HC/90-20HT | Hur 90 Cartridge - 20 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| HC/90-50HT | Hur 90 Cartridge - 50 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| HC/170-5CPHT | Hur 170 Cartridge - 5 Micron High Temp | ● | ● | | | | ● | | | | ● | | ● | ● | ● | | | ● |
| HC/170-5HT | Hur 170 Cartridge - 5 Micron High Temp | ● | ● | | | | ● | | | | ● | | | ● | ● | | | ● |
| HC/170-10HT | Hur 170 Cartridge - 10 Micron High Temp | ● | ● | | | | ● | | | | ● | | | ● | ● | | | ● |
| HC/170-20HT | Hur 170 Cartridge - 20 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| HC/170-50HT | Hur 170 Cartridge - 50 Micron High Temp | ● | ● | | | ● | | | | | ● | | | ● | ● | | | ● |
| **Harmsco Free** - 100% synthetic composite media; NSF 61 Listed | | | | | | | | | | | | | | | | | | |
| HC/40-1W-HF | Hur 40 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | |
| HC/40-5W-HF | Hur 40 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | ● |
| HC/40-20W-HF | Hur 40 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | ● | | ● | | | ● | ● |
| HC/90-1W-HF | Hur 90 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | |
| HC/90-5W-HF | Hur 90 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | ● |
| HC/90-20W-HF | Hur 90 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | ● | | ● | | | ● | ● |
| HC/170-1W-HF | Hur 170 Cartridge - 1 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | |
| HC/170-5W-HF | Hur 170 Cartridge - 5 Micron | ● | ● | | | | ● | | | | ● | ● | | | | | ● | ● |
| HC/170-20W-HF | Hur 170 Cartridge - 20 Micron | ● | ● | | | ● | | | | | ● | ● | | ● | | | ● | ● |
| **Poly-Pleat** - 1 micron absolute, multi-layed media; NSF 61 Listed | | | | | | | | | | | | | | | | | | |
| PP-HC-40-1 | Poly Pleat Hur 40 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| PPFS-HC-40-1 | PP-Fail Safe Hur 40 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| PP-HC-90-1 | Poly Pleat Hur 90 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| PPFS-HC-90-1 | PP-Fail Safe Hur 90 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| PP-HC-170-1 | Poly Pleat Hur 170 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| PPFS-HC-170-1 | PP-Fail Safe Hur 170 Cartridge - 1 Micron | ● | ● | | ● | | ● | | ● | | | | | | | | ● | |
| **All-Poly** - 100% polypropylene media with polypropylene end caps and components; also available in 10, 20 and 50 micron ratings | | | | | | | | | | | | | | | | | | |
| HC-PP-40-0.2 | Hur 40 High Purity Pleated PP - 0.2 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-40-0.45 | Hur 40 High Purity Pleated PP - 0.45 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-40-1 | Hur 40 High Purity Pleated PP - 1 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-40-5 | Hur 40 High Purity Pleated PP - 5 Mic | ● | ● | | | | ● | | ● | | | | | | | ● | | |
| HC-PP-90-0.2 | Hur 90 High Purity Pleated PP - 0.2 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-90-0.45 | Hur 90 High Purity Pleated PP - 0.45 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-90-1 | Hur 90 High Purity Pleated PP - 1 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-90-5 | Hur 90 High Purity Pleated PP - 5 Mic | ● | ● | | | | ● | | ● | | | | | | | ● | | |
| HC-PP-170-0.2 | Hur 170 High Purity Pleated PP - 0.2 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-170-0.45 | Hur 170 High Purity Pleated PP - 0.45 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-170-1 | Hur 170 High Purity Pleated PP - 1 Mic | ● | ● | | ● | | ● | | ● | | | | | | | ● | | |
| HC-PP-170-5 | Hur 170 High Purity Pleated PP - 5 Mic | ● | ● | | | | ● | | ● | | | | | | | ● | | |

40 90 170

| | | Sediment Removal | Turbidity Reduction | Chlorine Removal | Taste & Odor Reduction | Cyst Removal | Pre-Filtration | Post-Filtration | Antimicrobial | Absolute Rated | Nominal Rated | 100% Synthetic | Non Potable Use | Course Filtration | High Temperature | All Polypropylene | NSF Listed | Cleanable/ Reuseable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SureSafe Antimicrobial** - reduces growth of bacteria and mold on media | | | | | | | | | | | | | | | | | | |
| HC/40-20-AM | Hur 40 Cartridge - 20 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| HC/40-50-AM | Hur 40 Cartridge - 50 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| HC/90-20-AM | Hur 90 Cartridge - 20 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| HC/90-50-AM | Hur 90 Cartridge - 50 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| HC/170-20-AM | Hur 170 Cartridge - 20 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| HC/170-50-AM | Hur 170 Cartridge - 50 Micron | ● | ● | | | | ● | | ● | | ● | ● | | ● | | | | ● |
| **Carbon Block** - includes pleated 5 micron nominal pre-filtration; NSF 42 Listed | | | | | | | | | | | | | | | | | | |
| HC/40-AC-5 | Hur 40 Cart. Carbon + 5 Mic Pre-filt | ● | ● | ● | ● | | | ● | | | ● | | | | | | | ● |
| HC/90-AC-5 | Hur 90 Cart. Carbon + 5 Mic Pre-filt | ● | ● | ● | ● | | | ● | | | ● | | | | | | | ● |
| HC/170-AC-5 | Hur 170 Cart. Carbon + 5 Mic Pre-filt | ● | ● | ● | ● | | | ● | | | ● | | | | | | | ● |
| **EZ Clean** - 100% synthetic composite 50 micron media | | | | | | | | | | | | | | | | | | |
| HC/40-EZ-CLEAN | Hur Cartridge - EZ CLEAN - 50 Micron | ● | ● | | | | ● | | | | ● | ● | | ● | | | | ● |
| HC/90-EZ-CLEAN | Hur Cartridge - EZ CLEAN - 50 Micron | ● | ● | | | | ● | | | | ● | ● | | ● | | | | ● |
| HC/170-EZ-CLEAN | Hur Cartridge - EZ CLEAN - 50 Micron | ● | ● | | | | ● | | | | ● | ● | | ● | | | | ● |
| **Poly-Mesh** - 100% synthetic composite 250 micron media | | | | | | | | | | | | | | | | | | |
| HC/170-PM | Hur 170 Cartridge Poly Mesh - 250 Micron | ● | ● | | | | ● | | | | ● | ● | | ● | | | | ● |

## Cartridge Sizing Guide

Cartridge Sizing Guide

**Cleanable/ Reusable** Hurricane® cartridges are cleanable and reusable in most applications and micron ratings (5 micron and up).

**For Harmsco® Hurricane® and WaterBetter® Single-cartridge Filter Housings**
Harmsco® recommends operation at 70% of maximum flow rate for optimum performance.

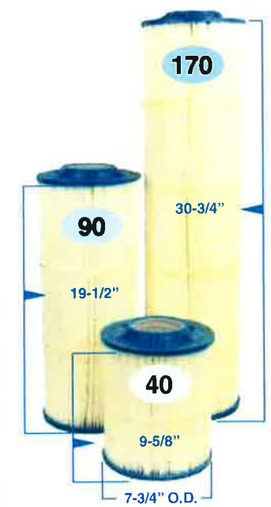
### Polyester, High Temperature, Harmsco Free, SureSafe, EZ Clean, Poly-Mesh

| Filter Model | Pleated Media Area (sq.ft.) | Length (in.) | O.D. (in.) | Max Flow Rate (GPM) | Recommended Flow Rate (GPM) | Max Flow Rate (LPM) | Max Flow Rate (M³/HR) | No./ Case | Carton Size |
|---|---|---|---|---|---|---|---|---|---|
| WB 40SC-2* | 40 | 9-5/8 | 7-3/4 | Up to 50 | 35 | Up to 189 | Up to 12 | 1 | 9x9x11 |
| WB 90SC-2* | 90 | 19-1/2 | 7-3/4 | Up to 100 | 70 | Up to 378 | Up to 24 | 1 | 9x9x21 |
| WB 170SC-2* | 170 | 30-3/4 | 7-3/4 | Up to 150 | 105 | Up to 568 | Up to 36 | 1 | 9x9x32 |
| **Poly-Pleat** | | | | | | | | | |
| WB 40SC-2* | 25 | 9-5/8 | 7-3/4 | – | 15 | – | – | 1 | 9x9x11 |
| WB 90SC-2* | 50 | 19-1/2 | 7-3/4 | – | 25 | – | – | 1 | 9x9x21 |
| WB 170SC-2* | 100 | 30-3/4 | 7-3/4 | – | 50 | – | – | 1 | 9x9x32 |
| **All-Poly** | | | | | | | | | |
| WB 40SC-2* | 25 | 9-5/8 | 7-3/4 | 25 | 17 | 19 | Up to 12 | 1 | 9x9x11 |
| WB 90SC-2* | 50 | 19-1/2 | 7-3/4 | 50 | 35 | 38 | Up to 24 | 1 | 9x9x21 |
| WB 170SC-2* | 75 | 30-3/4 | 7-3/4 | 100 | 60[a] | 76 | Up to 36 | 1 | 9x9x32 |
| **Carbon Block** | | | | | | | | | |
| WB 40SC-2* | 25 | 9-5/8 | 7-3/4 | – | 5[b] | – | – | 1 | 9x9x11 |
| WB 90SC-2* | 55 | 19-1/2 | 7-3/4 | – | 10[b] | – | – | 1 | 9x9x21 |
| WB 170SC-2* | 90 | 30-3/4 | 7-3/4 | – | 15[b] | – | – | 1 | 9x9x32 |

[a] based on 1, 5, 10, 20 and 50 micron ratings

* "2" represents 2 inch inlet/outlet pipe size; use "1" for 1 inch (not NSF Listed)

[b] recommended flow for maximum chlorine removal



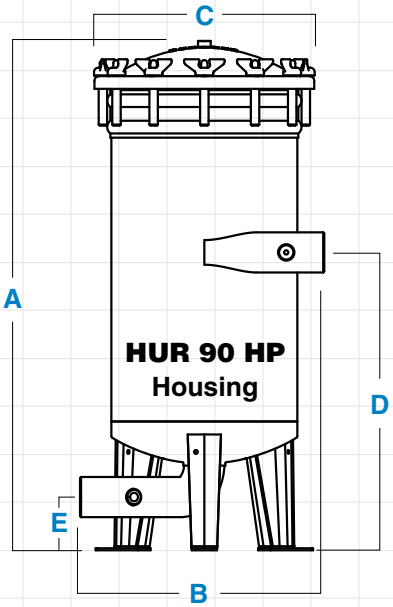

**Hurricane® Cartridges**
Length and O.D.

## Media Options

| Polyester | High Temperature | Harmsco Free | Poly-Pleat (multi-layer) | All-Poly (multi-layer) |
|---|---|---|---|---|
| NSF 61 Listed | | NSF 61 Listed | NSF 61 Listed | |
| **SureSafe** (antimicrobial) | **Carbon Block** (5 Micron Pleated Pre-filter) | **EZ Clean** | **Poly-Mesh** | |
| | NSF 42 Listed | | | |

**Harmsco® manufacturers the largest selection of cartridges in the industry for all your filtration needs.**

# Harmsco® HP Hurricane® Filter Housings




Certified to ANSI-NSF 61

Excluding High Temp Cartridges

HUR 40 HP

HUR 90 HP

HUR 170 HP

## Ordering Information

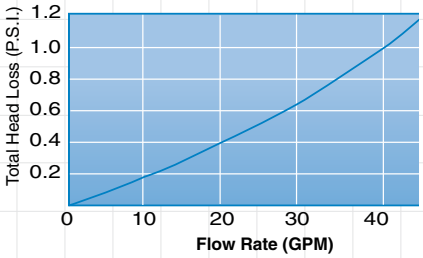
| Filter Model | A Filter Height | B Width | C Diameter | D Inlet | E Outlet | Pipe Size NPT | Drain Size NPT | Floor Space In. | Service Ht. | Shipping Wt. Lbs. | Carton Size In. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HUR 40 HP | 19-1/2” | 14-5/8” | 13” | 12-3/4” | 3-7/16” | 2” | 1” | 15x15 | 35” | 40 | 14x16x21 |
| HUR 90 HP | 29-7/8” | 14-5/8” | 13” | 17-3/4” | 3-7/16” | 2” | 1” | 15x15 | 51” | 52 | 14x16x38 |
| HUR 170 HP | 40-1/2” | 14-5/8” | 13” | 23-5/8” | 3-7/16” | 2” | 1” | 15x15 | 72” | 64 | 14x16x42 |

## Filter Specifications

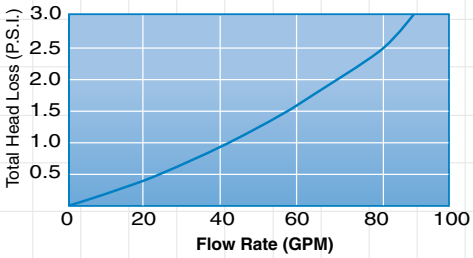
- Electropolished 304 stainless steel*
- Standpipe - CPVC*
- Temperature - 140˚F (60˚C)* max. *Up to 250˚F (121˚C) with optional stainless steel standpipe and high temperature cartridges installed
- Pressure - 150 psi (10 bar) max.
- Wing nuts - brass
- Rim gaskets - EPDM (Buna-N, Viton available)
- BSTP optional
- Gauge sample ports (1/4”), inlet and outlet
- 90˚ elbow and 45˚ sweep on outlet for staggered in-line vertical installation

**All stainless steel housings are 304; 316 available upon request. Stainless steel standpipe for high temperature also available.*

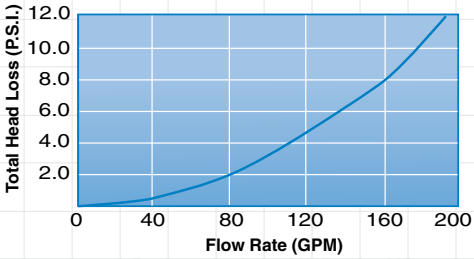
## Pressure Drop




Pressure drop HUR 40 HP




Pressure drop HUR 90 HP




Pressure drop HUR 170 HP

The total head loss data shown above was developed by NSF International and indicates pressure drop with Hurricane® filter housings and one micron filter cartridges in clean water.

*For additional information, please refer to the “Installation & Operation Manual” for Hurricane® Filters.*


**HARMSCO® Filtration Products**

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# WASTEWATER SYSTEM REPORT

**For**

**Wilder Balter Partners, Inc.**
**NYS Route 22**

**Town of Lewisboro, New York**

**December 13, 2017**
**Revised September 14, 2018**

Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

## 1.0 INTRODUCTION

The project sponsor, Wilder Balter Partners, Inc. (the "Applicant"), proposes a 42-unit multifamily residential development comprised of five (5) buildings, including indoor and outdoor recreational facilities, an access road off of New York State Route 22, on site parking for 116 vehicles and associated stormwater management facilites on 35.4± acres of land located on the east side of New York State Route 22 north of the I-684 northbound exit 6A ramp.

The development site is currently vacant wooded land and is not served by public water and sewer service. Water service will be provided by a new community water system supplied by on-site wells and wastewater will be treated by a new community on-site septic system. The community water and sewer systems will be designed and constructed in accordance with the standards and subject to the approval of the Westchester County Department of Health (WCDOH) and the New York State Department of Environmental Conservation (NYSDEC).

The subject property currently consists of three separate tax parcels which are proposed to be merged. The property is located in two zoning districts: the western portion of the site near Route 22 is in the CC-20 Campus Commercial District and the eastern portion of the site in the R4-A residential district. Multi-family housing is a permitted use in the CC-20 zoning district. Surrounding and nearby properties to the north, east and west are generally undeveloped and transportation uses (Interstate 684). Properties to the south are mostly developed low density residential lots.

## 2.0 WASTEWATER DESIGN FLOW

Flow rates for the anticipated uses at the proposed facility and the design flow for the proposed project are listed in the table below. The average daily sewer design flows for the proposed project are based on the hydraulic loading rates given in the New York State Department of Environmental Conservation (NYSDEC) publication *Design Standards for Intermediate Sized Wastewater Treatment Systems – 2014 (DEC 14).*

The water and wastewater flow will be designed for the proposed ten (10) 1-bedroom units, twenty-two (22) 2-bedroom units, and ten (10) 3-bedroom units. A design flow of 110 gpd/bedroom is used. Since the clubhouse will primarily be used by residents of the development, no additional gallon per day allotment is provided for the clubhouse.

| **Average Daily Design Flow** | | | |
|---|---|---|---|
| **Use** | **# of Units** | **Flow Rate (gpd/unit)** | **Design Flow (gpd)** |
| One Bedroom Unit | 10 | 110 | 1,100 |
| Two Bedroom Unit | 22 | 220 | 4,840 |
| Three Bedroom Unit | 10 | 330 | 3,300 |
| **Total** | | | **9,240** |

As summarized above, a design flow of 9,240 gallons per day will be used for the design of the sewer and water facilities.

## 3.0 WASTEWATER COLLECTION SYSTEM

The wastewater collection system is proposed to consist of 8" diameter PVC SDR 35 sewer mains and precast concrete sewer manholes. The sewer mains are proposed to be located generally in the proposed road system. Individual 6" diameter PVC SDR 35 sewer service connections with cleanouts are proposed for each building. Wastewater flow from all of the proposed units and the wastewater collection system will be by gravity to proposed septic tanks and a pump pit.

In accordance with WCDOH requirements exfiltration, infiltration or low pressure air testing shall be performed on the proposed sewer main. Exfiltration, infiltration or vacuum testing shall be performed separate from the sewer main testing on all proposed sewer manholes. Testing requirements and specifications can be found on the project drawings. The Westchester County Health Department shall be notified in writing 48 hours prior testing the sewer main improvements.

## 4.0 SUBSURFACE SEWAGE TREATMENT SYSTEM (SSTS)

### 4.1 Soil Testing

The onsite wastewater treatment system (OWTS) areas will be located in the southwestern, northern, and eastern portion of the site. The entire project site was extensively evaluated, and these areas were deemed the most favorable areas for wastewater treatment. A total of thirty (30) Deep test pits and (32) percolation tests were completed in the proposed OWTS areas and witnessed by representatives of the NYCDEP and WCDOH. Suitable soils for wastewater treatment were observed, the deep test pits indicated onsite soils generally consist of a mix of well drained fine sand and gravel, with trace amounts of silt. Rock was encountered at varying depths ranging from 54” to 84”+. No mottling was observed in any of the test pits, and a groundwater seep was observed at 54” in one test pit. It should be noted that the test pit in which the groundwater seep was encountered is located outsde of the proposed OWTS areas and is not utilized for design purposes. The witnessed percolation rates range from 3 to 8 minutes per inch throughout the site, however all witnessed percolation testing within the limits of the proposed primary and expansion SSTS areas shown on the project drawings yielded stabilized percolation rates of 3-5 minutes per inch. Results of the witnessed soil testing are included in Appendix B of this report.

Based on the observations made during the witnessed soil testing, run of bank (R.O.B.) gravel fill will be required over several of the proposed SSTS areas to maintain the required minimum separation distances to rock or groundwater. R.O.B. fill will also be provided for grading purposes only where needed within the limits of several of the proposed SSTS areas, as a result of existing onsite topography.

### 4.2 Absorption Trenches

The proposed OWTS absorption fields consist of conventional 2’ wide absorption trenches spaced 6’ on center. The primary absorption trenches will be divided into 2 separate areas, each area will be sized to provide treatment for half of the proposed design flow (4,620 gpd). As noted above peroclation rates were observed at 3-5 min./in. The absorption trench design parameters are as follows:

**Primary OWTS area #1**

| | |
|---|---|
| Design Flow (50% of 9,240 gpd) = | 4,620 gpd |
| Soil Percolation Rate = | 3 to 5 min/in |
| Application Rate (per percolation rate) = | 1.2 gpd |
| Absorption Trench Width = | 2 ft |

Total length of absorption trenches required (L) = 4,620 gpd ÷ 1.2 gpd/sf ÷2 sf/lf

L = 1,925 linear feet (lf) of absorption trenches required.

***Total length of absorption trenches provided within SSTS area #1 = 1,940 lf***

**Primary OWTS area #2**

| | |
|---|---|
| Design Flow (50% of 9,240 gpd) = | 4,620 gpd |
| Soil Percolation Rate = | 3 to 5 min/in |
| Application Rate (per percolation rate) = | 1.2 gpd |
| Absorption Trench Width = | 2 ft |

Total length of absorption trenches required (L) = 4,620 gpd ÷ 1.2 gpd/sf ÷2 sf/lf

L = 1,925 linear feet (lf) of absorption trenches required.

***Total length of absorption trenches provided = 1,960 lf***

In summary, based on the site constraints and recently witnessed soil testing the available areas on the subject property are sutiable for the installation of an OWTS which can accommodate the proposed wastewater design flow of up to 9,240 gpd.

4.3 Septic Tanks

In accordance with the septic tank sizing requirements specified in DEC 14, the proposed septic tank must be sized based on the following parameters:

Minimum Septic Tank Capacity (***ST***) = 3,750 gal. + 0.75Q

Average Daily Design Flow (***Q***) = 9,240 gpd

Therefore:

***ST*** = 3,750 gpd + 0.75 (9,240 gpd) = ***10,680 gallons***

To provide the required minimum septic tank capacity the subject project proposes the installation of a 8,000 gallon single compartment tank connected in series to a 3,000 gallon single compartment septic tank, providing a total capacity of 11,000 gallons.

In accordance with DEC 14 the first single compartment septic tank in series shall be sized to provide 2/3 of the total tank capacity. Utilizing the total capacity of 11,000 gallons as calculated above the inlet tank would require a minimum of 7,333 gallons which is less than the 8,000 gallon capacity provided.

4.4 Alternate Dosing

In accordance with WCDOH requirements alternate dosing is provided for the proposed OWTS as the total length of absorption trench exceeds 1,000 linear feet. A dual alternating floating outlet dosing chamber is proposed for primary OWTS area #1 located in the southeast corner of the property, and a dual alternating 2,000 gallon pump chamber will convey septic tank effluent to primary OWTS area #2 via twin 3” diameter forcemains. Hydrostatic pressure and leakage testing shall be performed on the proposed forcemains in accordance with the notes and specifications provided on the project drawings.

The proposed distribution piping for the project has been designed to alternately dose half of each set of absorption trenches at a rate of approximately 0.5 gallon per linear foot. Dose volume calcuations are provided on the project drawings, pump sizing calculations are included in Appendix A of this report. It should be noted that an emergency generator will be provided for the proposed pump pit to maintain operation of the pumps in case of power failure.

## 4.5 Enhanced Treatment

In addition to the proposed standard OWTS components described in previous sections, enhanced treatment of the septic tank effluent will provided through the use of SoilAir™ treatment units connected to each set of absorption trenches. Specifications for the proposed SoilAir™ units are provided in Appendix C of this report.

**PPE DI**

**Pump Si ing Calcuations**

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Primary OWTS Area #2 (Pump Pit to DB 2.1)**

| | | | |
|---|---|---|---|
| Design Flow | 2310 | gal/day | (1/2 of total design flow to pump pit) |
| Peak Flow | 16 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 96 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 740 | ft | Length of force main |
| Q | 42 | gpm | Flow Rate |
| V | 4.3 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 790 | ft | Total Length = $L + L_e$ |
| HL | 35 | ft | HL = $\frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ = $.0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 131 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-500 (or approved equal).

These pumps will pump 42 gpm with a Total Dynamic Head of 131 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Primary OWTS Area #2 (Pump Pit to DB 2.2)**

| | | | |
|---|---|---|---|
| Design Flow | 2310 | gal/day | (1/2 of total design flow to pump pit) |
| Peak Flow | 16 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 84 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 920 | ft | Length of force main |
| Q | 43 | gpm | Flow Rate |
| V | 4.4 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 970 | ft | Total Length = $L + L_e$ |
| HL | 45 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 129 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-500 (or approved equal).

These pumps will pump 43 gpm with a Total Dynamic Head of 129 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Expansion OWTS Areas A (Pump Pit to DB A1)**

| | | | |
|---|---|---|---|
| Design Flow | 1512 | gal/day | |
| Peak Flow | 11 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 101 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 1040 | ft | Length of force main |
| Q | 35 | gpm | Flow Rate |
| V | 3.6 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1090 | ft | Total Length = $L + L_e$ |
| HL | 34 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 135 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-500 (or approved equal).

These pumps will pump 35 gpm with a Total Dynamic Head of 135 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Expansion OWTS Areas A (Pump Pit to DB A3)**

| | | | |
|---|---|---|---|
| Design Flow | 1512 | gal/day | |
| Peak Flow | 11 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 99 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 970 | ft | Length of force main |
| Q | 36 | gpm | Flow Rate |
| V | 3.7 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1020 | ft | Total Length = $L + L_e$ |
| HL | 34 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 133 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-500 (or approved equal).

These pumps will pump 36 gpm with a Total Dynamic Head of 133 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Expansion OWTS Areas B (Pump Pit to DB B1)**

| | | | |
|---|---|---|---|
| Design Flow | 2319 | gal/day | |
| Peak Flow | 43 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 150 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 1900 | ft | Length of force main |
| Q | 25 | gpm | Flow Rate |
| V | 2.6 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1950 | ft | Total Length = L + $L_e$ |
| HL | 33 | ft | HL = $\frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$ = $.0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 183 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-750 (or approved equal).

These pumps will pump 25 gpm with a Total Dynamic Head of 183 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Expansion OWTS Areas C & D (Pump Pit to DB D1)**

| | | | |
|---|---|---|---|
| Design Flow | 1992 | gal/day | |
| Peak Flow | 43 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 97 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 1700 | ft | Length of force main |
| Q | 40 | gpm | Flow Rate |
| V | 4.1 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1750 | ft | Total Length = $L + L_e$ |
| HL | 71 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 168 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-750 (or approved equal).
()
These pumps will pump 40 gpm with a Total Dynamic Head of 168 feet.

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**OWTS for Wilder Balter Partners**
**Pump Sizing Calculations - Expansion OWTS Areas E (Pump Pit to DB E1)**

| | | | |
|---|---|---|---|
| Design Flow | 1992 | gal/day | |
| Peak Flow | 43 | gpm | Peak Flow = $\frac{(\text{Design Flow})(10)}{(24\text{hr/day})(60\text{min/hr})}$ Use 10x Daily Flow for Peak Flow |
| Static Head | 108 | ft | Vertical distance from bottom of pump pit to invert of distribution box |
| C | 130 | | Roughness coefficient for smooth plastic pipe |
| d | 2 | in | Diameter of force main |
| L | 1570 | ft | Length of force main |
| Q | 39 | gpm | Flow Rate |
| V | 4.0 | ft/s | Velocity |
| $L_e$ | 50 | ft | Equivalent length to account for losses in valves and bends |
| $L_t$ | 1620 | ft | Total Length = $L + L_e$ |
| HL | 62 | ft | $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$ |
| Total Dynamic Head | 170 | ft | TDH = HI + Static Head |

Use one (1) :Pentair Hydromatic Pumps Model # HPGHH/HPGHHX-750 (or approved equal).

These pumps will pump 39 gpm with a Total Dynamic Head of 170 feet.

PENTAIR

**Customer** :
**Project name** : Default

# Pump Performance Datasheet

Encompass 2.0 - 18.3.3.0

| | | | |
|---|---|---|---|
| Item number | : 001 | Size | : Hydromatic - HPGHH/HPGHHX-500 |
| Service | : | Stages | : 1 |
| Quantity | : 1 | Based on curve number | : SUB_G_O_AH_00005_B_2 Rev 2012-03-23 |
| Quote number | : 669822 | Date last saved | : 10 Sep 2018 1:25 PM |

## Operating Conditions

| | |
|---|---|
| Flow, rated | : 28.00 USgpm |
| Differential head / pressure, rated (requested) | : 103.0 ft |
| Differential head / pressure, rated (actual) | : 110.1 ft |
| Suction pressure, rated / max | : 0.00 / 0.00 psi.g |
| NPSH available, rated | : Ample |
| Frequency | : 60 Hz |

## Performance

| | |
|---|---|
| Speed, rated | : 3500 rpm |
| Impeller diameter, rated | : 5.75 in |
| Impeller diameter, maximum | : 6.25 in |
| Impeller diameter, minimum | : 4.25 in |
| Efficiency | : - |
| NPSH required / margin required | : - / 0.00 ft |
| nq (imp. eye flow) / S (imp. eye flow) | : 18 / - Metric units |
| Minimum Continuous Stable Flow | : 10.00 USgpm |
| Head, maximum, rated diameter | : 119.4 ft |
| Head rise to shutoff | : 15.97 % |
| Flow, best eff. point | : - |
| Flow ratio, rated / BEP | : - |
| Diameter ratio (rated / max) | : 92.00 % |
| Head ratio (rated dia / max dia) | : 74.43 % |
| Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] | : 1.00 / 1.00 / 1.00 / 1.00 |
| Selection status | : Acceptable |

## Liquid

| | |
|---|---|
| Liquid type | : Water |
| Additional liquid description | : |
| Solids diameter, max | : 0.00 in |
| Solids diameter limit | : 0.00 in |
| Solids concentration, by volume | : 0.00 % |
| Temperature, max | : 68.00 deg F |
| Fluid density, rated / max | : 1.000 / 1.000 SG |
| Viscosity, rated | : 1.00 cP |
| Vapor pressure, rated | : 0.34 psi.a |

## Material

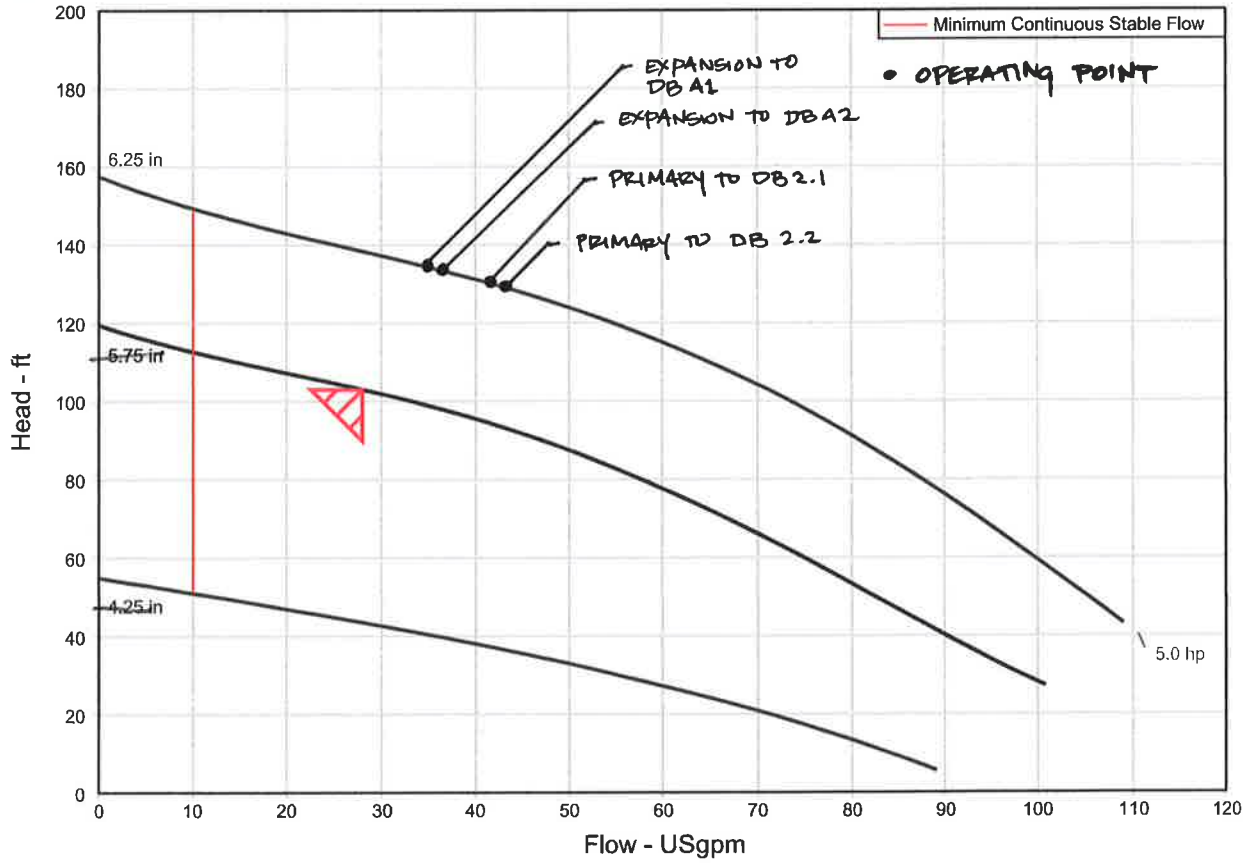
| | |
|---|---|
| Material selected | : Standard |

## Pressure Data

| | |
|---|---|
| Maximum working pressure | : 51.70 psi.g |
| Maximum allowable working pressure | : N/A |
| Maximum allowable suction pressure | : N/A |
| Hydrostatic test pressure | : N/A |

## Driver & Power Data (@Max density)

| | |
|---|---|
| Driver sizing specification | : Rated power |
| Margin over specification | : 0.00 % |
| Service factor | : 1.00 |
| Power, hydraulic | : 0.73 hp |
| Power, rated | : 3.16 hp |
| Power, maximum, rated diameter | : 4.11 hp |
| Minimum recommended motor rating | : 5.00 hp / 3.73 kW (Fixed) |



PENTAIR

**Customer** :
**Project name** : Default

# Pump Performance Datasheet

Encompass 2.0 - 18.3.3.0

| | | | |
|---|---|---|---|
| Item number | : 001 | Size | : Hydromatic - HPGHH/HPGHHX-750 |
| Service | : | Stages | : 1 |
| Quantity | : 1 | Based on curve number | : SUB_G_O_AH_00006_B_2 Rev 2012-03-23 |
| Quote number | : 669822 | Date last saved | : 10 Sep 2018 2:04 PM |

## Operating Conditions

| | |
|---|---|
| Flow, rated | : 30.00 USgpm |
| Differential head / pressure, rated (requested) | : 159.0 ft |
| Differential head / pressure, rated (actual) | : 163.2 ft |
| Suction pressure, rated / max | : 0.00 / 0.00 psi.g |
| NPSH available, rated | : Ample |
| Frequency | : 60 Hz |

## Performance

| | |
|---|---|
| Speed, rated | : 3500 rpm |
| Impeller diameter, rated | : 6.75 in |
| Impeller diameter, maximum | : 6.87 in |
| Impeller diameter, minimum | : 4.25 in |
| Efficiency | : - |
| NPSH required / margin required | : - / 0.00 ft |
| nq (imp. eye flow) / S (imp. eye flow) | : 13 / - Metric units |
| Minimum Continuous Stable Flow | : 10.00 USgpm |
| Head, maximum, rated diameter | : 181.0 ft |
| Head rise to shutoff | : 13.82 % |
| Flow, best eff. point | : - |
| Flow ratio, rated / BEP | : - |
| Diameter ratio (rated / max) | : 98.25 % |
| Head ratio (rated dia / max dia) | : 91.05 % |
| Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] | : 1.00 / 1.00 / 1.00 / 1.00 |
| Selection status | : Acceptable |

## Liquid

| | |
|---|---|
| Liquid type | : Water |
| Additional liquid description | : |
| Solids diameter, max | : 0.00 in |
| Solids diameter limit | : 0.00 in |
| Solids concentration, by volume | : 0.00 % |
| Temperature, max | : 68.00 deg F |
| Fluid density, rated / max | : 1.000 / 1.000 SG |
| Viscosity, rated | : 1.00 cP |
| Vapor pressure, rated | : 0.34 psi.a |

## Material

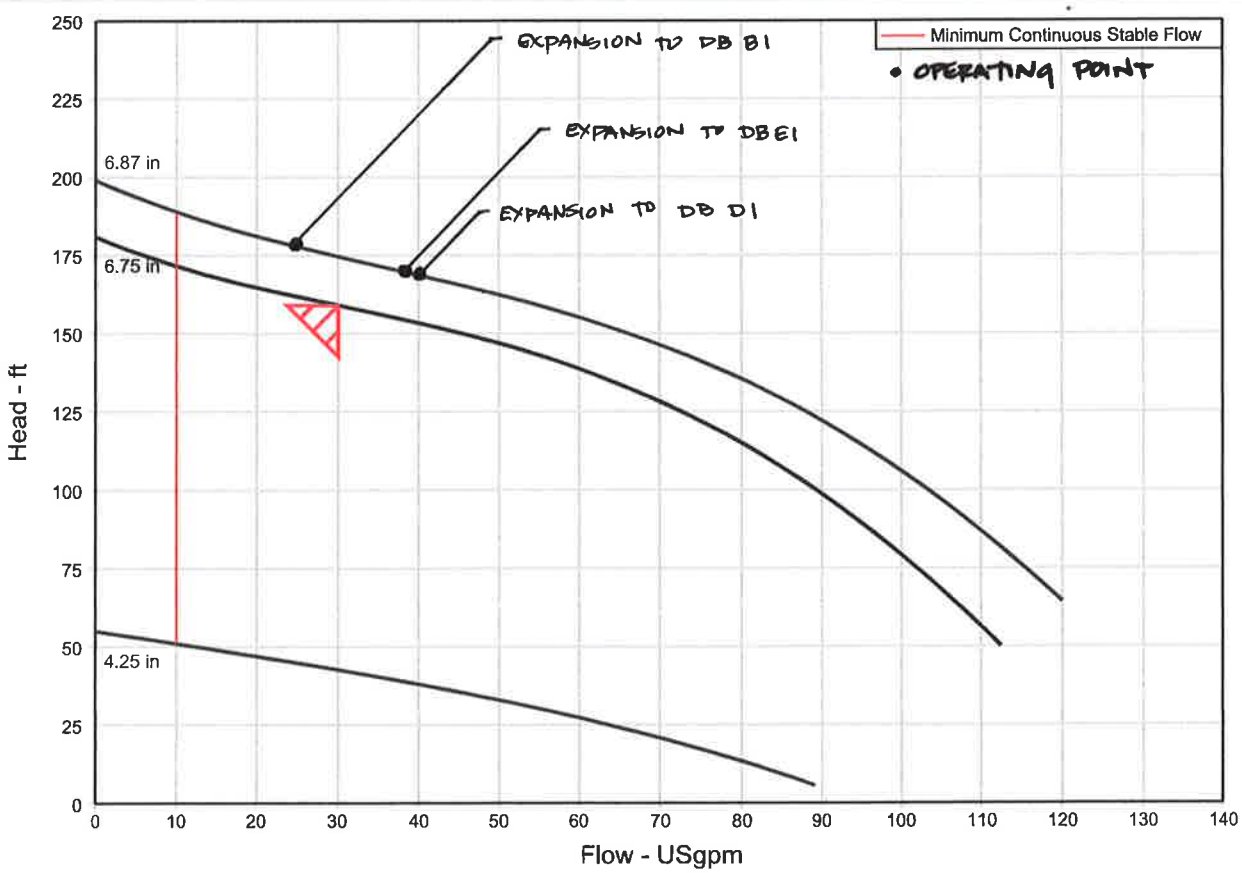
| | |
|---|---|
| Material selected | : Standard |

## Pressure Data

| | |
|---|---|
| Maximum working pressure | : 78.33 psi.g |
| Maximum allowable working pressure | : N/A |
| Maximum allowable suction pressure | : N/A |
| Hydrostatic test pressure | : N/A |

## Driver & Power Data (@Max density)

| | |
|---|---|
| Driver sizing specification | : Rated power |
| Margin over specification | : 0.00 % |
| Service factor | : 1.00 |
| Power, hydraulic | : 1.20 hp |
| Power, rated | : 4.11 hp |
| Power, maximum, rated diameter | : 5.55 hp |
| Minimum recommended motor rating | : 7.50 hp / 5.60 kW (Fixed) |



# PPE DI B

## Design Data Sheets

WESTCHESTER COUNTY DEPARTMENT OF HEALTH
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner PROPERTY GROUP PARTNERS, LLC Address_____

Property Location: NYS ROUTE 22 Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-1 | 1 | 9:50 | 9:53 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 9:54 | 9:58 | 4 | 19 | 20 | 1 | 4 |
| | 3 | 9:58 | 10:02 | 4 | 19 | 20 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| | 1 | | | | | | | |
| D-2 | 2 | 10:04 | 10:07 | 3 | 19 | 20 | 1 | 3 |
| | 3 | 10:07 | 10:10 | 3 | 19 | 20 | 1 | 3 |
| | 4 | 10:10 | 10:13 | 3 | 19 | 20 | 1 | 3 |
| | 5 | | | | | | | |
| D-3 | 1 | 10:16 | 10:19 | 3 | 18 | 19 | 1 | 3 |
| | 2 | 10:19 | 10:23 | 4 | 18 | 19 | 1 | 4 |
| | 3 | 10:24 | 10:28 | 4 | 18 | 19 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D1 | HOLE NO. D2 | HOLE NO. D3 | HOLE NO. D4 |
|---|---|---|---|---|
| | 0-8" TOPSOIL | SAME | SAME | SAME |
| 6" | 8"-24" | AS | AS | AS |
| 12" | LIGHT BROWN FINE SAND AND SILT | D1 | D1 | D1 |
| 18" | | | | |
| 24" | 24"-84"+ | TOTAL DEPTH=84"+ | TOTAL DEPTH=84"+ | TOTAL DEPTH=84"+ |
| 30" | LIGHT BROWN SAND AND | | | |
| 36" | GRAVEL | | | |
| 42" | | | | |
| 48" | | | | |
| 54" | | | | |
| 60" | | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | NO ROCK | NO ROCK | NO ROCK |
| 84" | NO ROCK NO MOTTLING NO $H_2O$ | NO MOTTLING NO $H_2O$ | NO MOTTLING NO $H_2O$ | NO MOTTLING NO $H_2O$ |

WAS GROUNDWATER ENCOUNTERED? YES/(NO)

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

DEEP TEST MADE BY MATTHEW GIRONDA, P.E. (INSITE) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: FRED BECK, P.E. (NCDOH) & DAN SHEDLO P.E. (NYCDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal _____

Absorption Area Prov. by 3,300 L.F. x 24" Y width trench. Other _____

Design Professional Name Jeffrey Contelmo, PE Signature _____

Address _____ Seal

~~Insite Engineering, Surveying &~~
Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

STATE OF NEW YORK
JEFFREY J. CONTELMO
61931
LICENSED PROFESSIONAL ENGINEER

SD27.6
Revised 01/18/08

**WESTCHESTER COUNTY DEPARTMENT OF HEALTH**
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner PROPERTY GROUP PARTNERS, LLC Address_____

Property Location: NYS ROUTE 22 Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface: Start Inches | Depth to Water From Ground Surface: Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-4 | 1 | 10:30 | 10:33 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 10:34 | 10:38 | 4 | 19 | 20 | 1 | 4 |
| | 3 | 10:38 | 10:42 | 4 | 19 | 20 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-5 | 1 | 11:12 | 11:17 | 5 | 20 | 21 | 1 | 5 |
| | 2 | 11:18 | 11:24 | 6 | 20 | 21 | 1 | 6 |
| | 3 | 11:27 | 11:33 | 6 | 20 | 21 | 1 | 6 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-6 | 1 | 11:21 | 11:24 | 3 | 20 | 21 | 1 | 3 |
| | 2 | 11:28 | 11:32 | 4 | 20 | 21 | 1 | 4 |
| | 3 | 11:36 | 11:40 | 4 | 20 | 21 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D5 | HOLE NO. D6 | HOLE NO. D7 | HOLE NO. D8 |
|---|---|---|---|---|
| | 0-8" TOPSOIL | SAME | SAME | SAME |
| 6" | 8"-36" | AS | AS | AS |
| 12" | RED/BROWN | D5 | D5 | D5 |
| 18" | FINE SANDY LOAM | | | |
| 24" | | TOTAL DEPTH=84"+ | TOTAL DEPTH=84"+ | TOTAL DEPTH=84"+ |
| 30" | | | | |
| 36" | 36-84" | | | |
| 42" | GRAY FINE | | | |
| 48" | TO MEDIUM | | | $H_2O$ @ 54" |
| 54" | SAND WITH | | | |
| 60" | GRAVEL | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | ROCK @ 84" NO MOTTLING NO $H_2O$ | NO ROCK NO MOTTLING NO $H_2O$ | NO ROCK NO MOTTLING $H_2O$ @ 84" | NO ROCK NO MOTTLING |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED 4'-6" Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED 6'-0" Ft./In.

DEEP TEST MADE BY MATTHEW GIRONDA, P.E. (INSITE) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: FRED BECK, P.E. (WLDOH) & DAN SHEDLO, P.E. (NYCDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal _____

Absorption Area Prov. by 3,300 L.F. x 24" X width trench. Other _____

Design Professional Name Jeffrey Contelmo PE Signature _____

Address Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

Seal

STATE OF NEW YORK
JEFFREY J. CONTELMO
61931
LICENSED PROFESSIONAL ENGINEER

SD27.6
Revised 01/18/08

**WESTCHESTER COUNTY DEPARTMENT OF HEALTH**
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner PROPERTY GROUP PARTNERS, LLC Address_____

Property Location: NYS ROUTE 22 Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | | | PERCOLATION | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-7 | 1 | 11:45 | 11:50 | 5 | 19 | 21 | 2 | 2.5 |
| | 2 | 11:52 | 11:56 | 4 | 19 | 20 | 1 | 4 |
| | 3 | 11:57 | 12:01 | 4 | 19 | 20 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-8 | 1 | 12:04 | 12:10 | 6 | 20 | 21 | 1 | 6 |
| | 2 | 12:10 | 12:16 | 6 | 20 | 21 | 1 | 6 |
| | 3 | 12:17 | 12:23 | 6 | 20 | 21 | 1 | 6 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-9 | 1 | 12:32 | 12:35 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 12:36 | 12:41 | 5 | 19 | 20 | 1 | 5 |
| | 3 | 12:41 | 12:46 | 5 | 19 | 20 | 1 | 5 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WLDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D9 | HOLE NO. D10 | HOLE NO. D11 | HOLE NO. D11-A |
|---|---|---|---|---|
| | 0"-8" | SAME | SAME | SAME |
| 6" | TOPSOIL | AS | AS | AS |
| 12" | 8"-36" | D9 | D9 | D9 |
| 18" | RED/BROWN | | | |
| | FINE SANDY | | | |
| 24" | LOAM | TOTAL DEPTH 84" | | |
| 30" | | | | |
| 36" | 36"-84" | | | |
| 42" | GRAY FINE TO | | | |
| 48" | MEDIUM SAND | | | |
| | W/GRAVEL | | | ROCK @ 52" |
| 54" | | | ROCK @ 60" | NO $H_2O$ |
| 60" | | | NO $H_2O$ | NO MOTTLING |
| 66" | | | NO MOTTLING | |
| 72" | | | | |
| 78" | | | | |
| 84" | ROCK @ 84" | ROCK @ 84" | | |
| | NO MOTTLING | NO MOTTLING | | |
| | NO $H_2O$ | NO $H_2O$ | | |

WAS GROUNDWATER ENCOUNTERED? YES (NO)

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

DEEP TEST MADE BY MATTHEW GIRONDA, P.E. (INSITE) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: FRED BECK, P.E. (WCDOH), DAN SHEDLO, P.E. (NYCDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

DESIGN FLOW ~~No. of Bedrooms~~ 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal

Absorption Area Prov. by 3,320 L.F. x 24" X width trench. Other

Design Professional Name Jeffrey Contelmo PE Signature

Address Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

Seal

STATE OF NEW YORK
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(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-10 | 1 | 12:50 | 12:54 | 4 | 20 | 21 | 1 | 4 |
| | 2 | 12:55 | 12:59 | 4 | 20 | 21 | 1 | 4 |
| | 3 | 12:59 | 1:03 | 4 | 20 | 21 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-11 | 1 | 10:30 | 10:33 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 10:33 | 10:36 | 3 | 19 | 20 | 1 | 3 |
| | 3 | 10:36 | 10:39 | 3 | 19 | 20 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-11A | 1 | 10:28 | 10:32 | 4 | 17 | 19 | 2 | 2 |
| | 2 | 10:32 | 10:35 | 3 | 17 | 18 | 1 | 3 |
| | 3 | 10:35 | 10:38 | 3 | 17 | 18 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D12 | HOLE NO. D13 | HOLE NO. D14 | HOLE NO. D14-A |
|---|---|---|---|---|
| | 0"-8" TOPSOIL | SAME | SAME | SAME |
| 6" | | AS | AS | AS |
| 12" | 8"-36" RED/BROWN FINE | D12 | D12 | D12 |
| 18" | SANDY LOAM | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | 36"-52" GRAY FINE TO | | | |
| 42" | MEDIUM SAND W/GRAVEL | | | |
| 48" | | | | |
| 54" | ROCK @ 52" NO $H_2O$ NO MOTTLING | | | |
| 60" | | ROCK @ 60" NO $H_2O$ NO MOTTLING | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | | ROCK @ 84" NO $H_2O$ NO MOTTLING | ROCK @ 84" NO $H_2O$ NO MOTTLING |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

DEEP TEST MADE BY Matthew Gironda, P.E. (Insite) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: Fred Beck, P.E. (NYSDOH), Dan Shedlo, P.E. (NYSDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 GPD

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal

Absorption Area Prov. by 3,320 L.F. x 24" X width trench. Other

Design Professional Name Jeffrey Cimbelmo PE Signature

Address Insite Engineering, Surveying & Landscape Architecture, P.C.
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SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-12 | 1 | 10:17 | 10:20 | 3 | 16 | 17 | 1 | 3 |
| | 2 | 10:20 | 10:23 | 3 | 16 | 17 | 1 | 3 |
| | 3 | 10:23 | 10:26 | 3 | 16 | 17 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-13 | 1 | 10:16 | 10:19 | 3 | 18 | 19 | 1 | 3 |
| | 2 | 10:19 | 10:22 | 3 | 18 | 19 | 1 | 3 |
| | 3 | 10:22 | 10:25 | 3 | 18 | 19 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-14 | 1 | 11:31 | 11:34 | 3 | 15 | 16 | 1 | 3 |
| | 2 | 11:34 | 11:37 | 3 | 15 | 16 | 1 | 3 |
| | 3 | 11:37 | 11:40 | 3 | 15 | 16 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
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SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D15 | HOLE NO. D15-A | HOLE NO. D16 | HOLE NO. D17 |
|---|---|---|---|---|
| | 0-8" TOPSOIL | SAME | SAME | SAME |
| 6" | 8"-36" | AS | AS | AS |
| 12" | RED/BROWN FINE | D15 | D15 | D15 |
| 18" | SANDY LOAM | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | 36"-60" | | | |
| 42" | GRAY FINE TO MEDIUM | | | |
| 48" | SAND W/ GRAVEL | | | |
| 54" | | | | |
| 60" | ROCK @ 60" NO $H_2O$ | | ROCK @ 60" NO $H_2O$ | ROCK @ 60" NO $H_2O$ |
| 66" | NO MOTTLING | | NO MOTTLING | NO MOTTLING |
| 72" | | ROCK @ 72" NO $H_2O$ | | |
| 78" | | NO MOTTLING | | |
| 84" | | | | |

WAS GROUNDWATER ENCOUNTERED? YES (NO)

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

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DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

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Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | | | PERCOLATION | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-14A | 1 | 11:33 | 11:36 | 3 | 18 | 19 | 1 | 3 |
| | 2 | 11:36 | 11:39 | 3 | 18 | 19 | 1 | 3 |
| | 3 | 11:39 | 11:42 | 3 | 18 | 19 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-15 | 1 | 11:13 | 11:16 | 3 | 20 | 21 | 1 | 3 |
| | 2 | 11:16 | 11:22 | 6 | 20 | 21 | 1 | 6 |
| | 3 | 11:23 | 11:29 | 6 | 20 | 21 | 1 | 6 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-15A | 1 | 11:00 | 11:03 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 11:03 | 11:07 | 4 | 19 | 20 | 1 | 4 |
| | 3 | 11:08 | 11:12 | 4 | 19 | 20 | 1 | 4 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
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SD27.6
Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION
DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D18 | HOLE NO. D19 | HOLE NO. D20 | HOLE NO. D20-A |
|---|---|---|---|---|
| | 0-8" TOPSOIL | SAME | SAME | SAME |
| 6" | | AS | AS | AS |
| 12" | 8"-36" RED/BROWN | D18 | D18 | D18 |
| 18" | FINE SANDY LOAM | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | 36"-60" | TOTAL DEPTH=84" | TOTAL DEPTH = 84+ | TOTAL DEPTH = 84"+ |
| 42" | GRAY FINE TO MEDIUM SAND | | | |
| 48" | W/GRAVEL | | | |
| 54" | | | | |
| 60" | ROCK @ 60" NO $H_2O$ NO MOTTLING | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | ROCK @ 84" NO $H_2O$ NO MOTTLING | NO ROCK NO $H_2O$ NO MOTTLING | NO ROCK NO $H_2O$ NO MOTTLING |

WAS GROUNDWATER ENCOUNTERED? YES/(NO)
INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.
INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.
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DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal ____

Absorption Area Prov. by 3,320 L.F. x 24" X width trench. Other ____

Design Professional Name Jeffrey Contelmo PE Signature ____

Address ~~Insite Engineering, Surveying & Landscape Architecture, P.C.~~
~~3 Garrett Place~~
~~Carmel, New York 10512~~

Seal

STATE OF NEW YORK
JEFFREY J. CONTELMO
61931
LICENSED PROFESSIONAL ENGINEER

SD27.6
Revised 01/18/08

WESTCHESTER COUNTY DEPARTMENT OF HEALTH
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner PROPERTY GROUP PARTNERS, LLC Address_____

Property Location: NYS ROUTE 22 Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-16 | 1 | 10:48 | 10:50 | 2 | 19 | 20 | 1 | 2 |
| | 2 | 10:51 | 10:54 | 3 | 19 | 20 | 1 | 3 |
| | 3 | 10:54 | 10:57 | 3 | 19 | 20 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-17 | 1 | 11:53 | 11:56 | 3 | 18 | 19 | 1 | 3 |
| | 2 | 11:57 | 12:00 | 3 | 18 | 19 | 1 | 3 |
| | 3 | 12:01 | 12:04 | 3 | 18 | 19 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-18 | 1 | 10:14 | 10:20 | 6 | 17 1/2 | 19 | 1 1/2 | 4 |
| | 2 | 10:23 | 10:27 | 4 | 17 1/2 | 19 | 1 1/2 | 2.66 |
| | 3 | 10:33 | 10:36 | 3 | 17 1/2 | 18 1/2 | 1 | 3 |
| | 4 | 10:37 | 10:40 | 3 | 17 1/2 | 18 1/2 | 1 | 3 |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

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TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D21 | HOLE NO. D21-A | HOLE NO. D22 | HOLE NO. D22-A |
|---|---|---|---|---|
| | 0"-8" TOPSOIL | SAME | SAME | SAME |
| 6" | | AS | AS | AS |
| 12" | 8"-36" RED BROWN | D-21 | D-21 | D-21 |
| 18" | FINE SANDY LOAM | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | 36"-84"+ | | | |
| 42" | GRAY FINE TO | | | |
| 48" | MEDIUM SAND | | | |
| 54" | W/GRAVEL | | | |
| 60" | | | | ROCK @ 60" |
| 66" | | | | NO $H_2O$ |
| 72" | | ROCK @ 72" | ROCK @ 72" | NO MOTTLING |
| 78" | | NO $H_2O$ | NO $H_2O$ | |
| 84" | NO ROCK | NO MOTTLING | NO MOTTLING | |
| | NO $H_2O$ NO MOTTLING | | | |

WAS GROUNDWATER ENCOUNTERED? YES/(NO)

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

DEEP TEST MADE BY MATTHEW GIRONDA, P.E. (INSITE) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: FRED BECK, P.E. (WCDOH), DAN SHEALO, P.E. (NYCDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal

Absorption Area Prov. by 3,320 L.F. x 24" X width trench. Other

Design Professional Name Jeffrey Contelmo PE Signature

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Carmel, New York 10512

Seal

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WESTCHESTER COUNTY DEPARTMENT OF HEALTH
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner PROPERTY GROUP PARTNERS, LLC Address_____

Property Location: NYS ROUTE 22 Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-19 | 1 | 11:06 | 11:10 | 4 | 19 1/2 | 20 1/2 | 1 | 4 |
| | 2 | 11:13 | 11:18 | 5 | 19 1/2 | 20 1/2 | 1 | 5 |
| | 3 | 11:19 | 11:24 | 5 | 19 1/2 | 20 1/2 | 1 | 5 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-20 | 1 | 11:09 | 11:14 | 5 | 19 | 20 | 1 | 5 |
| | 2 | 11:16 | 11:24 | 8 | 19 | 20 | 1 | 8 |
| | 3 | 11:26 | 11:34 | 8 | 19 | 20 | 1 | 8 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-20A | 1 | 12:10 | 12:16 | 6 | 18 | 20 | 2 | 3 |
| | 2 | 12:17 | 12:23 | 6 | 18 | 20 | 2 | 3 |
| | 3 | 12:24 | 12:30 | 6 | 18 | 20 | 2 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

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TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO. D23 | HOLE NO. D23-A | HOLE NO. ____ | HOLE NO. ____ |
|---|---|---|---|---|
| | 0"-8" TOPSOIL | SAME | | |
| 6" | | AS | | |
| 12" | 8"-36" RED/BROWN | D23 | | |
| 18" | FINE SANDY LOAM | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | 36"-60" GRAY FINE | | | |
| 42" | TO MEDIUM SAND W/ | | | |
| 48" | GRAVEL | | | |
| 54" | | | | |
| 60" | ROCK @ 60" NO $H_2O$ NO MOTTLING | ROCK @ 66" NO $H_2O$ NO MOTTLING | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | | | |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED N/A Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED N/A Ft./In.

DEEP TEST MADE BY MATTHEW CIRONDA, P.E. (INSITE) DATE OF DEEP TESTS 5-15-17

WITNESSED BY: FRED BECK, P.E. (NCDOH), DAN SHEDLO, P.E. (NYCDEP)

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640 SF

~~No. of Bedrooms~~ DESIGN FLOW 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal ____

Absorption Area Prov. by 3,320 L.F. x 24" ____ width trench. Other ____

Design Professional Name Jeffrey Contelmo, PE Signature ____

Address Insite Engineering, Surveying & ~~Landscape Architecture, P.C.~~ ~~3 Garrett Place~~ Carmel, New York 10512

Seal STATE OF NEW YORK JEFFREY CONTELMO 61931 LICENSED PROFESSIONAL ENGINEER

SD27.6
Revised 01/18/08

WES CHESTER COUNTY DEPARTMEN OF HEALTH
Bureau of Environmental Quality
118 North Bedford Road
Mount Kisco, NY 10549

DESIGN DATA SHEET – SEPARATE SEWAGE SYSTEM WCDH FILE #_____

Owner Property Group Partners, LLC Address_____

Property Location:_____ Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality Lewisboro

Watershed Muscoot NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-21 | 1 | 12:37 | 12:41 | 4 | 18 | 20 | 2 | 2 |
| | 2 | 12:43 | 12:49 | 6 | 18 | 20 | 2 | 3 |
| | 3 | 12:55 | 1:01 | 6 | 18 | 20 | 2 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-21A | 1 | 12:27 | 12:30 | 3 | 19 | 20 | 1 | 3 |
| | 2 | 12:30 | 12:33 | 3 | 19 | 20 | 1 | 3 |
| | 3 | 12:33 | 12:36 | 3 | 19 | 20 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| | 1 | | | | | | | |
| D-22 | 2 | 12:25 | 12:28 | 3 | 19 | 20 | 1 | 3 |
| | 3 | 12:28 | 12:31 | 3 | 19 | 20 | 1 | 3 |
| | 4 | 12:31 | 12:34 | 3 | 19 | 20 | 1 | 3 |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: WCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

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Revised 01/18/08

TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO.____ | HOLE NO. ____ | HOLE NO. ____ | HOLE NO. ____ |
|---|---|---|---|---|
| 6" | | | | |
| 12" | | | | |
| 18" | | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | | | | |
| 42" | | | | |
| 48" | | | | |
| 54" | | | | |
| 60" | | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | | | |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED _____Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED ____Ft./In.

DEEP TEST MADE BY_____ DATE OF DEEP TESTS_____

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640

DESIGN Flow

~~No. of Bedrooms~~ 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal _____

Absorption Area Prov. by 3,320 L.F. x 24"____ width trench. Other_____

Design Professional Name Jeffrey Contelmo, PE Signature _____

Address Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

Seal STATE OF NEW YORK JEFFREY J. CONTELMO 61931 LICENSED PROFESSIONAL ENGINEER

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W. ..TCHESTER COUNTY DEPARTM..T OF HEALTH
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Property Location:_____ Sec. 5 Block 10766 Lot 19 & 20 & 21
(Indicate nearest cross street)

Municipality Lewisboro

Watershed Muscoot NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 6-14-17 Run Date: 6-15-17

| Hole # | | CLOCK TIME | | | PERCOLATION | | | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| D-22A | 1 | 12:09 | 12:11 | 2 | 18 | 19 | 1 | 2 |
| | 2 | 12:11 | 12:14 | 3 | 18 | 19 | 1 | 3 |
| | 3 | 12:14 | 12:17 | 3 | 18 | 19 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| D-23 | 1 | 11:51 | 11:54 | 3 | 18 | 20 | 2 | 1.5 |
| | 2 | 11:54 | 11:57 | 3 | 18 | 20 | 2 | 1.5 |
| | 3 | 11:58 | 12:00 | 2 | 18 | 19 | 1 | 2 |
| | 4 | 12:00 | 12:03 | 3 | 18 | 19 | 1 | 3 |
| | 5 | 12:04 | 12:07 | 3 | 18 | 19 | 1 | 3 |
| D-23A | 1 | 11:53 | 11:56 | 3 | 20 | 21 | 1 | 3 |
| | 2 | 11:57 | 12:00 | 3 | 20 | 21 | 1 | 3 |
| | 3 | 12:00 | 12:03 | 3 | 20 | 21 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: INSITE ENGINEERING
WITNESSED BY: NCDOH

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

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TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO._____ | HOLE NO. _____ | HOLE NO. _____ | HOLE NO. _____ |
|---|---|---|---|---|
| 6" | | | | |
| 12" | | | | |
| 18" | | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | | | | |
| 42" | | | | |
| 48" | | | | |
| 54" | | | | |
| 60" | | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | | | |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED _____Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED ____Ft./

DEEP TEST MADE BY_____ DATE OF DEEP TESTS_____

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640

DESIGN FLOW

~~No. of Bedrooms~~ 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal _____

Absorption Area Prov. by 3,320 L.F. x 24" ✓ width trench. Other_____

Design Professional Name Jeffrey Contelmo, PE Signature_____

Address Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

Seal

STATE OF NEW YORK
JEFFREY J. CONTELMO
081931
LICENSED PROFESSIONAL ENGINEER

SD27.6
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**WESTCHESTER COUNTY DEPARTMENT OF HEALTH**
Bureau of Environmental Quality
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(Indicate nearest cross street)

Municipality LEWISBORO

Watershed MUSCOOT NYCEP: Joint Review ☒ Delegated ☐

SOIL PERCOLATION TEST DATA REQUIRED TO BE SUBMITTED WITH PPLICATION

Presoak Date: 9/7/17 Run Date: 9/8/17

| Hole # | | CLOCK TIME | | | | | PERCOLATION | |
|---|---|---|---|---|---|---|---|---|
| Hole Number | Run No. | Start | Stop | Elapse Time Min. | Depth to Water From Ground Surface Start Inches | Depth to Water From Ground Surface Stop Inches | Water Level Drop In Inches | Soil Rate Min/in Drop |
| P6A | 1 | 10:05 | 10:08 | 3 | 17 | 18 | 1 | 3 |
| | 2 | 10:09 | 10:12 | 3 | 17 | 18 | 1 | 3 |
| | 3 | 10:13 | 10:16 | 3 | 17 | 18 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| P7A | 1 | 9:49 | 9:52 | 3 | 17 | 18 | 1 | 3 |
| | 2 | 9:53 | 9:56 | 3 | 17 | 18 | 1 | 3 |
| | 3 | 9:57 | 10:00 | 3 | 17 | 18 | 1 | 3 |
| | 4 | | | | | | | |
| | 5 | | | | | | | |
| | 1 | | | | | | | |
| | 2 | | | | | | | |
| | 3 | | | | | | | |
| | 4 | | | | | | | |
| | 5 | | | | | | | |

Perc test done by: MATTHEW GIRONDA, P.E. (INSITE)
WITNESSED BY: FREDERICK BELK, JR., P.E (WCDOH)

Notes:
1. Tests to be repeated at same depth until approximately equal soil rates are obtained at each percolation test hole. All data to be submitted for review.
2. Depth measurements to be made from top of hole. DO NOT REPORT INCREMENTS OF LESS THAN ONE INCH.

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TEST PIT DATA REQUIRED TO BE SUBMITTED WITH APPLICATION

DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES

| DEPTH G.L. | HOLE NO.____ | HOLE NO. ____ | HOLE NO. ____ | HOLE NO. ____ |
|---|---|---|---|---|
| 6" | | | | |
| 12" | | | | |
| 18" | | | | |
| 24" | | | | |
| 30" | | | | |
| 36" | | | | |
| 42" | | | | |
| 48" | | | | |
| 54" | | | | |
| 60" | | | | |
| 66" | | | | |
| 72" | | | | |
| 78" | | | | |
| 84" | | | | |

WAS GROUNDWATER ENCOUNTERED? YES/NO

INDICATE LEVEL AT WHICH GROUND WATER IS ENCOUNTERED _____Ft./In.

INDICATED LEVEL FOR WHICH WATER LEVEL RISES AFTER BEING ENCOUNTRED ____Ft./In.

DEEP TEST MADE BY_____ DATE OF DEEP TESTS_____

DESIGN

Soil Rate Used 3-5 Min/1" Drop: S.D. Usable Area Provided 6,640

DESIGN FLOW ~~No. of Bedrooms~~ 7,920 GPD Septic Tank Capacity 10,000 Gals. Masonry X Metal _____

Absorption Area Prov. by 3,320 L.F. x 24" X width trench. Other_____

Design Professional Name_____ Signature_____

Address_____ Seal

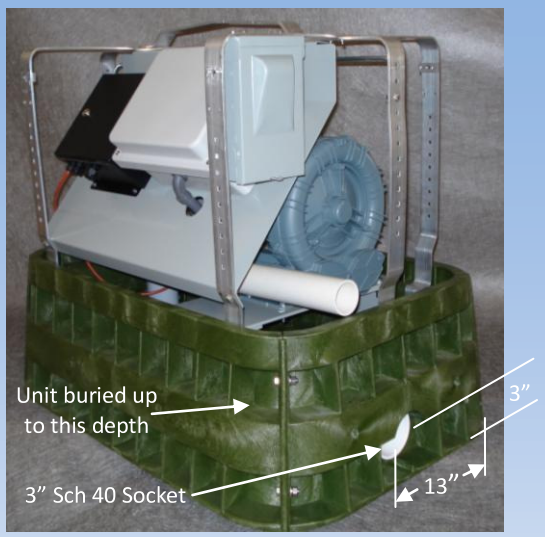
STATE OF NEW YORK
JEFFREY J. CONTELMO
61931
LICENSED PROFESSIONAL ENGINEER

SD27.6
Revised 01/18/08

# PPE DI C

## Soil ir™ Enhanced Treatment nit Specifications

# Models
# RF9858 • RF15652
# RF21650 • RF29450




## BENEFITS OF SOILAIR

- Rapidly restores proper septic system function
- Enhanced B.O.D., pathogen, nitrogen & phosphorus removal
- Minimal disruption and damage to existing landscaping
- Lower installation, operation & maintenance costs
- Long term solution

**SoilAir products are manufactured by:**
**Geomatrix, LLC**
114 Mill Rock Road East
Old Saybrook, CT 06475
860-510-0730 –P
860-510-0735 - F
888-SOILAIR
www.soilair.com



SoilAir™ units are utilized for rejuvenation of failed leach fields and for enhanced treatment of wastewater. All are controlled by a microprocessor controller. One year of remote monitoring is standard with these models. The controller can log 365 days worth of data and can be set to control the operation of the system on a daily basis, allowing the system to be shutdown on certain days or times, or to run more or less on other days, depending on flows or other constraints.

On a gravity system, an optional float switch can be installed in the outlet baffle or effluent filter to automatically dose a set volume of effluent to the leach field. A float can also be utilized in conjunction with a pump system to alternate the flow of air and water.

## SPECIFICATIONS

Enclosure:

H.D.P.E., weather/UV rated. Pedestal base for burial - Nominal dimensions:
38” long x 26” wide x 33” high
38” long x 26” wide x 25” high - installed/buried

Weight:

| RF-9858MP | RF15652MP | RF21650MP | RF29450MP |
|---|---|---|---|
| 167 lbs | 175 lbs | 192 lbs | 226 lbs |

Electrical:

| Model | HP | Volts | FLA -1 ph | FLA – 3 ph |
|---|---|---|---|---|
| RF9858 | 1.5 | 208/230 | 7.3 | 5.0 |
| RF15652 | 2.0 | 208/230 | 12.0 | 6.3 |
| RF21650 | 3.0 | 208/230 | N/A | 9.0 |
| RF29450 | 4.0 | 208/230 | N/A | 12.9 |
| @ full load with surge protection<br>Breakers to be determined by electrician | | | | |

Air pipe: sch. 40 PVC

| RF9858MP | RF15652MP | RF21650MP | RF29450MP |
|---|---|---|---|
| Min. 3”<br>Max run 50 ‘ | Min. 3”<br>Max run 50’ | Min. 4”<br>Max run 100’ | Min. 4”<br>Max run 100’ |

Sound level: dbA @ 10’

| RF9858MP | RF15652MP | RF21650MP | RF29450MP |
|---|---|---|---|
| 64.8 | 70.5 | 73.0 | 78.7 |

Treatment capacity*

| Model | Max $ft^2$ | Max gpd |
|---|---|---|
| RF 9858MP | 2178 | 1742 |
| RF 15652MP | 3467 | 2774 |
| RF 21650MP | 4800 | 3840 |
| RF 29450MP | 6533 | 5226 |

*contact representative for additional information

Time dosing, dual alternating pump controls and other options available.

# WILDER BALTER PARTNERS

# 72-HOUR PUMPING TEST PROGRAM

## ROUTE 22 PROPERTY
## LEWISBORO, NY

PROJECT NO.: 31401464.000
DATE: SEPTEMBER 2018

LBG HYDROGEOLOGIC & ENGINEERING SERVICES, P.C.
MEMBER OF WSP
4 RESEARCH DRIVE, SUITE 204
SHELTON, CT 06484

TEL.: +1 (203) 929-8555
WSP.COM

# SIGNATURES

PREPARED BY:

Stacy Stieber, CPG, PG(NY)
Lead Hydrogeologist

REVIEWED BY:

Thomas P. Cusack, CPG, PG(NY)
Senior Supervising Hydrogeologist

# TABLE OF CONTENTS

Page

## TABLES

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## FIGURES



## APPENDICES - AT END OF REPORT

## WATER-LEVEL DATA CD
(IN POCKET AT END OF REPORT)

# 1.0 INTRODUCTION

The following report contains the results of the 72-hour pumping test program completed by LBG Hydrogeologic & Engineering Services, P.C., member of WSP, (LBGHES) on Wells 2, 3 and 4 located on the Wilder Balter Partners, Inc. property on Route 22 in Lewisboro, New York (figure 1). The 72-hour pumping test program was conducted in accordance with the December 2017 Pumping Test Plan submitted for the project which was reviewed by the Town of Lewisboro's Hydrogeologic Consultant, HydroEnvironmental Solutions, and by the Westchester County Department of Health (WCDH) prior to completion of the testing program. The pumping test program was designed and completed in accordance with the New York State Department of Health (NYSDOH) Sanitary Code Part 5, Subpart 5-1, Appendix 5-D for community, public water-supply wells.

# 2.0 WATER DEMAND

The project is proposing to develop 42 units with a combined bedroom count for these units of 84 bedrooms. Based on the water demand requirement of 110 gpd (gallons per day) per bedroom, the average water demand for the project is 9,240 gpd or 6.4 gpm (gallons per minute). The purpose of the 72-hour pumping test was to demonstrate twice this water demand with the best well out of service. Therefore, a simultaneous yield test was conducted on Wells 2 and 4 to demonstrate that their combined yield can meet or exceed 18,480 gpd or 12.8 gpm, which is twice the average water demand of the project, and an individual pumping test was conducted on Well 3 to demonstrate it as the best well.

# 3.0 WELL CONSTRUCTION

Well 2 was drilled by P.F. Beal & Sons, Inc. in 1987 on the project site. A copy of the well log is included in Appendix I. Well 2 was complete with 64 feet of 6-inch diameter well casing set into bedrock and was drilled to a total depth of 605 feet in the bedrock.

Well 3 was drilled in September 2017 and Well 4 was drilled in November 2017 also by P.F. Beal & Sons, Inc. after receiving authorization to drill the wells from the Westchester County Department of Health (WCDH). Well 3 was completed with 103 feet of 6-inch diameter well casing set into bedrock and was drilled to a total depth of 490 feet. Well 4 was completed with 101 feet of 6-inch diameter well casing set into bedrock and was drilled to a total depth of 750 feet. Copies of the well logs for Wells 3 and 4 are also included in Appendix I.

# 4.0 PUMPING TEST PROGRAM

The simultaneous 72-hour pumping test on Wells 2 and 4 was conducted between July 23 and 26, 2018 and the individual 72-hour pumping test on Well 3 was conducted between July 31 and August 3, 2018. During the pumping test program, water-level measurements were collected from the three bedrock pumping Wells 2, 3 and 4; one onsite bedrock monitoring well, Well 1; and four existing offsite residential wells. In addition, the groundwater level in the wetland surface-water feature on the south side of the property was monitored using a nested pair of piezometers to assess potential drawdown effects from pumping of the proposed bedrock supply wells. The onsite wells and piezometer locations are shown on figure 1. The locations of the offsite wells that were measured during the test are shown on figure 2.

Water-level measuring equipment was installed by LBGHES on July 19, 2018 to collect background water-level data prior to the start of pumping in the onsite wells. On July 23, the 72-hour pumping test on Wells 2 and 4 began with the start of the pump in Well 4 at 13:01, followed by the start of the pump in Well 2 at 14:02. The wells were pumped concurrently for three days until shut down of the test at 14:12 on July 26. Following the end of the first pumping test, water-level recovery data was collected until the start of the pump in Well 3 at 9:59 on July 31. Well 3 was pumped for three days and the test was ended at 10:05 on August 3. Water-level recovery measurements were collected after the end of pumping in Well 3 and removal of the water-level monitoring equipment began on August 7, 2018.

Hydrographs and summary tables of water-level measurements collected from the pumping wells are located in Appendix II, from the onsite and offsite monitoring wells in Appendix III, and from the piezometer location in Appendix IV. An electronic copy of the water-level data collected by the installed pressure transducers has been provided on the attached CD.

The discharge location used during the test period for all three pumping wells was placed approximately 280 feet west of Well 2 (figure 1). Originally, the planned discharge for Wells 3 and 4 was sited approximately 350 feet west of Wells 3 and 4. However, during equipment installation it was determined that the discharge hose from Wells 3 and 4 at the original proposed location was obstruction access to the wells, so the discharge was moved down to the site of the Well 2 discharge location. The discharge location was sited to allow the water to flow west off the project site to prevent artificial recharge of the bedrock aquifer during the test and to prevent artificial recharge at the piezometer location being measured in the wetland. The well discharge rates were measured using a calibrated bucket and stop watch at the end of their respective discharge hoses.

A nested-pair of piezometers was installed in the wetland feature on the south side of the property. No surface water was present in the wetland area at the time that the piezometers were installed. Therefore, LBGHES opted to install a nested pair of piezometers with one piezometer set shallower and the adjacent piezometer set deeper. Water-level measurements were collected from the interior of both the shallow and deeper screened piezometers and, for the brief periods when surface water was present, surface-water height was measured on the exterior of the shallower piezometer.

A summary of the historical monthly precipitation totals from the Westchester County Airport Climate Station from August 2017 through July 2018 and the monthly precipitation normals from 1981-2010 for that station are included in the table below. The total precipitation for the 12 months prior to the pumping test was 35.45 inches, which was 13.90 inches below the 30-year average (28% below average).

**Table 1: Monthly Precipitation Totals from Westchester County AP Station**

| Month | Westchester County AP Station (inches) | 30-Year Normals (inches) |
|---|---|---|
| August 2017 | 2.63 | 4.16 |
| September 2017 | 2.19 | 4.72 |
| October 2017 | 4.99 | 4.41 |
| November 2017 | 1.44 | 3.97 |
| December 2017 | 1.45 | 4.32 |
| January 2018 | 1.46 | 3.78 |
| February 2018 | 5.35 | 2.99 |
| March 2018 | 2.56 | 4.52 |
| April 2018 | 4.94 | 4.40 |
| May 2018 | 3.33 | 4.12 |
| June 2018 | 3.53 | 4.25 |
| July 2018 | 4.21 | 3.71 |
| **Total** | **35.45** | **49.35** |

Precipitation measurements from the Westchester County Airport Station and a local weather station (Bedford11) near the study property that reports hourly values on the internet were monitored during the test period. Daily precipitation totals from the Westchester station and the local weather station are included on the table below and the local precipitation totals are shown on the hydrographs for reference.

**Table 2: Summary of Daily Precipitation**

| Date | Westchester County AP Daily Precipitation (inches) | Bedford11 Local Weather Station Daily Precipitation (inches) |
|---|---|---|
| 7/19/2018 | 0 | 0 |
| 7/20/2018 | 0 | 0 |
| 7/21/2018 | 0.2 | 0.1 |
| 7/22/2018 | 1.42 | 0.76 |
| 7/23/2018 | 0.17 | 0.59 |
| 7/24/2018 | 0 | 0.04 |
| 7/25/2018 | 0.54 | 0.29 |
| 7/26/2018 | 0.05 | 0.06 |
| 7/27/2018 | 0.42 | 0.12 |
| 7/28/2018 | 0 | 0.01 |
| 7/29/2018 | 0 | 0 |
| 7/30/2018 | 0 | 0 |
| 7/31/2018 | 0 | 0.01 |
| 8/1/2018 | 0.17 | 0.82 |
| 8/2/2018 | 0.14 | 0.85 |
| 8/3/2018 | 0.03 | 0.21 |
| 8/4/2018 | 0.61 | 1.29 |
| 8/5/2018 | 0 | 0.01 |
| 8/6/2018 | 0 | 0 |
| 8/7/2018 | 0.67 | 0.02 |
| 8/8/2018 | 0 | 0.31 |
| 8/9/2018 | 0.15 | 0.02 |

At times the precipitation received caused a rise in groundwater levels was observed in the piezometers and in several of the bedrock wells during the data collection period. The most notable rise was observed on August 4th, after the end of the test on Well 3, which corresponds to the largest rain event record during the data collection period at the Bedford11 station. A discussion of the precipitation's effect on water levels are provided in the sections below. Although there was some effect on water levels, the precipitation did not affect the interpretation of the pumping test data collected.

Water samples were collected from Wells 2, 3 and 4 during their respective 72-hour pumping tests for analysis for all parameters required by the NYSDOH Sanitary Code Part 5, Subpart 5-1. Microscopic particulate analysis (MPA) and giardia and cryptosporidium samples were also collected from Well 2 to assess the potential for groundwater under the direct influence of surface water (GWUDI) because the well is located within 200 feet of a surface-water feature. The MPA sample was collected from the well using the EPA Consensus Method which requires the flow of water through a filter at 1 gpm for a time period ranging from 8 to 24 hours. The water samples were taken to Envirotest Laboratories, Inc. located in Newburgh, New York for analysis. Copies of the laboratory reports from the samples collected are included in Appendix V.

# 5.0 72-HOUR PUMPING TEST ON WELLS 2 AND 4

A simultaneous 72-hour pumping test on Wells 2 and 4 was conducted between July 23 through July 26, 2018 to demonstrate the combined yield of the wells. The test began at 13:01 on July 23 with the start of the pump in Well 4. After one hour of pumping in Well 4, the pump in Well 2 was started at 14:02. The wells were pumped concurrently for 72 hours until shut down of the test at 14:12 on July 26. The final stabilized pumping rates in Wells 2 and 4 at the end of the pumping test period were 5.3 gpm and 8.3 gpm for a combined 13.6 gpm or 19,584 gpd.

## 5.1 Well 2

The pump in Well 2 was started at 14:02 on July 23, 2018. The static water level in Well 2 prior to the start of pumping was 12.25 ft btoc (feet below top of casing). The water level in Well 2 prior to the start of the pump in Well 4 was also 12.25 ft btoc, so no drawdown was measured in Well 2 during the one hour staggered start period between the wells.

The pumping rate in Well 2 was set at 5.5 gpm at the start of the test. The pumping rate in Well 2 decreased slight during the afternoon of July 23 as a result of the loss of pressure head over the pump as the water level in the well declined, so one pumping rate increase was conducted during the evening of July 23. As the well continued to pump, the rate in the well slowly decreased reaching 5.3 gpm on the morning of July 25. The pumping rate in Well 2 remained stable at 5.3 gpm for the duration of the pumping period.

The pump in Well 2 was shut down at 14:13 on July 26 after 72 hours and 11 minutes of pumping. The final water level in Well 2 at the end of the test was 121.65 ft btoc for a total drawdown of 109.40 feet. The water-level change over the last 6 hours of pumping in Well 2 was 1.51 feet, which meets the stabilization criteria of less than 0.5 foot per 100 feet of available drawdown in the well. Because the water-level trend was slightly downward at the end of the test period, a 180-day water-level drawdown projection was completed for Well 2 using the data from the final 6 hours of the test to assess the water level in the well after 180 days of continuous pumping. A copy

of the 180-day water-level drawdown projection graph is included in Appendix II. Based on the projection graph, the water level in the well after 180 days is 189.07 ft btoc which leaves approximately 415 feet of available drawdown in the water column which supports that the well can maintain a yield of 5.3 gpm.

The water level in Well 2 after shut down of the well pump reached 90% recovery to its pre-test level approximately 25 hours after the end of the test.

The precipitation did not appear to have any notable effect on the water level in Well 2. During the background period, the water-level trend in the well was on an overall slight decline. The drawdown curve on the Well 2 once the well started pumping was relatively smooth, apart from the start and stop of the MPA filtration on the well. No breaks in trend on the hydrograph or 180-day projection graph were evident that would indicate interference from a significant aquifer recharge event. The recovery trend in the well was also smooth through July 31 when the test was started on Well 3. A change in the trajectory of the recovery trend in the well at the start of pumping in Well 3 indicates slight pumping-related interference from Well 3. When pumping in Well 3 ended, the slight rising trend in the water level in Well 2 increased immediately, supporting that there was slight inference from Well 3 pumping.

## 5.2 Well 4

The pump in Well 4 was started at 13:01 on July 23. The static water level in Well 4 prior to the start of pumping was 16.47 ft btoc. Following startup of the well pump, the pumping rate in Well 4 was adjusted during the early minutes of the test to 8.8 gpm. Two rate adjustments were completed on Well 4 at approximately 15:00 and 17:00 on July 23 to maintain the pumping rate in the well as the pressure head over the pump decreased. After the second pumping rate adjustment, the rate was allowed to decline slightly with no further adjustments until it reached 8.3 gpm on the morning of July 25. The pumping rate in Well 4 remained stable at 8.3 gpm for the duration of the pumping period.

The pump in Well 4 was shut down at 14:12 on July 26 after 73 hours and 11 minutes of pumping. The final water level in Well 4 at the end of the test was 185.38 ft btoc for a total drawdown of 168.91 feet. The water-level change over the last 6 hours of pumping in Well 4 was 2.79 feet, which meets the stabilization criteria of less than 0.5 foot per 100 feet of available drawdown in the well. Because the water-level trend was slightly downward at the end of the test period, a 180-day water-level drawdown projection was completed for Well 4 using data from the final 6 hours of the test to assess the water level in the well after 180 days of continuous pumping. The graph for the 180-day projection is included in Appendix II. Based on the projection graph, the water level in the well after 180 days is 318 ft btoc which leaves approximately 432 feet of available drawdown in the water column which supports that the well can maintain a yield of 8.3 gpm.

The water level in Well 4 after shut down of the well pump reached 90% recovery to its pre-test level approximately 68.5 hours after the end of the test.

The precipitation received did not appear to have a notable effect on the water level in Well 4 during the data collection period. During the background period, the water level trend in the well was relatively level and the drawdown curve for the Well 4 once the well started pumping was smooth. No breaks in trend were evident on the hydrograph or 180-day projection that would indicate interference from a significant aquifer recharge event. The recovery trend in the well was also smooth through July 30 when the pump was removed from the well. Well 4

was effected by pumping in Well 3, but the drawdown and recovery of the water level in Well 4 were also smooth during the test event on Well 3 with no breaks in the trends.

# 6.0 72-HOUR PUMPING TEST ON WELL 3

The 72-hour individual pumping test on Well 3 was conducted between July 31 and August 3, 2018. The test began at 9:59 on July 31 with the start of the pump in Well 3. The well pumped for 72 hours until shut down of the test at 10:05 on August 3. The final stabilized pumping rate in Well 3 at the end of the pumping test period was 8.5 gpm or 12,240 gpd, which demonstrated Well 3 as the best well.

## 6.1 Well 3

The pump in Well 3 was started at 9:59 on July 31. The water level in Well 3 prior to the start of pumping on July 31 was 18.65 ft btoc. The pumping rate in Well 3 was adjusted during the early minutes of the test to 9.2 gpm. After the initial adjustments, the rate was allowed to decline slightly as result of the pressure head loss over the pump until it reached 8.5 gpm on the afternoon of August 1. The pumping rate in Well 3 remained stable at 8.5 gpm for the duration of the pumping period.

The pump in Well 3 was shut down at 10:05 on August 3 after 72 hours and 6 minutes of pumping. The final water level at the end of the test was 188.50 ft btoc for a total drawdown of 169.85 feet. The water-level change over the last 6 hours of pumping in Well 3 was 1.84 feet, which meets the stabilization criteria of less than 0.5 foot per 100 feet of available drawdown in the well. Because the water-level trend was slightly downward at the end of the test period, a 180-day water-level drawdown projection was completed for Well 3 using data from the final 6 hours of the test to assess the water level in the well after 180 days of continuous pumping. The graph for the 180-day projection is included in Appendix II. Based on the projection graph, the water level in the well after 180 days is 272.59 ft btoc which leaves approximately 217 feet of available drawdown in the water column which supports that the well can maintain a yield of 8.5 gpm.

The water level in Well 3 after shut down of the well pump reached 90% recovery to its pre-test level approximately 49.5 hours after the end of the test.

The precipitation received did not appear to have a notable effect on the water level in Well 3 during the data collection period. During the background period, the water level trend in the well was slightly upward. Well 3 was effected by pumping in Well 4, but the drawdown and recovery in Well 3 during the test period on Wells 2 and 4 were smooth with no breaks in trend evident that would indicate interference from a significant aquifer recharge event. The recovery trend in the well was smooth through July 30 when the pump was installed in Well 3. During the pumping test on Well 3, the drawdown and recovery curves in Well 3 showed no breaks in trend on the hydrograph or 180-day projection graph that would indicate interference from a significant aquifer recharge event.

# 7.0 MONITORING WELLS

Water-level measurements were collected from one onsite monitoring well, Well 1, and four offsite residential wells during the pumping test program. In addition, during the pumping test on Wells 2 and 4, Well 3 was used as a monitoring well to assess onsite water-level drawdown, and during the test on Well 3, Wells 2 and 4 were used as onsite monitoring wells. The locations of the monitoring wells are shown on figure 2 and the hydrographs for Well 1 and the four offsite residential wells along with a table of manual water-level measurements collected are included in Appendix III.

Permission request letters were sent via certified mail to 21 property owners with properties located within approximately 2,000 feet of the proposed pumping wells in March 2018. A total of six property owners provided signed authorization forms permitting water-level data collection from their wells. However, two of the properties at 191 and 195 Goldens Bridge Road had wells that were inaccessible for the installation of water-level monitoring equipment. A second letter dated July 9, 2018 was also sent to the same 21 property owners notifying them of the planned upcoming test schedule.

Water-level monitoring equipment installation was completed on July 19, 2018 to begin the background data collection prior to the first pumping test on Wells 2 and 4. The water-level equipment remained in the wells until August 7, 2018 when removal of the equipment began after the end of the pumping test and recovery period for Well 3.

The table below contains a summary of the well measured during the pumping test period and the drawdown observed, if any.

**Table 3: Monitoring Well Locations**

| Well Name | Drawdown Measured During Pumping Test on Wells 2 and 4 (feet) | Drawdown Measured During Pumping Test on Well 3 (feet) |
|---|---|---|
| Well 2 | -- | 0.8 |
| Well 3 | 119.3 | -- |
| Well 4 | -- | 104.3 |
| Well 1 | 26.8 | 1.4 |
| 5 Todd Road | ND | ND |
| 15 Todd Road | ND | ND |
| 25 Todd Road | ND | ND |
| 203 Goldens Bridge Road | ND | ND |

ND none discernible

Water-level drawdown was measured in onsite monitoring Well 1 during both well testing periods. During the pumping test on Wells 2 and 4, 26.8 feet of drawdown was measured in Well 1. The drawdown measured in Well 1 during this test is mainly attributed to the pumping in Well 2. The water-level recovered after the end of the test on Wells 2 and 4 and had reached approximately 97% of its pre-test level when the pump in Well 3 was started. A small amount of water-level drawdown was also measured in Well 1 during the test on Well 3. Accounting for

the slight rising trend in Well 1 at the start of the test on Well 3, the total drawdown in Well 1 measured during the test on Well 3 was approximately 1.4 feet.

Water-level drawdown was measured in onsite Well 3 during the pumping test on Wells 2 and 4. The water level in Well 3 declined 119.3 feet, and the drawdown was mainly attributed to pumping in Well 4.

Water-level drawdown was also measured in Wells 2 and 4 during the pumping test on Well 3. Well 2 had approximately 0.8 feet of drawdown and Well 4 had 104.3 feet of drawdown that is attributed to pumping in Well 3.

During both pumping tests, water-level measurements were collected from the existing offsite residential wells at 203 Goldens Bridge Road, 5 Todd Road, 15 Todd Road, and 25 Todd Road. The hydrographs for these wells show the cycling of their individual well pumps turning on and off providing water to the residences. The wells also show a response to precipitation received which is discussed individually for each well below. No discernible drawdown was measured in any of the four offsite wells that is attributed to pumping in the onsite Wells 2, 3 and 4 during the pumping test period.

During the background data collection period prior to that start of the pumping test on Wells 2 and 4, the static water level in the well at 203 Goldens Bridge Road ranged from 13.4 ft btoc to 13.8 ft btoc. During the pumping test on Wells 2 and 4, the static water level in the well remained within a similar range of 13.3 ft btoc to 13.6 ft btoc. After the end of the test on Wells 2 and 4, the static water level ranged from 13.3 ft btoc to 13.6 ft btoc between July 26 through July 30. On July 30, prior to the start of the test on Well 3, a slight drawdown trend in the water level began that continued until August 1, bringing the static water level down to approximately 14.0 ft btoc for an overall change of about 0.5 feet. On August 1 the trend reversed and the water level began a rise back to 13.6 ft btoc. The slight water-level changes observed in this well during the data collection period do not correspond to the start or stop of pumping in the onsite pumping wells during the 72-hour pumping tests, and do not appear to be attributed to pumping in the onsite wells. On August 4 approximately 20 hours after the end of the pumping test on Well 3, the static water level in the well began to rise reaching 12.6 ft btoc. This final rise is attributed to the precipitation event which occurred on August 4.

During the background data collection period prior to that start of the pumping test on Wells 2 and 4, the static water level in the well at 5 Todd Road ranged from approximately 38.3 ft btoc to 42.5 ft btoc. The wider range of static water levels in this well is related to the frequency and duration of the pumping cycles supplying water to the residence. The static water level during the daytime appears to decline as a result of increased pumping frequency and the water level during the overnight period would rise. This resulted in general daily up and down cyclical pattern in the static water level in this well throughout the data collection period. During the pumping test on Wells 2 and 4, the static water level in the well remained within a similar range as the background water levels between 38.7 ft btoc to 42.0 ft btoc, with an overall slight rising trend throughout the test period. After the end of the test on Wells 2 and 4, the static water level in the well continued the rising trend and reached a height of 35.7 ft btoc. This rise may have been precipitation related. The static water level in the well began to decline on July 28 and dropped to a range of 39.2 ft btoc to 43.5 ft btoc between July 29 and July 30 prior to the test on Well 3. During the pumping test on Well 3, the static water level in the well ranged from 40.0 ft btoc to 43.5 ft btoc. After the test on Well 3 ended, the static water level ranged from 37.8 ft btoc to 42.4 ft btoc with a general overall rising trend that is likely attributed to the August 4 precipitation event. The water-level changes in this well do not correspond to the start or stop of pumping in the onsite pumping wells during the 72-hour pumping tests, and no discernible drawdown in this well is attributed to pumping in the onsite wells.

During the background data collection period prior to that start of the pumping test on Wells 2 and 4, the static water level in the well at 15 Todd Road ranged from approximately 41.9 ft btoc to 46.7 ft btoc. The wider range of static water levels in this well is related to the frequency and duration of the pumping cycles supplying water to the residence. Overall, the static water level during the daytime appears to decline as a result of increased pumping frequency and the water level during the overnight period would rise. This resulted in general daily up and down cyclical pattern in the water level in this well throughout the data collection period. During the pumping test on Wells 2 and 4, the static water level in the well remained within a similar range to the background levels between 42.2 ft btoc to 47.0 ft btoc, with a very slight declining trend that began on July 22 during the background period and continued throughout the test in to the recovery period on July 27. The static water level in the well began to rise slightly on July 28 and 29 which may have been precipitation related. The rising trend ended on July 29. During the pumping test on Well 3, the water level in the well ranged from 41.9 ft btoc to 47.4 ft btoc. The trend in the water level was relatively level during this pumping period and the level trend continued into the post-test period until the rain event on August 4 which appears to have caused a rise in the static water level in this well. The water-level changes in this well do not correspond to the start or stop of pumping in the onsite pumping wells for the 72-hour pumping test, and no discernible drawdown in this well is attributed to pumping in the onsite wells.

During the background data collection period prior to that start of the pumping test on Wells 2 and 4, the static water level in the well at 25 Todd Road ranged from approximately 29.7 ft btoc to 31.0 ft btoc. During the pumping test on Wells 2 and 4, the static water level in the well remained within a similar range of 29.5 ft btoc to 31.0 ft btoc. After the end of the test on Wells 2 and 4 on the evening on July 26, the well pump began to cycle frequently in this well resulting a temporary drop in the static water level to between 31.5 ft btoc to 32.5 ft btoc. The frequent cycling ended on July 27 and the static water level rose back to a height of 29.7 ft btoc on July 29. During the pumping test on Well 3, the static water level in the well ranged from 30.1 ft btoc to 30.5 ft btoc. The trend in the water level was relatively level during this pumping period and the level trend continued into the post-test period until the rain event on August 4 which resulted in a rising in the static water level in this well. There was one interruption of the level water-level trend in the well on August 2 when a drawdown and recovery pattern is observed. This occurrence is not related to the start or stop of pumping on the study property, and is likely related to water use by another nearby residence. The water-level changes in this well do not correspond to the start or stop of pumping in the onsite pumping wells for either 72-hour pumping test, and no discernible drawdown in this well is attributed to pumping in the onsite wells.

## 7.1 Piezometers

A nested pair of piezometers was installed at in the onsite wetland at location PZ-1 shown on figure 1. A nested pair was installed to allow for an assessment of groundwater gradient at the monitoring location because no surface water was present at the time the piezometers were installed. Surface water at the piezometer location was dry for the majority of the data collection period, with the exception of brief periods on July 23 and August 3. The shallower piezometer was installed with the top of screen approximately 1.7 feet below grade and the deeper piezometer was set with the top of screen at approximately 3.4 feet below grade.

The water level during the background data collection period was rising in both piezometers. In the shallow screened piezometer, a slight rising trend in the water level continued throughout the test on Wells 2 and 4 and into

the recovery period through July 27. Between July 27 and August 1, the water level in the shallow piezometer began a slight declining trend, which was ended by the rain event on August 1. A rise in water level resumed on August 1 that continued throughout the recovery period following the end of the test on Well 3. The water-level data in the shallow screened piezometer appears to show natural changes in water-level trends based on the regional precipitation conditions, with no abrupt changes corresponding to the start or stop of pumping in the onsite pumping wells. No discernible drawdown in this piezometer was observed that is attributed to pumping in the onsite wells.

In the deeper screened piezometer, a rising water-level trend was measured during the background data collection period which continued throughout the test on Wells 2 and 4 and into the recovery period through July 30. Between July 30 and August 1, the water level in the deeper piezometer remained relatively level. A rising trend in water level resumed on August 1 that continued throughout the recovery period following the end of the test on Well 3. The water-level data in the deeper screened piezometer appears to show natural changes in water-level trends based on the regional precipitation conditions, with no abrupt changes corresponding to the start or stop of pumping in the onsite pumping wells. No discernible drawdown in this piezometer was observed that is attributed to pumping in the onsite wells.

The gradient between the shallow and deeper screened piezometers was downward throughout the data collection period and no discernible changes occurred in the gradient that are attributed to pumping in the onsite wells. The groundwater levels in both the shallow and deeper screened piezometers were below the ground surface level, which is consistent with the absence of surface water for the majority of the test period.

# 8.0 WATER QUALITY

Water samples were collected from Wells 2, 3 and 4 during their respective 72-hour pumping tests. The water samples were submitted to Envirotest Laboratories, Inc. in Newburgh, New York for analysis for all parameters listed in the NYSDOH Sanitary Code, Part 5, Subpart 5-1. Samples for MPA, giardia and cryptosporidium analyses was also collected from Well 2 because the well is located within 200 feet of a surface water body. The laboratory reports for Wells 2, 3 and 4 are included in Appendix V.

The sample results from Wells 2, 3, and 4 reported the presence of total coliform. The wells will need to be disinfected and resampled prior to being placed into service.

Well 2 reported a somewhat elevated turbidity concentration of 2.85 nephelometric turbidity units (NTU), the iron concentration was 0.865 mg/L (milligrams per liter) which exceeds the iron maximum contaminant level (MCL) of 0.3 mg/L, and the combined iron and manganese concentration was 0.989 mg/L which exceeds the combined iron and manganese MCL of 0.5 mg/L. The elevated turbidity is likely the cause of the elevated iron concentration reported. Additional pumping to further develop Well 2 to clear the residual turbidity is recommended. The additional development will likely result in a reduction of the turbidity concentration and the associated iron and combined iron and manganese concentrations.

The remaining water-quality results for Wells 2, 3 and 4 met all NYSDOH drinking water standards. The results for the MPA sample collected from Well 2 were low risk for potential GWUDI, and no giardia or cryptosporidium were detected in the Well 2 sample.

# 9.0 CONCLUSIONS

- A simultaneous 72-hour pumping test was conducted on Wells 2 and 4 between July 23 and 26, 2018. The stabilized pumping rates for Wells 2 and 4 were 5.3 gpm and 8.3 gpm, respectively, for a combined 13.6 gpm. The wells demonstrated 6+ hours of stabilized yield and water-level drawdown at their respective pumping rates. The 180-day water-level drawdown projections for both wells also show a significant amount of available drawdown in the wells after 180 days of pumping, supporting that the wells can maintain these pumping rates.

- An individual pumping test was conducted on Well 3 from July 31 through August 3, 2018 to demonstrate it as the best well. The stabilized pumping rate for Well 3 were 8.5 gpm and the well demonstrated 6+ hours of stabilized yield and water-level drawdown. A 180-day water-level drawdown projection for the well also shows a significant amount of available drawdown in the well after 180 days of pumping, supporting that the well can maintain the pumping rate of 8.5 gpm.

- The combined yield of Wells 2 and 4 of 13.6 gpm or 19,584 gpd is more than sufficient to meet twice the average water demand of 84 bedrooms of 18,480 gpd. The individual yield of Well 3 at 8.5 gpm (12,240 gpd) successfully demonstrated it as the best well. Therefore, the 72-hour pumping tests successfully demonstrated that the yields of Wells 2, 3 and 4 can meet twice the project's average water demand with the best well out of service.

- Water-level recovery measurements were collected after the shutdown of the pumping tests. Well 2 reached 90% recovery 25 hours after the end of pumping, Well 3 after 49.5 hours and Well 4 after 68.5 hours.

- Water-level measurements were collected from the onsite monitoring wells during both pumping test periods. During the pumping test on Wells 2 and 4, drawdown in Well 1 was 26.8 feet which was mainly attributed to pumping in Well 2, and in Well 3 drawdown was 119.3 feet which was attributed to pumping in Well 4. During the pumping test on Well 3, water-level drawdown in Wells 1 and 2 was small at approximately 1.4 feet and 0.8 feet, respectively, and the drawdown measured in Well 4 was 104.3 feet.

- Water-level measurements were collected from four offsite residential wells during the pumping test periods. There was no discernible drawdown measured in any of the wells that is attributed to pumping in the onsite wells during the pumping test periods.

- A nested pair of piezometers were installed in the wetland to the south of the pumping wells. The water levels in the piezometers showed natural changes in water-level trends based on regional precipitation conditions. No discernible drawdown was measured that is attributed to pumping in the onsite wells.

- Water samples were collected from Wells 2, 3 and 4 during their respectively pumping tests. The water samples were submitted to Envirotest Laboratories, Inc. in Newburgh, New York for analysis for all parameters listed in the NYSDOH Sanitary Code, Part 5, Subpart 5-1. The sample results from Wells 2, 3, and 4 reported the presence of total coliform. The wells will need to be disinfected and resampled prior to being placed into service. Well 2 reported a somewhat elevated turbidity concentration of 2.85 NTU, the iron concentration was 0.865 mg/L which exceeds the iron MCL of 0.3 mg/L, and the combined iron and manganese concentration was 0.989 mg/L which exceeds the combined iron and manganese MCL of 0.5 mg/L. The elevated turbidity is likely the cause of the elevated iron concentration reported. Additional pumping to further develop Well 2 to clear the residual turbidity is recommended. The additional development will likely result in a reduction of the turbidity concentration and the associated iron and combined iron/manganese concentrations. The remaining water-quality results for Wells 2, 3 and 4 met all NYSDOH drinking water standards.

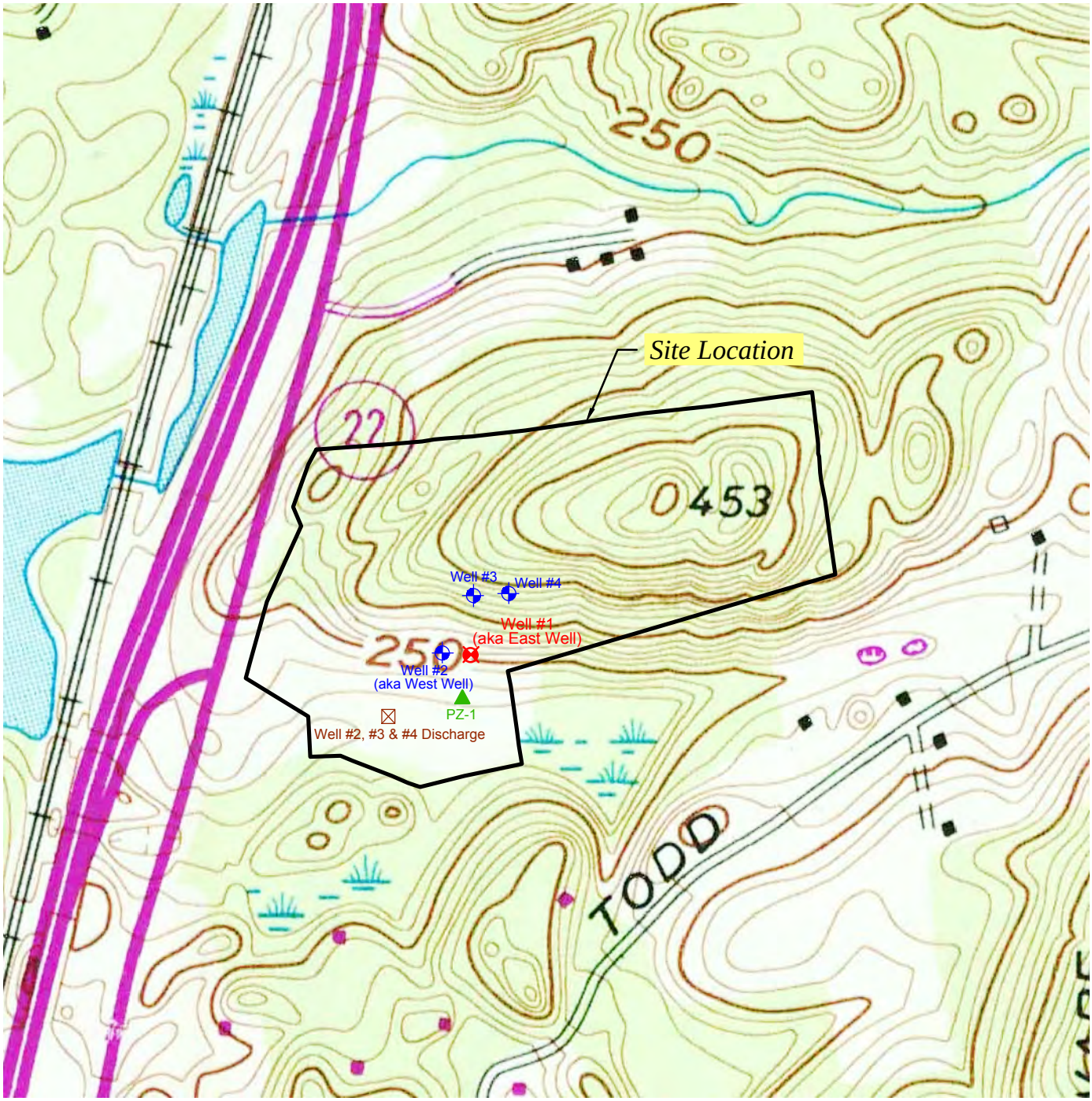
- Samples for MPA, giardia and cryptosporidium analyses was collected from Well 2 because the well is located within 200 feet of a surface water body. The results for the MPA sample collected from Well 2 reported low risk for potential GWUDI, and no giardia or cryptosporidium were detected.

cmm

September 11, 2018

H:\Wilder Balter\Lewisboro\2018\72-Hour Pumping Test Report\Final.docx

# I RES




SOURCE: USGS TOPOGRAPHIC QUADRANGLE CROTON FALLS, NEW YORK (PHOTOREVISED 1981).

LEGEND

- PROPERTY BOUNDARY
- PUMPING WELL
- ONSITE MONITORING WELL
- APPROXIMATE WELL DISCHARGE LOCATION
- APPROXIMATE PIEZOMETER LOCATION


QUADRANGLE LOCATION

N

0 500

SCALE IN FEET

# WILDER BALTER PARTNERS
# ROUTE 22
# LEWISBORO, NEW YORK

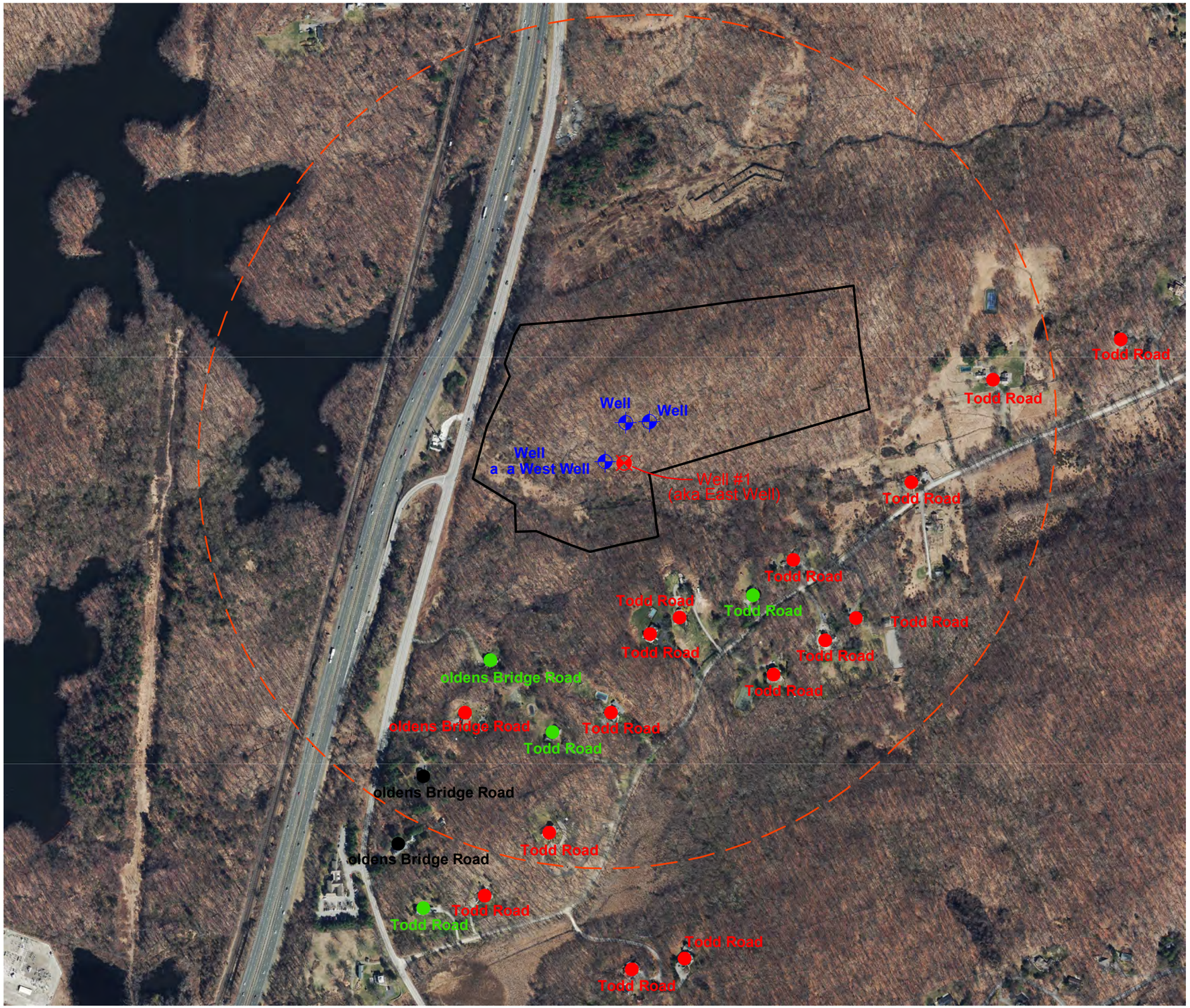
## SITE LOCATION MAP

| DATE | REVISED |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

PREPARED BY:
LBG HYDROGEOLOGIC & ENGINEERING SERVICES, P.C.
Professional Geologists & Environmental Engineers
Member of WSP
4 Research Drive
Suite 204
Shelton, Connecticut 06484
(203) 929-8555

| DRAWN: | RAC | CHECKED: | SS | DATE: | 08/15/18 | FIGURE: | 1 |
|---|---|---|---|---|---|---|---|

O:\DWG\Wilder Balter Partners\2018\F1_SLM_Discharge.dwg, Layout1, 8/15/2018 1:59:41 PM, AcroPlotTempDWF13704.pc3




LEGEND

- PROPERTY BOUNDARY
- PUMPING WELL
- ONSITE MONITORING WELL
- 2,000-FOOT RADIUS - WELLS 2, 3 AND 4
- OFFSITE PROPERTY CONTACTED FOR PARTICIPATION IN OFFSITE WELL MONITORING PROGRAM, NO RESPONSE RECEIVED TO CERTIFIED LETTER SENT
- OFFSITE PROPERTY INCLUDED IN OFFSITE WELL MONITORING PROGRAM
- OFFSITE PROPERTY CONTACTED FOR PARTICIPATION IN OFFSITE WELL MONITORING PROGRAM, INSPECTION CONDUCTED BY LBGHES. WELL IS INACCESSIBLE FOR MONITORING PROGRAM

0 500
SCALE IN FEET

WILDER BALTER PARTNERS
ROUTE 22
LEWISBORO, NEW YORK

OFFSITE WELL MONITORING PROGRAM

| DATE | REVISED |
|---|---|
| | |
| | |
| | |
| | |
| | |

PREPARED BY:
LBG HYDROGEOLOGIC & ENGINEERING SERVICES, P.C.
Professional Geologists & Environmental Engineers
Member of WSP
4 Research Drive
Suite 204
Shelton, Connecticut 06484
(203) 929-8555

| DRAWN: | RAC | CHECKED: | SS | DATE: | 08/15/18 | FIGURE: | 2 |
|---|---|---|---|---|---|---|---|

O:\DWG\Wilder Balter Partners\2018\F2_OffsiteMonitoringProgram.dwg, Layout1, 8/15/2018 2:35:14 PM, PDF-XChange for AcroPlot Pro

# PPE DI I

WESTCHESTER COUNTY DEPARTMENT OF HEALTH
Division of Environmental Quality

## WELL COMPLETION REPORT

report is to be completed be well driller and submitted to Health Department, together with ratory report of analysis of water sample indicating water is of satisfactory bacterial ity, before certificate of construction compliance is issued.

Well construction to be in accordance with Bulletin SD-62
"RULES & REGULATIONS RELATING TO INDIVIDUAL WATER SUPPLIES"

ell #2

TION: MUNICIPALITY: Goldens Bridge SECTION: _____ BLOCK: _____ LOT: _____

OWNER: Country Epicure, Route 22, Goldens Bridge, NY
Name — Street Address — City and Town

DRILLER: P.F. Beal & Sons, Inc., PO Box B., Brewster, NY
Name — Street Address — City and Town

| CASING DETAILS | YIELD TEST | WATER LEVEL | SCREEN DETAILS |
|---|---|---|---|
| h: 64 Feet | ___ Bailed or X Pumped 6 Hours | (measure from land surface) Static: 35 Feet | Make: |
| ter: 6 Inches | Yield: 5 G.P.M. | When ~~Bailed~~ or Pumped 585 Feet | Length: Ft. / Slot Size |
| Heavy Duty Seamless Steel | | | Diameter In. |

, DEPTH OF WELL: 605' FEET

## WELL LOG

| th From d Surface | Give description of formations penetrated, such as: peat, silt, sand, gravel, clay, hardpan, shale, sandstone, granite, etc. Include size of gravel (diam.) and sand (fine, medium, coarse), color of material, structure (loose, packed cemented, soft, hard). For example: 0 ft. to 27 ft. fine, packed, yellow sand. 27 ft. to 134 ft. gray granite. |
|---|---|
| t. to 35 Ft. | Drilling in clay and boulders |
| t. to Ft. | Hit rock at 35 feet |
| t. to 64 Ft. | Drilling in rock, set casing, grouted. |
| t. to 605 Ft. | Drilling in rock granite. |
| t. to Ft. | |
| t. to Ft. | |
| t. to Ft. | |
| t. to Ft. | |

Well Was Completed: 3/26/87 Date of Report: 6/4/87

Well Driller: _____

| Westchester gov.com | **Westchester County Department of Health**<br>*Bureau of Environmental Quality* |
|---|---|

**WELL COMPLETION REPORT:** WCDH File No. C-17-026

This report is to be completed by well driller and submitted to Health Department, together with laboratory report of analysis of water sample indicating water is of satisfactory bacterial quality, before certificate of construction compliance is issued.

Well construction to be in accordance with Westchester County Health Dept. Rules & Regulations for the Design and Construction of Residential Subsurface Sewage Treatment System and Drilled Wells in Westchester County, NY.

Located at: WBP, Lewisboro Apts, Rt.22 Well #3 Section: 5 Block: 10766

Well Location Municipality: Lewisboro, NY Lot: 19-20-21

Owners Name: Wilder Balter Partners, Inc Atn: John Bainlardi

Owners Address: 570 Taxter Rd., Ste. 673, Elmsford, NY 10523

Well Driller (WD) Company Name: *P. F. Beal & Sons, Inc.*

**Well Pit and Pump Equipment:** Pitless Adapter: Other - Describe:

Pump Make: Pump Type: Pump Capacity: Pump GPM:

Storage Tank Type: Storage Tank Capacity:

**Well Details:**

| | | | | | |
|---|---|---|---|---|---|
| Casing Length: | 103 Ft. | Yield Test Type: | Airlift | Measured from Land Surface | |
| Casing Diameter: | 6 in. | Yield Test Duration: | 6 Hrs. | Water Level, Static: | 4' |
| Casing Material: | Steel | Well Yield: | 20+ G.P.M. | Water Level, Pumped: | 450' |
| Screen Make: | N/A | Screen Diameter: | Inches | | |
| Screen Length: | Ft. | Screen Slot Size: | | **TOTAL WELL DETPH:** | 490' |

*WELL LOG:*

| Depth From Ground Surface | Give description of formation penetrated, such as: peat, silt, sand, gravel, clay, hardpan, shale, sandstone, granite, etc. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard): For example: 0 ft. to 27 ft. fine, packed, yellow sand; 27ft. to 134 ft. gray granite. |
|---|---|

| | | |
|---|---|---|
| 0' to 30' | Well Geology, 1st Strata: | Drilling in overburden, clay, and boulders |
| | Well Geology, 2nd Strata: | Hit rock at 30' |
| 30' to 103' | Well Geology, 3rd Strata: | Drilling in rock, set casing, grouted |
| 103' to 490' | Well Geology, 4th Strata: | Drilling in rock granite |
| | Well Geology, 5th Strata: | |

I certify that the individual water supply indicated above was installed as per the Westchester County Health Department Rules & Regulations for the Design and Construction of Residential Subsurface Sewage Treatment System and Drilled Wells in Westchester County, NY.

Date Well Was Completed: 9/21/2017 Date of Signature: 10-13-2017

NYSDEC Registration #: NYRD10105 Well Driller Signature:

Christopher Beal

| Westchester gov.com | **Westchester County Department of Health**<br>*Bureau of Environmental Quality* |
|---|---|

**WELL COMPLETION REPORT:** WCDH File No. C-17-026

This report is to be completed by well driller and submitted to Health Department, together with laboratory report of analysis of water sample indicating water is of satisfactory bacterial quality, before certificate of construction compliance is issued.

Well construction to be in accordance with Westchester County Health Dept. Rules & Regulations for the Design and Construction of Residential Subsurface Sewage Treatment System and Drilled Wells in Westchester County, NY.

Located at: WBP, Lewisboro Apts., Rt.22, Well #4 Section: 5 Block: 10766

Well Location Municipality: Lewisboro, NY Lot: 19-20-21

Owners Name: Wilder Balter Partners, Inc. Attn: John Bainlardi

Owners Address: 570 Taxter Rd., Ste 673, Elmsford, NY 10523

Well Driller (WD) Company Name: *P. F. Beal & Sons, Inc.*

**Well Pit and Pump Equipment:** Pitless Adapter: Other - Describe:

Pump Make: Pump Type: Pump Capacity: Pump GPM:

Storage Tank Type: Storage Tank Capacity:

**Well Details:**

Casing Length: 101 Ft. Yield Test Type: Airlift Measured from Land Surface

Casing Diameter: 6 in. Yield Test Duration: 6 Hrs. Water Level, Static: 40'

Casing Material: Steel Well Yield: 16 G.P.M. Water Level, Pumped: 710'

Screen Make: N/A Screen Diameter: Inches

Screen Length: Ft. Screen Slot Size: **TOTAL WELL DETPH:** 750'

*WELL LOG:*

| Depth From Ground Surface | Give description of formation penetrated, such as: peat, silt, sand, gravel, clay, hardpan, shale, sandstone, granite, etc. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard). For example: 0 ft. to 27 ft. fine, packed, yellow sand; 27ft. to 134 ft. gray granite. |
|---|---|

| | | |
|---|---|---|
| 0' to 15' | Well Geology, 1st Strata: | Drilling in overburden, clay, and boulders |
| | Well Geology, 2nd Strata: | Hit rock at 15' |
| 15' to 101' | Well Geology, 3rd Strata: | Drilling in rock, set casing, grouted |
| 101' to 750' | Well Geology, 4th Strata: | Drilling in rock granite |
| | Well Geology, 5th Strata: | |

I certify that the individual water supply indicated above was installed as per the Westchester County Health Department Rules & Regulations for the Design and Construction of Residential Subsurface Sewage Treatment System and Drilled Wells in Westchester County, NY.

Date Well Was Completed: 11/202017 Date of Signature: 11/29/2017

NYSDEC Registration #: NYRD10105 Well Driller Signature:

Christopher Beal

# PPE DI II

WE

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

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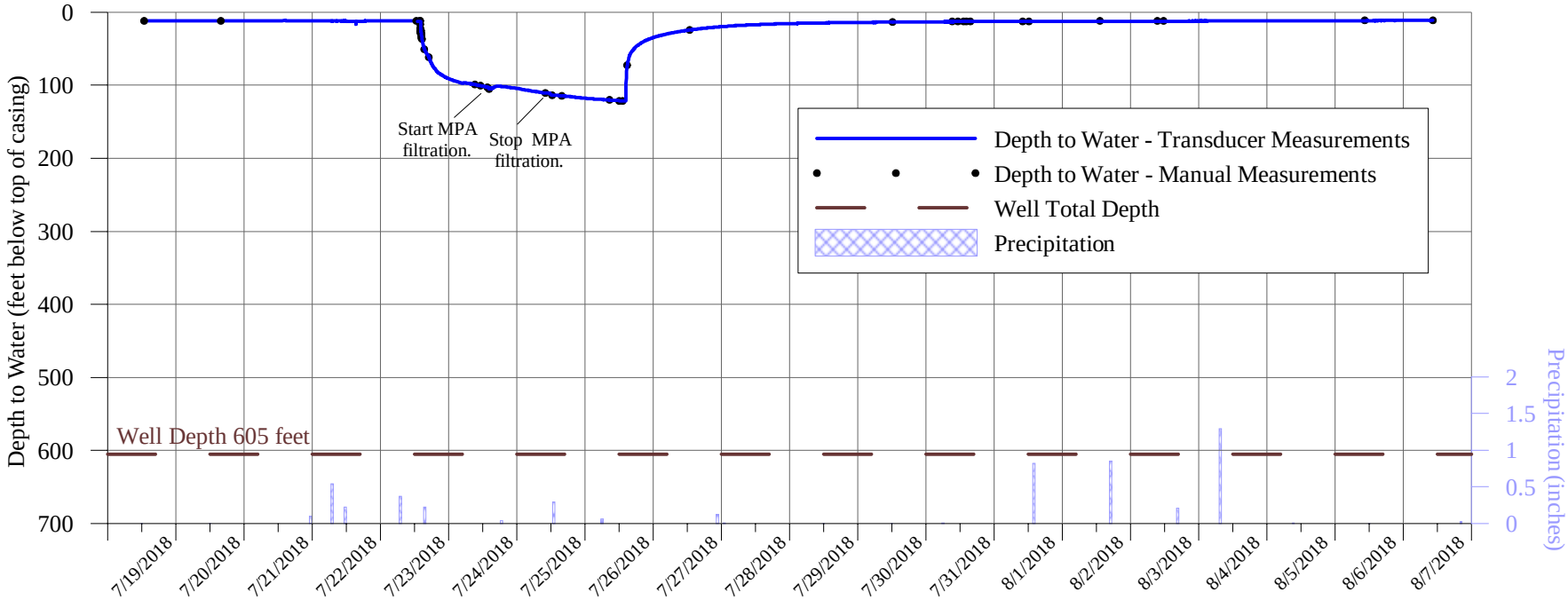
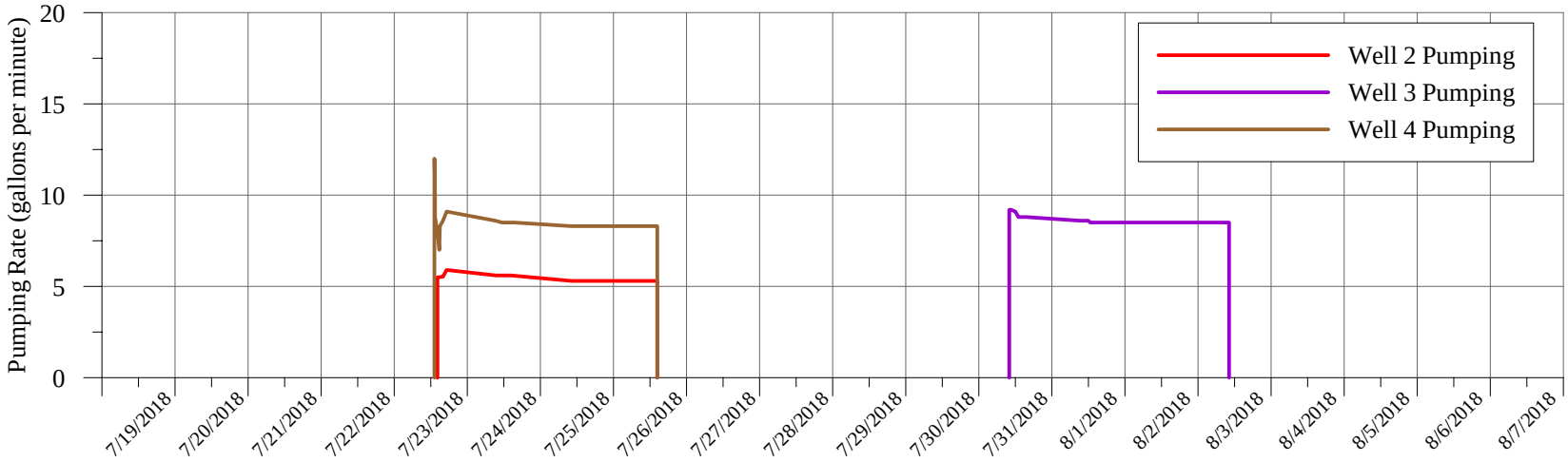
## Hydrograph of Water-Level Measurements Collected from the Onsite Pumping Well 2, During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018

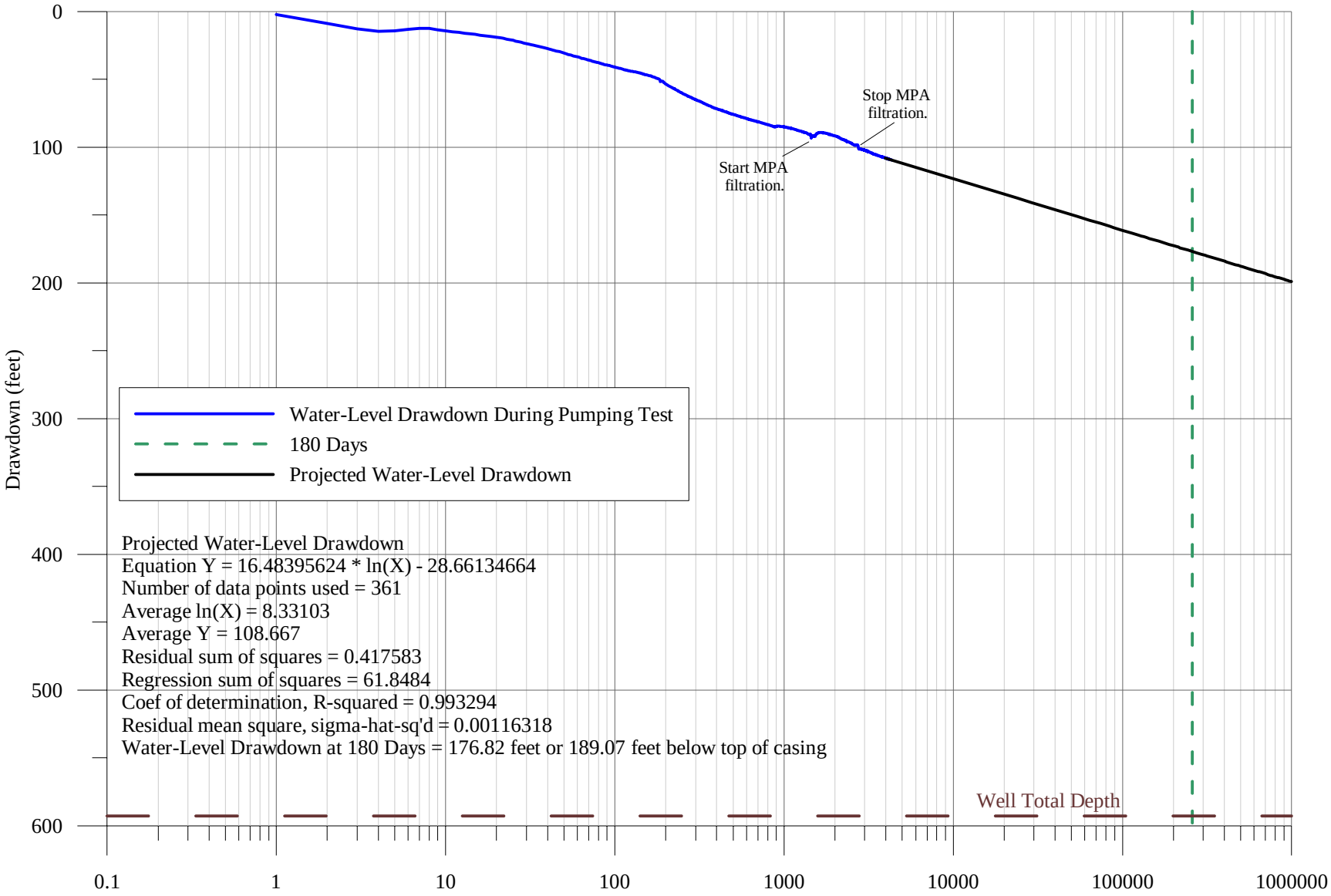



*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

## Water-Level Drawdown Projection from Measurements Collected from Pumping Well 2, During Pumping Test on Wells 2 and 4, July 23 Through July 26, 2018




***LBG Hydrogeologic & Engineering Services, P.C.***

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/19/2018 | 13:00 | 11.79 | -- | -- | Pressure transducer installed in well. |
| 7/19/2018 | 14:00 | 11.78 | -- | -- | |
| 7/19/2018 | 15:00 | 11.81 | -- | -- | |
| 7/19/2018 | 16:00 | 11.81 | -- | -- | |
| 7/19/2018 | 17:00 | 11.81 | -- | -- | |
| 7/19/2018 | 18:00 | 11.78 | -- | -- | |
| 7/19/2018 | 19:00 | 11.76 | -- | -- | |
| 7/19/2018 | 20:00 | 11.75 | -- | -- | |
| 7/19/2018 | 21:00 | 11.85 | -- | -- | |
| 7/19/2018 | 22:00 | 11.78 | -- | -- | |
| 7/19/2018 | 23:00 | 11.83 | -- | -- | |
| 7/20/2018 | 0:00 | 11.77 | -- | -- | |
| 7/20/2018 | 1:00 | 11.78 | -- | -- | |
| 7/20/2018 | 2:00 | 11.81 | -- | -- | |
| 7/20/2018 | 3:00 | 11.83 | -- | -- | |
| 7/20/2018 | 4:00 | 11.80 | -- | -- | |
| 7/20/2018 | 5:00 | 11.83 | -- | -- | |
| 7/20/2018 | 6:00 | 11.77 | -- | -- | |
| 7/20/2018 | 7:00 | 11.84 | -- | -- | |
| 7/20/2018 | 8:00 | 11.85 | -- | -- | |
| 7/20/2018 | 9:00 | 11.86 | -- | -- | |
| 7/20/2018 | 10:00 | 11.85 | -- | -- | |
| 7/20/2018 | 11:00 | 11.86 | -- | -- | |
| 7/20/2018 | 12:00 | 11.88 | -- | -- | |
| 7/20/2018 | 13:00 | 11.84 | -- | -- | |
| 7/20/2018 | 14:00 | 11.84 | -- | -- | |
| 7/20/2018 | 15:00 | 11.81 | -- | -- | |
| 7/20/2018 | 16:00 | 11.84 | -- | -- | |
| 7/20/2018 | 17:00 | 11.83 | -- | -- | |
| 7/20/2018 | 18:00 | 11.83 | -- | -- | |
| 7/20/2018 | 19:00 | 11.84 | -- | -- | |
| 7/20/2018 | 20:00 | 11.81 | -- | -- | |
| 7/20/2018 | 21:00 | 11.83 | -- | -- | |
| 7/20/2018 | 22:00 | 11.84 | -- | -- | |
| 7/20/2018 | 23:00 | 11.82 | -- | -- | |
| 7/21/2018 | 0:00 | 11.87 | -- | -- | |
| 7/21/2018 | 1:00 | 11.76 | -- | -- | |
| 7/21/2018 | 2:00 | 11.87 | -- | -- | |
| 7/21/2018 | 3:00 | 11.84 | -- | -- | |
| 7/21/2018 | 4:00 | 11.84 | -- | -- | |
| 7/21/2018 | 5:00 | 11.87 | -- | -- | |
| 7/21/2018 | 6:00 | 11.89 | -- | -- | |
| 7/21/2018 | 7:00 | 11.92 | -- | -- | |
| 7/21/2018 | 8:00 | 11.91 | -- | -- | |
| 7/21/2018 | 9:00 | 11.91 | -- | -- | |
| 7/21/2018 | 10:00 | 11.91 | -- | -- | |
| 7/21/2018 | 11:00 | 11.92 | -- | -- | |
| 7/21/2018 | 12:00 | 11.91 | -- | -- | |
| 7/21/2018 | 13:00 | 11.85 | -- | -- | |
| 7/21/2018 | 14:00 | -- | -- | -- | Pump installed in well. |
| 7/21/2018 | 15:00 | 11.63 | -- | -- | |
| 7/21/2018 | 16:00 | 11.76 | -- | -- | |
| 7/21/2018 | 17:00 | 11.86 | -- | -- | |
| 7/21/2018 | 18:00 | 11.84 | -- | -- | |
| 7/21/2018 | 19:00 | 11.88 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/21/2018 | 20:00 | 11.93 | -- | -- | |
| 7/21/2018 | 21:00 | 11.94 | -- | -- | |
| 7/21/2018 | 22:00 | 11.94 | -- | -- | |
| 7/21/2018 | 23:00 | 11.98 | -- | -- | |
| 7/22/2018 | 0:00 | 11.96 | -- | -- | |
| 7/22/2018 | 1:00 | 12.00 | -- | -- | |
| 7/22/2018 | 2:00 | 12.03 | -- | -- | |
| 7/22/2018 | 3:00 | 12.02 | -- | -- | |
| 7/22/2018 | 4:00 | 12.09 | -- | -- | |
| 7/22/2018 | 5:00 | 12.07 | -- | -- | |
| 7/22/2018 | 6:00 | 12.11 | -- | -- | |
| 7/22/2018 | 7:00 | 12.14 | -- | -- | |
| 7/22/2018 | 8:00 | 12.07 | -- | -- | |
| 7/22/2018 | 9:00 | 12.13 | -- | -- | |
| 7/22/2018 | 10:00 | 12.20 | -- | -- | |
| 7/22/2018 | 11:00 | 12.10 | -- | -- | |
| 7/22/2018 | 12:00 | 12.21 | -- | -- | |
| 7/22/2018 | 13:00 | 12.32 | -- | -- | |
| 7/22/2018 | 14:00 | 12.37 | -- | -- | |
| 7/22/2018 | 15:00 | 12.36 | -- | -- | |
| 7/22/2018 | 16:00 | 12.58 | -- | -- | |
| 7/22/2018 | 17:00 | 12.32 | -- | -- | |
| 7/22/2018 | 18:00 | 12.21 | -- | -- | |
| 7/22/2018 | 19:00 | 12.04 | -- | -- | |
| 7/22/2018 | 20:00 | 11.98 | -- | -- | |
| 7/22/2018 | 21:00 | 11.90 | -- | -- | |
| 7/22/2018 | 22:00 | 11.87 | -- | -- | |
| 7/22/2018 | 23:00 | 11.92 | -- | -- | |
| 7/23/2018 | 0:00 | 11.99 | -- | -- | |
| 7/23/2018 | 1:00 | 11.99 | -- | -- | |
| 7/23/2018 | 2:00 | 12.05 | -- | -- | |
| 7/23/2018 | 3:00 | 12.06 | -- | -- | |
| 7/23/2018 | 4:00 | 12.10 | -- | -- | |
| 7/23/2018 | 5:00 | 12.07 | -- | -- | |
| 7/23/2018 | 6:00 | 12.01 | -- | -- | |
| 7/23/2018 | 7:00 | 12.02 | -- | -- | |
| 7/23/2018 | 8:00 | 12.00 | -- | -- | |
| 7/23/2018 | 9:00 | 12.02 | -- | -- | |
| 7/23/2018 | 10:00 | 12.03 | -- | -- | |
| 7/23/2018 | 11:00 | 12.09 | -- | -- | |
| 7/23/2018 | 12:00 | 12.14 | -- | -- | |
| 7/23/2018 | 13:00 | 12.25 | -- | -- | Pump in Well 4 started at 13:01. |
| 7/23/2018 | 13:59 | 12.25 | -- | -- | |
| 7/23/2018 | 14:00 | 12.22 | -- | -- | |
| 7/23/2018 | 14:01 | 12.25 | -- | -- | |
| 7/23/2018 | 14:02 | 14.48 | 1 | 2.23 | Pump in Well 2 started. |
| 7/23/2018 | 14:03 | 21.04 | 2 | 8.79 | Pumping rate adjusted to 5.5 gpm. |
| 7/23/2018 | 14:04 | 24.91 | 3 | 12.66 | |
| 7/23/2018 | 14:05 | 26.83 | 4 | 14.58 | |
| 7/23/2018 | 14:06 | 26.52 | 5 | 14.27 | |
| 7/23/2018 | 14:07 | 25.55 | 6 | 13.30 | |
| 7/23/2018 | 14:08 | 24.78 | 7 | 12.53 | |
| 7/23/2018 | 14:09 | 24.65 | 8 | 12.40 | |
| 7/23/2018 | 14:10 | 25.58 | 9 | 13.33 | |
| 7/23/2018 | 14:11 | 26.41 | 10 | 14.16 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/23/2018 | 14:12 | 27.03 | 11 | 14.78 | |
| 7/23/2018 | 14:13 | 27.64 | 12 | 15.39 | Pumping rate 5.5 gpm. |
| 7/23/2018 | 14:14 | 28.19 | 13 | 15.94 | Pumping rate 5.5 gpm. |
| 7/23/2018 | 14:15 | 28.66 | 14 | 16.41 | |
| 7/23/2018 | 14:16 | 29.15 | 15 | 16.90 | |
| 7/23/2018 | 14:21 | 31.22 | 20 | 18.97 | |
| 7/23/2018 | 14:26 | 33.50 | 25 | 21.25 | |
| 7/23/2018 | 14:31 | 35.90 | 30 | 23.65 | |
| 7/23/2018 | 14:36 | 37.84 | 35 | 25.59 | |
| 7/23/2018 | 14:41 | 39.74 | 40 | 27.49 | |
| 7/23/2018 | 14:46 | 41.26 | 45 | 29.01 | |
| 7/23/2018 | 14:51 | 42.82 | 50 | 30.57 | |
| 7/23/2018 | 14:56 | 44.28 | 55 | 32.03 | |
| 7/23/2018 | 15:01 | 45.62 | 60 | 33.37 | |
| 7/23/2018 | 16:00 | 55.73 | 119 | 43.48 | Pumping rate 5.5 gpm. |
| 7/23/2018 | 17:00 | 61.64 | 179 | 49.39 | Pumping rate increased to 5.9 gpm. |
| 7/23/2018 | 18:00 | 71.06 | 239 | 58.81 | |
| 7/23/2018 | 19:00 | 77.02 | 299 | 64.77 | |
| 7/23/2018 | 20:00 | 81.56 | 359 | 69.31 | |
| 7/23/2018 | 21:00 | 84.71 | 419 | 72.46 | |
| 7/23/2018 | 22:00 | 87.28 | 479 | 75.03 | |
| 7/23/2018 | 23:00 | 89.33 | 539 | 77.08 | |
| 7/24/2018 | 0:00 | 91.05 | 599 | 78.80 | |
| 7/24/2018 | 1:00 | 92.57 | 659 | 80.32 | |
| 7/24/2018 | 2:00 | 93.91 | 719 | 81.66 | |
| 7/24/2018 | 3:00 | 95.11 | 779 | 82.86 | |
| 7/24/2018 | 4:00 | 96.35 | 839 | 84.10 | |
| 7/24/2018 | 5:00 | 96.93 | 899 | 84.68 | |
| 7/24/2018 | 6:00 | 96.93 | 959 | 84.68 | |
| 7/24/2018 | 7:00 | 97.44 | 1019 | 85.19 | |
| 7/24/2018 | 8:00 | 98.10 | 1079 | 85.85 | |
| 7/24/2018 | 9:00 | 98.87 | 1139 | 86.62 | Pumping rate 5.6 gpm. |
| 7/24/2018 | 10:00 | 99.76 | 1199 | 87.51 | |
| 7/24/2018 | 11:00 | 100.45 | 1259 | 88.20 | Pumping rate 5.6 gpm. |
| 7/24/2018 | 12:00 | 101.27 | 1319 | 89.02 | |
| 7/24/2018 | 13:00 | 102.33 | 1379 | 90.08 | |
| 7/24/2018 | 14:00 | 102.96 | 1439 | 90.71 | Began MPA filtration. |
| 7/24/2018 | 15:00 | 104.00 | 1499 | 91.75 | Pumping rate 5.6 gpm. |
| 7/24/2018 | 16:00 | 102.29 | 1559 | 90.04 | |
| 7/24/2018 | 17:00 | 101.44 | 1619 | 89.19 | Pumping rate 5.6 gpm. |
| 7/24/2018 | 18:00 | 101.46 | 1679 | 89.21 | |
| 7/24/2018 | 19:00 | 101.83 | 1739 | 89.58 | |
| 7/24/2018 | 20:00 | 102.24 | 1799 | 89.99 | |
| 7/24/2018 | 21:00 | 102.75 | 1859 | 90.50 | |
| 7/24/2018 | 22:00 | 103.26 | 1919 | 91.01 | |
| 7/24/2018 | 23:00 | 103.74 | 1979 | 91.49 | |
| 7/25/2018 | 0:00 | 104.22 | 2039 | 91.97 | |
| 7/25/2018 | 1:00 | 104.87 | 2099 | 92.62 | |
| 7/25/2018 | 2:00 | 105.75 | 2159 | 93.50 | |
| 7/25/2018 | 3:00 | 106.44 | 2219 | 94.19 | |
| 7/25/2018 | 4:00 | 106.96 | 2279 | 94.71 | |
| 7/25/2018 | 5:00 | 107.75 | 2339 | 95.50 | |
| 7/25/2018 | 6:00 | 108.35 | 2399 | 96.10 | |
| 7/25/2018 | 7:00 | 108.84 | 2459 | 96.59 | |
| 7/25/2018 | 8:00 | 109.60 | 2519 | 97.35 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/25/2018 | 9:00 | 110.27 | 2579 | 98.02 | |
| 7/25/2018 | 10:00 | 110.60 | 2639 | 98.35 | Pumping rate 5.3 gpm. |
| 7/25/2018 | 11:00 | 110.52 | 2699 | 98.27 | Ended MPA filtration. |
| 7/25/2018 | 12:00 | 113.26 | 2759 | 101.01 | Collected Part 5 samples. |
| 7/25/2018 | 13:00 | 113.44 | 2819 | 101.19 | Pumping rate 5.3 gpm. |
| 7/25/2018 | 14:00 | 113.84 | 2879 | 101.59 | |
| 7/25/2018 | 15:00 | 114.18 | 2939 | 101.93 | Pumping rate 5.3 gpm. |
| 7/25/2018 | 16:00 | 114.42 | 2999 | 102.17 | |
| 7/25/2018 | 17:00 | 114.81 | 3059 | 102.56 | Pumping rate 5.3 gpm. |
| 7/25/2018 | 18:00 | 115.23 | 3119 | 102.98 | |
| 7/25/2018 | 19:00 | 115.71 | 3179 | 103.46 | |
| 7/25/2018 | 20:00 | 116.16 | 3239 | 103.91 | |
| 7/25/2018 | 21:00 | 116.57 | 3299 | 104.32 | |
| 7/25/2018 | 22:00 | 117.04 | 3359 | 104.79 | |
| 7/25/2018 | 23:00 | 117.39 | 3419 | 105.14 | |
| 7/26/2018 | 0:00 | 117.76 | 3479 | 105.51 | |
| 7/26/2018 | 1:00 | 118.03 | 3539 | 105.78 | |
| 7/26/2018 | 2:00 | 118.38 | 3599 | 106.13 | |
| 7/26/2018 | 3:00 | 118.76 | 3659 | 106.51 | |
| 7/26/2018 | 4:00 | 119.10 | 3719 | 106.85 | |
| 7/26/2018 | 5:00 | 119.40 | 3779 | 107.15 | |
| 7/26/2018 | 6:00 | 119.44 | 3839 | 107.19 | |
| 7/26/2018 | 7:00 | 119.73 | 3899 | 107.48 | |
| 7/26/2018 | 8:00 | 120.04 | 3959 | 107.79 | Pumping rate 5.3 gpm. |
| 7/26/2018 | 8:13 | 120.14 | 3972 | 107.89 | Six hours prior to shut down of pump. |
| 7/26/2018 | 9:00 | 120.37 | 4019 | 108.12 | Pumping rate 5.3 gpm. |
| 7/26/2018 | 10:00 | 120.66 | 4079 | 108.41 | . |
| 7/26/2018 | 11:00 | 120.89 | 4139 | 108.64 | Pumping rate 5.3 gpm. |
| 7/26/2018 | 12:00 | 121.11 | 4199 | 108.86 | |
| 7/26/2018 | 13:00 | 121.34 | 4259 | 109.09 | Pumping rate 5.3 gpm. |
| 7/26/2018 | 14:00 | 121.60 | 4319 | 109.35 | Pumping rate 5.3 gpm. |
| 7/26/2018 | 14:13 | 121.65 | 4332 | 109.40 | Pump in Well 2 shut down. |
| 7/26/2018 | 14:14 | 121.26 | -1 | 109.01 | |
| 7/26/2018 | 14:15 | 115.38 | -2 | 103.13 | |
| 7/26/2018 | 14:16 | 111.44 | -3 | 99.19 | |
| 7/26/2018 | 14:17 | 107.78 | -4 | 95.53 | |
| 7/26/2018 | 14:18 | 104.90 | -5 | 92.65 | |
| 7/26/2018 | 14:19 | 102.81 | -6 | 90.56 | |
| 7/26/2018 | 14:20 | 100.91 | -7 | 88.66 | |
| 7/26/2018 | 14:21 | 99.06 | -8 | 86.81 | |
| 7/26/2018 | 14:22 | 97.32 | -9 | 85.07 | |
| 7/26/2018 | 14:23 | 95.79 | -10 | 83.54 | |
| 7/26/2018 | 14:24 | 94.30 | -11 | 82.05 | |
| 7/26/2018 | 14:25 | 92.87 | -12 | 80.62 | |
| 7/26/2018 | 14:26 | 91.59 | -13 | 79.34 | |
| 7/26/2018 | 14:27 | 90.31 | -14 | 78.06 | |
| 7/26/2018 | 14:28 | 89.15 | -15 | 76.90 | |
| 7/26/2018 | 14:33 | 83.68 | -20 | 71.43 | |
| 7/26/2018 | 14:38 | 79.29 | -25 | 67.04 | |
| 7/26/2018 | 14:43 | 75.60 | -30 | 63.35 | |
| 7/26/2018 | 14:48 | 72.87 | -35 | 60.62 | |
| 7/26/2018 | 14:53 | 70.70 | -40 | 58.45 | |
| 7/26/2018 | 14:58 | 68.79 | -45 | 56.54 | |
| 7/26/2018 | 15:03 | 67.04 | -50 | 54.79 | |
| 7/26/2018 | 15:08 | 65.38 | -55 | 53.13 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/26/2018 | 15:13 | 64.05 | -60 | 51.80 | |
| 7/26/2018 | 16:00 | 56.32 | -107 | 44.07 | |
| 7/26/2018 | 17:00 | 50.96 | -167 | 38.71 | |
| 7/26/2018 | 18:00 | 46.74 | -227 | 34.49 | |
| 7/26/2018 | 19:00 | 43.94 | -287 | 31.69 | |
| 7/26/2018 | 20:00 | 41.46 | -347 | 29.21 | |
| 7/26/2018 | 21:00 | 39.13 | -407 | 26.88 | |
| 7/26/2018 | 22:00 | 37.45 | -467 | 25.20 | |
| 7/26/2018 | 23:00 | 35.98 | -527 | 23.73 | |
| 7/27/2018 | 0:00 | 34.58 | -587 | 22.33 | |
| 7/27/2018 | 1:00 | 33.43 | -647 | 21.18 | |
| 7/27/2018 | 2:00 | 32.27 | -707 | 20.02 | |
| 7/27/2018 | 3:00 | 31.31 | -767 | 19.06 | |
| 7/27/2018 | 4:00 | 30.39 | -827 | 18.14 | |
| 7/27/2018 | 5:00 | 29.51 | -887 | 17.26 | |
| 7/27/2018 | 6:00 | 28.61 | -947 | 16.36 | |
| 7/27/2018 | 7:00 | 27.86 | -1007 | 15.61 | |
| 7/27/2018 | 8:00 | 27.16 | -1067 | 14.91 | |
| 7/27/2018 | 9:00 | 26.55 | -1127 | 14.30 | |
| 7/27/2018 | 10:00 | 26.00 | -1187 | 13.75 | |
| 7/27/2018 | 11:00 | 25.29 | -1247 | 13.04 | |
| 7/27/2018 | 12:00 | 24.72 | -1307 | 12.47 | |
| 7/27/2018 | 13:00 | 24.16 | -1367 | 11.91 | |
| 7/27/2018 | 14:00 | 23.66 | -1427 | 11.41 | |
| 7/27/2018 | 15:00 | 23.25 | -1487 | 11.00 | |
| 7/27/2018 | 16:00 | 22.69 | -1547 | 10.44 | Well 2 passed 90% recovery to pre-test level. |
| 7/27/2018 | 17:00 | 22.27 | -1607 | 10.02 | |
| 7/27/2018 | 18:00 | 21.81 | -1667 | 9.56 | |
| 7/27/2018 | 19:00 | 21.46 | -1727 | 9.21 | |
| 7/27/2018 | 20:00 | 21.08 | -1787 | 8.83 | |
| 7/27/2018 | 21:00 | 20.76 | -1847 | 8.51 | |
| 7/27/2018 | 22:00 | 20.37 | -1907 | 8.12 | |
| 7/27/2018 | 23:00 | 20.06 | -1967 | 7.81 | |
| 7/28/2018 | 0:00 | 19.78 | -2027 | 7.53 | |
| 7/28/2018 | 1:00 | 19.43 | -2087 | 7.18 | |
| 7/28/2018 | 2:00 | 19.17 | -2147 | 6.92 | |
| 7/28/2018 | 3:00 | 18.88 | -2207 | 6.63 | |
| 7/28/2018 | 4:00 | 18.60 | -2267 | 6.35 | |
| 7/28/2018 | 5:00 | 18.38 | -2327 | 6.13 | |
| 7/28/2018 | 6:00 | 18.12 | -2387 | 5.87 | |
| 7/28/2018 | 7:00 | 17.89 | -2447 | 5.64 | |
| 7/28/2018 | 8:00 | 17.71 | -2507 | 5.46 | |
| 7/28/2018 | 9:00 | 17.56 | -2567 | 5.31 | |
| 7/28/2018 | 10:00 | 17.39 | -2627 | 5.14 | |
| 7/28/2018 | 11:00 | 17.26 | -2687 | 5.01 | |
| 7/28/2018 | 12:00 | 17.09 | -2747 | 4.84 | |
| 7/28/2018 | 13:00 | 16.94 | -2807 | 4.69 | |
| 7/28/2018 | 14:00 | 16.75 | -2867 | 4.50 | |
| 7/28/2018 | 15:00 | 16.59 | -2927 | 4.34 | |
| 7/28/2018 | 16:00 | 16.44 | -2987 | 4.19 | |
| 7/28/2018 | 17:00 | 16.28 | -3047 | 4.03 | |
| 7/28/2018 | 18:00 | 16.16 | -3107 | 3.91 | |
| 7/28/2018 | 19:00 | 16.01 | -3167 | 3.76 | |
| 7/28/2018 | 20:00 | 15.91 | -3227 | 3.66 | |
| 7/28/2018 | 21:00 | 15.83 | -3287 | 3.58 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/28/2018 | 22:00 | 15.73 | -3347 | 3.48 | |
| 7/28/2018 | 23:00 | 15.63 | -3407 | 3.38 | |
| 7/29/2018 | 0:00 | 15.54 | -3467 | 3.29 | |
| 7/29/2018 | 1:00 | 15.40 | -3527 | 3.15 | |
| 7/29/2018 | 2:00 | 15.36 | -3587 | 3.11 | |
| 7/29/2018 | 3:00 | 15.20 | -3647 | 2.95 | |
| 7/29/2018 | 4:00 | 15.11 | -3707 | 2.86 | |
| 7/29/2018 | 5:00 | 15.07 | -3767 | 2.82 | |
| 7/29/2018 | 6:00 | 14.94 | -3827 | 2.69 | |
| 7/29/2018 | 7:00 | 14.89 | -3887 | 2.64 | |
| 7/29/2018 | 8:00 | 14.81 | -3947 | 2.56 | |
| 7/29/2018 | 9:00 | 14.74 | -4007 | 2.49 | |
| 7/29/2018 | 10:00 | 14.72 | -4067 | 2.47 | |
| 7/29/2018 | 11:00 | 14.63 | -4127 | 2.38 | |
| 7/29/2018 | 12:00 | 14.60 | -4187 | 2.35 | |
| 7/29/2018 | 13:00 | 14.52 | -4247 | 2.27 | |
| 7/29/2018 | 14:00 | 14.44 | -4307 | 2.19 | |
| 7/29/2018 | 15:00 | 14.42 | -4367 | 2.17 | |
| 7/29/2018 | 16:00 | 14.33 | -4427 | 2.08 | |
| 7/29/2018 | 17:00 | 14.24 | -4487 | 1.99 | |
| 7/29/2018 | 18:00 | 14.23 | -4547 | 1.98 | |
| 7/29/2018 | 19:00 | 14.10 | -4607 | 1.85 | |
| 7/29/2018 | 20:00 | 14.09 | -4667 | 1.84 | |
| 7/29/2018 | 21:00 | 14.04 | -4727 | 1.79 | |
| 7/29/2018 | 22:00 | 14.00 | -4787 | 1.75 | |
| 7/29/2018 | 23:00 | 13.99 | -4847 | 1.74 | |
| 7/30/2018 | 0:00 | 13.96 | -4907 | 1.71 | |
| 7/30/2018 | 1:00 | 13.95 | -4967 | 1.70 | |
| 7/30/2018 | 2:00 | 13.91 | -5027 | 1.66 | |
| 7/30/2018 | 3:00 | 13.84 | -5087 | 1.59 | |
| 7/30/2018 | 4:00 | 13.78 | -5147 | 1.53 | |
| 7/30/2018 | 5:00 | 13.75 | -5207 | 1.50 | |
| 7/30/2018 | 6:00 | 13.68 | -5267 | 1.43 | |
| 7/30/2018 | 7:00 | 13.70 | -5327 | 1.45 | |
| 7/30/2018 | 8:00 | 13.65 | -5387 | 1.40 | |
| 7/30/2018 | 9:00 | 13.63 | -5447 | 1.38 | |
| 7/30/2018 | 10:00 | 13.60 | -5507 | 1.35 | |
| 7/30/2018 | 11:00 | 13.59 | -5567 | 1.34 | |
| 7/30/2018 | 12:00 | 13.56 | -5627 | 1.31 | |
| 7/30/2018 | 13:00 | 13.50 | -5683 | 1.25 | |
| 7/30/2018 | 14:00 | 13.44 | -5743 | 1.19 | |
| 7/30/2018 | 15:00 | 13.43 | -5803 | 1.18 | |
| 7/30/2018 | 16:00 | 13.41 | -5863 | 1.16 | |
| 7/30/2018 | 17:00 | 13.28 | -5923 | 1.03 | |
| 7/30/2018 | 18:00 | 13.29 | -5983 | 1.04 | |
| 7/30/2018 | 19:00 | 13.25 | -6043 | 1.00 | |
| 7/30/2018 | 20:00 | 13.21 | -6103 | 0.96 | |
| 7/30/2018 | 21:00 | 13.16 | -6163 | 0.90 | |
| 7/30/2018 | 22:00 | 13.16 | -6223 | 0.91 | |
| 7/30/2018 | 23:00 | 13.14 | -6283 | 0.89 | |
| 7/31/2018 | 0:00 | 13.15 | -6343 | 0.90 | |
| 7/31/2018 | 1:00 | 13.14 | -6403 | 0.89 | |
| 7/31/2018 | 2:00 | 13.06 | -6463 | 0.81 | |
| 7/31/2018 | 3:00 | 13.08 | -6523 | 0.83 | |
| 7/31/2018 | 4:00 | 13.04 | -6583 | 0.79 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/31/2018 | 5:00 | 13.01 | -6643 | 0.76 | |
| 7/31/2018 | 6:00 | 13.00 | -6703 | 0.75 | |
| 7/31/2018 | 7:00 | 12.98 | -6763 | 0.73 | |
| 7/31/2018 | 8:00 | 12.93 | -6823 | 0.68 | |
| 7/31/2018 | 9:00 | 12.92 | -6883 | 0.67 | |
| 7/31/2018 | 9:58 | 12.90 | -- | -- | Pump in Well 3 started. |
| 7/31/2018 | 10:00 | 12.91 | -- | -- | |
| 7/31/2018 | 11:00 | 12.84 | -- | -- | |
| 7/31/2018 | 12:00 | 12.77 | -- | -- | |
| 7/31/2018 | 13:00 | 12.75 | -- | -- | |
| 7/31/2018 | 14:00 | 12.77 | -- | -- | |
| 7/31/2018 | 15:00 | 12.74 | -- | -- | |
| 7/31/2018 | 16:00 | 12.69 | -- | -- | |
| 7/31/2018 | 17:00 | 12.65 | -- | -- | |
| 7/31/2018 | 18:00 | 12.67 | -- | -- | |
| 7/31/2018 | 19:00 | 12.61 | -- | -- | |
| 7/31/2018 | 20:00 | 12.60 | -- | -- | |
| 7/31/2018 | 21:00 | 12.62 | -- | -- | |
| 7/31/2018 | 22:00 | 12.59 | -- | -- | |
| 7/31/2018 | 23:00 | 12.60 | -- | -- | |
| 8/1/2018 | 0:00 | 12.57 | -- | -- | |
| 8/1/2018 | 1:00 | 12.58 | -- | -- | |
| 8/1/2018 | 2:00 | 12.58 | -- | -- | |
| 8/1/2018 | 3:00 | 12.56 | -- | -- | |
| 8/1/2018 | 4:00 | 12.63 | -- | -- | |
| 8/1/2018 | 5:00 | 12.52 | -- | -- | |
| 8/1/2018 | 6:00 | 12.59 | -- | -- | |
| 8/1/2018 | 7:00 | 12.52 | -- | -- | |
| 8/1/2018 | 8:00 | 12.50 | -- | -- | |
| 8/1/2018 | 9:00 | 12.53 | -- | -- | |
| 8/1/2018 | 10:00 | 12.47 | -- | -- | |
| 8/1/2018 | 11:00 | 12.45 | -- | -- | |
| 8/1/2018 | 12:00 | 12.47 | -- | -- | |
| 8/1/2018 | 13:00 | 12.50 | -- | -- | |
| 8/1/2018 | 14:00 | 12.40 | -- | -- | |
| 8/1/2018 | 15:00 | 12.53 | -- | -- | |
| 8/1/2018 | 16:00 | 12.44 | -- | -- | |
| 8/1/2018 | 17:00 | 12.41 | -- | -- | |
| 8/1/2018 | 18:00 | 12.43 | -- | -- | |
| 8/1/2018 | 19:00 | 12.45 | -- | -- | |
| 8/1/2018 | 20:00 | 12.42 | -- | -- | |
| 8/1/2018 | 21:00 | 12.44 | -- | -- | |
| 8/1/2018 | 22:00 | 12.41 | -- | -- | |
| 8/1/2018 | 23:00 | 12.37 | -- | -- | |
| 8/2/2018 | 0:00 | 12.42 | -- | -- | |
| 8/2/2018 | 1:00 | 12.42 | -- | -- | |
| 8/2/2018 | 2:00 | 12.40 | -- | -- | |
| 8/2/2018 | 3:00 | 12.46 | -- | -- | |
| 8/2/2018 | 4:00 | 12.43 | -- | -- | |
| 8/2/2018 | 5:00 | 12.44 | -- | -- | |
| 8/2/2018 | 6:00 | 12.37 | -- | -- | |
| 8/2/2018 | 7:00 | 12.40 | -- | -- | |
| 8/2/2018 | 8:00 | 12.41 | -- | -- | |
| 8/2/2018 | 9:00 | 12.44 | -- | -- | |
| 8/2/2018 | 10:00 | 12.40 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/2/2018 | 11:00 | 12.38 | -- | -- | |
| 8/2/2018 | 12:00 | 12.40 | -- | -- | |
| 8/2/2018 | 13:00 | 12.38 | -- | -- | |
| 8/2/2018 | 14:00 | 12.37 | -- | -- | |
| 8/2/2018 | 15:00 | 12.42 | -- | -- | |
| 8/2/2018 | 16:00 | 12.36 | -- | -- | |
| 8/2/2018 | 17:00 | 12.36 | -- | -- | |
| 8/2/2018 | 18:00 | 12.36 | -- | -- | |
| 8/2/2018 | 19:00 | 12.35 | -- | -- | |
| 8/2/2018 | 20:00 | 12.32 | -- | -- | |
| 8/2/2018 | 21:00 | 12.33 | -- | -- | |
| 8/2/2018 | 22:00 | 12.28 | -- | -- | |
| 8/2/2018 | 23:00 | 12.29 | -- | -- | |
| 8/3/2018 | 0:00 | 12.38 | -- | -- | |
| 8/3/2018 | 1:00 | 12.34 | -- | -- | |
| 8/3/2018 | 2:00 | 12.32 | -- | -- | |
| 8/3/2018 | 3:00 | 12.29 | -- | -- | |
| 8/3/2018 | 4:00 | 12.35 | -- | -- | |
| 8/3/2018 | 5:00 | 12.33 | -- | -- | |
| 8/3/2018 | 6:00 | 12.34 | -- | -- | |
| 8/3/2018 | 7:00 | 12.33 | -- | -- | |
| 8/3/2018 | 8:00 | 12.29 | -- | -- | |
| 8/3/2018 | 9:00 | 12.31 | -- | -- | |
| 8/3/2018 | 10:00 | 12.30 | -- | -- | |
| 8/3/2018 | 10:05 | 12.28 | -- | -- | Pump in Well 3 shut down. |
| 8/3/2018 | 11:00 | 12.34 | -- | -- | |
| 8/3/2018 | 12:00 | 12.34 | -- | -- | |
| 8/3/2018 | 13:00 | 12.29 | -- | -- | |
| 8/3/2018 | 14:00 | 12.32 | -- | -- | |
| 8/3/2018 | 15:00 | 12.29 | -- | -- | |
| 8/3/2018 | 16:00 | 12.31 | -- | -- | |
| 8/3/2018 | 17:00 | 12.27 | -- | -- | |
| 8/3/2018 | 18:00 | 12.32 | -- | -- | |
| 8/3/2018 | 19:00 | 12.22 | -- | -- | |
| 8/3/2018 | 20:00 | 12.22 | -- | -- | |
| 8/3/2018 | 21:00 | 12.19 | -- | -- | |
| 8/3/2018 | 22:00 | 12.16 | -- | -- | |
| 8/3/2018 | 23:00 | 12.19 | -- | -- | |
| 8/4/2018 | 0:00 | 12.19 | -- | -- | |
| 8/4/2018 | 1:00 | 12.13 | -- | -- | |
| 8/4/2018 | 2:00 | 12.13 | -- | -- | |
| 8/4/2018 | 3:00 | 12.12 | -- | -- | |
| 8/4/2018 | 4:00 | 12.09 | -- | -- | |
| 8/4/2018 | 5:00 | 12.12 | -- | -- | |
| 8/4/2018 | 6:00 | 12.13 | -- | -- | |
| 8/4/2018 | 7:00 | 12.03 | -- | -- | |
| 8/4/2018 | 8:00 | 12.04 | -- | -- | |
| 8/4/2018 | 9:00 | 11.99 | -- | -- | |
| 8/4/2018 | 10:00 | 12.01 | -- | -- | |
| 8/4/2018 | 11:00 | 11.98 | -- | -- | |
| 8/4/2018 | 12:00 | 11.99 | -- | -- | |
| 8/4/2018 | 13:00 | 11.93 | -- | -- | |
| 8/4/2018 | 14:00 | 11.91 | -- | -- | |
| 8/4/2018 | 15:00 | 11.84 | -- | -- | |
| 8/4/2018 | 16:00 | 11.89 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/4/2018 | 17:00 | 11.87 | -- | -- | |
| 8/4/2018 | 18:00 | 11.86 | -- | -- | |
| 8/4/2018 | 19:00 | 11.86 | -- | -- | |
| 8/4/2018 | 20:00 | 11.88 | -- | -- | |
| 8/4/2018 | 21:00 | 11.83 | -- | -- | |
| 8/4/2018 | 22:00 | 11.84 | -- | -- | |
| 8/4/2018 | 23:00 | 11.82 | -- | -- | |
| 8/5/2018 | 0:00 | 11.80 | -- | -- | |
| 8/5/2018 | 1:00 | 11.79 | -- | -- | |
| 8/5/2018 | 2:00 | 11.80 | -- | -- | |
| 8/5/2018 | 3:00 | 11.78 | -- | -- | |
| 8/5/2018 | 4:00 | 11.73 | -- | -- | |
| 8/5/2018 | 5:00 | 11.75 | -- | -- | |
| 8/5/2018 | 6:00 | 11.82 | -- | -- | |
| 8/5/2018 | 7:00 | 11.73 | -- | -- | |
| 8/5/2018 | 8:00 | 11.70 | -- | -- | |
| 8/5/2018 | 9:00 | 11.76 | -- | -- | |
| 8/5/2018 | 10:00 | 11.70 | -- | -- | |
| 8/5/2018 | 11:00 | 11.68 | -- | -- | |
| 8/5/2018 | 12:00 | 11.67 | -- | -- | |
| 8/5/2018 | 13:00 | 11.63 | -- | -- | |
| 8/5/2018 | 14:00 | 11.61 | -- | -- | |
| 8/5/2018 | 15:00 | 11.56 | -- | -- | |
| 8/5/2018 | 16:00 | 11.59 | -- | -- | |
| 8/5/2018 | 17:00 | 11.60 | -- | -- | |
| 8/5/2018 | 18:00 | 11.56 | -- | -- | |
| 8/5/2018 | 19:00 | 11.54 | -- | -- | |
| 8/5/2018 | 20:00 | 11.54 | -- | -- | |
| 8/5/2018 | 21:00 | 11.54 | -- | -- | |
| 8/5/2018 | 22:00 | 11.53 | -- | -- | |
| 8/5/2018 | 23:00 | 11.50 | -- | -- | |
| 8/6/2018 | 0:00 | 11.54 | -- | -- | |
| 8/6/2018 | 1:00 | 11.49 | -- | -- | |
| 8/6/2018 | 2:00 | 11.47 | -- | -- | |
| 8/6/2018 | 3:00 | 11.46 | -- | -- | |
| 8/6/2018 | 4:00 | 11.46 | -- | -- | |
| 8/6/2018 | 5:00 | 11.47 | -- | -- | |
| 8/6/2018 | 6:00 | 11.47 | -- | -- | |
| 8/6/2018 | 7:00 | 11.48 | -- | -- | |
| 8/6/2018 | 8:00 | 11.49 | -- | -- | |
| 8/6/2018 | 9:00 | 11.46 | -- | -- | |
| 8/6/2018 | 10:00 | 11.48 | -- | -- | |
| 8/6/2018 | 11:00 | 11.46 | -- | -- | |
| 8/6/2018 | 12:00 | 11.40 | -- | -- | |
| 8/6/2018 | 13:00 | 11.40 | -- | -- | |
| 8/6/2018 | 14:00 | 11.33 | -- | -- | |
| 8/6/2018 | 15:00 | 11.36 | -- | -- | |
| 8/6/2018 | 16:00 | 11.34 | -- | -- | |
| 8/6/2018 | 17:00 | 11.35 | -- | -- | |
| 8/6/2018 | 18:00 | 11.36 | -- | -- | |
| 8/6/2018 | 19:00 | 11.35 | -- | -- | |
| 8/6/2018 | 20:00 | 11.38 | -- | -- | |
| 8/6/2018 | 21:00 | 11.36 | -- | -- | |
| 8/6/2018 | 22:00 | 11.35 | -- | -- | |
| 8/6/2018 | 23:00 | 11.29 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 2 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/7/2018 | 0:00 | 11.30 | -- | -- | |
| 8/7/2018 | 1:00 | 11.34 | -- | -- | |
| 8/7/2018 | 2:00 | 11.32 | -- | -- | |
| 8/7/2018 | 3:00 | 11.28 | -- | -- | |
| 8/7/2018 | 4:00 | 11.31 | -- | -- | |
| 8/7/2018 | 5:00 | 11.31 | -- | -- | |
| 8/7/2018 | 6:00 | 11.27 | -- | -- | |
| 8/7/2018 | 7:00 | 11.37 | -- | -- | |
| 8/7/2018 | 8:00 | 11.34 | -- | -- | |
| 8/7/2018 | 9:00 | 11.35 | -- | -- | |
| 8/7/2018 | 10:00 | 11.33 | -- | -- | Pressure transducer removed from well. |

ft btoc feet below top of casing
gpm gallons per minute

H:\Wilder Balter\Lewisboro\2018\72-Hour Pumping Test Report\Well 2 WL table.docx

WE

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

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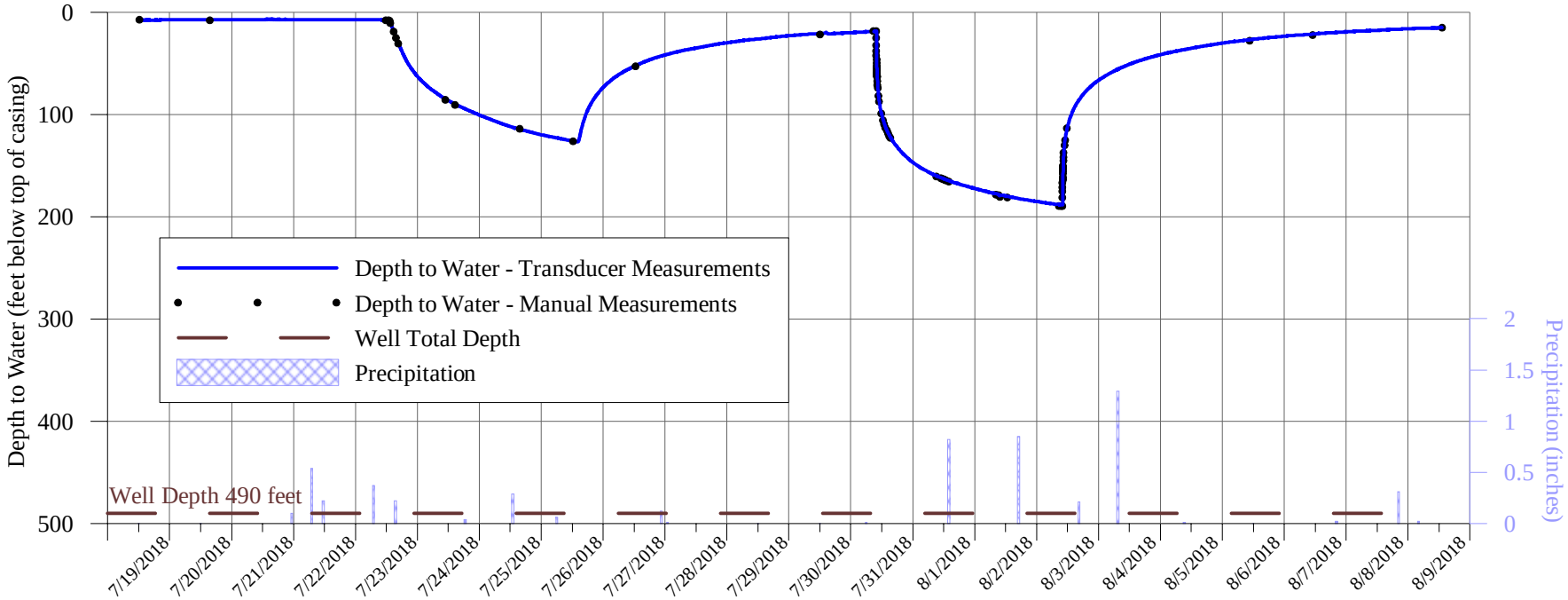
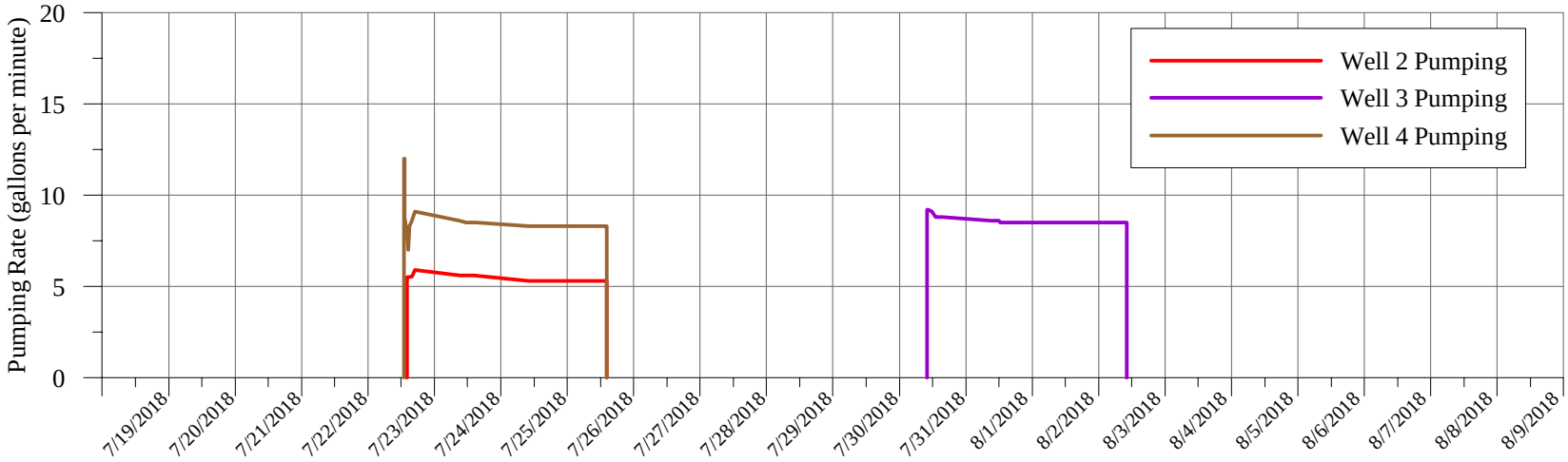
**Hydrograph of Water-Level Measurements Collected from the Onsite Pumping Well 3, During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**

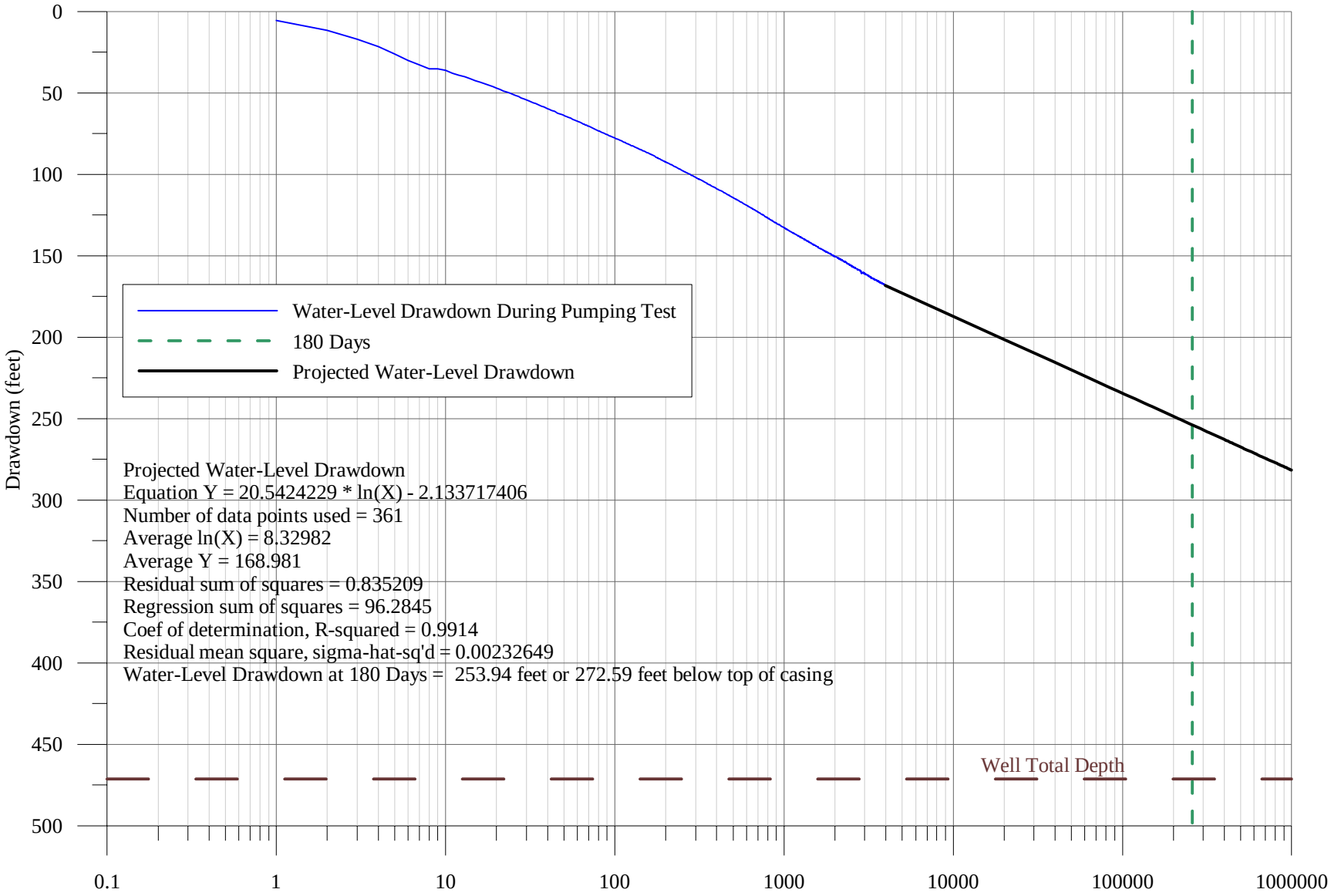



*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Water-Level Drawdown Projection from Measurements Collected from Pumping Well 3, During Pumping Test on Well 3, July 31 Through August 3, 2018**

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**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/19/2018 | 13:00 | 7.59 | -- | -- | Pressure transducer installed in well. |
| 7/19/2018 | 14:00 | 7.67 | -- | -- | |
| 7/19/2018 | 15:00 | 7.64 | -- | -- | |
| 7/19/2018 | 16:00 | 7.64 | -- | -- | |
| 7/19/2018 | 17:00 | 7.69 | -- | -- | |
| 7/19/2018 | 18:00 | 7.66 | -- | -- | |
| 7/19/2018 | 19:00 | 7.66 | -- | -- | |
| 7/19/2018 | 20:00 | 7.60 | -- | -- | |
| 7/19/2018 | 21:00 | 7.52 | -- | -- | |
| 7/19/2018 | 22:00 | 7.46 | -- | -- | |
| 7/19/2018 | 23:00 | 7.44 | -- | -- | |
| 7/20/2018 | 0:00 | 7.39 | -- | -- | |
| 7/20/2018 | 1:00 | 7.37 | -- | -- | |
| 7/20/2018 | 2:00 | 7.35 | -- | -- | |
| 7/20/2018 | 3:00 | 7.37 | -- | -- | |
| 7/20/2018 | 4:00 | 7.39 | -- | -- | |
| 7/20/2018 | 5:00 | 7.40 | -- | -- | |
| 7/20/2018 | 6:00 | 7.48 | -- | -- | |
| 7/20/2018 | 7:00 | 7.46 | -- | -- | |
| 7/20/2018 | 8:00 | 7.46 | -- | -- | |
| 7/20/2018 | 9:00 | 7.44 | -- | -- | |
| 7/20/2018 | 10:00 | 7.45 | -- | -- | |
| 7/20/2018 | 11:00 | 7.41 | -- | -- | |
| 7/20/2018 | 12:00 | 7.40 | -- | -- | |
| 7/20/2018 | 13:00 | 7.36 | -- | -- | |
| 7/20/2018 | 14:00 | 7.37 | -- | -- | |
| 7/20/2018 | 15:00 | 7.36 | -- | -- | |
| 7/20/2018 | 16:00 | 7.35 | -- | -- | |
| 7/20/2018 | 17:00 | 7.38 | -- | -- | |
| 7/20/2018 | 18:00 | 7.36 | -- | -- | |
| 7/20/2018 | 19:00 | 7.40 | -- | -- | |
| 7/20/2018 | 20:00 | 7.38 | -- | -- | |
| 7/20/2018 | 21:00 | 7.34 | -- | -- | |
| 7/20/2018 | 22:00 | 7.34 | -- | -- | |
| 7/20/2018 | 23:00 | 7.31 | -- | -- | |
| 7/21/2018 | 0:00 | 7.31 | -- | -- | |
| 7/21/2018 | 1:00 | 7.28 | -- | -- | |
| 7/21/2018 | 2:00 | 7.28 | -- | -- | |
| 7/21/2018 | 3:00 | 7.17 | -- | -- | |
| 7/21/2018 | 4:00 | 7.31 | -- | -- | |
| 7/21/2018 | 5:00 | 7.36 | -- | -- | |
| 7/21/2018 | 6:00 | 7.39 | -- | -- | |
| 7/21/2018 | 7:00 | 7.41 | -- | -- | |
| 7/21/2018 | 8:00 | 7.41 | -- | -- | |
| 7/21/2018 | 9:00 | 7.46 | -- | -- | |
| 7/21/2018 | 10:00 | 7.49 | -- | -- | |
| 7/21/2018 | 11:00 | 7.42 | -- | -- | |
| 7/21/2018 | 12:00 | 7.38 | -- | -- | |
| 7/21/2018 | 13:00 | 7.13 | -- | -- | |
| 7/21/2018 | 14:00 | 7.00 | -- | -- | |
| 7/21/2018 | 15:00 | 6.99 | -- | -- | |
| 7/21/2018 | 16:00 | 7.04 | -- | -- | |
| 7/21/2018 | 17:00 | 7.09 | -- | -- | |
| 7/21/2018 | 18:00 | 7.10 | -- | -- | |
| 7/21/2018 | 19:00 | 7.01 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/21/2018 | 20:00 | 7.17 | -- | -- | |
| 7/21/2018 | 21:00 | 7.17 | -- | -- | |
| 7/21/2018 | 22:00 | 7.13 | -- | -- | |
| 7/21/2018 | 23:00 | 7.20 | -- | -- | |
| 7/22/2018 | 0:00 | 7.13 | -- | -- | |
| 7/22/2018 | 1:00 | 7.16 | -- | -- | |
| 7/22/2018 | 2:00 | 7.16 | -- | -- | |
| 7/22/2018 | 3:00 | 7.14 | -- | -- | |
| 7/22/2018 | 4:00 | 7.13 | -- | -- | |
| 7/22/2018 | 5:00 | 7.17 | -- | -- | |
| 7/22/2018 | 6:00 | 7.28 | -- | -- | |
| 7/22/2018 | 7:00 | 7.26 | -- | -- | |
| 7/22/2018 | 8:00 | 7.29 | -- | -- | |
| 7/22/2018 | 9:00 | 7.31 | -- | -- | |
| 7/22/2018 | 10:00 | 7.38 | -- | -- | |
| 7/22/2018 | 11:00 | 7.33 | -- | -- | |
| 7/22/2018 | 12:00 | 7.35 | -- | -- | |
| 7/22/2018 | 13:00 | 7.28 | -- | -- | |
| 7/22/2018 | 14:00 | 7.29 | -- | -- | |
| 7/22/2018 | 15:00 | 7.25 | -- | -- | |
| 7/22/2018 | 16:00 | 7.30 | -- | -- | |
| 7/22/2018 | 17:00 | 7.36 | -- | -- | |
| 7/22/2018 | 18:00 | 7.34 | -- | -- | |
| 7/22/2018 | 19:00 | 7.36 | -- | -- | |
| 7/22/2018 | 20:00 | 7.36 | -- | -- | |
| 7/22/2018 | 21:00 | 7.38 | -- | -- | |
| 7/22/2018 | 22:00 | 7.40 | -- | -- | |
| 7/22/2018 | 23:00 | 7.38 | -- | -- | |
| 7/23/2018 | 0:00 | 7.39 | -- | -- | |
| 7/23/2018 | 1:00 | 7.36 | -- | -- | |
| 7/23/2018 | 2:00 | 7.35 | -- | -- | |
| 7/23/2018 | 3:00 | 7.30 | -- | -- | |
| 7/23/2018 | 4:00 | 7.32 | -- | -- | |
| 7/23/2018 | 5:00 | 7.33 | -- | -- | |
| 7/23/2018 | 6:00 | 7.37 | -- | -- | |
| 7/23/2018 | 7:00 | 7.45 | -- | -- | |
| 7/23/2018 | 8:00 | 7.45 | -- | -- | |
| 7/23/2018 | 9:00 | 7.50 | -- | -- | |
| 7/23/2018 | 10:00 | 7.53 | -- | -- | |
| 7/23/2018 | 11:00 | 7.55 | -- | -- | |
| 7/23/2018 | 12:00 | 7.52 | -- | -- | |
| 7/23/2018 | 13:00 | 7.47 | -- | -- | Pump in Well 4 started 13:01 |
| 7/23/2018 | 14:00 | 13.08 | -- | -- | Pump in Well 2 started 14:02. |
| 7/23/2018 | 15:00 | 19.75 | -- | -- | |
| 7/23/2018 | 16:00 | 26.50 | -- | -- | |
| 7/23/2018 | 17:00 | 32.44 | -- | -- | |
| 7/23/2018 | 18:00 | 38.23 | -- | -- | |
| 7/23/2018 | 19:00 | 43.65 | -- | -- | |
| 7/23/2018 | 20:00 | 48.36 | -- | -- | |
| 7/23/2018 | 21:00 | 52.62 | -- | -- | |
| 7/23/2018 | 22:00 | 56.30 | -- | -- | |
| 7/23/2018 | 23:00 | 59.61 | -- | -- | |
| 7/24/2018 | 0:00 | 62.64 | -- | -- | |
| 7/24/2018 | 1:00 | 65.40 | -- | -- | |
| 7/24/2018 | 2:00 | 67.90 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/24/2018 | 3:00 | 70.28 | -- | -- | |
| 7/24/2018 | 4:00 | 72.50 | -- | -- | |
| 7/24/2018 | 5:00 | 74.67 | -- | -- | |
| 7/24/2018 | 6:00 | 76.60 | -- | -- | |
| 7/24/2018 | 7:00 | 78.44 | -- | -- | |
| 7/24/2018 | 8:00 | 80.10 | -- | -- | |
| 7/24/2018 | 9:00 | 81.90 | -- | -- | |
| 7/24/2018 | 10:00 | 83.38 | -- | -- | |
| 7/24/2018 | 11:00 | 84.92 | -- | -- | |
| 7/24/2018 | 12:00 | 86.40 | -- | -- | |
| 7/24/2018 | 13:00 | 87.75 | -- | -- | |
| 7/24/2018 | 14:00 | 89.06 | -- | -- | |
| 7/24/2018 | 15:00 | 90.30 | -- | -- | |
| 7/24/2018 | 16:00 | 91.55 | -- | -- | |
| 7/24/2018 | 17:00 | 92.74 | -- | -- | |
| 7/24/2018 | 18:00 | 93.88 | -- | -- | |
| 7/24/2018 | 19:00 | 95.03 | -- | -- | |
| 7/24/2018 | 20:00 | 96.03 | -- | -- | |
| 7/24/2018 | 21:00 | 97.27 | -- | -- | |
| 7/24/2018 | 22:00 | 98.35 | -- | -- | |
| 7/24/2018 | 23:00 | 99.43 | -- | -- | |
| 7/25/2018 | 0:00 | 100.46 | -- | -- | |
| 7/25/2018 | 1:00 | 101.49 | -- | -- | |
| 7/25/2018 | 2:00 | 102.50 | -- | -- | |
| 7/25/2018 | 3:00 | 103.46 | -- | -- | |
| 7/25/2018 | 4:00 | 104.42 | -- | -- | |
| 7/25/2018 | 5:00 | 105.41 | -- | -- | |
| 7/25/2018 | 6:00 | 106.43 | -- | -- | |
| 7/25/2018 | 7:00 | 107.36 | -- | -- | |
| 7/25/2018 | 8:00 | 108.35 | -- | -- | |
| 7/25/2018 | 9:00 | 109.28 | -- | -- | |
| 7/25/2018 | 10:00 | 110.18 | -- | -- | |
| 7/25/2018 | 11:00 | 110.89 | -- | -- | |
| 7/25/2018 | 12:00 | 111.73 | -- | -- | |
| 7/25/2018 | 13:00 | 112.51 | -- | -- | |
| 7/25/2018 | 14:00 | 113.36 | -- | -- | |
| 7/25/2018 | 15:00 | 113.99 | -- | -- | |
| 7/25/2018 | 16:00 | 114.70 | -- | -- | |
| 7/25/2018 | 17:00 | 115.35 | -- | -- | |
| 7/25/2018 | 18:00 | 116.00 | -- | -- | |
| 7/25/2018 | 19:00 | 116.64 | -- | -- | |
| 7/25/2018 | 20:00 | 117.31 | -- | -- | |
| 7/25/2018 | 21:00 | 118.00 | -- | -- | |
| 7/25/2018 | 22:00 | 118.58 | -- | -- | |
| 7/25/2018 | 23:00 | 119.17 | -- | -- | |
| 7/26/2018 | 0:00 | 119.80 | -- | -- | |
| 7/26/2018 | 1:00 | 120.34 | -- | -- | |
| 7/26/2018 | 2:00 | 120.83 | -- | -- | |
| 7/26/2018 | 3:00 | 121.39 | -- | -- | |
| 7/26/2018 | 4:00 | 121.90 | -- | -- | |
| 7/26/2018 | 5:00 | 122.33 | -- | -- | |
| 7/26/2018 | 6:00 | 122.88 | -- | -- | |
| 7/26/2018 | 7:00 | 123.36 | -- | -- | |
| 7/26/2018 | 8:00 | 123.88 | -- | -- | |
| 7/26/2018 | 9:00 | 124.41 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/26/2018 | 10:00 | 124.92 | -- | -- | |
| 7/26/2018 | 11:00 | 125.35 | -- | -- | |
| 7/26/2018 | 12:00 | 125.82 | -- | -- | |
| 7/26/2018 | 13:00 | 126.20 | -- | -- | |
| 7/26/2018 | 14:00 | 126.57 | -- | -- | |
| 7/26/2018 | 14:11 | 126.61 | -- | -- | Pump in Well 4 shut down at 14:12 and in Well 2 at 14:13. |
| 7/26/2018 | 15:00 | 120.66 | -- | -- | |
| 7/26/2018 | 16:00 | 110.28 | -- | -- | |
| 7/26/2018 | 17:00 | 102.42 | -- | -- | |
| 7/26/2018 | 18:00 | 95.99 | -- | -- | |
| 7/26/2018 | 19:00 | 90.72 | -- | -- | |
| 7/26/2018 | 20:00 | 86.37 | -- | -- | |
| 7/26/2018 | 21:00 | 82.58 | -- | -- | |
| 7/26/2018 | 22:00 | 79.27 | -- | -- | |
| 7/26/2018 | 23:00 | 76.29 | -- | -- | |
| 7/27/2018 | 0:00 | 73.62 | -- | -- | |
| 7/27/2018 | 1:00 | 71.11 | -- | -- | |
| 7/27/2018 | 2:00 | 68.81 | -- | -- | |
| 7/27/2018 | 3:00 | 66.68 | -- | -- | |
| 7/27/2018 | 4:00 | 64.68 | -- | -- | |
| 7/27/2018 | 5:00 | 62.88 | -- | -- | |
| 7/27/2018 | 6:00 | 61.23 | -- | -- | |
| 7/27/2018 | 7:00 | 59.62 | -- | -- | |
| 7/27/2018 | 8:00 | 58.12 | -- | -- | |
| 7/27/2018 | 9:00 | 56.65 | -- | -- | |
| 7/27/2018 | 10:00 | 55.44 | -- | -- | |
| 7/27/2018 | 11:00 | 54.19 | -- | -- | |
| 7/27/2018 | 12:00 | 52.99 | -- | -- | |
| 7/27/2018 | 13:00 | 51.73 | -- | -- | |
| 7/27/2018 | 14:00 | 50.77 | -- | -- | |
| 7/27/2018 | 15:00 | 49.50 | -- | -- | |
| 7/27/2018 | 16:00 | 48.54 | -- | -- | |
| 7/27/2018 | 17:00 | 47.48 | -- | -- | |
| 7/27/2018 | 18:00 | 46.68 | -- | -- | |
| 7/27/2018 | 19:00 | 45.64 | -- | -- | |
| 7/27/2018 | 20:00 | 44.79 | -- | -- | |
| 7/27/2018 | 21:00 | 43.98 | -- | -- | |
| 7/27/2018 | 22:00 | 43.39 | -- | -- | |
| 7/27/2018 | 23:00 | 42.55 | -- | -- | |
| 7/28/2018 | 0:00 | 41.79 | -- | -- | |
| 7/28/2018 | 1:00 | 41.11 | -- | -- | |
| 7/28/2018 | 2:00 | 40.47 | -- | -- | |
| 7/28/2018 | 3:00 | 39.76 | -- | -- | |
| 7/28/2018 | 4:00 | 39.12 | -- | -- | |
| 7/28/2018 | 5:00 | 38.53 | -- | -- | |
| 7/28/2018 | 6:00 | 37.92 | -- | -- | |
| 7/28/2018 | 7:00 | 37.41 | -- | -- | |
| 7/28/2018 | 8:00 | 36.87 | -- | -- | |
| 7/28/2018 | 9:00 | 36.39 | -- | -- | |
| 7/28/2018 | 10:00 | 35.94 | -- | -- | |
| 7/28/2018 | 11:00 | 35.50 | -- | -- | |
| 7/28/2018 | 12:00 | 35.05 | -- | -- | |
| 7/28/2018 | 13:00 | 34.60 | -- | -- | |
| 7/28/2018 | 14:00 | 34.11 | -- | -- | |
| 7/28/2018 | 15:00 | 33.64 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/28/2018 | 16:00 | 33.18 | -- | -- | |
| 7/28/2018 | 17:00 | 32.68 | -- | -- | |
| 7/28/2018 | 18:00 | 32.20 | -- | -- | |
| 7/28/2018 | 19:00 | 31.77 | -- | -- | |
| 7/28/2018 | 20:00 | 31.34 | -- | -- | |
| 7/28/2018 | 21:00 | 30.95 | -- | -- | |
| 7/28/2018 | 22:00 | 30.62 | -- | -- | |
| 7/28/2018 | 23:00 | 30.23 | -- | -- | |
| 7/29/2018 | 0:00 | 29.91 | -- | -- | |
| 7/29/2018 | 1:00 | 29.56 | -- | -- | |
| 7/29/2018 | 2:00 | 29.18 | -- | -- | |
| 7/29/2018 | 3:00 | 28.85 | -- | -- | |
| 7/29/2018 | 4:00 | 28.47 | -- | -- | |
| 7/29/2018 | 5:00 | 28.10 | -- | -- | |
| 7/29/2018 | 6:00 | 27.81 | -- | -- | |
| 7/29/2018 | 7:00 | 27.47 | -- | -- | |
| 7/29/2018 | 8:00 | 27.06 | -- | -- | |
| 7/29/2018 | 9:00 | 26.91 | -- | -- | |
| 7/29/2018 | 10:00 | 26.64 | -- | -- | |
| 7/29/2018 | 11:00 | 26.43 | -- | -- | |
| 7/29/2018 | 12:00 | 26.22 | -- | -- | |
| 7/29/2018 | 13:00 | 25.92 | -- | -- | |
| 7/29/2018 | 14:00 | 25.69 | -- | -- | |
| 7/29/2018 | 15:00 | 25.40 | -- | -- | |
| 7/29/2018 | 16:00 | 25.11 | -- | -- | |
| 7/29/2018 | 17:00 | 24.83 | -- | -- | |
| 7/29/2018 | 18:00 | 24.43 | -- | -- | |
| 7/29/2018 | 19:00 | 24.26 | -- | -- | |
| 7/29/2018 | 20:00 | 23.90 | -- | -- | |
| 7/29/2018 | 21:00 | 23.63 | -- | -- | |
| 7/29/2018 | 22:00 | 23.47 | -- | -- | |
| 7/29/2018 | 23:00 | 23.25 | -- | -- | |
| 7/30/2018 | 0:00 | 23.07 | -- | -- | |
| 7/30/2018 | 1:00 | 22.85 | -- | -- | |
| 7/30/2018 | 2:00 | 22.64 | -- | -- | |
| 7/30/2018 | 3:00 | 22.32 | -- | -- | |
| 7/30/2018 | 4:00 | 22.07 | -- | -- | |
| 7/30/2018 | 5:00 | 21.97 | -- | -- | |
| 7/30/2018 | 6:00 | 21.75 | -- | -- | |
| 7/30/2018 | 7:00 | 21.56 | -- | -- | |
| 7/30/2018 | 8:00 | 21.37 | -- | -- | |
| 7/30/2018 | 9:00 | 21.18 | -- | -- | |
| 7/30/2018 | 10:00 | 21.06 | -- | -- | |
| 7/30/2018 | 11:00 | 20.92 | -- | -- | |
| 7/30/2018 | 12:00 | 20.80 | -- | -- | |
| 7/30/2018 | 13:00 | 20.72 | -- | -- | |
| 7/30/2018 | 14:00 | -- | -- | -- | Installed pump in Well 3. |
| 7/30/2018 | 15:00 | 20.86 | -- | -- | |
| 7/30/2018 | 16:00 | 21.16 | -- | -- | |
| 7/30/2018 | 17:00 | 20.89 | -- | -- | |
| 7/30/2018 | 18:00 | 20.72 | -- | -- | |
| 7/30/2018 | 19:00 | 20.67 | -- | -- | |
| 7/30/2018 | 20:00 | 20.52 | -- | -- | |
| 7/30/2018 | 21:00 | 20.24 | -- | -- | |
| 7/30/2018 | 22:00 | 20.10 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/30/2018 | 23:00 | 20.13 | -- | -- | |
| 7/31/2018 | 0:00 | 19.89 | -- | -- | |
| 7/31/2018 | 1:00 | 19.86 | -- | -- | |
| 7/31/2018 | 2:00 | 19.80 | -- | -- | |
| 7/31/2018 | 3:00 | 19.66 | -- | -- | |
| 7/31/2018 | 4:00 | 19.41 | -- | -- | |
| 7/31/2018 | 5:00 | 19.28 | -- | -- | |
| 7/31/2018 | 6:00 | 19.13 | -- | -- | |
| 7/31/2018 | 7:00 | 18.98 | -- | -- | |
| 7/31/2018 | 8:00 | 18.85 | -- | -- | |
| 7/31/2018 | 9:00 | 18.71 | -- | -- | |
| 7/31/2018 | 9:57 | 18.63 | -- | -- | |
| 7/31/2018 | 9:58 | 18.65 | -- | -- | |
| 7/31/2018 | 9:59 | 24.26 | 1 | 5.61 | Pump in Well 3 started. |
| 7/31/2018 | 10:00 | 30.26 | 2 | 11.61 | Pumping rate adjusted to 9.2 gpm. |
| 7/31/2018 | 10:01 | 35.55 | 3 | 16.90 | |
| 7/31/2018 | 10:02 | 40.35 | 4 | 21.70 | |
| 7/31/2018 | 10:03 | 44.66 | 5 | 26.01 | |
| 7/31/2018 | 10:04 | 48.76 | 6 | 30.11 | |
| 7/31/2018 | 10:05 | 51.41 | 7 | 32.76 | |
| 7/31/2018 | 10:06 | 53.95 | 8 | 35.30 | |
| 7/31/2018 | 10:07 | 53.83 | 9 | 35.18 | |
| 7/31/2018 | 10:08 | 54.81 | 10 | 36.16 | |
| 7/31/2018 | 10:09 | 56.59 | 11 | 37.94 | |
| 7/31/2018 | 10:10 | 57.73 | 12 | 39.08 | Pumping rate 9.2 gpm. |
| 7/31/2018 | 10:11 | 58.84 | 13 | 40.19 | |
| 7/31/2018 | 10:12 | 59.92 | 14 | 41.27 | |
| 7/31/2018 | 10:13 | 60.99 | 15 | 42.34 | |
| 7/31/2018 | 10:18 | 65.71 | 20 | 47.06 | |
| 7/31/2018 | 10:23 | 69.61 | 25 | 50.96 | |
| 7/31/2018 | 10:28 | 72.94 | 30 | 54.29 | |
| 7/31/2018 | 10:33 | 75.74 | 35 | 57.09 | Pumping rate 9.2 gpm. |
| 7/31/2018 | 10:38 | 78.25 | 40 | 59.60 | |
| 7/31/2018 | 10:43 | 80.51 | 45 | 61.86 | |
| 7/31/2018 | 10:48 | 82.54 | 50 | 63.89 | |
| 7/31/2018 | 10:53 | 84.29 | 55 | 65.64 | |
| 7/31/2018 | 10:58 | 85.94 | 60 | 67.29 | |
| 7/31/2018 | 11:00 | 86.62 | 62 | 67.97 | |
| 7/31/2018 | 12:00 | 100.35 | 122 | 81.70 | Pumping rate 9.1 gpm. |
| 7/31/2018 | 13:00 | 108.91 | 182 | 90.26 | |
| 7/31/2018 | 14:00 | 115.44 | 242 | 96.79 | Pumping rate 8.8 gpm. |
| 7/31/2018 | 15:00 | 120.62 | 302 | 101.97 | |
| 7/31/2018 | 16:00 | 125.03 | 362 | 106.38 | Pumping rate 8.8 gpm. |
| 7/31/2018 | 17:00 | 128.69 | 422 | 110.04 | |
| 7/31/2018 | 18:00 | 131.97 | 482 | 113.32 | Pumping rate 8.8 gpm. |
| 7/31/2018 | 19:00 | 135.00 | 542 | 116.35 | |
| 7/31/2018 | 20:00 | 137.77 | 602 | 119.12 | |
| 7/31/2018 | 21:00 | 140.21 | 662 | 121.56 | |
| 7/31/2018 | 22:00 | 142.54 | 722 | 123.89 | |
| 7/31/2018 | 23:00 | 144.80 | 782 | 126.15 | |
| 8/1/2018 | 0:00 | 146.77 | 842 | 128.12 | |
| 8/1/2018 | 1:00 | 148.64 | 902 | 129.99 | |
| 8/1/2018 | 2:00 | 150.38 | 962 | 131.73 | |
| 8/1/2018 | 3:00 | 151.97 | 1022 | 133.32 | |
| 8/1/2018 | 4:00 | 153.48 | 1082 | 134.83 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/1/2018 | 5:00 | 154.83 | 1142 | 136.18 | |
| 8/1/2018 | 6:00 | 156.14 | 1202 | 137.49 | |
| 8/1/2018 | 7:00 | 157.44 | 1262 | 138.79 | |
| 8/1/2018 | 8:00 | 158.60 | 1322 | 139.95 | Pumping rate 8.6 gpm. |
| 8/1/2018 | 9:00 | 159.67 | 1382 | 141.02 | |
| 8/1/2018 | 10:00 | 160.84 | 1442 | 142.19 | Pumping rate 8.6 gpm. |
| 8/1/2018 | 11:00 | 161.96 | 1502 | 143.31 | Pumping rate 8.6 gpm. |
| 8/1/2018 | 12:00 | 162.95 | 1562 | 144.30 | |
| 8/1/2018 | 13:00 | 163.97 | 1622 | 145.32 | Pumping rate 8.5 gpm. |
| 8/1/2018 | 14:00 | 164.83 | 1682 | 146.18 | |
| 8/1/2018 | 15:00 | 165.71 | 1742 | 147.06 | Pumping rate 8.5 gpm. |
| 8/1/2018 | 16:00 | 166.52 | 1802 | 147.87 | |
| 8/1/2018 | 17:00 | 167.28 | 1862 | 148.63 | Pumping rate 8.5 gpm. |
| 8/1/2018 | 18:00 | 168.09 | 1922 | 149.44 | |
| 8/1/2018 | 19:00 | 168.88 | 1982 | 150.23 | |
| 8/1/2018 | 20:00 | 169.43 | 2042 | 150.78 | |
| 8/1/2018 | 21:00 | 170.16 | 2102 | 151.51 | |
| 8/1/2018 | 22:00 | 170.94 | 2162 | 152.29 | |
| 8/1/2018 | 23:00 | 171.66 | 2222 | 153.01 | |
| 8/2/2018 | 0:00 | 172.26 | 2282 | 153.61 | |
| 8/2/2018 | 1:00 | 173.03 | 2342 | 154.38 | |
| 8/2/2018 | 2:00 | 173.67 | 2402 | 155.02 | |
| 8/2/2018 | 3:00 | 174.46 | 2462 | 155.81 | |
| 8/2/2018 | 4:00 | 175.08 | 2522 | 156.43 | |
| 8/2/2018 | 5:00 | 175.69 | 2582 | 157.04 | |
| 8/2/2018 | 6:00 | 176.22 | 2642 | 157.57 | |
| 8/2/2018 | 7:00 | 176.88 | 2702 | 158.23 | |
| 8/2/2018 | 8:00 | 177.26 | 2762 | 158.61 | Pumping rate 8.5 gpm. |
| 8/2/2018 | 9:00 | 177.76 | 2822 | 159.11 | Part 5 samples collected. |
| 8/2/2018 | 10:00 | 179.11 | 2882 | 160.46 | |
| 8/2/2018 | 11:00 | 179.20 | 2942 | 160.55 | Pumping rate 8.5 gpm. |
| 8/2/2018 | 12:00 | 179.64 | 3002 | 160.99 | |
| 8/2/2018 | 13:00 | 180.24 | 3062 | 161.59 | Pumping rate 8.5 gpm. |
| 8/2/2018 | 14:00 | 180.70 | 3122 | 162.05 | |
| 8/2/2018 | 15:00 | 181.13 | 3182 | 162.48 | Pumping rate 8.5 gpm. |
| 8/2/2018 | 16:00 | 181.67 | 3242 | 163.02 | |
| 8/2/2018 | 17:00 | 182.19 | 3302 | 163.54 | |
| 8/2/2018 | 18:00 | 182.66 | 3362 | 164.01 | |
| 8/2/2018 | 19:00 | 183.02 | 3422 | 164.37 | |
| 8/2/2018 | 20:00 | 183.44 | 3482 | 164.79 | |
| 8/2/2018 | 21:00 | 183.84 | 3542 | 165.19 | |
| 8/2/2018 | 22:00 | 184.26 | 3602 | 165.61 | |
| 8/2/2018 | 23:00 | 184.72 | 3662 | 166.07 | |
| 8/3/2018 | 0:00 | 185.06 | 3722 | 166.41 | |
| 8/3/2018 | 1:00 | 185.44 | 3782 | 166.79 | |
| 8/3/2018 | 2:00 | 185.85 | 3842 | 167.20 | |
| 8/3/2018 | 3:00 | 186.22 | 3902 | 167.57 | |
| 8/3/2018 | 4:00 | 186.57 | 3962 | 167.92 | |
| 8/3/2018 | 4:05 | 186.66 | 3967 | 168.01 | Six hours prior to shut down of pump. |
| 8/3/2018 | 5:00 | 186.97 | 4022 | 168.32 | Pumping rate 8.5 gpm. |
| 8/3/2018 | 6:00 | 187.33 | 4082 | 168.68 | |
| 8/3/2018 | 7:00 | 187.68 | 4142 | 169.03 | Pumping rate 8.5 gpm. |
| 8/3/2018 | 8:00 | 187.93 | 4202 | 169.28 | |
| 8/3/2018 | 9:00 | 188.18 | 4262 | 169.53 | Pumping rate 8.5 gpm. |
| 8/3/2018 | 10:00 | 188.41 | 4322 | 169.76 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/3/2018 | 10:04 | 188.47 | 4326 | 169.82 | Pumping rate 8.5 gpm. |
| 8/3/2018 | 10:05 | 188.50 | 4327 | 169.85 | Pump in Well 3 shut down. |
| 8/3/2018 | 10:06 | 185.11 | -1 | 166.46 | |
| 8/3/2018 | 10:07 | 178.91 | -2 | 160.26 | |
| 8/3/2018 | 10:08 | 174.87 | -3 | 156.22 | |
| 8/3/2018 | 10:09 | 171.54 | -4 | 152.89 | |
| 8/3/2018 | 10:10 | 168.99 | -5 | 150.34 | |
| 8/3/2018 | 10:11 | 166.45 | -6 | 147.80 | |
| 8/3/2018 | 10:12 | 164.28 | -7 | 145.63 | |
| 8/3/2018 | 10:13 | 162.22 | -8 | 143.57 | |
| 8/3/2018 | 10:14 | 160.16 | -9 | 141.51 | |
| 8/3/2018 | 10:15 | 158.42 | -10 | 139.77 | |
| 8/3/2018 | 10:16 | 156.72 | -11 | 138.07 | |
| 8/3/2018 | 10:17 | 155.09 | -12 | 136.44 | |
| 8/3/2018 | 10:18 | 153.59 | -13 | 134.94 | |
| 8/3/2018 | 10:19 | 152.12 | -14 | 133.47 | |
| 8/3/2018 | 10:20 | 150.90 | -15 | 132.25 | |
| 8/3/2018 | 10:25 | 145.16 | -20 | 126.51 | |
| 8/3/2018 | 10:30 | 140.85 | -25 | 122.20 | |
| 8/3/2018 | 10:35 | 137.56 | -30 | 118.91 | |
| 8/3/2018 | 10:40 | 134.44 | -35 | 115.79 | |
| 8/3/2018 | 10:45 | 131.78 | -40 | 113.13 | |
| 8/3/2018 | 10:50 | 129.60 | -45 | 110.95 | |
| 8/3/2018 | 10:55 | 127.64 | -50 | 108.99 | |
| 8/3/2018 | 11:00 | 125.79 | -55 | 107.14 | |
| 8/3/2018 | 11:05 | 124.15 | -60 | 105.50 | |
| 8/3/2018 | 12:00 | 111.74 | -115 | 93.09 | |
| 8/3/2018 | 13:00 | 103.12 | -175 | 84.47 | |
| 8/3/2018 | 14:00 | 96.71 | -235 | 78.06 | |
| 8/3/2018 | 15:00 | 91.61 | -295 | 72.96 | |
| 8/3/2018 | 16:00 | 87.44 | -355 | 68.79 | |
| 8/3/2018 | 17:00 | 83.82 | -415 | 65.17 | |
| 8/3/2018 | 18:00 | 80.37 | -475 | 61.72 | |
| 8/3/2018 | 19:00 | 77.47 | -535 | 58.82 | |
| 8/3/2018 | 20:00 | 74.84 | -595 | 56.19 | |
| 8/3/2018 | 21:00 | 72.46 | -655 | 53.81 | |
| 8/3/2018 | 22:00 | 70.27 | -715 | 51.62 | |
| 8/3/2018 | 23:00 | 68.33 | -775 | 49.68 | |
| 8/4/2018 | 0:00 | 66.46 | -835 | 47.81 | |
| 8/4/2018 | 1:00 | 64.74 | -895 | 46.09 | |
| 8/4/2018 | 2:00 | 63.18 | -955 | 44.53 | |
| 8/4/2018 | 3:00 | 61.67 | -1015 | 43.02 | |
| 8/4/2018 | 4:00 | 60.22 | -1075 | 41.57 | |
| 8/4/2018 | 5:00 | 59.02 | -1135 | 40.37 | |
| 8/4/2018 | 6:00 | 57.57 | -1195 | 38.92 | |
| 8/4/2018 | 7:00 | 56.44 | -1255 | 37.79 | |
| 8/4/2018 | 8:00 | 55.25 | -1315 | 36.60 | |
| 8/4/2018 | 9:00 | 54.04 | -1375 | 35.39 | |
| 8/4/2018 | 10:00 | 52.80 | -1435 | 34.15 | |
| 8/4/2018 | 11:00 | 51.86 | -1495 | 33.21 | |
| 8/4/2018 | 12:00 | 50.83 | -1555 | 32.18 | |
| 8/4/2018 | 13:00 | 49.94 | -1615 | 31.29 | |
| 8/4/2018 | 14:00 | 48.91 | -1675 | 30.26 | |
| 8/4/2018 | 15:00 | 48.04 | -1735 | 29.39 | |
| 8/4/2018 | 16:00 | 47.32 | -1795 | 28.67 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/4/2018 | 17:00 | 46.53 | -1855 | 27.88 | |
| 8/4/2018 | 18:00 | 45.70 | -1915 | 27.05 | |
| 8/4/2018 | 19:00 | 44.97 | -1975 | 26.32 | |
| 8/4/2018 | 20:00 | 44.11 | -2035 | 25.46 | |
| 8/4/2018 | 21:00 | 43.39 | -2095 | 24.74 | |
| 8/4/2018 | 22:00 | 42.82 | -2155 | 24.17 | |
| 8/4/2018 | 23:00 | 42.06 | -2215 | 23.41 | |
| 8/5/2018 | 0:00 | 41.50 | -2275 | 22.85 | |
| 8/5/2018 | 1:00 | 40.90 | -2335 | 22.25 | |
| 8/5/2018 | 2:00 | 40.26 | -2395 | 21.61 | |
| 8/5/2018 | 3:00 | 39.64 | -2455 | 20.99 | |
| 8/5/2018 | 4:00 | 39.23 | -2515 | 20.58 | |
| 8/5/2018 | 5:00 | 38.66 | -2575 | 20.01 | |
| 8/5/2018 | 6:00 | 38.17 | -2635 | 19.52 | |
| 8/5/2018 | 7:00 | 37.66 | -2695 | 19.01 | |
| 8/5/2018 | 8:00 | 37.18 | -2755 | 18.53 | |
| 8/5/2018 | 9:00 | 36.66 | -2815 | 18.01 | |
| 8/5/2018 | 10:00 | 36.17 | -2875 | 17.52 | |
| 8/5/2018 | 11:00 | 35.65 | -2935 | 17.00 | |
| 8/5/2018 | 12:00 | 35.22 | -2995 | 16.57 | Recovery passed 90% to pre-test level. |
| 8/5/2018 | 13:00 | 34.75 | -3055 | 16.10 | |
| 8/5/2018 | 14:00 | 34.30 | -3115 | 15.65 | |
| 8/5/2018 | 15:00 | 33.87 | -3175 | 15.22 | |
| 8/5/2018 | 16:00 | 33.45 | -3235 | 14.80 | |
| 8/5/2018 | 17:00 | 33.01 | -3295 | 14.36 | |
| 8/5/2018 | 18:00 | 32.59 | -3355 | 13.94 | |
| 8/5/2018 | 19:00 | 32.17 | -3415 | 13.52 | |
| 8/5/2018 | 20:00 | 31.81 | -3475 | 13.16 | |
| 8/5/2018 | 21:00 | 31.42 | -3535 | 12.77 | |
| 8/5/2018 | 22:00 | 31.01 | -3595 | 12.36 | |
| 8/5/2018 | 23:00 | 30.46 | -3655 | 11.81 | |
| 8/6/2018 | 0:00 | 30.20 | -3715 | 11.55 | |
| 8/6/2018 | 1:00 | 29.86 | -3775 | 11.21 | |
| 8/6/2018 | 2:00 | 29.49 | -3835 | 10.84 | |
| 8/6/2018 | 3:00 | 29.13 | -3895 | 10.48 | |
| 8/6/2018 | 4:00 | 28.82 | -3955 | 10.17 | |
| 8/6/2018 | 5:00 | 28.58 | -4015 | 9.93 | |
| 8/6/2018 | 6:00 | 28.28 | -4075 | 9.63 | |
| 8/6/2018 | 7:00 | 27.99 | -4135 | 9.34 | |
| 8/6/2018 | 8:00 | 27.72 | -4195 | 9.07 | |
| 8/6/2018 | 9:00 | 27.42 | -4255 | 8.77 | |
| 8/6/2018 | 10:00 | 27.01 | -4315 | 8.36 | |
| 8/6/2018 | 11:00 | 26.81 | -4375 | 8.16 | |
| 8/6/2018 | 12:00 | 26.50 | -4435 | 7.85 | |
| 8/6/2018 | 13:00 | 26.18 | -4495 | 7.53 | |
| 8/6/2018 | 14:00 | 25.88 | -4555 | 7.23 | |
| 8/6/2018 | 15:00 | 25.60 | -4615 | 6.95 | |
| 8/6/2018 | 16:00 | 25.21 | -4675 | 6.56 | |
| 8/6/2018 | 17:00 | 25.08 | -4735 | 6.43 | |
| 8/6/2018 | 18:00 | 24.85 | -4795 | 6.20 | |
| 8/6/2018 | 19:00 | 24.59 | -4855 | 5.94 | |
| 8/6/2018 | 20:00 | 24.36 | -4915 | 5.71 | |
| 8/6/2018 | 21:00 | 24.15 | -4975 | 5.50 | |
| 8/6/2018 | 22:00 | 23.88 | -5035 | 5.23 | |
| 8/6/2018 | 23:00 | 23.67 | -5095 | 5.02 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/7/2018 | 0:00 | 23.41 | -5155 | 4.76 | |
| 8/7/2018 | 1:00 | 23.17 | -5215 | 4.52 | |
| 8/7/2018 | 2:00 | 22.98 | -5275 | 4.33 | |
| 8/7/2018 | 3:00 | 22.77 | -5335 | 4.12 | |
| 8/7/2018 | 4:00 | 22.60 | -5395 | 3.95 | |
| 8/7/2018 | 5:00 | 22.43 | -5455 | 3.78 | |
| 8/7/2018 | 6:00 | 22.30 | -5515 | 3.65 | |
| 8/7/2018 | 7:00 | 21.99 | -5575 | 3.34 | |
| 8/7/2018 | 8:00 | 22.00 | -5635 | 3.35 | |
| 8/7/2018 | 9:00 | 21.82 | -5695 | 3.17 | |
| 8/7/2018 | 10:00 | 21.62 | -5755 | 2.97 | |
| 8/7/2018 | 11:00 | 21.46 | -5815 | 2.81 | |
| 8/7/2018 | 12:00 | 21.24 | -5875 | 2.59 | |
| 8/7/2018 | 13:00 | 21.04 | -5935 | 2.39 | |
| 8/7/2018 | 14:00 | 20.79 | -5995 | 2.14 | |
| 8/7/2018 | 15:00 | 20.60 | -6055 | 1.95 | |
| 8/7/2018 | 16:00 | 20.43 | -6115 | 1.78 | |
| 8/7/2018 | 17:00 | 20.25 | -6175 | 1.60 | |
| 8/7/2018 | 18:00 | 20.14 | -6235 | 1.49 | |
| 8/7/2018 | 19:00 | 19.95 | -6295 | 1.30 | |
| 8/7/2018 | 20:00 | 19.80 | -6355 | 1.15 | |
| 8/7/2018 | 21:00 | 19.68 | -6415 | 1.03 | |
| 8/7/2018 | 22:00 | 19.55 | -6475 | 0.90 | |
| 8/7/2018 | 23:00 | 19.36 | -6535 | 0.71 | |
| 8/8/2018 | 0:00 | 19.19 | -6595 | 0.54 | |
| 8/8/2018 | 1:00 | 18.90 | -6655 | 0.25 | |
| 8/8/2018 | 2:00 | 18.77 | -6715 | 0.12 | |
| 8/8/2018 | 3:00 | 18.69 | -6775 | 0.04 | |
| 8/8/2018 | 4:00 | 18.46 | -6835 | -0.19 | |
| 8/8/2018 | 5:00 | 18.51 | -6895 | -0.14 | |
| 8/8/2018 | 6:00 | 18.36 | -6955 | -0.29 | |
| 8/8/2018 | 7:00 | 18.17 | -7015 | -0.48 | |
| 8/8/2018 | 8:00 | 18.26 | -7075 | -0.39 | |
| 8/8/2018 | 9:00 | 18.13 | -7135 | -0.52 | |
| 8/8/2018 | 10:00 | 17.94 | -7195 | -0.71 | |
| 8/8/2018 | 11:00 | 17.90 | -7255 | -0.75 | |
| 8/8/2018 | 12:00 | 17.77 | -7315 | -0.88 | |
| 8/8/2018 | 13:00 | 17.62 | -7375 | -1.03 | |
| 8/8/2018 | 14:00 | 17.45 | -7435 | -1.21 | |
| 8/8/2018 | 15:00 | 17.27 | -7495 | -1.38 | |
| 8/8/2018 | 16:00 | 17.10 | -7555 | -1.55 | |
| 8/8/2018 | 17:00 | 16.98 | -7615 | -1.67 | |
| 8/8/2018 | 18:00 | 16.85 | -7675 | -1.80 | |
| 8/8/2018 | 19:00 | 16.75 | -7735 | -1.90 | |
| 8/8/2018 | 20:00 | 16.65 | -7795 | -2.00 | |
| 8/8/2018 | 21:00 | 16.39 | -7855 | -2.26 | |
| 8/8/2018 | 22:00 | 16.29 | -7915 | -2.36 | |
| 8/8/2018 | 23:00 | 16.29 | -7975 | -2.36 | |
| 8/9/2018 | 0:00 | 16.21 | -8035 | -2.44 | |
| 8/9/2018 | 1:00 | 16.06 | -8095 | -2.59 | |
| 8/9/2018 | 2:00 | 15.95 | -8155 | -2.70 | |
| 8/9/2018 | 3:00 | 15.72 | -8215 | -2.93 | |
| 8/9/2018 | 4:00 | 15.72 | -8275 | -2.94 | |
| 8/9/2018 | 5:00 | 15.65 | -8335 | -3.01 | |
| 8/9/2018 | 6:00 | 15.54 | -8395 | -3.11 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 3 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/9/2018 | 7:00 | 15.51 | -8455 | -3.14 | |
| 8/9/2018 | 8:00 | 15.49 | -8515 | -3.16 | |
| 8/9/2018 | 9:00 | 15.36 | -8575 | -3.29 | |
| 8/9/2018 | 10:00 | 15.43 | -8635 | -3.22 | |
| 8/9/2018 | 11:00 | 15.41 | -8695 | -3.24 | |
| 8/9/2018 | 12:00 | 15.31 | -8755 | -3.34 | |
| 8/9/2018 | 13:00 | 14.79 | -8815 | -3.86 | Pressure transducer removed from well. |

ft btoc feet below top of casing
gpm gallons per minute

H:\Wilder Balter\Lewisboro\2018\72-Hour Pumping Test Report\Well 3 WL table.docx

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**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

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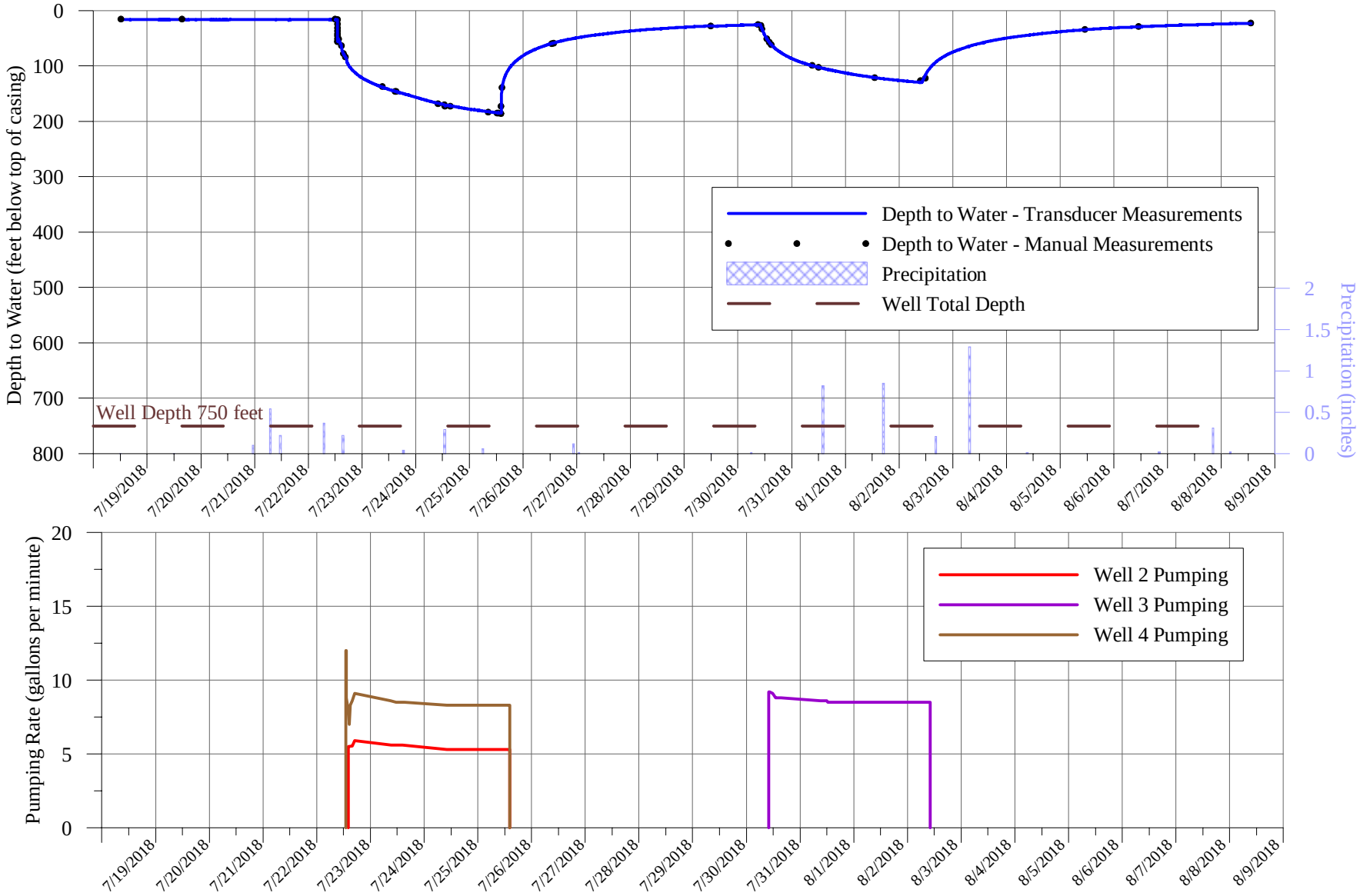
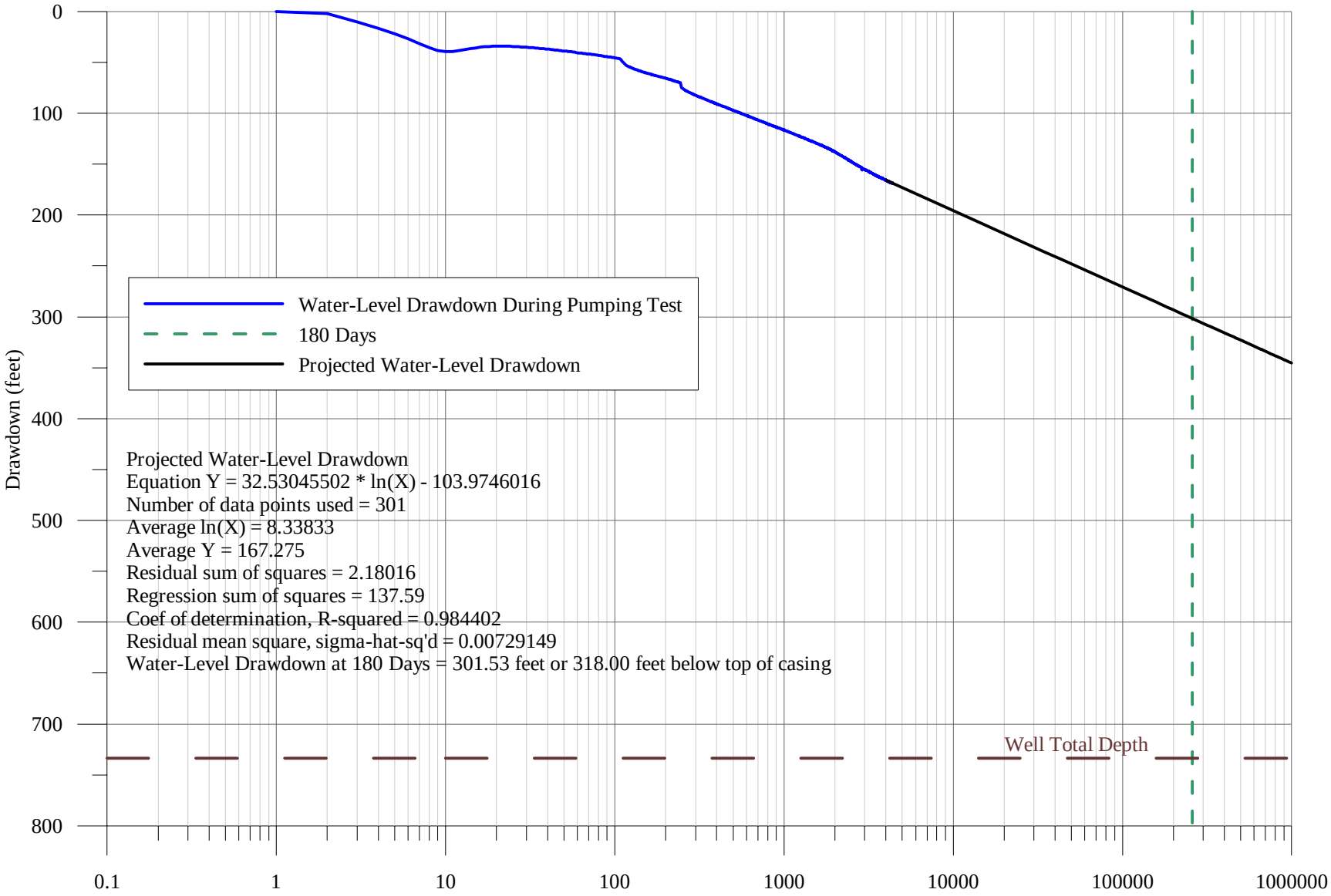
**Hydrograph of Water-Level Measurements Collected from the Onsite Pumping Well 4, During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**




*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Water-Level Drawdown Projection from Measurements Collected from Pumping Well 4, During Pumping Test on Wells 2 and 4, July 23 Through July 26, 2018**




***LBG Hydrogeologic & Engineering Services, P.C.***

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/19/2018 | 13:00 | 16.37 | -- | -- | Pressure transducer installed in well. |
| 7/19/2018 | 14:00 | 16.45 | -- | -- | |
| 7/19/2018 | 15:00 | 16.46 | -- | -- | |
| 7/19/2018 | 16:00 | 16.44 | -- | -- | |
| 7/19/2018 | 17:00 | 16.40 | -- | -- | |
| 7/19/2018 | 18:00 | 16.41 | -- | -- | |
| 7/19/2018 | 19:00 | 16.42 | -- | -- | |
| 7/19/2018 | 20:00 | 16.42 | -- | -- | |
| 7/19/2018 | 21:00 | 16.37 | -- | -- | |
| 7/19/2018 | 22:00 | 16.39 | -- | -- | |
| 7/19/2018 | 23:00 | 16.30 | -- | -- | |
| 7/20/2018 | 0:00 | 16.39 | -- | -- | |
| 7/20/2018 | 1:00 | 16.33 | -- | -- | |
| 7/20/2018 | 2:00 | 16.41 | -- | -- | |
| 7/20/2018 | 3:00 | 16.36 | -- | -- | |
| 7/20/2018 | 4:00 | 16.41 | -- | -- | |
| 7/20/2018 | 5:00 | 16.43 | -- | -- | |
| 7/20/2018 | 6:00 | 16.53 | -- | -- | |
| 7/20/2018 | 7:00 | 16.53 | -- | -- | |
| 7/20/2018 | 8:00 | 16.62 | -- | -- | |
| 7/20/2018 | 9:00 | 16.48 | -- | -- | |
| 7/20/2018 | 10:00 | 16.47 | -- | -- | |
| 7/20/2018 | 11:00 | 16.53 | -- | -- | |
| 7/20/2018 | 12:00 | 16.52 | -- | -- | |
| 7/20/2018 | 13:00 | 16.42 | -- | -- | |
| 7/20/2018 | 14:00 | 16.38 | -- | -- | |
| 7/20/2018 | 15:00 | 16.44 | -- | -- | |
| 7/20/2018 | 16:00 | 16.45 | -- | -- | |
| 7/20/2018 | 17:00 | 16.57 | -- | -- | |
| 7/20/2018 | 18:00 | 16.44 | -- | -- | |
| 7/20/2018 | 19:00 | 16.44 | -- | -- | |
| 7/20/2018 | 20:00 | 16.49 | -- | -- | |
| 7/20/2018 | 21:00 | 16.44 | -- | -- | |
| 7/20/2018 | 22:00 | 16.46 | -- | -- | |
| 7/20/2018 | 23:00 | 16.49 | -- | -- | |
| 7/21/2018 | 0:00 | 16.47 | -- | -- | |
| 7/21/2018 | 1:00 | 16.49 | -- | -- | |
| 7/21/2018 | 2:00 | 16.37 | -- | -- | |
| 7/21/2018 | 3:00 | 16.48 | -- | -- | |
| 7/21/2018 | 4:00 | 16.43 | -- | -- | |
| 7/21/2018 | 5:00 | 16.43 | -- | -- | |
| 7/21/2018 | 6:00 | 16.55 | -- | -- | |
| 7/21/2018 | 7:00 | 16.53 | -- | -- | |
| 7/21/2018 | 8:00 | 16.62 | -- | -- | |
| 7/21/2018 | 9:00 | 16.56 | -- | -- | |
| 7/21/2018 | 10:00 | 16.65 | -- | -- | |
| 7/21/2018 | 11:00 | 16.50 | -- | -- | |
| 7/21/2018 | 12:00 | 16.59 | -- | -- | |
| 7/21/2018 | 13:00 | -- | -- | -- | Pump set in Well 4. |
| 7/21/2018 | 14:00 | 15.96 | -- | -- | |
| 7/21/2018 | 15:00 | 16.09 | -- | -- | |
| 7/21/2018 | 16:00 | 16.20 | -- | -- | |
| 7/21/2018 | 17:00 | 16.18 | -- | -- | |
| 7/21/2018 | 18:00 | 16.27 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/21/2018 | 19:00 | 16.28 | -- | -- | |
| 7/21/2018 | 20:00 | 16.30 | -- | -- | |
| 7/21/2018 | 21:00 | 16.34 | -- | -- | |
| 7/21/2018 | 22:00 | 16.31 | -- | -- | |
| 7/21/2018 | 23:00 | 16.28 | -- | -- | |
| 7/22/2018 | 0:00 | 16.20 | -- | -- | |
| 7/22/2018 | 1:00 | 16.24 | -- | -- | |
| 7/22/2018 | 2:00 | 16.26 | -- | -- | |
| 7/22/2018 | 3:00 | 16.31 | -- | -- | |
| 7/22/2018 | 4:00 | 16.24 | -- | -- | |
| 7/22/2018 | 5:00 | 16.33 | -- | -- | |
| 7/22/2018 | 6:00 | 16.32 | -- | -- | |
| 7/22/2018 | 7:00 | 16.42 | -- | -- | |
| 7/22/2018 | 8:00 | 16.43 | -- | -- | |
| 7/22/2018 | 9:00 | 16.39 | -- | -- | |
| 7/22/2018 | 10:00 | 16.39 | -- | -- | |
| 7/22/2018 | 11:00 | 16.38 | -- | -- | |
| 7/22/2018 | 12:00 | 16.48 | -- | -- | |
| 7/22/2018 | 13:00 | 16.42 | -- | -- | |
| 7/22/2018 | 14:00 | 16.44 | -- | -- | |
| 7/22/2018 | 15:00 | 16.29 | -- | -- | |
| 7/22/2018 | 16:00 | 16.42 | -- | -- | |
| 7/22/2018 | 17:00 | 16.37 | -- | -- | |
| 7/22/2018 | 18:00 | 16.37 | -- | -- | |
| 7/22/2018 | 19:00 | 16.40 | -- | -- | |
| 7/22/2018 | 20:00 | 16.45 | -- | -- | |
| 7/22/2018 | 21:00 | 16.36 | -- | -- | |
| 7/22/2018 | 22:00 | 16.43 | -- | -- | |
| 7/22/2018 | 23:00 | 16.40 | -- | -- | |
| 7/23/2018 | 0:00 | 16.36 | -- | -- | |
| 7/23/2018 | 1:00 | 16.36 | -- | -- | |
| 7/23/2018 | 2:00 | 16.34 | -- | -- | |
| 7/23/2018 | 3:00 | 16.28 | -- | -- | |
| 7/23/2018 | 4:00 | 16.24 | -- | -- | |
| 7/23/2018 | 5:00 | 16.35 | -- | -- | |
| 7/23/2018 | 6:00 | 16.47 | -- | -- | |
| 7/23/2018 | 7:00 | 16.52 | -- | -- | |
| 7/23/2018 | 8:00 | 16.51 | -- | -- | |
| 7/23/2018 | 9:00 | 16.50 | -- | -- | |
| 7/23/2018 | 10:00 | 16.56 | -- | -- | |
| 7/23/2018 | 11:00 | 16.65 | -- | -- | |
| 7/23/2018 | 12:05 | 16.42 | -- | -- | |
| 7/23/2018 | 13:00 | 16.47 | -- | -- | |
| 7/23/2018 | 13:01 | 16.63 | 1 | 0.16 | Pump in Well 4 started. |
| 7/23/2018 | 13:02 | 18.26 | 2 | 1.79 | Pumping rate adjusted to 12 gpm. |
| 7/23/2018 | 13:03 | 26.65 | 3 | 10.18 | |
| 7/23/2018 | 13:04 | 32.78 | 4 | 16.31 | |
| 7/23/2018 | 13:05 | 38.31 | 5 | 21.84 | |
| 7/23/2018 | 13:06 | 43.29 | 6 | 26.82 | |
| 7/23/2018 | 13:07 | 48.01 | 7 | 31.54 | |
| 7/23/2018 | 13:08 | 51.73 | 8 | 35.26 | |
| 7/23/2018 | 13:09 | 54.74 | 9 | 38.27 | |
| 7/23/2018 | 13:10 | 55.92 | 10 | 39.45 | |
| 7/23/2018 | 13:11 | 55.73 | 11 | 39.26 | Pumping rate reduced to 10 gpm. |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/23/2018 | 13:12 | 54.72 | 12 | 38.25 | |
| 7/23/2018 | 13:13 | 53.78 | 13 | 37.31 | |
| 7/23/2018 | 13:14 | 53.03 | 14 | 36.56 | |
| 7/23/2018 | 13:15 | 52.40 | 15 | 35.93 | |
| 7/23/2018 | 13:20 | 50.47 | 20 | 34.00 | Pumping rate reduced to 8.8 gpm. |
| 7/23/2018 | 13:25 | 50.83 | 25 | 34.36 | |
| 7/23/2018 | 13:30 | 51.58 | 30 | 35.11 | Pumping rate 8.8 gpm. |
| 7/23/2018 | 13:35 | 52.44 | 35 | 35.97 | |
| 7/23/2018 | 13:40 | 53.38 | 40 | 36.91 | |
| 7/23/2018 | 13:45 | 54.30 | 45 | 37.83 | |
| 7/23/2018 | 13:50 | 55.10 | 50 | 38.63 | |
| 7/23/2018 | 13:55 | 56.01 | 55 | 39.54 | |
| 7/23/2018 | 14:00 | 56.94 | 60 | 40.47 | Pump on Well 2 started at 14:02. |
| 7/23/2018 | 15:00 | 70.17 | 120 | 53.70 | Pumping rate increased to 8.6 gpm. |
| 7/23/2018 | 16:00 | 80.20 | 180 | 63.73 | Pumping rate 8.6 gpm. |
| 7/23/2018 | 17:00 | 86.08 | 240 | 69.61 | Increased pumping rate to 9.1 gpm. |
| 7/23/2018 | 18:00 | 98.77 | 300 | 82.30 | |
| 7/23/2018 | 19:00 | 104.21 | 360 | 87.74 | |
| 7/23/2018 | 20:00 | 108.63 | 420 | 92.16 | |
| 7/23/2018 | 21:00 | 112.42 | 480 | 95.95 | |
| 7/23/2018 | 22:00 | 115.74 | 540 | 99.27 | |
| 7/23/2018 | 23:00 | 118.79 | 600 | 102.32 | |
| 7/24/2018 | 0:00 | 121.38 | 660 | 104.91 | |
| 7/24/2018 | 1:00 | 123.83 | 720 | 107.36 | |
| 7/24/2018 | 2:00 | 126.03 | 780 | 109.56 | |
| 7/24/2018 | 3:00 | 128.10 | 840 | 111.63 | |
| 7/24/2018 | 4:00 | 129.92 | 900 | 113.45 | |
| 7/24/2018 | 5:00 | 131.82 | 960 | 115.35 | |
| 7/24/2018 | 6:00 | 133.47 | 1020 | 117.00 | |
| 7/24/2018 | 7:00 | 135.02 | 1080 | 118.55 | |
| 7/24/2018 | 8:00 | 136.72 | 1140 | 120.25 | |
| 7/24/2018 | 9:00 | 138.34 | 1200 | 121.87 | Pumping rate 8.6 gpm. |
| 7/24/2018 | 10:00 | 139.74 | 1260 | 123.27 | |
| 7/24/2018 | 11:00 | 140.80 | 1320 | 124.33 | Pumping rate 8.5 gpm. |
| 7/24/2018 | 12:00 | 142.34 | 1380 | 125.87 | |
| 7/24/2018 | 13:00 | 143.53 | 1440 | 127.06 | Pumping rate 8.5 gpm. |
| 7/24/2018 | 14:00 | 144.75 | 1500 | 128.28 | |
| 7/24/2018 | 15:00 | 145.93 | 1560 | 129.46 | Pumping rate 8.5 gpm. |
| 7/24/2018 | 16:00 | 147.14 | 1620 | 130.67 | |
| 7/24/2018 | 17:00 | 148.27 | 1680 | 131.80 | Pumping rate 8.5 gpm. |
| 7/24/2018 | 18:00 | 149.35 | 1740 | 132.88 | |
| 7/24/2018 | 19:00 | 150.55 | 1800 | 134.08 | |
| 7/24/2018 | 20:00 | 151.64 | 1860 | 135.17 | |
| 7/24/2018 | 21:00 | 152.76 | 1920 | 136.29 | |
| 7/24/2018 | 22:00 | 154.04 | 1980 | 137.57 | |
| 7/24/2018 | 23:00 | 155.26 | 2040 | 138.79 | |
| 7/25/2018 | 0:00 | 156.50 | 2100 | 140.03 | |
| 7/25/2018 | 1:00 | 157.57 | 2160 | 141.10 | |
| 7/25/2018 | 2:00 | 158.80 | 2220 | 142.33 | |
| 7/25/2018 | 3:00 | 160.03 | 2280 | 143.56 | |
| 7/25/2018 | 4:00 | 161.18 | 2340 | 144.71 | |
| 7/25/2018 | 5:00 | 162.23 | 2400 | 145.76 | |
| 7/25/2018 | 6:00 | 163.22 | 2460 | 146.75 | |
| 7/25/2018 | 7:00 | 164.39 | 2520 | 147.92 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/25/2018 | 8:00 | 165.53 | 2580 | 149.06 | Pumping rate 8.3 gpm. |
| 7/25/2018 | 9:00 | 166.46 | 2640 | 149.99 | |
| 7/25/2018 | 10:00 | 167.31 | 2700 | 150.84 | Pumping rate 8.3 gpm. |
| 7/25/2018 | 11:00 | 168.26 | 2760 | 151.79 | |
| 7/25/2018 | 12:00 | 169.11 | 2820 | 152.64 | Collected Part 5 samples. |
| 7/25/2018 | 13:00 | 171.81 | 2880 | 155.34 | |
| 7/25/2018 | 14:00 | 171.03 | 2940 | 154.56 | Pumping rate 8.3 gpm. |
| 7/25/2018 | 15:00 | 171.60 | 3000 | 155.13 | |
| 7/25/2018 | 16:00 | 172.40 | 3060 | 155.93 | Pumping rate 8.3 gpm. |
| 7/25/2018 | 17:00 | 173.02 | 3120 | 156.55 | |
| 7/25/2018 | 18:00 | 173.64 | 3180 | 157.17 | Pumping rate 8.3 gpm. |
| 7/25/2018 | 19:00 | 174.44 | 3240 | 157.97 | |
| 7/25/2018 | 20:00 | 175.21 | 3300 | 158.74 | |
| 7/25/2018 | 21:00 | 176.05 | 3360 | 159.58 | |
| 7/25/2018 | 22:00 | 176.58 | 3420 | 160.11 | |
| 7/25/2018 | 23:00 | 177.41 | 3480 | 160.94 | |
| 7/26/2018 | 0:00 | 177.95 | 3540 | 161.48 | |
| 7/26/2018 | 1:00 | 178.47 | 3600 | 162.00 | |
| 7/26/2018 | 2:00 | 179.11 | 3660 | 162.64 | |
| 7/26/2018 | 3:00 | 179.69 | 3720 | 163.22 | |
| 7/26/2018 | 4:00 | 180.03 | 3780 | 163.56 | |
| 7/26/2018 | 5:00 | 180.61 | 3840 | 164.14 | |
| 7/26/2018 | 6:00 | 181.20 | 3900 | 164.73 | |
| 7/26/2018 | 7:00 | 181.80 | 3960 | 165.33 | |
| 7/26/2018 | 8:00 | 182.46 | 4020 | 165.99 | Pumping rate 8.3 gpm. |
| 7/26/2018 | 8:12 | 182.59 | 4032 | 166.12 | Six hours prior to shut down of pump. |
| 7/26/2018 | 9:00 | 182.95 | 4080 | 166.48 | Pumping rate 8.3 gpm. |
| 7/26/2018 | 10:00 | 183.57 | 4140 | 167.10 | |
| 7/26/2018 | 11:00 | 183.86 | 4200 | 167.39 | Pumping rate 8.3 gpm. |
| 7/26/2018 | 12:00 | 184.30 | 4260 | 167.83 | |
| 7/26/2018 | 13:00 | 184.71 | 4320 | 168.24 | Pumping rate 8.3 gpm. |
| 7/26/2018 | 14:00 | 185.15 | 4380 | 168.68 | |
| 7/26/2018 | 14:11 | 185.11 | 4391 | 168.64 | Pumping rate 8.3 gpm. |
| 7/26/2018 | 14:12 | 185.38 | 4392 | 168.91 | Pump in Well 4 shut down. |
| 7/26/2018 | 14:13 | 179.70 | -1 | 163.23 | |
| 7/26/2018 | 14:14 | 173.09 | -2 | 156.62 | |
| 7/26/2018 | 14:15 | 169.14 | -3 | 152.67 | |
| 7/26/2018 | 14:16 | 165.34 | -4 | 148.87 | |
| 7/26/2018 | 14:17 | 162.05 | -5 | 145.58 | |
| 7/26/2018 | 14:18 | 159.08 | -6 | 142.61 | |
| 7/26/2018 | 14:19 | 156.47 | -7 | 140.00 | |
| 7/26/2018 | 14:20 | 154.22 | -8 | 137.75 | |
| 7/26/2018 | 14:21 | 152.14 | -9 | 135.67 | |
| 7/26/2018 | 14:22 | 150.31 | -10 | 133.84 | |
| 7/26/2018 | 14:23 | 148.84 | -11 | 132.37 | |
| 7/26/2018 | 14:24 | 147.53 | -12 | 131.06 | |
| 7/26/2018 | 14:25 | 146.33 | -13 | 129.86 | |
| 7/26/2018 | 14:26 | 145.25 | -14 | 128.78 | |
| 7/26/2018 | 14:27 | 144.35 | -15 | 127.88 | |
| 7/26/2018 | 14:32 | 140.71 | -20 | 124.24 | |
| 7/26/2018 | 14:37 | 138.00 | -25 | 121.53 | |
| 7/26/2018 | 14:42 | 135.73 | -30 | 119.26 | |
| 7/26/2018 | 14:47 | 133.92 | -35 | 117.45 | |
| 7/26/2018 | 14:52 | 132.21 | -40 | 115.74 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/26/2018 | 14:57 | 130.74 | -45 | 114.27 | |
| 7/26/2018 | 15:02 | 129.37 | -50 | 112.90 | |
| 7/26/2018 | 15:07 | 128.13 | -55 | 111.66 | |
| 7/26/2018 | 15:12 | 126.90 | -60 | 110.43 | |
| 7/26/2018 | 16:00 | 117.62 | -108 | 101.15 | |
| 7/26/2018 | 17:00 | 109.66 | -168 | 93.19 | |
| 7/26/2018 | 18:00 | 103.26 | -228 | 86.79 | |
| 7/26/2018 | 19:00 | 98.27 | -288 | 81.80 | |
| 7/26/2018 | 20:00 | 94.02 | -348 | 77.55 | |
| 7/26/2018 | 21:00 | 90.34 | -408 | 73.87 | |
| 7/26/2018 | 22:00 | 87.04 | -468 | 70.57 | |
| 7/26/2018 | 23:00 | 84.06 | -528 | 67.59 | |
| 7/27/2018 | 0:00 | 81.34 | -588 | 64.87 | |
| 7/27/2018 | 1:00 | 78.89 | -648 | 62.42 | |
| 7/27/2018 | 2:00 | 76.58 | -708 | 60.11 | |
| 7/27/2018 | 3:00 | 74.46 | -768 | 57.99 | |
| 7/27/2018 | 4:00 | 72.51 | -828 | 56.04 | |
| 7/27/2018 | 5:00 | 70.62 | -888 | 54.15 | |
| 7/27/2018 | 6:00 | 68.93 | -948 | 52.46 | |
| 7/27/2018 | 7:00 | 67.20 | -1008 | 50.73 | |
| 7/27/2018 | 8:00 | 65.70 | -1068 | 49.23 | |
| 7/27/2018 | 9:00 | 64.38 | -1128 | 47.91 | |
| 7/27/2018 | 10:00 | 62.86 | -1188 | 46.39 | |
| 7/27/2018 | 11:00 | 61.60 | -1248 | 45.13 | |
| 7/27/2018 | 12:00 | 60.32 | -1308 | 43.85 | |
| 7/27/2018 | 13:00 | 59.13 | -1368 | 42.66 | |
| 7/27/2018 | 14:00 | 57.93 | -1428 | 41.46 | |
| 7/27/2018 | 15:00 | 56.80 | -1488 | 40.33 | |
| 7/27/2018 | 16:00 | 55.86 | -1548 | 39.39 | |
| 7/27/2018 | 17:00 | 54.72 | -1608 | 38.25 | |
| 7/27/2018 | 18:00 | 53.88 | -1668 | 37.41 | |
| 7/27/2018 | 19:00 | 52.90 | -1728 | 36.43 | |
| 7/27/2018 | 20:00 | 52.14 | -1788 | 35.67 | |
| 7/27/2018 | 21:00 | 51.41 | -1848 | 34.94 | |
| 7/27/2018 | 22:00 | 50.65 | -1908 | 34.18 | |
| 7/27/2018 | 23:00 | 49.92 | -1968 | 33.45 | |
| 7/28/2018 | 0:00 | 49.18 | -2028 | 32.71 | |
| 7/28/2018 | 1:00 | 48.47 | -2088 | 32.00 | |
| 7/28/2018 | 2:00 | 47.83 | -2148 | 31.36 | |
| 7/28/2018 | 3:00 | 47.14 | -2208 | 30.67 | |
| 7/28/2018 | 4:00 | 46.39 | -2268 | 29.92 | |
| 7/28/2018 | 5:00 | 45.88 | -2328 | 29.41 | |
| 7/28/2018 | 6:00 | 45.27 | -2388 | 28.80 | |
| 7/28/2018 | 7:00 | 44.60 | -2448 | 28.13 | |
| 7/28/2018 | 8:00 | 44.33 | -2508 | 27.86 | |
| 7/28/2018 | 9:00 | 43.64 | -2568 | 27.17 | |
| 7/28/2018 | 10:00 | 43.19 | -2628 | 26.72 | |
| 7/28/2018 | 11:00 | 42.79 | -2688 | 26.32 | |
| 7/28/2018 | 12:00 | 42.34 | -2748 | 25.87 | |
| 7/28/2018 | 13:00 | 41.76 | -2808 | 25.29 | |
| 7/28/2018 | 14:00 | 41.32 | -2868 | 24.85 | |
| 7/28/2018 | 15:00 | 40.80 | -2928 | 24.33 | |
| 7/28/2018 | 16:00 | 40.25 | -2988 | 23.78 | |
| 7/28/2018 | 17:00 | 39.79 | -3048 | 23.32 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/28/2018 | 18:00 | 39.23 | -3108 | 22.76 | |
| 7/28/2018 | 19:00 | 38.94 | -3168 | 22.47 | |
| 7/28/2018 | 20:00 | 38.34 | -3228 | 21.87 | |
| 7/28/2018 | 21:00 | 38.00 | -3288 | 21.53 | |
| 7/28/2018 | 22:00 | 37.64 | -3348 | 21.17 | |
| 7/28/2018 | 23:00 | 37.15 | -3408 | 20.68 | |
| 7/29/2018 | 0:00 | 36.87 | -3468 | 20.40 | |
| 7/29/2018 | 1:00 | 36.50 | -3528 | 20.03 | |
| 7/29/2018 | 2:00 | 36.16 | -3588 | 19.69 | |
| 7/29/2018 | 3:00 | 35.77 | -3648 | 19.30 | |
| 7/29/2018 | 4:00 | 35.41 | -3708 | 18.94 | |
| 7/29/2018 | 5:00 | 35.05 | -3768 | 18.58 | |
| 7/29/2018 | 6:00 | 34.63 | -3828 | 18.16 | |
| 7/29/2018 | 7:00 | 34.41 | -3888 | 17.94 | |
| 7/29/2018 | 8:00 | 34.14 | -3948 | 17.67 | |
| 7/29/2018 | 9:00 | 33.80 | -4008 | 17.33 | |
| 7/29/2018 | 10:00 | 33.48 | -4068 | 17.01 | |
| 7/29/2018 | 11:00 | 33.29 | -4128 | 16.82 | Recovery passed 90% to pre-test level. |
| 7/29/2018 | 12:00 | 32.95 | -4188 | 16.48 | |
| 7/29/2018 | 13:00 | 32.70 | -4248 | 16.23 | |
| 7/29/2018 | 14:00 | 32.54 | -4308 | 16.07 | |
| 7/29/2018 | 15:00 | 32.20 | -4368 | 15.73 | |
| 7/29/2018 | 16:00 | 31.92 | -4428 | 15.45 | |
| 7/29/2018 | 17:00 | 31.60 | -4488 | 15.13 | |
| 7/29/2018 | 18:00 | 31.34 | -4548 | 14.87 | |
| 7/29/2018 | 19:00 | 31.01 | -4608 | 14.54 | |
| 7/29/2018 | 20:00 | 30.87 | -4668 | 14.40 | |
| 7/29/2018 | 21:00 | 30.65 | -4728 | 14.18 | |
| 7/29/2018 | 22:00 | 30.39 | -4788 | 13.92 | |
| 7/29/2018 | 23:00 | 30.18 | -4848 | 13.71 | |
| 7/30/2018 | 0:00 | 29.91 | -4908 | 13.44 | |
| 7/30/2018 | 1:00 | 29.69 | -4968 | 13.22 | |
| 7/30/2018 | 2:00 | 29.50 | -5028 | 13.03 | |
| 7/30/2018 | 3:00 | 29.29 | -5088 | 12.82 | |
| 7/30/2018 | 4:00 | 29.16 | -5148 | 12.69 | |
| 7/30/2018 | 5:00 | 28.86 | -5208 | 12.39 | |
| 7/30/2018 | 6:00 | 28.67 | -5268 | 12.20 | |
| 7/30/2018 | 7:00 | 28.43 | -5328 | 11.96 | |
| 7/30/2018 | 8:00 | 28.28 | -5388 | 11.81 | |
| 7/30/2018 | 9:00 | 28.09 | -5448 | 11.62 | |
| 7/30/2018 | 10:00 | 28.06 | -5508 | 11.59 | |
| 7/30/2018 | 11:00 | 27.71 | -5568 | 11.24 | |
| 7/30/2018 | 12:00 | 27.64 | -5628 | 11.17 | |
| 7/30/2018 | 13:00 | -- | -- | -- | Pump removed from Well 4. |
| 7/30/2018 | 15:00 | 28.05 | -5810 | 11.58 | |
| 7/30/2018 | 16:00 | 27.79 | -5870 | 11.32 | |
| 7/30/2018 | 17:00 | 27.57 | -5930 | 11.10 | |
| 7/30/2018 | 18:00 | 27.44 | -5990 | 10.97 | |
| 7/30/2018 | 19:00 | 27.20 | -6050 | 10.73 | |
| 7/30/2018 | 20:00 | 27.02 | -6110 | 10.55 | |
| 7/30/2018 | 21:00 | 26.89 | -6170 | 10.42 | |
| 7/30/2018 | 22:00 | 26.80 | -6230 | 10.33 | |
| 7/30/2018 | 23:00 | 26.67 | -6290 | 10.20 | |
| 7/31/2018 | 0:00 | 26.58 | -6350 | 10.11 | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 7/31/2018 | 1:00 | 26.38 | -6410 | 9.91 | |
| 7/31/2018 | 2:00 | 26.32 | -6470 | 9.85 | |
| 7/31/2018 | 3:00 | 26.23 | -6530 | 9.76 | |
| 7/31/2018 | 4:00 | 25.97 | -6590 | 9.50 | |
| 7/31/2018 | 5:00 | 25.91 | -6650 | 9.44 | |
| 7/31/2018 | 6:00 | 25.71 | -6710 | 9.24 | |
| 7/31/2018 | 7:00 | 25.65 | -6770 | 9.18 | |
| 7/31/2018 | 8:00 | 25.55 | -6830 | 9.08 | |
| 7/31/2018 | 9:02 | 25.44 | -6892 | 8.97 | |
| 7/31/2018 | 9:59 | 25.40 | -- | -- | Pump in Well 3 started. |
| 7/31/2018 | 10:00 | 25.39 | -- | -- | |
| 7/31/2018 | 11:00 | 35.66 | -- | -- | |
| 7/31/2018 | 12:00 | 44.43 | -- | -- | |
| 7/31/2018 | 13:00 | 51.43 | -- | -- | |
| 7/31/2018 | 14:00 | 57.12 | -- | -- | |
| 7/31/2018 | 15:00 | 61.87 | -- | -- | |
| 7/31/2018 | 16:00 | 65.90 | -- | -- | |
| 7/31/2018 | 17:00 | 69.46 | -- | -- | |
| 7/31/2018 | 18:00 | 72.66 | -- | -- | |
| 7/31/2018 | 19:00 | 75.38 | -- | -- | |
| 7/31/2018 | 20:00 | 77.95 | -- | -- | |
| 7/31/2018 | 21:00 | 80.33 | -- | -- | |
| 7/31/2018 | 22:00 | 82.45 | -- | -- | |
| 7/31/2018 | 23:00 | 84.64 | -- | -- | |
| 8/1/2018 | 0:00 | 86.50 | -- | -- | |
| 8/1/2018 | 1:00 | 88.28 | -- | -- | |
| 8/1/2018 | 2:00 | 89.96 | -- | -- | |
| 8/1/2018 | 3:00 | 91.53 | -- | -- | |
| 8/1/2018 | 4:00 | 93.05 | -- | -- | |
| 8/1/2018 | 5:00 | 94.25 | -- | -- | |
| 8/1/2018 | 6:00 | 95.71 | -- | -- | |
| 8/1/2018 | 7:00 | 96.99 | -- | -- | |
| 8/1/2018 | 8:00 | 98.12 | -- | -- | |
| 8/1/2018 | 9:00 | 99.23 | -- | -- | |
| 8/1/2018 | 10:00 | 100.21 | -- | -- | |
| 8/1/2018 | 11:00 | 101.32 | -- | -- | |
| 8/1/2018 | 12:00 | 102.34 | -- | -- | |
| 8/1/2018 | 13:00 | 103.47 | -- | -- | |
| 8/1/2018 | 14:00 | 104.34 | -- | -- | |
| 8/1/2018 | 15:00 | 105.27 | -- | -- | |
| 8/1/2018 | 16:00 | 106.09 | -- | -- | |
| 8/1/2018 | 17:00 | 106.97 | -- | -- | |
| 8/1/2018 | 18:00 | 107.75 | -- | -- | |
| 8/1/2018 | 19:00 | 108.66 | -- | -- | |
| 8/1/2018 | 20:00 | 109.42 | -- | -- | |
| 8/1/2018 | 21:00 | 110.16 | -- | -- | |
| 8/1/2018 | 22:00 | 110.96 | -- | -- | |
| 8/1/2018 | 23:00 | 111.70 | -- | -- | |
| 8/2/2018 | 0:00 | 112.40 | -- | -- | |
| 8/2/2018 | 1:00 | 113.31 | -- | -- | |
| 8/2/2018 | 2:00 | 113.94 | -- | -- | |
| 8/2/2018 | 3:00 | 114.78 | -- | -- | |
| 8/2/2018 | 4:00 | 115.45 | -- | -- | |
| 8/2/2018 | 5:00 | 116.12 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/2/2018 | 6:00 | 116.82 | -- | -- | |
| 8/2/2018 | 7:00 | 117.53 | -- | -- | |
| 8/2/2018 | 8:00 | 117.96 | -- | -- | |
| 8/2/2018 | 9:00 | 118.51 | -- | -- | |
| 8/2/2018 | 10:00 | 119.30 | -- | -- | |
| 8/2/2018 | 11:00 | 120.00 | -- | -- | |
| 8/2/2018 | 12:00 | 120.48 | -- | -- | |
| 8/2/2018 | 13:00 | 120.97 | -- | -- | |
| 8/2/2018 | 14:00 | 121.59 | -- | -- | |
| 8/2/2018 | 15:00 | 122.13 | -- | -- | |
| 8/2/2018 | 16:00 | 122.55 | -- | -- | |
| 8/2/2018 | 17:00 | 123.03 | -- | -- | |
| 8/2/2018 | 18:00 | 123.53 | -- | -- | |
| 8/2/2018 | 19:00 | 124.14 | -- | -- | |
| 8/2/2018 | 20:00 | 124.44 | -- | -- | |
| 8/2/2018 | 21:00 | 124.86 | -- | -- | |
| 8/2/2018 | 22:00 | 125.31 | -- | -- | |
| 8/3/2018 | 23:00 | 76.73 | -- | -- | |
| 8/3/2018 | 0:00 | 126.09 | -- | -- | |
| 8/3/2018 | 1:00 | 126.51 | -- | -- | |
| 8/3/2018 | 2:00 | 126.93 | -- | -- | |
| 8/3/2018 | 3:00 | 127.28 | -- | -- | |
| 8/3/2018 | 4:00 | 127.71 | -- | -- | |
| 8/3/2018 | 5:00 | 128.02 | -- | -- | |
| 8/3/2018 | 6:00 | 128.37 | -- | -- | |
| 8/3/2018 | 7:00 | 128.72 | -- | -- | |
| 8/3/2018 | 8:00 | 129.06 | -- | -- | |
| 8/3/2018 | 9:00 | 129.43 | -- | -- | |
| 8/3/2018 | 10:00 | 129.85 | -- | -- | |
| 8/3/2018 | 10:05 | 129.71 | -- | -- | Pump in Well 3 shut down. |
| 8/3/2018 | 11:00 | 122.85 | -- | -- | |
| 8/3/2018 | 12:00 | 114.42 | -- | -- | |
| 8/3/2018 | 13:00 | 107.91 | -- | -- | |
| 8/3/2018 | 14:00 | 102.68 | -- | -- | |
| 8/3/2018 | 15:00 | 98.22 | -- | -- | |
| 8/3/2018 | 16:00 | 94.44 | -- | -- | |
| 8/3/2018 | 17:00 | 91.03 | -- | -- | |
| 8/3/2018 | 18:00 | 88.22 | -- | -- | |
| 8/3/2018 | 19:00 | 85.41 | -- | -- | |
| 8/3/2018 | 20:00 | 82.92 | -- | -- | |
| 8/3/2018 | 21:00 | 80.65 | -- | -- | |
| 8/3/2018 | 22:00 | 78.46 | -- | -- | |
| 8/3/2018 | 23:00 | 76.73 | -- | -- | |
| 8/4/2018 | 0:00 | 74.92 | -- | -- | |
| 8/4/2018 | 1:00 | 73.30 | -- | -- | |
| 8/4/2018 | 2:00 | 71.76 | -- | -- | |
| 8/4/2018 | 3:00 | 70.23 | -- | -- | |
| 8/4/2018 | 4:00 | 68.85 | -- | -- | |
| 8/4/2018 | 5:00 | 67.39 | -- | -- | |
| 8/4/2018 | 6:00 | 66.15 | -- | -- | |
| 8/4/2018 | 7:00 | 64.87 | -- | -- | |
| 8/4/2018 | 8:00 | 63.63 | -- | -- | |
| 8/4/2018 | 9:00 | 62.46 | -- | -- | |
| 8/4/2018 | 10:00 | 61.34 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/4/2018 | 11:00 | 60.32 | -- | -- | |
| 8/4/2018 | 12:00 | 59.20 | -- | -- | |
| 8/4/2018 | 13:00 | 58.45 | -- | -- | |
| 8/4/2018 | 14:00 | 57.61 | -- | -- | |
| 8/4/2018 | 15:00 | 56.40 | -- | -- | |
| 8/4/2018 | 16:00 | 55.39 | -- | -- | |
| 8/4/2018 | 17:00 | 54.65 | -- | -- | |
| 8/4/2018 | 18:00 | 53.74 | -- | -- | |
| 8/4/2018 | 19:00 | 53.15 | -- | -- | |
| 8/4/2018 | 20:00 | 52.43 | -- | -- | |
| 8/4/2018 | 21:00 | 51.66 | -- | -- | |
| 8/4/2018 | 22:00 | 50.93 | -- | -- | |
| 8/4/2018 | 23:00 | 50.38 | -- | -- | |
| 8/5/2018 | 0:00 | 49.61 | -- | -- | |
| 8/5/2018 | 1:00 | 49.07 | -- | -- | |
| 8/5/2018 | 2:00 | 48.54 | -- | -- | |
| 8/5/2018 | 3:00 | 47.95 | -- | -- | |
| 8/5/2018 | 4:00 | 47.38 | -- | -- | |
| 8/5/2018 | 5:00 | 46.74 | -- | -- | |
| 8/5/2018 | 6:00 | 46.39 | -- | -- | |
| 8/5/2018 | 7:00 | 45.70 | -- | -- | |
| 8/5/2018 | 8:00 | 45.25 | -- | -- | |
| 8/5/2018 | 9:00 | 44.80 | -- | -- | |
| 8/5/2018 | 10:00 | 44.37 | -- | -- | |
| 8/5/2018 | 11:00 | 43.70 | -- | -- | |
| 8/5/2018 | 12:00 | 43.22 | -- | -- | |
| 8/5/2018 | 13:00 | 42.82 | -- | -- | |
| 8/5/2018 | 14:00 | 42.34 | -- | -- | |
| 8/5/2018 | 15:00 | 41.87 | -- | -- | |
| 8/5/2018 | 16:00 | 41.34 | -- | -- | |
| 8/5/2018 | 17:00 | 40.89 | -- | -- | |
| 8/5/2018 | 18:00 | 40.45 | -- | -- | |
| 8/5/2018 | 19:00 | 40.13 | -- | -- | |
| 8/5/2018 | 20:00 | 39.68 | -- | -- | |
| 8/5/2018 | 21:00 | 39.30 | -- | -- | |
| 8/5/2018 | 22:00 | 38.90 | -- | -- | |
| 8/5/2018 | 23:00 | 38.41 | -- | -- | |
| 8/6/2018 | 0:00 | 38.09 | -- | -- | |
| 8/6/2018 | 1:00 | 37.72 | -- | -- | |
| 8/6/2018 | 2:00 | 37.34 | -- | -- | |
| 8/6/2018 | 3:00 | 36.95 | -- | -- | |
| 8/6/2018 | 4:00 | 36.65 | -- | -- | |
| 8/6/2018 | 5:00 | 36.44 | -- | -- | |
| 8/6/2018 | 6:00 | 36.24 | -- | -- | |
| 8/6/2018 | 7:00 | 35.76 | -- | -- | |
| 8/6/2018 | 8:00 | 35.47 | -- | -- | |
| 8/6/2018 | 9:00 | 35.27 | -- | -- | |
| 8/6/2018 | 10:00 | 34.80 | -- | -- | |
| 8/6/2018 | 11:00 | 34.65 | -- | -- | |
| 8/6/2018 | 12:00 | 34.16 | -- | -- | |
| 8/6/2018 | 13:00 | 33.95 | -- | -- | |
| 8/6/2018 | 14:00 | 33.66 | -- | -- | |
| 8/6/2018 | 15:00 | 33.37 | -- | -- | |
| 8/6/2018 | 16:00 | 33.13 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/6/2018 | 17:00 | 32.89 | -- | -- | |
| 8/6/2018 | 18:00 | 32.58 | -- | -- | |
| 8/6/2018 | 19:00 | 32.35 | -- | -- | |
| 8/6/2018 | 20:00 | 32.18 | -- | -- | |
| 8/6/2018 | 21:00 | 32.01 | -- | -- | |
| 8/6/2018 | 22:00 | 31.74 | -- | -- | |
| 8/6/2018 | 23:00 | 31.45 | -- | -- | |
| 8/7/2018 | 0:00 | 31.23 | -- | -- | |
| 8/7/2018 | 1:00 | 30.98 | -- | -- | |
| 8/7/2018 | 2:00 | 30.79 | -- | -- | |
| 8/7/2018 | 3:00 | 30.70 | -- | -- | |
| 8/7/2018 | 4:00 | 30.47 | -- | -- | |
| 8/7/2018 | 5:00 | 30.35 | -- | -- | |
| 8/7/2018 | 6:00 | 30.12 | -- | -- | |
| 8/7/2018 | 7:00 | 29.98 | -- | -- | |
| 8/7/2018 | 8:00 | 29.81 | -- | -- | |
| 8/7/2018 | 9:00 | 29.58 | -- | -- | |
| 8/7/2018 | 10:00 | 29.45 | -- | -- | |
| 8/7/2018 | 11:00 | 29.27 | -- | -- | |
| 8/7/2018 | 12:00 | 29.17 | -- | -- | |
| 8/7/2018 | 13:00 | 28.82 | -- | -- | |
| 8/7/2018 | 14:00 | 28.69 | -- | -- | |
| 8/7/2018 | 15:00 | 28.58 | -- | -- | |
| 8/7/2018 | 16:00 | 28.16 | -- | -- | |
| 8/7/2018 | 17:00 | 28.17 | -- | -- | |
| 8/7/2018 | 18:00 | 28.02 | -- | -- | |
| 8/7/2018 | 19:00 | 27.87 | -- | -- | |
| 8/7/2018 | 20:00 | 27.69 | -- | -- | |
| 8/7/2018 | 21:00 | 27.49 | -- | -- | |
| 8/7/2018 | 22:00 | 27.42 | -- | -- | |
| 8/7/2018 | 23:00 | 27.23 | -- | -- | |
| 8/8/2018 | 0:00 | 27.03 | -- | -- | |
| 8/8/2018 | 1:00 | 26.92 | -- | -- | |
| 8/8/2018 | 2:00 | 26.79 | -- | -- | |
| 8/8/2018 | 3:00 | 26.71 | -- | -- | |
| 8/8/2018 | 4:00 | 26.53 | -- | -- | |
| 8/8/2018 | 5:00 | 26.52 | -- | -- | |
| 8/8/2018 | 6:00 | 26.41 | -- | -- | |
| 8/8/2018 | 7:00 | 26.23 | -- | -- | |
| 8/8/2018 | 8:00 | 26.11 | -- | -- | |
| 8/8/2018 | 9:00 | 26.12 | -- | -- | |
| 8/8/2018 | 10:00 | 25.93 | -- | -- | |
| 8/8/2018 | 11:00 | 25.83 | -- | -- | |
| 8/8/2018 | 12:00 | 25.75 | -- | -- | |
| 8/8/2018 | 13:00 | 25.44 | -- | -- | |
| 8/8/2018 | 14:00 | 25.33 | -- | -- | |
| 8/8/2018 | 15:00 | 25.16 | -- | -- | |
| 8/8/2018 | 16:00 | 25.09 | -- | -- | |
| 8/8/2018 | 17:00 | 24.91 | -- | -- | |
| 8/8/2018 | 18:00 | 24.89 | -- | -- | |
| 8/8/2018 | 19:00 | 24.74 | -- | -- | |
| 8/8/2018 | 20:00 | 24.62 | -- | -- | |
| 8/8/2018 | 21:00 | 24.43 | -- | -- | |
| 8/8/2018 | 22:00 | 24.42 | -- | -- | |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Summary of Water-Level Measurements Collected from Onsite Pumping Well 4 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) | Elapsed Time (minutes) | Drawdown (feet) | Comments |
|---|---|---|---|---|---|
| 8/8/2018 | 23:00 | 24.26 | -- | -- | |
| 8/9/2018 | 0:00 | 24.19 | -- | -- | |
| 8/9/2018 | 1:00 | 23.98 | -- | -- | |
| 8/9/2018 | 2:00 | 23.83 | -- | -- | |
| 8/9/2018 | 3:00 | 23.69 | -- | -- | |
| 8/9/2018 | 4:00 | 23.74 | -- | -- | |
| 8/9/2018 | 5:00 | 23.66 | -- | -- | |
| 8/9/2018 | 6:00 | 23.61 | -- | -- | |
| 8/9/2018 | 7:00 | 23.57 | -- | -- | |
| 8/9/2018 | 8:00 | 23.55 | -- | -- | |
| 8/9/2018 | 9:00 | 23.49 | -- | -- | |
| 8/9/2018 | 10:00 | 23.50 | -- | -- | |
| 8/9/2018 | 11:00 | 23.39 | -- | -- | |
| 8/9/2018 | 12:00 | 23.35 | -- | -- | |
| 8/9/2018 | 13:00 | 23.22 | -- | -- | Pressure transducer removed from well. |

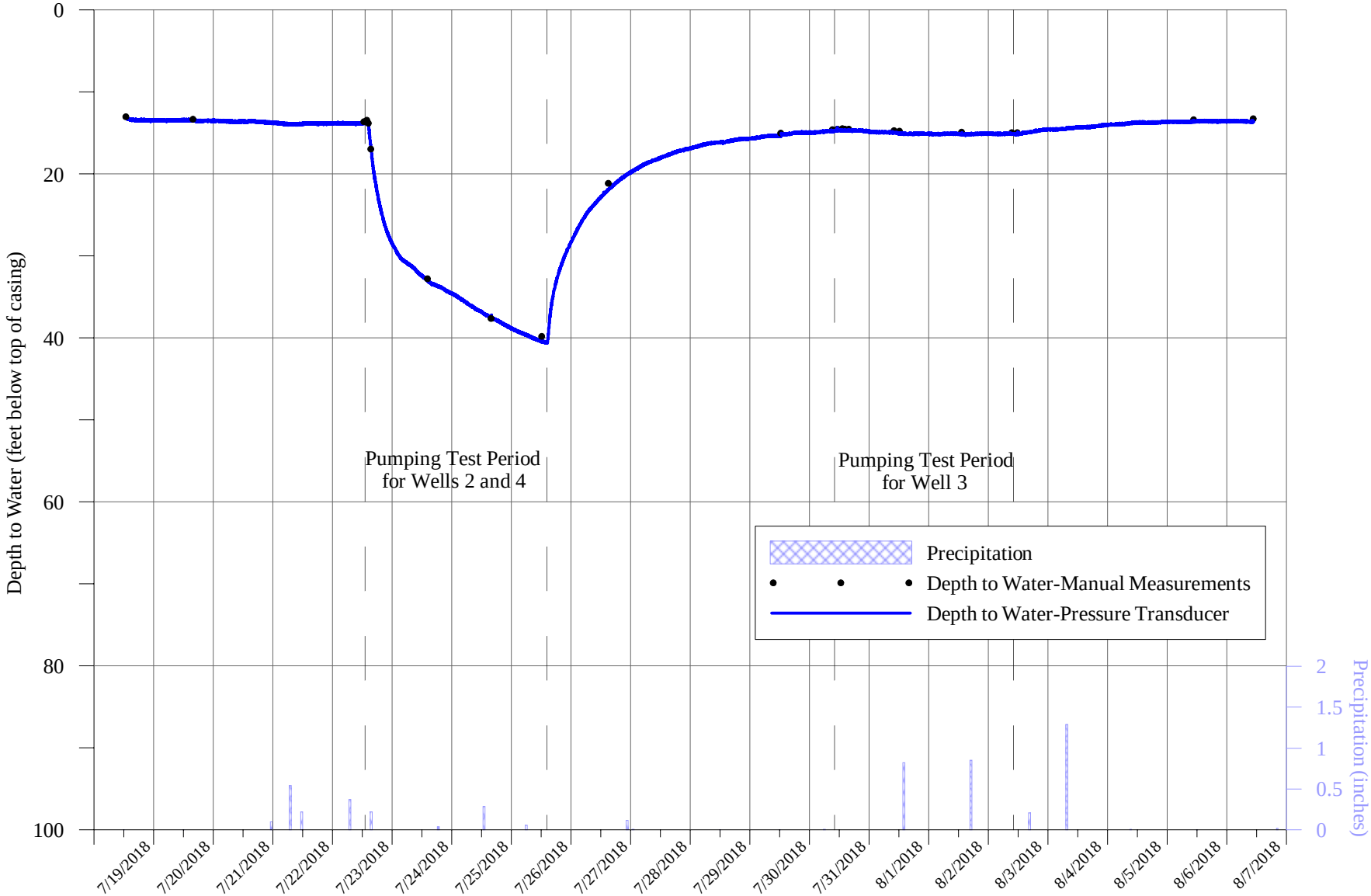
ft btoc feet below top of casing
gpm gallons per minute

H:\Wilder Balter\Lewisboro\2018\72-Hour Pumping Test Report\Well 4 WL table.docx

# PPE DI III

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Hydrograph of Water-Level Measurements Collected from Onsite Monitoring Well 1 During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**




*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

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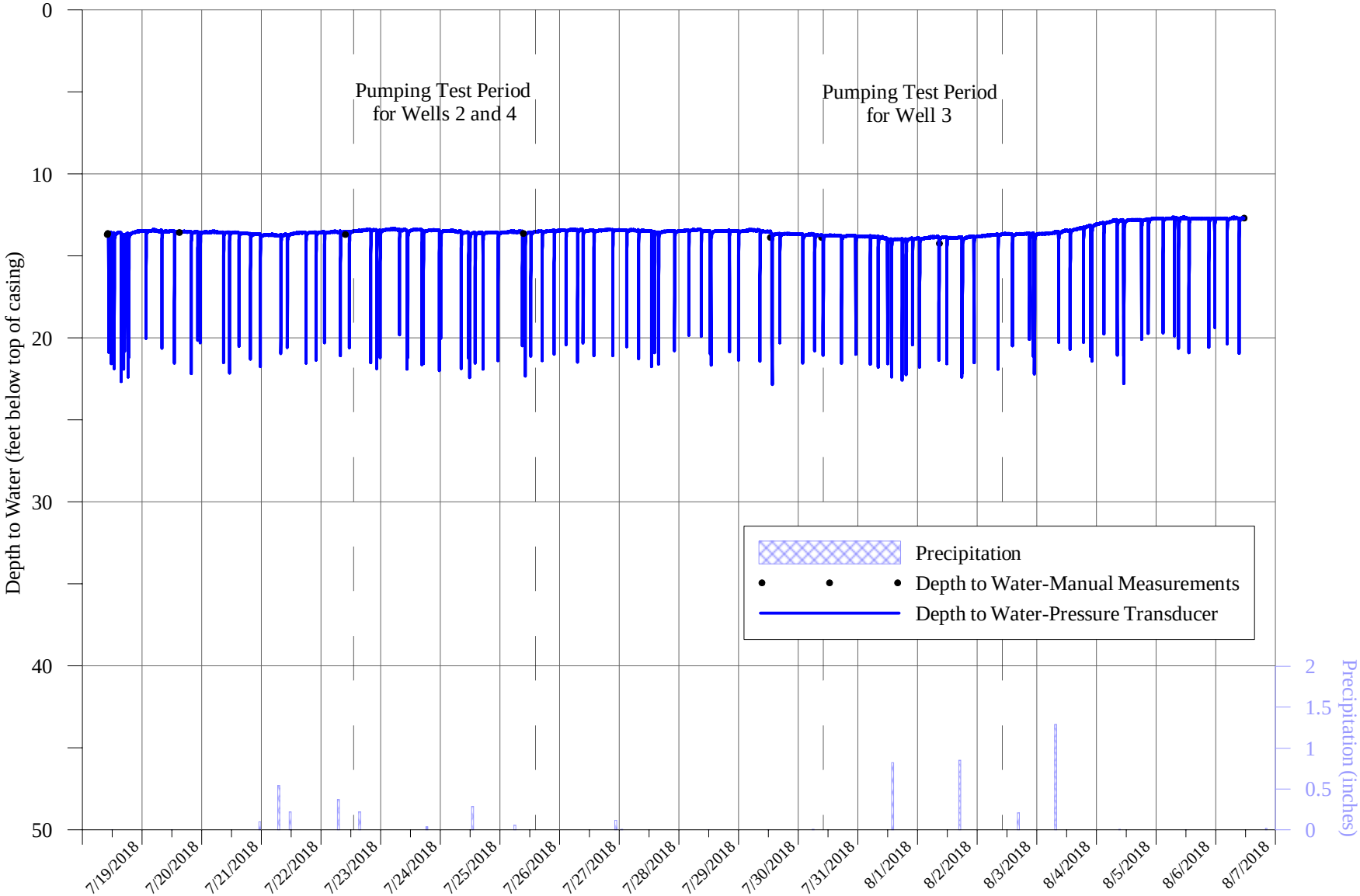
**Hydrograph of Water-Level Measurements Collected from Well at 203 Goldens Bridge Road During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**

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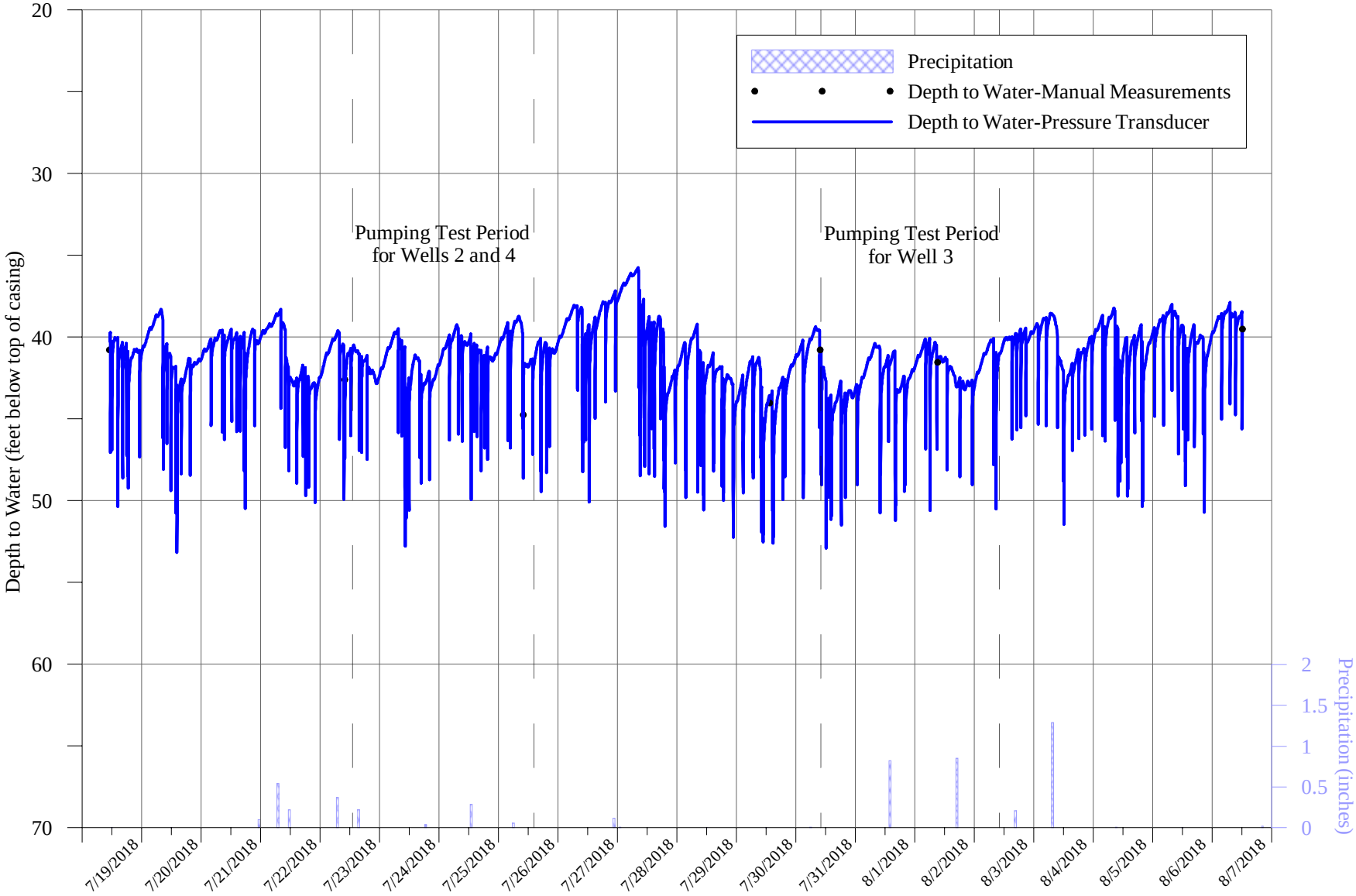
**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Hydrograph of Water-Level Measurements Collected from Well at 5 Todd Road During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**

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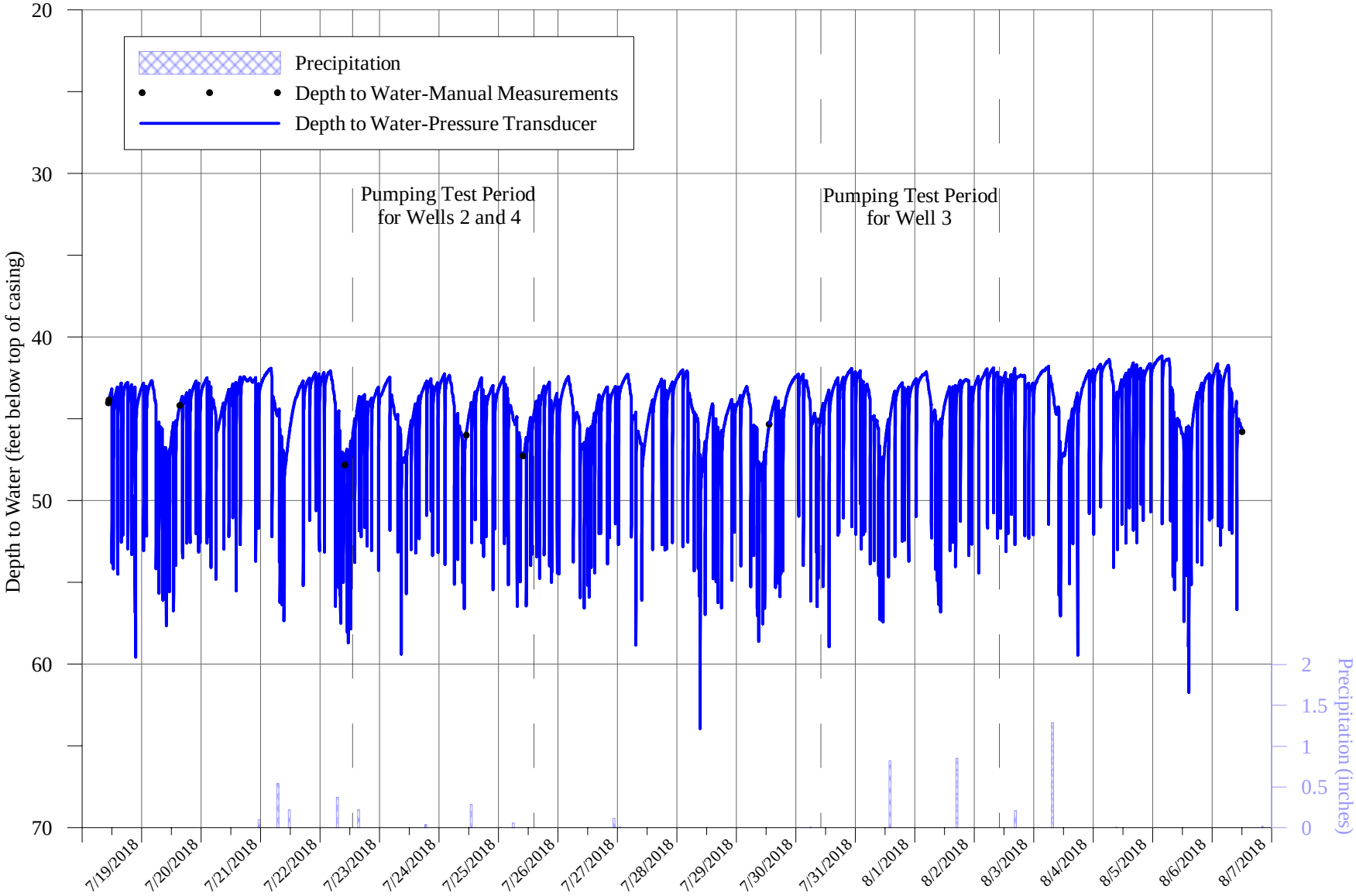
**ROUTE 22**
**LEWISBORO, NEW YORK**

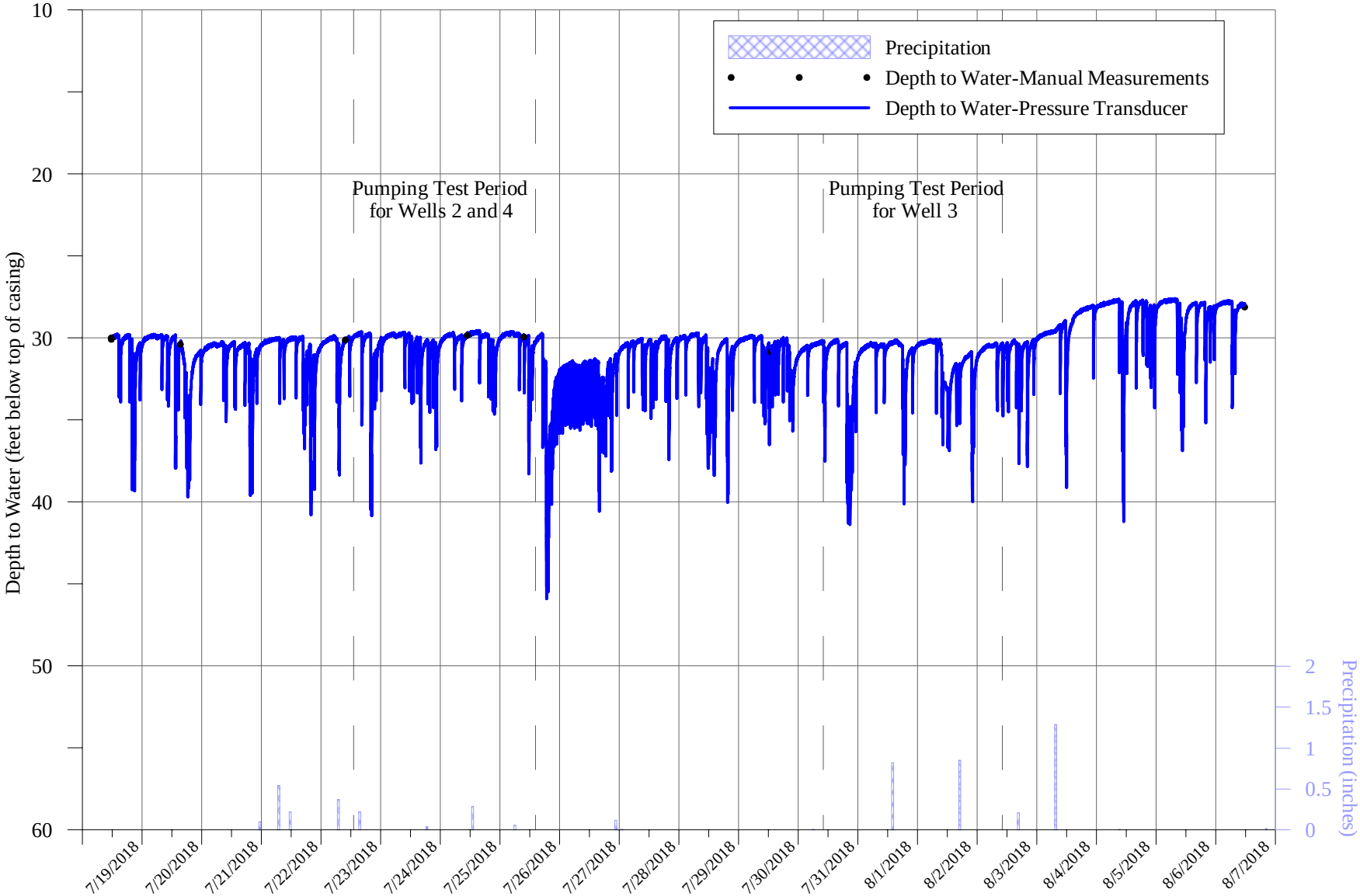
**Hydrograph of Water-Level Measurements Collected from Well at 15 Todd Road During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**




*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Hydrograph of Water-Level Measurements Collected from Well at 25 Todd Road During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018**




*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Manual Water-Level Measurements Collected from Monitoring Wells During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) |
|---|---|---|
| **Well 1** | | |
| 7/19/2018 | 12:54 | 13.02 |
| 7/20/2018 | 15:52 | 13.36 |
| 7/23/2018 | 12:32 | 13.63 |
| 7/23/2018 | 13:53 | 13.43 |
| 7/23/2018 | 14:21 | 13.84 |
| 7/23/2018 | 15:31 | 16.94 |
| 7/24/2018 | 14:18 | 32.76 |
| 7/25/2018 | 15:55 | 37.61 |
| 7/26/2018 | 12:08 | 39.80 |
| 7/27/2018 | 15:05 | 21.18 |
| 7/30/2018 | 12:21 | 15.06 |
| 7/31/2018 | 9:10 | 14.63 |
| 7/31/2018 | 11:09 | 14.55 |
| 7/31/2018 | 13:13 | 14.49 |
| 7/31/2018 | 14:08 | 14.55 |
| 7/31/2018 | 15:44 | 14.53 |
| 8/1/2018 | 10:06 | 14.72 |
| 8/1/2018 | 12:12 | 14.77 |
| 8/2/2018 | 13:15 | 14.93 |
| 8/3/2018 | 9:30 | 14.95 |
| 8/3/2018 | 11:40 | 14.96 |
| 8/6/2018 | 10:35 | 13.38 |
| 8/7/2018 | 10:40 | 13.27 |
| **203 Goldens Bridge** | | |
| 7/19/2018 | 10:00 | 13.70 |
| 7/19/2018 | 10:13 | 13.65 |
| 7/20/2018 | 15:06 | 13.59 |
| 7/23/2018 | 9:45 | 13.70 |
| 7/26/2018 | 9:29 | 13.65 |
| 7/30/2018 | 12:55 | 13.88 |
| 7/31/2018 | 9:28 | 13.87 |
| 8/2/2018 | 8:47 | 14.25 |
| 8/7/2018 | 11:25 | 12.69 |
| **5 Todd Road** | | |
| 7/19/2018 | 11:02 | 40.80 |
| 7/20/2018 | 15:17 | 43.65 |
| 7/23/2018 | 10:05 | 42.60 |
| 7/26/2018 | 9:57 | 44.76 |
| 7/30/2018 | 13:28 | 44.03 |
| 7/31/2018 | 9:49 | 40.80 |
| 8/2/2018 | 9:08 | 41.54 |
| 8/7/2018 | 12:16 | 39.51 |
| **15 Todd Road** | | |
| 7/19/2018 | 10:40 | 44.03 |
| 7/19/2018 | 10:47 | 43.84 |
| 7/20/2018 | 15:21 | 44.17 |
| 7/23/2018 | 9:58 | 47.81 |
| 7/25/2018 | 10:57 | 46.01 |
| 7/26/2018 | 9:44 | 47.27 |
| 7/30/2018 | 13:18 | 45.34 |
| 7/31/2018 | 9:41 | 45.11 |
| 8/2/2018 | 9:01 | 52.70 |
| 8/7/2018 | 11:57 | 45.79 |

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Manual Water-Level Measurements Collected from Monitoring Wells During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Depth to Water (ft btoc) |
|---|---|---|
| **25 Todd Road** | | |
| 7/19/2018 | 11:34 | 30.08 |
| 7/19/2018 | 11:39 | 29.99 |
| 7/20/2018 | 15:27 | 30.40 |
| 7/23/2018 | 9:53 | 30.12 |
| 7/25/2018 | 10:46 | 29.85 |
| 7/26/2018 | 9:36 | 29.95 |
| 7/30/2018 | 13:06 | 30.84 |
| 7/31/2018 | 9:37 | 30.27 |
| 8/2/2018 | 8:50 | 30.38 |
| 8/7/2018 | 11:42 | 28.11 |

ft btoc feet below top of casing

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# PPE DI I

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

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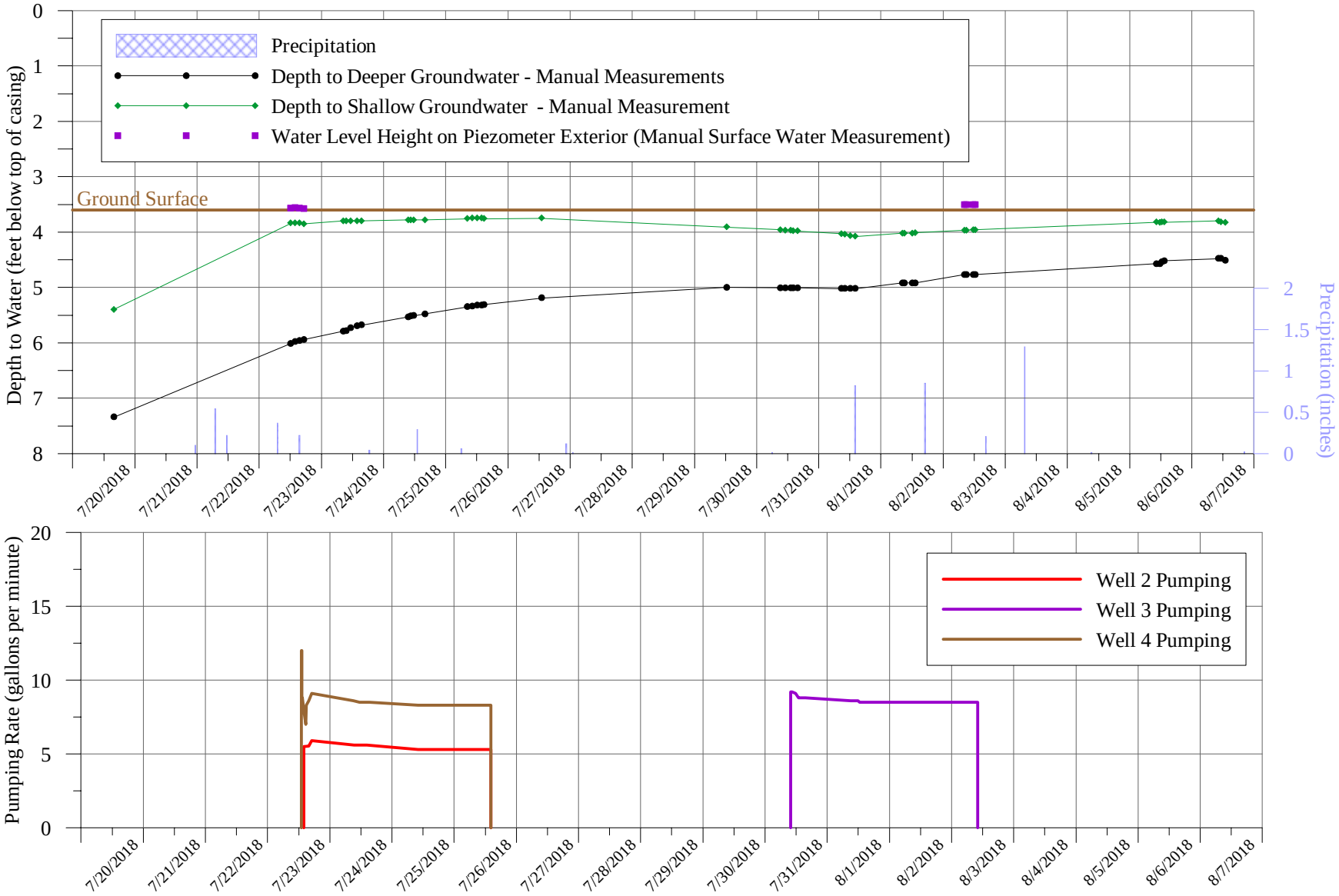
## Hydrograph of Water-Level Measurements Collected from the Piezometer Location PZ-1 During Pumping Test Program Conducted on Wells 2, 3 and 4, July 23 Through August 3, 2018




*LBG Hydrogeologic & Engineering Services, P.C.*

**WILDER BALTER PARTNERS, INC.**
**ROUTE 22**
**LEWISBORO, NEW YORK**

**Manual Water-Level Measurements Collected from Piezometers at PZ-1 During 72-Hour Pumping Test Event on Wells 2, 3 and 4 July 23 Through August 3, 2018**

| Date | Time | Shallow Piezometer Depth to Groundwater (ft btoc) | Shallow Piezometer Depth to Surface Water (ft btoc) | Deeper Piezometer Depth to Groundwater (ft btoc) | Deeper Piezometer Depth to Groundwater Adjusted to Match Height of Shallow Piezometer Casing (ft btoc) | Gradient (shallow-deep) | Gradient direction |
|---|---|---|---|---|---|---|---|
| 7/19/2018 | 13:40 | Piezometer Installed | Dry | Piezometer Installed | -- | -- | -- |
| 7/20/2018 | 15:57 | 5.40 | Dry | 5.55 | 7.34 | -1.94 | downward |
| 7/23/2018 | 12:17 | 3.84 | 3.57 | 4.22 | 6.01 | -2.17 | downward |
| 7/23/2018 | 13:57 | 3.84 | 3.56 | 4.19 | 5.98 | -2.14 | downward |
| 7/23/2018 | 15:34 | 3.84 | 3.57 | 4.17 | 5.96 | -2.12 | downward |
| 7/23/2018 | 17:21 | 3.85 | 3.58 | 4.15 | 5.94 | -2.09 | downward |
| 7/24/2018 | 8:36 | 3.80 | Dry | 4.00 | 5.79 | -1.99 | downward |
| 7/24/2018 | 9:38 | 3.80 | Dry | 3.99 | 5.78 | -1.98 | downward |
| 7/24/2018 | 11:24 | 3.80 | Dry | 3.94 | 5.73 | -1.93 | downward |
| 7/24/2018 | 13:54 | 3.80 | Dry | 3.90 | 5.69 | -1.89 | downward |
| 7/24/2018 | 15:37 | 3.80 | Dry | 3.89 | 5.68 | -1.88 | downward |
| 7/25/2018 | 9:39 | 3.78 | Dry | 3.74 | 5.53 | -1.75 | downward |
| 7/25/2018 | 10:29 | 3.78 | Dry | 3.73 | 5.52 | -1.74 | downward |
| 7/25/2018 | 11:45 | 3.78 | Dry | 3.72 | 5.51 | -1.73 | downward |
| 7/25/2018 | 16:00 | 3.78 | Dry | 3.69 | 5.48 | -1.70 | downward |
| 7/26/2018 | 8:24 | 3.76 | Dry | 3.56 | 5.35 | -1.59 | downward |
| 7/26/2018 | 10:17 | 3.75 | Dry | 3.55 | 5.34 | -1.59 | downward |
| 7/26/2018 | 12:10 | 3.75 | Dry | 3.53 | 5.32 | -1.57 | downward |
| 7/26/2018 | 13:54 | 3.75 | Dry | 3.53 | 5.32 | -1.57 | downward |
| 7/26/2018 | 14:52 | 3.76 | Dry | 3.52 | 5.31 | -1.55 | downward |
| 7/27/2018 | 13:10 | 3.75 | Dry | 3.40 | 5.19 | -1.44 | downward |
| 7/30/2018 | 12:37 | 3.91 | Dry | 3.21 | 5.00 | -1.09 | downward |
| 7/31/2018 | 9:15 | 3.96 | Dry | 3.22 | 5.01 | -1.05 | downward |
| 7/31/2018 | 11:12 | 3.97 | Dry | 3.22 | 5.01 | -1.04 | downward |
| 7/31/2018 | 13:14 | 3.97 | Dry | 3.22 | 5.01 | -1.04 | downward |
| 7/31/2018 | 14:06 | 3.98 | Dry | 3.22 | 5.01 | -1.03 | downward |
| 7/31/2018 | 15:49 | 3.98 | Dry | 3.22 | 5.01 | -1.03 | downward |
| 8/1/2018 | 8:47 | 4.03 | Dry | 3.23 | 5.02 | -0.99 | downward |
| 8/1/2018 | 10:08 | 4.04 | Dry | 3.23 | 5.02 | -0.98 | downward |
| 8/1/2018 | 12:10 | 4.07 | Dry | 3.23 | 5.02 | -0.95 | downward |
| 8/1/2018 | 14:06 | 4.08 | Dry | 3.23 | 5.02 | -0.94 | downward |
| 8/2/2018 | 8:16 | 4.02 | Dry | 3.13 | 4.92 | -0.90 | downward |
| 8/2/2018 | 9:10 | 4.02 | Dry | 3.13 | 4.92 | -0.90 | downward |
| 8/2/2018 | 12:07 | 4.02 | Dry | 3.13 | 4.92 | -0.90 | downward |
| 8/2/2018 | 13:20 | 4.01 | Dry | 3.13 | 4.92 | -0.91 | downward |
| 8/3/2018 | 8:19 | 3.97 | 3.51 | 2.98 | 4.77 | -0.80 | downward |
| 8/3/2018 | 9:02 | 3.97 | 3.51 | 2.98 | 4.77 | -0.80 | downward |
| 8/3/2018 | 11:42 | 3.96 | 3.51 | 2.98 | 4.77 | -0.81 | downward |
| 8/3/2018 | 12:30 | 3.96 | 3.51 | 2.98 | 4.77 | -0.81 | downward |
| 8/6/2018 | 10:22 | 3.82 | Dry | 2.78 | 4.57 | -0.75 | downward |
| 8/6/2018 | 11:47 | 3.83 | Dry | 2.78 | 4.57 | -0.74 | downward |
| 8/6/2018 | 12:31 | 3.82 | Dry | 2.75 | 4.54 | -0.72 | downward |
| 8/6/2018 | 13:23 | 3.82 | Dry | 2.73 | 4.52 | -0.70 | downward |
| 8/7/2018 | 10:18 | 3.80 | Dry | 2.69 | 4.48 | -0.68 | downward |
| 8/7/2018 | 11:18 | 3.82 | Dry | 2.69 | 4.48 | -0.66 | downward |
| 8/7/2018 | 13:00 | 3.83 | Dry | 2.72 | 4.51 | -0.68 | downward |

ft btoc feet below top of casing

Note: Casing height for shallower screened piezometer was 3.60 feet above grade and for the deeper screened piezometer casing height was 1.81 feet above grade.

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# PPE DI

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Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

August 20, 2018

Renee Cusack
EnviroTest Laboratories, INC
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

Dear Renee Cusack:
Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Samples were subcontracted to Microbac Laboratories, 61 Louisa Viens, Dayville, CT 06241 for 525 analysis.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paige Doherty

Paige Doherty
paige.doherty@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories, INC
Ron Bayer, EnviroTest Laboratories, INC
Paige Doherty, Pace Analytical Melville
Laura Marciano, EnviroTest Laboratories, INC

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040



cc: Janine Rader, EnviroTest Laboratories, INC
Meredith Ruthven, EnviroTest Laboratories, INC

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# CERTIFICATIONS

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

**Long Island Certification IDs**
575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

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# ANALYTICAL RESULTS

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

**Sample: WELL 2** **Lab ID: 7059524001** Collected: 07/25/18 11:50 Received: 07/26/18 10:00 Matrix: Drinking Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **504.1 GCS EDB and DBCP** | Analytical Method: EPA 504.1 Preparation Method: EPA 504.1 | | | | | | | |
| 1,2-Dibromo-3-chloropropane | **<0.010** | ug/L | 0.010 | 1 | 07/27/18 16:45 | 07/28/18 11:22 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **<0.010** | ug/L | 0.010 | 1 | 07/27/18 16:45 | 07/28/18 11:22 | 106-93-4 | |
| **505 GCS Pesticides/PCBs** | Analytical Method: EPA 505 Preparation Method: EPA 505 | | | | | | | |
| Alachlor | **<0.20** | ug/L | 0.20 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 15972-60-8 | H1 |
| Aldrin | **<0.025** | ug/L | 0.025 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 309-00-2 | H1 |
| gamma-BHC (Lindane) | **<0.020** | ug/L | 0.020 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 58-89-9 | H1 |
| Chlordane (Technical) | **<0.20** | ug/L | 0.20 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 57-74-9 | H1 |
| Dieldrin | **<0.050** | ug/L | 0.050 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 60-57-1 | H1 |
| Endrin | **<0.010** | ug/L | 0.010 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 72-20-8 | H1 |
| Heptachlor | **<0.025** | ug/L | 0.025 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 76-44-8 | H1 |
| Heptachlor epoxide | **<0.020** | ug/L | 0.020 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 1024-57-3 | H1 |
| Hexachlorobenzene | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 118-74-1 | H1 |
| Hexachlorocyclopentadiene | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 77-47-4 | H1 |
| Methoxychlor | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 72-43-5 | H1 |
| PCB Screen | **<0.40** | ug/L | 0.40 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | | H1 |
| Toxaphene | **<1.0** | ug/L | 1.0 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 8001-35-2 | H1 |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 95 | % | 30-150 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 877-09-8 | |
| Decachlorobiphenyl (S) | 72 | % | 30-150 | 1 | 07/30/18 14:10 | 08/04/18 03:14 | 2051-24-3 | |
| **515.3 Chlorinated Herbicides** | Analytical Method: EPA 515.3 Preparation Method: EPA 515.3 | | | | | | | |
| 2,4-D | **<0.10** | ug/L | 0.10 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 94-75-7 | |
| Dalapon | **<0.70** | ug/L | 0.70 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 75-99-0 | |
| Dicamba | **<1.0** | ug/L | 1.0 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 1918-00-9 | |
| Dinoseb | **<0.20** | ug/L | 0.20 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 88-85-7 | |
| Pentachlorophenol | **<0.040** | ug/L | 0.040 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 87-86-5 | |
| Picloram | **<0.10** | ug/L | 0.10 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 1918-02-1 | |
| 2,4,5-TP (Silvex) | **<0.13** | ug/L | 0.13 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 93-72-1 | |
| ***Surrogates*** | | | | | | | | |
| 2,4-DCAA (S) | 81 | % | 70-130 | 1 | 08/06/18 10:25 | 08/11/18 14:11 | 19719-28-9 | |
| **531.1 HPLC Carbamates** | Analytical Method: EPA 531.1 | | | | | | | |
| Aldicarb | **<0.50** | ug/L | 0.50 | 1 | | 08/01/18 10:06 | 116-06-3 | |
| Aldicarb sulfone | **<0.80** | ug/L | 0.80 | 1 | | 08/01/18 10:06 | 1646-88-4 | |
| Aldicarb sulfoxide | **<0.50** | ug/L | 0.50 | 1 | | 08/01/18 10:06 | 1646-87-3 | |
| Carbofuran | **<0.90** | ug/L | 0.90 | 1 | | 08/01/18 10:06 | 1563-66-2 | |
| 3-Hydroxycarbofuran | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:06 | 16655-82-6 | |
| Methomyl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:06 | 16752-77-5 | |
| Oxamyl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:06 | 23135-22-0 | |
| Carbaryl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:06 | 63-25-2 | |

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575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

QC Batch: 77204
QC Batch Method: EPA 531.1
Analysis Method: EPA 531.1
Analysis Description: 531.1 HPLC Carbamate
Associated Lab Samples: 7059524001

METHOD BLANK: 354289
Matrix: Water
Associated Lab Samples: 7059524001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Aldicarb | ug/L | <0.50 | 0.50 | 07/31/18 17:56 | |
| Aldicarb sulfone | ug/L | <0.80 | 0.80 | 07/31/18 17:56 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 0.50 | 07/31/18 17:56 | |
| Carbaryl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Carbofuran | ug/L | <0.90 | 0.90 | 07/31/18 17:56 | |
| Methomyl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Oxamyl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |

LABORATORY CONTROL SAMPLE: 354290

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | 3.8 | 3.2 | 86 | 80-120 | |
| Aldicarb | ug/L | 3.8 | 3.7 | 98 | 80-120 | |
| Aldicarb sulfone | ug/L | 3.8 | 3.6 | 96 | 80-120 | |
| Aldicarb sulfoxide | ug/L | 3.8 | 3.6 | 97 | 80-120 | |
| Carbaryl | ug/L | 3.8 | 3.6 | 97 | 80-120 | |
| Carbofuran | ug/L | 3.8 | 3.4 | 90 | 80-120 | |
| Methomyl | ug/L | 3.8 | 3.5 | 93 | 80-120 | |
| Oxamyl | ug/L | 3.8 | 3.6 | 95 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 354291 354292

| Parameter | Units | 7059548001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 3.8 | 3.8 | 3.5 | 3.4 | 93 | 90 | 65-135 | 4 | |
| Aldicarb | ug/L | <0.50 | 3.8 | 3.8 | 3.6 | 3.4 | 94 | 91 | 65-135 | 4 | |
| Aldicarb sulfone | ug/L | <0.80 | 3.8 | 3.8 | 3.4 | 3.3 | 90 | 87 | 65-135 | 4 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 3.8 | 3.8 | 3.6 | 3.1 | 94 | 82 | 65-135 | 13 | |
| Carbaryl | ug/L | <1.0 | 3.8 | 3.8 | 3.6 | 3.5 | 95 | 92 | 65-135 | 3 | |
| Carbofuran | ug/L | <0.90 | 3.8 | 3.8 | 3.3 | 3.3 | 86 | 87 | 65-135 | 0 | |
| Methomyl | ug/L | <1.0 | 3.8 | 3.8 | 3.3 | 3.4 | 88 | 89 | 65-135 | 1 | |
| Oxamyl | ug/L | <1.0 | 3.8 | 3.8 | 3.5 | 3.2 | 94 | 84 | 65-135 | 11 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

QC Batch: 76840 | Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 | Analysis Description: 504 EDB DBCP
Associated Lab Samples: 7059524001

METHOD BLANK: 352833 | Matrix: Water
Associated Lab Samples: 7059524001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | 0.010 | 07/28/18 07:16 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | 0.010 | 07/28/18 07:16 | |

LABORATORY CONTROL SAMPLE: 352834

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .071 | 0.063 | 88 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .071 | 0.052 | 73 | 70-130 | |

LABORATORY CONTROL SAMPLE: 352835

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .01 | 0.011 | 110 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .01 | <0.010 | 90 | 70-130 | |

MATRIX SPIKE SAMPLE: 352836

| Parameter | Units | 7059392002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | .071 | 0.064 | 89 | 65-135 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | .071 | 0.062 | 86 | 65-135 | |

SAMPLE DUPLICATE: 352837

| Parameter | Units | 7059409001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | <0.010 | | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | <0.010 | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

QC Batch: 77015
QC Batch Method: EPA 505
Analysis Method: EPA 505
Analysis Description: 505 GCS Pesticides
Associated Lab Samples: 7059524001

METHOD BLANK: 353551
Matrix: Water
Associated Lab Samples: 7059524001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | <0.20 | 0.20 | 08/03/18 18:43 | |
| Aldrin | ug/L | <0.025 | 0.025 | 08/03/18 18:43 | |
| Chlordane (Technical) | ug/L | <0.20 | 0.20 | 08/03/18 18:43 | |
| Dieldrin | ug/L | <0.050 | 0.050 | 08/03/18 18:43 | |
| Endrin | ug/L | <0.010 | 0.010 | 08/03/18 18:43 | |
| gamma-BHC (Lindane) | ug/L | <0.020 | 0.020 | 08/03/18 18:43 | |
| Heptachlor | ug/L | <0.025 | 0.025 | 08/03/18 18:43 | |
| Heptachlor epoxide | ug/L | <0.020 | 0.020 | 08/03/18 18:43 | |
| Hexachlorobenzene | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| Hexachlorocyclopentadiene | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| Methoxychlor | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| PCB Screen | ug/L | <0.40 | 0.40 | 08/03/18 18:43 | |
| Toxaphene | ug/L | <1.0 | 1.0 | 08/03/18 18:43 | |
| Decachlorobiphenyl (S) | % | 65 | 30-150 | 08/03/18 18:43 | |
| Tetrachloro-m-xylene (S) | % | 99 | 30-150 | 08/03/18 18:43 | |

LABORATORY CONTROL SAMPLE: 353552

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alachlor | ug/L | .48 | 0.45 | 95 | 70-130 | |
| Aldrin | ug/L | .048 | 0.035 | 73 | 70-130 | |
| Chlordane (Technical) | ug/L | | <0.20 | | | |
| Dieldrin | ug/L | .048 | <0.050 | 85 | 70-130 | |
| Endrin | ug/L | .048 | 0.042 | 88 | 70-130 | |
| gamma-BHC (Lindane) | ug/L | .048 | 0.055 | 116 | 70-130 | |
| Heptachlor | ug/L | .048 | 0.042 | 89 | 70-130 | |
| Heptachlor epoxide | ug/L | .048 | 0.034 | 72 | 70-130 | |
| Hexachlorobenzene | ug/L | .048 | <0.10 | 103 | 70-130 | |
| Hexachlorocyclopentadiene | ug/L | .048 | <0.10 | 79 | 70-130 | |
| Methoxychlor | ug/L | .24 | 0.24 | 100 | 70-130 | |
| PCB Screen | ug/L | | <0.40 | | | |
| Toxaphene | ug/L | | <1.0 | | | |
| Decachlorobiphenyl (S) | % | | | 64 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | 87 | 30-150 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

MATRIX SPIKE SAMPLE: 353553

| Parameter | Units | 7059098001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Alachlor | ug/L | | | 0.86 | | | H1 |
| Aldrin | ug/L | | | 0.066 | | | H1 |
| Chlordane (Technical) | ug/L | | | 0.60 | | | H1 |
| Dieldrin | ug/L | | | 0.082 | | | H1 |
| Endrin | ug/L | | | 0.077 | | | H1 |
| gamma-BHC (Lindane) | ug/L | | | 0.12 | | | H1 |
| Heptachlor | ug/L | | | 0.081 | | | H1 |
| Heptachlor epoxide | ug/L | | | 0.083 | | | H1 |
| Hexachlorobenzene | ug/L | | | <0.10 | | | H1 |
| Hexachlorocyclopentadiene | ug/L | | | <0.10 | | | H1,M1 |
| Methoxychlor | ug/L | | | 0.39 | | | H1 |
| PCB Screen | ug/L | | | <0.40 | | | H1 |
| Toxaphene | ug/L | | | <1.0 | | | H1 |
| Decachlorobiphenyl (S) | % | | | | 70 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | | 73 | 30-150 | |

SAMPLE DUPLICATE: 353554

| Parameter | Units | 7059098002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | | <0.20 | | H1 |
| Aldrin | ug/L | | <0.025 | | H1 |
| Chlordane (Technical) | ug/L | | <0.20 | | H1 |
| Dieldrin | ug/L | | <0.050 | | H1 |
| Endrin | ug/L | | <0.010 | | H1 |
| gamma-BHC (Lindane) | ug/L | | <0.020 | | H1 |
| Heptachlor | ug/L | | <0.025 | | H1 |
| Heptachlor epoxide | ug/L | | <0.020 | | H1 |
| Hexachlorobenzene | ug/L | | <0.10 | | H1 |
| Hexachlorocyclopentadiene | ug/L | | <0.10 | | H1 |
| Methoxychlor | ug/L | | <0.10 | | H1 |
| PCB Screen | ug/L | | <0.40 | | H1 |
| Toxaphene | ug/L | | <1.0 | | H1 |
| Decachlorobiphenyl (S) | % | | 67 | | |
| Tetrachloro-m-xylene (S) | % | | 112 | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

QC Batch: 77884 | Analysis Method: EPA 515.3
QC Batch Method: EPA 515.3 | Analysis Description: 5153 GCS Herbicides
Associated Lab Samples: 7059524001

METHOD BLANK: 358071 | Matrix: Water
Associated Lab Samples: 7059524001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | 0.13 | 08/11/18 09:45 | |
| 2,4-D | ug/L | <0.10 | 0.10 | 08/11/18 09:45 | |
| Dalapon | ug/L | <0.70 | 0.70 | 08/11/18 09:45 | |
| Dicamba | ug/L | <1.0 | 1.0 | 08/11/18 09:45 | |
| Dinoseb | ug/L | <0.20 | 0.20 | 08/11/18 09:45 | |
| Pentachlorophenol | ug/L | <0.040 | 0.040 | 08/11/18 09:45 | |
| Picloram | ug/L | <0.10 | 0.10 | 08/11/18 09:45 | |
| 2,4-DCAA (S) | % | 87 | 70-130 | 08/11/18 09:45 | |

LABORATORY CONTROL SAMPLE: 358072

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | .2 | 0.18 | 92 | 70-130 | |
| 2,4-D | ug/L | .6 | 0.57 | 95 | 70-130 | |
| Dalapon | ug/L | 2 | 1.8 | 89 | 70-130 | |
| Dicamba | ug/L | .2 | <1.0 | 82 | 70-130 | |
| Dinoseb | ug/L | .4 | 0.35 | 87 | 70-130 | |
| Pentachlorophenol | ug/L | .2 | 0.19 | 95 | 70-130 | |
| Picloram | ug/L | .2 | 0.15 | 74 | 70-130 | |
| 2,4-DCAA (S) | % | | | 73 | 70-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 358073 358074

| Parameter | Units | 7059540001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | .2 | .2 | 0.18 | 0.16 | 87 | 82 | 65-135 | 6 | |
| 2,4-D | ug/L | <0.10 | .6 | .6 | 0.42 | 0.59 | 70 | 98 | 65-135 | 33 | R1 |
| Dalapon | ug/L | <0.70 | 2 | 2 | 1.6 | 1.7 | 82 | 83 | 65-135 | 1 | |
| Dicamba | ug/L | <1.0 | .2 | .2 | <1.0 | <1.0 | 129 | 109 | 65-135 | | |
| Dinoseb | ug/L | <0.20 | .4 | .4 | 0.34 | 0.35 | 84 | 88 | 65-135 | 4 | |
| Pentachlorophenol | ug/L | <0.040 | .2 | .2 | 0.16 | 0.16 | 80 | 78 | 65-135 | 3 | |
| Picloram | ug/L | <0.10 | .2 | .2 | 0.24 | 0.56 | 118 | 278 | 65-135 | 80 | M1,R1 |
| 2,4-DCAA (S) | % | | | | | | 71 | 2 | 70-130 | | S0 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALIFIERS

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| H1 | Analysis conducted outside the EPA method holding time. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| R1 | RPD value was outside control limits. |
| S0 | Surrogate recovery outside laboratory control limits. |

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 420-140176-1 - SOC 7/25
Pace Project No.: 7059524

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **7059524001** | **WELL 2** | EPA 504.1 | 76840 | EPA 504.1 | 76949 |
| **7059524001** | **WELL 2** | EPA 505 | 77015 | EPA 505 | 77080 |
| **7059524001** | **WELL 2** | EPA 515.3 | 77884 | EPA 515.3 | 78014 |
| **7059524001** | **WELL 2** | EPA 531.1 | 77204 | | |

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10016.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |
| Company: Pace Analytical Mellville | | | | STL Job #: 420-140176-1 |
| Address: 575 Broadhollow Road, | Due Date Requested: 8/6/2018 | | | |
| City: Melville | TAT Requested (days): Std TAT 7/25/18 03 | | | |
| State, Zip: NY, 11747 | | | | |
| Phone: | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: WSP USA | Project #: 42002340 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 515 Chlorinated Acids | SUBCONTRACT/ 504 EPA 504.1 EDB/DBCP | SUBCONTRACT/ 531.1 Carbamate Pesticides in DW | SUBCONTRACT/ 525.2 Semivolatile Organics | SUBCONTRACT/ 505 | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | NY spks 7/25/18 03 |
| Well 2 (420-140176-1) | 7/25/18 | 11:50 | DW | Water | | | X | X | X | X | X | 8 | 001 |
| | | | | 7/25/18 03 | | | | | | | | | |

WO#: 7059524
7059524

| | | | | | |
|---|---|---|---|---|---|
| *Possible Hazard Identification* ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological | | | *Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months | | |
| Deliverable Requested: I, II, III, IV, Other (specify) | | | Special Instructions/QC Requirements: | | |
| Empty Kit Relinquished by: | Date: | Time: | | Method of Shipment: | |
| Relinquished by: | Date/Time: 7/25/18 16:00 | Company: Env | Received by: | Date/Time: 7/26/18 10:00 | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | | Cooler Temperature(s) °C and Other Remarks: | | |

# Sample Condition Upon Receipt

Pace Analytical

Client Name: Envirotest

**WO#: 7059524**

PM: PD Due Date: 08/09/18

CLIENT: EnviroTest

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 7728 1825 0701

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Temperature Blank Present: ☐ Yes ☑ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☑ Ziploc ☐ None ☐ Other

Type of Ice: (Wet) Blue None

Thermometer Used: (TH091) Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 5.2 Cooler Temperature Corrected (°C): 5.2

Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☑ N/A, water sample)

Date and Initials of person examining contents: SK 7/26/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples orignate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

| | | | | COMMENTS: |
|---|---|---|---|---|
| Chain of Custody Present: | ☑ Yes | ☐ No | | 1. |
| Chain of Custody Filled Out: | ☑ Yes | ☐ No | | 2. |
| Chain of Custody Relinquished: | ☑ Yes | ☐ No | | 3. |
| Sampler Name & Signature on COC: | ☑ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time: | ☑ Yes | ☐ No | | 5. |
| Short Hold Time Analysis (<72hr): | ☐ Yes | ☑ No | | 6. |
| Rush Turn Around Time Requested: | ☐ Yes | ☑ No | | 7. |
| Sufficient Volume: (Triple volume provided for MS/MSD) | ☑ Yes | ☐ No | | 8. |
| Correct Containers Used: | ☑ Yes | ☐ No | | 9. |
| -Pace Containers Used: | ☑ Yes | ☐ No | | |
| Containers Intact: | ☑ Yes | ☐ No | | 10. |
| Filtered volume received for Dissolved tests | ☐ Yes | ☐ No | ☑ N/A | 11. Note if sediment is visible in the dissolved container. |
| Sample Labels match COC: -Includes date/time/ID/Analysis Matrix SL WT OIL | ☑ Yes | ☐ No | | 12. |
| All containers needing preservation have been checked | ☐ Yes | ☐ No | ☑ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl |
| pH paper Lot # | | | | Sample # |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis | ☐ Yes | ☐ No | ☑ N/A | Initial when completed: / Lot # of added preservative: / Date/Time preservative added |
| Samples checked for dechlorination: | ☐ Yes | ☐ No | ☑ N/A | 14. |
| KI starch test strips Lot # | | | | Positive for Res. Chlorine? Y N |
| Residual chlorine strips Lot # | | | | |
| Headspace in VOA Vials ( >6mm): | ☐ Yes | ☑ No | ☐ N/A | 15. |
| Trip Blank Present: | ☐ Yes | ☐ No | ☑ N/A | 16. |
| Trip Blank Custody Seals Present | ☐ Yes | ☐ No | ☑ N/A | |
| Pace Trip Blank Lot # (if applicable): | | | | |

Field Data Required? Y / N

Client Notification/ Resolution:

Date/Time:

Person Contacted:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

MICROBAC®

Microbac Laboratories, Inc. - Dayville

# CERTIFICATE OF ANALYSIS

D8G2746

**Pace Analytical - Melville**

Paige Doherty
575 Broad Hollow Road
Melville, NY 11747

**Project Name: 7059524**

Project / PO Number: 7059524PD
Received: 07/27/2018
Reported: 08/07/2018

## Analytical Testing Parameters

**Client Sample ID:** WELL 2
**Sample Matrix:** Drinking Water
**Lab Sample ID:** D8G2746-01
**Collected By:** Customer
**Collection Date:** 07/25/2018 11:50

| Semi-Volatile Organic Compounds - GC/MS | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 525.2, Rv 2.0** | | | | | | | | |
| Atrazine | <0.094 | 3.00 MCL | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Benzo[a]pyrene | <0.019 | 0.200 MCL | 0.019 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Butachlor | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| bis(2-Ethylhexyl)adipate | <0.566 | 400 MCL | 0.566 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| bis(2-Ethylhexyl)phthalate | <0.566 | 6.00 MCL | 0.566 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Metolachlor | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Metribuzin | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Propachlor (Ramrod) | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Simazine | <0.066 | 4.00 MCL | 0.066 | ug/L | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Surrogate: 1,3-Dimethyl-2-nitrobenzene | 96.0 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Surrogate: Pyrene-d10 | 103 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1806 | CDT |
| Surrogate: Triphenyl phosphate | 126 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1806 | CDT |

*Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.*

## Definitions

**MCL:** US EPA Maximum Contaminant Level
**RL:** Reporting Limit

## Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
11549 New York State Department of Health

## Report Comments

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**

Nicole Paradise

Nicole J. Paradise
Assistant Quality Assurance Officer
Reported: 08/07/2018 16:20

# Chain of Custody

D8G2746

Pace Analytical - Melville

Pace Analytical®
www.pacelabs.com

**Workorder:** 7059524 **Workorder Name:** 420-1[illegible] 7/25 **Results Requested By:** 8/9/2018

| Report / Invoice To | Subcontract To |
|---|---|
| Paige Doherty<br>Pace Analytical Melville<br>575 Broad Hollow Road<br>Melville, NY 11747<br>Phone (631)694-3040<br>Email: paige.doherty@pacelabs.com | Microbac Laboratories<br>61 Louisa Viens<br>Dayville, CT 06241<br><br>P.O. 7059524PD |

State of Sample Origin: NY

| Item | Sample ID | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | | | | | | Requested Analysis: Subbed - 525 | | | | | | | | | | | | LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WELL 2 | 7/25/2018 11:50 | 7059524001 | Drinking | 2 | | | | | | X | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | [illegible] | [illegible] | | |
| 2 | | | | |
| 3 | | | [illegible] | 7/27/18 1739 |

Comments

Cooler Temperature on Receipt 2.1 °C | Custody Seal Y or | Received on Ice Y or | Samples Intact Y or

**ANALYTICAL SERVICES, INC.**
*Microbiological Testing, Research and Consulting*

130 Allen Brook Ln., PO Box 515, Williston, VT 05495 USA
1.800.723.4432 / 802.878.5138 Fax: 802.878.6765
www.analyticalservices.com

8/30/2018

Ron Bayer
EnviroTest Laboratories
315 Fullerton Ave.
Newburgh, NY 12550

**Subj.: ASI Report 60856**

Dear Ron,

Enclosed please find the results of Microscopic Particulate Analysis (MPA) performed by Analytical Services, Inc. (ASI).

Sample(s) covered in this report were received at ASI on: 7/26/2018

This report contains the following number of pages (total): 3

This report concerns only the samples referenced herein. These results were generated under ASI's quality system, which is in accordance with the NELAC (TNI) standard. Deviations, if any, are noted.

Exceptions: NA

This report shall not be reproduced, except in full, without ASI's written permission.

Thank you for using ASI for your microbiological testing needs. If you have any questions, please contact us at 800-723-4432.

Sincerely,
ANALYTICAL SERVICES, INC. (ASI)

Harry D. Christman, Ph.D. (hm)
Technical Director

# Microscopic Particulate Analysis (MPA)

## Sample Information

| | | | |
|---|---|---|---|
| Client | EnviroTest Laboratories | Volume Sampled (gal) | 1128.2 |
| Site | Route 22 - Wilter Balter Partners | Filter Color | Rusty Brown |
| Water Type | Raw/Well | Sediment Volume (mL) | 40 |
| Client Sample ID | Well 2 | Analysis Start | 7/26/18 13:52 |
| ASI Sample # | 60856-01 | Analysis End | 8/28/18 |

## MPA Data (data per 100 gal.)

| | | | |
|---|---|---|---|
| Vol. Examined at 150x (gal.) | 100 | Detection Limit at 150X = | 1.0 |
| Vol. Examined at 300x (gal.) | NA | Detection Limit at 300X = | NA |
| Amorphous Debris | Uniform | Iron Bacteria | ND |
| Vegetative Debris w/ chlorophyll | ND | Crustaceans | ND |
| Veg. Debris w/o chlorophyll | 2 | Crustacean Parts/Eggs | ND |
| Diatoms w/ chlorophyll (300X) | ND | Water Mites | ND |
| Diatoms w/o chlorophyll (300X) | ND | Gastrotrichs | ND |
| Other Algae (300X, see below) | ND | Tardigrades | ND |
| Rotifers | ND | Nematodes/N. Eggs | ND/3 |
| Rotifer Eggs | ND | Invertebrate Eggs | ND |
| Spores | ND | Annelids | ND |
| Pollen | 5 | Amoeba | ND |
| Insects/Larvae | ND | Protozoa (300X, non-Crypto/Giardia) | ND |

## Cryptosporidium and Giardia Data

| | | | RESULTS | |
|---|---|---|---|---|
| Volume Examined (gal.) | 14.1 | | per Vol. Examined | Per 100gal |
| | | Cryptosporidium Oocysts: | 0 | <7.1 |
| | | Giardia Cysts: | 0 | <7.1 |

## MPA Risk Rating Score (per EPA Consensus Method)

| | | | |
|---|---|---|---|
| Numerical Score | 0 | Risk Rating | Low |

## Other

| | |
|---|---|
| Algae Observed | NA |
| Comments | Sediment volume was atypically high (40 mL from 1128 gallons). |

**Methods:** MPA - SOP based on EPA Consensus Method (EPA 910/9-92-029)
Cryptosporidium & Giardia - SOP based on purification, staining & exam procedures in EPA 1623/1623.1

**Notes** MPA Risk Rating Tables were developed by USEPA Region 10 from limited data; interpret with caution.
MPA Risk Rating Score - if less than 100 gallons was examined, interpret with caution.

**EnviroTest Laboratories, Inc.**
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

**EnviroTest Laboratories Inc.**

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10015.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |
| Company: Analytical Services, Inc. | | | | STL Job #: 420-140176-1 |
| Address: 130 Allen Brook Lane, | Due Date Requested: 8/6/2018 | | | |
| City: Williston | TAT Requested (days): | | | |
| State, Zip: VT, 05495 | | | | |
| Phone: | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: WSP USA | Project #: 42002340 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ MPA | SUBCONTRACT/ Crypto & Giardia | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | NY Spies 7/25/18 |
| Well 2 (420-140176-1) | 7/25/18 | 11:50 | G | Water | | | X | X | 1 | |
| | | | | 7/25/18 | | | | | | |

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2SO3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - ph 4-5 |
| L - EDA | Z - other (specify) |

Other:

**Possible Hazard Identification**
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: | Date/Time: 7/25/18 16:00 | Company: ENV | Received by: | Date/Time: 7/26/18 11:46 | Company: ASI |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: ASI Temp: 4.6° C

p. 2/3

EnviroTest Laboratories Inc.

# ANALYTICAL REPORT

Job Number: 420-140176-1

SDG Number: Wilder Balter - Route 22

Job Description: WSP USA

For:
WSP USA
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
08/31/2018



EnviroTest Laboratories, Inc. Certifications and Approvals: NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554

**Job Narrative**
**420-J140176-1**

**Comments**
No additional comments.

**Receipt**
All samples were received in good condition within temperature requirements.

**GC/MS VOA**
No analytical or quality issues were noted.

**Metals**
No analytical or quality issues were noted.

**General Chemistry**
Method SM 4500 H+ B: The holding time for pH is 15 minutes, the samples were received outside of the holding time.

No other analytical or quality issues were noted.

**Biology**
No analytical or quality issues were noted.

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140176-1
SDG Number: Wilder Balter - Route 22

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|
| **Matrix: Water** | | | |
| ICP Metals by 200.7 | EnvTest | EPA 200.7 Rev 4.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| ICPMS Metals by 200.8 | EnvTest | EPA 200.8 Rev.5.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| Total Metals Digestion for 200.8 | EnvTest | | EPA 200.8 Rev.5.4 |
| Mercury in Water by CVAA | EnvTest | EPA 245.1 Rev.3.0 | |
| Digestion for CVAA Mercury in Waters | EnvTest | | EPA 245.1 |
| Anions by Ion Chromatography | EnvTest | MCAWW 300.0 | |
| Anions by Ion Chromatography | EnvTest | EPA 300.0 Rev. 2.1 | |
| EPA 504.1 EDB | Pace Mell | EPA 504.1 | |
| EPA 505 Pesticide/PCB | Pace Mell | EPA 505 | |
| EPA 515 Chlorinated Acids | Pace Mell | EPA 515 | |
| Purgeable Organic Compounds in Water by GC/MS | EnvTest | EPA-DW 524.2 | |
| EPA 525.2 Semivolatile Organics | Pace Mell | EPA 525.2 | |
| EPA 531.1 Carbamate Pesticides in Drinki | Pace Mell | EPA 531.1 | |
| EPA 900 Series GA/GB/RA226/RA228/Gamma | Radios | EPA 900 | |
| Uranium | Radios | STL-STL EPA | |
| Heterotropic Plate Count | EnvTest | IDEXX SIMPLATE | |
| Odor, Threshold Test | EnvTest | SM20 SM 2150B | |
| Alkalinity, Titration Method | EnvTest | SM22 SM 2320B--2011 | |
| Corrosivity LSI Calculation | EnvTest | SM20 SM 2330B | |
| Hardness by Calculation | EnvTest | SM20 SM 2340B-97,-11 | |
| pH | EnvTest | SM19 SM 4500 H+ B | |
| Total Coliform and Escherichia coli by Colilert-Presence/Absence | EnvTest | SMWW SM 9223 | |
| Apparent Color | EnvTest | SM21 SM2120B-2011 | |
| Turbidity | EnvTest | SM21 SM2130B-2011 | |
| Total Dissolved Solids (Dried at 180 °C) | EnvTest | SM22 SM2540C-2011 | |
| Cyanide, Total: Colorimetric Method | EnvTest | SM22 SM4500 CNE 2011 | |
| Cyanide: Distillation | EnvTest | | SM22 SM4500 CNC 2011 |
| Nitrite by Colormetric | EnvTest | SM20 SM4500 NO2 B-11 | |
| General Sub Contract Method | | Subcontract | |
| General Sub Contract Method | Radios | Subcontract | |

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140176-1
SDG Number: Wilder Balter - Route 22

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|

**Lab References:**

=

EnvTest = EnviroTest

Pace Mell = Pace Mellville

Radios = Pace Analytical Services, Inc.

**Method References:**

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

IDEXX =

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM19 = "Standard Methods For The Examination Of Water And Wastewater", 19Th Edition, 1995."

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SM21 = "Standard Methods For The Examination Of Water And Wastewater", 21st Edition

SM22 = "Standard Methods for the Examination of Water and Wastewater", 22nd Edition

SMWW = "Standard Methods for the Examination of Water and Wastewater"

STL-STL = Severn Trent Laboratories, St. Louis, Facility Standard Operating Procedure.

## METHOD / ANALYST SUMMARY

Client: WSP USA

Job Number: 420-140176-1
SDG Number: Wilder Balter - Route 22

| Method | Analyst | Analyst ID |
|---|---|---|
| EPA-DW 524.2 | Andersen, Eric C | ECA |
| EPA 200.7 Rev 4.4 | Sirico, Derek | DS |
| EPA 200.8 Rev.5.4 | Sirico, Derek | DS |
| EPA 245.1 Rev.3.0 | Sirico, Derek | DS |
| SM20 SM 2340B-97,-11 | Sirico, Derek | DS |
| MCAWW 300.0 | Luis, Carlos | CL |
| EPA 300.0 Rev. 2.1 | Luis, Carlos | CL |
| IDEXX SIMPLATE | Santacroce, Nicholas | NS |
| SM20 SM 2150B | Lacy, Megan | ML |
| SM22 SM 2320B--2011 | Cusack, Renee | RC |
| SM20 SM 2330B | Cusack, Renee | RC |
| SM19 SM 4500 H+ B | Santacroce, Nicholas | NS |
| SMWW SM 9223 | Santacroce, Nicholas | NS |
| SM21 SM2120B-2011 | Santacroce, Nicholas | NS |
| SM21 SM2130B-2011 | Santacroce, Nicholas | NS |
| SM22 SM2540C-2011 | Mastrobuono, Danielle | DM |
| SM22 SM4500 CNE 2011 | Molchon, Renee | RM |
| SM20 SM4500 NO2 B-11 | Mastrobuono, Danielle | DM |

## SAMPLE SUMMARY

Client: WSP USA

Job Number: 420-140176-1
SDG Number: Wilder Balter - Route 22

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 420-140176-1 | Well 2 | Drinking Water | 07/25/2018 1102 | 07/25/2018 1435 |

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 2**

Lab Sample ID: 420-140176-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1102
Date Received: 07/25/2018 1435

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 07/27/2018 1231
Date Prepared: N/A

Analysis Batch: 420-123289

Instrument ID: HP
Lab File ID: V072708.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,1-Trichloroethane | <0.500 | | 0.500 |
| 1,1,2,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,2-Trichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethene | <0.500 | | 0.500 |
| 1,1-Dichloropropene | <0.500 | | 0.500 |
| 1,2,3-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,3-Trichloropropane | <0.500 | | 0.500 |
| 1,2,4-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,4-Trimethylbenzene | <0.500 | | 0.500 |
| 1,2-Dichloroethane | <0.500 | | 0.500 |
| 1,2-Dichlorobenzene | <0.500 | | 0.500 |
| 1,2-Dichloropropane | <0.500 | | 0.500 |
| 1,3-Dichloropropane | <0.500 | | 0.500 |
| 1,4-Dichlorobenzene | <0.500 | | 0.500 |
| 2,2-Dichloropropane | <0.500 | | 0.500 |
| Benzene | <0.500 | | 0.500 |
| Bromobenzene | <0.500 | | 0.500 |
| Bromochloromethane | <0.500 | | 0.500 |
| Bromomethane | <0.500 | | 0.500 |
| n-Butylbenzene | <0.500 | | 0.500 |
| cis-1,2-Dichloroethene | <0.500 | | 0.500 |
| cis-1,3-Dichloropropene | <0.500 | | 0.500 |
| Carbon tetrachloride | <0.500 | | 0.500 |
| Chlorobenzene | <0.500 | | 0.500 |
| Chloroethane | <0.500 | | 0.500 |
| Chloromethane | <0.500 | | 0.500 |
| Dibromomethane | <0.500 | | 0.500 |
| Ethylbenzene | <0.500 | | 0.500 |
| Dichlorodifluoromethane | <0.500 | | 0.500 |
| Hexachlorobutadiene | <0.500 | | 0.500 |
| Isopropylbenzene | <0.500 | | 0.500 |
| p-Isopropyltoluene | <0.500 | | 0.500 |
| Methylene Chloride | <0.500 | | 0.500 |
| m-Xylene & p-Xylene | <1.00 | | 1.00 |
| Methyl tert-butyl ether | <0.500 | | 0.500 |
| o-Xylene | <0.500 | | 0.500 |
| Tetrachloroethene | <0.500 | | 0.500 |
| Toluene | <0.500 | | 0.500 |
| trans-1,2-Dichloroethene | <0.500 | | 0.500 |
| trans-1,3-Dichloropropene | <0.500 | | 0.500 |
| Trichloroethene | <0.500 | | 0.500 |
| tert-Butylbenzene | <0.500 | | 0.500 |

## Analytical Data

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 2**

Lab Sample ID: 420-140176-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1102
Date Received: 07/25/2018 1435

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 07/27/2018 1231
Date Prepared: N/A

Analysis Batch: 420-123289

Instrument ID: HP
Lab File ID: V072708.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Trichlorofluoromethane | <0.500 | | 0.500 |
| Vinyl chloride | <0.500 | | 0.500 |
| Xylenes, Total | <1.50 | | 1.50 |
| Styrene | <0.500 | | 0.500 |
| sec-Butylbenzene | <0.500 | | 0.500 |
| 1,3,5-Trimethylbenzene | <0.500 | | 0.500 |
| N-Propylbenzene | <0.500 | | 0.500 |
| 1,3-Dichlorobenzene | <0.500 | | 0.500 |
| 2-Chlorotoluene | <0.500 | | 0.500 |
| 4-Chlorotoluene | <0.500 | | 0.500 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| 4-Bromofluorobenzene | 107 | 71 - 120 |
| Toluene-d8 (Surr) | 98 | 79 - 121 |
| 1,2-Dichloroethane-d4 (Surr) | 118 | 70 - 128 |

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 2**

| | | | |
|---|---|---|---|
| Lab Sample ID: | 420-140176-1 | Date Sampled: | 07/25/2018 1102 |
| Client Matrix: | Drinking Water | Date Received: | 07/25/2018 1435 |

**200.7 Rev 4.4 ICP Metals by 200.7**

| | | | | |
|---|---|---|---|---|
| Method: | 200.7 Rev 4.4 | Analysis Batch: 420-123342 | Instrument ID: | Thermo ICP |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123264 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 07/31/2018 0300 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/26/2018 1500 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Iron | 865 | g | 60.0 |
| Manganese | 124 | | 10.0 |
| Sodium | 7260 | | 200 |
| Zinc | <20.0 | | 20.0 |

**200.8 Rev.5.4 ICPMS Metals by 200.8**

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123313 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123264 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 07/27/2018 1511 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/26/2018 1500 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Lead | 2.08 | | 1.00 |
| Arsenic | <1.40 | | 1.40 |
| Beryllium | <0.300 | | 0.300 |
| Cadmium | <1.00 | | 1.00 |
| Chromium | <7.00 | | 7.00 |
| Nickel | 2.15 | | 0.500 |
| Antimony | <0.400 | | 0.400 |
| Thallium | <0.300 | | 0.300 |
| Barium | 79.1 | | 2.00 |
| Selenium | <2.00 | | 2.00 |

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123479 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.8 Rev.5.4 | Prep Batch: 420-123264 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 08/02/2018 1624 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/26/2018 1500 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Silver | <1.00 | | 1.00 |

## Analytical Data

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 2**

| | | | |
|---|---|---|---|
| Lab Sample ID: | 420-140176-1 | Date Sampled: | 07/25/2018 1102 |
| Client Matrix: | Drinking Water | Date Received: | 07/25/2018 1435 |

**245.1 Rev.3.0 Mercury in Water by CVAA**

| | | | | |
|---|---|---|---|---|
| Method: | 245.1 Rev.3.0 | Analysis Batch: 420-123487 | Instrument ID: | Perkin Elmer FIMS |
| Preparation: | 245.1 | Prep Batch: 420-123430 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 25 mL |
| Date Analyzed: | 08/03/2018 1335 | | Final Weight/Volume: | 25 mL |
| Date Prepared: | 08/02/2018 0900 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Mercury | <0.200 | | 0.200 |

**SM 2340B-97,-11 Hardness by Calculation**

| | | | | |
|---|---|---|---|---|
| Method: | SM 2340B-97,-11 | Analysis Batch: 420-123353 | Instrument ID: | None |
| Preparation: | N/A | | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | |
| Date Analyzed: | 07/31/2018 0300 | | Final Weight/Volume: | |
| Date Prepared: | N/A | | | |

| Analyte | Result (mg/L) | Qualifier | RL |
|---|---|---|---|
| Calcium hardness as calcium carbonate | 62.0 | | 1.25 |

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**Biology**

**Client Sample ID:** **Well 2**

Lab Sample ID: 420-140176-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1102
Date Received: 07/25/2018 1435

| Analyte | Result | Qual | Units | Dil | Method |
|---|---|---|---|---|---|
| Coliform, Total | Present | g | CFU/100mL | 1.0 | SM 9223 |
| Anly Batch: | | Date Analyzed | 07/25/2018 1637 | | |
| Escherichia coli | Absent | | CFU/100mL | 1.0 | SM 9223 |
| Anly Batch: | | Date Analyzed | 07/25/2018 1637 | | |

| Analyte | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|
| Heterotrophic Plate Count | 124 | | CFU/mL | 2.00 | 1.0 | SIMPLATE |
| Anly Batch: | | Date Analyzed | 07/25/2018 1540 | | | |

**General Chemistry**

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**General Chemistry**

**Client Sample ID:** **Well 2**

Lab Sample ID: 420-140176-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1102
Date Received: 07/25/2018 1435

| Analyte | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|
| Nitrate as N | <0.250 | | mg/L | 0.250 | 1.0 | 300.0 |
| Anly Batch: | | Date Analyzed | 07/25/2018 1821 | | | |

| Analyte | Result | Qual | Units | Dil | Method |
|---|---|---|---|---|---|
| Langelier Index | 0.200 | | NONE | 1.0 | SM 2330B |
| Anly Batch: | | Date Analyzed | 07/31/2018 1323 | | |

Client: WSP USA

Job Number: 420-140176-1
Sdg Number: Wilder Balter - Route 22

**General Chemistry**

**Client Sample ID:** **Well 2**

Lab Sample ID: 420-140176-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1102
Date Received: 07/25/2018 1435

| Analyte | | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Alkalinity | | 90.4 | | mg/L | 5.00 | 1.0 | SM 2320B--2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1350 | | | |
| Total Dissolved Solids | | 138 | | mg/L | 5.00 | 1.0 | SM2540C-2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1100 | | | |
| Chloride | | 3.60 | | mg/L | 1.50 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1821 | | | |
| Sulfate | | 21.3 | | mg/L | 5.00 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1821 | | | |
| Fluoride | | <0.500 | | mg/L | 0.500 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1821 | | | |
| Cyanide, Total | | <0.00500 | | mg/L | 0.00500 | 1.0 | SM4500 CNE 201 |
| | Anly Batch: | | Date Analyzed | 07/27/2018 1735 | | | |
| | Prep Batch: | | Date Prepared: | 07/27/2018 1530 | | | |
| Apparent Color | | 5.00 | | Pt-Co | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1745 | | | |
| pH@color measurement | | 8.14 | | SU | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1745 | | | |
| Turbidity | | 2.85 | | NTU | 0.100 | 1.0 | SM2130B-2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1510 | | | |
| Odor | | 1.00 | | T.O.N. | 1.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1450 | | | |
| Temp @ Odor Measurement | | 60.0 | | Degrees C | 5.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1450 | | | |
| pH | | 8.21 | H | SU | 0.200 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1710 | | | |
| Temp @ pH Measurement | | 22.1 | | Degrees C | 5.00 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1710 | | | |
| Nitrite as N | | <0.0100 | | mg/L | 0.0100 | 1.0 | SM4500 NO2 B-11 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1611 | | | |

## DATA REPORTING QUALIFIERS

Client: WSP USA

Job Number:
Sdg Number: Wilder Balter - Route 22

| Lab Section | Qualifier | Description |
|---|---|---|
| Metals | | |
| | g | Result fails applicable NYS drinking water standards |
| General Chemistry | | |
| | H | Sample was prepped or analyzed beyond the specified holding time |
| Biology | | |
| | g | Result fails applicable NYS drinking water standards |

**The following analytes are Not Part of the ELAP scope of accreditation:**

Sulfur, Tungsten, Bicarbonate Alkalinity, 7 Day BOD 5210C, 28 Day BOD, Soluble BOD, Carbon Dioxide, Carbonate Alkalinity, CBOD Soluble, Chlorine, Cyanide (WAD), Ferrous Iron, Ferric Iron, Total Nitrogen, Total Organic Nitrogen, Dissolved Oxygen, pH, Solids (Fixed), Solids (Percent), Solids (Percent Moisture), Solids (Percent Volatile), Solids (Volatile Suspended), Temperature, TKN (Soluble), COD (Soluble), Total Inorganic Carbon, 2-Aminopyridine, 3-Picoline, 1-Methyl-2-pyrrilidinone, Aziridine, Dimethyl sulfoxide, 1-Chlorohexane, 1,2,4,5-Tetramethylbenzene, 4-Ethyl toluene, p-Diethylbenzene, Iron Bacteria, Salmonella, Sulfur Reducing Bacteria, & UOD (Ultimate Oxygen Demand).

**The following analytes are Not Part of ELAP Potable Water scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), Nitrate-Nitrite (10-107-4-1C, 353.2), m-Xylene & p-Xylene (502.2, 524), o-Xylene (502.2, 524), Sulfide (SM4500SD), Acenaphthene (525.2), Acenaphthylene (525.2), Fluoranthene (525.2), Fluorene (525.2), Phenanthrene (525.2), Anthracene (525.2), Pyrene (525.2), Benzo[a]anthracene (525.2), Benzo[b]fluoranthene (525.2), Benzo[g,h,i]perylene (525.2), Benzo[k]fluoranthene (525.2), Indeno[1,2,3-cd]pyrene (525.2), & Dibenz(a,h)anthracene (525.2).

**The following analytes are Not Part of ELAP Solid and Hazardous Waste scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), 1,2-Dichloro-1,1,2-trifluoroethane (8260), & Chlorodifluoromethane (8260).

**The following analytes are Not Part of ELAP Non Potable Water scope of accreditation:**

Dissolved Organic Carbon (5310C), Mecoprop (8151A), MCPA (8151A), Propylene Glycol (8015D).

## Definitions and Glossary

Client: WSP USA

Job Number:

Sdg Number: Wilder Balter - Route 22

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| %R | Percent Recovery |
| DL, RA, RE | Indicates a Dilution, Reanalysis or Reextraction. |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit - an estimate of the minimum amount of a substance that an analytical process can reliably detect. A MDL is analyte- and matrix-specific and may be laboratory-dependent. |
| ND | Not detected at the reporting limit (or MDL if shown). |
| QC | Quality Control |
| RL | Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. |
| RPD | Relative Percent Difference - a measure of the relative difference between two points |

EnviroTest Laboratories, Inc.

# CHAIN OF CUSTODY

140176 (1 of 3) 4 QE 7/25/18

REPORT# (Lab Use Only)

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

| | | |
|---|---|---|
| PROJECT REFERENCE: Wilder Balter | PROJECT NO.: Route 22 | PROJECT LOCATION |
| ENVIROTEST PROJECT MANAGER: Debra Bayer | P.O. NUMBER | TOWN |
| CLIENT (SITE) PM: Stacy Stieber | CLIENT PHONE: 475-882-1723 | CLIENT FAX |
| CLIENT NAME: WSP USA | stacy.stieber@wsp.com | |
| CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484 | | |
| COMPANY CONTRACTING THIS WORK (if applicable): | | |

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ / QUICK ___ / VERBAL ___

#OF COOLERS: 1

| | SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | D (Drinking Water) or W (Waste Water) Indicate | SOLID OR SEMISOLID | OTHER Specify | Liter Amber Plain | 40ml Vials HCl | 40ml Sodium Thio. | 250ml Amber Sodium Thio. | Liter Amber HCl/Na2SO3 | 250ml Plastic Nitric Acid | 60ml Mon/Sod.Thio(liquid) | Liter Plastic | 250ml Plastic Sodium Hyd. | 125ml Plastic Sterile | Liter Plastic Nitric | 40ml Vials Unpres | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | 7/25/18 | 1150 | Well 2 | | X | D | | | 2 | 3 | 4 | 1 | 2 | 1 | 1 | 4 | 1 | 2 | 5 | 2 | Table 8B (Sb,As,Ba,Be,Cd,Cr,Cn,Hg,Ni |
| | | | | | | | | | | | | | | | | | | | | | Se,Tl,F) |
| | | | | | | | | | | | | | | | | | | | | | Table 8C (NO3,NO2) |
| | | | | | | | | | 1-MPA Rig | | | | | | | | | | | | Table 8D (Cl,Fe,Mn,Ag,Na,SO4,Zn,Odor,Color) |
| | | | | | | | | | 1-250ml Amber Unpres. | | | | | | | | | | | | 524.2 (POC,MTBE,Vinyl Chloride) |
| | | | | | | | | | 2-250ml Plastic Unpres.(no air) | | | | | | | | | | | | SOCs (504,505,515,525,531) |
| | | | | | | | | | 31 Total Containers & Rig | | | | | | | | | | | | Additional Tests (Total coliform |
| | | | | | | | | | | | | | | | | | | | | | thru Zinc) |
| | | | | | | | | | | | | | | | | | | | | | Radon, Gross Alpha/Beta, |
| | | | | | | | | | | | | | | | | | | | | | Radium 226/228, Total Uranium |
| | | | | | | | | | | | | | | | | | | | | | MPA/Crypto/Giardia |

| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| [signature] | WSP | 7/25/18 | 1435 | | | | |
| SAMPLED BY: (SIGNATURE) [signature] | WSP | 7/25/18 | 1150 | | | | |
| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |

SUBCONTACT: PAGE SOC Radio Radon, AS1 MPA/C/G

| RECEIVED FOR LABORATORY BY: (SIGNATURE) | DATE | TIME | CUSTODY INTACT YES NO | Cooler Temp. | LABORATORY REMARKS | ICE ✓ | pH | CL2 | Received by |
|---|---|---|---|---|---|---|---|---|---|
| [signature] | 7/25/18 | 1435 | | 7.2°C | | | | | QE 7-25-18 |

ETL

IR#3

420-140176-A-1
Well 2
Date Sampled. 7/25/2018

420-1225288
08/31/2018

Page 1 of 2 to ASI

**Analytical Services, Inc.** 140176 (2 of 4) DE 7-25-18

# CHAIN OF CUSTODY RECORD

Ship to: Analytical Services, Inc., 130 Allen Brook Lane, Williston, VT 05495, Attn: Sample Management
Phone: 1-800-723-4432 or 802-878-5138 • Fax: 802-878-6765 *Web site: www.analyticalservices.com*

| | |
|---|---|
| Submitted By: Brian Massi<br>WSP USA<br>4 Research Drive Suite 204<br>Shelton, CT 06484<br>Phone (203) 767-0287 Email: Brian.Massi@wsp.com | Report To: Stacy Stieber<br>← Same<br>Phone (475) 882-1723 Email: Stacy.Stieber@wsp.com |
| Project Name: Wilder-Balter | Invoice To: ↑ Same |
| Job Site: Route 22 | |
| P.O. Number: — | Phone: _____ Email: _____ |

| | Sample Identification* | Sample Collection Date (Start) | Time (Start) | Sampler Initials | Sample Matrix (check one): Water - Raw | Water - Finished | Waste Water | Biosolids | Soil/Sediment | Other | Analysis Requested | Lab Use Only Temp (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Well 2 | 7/24/18 | 1403 | BM | ✓ | | | | | | MPA w/ IEA | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

*Sample ID should match ID written on the sample containers and data sheets. Sample ID will appear on the report for identification.

| Relinquished By (signature) | Date/Time | Received By (signature) | Date/Time |
|---|---|---|---|
| [signature] | 7/25/18 1435 | A Elmendorf ETL | 7-25-18 1435 |
| | | | |

| Field Comments: | Lab Comments: |
|---|---|
| | |

pg 2 of 2 to ASI

**ANALYTICAL SERVICES, INC. (ASI)**
*Microbiological Testing, Research and Consulting* 140176 (3 of 4) 7/27/18

130 Allen Brook Ln., Williston, VT 05495 USA
1.800.723.4432 / 802.878.5138 Fax: 802.878.6765

## SAMPLE COLLECTION DATA SHEET
## MICROSCOPIC PARTICULATE ANALYSIS (MPA)

***NOTE: SAMPLES ARE ACCEPTED MONDAY – THURSDAY ONLY.***

**Please notify ASI that sampling is taking place, so our lab staff will know when to expect it back for processing.**

☒ MPA **with** IFA Staining Procedure for *Giardia/Cryptosporidium* ☐ MPA **without** Staining Procedure for *Giardia/Cryptosporidium*

(1)

| | |
|---|---|
| Client Sample ID: | Well 2 |
| Sample Site: | Route 22 - Wilder Balter Partners |
| Sampler's Name: | Brian Moore |
| Sampling Firm: | WSP USA |

| | |
|---|---|
| Water Type: | ☒ Raw ☐ Finished ☐ Other _____ |
| Water Source: | ☒ Well ☐ Spring ☐ River ☐ Lake/Reservoir ☐ Other |
| Distance From Nearest Surface Water Source: | 50 ☒ Feet ☐ Yards ☐ Miles |

| | |
|---|---|
| Treatment Chemicals | ☐ Chlorine ☐ $KMnO_4$ ☐ Polymer-Type: _____ ☐ Alum ☐ Carbon ☐ Other _____ ☒ None |
| Filtration Type | ☐ Rapid Sand ☐ Mixed media ☐ Slow Sand ☒ None ☐ Pressure filter ☐ Cartridge ☐ Other_____ |

| Sampling Data | Start | End |
|---|---|---|
| Time Zone Sample collected in: | (Eastern) Central Mountain Pacific | |
| Date: | 7/24/18 | 7/25/18 |
| Time (24hr. clock): | 1403 | 1120 |
| Turbidity (NTU): | — | — |
| pH: | — | — |
| Meter Reading(Gal/Ft$^3$) | 709524 | 72080.6 |

**Please filter for 8-24 hours, but do not go over 24 hours; collect between 500-1440 gallons at 1 GPM max**

| | |
|---|---|
| (1 gallon = 3.785 liters) | Total Volume Sampled: 4270.24 Liters |

Sampler's Signature: [signature]

*I certify that the above information is correct and that this sample was collected in accordance with the EPA Consensus Method for MPA.*

**Please call Analytical Services, Inc. Client Services at (800) 723-4432 with questions.**

| LAB USE ONLY | ASI Sample ID# | |
|---|---|---|

EnviroTest Laboratories, Inc.

# CHAIN OF CUSTODY

(4 of 4) 140176 ~~(1 of 3)~~ ae 7/25/18

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only)

| | | |
|---|---|---|
| PROJECT REFERENCE: Wilder Bulla | PROJECT NO.: Route 22 | PROJECT LOCATION |
| ENVIROTEST PROJECT MANAGER: Debra Bayer | P.O. NUMBER | TOWN: Lewisboro |
| CLIENT (SITE) PM: Stacy Stieber | CLIENT PHONE: 475-882-1723 | CLIENT FAX |
| CLIENT NAME: WSP USA | stacy.stieber@wsp.com | |
| CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484 | | |
| COMPANY CONTRACTING THIS WORK (if applicable): | | |

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ / QUICK ___ / VERBAL ___

#OF COOLERS: 1

| | SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) WOCKTE | AQUEOUS (WATER) | D (Drinking Water) or W (Waste Water) Indicate | SOLID OR SEMISOLID | OTHER Specify | Liter Amber Plain | 40ml Vials HCl | 40ml Sodium Thio. | 250ml Amber Sodium Thio. | Liter Amber HCl/Na2SO3 | 250ml Plastic Nitric Acid | 60ml Mon/Sod.Thio(liquid) | Liter Plastic | 250ml Plastic Sodium Hyd. | 125ml Plastic Sterile | Liter Plastic Nitric | 40ml Vials Unpres | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | NUMBER OF CONTAINERS SUBMITTED | | | | | | | | | | | | |
| (1) | 7/25/18 | 1150 | Well 2 | | X | D | | | 2 | 3 | 4 | 1 | 2 | 1 | 1 | 4 | 1 | 2 | 5 | 2 | Table 8B (Sb,As,Ba,Be,Cd,Cr,Cn,Hg,Ni |
| | | | | | | | | | | | | | | | | | | | | | Se,Tl,F) |
| | | | | | | | | | | | | | | | | | | | | | Table 8C (NO3,NO2) |
| | | | | | | | | | 1-MPA Rig | | | | | | | | | | | | Table 8D (Cl,Fe,Mn,Ag,Na,SO4,Zn,Odor,Color) |
| | | | | | | | | | 1-250ml Amber Unpres. | | | | | | | | | | | | 524.2 (POC,MTBE,Vinyl Chloride) |
| | | | | | | | | | 2-250ml Plastic Unpres.(no air) | | | | | | | | | | | | SOCs (504,505,515,526,531) |
| | | | | | | | | | 31 Total Containers & Rig | | | | | | | | | | | | Additional Tests (Total coliform |
| | | | | | | | | | | | | | | | | | | | | | thru Zinc) |
| | | | | | | | | | | | | | | | | | | | | | Radon, Gross Alpha/Beta, |
| | | | | | | | | | | | | | | | | | | | | | Radium 226/228, Total Uranium |
| | | | | | | | | | | | | | | | | | | | | | MPA/Crypto/Giardia |

| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| [signature] | WSP | 7/25/18 | 1435 | | | | |
| SAMPLED BY: (SIGNATURE) [signature] | COMPANY WSP | DATE 7/25/18 | TIME 1150 | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |

SUBCONTACT: PAGE SOCs/Radon ASP MPA/CIG

RECEIVED FOR LABORATORY BY: (SIGNATURE) [signature] DATE 7-25-18 TIME 1435 CUSTODY INTACT YES NO COOLER TEMP. 2.2°C LABORATORY REMARKS: [illegible]

ETL

IR#3

# LOGIN SAMPLE RECEIPT CHECK LIST

Client: WSP USA

Job Number: 420-140176-1
SDG Number: Wilder Balter - Route 22

**Login Number: 140176**

| Question | T/F/NA | Comment |
|---|---|---|
| Samples were collected by ETL employee as per SOP-SAM-1 | NA | |
| The cooler's custody seal, if present, is intact. | NA | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is recorded. | True | 7.2 C |
| Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C | False | |
| If false, was sample received on ice within 6 hours of collection. | True | |
| Based on above criteria cooler temperature is acceptable. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | False | pH |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 13, 2018

Ms. Debra Bayer
EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: WSP USA
Pace Project No.: 30260338

Dear Ms. Bayer:
Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures

cc: Janine Rader, EnviroTest Laboratories, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# CERTIFICATIONS

Project: WSP USA
Pace Project No.: 30260338

**Pennsylvania Certification IDs**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## SAMPLE SUMMARY

Project: WSP USA
Pace Project No.: 30260338

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **30260338001** | **Well 2 (420-140176-1)** | Drinking Water | 07/25/18 11:50 | 07/26/18 10:20 |

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## SAMPLE ANALYTE COUNT

Project: WSP USA
Pace Project No.: 30260338

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **30260338001** | **Well 2 (420-140176-1)** | SM7500RnB-07 | NEG | 1 |
| | | EPA 900.0 | NEG | 2 |
| | | EPA 903.1 | KAC | 1 |
| | | EPA 904.0 | JLW | 1 |
| | | ASTM D5174-97 | RMK | 1 |

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

# ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

**Sample: Well 2 (420-140176-1)** **Lab ID: 30260338001** Collected: 07/25/18 11:50 Received: 07/26/18 10:20 Matrix: Drinking Water
PWS: Site ID: Sample Type:

| Parameters | Method | Act ± Unc (MDC) Carr Trac | Units | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|
| Radon | SM7500RnB-07 | **1,276 ± 74.8 (60.9)**<br>**C:NA T:NA** | pCi/L | 07/28/18 21:14 | 10043-92-2 | |
| Gross Alpha | EPA 900.0 | **0.804 ± 1.42 (2.97)**<br>**C:NA T:NA** | pCi/L | 08/10/18 08:47 | 12587-46-1 | |
| Gross Beta | EPA 900.0 | **5.87 ± 1.90 (3.22)**<br>**C:NA T:NA** | pCi/L | 08/10/18 08:47 | 12587-47-2 | |
| Radium-226 | EPA 903.1 | **0.241 ± 0.273 (0.218)**<br>**C:NA T:80%** | pCi/L | 08/06/18 21:36 | 13982-63-3 | |
| Radium-228 | EPA 904.0 | **1.85 ± 0.505 (0.720)**<br>**C:66% T:75%** | pCi/L | 08/07/18 13:28 | 15262-20-1 | |
| Total Uranium | ASTM D5174-97 | **0.326 ± 0.009 (0.262)**<br>**C:NA T:NA** | ug/L | 08/09/18 14:15 | 7440-61-1 | |

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

QC Batch: 307651
QC Batch Method: ASTM D5174-97
Analysis Method: ASTM D5174-97
Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30260338001

METHOD BLANK: 1503833
Matrix: Water
Associated Lab Samples: 30260338001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Total Uranium | 0.185 ± 0.006 (0.262) C:NA T:NA | ug/L | 08/09/18 13:03 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

QC Batch: 307643 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30260338001

METHOD BLANK: 1503825 | Matrix: Water
Associated Lab Samples: 30260338001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Gross Alpha | -0.034 ± 0.363 (1.14) C:NA T:NA | pCi/L | 08/10/18 09:56 | |
| Gross Beta | 1.16 ± 0.954 (1.94) C:NA T:NA | pCi/L | 08/10/18 09:56 | |

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

QC Batch: 307666 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30260338001

METHOD BLANK: 1503855 | Matrix: Water
Associated Lab Samples: 30260338001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.622 ± 0.399 (0.749) C:77% T:80% | pCi/L | 08/07/18 13:28 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

QC Batch: 307426 | Analysis Method: SM7500RnB-07
QC Batch Method: SM7500RnB-07 | Analysis Description: 7500Rn B Radon
Associated Lab Samples: 30260338001

METHOD BLANK: 1502786 | Matrix: Water
Associated Lab Samples: 30260338001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radon | -2.9 ± 18.7 (32.9) C:NA T:NA | pCi/L | 07/28/18 18:06 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260338

QC Batch: 307657 | Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 | Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30260338001

METHOD BLANK: 1503845 | Matrix: Water
Associated Lab Samples: 30260338001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.405 ± 0.423 (0.597) C:NA T:86% | pCi/L | 08/06/18 21:11 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALIFIERS

Project: WSP USA
Pace Project No.: 30260338

**DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: WSP | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10017.1 |
| Client Contact: Shipping/Receiving | Phone: 7/25/18 03 | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |
| Company: Pace Analytical Services, Inc. | | | | STL Job #: 420-140176-1 |
| Address: 1638 Roseytown Rd,Suites 2,3,4, | Due Date Requested: 8/8/2018 | | | |
| City: Greensburg | TAT Requested (days): Std TAT 7/25/18 03 | | | |
| State, Zip: PA, 15601 | | | | |
| Phone: | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: WSP USA | Project #: 42002340 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 900 GA/GB/RA 226/RA 228 | SUBCONTRACT/ Total Uranium | SUBCONTRACT/ Radon | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | MS spks 7/25/18 03 |
| Well 2 (420-140176-1) | 7/25/18 | 11:50 | G | Water | | | X | X | X | 7 | 001 |
| | | | | 7/25/18 03 | | | | | | | |

WO# : 30260338
30260338

**Possible Hazard Identification**
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: | Date/Time: 7/25/18 16:00 | Company: EM | Received by: | Date/Time: 7-26-18 1020 | Company: PACE |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | | Cooler Temperature(s) °C and Other Remarks: | | |

# Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Envirotest Labs Project # 30260338

| | |
|---|---|
| Label | BJH |
| LIMS Login | BJH |

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7728 1834 5039

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.8 °C Correction Factor: 0.0 °C Final Temp: 5.8 °C

Temp should be above freezing to 6°C

pH paper Lot# 10D4671 Date and Initials of person examining contents: ET 7-26-18

| Comments: | Yes | No | N/A | |
|---|---|---|---|---|
| Chain of Custody Present: | ✓ | | | 1. |
| Chain of Custody Filled Out: | ✓ | | | 2. |
| Chain of Custody Relinquished: | ✓ | | | 3. |
| Sampler Name & Signature on COC: | | ✓ | | 4. |
| Sample Labels match COC: -Includes date/time/ID Matrix: WT | ✓ | | | 5. |
| Samples Arrived within Hold Time: | ✓ | | | 6. |
| **Short Hold Time Analysis (<72hr remaining):** | ✓ | | | 7. |
| **Rush Turn Around Time Requested:** | | ✓ | | 8. |
| Sufficient Volume: | ✓ | | | 9. |
| Correct Containers Used: -Pace Containers Used: | ✓ | ✓ | | 10. |
| Containers Intact: | ✓ | | | 11. |
| Orthophosphate field filtered | | | ✓ | 12. |
| Hex Cr Aqueous Compliance/NPDES sample field filtered | | | ✓ | 13. |
| Organic Samples checked for dechlorination: | | | ✓ | 14. |
| Filtered volume received for Dissolved tests | | | ✓ | 15. |
| All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. | ✓ | ✓ | | 16. Radon vials already split |
| exceptions: VOA, coliform, TOC, O&G, Phenolics | | | | Initial when completed ET; Date/time of preservation; Lot # of added preservative |
| Headspace in VOA Vials ( >6mm): | | | ✓ | 17. |
| Trip Blank Present: Trip Blank Custody Seals Present | | ✓ | ✓ | 18. |
| **Rad Aqueous Samples Screened > 0.5 mrem/hr** | | ✓ | | Initial when completed: Date: |

**Client Notification/ Resolution:**

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

WE

EnviroTest Laboratories Inc.

# ANALYTICAL REPORT

Job Number: 420-140503-1

SDG Number: Wilder Balter - Route 22, Lewisboro

Job Description: WSP USA

For:
WSP USA
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
08/31/2018



EnviroTest Laboratories, Inc. Certifications and Approvals: NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554

**Job Narrative**
**420-J140503-1**

**Comments**
No additional comments.

**Receipt**
All samples were received in good condition within temperature requirements.

**GC/MS VOA**
No analytical or quality issues were noted.

**Metals**
No analytical or quality issues were noted.

**General Chemistry**
Method SM 4500 H+ B: The holding time for pH is 15 minutes, the samples were received outside of the holding time.

No other analytical or quality issues were noted.

**Biology**
No analytical or quality issues were noted.

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140503-1
SDG Number: Wilder Balter - Route 22, Lewisboro

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|
| **Matrix: Water** | | | |
| ICP Metals by 200.7 | EnvTest | EPA 200.7 Rev 4.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| ICPMS Metals by 200.8 | EnvTest | EPA 200.8 Rev.5.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| Total Metals Digestion for 200.8 | EnvTest | | EPA 200.8 Rev.5.4 |
| Mercury in Water by CVAA | EnvTest | EPA 245.1 Rev.3.0 | |
| Digestion for CVAA Mercury in Waters | EnvTest | | EPA 245.1 |
| Anions by Ion Chromatography | EnvTest | MCAWW 300.0 | |
| Anions by Ion Chromatography | EnvTest | EPA 300.0 Rev. 2.1 | |
| EPA 504.1 EDB | Pace Mell | EPA 504.1 | |
| EPA 505 Pesticide/PCB | Pace Mell | EPA 505 | |
| EPA 515 Chlorinated Acids | Pace Mell | EPA 515 | |
| Purgeable Organic Compounds in Water by GC/MS | EnvTest | EPA-DW 524.2 | |
| EPA 525.2 Semivolatile Organics | Pace Mell | EPA 525.2 | |
| EPA 531.1 Carbamate Pesticides in Drinki | Pace Mell | EPA 531.1 | |
| EPA 900 Series GA/GB/RA226/RA228/Gamma | Radios | EPA 900 | |
| Uranium | Radios | STL-STL EPA | |
| Heterotropic Plate Count | EnvTest | IDEXX SIMPLATE | |
| Odor, Threshold Test | EnvTest | SM20 SM 2150B | |
| Alkalinity, Titration Method | EnvTest | SM22 SM 2320B--2011 | |
| Corrosivity LSI Calculation | EnvTest | SM20 SM 2330B | |
| Hardness by Calculation | EnvTest | SM20 SM 2340B-97,-11 | |
| pH | EnvTest | SM19 SM 4500 H+ B | |
| Total Coliform and Escherichia coli by Colilert-Presence/Absence | EnvTest | SMWW SM 9223 | |
| Apparent Color | EnvTest | SM21 SM2120B-2011 | |
| Turbidity | EnvTest | SM21 SM2130B-2011 | |
| Total Dissolved Solids (Dried at 180 °C) | EnvTest | SM22 SM2540C-2011 | |
| Cyanide, Total: Colorimetric Method | EnvTest | SM22 SM4500 CNE 2011 | |
| Cyanide: Distillation | EnvTest | | SM22 SM4500 CNC 2011 |
| Nitrite by Colormetric | EnvTest | SM20 SM4500 NO2 B-11 | |
| General Sub Contract Method | Radios | Subcontract | |

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140503-1
SDG Number: Wilder Balter - Route 22, Lewisboro

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|

**Lab References:**

EnvTest = EnviroTest

Pace Mell = Pace Mellville

Radios = Pace Analytical Services, Inc.

**Method References:**

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

IDEXX =

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM19 = "Standard Methods For The Examination Of Water And Wastewater", 19Th Edition, 1995."

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SM21 = "Standard Methods For The Examination Of Water And Wastewater", 21st Edition

SM22 = "Standard Methods for the Examination of Water and Wastewater", 22nd Edition

SMWW = "Standard Methods for the Examination of Water and Wastewater"

STL-STL = Severn Trent Laboratories, St. Louis, Facility Standard Operating Procedure.

## METHOD / ANALYST SUMMARY

Client: WSP USA

Job Number: 420-140503-1
SDG Number: Wilder Balter - Route 22, Lewisboro

| Method | Analyst | Analyst ID |
|---|---|---|
| EPA-DW 524.2 | Andersen, Eric C | ECA |
| EPA 200.7 Rev 4.4 | Sirico, Derek | DS |
| EPA 200.8 Rev.5.4 | Sirico, Derek | DS |
| EPA 245.1 Rev.3.0 | Sirico, Derek | DS |
| SM20 SM 2340B-97,-11 | Sirico, Derek | DS |
| MCAWW 300.0 | Luis, Carlos | CL |
| EPA 300.0 Rev. 2.1 | Luis, Carlos | CL |
| IDEXX SIMPLATE | Santacroce, Nicholas | NS |
| SM20 SM 2150B | Lacy, Megan | ML |
| SM22 SM 2320B--2011 | Cusack, Renee | RC |
| SM20 SM 2330B | Cusack, Renee | RC |
| SM19 SM 4500 H+ B | Mastrobuono, Danielle | DM |
| SMWW SM 9223 | Santacroce, Nicholas | NS |
| SM21 SM2120B-2011 | Lacy, Megan | ML |
| SM21 SM2130B-2011 | Santacroce, Nicholas | NS |
| SM22 SM2540C-2011 | Mastrobuono, Danielle | DM |
| SM22 SM4500 CNE 2011 | Molchon, Renee | RM |
| SM20 SM4500 NO2 B-11 | Mastrobuono, Danielle | DM |

## SAMPLE SUMMARY

Client: WSP USA

Job Number: 420-140503-1
SDG Number: Wilder Balter - Route 22, Lewisboro

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 420-140503-1 | Well 3 | Drinking Water | 08/02/2018 0925 | 08/02/2018 1105 |

## Analytical Data

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**Client Sample ID:** **Well 3**

Lab Sample ID: 420-140503-1
Client Matrix: Drinking Water

Date Sampled: 08/02/2018 0925
Date Received: 08/02/2018 1105

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 08/07/2018 1102
Date Prepared: N/A

Analysis Batch: 420-123571

Instrument ID: HP
Lab File ID: V080705.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,1-Trichloroethane | <0.500 | | 0.500 |
| 1,1,2,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,2-Trichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethene | <0.500 | | 0.500 |
| 1,1-Dichloropropene | <0.500 | | 0.500 |
| 1,2,3-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,3-Trichloropropane | <0.500 | | 0.500 |
| 1,2,4-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,4-Trimethylbenzene | <0.500 | | 0.500 |
| 1,2-Dichloroethane | <0.500 | | 0.500 |
| 1,2-Dichlorobenzene | <0.500 | | 0.500 |
| 1,2-Dichloropropane | <0.500 | | 0.500 |
| 1,3-Dichloropropane | <0.500 | | 0.500 |
| 1,4-Dichlorobenzene | <0.500 | | 0.500 |
| 2,2-Dichloropropane | <0.500 | | 0.500 |
| Benzene | <0.500 | | 0.500 |
| Bromobenzene | <0.500 | | 0.500 |
| Bromochloromethane | <0.500 | | 0.500 |
| Bromomethane | <0.500 | | 0.500 |
| n-Butylbenzene | <0.500 | | 0.500 |
| cis-1,2-Dichloroethene | <0.500 | | 0.500 |
| cis-1,3-Dichloropropene | <0.500 | | 0.500 |
| Carbon tetrachloride | <0.500 | | 0.500 |
| Chlorobenzene | <0.500 | | 0.500 |
| Chloroethane | <0.500 | | 0.500 |
| Chloromethane | <0.500 | | 0.500 |
| Dibromomethane | <0.500 | | 0.500 |
| Ethylbenzene | <0.500 | | 0.500 |
| Dichlorodifluoromethane | <0.500 | | 0.500 |
| Hexachlorobutadiene | <0.500 | | 0.500 |
| Isopropylbenzene | <0.500 | | 0.500 |
| p-Isopropyltoluene | <0.500 | | 0.500 |
| Methylene Chloride | <0.500 | | 0.500 |
| m-Xylene & p-Xylene | <1.00 | | 1.00 |
| Methyl tert-butyl ether | <0.500 | | 0.500 |
| o-Xylene | <0.500 | | 0.500 |
| Tetrachloroethene | <0.500 | | 0.500 |
| Toluene | <0.500 | | 0.500 |
| trans-1,2-Dichloroethene | <0.500 | | 0.500 |
| trans-1,3-Dichloropropene | <0.500 | | 0.500 |
| Trichloroethene | <0.500 | | 0.500 |
| tert-Butylbenzene | <0.500 | | 0.500 |

## Analytical Data

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**Client Sample ID:** **Well 3**

Lab Sample ID: 420-140503-1
Client Matrix: Drinking Water

Date Sampled: 08/02/2018 0925
Date Received: 08/02/2018 1105

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 08/07/2018 1102
Date Prepared: N/A

Analysis Batch: 420-123571

Instrument ID: HP
Lab File ID: V080705.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Trichlorofluoromethane | <0.500 | | 0.500 |
| Vinyl chloride | <0.500 | | 0.500 |
| Xylenes, Total | <1.50 | | 1.50 |
| Styrene | <0.500 | | 0.500 |
| sec-Butylbenzene | <0.500 | | 0.500 |
| 1,3,5-Trimethylbenzene | <0.500 | | 0.500 |
| N-Propylbenzene | <0.500 | | 0.500 |
| 1,3-Dichlorobenzene | <0.500 | | 0.500 |
| 2-Chlorotoluene | <0.500 | | 0.500 |
| 4-Chlorotoluene | <0.500 | | 0.500 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| 4-Bromofluorobenzene | 106 | 71 - 120 |
| Toluene-d8 (Surr) | 96 | 79 - 121 |
| 1,2-Dichloroethane-d4 (Surr) | 112 | 70 - 128 |

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**Client Sample ID:** **Well 3**

| | | | |
|---|---|---|---|
| Lab Sample ID: | 420-140503-1 | Date Sampled: | 08/02/2018 0925 |
| Client Matrix: | Drinking Water | Date Received: | 08/02/2018 1105 |

**200.7 Rev 4.4 ICP Metals by 200.7**

| | | | | |
|---|---|---|---|---|
| Method: | 200.7 Rev 4.4 | Analysis Batch: 420-123540 | Instrument ID: | Thermo ICP |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123493 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 08/06/2018 1232 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 08/03/2018 0926 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Iron | <60.0 | | 60.0 |
| Manganese | 33.7 | | 10.0 |
| Sodium | 6320 | | 200 |
| Zinc | <20.0 | | 20.0 |

**200.8 Rev.5.4 ICPMS Metals by 200.8**

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123529 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123493 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 08/06/2018 1459 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 08/03/2018 0926 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Lead | 1.77 | | 1.00 |
| Arsenic | <1.40 | | 1.40 |
| Beryllium | <0.300 | | 0.300 |
| Cadmium | <1.00 | | 1.00 |
| Chromium | <7.00 | | 7.00 |
| Nickel | 0.669 | | 0.500 |
| Antimony | <0.400 | | 0.400 |
| Thallium | <0.300 | | 0.300 |
| Barium | 60.0 | | 2.00 |
| Selenium | <2.00 | | 2.00 |

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123613 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.8 Rev.5.4 | Prep Batch: 420-123592 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 08/08/2018 1326 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 08/07/2018 1300 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Silver | <1.00 | | 1.00 |

## Analytical Data

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**Client Sample ID:** **Well 3**

| | | | |
|---|---|---|---|
| Lab Sample ID: | 420-140503-1 | Date Sampled: | 08/02/2018 0925 |
| Client Matrix: | Drinking Water | Date Received: | 08/02/2018 1105 |

**245.1 Rev.3.0 Mercury in Water by CVAA**

| | | | | |
|---|---|---|---|---|
| Method: | 245.1 Rev.3.0 | Analysis Batch: 420-123690 | Instrument ID: | Perkin Elmer FIMS |
| Preparation: | 245.1 | Prep Batch: 420-123644 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 25 mL |
| Date Analyzed: | 08/10/2018 1233 | | Final Weight/Volume: | 25 mL |
| Date Prepared: | 08/09/2018 0930 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Mercury | <0.200 | | 0.200 |

**SM 2340B-97,-11 Hardness by Calculation**

| | | | | |
|---|---|---|---|---|
| Method: | SM 2340B-97,-11 | Analysis Batch: 420-123546 | Instrument ID: | None |
| Preparation: | N/A | | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | |
| Date Analyzed: | 08/06/2018 1232 | | Final Weight/Volume: | |
| Date Prepared: | N/A | | | |

| Analyte | Result (mg/L) | Qualifier | RL |
|---|---|---|---|
| Calcium hardness as calcium carbonate | 86.0 | | 1.25 |

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**Biology**

**Client Sample ID:** **Well 3**

Lab Sample ID: 420-140503-1
Client Matrix: Drinking Water

Date Sampled: 08/02/2018 0925
Date Received: 08/02/2018 1105

| Analyte | Result | Qual | Units | Dil | Method |
|---|---|---|---|---|---|
| Coliform, Total | Present | g | CFU/100mL | 1.0 | SM 9223 |
| Anly Batch: | | Date Analyzed | 08/02/2018 1621 | | |
| Escherichia coli | Absent | | CFU/100mL | 1.0 | SM 9223 |
| Anly Batch: | | Date Analyzed | 08/02/2018 1621 | | |

| Analyte | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|
| Heterotrophic Plate Count | 48.0 | | CFU/mL | 2.00 | 1.0 | SIMPLATE |
| Anly Batch: | | Date Analyzed | 08/02/2018 1345 | | | |

**General Chemistry**

Client: WSP USA

Job Number: 420-140503-1
Sdg Number: Wilder Balter - Route 22, Lewisboro

**General Chemistry**

**Client Sample ID:** **Well 3**

Lab Sample ID: 420-140503-1
Client Matrix: Drinking Water

Date Sampled: 08/02/2018 0925
Date Received: 08/02/2018 1105

| Analyte | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|
| Nitrate as N | <0.250 | | mg/L | 0.250 | 1.0 | 300.0 |
| Anly Batch: | | Date Analyzed | 08/02/2018 1759 | | | |

| Analyte | Result | Qual | Units | Dil | Method |
|---|---|---|---|---|---|
| Langelier Index | -0.150 | | NONE | 1.0 | SM 2330B |
| Anly Batch: | | Date Analyzed | 08/14/2018 1125 | | |

**General Chemistry**

**Client Sample ID:** **Well 3**

Lab Sample ID: 420-140503-1
Client Matrix: Drinking Water

Date Sampled: 08/02/2018 0925
Date Received: 08/02/2018 1105

| Analyte | | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Alkalinity | | 91.5 | | mg/L | 5.00 | 1.0 | SM 2320B--2011 |
| | Anly Batch: | | Date Analyzed | 08/08/2018 1147 | | | |
| Total Dissolved Solids | | 204 | | mg/L | 5.00 | 1.0 | SM2540C-2011 |
| | Anly Batch: | | Date Analyzed | 08/06/2018 1457 | | | |
| Chloride | | 2.05 | | mg/L | 1.50 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1759 | | | |
| Sulfate | | 16.9 | | mg/L | 5.00 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1759 | | | |
| Fluoride | | <0.500 | | mg/L | 0.500 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1759 | | | |
| Cyanide, Total | | <0.00500 | | mg/L | 0.00500 | 1.0 | SM4500 CNE 201 |
| | Anly Batch: | | Date Analyzed | 08/10/2018 1500 | | | |
| | Prep Batch: | | Date Prepared: | 08/09/2018 1500 | | | |
| Apparent Color | | 2.00 | | Pt-Co | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 08/03/2018 1540 | | | |
| pH@color measurement | | 7.70 | | SU | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 08/03/2018 1540 | | | |
| Turbidity | | 0.275 | | NTU | 0.100 | 1.0 | SM2130B-2011 |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1502 | | | |
| Odor | | 1.00 | | T.O.N. | 1.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 08/03/2018 1257 | | | |
| Temp @ Odor Measurement | | 60.0 | | Degrees C | 5.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 08/03/2018 1257 | | | |
| pH | | 7.70 | H | SU | 0.200 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1710 | | | |
| Temp @ pH Measurement | | 21.4 | | Degrees C | 5.00 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1710 | | | |
| Nitrite as N | | <0.0100 | | mg/L | 0.0100 | 1.0 | SM4500 NO2 B-11 |
| | Anly Batch: | | Date Analyzed | 08/02/2018 1650 | | | |

## DATA REPORTING QUALIFIERS

Client: WSP USA

Job Number:
Sdg Number: Wilder Balter - Route 22, Lewisboro

| Lab Section | Qualifier | Description |
|---|---|---|
| General Chemistry | | |
| | H | Sample was prepped or analyzed beyond the specified holding time |
| Biology | | |
| | g | Result fails applicable NYS drinking water standards |

**The following analytes are Not Part of the ELAP scope of accreditation:**

Sulfur, Tungsten, Bicarbonate Alkalinity, 7 Day BOD 5210C, 28 Day BOD, Soluble BOD, Carbon Dioxide, Carbonate Alkalinity, CBOD Soluble, Chlorine, Cyanide (WAD), Ferrous Iron, Ferric Iron, Total Nitrogen, Total Organic Nitrogen, Dissolved Oxygen, pH, Solids (Fixed), Solids (Percent), Solids (Percent Moisture), Solids (Percent Volatile), Solids (Volatile Suspended), Temperature, TKN (Soluble), COD (Soluble), Total Inorganic Carbon, 2-Aminopyridine, 3-Picoline, 1-Methyl-2-pyrrilidinone, Aziridine, Dimethyl sulfoxide, 1-Chlorohexane, 1,2,4,5-Tetramethylbenzene, 4-Ethyl toluene, p-Diethylbenzene, Iron Bacteria, Salmonella, Sulfur Reducing Bacteria, & UOD (Ultimate Oxygen Demand).

**The following analytes are Not Part of ELAP Potable Water scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), Nitrate-Nitrite (10-107-4-1C, 353.2), m-Xylene & p-Xylene (502.2, 524), o-Xylene (502.2, 524), Sulfide (SM4500SD), Acenaphthene (525.2), Acenaphthylene (525.2), Fluoranthene (525.2), Fluorene (525.2), Phenanthrene (525.2), Anthracene (525.2), Pyrene (525.2), Benzo[a]anthracene (525.2), Benzo[b]fluoranthene (525.2), Benzo[g,h,i]perylene (525.2), Benzo[k]fluoranthene (525.2), Indeno[1,2,3-cd]pyrene (525.2), & Dibenz(a,h)anthracene (525.2).

**The following analytes are Not Part of ELAP Solid and Hazardous Waste scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), 1,2-Dichloro-1,1,2-trifluoroethane (8260), & Chlorodifluoromethane (8260).

**The following analytes are Not Part of ELAP Non Potable Water scope of accreditation:**

Dissolved Organic Carbon (5310C), Mecoprop (8151A), MCPA (8151A), Propylene Glycol (8015D).

## Definitions and Glossary

Client: WSP USA

Job Number:

Sdg Number: Wilder Balter - Route 22, Lewisboro

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| %R | Percent Recovery |
| DL, RA, RE | Indicates a Dilution, Reanalysis or Reextraction. |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit - an estimate of the minimum amount of a substance that an analytical process can reliably detect. A MDL is analyte- and matrix-specific and may be laboratory-dependent. |
| ND | Not detected at the reporting limit (or MDL if shown). |
| QC | Quality Control |
| RL | Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. |
| RPD | Relative Percent Difference - a measure of the relative difference between two points. |

EnviroTest Laboratories, Inc.

# CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

140503

REPORT# (Lab Use Only)

| | | |
|---|---|---|
| PROJECT REFERENCE: Wilder Balter | PROJECT NO.: 34401464.000 | PROJECT LOCATION: Route 22 |
| ENVIROTEST PROJECT MANAGER: Debra Bayer | P.O. NUMBER: | TOWN: Lewisboro |
| CLIENT (SITE) PM: Stacy Stieber | CLIENT PHONE: 475-882-1723 | CLIENT FAX: |
| CLIENT NAME: WSP USA | stacy.stieber@wsp.com | |
| CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484 | | |
| COMPANY CONTRACTING THIS WORK (if applicable): | | |

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ / QUICK ____ / VERBAL ____

#OF COOLERS

| | SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | D (Drinking Water) or W (Waste Water) Indicate | SOLID OR SEMISOLID | OTHER Specify | Liter Amber Plain | 40ml Vials HCl | 40ml Sodium Thio. | 250ml Amber Sodium Thio. | Liter Amber HCl/Na2SO3 | 250ml Plastic Nitric Acid | 60ml Mon/Sod.Thio(liquid) | Liter Plastic | 250ml Plastic Sodium Hyd. | 125ml Plastic Sterile | Liter Plastic Nitric | 40ml Vials Unpres | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | 8/2/18 | 0925 | Well 3 | | | X | | | 2 | 3 | 4 | 1 | 2 | 1 | 1 | 4 | 1 | 2 | 5 | 2 | Table 8B (Sb,As,Ba,Be,Cd,Cr,Cn,Hg,Ni |
| | | | | | | | | | | | | | | | | | | | | | Se,Tl,F) |
| | | | | | | | | | | | | | | | | | | | | | Table 8C (NO3,NO2) |
| | | | | | | | | | | | | | | | | | | | | | Table 8D (Cl,Fe,Mn,Ag,Na,SO4,Zn,Odor,Color) |
| | | | | | | | | | 1-250ml Amber Unpres. | | | | | | | | | | | | 524.2 (POC,MTBE,Vinyl Chloride) |
| | | | | | | | | | 2-250ml Plastic Unpres.(no air) | | | | | | | | | | | | SOCs (504,505,515,525,531) |
| | | | | | | | | | 31 Total Containers | | | | | | | | | | | | Additional Tests (Total coliform |
| | | | | | | | | | | | | | | | | | | | | | thru Zinc) |
| | | | | | | | | | | | | | | | | | | | | | Radon, Gross Alpha/Beta, |
| | | | | | | | | | | | | | | | | | | | | | Radium 226/228, Total Uranium |

| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| [signature] | WSP | 8/2/18 | 11:05 | | | | |
| SAMPLED BY: (SIGNATURE) [signature] | WSP | 8/2/18 | 0925 | | | | |
| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |

SUBCONTACT: PACE-SOC,Radio,Radon

| RECEIVED FOR LABORATORY BY: (SIGNATURE) | DATE | TIME | CUSTODY INTACT YES NO | Cooler Temp. | LABORATORY REMARKS | ICE | pH | CL2 | Reviewed by |
|---|---|---|---|---|---|---|---|---|---|
| [signature] | 08/02/18 | 11:05 | | 1.3°C | 1243 | ✓ | | ✓ | 8-2-18 |

420-140503-A-1

Well 3

Date Sampled: 8/2/2018

420-1228253



08/31/2018

# LOGIN SAMPLE RECEIPT CHECK LIST

Client: WSP USA

Job Number: 420-140503-1
SDG Number: Wilder Balter - Route 22, Lewisboro

**Login Number: 140503**

| Question | T/F/NA | Comment |
|---|---|---|
| Samples were collected by ETL employee as per SOP-SAM-1 | NA | |
| The cooler's custody seal, if present, is intact. | NA | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is recorded. | True | 1.3 C |
| Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C | True | |
| If false, was sample received on ice within 6 hours of collection. | NA | |
| Based on above criteria cooler temperature is acceptable. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | False | pH |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

August 21, 2018

Renee Cusack
EnviroTest Laboratories, INC
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

Dear Renee Cusack:
Enclosed are the analytical results for sample(s) received by the laboratory on August 03, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Samples were subcontracted to Microbac Laboratories, 61 Louisa Viens, Dayville, CT 06241 for 525 analysis.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paige Doherty

Paige Doherty
paige.doherty@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories, INC
Ron Bayer, EnviroTest Laboratories, INC
Paige Doherty, Pace Analytical Melville
Laura Marciano, EnviroTest Laboratories, INC

NELAP ACCREDITED LABORATORY

**REPORT OF LABORATORY ANALYSIS**

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040



cc: Janine Rader, EnviroTest Laboratories, INC
Meredith Ruthven, EnviroTest Laboratories, INC

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# CERTIFICATIONS

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

**Long Island Certification IDs**
575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

Pace Analytical Services, LLC
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# ANALYTICAL RESULTS

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

**Sample: WELL 3** **Lab ID: 7060336001** Collected: 08/02/18 09:25 Received: 08/03/18 10:10 Matrix: Drinking Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **504.1 GCS EDB and DBCP** | Analytical Method: EPA 504.1 Preparation Method: EPA 504.1 | | | | | | | |
| 1,2-Dibromo-3-chloropropane | **<0.010** | ug/L | 0.010 | 1 | 08/16/18 16:06 | 08/17/18 05:34 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **<0.010** | ug/L | 0.010 | 1 | 08/16/18 16:06 | 08/17/18 05:34 | 106-93-4 | |
| **505 GCS Pesticides/PCBs** | Analytical Method: EPA 505 Preparation Method: EPA 505 | | | | | | | |
| Alachlor | **<0.20** | ug/L | 0.20 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 15972-60-8 | |
| Aldrin | **<0.025** | ug/L | 0.025 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 309-00-2 | |
| gamma-BHC (Lindane) | **<0.020** | ug/L | 0.020 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 58-89-9 | |
| Chlordane (Technical) | **<0.20** | ug/L | 0.20 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 57-74-9 | |
| Dieldrin | **<0.050** | ug/L | 0.050 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 60-57-1 | |
| Endrin | **<0.010** | ug/L | 0.010 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 72-20-8 | |
| Heptachlor | **<0.025** | ug/L | 0.025 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 76-44-8 | |
| Heptachlor epoxide | **<0.020** | ug/L | 0.020 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 1024-57-3 | |
| Hexachlorobenzene | **<0.10** | ug/L | 0.10 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 118-74-1 | |
| Hexachlorocyclopentadiene | **<0.10** | ug/L | 0.10 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 77-47-4 | |
| Methoxychlor | **<0.10** | ug/L | 0.10 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 72-43-5 | |
| PCB Screen | **<0.40** | ug/L | 0.40 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | | |
| Toxaphene | **<1.0** | ug/L | 1.0 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 8001-35-2 | |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 109 | % | 30-150 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 877-09-8 | |
| Decachlorobiphenyl (S) | 69 | % | 30-150 | 1 | 08/07/18 16:49 | 08/07/18 23:51 | 2051-24-3 | |
| **515.3 Chlorinated Herbicides** | Analytical Method: EPA 515.3 Preparation Method: EPA 515.3 | | | | | | | |
| 2,4-D | **<0.10** | ug/L | 0.10 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 94-75-7 | |
| Dalapon | **<0.70** | ug/L | 0.70 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 75-99-0 | |
| Dicamba | **<1.0** | ug/L | 1.0 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 1918-00-9 | |
| Dinoseb | **<0.20** | ug/L | 0.20 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 88-85-7 | |
| Pentachlorophenol | **<0.040** | ug/L | 0.040 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 87-86-5 | |
| Picloram | **<0.10** | ug/L | 0.10 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 1918-02-1 | |
| 2,4,5-TP (Silvex) | **<0.13** | ug/L | 0.13 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 93-72-1 | |
| ***Surrogates*** | | | | | | | | |
| 2,4-DCAA (S) | 86 | % | 70-130 | 1 | 08/09/18 09:49 | 08/15/18 12:27 | 19719-28-9 | |
| **531.1 HPLC Carbamates** | Analytical Method: EPA 531.1 | | | | | | | |
| Aldicarb | **<0.50** | ug/L | 0.50 | 1 | | 08/10/18 20:03 | 116-06-3 | |
| Aldicarb sulfone | **<0.80** | ug/L | 0.80 | 1 | | 08/10/18 20:03 | 1646-88-4 | |
| Aldicarb sulfoxide | **<0.50** | ug/L | 0.50 | 1 | | 08/10/18 20:03 | 1646-87-3 | |
| Carbofuran | **<0.90** | ug/L | 0.90 | 1 | | 08/10/18 20:03 | 1563-66-2 | |
| 3-Hydroxycarbofuran | **<1.0** | ug/L | 1.0 | 1 | | 08/10/18 20:03 | 16655-82-6 | |
| Methomyl | **<1.0** | ug/L | 1.0 | 1 | | 08/10/18 20:03 | 16752-77-5 | |
| Oxamyl | **<1.0** | ug/L | 1.0 | 1 | | 08/10/18 20:03 | 23135-22-0 | |
| Carbaryl | **<1.0** | ug/L | 1.0 | 1 | | 08/10/18 20:03 | 63-25-2 | |

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

QC Batch: 78293
QC Batch Method: EPA 531.1
Analysis Method: EPA 531.1
Analysis Description: 531.1 HPLC Carbamate
Associated Lab Samples: 7060336001

METHOD BLANK: 359980
Matrix: Water
Associated Lab Samples: 7060336001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 1.0 | 08/09/18 12:34 | |
| Aldicarb | ug/L | <0.50 | 0.50 | 08/09/18 12:34 | |
| Aldicarb sulfone | ug/L | <0.80 | 0.80 | 08/09/18 12:34 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 0.50 | 08/09/18 12:34 | |
| Carbaryl | ug/L | <1.0 | 1.0 | 08/09/18 12:34 | |
| Carbofuran | ug/L | <0.90 | 0.90 | 08/09/18 12:34 | |
| Methomyl | ug/L | <1.0 | 1.0 | 08/09/18 12:34 | |
| Oxamyl | ug/L | <1.0 | 1.0 | 08/09/18 12:34 | |

LABORATORY CONTROL SAMPLE: 359981

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | 3.8 | 4.4 | 117 | 80-120 | |
| Aldicarb | ug/L | 3.8 | 4.3 | 115 | 80-120 | |
| Aldicarb sulfone | ug/L | 3.8 | 4.1 | 109 | 80-120 | |
| Aldicarb sulfoxide | ug/L | 3.8 | 4.3 | 116 | 80-120 | |
| Carbaryl | ug/L | 3.8 | 4.1 | 109 | 80-120 | |
| Carbofuran | ug/L | 3.8 | 4.0 | 107 | 80-120 | |
| Methomyl | ug/L | 3.8 | 4.0 | 108 | 80-120 | |
| Oxamyl | ug/L | 3.8 | 3.8 | 101 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 359982 359983

| Parameter | Units | 7060241001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 3.8 | 3.8 | 4.8 | 4.7 | 128 | 126 | 65-135 | 2 | |
| Aldicarb | ug/L | <0.50 | 3.8 | 3.8 | 4.5 | 4.5 | 121 | 120 | 65-135 | 1 | |
| Aldicarb sulfone | ug/L | <0.80 | 3.8 | 3.8 | 4.7 | 4.5 | 125 | 120 | 65-135 | 4 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 3.8 | 3.8 | 4.4 | 4.9 | 117 | 129 | 65-135 | 9 | |
| Carbaryl | ug/L | <1.0 | 3.8 | 3.8 | 4.3 | 4.2 | 114 | 111 | 65-135 | 3 | |
| Carbofuran | ug/L | <0.90 | 3.8 | 3.8 | 4.9 | 4.7 | 126 | 123 | 65-135 | 2 | |
| Methomyl | ug/L | <1.0 | 3.8 | 3.8 | 4.6 | 4.4 | 123 | 118 | 65-135 | 4 | |
| Oxamyl | ug/L | <1.0 | 3.8 | 3.8 | 4.4 | 3.8 | 112 | 97 | 65-135 | 14 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

QC Batch: 79393 | Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 | Analysis Description: 504 EDB DBCP
Associated Lab Samples: 7060336001

METHOD BLANK: 365185 | Matrix: Water
Associated Lab Samples: 7060336001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | 0.010 | 08/17/18 01:55 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | 0.010 | 08/17/18 01:55 | |

LABORATORY CONTROL SAMPLE: 365186

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .071 | 0.074 | 104 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .071 | 0.071 | 100 | 70-130 | |

LABORATORY CONTROL SAMPLE: 365187

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .01 | 0.011 | 112 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .01 | <0.010 | 97 | 70-130 | |

MATRIX SPIKE SAMPLE: 365188

| Parameter | Units | 7060662001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | .071 | 0.079 | 111 | 65-135 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | .071 | 0.077 | 103 | 65-135 | |

SAMPLE DUPLICATE: 365189

| Parameter | Units | 7060662002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | <0.010 | | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | <0.010 | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

QC Batch: 78075 | Analysis Method: EPA 505
QC Batch Method: EPA 505 | Analysis Description: 505 GCS Pesticides
Associated Lab Samples: 7060336001

METHOD BLANK: 358864 | Matrix: Water
Associated Lab Samples: 7060336001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | <0.20 | 0.20 | 08/07/18 19:01 | |
| Aldrin | ug/L | <0.025 | 0.025 | 08/07/18 19:01 | |
| Chlordane (Technical) | ug/L | <0.20 | 0.20 | 08/07/18 19:01 | |
| Dieldrin | ug/L | <0.050 | 0.050 | 08/07/18 19:01 | |
| Endrin | ug/L | <0.010 | 0.010 | 08/07/18 19:01 | |
| gamma-BHC (Lindane) | ug/L | <0.020 | 0.020 | 08/07/18 19:01 | |
| Heptachlor | ug/L | <0.025 | 0.025 | 08/07/18 19:01 | |
| Heptachlor epoxide | ug/L | <0.020 | 0.020 | 08/07/18 19:01 | |
| Hexachlorobenzene | ug/L | <0.10 | 0.10 | 08/07/18 19:01 | |
| Hexachlorocyclopentadiene | ug/L | <0.10 | 0.10 | 08/07/18 19:01 | |
| Methoxychlor | ug/L | <0.10 | 0.10 | 08/07/18 19:01 | |
| PCB Screen | ug/L | <0.40 | 0.40 | 08/07/18 19:01 | |
| Toxaphene | ug/L | <1.0 | 1.0 | 08/07/18 19:01 | |
| Decachlorobiphenyl (S) | % | 70 | 30-150 | 08/07/18 19:01 | |
| Tetrachloro-m-xylene (S) | % | 147 | 30-150 | 08/07/18 19:01 | |

LABORATORY CONTROL SAMPLE: 358865

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alachlor | ug/L | .48 | 0.54 | 113 | 70-130 | |
| Aldrin | ug/L | .048 | 0.059 | 124 | 70-130 | |
| Chlordane (Technical) | ug/L | | <0.20 | | | |
| Dieldrin | ug/L | .048 | <0.050 | 105 | 70-130 | |
| Endrin | ug/L | .048 | 0.049 | 102 | 70-130 | |
| gamma-BHC (Lindane) | ug/L | .048 | 0.059 | 123 | 70-130 | |
| Heptachlor | ug/L | .048 | 0.055 | 116 | 70-130 | |
| Heptachlor epoxide | ug/L | .048 | 0.046 | 97 | 70-130 | |
| Hexachlorobenzene | ug/L | .048 | <0.10 | 124 | 70-130 | |
| Hexachlorocyclopentadiene | ug/L | .048 | <0.10 | 79 | 70-130 | |
| Methoxychlor | ug/L | .24 | 0.24 | 100 | 70-130 | |
| PCB Screen | ug/L | | <0.40 | | | |
| Toxaphene | ug/L | | <1.0 | | | |
| Decachlorobiphenyl (S) | % | | | 128 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | 123 | 30-150 | |

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## REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

LABORATORY CONTROL SAMPLE: 358869

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Toxaphene | ug/L | 18.3 | 19.6 | 107 | 70-130 | |
| Decachlorobiphenyl (S) | % | | | 82 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | 104 | 30-150 | |

MATRIX SPIKE SAMPLE: 358866

| Parameter | Units | 7060351001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Alachlor | ug/L | <0.20 | | <0.20 | | | |
| Aldrin | ug/L | <0.025 | | <0.025 | | | |
| Chlordane (Technical) | ug/L | <0.20 | | <0.20 | | | |
| Dieldrin | ug/L | <0.050 | | <0.050 | | | |
| Endrin | ug/L | <0.010 | | <0.010 | | | |
| gamma-BHC (Lindane) | ug/L | <0.020 | | <0.020 | | | |
| Heptachlor | ug/L | <0.025 | | <0.025 | | | |
| Heptachlor epoxide | ug/L | <0.020 | | <0.020 | | | |
| Hexachlorobenzene | ug/L | <0.10 | | <0.10 | | | |
| Hexachlorocyclopentadiene | ug/L | <0.10 | | <0.10 | | | |
| Methoxychlor | ug/L | <0.10 | | <0.10 | | | |
| PCB Screen | ug/L | <0.40 | | <0.40 | | | |
| Toxaphene | ug/L | <1.0 | 18.3 | 19.9 | 109 | 65-135 | |
| Decachlorobiphenyl (S) | % | | | | 93 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | | 105 | 30-150 | |

SAMPLE DUPLICATE: 359243

| Parameter | Units | 7060214001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | <0.20 | <0.20 | | |
| Aldrin | ug/L | <0.025 | <0.025 | | |
| Chlordane (Technical) | ug/L | <0.20 | <0.20 | | |
| Dieldrin | ug/L | <0.050 | <0.050 | | |
| Endrin | ug/L | <0.010 | <0.010 | | |
| gamma-BHC (Lindane) | ug/L | <0.020 | <0.020 | | |
| Heptachlor | ug/L | <0.025 | <0.025 | | |
| Heptachlor epoxide | ug/L | <0.020 | <0.020 | | |
| Hexachlorobenzene | ug/L | <0.10 | <0.10 | | |
| Hexachlorocyclopentadiene | ug/L | <0.10 | <0.10 | | |
| Methoxychlor | ug/L | <0.10 | <0.10 | | |
| PCB Screen | ug/L | <0.40 | <0.40 | | |
| Toxaphene | ug/L | <1.0 | <1.0 | | |
| Decachlorobiphenyl (S) | % | 69 | 94 | 31 | |
| Tetrachloro-m-xylene (S) | % | 96 | 110 | 14 | |

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Pace Analytical®
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**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

QC Batch: 78421
QC Batch Method: EPA 515.3
Associated Lab Samples: 7060336001

Analysis Method: EPA 515.3
Analysis Description: 5153 GCS Herbicides

METHOD BLANK: 360472
Matrix: Water
Associated Lab Samples: 7060336001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | 0.13 | 08/15/18 08:00 | |
| 2,4-D | ug/L | <0.10 | 0.10 | 08/15/18 08:00 | |
| Dalapon | ug/L | <0.70 | 0.70 | 08/15/18 08:00 | |
| Dicamba | ug/L | <1.0 | 1.0 | 08/15/18 08:00 | |
| Dinoseb | ug/L | <0.20 | 0.20 | 08/15/18 08:00 | |
| Pentachlorophenol | ug/L | <0.040 | 0.040 | 08/15/18 08:00 | |
| Picloram | ug/L | <0.10 | 0.10 | 08/15/18 08:00 | |
| 2,4-DCAA (S) | % | 99 | 70-130 | 08/15/18 08:00 | |

LABORATORY CONTROL SAMPLE: 360473

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | .2 | 0.19 | 95 | 70-130 | |
| 2,4-D | ug/L | .6 | 0.57 | 95 | 70-130 | |
| Dalapon | ug/L | 2 | 2.2 | 108 | 70-130 | |
| Dicamba | ug/L | .2 | <1.0 | 97 | 70-130 | |
| Dinoseb | ug/L | .4 | 0.38 | 95 | 70-130 | |
| Pentachlorophenol | ug/L | .2 | 0.19 | 94 | 70-130 | |
| Picloram | ug/L | .2 | 0.19 | 95 | 70-130 | |
| 2,4-DCAA (S) | % | | | 97 | 70-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 360474 360475

| Parameter | Units | 7060299002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | .2 | .2 | 0.19 | 0.18 | 97 | 88 | 65-135 | 10 | |
| 2,4-D | ug/L | <0.10 | .6 | .6 | 0.63 | 0.52 | 105 | 87 | 65-135 | 20 | |
| Dalapon | ug/L | <0.70 | 2 | 2 | 2.2 | 2.1 | 109 | 103 | 65-135 | 5 | |
| Dicamba | ug/L | <1.0 | .2 | .2 | <1.0 | <1.0 | 120 | 87 | 65-135 | | |
| Dinoseb | ug/L | <0.20 | .4 | .4 | 0.31 | 0.33 | 77 | 81 | 65-135 | 6 | |
| Pentachlorophenol | ug/L | <0.040 | .2 | .2 | 0.19 | 0.18 | 95 | 90 | 65-135 | 6 | |
| Picloram | ug/L | <0.10 | .2 | .2 | 0.16 | 0.16 | 78 | 80 | 65-135 | 2 | |
| 2,4-DCAA (S) | % | | | | | | 110 | 92 | 70-130 | | |

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## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALIFIERS

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 420-140503-1 - SOC 8/2
Pace Project No.: 7060336

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **7060336001** | **WELL 3** | EPA 504.1 | 79393 | EPA 504.1 | 79549 |
| **7060336001** | **WELL 3** | EPA 505 | 78075 | EPA 505 | 78200 |
| **7060336001** | **WELL 3** | EPA 515.3 | 78421 | EPA 515.3 | 78602 |
| **7060336001** | **WELL 3** | EPA 531.1 | 78293 | | |

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

| | | | | |
|---|---|---|---|---|
| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10036.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |
| Company: Pace Analytical Mellville | | | | STL Job #: 420-140503-1 |
| Address: 575 Broadhollow Road, | Due Date Requested: 8/14/2018 | | | |
| City: Melville | TAT Requested (days): Std TAT 8/2/18 DB | | | |
| State, Zip: NY, 11747 | | | | |
| Phone: | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: WSP USA | Project #: 42002340 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

NY Splus 8/2/18 DB

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 515 Chlorinated Acids | SUBCONTRACT/ 504 EPA 504.1 EDB/DBCP | SUBCONTRACT/ 531.1 Carbamate Pesticides In DW | SUBCONTRACT/ 525.2 Semivolatile Organics | SUBCONTRACT/ 505 | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | |
| Well 3 (420-140503-1) | 8/2/18 | 9:25 | G | Water | | | X | X | X | X | X | 8 | |

8/2/18 DB

WO#: 7060336

7060336

| | | | | | | |
|---|---|---|---|---|---|---|
| Empty Kit Relinquished by: | | Date: | Time: | | Method of Shipment: | |
| Relinquished by: | Date/Time: 8/2/18 1345 | Company: ETL | Received by: | Date/Time: 8/3/18 10:10 | Company: Pace | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company | |

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1°C

Pace Analytical

# Sample Condition Upon Receipt

P **WO#: 7060336**

PM: PD Due Date: 08/17/18

CLIENT: EnviroTest

Client Name: envirotest

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 7728 8345 1535

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Temperature Blank Present: ☑ Yes ☐ No

Type of Ice: (Wet) Blue None

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ Ziploc ☐ None ☐ Other

☐ Samples on ice, cooling process has begun

Thermometer Used: TH091 Correction Factor: 0.0

Cooler Temperature (°C): 1.1 Cooler Temperature Corrected (°C): 1.1

Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

Date and Initials of person examining contents: DL 8/13/18

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

| | | | | COMMENTS: |
|---|---|---|---|---|
| Chain of Custody Present: | ☑ Yes | ☐ No | | 1. |
| Chain of Custody Filled Out: | ☑ Yes | ☐ No | | 2. |
| Chain of Custody Relinquished: | ☑ Yes | ☐ No | | 3. |
| Sampler Name & Signature on COC: | ☑ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time: | ☑ Yes | ☐ No | | 5. |
| Short Hold Time Analysis (<72hr): | ☐ Yes | ☑ No | | 6. |
| Rush Turn Around Time Requested: | ☐ Yes | ☑ No | | 7. |
| Sufficient Volume: (Triple volume provided for MS/MSD) | ☑ Yes | ☐ No | | 8. |
| Correct Containers Used: | ☑ Yes | ☐ No | | 9. |
| -Pace Containers Used: | ☑ Yes | ☐ No | | |
| Containers Intact: | ☑ Yes | ☐ No | | 10. |
| Filtered volume received for Dissolved tests | ☐ Yes | ☐ No | ☑ N/A | 11. Note if sediment is visible in the dissolved container. |
| Sample Labels match COC: | ☑ Yes | ☐ No | | 12. |
| -Includes date/time/ID/Analysis Matrix SL WT OIL | | | | |
| All containers needing preservation have been checked | ☑ Yes | ☐ No | ☐ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl |
| pH paper Lot # HC849161 | | | | Sample # |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis | ☑ Yes | ☐ No | ☐ N/A | Initial when completed: / Lot # of added preservative: / Date/Time preservative added |
| Samples checked for dechlorination: | ☑ Yes | ☐ No | ☐ N/A | 14. |
| KI starch test strips Lot # | | | | Positive for Res. Chlorine? Y N |
| Residual chlorine strips Lot # 040948K | | | | |
| Headspace in VOA Vials ( >6mm): | ☐ Yes | ☐ No | ☑ N/A | 15. |
| Trip Blank Present: | ☐ Yes | ☐ No | ☑ N/A | 16. |
| Trip Blank Custody Seals Present | ☐ Yes | ☐ No | ☑ N/A | |
| Pace Trip Blank Lot # (if applicable): | | | | |

Client Notification/ Resolution: Field Data Required? Y / N

Date/Time:

Person Contacted:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

MICROBAC®

Microbac Laboratories, Inc. - Dayville

# CERTIFICATE OF ANALYSIS

D8H1078

**Pace Analytical - Melville**

Paige Doherty
575 Broad Hollow Road
Melville, NY 11747

**Project Name: 7060336**

Project / PO Number: 7060336PD
Received: 08/08/2018
Reported: 08/14/2018

## Analytical Testing Parameters

| | | | |
|---|---|---|---|
| **Client Sample ID:** | WELL 3 | | |
| **Sample Matrix:** | Drinking Water | **Collected By:** | Customer |
| **Lab Sample ID:** | D8H1078-01 | **Collection Date:** | 08/02/2018 9:25 |

| Semi-Volatile Organic Compounds - GC/MS | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 525.2, Rv 2.0** | | | | | | | | |
| Atrazine | <0.094 | 3.00 MCL | 0.094 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Benzo[a]pyrene | <0.019 | 0.200 MCL | 0.019 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Butachlor | <0.094 | | 0.094 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| bis(2-Ethylhexyl)adipate | <0.566 | 400 MCL | 0.566 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| bis(2-Ethylhexyl)phthalate | <0.566 | 6.00 MCL | 0.566 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Metolachlor | <0.094 | | 0.094 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Metribuzin | <0.094 | | 0.094 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Propachlor (Ramrod) | <0.094 | | 0.094 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Simazine | <0.066 | 4.00 MCL | 0.066 | ug/L | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Surrogate: 1,3-Dimethyl-2-nitrobenzene | 97.5 | Limit: 70-130 | | % Rec | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Surrogate: Pyrene-d10 | 98.5 | Limit: 70-130 | | % Rec | | 08/10/18 1000 | 08/10/18 2030 | CDT |
| Surrogate: Triphenyl phosphate | 112 | Limit: 70-130 | | % Rec | | 08/10/18 1000 | 08/10/18 2030 | CDT |

*Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.*

## Definitions

**MCL:** US EPA Maximum Contaminant Level
**RL:** Reporting Limit

## Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
11549 New York State Department of Health

## Report Comments

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**

M Montgomery

Melisa L. Montgomery
QA Officer
Reported: 08/14/2018 09:24

# Chain of Custody

D8H1078

Pace Analytical - Melville

Pace Analytical®
www.pacelabs.com

**Workorder:** 7060336 **Workorder Name:** 420-140503-1 - SOC 8/2 **Results Requested By:** 8/17/2018

| Report / Invoice To | Subcontract To |
|---|---|
| Paige Doherty<br>Pace Analytical Melville<br>575 Broad Hollow Road<br>Melville, NY 11747<br>Phone (631)694-3040<br>Email: paige.doherty@pacelabs.com | Microbac Laboratories<br>61 Louisa Viens<br>Dayville, CT 06241<br><br>P.O. 7060336PD |

State of Sample Origin: NY

| Item | Sample ID | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | Requested Analysis: Subbed - 525 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|
| 1 | WELL 3 | 8/2/2018 09:25 | 7060336001 | Drinking | 2 | X | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | [signature] | 8/7/18 18:00 | | |
| 2 | | | | |
| 3 | | | [signature] | 8/8/18 1200 |

Comments

Cooler Temperature on Receipt 1.8 °C | Custody Seal Y or | Received on Ice Y or | Samples Intact Y or

Page 2 of 2

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 24, 2018

Ms. Debra Bayer
EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: WPS USA
Pace Project No.: 30261141

Dear Ms. Bayer:
Enclosed are the analytical results for sample(s) received by the laboratory on August 03, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures

cc: Janine Rader, EnviroTest Laboratories, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# CERTIFICATIONS

Project: WPS USA
Pace Project No.: 30261141

**Pennsylvania Certification IDs**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## SAMPLE SUMMARY

Project: WPS USA
Pace Project No.: 30261141

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **30261141001** | **Well 3 (420-140503-1)** | Drinking Water | 08/02/18 09:25 | 08/03/18 09:20 |

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Greensburg, PA 15601
(724)850-5600

## SAMPLE ANALYTE COUNT

Project: WPS USA
Pace Project No.: 30261141

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **30261141001** | **Well 3 (420-140503-1)** | SM7500RnB-07 | NEG | 1 |
| | | EPA 900.0 | NEG | 2 |
| | | EPA 903.1 | MK1 | 1 |
| | | EPA 904.0 | VAL | 1 |
| | | ASTM D5174-97 | RMK | 1 |

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Greensburg, PA 15601
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# ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

**Sample: Well 3 (420-140503-1)** **Lab ID: 30261141001** Collected: 08/02/18 09:25 Received: 08/03/18 09:20 Matrix: Drinking Water
PWS: Site ID: Sample Type:

| Parameters | Method | Act ± Unc (MDC) Carr Trac | Units | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|
| Radon | SM7500RnB-07 | **1,255 ± 60.7 (43.7)**<br>**C:NA T:NA** | pCi/L | 08/03/18 21:36 | 10043-92-2 | |
| Gross Alpha | EPA 900.0 | **2.52 ± 1.62 (2.87)**<br>**C:NA T:NA** | pCi/L | 08/14/18 08:26 | 12587-46-1 | |
| Gross Beta | EPA 900.0 | **6.04 ± 1.22 (1.53)**<br>**C:NA T:NA** | pCi/L | 08/14/18 08:26 | 12587-47-2 | |
| Radium-226 | EPA 903.1 | **0.507 ± 0.525 (0.789)**<br>**C:NA T:79%** | pCi/L | 08/15/18 09:59 | 13982-63-3 | |
| Radium-228 | EPA 904.0 | **3.40 ± 0.594 (0.746)**<br>**C:75% T:74%** | pCi/L | 08/14/18 11:28 | 15262-20-1 | |
| Total Uranium | ASTM D5174-97 | **1.12 ± 0.027 (0.262)**<br>**C:NA T:NA** | ug/L | 08/24/18 15:21 | 7440-61-1 | |

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Greensburg, PA 15601
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# QUALITY CONTROL - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

QC Batch: 308702 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30261141001

METHOD BLANK: 1508466 | Matrix: Water
Associated Lab Samples: 30261141001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | -0.231 ± 0.277 (0.698) C:78% T:87% | pCi/L | 08/14/18 11:28 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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Greensburg, PA 15601
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# QUALITY CONTROL - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

QC Batch: 308981 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30261141001

METHOD BLANK: 1509669 | Matrix: Water
Associated Lab Samples: 30261141001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Gross Alpha | -0.684 ± 0.650 (2.17) C:NA T:NA | pCi/L | 08/14/18 08:25 | |
| Gross Beta | 1.01 ± 0.864 (1.80) C:NA T:NA | pCi/L | 08/14/18 08:25 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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# QUALITY CONTROL - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

QC Batch: 308699 | Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 | Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30261141001

METHOD BLANK: 1508457 | Matrix: Water
Associated Lab Samples: 30261141001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.0743 ± 0.318 (0.612) C:NA T:89% | pCi/L | 08/15/18 09:59 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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# QUALITY CONTROL - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

QC Batch: 308346 | Analysis Method: SM7500RnB-07
QC Batch Method: SM7500RnB-07 | Analysis Description: 7500Rn B Radon
Associated Lab Samples: 30261141001

METHOD BLANK: 1507030 | Matrix: Water
Associated Lab Samples: 30261141001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radon | -9.1 ± 18.7 (33.3) C:NA T:NA | pCi/L | 08/03/18 19:55 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WPS USA
Pace Project No.: 30261141

QC Batch: 308777
QC Batch Method: ASTM D5174-97
Analysis Method: ASTM D5174-97
Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30261141001

METHOD BLANK: 1508858
Matrix: Water
Associated Lab Samples: 30261141001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Total Uranium | 0.083 ± 0.002 (0.262) C:NA T:NA | ug/L | 08/09/18 17:39 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

# QUALIFIERS

Project: WPS USA
Pace Project No.: 30261141

**DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

| | | | | |
|---|---|---|---|---|
| **Client Information (Sub Contract Lab)** | Sampler: WSP 8/2/18 03 | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10037.1 |
| Client Contact: Shipping/Receiving | Phone: | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |
| Company: Pace Analytical Services, Inc. | | | | STL Job #: 420-140503-1 |
| Address: 1638 Roseytown Rd,Suites 2,3,4, , | Due Date Requested: 8/16/2018 | | | |
| City: Greensburg | TAT Requested (days): Std TAT 8/2/18 03 | | | |
| State, Zip: PA, 15601 | | | | |
| Phone: | PO #: | | | |
| Email: | WO #: | | | |
| Project Name: WSP USA | Project #: 42002340 | | | |
| Site: | SSOW#: | | | |

**Analysis Requested**

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 900 GA/GB/RA 226/RA 228 | SUBCONTRACT/ Total Uranium | SUBCONTRACT/ Radon | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Preservation Code: | | | | | | | |
| Well 3 (420-140503-1) | 8/2/18 | 9:25 | DW | Water | | | X | X | X | 7 | 001 |
| | | | | 8/2/18 03 | | | | | | | |

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2SO3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - ph 4-5 |
| L - EDA | Z - other (specify) |

Other:

NY Spkes 8/2/18 03

WO#: 30261141

30261141

*Possible Hazard Identification*
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

*Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)*
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

| | | | | | |
|---|---|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: | | |
| Relinquished by: [signature] | Date/Time: 8/2/18 1345 | Company: ETL | Received by: [signature] | Date/Time: 8-3-18 920 | Company: PACE |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | | Cooler Temperature(s) °C and Other Remarks: | | |

# Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: EnviroTest Labs Project # 30261141

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Label ET
LIMS Login BHH

Tracking #: 7728 8338 0160

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 9 Type of Ice: (Wet) Blue None melted

Cooler Temperature Observed Temp 15.4 °C Correction Factor: 0.0 °C Final Temp: 15.4 °C

Temp should be above freezing to 6°C

| Comments: | Yes | No | N/A | pH paper Lot# 100367 | Date and Initials of person examining contents: ET 8-3-18 |
|---|---|---|---|---|---|
| Chain of Custody Present: | ✓ | | | 1. | |
| Chain of Custody Filled Out: | ✓ | | | 2. | |
| Chain of Custody Relinquished: | ✓ | | | 3. | |
| Sampler Name & Signature on COC: | | ✓ | | 4. | |
| Sample Labels match COC: -Includes date/time/ID Matrix: WT | ✓ | | | 5. | |
| Samples Arrived within Hold Time: | ✓ | | | 6. | |
| **Short Hold Time Analysis (<72hr remaining):** | ✓ | | | 7. | |
| **Rush Turn Around Time Requested:** | | ✓ | | 8. | |
| Sufficient Volume: | ✓ | | | 9. | |
| Correct Containers Used: -Pace Containers Used: | ✓ | ✓ | | 10. | |
| Containers Intact: | ✓ | | | 11. | |
| Orthophosphate field filtered | | | ✓ | 12. | |
| Hex Cr Aqueous Compliance/NPDES sample field filtered | | | ✓ | 13. | |
| Organic Samples checked for dechlorination: | | | ✓ | 14. | |
| Filtered volume received for Dissolved tests | | | ✓ | 15. | |
| All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics | ✓ ✓ | | | 16. pH<2 Initial when completed ET Date/time of preservation Lot # of added preservative | |
| Headspace in VOA Vials ( >6mm): | | | ✓ | 17. | |
| Trip Blank Present: Trip Blank Custody Seals Present | | ✓ | ✓ | 18. | |
| **Rad Aqueous Samples Screened > 0.5 mrem/hr** | | ✓ | | Initial when completed: ET | Date: 8-3-18 |

**Client Notification/ Resolution:**

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

**Note:** Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

WE

EnviroTest Laboratories Inc.

# ANALYTICAL REPORT

Job Number: 420-140177-1

SDG Number: Wilder Balter - Route 22

Job Description: WSP USA

For:
WSP USA
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
08/22/2018



EnviroTest Laboratories, Inc. Certifications and Approvals: NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554

**Job Narrative**
**420-J140177-1**

**Comments**
No additional comments.

**Receipt**
All samples were received in good condition within temperature requirements.

**GC/MS VOA**
No analytical or quality issues were noted.

**Metals**
No analytical or quality issues were noted.

**General Chemistry**
Method SM 4500 H+ B: The holding time for pH is 15 minutes, the samples were received outside of the holding time.

No other analytical or quality issues were noted.

**Biology**
No analytical or quality issues were noted.

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140177-1
SDG Number: Wilder Balter - Route 22

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|
| **Matrix: Water** | | | |
| ICP Metals by 200.7 | EnvTest | EPA 200.7 Rev 4.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| ICPMS Metals by 200.8 | EnvTest | EPA 200.8 Rev.5.4 | |
| 200 Series Drinking Water Prep Determination Step | EnvTest | | EPA 200.7/200.8 |
| Total Metals Digestion for 200.8 | EnvTest | | EPA 200.8 Rev.5.4 |
| Mercury in Water by CVAA | EnvTest | EPA 245.1 Rev.3.0 | |
| Digestion for CVAA Mercury in Waters | EnvTest | | EPA 245.1 |
| Anions by Ion Chromatography | EnvTest | MCAWW 300.0 | |
| Anions by Ion Chromatography | EnvTest | EPA 300.0 Rev. 2.1 | |
| EPA 504.1 EDB | Pace Mell | EPA 504.1 | |
| EPA 505 Pesticide/PCB | Pace Mell | EPA 505 | |
| EPA 515 Chlorinated Acids | Pace Mell | EPA 515 | |
| Purgeable Organic Compounds in Water by GC/MS | EnvTest | EPA-DW 524.2 | |
| EPA 525.2 Semivolatile Organics | Pace Mell | EPA 525.2 | |
| EPA 531.1 Carbamate Pesticides in Drinki | Pace Mell | EPA 531.1 | |
| EPA 900 Series GA/GB/RA226/RA228/Gamma | Radios | EPA 900 | |
| Uranium | Radios | STL-STL EPA | |
| Heterotropic Plate Count | EnvTest | IDEXX SIMPLATE | |
| Odor, Threshold Test | EnvTest | SM20 SM 2150B | |
| Alkalinity, Titration Method | EnvTest | SM22 SM 2320B--2011 | |
| Corrosivity LSI Calculation | EnvTest | SM20 SM 2330B | |
| Hardness by Calculation | EnvTest | SM20 SM 2340B-97,-11 | |
| pH | EnvTest | SM19 SM 4500 H+ B | |
| Total Coliform and Escherichia coli by Colilert - Presence/Absence | EnvTest | SMWW SM 9223 | |
| Apparent Color | EnvTest | SM21 SM2120B-2011 | |
| Turbidity | EnvTest | SM21 SM2130B-2011 | |
| Total Dissolved Solids (Dried at 180 °C) | EnvTest | SM22 SM2540C-2011 | |
| Cyanide, Total: Colorimetric Method | EnvTest | SM22 SM4500 CNE 2011 | |
| Cyanide: Distillation | EnvTest | | SM22 SM4500 CNC 2011 |
| Nitrite by Colormetric | EnvTest | SM20 SM4500 NO2 B-11 | |
| General Sub Contract Method | Radios | Subcontract | |

# METHOD SUMMARY

Client: WSP USA

Job Number: 420-140177-1
SDG Number: Wilder Balter - Route 22

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|

**Lab References:**

EnvTest = EnviroTest

Pace Mell = Pace Mellville

Radios = Pace Analytical Services, Inc.

**Method References:**

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

IDEXX =

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM19 = "Standard Methods For The Examination Of Water And Wastewater", 19Th Edition, 1995."

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SM21 = "Standard Methods For The Examination Of Water And Wastewater", 21st Edition

SM22 = "Standard Methods for the Examination of Water and Wastewater", 22nd Edition

SMWW = "Standard Methods for the Examination of Water and Wastewater"

STL-STL = Severn Trent Laboratories, St. Louis, Facility Standard Operating Procedure.

## METHOD / ANALYST SUMMARY

Client: WSP USA

Job Number: 420-140177-1
SDG Number: Wilder Balter - Route 22

| Method | Analyst | Analyst ID |
|---|---|---|
| EPA-DW 524.2 | Andersen, Eric C | ECA |
| EPA 200.7 Rev 4.4 | Sirico, Derek | DS |
| EPA 200.8 Rev.5.4 | Sirico, Derek | DS |
| EPA 245.1 Rev.3.0 | Sirico, Derek | DS |
| SM20 SM 2340B-97,-11 | Sirico, Derek | DS |
| MCAWW 300.0 | Luis, Carlos | CL |
| EPA 300.0 Rev. 2.1 | Luis, Carlos | CL |
| IDEXX SIMPLATE | Santacroce, Nicholas | NS |
| SM20 SM 2150B | Lacy, Megan | ML |
| SM22 SM 2320B--2011 | Cusack, Renee | RC |
| SM20 SM 2330B | Cusack, Renee | RC |
| SM19 SM 4500 H+ B | Santacroce, Nicholas | NS |
| SMWW SM 9223 | Santacroce, Nicholas | NS |
| SM21 SM2120B-2011 | Santacroce, Nicholas | NS |
| SM21 SM2130B-2011 | Santacroce, Nicholas | NS |
| SM22 SM2540C-2011 | Mastrobuono, Danielle | DM |
| SM22 SM4500 CNE 2011 | Molchon, Renee | RM |
| SM20 SM4500 NO2 B-11 | Mastrobuono, Danielle | DM |

## SAMPLE SUMMARY

Client: WSP USA

Job Number: 420-140177-1
SDG Number: Wilder Balter - Route 22

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 420-140177-1 | Well 4 | Drinking Water | 07/25/2018 1245 | 07/25/2018 1435 |

## Analytical Data

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 07/27/2018 1307
Date Prepared: N/A

Analysis Batch: 420-123289

Instrument ID: HP
Lab File ID: V072709.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,1-Trichloroethane | <0.500 | | 0.500 |
| 1,1,2,2-Tetrachloroethane | <0.500 | | 0.500 |
| 1,1,2-Trichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethane | <0.500 | | 0.500 |
| 1,1-Dichloroethene | <0.500 | | 0.500 |
| 1,1-Dichloropropene | <0.500 | | 0.500 |
| 1,2,3-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,3-Trichloropropane | <0.500 | | 0.500 |
| 1,2,4-Trichlorobenzene | <0.500 | | 0.500 |
| 1,2,4-Trimethylbenzene | <0.500 | | 0.500 |
| 1,2-Dichloroethane | <0.500 | | 0.500 |
| 1,2-Dichlorobenzene | <0.500 | | 0.500 |
| 1,2-Dichloropropane | <0.500 | | 0.500 |
| 1,3-Dichloropropane | <0.500 | | 0.500 |
| 1,4-Dichlorobenzene | <0.500 | | 0.500 |
| 2,2-Dichloropropane | <0.500 | | 0.500 |
| Benzene | <0.500 | | 0.500 |
| Bromobenzene | <0.500 | | 0.500 |
| Bromochloromethane | <0.500 | | 0.500 |
| Bromomethane | <0.500 | | 0.500 |
| n-Butylbenzene | <0.500 | | 0.500 |
| cis-1,2-Dichloroethene | <0.500 | | 0.500 |
| cis-1,3-Dichloropropene | <0.500 | | 0.500 |
| Carbon tetrachloride | <0.500 | | 0.500 |
| Chlorobenzene | <0.500 | | 0.500 |
| Chloroethane | <0.500 | | 0.500 |
| Chloromethane | <0.500 | | 0.500 |
| Dibromomethane | <0.500 | | 0.500 |
| Ethylbenzene | <0.500 | | 0.500 |
| Dichlorodifluoromethane | <0.500 | | 0.500 |
| Hexachlorobutadiene | <0.500 | | 0.500 |
| Isopropylbenzene | <0.500 | | 0.500 |
| p-Isopropyltoluene | <0.500 | | 0.500 |
| Methylene Chloride | <0.500 | | 0.500 |
| m-Xylene & p-Xylene | <1.00 | | 1.00 |
| Methyl tert-butyl ether | <0.500 | | 0.500 |
| o-Xylene | <0.500 | | 0.500 |
| Tetrachloroethene | <0.500 | | 0.500 |
| Toluene | <0.500 | | 0.500 |
| trans-1,2-Dichloroethene | <0.500 | | 0.500 |
| trans-1,3-Dichloropropene | <0.500 | | 0.500 |
| Trichloroethene | <0.500 | | 0.500 |
| tert-Butylbenzene | <0.500 | | 0.500 |

## Analytical Data

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

**524.2 Purgeable Organic Compounds in Water by GC/MS**

Method: 524.2
Preparation: N/A
Dilution: 1.0
Date Analyzed: 07/27/2018 1307
Date Prepared: N/A

Analysis Batch: 420-123289

Instrument ID: HP
Lab File ID: V072709.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Trichlorofluoromethane | <0.500 | | 0.500 |
| Vinyl chloride | <0.500 | | 0.500 |
| Xylenes, Total | <1.50 | | 1.50 |
| Styrene | <0.500 | | 0.500 |
| sec-Butylbenzene | <0.500 | | 0.500 |
| 1,3,5-Trimethylbenzene | <0.500 | | 0.500 |
| N-Propylbenzene | <0.500 | | 0.500 |
| 1,3-Dichlorobenzene | <0.500 | | 0.500 |
| 2-Chlorotoluene | <0.500 | | 0.500 |
| 4-Chlorotoluene | <0.500 | | 0.500 |

| Surrogate | %Rec | Acceptance Limits |
|---|---|---|
| 4-Bromofluorobenzene | 107 | 71 - 120 |
| Toluene-d8 (Surr) | 98 | 79 - 121 |
| 1,2-Dichloroethane-d4 (Surr) | 121 | 70 - 128 |

## Analytical Data

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 4**

| | | | |
|---|---|---|---|
| Lab Sample ID: | 420-140177-1 | Date Sampled: | 07/25/2018 1245 |
| Client Matrix: | Drinking Water | Date Received: | 07/25/2018 1435 |

**200.7 Rev 4.4 ICP Metals by 200.7**

| | | | | |
|---|---|---|---|---|
| Method: | 200.7 Rev 4.4 | Analysis Batch: 420-123339 | Instrument ID: | Thermo ICP |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123287 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 07/27/2018 1538 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/27/2018 0909 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Iron | <60.0 | | 60.0 |
| Manganese | 31.9 | | 10.0 |
| Sodium | 7000 | | 200 |
| Zinc | <20.0 | | 20.0 |

**200.8 Rev.5.4 ICPMS Metals by 200.8**

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123313 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.7/200.8 | Prep Batch: 420-123287 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 07/27/2018 1607 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/27/2018 0909 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Lead | 2.53 | | 1.00 |
| Arsenic | <1.40 | | 1.40 |
| Beryllium | <0.300 | | 0.300 |
| Cadmium | <1.00 | | 1.00 |
| Chromium | <7.00 | | 7.00 |
| Nickel | 0.602 | | 0.500 |
| Antimony | <0.400 | | 0.400 |
| Thallium | <0.300 | | 0.300 |
| Barium | 63.0 | | 2.00 |
| Selenium | <2.00 | | 2.00 |

| | | | | |
|---|---|---|---|---|
| Method: | 200.8 Rev.5.4 | Analysis Batch: 420-123479 | Instrument ID: | Perkin Elmer ELAN |
| Preparation: | 200.8 Rev.5.4 | Prep Batch: 420-123264 | Lab File ID: | N/A |
| Dilution: | 1.0 | | Initial Weight/Volume: | 50 mL |
| Date Analyzed: | 08/02/2018 1626 | | Final Weight/Volume: | 50 mL |
| Date Prepared: | 07/26/2018 1500 | | | |

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Silver | <1.00 | | 1.00 |

## Analytical Data

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

**245.1 Rev.3.0 Mercury in Water by CVAA**

Method: 245.1 Rev.3.0
Preparation: 245.1
Dilution: 1.0
Date Analyzed: 08/03/2018 1337
Date Prepared: 08/02/2018 0900

Analysis Batch: 420-123487
Prep Batch: 420-123430

Instrument ID: Perkin Elmer FIMS
Lab File ID: N/A
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

| Analyte | Result (ug/L) | Qualifier | RL |
|---|---|---|---|
| Mercury | <0.200 | | 0.200 |

**SM 2340B-97,-11 Hardness by Calculation**

Method: SM 2340B-97,-11
Preparation: N/A
Dilution: 1.0
Date Analyzed: 07/27/2018 1538
Date Prepared: N/A

Analysis Batch: 420-123352

Instrument ID: None
Lab File ID: N/A
Initial Weight/Volume:
Final Weight/Volume:

| Analyte | Result (mg/L) | Qualifier | RL |
|---|---|---|---|
| Calcium hardness as calcium carbonate | 66.8 | | 1.25 |

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**Biology**

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

| Analyte | | Result | Qual | Units | | Dil | Method |
|---|---|---|---|---|---|---|---|
| Coliform, Total | | Present | g | CFU/100mL | | 1.0 | SM 9223 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1637 | | | |
| Escherichia coli | | Absent | | CFU/100mL | | 1.0 | SM 9223 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1637 | | | |

| Analyte | | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Heterotrophic Plate Count | | 470 | | CFU/mL | 2.00 | 1.0 | SIMPLATE |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1540 | | | |

**General Chemistry**

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**General Chemistry**

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

| Analyte | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|
| Nitrate as N | <0.250 | | mg/L | 0.250 | 1.0 | 300.0 |
| Anly Batch: | | Date Analyzed | 07/25/2018 1903 | | | |

| Analyte | Result | Qual | Units | Dil | Method |
|---|---|---|---|---|---|
| Langelier Index | 0.300 | | NONE | 1.0 | SM 2330B |
| Anly Batch: | | Date Analyzed | 07/31/2018 1323 | | |

Client: WSP USA

Job Number: 420-140177-1
Sdg Number: Wilder Balter - Route 22

**General Chemistry**

**Client Sample ID:** **Well 4**

Lab Sample ID: 420-140177-1
Client Matrix: Drinking Water

Date Sampled: 07/25/2018 1245
Date Received: 07/25/2018 1435

| Analyte | | Result | Qual | Units | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Alkalinity | | 92.2 | | mg/L | 5.00 | 1.0 | SM 2320B--2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1350 | | | |
| Total Dissolved Solids | | 134 | | mg/L | 5.00 | 1.0 | SM2540C-2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1100 | | | |
| Chloride | | 1.99 | | mg/L | 1.50 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1903 | | | |
| Sulfate | | 14.8 | | mg/L | 5.00 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1903 | | | |
| Fluoride | | <0.500 | | mg/L | 0.500 | 1.0 | 300.0 Rev. 2.1 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1903 | | | |
| Cyanide, Total | | <0.00500 | | mg/L | 0.00500 | 1.0 | SM4500 CNE 201 |
| | Anly Batch: | | Date Analyzed | 07/27/2018 1735 | | | |
| | Prep Batch: | | Date Prepared: | 07/27/2018 1530 | | | |
| Apparent Color | | 2.00 | | Pt-Co | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1745 | | | |
| pH@color measurement | | 8.25 | | SU | 2.00 | 1.0 | SM2120B-2011 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1745 | | | |
| Turbidity | | 0.195 | | NTU | 0.100 | 1.0 | SM2130B-2011 |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1510 | | | |
| Odor | | 1.00 | | T.O.N. | 1.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1450 | | | |
| Temp @ Odor Measurement | | 60.0 | | Degrees C | 5.00 | 1.0 | SM 2150B |
| | Anly Batch: | | Date Analyzed | 07/26/2018 1450 | | | |
| pH | | 8.27 | H | SU | 0.200 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1710 | | | |
| Temp @ pH Measurement | | 22.2 | | Degrees C | 5.00 | 1.0 | SM 4500 H+ B |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1710 | | | |
| Nitrite as N | | <0.0100 | | mg/L | 0.0100 | 1.0 | SM4500 NO2 B-11 |
| | Anly Batch: | | Date Analyzed | 07/25/2018 1611 | | | |

## DATA REPORTING QUALIFIERS

Client: WSP USA

Job Number:
Sdg Number: Wilder Balter - Route 22

| Lab Section | Qualifier | Description |
|---|---|---|
| General Chemistry | | |
| | H | Sample was prepped or analyzed beyond the specified holding time |
| Biology | | |
| | g | Result fails applicable NYS drinking water standards |

**The following analytes are Not Part of the ELAP scope of accreditation:**

Sulfur, Tungsten, Bicarbonate Alkalinity, 7 Day BOD 5210C, 28 Day BOD, Soluble BOD, Carbon Dioxide, Carbonate Alkalinity, CBOD Soluble, Chlorine, Cyanide (WAD), Ferrous Iron, Ferric Iron, Total Nitrogen, Total Organic Nitrogen, Dissolved Oxygen, pH, Solids (Fixed), Solids (Percent), Solids (Percent Moisture), Solids (Percent Volatile), Solids (Volatile Suspended), Temperature, TKN (Soluble), COD (Soluble), Total Inorganic Carbon, 2-Aminopyridine, 3-Picoline, 1-Methyl-2-pyrrilidinone, Aziridine, Dimethyl sulfoxide, 1-Chlorohexane, 1,2,4,5-Tetramethylbenzene, 4-Ethyl toluene, p-Diethylbenzene, Iron Bacteria, Salmonella, Sulfur Reducing Bacteria, & UOD (Ultimate Oxygen Demand).

**The following analytes are Not Part of ELAP Potable Water scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), Nitrate-Nitrite (10-107-4-1C, 353.2), m-Xylene & p-Xylene (502.2, 524), o-Xylene (502.2, 524), Sulfide (SM4500SD), Acenaphthene (525.2), Acenaphthylene (525.2), Fluoranthene (525.2), Fluorene (525.2), Phenanthrene (525.2), Anthracene (525.2), Pyrene (525.2), Benzo[a]anthracene (525.2), Benzo[b]fluoranthene (525.2), Benzo[g,h,i]perylene (525.2), Benzo[k]fluoranthene (525.2), Indeno[1,2,3-cd]pyrene (525.2), & Dibenz(a,h)anthracene (525.2).

**The following analytes are Not Part of ELAP Solid and Hazardous Waste scope of accreditation:**

Ammonia (SM 4500NH3G), TKN (351.2), Phosphorus (365.3), 1,2-Dichloro-1,1,2-trifluoroethane (8260), & Chlorodifluoromethane (8260).

**The following analytes are Not Part of ELAP Non Potable Water scope of accreditation:**

Dissolved Organic Carbon (5310C), Mecoprop (8151A), MCPA (8151A), Propylene Glycol (8015D).

## Definitions and Glossary

Client: WSP USA

Job Number:

Sdg Number: Wilder Balter - Route 22

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| %R | Percent Recovery |
| DL, RA, RE | Indicates a Dilution, Reanalysis or Reextraction. |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit - an estimate of the minimum amount of a substance that an analytical process can reliably detect. A MDL is analyte- and matrix-specific and may be laboratory-dependent. |
| ND | Not detected at the reporting limit (or MDL if shown). |
| QC | Quality Control |
| RL | Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. |
| RPD | Relative Percent Difference - a measure of the relative difference between two points |

EnviroTest Laboratories, Inc.

# CHAIN OF CUSTODY

140177

REPORT# (Lab Use Only) 1 of 2

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

| | |
|---|---|
| PROJECT REFERENCE | Wilder Balter * |
| PROJECT NO. | Route 22 * |
| PROJECT LOCATION | |
| ENVIROTEST PROJECT MANAGER | Debra Bayer |
| P.O. NUMBER | |
| TOWN | |
| CLIENT (SITE) PM | Stacy Stieber |
| CLIENT PHONE | 475-882-1723 |
| CLIENT FAX | |
| CLIENT NAME | WSP USA |
| | stacy.stieber@wsp.com |
| CLIENT ADDRESS | 4 Research Drive, Suite 301, Shelton, CT 06484 |
| COMPANY CONTRACTING THIS WORK (if applicable): | |

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ ; QUICK ____ ; VERBAL ____

#OF COOLERS

| SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | D (Drinking Water) or W (Waste Water) Indicate | SOLID OR SEMISOLID | OTHER Specify | Liter Amber Plain | 40ml Vials HCl | 40ml Sodium Thio. | 250ml Amber Sodium Thio. | Liter Amber HCl/Na2SO3 | 250ml Plastic Nitric Acid | 60ml Mon/Sod.Thio(liquid) | Liter Plastic | 250ml Plastic Sodium Hyd. | 125ml Plastic Sterile | Liter Plastic Nitric | 40ml Vials Unpres | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) 7/25/18 | 1245 | Well 4 | | X | | | | 2 | 3 | 4 | 1 | 2 | 1 | 1 | 4 | 1 | 2 | 5 | 2 | Table 8B (Sb,As,Ba,Be,Cd,Cr,Cn,Hg,Ni |
| | | | | | | | | | | | | | | | | | | | | Se,Tl,F) |
| | | | | | | | | | | | | | | | | | | | | Table 8C (NO3,NO2) |
| | | | | | | | | | | | | | | | | | | | | Table 8D (Cl,Fe,Mn,Ag,Na,SO4,Zn,Odor,Color) |
| | | | | | | | | 1-250ml Amber Unpres. | | | | | | | | | | | | 524.2 (POC,MTBE,Vinyl Chloride) |
| | | | | | | | | 2-250ml Plastic Unpres.(no air) | | | | | | | | | | | | SOCs (504,505,515,525,531) |
| | | | | | | | | 31 Total Containers | | | | | | | | | | | | Additional Tests (Total coliform |
| | | | | | | | | | | | | | | | | | | | | thru Zinc) |
| | | | | | | | | | | | | | | | | | | | | Radon, Gross Alpha/Beta, |
| | | | | | | | | | | | | | | | | | | | | Radium 226/228, Total Uranium |

NUMBER OF CONTAINERS SUBMITTED

420-140177-A-1
Well 4
Date Sampled: 7/25/2018 420-1225321

| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| [signature] | WSP | 7/25/18 | 1435 | | | | |
| SAMPLED BY: (SIGNATURE) [signature] | WSP | 7/25/18 | 1245 | | | | |
| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |

SUBCONTACT: PAGE-SOC,Radio,Radon

| RECEIVED FOR LABORATORY BY (SIGNATURE) | DATE | TIME | CUSTODY INTACT YES NO | Cooler Temp. | LABORATORY REMARKS | ICE ✓ pH ✓ CL2 | Received by: |
|---|---|---|---|---|---|---|---|
| [signature] ETL | 7/25/18 | 1435 | | 7.2°C | | | QE 7-25-18 |

IR#3

*As per Stacy Stieber at WSP. QE 7/25/18

EnviroTest Laboratories, Inc.

# CHAIN OF CUSTODY

140177

REPORT# (Lab Use Only) 2 of 2

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fulterton Avenue, Newburgh, New York 12550 845-562-0890

| | |
|---|---|
| PROJECT REFERENCE | Wilder Batter * |
| PROJECT NO. | Route 22 * |
| PROJECT LOCATION | |
| ENVIROTEST PROJECT MANAGER | Debra Bayer |
| P.O. NUMBER | |
| TOWN | Lewisboro |
| CLIENT (SITE) PM | Stacy Stieber |
| CLIENT PHONE | 475-882-1723 |
| CLIENT FAX | |
| CLIENT NAME | WSP USA |
| | stacy.stieber@wsp.com |
| CLIENT ADDRESS | 4 Research Drive, Suite 301, Shelton, CT 06484 |
| COMPANY CONTRACTING THIS WORK (if applicable): | |

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ / QUICK / VERBAL

#OF COOLERS: 1

| SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE | AQUEOUS (WATER) | D (Drinking Water) or W (Waste Water) indicate | SOLID OR SEMISOLID | OTHER Specify | Liter Amber Plain | 40ml Vials HCl | 40ml Sodium Thio. | 250ml Amber Sodium Thio. | Liter Amber HCl/Na2S2O3 | 250ml Plastic Nitric Acid | 60ml Mon/Sod. Thio(liquid) | Liter Plastic | 250ml Plastic Sodium Hyd. | 125ml Plastic Sterile | Liter Plastic Nitric | 40ml Vials Unpres | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) 7/25/18 | 1245 | Well 4 | | X | D | | | 2 | 3 | 4 | 1 | 2 | 1 | 1 | 4 | 1 | 2 | 5 | 2 | Table #B (Sb,As,Ba,Be,Cd,Cr,Cn,Hg,Ni |
| | | | | | | | | | | | | | | | | | | | | Se,Tl,F) |
| | | | | | | | | | | | | | | | | | | | | Table #C (NO3,NO2) |
| | | | | | | | | | | | | | | | | | | | | Table #D (Cl,Fe,Mn,Ag,Na,SO4,Zn,Odor,Color) |
| | | | | | | | | 1-250ml Amber Unpres. | | | | | | | | | | | | 524.2 (POC,MTBE,Vinyl Chloride) |
| | | | | | | | | 2-250ml Plastic Unpres.(no air) | | | | | | | | | | | | SOCs (504,505,515,525,531) |
| | | | | | | | | 31 Total Containers | | | | | | | | | | | | Additional Tests (Total coliform |
| | | | | | | | | | | | | | | | | | | | | thru Zinc) |
| | | | | | | | | | | | | | | | | | | | | Radon, Gross Alpha/Beta, |
| | | | | | | | | | | | | | | | | | | | | Radium 226/228, Total Uranium |

| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| | WSP | 7/25/18 | 1435 | | | | |
| SAMPLED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |
| | WSP | 7/25/18 | 1245 | | | | |
| RELINQUISHED BY: (SIGNATURE) | COMPANY | DATE | TIME | RECEIVED BY: (SIGNATURE) | COMPANY | DATE | TIME |

SUBCONTRACT PACKAGE: Radio Radon

RECEIVED FOR LABORATORY BY: | DATE | TIME | CUSTODY INTACT | SEALS INTACT | LABORATORY REMARKS

IR#3

*As per Stacy Stieber at WSP. QE 7/25/18

# LOGIN SAMPLE RECEIPT CHECK LIST

Client: WSP USA

Job Number: 420-140177-1
SDG Number: Wilder Balter - Route 22

**Login Number: 140177**

| Question | T/F/NA | Comment |
|---|---|---|
| Samples were collected by ETL employee as per SOP-SAM-1 | NA | |
| The cooler's custody seal, if present, is intact. | NA | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is recorded. | True | 7.2 C |
| Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C | True | |
| If false, was sample received on ice within 6 hours of collection. | NA | |
| Based on above criteria cooler temperature is acceptable. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | False | pH |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| If necessary, staff have been informed of any short hold time or quick TAT needs | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |

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**Pace Analytical Services, LLC**
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

August 20, 2018

Renee Cusack
EnviroTest Laboratories, INC
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

Dear Renee Cusack:
Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Samples were subcontracted to Microbac Laboratories, 61 Louisa Viens, Dayville, CT 06241 for 525 analysis.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paige Doherty

Paige Doherty
paige.doherty@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories, INC
Ron Bayer, EnviroTest Laboratories, INC
Paige Doherty, Pace Analytical Melville
Laura Marciano, EnviroTest Laboratories, INC

**REPORT OF LABORATORY ANALYSIS**

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040



cc: Janine Rader, EnviroTest Laboratories, INC
Meredith Ruthven, EnviroTest Laboratories, INC

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# CERTIFICATIONS

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

**Long Island Certification IDs**
575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

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# ANALYTICAL RESULTS

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

**Sample: WELL 4** **Lab ID: 7059525001** Collected: 07/25/18 12:45 Received: 07/26/18 10:00 Matrix: Drinking Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **504.1 GCS EDB and DBCP** | Analytical Method: EPA 504.1 Preparation Method: EPA 504.1 | | | | | | | |
| 1,2-Dibromo-3-chloropropane | **<0.010** | ug/L | 0.010 | 1 | 07/27/18 16:45 | 07/28/18 11:46 | 96-12-8 | |
| 1,2-Dibromoethane (EDB) | **<0.010** | ug/L | 0.010 | 1 | 07/27/18 16:45 | 07/28/18 11:46 | 106-93-4 | |
| **505 GCS Pesticides/PCBs** | Analytical Method: EPA 505 Preparation Method: EPA 505 | | | | | | | |
| Alachlor | **<0.20** | ug/L | 0.20 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 15972-60-8 | H1 |
| Aldrin | **<0.025** | ug/L | 0.025 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 309-00-2 | H1 |
| gamma-BHC (Lindane) | **<0.020** | ug/L | 0.020 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 58-89-9 | H1 |
| Chlordane (Technical) | **<0.20** | ug/L | 0.20 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 57-74-9 | H1 |
| Dieldrin | **<0.050** | ug/L | 0.050 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 60-57-1 | H1 |
| Endrin | **<0.010** | ug/L | 0.010 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 72-20-8 | H1 |
| Heptachlor | **<0.025** | ug/L | 0.025 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 76-44-8 | H1 |
| Heptachlor epoxide | **<0.020** | ug/L | 0.020 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 1024-57-3 | H1 |
| Hexachlorobenzene | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 118-74-1 | H1 |
| Hexachlorocyclopentadiene | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 77-47-4 | H1 |
| Methoxychlor | **<0.10** | ug/L | 0.10 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 72-43-5 | H1 |
| PCB Screen | **<0.40** | ug/L | 0.40 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | | H1 |
| Toxaphene | **<1.0** | ug/L | 1.0 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 8001-35-2 | H1 |
| ***Surrogates*** | | | | | | | | |
| Tetrachloro-m-xylene (S) | 102 | % | 30-150 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 877-09-8 | |
| Decachlorobiphenyl (S) | 86 | % | 30-150 | 1 | 07/30/18 14:10 | 08/04/18 03:37 | 2051-24-3 | |
| **515.3 Chlorinated Herbicides** | Analytical Method: EPA 515.3 Preparation Method: EPA 515.3 | | | | | | | |
| 2,4-D | **<0.10** | ug/L | 0.10 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 94-75-7 | |
| Dalapon | **<0.70** | ug/L | 0.70 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 75-99-0 | |
| Dicamba | **<1.0** | ug/L | 1.0 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 1918-00-9 | |
| Dinoseb | **<0.20** | ug/L | 0.20 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 88-85-7 | |
| Pentachlorophenol | **<0.040** | ug/L | 0.040 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 87-86-5 | |
| Picloram | **<0.10** | ug/L | 0.10 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 1918-02-1 | |
| 2,4,5-TP (Silvex) | **<0.13** | ug/L | 0.13 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 93-72-1 | |
| ***Surrogates*** | | | | | | | | |
| 2,4-DCAA (S) | 82 | % | 70-130 | 1 | 08/06/18 10:25 | 08/11/18 23:32 | 19719-28-9 | |
| **531.1 HPLC Carbamates** | Analytical Method: EPA 531.1 | | | | | | | |
| Aldicarb | **<0.50** | ug/L | 0.50 | 1 | | 08/01/18 10:55 | 116-06-3 | |
| Aldicarb sulfone | **<0.80** | ug/L | 0.80 | 1 | | 08/01/18 10:55 | 1646-88-4 | |
| Aldicarb sulfoxide | **<0.50** | ug/L | 0.50 | 1 | | 08/01/18 10:55 | 1646-87-3 | |
| Carbofuran | **<0.90** | ug/L | 0.90 | 1 | | 08/01/18 10:55 | 1563-66-2 | |
| 3-Hydroxycarbofuran | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:55 | 16655-82-6 | |
| Methomyl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:55 | 16752-77-5 | |
| Oxamyl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:55 | 23135-22-0 | |
| Carbaryl | **<1.0** | ug/L | 1.0 | 1 | | 08/01/18 10:55 | 63-25-2 | |

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# QUALITY CONTROL DATA

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

QC Batch: 77204 | Analysis Method: EPA 531.1
QC Batch Method: EPA 531.1 | Analysis Description: 531.1 HPLC Carbamate
Associated Lab Samples: 7059525001

METHOD BLANK: 354289 | Matrix: Water
Associated Lab Samples: 7059525001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Aldicarb | ug/L | <0.50 | 0.50 | 07/31/18 17:56 | |
| Aldicarb sulfone | ug/L | <0.80 | 0.80 | 07/31/18 17:56 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 0.50 | 07/31/18 17:56 | |
| Carbaryl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Carbofuran | ug/L | <0.90 | 0.90 | 07/31/18 17:56 | |
| Methomyl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |
| Oxamyl | ug/L | <1.0 | 1.0 | 07/31/18 17:56 | |

LABORATORY CONTROL SAMPLE: 354290

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | 3.8 | 3.2 | 86 | 80-120 | |
| Aldicarb | ug/L | 3.8 | 3.7 | 98 | 80-120 | |
| Aldicarb sulfone | ug/L | 3.8 | 3.6 | 96 | 80-120 | |
| Aldicarb sulfoxide | ug/L | 3.8 | 3.6 | 97 | 80-120 | |
| Carbaryl | ug/L | 3.8 | 3.6 | 97 | 80-120 | |
| Carbofuran | ug/L | 3.8 | 3.4 | 90 | 80-120 | |
| Methomyl | ug/L | 3.8 | 3.5 | 93 | 80-120 | |
| Oxamyl | ug/L | 3.8 | 3.6 | 95 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 354291 354292

| Parameter | Units | 7059548001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-Hydroxycarbofuran | ug/L | <1.0 | 3.8 | 3.8 | 3.5 | 3.4 | 93 | 90 | 65-135 | 4 | |
| Aldicarb | ug/L | <0.50 | 3.8 | 3.8 | 3.6 | 3.4 | 94 | 91 | 65-135 | 4 | |
| Aldicarb sulfone | ug/L | <0.80 | 3.8 | 3.8 | 3.4 | 3.3 | 90 | 87 | 65-135 | 4 | |
| Aldicarb sulfoxide | ug/L | <0.50 | 3.8 | 3.8 | 3.6 | 3.1 | 94 | 82 | 65-135 | 13 | |
| Carbaryl | ug/L | <1.0 | 3.8 | 3.8 | 3.6 | 3.5 | 95 | 92 | 65-135 | 3 | |
| Carbofuran | ug/L | <0.90 | 3.8 | 3.8 | 3.3 | 3.3 | 86 | 87 | 65-135 | 0 | |
| Methomyl | ug/L | <1.0 | 3.8 | 3.8 | 3.3 | 3.4 | 88 | 89 | 65-135 | 1 | |
| Oxamyl | ug/L | <1.0 | 3.8 | 3.8 | 3.5 | 3.2 | 94 | 84 | 65-135 | 11 | |

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## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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# QUALITY CONTROL DATA

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

QC Batch: 76840 | Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 | Analysis Description: 504 EDB DBCP
Associated Lab Samples: 7059525001

METHOD BLANK: 352833 | Matrix: Water
Associated Lab Samples: 7059525001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | 0.010 | 07/28/18 07:16 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | 0.010 | 07/28/18 07:16 | |

LABORATORY CONTROL SAMPLE: 352834

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .071 | 0.063 | 88 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .071 | 0.052 | 73 | 70-130 | |

LABORATORY CONTROL SAMPLE: 352835

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | .01 | 0.011 | 110 | 70-130 | |
| 1,2-Dibromoethane (EDB) | ug/L | .01 | <0.010 | 90 | 70-130 | |

MATRIX SPIKE SAMPLE: 352836

| Parameter | Units | 7059392002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | .071 | 0.064 | 89 | 65-135 | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | .071 | 0.062 | 86 | 65-135 | |

SAMPLE DUPLICATE: 352837

| Parameter | Units | 7059409001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| 1,2-Dibromo-3-chloropropane | ug/L | <0.010 | <0.010 | | |
| 1,2-Dibromoethane (EDB) | ug/L | <0.010 | <0.010 | | |

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# QUALITY CONTROL DATA

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

QC Batch: 77015 | Analysis Method: EPA 505
QC Batch Method: EPA 505 | Analysis Description: 505 GCS Pesticides
Associated Lab Samples: 7059525001

METHOD BLANK: 353551 | Matrix: Water
Associated Lab Samples: 7059525001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | <0.20 | 0.20 | 08/03/18 18:43 | |
| Aldrin | ug/L | <0.025 | 0.025 | 08/03/18 18:43 | |
| Chlordane (Technical) | ug/L | <0.20 | 0.20 | 08/03/18 18:43 | |
| Dieldrin | ug/L | <0.050 | 0.050 | 08/03/18 18:43 | |
| Endrin | ug/L | <0.010 | 0.010 | 08/03/18 18:43 | |
| gamma-BHC (Lindane) | ug/L | <0.020 | 0.020 | 08/03/18 18:43 | |
| Heptachlor | ug/L | <0.025 | 0.025 | 08/03/18 18:43 | |
| Heptachlor epoxide | ug/L | <0.020 | 0.020 | 08/03/18 18:43 | |
| Hexachlorobenzene | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| Hexachlorocyclopentadiene | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| Methoxychlor | ug/L | <0.10 | 0.10 | 08/03/18 18:43 | |
| PCB Screen | ug/L | <0.40 | 0.40 | 08/03/18 18:43 | |
| Toxaphene | ug/L | <1.0 | 1.0 | 08/03/18 18:43 | |
| Decachlorobiphenyl (S) | % | 65 | 30-150 | 08/03/18 18:43 | |
| Tetrachloro-m-xylene (S) | % | 99 | 30-150 | 08/03/18 18:43 | |

LABORATORY CONTROL SAMPLE: 353552

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Alachlor | ug/L | .48 | 0.45 | 95 | 70-130 | |
| Aldrin | ug/L | .048 | 0.035 | 73 | 70-130 | |
| Chlordane (Technical) | ug/L | | <0.20 | | | |
| Dieldrin | ug/L | .048 | <0.050 | 85 | 70-130 | |
| Endrin | ug/L | .048 | 0.042 | 88 | 70-130 | |
| gamma-BHC (Lindane) | ug/L | .048 | 0.055 | 116 | 70-130 | |
| Heptachlor | ug/L | .048 | 0.042 | 89 | 70-130 | |
| Heptachlor epoxide | ug/L | .048 | 0.034 | 72 | 70-130 | |
| Hexachlorobenzene | ug/L | .048 | <0.10 | 103 | 70-130 | |
| Hexachlorocyclopentadiene | ug/L | .048 | <0.10 | 79 | 70-130 | |
| Methoxychlor | ug/L | .24 | 0.24 | 100 | 70-130 | |
| PCB Screen | ug/L | | <0.40 | | | |
| Toxaphene | ug/L | | <1.0 | | | |
| Decachlorobiphenyl (S) | % | | | 64 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | 87 | 30-150 | |

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# QUALITY CONTROL DATA

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

MATRIX SPIKE SAMPLE: 353553

| Parameter | Units | 7059098001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Alachlor | ug/L | | | 0.86 | | | H1 |
| Aldrin | ug/L | | | 0.066 | | | H1 |
| Chlordane (Technical) | ug/L | | | 0.60 | | | H1 |
| Dieldrin | ug/L | | | 0.082 | | | H1 |
| Endrin | ug/L | | | 0.077 | | | H1 |
| gamma-BHC (Lindane) | ug/L | | | 0.12 | | | H1 |
| Heptachlor | ug/L | | | 0.081 | | | H1 |
| Heptachlor epoxide | ug/L | | | 0.083 | | | H1 |
| Hexachlorobenzene | ug/L | | | <0.10 | | | H1 |
| Hexachlorocyclopentadiene | ug/L | | | <0.10 | | | H1,M1 |
| Methoxychlor | ug/L | | | 0.39 | | | H1 |
| PCB Screen | ug/L | | | <0.40 | | | H1 |
| Toxaphene | ug/L | | | <1.0 | | | H1 |
| Decachlorobiphenyl (S) | % | | | | 70 | 30-150 | |
| Tetrachloro-m-xylene (S) | % | | | | 73 | 30-150 | |

SAMPLE DUPLICATE: 353554

| Parameter | Units | 7059098002 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| Alachlor | ug/L | | <0.20 | | H1 |
| Aldrin | ug/L | | <0.025 | | H1 |
| Chlordane (Technical) | ug/L | | <0.20 | | H1 |
| Dieldrin | ug/L | | <0.050 | | H1 |
| Endrin | ug/L | | <0.010 | | H1 |
| gamma-BHC (Lindane) | ug/L | | <0.020 | | H1 |
| Heptachlor | ug/L | | <0.025 | | H1 |
| Heptachlor epoxide | ug/L | | <0.020 | | H1 |
| Hexachlorobenzene | ug/L | | <0.10 | | H1 |
| Hexachlorocyclopentadiene | ug/L | | <0.10 | | H1 |
| Methoxychlor | ug/L | | <0.10 | | H1 |
| PCB Screen | ug/L | | <0.40 | | H1 |
| Toxaphene | ug/L | | <1.0 | | H1 |
| Decachlorobiphenyl (S) | % | | 67 | | |
| Tetrachloro-m-xylene (S) | % | | 112 | | |

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# QUALITY CONTROL DATA

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

QC Batch: 77884
QC Batch Method: EPA 515.3
Analysis Method: EPA 515.3
Analysis Description: 5153 GCS Herbicides
Associated Lab Samples: 7059525001

METHOD BLANK: 358071
Matrix: Water
Associated Lab Samples: 7059525001

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | 0.13 | 08/11/18 09:45 | |
| 2,4-D | ug/L | <0.10 | 0.10 | 08/11/18 09:45 | |
| Dalapon | ug/L | <0.70 | 0.70 | 08/11/18 09:45 | |
| Dicamba | ug/L | <1.0 | 1.0 | 08/11/18 09:45 | |
| Dinoseb | ug/L | <0.20 | 0.20 | 08/11/18 09:45 | |
| Pentachlorophenol | ug/L | <0.040 | 0.040 | 08/11/18 09:45 | |
| Picloram | ug/L | <0.10 | 0.10 | 08/11/18 09:45 | |
| 2,4-DCAA (S) | % | 87 | 70-130 | 08/11/18 09:45 | |

LABORATORY CONTROL SAMPLE: 358072

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | .2 | 0.18 | 92 | 70-130 | |
| 2,4-D | ug/L | .6 | 0.57 | 95 | 70-130 | |
| Dalapon | ug/L | 2 | 1.8 | 89 | 70-130 | |
| Dicamba | ug/L | .2 | <1.0 | 82 | 70-130 | |
| Dinoseb | ug/L | .4 | 0.35 | 87 | 70-130 | |
| Pentachlorophenol | ug/L | .2 | 0.19 | 95 | 70-130 | |
| Picloram | ug/L | .2 | 0.15 | 74 | 70-130 | |
| 2,4-DCAA (S) | % | | | 73 | 70-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 358073 358074

| Parameter | Units | 7059540001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,4,5-TP (Silvex) | ug/L | <0.13 | .2 | .2 | 0.18 | 0.16 | 87 | 82 | 65-135 | 6 | |
| 2,4-D | ug/L | <0.10 | .6 | .6 | 0.42 | 0.59 | 70 | 98 | 65-135 | 33 | R1 |
| Dalapon | ug/L | <0.70 | 2 | 2 | 1.6 | 1.7 | 82 | 83 | 65-135 | 1 | |
| Dicamba | ug/L | <1.0 | .2 | .2 | <1.0 | <1.0 | 129 | 109 | 65-135 | | |
| Dinoseb | ug/L | <0.20 | .4 | .4 | 0.34 | 0.35 | 84 | 88 | 65-135 | 4 | |
| Pentachlorophenol | ug/L | <0.040 | .2 | .2 | 0.16 | 0.16 | 80 | 78 | 65-135 | 3 | |
| Picloram | ug/L | <0.10 | .2 | .2 | 0.24 | 0.56 | 118 | 278 | 65-135 | 80 | M1,R1 |
| 2,4-DCAA (S) | % | | | | | | 71 | 2 | 70-130 | | S0 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALIFIERS

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| H1 | Analysis conducted outside the EPA method holding time. |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. |
| R1 | RPD value was outside control limits. |
| S0 | Surrogate recovery outside laboratory control limits. |

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

# QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 420-140177-1 - SOC 7/25
Pace Project No.: 7059525

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **7059525001** | **WELL 4** | EPA 504.1 | 76840 | EPA 504.1 | 76949 |
| **7059525001** | **WELL 4** | EPA 505 | 77015 | EPA 505 | 77080 |
| **7059525001** | **WELL 4** | EPA 515.3 | 77884 | EPA 515.3 | 78014 |
| **7059525001** | **WELL 4** | EPA 531.1 | 77204 | | |

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

| Client Information (Sub Contract Lab) | Sampler: | Lab PM: Bayer, Debra | Carrier Tracking No(s): | COC No: 420-10018.1 |
|---|---|---|---|---|
| Client Contact: Shipping/Receiving | Phone: | E-Mail: dbayer@envirotestlaboratories.com | | Page: Page 1 of 1 |

Company: Pace Analytical Mellville

Address: 575 Broadhollow Road, ,

City: Melville

State, Zip: NY, 11747

Phone:

Email:

Project Name: WSP USA

Site:

Due Date Requested: 8/6/2018

TAT Requested (days): Std TAT 7/25/18 03

PO #:

WO #:

Project #: 42002340

SSOW#:

STL Job #: 420-140177-1

Analysis Requested

Preservation Codes:

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2SO3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - ph 4-5 |
| L - EDA | Z - other (specify) |

Other:

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 515 Chlorinated Acids | SUBCONTRACT/ 504 EPA 504.1 EDB/DBCP | SUBCONTRACT/ 531.1 Carbamate Pesticides in DW | SUBCONTRACT/ 525.2 Semivolatile Organics | SUBCONTRACT/ 505 | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | | | |
| Well 4 (420-140177-1) | 7/25/18 | 12:45 | G | Water | | | X | X | X | X | X | 8 | |

NM Spoles 7/25/18 03

7/25/18 03

WO#:7059525

7059525

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| [signature] | 7/25/18 16:00 | ENV | [signature] | 7/26/18 10:00 | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Pace Analytical

# Sample Condition Upon Receipt

WO#: 7059525

PM: PD Due Date: 08/09/18

CLIENT: EnviroTest

Client Name: Envirotest

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 7728 1825 0701

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Temperature Blank Present: ☐ Yes ☑ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☑ Ziploc ☐ None ☐ Other

Type of Ice: (Wet) Blue None

Thermometer Used: (TH091) Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 5.2 Cooler Temperature Corrected (°C): 5.2

Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☑ N/A, water sample)

Date and Initials of person examining contents: SK 7/26/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

| | | | | COMMENTS: |
|---|---|---|---|---|
| Chain of Custody Present: | ☑ Yes | ☐ No | | 1. |
| Chain of Custody Filled Out: | ☑ Yes | ☐ No | | 2. |
| Chain of Custody Relinquished: | ☑ Yes | ☐ No | | 3. |
| Sampler Name & Signature on COC: | ☑ Yes | ☐ No | ☐ N/A | 4. |
| Samples Arrived within Hold Time: | ☑ Yes | ☐ No | | 5. |
| Short Hold Time Analysis (<72hr): | ☐ Yes | ☑ No | | 6. |
| Rush Turn Around Time Requested: | ☐ Yes | ☑ No | | 7. |
| Sufficient Volume: (Triple volume provided for MS/MSD) | ☑ Yes | ☐ No | | 8. |
| Correct Containers Used: | ☑ Yes | ☐ No | | 9. |
| -Pace Containers Used: | ☑ Yes | ☐ No | | |
| Containers Intact: | ☑ Yes | ☐ No | | 10. |
| Filtered volume received for Dissolved tests | ☐ Yes | ☐ No | ☑ N/A | 11. Note if sediment is visible in the dissolved container. |
| Sample Labels match COC: -Includes date/time/ID/Analysis Matrix SL WT OIL | ☑ Yes | ☐ No | | 12. |
| All containers needing preservation have been checked | ☐ Yes | ☐ No | ☑ N/A | 13. ☐ $HNO_3$ ☐ $H_2SO_4$ ☐ NaOH ☐ HCl |
| pH paper Lot # | | | | Sample # |
| All containers needing preservation are found to be in compliance with EPA recommendation? ($HNO_3$, $H_2SO_4$, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) | ☐ Yes | ☐ No | ☑ N/A | |
| Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis | | | | Initial when completed: / Lot # of added preservative: / Date/Time preservative added |
| Samples checked for dechlorination: | ☐ Yes | ☐ No | ☑ N/A | 14. |
| KI starch test strips Lot # | | | | Positive for Res. Chlorine? Y N |
| Residual chlorine strips Lot # | | | | |
| Headspace in VOA Vials ( >6mm): | ☐ Yes | ☑ No | ☐ N/A | 15. |
| Trip Blank Present: | ☐ Yes | ☐ No | ☑ N/A | 16. |
| Trip Blank Custody Seals Present | ☐ Yes | ☐ No | ☑ N/A | |
| Pace Trip Blank Lot # (if applicable): | | | | |

Field Data Required? Y / N

Client Notification/ Resolution:

Date/Time:

Person Contacted:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

MICROBAC®

Microbac Laboratories, Inc. - Dayville

# CERTIFICATE OF ANALYSIS

D8G2747

**Pace Analytical - Melville**

Paige Doherty
575 Broad Hollow Road
Melville, NY 11747

**Project Name: 7059525**

Project / PO Number: 7059525PD
Received: 07/27/2018
Reported: 08/07/2018

## Analytical Testing Parameters

**Client Sample ID:** WELL 4
**Sample Matrix:** Drinking Water
**Lab Sample ID:** D8G2747-01
**Collected By:** Customer
**Collection Date:** 07/25/2018 12:45

| Semi-Volatile Organic Compounds - GC/MS | Result | Limit(s) | RL | Units | Note | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| **Method: EPA 525.2, Rv 2.0** | | | | | | | | |
| Atrazine | <0.094 | 3.00 MCL | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Benzo[a]pyrene | <0.019 | 0.200 MCL | 0.019 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Butachlor | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| bis(2-Ethylhexyl)adipate | <0.566 | 400 MCL | 0.566 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| bis(2-Ethylhexyl)phthalate | <0.566 | 6.00 MCL | 0.566 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Metolachlor | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Metribuzin | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Propachlor (Ramrod) | <0.094 | | 0.094 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Simazine | <0.066 | 4.00 MCL | 0.066 | ug/L | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Surrogate: 1,3-Dimethyl-2-nitrobenzene | 101 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Surrogate: Pyrene-d10 | 99.5 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1835 | CDT |
| Surrogate: Triphenyl phosphate | 123 | Limit: 70-130 | | % Rec | | 08/06/18 1000 | 08/06/18 1835 | CDT |

*Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.*

## Definitions

**MCL:** US EPA Maximum Contaminant Level
**RL:** Reporting Limit

## Project Requested Certification(s)

Microbac Laboratories, Inc. - Dayville
11549 New York State Department of Health

## Report Comments

*Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.*

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.*

**Reviewed and Approved By:**

Nicole Paradise

Nicole J. Paradise
Assistant Quality Assurance Officer
Reported: 08/07/2018 16:21

# Chain of Custody

D8G2747

Pace Analytical - Melville

Pace Analytical®
www.pacelabs.com

**Workorder:** 7059525 **Workorder Name:** 420-140177-1 **Results Requested By:** 8/9/2018

| Report / Invoice To | Subcontract To |
|---|---|
| Paige Doherty<br>Pace Analytical Melville<br>575 Broad Hollow Road<br>Melville, NY 11747<br>Phone (631)694-3040<br>Email: paige.doherty@pacelabs.com | Microbac Laboratories<br>61 Louisa Viens<br>Dayville, CT 06241<br>P.O. 7059525PD |

**State of Sample Origin:** NY

| Item | Sample ID | Collect Date/Time | Lab ID | Matrix | Preserved Containers: Other | Subbed - 525 | LAB USE ONLY |
|---|---|---|---|---|---|---|---|
| 1 | WELL 4 | 7/25/2018 12:45 | 7059525001 | Drinking Water | 2 | X | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

| Transfers | Released By | Date/Time | Received By | Date/Time |
|---|---|---|---|---|
| 1 | [illegible] 7/26/18 | | | |
| 2 | | | | |
| 3 | | | | 7/27/18 1740 |

Comments

**Cooler Temperature on Receipt** 2.1 °C | **Custody Seal** Y or | **Received on Ice** Y or | **Samples Intact** Y or

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 13, 2018

Ms. Debra Bayer
EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: WSP USA
Pace Project No.: 30260339

Dear Ms. Bayer:
Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins
jacquelyn.collins@pacelabs.com
(724)850-5612
Project Manager

Enclosures

cc: Janine Rader, EnviroTest Laboratories, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# CERTIFICATIONS

Project: WSP USA
Pace Project No.: 30260339

**Pennsylvania Certification IDs**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## SAMPLE SUMMARY

Project: WSP USA
Pace Project No.: 30260339

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **30260339001** | **Well 4 (420-140177-1)** | Drinking Water | 07/25/18 12:45 | 07/26/18 10:20 |

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

## SAMPLE ANALYTE COUNT

Project: WSP USA
Pace Project No.: 30260339

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **30260339001** | **Well 4 (420-140177-1)** | SM7500RnB-07 | NEG | 1 |
| | | EPA 900.0 | NEG | 2 |
| | | EPA 903.1 | KAC | 1 |
| | | EPA 904.0 | JLW | 1 |
| | | ASTM D5174-97 | RMK | 1 |

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

**Sample: Well 4 (420-140177-1)** **Lab ID: 30260339001** Collected: 07/25/18 12:45 Received: 07/26/18 10:20 Matrix: Drinking Water
PWS: Site ID: Sample Type:

| Parameters | Method | Act ± Unc (MDC) Carr Trac | Units | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|
| Radon | SM7500RnB-07 | **761 ± 61.8 (60.7)**<br>**C:NA T:NA** | pCi/L | 07/28/18 21:48 | 10043-92-2 | |
| Gross Alpha | EPA 900.0 | **1.77 ± 1.60 (2.97)**<br>**C:NA T:NA** | pCi/L | 08/10/18 08:47 | 12587-46-1 | |
| Gross Beta | EPA 900.0 | **6.18 ± 1.81 (2.96)**<br>**C:NA T:NA** | pCi/L | 08/10/18 08:47 | 12587-47-2 | |
| Radium-226 | EPA 903.1 | **0.792 ± 0.572 (0.648)**<br>**C:NA T:83%** | pCi/L | 08/06/18 21:26 | 13982-63-3 | |
| Radium-228 | EPA 904.0 | **1.69 ± 0.557 (0.937)**<br>**C:67% T:75%** | pCi/L | 08/07/18 16:47 | 15262-20-1 | |
| Total Uranium | ASTM D5174-97 | **0.892 ± 0.021 (0.262)**<br>**C:NA T:NA** | ug/L | 08/09/18 14:17 | 7440-61-1 | |

Pace Analytical Services, LLC
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(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

QC Batch: 307651
QC Batch Method: ASTM D5174-97
Analysis Method: ASTM D5174-97
Analysis Description: D5174.97 Total Uranium KPA
Associated Lab Samples: 30260339001

METHOD BLANK: 1503833
Matrix: Water
Associated Lab Samples: 30260339001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Total Uranium | 0.185 ± 0.006 (0.262) C:NA T:NA | ug/L | 08/09/18 13:03 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

QC Batch: 307643 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30260339001

METHOD BLANK: 1503825 | Matrix: Water
Associated Lab Samples: 30260339001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Gross Alpha | -0.034 ± 0.363 (1.14) C:NA T:NA | pCi/L | 08/10/18 09:56 | |
| Gross Beta | 1.16 ± 0.954 (1.94) C:NA T:NA | pCi/L | 08/10/18 09:56 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

QC Batch: 307666 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30260339001

METHOD BLANK: 1503855 | Matrix: Water
Associated Lab Samples: 30260339001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-228 | 0.622 ± 0.399 (0.749) C:77% T:80% | pCi/L | 08/07/18 13:28 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

QC Batch: 307426 | Analysis Method: SM7500RnB-07
QC Batch Method: SM7500RnB-07 | Analysis Description: 7500Rn B Radon
Associated Lab Samples: 30260339001

METHOD BLANK: 1502786 | Matrix: Water
Associated Lab Samples: 30260339001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radon | -2.9 ± 18.7 (32.9) C:NA T:NA | pCi/L | 07/28/18 18:06 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

# QUALITY CONTROL - RADIOCHEMISTRY

Project: WSP USA
Pace Project No.: 30260339

QC Batch: 307657 | Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 | Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30260339001

METHOD BLANK: 1503845 | Matrix: Water
Associated Lab Samples: 30260339001

| Parameter | Act ± Unc (MDC) Carr Trac | Units | Analyzed | Qualifiers |
|---|---|---|---|---|
| Radium-226 | 0.405 ± 0.423 (0.597) C:NA T:86% | pCi/L | 08/06/18 21:11 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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Greensburg, PA 15601
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# QUALIFIERS

Project: WSP USA
Pace Project No.: 30260339

**DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

# Chain of Custody Record

EnviroTest Laboratories Inc.

**Client Information (Sub Contract Lab)**

Client Contact: Shipping/Receiving
Company: Pace Analytical Services, Inc.
Address: 1638 Roseytown Rd,Suites 2,3,4,
City: Greensburg
State, Zip: PA, 15601
Phone:
Email:
Project Name: WSP USA
Site:

Sampler: WSP
Phone: 7/25/18 03
Due Date Requested: 8/8/2018
TAT Requested (days): Std TAT 7/25/18 03
PO #:
WO #:
Project #: 42002340
SSOW#:

Lab PM: Bayer, Debra
E-Mail: dbayer@envirotestlaboratories.com
Carrier Tracking No(s):
COC No: 420-10019.1
Page: Page 1 of 1
STL Job #: 420-140177-1

**Analysis Requested**

**Preservation Codes:**
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

NY Solids 7/25/18 03

| Sample Identification Client ID (Lab ID) | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUBCONTRACT/ 900 GA/GB/RA 226/RA 228 | SUBCONTRACT/ Total Uranium | SUBCONTRACT/ Radon | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | | | | | |
| Well 4 (420-140177-1) | 7/25/18 | 12:45 | G | Water | | | X | X | X | 7 | 001 |

7/25/18 03

WO# : 30260339
30260339

**Possible Hazard Identification**
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| | 7/25/18 1600 | EW | | 7-26-18 1020 | PACE |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

# Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Enviro test Labs Project # 30260339

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7728 1834 5039

Label BTH
LIMS Login BTH

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.8 °C Correction Factor: 0.0 °C Final Temp: 5.8 °C

Temp should be above freezing to 6°C

pH paper Lot# 10D4671 Date and Initials of person examining contents: ET 7-26-18

| Comments: | Yes | No | N/A | |
|---|---|---|---|---|
| Chain of Custody Present: | ✓ | | | 1. |
| Chain of Custody Filled Out: | ✓ | | | 2. |
| Chain of Custody Relinquished: | ✓ | | | 3. |
| Sampler Name & Signature on COC: | | ✓ | | 4. |
| Sample Labels match COC: -Includes date/time/ID Matrix: WT | ✓ | | | 5. |
| Samples Arrived within Hold Time: | ✓ | | | 6. |
| Short Hold Time Analysis (<72hr remaining): | ✓ | | | 7. |
| Rush Turn Around Time Requested: | | ✓ | | 8. |
| Sufficient Volume: | ✓ | | | 9. |
| Correct Containers Used: -Pace Containers Used: | ✓ | ✓ | | 10. |
| Containers Intact: | ✓ | | | 11. |
| Orthophosphate field filtered | | | ✓ | 12. |
| Hex Cr Aqueous Compliance/NPDES sample field filtered | | | ✓ | 13. |
| Organic Samples checked for dechlorination: | | | ✓ | 14. |
| Filtered volume received for Dissolved tests | | | ✓ | 15. |
| All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. | ✓ | | | 16. Radon vials already sp |
| exceptions: VOA, coliform, TOC, O&G, Phenolics | | | | Initial when completed ET; Date/time of preservation; Lot # of added preservative |
| Headspace in VOA Vials ( >6mm): | | | ✓ | 17. |
| Trip Blank Present: Trip Blank Custody Seals Present | | ✓ | | 18. |
| Rad Aqueous Samples Screened > 0.5 mrem/hr | | ✓ | | Initial when completed: ET Date: 7-26-18 |

**Client Notification/ Resolution:**

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

J:\QAQC\Master\Document Management\Sample Mgt\Sample Condition Upon Receipt Pittsburgh (C056-7 16Feb2018)

**Technical Memorandum**

To: Mr. Jan Johannessen, AICP
Mr. Joseph Cermele, PE
Kellard Sessions Consulting
500 Main Street
Armonk, New York 10504

From: William A. Canavan, PG, LSRP
HydroEnvironmental Solutions, Inc.
One Deans Bridge Road
Somers, New York 10589

Date: September 27, 2018

RE: Pumping Test on Supply Wells 2, 3 and 4
Wilder Balter Partners, Inc. Property
Route 22
Lewisboro, New York

As requested, HydroEnvironmental Solutions, Inc. (HES) has reviewed the Pumping Test compiled by LBG Hydrogeologic & Engineering Services, P.C. (LBGHES) dated September 2018.

Based on our review of the above outlined document, HES offers the following observations pertaining to the proposed development and the on-site groundwater supply.

- The Applicant conducted a 72-hour pumping test on Wells 2, 3 and 4 at pumping rates of 5.3 gallons per minute (gpm), 8.5 gpm and 8.3 gpm, respectively. The demand of the project is 9,240 gallons per day (gpd) or 6.4 gpm based on the 84 bedrooms being proposed. The test included pumping Wells 2 and 4 at a combined 12.8 gpm to demonstrate double the daily demand and a separate test was conducted on Well 3 at 8.5 gpm to demonstrate that this well was the the best well and could be kept out of service. The results of the pumping test confirmed that the supply wells met the water supply objectives for the proposed project.

- The three wells met NYSDEC stabilization requirements during the last six hours of pumping based on both drawdown data and 180-day drawdown analysis plots included in the Pumping Test report.

- Off-site monitoring of four (4) residential supply wells confirmed that no off-site interference effects were observed in any of the wells monitored.

- Significant drawdown interference effects were observed between on-site supply Wells 3 and 4 (>100 feet of drawdown), indicating that these two wells are hydraulically connected. As Well 3 will be used as the best well out of service, or backup well, the observed on-site well interference between these wells is not a concern to the project water supply. These two wells will not be in operation at the same time.

- Minimal (1.4 feet) interference was observed between on-site Wells 1 and 3 during the Well 3 pumping test, and 26.8 feet of drawdown was observed in Well 1 during the pumping test conducted on Wells 2 and 4. The on-site drawdown effects observed are not concerning given the rate of pumping (twice the daily demand at Wells 2 and 4 and 8.5 gpm at Well 3) during the testing and the available drawdown in the three supply wells at the end of pumping.

- Surface water monitoring from nested piezometers in the surface water/wetland feature closest to Well 2 confirmed that pumping the three on-site wells did not have an impact on surface water and that none of the supply wells should be considered groundwater under the direct influence of surface water (GWUDI).

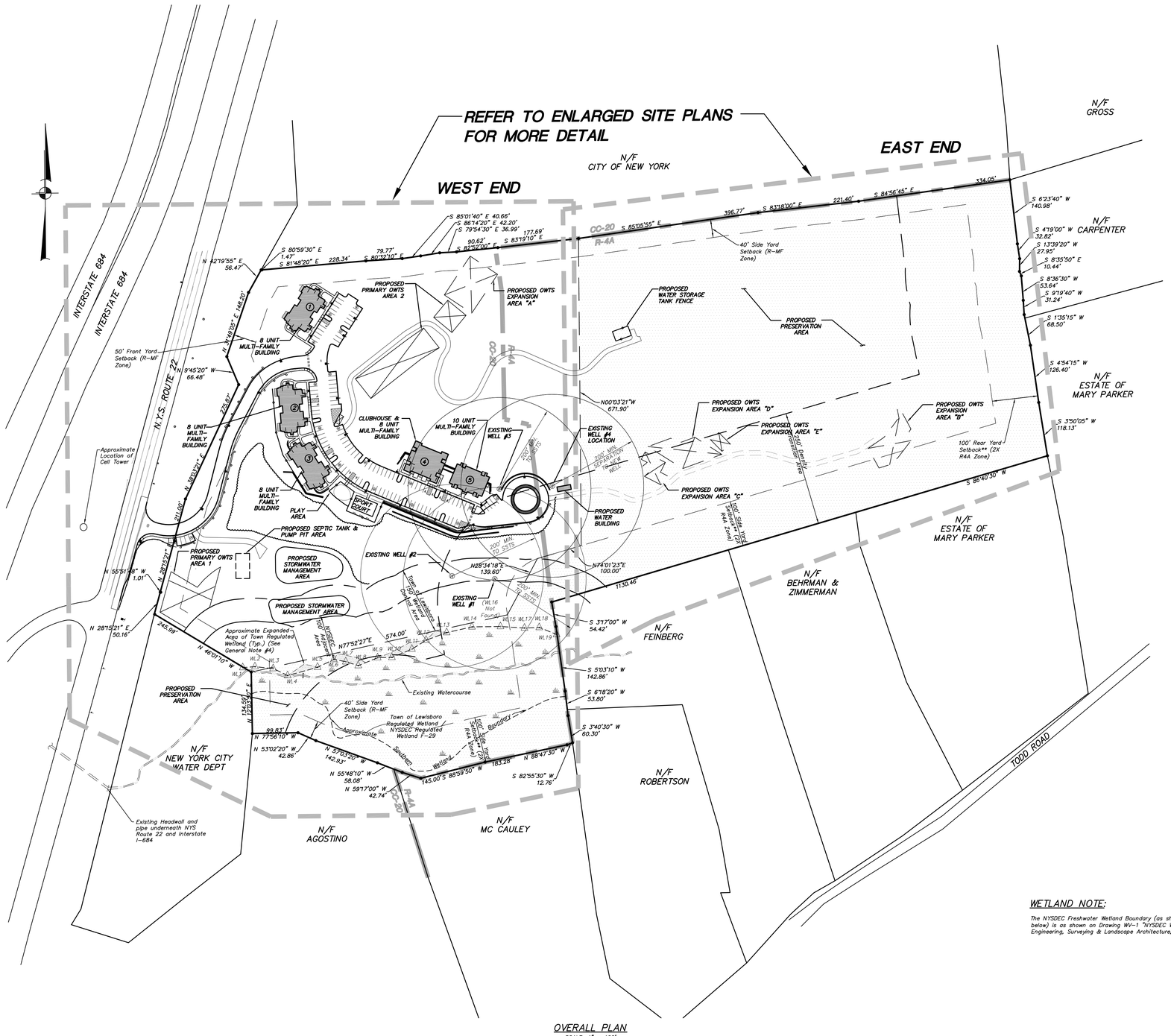
- According to the local rainfall table in the Pumping Test Report, Table 2, a total of 5.51 inches of rain fell during the 21-day period prior to and just after the pumping tests were conducted. However, review of the hydrographs indicates that recharge due to rainfall during the pumping tests was not observed in any of the pumping wells and only minimal recharge due to precipitation was observed in the off-site monitoring wells. Thus, HES concurs with the report conclusion that precipitation before and during the pumping test did not influence the interpretation of the pumping test data or the overall results.

- HES concurs with the conclusion in the Pumping Test Report that elevated turbidity readings in Well 2 are the result of the combined iron and manganese concentration of 0.989 milligrams per liter (mg/L) in this well. Additional long-term pumping will develop the well and it is likely turbidity readings will become compliant as a result of additional pumping.

**Recommendations**

Based on our review of the provided Pumping Test Report, the pumping test results are acceptable to HES and have determined that the three wells meet the NYSDOH requirement of demonstrating twice the daily demand of the project with the best well out of service. The on and off-site monitoring program confirmed that on-site pumping did not affect existing off-site supply wells or the on-site surface water body (wetland).

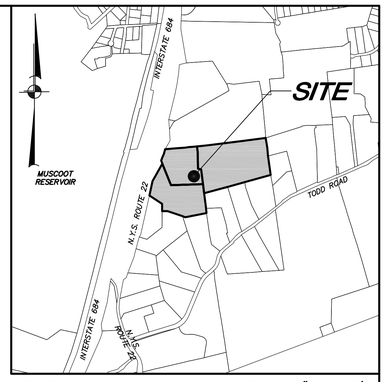
Please contact HES at (914) 276-2560 if you have any questions regarding this matter.




OVERALL PLAN
SCALE: 1" = 100'

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL




LOCATION MAP
SCALE: 1" = 1,000'±

## OWNER:

Property Group Partners, LLC
Attn: Jeffrey Sussman, President
609 Fifth Avenue, 6th Floor
New York, NY 10017

## APPLICANT:

Wilder Balter Partners, Inc.
480 North Bedford Road
Building 300, 1st Floor, West Wing
Chappaqua, NY 10514

## SITE DATA:

Zone: CC-20 (Campus Commercial) / R-4A
Total Acreage 35.43 AC. ±
Tax Map No.: Sheet 5, Block 10766, Lots 19, 20 & 21
Proposed Use: Multi-family Dwellings

## R-MF ZONING REQUIREMENTS (CC-20 District): *

* Multifamily dwellings are a permitted use in CC-20 District, subject to the requirements of Section 220-26 R-MF Multifamily Residence District.

| | Required: | Provided: |
|---|---|---|
| Minimum Permitted Gross Lot Area | 5 acres | 35.4 ac.± |
| Minimum Lot Width | 250' | 800'± |
| Minimum Yard | | |
| Front (from street center line) | 75' | 211' ± |
| Front (from front lot line) | 50' | 86' ± |
| Side | 40' | 43' ± |
| Side (2X 50' along R4A Zone) | 100' ** | 277' ± |
| Rear (2X 50' along R4A Zone) | 100' ** | 1,039' ± |
| Maximum Height | 3 stories or 35' | To be determined |
| Maximum Building Coverage | 12% | Less than 2% |

## DEVELOPMENT DENSITY – DENSITY UNIT CALCULATIONS

OVERALL SITE PERMITTED DENSITY:
Permitted Density Units (2.0 Density Units per Net Lot Area):
Net Lot Area (per Net Lot Area Calculations on Dwg CM-1) = 15.59 Acres x 2.0 Density Units

Total Permitted Density Units for Overall Site: = 31.1 * Density Units

* Before any increase (up to 50%) in Density Units which may be authorized by the PB if applicant constructs at least ½ of additional Density Units as AFFH Units.

Proposed Density Units for Overall Site:

| | | | | |
|---|---|---|---|---|
| 1 bedroom dwelling units | 10 / 2.5 density units | = | 4 | Density Units |
| 2 bedroom dwelling units | 22 / 2.0 density units | = | 11 | Density Units |
| 3 bedroom dwelling units | 10 / 1.5 density units | = | 6.7 | Density Units |
| Total Proposed Density Units | | = | 21.7 | Density Units |

DENSITY TRANSITION AREA:
Permitted Density Units within Density Transition Area (1.0 Density Units per Net Lot Area):
Net Lot Area (per Net Lot Area Calculations Plan) = 5.05 Acres x 1.0 Density Units

Permitted Density Units = 5.0 * Density Units

Total Proposed Density Units for Density Transition Area: = 0 Density Units

## PARKING REQUIREMENTS:

Required –
2 parking spaces per Dwelling Unit (DU) 42 DU x 2.0 = 84 spaces
plus 1 space for each unit with 2 bdrms or more 32 DU x 1.0 = 32 spaces

Total Parking Spaces Required: 116 spaces

Total Parking Spaces Provided: 116 spaces

## RECREATION REQUIREMENTS:

Required –
300 s.f. per Density Unit
21.7 Density Unit x 300 s.f./Density Unit = 6,510 s.f. Recreation Area

Total Recreation Area Required: 6,510 s.f.

Provided –
The following common recreation facilities proposed at the site serve to meet this requirement:

- Clubhouse: 2,496 s.f.±
- Play area: 1,400 s.f.±
- Multi-use sport court & perimeter: 3,000 s.f.±
- Walking trails: Area to be determined

Total Recreation Area Provided: 6,896 s.f.

## WETLAND NOTE:

The NYSDEC Freshwater Wetland Boundary (as shown on this drawing) and validation block (shown below) is as shown on Drawing WV-1 "NYSDEC Wetland Validation Map", prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., dated April 22, 2016.

## GENERAL NOTES:

1. Property lines as shown hereon are based on a Survey of Property prepared by Bunney Associates Land Surveyors, last revised October 31, 1984.
2. Topography as shown hereon is based on aerial photography dated April 2008, as prepared by Geomaps International. Contour interval is 2'.
3. The wetland flagging as shown hereon was delineated by Steve Marino on November 16, 2015 and survey located by Insite Engineering, Surveying & Landscape Architecture PC, completed November 25, 2015.
4. Approximate location of expanded Town Regulated Wetland area as shown hereon based on sketch provided by Town Wetland Consultant, Kellard Sessions, January 2016.
5. Project proposes merger of (3) tax parcels.
6. There are no FEMA 100-year flood plains on the subject property.
7. SSTS Areas, once established, shall be designated as "Limited Mow Areas" and shall not be mowed more than twice per year. Meadow areas and "Buffer Enhancement Areas", once established, are not intended to be mowed. Stormwater Basins are intended to be maintained in accordance with the project SWPPP and the Permanent Stormwater Facilities Maintenance Schedule on Drawing D-6.

## FIRE PROTECTION NOTES:

1. The proposed buildings shall include fire sprinkler systems meeting the requirements of NFPA-13R, including decks and the center hall stairwells.
2. The proposed buildings will include central station monitored fire alarm systems with smoke and carbon monoxide detectors, including heat detectors in unfinished, non-habitable attic spaces.
3. Buildings shall include a Knox Box Rapid Entry System in locations coordinated with the Fire Department.
4. Truss construction placards shall be provided on all buildings in locations coordinated with the Fire Department.
5. All buildings will provide fire connections at locations to be coordinated with the fire department.
6. Oversized vehicles (length greater than 18') shall not be permitted to be parked on the site other than in those parking spaces specifically labeled as "Oversized Vehicle Parking Permitted."

GRAPHIC SCALE
100 0 50 100 200
( IN FEET )
1 inch = 100 ft.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 15 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 14 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 13 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 12 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 11 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 10 | 11-17-17 | REVISED PER NYCDEP COMMENTS | EJP |
| 9 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 8 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 7 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 6 | 6-1-17 | PLANNING BOARD SUBMISSION | SJC |
| 5 | 4-27-17 | PLANNING BOARD SUBMISSION | CTQ |
| 4 | 3-31-16 | REVISED PER TOWN COMMENTS | MEU |
| 3 | 2-4-16 | REVISED PER TOWN COMMENTS | MEU |
| 2 | 1-6-16 | GENERAL REVISIONS | MEU |
| 1 | 12-14-15 | GENERAL REVISIONS | DLM |

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-8690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
OVERALL SITE PLAN

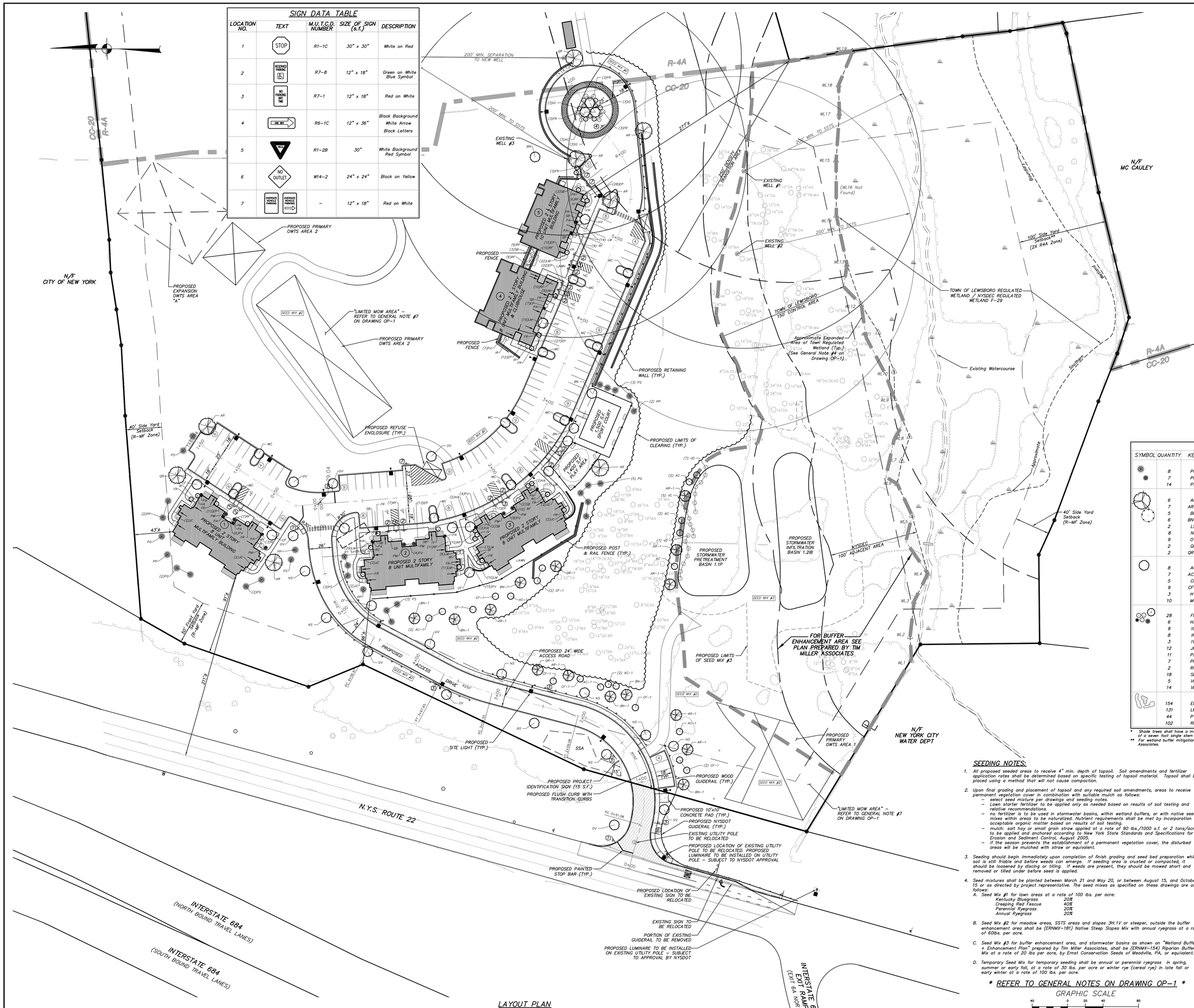
| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET 1 / 18 |
| DATE | 10-20-15 | DRAWN BY | S.J.C. | OP-1 | |
| SCALE | 1" = 100' | CHECKED BY | D.L.M. | | |



Z:\S\15246\100\ CAD\ dwg, 9/20/2018 1:07:30 PM, mvillar, 1:1

## SIGN DATA TABLE

| LOCATION NO. | TEXT | M.U.T.C.D. NUMBER | SIZE OF SIGN (s.f.) | DESCRIPTION |
|---|---|---|---|---|
| 1 | STOP | R1-1C | 30" x 30" | White on Red |
| 2 | RESERVED PARKING | R7-8 | 12" x 18" | Green on White Blue Symbol |
| 3 | NO PARKING ANY TIME | R7-1 | 12" x 18" | Red on White |
| 4 | ONE WAY | R6-1C | 12" x 36" | Black Background White Arrow Black Letters |
| 5 | YIELD | R1-2B | 30" | White Background Red Symbol |
| 6 | NO OUTLET | W14-2 | 24" x 24" | Black on Yellow |
| 7 | OVERSIZE VEHICLE PARKING / OVERSIZE VEHICLE PARKING | – | 12" x 18" | Red on White |




LAYOUT PLAN
SCALE: 1" = 40'

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING TREELINE
- EXISTING BRUSHLINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED POST & RAIL FENCE
- PROPOSED SITE LIGHTING
- PROPOSED TRAFFIC SIGN
- PROPOSED LANDSCAPING

## PLANTING NOTES:

1. All proposed planting beds to receive a 12" min. depth of topsoil. Soil amendments and fertilizer application rates shall be determined based on specific testing of topsoil material.
2. Any new soils added will be amended as required by results of soil testing and placed using a method that will not cause compaction.
3. No fertilizer shall be added in stormwater basin plantings. Nutrient requirements to be met by incorporation of acceptable organic matter.
4. All plant material to be nursery grown.
5. Plants shall conform with ANSI Z60.1 American Standard for Nursery Stock in all ways including dimensions.
6. Plant material shall be taken from healthy nursery stock.
7. All plants shall be grown under climate conditions similar to those in the locality of the project.
8. Plants shall be planted in all locations designed on the plan or as staked in the field by the Landscape Architect.
9. The location and layout of landscape plants shown on the site plan shall take precedence in any discrepancies between the quantities of plants shown on the plans and the quantity of plants in the Plant List.
10. Provide a 3" layer of shredded bark mulch (or as specified) over entire watering saucer at all tree pits or over entire planting bed. Do not place mulch within 3" of tree or shrub trunks.
11. All landscape plantings shall be maintained in a healthy condition at all times. Any dead or diseased plants shall immediately be replaced "in kind" by the contractor (during warranty period) or project owner.
12. The plantings included are primarily native plants and drought tolerant, such that a permanent irrigation system will not be required. Temporary irrigation will be required during the first few months after initial planting. Any such irrigation shall be performed by the owner's landscape contractor utilizing water secured from an offsite water supply service, and not utilizing water from the project's water supply system.

## PLANT LIST **

| SYMBOL | QUANTITY | KEY | BOTANICAL/COMMON NAME | SIZE | ROOT |
|---|---|---|---|---|---|
| | | | EVERGREEN TREES | | |
| | 8 | PG | Picea glauca / White Spruce | 6' – 7' HT. | B & B |
| | 7 | PP | Picea pungens glauca / Colorado Blue Spruce | 6' – 7' HT. | B & B |
| | 14 | PS | Pinus strobus / Eastern White Pine | 7' – 8' HT. | B & B |
| | | | SHADE TREES | | |
| | 6 | AR | Acer rubrum 'October Glory' / October Glory Red Maple | 3" CAL. * | B & B |
| | 7 | AR-1 | Acer rubrum 'October Glory' / October Glory Red Maple | 5' – 6' HT. | #7 CONT. |
| | 5 | BN | Betula nigra / River Birch | 10' – 12' HT. | B & B |
| | 6 | BN-1 | Betula nigra / River Birch | 5' – 6' HT. | #7 CONT. |
| | 2 | LS | Liquidambar styraciflua / Sweetgum | 3" CAL. * | B & B |
| | 8 | NS | Nyssa sylvatica / Black Tupelo | 3" CAL. * | B & B |
| | 9 | OV | Ostrya virginiana / American Hophornbeam | 3" CAL. * | B & B |
| | 2 | QR | Quercus rubra / Northern Red Oak | 3" CAL. * | B & B |
| | 2 | QR-1 | Quercus rubra / Northern Red Oak | 6' – 8' HT. | #10 CONT. |
| | | | FLOWERING/SPECIMEN TREES | | |
| | 8 | AC | Amelanchier canadensis / Shadblow Serviceberry | 10' – 12' HT. | B & B |
| | 7 | AC-1 | Amelanchier canadensis / Shadblow Serviceberry | 4' – 5' HT. | #7 CONT. |
| | 5 | CF | Cornus florida / White Flowering Dogwood | 2" CAL. * | B & B |
| | 9 | CF-1 | Cornus florida / White Flowering Dogwood | 5' – 6' HT. | #7 CONT. |
| | 3 | HV | Hamamelis virginiana / Witchhazel | 5' – 6' HT. | B & B |
| | 10 | MC | Malus 'Centurion' / Centurion Crabapple | 2" CAL. | B & B |
| | | | SHRUBS | | |
| | 28 | FR | Rosa 'The Fairy' / Fairy Rose | 15"–18" HT. | #2 CONT. |
| | 6 | HA | Hydrangea arborescens / Smooth Hydrangea | 15–18" SPR. | #2 CONT. |
| | 9 | IG | Ilex glabra / Inkberry | 18"–24" HT. | #3 CONT. |
| | 8 | IR | Itea virginica 'Henry's Garnet' / Sweetspire | 15"–18" SPR. | #2 CONT. |
| | 3 | IV | Ilex verticillata / Winterberry | 2' – 3' HT. | #5 CONT. |
| | 12 | JC | Juniperus conferta 'Silver Mist' / Silver Mist Shore Juniper | 10" – 12" SPR. | #2 CONT. |
| | 11 | PA | Picea glauca 'conica' / Dwarf Alberta Spruce | 3' HT. | #5 CONT. |
| | 7 | PM | Pinus mugo var. pumilio / Dwarf Mugo Pine | 2' SPR. | #2 CONT. |
| | 2 | RC | Rhododendron catawbiense / Catawba Rhododendron | 24"–30" HT. | #5 CONT. |
| | 18 | SB | Spiraea japonica 'Crispa' / Crispa Japanese Spirea | 15"–18" HT. | #2 CONT. |
| | 5 | VC | Vaccinium corymbosum / Highbush Blueberry | 15"–18" HT. | #2 CONT. |
| | 14 | VD | Viburnum dentatum / Arrowwood viburnum | 15"–18" HT. | #2 CONT. |
| | | | PERENNIALS | | SPACING |
| | 154 | EP | Echinacea purpurea 'White Swan' / White Coneflower | #1 CONT. | 18" O.C. |
| | 131 | LM | Liriope muscari 'Variegata' / Variegated Lilyturf | #1 CONT. | 18" O.C. |
| | 44 | PV | Panicum virgatum 'Shenandoah' / Red Switchgrass | #1 CONT. | 24" O.C. |
| | 102 | RF | Rudbeckia fulgida 'Goldsturm' / Blackeyed Susan | #1 CONT. | 24" O.C. |

* Shade trees shall have a minimum trunk diameter of 3" measured at a height of six inches above finished ground level with a minimum of a seven foot single stem to the first branches above ground level.
** For wetland buffer mitigation/enhancement plantings, refer to the "Wetland Buffer + Enhancement Plan" prepared by Tim Miller Associates.

## SEEDING NOTES:

1. All proposed seeded areas to receive 4" min. depth of topsoil. Soil amendments and fertilizer application rates shall be determined based on specific testing of topsoil material. Topsoil shall be placed using a method that will not cause compaction.
2. Upon final grading and placement of topsoil and any required soil amendments, areas to receive permanent vegetation cover in combination with suitable mulch as follows:
   - select seed mixture per drawings and seeding notes.
   - Lawn starter fertilizer to be applied only as needed based on results of soil testing and relative recommendations.
   - no fertilizer is to be used in stormwater basins, within wetland buffers, or with native seed mixes within areas to be naturalized. Nutrient requirements shall be met by incorporation of acceptable organic matter based on results of soil testing.
   - mulch: salt hay or small grain straw applied at a rate of 90 lbs./1000 s.f. or 2 tons/acre, to be applied and anchored according to New York State Standards and Specifications for Erosion and Sediment Control, August 2005.
   - if the season prevents the establishment of a permanent vegetation cover, the disturbed areas will be mulched with straw or equivalent.
3. Seeding should begin immediately upon completion of finish grading and seed bed preparation while soil is still friable and before weeds can emerge. If seeding area is crusted or compacted, it should be loosened by discing or tilling. If weeds are present, they should be mowed short and removed or tilled under before seed is applied.
4. Seed mixtures shall be planted between March 21 and May 20, or between August 15, and October 15 or as directed by project representative. The seed mixes as specified on these drawings are as follows:
   A. Seed Mix #1 for lawn areas at a rate of 100 lbs. per acre:

| | |
|---|---|
| Kentucky Bluegrass | 20% |
| Creeping Red Fescue | 40% |
| Perennial Ryegrass | 20% |
| Annual Ryegrass | 20% |

   B. Seed Mix #2 for meadow areas, SSTS areas and slopes 3H:1V or steeper, outside the buffer enhancement area shall be (ERNMX-181) Native Steep Slopes Mix with annual ryegrass at a rate of 60lbs. per acre.
   C. Seed Mix #3 for buffer enhancement area, and stormwater basins as shown on "Wetland Buffer + Enhancement Plan" prepared by Tim Miller Associates, shall be (ERNMX-154) Riparian Buffer Mix at a rate of 20 lbs per acre, by Ernst Conservation Seeds of Meadville, PA, or equivalent.
   D. Temporary Seed Mix for temporary seeding shall be annual or perennial ryegrass in spring, summer or early fall, at a rate of 30 lbs. per acre or winter rye (cereal rye) in late fall or early winter at a rate of 100 lbs. per acre.

*** REFER TO GENERAL NOTES ON DRAWING OP-1 ***

GRAPHIC SCALE
40 0 20 40 80
( IN FEET )
1 inch = 40 ft.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 15 | 9–27–18 | REVISED PER TOWN COMMENTS | BD |
| 14 | 8–23–18 | PLANNING BOARD SUBMISSION | JFR |
| 13 | 8–2–18 | REVISED PER TOWN COMMENTS | JJR |
| 12 | 6–28–18 | REVISED PER TOWN COMMENTS | MEU |
| 11 | 3–8–18 | REVISED PER NYSDOT COMMENTS | DLM |
| 10 | 11–17–17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 9 | 9–01–17 | REVISED PER TOWN COMMENTS | ZMP |
| 8 | 7–27–17 | REVISED PER TOWN COMMENTS | EIG |
| 7 | 6–29–17 | REVISED PER TOWN COMMENTS | SJC |
| 6 | 6–1–17 | PLANNING BOARD SUBMISSION | SJC |
| 5 | 4–27–17 | PLANNING BOARD SUBMISSION | CTQ |
| 4 | 3–31–16 | REVISED PER TOWN COMMENTS | MEU |
| 3 | 2–4–16 | REVISED PER TOWN COMMENTS | MEU |
| 2 | 1–6–16 | GENERAL REVISIONS | MEU |
| 1 | 12–14–15 | GENERAL REVISIONS | DLM |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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
LAYOUT & LANDSCAPE PLAN

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET 2 / 18 |
| DATE | 10–20–15 | DRAWN BY | S.J.C. | SP–1 | |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |



Z:\15246\SDP\02 SP-1.dwg, 10/20/2015 2:24:25 PM, bdermody, 1:1

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- 290 PROPOSED 10' CONTOUR
- 292 PROPOSED 2' CONTOUR
- + 280.9 PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- RD PROPOSED ROOF DRAIN
- FD PROPOSED FOOTING DRAIN
- PROPOSED GRASS SWALE
- WM PROPOSED 8"ø PVC DR-18 WATER MAIN
- WS PROPOSED 4"ø PVC DR-18 WATER SERVICE
- TSL PROPOSED 4"ø PVC DR-18 TANK SUPPLY LINE
- WSL PROPOSED 1.5"ø PE WELL SERVICE LINE
- PROPOSED SEWER MAIN
- SS CO PROPOSED SEWER SERVICE WITH CLEANOUT
- FM PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (PRIMARY)
- FM(E) PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (EXPANSION)
- CET PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH
- TX PROPOSED TRANSFORMER
- PROPOSED UNDERGROUND PROPANE TANK
- G PROPOSED GENERATOR
- CS PROPOSED CURB STOP
- GV PROPOSED GATE VALVE
- FH PROPOSED FLUSHING HYDRANT WITH GATE VALVE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE

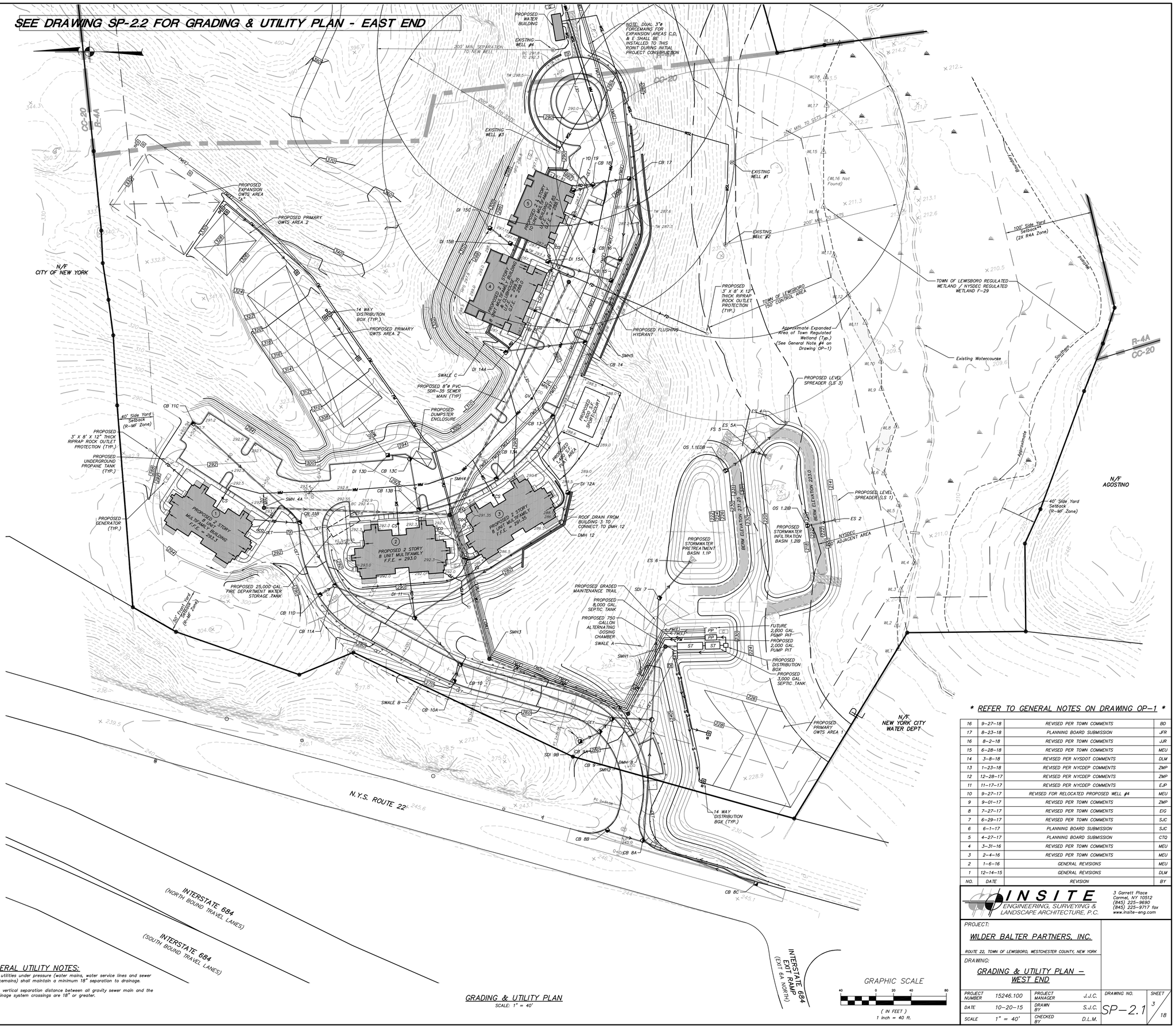
## DRAINAGE TABLE

| STRUCTURE | RIM | INV. | PIPE SIZE | LENGTH | SLOPE |
|---|---|---|---|---|---|
| OS 1.2 IB | 222.5 | 216.0 | 15" | 32 L.F. | 6.3% |
| ES 2 | – | 214.0 | | | |
| OS 1.1 EDB | 230.3 | 221.5 | | | |
| FS 5 | 226.0 | INV IN 221.1 / INV OUT 221.5 | 36" | 37 L.F. | 1.1% |
| ES 4 | – | 218.0 | 36" | 50 L.F. | 7.0% |
| FS 5 | 226.0 | 221.1 | | | |
| ES 5A | – | 220.0 | 4" | 15 L.F. | 7.3% |
| YD 19 | 287.3 | 284.0 | | | |
| CB 18 | 288.7 | 283.7 | 15" | 23 L.F. | 1.3% |
| CB 17 | 288.1 | 283.2 | 15" | 42 L.F. | 1.2% |
| CB 16 | 286.6 | 282.2 | 15" | 92 L.F. | 1.1% |
| CB 15 | 286.0 | 281.9 | 15" | 27 L.F. | 1.1% |
| CB 14 | 287.4 | 281.1 | 18" | 76 L.F. | 1.1% |
| CB 13 | 289.3 | 280.1 | 18" | 92 L.F. | 1.1% |
| DI 12A | 288.9 | 279.2 | 24" | 88 L.F. | 1.0% |
| DMH 12 | 286.1 | 278.8 | 24" | 34 L.F. | 1.2% |
| DI 11 | 277.6 | 272.7 | 24" | 200 L.F. | 3.1% |
| CB 10 | 269.5 | 265.3 | 24" | 75 L.F. | 9.9% |
| CB 9 | 251.5 | 247.3 | 24" | 182 L.F. | 9.9% |
| DMH 8 | 246.9 | INV IN 242.8 / INV OUT 235.7 | 24" | 45 L.F. | 9.8% |
| SDI 7 | 231.8 | 227.4 | 30" | 138 L.F. | 6.0% |
| ES 6 | – | 222.0 | 30" | 52 L.F. | 10.4% |
| DI 14A | 287.8 | 284.5 | | | |
| CB 14 | 287.4 | INV IN 283.5 / INV OUT 281.1 | 15" | 92 L.F. | 1.1% |
| DI 13D | 292.3 | 289.0 | | | |
| CB 13C | 291.5 | 288.2 | 15" | 26 L.F. | 3.1% |
| CB 13B | 291.6 | 287.6 | 15" | 58 L.F. | 1.0% |
| CB 13A | 290.5 | 286.6 | 15" | 95 L.F. | 1.1% |
| CB 13 | 289.3 | INV IN 285.6 / INV OUT 280.1 | 18" | 96 L.F. | 1.1% |
| CB 11C | 290.7 | 287.4 | | | |
| CB 11B | 292.4 | 284.9 | 15" | 166 L.F. | 1.5% |
| CB 11A | 287.3 | 283.8 | 15" | 83 L.F. | 1.3% |
| DI 11 | 277.6 | 272.7 | 15" | 97 L.F. | 11.4% |
| CB 11D | 287.3 | 284.0 | | | |
| CB 11A | 287.3 | 283.8 | 15" | 20 L.F. | 1.1% |
| CB 10A | 269.5 | 266.2 | | | |
| CB 10 | 269.5 | 265.3 | 15" | 20 L.F. | 4.5% |
| SDI 9B | 251.8 | 248.5 | | | |
| CB 9A | 251.5 | 248.2 | 15" | 25 L.F. | 1.2% |
| CB 9 | 251.5 | 247.3 | 15" | 20 L.F. | 4.5% |
| CB 8B | 245.0 | 240.0 | | | |
| CB 8A | 245.0 | 239.0 | 15" | 42 L.F. | 2.4% |
| DMH 8 | 246.9 | INV IN 237.5 / INV OUT 235.7 | 15" | 137 L.F. | 1.1% |
| CB 8C | 243.9 | 240.6 | | | |
| CB 8A | 245.0 | 239.0 | 15" | 138 L.F. | 1.2% |
| DI 15C | 295.8 | 292.2 | | | |
| DI 15B | 297.0 | 284.3 | 15" | 31 L.F. | 25.7% |
| DI 15A | 287.1 | 283.8 | 15" | 47 L.F. | 1.1% |
| CB 15 | 286.0 | INV IN 282.7 / INV OUT 281.9 | 15" | 75 L.F. | 1.5% |

## SEWER MAIN TABLE

| STRUCTURE | RIM | INV. | PIPE SIZE | LENGTH | SLOPE |
|---|---|---|---|---|---|
| SMH 4A | 292.9 | 288.3 | | | |
| SMH 4 | 292.2 | INV IN 286.2 / INV OUT 278.8 | 8" | 211 L.F. | 1.0% |
| SMH 5 | 286.6 | 281.9 | | | |
| SMH 4 | 292.2 | INV IN 278.9 / INV OUT 278.8 | 8" | 297 L.F. | 1.0% |
| SMH 3 | 266.9 | INV IN 261.5 / INV OUT 261.4 | 8" | 170 L.F. | 10.2% |
| SMH 2 | 248.6 | INV IN 242.2 / INV OUT 242.2 | 8" | 169 L.F. | 11.3% |
| SMH 1 | 236.8 | INV IN 233.5 / INV OUT 233.4 | 8" | 87 L.F. | 10.0% |

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.




## GENERAL UTILITY NOTES:

1. All utilities under pressure (water mains, water service lines and sewer forcemains) shall maintain a minimum 18" separation to drainage.
2. The vertical separation distance between all gravity sewer main and the drainage system crossings are 18" or greater.

GRADING & UTILITY PLAN
SCALE: 1" = 40'

GRAPHIC SCALE
40 0 20 40 80
( IN FEET )
1 inch = 40 ft.

* REFER TO GENERAL NOTES ON DRAWING OP-1 *

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 16 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 17 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 16 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 15 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 14 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 13 | 1-23-18 | REVISED PER NYCDEP COMMENTS | ZMP |
| 12 | 12-28-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 11 | 11-17-17 | REVISED PER NYCDEP COMMENTS | EJP |
| 10 | 9-27-17 | REVISED FOR RELOCATED PROPOSED WELL #4 | MEU |
| 9 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 8 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 7 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 6 | 6-1-17 | PLANNING BOARD SUBMISSION | SJC |
| 5 | 4-27-17 | PLANNING BOARD SUBMISSION | CTQ |
| 4 | 3-31-16 | REVISED PER TOWN COMMENTS | MEU |
| 3 | 2-4-16 | REVISED PER TOWN COMMENTS | MEU |
| 2 | 1-6-16 | GENERAL REVISIONS | MEU |
| 1 | 12-14-15 | GENERAL REVISIONS | DLM |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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
GRADING & UTILITY PLAN – WEST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. SP-2.1 | SHEET 3 / 18 |
| DATE | 10-20-15 | DRAWN BY | S.J.C. | | |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |

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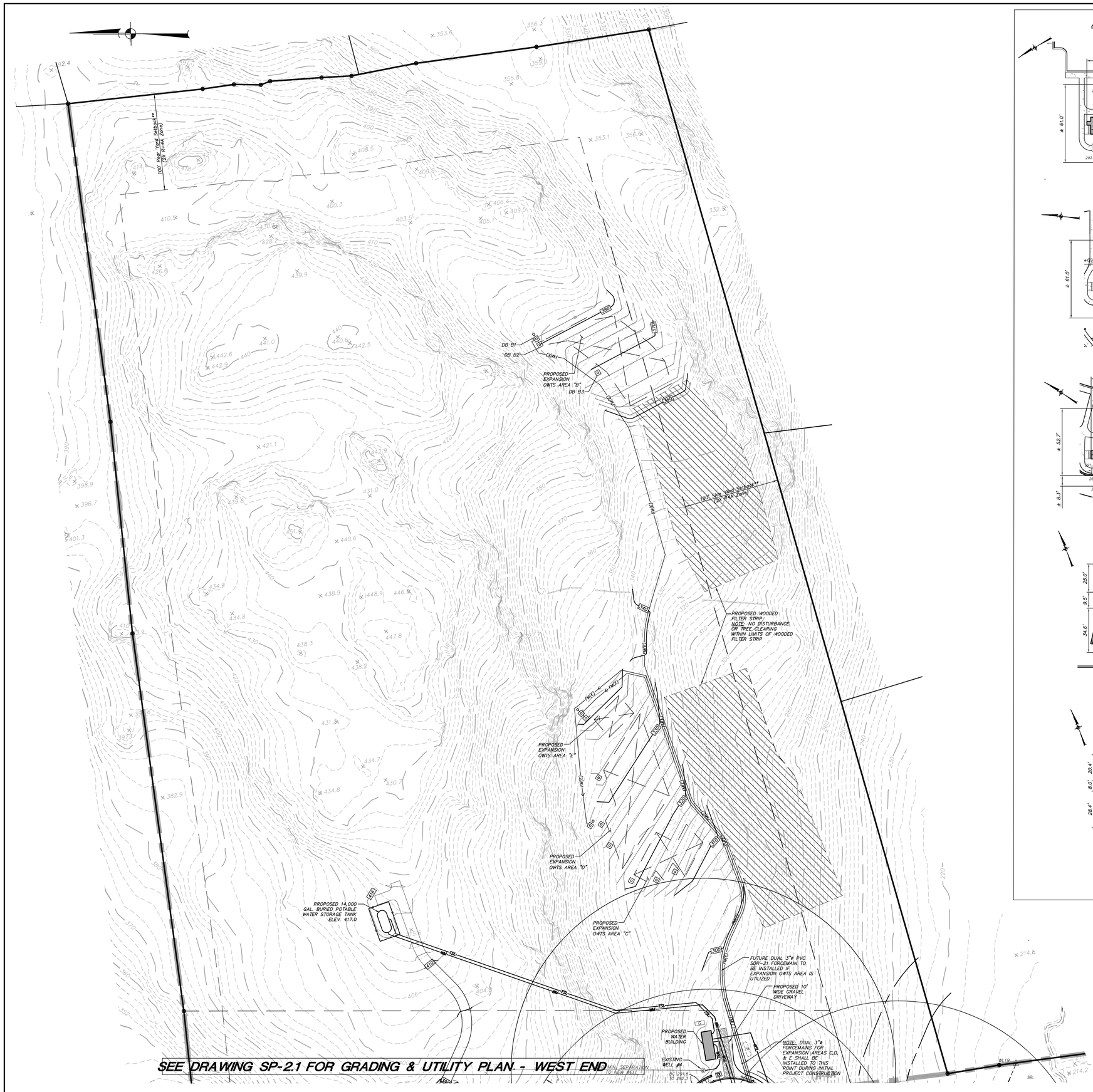
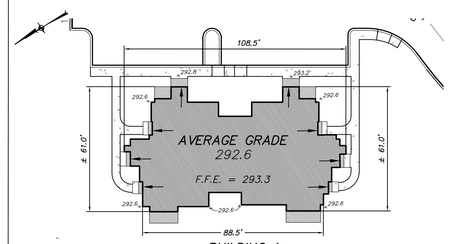
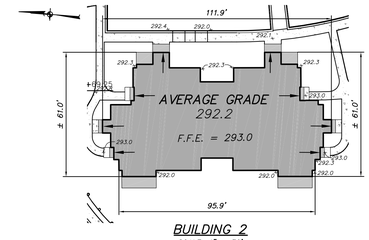



GRADING & UTILITY PLAN – EAST END
SCALE: 1" = 40'

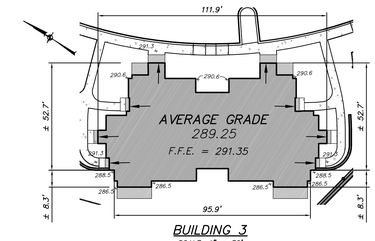
## AVERAGE GRADES PER BUILDING



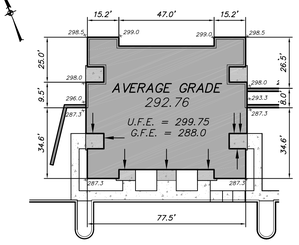

BUILDING 1
SCALE: 1" = 30'



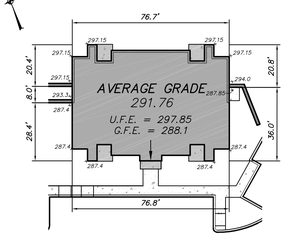

BUILDING 2
SCALE: 1" = 30'




BUILDING 3
SCALE: 1" = 30'




BUILDING 4
SCALE: 1" = 30'




BUILDING 5
SCALE: 1" = 30'

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- PROPOSED ROOF DRAIN
- PROPOSED FOOTING DRAIN
- PROPOSED GRASS SWALE
- PROPOSED 8"ø PVC DR-18 WATER MAIN
- PROPOSED 4"ø PVC DR-18 WATER SERVICE
- PROPOSED 4"ø PVC DR-18 TANK SUPPLY LINE
- PROPOSED 1.5"ø PE WELL SERVICE LINE
- PROPOSED SEWER MAIN
- PROPOSED SEWER SERVICE WITH CLEANOUT
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (PRIMARY)
- PROPOSED 2"ø PVC SDR 21 SEWER FORCEMAIN (EXPANSION)
- PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH
- PROPOSED TRANSFORMER
- PROPOSED UNDERGROUND PROPANE TANK
- PROPOSED GENERATOR
- PROPOSED CURB STOP
- PROPOSED GATE VALVE
- PROPOSED FLUSHING HYDRANT WITH GATE VALVE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE

* REFER TO GENERAL NOTES ON DRAWING OP-1 *

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 7 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 6 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 5 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 4 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 3 | 11-17-17 | REVISED PER NYCDEP COMMENTS | EJP |
| 2 | 9-27-17 | REVISED FOR RELOCATED PROPOSED WELL #4 | MEU |
| 1 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
GRADING & UTILITY PLAN – EAST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 7-27-17 | DRAWN BY | S.J.C. | SP-2.2 | 4 / 18 |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |

GRAPHIC SCALE
40 0 20 40 80
( IN FEET )
1 inch = 40 ft.



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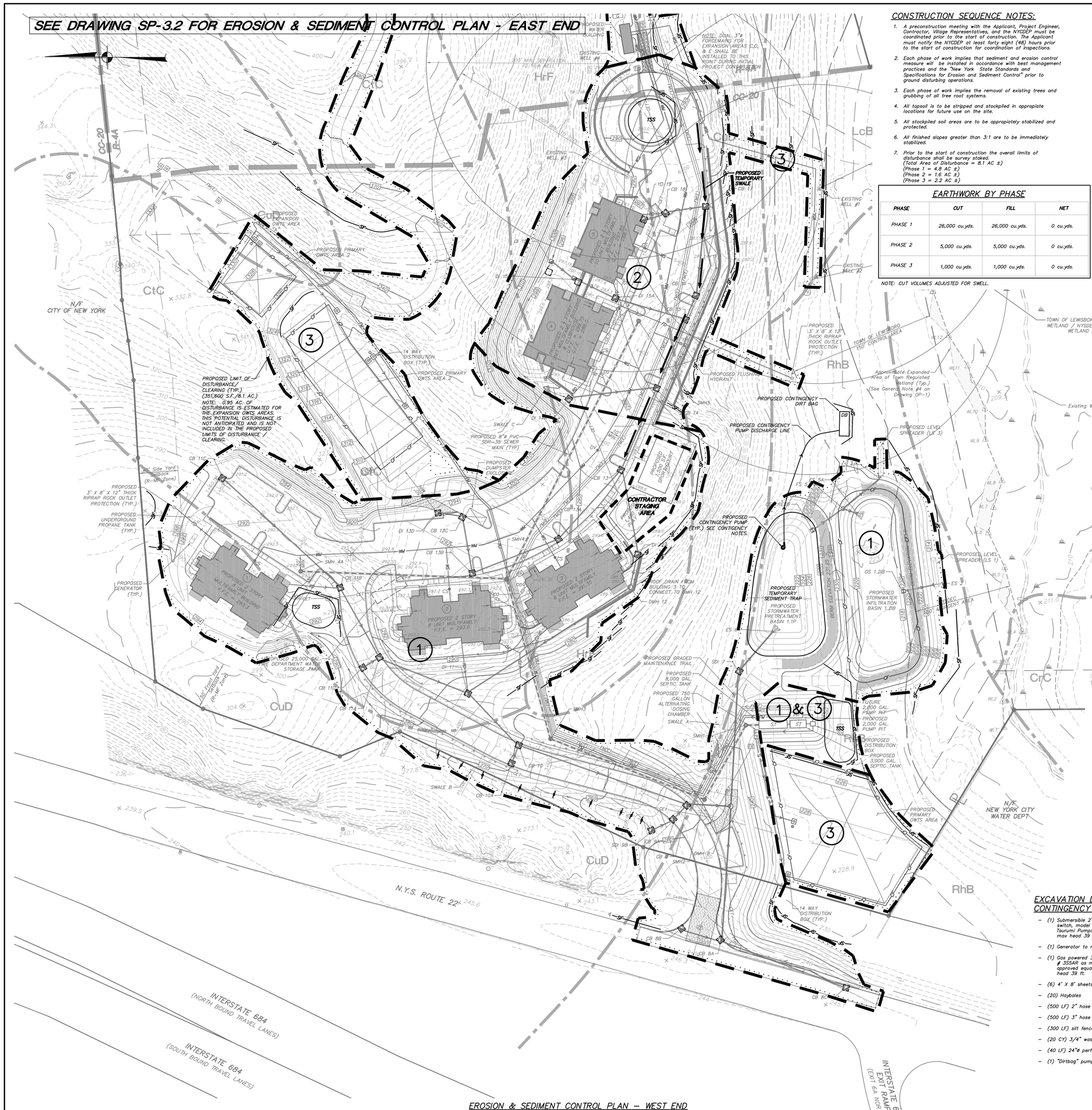
SEE DRAWING SP-3.2 FOR EROSION & SEDIMENT CONTROL PLAN - EAST END




EROSION & SEDIMENT CONTROL PLAN – WEST END

SCALE: 1" = 40'

## CONSTRUCTION SEQUENCE NOTES:

1. A preconstruction meeting with the Applicant, Project Engineer, Contractor, Village Representatives, and the NYCDEP must be coordinated prior to the start of construction. The Applicant must notify the NYCDEP at least forty eight (48) hours prior to the start of construction for coordination of inspections.
2. Each phase of work implies that sediment and erosion control measure will be installed in accordance with best management practices and the "New York State Standards and Specifications for Erosion and Sediment Control" prior to ground disturbing operations.
3. Each phase of work implies the removal of existing trees and grubbing of all tree root systems.
4. All topsoil is to be stripped and stockpiled in appropiate locations for future use on the site.
5. All stockpiled soil areas are to be appropiately stabilized and protected.
6. All finished slopes greater than 3:1 are to be immediately stabilized.
7. Prior to the start of construction the overall limits of disturbance shall be survey staked.
   (Total Area of Disturbance = 8.1 AC ±)
   (Phase 1 = 4.8 AC ±)
   (Phase 2 = 1.6 AC ±)
   (Phase 3 = 2.2 AC ±)

## EARTHWORK BY PHASE

| PHASE | CUT | FILL | NET |
|---|---|---|---|
| PHASE 1 | 26,000 cu.yds. | 26,000 cu.yds. | 0 cu.yds. |
| PHASE 2 | 5,000 cu.yds. | 5,000 cu.yds. | 0 cu.yds. |
| PHASE 3 | 1,000 cu.yds. | 1,000 cu.yds. | 0 cu.yds. |

NOTE: CUT VOLUMES ADJUSTED FOR SWELL.

## CONSTRUCTION SEQUENCE:

PHASE 1 (4.8 AC ± Disturbance)

1. Prior to the commencement of construction activity the contractor shall schedule a pre-construction meeting onsite with the design engineer and representatives of the NYSDOT, NYCDEP and Town of Lewisboro.
2. Install the section of silt fence downslope of the location of the proposed temporary construction entrance, and contact the Town Wetland Inspector for inspection prior to any ground disturbing activities.
3. Cut trees, place fill, and install stabilized construction entrance with temporary culvert crossing and anti-tracking pad to establish the temporary construction entrance for the site in the general location as shown on the plans.
4. Clear trees within the proposed project limits of disturbance area without removing the stumps.
5. Install remaining silt fence, orange construction fence, and inlet protection in the general locations shown on the plan, and contact the Town Wetland Inspector for inspection prior to further ground disturbance activities.
6. Strip topsoil and stockpile in locations shown on the Erosion and Sediment Control Plan.
7. Establish contractor staging area in location shown on plan. Staging area to remain throughout all phases of construction.
8. Install Level Spreader LS1 & LS3.
9. Begin earthwork activities for installation of Stormwater Basins 1.1P and 1.2IB, including associated drainage structures, ES 2, ES 4, ES 5A, OS 1.2IB, OS 1.1P, and FS 5.
10. Construct Basin 1.1P to subgrade. Install outlet structure and associated piping and temporarily stabilize for use as a temporary sediment trap during construction. Temporarily close the flow splitter outlet, keeping all from the flow away from Infiltration Basin 1.2IB and make sure it remains off-line for the duration of construction.
11. Construct Basin 1.2IB and permanently stabilize, and install associated drainage structures and piping. Once Basin 1.2IB has been constructed, install construction fence surrounding basin as shown on the plan to provide protection of infiltration area to remain in place until end of construction, then removed.

    Note: Infiltration Basin 1.2IB, the level spreader and the flow splitter shall not be placed online until all contributing drainage areas have been permanently stabilized.
12. Temporary Sediment Trap 1.1P and Basin 1.2IB must be installed and stabilized prior to earthwork activities commencing for Phase 2.
13. Upon completion of temporary sediment trap, begin earthwork operations within the limits of the phase including the access road and building pad areas for Buildings 1, 2 & 3.
14. During road and parking construction install drainage structures ES 6, SDI 7, DMH 8,CB 8A, CB 8B, CB 8C, CB 9, CB 9A, SDI 9B, CB 10, CB 10A, CB 11A, CB 11B, CB 11C, CB 11D, DI 11, DMH 12, CB 13, CB 13A, CB 13B, CB 13C, and DI 13D.
15. Upon completion of mass earthwork operations, begin building construction.
16. Install proposed water and sewer utilities within the limits of the phase. Ending sewer utility at last MH (SMH4) & water utility at last Gate Valve (between building 3 and 4) in phase.
17. Install concrete curbing and finished parking and access drive parking area surfaces for asphalt pavement installation.
18. Once the site has achieved temporary stabilization within the phase, move on to the next phased of work. Silt fence and stabilized construction entrance to remain for protection in future phases.

PHASE 2 (1.6 AC ± Disturbance):

1. Install temporary erosion and sediment control measures in general locations as shown on the plans prior to any ground disturbance activities.
2. Strip topsoil and stockpile for later use in lawn/landscape areas.
3. Grub the limits of Phase 2 and begin earthwork activities within the limits of the phase.
4. Install temporary swales to direct runoff from disturbed areas to the upstream most drainage stucture that discharges to the temprorary sediment trap. As fill is being placed the top of the slope shall be back pitched away from the slope and directed towards the temporary sediment trap for treatment.
5. Begin earthwork operations within the limits of the phase including the continued construction of the access road and building pad areas for Buildings 4 & 5.
6. During continued road and parking construction install drainage structures CB 14, DI 14A, CB 15, DI 15A, DI 15B, DI 15C, CB 16, CB 17 and CB 18.
7. Upon completion of mass earthwork operations, begin building construction.
8. Install proposed water and sewer utilities within the limits of the phase. Ending sewer utility at last MH (SMH5) & water utility at end of Cul-De-Sac with a temporary cap, in phase.
9. Install concrete curbing and finished parking and access drive parking area surfaces for asphalt pavement installation.
10. Once the site has achieved temporary stabilization within the phase, move on to the next phased of work and remove all temporary erosion and sediment control measures.

PHASE 3 (2.2 AC ± Disturbance):

1. Install temporary erosion and sediment control measures in general locations as shown on the plans prior to any ground disturbance activities.
2. Strip topsoil and stockpile for later use in lawn/landscape areas.
3. Grub the limits of Phase 3.
4. Begin earthwork activities associated with the SSTS and water system installation within the limits of the phase.
5. Upon completion of all work, remove staging area and establish sport court and play area.
6. Upon completion of all work, install landscaping and stablize disturbed areas in accordance with the Erosion and Sediment Control Notes provided on the Erosion and Sediment Control Plan. Permanent stabilization is achieved when 80% of the plant/grass density is established.
7. Once the site has achieved temporary stabilization, convert temporary sediment trap to extended detention basin in accordance with the notes and details.
8. Upon conversion and stabilization of extended detention basin, removed the plug from FS 5 and allow stormwater to flow from the extended detention basin to the infiltration basin.
9. Upon stabilization of phase 3, remove all temporary erosion & sediment controls.

## WINTER SITE STABILIZATION NOTES:

1. All bare / exposed soils must be stabilized by an established vegetation, straw or mulch, matting, or other approved product such as rolled erosion control product.
2. Sediment barriers must be properly installed at all necessary perimeter and sensitive locations.
3. All slopes and grades must be properly stabilized with approved methods. Rolled erosion control products must be used on all slopes greater than 3:1, or where conditions for erosion dictate such measures.
4. Stockpiled soils must be protected by the use of established vegetation, an anchored-down straw or mulch, rolled erosion control product or other durable covering. A barrier must be installed around the the pile to prevent erosion away from that location.
5. All entrance / exit locations to the site must be properly stabilized and must be maintained to accommodate snow management as set forth in the NYS Standard and Specifications for Erosion and Sediment Control.
6. Snow management must not destroy or degrade erosion and sediment control devices.

## EXCAVATION DEWATERING CONTINGENCY KIT:

- (1) Submersible 2" electric trash pump with float switch, model #PS2.45-61 as manufactured by Tsurumi Pumps or approved equal. 3000 GPH, max head 39 ft.
- (1) Generator to run the electric trash pump.
- (1) Gas powered 3" heavy duty trash pump, model # 3S5AR as manufactured by Gorman Rupp or approved equal. 18,000 GPH, max head 103 ft. head 39 ft.
- (6) 4' X 8' sheets of plywood
- (20) Haybales
- (500 LF) 2" hose
- (500 LF) 3" hose
- (300 LF) silt fence
- (20 CY) 3/4" washed crushed stone
- (40 LF) 24"ø perforated HDPE pipe
- (1) "Dirtbag" pumped silt control system

## EXCAVATION DEWATERING NOTES:

1. Should groundwater be encountered during excavation the contractor shall contact the Project Engineer to immediately assess the conditions.
2. The Project Engineer will provide direction to the contractor in the dewatering process to minimize the potential for any turbid discharges from the construction activities.
3. The contractor shall have all of the contents of the Excavation Dewatering Contingency Kit onsite at all times.
4. The primary process to dewater clean groundwater from an excavation shall be with the creation of sump pit and a pumped discharge to a dirtbag silt trapping device. The final location of the "Dirtbag" and the associated erosion controls including downstream silt fence shall be determined by the Project Engineer prior to use. As shown on the plans temporary swales should be used to intercept surface waters only and direct it away from the proposed area of work to the proposed temporary sediment trap.
5. Should the temporary sediment trap need to be dewatered during construction, the contractor shall contact the Project Engineer to determine a location for the proposed "Dirtbag" and associated erosion controls.

GRAPHIC SCALE

40 0 20 40 80

( IN FEET )
1 inch = 40 ft.

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- NRCS SOIL BOUNDARY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET WITH INLET PROTECTION
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE
- PROPOSED SILT FENCE
- PROPOSED CONSTRUCTION FENCE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SOIL STOCKPILE
- PROPOSED LIMIT OF DISTURBANCE LINE
- PROPOSED TEMPORARY CHECK DAMS
- PROPOSED PHASE LINE
- PROPOSED PHASE DESIGNATION NUMBER

## SOILS LEGEND

| SOILS | DESCRIPTION | HYDROLOGICAL GROUP |
|---|---|---|
| CrC | Charlton–Chatfield complex, rolling, very rocky | B |
| CtC | Chatfield–Hollis–Rock outcrop complex, rolling | B |
| CuD | Chatfield–Hollis–Rock outcrop complex, hilly | B |
| HrF | Hollis–Rock outcrop complex, very steep | C |
| LcB | Leicester loam, 3% to 8% slopes, stony | C |
| Pa | Palms muck | A/D |
| RhB | Riverhead loam, 3% to 8% slopes | B |

* REFER TO GENERAL NOTES ON DRAWING OP-1 *

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 11 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 10 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 9 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 8 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 7 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 6 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 5 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 4 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 3 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 2 | 6-1-17 | PLANNING BOARD SUBMISSION | SJC |
| 1 | 3-31-16 | REVISED PER TOWN COMMENTS | MEU |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(845) 225-9717 fax
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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
EROSION & SEDIMENT CONTROL PLAN–WEST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 2-4-16 | DRAWN BY | S.J.C. | SP-3.1 | 5 / 18 |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |



Z:\0152461\0100\SP-3.1-5.2.dwg 9/26/2018 2:01:35 PM, multer, 1:1


SEE DRAWING SP-3.1 FOR EROSION & SEDIMENT CONTROL PLAN - WEST END

EROSION & SEDIMENT CONTROL PLAN – EAST END

SCALE: 1" = 40'

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- NRCS SOIL BOUNDARY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT GRADE
- PROPOSED DRAINAGE PIPE
- PROPOSED END SECTION WITH RIPRAP
- PROPOSED DRAINAGE INLET WITH INLET PROTECTION
- PROPOSED OUTLET STRUCTURE
- PROPOSED DRAINAGE MANHOLE
- PROPOSED SILT FENCE
- PROPOSED CONSTRUCTION FENCE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SOIL STOCKPILE
- PROPOSED LIMIT OF DISTURBANCE LINE
- PROPOSED TEMPORARY CHECK DAMS
- PROPOSED PHASE LINE
- PROPOSED PHASE DESIGNATION NUMBER

## SOILS LEGEND

| SOILS | DESCRIPTION | HYDROLOGICAL GROUP |
|---|---|---|
| CrC | Charlton–Chatfield complex, rolling, very rocky | B |
| CtC | Chatfield–Hollis–Rock outcrop complex, rolling | B |
| CuD | Chatfield–Hollis–Rock outcrop complex, hilly | B |
| HrF | Hollis–Rock outcrop complex, very steep | C |
| LcB | Leicester loam, 3% to 8% slopes, stony | C |
| Pa | Palms muck | A/D |
| RhB | Riverhead loam, 3% to 8% slopes | B |

* REFER TO GENERAL NOTES ON DRAWING OP–1 *

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 6 | 9–27–18 | REVISED PER TOWN COMMENTS | BD |
| 5 | 8–23–18 | PLANNING BOARD SUBMISSION | JFR |
| 4 | 8–2–18 | REVISED PER TOWN COMMENTS | JJR |
| 3 | 6–28–18 | REVISED PER TOWN COMMENTS | MEU |
| 2 | 11–17–17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 1 | 9–01–17 | REVISED PER TOWN COMMENTS | ZMP |

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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
EROSION & SEDIMENT CONTROL PLAN–EAST END

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 7–27–17 | DRAWN BY | S.J.C. | SP–3.2 | 6 / 18 |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |

GRAPHIC SCALE
40 0 20 40 80
( IN FEET )
1 inch = 40 ft.



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## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING TREELINE
- EXISTING BRUSHLINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED POST & RAIL FENCE
- PROPOSED LIMIT OF DISTURBANCE LINE

### TREE INVENTORY LEGEND

Dia. Multi. Common Name

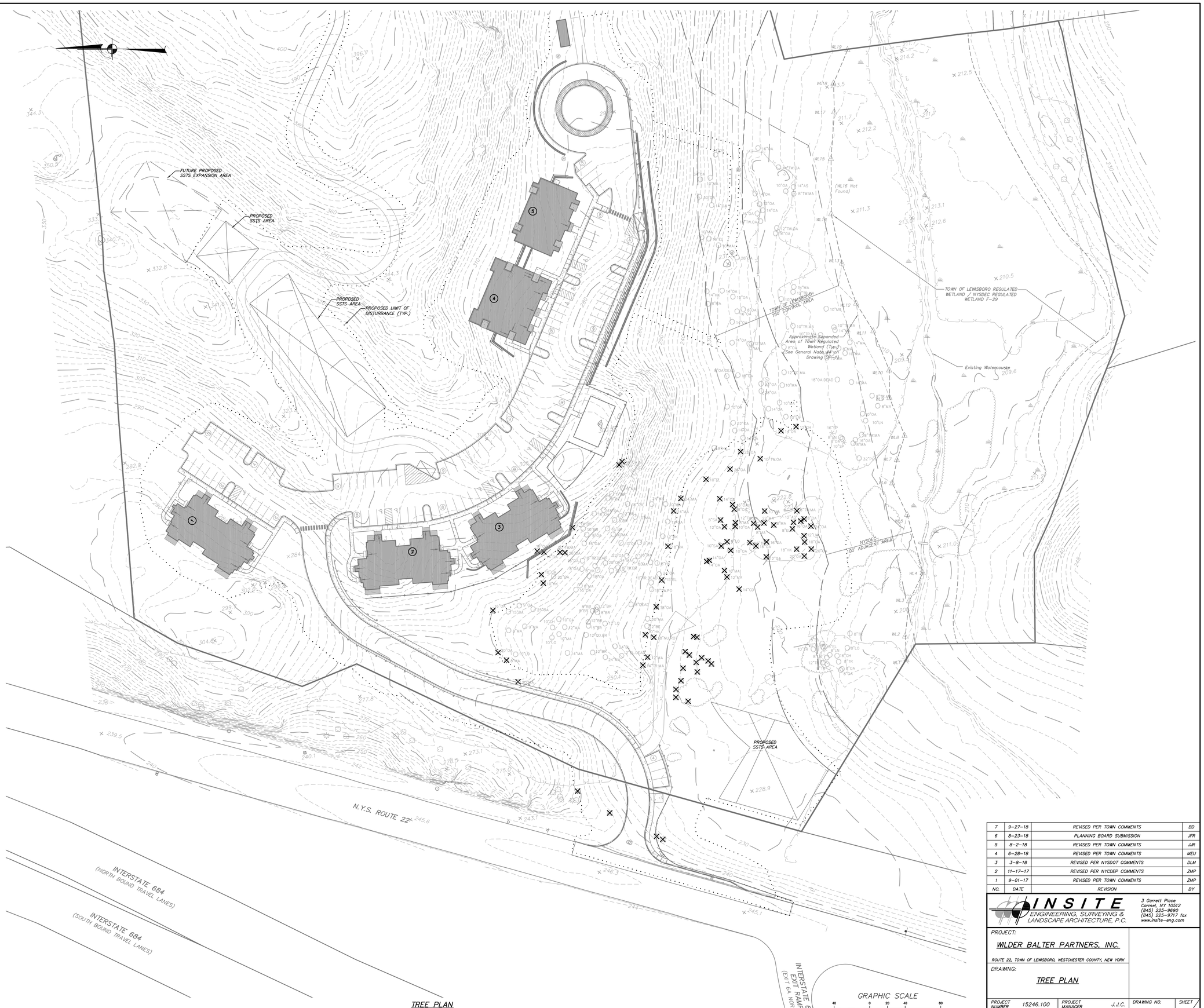
Diameter is in inches at breast height

Trees shown hereon have been located in accordance with Chapter 217 "Wetlands and Watercourses" of the Town of Lewisboro Town Code.

### TREE LEGEND

- Existing Tree
- Existing Tree to be Removed

| | |
|---|---|
| BR | Birch |
| CH | Cherry |
| EL | Elm |
| HK | Hickory |
| LN | Linden |
| LO | Locust |
| MA | Maple |
| NU | Nut |
| OA | Oak |
| PO | Poplar |
| SP | Spruce |
| TR | Unknown Species |
| TRI | Triple |
| TU | Tulip |
| TW | Twin |
| ROT | Rotten |




TREE PLAN
SCALE: 1" = 40'

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 7 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 6 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 5 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 4 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 3 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 2 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 1 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
TREE PLAN

| | | | |
|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. |
| DATE | 7-27-17 | DRAWN BY | M.E.U. |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. |

DRAWING NO. TR-1
SHEET 7 / 18



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## LIGHTING PLAN

SCALE: 1" = 40'

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

## LEGEND

- EXISTING PROPERTY LINE
- EXISTING WETLAND LIMIT LINE (WL9 – WL10)
- TOWN 150' CONTROL AREA
- NYSDEC 100' ADJACENT AREA
- EXISTING WETLAND SYMBOL
- EXISTING WELL
- EXISTING EDGE OF WATER
- EXISTING TREELINE
- EXISTING BRUSHLINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED CONCRETE WALK
- PROPOSED RETAINING WALL
- PROPOSED GUIDERAIL
- PROPOSED POST & RAIL FENCE
- PROPOSED SITE LIGHTING

## LUMINAIRE SCHEDULE

| Symbol | Qty | Catalog Number | Description | Lamp | Mounting Height | Watts |
|---|---|---|---|---|---|---|
| A | 24 | DSXO LED 20C 700 40K T3M MVOLT | LITHONIA LIGHTING – DSXO LED WITH 20 LEDS @ 700 mA, 4000K, TYPE 3 MEDIUM OPTICS WITH HOUSE-SIDE SHIELD | LED | 14' | 45 |
| B | 3 | DSXO LED 20C 700 40K TFTM MVOLT HS | LITHONIA LIGHTING – DSXO LED WITH 20 LEDS @ 700 mA, 4000K, TYPE FORWARD THROW MEDIUM OPTICS WITH HOUSE-SIDE SHIELD | LED | 14' | 45 |
| C | 1 | DSXO LED 20C 700 40K T5M MVOLT | LITHONIA LIGHTING – DSXO LED WITH 20 LEDS @ 700 mA, 4000K, TYPE 5 MEDIUM OPTICS | LED | 14' | 45 |

## LIGHT CONTOUR LEGEND

- 0.1 — 0.10 Foot Candles
- 0.5 — 0.50 Foot Candles
- 1 — 1.00 Foot Candles

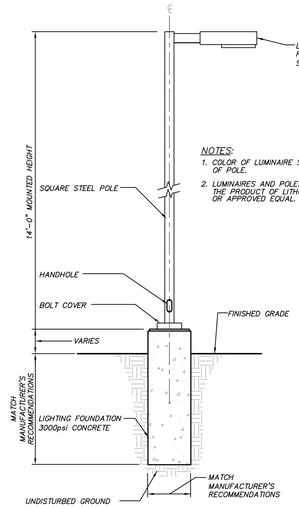
* Photometric calculations shown on plan are in foot candles.

## LIGHTING NOTES:

1. All lighting shall be as noted on the plan or approved equal.
2. Style and finish of all luminaires to be selected by owner and approved by the Planning Board.
3. Calculation values shown in this plan are taken on a horizontal plane at ground level using a 0.95 light loss factor for LEDs. Topographical information and landscaping have not been accounted for in these calculations.
4. Mounted heights (MH) vary per luminaire as noted in the Luminaire Schedule and represent the mounted heights of luminaires above proposed parking lot grades.
5. Pole mounted lights will be on photocells and will run from dusk to dawn.

## STATISTICS TABLE

| Description | Symbol | Ave | Max | Min | Max/Min | Ave/Min |
|---|---|---|---|---|---|---|
| Calc Zone | - | 0.5 fc | 4.2 fc | 0.0 fc | N/A | N/A |

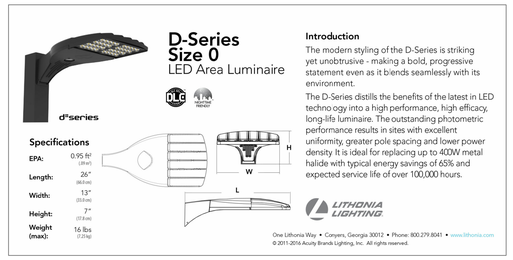



NOTES:

1. COLOR OF LUMINAIRE SHALL MATCH COLOR OF POLE.
2. LUMINAIRES AND POLES AS SPECIFIED ARE THE PRODUCT OF LITHONIA COMPANY, OR APPROVED EQUAL.

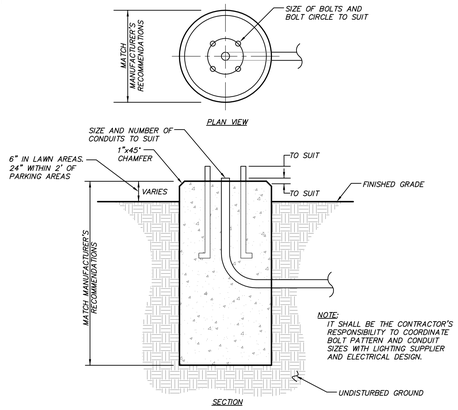
## POLE MOUNTED LIGHT DETAIL

(N.T.S.)




## POLE MOUNTED PARKING LIGHT:

(Luminaire Type: A, B & C)




NOTE:
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE BOLT PATTERN AND CONDUIT SIZES WITH LIGHTING SUPPLIER AND ELECTRICAL DESIGN.

## LIGHT POLE BASE DETAIL

(N.T.S.)

GRAPHIC SCALE

40 0 20 40 80

( IN FEET )
1 inch = 40 ft.

* REFER TO GENERAL NOTES ON DRAWING OP-1 *

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 9 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 8 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 7 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 6 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 5 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 4 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 3 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 2 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 1 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |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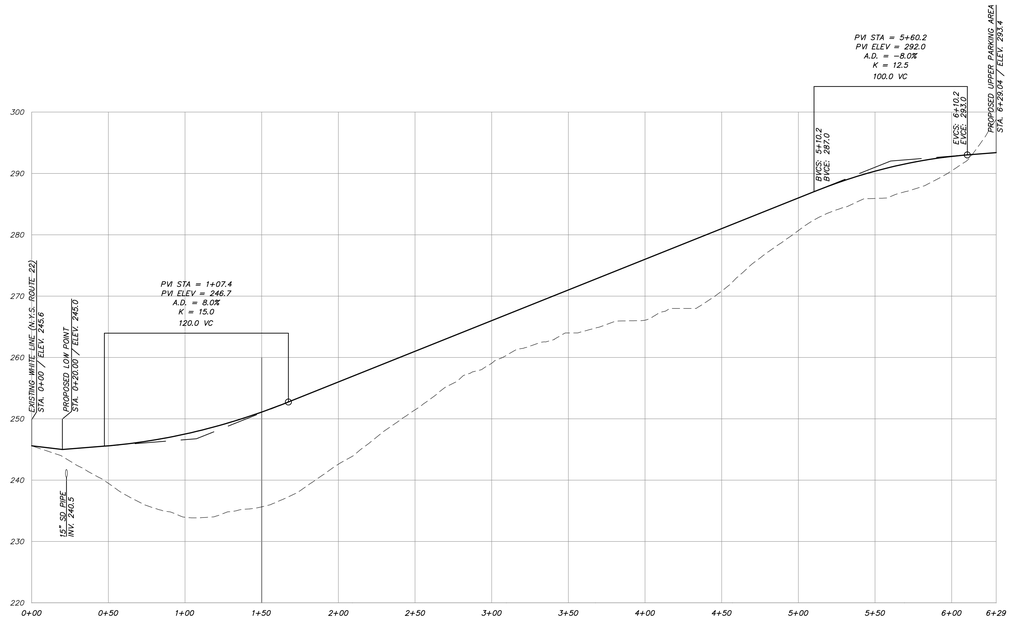
www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWSBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
LIGHTING PLAN

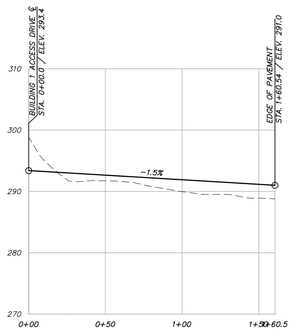
| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 6-1-17 | DRAWN BY | C.T.Q. | LP-1 | 8 / 18 |
| SCALE | 1" = 40' | CHECKED BY | D.L.M. | | |

Z:\01\15246\DWG\1.LP-1.dwg, 9/26/2018 2:23:54 PM, nsdbc, 1:1



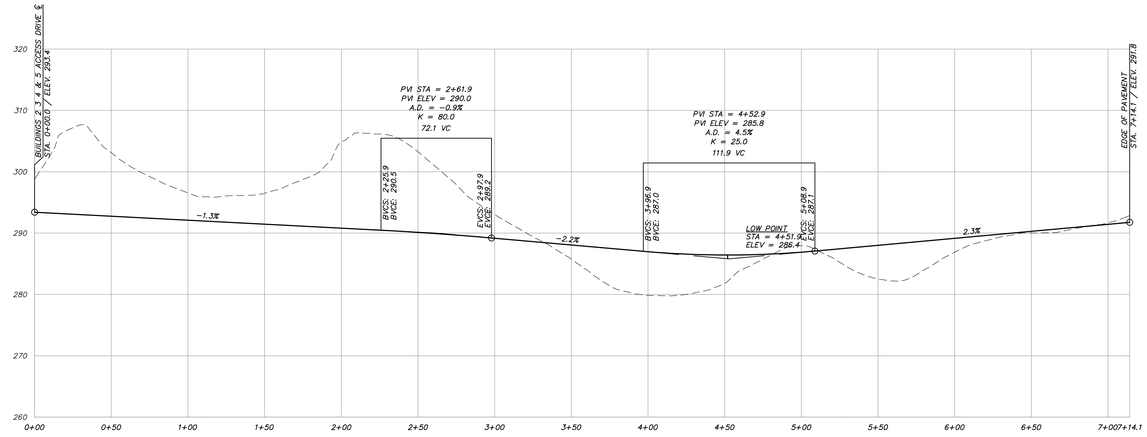

PROPOSED MAIN ACCESS ROAD CENTERLINE PROFILE

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




BUILDING 1 ACCESS ROAD CENTERLINE PROFILE

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




BUILDINGS 2 3 4 & 5 ACCESS ROAD CENTERLINE PROFILE

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 10 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 9 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 8 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 7 | 6-29-18 | REVISED PER TOWN COMMENTS | MEU |
| 6 | 3-8-18 | REVISED PER NYSDOT COMMENTS | DLM |
| 5 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 4 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 3 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 2 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 1 | 6-1-17 | PLANNING BOARD SUBMISSION | SJC |

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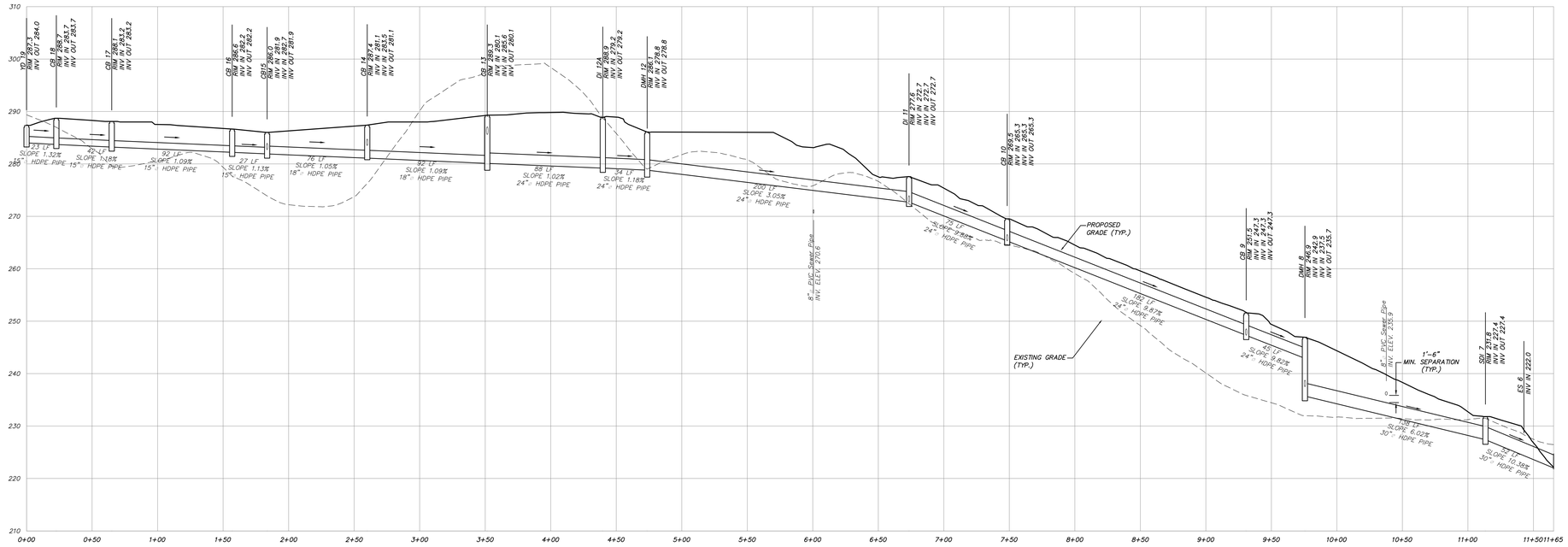
PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

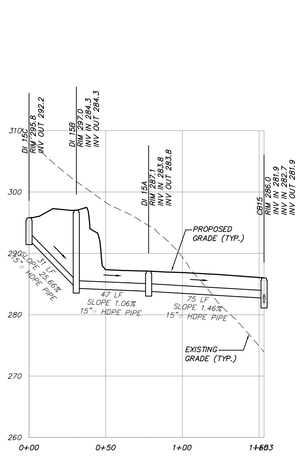
DRAWING:
ENTRY DRIVE & PARKING PROFILES

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 3-31-16 | DRAWN BY | S.J.C. | PR-1 | 9 / 18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |



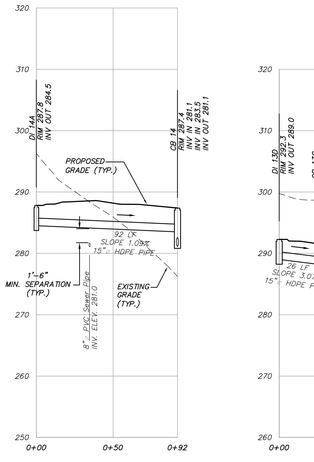

## YD 19 TO ES 6

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



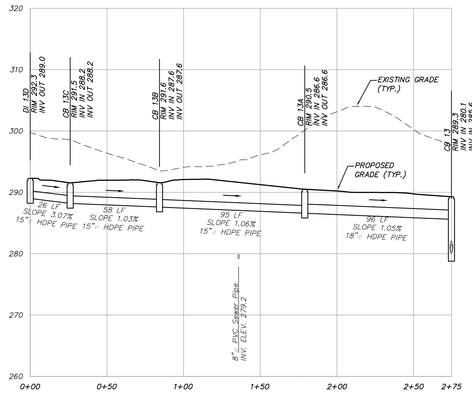

## DI 15C TO CB 15

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



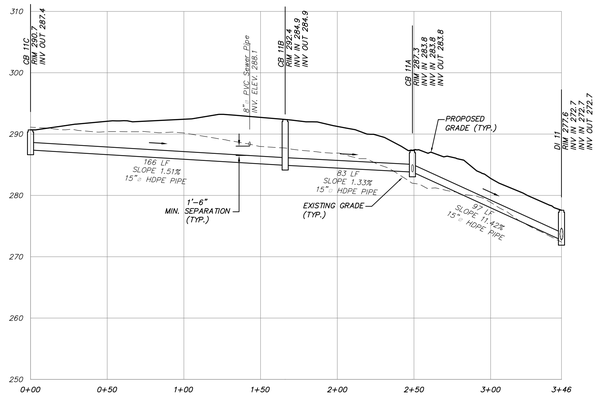

## DI 14A TO CB 14

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



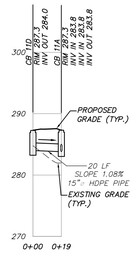

## DI 13D TO CB 13

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



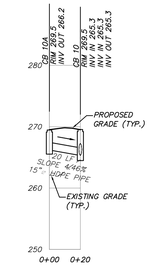

## CB 11C TO DI 11

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



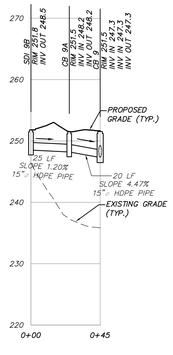

## CB 11D TO CB 11A

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



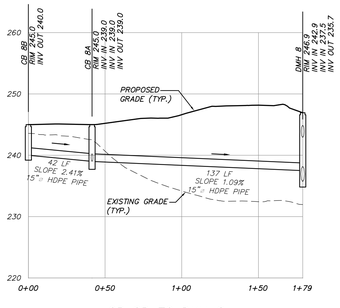

## CB 10A TO CB 10

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



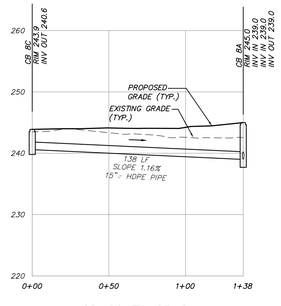

## SDI 9B TO CB 9

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



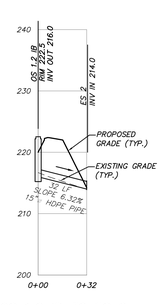

## CB 8B TO DMH 8

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



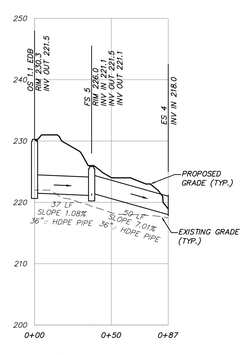

## CB 8C TO CB 8A

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



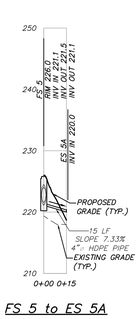

## OS 1.2 IB TO ES 2

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## OS 1.1 EDB TO ES 4

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## FS 5 to ES 5A

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 1 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |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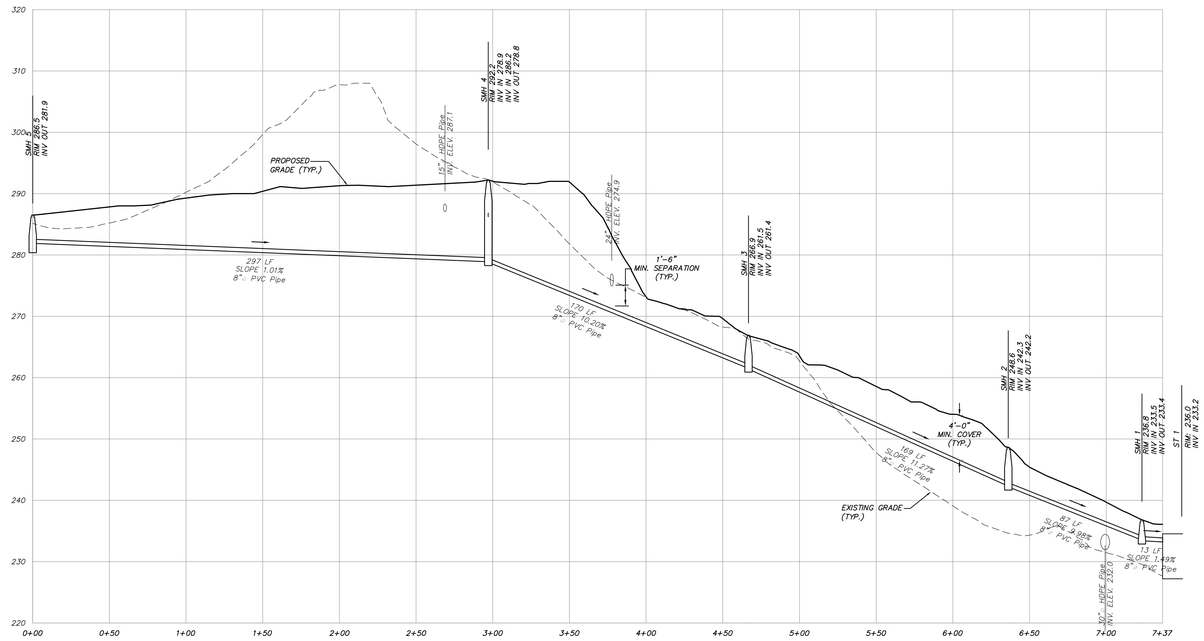
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

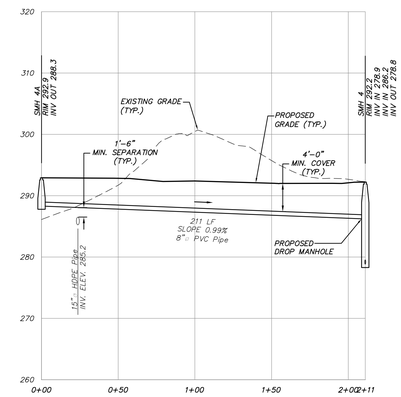
DRAWING:
DRAINAGE PROFILES

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 8-2-18 | DRAWN BY | E.J.P. | PR-2 | 10 / 18 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |



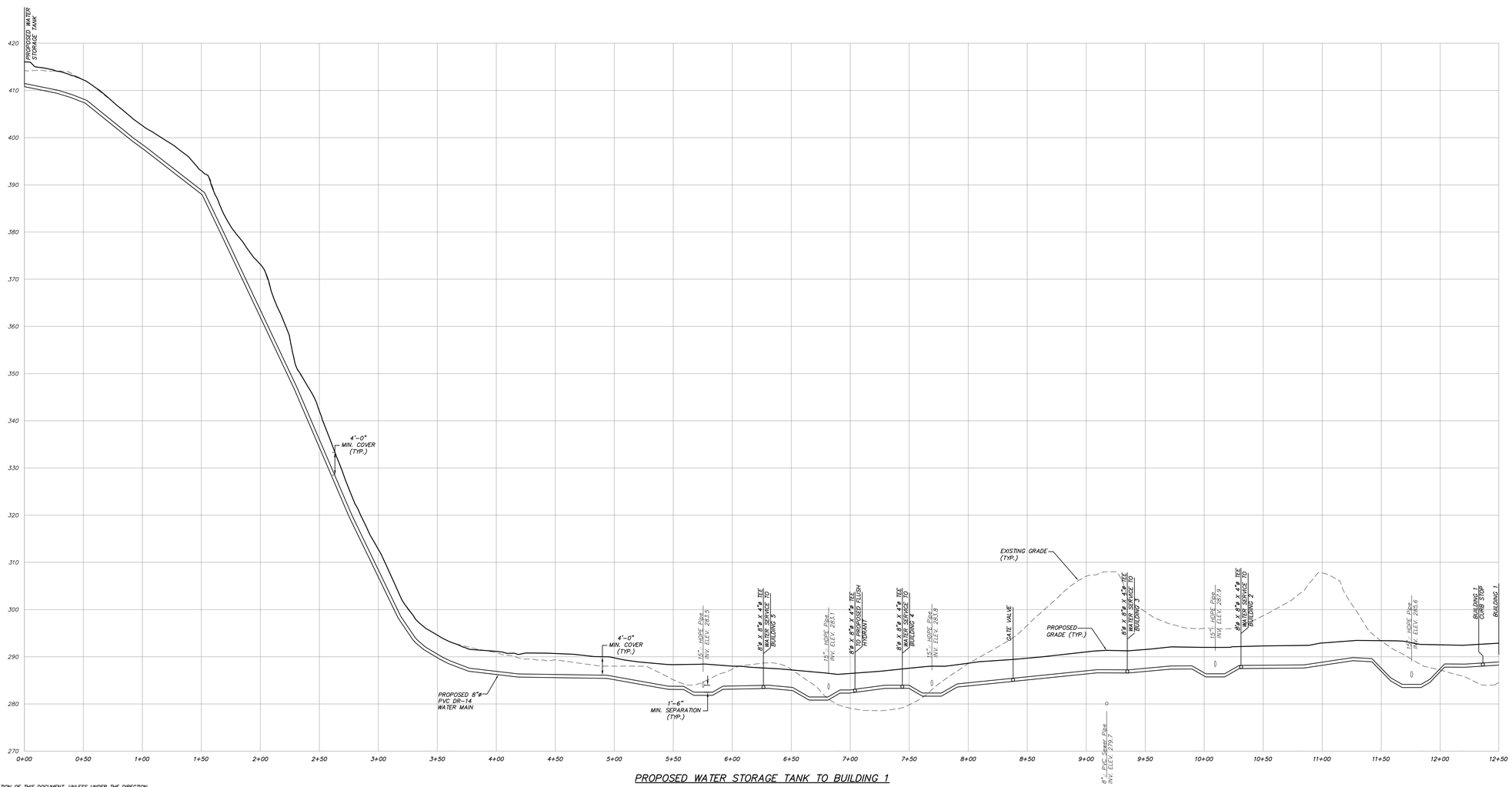

## SMH 5 TO SEPTIC TANK

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## SMH 4A TO SMH 4

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'




## PROPOSED WATER STORAGE TANK TO BUILDING 1

SCALE: HORZ. 1" = 40'
VERT. 1" = 10'



| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 1 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |

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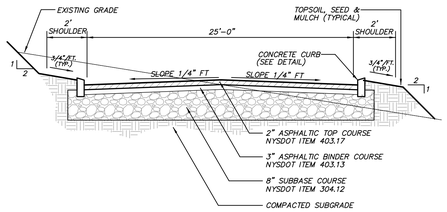
(845) 225-9717 fax
www.insite-emp.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

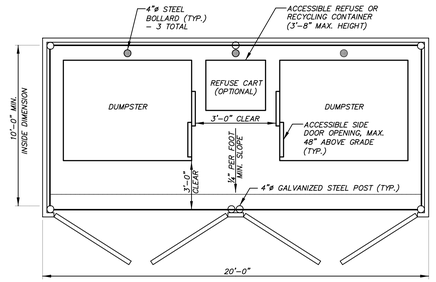
DRAWING:
SEWER & WATER PROFILES

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 8-2-18 | DRAWN BY | E.J.P. | PR-3 | 11 / 18 |
| SCALE | AS SHOWN | CHECKED BY | Z.M.P. | | |

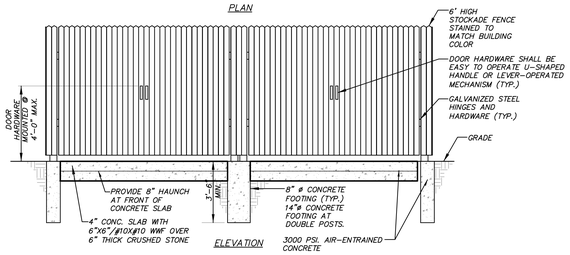



## DRIVEWAY PAVEMENT DETAIL

(N.T.S.)




PLAN




ELEVATION

GENERAL NOTES:

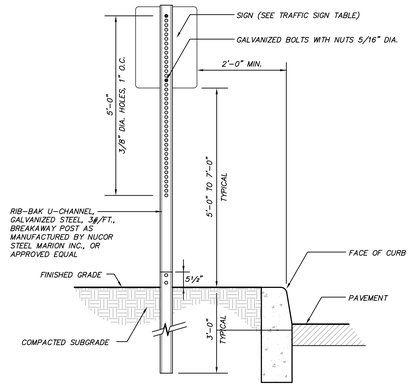
1. CHECK WITH REFUSE HAULER PRIOR TO INSTALLATION OF REFUSE ENCLOSURE FOR FINAL DIMENSIONS.
2. ALL HARDWARE UTILIZED TO ATTACH WOOD FENCE TO POSTS SHALL BE GALVANIZED STEEL.

ACCESSIBILITY NOTES:

1. VERTICAL CHANGE IN LEVEL BETWEEN FINISHED GRADE OF CONCRETE PAD FOR DUMPSTER ENCLOSURE AND ADJACENT PAVEMENT AT GATE OPENINGS SHALL NOT EXCEED 1/4". 1/4" TO 1/2" VERTICAL CHANGE SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 2H:1V.
4. GATE(S) DESIGNATED FOR ACCESSIBLE ENTRY INTO DUMPSTER ENCLOSURE SHALL BE MAINTAINED TO BE RELATIVELY FREE SWINGING AND EASY TO OPEN AND CLOSE.
5. SHOULD INDIVIDUAL GATE BE DESIGNATED FOR ACCESSIBLE ENTRY, IT SHALL BE LABELLED AS SUCH.
6. A 36" MINIMUM CLEAR DISTANCE SHALL BE MAINTAINED BETWEEN DUMPSTERS AND IN FRONT OF DUMPSTER AS NECESSARY TO PROVIDE ACCESSIBLE ROUTE WITHIN DUMPSTER ENCLOSURE TO SIDE ACCESS DOORS TO DUMPSTERS AND / OR REFUSE CARTS.
7. ACCESSIBLE REFUSE CONTAINERS SHALL BE PROVIDED – TRASH CAN(S), REFUSE CARTS, AND/OR DUMPSTERS WITH ACCESSIBLE SIDE OPENINGS.

## DUMPSTER ENCLOSURE DETAIL

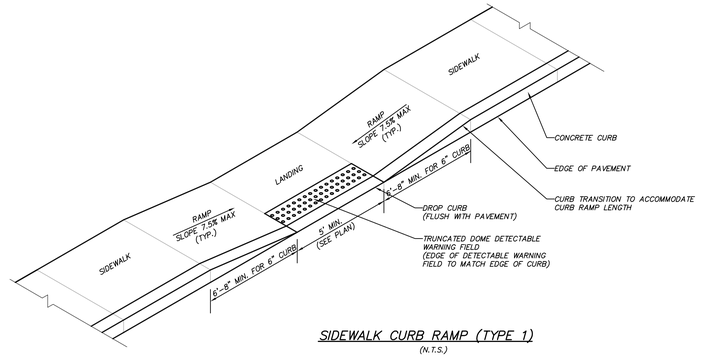
(N.T.S.)




NOTE: FOR HANDICAP PARKING SIGNAGE, SIGNS SHALL BE INSTALLED AT A CLEAR HEIGHT OF BETWEEN 5'-0" AND 7'-0" ABOVE GRADE OF PARKING SPACE AND SUCH THAT SIGNS SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.

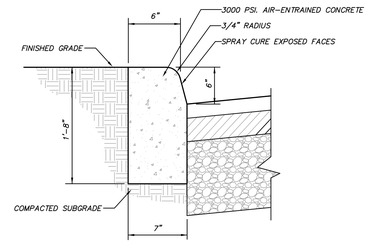
## TRAFFIC SIGN DETAIL

(N.T.S.)




## SIDEWALK CURB RAMP (TYPE 1)

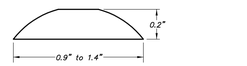
(N.T.S.)



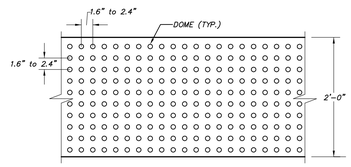

NOTE: ISOLATION JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH CELLULAR COMPRESSION MATERIALS AS SPECIFIED, RECESSED 1/4" IN FROM FRONT FACE AND TOP OF CURB.

## CONCRETE CURB DETAIL

(N.T.S.)




TRUNCATED DOME SECTION



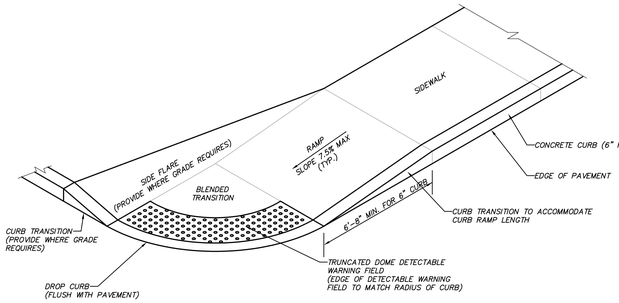

TRUNCATED DOME SPACING

## TRUNCATED DOME DETAIL

(N.T.S.)

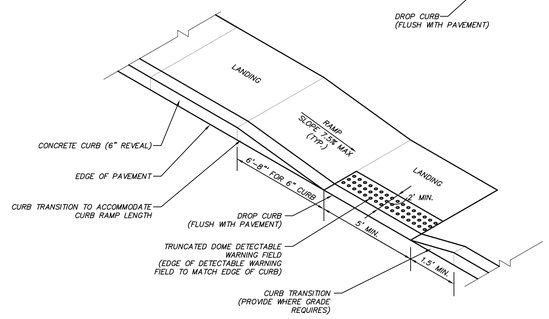
### TRUNCATED DOME DETECTABLE WARNING FIELD NOTES:

1. The detectable warning field shall consist of raised truncated domes with a nominal diameter of 0.9 inches, a nominal height of 0.2 inches, and a nominal spacing of 2.35 inches on center in accordance with the most recent version of ANSI ICC A117.1.
2. The details provided are not drawn to scale. The quantity of domes depicted on the detectable warning field (the domes and the entire 24 inch level surface) is for illustration only.
3. The size of the detectable warning field shall be 24 inches in the direction of travel and shall extend the full width of the curb ramp or flush surface, exclusive of side flares.
4. Detectable warnings shall be located so that the edge of the warning field nearest to the roadway or street surface is 6 inches to 9 inches from the edge of the roadway/street, or from the front of the dropped curb, where a dropped curb continues across the bottom of the sidewalk curb ramp.
5. Domes shall be aligned on a square grid in the predominant direction of travel.
6. The detectable warning field shall be yellow.



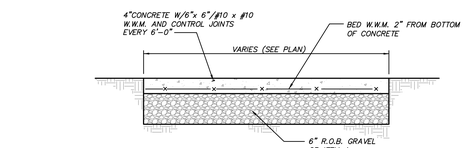

## SIDEWALK CURB RAMP (TYPE 2)

(N.T.S.)



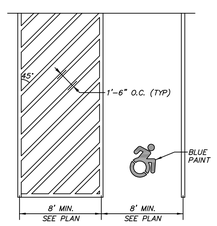

## SIDEWALK CURB RAMP (TYPE 3)

(N.T.S.)




## CONCRETE SIDEWALK DETAIL

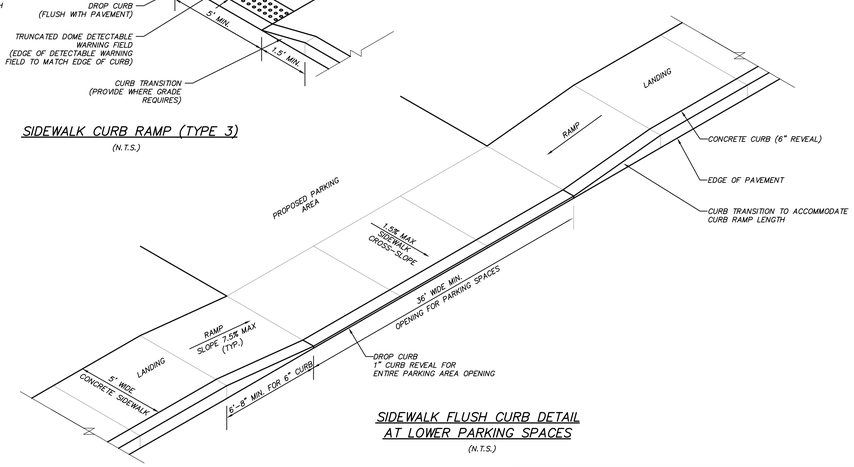
(N.T.S.)




NOTE:
1. ALL HANDICAP STRIPING SHALL BE 4" WIDE BLUE PAINT

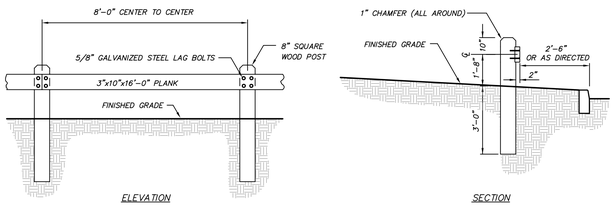
## PAINTED ACCESSIBLE PARKING DETAIL

(N.T.S.)




## SIDEWALK FLUSH CURB DETAIL AT LOWER PARKING SPACES

(N.T.S.)




ELEVATION SECTION

NOTES:

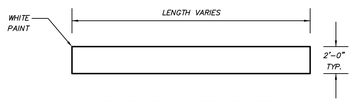
1. ALL WOOD TO BE SEASONED NO.1 DOUGLAS FIR, SOUTHERN PINE OR OTHER APPROVED STRUCTURAL LUMBER.
2. ALL WOOD TO BE TREATED WITH AN APPROVED WOOD PRESERVATIVE SUITABLE FOR INSTALLATION IN AND ADJACENT TO GROUND SURFACES.

## WOOD GUIDE RAIL DETAIL

(N.T.S.)

## GENERAL NOTES FOR ACCESSIBLE ROUTES ON THE SITE:

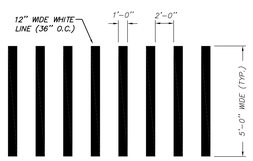
1. ACCESSIBLE ROUTES ON THE SITE INCLUDE MARKED ACCESSIBLE PARKING SPACES AND ACCESS AISLES, SIDEWALK CURB RAMPS, WALKWAYS AND RAMPS.
2. MARKED ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL HAVE SURFACE SLOPES NOT STEEPER THAN 1.5%.
3. SIDEWALK CURB RAMPS SHALL COMPLY WITH THE FOLLOWING ITEMS AS APPLICABLE:
   a. WALKING SURFACES OF SIDEWALK CURB RAMPS SHALL BE STABLE, FIRM AND SLIP RESISTANT.
   b. THE RUNNING SLOPE SHALL NOT EXCEED 7.5%.
   c. THE CROSS SLOPE SHALL NOT EXCEED 1.5%.
   d. LANDINGS AND BLENDED TRANSITIONS SHALL BE CONSTRUCTED TO PREVENT THE ACCUMULATION OF WATER.
   e. WHERE PROVIDED, SIDE FLARES FOR CURB RAMPS SHALL NOT BE STEEPER THAN 9.5% WITHIN PEDESTRIAN WAY.
   f. CURB RAMPS AT MARKED CROSSWALKS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
   g. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE 36 INCHES MINIMUM. THE CLEAR WIDTH OF THE LANDING SHALL BE AT LEAST AS WIDE AS THE CURB RAMP, EXCLUDING FLARED SIDES, LEADING TO THE LANDING.
   h. WHERE DETECTABLE WARNINGS ARE PROVIDED ON CURB RAMPS, THEY SHALL BE 24 INCHES MINIMUM IN DEPTH IN THE DIRECTION OF TRAVEL, SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, AND BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE.
   i. REFER TO SIDEWALK CURB RAMP DETAILS FOR ADDITIONAL INFORMATION.
4. WALKWAYS ALONG AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE FOLLOWING ITEMS AS APPLICABLE:
   a. WALKING SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.
   b. VERTICAL CHANGES IN LEVEL ALONG WALKING SURFACE SHALL NOT EXCEED 1/4". CHANGES IN LEVEL GREATER THAN 1/4" IN HEIGHT AND NOT MORE THAN 1/2" SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.
   c. THE RUNNING SLOPE OF THE WALKING SURFACES SHALL NOT BE STEEPER THAN 4.5%.
   d. THE CROSS SLOPE OF A WALKING SURFACE SHALL NOT BE STEEPER THAN 1.5%.
   e. THE CLEAR WIDTH OF AN ACCESSIBLE ROUTE SHALL BE 36" MINIMUM.
   f. AN ACCESSIBLE ROUTE WITH A CLEAR WIDTH LESS THAN 60 INCHES SHALL PROVIDE PASSING SPACES AT INTERVALS OF 200 FEET MAXIMUM. PASSING SPACES SHALL BE 60 INCH MINIMUM BY 60 INCH MINIMUM.
5. RAMPS ALONG AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE FOLLOWING ITEMS:
   a. RAMP RUNS SHALL HAVE A RUNNING SLOPE GREATER THAN 4.5% AND NOT STEEPER THAN 7.5%.
   b. THE CROSS SLOPE OF RAMP RUNS SHALL NOT EXCEED 1.5%.
   c. WALKING SURFACES OF RAMP RUNS AND ASSOCIATED LANDINGS SHALL BE STABLE, FIRM AND SLIP RESISTANT.
   d. THE CLEAR WIDTH OF A RAMP RUN SHALL BE 36 INCHES MINIMUM OR AS SHOWN. HANDRAILS AND HANDRAIL SUPPORTS THAT ARE PROVIDED ON THE RAMP RUN SHALL NOT PROJECT INTO THE REQUIRED CLEAR WIDTH OF THE RAMP RUN OR ASSOCIATED LANDING.
   e. THE MAXIMUM RISE FOR ANY RAMP IS 2'-6".
   f. THE MAXIMUM RUN FOR ANY RAMP IS 30'-0".
   g. RAMPS SHALL HAVE LANDINGS AT THE BOTTOM AND TOP OF EACH RAMP RUN. LANDINGS SHALL HAVE A SLOPE NOT TO EXCEED 1.5% AND SHALL HAVE A CLEAR LENGTH AND WIDTH OF 60" MINIMUM.
   h. ADJACENT FINISHED GRADES ALONG SIDES OF RAMP SHALL NOT HAVE A VERTICAL DROPOFF OF 1/2" WITHIN 10" OF THE EDGE OF THE CONCRETE.
   i. REFER TO CONCRETE HANDICAP RAMP DETAIL FOR ADDITIONAL INFORMATION.




NOTE: INSTALLATION TO CONFORM WITH CURRENT NYSDOT STANDARDS AND SPECIFICATIONS.

## PAINTED STOP BAR DETAIL

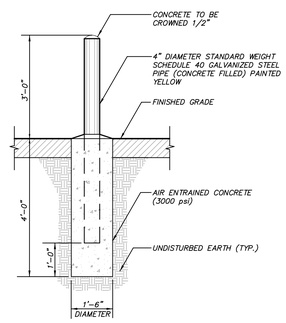
(N.T.S.)




NOTE: INSTALLATION TO CONFORM WITH CURRENT NYSDOT STANDARDS AND SPECIFICATIONS

## CROSSWALK MARKING DETAIL (TYPE 2)

(N.T.S.)




NOTE:
WHEN PROTECTION POSTS ARE TO BE USED FOR PROTECTION OF HANDICAP PARKING SIGNS OR OTHER TRAFFIC SIGNS, SIGN SUPPORTING POST SHALL BE EMBEDDED A MINIMUM OF THREE (3) FEET INTO THE CONCRETE.

## STEEL BOLLARD DETAIL

(N.T.S.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 10 | 9–27–18 | REVISED PER TOWN COMMENTS | BD |
| 9 | 8–23–18 | PLANNING BOARD SUBMISSION | JFR |
| 8 | 8–2–18 | REVISED PER TOWN COMMENTS | JJR |
| 7 | 6–28–18 | REVISED PER TOWN COMMENTS | MEU |
| 6 | 11–17–17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 5 | 9–01–17 | REVISED PER TOWN COMMENTS | ZMP |
| 4 | 7–27–17 | REVISED PER TOWN COMMENTS | EIG |
| 3 | 6–29–17 | REVISED PER TOWN COMMENTS | SJC |
| 2 | 6–1–17 | PLANNING BOARD SUBMISSION | SJC |
| 1 | 3–31–16 | REVISED PER TOWN COMMENTS | MEU |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PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 2–4–16 | DRAWN BY | S.J.C. | D–1 | 12 / 18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |



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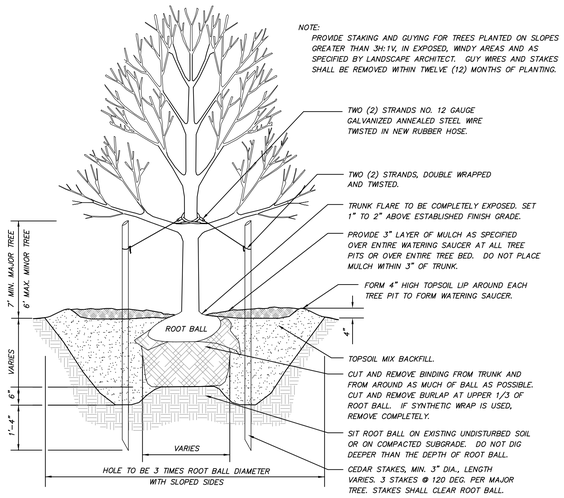
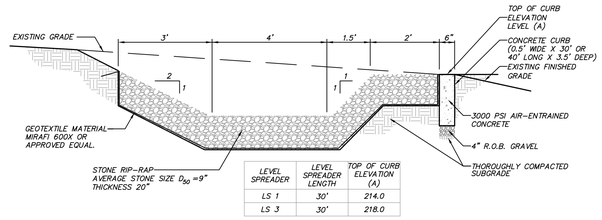
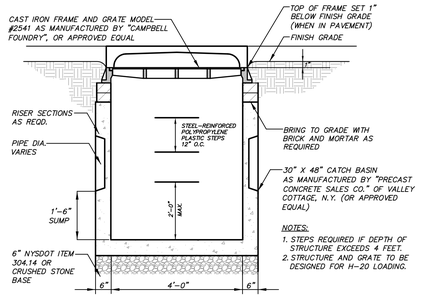



TREE PLANTING DETAIL
(N.T.S.)



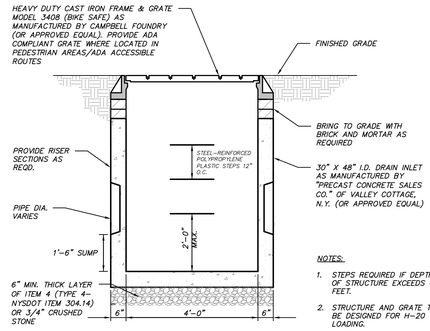

| LEVEL SPREADER | LEVEL SPREADER LENGTH | TOP OF CURB ELEVATION (A) |
|---|---|---|
| LS 1 | 30' | 214.0 |
| LS 3 | 30' | 218.0 |

LEVEL SPREADER WITH LEVEL CONCRETE CURB AT OVERFLOW DETAIL
(N.T.S.)



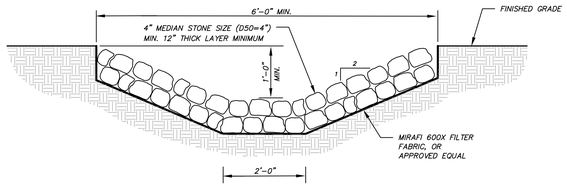

NOTES:
1. STEPS REQUIRED IF DEPTH OF STRUCTURE EXCEEDS 4 FEET.
2. STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING.

CATCH BASIN DETAIL
(N.T.S.)

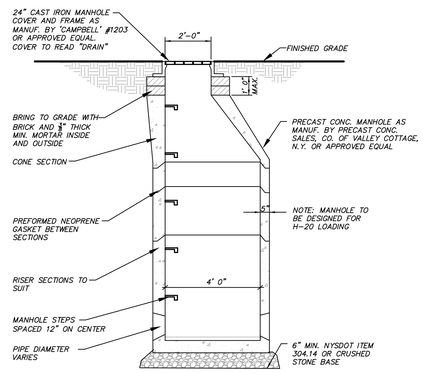



NOTES:
1. STEPS REQUIRED IF DEPTH OF STRUCTURE EXCEEDS 4 FEET.
2. STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING.

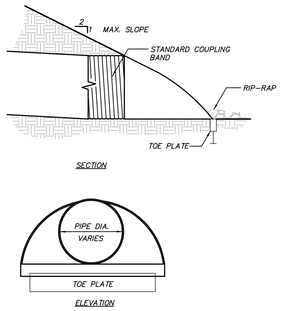
30" X 48" DRAIN INLET DETAIL
(N.T.S.)

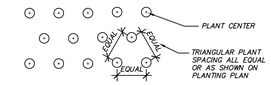



RIP RAP SWALE DETAIL
(N.T.S.)

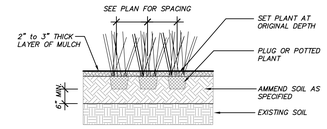



DRAINAGE MANHOLE DETAIL
(N.T.S.)

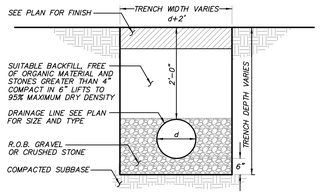


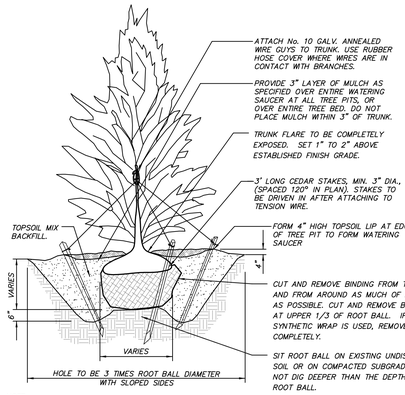

PLANT SPACING PLAN




PERENNIAL / ORNAMENTAL GRASS PLANTING DETAIL
(N.T.S.)

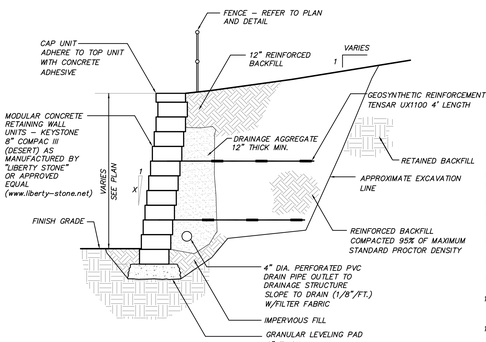



DRAINAGE LINE TRENCH DETAIL
(N.T.S.)




NOTE:
PROVIDE STAKING AND GUYING FOR TREES PLANTED ON SLOPES GREATER THAN 3H:1V, IN EXPOSED, WINDY AREAS AND AS SPECIFIED BY LANDSCAPE ARCHITECT. GUY WIRES AND STAKES SHALL BE REMOVED WITHIN TWELVE MONTHS OF PLANTING.

EVERGREEN TREE PLANTING DETAIL
(N.T.S.)

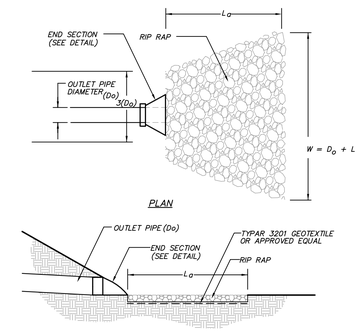



NOTES:
1. STRIP VEGETATION AND ORGANIC SOIL FROM WALL AND GEOSYNTHETIC ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE ENGINEER TO REMOVE UNSUITABLE SOIL.
4. SITE ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
5. LEVELING PAD SHALL CONSIST OF COMPACTED COARSE SAND OR CRUSHED GRAVEL, 6" THICK MIN.
6. CONTRACTOR MAY OPT FOR A LEAN CONCRETE PAD. CONCRETE PAD SHALL BE UNREINFORCED, 3" THICK MAXIMUM.
7. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE 6".
8. FOR UNITS TO BE EMBEDDED, COMPACT FILL IN FRONT OF UNITS AT THE SAME TIME FILL BEHIND UNITS IS COMPACTED.
9. DRAINAGE AGGREGATE SHALL BE INSTALLED DIRECTLY BEHIND THE WALL WITHIN 12" OF THE TOP OF THE WALL. DRAINAGE AGGREGATE SHALL NOT EXTEND BELOW FINAL GRADE IN FRONT OF WALL.
10. COMPACTION SHALL BE TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.(ASTM D-698)
11. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE SITE SOILS ENGINEER.
12. COMPACTION WITHIN 3 FT. OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT.
13. GEOSYNTHETIC SHALL BE PLACED WITH STRONGEST DIRECTION PERPENDICULAR TO WALL. FOLLOW GEOSYNTHETIC MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
14. CONTRACTOR SHALL DIRECT SURFACE RUNOFF TO AVOID DAMAGING WALL WHILE UNDER CONSTRUCTION.
15. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT, OR TURF SHALL BE INSTALLED IMMEDIATELY AFTER WALL IS COMPLETED.
16. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
17. PRIOR TO ISSUANCE OF A BUILDING PERMIT, ALL RETAINING WALLS IN EXCESS OF FOUR (4) FEET SHALL BE DESIGNED AND CERTIFIED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER.
18. PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER SHALL CERTIFY THE PROPER INSTALLATION AND CONSTRUCTION OF ANY RETAINING WALL IN EXCESS OF FOUR (4) FEET, IN ACCORDANCE WITH THE APPROVED DESIGN.

MODULAR BLOCK RETAINING WALL DETAIL
(N.T.S.)

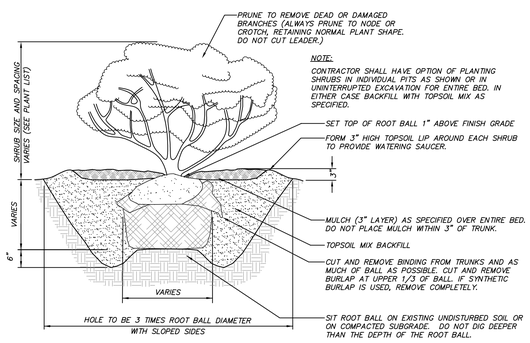



END SECTION DETAIL
(N.T.S.)



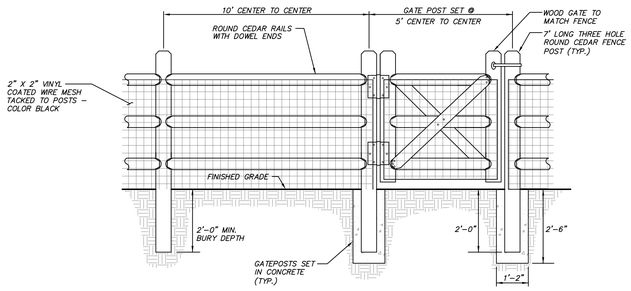

| | OUTLET PIPE DIAMETER ($D_o$) | ($D_{50}$) RIP RAP SIZE | MAX. RIP RAP SIZE | MIN. RIP RAP BLANKET THICKNESS | LA (MIN.) |
|---|---|---|---|---|---|
| ES 6 | 30" | 9" | 14" | 20" | 14 FT. |
| ES 5A | 6" | 9" | 14" | 20" | 10 FT. |

VELOCITY DISSIPATOR DETAIL

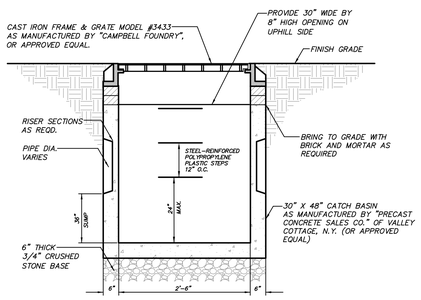



NOTE:
CONTRACTOR SHALL HAVE OPTION OF PLANTING SHRUBS IN INDIVIDUAL PITS AS SHOWN OR IN UNINTERRUPTED EXCAVATION FOR ENTIRE BED. IN EITHER CASE BACKFILL WITH TOPSOIL MIX AS SPECIFIED.

SHRUB PLANTING DETAIL
(N.T.S.)




POST AND RAIL FENCE DETAIL
(N.T.S.)




NOTE: SIDE DRAIN INLETS ARE LOCATED AT THE TERMINAL END OF OPEN CHANNELS, THEREFORE ALL SHALL HAVE 36" DEEP SUMPS FOR SEDIMENT DEPOSITION AND MAINTANANCE.

SIDE DRAIN INLET DETAIL
(N.T.S.)
(STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 11 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 10 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 9 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 8 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 7 | 1-23-18 | REVISED PER NYCDEP COMMENTS | ZMP |
| 6 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 5 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 4 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 3 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 2 | 6-1-17 | PLANNING BOARD SUBMISSION | SJC |
| 1 | 3-31-16 | REVISED PER TOWN COMMENTS | MEU |

INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 2-4-16 | DRAWN BY | S.J.C. | D-2 | 13/18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |



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## REQUIRED EROSION CONTROL SWPPP CONTENTS:

*Pursuant to the NYSDEC "SPDES General Permit for Stormwater Discharges from Construction Activity" (GP-0-15-002), all Stormwater Pollution Prevention Plan's (SWPPP) shall include erosion and sediment control practices designed in conformance with the most current version of the technical standard, "New York Standards and Specifications for Erosion and Sediment Control." Where erosion and sediment control practices are not designed in conformance with this technical standard, the owner or operator must demonstrate equivalence to the technical standard. The following list of required SWPPP components is provided in accordance with Part III.B.1a-l of General Permit GP-0-15-002:*

*a. Background information: The subject project consists of the construction of (45) affordable dwelling units and a caretaker unit with appurtenances and utilities.*

*b. Site map / construction drawing: These plans serve to satisfy this SWPPP requirement.*

*c. Description of the soils present at the site: Onsite soils located within the proposed limits of disturbance consist of Charlton-Chatfield complex (CrC), Chatfield-Hollis-Rock outcrop (CtC & CuD), Hollis-Rock outcrop complex (HrF), Leicester loam (LcB), Palms muck (Pa) and Riverhead loam (RhB) as identified on the Soil Conservation Service Web Soil Survey. These soil types belong to the Hydrologic Soil Group "A", "A/D", "B", "C" and "C/D."*

*d. Construction phasing plan / sequence of operations: The Construction Sequence and phasing found on these plans provide the required phasing. A Construction Sequence and Erosion and Sediment Control Maintenance Schedule has been provided. The Sedimentation and Erosion Control Notes contained hereon outline a general sequence of operations for the proposed project. In general all erosion and sediment control facilities shall be installed prior to commencement with land disturbing activities, and areas of disturbance shall be limited to the shortest period of time as practicable.*

*e. Description of erosion and sediment control practices: This plan, and details / notes shown hereon serve to satisfy this SWPPP requirement.*

*f. Temporary and permanent soil stabilization plan: The Sedimentation and Erosion Control Notes and Details provided heron identify temporary and permanent stabilization measures to be employed with respect to specific elements of the project, and at the various stages of development.*

*g. Site map / construction drawing: This plan serves to satisfy this SWPPP requirement.*

*h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices: The details, Erosion and Sediment Control Notes, and Erosion and Sediment Control Maintenance Schedule serve to satisfy this SWPPP requirement.*

*i. An inspection schedule: Inspections are to be performed twice weekly and by a qualified professional as required by the General Permit GP-0-15-002. In addition the NYSDEC Trained Contractor shall perform additional inspections as cited in the Sedimentation and Erosion Control Notes.*

*j. A description of pollution prevention measures that will be used to control litter, construction chemicals and construction debris: In general, all construction litter / debris shall be collected and removed from the site. The general contractor shall supply either waste barrels or dumpster for proper waste disposal. Any construction chemicals utilized during construction shall either be removed from site daily by the contractor or stored in a structurally sound and weatherproof building. No hazardous waste shall be disposed of onsite, and shall ultimately be disposed of in accordance with all federal, state and local regulations. Material Safety Data Sheets (MSDS), material inventory, and emergency contact numbers shall be maintained by the general contractor for all construction chemicals utilized onsite. Finally, temporary sanitary facilities (portable toilets) shall be provided onsite during the entire length of construction, and inspected weekly for evidence of leaking holding tanks.*

*k. A description and location of any stormwater discharges associated with industrial activity other than construction at the site: There are no known industrial stormwater discharges present or proposed at the site.*

*l. Identification of any elements of the design that are not in conformance with the technical standard, "New York Standards and Specifications for Erosion and Sediment Control." All proposed elements of this SWPPP have been designed in accordance with the "New York Standards and Specifications for Erosion and Sediment Control."*

## REQUIRED POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICE COMPONENTS:

*1. Pursuant to the NYSDEC "SPDES General Permit for Stormwater Discharges from Construction Activity" (GP-0-15-002), all construction projects needing post-construction stormwater management practices shall prepare a SWPPP that also includes practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual"). Where post-construction stormwater management practices are not designed in conformance with this technical standard, the owner or operator must demonstrate equivalence to the technical standard. The following list of SWPPP components is provided in accordance with Part III.B.2a-g and III.B.3:*

*a. Identification of all post-construction stormwater management practices to be constructed as part of the project; This plan, and details/notes shown hereon serve to satisfy this SWPPP requirement.*

*b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice; This plan, and details/notes shown hereon serve to satisfy this SWPPP requirement.*

*A Stormwater Modeling and Analysis Report including pre-development conditions, post-development conditions, the results of the stormwater modeling, a summary table demonstrating that each practice has been designed in conformance with the sizing criteria, identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required. The required analysis is provided in the report titled Preliminary Stormwater Pollution Prevention Plan for Wilder Balter Partners, Inc.*

*c. Soil testing results and locations. This SWPPP requirement is provided in the report titled Amended Stormwater Pollution Prevention Plan for Kent Materials.*

*d. Infiltration testing results. This SWPPP requirement is provided in the report titled Preliminary Stormwater Pollution Prevention Plan for Wilder Balter Partners, Inc.*

*e. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice. The Permanent Stormwater Facilities Maintenance Schedule provided on these plans serves to satisfy this requirement.*

*2. Enhanced Phosphorus Removal Standards – Beginning on September 30, 2008, all construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the most current version of the technical standard, New York Stormwater Management Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a – 2.f above. The permanent stormwater practices for this project have been sized according to chapter 10 of the Design Manual Enhanced Phosphorus Removal Standards. Please see 2.a – 2.f above.*

## EROSION AND SEDIMENT CONTROL MAINTENANCE SCHEDULE

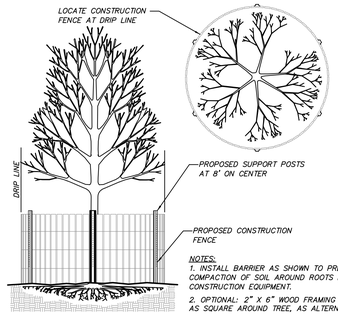
| MONITORING REQUIREMENTS | | | | MAINTENANCE REQUIREMENTS | |
|---|---|---|---|---|---|
| PRACTICE | DAILY | WEEKLY | AFTER RAINFALL | DURING CONSTRUCTION | AFTER CONSTRUCTION |
| SILT FENCE BARRIER | – | Inspect | Inspect | Clean/Replace | Remove |
| STABILIZED CONSTRUCTION ENTRANCE | Inspect | – | Inspect | Clean/Replace Stone and Fabric | Remove |
| DUST CONTROL | Inspect | – | Inspect | Mulching/ Spraying Water | N/A |
| *VEGETATIVE ESTABLISHMENT | – | Inspect | Inspect | Water/Reseed/ Remulch | Reseed to 80% Coverage |
| INLET PROTECTION | – | Inspect | Inspect | Clean/Repair/ Replace | Remove |
| SOIL STOCKPILES | – | Inspect | Inspect | Mulching/ Silt Fence Repair | Remove |
| SWALES | – | Inspect | Inspect | Clean/Mulch/ Repair | Mow Permanent Grass/Replace/ Repair Rip Rap |
| CHECK DAMS | – | Inspect | Inspect | Clean/Replace Stones/Repair | Clean/Replace Stones/Repair |
| CONCRETE DRAINAGE STRUCTURES | – | Inspect | Inspect | Clean Sumps/ Remove Debris/ Repair/Replace | Clean Sumps/ Remove Debris/ Repair/Replace |
| DRAINAGE PIPES | – | Inspect | Inspect | Clean/Repair | Clean/Repair |
| ROAD & PAVEMENT | – | Inspect | Inspect | Clean | Clean |
| *STORMWATER TRAP/BASIN | – | Inspect | Inspect | Clean/Mulch/ Repair/Reseed | See Permanent Stormwater Facilities Maintenance Schedule on Drawing D-6 |

** Permanent vegetation is considered stabilized when 80% of the plant density is established.*

*Note: The party responsible for implementation of the maintenance schedule during and after construction is:*
*Wilder Balter Partners, Inc.*
*480 North Bedford Road*
*Building 300, 1st Floor, West Wing*
*Chappaqua, NY 10514*
*and/or the current owner(s) of the subject property.*

## EROSION & SEDIMENT CONTROL NOTES:

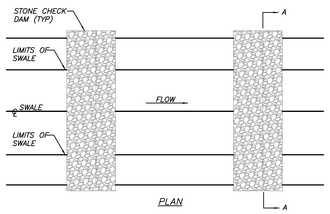
1. The Erosion and Sediment Control Plan is only to be referred to for the installation of erosion and sediment control measures. For all other construction related activities, including, but not limited to, grading and utilities, refer to the appropriate drawings.
2. Each contractor or subcontractor responsible for soil disturbance shall have a NYSDEC trained contractor onsite during soil disturbing activities. The NYSDEC trained contractor will be responsible to comply with the stormwater pollution prevention plan and for the implementation and maintenance of erosion and sediment control measures on this site prior to and during construction. The NYSDEC trained contractor shall sign a certification statement required by GP-0-15-002.
3. All construction activities involving the removal or disposition of soil are to be provided with appropriate protective measures to minimize erosion and contain sediment disposition within. Minimum soil erosion and sediment control measures shall be implemented as shown on the plans and shall be installed in accordance with "New York Standards and Specifications For Erosion and Sediment Control," latest edition.
4. Wherever feasible, natural vegetation should be retained and protected. Disturbance shall be minimized in the areas required to perform construction. No more than 5 acres of unprotected soil shall be exposed at any one time, unless prior authorization is granted by the MS4.
5. When land is exposed during development, the exposure shall be kept to the shortest practical period of time, but in no case more than 7 days after the construction activity in that portion of the site has ceased. Disturbance shall be minimized in the areas required to perform construction.
6. All construction vehicles shall be kept clear of the watercourses and wetland control areas outside the areas of proposed development. Silt fence and orange construction fence shall be installed in the areas where the grading is in close proximity of the watercourses or wetland control areas.
7. The stabilized construction entrances, silt fence, and orange construction fence shall be installed as shown on the plans prior to beginning any clearing, grubbing or earthwork.
8. All topsoil to be stripped from the area being developed shall be stockpiled and immediately seeded with a rye grass mixture having a quick germination time.
9. Any graded areas not subject to further disturbance or construction traffic shall, within 7 days of final grading, receive permanent vegetation cover in combination with a suitable mulch. Refer to "Site Seeding Notes" for additional detail and application rate.
10. Grass seed mix may be applied by either mechanical or hydroseeding methods. Turf establishment shall be performed in accordance with the current edition of the "NYSDOT Standard Specification, Construction and Materials, Section 610-3.02, Method No. 1".
11. Cut or fill (all) slopes steeper than 3:1 shall be stabilized immediately after grading with a rolled erosion control product (RECP) such as, Curlex I Single Net Erosion Control Blanket, or approved equal.
12. Paved roadways shall be kept clean at all times.
13. The site shall at all times be graded and maintained such that all stormwater runoff is diverted to soil erosion and sediment control facilities.
14. All storm drainage outlets shall be stabilized, as required, before the discharge points become operational.
15. Stormwater from disturbed areas must be passed through erosion control barriers before discharge beyond disturbed areas or discharged into other drainage systems.
16. Erosion and sediment control measures shall be inspected and maintained on a daily basis by the NYSDEC Trained Contractor, to insure that channels, temporary and permanent ditches and pipes are clear of debris, that embankments and berms have not been breached and that all straw bales and silt fences are intact. Any failure of erosion and sediment control measures shall be immediately repaired by the contractor and inspected for approval by the site engineer.
17. Dust shall be controlled by sprinkling or other approved methods as necessary, or as directed by the trained contractor or site engineer.
18. Cut and fills shall not endanger adjoining property, nor divert water onto the property of others.
19. All fills shall be placed and compacted in 6" lifts to provide stability of material and to prevent settlement.
20. The NYSDEC Trained Contractor shall inspect downstream conditions for evidence of sedimentation on a weekly basis and after rainstorms.
21. As warranted by field conditions, special additional erosion and sediment control measures, as specified by the site engineer, the Wetlands Inspector, the Town Engineer and/or NYCDEP shall be installed by the contractor.
22. Erosion and sediment control measures shall remain in place until all disturbed areas are suitably stabilized.
23. After completion of the site improvements, the owner will assume responsibility for maintenance of the roads, parking lots, drainage systems and stormwater facilities. Each spring the paved areas shall be cleaned to remove the winter accumulation of traction sand. After this is completed all drain inlet and catch basin sumps should be cleaned. All pipes should be checked for debris and blockage and cleaned as required. During the cleaning process, the drain inlets, catch basins and pipes should be inspected for structural integrity and overall condition. Repairs and/or replacements should be made as required.
24. Inspection of the stormwater basins should be performed every 6 months and after large storm events. These inspections should, at a minimum, check the outlet pipes for blockage and the general overall integrity of the basin and appurtenances.
25. Maintain basin vegetation including removal of trees and replacement of vegetation that should die. Remove any litter which accumulates as necessary. Typically, the accumulated silt will be required to be removed every 10 to 20 years. Any accumulated silt shall be removed from the stormwater basins once the site has been stabilized.
26. Refer to the Stormwater Pollution Prevention Plan for additional details regarding long-term maintenance of the storm drainage facilities.



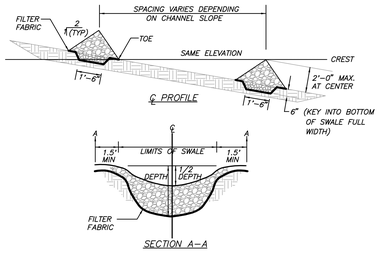

### TREE PROTECTION DETAIL
(N.T.S.)

## TREE PROTECTION NOTES:

1. Trees to be preserved in proximity to disturbance areas shall be marked in the field by the Landscape Architect prior to start of construction.
2. Install tree protection measures prior to start of site clearing & construction.
3. No construction equipment shall be parked and no earth or construction materials shall be stockpiled or stored under the canopy of trees to be preserved.
4. During tree removal operations associated with construction, do not damage adjacent trees to remain. Lower limbs and tree trunks, do not drop them.
5. Carefully tie back any tree branches that conflict with construction equipment.
6. Where trenching for utilities is required within a root zone, tunneling under and around roots shall be by hand digging. If roots 3" or larger are encountered immediately adjacent to the location of new construction and relocation is not practical, the roots shall be hand pruned under the supervision of a Certified Arborist or Landscape Architect to 6" back from the new construction limit. All exposed roots to receive appropriate treatment prior to backfilling.
7. If tree protection fencing to protect the root zone is not possible, six to eight inches of wood chip mulch and 3/4 inch plywood shall be placed over the entire affected root zone area to prevent soil compaction.
8. Any tree damaged during construction activities must be immediately repaired by a qualified arborist at no additional cost to the owner.




PLAN

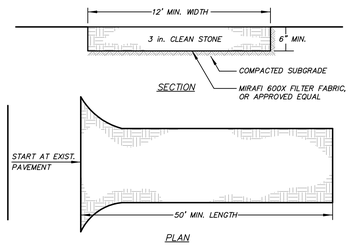



SECTION A–A

NOTES:

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

### STONE CHECK DAM DETAIL
(N.T.S.)

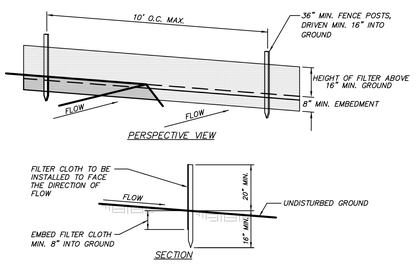



PLAN

### INSTALLATION NOTES

1. STONE SIZE – USE 3" STONE
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.)
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

### STABILIZED CONSTRUCTION ENTRANCE DETAIL
(N.T.S.)




### CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

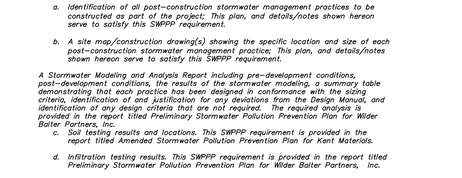
1. FILTER CLOTH TO BE FASTENED SECURELY TO POSTS AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

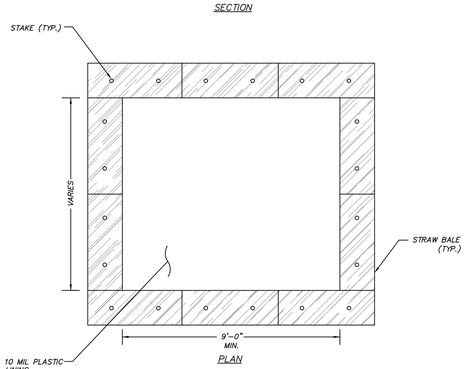
POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

### SILT FENCE DETAIL
(N.T.S.)

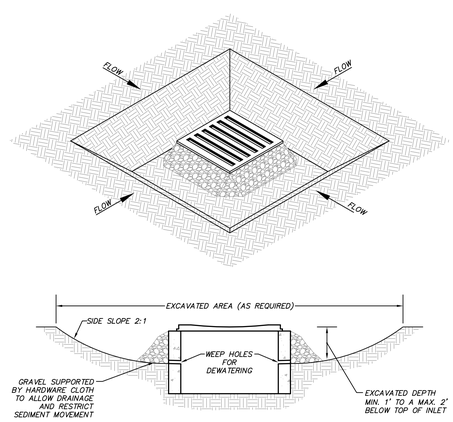



### CONCRETE WASHOUT AREA DETAIL
(N.T.S.)

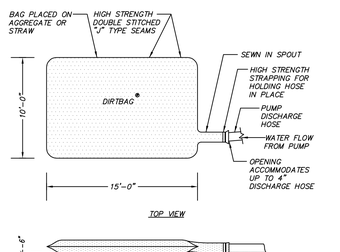
NOTES

1. TEMPORARY CONCRETE WASHOUT TYPE ABOVE GRADE WILL BE CONSTRUCTED AS SHOWN ABOVE, WITH RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 10 FT.
2. THE WASHOUT WILL BE MINIMUM OF 50 FT FROM STORM DRAIN INLETS.
3. PLASTIC LINING WILL BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.




1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL
4. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL EXCAVATION WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY, AND STABILIZE WITH PERMANENT SEEDING
5. MAXIMUM DRAINAGE AREA = 1 ACRE

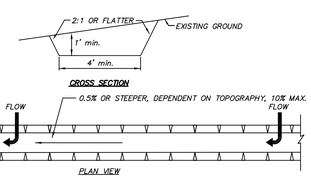
### EXCAVATED DROP INLET PROTECTION DETAIL
(N.T.S.)




NOTES:

1. PUMPED SILT CONTROL SYSTEM TO BE LOCATED WHERE WATER, AFTER PASSING THROUGH SYSTEM, WILL NOT CAUSE EROSION.
2. PUMPED SILT CONTROL SYSTEM TO BE MONITORED AND MAINTAINED TO ASSURE ADEQUATE FILTRATION.
3. PUMPED SILT CONTROL SYSTEM TO BE MANUFACTURED BY ACF ENVIRONMENTAL (1-800-448-3636) OR APPROVED EQUAL.

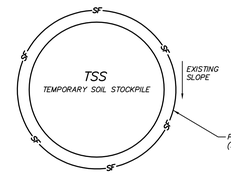
### "DIRTBAG" PUMPED SILT CONTROL SYSTEM DETAIL
(N.T.S.)




**CONSTRUCTION SPECIFICATIONS**

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.
9. STABILIZATION SHALL BE SEED WITH JUTE, EXCELSIOR OR OTHER APPROVED ROLLED EROSION CONTROL PRODUCT (RECP)

### TEMPORARY SWALE DETAIL
(N.T.S.)




NOTES:

1. AREA CHOSEN FOR STOCKPILE LOCATION SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE IMMEDIATELY SEEDED WITH K31 PERENNIAL TALL FESCUE.
4. ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING INSTALLED ON THE DOWNGRADIENT SIDE.

### TEMPORARY SOIL STOCKPILE DETAIL
(N.T.S.)

## SOIL RESTORATION REQUIREMENTS

**The contractor shall be required to perform the following soil restoration techniques prior to installing topsoil, seed and mulch. Items stricken in the following table do not need to be performed.**

| Soil Restoration Requirements [1,2,3] | | | |
|---|---|---|---|
| (Grade soils within the limit of disturbance being in Hydrologic Soil Groups (HSG) C & D). | | | |
| Type of Soil Disturbance | Soil Restoration Requirement | | Comments/Examples |
| No soil disturbance | Restoration not permitted | | Preservation of Natural Features |
| Minimal soil disturbance | Restoration not required | | Clearing and grubbing |
| Areas where topsoil is stripped only - no change in grade | ~~HSG A & B~~ | HSG C&D | Protect area from any ongoing construction activities |
| | Apply 6 inches of topsoil | Aerate[4] and apply 6 inches of topsoil | |
| | ~~HSG A &B~~ | HSG C&D | |
| Areas of cut or fill | Aerate[4] and apply 6 inches of topsoil | Apply full Soil Restoration 5 | |
| Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls) | Apply full Soil Restoration (decompaction and compost Enhancement[5]) | | |
| Areas where Runoff Reduction and/or Infiltration practices are applied | Restoration not required, but may be applied to enhance the reduction specified for appropriate practices. | | Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area |
| Redevelopment projects | Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area | | |

1. Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
2. Per Deep Ripping and De-compaction, DEC 2008.
3. Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which functions like a mini-subsoiler.
4. During periods of relatively low to moderate subsoil moisture, the disturbed soils are returned to rough grade and the following Soil Restoration steps applied:
   4.1. Apply 3 inches of compost over subsoil.
   4.2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
   4.3. Rock-pick until uplifted stone/rock materials of four inches and larger size area cleaned off the site.
   4.4. Apply topsoil to a depth of 6 inches.
   4.5. Vegetate as required by seeding notes located on the project drawings.
   4.6. Tilling should not be performed within the drip line of any existing trees or over any utility installations that are within 24 inches of the surface.
5. Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

## EXCAVATION DEWATERING CONTINGENCY REQUIREMENTS:

*The contractor shall maintain a contingency excavation dewatering kit consisting of a minimum of the following:*

- (1) Submersible 2" electric trash pump with float switch, model #452.45-61 as manufactured by Tsurumi Pumps or approved equal. 3000 GPH, max head 39 ft.
- (1) Generator to run the electric trash pump.
- (1) Gas powered 3" heavy duty trash pump, model # 355AR as manufactured by German Rupp or approved equal. 18,000 GPH, max head 103 ft. head 39 ft.
- (6) 4' X 8' sheets of plywood
- (20) Haybales
- (500 LF) 2" hose
- (500 LF) 3" hose
- (300 LF) silt fence
- (20 CY) 3/4" washed crushed stone
- (40 LF) 24"ø perforated HDPE pipe
- (1) "Dirtbag" pumped silt control system

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 10 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 9 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 8 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 7 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 6 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 5 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 4 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 3 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |
| 2 | 6-1-16 | PLANNING BOARD SUBMISSION | MEU |
| 1 | 3-31-16 | REVISED PER TOWN COMMENTS | MEU |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www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
|---|---|---|---|---|---|
| DATE | 2-4-16 | DRAWN BY | S.J.C. | D-3 | 14 / 18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |




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## PVC PIPE WATER TESTING PROCEDURES

### TESTS ON PRESSURE PIPING FOR TRANSPORT OF WATER

A. Hydrostatic Pressure Test
Hydrostatic testing shall be performed in accordance with the revision of AWWA C605, Section 7.3, "Hydrostatic Testing".

1. Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 150 psi, or 1.25 times the static operating pressure, whichever is higher.
2. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the Engineer.
3. The test medium shall be water.

B. Hydrostatic Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.
2. The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.
   a. At the completion of the test, the pressure shall be released at the furthermost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The allowable leakage will be determined by the following formula.

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Where:
Q = quantity of makeup water, in gallons per hour
L = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the hydrostatic test, in pounds per square inch (gauge)

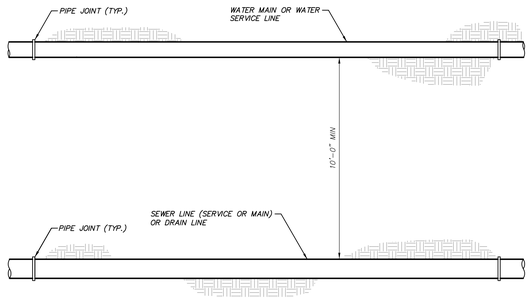
5. Regardless of the above allowables, any visible leaks shall be permanently stopped.
6. The test medium shall be water.

C. Disinfection
Prior to placing the water main into service, the new pipe shall be cleaned and disinfected in accordance with the latest revision of AWWA C651, Section 4.4.3, "The Continuous Feed Method". The "Tablet Method" will not be accepted.

1. All work under this section shall be performed in the presence of the Design Engineer, and a representative of the public health authority having jurisdiction, as required.
2. Chlorination shall be scheduled such that sampling and flushing will be performed during normal daylight working hours. The contractor shall provide acceptable backflow prevention on all supply water to prevent any potential backflow contamination or cross connection.
3. Chlorination shall be by the use of a solution of water and liquid chlorine, calcium hypochlorite or sodium hypochlorite and the solution shall be contained in the pipe or structure as specified.
4. Prior to chlorination, all dirt and foreign matter shall be removed by a thorough cleaning and flushing of the pipeline or structure.
5. The chlorine solution shall be introduced to pipelines through corporation stops placed in the horizontal axis of the pipe, to structures by means of tubing extending directly into the structure, or other approved methods.
6. The application of the chlorine solution shall be by means of a controlled solution feed device. The rate of chlorine solution flow shall be in such proportion to the rate of water entering the pipe or structure that the resulting free chlorine residual shall be between 25 and 50 parts per million (PPM) or milligrams per liter (mg/l).
7. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period, all valves and hydrants within the treated sections shall be operated.
8. The chlorine residual shall be not less than 10 PPM (or mg/l) at any point in the pipe or structure at the end of the 24-hour retention period.
9. When making repairs to, or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing not less than 200 PPM (mg/l) of free chlorine. The solution shall be applied with a brush or sprayed on the entire inner surface of the empty pipes or structures. The structures disinfected shall remain in contact with the strong chlorine solution for at least 30 minutes.
10. After the required retention of chlorinated water in the pipe or structures, they shall be thoroughly flushed until the replacement water shall, upon test, both chemically and bacteriological, be proven equal to water quality served by the public from the existing water supply system.
11. The disposal of chlorinated water from any pipe or structure shall be such that it will not cause damage to any vegetation, fish, or animal life.
12. The Contractor shall make all arrangements for the testing of water quality by an approved independent laboratory. Two acceptable bacteriological test, taken at least 24 hours apart, shall be collected from the new water main. At least 1 set of samples must be collected from every 1,000 LF of the new water main, plus one set from the end of the line and at least one set from each branch. The results for all tests shall be forwarded to the Design Engineer and the public health authority having jurisdiction.
13. All water quality requirements shall be fulfilled prior to the passage of any water through the new system to a public supply or the use of the new system.

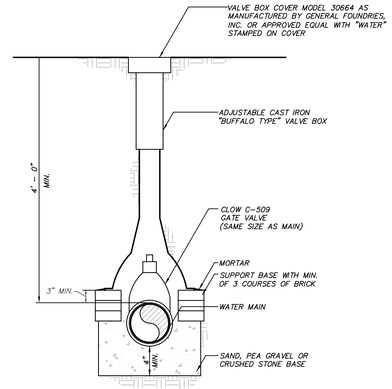
## PVC PIPE WATER MAIN NOTES:

1. All water mains shall be PVC Class 200 DR 14 pipe with factory installed push-on gaskets. All pipe shall be in conformance with the latest edition AWWA C900.
2. All water main fittings shall be Class 350 ductile iron mechanical joints in accordance with the latest edition of AWWA/ANSI Standards C111/A21.11. "GRIP RING" restrained joint connections shall be provided at every fitting (as manufactured by ROMAC Industries, Inc. or approved equal).
3. Thrust blocks shall be installed at all changes in horizontal or vertical alignment.
4. All water mains and appurtenances shall be installed in accordance with the latest edition of AWWA C605.
5. Gate valves shall be "Clow" or approved equal, iron body, non-rising stem conventional packing, resilient seated, mechanical joint with restrained joint gaskets, pressure class 350, opening shall be left (CCW) and operation shall be by 2" square wrench nut.
6. All water mains and appurtenances (including water service lines up to the curb stop) shall be pressure tested and leakage tested to the satisfaction of the Design Engineer, and the Westchester County Department of Health. This shall be done in accordance with the latest edition of AWWA Standard C605.
7. All water mains and appurtenances shall be flushed, disinfected, and tested to the satisfaction of the Design Engineer, and the Westchester County Department of Health. This shall be done in accordance with the latest edition of AWWA Standard C651, section 4.4.3, the "Continuous Feed Method". The "Tablet method" will not be allowed.
8. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary or storm sewer main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The horizontal separation shall also apply to service connections.
9. Water mains crossing sanitary or storm sewer mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. In cases where it is not practical to maintain the 18 inch vertical separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The vertical separation also applies to water service connections.
10. The Design Engineer, Westchester County Department of Health, and Town's Authorized Representative shall be notified forty eight (48) hours before construction is started.
11. The water mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Westchester County Department of Health.
12. The Westchester County Department of Health must be notified forty eight (48) hours prior to pressure testing the water main improvements.
13. The contractor shall notify the Design Engineer every day that water main construction shall occur.

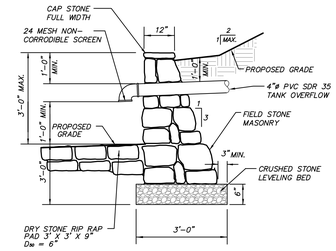



NOTES:
1. WHEN THE 10' SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. THE 10' SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

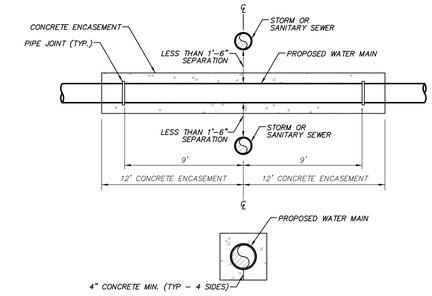
### WATER LINE HORIZONTAL SEPARATION DETAIL
(N.T.S.)




### WATER MAIN GATE VALVE AND VALVE BOX DETAIL
(N.T.S.)

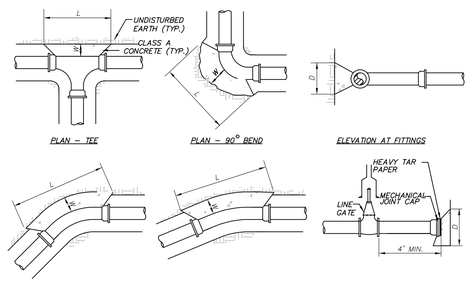


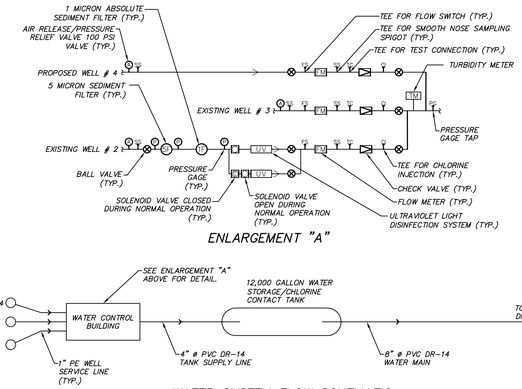

### WATER STORAGE TANK OVERFLOW SPLASH PAD DETAIL
(N.T.S.)



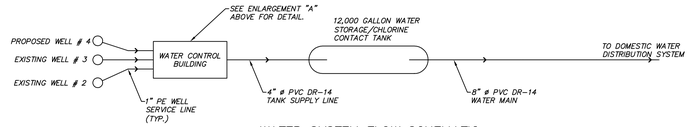

### WATER MAIN CONCRETE ENCASEMENT DETAIL
(N.T.S.)

NOTE: CONCRETE ENCASEMENT IS ONLY TO BE USED WHEN 18" MINIMUM SEPARATION IS NOT POSSIBLE. CONCRETE ENCASEMENT REQUIRES PRIOR APPROVAL BY THE DESIGN ENGINEER & THE DEPARTMENT OF HEALTH.

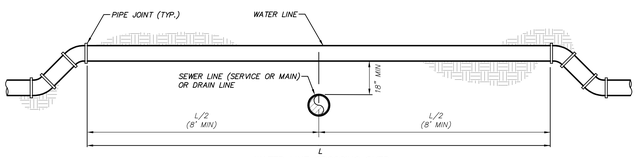


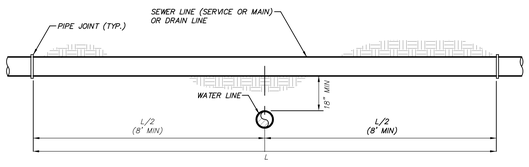

### ENLARGEMENT "A"




### WATER SYSTEM FLOW SCHEMATIC
(N.T.S.)




**WATER LINE CROSSING OVER SANITARY SEWER LINE OR STORM DRAIN LINE**




**WATER LINE CROSSING UNDER SANITARY SEWER LINE OR STORM DRAIN LINE**

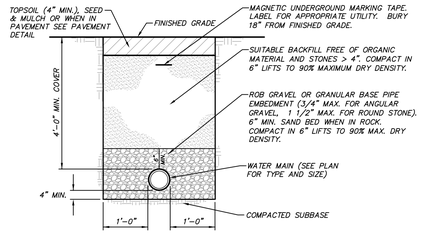
NOTES:
1. WHEN 18" SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
2. PROVIDE PIPE AND FITTING RESTRAINT AS REQUIRED.
3. THE 18" SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS.

### WATER LINE CROSSING DETAIL
(N.T.S.)

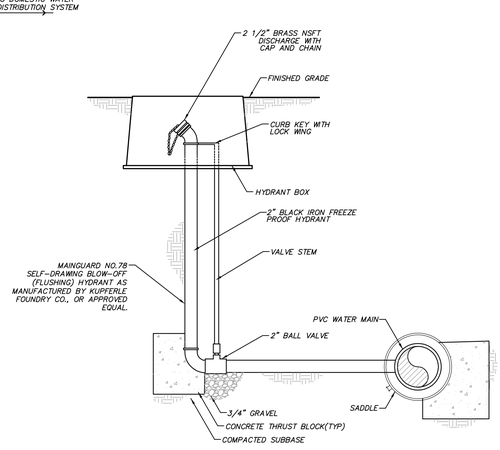
THRUST BLOCK SCHEDULE

| PIPE SIZE | CAP/TEE L | CAP/TEE D | 22 1/2° L | 22 1/2° D | 45° L | 45° D | 90° L | 90° D | W |
|---|---|---|---|---|---|---|---|---|---|
| 4" | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 1.5' |
| 6" | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 2' | 1.5' | 1.5' |
| 8" | 3' | 2' | 2' | 2' | 2' | 2' | 3' | 2' | 1.5' |

### THRUST BLOCK DETAILS
( N.T.S. )

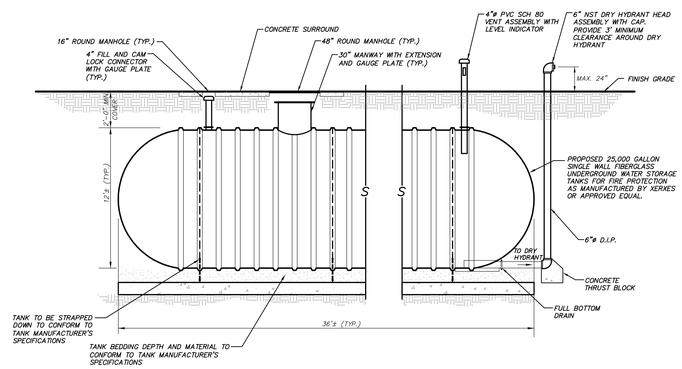



### WATER MAIN TRENCH DETAIL
(N.T.S.)

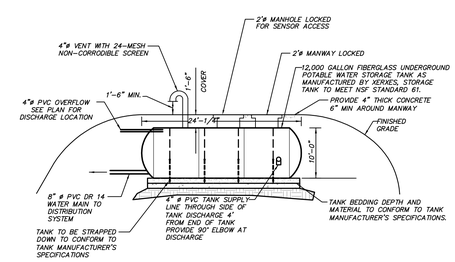



### FLUSHING HYDRANT DETAIL
( N.T.S.)

NOTES:
1. PROVIDE CONCRETE THRUST BLOCKS AT ALL CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS FOR THE DRY HYDRANT AND CONNECTION PIPE
2. PROVIDE LOW LEVEL ALARM IN CLUBHOUSE BUILDING.




### FIRE PROTECTION STORAGE TANK DETAIL
(N.T.S.)




### POTABLE WATER STORAGE TANK DETAIL
(NTS)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 8 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 7 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 6 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 5 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 4 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 3 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 2 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 1 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |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3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-enp.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
|---|---|---|---|---|---|
| DATE | 6-1-17 | DRAWN BY | S.J.C. | D-4 | 15 / 18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |




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## SEWER TESTING PROCEDURES

### TESTS FOR NON-PRESSURE PIPELINES FOR TRANSPORT OF SEWAGE

The leakage shall be determined by exfiltration, infiltration or low pressure air.

A. Exfiltration Testing

1. Exfiltration tests shall be made by filling a section of pipeline with water and measuring the quantity of leakage.
2. The head of water at the beginning of the test shall be at least 2 feet above the highest pipe within the section being tested (5 feet for WCDEP sewers).
   a. Should groundwater be present within the section being tested, the head of water for the test shall be 2 feet above the hydraulic gradient of the groundwater.
   b. Should the requirement of 2 feet of water above the highest pipe subject any joint at the lower end of the test section to a differential head of greater than 11.5 feet, another method of testing shall be employed.

B. Infiltration Testing

1. Infiltration tests will be allowed only when the water table gauges determine the groundwater level to be 2 feet or more above the highest pipe of the section being tested.
2. Infiltration test shall be made by measuring the quantity of water leaking into a section of pipeline.
3. Measurement of the infiltration shall be by means of a calibrated weir constructed at the outlet of the section being tested.

C. Allowable Leakage for Non-Pressure Pipelines

1. The allowable leakage (exfiltration or infiltration) for non-pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per 1000 feet of pipe:

| Leakage | Type of Pipe | |
|---|---|---|
| | Ductile iron – mechanical or push-on joints | 100 |
| | Polyvinyl chloride, thermal plastic or fiberglass with rubber joints | 100 |
| | Cast iron soil pipe | 0 |

2. Regardless of the above allowable leakage, any spurting leaks detected shall be permanently stopped.

D. Low Pressure Air Testing

1. Air testing for acceptance shall not be performed until the backfilling has been completed.
2. Low pressure air tests shall conform to ASTM C 828 or ASTM F1417-92, Section 8.2.2, Time-Pressure Drop Method for a 0.5 psi drop, except as specified herein and shall not be limited to type or size of pipe.
3. All sections of pipelines shall be cleaned and flushed prior to testing.
4. The air test shall be based on the starting pressure of 3.5 to 4.0 psi gauge. The time allowed for the 0.5 psi drop in pressure, measured in seconds, will be computed based on the size and length of the test section by the Engineer.
   a. When groundwater is present, the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.
   b. The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 13 feet above the top of the pipe.
5. The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves, gauges and plugs to allow for the monitoring of the pressure, release of pressure and a separable test gauge.
   a. The test gauge shall be sized to allow for the measuring of the 0.5 psig loss allowed during the test period and shall be on a separate line to the test section.

E. Deflection Testing

1. Deflection testing shall be performed 30 days after backfilling. The test shall be made by passing a ball or cylinder no less then 95% of the pipe diameter through the pipe. The test shall be performed without mechanical pulling devices.

F. Manhole Testing

1. General
   a. Each manhole shall be tested by either exfiltration, infiltration or vacuum testing.
   b. A manhole will be acceptable if the leakage does not exceed an allowance of one gallon per vertical foot of depth for 24 hours. Regardless of the allowable leakage, any leaks detected shall be permanently stopped.
2. Exfiltration tests shall be performed after backfilling. The test shall be made by filling the manhole with water and observing the level for a minimum of eight hours.
3. Infiltration tests shall be performed after backfilling when the groundwater level is above the joint of the top section of a precast manhole.
4. Vacuum testing shall be performed after backfilling in accordance with the latest revision of ASTM C1244-02 as follows:
   a. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.
   b. A vacuum of 10 in. of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 in. of mercury.
   c. The manhole shall pass if the time for the vacuum reading to drop from 10 in. of mercury to 9 in. of mercury meets or exceeds the values indicated below:

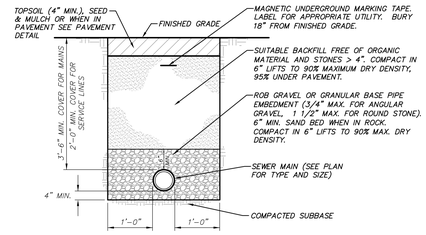
Minimum Test Times for Various Manhole Diameters in Seconds:

| Depth (ft) | Diameter (inches) 48 | 60 |
|---|---|---|
| | Time (seconds) | |
| 8 or less | 20 | 26 |
| 10 | 25 | 33 |
| 12 | 30 | 39 |
| 14 | 35 | 46 |
| 16 | 40 | 52 |
| 18 | 45 | 59 |
| 20 | 50 | 65 |

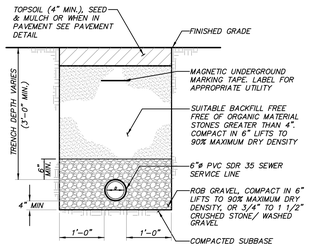
   d. If the manhole fails the initial test, necessary repairs shall be made by an approved method. The manhole shall then be retested until a satisfactory test is obtained.

## SEWER MAIN NOTES

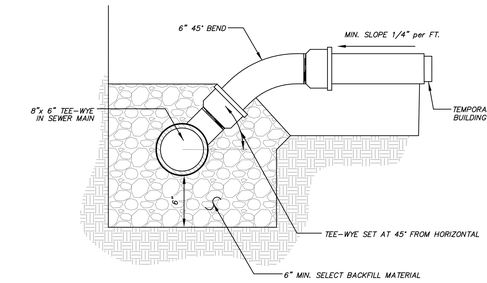
1. All sewer mains & sewer services shown on these plans shall be polyvinyl chloride (PVC) SDR 35.
2. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot horizontal separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer. The horizontal separation also applies to service connections.
3. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. In cases where it is not practical to maintain a 10 foot horizontal separation, the Design Engineer and Westchester County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to sewer line installation. The vertical separation also applies to service connections.
4. Sanitary sewer service lines shall be tested in conjunction with the sewer mains to the property line or easement line, and in accordance with the latest Westchester County Department of Health Rules & Regulations.
5. Testing of the manholes with the pipeline shall not be permitted. Manholes & sanitary sewer lines shall be tested independently of each other.
6. The owner/applicant shall be responsible for acquiring supervision of the construction of the sanitary sewer main system by a person or firm qualified to practice professional engineering in the state of New York.
7. The owner/applicant shall be responsible for providing Three (3) copies of as-built drawings signed and sealed by a licensed and registered New York State Professional Engineer to the Westchester County Department of Health at the completion of the construction.
8. The Design Engineer, Westchester County Department of Health, and Town Engineering Department shall be notified forty eight (48) hours before construction is started.
9. The sanitary sewer mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Westchester County Department of Health.
10. The Westchester County Department of Health and the New York City Department of Environmental Protection must be notified forty eight (48) hours prior to pressure testing the sewer main improvements.
11. Manhole frames & covers to be Campbell pattern #1007C for 24" opening or approved equal. M.H. covers to be marked "SEWER" and to have six 3/4"ø hole vents. (use solid covers where necessary.)
12. The exterior of all manholes shall be covered with an approved asphalt waterproofing.
13. Concrete base slabs shall be air entrained concrete with a minimum design strength of 3,000 psi.
15. The contractor shall submit shop drawings of the precast manholes to the Design Engineer for review and acceptance.
16. Precast manholes shall have minimum reinforcement of 0.12 sq.. in. per lin. ft. for 48" barrel & be designed in accordance with A.S.T.M. C-478, and withstand an H-20 design loading.
17. Precast base sections to have the required number of gaskets and openings as shown and specified.
18. Precast manhole sections shall employ a watertight gasket arrangement between each section approved by the Design Engineer.
19. Openings for pipes shall be precast or machine cored. Gaskets or collars for pipe connections to manholes shall be resilient and watertight and compatable with the type of pipe being used.
20. The length of pipes entering or leaving any manhole shall be greater than 2'-0".
21. Precast manholes under 6'-0" deep shall have a "Flat Top" slab roof.
22. Gaskets or collars for pipe connections to manhole shall provide a minimum of 0.1' drop across the manhole.



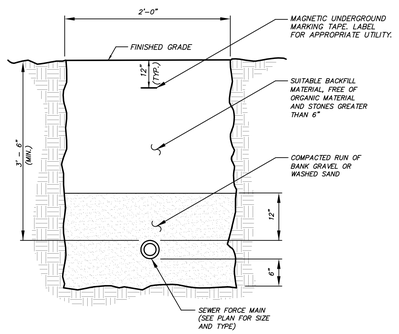

SEWER MAIN TRENCH DETAIL
(N.T.S.)



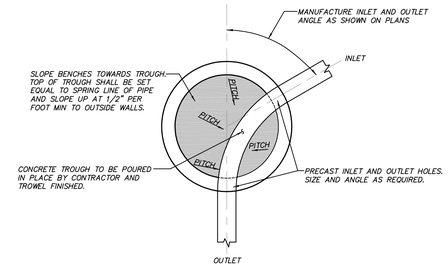

SEWER SERVICE LINE TRENCH DETAIL
(N.T.S.)



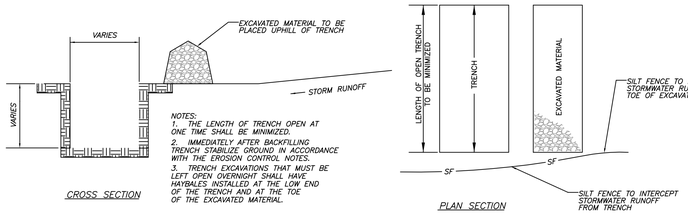

SEWER SERVICE CONNECTION DETAIL
(N.T.S.)



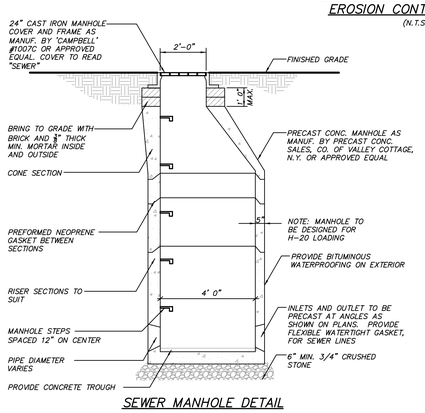

SEWER FORCE MAIN TRENCH DETAIL
(N.T.S.)



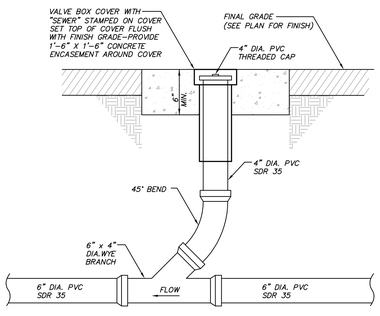

TYPICAL MANHOLE TROUGH DETAIL
(N.T.S.)




UTILITY TRENCH EXCAVATION EROSION CONTROL DETAIL
(N.T.S.)




SEWER MANHOLE DETAIL
(N.T.S.)




SEWER LINE CLEANOUT DETAIL
(N.T.S.)

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 15 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 14 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 13 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 12 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 11 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 10 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 9 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 8 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |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3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 6-1-17 | DRAWN BY | S.J.C. | D-5 | 16 / 18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |




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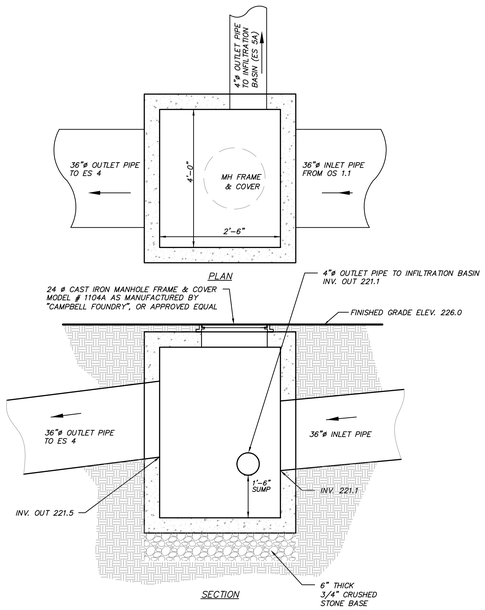
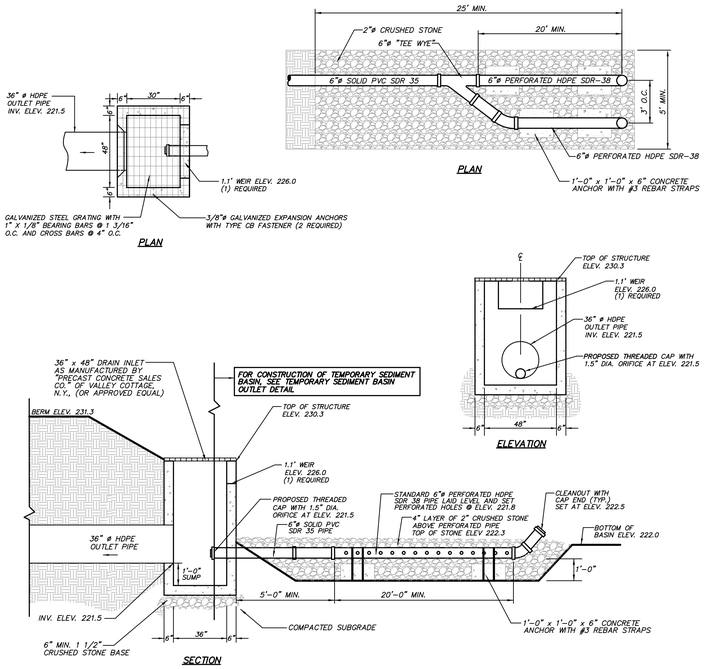



## FLOW SPLITTER FS 5 DETAIL

(N.T.S.)




## EXTENDED DETENTION DRY PRETREATMENT BASIN 1.1 EDB OUTLET STRUCTURE (OS 1.1 EDB) DETAIL

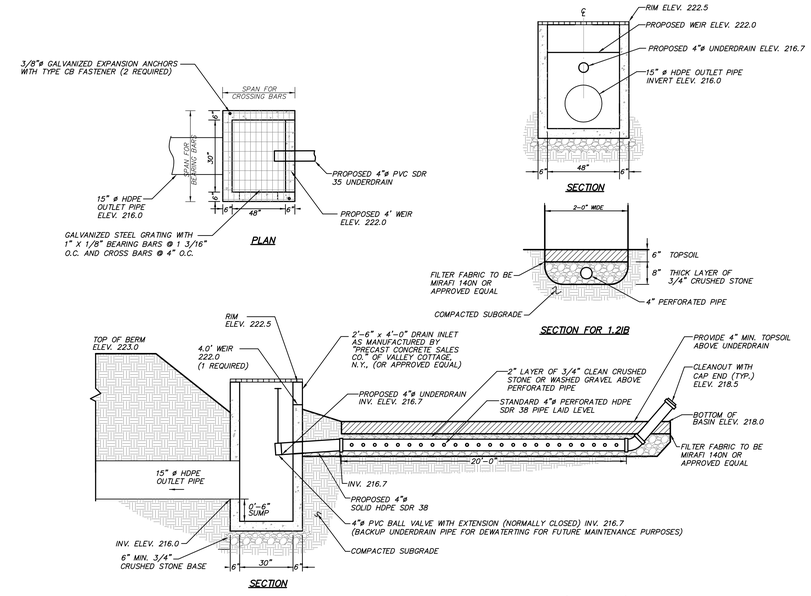
(N.T.S.)

| PRACTICE/FACILITY | MONTHLY | AFTER MAJOR STORM EVENTS | BI-ANNUALLY | YEARLY | EVERY 5 to 10 YEARS |
|---|---|---|---|---|---|
| RIP RAP SWALES | Ensure contributing areas clean of debris, no evidence of erosion, & mowing performed. | Inspect for erosion, soil permeability & evidence of flow going around structures. | – | Inspect & clean accumulated sediment. | – |
| SUBSURFACE STORMWATER COLLECTION SYSTEMS | – | – | Inspect & clean | Inspect, clean, repair and/or replace structures. Remove debris. | – |
| GRASS SWALES | Inspect first few months after construction for eroding soils & slumpage & repair immediately | – | Inspect & clean Mow & remove debris & litter. Revegetate as needed. | – | Inspect for & remove accumulated sediment |
| DRAINAGE STRUCTURES (CATCH BASINS, DRAIN INLETS, SIDE DRAIN INLETS, AND DRAINAGE MANHOLES) | – | Side drain inlets shall be inspected and any accumulated sediment in sump shall be removed. | Inspect all structures for damage to frame and grate & pipe inlets/outlets. Clean accumulated sediment in sump. | – | – |
| INFILTRATION BASINS, SEDIMENTATION BASIN | Inspect first few months after construction for eroding soils & slumpage & repair immediately | Inspect orifices, inlets & outlets for clogging, eroding soils on the basin berm & embankments, & sources of erosion; & stabilize and/or repair immediately. | Mow berms and exterior embankments Remove debris & litter from basins & outlet structures. Remove Sediment if accumulated greater than an 1" | – | Inspect for & remove accumulated sediment |
| WOODED FILTER STRIPS | – | – | Inspect buffer for condition of vegetative cover. Remove any accumulated sediment or debris and repair any areas of erosion | Inspect buffer for condition of vegetative cover. Remove any accumulated sediment or debris and repair any areas of erosion | – |

Note: The party responsible for implementation of the maintenance schedule during and after construction is:

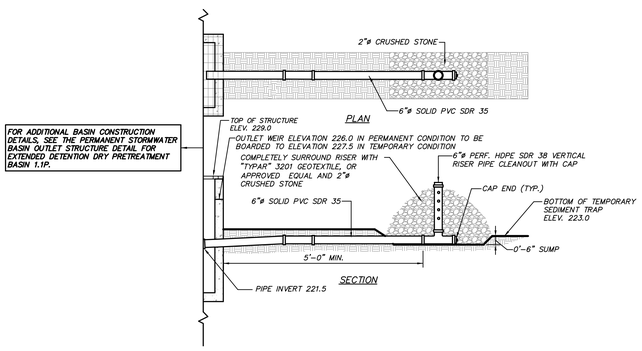
Wilder Balter Partners, Inc.
480 North Bedford Road
Building 300, 1st Floor, West Wing
Chappaqua, NY 10514

and/or the current owner(s) of the subject property.



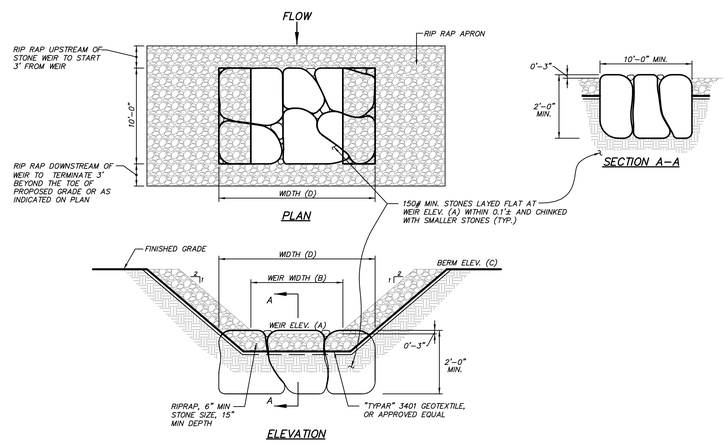

## PERMANENT INFILTRATION BASIN 1.2IB OUTLET STRUCTURE (OS 1.2IB) DETAIL

(N.T.S.)



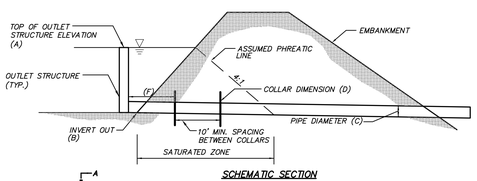

## TEMPORARY SEDIMENT TRAP OUTLET STRUCTURE DETAIL

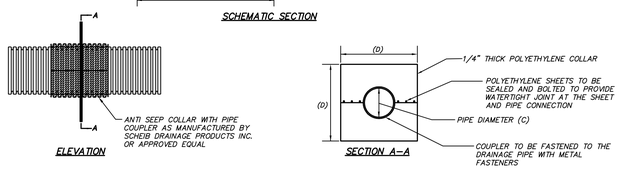
(N.T.S.)




## STONE EMERGENCY OVERFLOW DETAIL

(N.T.S.)

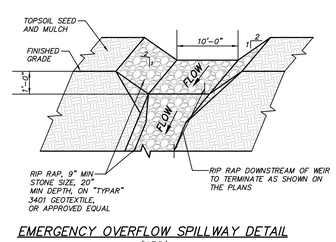



| OUTLET STRUCTURE | TOP OF STRUCTURE ELEVATION (A) | INVERT OUT ELEVATION (B) | PIPE DIAMETER (INCHES) (C) | COLLAR DIMENSION (FT.) (D) | NUMBER OF COLLARS REQUIRED | DISTANCE FROM OUTLET STRUCTURE TO FIRST COLLAR (F) |
|---|---|---|---|---|---|---|
| OS 1.1 EDB | 230.3 | 221.5 | 36" | 6'x6' | 3 | 10' |
| OS 1.2 1B | 222.5 | 216.0 | 15" | 3'x3' | 1 | 10' |

## ANTI-SEEP COLLAR DETAIL

(N.T.S.)




## EMERGENCY OVERFLOW SPILLWAY DETAIL

(N.T.S.)

## EXTENDED DETENTION DRY PRETREATMENT BASIN & INFILTRATION BASIN OUTLET NOTES

1. THE BASINS ARE PROPOSED TO BE UTILIZED AS TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
2. AFTER THE CONTRIBUTING AREAS TO THE BASINS HAVE BEEN PERMANENTLY STABILIZED, THE FOLLOWING SHALL BE ACCOMPLISHED:

FOR EXTENDED DETENTION DRY PRETREATMENT BASIN 1.1 EDB:

A. CLEAN BASIN AND OUTLET STRUCTURE AND REMOVE 6"ø PERFORATED VERTICAL RISER PIPE, CRUSHED STONE AND FILTER FABRIC.
B. ADD THREADED CAP WITH ORIFICE AT DISCHARGE END OF 6"ø SOLID PVC SDR 35 PIPE'S PER DETAIL.
C. REPLACE THE PERFORATED PIPE AND CRUSHED STONE. DO NOT REPLACE FILTER FABRIC.
D. ESTABLISH THE FINAL VEGETATION IN THE BASIN IN ACCORDANCE WITH THE TYPICAL DRY STORMWATER / INFILTRATION BASIN PLANTING DETAIL.

FOR INFILTRATION BASIN 1.2IB:

A. INFILTRATION BASIN CONSTRUCTED IN ITS FINAL CONDITION PER THE DETAILS SHOWN HEREON DURING INITIAL PHASES OF CONSTRUCTION AND STABILIZED.
B. ALL FLOW SHALL BE DIVERTED AWAY FROM THE BASIN UNTIL ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES.
C. UPON COMPLETE STABILIZATION OF ALL CONTRIBUTING AREAS AND CONVERSION OF THE TEMPORARY SEDIMENT TRAP TO THE PERMANENT EXTENDED DETENTION DRY PRETREATMENT STORMWATER BASIN. DIRECT ALL TO INFILTRATION BASIN.

3. FOLLOWS: * WHEN INITIALLY USED AS THE TEMPORARY SEDIMENT BASIN DEWATERING DEVICE THE RISER SHALL BE WRAPPED WITH TYPAR 3201 GEOTEXTILE OR APPROVED EQUAL AND SURROUNDED WITH 2"ø STONE. THE TOP OF THE RISER SHALL BE SET AT THE SAME ELEVATION AS THE WEIRS AS SHOWN IN THE STORMWATER BASIN OUTLET STRUCTURE DETAILS.

| NO. | DATE | REVISION | BY |
|---|---|---|---|
| 10 | 9-27-18 | REVISED PER TOWN COMMENTS | BD |
| 9 | 8-23-18 | PLANNING BOARD SUBMISSION | JFR |
| 8 | 8-2-18 | REVISED PER TOWN COMMENTS | JJR |
| 7 | 6-28-18 | REVISED PER TOWN COMMENTS | MEU |
| 6 | 1-23-18 | REVISED PER NYCDEP COMMENTS | ZMP |
| 5 | 12-28-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 4 | 11-17-17 | REVISED PER NYCDEP COMMENTS | ZMP |
| 3 | 9-01-17 | REVISED PER TOWN COMMENTS | ZMP |
| 2 | 7-27-17 | REVISED PER TOWN COMMENTS | EIG |
| 1 | 6-29-17 | REVISED PER TOWN COMMENTS | SJC |


INSITE
ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com


PROJECT:
WILDER BALTER PARTNERS, INC.
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING:
SITE DETAILS

| | | | | | |
|---|---|---|---|---|---|
| PROJECT NUMBER | 15246.100 | PROJECT MANAGER | J.J.C. | DRAWING NO. | SHEET |
| DATE | 6-1-17 | DRAWN BY | S.J.C. | D-6 | 17/18 |
| SCALE | AS SHOWN | CHECKED BY | D.L.M. | | |



Z:\0152\BW1000\D-1-dwg, 9/26/2018 2:27:07 PM, mdler, 1:1

Wetland Buffer Mitigation Plan Notes
Wilder Balter Lewisboro
Route 22, Town of Lewisboro, NY
June 23, 2017
Revised October 11, 2017

Notes:

1. Limits of the wetland buffer enhancement area will be staked out prior to commencement of plant removal.
2. Nuisance and non-native vegetation will be removed, including species listed in the invasive species narrative.
3. Wetland seed mix will be used as specified to supplement plantings at a rate of 4 pounds per acre. Eight pounds of seed will be used for this site.
4. The area chosen for restoration and enhancement is adjacent to the northern side of the wetland, and is the location of past site activities. Historic aerial photos show that agricultural and forestry activities were being conducted on this part of the site as recently as the 1960's. Secondary growth following the cessation of this disturbance includes a number of non-native and invasive species, which will be cleared from the site in accordance with the attached maintenance plan.
5. Two stormwater management basins will be constructed partially within the regulated buffer areas. These basins will be planted as stormwater wetlands, and will also add diversity of vegetation and stormwater quality treatment to the site.
5. A total of 91 shrubs, 12 trees and a number of herbaceous plants will be planted to create a more diverse buffer plant community on site as per the plant list below.

***Goals/Offsetting of Proposed Impacts***

The proposed impacts to buffers and adjacent areas are associated with the construction of stormwater management basins designed to treat runoff from the newly developed residential units. These basins will be constructed in an area that was previously disturbed and has suitable topography such that the basins can be created with minimal grading and earth movement. The proposed planting plan will improve on this vegetative cover by introducing native species to the area, while providing filtering and flood attenuation of overland runoff before it enters the receiving stream.

It is noted that a portion of the proposal is to eliminate non-native vegetation in some areas of the existing wetland and adjacent areas. In total, the proposed mitigation will include approximately two acres of the site. No direct impacts to wetlands are proposed; approximately 14,500 sf of Town and 7,000 sf of DEC buffer will be affected. Mitigation ratios will therefore be approximately 3.7: and 7.7:1 respectively.

***Proposed Wetland Buffer Enhancement***

The overall mitigation area, identified on the plans as "wetland/buffer enhancement area", is a disturbed part of the site where previous site work, clearing and grading were done. As noted above, nuisance vegetation, stone piles and rubble will be removed in this area and plants installed as shown on the planting plan.

***Planting Details***

Plant choices for the wetland expansion were made according to existing site conditions and locally common species.

All planting will proceed by hand. Materials will be brought to the site in good condition (see below) and then placed in central drop locations. The materials will then be hand-carried to their planting locations and in turn, planted by hand. Only rounded, shallow planting shovels will be used in this effort.

Criteria for selecting plant material will include (1) the plant's ability to withstand the expected light and saturation conditions; (2) its demonstrated survival on this site and other nearby sites; (3) the plant must be native and non-invasive; and (4) whether the plant material is available at nurseries in the same region as the site. See Table 1 for complete plant species list. Seed mix was chosen based on the species' ability to survive in moist areas adjacent to the road with some sun.

Planting will be done in spring or early summer (between April 1 and July 1). Shrubs may also be planted in the late summer to early fall (September 1 to October 30). In all cases, a hole will be dug twice as deep as the root ball. The only shovels allowed are rounded, shallow spades. The hole will then be backfilled with a thin layer of rich, organic topsoil, the plant placed inside, the hole backfield to the top and then gently tamped down.

Container-grown plant material delivered to the job site will be inspected to assure moist soil/root masses. Any dry and light weight plants will not be accepted. If not planted immediately the container will be stored out of the sun and wind and kept moist (i.e., a means of watering will be provided and watering will occur daily). When removed from the containers, the plants will be the size of the specified container. If in leaf, the plants will appear healthy with no spots, leaf damage, discoloration, insects or fungus. If not in leaf, the buds will be firm and free of damage, discoloration, insects or fungus. Containers will be a minimum of quart size for shrubs and gallon size for trees.

Bare roots plants will be shipped from the nursery immediately after lifting from the field and will be planted immediately upon arrival at the site. If they cannot be planted as soon as arriving at the site, they will be stored in the shade, protected from sun and wind, and kept moist by the use of straw, peat moss, compost, or other suitable materials. Plants not having an abundance of well developed terminal buds on the leaders and branches will be rejected. The stems and branches of all plants will be turgid and the cambium healthy or the plants rejected. Any bare root plants that are in leaf or have leaflets will be rejected.

**Plant Species Choices for Wetland Buffer Enhancement/Restoration**

| Map Symbol | Quantity | Scientific Name | Common Name | Size |
|---|---|---|---|---|
| ***Trees*** | | | | |
| Aru | 12 | Acer rubrum | Red Maple | 5' - 6' |
| ***Shrubs*** | | | | |
| CSe | 29 | Cornus sericea | Redosier dogwood | 3' - 4' |
| AC | 6 | Amelanchier canadensis | Shadblow | 4' - 5' |
| SD | 14 | Salix discolor | Pussy willow | 3' - 4' |
| VC | 21 | Vaccinium corymbosum | Highbush blueberry | 4' - 5' |
| VD | 21 | Viburnum dentatum | Arrowwood | 4' - 5' |
| ***Herbaceous Plants*** | | | | |
| CS | 100 | Carex stricta | Tussock sedge | 2" plug |
| CC | 100 | Carex crinita | Fringed sedge | 2" plug |
| JE | 100 | Juncus effusus | Soft rush | 2" plug |
| ***Seed Mix*** | | | | |
| SWM | 8 pounds | Riparian Buffer Mix ERNMX-154 Or equivalent | | |

***Wetland Buffer Enhancement Areas***

Following the removal of non-native invasive species as specified in the invasive species eradication plan, wetland and buffer areas will be seeded using the following seed mixes:

Buffer Areas - Riparian Buffer Mix (ERNMX-154 or equivalent) at 20 lbs/acre.

***Monitoring and Maintenance***

At least one pre-construction meeting will occur between the chosen grading and/or planting contractor/subcontractor and the site environmental monitor prior to beginning construction on site. The construction monitor will have experience in wetland construction and a Bachelor of Science degree in Natural and/or Physical Resources.

Monitoring and maintenance efforts for the mitigation plantings will take place over a five year period following construction. This will include bi-weekly visits for the first growing season, and then twice a year for the next four years, with additional inspections as required depending on conditions. The applicant's environmental monitor will conduct a survey of the site and site conditions will be noted and adjusted as necessary. A goal of at least 85% survival and a maximum of 10% non-native species willbe considered acceptable. An annual report will be provided to the Town of Lewisboro and government agencies at the end of the growing season for each of the five years. Deer fence will be utilized as necessary to minimize damage from deer browsing.

**Invasive Species Monitoring and Control Program**

Japanese barberry, oriental bittersweet, *Phragmites australis* and multifloral rose are all noted as present within and adjacent to the wetlands on the project site. These invasive species favor areas of disturbed soils and edge areas. This plan will implement an invasive species monitoring and manual control program for the duration of construction and development of the project. It has been designed to carry over into the needed maintenance plans that will need to be developed and implemented by the Project Owner.

Those areas of the site that are closest to the existing wetlands and watercourses have been disturbed and re-graded over the years. These are the portions of the site that are known to support invasive species which are altering the character of the wetlands and adjacent areas and represent a long term risk to the native vegetative community.

By controlling exotic vegetation, and reducing deer populations due to increased human activity on the site, nearby native plants will have less competition and therefore have more resources available for their own growth. An invasive species monitoring and control program will be implemented at the project site as part of the overall development plan. Species targeted for removal include the following:

*Tree-of-heaven (Ailanthus altissima)*
*Multiflora rose (Rosa multiflora)*
*Mugwort (Artemisia vulgaris)*
*Autumn olive (Eleagnus umbellata)*
*Garlic mustard (Alliaria petiolata)*
*Purple loosestrife (Lythrum salicara)*
*Common reed (Phragmites australis)*
*Oriental bittersweet (Celastrus orbiculatus)*
*Porcelainberry (Ampelopsis brevipedunculata)*
*Japanese Barberry (Berberis thunbergii)*
*Japanese Stilt Grass (Microstegium vimeneum)*
*Winged Euonymus (Euonymus alatus)*

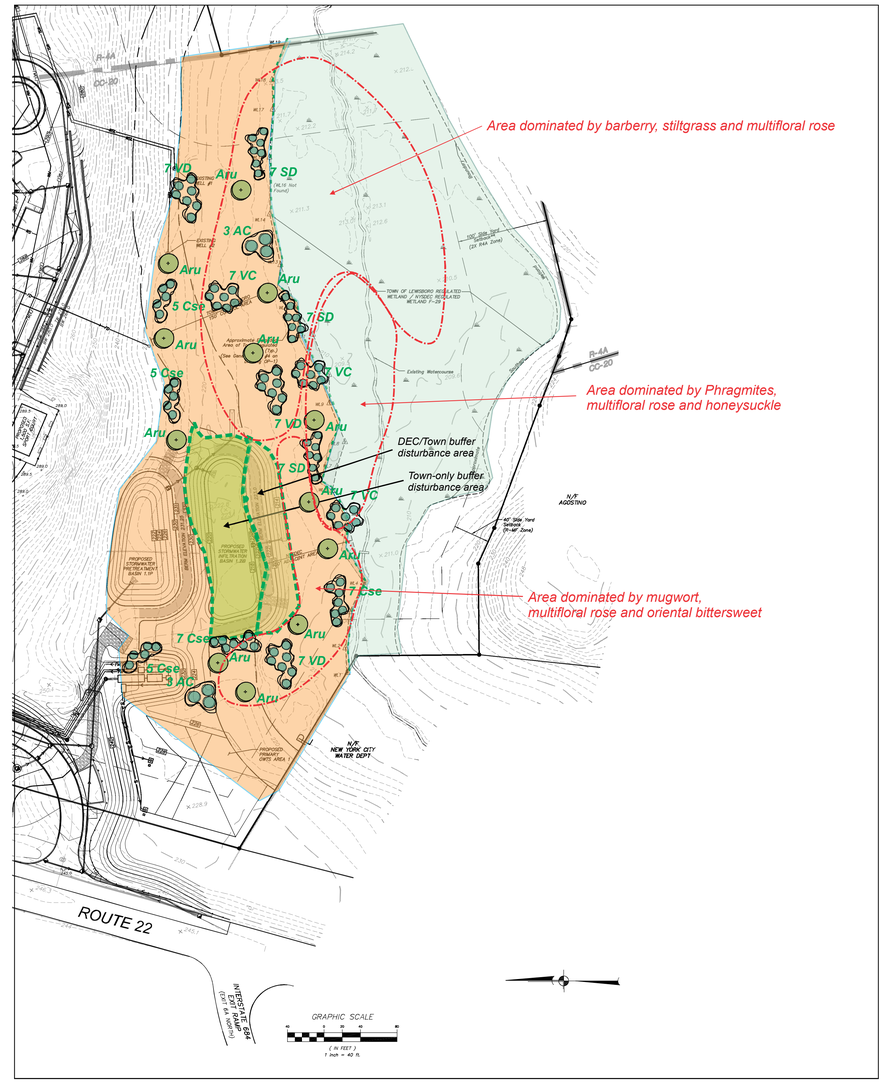
The above listed species and all other invasive non-native plants that are detrimental to the ecology of the project site will be removed during site development to the extent practicable. The goal of this program is to reduce the presence of exotic/invasive species to a threshold of less than ten percent total cover within the areas shown on the Wetland Restoration and Buffer Enhancement Plan (the "Plan"). A qualified biologist/botanist will supervise the removal of invasive species. Invasive species can be removed in several ways, depending on the location and species of the plant:

1. If a shrub is isolated and does not have its root system entwined with other plants, it may be removed mechanically. As much of the root system as possible should be removed to prevent the possibility of the invasive plant sprouting from root pieces left behind.
2. If a shrub is growing amongst other native plants in a way that uprooting it may disturb surrounding native plants warranting preservation, the plant may be most safely and effectively removed by chemical means. To remove by chemical means, the plant shall first be cut back to a few stubs and stumps, about twelve inches from the base. An EPA approved solution of glyphosate (Round-up or equivalent) shall be painted on the ends of the stumps. This technique shall be applied in the early fall months before the onset of plant dormancy. Proper notification must be made prior to the application of all restricted pesticides, and application made by a licensed applicator, if required. During project construction, glyphosate will only be applied by a licensed herbicide applicator, as coordinated with the Environmental Site Monitor. Only hand-cutting and removal will be allowed within the Wetland Controlled Area.
3. Highly invasive groundcovers, such as Japanese honeysuckle, are difficult to eliminate due to their habit of rooting along the stem. Groundcovers of this type will be removed by hand or mechanically. If after the second year of treatment the species persists, it may be sprayed with glyphosate, using a very close and targeted application during the active growing season. If the plant is growing among other herbaceous or shrub material that would be harmed by spraying, the glyphosate shall be applied by brush or mechanical removal should be considered. Repeated treatments may be necessary to remove the plant completely.
4. Highly invasive annuals, such as garlic mustard, are difficult to eliminate due to their growth from seed that is widespread among the soil seed bank where the plants are found. Several methods may be utilized in removing this type of invasive plants. If the species is growing densely without other plants, the area will be sprayed with glyphosate during the active growing season, following the manufacturer's recommendations. Species will also be removed by hand. Both methods should be performed before plants set seed. Both methods shall be performed multiple times over a season and possibly over several seasons to completely eradicate the target species.

Monitoring and Maintenance Schedule

Following development of the site, a maintenance plan will include the regular inspection of undisturbed areas as shown on the Plan, and removal of these species as necessary. This represents the transitional areas that are most susceptible to opportunistic settling of invasive species. It is anticipated that a schedule of inspections three times a year for the first three years following full project build out (early, mid and late growing season) will be adequate for the identification and removal of the invasive species in this area.

The Town Building Inspector and Wetlands Inspector will be consulted prior to the proposed removal of invasive species within the controlled area. In addition, all activities related to invasive species control, monitoring and assessment of achievement of the 10 percent tolerance threshold for coverage by all invasive species on the project site will be coordinated with the Environmental Site Monitor. These inspections will include the mapping and identification of locations and extent of cover of invasive species, and identify the methods to be used for the subsequent removal. Following treatment, a brief report outlining extent, location and removal method for each species shall be prepared and filed with the Town Planning Office.




Buffer area to be enhanced. Invasive species will be removed, new plants installed and area seeded with transitional species mix.

Wetland area where invasive species will be removed.

| | |
|---|---|
| **Total Buffer Disturbance** | |
| New York State DEC/Town of Lewisboro | 7,400 sf |
| Town of Lewisboro only | 14,500 sf |
| Total impervious cover within buffer (existing) | 0 sf |
| Total impervious cover within buffer (proposed) | 0 sf |
| | |
| **Mitigation/Enhancement** | |
| Wetland/Buffer enhancement area | +/- 40,000 sf |
| | |
| Stormwater Basin planting | +/- 14,000 sf |
| | |
| Total buffer restoration/enhancement | +/- 54,000 sf |
| | |
| **Buffer/restoration ratio - DEC/Town** | 7.7:1 |
| **Buffer/restoration ratio - Town** | 3.7:1 |

Note: Refer to Site Plans prepared by Insite Engineering, Surveying and Landscape Architecture, P.C. for stormwater basin plantings and other site landscaping.

Mitigation Plan prepared by Frederick P. Wells, RLA and Steve Marino, PWS
Date: June 23, 2017, rev. October 11, 2017
rev. August 2, 2018
Basemap provided by INSITE Engineering

Tim Miller Associates, Inc.
Environmental and Planning Services
10 North Street, Cold Spring, NY
845 265 4400

WETLAND BUFFER RESTORATION
AND ENHANCEMENT PLAN
FOR
WILDER BALTER PARTNERS INC.
ROUTE 22
LEWISBORO, WESTCHESTER COUNTY, NEW YORK

SHEET 18 / 18


4 BUILDING 1 - LEFT SIDE ELEVATION
1/8" = 1'-0"


3 BUILDING 1 - RIGHT SIDE ELEVATION
1/8" = 1'-0"


2 BUILDING 1 - REAR ELEVATION
1/8" = 1'-0"


1 BUILDING 1 - FRONT ELEVATION
1/8" = 1'-0"

# LEWISBORO AFFORDABLE FAMILY APARTMENTS

TOWN OF LEWISBORO, NEW YORK

Wilder Balter Partners, Inc

Chappaqua, New York

L&M DESIGN LLC
ARCHITECTURE • PLANNING • URBAN DESIGN
www.lmdesignllc.com
RADNOR, PENNSYLVANIA - LMdesignLLC.com


SEPTEMBER 10, 2018
SCALE: 1/8" = 1'-0"

Level 3 - Schematic Design

Drawing File: ELEVATIONS - BLDG 1.dwg Tab: 24x36 Plotted on: Sep 10, 2018 - 3:03pm Plotted By: TBoblooch Plot Style Table:


4 BUILDING 2 - LEFT SIDE ELEVATION
1/8" = 1'-0"


3 BUILDING 2 - RIGHT SIDE ELEVATION
1/8" = 1'-0"


2 BUILDING 2 - REAR ELEVATION
1/8" = 1'-0"


1 BUILDING 2 - FRONT ELEVATION
1/8" = 1'-0"

SEPTEMBER 10, 2018
SCALE: 1/8" = 1'-0"

Level 3 - Schematic Design

Drawing File: ELEVATIONS - BLDG 2.dwg Tab: 24x36 Plotted on: Sep 10, 2018 - 3:03pm Plotted By: TBoblooch Plot Style Table:

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# LEWISBORO AFFORDABLE FAMILY APARTMENTS

TOWN OF LEWISBORO, NEW YORK

Wilder Balter Partners, Inc
Chappaqua, New York


4 BUILDING 4 - LEFT SIDE ELEVATION
1/8" = 1'-0"


2 BUILDING 4 - RIGHT SIDE ELEVATION
1/8" = 1'-0"


3 BUILDING 4 - REAR ELEVATION
1/8" = 1'-0"


1 BUILDING 4 - FRONT ELEVATION
1/8" = 1'-0"

SEPTEMBER 10, 2018
SCALE: 1/8" = 1'-0"

# Level 3 - Schematic Design

Drawing File: ELEVATIONS - BLDG 4 .dwg Tab: 24x36 Plotted on: Sep 10, 2018 - 3:03pm Plotted By: TBoblooch Plot Style Table:

L&M DESIGN LLC
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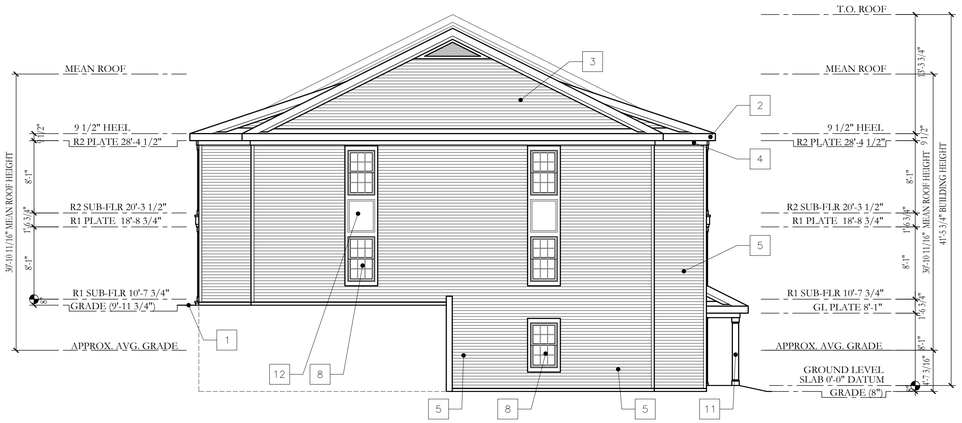
# LEWISBORO AFFORDABLE FAMILY APARTMENTS

TOWN OF LEWISBORO, NEW YORK

Wilder Balter Partners, Inc
Chappaqua, New York




4 BUILDING 5 - LEFT SIDE ELEVATION
1/8" = 1'-0"


2 BUILDING 5 - RIGHT SIDE ELEVATION
1/8" = 1'-0"


3 BUILDING 5 - REAR ELEVATION
1/8" = 1'-0"


1 BUILDING 5 - FRONT ELEVATION
1/8" = 1'-0"

SEPTEMBER 10, 2018
SCALE: 1/8" = 1'-0"

# Level 3 - Schematic Design

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ARCHITECTURE • PLANNING • URBAN DESIGN
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# LEWISBORO AFFORDABLE FAMILY APARTMENTS

TOWN OF LEWISBORO, NEW YORK

Wilder Balter Partners, Inc
Chappaqua, New York

Drawing File: ELEVATIONS - BLDG 5.dwg Tab: 24x36 Plotted on: Sep 10, 2018 - 3:03pm Plotted By: TBoblooch Plot Style Table:


SQUARE FOOTAGES

| | |
|---|---|
| CLUB | 2,496.6 |
| MANAGEMENT | 1,044.5 |
| LAUNDRY | 374.8 |
| MECHANICAL | 190.7 |

SEPTEMBER 21, 2018
SCALE: 1/8" = 1'-0"

# BUILDING TYPE 4 - FIRST FLOOR - CLUB

## Level 3 - Schematic Design

Drawing File: BLDG 4 - 1ClubLevel.dwg Tab: 24x36 Plotted on: Sep 21, 2018 - 3:05pm Plotted By: TBoblooch Plot Style Table:

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# LEWISBORO AFFORDABLE FAMILY APARTMENTS

TOWN OF LEWISBORO, NEW YORK

Wilder Balter Partners, Inc
Chappaqua, New York

NEW YORK STATE OF OPPORTUNITY. | Department of Transportation

**ANDREW M. CUOMO**
Governor

**PAUL A. KARAS**
Acting Commissioner

**LANCE MacMILLAN, P.E.**
Regional Director

October 1, 2018

Wilder Balter Partners
480 Bedford Road
Chappaqua, NY 10514

# Notice to Permitee

Your recent permit application submittal has been reviewed and approved.
***WORK MAY NOT COMMENCE UNTIL AFTER PRECONSTRUCTION MEETING***

Your permit number is: **2018.08.71871**

ENTRANCE ON ROUTE 22 FOR WBP AFFH MULTI-FAMILY DEVELOPMENT.

**Lewisboro, NY** **Westchester County**

## Contact NYSDOT:

Hang Chu, P.E. (845) 431-5982 Hang.Chu@dot.ny.gov

Please contact above on receipt of this notice. You will be notified of the Department's Engineer-In-Charge of your project, who will also be your NYSDOT contact for the duration of the permit.

1. As a condition of the Perm 36 you will be required to employ a full-time Consultant Inspector. Before doing so, please have the firm send its resume, including a copy of "Certificate of Authorization to Provide Engineering Services in New York State," for approval at: NYSDOT, 4 Burnett Blvd, Poughkeepsie, NY 12603. Cover letters should clearly state the name and license number of the N.Y.S. P. E. of record and the name of the Resident Engineer/Inspector. The Firm must be familiar with NYSDOT STANDARDS, SPECIFICATIONS, TESTING & MATERIALS METHODS.

* Prior to or at the time of your Preconstruction Meeting your Consultant will be asked to sign the Perm 36.

2. **SUBMIT A DETAILED MAINTENANCE AND PROTECTION OF TRAFFIC PLAN** to the Department's Engineer for review.

3. **SUBMIT A WORK SCHEDULE** showing continuous work. Simple **BAR CHART** is adequate.

4. **SCHEDULE A PRECONSTRUCTION MEETING** to receive your copy of the permit and further instructions on how to proceed with your permit work. The Department's Engineers can provide details.

5. You may submit shop drawings, catalogue cuts, sheeting & plate (traffic/road) designs, lifting & demolition plans, etc. at any time. Consult the Department's Engineer on the procedure.

******REFER TO YOUR PERMIT AND ATTACHMENTS FOR ANY FURTHER CONDITIONS, REQUIREMENTS AND OBLIGATIONS******

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

# PART 1 - REQUEST FOR AUTHORIZATION for GP-0-18-001
## Freshwater Wetland Adjacent Area General Permit
Environmental Conservation Law Article 24 Freshwater Wetlands

FOR DEC USE ONLY - DEC ID

4/18

**1. Name of Applicant**: Peter + Annette McGuinness
Telephone: (646) 704-1178
Email: pmcguinness90@gmail.com
Mailing Address: 17 Schoolhouse Road
Post Office City: Waccabuc
State: NY
Zip: 10597
Applicant must be (check all that apply): (Owner) Operator Lessee
Taxpayer ID (if applicant is NOT an individual):

**2. Name of Property Owner (if different than Applicant)**
Telephone:
Email:
Mailing Address:
Post Office City:
State:
Zip:

**3. Contact / Agent Name**: J.D. Barrett + Assoc. LLC c/o Jeri Barrett
Telephone: (203) 372-5805
Email: jeri@jdbarrett.com
Mailing Address: 109 Sport Hill Road
Post Office City: Easton
State: CT
Zip: 06612

**4. Project / Facility Name**: McGuinness Property
Property Tax Map Section / Block / Lot Number: 22-10802-35
Project Location - street address, if applicable, or provide directions and distances to roads, bridges and bodies of water:
Approx. 1500 feet west of Mead Street.

Town / Village / City: Lewisboro
Stream/Waterbody Name: NYSDEC F-8
County: Westchester
Name of USGS Quadrangle Map: Peach Lake

Location Coordinates: Enter NYTMs in kilometers OR Latitude/Longitude in degrees, minutes, seconds
NYTM-E: 617068
NYTM-N: 4571378
Latitude:
Longitude:

**5. Type of Wetland Adjacent Area Project - 50' or more from the wetland boundary, and 1/4 acre or less of total disturbance:**

- Demolition and removal of existing appurtenant structures
- Construction of driveways or parking areas, limited to 1,000 sq. ft.
- Additions to existing structures, limited to 1,000 sq. ft.
- ✓ Installation of garages, decks, porches, sheds, pools, utility lines and other appurtenant structures, limited to 1,000 sq. ft.
- In-kind, in-place replacement of existing appurtenant structures, roads, and associated utilities

Specific Project Description: 205 sf gravel patio and 25 sf stonewall within regulated wetland buffer. Total disturbance +/- 4,267 sf. Mitigation plantings proposed. See cover letter.

Proposed Start Date: 9/10/18
Estimated Completion Date: 11/30/18

**6. Certification.** I have read this permit and will construct this project in compliance with the terms and conditions of the permit and the Environmental Conservation Law and applicable regulations. I understand that any false or inaccurate statements made in the application for this permit are punishable as a Class A misdemeanor. As a condition of this permit, I accept full legal responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agree to indemnify and save harmless the state from suits, actions, damages, and costs of every name and description resulting from this project.

If applicant is not the owner, both must sign the application. If you are submitting this application electronically, you may print your name and check the box that certifies you are the responsible applicant or property owner in lieu of providing an original signature.

Signature of Applicant / Owner: [signature]
✓ By checking this box, I certify that I am the responsible Applicant.
Printed Name: Peter McGuinness
Date: 8/31/18

Signature of ~~Owner~~ Agent: [signature]
✓ By checking this box, I certify that I am the responsible Owner.
Printed Name: Peter McGuinness
Date: 8/31/18

Signature of Agent / Contact: [signature]
Printed Name: Jeri Barrett
Date: 8/31/18

Reset Form

**No work is authorized until the permittee receives the signed Part 2 - PROJECT AUTHORIZATION BY NYSDEC.**

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

# PART 2 - PROJECT AUTHORIZATION BY NYSDEC
## for GP-0-18-001 Freshwater Wetland Adjacent Area General Permit

### For NYSDEC Use Only

☑ **Use of General Permit GP-0-18-001, Freshwater Wetland Adjacent Area General Permit for the project described on Part 1 - Request for Authorization is AUTHORIZED as follows:**

Effective Date of Authorization: Sept. 5, 2018

Expiration Date of Authorization: Jan. 31, 2020

Additional Information:

1. All work shall be conducted in strict conformance with the plans submitted which are titled "NYSDEC Wetland Permit Application: Existing Conditions Plan, Site Plan, and Mitigation Site Plan" (3 sheets), prepared by J.D. Barrett & Associates LLC, dated February 15, 2018, and last revised August 6, 2018.

2. Prior to commencement of the activities authorized herein, the permittee shall install securely anchored silt fencing and/or continuous staked straw bales as shown on the plans or drawings referenced in this permit. These erosion control devices shall be maintained until all disturbed land is fully vegetated to prevent any silt or sediment from entering the freshwater wetland or its adjacent area. Silt fencing, hay bales and any accumulated silt or sediment shall be completely removed for disposal at an appropriate upland site.

3. Work shall be limited to the state-regulated 100 foot adjacent area (and farther upland) only.

4. Excavated materials and or fill materials shall be stockpiled more than 100 feet landward of the wetland or water body and shall be contained by straw bales or silt fencing to prevent erosion.

5. All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

6. The success of the mitigation area shall be monitored for a minimum of three years from completion. Annual reports discussing the status of vegetation established, any problems that have occurred and containing representative photographs shall be provided to the Department by December 31st of each year for the duration of this permit with the first report due December 31, 2018. Please address to Josh Fisher.

☐ **Use of General Permit GP-0-18-001, Freshwater Wetland Adjacent Area General Permit for the project described on Part 1 - Request for Authorization is NOT AUTHORIZED, you must apply for an individual permit.**

Additional Information:

### NYSDEC Authorization

Authorized Signature: [signature]

Date: 9/5/2018

Printed Name: Tracey O. Malley

DEC Permit ID: 3-5530-00225/00001

Title: Environmental Analyst 1

Address: NYS Department of Environmental Conservation
21 South Putt Corners Rd
New Paltz, NY 12561

cc: Supervisor, Town of Lewisboro
J. D. Barrett & Associates
J. Fisher, R3 Habitat

Reset

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**Division of Environmental Permits, Region 3**
21 South Putt Corners Road, New Paltz, NY 12561-1620
P: (845) 256-3054 I F: (845) 255-4659
www.dec.ny.gov

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

## IMPORTANT NOTICE TO ALL PERMITTEES

The permit you requested is enclosed. Please read it carefully and note the conditions that are included in it. The permit is valid for only that activity expressly authorized therein; work beyond the scope of the permit may be considered a violation of law and be subject to appropriate enforcement action. Granting of this permit does not relieve the permittee of the responsibility of obtaining any other permission, consent or approval from any other federal, state, or local government which may be required.

Please note the expiration date of the permit. This permit cannot be renewed. Should additional time be needed to complete work, submit a new Request for Authorization Form.

**Please also note, for the duration of this permit, reports on the success of mitigation plantings are due to the Department December 31st of each year this permit is active: 12/31/18, 12/31/19, 12/31/20.** Please submit them to this office to the attention of Josh Fisher with the Permit ID number of the project as described below.

The DEC permit number & program ID number noted on page 1 under "Permit Authorization" of the permit are important and should be retained for your records. These numbers should be referenced on all correspondence related to the permit, and on any future applications for permits associated with this facility/project area. This project's Permit ID is 3-5530-00225/00001

If you have any questions on the extent of work authorized or your obligations under the permit, please contact the staff person indicated below or the Division of Environmental Permits at the above address.

Sincerely,

Michael Grosso

Michael V. Grosso
Division of Environmental Permits, Region 3
Telephone (845) 256-3165

Evans Associates
Environmental Consulting, Incorporated

August 15, 2018

Honorable Jerome Kerner and Members of the Planning Board
79 Bouton Road
South Salem, NY 10590

**Re: Lupienski Property: Wetland Violation**
**23 Elmwood Road, Town of Lewisboro, New York**

Dear Chairman Kerner and Members of the Planning Board:

Pursuant to the discussion at the June 19, 2018 Planning Board meeting, this letter is intended to update the Board on the status of this violation. Since the June meeting, our office has delineated the wetland boundary on the property and prepared a Wetland Delineation Report dated July 17, 2018 (attached). I spoke with Jan Johannessen following the delineation, and he agreed to let us use the Westchester County GIS topography for the site remediation plan.

We also met with Josh Fisher from NYS DEC on August 14, 2018 to review the wetland boundary and discuss the remediation measures that DEC will require. Mr. Fisher confirmed that the wetland boundary was accurate as flagged and stated that a DEC permit would be required for this remediation. DEC would likely require that all of the woodchips be removed from the wetland and the State-regulated 100' adjacent area, and that the impacted wetland area be replanted with native shrubs and trees. Mr. Fisher was comfortable with using a seed mix for restoring the adjacent area, although he will defer to the Town's requirements in this area.

Now that we have this input from DEC and the Town, we can proceed with finding a disposal location for the wood chips (many of which have come from clean-up of recent storm damaged trees for the Town). The chips will be removed with a small (Bobcat-type) loader and trucked to the disposal location. At the same time, we will prepare a planting plan for consideration and approval by your Board, so that the area of disturbance can be restored as soon as possible following the removal of the chips.

162 Falls Road
Bethany, CT 06524
Tel: 203.393.0690

I will not be able to attend the August 21, 2018 Planning Board meeting, but will continue to work to complete the planting plan for consideration at your September 11, 2018 meeting. If there are any questions or concerns regarding this matter, please do not hesitate to contact me at 203-393-0690 x112 or Michael Sirignano at 914-763-5500.

Sincerely,
**Evans Associates Environmental Consulting, Inc.**

Beth Evans

Beth Evans, PWS

cc: Jeff Lupienski

Evans Associates
Environmental Consulting, Incorporated

# WETLAND DELINEATION REPORT

**DATE:** **July 17, 2018**

**PROPERTY:** **Lupienski Property at 23 Elmwood Road**
**Town of Lewisboro, Westchester County**

**REPORT BY:** **Evans Associates Environmental Consulting, Inc.**

---

## INTRODUCTION

A field evaluation and wetland delineation were conducted at the above-captioned property on June 14 and July 13, 2018 by a Professional Wetland Scientist and a Certified Professional Soil Scientist of Evans Associates Environmental Consulting, Inc. (Evans Associates). The subject property is a developed, single-family residential parcel with additional outbuildings (mainly sheds). The property comprises wooded areas, meadow, and some lawn. A driveway traverses through the majority of the site from west to east along the southern property boundary. A wetland is located in the back (east end) of the property boundary. The wetland continues off site to the east.

The site evaluation and wetland delineation were conducted upon request of the property owners in response to a notice of Violation of Wetland and Watercourse Law they received from the Town of Lewisboro, dated May 7, 2018. The violation was: "A regulated activity consisting of dumping, filling, or depositing of material either directly or indirectly, without the benefit of a Wetland Activity Permit (Section 217-2 "Regulated Activity or Use" and Section 217-5, "Prohibited, allowable and regulated activities")."

## SITE EVALUATION AND WETLAND DELINEATION

Upon inspection of the property, it was noted that wood chips had been deposited on the ground in the rear (eastern end) of the parcel. These wood chips are located within the wetland and wetland buffer on site. Photos are provided at the end of this report (all photos were taken June 14, 2018). The depth of the wood chips, based on surficial evaluation, a few depth measurements, and a discussion with the owner, is estimated to range from a few inches to a few feet. Most of the wood chips appeared to be new, especially those farthest to the back of the lot, however older chips were also noted on site. The location of the wetland boundary edge, prior to the deposition of the wood

162 Falls Road
Bethany, CT 06524
Tel: 203.393.0690

chips, was estimated, and orange ribbon flags, numbered A-1 through A-3, were hung to delineate the edge. The flags can be used to locate the 150-foot wetland buffer surrounding the wetland and to then determine the encroachment impacts to the regulated areas (wetland and wetland buffer).

## REGULATORY JURISDICTIONS OF WETLANDS

The wetlands on and off the property are locally regulated by the Town of Lewisboro in accordance with Chapter 217, Wetlands and Watercourses, of the Town Code. The Town also regulates a 150-foot wetland buffer surrounding the wetland. In addition, the wetland is regulated as part of the New York State Department of Environmental Conservation (DEC) Freshwater Wetland L-31. The DEC also regulates a 100-foot Adjacent Area (buffer) around the wetland. Approval by the Town (and possibly the DEC) will be needed prior to any activity being conducted within the wetland or buffer/Adjacent Area (including the removal of any deposited material).

The Town violation notice described the immediate action to be taken as: stop all work immediately within or adjacent to the wetlands, and future actions, mitigation measures and/or restoration will follow.

## OBSERVATIONS AND MITIGATION RECOMMENDATIONS

As noted, review of the site indicated that wood chips had been placed within the on-site wetlands and within the on-site wetland buffer. Skunk cabbage *(Symplocarpus foetidus)*, an obligate wetland plant, is beginning to become re-established in a few of the areas covered in wood chips. Most of the wood-chipped areas remain absent of vegetation, however.

Mitigation requirements will be determined by the Town and possibly the DEC. However, it is our opinion that wood chips in the wetland be removed and placed within the uplands of the property, outside of the regulated areas (wetland and wetland buffer). Emergent vegetation should be allowed to re-establish, supplemented by new plantings of native shrubs if necessary. Invasive plants should be pulled and removed if they begin to become established in the newly-cleared wetland. Monitoring of the mitigation area should occur to confirm that the mitigation plantings or natural regrowth become established and to prevent excessive encroachment by invasive species.

**Area of wood chip fill along eastern property boundary (unimpacted wetland in background), facing northeast. Skunk cabbage beginning to re-establish in foreground.**

**Fresh wood chips in wetland, facing east. Unimpacted wetland in background.**

**Approximate wetland edge is shown in red (wetland on right). Flagging (not shown) was hung on site to delineate this wetland boundary. Photo facing northwest.**

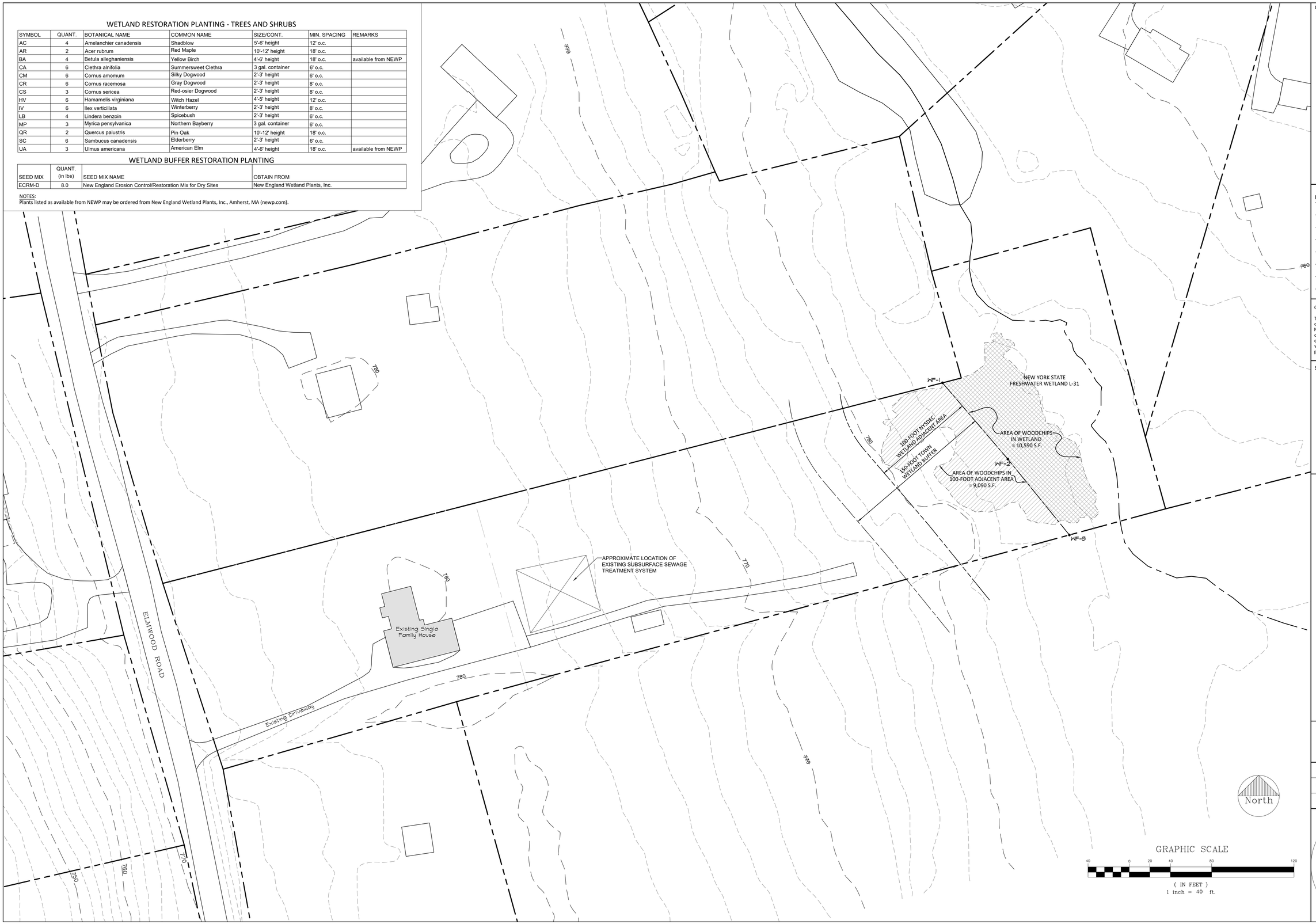
## WETLAND RESTORATION PLANTING - TREES AND SHRUBS

| SYMBOL | QUANT. | BOTANICAL NAME | COMMON NAME | SIZE/CONT. | MIN. SPACING | REMARKS |
|---|---|---|---|---|---|---|
| AC | 4 | Amelanchier canadensis | Shadblow | 5'-6' height | 12' o.c. | |
| AR | 2 | Acer rubrum | Red Maple | 10'-12' height | 18' o.c. | |
| BA | 4 | Betula alleghaniensis | Yellow Birch | 4'-6' height | 18' o.c. | available from NEWP |
| CA | 6 | Clethra alnifolia | Summersweet Clethra | 3 gal. container | 6' o.c. | |
| CM | 6 | Cornus amomum | Silky Dogwood | 2'-3' height | 6' o.c. | |
| CR | 6 | Cornus racemosa | Gray Dogwood | 2'-3' height | 8' o.c. | |
| CS | 3 | Cornus sericea | Red-osier Dogwood | 2'-3' height | 8' o.c. | |
| HV | 6 | Hamamelis virginiana | Witch Hazel | 4'-5' height | 12' o.c. | |
| IV | 6 | Ilex verticillata | Winterberry | 2'-3' height | 8' o.c. | |
| LB | 4 | Lindera benzoin | Spicebush | 2'-3' height | 6' o.c. | |
| MP | 3 | Myrica pensylvanica | Northern Bayberry | 3 gal. container | 6' o.c. | |
| QR | 2 | Quercus palustris | Pin Oak | 10'-12' height | 18' o.c. | |
| SC | 6 | Sambucus canadensis | Elderberry | 2'-3' height | 6' o.c. | |
| UA | 3 | Ulmus americana | American Elm | 4'-6' height | 18' o.c. | available from NEWP |

## WETLAND BUFFER RESTORATION PLANTING

| SEED MIX | QUANT. (in lbs) | SEED MIX NAME | OBTAIN FROM |
|---|---|---|---|
| ECRM-D | 8.0 | New England Erosion Control/Restoration Mix for Dry Sites | New England Wetland Plants, Inc. |

NOTES:
Plants listed as available from NEWP may be ordered from New England Wetland Plants, Inc., Amherst, MA (newp.com).




CONSULTANTS:

ISSUED:

OWNERSHIP AND USE OF DOCUMENTS

These drawings and specifications are the property of Evans Associates Environmental Consulting, Inc. No part thereof shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.

SEAL:

REGISTERED LANDSCAPE ARCHITECT
ALAN L. PILCH
No. 000975
STATE OF NEW YORK

# LUPIENSKI PROPERTY

23 Elmwood Road
South Salem, NY


ENVIRONMENTAL CONSULTANT:
EVANS ASSOCIATES
ENVIRONMENTAL CONSULTING, INC.
162 Falls Road
Bethany, Connecticut 06524
T. (203) 393-0690


Drawing title:
**Wetland Restoration Plan**

Date: September 26, 2018

Dwn. by: alp

ID: WCGIS base map09-2018

MP-1

79

Application No: 42 -18WP

Fee: #255 Date: 10/9/18

CK #874

rec #692381

# TOWN OF LEWISBORO
# WETLAND PERMIT APPLICATION

79 Bouton Road, South Salem, NY 10590
Phone: 914-763-5592
Fax: 914-763-3637
planning@lewisborogov.com

**Project Information**

Project Address: 23 Elmood Road

Sheet: 55.3 Block: 7 Lot(s): 11

Project Description (identify the improvements proposed within the wetland/wetland buffer and the approximate amount of wetland/wetland buffer disturbance): Removal of wood chips and installation of remediation plantings within approximately 10590 sq. ft. of wetland.

**Owner's Information**

Owner's Name: Jeffrey Lupienski Phone: 914 533 2794

Owner's Address: 23 Elmwood Road Email: Vistatreeservice@aol.com

**Applicant's Information** (if different)

Applicant's Name: Phone:

Applicant's Address: Email:

**Authorized Agent's Information** (if applicable)

Agent's Name: Phone:

Agent's Adress: Email:

**To Be Completed By Owner/Applicant**

1. What type of Wetland Permit is required? (see §217-5C and §217-5D of the Town Code)

   ☐ Administrative ☒ Planning Board

2. Is the project located within the NYCDEP Watershed? ☐ Yes ☒ No

3. Total area of proposed disturbance: ☐ < 5,000 s.f. ☒ 5,000 s.f. - < 1 acre ☐ ≥1 acre

4. Does the proposed action require any other permits/approvals from other agencies/departments? (Planning Board, Town Board, Zoning Board of Appeals, Building Department, Town Highway, ACARC, NYSDEC, NYCDEP, WCDOH, NYSDOT, etc): Identify all other permits/approvals required: NYSDEC

Note: Initially, all applications shall be submitted with a plan that illustrates the existing conditions and proposed improvements. Said plan must include a line which encircles the total area of proposed land disturbance and the approximate area of disturbance must be calculated (square feet). The Planning Board and/or Town Wetland Inspector may require additional materials, information, reports and plans, as determined necessary, to review and evaluate the proposed action. If the proposed action requires a Planning Board Wetland Permit, the application materials outlined under §217-7 of the Town Code must be submitted, unless waived by the Planning Board. The Planning Board may establish an initial escrow deposit to cover the cost of application/plan review and inspections conducted by the Town's consultants.

**For administrative wetland permits, see attached Administrative Wetland Permit Fee Schedule.**

Owner/Applicant Signature: Jeffrey Lupienski Date: 10/9/18

# TOWN OF LEWISBORO PLANNING BOARD

79 Bouton Road, South Salem, NY 10590
Email: planning@lewisborogov.com
Tel: (914) 763-5592
Fax: (914) 763-3637

## Affidavit of Ownership

State of : NEW YORK

County of: WESTCHESTER

JEFFREY LUPIENSKI, being duly sworn, deposes and says that he/she resides at 23 ELMWOOD ROAD in the County of WESTCHESTER, State of NEW YORK and that he/she is (check one) ✓ the owner, or ____ the _____
*Title*
of _____
*Name of corporation, partnership, or other legal entity*

which is the owner, in fee of all that certain log, piece or parcel of land situated, lying and being in the Town of Lewisboro, New York, aforesaid and know and designated on the Tax Map in the Town of Lewisboro as:

Block 10067, Lot 23 & 24, on Sheet 43.

*Owner's Signature*

**Sworn to before me this**

9 **day of** OCTOBER, 2 018

ROBIN SUE HARRIS
Notary Public, State of New York
No. 05HA6359305
Qualified in Westchester County
Commission Expires May 30, 2021

***Notary Public – affix stamp***

Revised 5-2017

# TOWN OF LEWISBORO PLANNING BOARD

79 Bouton Road, South Salem, NY 10590
Email: planning@lewisborogov.com
Tel: (914) 763-5592 Fax: (914) 763-3637

## Tax Payment Affidavit Requirement

*This form must accompany all applications to the Planning Board.*

***Under regulations adopted by the Town of Lewisboro, the Planning Board may not accept any application unless an affidavit from the Town of Lewisboro Receiver of Taxes is on file in the Planning Board office. The affidavit must show that all amounts due to the Town of Lewisboro as real estate taxes and special assessments on the total area encompassed by the application, together with all penalties and interest thereon, have been paid.***

***Under New York State law, the Westchester County Clerk may not accept any subdivision map for filing unless the same type of affidavit from the Town of Lewisboro Receiver of Taxes is submitted by the applicant at the time of filing.***

This form must be completed by the applicant and must accompany all applications to the Planning Board. Upon receipt, the Planning Board Secretary will send the form to the Receiver of Taxes for signature and notarization. If preferred, the applicant may directly obtain the signature of the Receiver of Taxes and notarization prior to submission.

**To Be Completed by Applicant**
**(Please type or print)**

Jeffrey Lupienski
*Name of Applicant*

2-18 WV LUPIENSKI
*Project Name*

**Property Description**

Tax Block(s): 10067
Tax Lot(s): 23 & 24
Tax Sheet(s): 43

**Property Assessed to:**

Jeffrey Lupienski
*Name*
23 Elmwood Rd.
*Address*
South Salem NY. 10590
*City State Zip*

The undersigned, being duly sworn deposes and says that a search of the tax records in the office of the Receiver of Taxes, Town of Lewisboro, reveals that all amounts due to the Town of Lewisboro as real estate taxes and special assessments, together with all penalties and interest thereon, affecting the premises described below, have been paid.

**Signature - Receiver of Taxes:** [signature] 10/9/2018
*Date*

**Sworn to before me this**
9th **day of** Oct., 2018

[signature]
*Signature - Notary Public (affix stamp)*

JANET L. DONOHUE
NOTARY PUBLIC, STATE OF NEW YORK
No. 01DO6259627
Qualified in Westchester County
Commission Expires April 16, 2020

Evans Associates
Environmental Consulting, Incorporated

August 15, 2018

Honorable Jerome Kerner and Members of the Planning Board
79 Bouton Road
South Salem, NY 10590

**Re: Lordi Property: Wetland Violation**
**2 Cheyenne Court, Town of Lewisboro, New York**

Dear Chairman Kerner and Members of the Planning Board:

Pursuant to the discussion at the June 19, 2018 Planning Board meeting, this letter is intended to update the Board on the status of this violation. Since the June meeting, our office has delineated the wetland boundary on the property and prepared a Wetland Delineation Report dated July 17, 2018 (attached). I spoke with Jan Johannessen following the delineation, and updated him on the status. The Lordis are in the process of having an updated survey prepared for their property which will include the wetland boundary and the area where trees were cut (partially on the adjacent open space parcel).

We also met with Josh Fisher from NYS DEC on August 14, 2018 to review the wetland boundary and discuss the remediation measures that DEC would require. Mr. Fisher confirmed that the wetland boundary was accurate as flagged. Mr. Fisher felt that the wetland vegetation was well established in most of the cleared area (see our delineation report), but was concerned with the two areas where the chips are deep enough to have suppressed regrowth. Mr. Fisher stated that DEC would require the remaining chips to be removed by hand, and that ferns and sedges be planted immediately afterwards so that the wetland vegetation (rather than invasives) can fill in those areas. He also suggested that we plant some trees and shrubs in the cleared area and take measures to control invasives in the future. If these measures are taken, Mr. Fisher did not feel that a DEC permit would be required, so long as he is kept apprised of the action by the Town.

As soon as the updated survey is available, we can proceed to prepare a wetland restoration planting plan. I will not be able to attend the August 21, 2018 Planning Board meeting, but hope to complete a planting plan for consideration at your September 11,

162 Falls Road
Bethany, CT 06524
Tel: 203.393.0690

2018 meeting. If there are any questions or concerns regarding this matter, please do not hesitate to contact me.

Sincerely,
**Evans Associates Environmental Consulting, Inc.**

Beth Evans

Beth Evans, PWS

cc: Marianne Lordi

Evans Associates
Environmental Consulting, Incorporated

# WETLAND DELINEATION REPORT

**DATE:** **July 17, 2018**

**PROPERTY:** **Lordi Property at 2 Cheyenne Court**
**Town of Lewisboro, Westchester County**

**REPORT BY:** **Evans Associates Environmental Consulting, Inc.**

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## INTRODUCTION

A field evaluation and wetland delineation were conducted at the above-captioned property on July 13, 2018 by a Professional Wetland Scientist and a Certified Professional Soil Scientist of Evans Associates Environmental Consulting, Inc. (Evans Associates). The subject property is a developed, single-family residential parcel. The property comprises mainly lawn with some mature trees; a wetland is located along the northwestern property boundary. The wetland continues off site to the northwest.

The site evaluation and wetland delineation were conducted upon request of the property owners in response to a notice of Violation of Wetland and Watercourse Law they received from the Town of Lewisboro. The violation was: "A regulated activity consisting of unauthorized removal of trees and vegetation within the wetland buffer; deposition of organic material within the wetland and wetland buffer, without the benefit of a Wetland Activity Permit (Section 217-5B (2) of the Wetland and Watercourse Law)." Specifically: "Unauthorized removal of vegetation and trees within wetland buffer and deposition of wood chips within the wetland and wetland buffer."

## SITE EVALUATION AND WETLAND DELINEATION

The northwestern edge of the subject property (and likely some of the adjacent Town-owned property) appears to have had trees and brush removed, and wood chips were deposited on the ground. These wood chips are located within the wetland and wetland buffer on site, and likely within the off-site wetland as well (see photos at the end of this report). Pink pin flags were placed along the edge of the wetland boundary by Evans Associates. The flags were numbered A-1 through A-6. The flags should be survey located and shown on an updated survey that includes the area of disturbance in order to determine on-site and off-site impacts.

162 Falls Road
Bethany, CT 06524
Tel: 203.393.0690

## REGULATORY JURISDICTIONS OF WETLANDS

The wetlands on and off the property are locally regulated by the Town of Lewisboro in accordance with Chapter 217, Wetlands and Watercourses, of the Town Code. The Town also regulates a 150-foot wetland buffer surrounding the wetland. In addition, the wetland is regulated as part of the New York State Department of Environmental Conservation (DEC) Freshwater Wetland F-75. The DEC also regulates a 100-foot Adjacent Area (buffer) around the wetland. Approval by the Town (and possibly the DEC) will be needed prior to any activity being conducted within the wetland or buffer/Adjacent Area (including the removal of any deposited material).

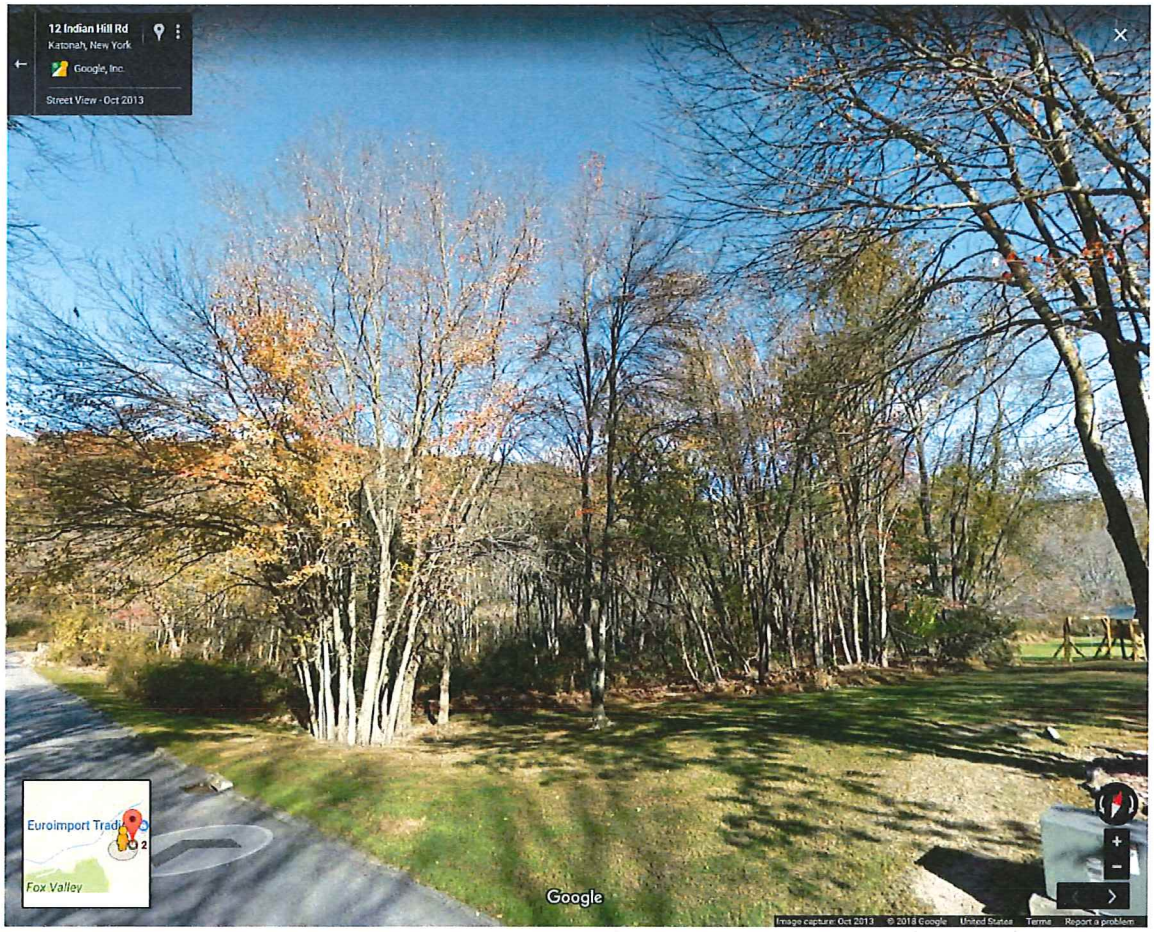
The Town violation notice described the immediate action to be taken as: Stop all work immediately within or adjacent to the wetlands; install silt fence downslope of all disturbed areas; and future actions, mitigation measures and/or restoration will follow.

## OBSERVATIONS AND MITIGATION RECOMMENDATIONS

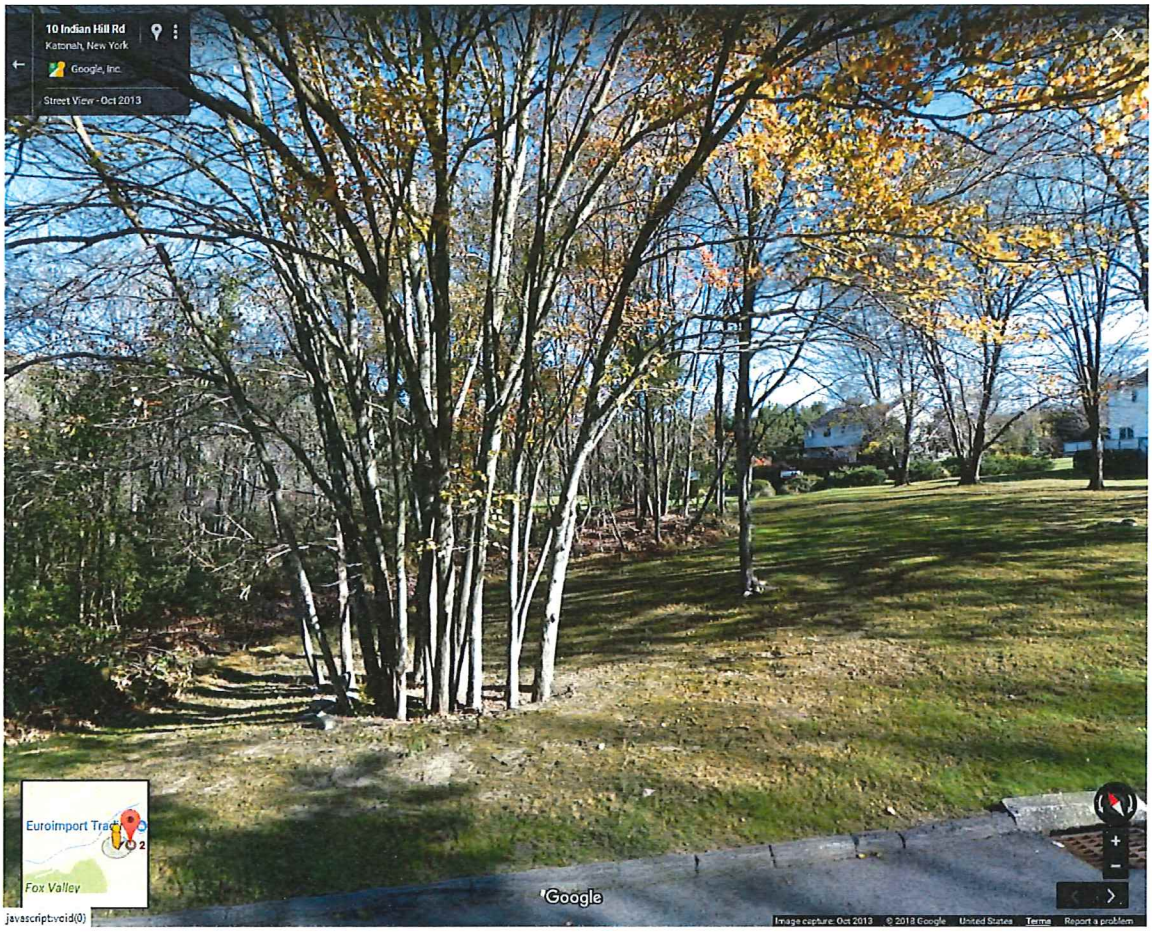
As noted, review of the site indicated that trees had been removed and wood chips had been placed within on-site, and likely off-site, wetlands, and within the on-site wetland buffer. The depth of the wood chips, measured in several places by Evans Associates, is 12-18" or less. Wetland vegetation, including skunk cabbage *(Symplocarpus foetidus)*, cinnamon fern *(Osmunda cinnamomea)*, sensitive fern *(Onoclea sensibilis)*, royal fern *(Osmunda regalis)*, and some tussock sedge *(Carex stricta)* are becoming re-established in many of the areas covered in wood chips. Some of the wood-chipped areas remain absent of vegetation, however. Invasive species including multiflora rose *(Rosa multiflora)* and wineberry *(Rubus phoenicolasius)* shrubs, Japanese stilt-grass *(Microstegium vimineum)*, and some garlic mustard *(Alliaria petiolata)* are also being re-established in some areas, along with some grape *(Vitis sp.)*, Virginia creeper *(Parthenocissus quinquefolia)*, and poison ivy *(Toxicodendron radicans)* vines. The invasive and/or undesirable species are also found in the adjacent portion of the wetland (off site) and are not believed to have been newly established as a result of the placement of the wood chips.

Mitigation requirements will be determined by the Town and possibly the DEC. However, it is our opinion that wood chips in the unvegetated areas be removed (by hand) and taken off site or placed within the uplands of the property, outside of the regulated areas (wetland and wetland buffer). Native saplings and shrubs should be planted in the wetland and wetland buffer to replace the trees that were removed. The emergent vegetation will likely re-establish itself from nearby plants or from the existing seed bank. Wood chips in the areas where wetland vegetation is currently being successfully re-established should be left as is, rather than removing the chips and potentially harming the natural vegetation. Invasive plants should be pulled and removed at this time, if possible without damaging the native vegetation. Monitoring of the mitigation area should occur to confirm that the mitigation plantings become established and to prevent excessive encroachment by invasive species.

**Photo of wetland along northwestern property boundary, showing area of tree removal and wood-chip fill. Wetland vegetation is re-establishing in some areas. Facing northeast; taken June 14, 2018.**




**Google Streetview photo from October 2013 (above) and photo taken June 2018 (below).**




**Google Streetview photo from October 2013 (above) and photo taken June 2018 (below).**

Vote: Yes: Nordgren, Dzaluk, Vetrano, Halpern
Absent: Decaminada

Mr. Agresta was instructed to prepare a resolution for the Board's consideration. The outstanding items will be conditions of the resolution. It was suggested that the applicant's consultants contact both Mr. Altermatt and Mr. Agresta directly.

## III. SKETCH PLAN REVIEW

**Donald & Karen Gotimer, 1 Brady Lane, Goldens Bridge – Wetland Activity Permit – Cal. #1-02 W.P.**

As neither the applicant nor their representatives were present, the Board moved on to the next item on the agenda.

**Clyde & Diane Brownstone, 41 & 43 Lake Shore Drive, South Salem – Wetland Activity Permit – Cal. #2-02 W.P.**

Joe Mansfield of Ralph Mackin Architects was present representing the applicant.

Mr. Mansfield displayed the plans and advised that the applicant is seeking to build an addition on an existing dwelling at 43 Lake Shore Drive and demolish the existing dwelling at 41 Lake Shore Drive. The property adjacent to Lake Truesdale is comprised of three original lots, 13, 14,15 totaling 1.14 acres and located in an R1/2A Residential Zone. The primary dwelling is located on lots 13 & 14, which are currently combined. Lot 15 is separate with a separate single-family dwelling. He advised that in addition to being located next to the lake, there is an existing culvert, which runs through the property from Lake Shore Drive. Mary Jaehnig delineated the wetlands in July 2001, and he pointed out that 95% of the property is located within the wetland buffer. In pointing out the zoning setbacks and the building envelope he noted that any addition to the dwelling would occur within the wetland buffer. He advised that the studio at the southern end of the dwelling would be expanded to provide additional space within the kitchen and provide a more appropriate second side entrance by providing a mudroom with an adjacent laundry room and mechanical space. In the process a small bedroom would be slightly extended. He advised that currently the dining room in located within the living room space. This application will extend the dining room onto an existing paved patio. In addition this application will provide for a covered porch at the main entry of the house.

Mr. Mansfield stated that in order to accomplish their goals, the applicant would demolish the existing single family dwelling on lot 15, merging the three lots thereby reducing the building coverage on the lots by approximately 100 SF, and eliminating a structure on the lakefront forever.

In response to a question of Mr. Fain, Mr. Mansfield advised that the bedroom count would remain the same. Mr. Fain noted that the application materials indicated that the septic system had been investigated by Insite Engineering, but that there had not been a report received indicating the condition of the septic system. Mr. Mansfield advised that they had received a memo from Insite describing the septic systems for both houses. The septic system for the house to be expanded is in good condition; the existing system for the house to be demolished is in poor condition, which would be abandoned. He advised that he would submit a report to the Board regarding the condition of the septic systems.

Mr. Fain noted that the applicant stated that there would be a net reduction of impervious surfaces, and asked that they provide the pre and post square footage. He stated that the removal of the second residence is substantial mitigation, and requested that the applicant investigate whether this area could be prepped for a reserve septic area, should the current septic system fail. Mr. Fain noted that it has been the practice of this Board to require restrictions on lake front properties i.e. deed restrict the occupancy of the residences, require annual septic system inspection and maintenance, and requiring the use of low flow plumbing fixtures. The mitigation proposed by the applicant is good, but he noted that it has also been the policy of this Board to require some form of mitigation planting. There is plenty of opportunity for this along the shoreline. He suggested that the applicant provides the additional information prior to the scheduling of the Public Hearing, and suggested that the Board schedule a site visit.

The Board agreed, and advised that a site visit would be scheduled once the additional information is received.

Mr. Nordgren advised that he would like to see the mitigation planting along the southern corner of the lot.

Ms. Dzaluk stated that the project is well thought out and the scope reasonable.

Ms. Bohane advised that the CAC agreed to the request for the mitigation planting, and asked if the applicant would give up the development rights in the form of a conservation easement. It was noted that once the lots were merged, the only way to build another house would be to apply for subdivision.

Mr. Agresta advised that it appeared that the CAC was asking that there be no structures, i.e. garage built on the lot. Mr. Altermatt requested the applicant to define the drainage easements.

**Donald & Karen Gotimer – Wetland Activity Permit**

Karen Gotimer was present with Paul Jaehnig, Certified Professional Geologist.

advised that an application to the Planning Board to amend the previous subdivision would be required. This would entail an environmental analysis relative to this action as well as a comparative analysis as to what is different and reasons why the issuance of the previous approval and conditions of the mitigation should be altered. The applicant would have to review the environmental analysis, which lead to the approval, pull out what the issues were and define what is different. The Board would review this under the normal process of a subdivision application.

**Mary Anne White – Wetland Activity Permit**

Mr. Praga advised that approval required that the deed be refiled with the restrictions in it. This process was later deemed unnecessary as the same means could be met with the filing of a declaration. Mr. Sirignano submitted a Declaration of Restricted Area rather then a refiled deed, which is acceptable, but the decision as approved by this Board required the refiling of the deed. The Board agreed to revise the approval.

## VIII. MINUTES OF March 12 and March 19, 2002

On a motion made by Mr. Nordgren, seconded by Mr. Decaminada the minutes of March 12, 2002 were approved.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

Ms. Halpern noted a typographical error on page four of the March 19, 2002 minutes.

On a motion made by Mr. Nordgren, seconded by Mr. Decaminada the minutes of March 19, 2002 were approved as amended.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

## IX. SITE WALKS

**Brownstone – Wetland Permit**

The Board agreed to walk the site on an individual basis.

**Casey – Wetland Permit**

Ms. Halpern, Ms. Dzaluk, Mr. Nordgren, Mr. Decaminada and Mr. Fain visited the site on April 6, 2002 on Lake Kitchawan Drive and agreed that the planting was exceptional. The concern was the porch being constructed so close to the septic system.

**Capocci – Wetland Permit**

to his property and they had to cut mostly mountain laurel. He further testified that there was a couple of feet that he did not have to cut when entering his property, then he had to cut.

Mr. Decaminada asked Mr. Altermatt to be involved in the discussion with respect to the installation of the curtain drain. Mr. Altermatt advised that he had been to the site with Mr. Fain and that it was his opinion that an engineer should be involved. He would recommend that the test pits be done to determine the soil conditions. A curtain drain will improve but not solve the situation.

Mr. Sirignano stated that he had no further witnesses or testimony to present. He advised that he would make an application to the Building Department for a permit to install the curtain drain.

On a motion made by Ms. Halpern, seconded by Mr. Decaminada the hearing was closed.

Vote: Yes: Halpern, Dzaluk, Decaminada
Absent: Nordgren

An Executive Session was scheduled for May 28, 2002.

At the completion of her services for the evening, Ms. Clark exited the meeting at 8:05 P.M.

## II. PUBLIC HEARING

**Clyde & Diane Brownstone, Lake Shore Drive, South Salem – Application for a Wetland Activity Permit to demolish existing house on 41 Lake Shore Drive and to permit the construction of an addition to 43 Lake Shore Drive within a regulated wetland adjacent area – Cal. #2-02 W.P.**

Ms. Dzaluk asked if there were any requests to have the notice of Public Hearing read or if there were any objection to the notice. There was no response.

Joe Mansfield, RA of Ralph Mackin, Jr. Architects and Randy Newbauer of Insite Engineering were present representing the applicants.

Mr. Mansfield displayed the plans and advised that the proposal seeks to construct an addition to 43 Lake Shore Drive and demolish the residence on 41 Lake Shore Drive. The property is 1.14 acres and located in a ½ acre zoning district. The property is comprised of lots 13 and 14 which are currently combined (43 Lake Shore Drive) and lot 15 (41 Lake Shore Drive). When the dwelling on lot 15 is demolished, this lot will be combined with lots 13 and 14. The property is located adjacent to Lake Truesdale, 95

percent of the lot is located within the wetland buffer. He advised that the building envelope was completely located within the buffer.

Mr. Mansfield reviewed the modifications to the dwelling, which would relocate the existing studio and expand the kitchen and dining room. A second entry would be added to a mudroom/laundry and utility area. A small bedroom will be enlarged. As this addition would encroach over the southern property line on lot 14, the owner has agreed to demolish the house on lot 15. The applicant is proposing to fill the site of the demolished house with clean sandy fill for possible future septic expansion. The septic system for the demolished house will be abandoned. He noted the buffer enhancement plan on the southeastern portion of the lot. The area disturbed by the proposed work is approximately 19,000 SF, one third of the property. The existing building coverage on the lots is 6.25%; the proposed building coverage is 5.82 % a reduction of about 215 SF.

Mr. Fain advised that he had no additional comments on this well-done permit application. The removal of more impervious area then creating will benefit the environment. He noted that the applicant cooperated with the Board by adding a buffer enhancement plan and created a reserve septic area. As in previous applications, he had suggested that there be a deed restriction limiting the number of bedrooms, which this applicant had respectfully asked not to be required. Mr. Fain stated that this was fair in light of all the mitigation being given for this particular lot.

Ms. Halpern noted that there was a lot of lawn area on the site and asked if it was being fertilized, and suggested that the applicant consider more native plantings in lieu of the large lawn.

Mr. Fain advised that the suggestion is always made to limit the fertilizer and pesticides used on lawns, but it is very difficult to enforce these restrictions. He did advise the applicants that any chemicals they use on their lawn would end up in the lake.

Ray Morse representing the CAC advised that this application had been discussed and that the CAC supported it. Speaking as a neighbor and a resident he expressed his favor for this application, especially in light of the fact that they would be eliminating one house on the lakefront.

With reference to the merging of the lots, Mr. Mansfield stated that the Building Inspector advised him that Tax Assessor would merge the lots upon a request of the applicant.

Mr. Mansfield stated that he reviewed the draft resolution prepared and asked that as this dwelling is only occupied on a part time basis that the condition requiring the septic system to be inspected and pumped once a year be amended to every two to three years. The Board did not feel that this request was a hardship and agreed not to amend this condition.

There were no further comments from the Board or the Public.

To address a noticing technicality the hearing was held open.

On a motion made by Ms. Halpern, seconded by Mr. Decaminada the Public Hearing was adjourned to the May 28, 2002 agenda.

Vote: Yes: Halpern, Dzaluk, Decaminada
Absent: Nordgren

## III. SKETCH PLAN REVIEW

**Angel & Joann Perez, 1 Glen Drive, Vista – Wetland Activity Permit – Cal. #5-01 W.P.**

Angel Perez was present. Mr. Perez stated that he had reviewed Mr. Fain's report prepared for this meeting. He stated that he had left the last meeting with the impression that the Board had asked that the driveway be moved all the way to the east. Ms. Dzaluk read a portion of Mr. Fain's report dated June 12, 2001 recommending Alternative "B" as it would be less impact.

Mr. Perez stated that he did see this after he read the report prepared for this meeting, and that he had asked the architect to redraw the plans and advised that there was a misunderstanding. He noted though that the house had been moved out of the buffer and that mitigation had been proposed where the maximum disturbance would have been.

Mr. Perez advised that the Westchester County Board of Health stated that he did not have to cut down trees in the septic expansion area, and that a waiver would not be necessary.

In discussing the number of bedrooms with reference to the septic system, Mr. Fain explained that by law the Board must see the alternative analysis for a three bedroom septic system.

Mr. Fain reviewed what should be shown on the plans and asked the applicant to focus on the house location so that it is set on the site in a way to reduce the amount of grading and that they could enjoy their yard. He asked that the plans for the house location be on a larger scale.

**Gino Paul & Cynthia Ann Lucadamo, 38 School House Road, Cross River – Wetland Activity Permit – Cal. #5-02 W.P.**

James DeLalla, ASLA of DeLalla & Von Ohlsen, LLC was present representing the applicants.

the restoration. He noted his concern with the actions of the Formisano's as they have continued to work on the site after the Stop Work Order was issued. He stated that some of the activities which have occurred on the site included the regrading and reseeding of the entire backyard, the installation of a large swing set, the construction of a goat shed among other things, the removal of a deck without a permit, construction was started on a patio and the removal of the Town's Stop Work Orders. He further noted that a restoration plan was to have been submitted for this meeting and it was not.

A discussion followed as to how to ensure that the Stop Work Order is being adhered to, and Ms. Clark advised that the Building Department would monitor the site regularly.

There was discussion as to the logic of not placing silt fence around the site and the approximate cost to do so as opposed to removing the piles of dirt and debris.

After some discussion, the Board agreed that the complete disregard of the neighbors and the Town's Stop Work order was troubling. It was further agreed that the site must be stabilized with the installation of silt fencing around the entire site. The piles and disturbed areas can be seeded with an annual rye and hay. There can be no regrading; all of the work must be done by hand. This measure would provide a temporary cover crop to prevent the erosion and prevent any particles flying around which would achieve the goals of the property owner.

Ms. Clark will advise Mr. Whyatt of the Board's decision by letter.

The hearing will be reconvened on July 9, 2002.

At the completion of her services for the evening, Ms. Clark exited at 8:10 PM.

## III. PUBLIC HEARING

**Clyde & Diane Brownstone, Lake Shore Drive, South Salem – Application for a Wetland Activity Permit to demolish existing house on 41 Lake Shore Drive and to permit the construction of an addition to 43 Lake Shore Drive within a regulated wetland adjacent area – Cal. #2-02 W.P. (Reconvened)**

Randy Neubauer of Insite Engineering was present representing the applicant.

The Chair asked if there were any objections to the Notice of Public Hearing or if anyone wished it to be read aloud. There was no response.

The presentation for this hearing was given at the prior meeting and the hearing was left open for notification purposes. Mr. Fain prepared a resolution for the Board's consideration, and he indicated that this was a good project. This application will reduce the amount of impervious area on the site by demolishing an existing house and creating a reserve septic area on the site. The applicant has also proposed a mitigation-planting plan.

There were no additional comments from the public or Board.

On a motion made by Ms. Halpern, seconded by Mr. Decaminada the Public Hearing was closed.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

Ms. Halpern noted that the dates on the resolution needed to be amended.

On a motion made by Ms. Halpern, seconded by Mr. Nordgren, the resolution issuing a Negative SEQR Declaration and Wetland Activity Approval for Clyde & Diane Brownstone, Cal. #2-02 W.P. was adopted as amended.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

**Donald & Karen Gotimer, 1 Brady Lane, Katonah – Application for a Wetland Activity Permit to construct an addition to a single-family residence and expansion of a wood frame deck within a regulated wetland adjacent area – Cal. #1-02 W.P.**

Karen Gotimer was present.

The Chair asked if there were any objections to the Notice of Public Hearing or if anyone wished it to be read. There was no response.

Mrs. Gotimer displayed the plans. She indicated that previously there were three recommendations made which these plans complied with; to demarcate the restoration/mitigation area with stone or some similar material, the addition of plants along the south side of the pool and the reduction of the deck on the north side of the pool. The plans now indicate that they would not remove any more topsoil in the area of the new deck than is necessary to install proper footings for the deck. The existing wood decking and railings will be replaced with new material that will match the new deck.

Mr. Fain indicated that there was an agreement in the field during the site walk as to what would be permitted on the property and to extend the buffer 10 feet to the stream but felt that the five feet proposed by the applicant was acceptable.

There were no further comments from the Board or from the public.

On a motion made by Ms. Halpern, seconded by Mr. Nordgren the Public Hearing was closed.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

On a motion made by Mr. Decaminada seconded by Ms. Halpern the resolution issuing a Negative SEQR Declaration and Wetland Activity Permit Approval for Donald & Karen Gotimer, Cal. #1-02 W.P. was adopted.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada

based on this and that it was her opinion that the Planning Board is the appropriate place. The Planning Board issues the Wetland Permit and understands the conditions.

Mr. Nordgren noted that it was Ms. Clark's opinion that there is no conflict in the way violations are handled now.

Ms. Dzaluk advised that she would be writing a letter to the Town Board.

There was a brief discussion concerning the fact that now through publicized enforcement, residents have become more aware of and concerned with working within the regulated area. It was also noted the importance of walking the site, as it helped to understand the issues of that particular site. There was concern also with how funds would be recouped if fines were not assessed. The violator would no longer cover the expenses incurred, the taxpayers would. A balance must be struck between the community's interest and the property owner's rights.

The Board is continuing to work with the consultants in defining minor activities.

## VI. MINUTES OF August 13, 2002

On a motion made by Mr. Halpern, seconded by Mr. Nordgren the minutes of August 13, 2002 were approved.

Vote: Yes: Rossi, Nordgren, Halpern
Absent: Decaminada
Abstain: Dzaluk

## VII. CORRESPONDENCE

### Brownstone – Wetland Activity Permit

Joe Mansfield, RA of Ralph Mackin Architects was present.

Mr. Mansfield advised that since the approval of this wetland activity permit, a missed opportunity to utilize a portion of the existing dwelling while finalizing the architectural drawings was noticed. He reviewed the modifications for the Board. It was the determination of the Planning Board Attorney that the only way the approval could be amended is for the Board to hold a Public Hearing. The applicant could begin the work not affected by the change.

### Public Wells

The application procedure was briefly discussed concerning the upgrades of the public wells.

On a motion made by Ms. Halpern, seconded by Mr. Decaminada the Public Hearing was closed.

Vote: Yes: Nordgren, Dzaluk, Halpern, Decaminada
Absent: Rossi

The Board scheduled a decision for November 26, 2002.

**Clyde & Diane Brownstone, 43 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit to revise a previously granted Planning Board approval dated May 28, 2002 to permit the construction of an 11 square foot addition to an existing single-family residence and additional 318 SF paved driveway turn around within a regulated wetland adjacent area – Cal. #2-02 W.P.**

The Chair asked if there were any objections to the time or place of the Public Hearing or if anyone wished the Notice of Public Hearing to be read aloud. There was no response.

Joe Mansfield, RA was present representing the applicants.

Mr. Mansfield explained that while developing the final plans, a missed opportunity in the design became apparent. It had been proposed to remove 70 SF of the existing structure and 75 SF of the patio and adding 50 feet of construction to extend the third bedroom. It made more sense to maintain the existing area and expand the kitchen into this area. The applicant is willing to eliminate the expansion of the third bedroom. The proposed studio addition has been slid back to provide access to the northern window in the studio. The proposed work is still within the previously approved limit of construction. The applicant is also proposing a one car paved parking area adjacent to the existing driveway. As previously approved, the existing structure at 41 Lake Shore Drive will be demolished and replaced with clean sandy fill as well as abandoning the septic system. The previous approval included a buffer enhancement plan. The area to be disturbed is all previously disturbed and is approximately 19,000 SF of area, approximately one-third of the property. This proposal will reduce the building coverage on the site by 204 SF.

Mr. Fain stated that the modification is small, but that public comments should be solicited. He advised that he had prepared a draft resolution for the Board's consideration.

Mr. Nordgren expressed concern with the additional 300 SF of new impervious surface and believed that additional area of mitigation should be provided. Mr. Fain advised that the applicant had provided significant mitigation for the disturbance and that the work is still with in the development area previously approved.

Ms. Dzaluk believed that if the initial plan submitted was this plan, she did not believe there would have been any more issues then with the one that had been previously approved given the significant mitigation proposed.

Mr. Morse advised that the CAC had discussed this application and that they questioned whether the additional paved parking area could remain pervious. Mr. Mansfield advised that the applicant considered this, but they were also looking for an area for snow removal.

Mr. Rossi entered the meeting at 8:40 PM.

Mr. Nordgren stated that because this area is within the wetland buffer that he could not agree to the additional paved area without additional mitigation. After some discussion, the Board and Mr. Mansfield agreed to amend the approval adding an additional 200 SF to the buffer enhancement plan.

On a motion made by Ms. Halpern, seconded by Mr. Nordgren the resolution Clyde and Diane Brownstone, Wetland Activity Approval Amendment was adopted as amended.

Vote: Yes: Rossi, Nordgren, Dzaluk, Halpern, Decaminada

## III. EXTENSION OF TIME

### Gabrielle Colquitt – Cal. #8-01 W.P.

Gabrielle Colquitt was present with her architect Philip Franz.

The Board acknowledged receipt of Mr. Franz's letter requesting a six-month extension of time. Mr. Franz advised that the house is still under construction, and that the site work would not be completed until the construction was completed.

Mr. Fain advised that he had no problems with the request, but reminded the applicant about the provision of the approval regarding the reports to be submitted on the site.

On a motion made by Mr. Nordgren, seconded by Ms. Halpern the applicant's request for a six-month extension of time was approved.

Vote: Yes: Rossi, Nordgren, Dzaluk, Halpern, Decaminada

## IV. CORRESPONDENCE

### Biddle

RESOLUTION
TOWN OF LEWISBORO PLANNING BOARD

CLYDE AND DIANE BROWNSTONE
NEGATIVE DECLARATION
WETLAND ACTIVITY PERMIT APPROVAL



Calendar # 2-02 W.P.

Clyde and Diane Brownstone, 41 and 43 Lake Shore Drive, application for Wetland Activity Permit to "construct additions and alterations to 43 Lakes Shore Drive and demolish existing dwelling and foundation at 41 Lake shore Drive" within the 100 foot regulated wetland setback, on Lots 13, 14 and 15 in Block 11174 on Sheet 36H of the Tax Map of the Town of Lewisboro, consisting of 1.148 acres located in the R-1/2A, residential zoning district;

**WHEREAS**, on December 5, 2001, an application from Clyde and Diane Brownstone for a Wetland Activity Permit under the provisions of Chapter 217 of the Code of the Town of Lewisboro "Wetlands and Watercourse Law" was received by the Building /Wetland Inspector; and

**WHEREAS**, the Application was first reviewed on January 12, 2002, at which time the Town's Wetland Consultant submitted a report which concluded that the Application for a Wetland Activity Permit was incomplete; and

**WHEREAS**, the Planning Board first reviewed the Application at a regularly scheduled meeting on February 12, 2002, at which time the Town's Wetland Consultant submitted a report which requested further information and therefore concluded that the Application for a Wetland Activity Permit was still incomplete; and

**WHEREAS**, the Board instructed the Applicant to provide the required additional information; and

**WHEREAS,** a public hearing regarding this application was held on May 14, 2002, during which all interested parties were given the opportunity to be heard; and

**WHEREAS**, the proposed action is an Unlisted action pursuant to SEQR 6 NYCRR Part 617 and the Environmental Quality Review Law of the Town of Lewisboro; and

**WHEREAS**, the Planning Board reviewed the Environmental Assessment Form and other materials submitted in support of this application at a regular meeting of the Planning Board held on May 14, 2002;

**NOW THEREFORE BE IT RESOLVED**, that the Planning Board hereby finds that this action will not have a significant effect on the environment and an Environmental Impact Statement will not be required for the following reasons:

1. The proposed action will not affect any water body designated as protected under Article 15, 24, or 25 of the Environmental Conservation Law.

2. The proposed action will not result in the net loss or degradation of any locally regulated wetlands on the site.

3. The proposed action will not affect surface or groundwater quality or quantity.

4. The proposed action will not affect any threatened or endangered species.

5. The Planning Board has considered alternatives for the size and configuration of the proposed residence and has selected the alternative which minimizes impacts to wetlands, watercourses, and wetland setbacks.

6. The applicant has proposed significant mitigation for those impacts due to construction within the 100 foot regulated setback area that cannot be further minimized. These include a comprehensive erosion and sediment control plan, implementation of a mitigation planting plan, reduction of the total square footage in the regulated areas by 215 square feet and reduction of the total overall dwelling floor area by 728 square feet, preparation of a reserve septic area, and elimination of an existing single family residence on the property.

7. For the reasons stated above, the Applicant has demonstrated that the proposed activity will not have significant adverse impacts on the public health and welfare, as mandated under Section 217 -5. D of the Town of Lewisboro Wetlands and Watercourse Law, including impacts on such wetland functions as water quality preservation, flood control and wildlife habitat.

**BE IT FURTHER RESOLVED**, upon full consideration of the above, the Planning Board finds that the application of Clyde and Diane Brownstone for a Wetland Activity Permit for construction of residential additions and improvements and removal of an existing residence in a regulated setback is consistent with the provisions and policies of Chapter 217 of the Code of the Town of Lewisboro and a permit is approved, subject to the issuance of a permit by the Wetland Inspector, with the following conditions:

1. All construction shall be in full accordance with the following plans:

    a. "Additions and Alterations: Brownstone Residence", prepared by Ralph Mackin Jr. Architects PLLC and dated February 26, 2001(sic).

b. "Buffer Enhancement Plan, Grading Plan and Details: Brownstone Residence", prepared by Ralph Mackin Jr. Architects PLLC and dated February 26, 2001(sic).

Prior to the issuance of the permit the plans shall be revised to reflect the correct date.

2. Mitigation plantings shall be installed in accordance with the plan titled "Buffer Enhancement Plan, Grading Plan and Details: Brownstone Residence", prepared by Ralph Mackin Jr. Architects PLC and dated February 26, 2001(sic). Mitigation plantings shall be installed prior to the issuance of the building Certificate of Occupancy and be guaranteed for two years from the date of installation.

3. This permit shall expire one year from the adoption of this resolution - May 28, 2003.

4. Each of the individual plans above shall be finalized to include the following signature block for endorsement as final by the Planning Board Chair and Secretary:

**APPROVED FOR FILING**

*owner* *date*
{typed name}
{typed address}

*applicant* *date*
{typed name}
{typed address}

**PLANNING BOARD ENDORSEMENT OF APPROVED PLANS**

*Planning Board Chairman* *date*

*Planning Board Secretary* *date*

5. Prior to signature on the final plans, the following shall be completed:

   a. All outstanding permit review fees shall be paid to the Town of Lewisboro by certified check.
   b. Prior to issuance of a Wetland Permit by the Wetlands Inspector or a Building Permit by the Building Inspector, three copies of the final plans shall be endorsed by the Planning Board Chair and Secretary and copies as required by the Planning Board Secretary shall be provided and circulated as appropriate.

6. Only low flow plumbing fixtures shall be installed in the proposed additions and renovations.

7. Inspection and pumping of the septic system shall be performed on an annual basis.

8. All erosion and sediment controls will be in accordance with the NYS Guidelines for Urban Erosion and Sediment Control and The Westchester County Best Management Practices Manual for Erosion and Sediment Control.

9. At least five days prior to the commencement of construction, the Applicant or their representative shall provide the Town Wetland Inspector written notification of the intention to begin work.

10. The site shall be monitored monthly for compliance with the approved Erosion and Sediment Control Plan by a qualified environmental consultant. Written reports outlining the site, status, identified problems and suggested remediation shall be provided to the Planning Board and Building Department.

11. After construction, an "as-built" version of the construction plans will be provided to the Planning Board documenting the location of the additions and mitigation features.

12. As provided under Section 217-5(I) of the Town Wetland and Watercourse Law, this permit is subject to revocation should the applicant or permittee not comply with the terms and conditions of this permit.

13. There shall be no clearing, grading or removal of vegetation beyond the clearing limits shown on the plan.

PLANNING BOARD
Town of Lewisboro

By Jacqueline Dzaluk
Jacqueline Dzaluk, Chairperson

Dated: May 28, 2002
South Salem, New York

RESOLUTION
TOWN OF LEWISBORO PLANNING BOARD

CLYDE AND DIANE BROWNSTONE
WETLAND ACTIVITY PERMIT APPROVAL AMENDMENT

Calendar # 2-02 W.P.

Clyde and Diane Brownstone, 41 and 43 Lake Shore Drive, request to amend a Wetland Activity Permit to "construct additions and alterations to 43 Lake Shore Drive and demolish an existing dwelling and foundation at 41 Lake shore Drive "within a regulated wetland setback, on Lot s 13, 14 and 15 in Block 11174 on Sheet 36 H, consisting of 1.148 acres located in a R-1/2A, residential zoning district;

**WHEREAS**, on December 5, 2001, an application from Clyde and Diane Brownstone for a Wetland Activity Permit under the provisions of Local Law 3-1995, "Wetlands and Watercourse Law" was received by the Building /Wetland Inspector; and

**WHEREAS**, on May 14, 2001, a Wetland Activity Permit was issued by the Planning Board with conditions for the above reference regulated activities; and

**WHEREAS**, the applicant has requested an amendment to the original permit to slightly alter the proposed house footprint; and

**WHEREAS,** a public hearing regarding this application was held on November 12, 2002, during which all interested parties were given the opportunity to be heard; and

**WHEREAS**, the proposed action is an Unlisted action pursuant to SEQR 6 NYCRR Part 617 and the Environmental Quality Review Law of the Town of Lewisboro; and

**WHEREAS**, the Planning Board reviewed the Environmental Assessment Form and other materials submitted in support of this application at a regular meeting of the Planning Board held on November 12, 2002; and

**NOW THEREFORE BE IT RESOLVED**, that the Planning Board hereby finds that this action is consistent with the original approval and therefore will not have a significant effect on the environment and an Environmental Impact Statement will not be required; and

**BE IT FURTHER RESOLVED**, upon full consideration of the above, the Planning Board hereby amends its resolution dated May 14, 2001, with the following conditions:

1. All construction shall be in full accordance with the following plans:

   "Plot Plan and Zoning Tabulation, Additions and Alterations: Brownstone Residence" Sheet SP-1, prepared by Ralph Mackin Jr. Architects PLLC, dated May 23, 2001 and last revised July 29, 2002(sic).

"Buffer Enhancement and Grading Plan, Additions and Alterations: Brownstone Residence" Sheet SP-2, prepared by Ralph Mackin Jr. Architects PLLC, dated November 30, 2001 and last revised July 29, 2002(sic).

2. As compensation for the additional disturbance with the 100-foot regulated wetland buffer, the proposed mitigation planting areas shall be expanded an additional 200 sq.ft; and

**BE IT FURTHER RESOLVED**, that all other conditions and determinations contained in the May 14, 2002 resolution of approval shall remain in full force and effect.

PLANNING BOARD
Town of Lewisboro

By Jacqueline Dzaluk
Jacqueline Dzaluk Chairperson

Dated: November 12, 2002
South Salem, New York

**STATE OF NEW YORK )**
**COUNTY OF WESTCHESTER)**
**TOWN OF LEWISBORO )**

**I, AIMEE M. HODGES, Secretary of the Planning Board of the Town of Lewisboro, County of Westchester, State of New York, do hereby certify that I have compared the preceding copy of a resolution adopted by the Planning Board of the Town of Lewisboro at a meeting held on the 12th day of November, 2002, and that the same is a true and correct copy of said original and of the whole thereof.**

**Aimee M. Hodges**
**Planning Board Secretary**

**Dated at South Salem, New York**
**this 18th day of November, 2002.**

Clyde Brownstone
784 Park Avenue
New York, NY 10021

Planning Board
Box 725
Cross River, NY 10518

2/22/2017

Dear Planning Board,

I am writing about our house at 43 Lake Shore Rd, South Salem.

We are in receipt of a letter of 2/6/17 asking for a current inspection of our septic tank.

I have written previously that the Lewisboro Ledger (RIP) reported that the Planning Board was considering a policy that would not require inspections every year.
The Planning Board responded asking me to write requesting relief from this onerous annual requirement.

As I wrote you before, we respectfully request a modification in the frequency of required inspections. We understand there is agreement that annual inspections are no longer necessary. As I wrote previously, my wife & I are an elderly couple using our home on weekends (perhaps only 70 days per year). Annual inspections are a financial burden, and ripping up our lawn is disturbing and unpleasant. We believe the current requirement is unnecessary and unfair.

Over a year ago, you wrote us "The Planning Board is conducting a review of these requirements and is in the process of making procedural recommendations to the Town Board. All homeowners will be contacted."

We would hope you would agree that inspections every 5 years would be more than reasonable.

Diane & Clyde Brownstone

env: 350 Fifth Ave, Ste 4908
NY NY 10118

The regulations also compel the homeowner to have some sort of professional expertise involved in the repair. If the Wetland Inspector is not available for some reason, the Building Inspector can be given the authority to issue the permit. Mr. McGroddy suggested that there be a provision that in the event of an emergency the homeowner could FAX notification to the Building Department and file for the permit a later date. Mr. Fain expressed concern that sometimes a septic repair is an excuse to fill in a wetland to extend a lawn.

Mr. Herzog believed that most of the outstanding issues had been discussed and suggested that with the sanction of both Boards that Mr. McGroddy and Ms. Clark take all of the comments and incorporate them into a new draft within one month. Mr. McGroddy stated that the adjudication process is the one outstanding issue. Mr. Herzog advised that the Town Board could discuss this matter further during their work session.

The Board took a five minute break at 8:50 P.M.

## II. SKETCH PLAN REVIEW

**Matthew Marra, 24 Indian Lane, South Salem – Wetland Activity Permit Cal. #4-03 W.P.**

Gene Vetrano the architect for the project was present representing the applicant.

Mr. Vetrano displayed the plans for the renovations to repair a damaged deck and add a 180 SF kitchen addition to an existing three bedroom home. There is currently a full bathroom off the kitchen, which would be moved adjacent to an existing bedroom on the other side of the house. The kitchen addition would be constructed on two piers, to avoid any additional impacts to the regulated area. The entire house is located within the 100 foot wetland buffer. The proposed addition is located at the farthest point from the lake, fifteen feet inside of the buffer.

Mr. Fain referred to his memo to the Board dated March 11, 2003 and advised that this is a straight forward application, although some additional information needs to be supplied. He advised that he had inspected the site and that it is flat and that the wetland boundary coincided with the edge of the lake. He suggested that the applicant request a waiver from the Board to relieve them from having the site delineated. He asked that the septic system be shown on the plans, refine how the site would be accessed, and asked that the erosion control fence be moved closer to the proposed addition. The mitigation proposed should be increased with native material and moved closer to the driveway end so that more runoff would be caught. He suggested that the Board consider adding this project to the septic maintenance program. As this is a small project he believed that the Board could waive the Public Hearing and remand it back to him for his approval. There are no variances required.

The Board agreed that this was a minor project and remanded it back to the Wetland Inspector for his review and approval. The permit can be issued administratively.

**Valerie & Albert Perruzza, 65 Knapp Road, South Salem – Wetland Activity Permit Cal. #8-03 W.P.**

Mr. & Mrs. Perruzza were present with their architects Ira and Laura Sanchek.

# Wetlands Activity Permit

## TOWN OF LEWISBORO

## South Salem, New York 10590

Date: 4/10/03 Permit # 403WP

Permit is hereby issued to Matthew Marra
(Name)

24 Indian Lane to conduct Wetland Activity for
(Address)

Minor Addition on property owned by
(Proposed activity/construction)

Matthew Marra designated as Sheet 36.6

Block 11172 Lot 1 situated on 24 Indian Lane
(Street)

NO ACTIVITY SHALL BE PERMITTED WITHIN WETLANDS OR WITHIN 100 FEET OF WETLANDS **EXCEPT AS IDENTIFIED IN THE APPROVED APPLICATION.**

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "EROSION CONTROL STANDARDS" SET FORTH IN THE "LEWISBORO LAND DEVELOPMENT REGULATIONS" (SEE ATTACHED COPY). THE WESTCHESTER COUNTY "BEST MANAGEMENT PRACTICES MANUAL ON CONSTRUCTION RELATED ACTIVITIES" SHALL BE USED TO PROVIDE GUIDELINES FOR DESIGN AND INSTALLATION OF ALL EROSION AND SEDIMENTATION CONTROL DEVICES.

FORTY-EIGHT (48) HOURS ADVANCE NOTICE MUST BE GIVEN TO THE LEWISBORO BUILDING DEPARTMENT AT 763-3060 PRIOR TO THE COMMENCEMENT OF WORK.

ALL WORK COVERED BY THIS PERMIT IS TO BE COMPLETED BEFORE 4/10/04 UNLESS AN EXTENSION OF THIS PERIOD IS REQUESTED IN WRITING.

Wetlands Inspector

**MATTHEW MARRA**
**WETLAND ACTIVITY PERMIT #4-03 W.P.**
**STANDARD OF CONDITIONS**

**Upon full consideration of the information provided, the Wetland Inspector finds that the application of Matthew Marra for a Wetland Activity Permit for the construction of a minor addition in a regulated setback is consistent with the provisions and policies of Chapter 217 of the Code of the Town of Lewisboro and a permit is approved, with the following conditions:**

1. **All construction shall be in full accordance with the following plans:**

   a. **Proposed Alterations and Additions for Mr. & Mrs. Matthew Marra prepared by Sal Mancini, AIA and dated last March 20, 2003**

2. **All work is to be performed by hand, no machinery.**

3. **There is to be no change in the bedroom count.**

4. **Inspection and pumping of the septic system shall be performed on an annual basis. Proof of services shall be provided to the office of the Wetland Inspector.**

5. **This permit shall expire on year from the adoption of this resolution – April 10, 2004.**

6. **All erosion and sediment controls will be in accordance with the NYS Guidelines for Urban Erosion and Sediment Control and The Westchester County Best Management Practices Manual for Erosion and Sediment Control.**

7. **At least five days prior to the commencement of construction, the Applicant or their representative shall provide the Town Wetland Inspector written notification of the intention to begin work.**

8. **As provided under Section 217-5(I) of the Town Wetland and Watercourse Law, this permit is subject to revocation should the applicant or permittee not comply with the terms and conditions of this permit.**

9. **There shall be no clearing, grading, or removal of vegetation beyond the clearing limits shown on the plan.**

10. **Mitigation shall be installed and inspected prior to the issuance of the Certification of Occupancy.**

**By: _____**
**Jay Fain, Wetland Inspector**

**Dated: April 10, 2003**
**South Salem, New York**

## Ciorsdan Conran

**From:** Steven Roberts <stevenroberts263@gmail.com>
**Sent:** Friday, February 17, 2017 2:33 PM
**To:** planning@lewisborogov.com
**Cc:** Roberts Steven HP -
**Subject:** Annual Septic Pump

*Cal #4-03 WP

*Sheet/Block/lot 36C/11172/1

*24 Indain Lane, South Salem, NY 10590

Dear Ms. Conran;

As per our phone conversation of today, Friday, Feb. 17,2017.

We have been obligated to pump our septic annually (today I faxed to you bill showing 24 Indian Lane had been pumped on Feb. 13, 2017).

As I mentioned on the phone, 24 Indian is a second home which is used on most weekend during the year, less in the winter months.

We are only two adults and would hope that the Planning Board would give us the right to pump every other year.

I look forward to your response. Any additional questions, please do not hesitate to ask.

Sincerely yours,

Steven Roberts
914-260-6688
stevenroberts263@gmail.com

Mr. Naderman responded to a comment of Mr. Fain regarding an exposed and broken pipe in the septic system and advised that when verifying the location of the existing system the junction box was uncovered to verify that it was functioning properly. When doing so, it was determined that one of the junction pipes had been root bound and needed to be replaced. Everything now is intact. He advised that the Health Department office in Mt. Kisco supported the fill waiver for the expansion area, but that they do not issue it, the New Rochelle office does and will not issue one until the actual permit and compliance are issued. He advised that access to the new septic area would not require driving over the existing septic system. He advised that the existing system could not be expanded and if it could, would create a greater impact to the wetlands. He advised that the existing system had a lot of life and was located in good soil. Even though the one pipe had not been functioning before the repair, the system still was working as the other trench had taken the whole load without a problem.

Mr. Altermatt stated that since the proposed septic is fifteen feet from a substantial addition that the setback from the wetlands should be increased.

Mr. Naderman advised that the Health Department required that the additional bedroom and bathroom be the only flow to the new system. Everything else in the house would flow to the existing system. Ms. Dzaluk asked if it would be possible to shift some of the flow to the new system and was advised that the Health Department cannot issue a permit that does not meet the present requirements.

Mr. Fain asked that the applicant remove as few trees as possible during construction and was advised by Ms. Evans that this was the intent.

The applicant's consultants will set an appointment to meet with Mr. Fain and Mr. Altermatt out in the field to get a resolution regarding the septic system. When revised plans are received, a Public Hearing may be scheduled.

**Marc Wachtell, 50 Twin Lakes Road, South Salem – Wetland Activity Permit – Cal. #10-03 W.P.**

Marc Wachtell was present with his engineer, John Giancola, PE, PLS of Kirby Engineering and Land Surveying.

Mr. Giancola displayed the site plan for renovations to Mr. Wachtell's residence adjacent to Lake Oscaleta and advised that since originally submitting the application in December 2002 he had made revisions in response to Mr. Fain's comments. He distributed revised plans to the Board members addressing Mr. Fain's comments regarding the existing deck and it's proximity to the septic system. He advised that this lake house had been converted to a year around dwelling in 1964. He described the proposal for two additions noting that construction would not encroach any further into the buffer then what exists now. The existing shed will be removed. He advised that there are no additional bedrooms proposed. A certificate of construction compliance of the septic system was issued by the Health Department in 1964 when the house was converted; a copy was submitted for the record. He discussed the proposed erosion controls. Responding to Mr. Fain's April 8, 2003 memo to the Board, he explained that there are three existing splash pads which are ineffective and as such he has proposed a larger outflow protector which is shown in the details on the site plan. To provide a visual that there is currently no erosion on the site down to the lake, he provided a picture of the site taken the day

before this meeting. He noted that the plans were unclear, and explained that at the ground level there was no addition over the proposed second story deck. The existing deck was replaced in 1995. The previous deck was at ground level, a part of which was over the septic system. The tank had been located on the plans as well as the columns, and it is clear that no column interferes with the septic system. This reason for the configuration of the deck is due to the Building Inspector requiring that it not interfere with the septic system. The Building Inspector signed off and noted that the Certificate of Occupancy could be issued on November 28, 1995. He submitted a copy of the Building Department Inspection report signed by Robert Orem.

Mr. Giancola stated that a 10' wide x 70' long mitigation planting was shown behind the stonewall in an area of existing pachysandra and was advised that typically the Board asked that the mitigation plantings be installed along the property line at the waters edge which would allow access to the lake. The Board asked that the mitigation be clustered, and suggested that they keep the pachysandra which is already helping with erosion control. Mr. Wachtell agreed to provide planting along with sides of his property.

Mr. Fain suggested that this property be included the septic routine maintenance program, and asked for deed restrictions limiting the bedroom count and over the mitigation planting. Mr. Giancola expressed concern about this request and was advised that this is being done with all wetland permits on the lakes and assured that future homeowners would understand the intention of this Board when a particular wetland activity permit was granted. Mr. Praga advised that because title searchers do not routinely check the Planning Board files, that a deed restriction filed in the County offices makes it clear what this Board intended when they approved an application. Ms. Dzaluk suggested that he discuss this issue further with his client. The Board agreed that this was a well thought out and complete project and agreed that a public hearing could be scheduled for the June 10, 2003 agenda. The applicant was asked to submit revised plans in time for the scheduling of the Public Hearing.

## V. DISCUSSION

### South Salem Library/Town of Lewisboro

Mike Lynch, who is presently heading up facilities planning for the Town and is coordinating the plans for the library and the Town, was present to discuss the Town's future building plans. He explained where the Town was in the process of developing a plan for the new town offices. He advised that a timeline had not been determined as of yet. He indicated that he had met in January with Tom Altermatt, Will Agresta & Tom Herzog to discuss ways of not impeding the library'. Mr. Agresta had prepared a preliminary traffic study; Mr. Altermatt dealt with water and septic numbers. He indicated that the facilities committee had not reviewed these reports as of yet. It was his understanding that the library would have two conceptual traffic flow parking designs based on part of Mr. Agresta's report. The Town is proposing that the new town offices to be built horizontally over the existing footprint of the highway department and parking area. The expansion will go over what is now impervious surface so any stormwater runoff numbers the library comes up with the, Town will not alter. Mr. Lynch advised that the facilities committee had reviewed all of the library's paper work and believed that the only piece lacking for the library is a letter from the Town Board stating that the library could use town property to figure their parking. He advised that the Town Supervisor had made the recommendation to the Town Board that they approve the septic twice and a memo is expected reflecting this. He advised that by relocating the Highway Department from the site the parking requirements for

Mr. Gennimi advised that he called a surveyor who wanted $2000 to walk the property: $500 for a water table and $2500 for an aerial photograph because the Town has no record of any wetlands.

Mr. Fain advised that the existing house could be utilized as a benchmark for the restoration plan. The wetland location can be plotted against the house.

Ms. Dzaluk suggested that Mr. Gennimi make an appointment with Mr. Fain to understand what is required because some of the costs he discussed seemed to be unnecessary. She advised that when the Board heard his case. they listened to his hard luck story that he did not have a roof on the house. Mr. Gennimi advised that he still did not have a building permit for the roof repair and noted that the Planning Board did in fact give permission for this permit to be granted at Thanksgiving. He stated that he worked two months to get the blueprints. the electrical and plumbing paperwork to the standards of the Building Inspector but that the permit had not been issued.

Ms. Dzaluk asked if the Board should schedule an Executive Session on this matter or whether the Board should make a decision now.

Ms. Halpern stated the Board did not want to spend a lot of time on this because Mr. Gennimi had not done what was required in a timely manner. She did not believe there had been a good faith effort and that this was not fair to the Board and to the public to have to hear this month after month. She was not inclined to give an extension.

Mr. Nordgren asked Mr. Gennimi if he could get the restoration plan in by July 15th.

Mr. Fain explained that the restoration plan should address how all of the imported material would be removed and how the area that had been disturbed would be restored. The restoration plan does not have to be extensive but some effort should be made and it should be submitted as soon as possible.

Ms. Dzaluk asked Mr. Gennimi why he did not come in for an extension in March and noted that six months had gone by since the resolution was adopted. She expressed concern that Mr. Gennimi did not communicate that there was a problem with Mr. Fain or the Board. She stated that was not inclined to grant any leeway. Mr. Nordgren advised that he wanted to get the restoration plan. and Ms. Dzaluk noted that this could be occurring concurrently. She advised that an Executive Session would be scheduled and that if a plan is submitted in the interim the Board would take it into consideration. She further suggested that Mr. Gennimi schedule time to speak with Mr. Fain during his office hours to discuss what exactly is required and not go beyond the scope of what is required.

At the conclusion of her services for the evening. Ms. Clark exited the meeting at 8:10 P.M.

## III. PUBLIC HEARINGS

**Marc Wachtell, 50 Twin Lakes Road, South Salem – Application for a Wetland Activity Permit to permit alterations to an existing residence, the**

**removal of a shed, installation of mitigation plantings and associated site improvements within a regulated wetland adjacent area – Cal. #10-03 W.P.**

Marc Wachtell was present with his engineer. John Giancola of J. A. Kirby Engineering and Land Surveying.

The Chair asked if there were any objections to the time or place of the Public Hearing or if anyone wished the Notice of Public Hearing to be read aloud. There was no response.

Mr. Giancola displayed the site plan and briefly described the project to erect two additions to the existing house on 50 Twin Lakes Road on Lake Oscaleta. He advised that the rear addition would not encroach any further into the wetland setback then the existing deck. He advised that there are no additional bedrooms being proposed and that the existing septic has been shown on the plans. He advised that previously he submitted the December 1964 Certificate of Compliance for the septic system issued by the Westchester County Department of Health.

Mr. Fain explained that the Health Department would also need to sign off on the plans for this addition. This would be needed prior to the permit being issued and could be a condition of approval.

In response to the NYC DEP correspondence dated May 27. 2003. Mr. Giancola advised that they have shown two reserve areas larger then the size of the existing system. He reviewed his calculations regarding the comment relative to the DEP's request to maximize the separation distance of the proposed outfall protection from the septic area and did not believe there would be any problems with the septic system.

Mr. Giancola advised that he received Mr. Fain's comments and noted that he would submit the documentation required for the bedroom count. Based on the last hearing. it was his understanding that he was to show two buffer areas on the east and west side of the property. He had not wanted his client to spend a lot of money on a landscape designer or architect but advised that his client would hire a plant expert who would develop a specific plan. Ms. Dzaluk explained that this Board needs to understand what exactly is being proposed as far as type and specific number of plants to assess and evaluate the mitigation to determine if it is adequate. In an effort to save time on the Board's agendas. Mr. Fain offered to review the plan in the office and advised that if there was an issue. he would bring it before the Board. The Board agreed.

Regarding the deed restriction. Mr. Fain explained that what had been submitted was generic and that there is specific language which had been used previously specifically detailing what exactly is being deed restricted.

David Petro of 52 Twin Lakes Drive. a neighboring property owner spoke in favor of the application. He stated that Mr. Wachtell had gone above and beyond his mission to keep as many trees as possible and developed an excellent plan. This application though raised a question he had with an adjacent parcel where an application had been submitted for the construction of a new home in that the wetland line on the adjacent parcel followed the shore line and the wetland line on this property went beyond the shore line of the lake approximately 40 to 50 feet.

Mr. Fain advised that the application he is referring to would be reviewed by this Board. He advised that he inspects the site to verify the wetland delineation and that the wetland line was originally determined by the applicant's professional. Mr. Giancola advised that the soil scientist was Mary Jaehnig.

There were no further comments from the public.

On a motion made by Ms. Halpern. seconded by Mr. Decaminada the Public Hearing was closed.

Vote: Yes: Rossi. Decaminada. Dzaluk. Halpern. Nordgren

Mr. Wachtell was advised that a decision would be prepared for the June 24th agenda.

**Katherine Biddle, 39 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit to revise a previously granted Planning Board approval dated October 8, 2002 for a proposed addition to an existing residence consisting of a second story addition, mudroom, two-car garage, deck and associated site improvements within a regulated wetland adjacent area – Cal. #13-01 W.P.**

Mr. & Mrs. Biddle were present with their attorney. Geraldine Tortorella. Esq. and Beth Evans of Evans Associates.

The Chair asked if there were any objections to the time or place of the Public Hearing or if anyone wished the Notice of Public Hearing to be read aloud. There was no response.

Ms. Evans displayed the site plan and advised that the plan had been revised in response to the some of the conditions and requirements that the Board had placed on the original approval. One of the most significant revisions is the proposal of a gravel driveway with a level spreader at the end to allow any buildup of water on the drive to seep onto the lawn area rather then to flow down towards the lake. Previously this had been proposed as a macadam driveway. She advised that previously it had been proposed that the runoff from the new impervious surfaces be diverted into a subsurface infiltration system. but that NYC DEP found that this system would be too close to the existing well on the property and asked that it be moved 100 feet away. This would push the infiltration system towards the septic area and as such has been eliminated and the driveway has been replaced with gravel. To address the concern regarding the screening of the new garage with deer proof plantings. the applicant has proposed to plant a number of broad leaf evergreens to under plant the existing trees. The deed restriction and mitigation remain the same. and at the request of Mr. Fain the applicant would add language to the deed restriction stating that the driveway would be maintained as a gravel surface.

In response to the NYC DEP's correspondence dated May 27. 2003. Ms. Evans advised that a septic reserve area had not been designed as it was her opinion that if the septic system failed. the property owner would replace the system in its existing location. rather then replacing it with a new system closer to the lake. In addition. previously the applicant had submitted a signoff from the Westchester County Department of Health that the number of bedrooms will not be increased.

secure a building permit. It is not clear whether he obtained a building permit as some site work had been completed. If the work is beyond what was approved by this Board. Mr. Paulding would have to come back before the Board. Mr. Altermatt advised that Mr. Paulding had not contacted him for an inspection as required in the resolution issuing Site Development Approval.

After some discussion the Board agreed to grant a 30 day extension of time to give him time to advise this Board what is occurring on the site. The Board noted their intention to grant additional time beyond the 30 days but felt that it was important to understand the nature and extent of the work on the site and how it corresponds to the approval.

The Secretary was directed to write Mr. Paulding a letter advising him of the Board's decision.

On a motion made by Mr. Nordgren, seconded by Ms. Halpern the Board granted a 30 day extension of time to complete the conditions of the Planning Board Resolution dated March 12, 2002.

Vote: Yes: Rossi, Dzaluk, Halpern, Nordgren
Absent: Decaminada

## V. DECISIONS

### NYSEG, Route I684 – Site Development Plan – Cal. #6-03 P.B.

Karen Hanratty of the NYSEG Brewster office was present representing the applicant.

Mr. Agresta reviewed the draft resolution he prepared for the Board's consideration. Mr. Altermatt advised that he recommended the Engineering & Inspection Fee be set at $500.

On a motion made by Ms. Halpern, seconded by Mr. Nordgren the resolution waiving the Public Hearing, issuing a negative SEQR Declaration, and issuing Site Development Approval for NYSEG-Katonah Transformer was adopted.

Vote: Yes: Rossi, Dzaluk, Halpern, Nordgren
Absent: Decaminada

At the completion of his services for the evening Mr. Agresta exited the meeting at 8:30 P.M.

### Marc Wachtell – Wetland Activity Permit – Cal. #10-03 W.P.

Marc Wachtell was present.

Mr. Fain reviewed the draft resolution he prepared for the Board's consideration, noting that the Planning Board attorney was not able to review this document. He suggested that the Board adopt this resolution subject to the review and approval of their attorney. Mr. Fain noted that the outstanding items had been incorporated into conditions of the approval.

Mr. Wachtell asked the Board to consider adopting the resolution this evening subject to the review of the Planning Board attorney.

On a motion made by Mr. Nordgren, seconded by Ms. Halpern the resolution issuing a Negative

SEQR Declaration and Wetland Activity Permit Approval was adopted subject to the review and approval of the Planning Board attorney.

Vote: Yes: Rossi. Dzaluk. Halpern. Nordgren
Absent: Decaminada

**Katherine Biddle – Wetland Activity Permit – Cal. #13-01 W.P.**

Katherine and John Biddle were present.

Mr. Fain reviewed the draft resolution he prepared amending the Board's prior approval dated October 8. 2002. Ms. Dzaluk reviewed the changes to the original approval. Mr. Fain advised that the Planning Board attorney had reviewed the new deed restriction language and had made some comment. At the suggestion of Mr. Fain. this resolution could be adopted subject to the review and approval of the Planning Board attorney.

On a motion made by Mr. Nordgren. seconded by Ms. Halpern the resolution Kathy Biddle. Wetland Activity Permit Approval Amendment was adopted subject to the review and approval of the Planning Board attorney.

Vote: Yes: Rossi. Dzaluk. Halpern. Nordgren
Absent: Decaminada

## VI. SKETCH PLAN REVIEW

**Michael Byrne, 91 North Salem Road, Cross River – Wetland Activity Permit – Cal. #23-03 W.P.**

James DeLalla. ASLA and Michael Fuller Sirignano. Esq. were present representing the applicant.

Mr. Sirignano advised that this lot was created by the Hsu Subdivision approved in 1992.

Mr. DeLalla displayed three maps: one the original 1992 subdivision noting the original wetland delineation and noted limit of disturbance envelope. He advised that Marc Beroz reflagged the wetlands. which were verified by Mr. Fain. Although the NYS DEC wetlands had not changed. the Town's regulated area had increased considerably and shifted in some places. He reviewed the proposed site plan proposing to construct a new 3.700 SF residence. pool. walks. terraces. septic system and well on a 22.13 acre parcel. The NYS DEC has issued a wetland permit to construct the house and the septic system and advised that this approval was extended in February 2003 for three years. He advised that the wetlands bisect the house and septic locations. The proposed driveway is an existing wood trail: a 15 inch pipe under the drive is existing. He advised that virtually the entire site is within the regulated area. and pointed to a small area not within the wetland or wetland buffer.

The Board expressed reservations about the project that would construct a house and septic system separated by a stream and almost entirely within the regulated area.

Mr. Sirignano stressed that his client purchased this parcel based on an approved subdivision two years ago and has a Board of Health approval for a five bedroom septic system.

Mr. Formisano advised that he had hired every inspector required by this Board. Ms. Dzaluk questioned what had occurred between December and now noting the Board had observed his property this past week and that the property was still in disrepair. no action had been taken to comply with the resolution. The property is still in violation. Mr. Decaminada advised that he was insulted that Mr. Formisano had not explained to the Chair what had occurred on the site.

Mr. Formisano maintained that he was not represented by counsel and that he was entitled to be represented by a lawyer.

Mr. Decaminada suggested that the Board move to a default. and proceed with a hearing. Mr. Nordgren clarified that this was not a simple violation. but several acres had been disturbed through two seasons affecting water quality.

The Board advised that they would not change or address the prior resolution. it stands.

Mr. Decaminada made a motion that the Board deny the request for an adjournment and that they proceed this evening with the hearing. It would be the decision of Mr. Formisano's attorney to move to set this decision aside. Mr. Decaminada stated that Mr. Formisano had been properly served. and both he and the Board were present and that they should proceed.

Ms. Clark advised that it would be better to err on the side of caution to make sure the alleged violator understands the legal implications. The legal implications for this particular case is extraordinary given the amount of the fine and that it is a daily compounded fine which can be levied against the home. Given the potential for the extreme fine she stressed caution.

Mr. Decaminada withdrew his motion.

It was made clear to Mr. Formisano that there would be no further adjournment granted and this hearing would proceed on July 22. 2003 with or without counsel. It was noted that as this offense was so serious that the maximum fine the Board could assess was $5000 per day.

## II. DECISION

### Owen D. Gutfreund – Wetland Violation – Cal. #7-03 W.V.

Ms. Dzaluk reviewed the draft resolution prepared by Ms. Clark for the Board's consideration noting that the violation occurred as an unfortunate accident on the part of the contractor. It was the Board's determination that a minimal civil penalty be assessed of $500 to cover the costs of the Town's consultants.

On a motion made by Ms. Halpern. seconded by Mr. Decaminada the resolution Violation of Wetland and Watercourse Law. Owen D. Gutfreund. Cal. #7-03 W.V. was adopted.

Vote: Yes: Decaminada. Dzaluk. Halpern. Nordgren
Absent: Rossi

### Marc Wachtell, Amendment of Wetland Activity Permit – Cal. #10-03 W.P.

The Board reviewed the draft resolution prepared by Mr. Fain. Mr. Fain explained that the original approval required that the deed restriction be filed prior to the issuance of the building

permit. Mr. Wachtell had indicated that he would lose his contractor if he did not commence work shortly. He noted that the applicant had been very cooperative throughout the process and that the delay in getting the deed restriction filed was because of the time it takes for the surveyor to complete their work. As such. he prepared an amendment to the approval which would require that the deed restriction be filed prior to the issuance of the Certificate of Occupancy.

On a motion made by Ms. Halpern. seconded by Mr. Mr. Nordgren the resolution Marc Wachtell. Wetland Activity Permit Approval Amendment. Cal. #10-03 W.P. was adopted.

Vote: Yes: Decaminada. Dzaluk. Halpern. Nordgren
Absent: Rossi

## III. CALL FOR A MOTION TO ENTER INTO EXECUTIVE SESSION

On a motion made by Ms. Halpern. seconded by Mr. Decaminada the Board entered into Executive Session to enter into deliberations regarding decisions relative to two wetland violations. Richard Snyder & Robert J. Snyder. Cal. #9-03 W.V. and Wendy Gennimi Cal. #8-03 W.V. at 7:50 P.M.

Vote: Yes: Decaminada. Dzaluk. Halpern. Nordgren

On a motion made by Ms. Halpern. seconded by Mr. Decaminada the Board exited the Executive Session at 7:58 P.M.

Vote: Yes: Decaminada. Dzaluk. Halpern. Nordgren

## IV. PUBLIC HEARINGS

**Glenn & Claudia Schattman, 53 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit for the construction of an in-ground pool, spa, associated terraces and associated site improvements within a regulated wetland adjacent area - Cal. #34-02 W.P.**

There were no requests to have the notice of public hearing read nor were there any objections to the time or place of the public hearing.

Glenn Schattman was present with his attorney Michael Fuller Sirignano. Esq., pool contractor Ken Thompson of Bedford Poolscapes and landscape architect James DeLalla. ASLA of DeLalla & Von Ohlsen.

Mr. Thompson displayed the site plan to install an in-ground pool noting that the shape of the pool had been changed to a rectangle to set it further outside of the wetland setback. a total distance of 63 ½ feet from the water line. He advised that the pool is elevated and completely surrounded by a stonewall creating a physical barrier between the pool and the wetland on the property. In addition an extensive landscape buffer is being proposed. The proposed patio is also buffered from the existing lawn area. The equipment for the pool has been moved back directly adjacent to the existing residence keeping it as far from the lake as possible.

Mr. Sirignano advised that he had prepared a declaration of the restricted area. and they are waiting for the surveyor to prepare the legal description of the area to be restricted.

**Fryer**

The Board acknowledged receipt of the correspondence from Elizabeth Fryer and agreed that the consultants are responsible to justify their time.

**Wachtell**

The Board acknowledged receipt and discussed the March 27, 2007 correspondence from Marc Wachtell. It was noted that the condition requiring annual pumping and maintenance of the septic system was part of the mitigation for the wetland activity permit issued to Mr. Wachtell to increase the size of his home and that the Board must be consistent.

Mr. Barber advised that scientifically this requirement is a responsible stewardship of septic systems. He advised that he would draft a response and have counsel review it prior to sending.

**Cross River Plaza Drainage**

Mr. Decaminada acknowledged receipt of the March 29, 2007 letter from Bibbo Associates advising that the site improvements were substantially complete. He requested that a representative of the applicant represent that the School District is satisfied with the work.

Mr. Rossi suggested that Mr. Decaminada draft his concerns and forward them to the Secretary to be incorporated in a letter to the applicant.

**South Salem Library**

The Board acknowledged receipt of and discussed the March 30, 2007 correspondence from Renee Purse, Vice President of the South Salem Library Board of Trustees. Mr. Praga and Mr. Agresta will review the code and advise as to proper procedure.

On a motion made by Ms. Maguire, seconded by Richard Ellrodt the Board entered into Executive Session with their counsel Lawrence Praga, Esq. and Town Attorney Jessica Bacal, Esq. under Attorney/Client Privilege at 9:37 P.M.

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt, Maguire

On a motion made by Ms. Maguire, seconded by Mr. Gusmano the Board exited the Executive Session at 11:10 P.M.

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt, Maguire

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt
Maguire: Absent

Mr. Boera advised that he was in receipt of the letters received from the adjacent property owners.

## IV. CORRESPONDENCE & GENERAL BUSINESS

### Thistlewaithe Learning Center

Mr. Rossi acknowledged the request to remove a dead tree from the site. Mr. Barber stated that he had noted the tree at his recent site visit and advised that the tree could be removed without any further Planning Board review. The Secretary was directed to follow up with the applicant's architect.

### Farrell

The property owner's attorney contacted the Planning Board office for a better understanding of the area to be deed restricted as conditioned in the Planning Board's approval. The Board agreed that Mr. Barber would clarify the area identified in the resolution as the mature forest between the residence and the lake.

### Wachtell/Dover

The Board acknowledged receipt of the requests of Mr. Wachtell and Mr. Dover to modify the requirements of their wetland activity permit approvals requiring that their septic systems be pumped and inspected annually. Mr. Rossi advised that the CAC had promoted this and looked at this as good mitigation. The issue is not just to have the septic systems pumped, but this Board wants to ensure that septic failures are caught before they become an issue. He noted that two years ago this requirement brought to light Mr. Wachtell's failing septic system. This is not a condition being placed as a burden, but mitigation agreed to by the applicant.

Mr. Barber advised that septic systems within a wetland buffer pose a greater risk. The recommendation cited by both property owners would be more applicable where there is not a risk factor and where there may be different topography and soil conditions. Septic systems within the buffer pose greater risks to the wetland if they do fail.

Ms. Andersen advised that the Lakes Committee town consultant gave a presentation to the Town Board last Thursday regarding a survey they performed of all seven lakes in Town. Based on their analysis they felt that the largest single source of problems to the lakes were nutrients; the biggest single source of the nutrients are septic systems. It was their recommendation that the Town look to create sewer districts. In addition, the consultant advised that although the soils may be okay from a Board of Health perspective, they were inadequate to handle the phosphorus that is generated by a typical household. Given this information, Ms. Andersen believed that the practice of annual pumping and inspection of septic systems is wise and strongly recommended. She advised that the report which is lengthy and includes an executive summary would be on the Town's website shortly.

Mr. Gusmano stated that he agreed that this is proper for these two cases but believed that the requirement in some cases placed an undue burden on the homeowner because there is no recognition for the age and design of the septic system. He advised that he was certainly in agreement with an applicant having to prove the age and functionality of the system as well as providing a history demonstrating that a system did not have issues. If this Board continued this practice he believed that it should be a requirement for any system within a certain distance of not only lakes but any tributary as pointed out in this report.

Mr. Rossi agreed that each application should be looked at an individual basis, which has been the practice of this Board.

Mr. Decaminada thought that it may be prudent to establish sewer districts.

Mr. Barber advised that new treatment plants cannot be constructed within the NYCDEP watershed. He advised that there should be a proper balance and noted that the Department of Health used their own standards to examine soils for septic systems; the Town had no oversight. In order to inspect a septic system, it must be pumped. If the junction boxes tilt due to a frost heave, the septic system can fail.

Mr. Praga advised that both applicants are time barred from attacking the requirement. If an applicant finds that there is a problem with a condition, it should be addressed immediately. In addition, Mr. Wachtell noted the requirement with regard to maintaining his residence as a two bedroom residence. He advised that it was the determination of the Westchester County Department of Health that this is a two bedroom residence; this Board has no ability to change this.

The Board members were in agreement that the approvals should remain as adopted. Mr. Barber was directed to respond to Mr. Dover. Mr. Praga was directed to respond to Mr. Wachtell.

**Ring's End**

The Board acknowledged receipt of the Building Department's order to remedy which had been issued after receiving the inspection report from Tom Altermatt.

**LBA**

Mr. Barber advised that in response to the proposal to dig a trench near the bleachers at the Town Park he determined that the proposed work is in excess of 200 feet from the wetland buffer and did not require a wetland permit.

**Wetland Regulations**

The matter will be placed on the June 9, 2009 agenda for further discussion.

**Homeland Towers**

RESOLUTION
TOWN OF LEWISBORO PLANNING BOARD

MARC WACHTELL
NEGATIVE DECLARATION
WETLAND ACTIVITY PERMIT APPROVAL

Calendar # 10-03 W.P.

Marc Wachtell, 50 Twin Lakes Road, application for Wetland Activity Permit for "residential improvements including residential additions, removal of an existing shed and installation of mitigation plantings" within the 100 foot regulated wetland/watercourse setback, on Lot 26 in Block 11831 on Sheet 34B of the Tax Map of the Town of Lewisboro, consisting of .5 acres located within the R1/2A One-Family Residence District ("proposed action");

**WHEREAS**, on December 18, 2002, an application from Marc Wachtell for a Wetland Activity Permit under the provisions of Chapter 217 of the Code of the Town of Lewisboro "Wetlands and Watercourse Law" was received by the Building /Wetland Inspector; and

**WHEREAS**, the Planning Board reviewed the Application at a regularly scheduled meeting on April 8, 2003, at which time the Board determined the Application was incomplete; and

**WHEREAS**, the Applicant submitted the additional material requested and the Planning Board scheduled a public hearing for June 10, 2003; and

**WHEREAS,** the public hearing was convened on June 10, 2003, during which all interested parties were given the opportunity to be heard; and

**WHEREAS**, the proposed action is an Unlisted action pursuant to SEQR 6 NYCRR Part 617 and the Environmental Quality Review Law of the Town of Lewisboro; and

**WHEREAS**, the Planning Board reviewed the Long Environmental Assessment Form and other materials submitted in support of this application at a regular meeting of the Planning Board held on May 13, 2003;

**NOW THEREFORE BE IT RESOLVED**, that the Planning Board hereby finds that this action will not have a significant effect on the environment and an Environmental Impact Statement will not be required for the following reasons:

1. The proposed action will not affect any water body designated as protected under Article 15, 24, or 25 of the Environmental Conservation Law. All proposed activities occur outside of area regulated by the New York State Department of Environmental Conservation.

2. The proposed action will not result in the net loss or degradation of any locally regulated wetlands on the site.

3. The proposed action will not affect surface or groundwater quality or quantity.

4. The proposed action will not affect any threatened or endangered species.

5. The Planning Board has considered alternatives for the size and configuration of the proposed residential additions and has selected that alternative which avoids impacts to wetland and watercourses and minimizes, to the maximum extent practicable, impacts to the locally regulated wetland setback.

6. The applicant has proposed significant mitigation for those impacts due to construction within the 100 foot regulated setback area that cannot be further minimized. These include a comprehensive erosion and sediment control plan, implementation of a mitigation planting plan, deed restricting portions of the regulated areas of the property and annual septic inspection and maintenance.

7. For the reasons stated above, the Applicant has demonstrated that the proposed activity will not have significant adverse impacts on the public health and welfare, as mandated under Section 217 -5. D of the Town of Lewisboro Wetlands and Watercourse Law, including impacts on such wetland functions as water quality preservation, flood control and wildlife habitat.

**BE IT FURTHER RESOLVED**, upon full consideration of the above, the Planning Board finds that the application of Marc Wachtell for a Wetland Activity Permit for construction of residential additions and improvements in a regulated setback is consistent with the provisions and policies of Chapter 217 of the Code of the Town of Lewisboro and a permit is approved, subject to the issuance of a permit by the Wetland Inspector, with the following conditions:

1. All construction shall be in full accordance with the following plans:

   a. "Wetlands Application Plan, Prepared for Marc Wachtell", prepared by JA Kirby and dated last May 8, 2003.

2. Prior to the issuance of the Wetland Permit, a mitigation planting plan shall be prepared for review and approval by the Wetland Inspector. Mitigation plantings shall be installed prior to the issuance of the building Certificate of Occupancy and be guaranteed for two years from the date of installation.

3. This permit shall expire one year from the adoption of this resolution - June 24, 2004.

4. Each of the individual plans above shall be finalized to include the following signature block for endorsement as final by the Planning Board Chair and Secretary:

**APPROVED FOR FILING**

owner
{typed name}
{typed address}

date

applicant
{typed name}
{typed address}

date

**PLANNING BOARD ENDORSEMENT OF APPROVED PLANS**

Planning Board Chairman

date

Planning Board Secretary

date

5. Prior to signature on the final plans, the following shall be completed:

   a. All outstanding permit review fees shall be paid to the Town of Lewisboro by certified check.

   b. Prior to issuance of a Wetland Permit by the Wetlands Inspector or a Building Permit by the Building Inspector, four copies of the final plans shall be endorsed by the Planning Board Chair and Secretary and copies as required by the Planning Board Secretary shall be provided and circulated as appropriate.

6. Prior to the issuance of a Building Permit, a Deed Restriction or other legal mechanism acceptable to the Planning Board shall be implemented to provide permanent conservation protection to the proposed mitigation areas in the northeast and northwest portions of the site. Proof of filing with the Westchester County Clerk's office shall be submitted to the Planning Board Secretary prior to the issuance of the Building Permit.

7. Only low flow plumbing fixtures shall be installed in the proposed additions and renovations.

8. Inspection and pumping of the septic system shall be performed on an annual basis. Proof of septic system inspection and maintenance shall be provided to the Planning Board Administrator.

9. All erosion and sediment controls will be in accordance with the NYS Guidelines for Urban Erosion and Sediment Control and The Westchester County Best Management Practices Manual for Erosion and Sediment Control.

10. At least five days prior to the commencement of construction, the Applicant or their representative shall provide the Town Wetland Inspector written notification of the intention to begin work.

11. The site shall be monitored monthly for compliance with the approved Erosion and Sediment Control Plan by a qualified environmental consultant. Written reports outlining the site, status, identified problems and suggested remediation shall be provided to the Planning Board and Building Department.

12. After construction, an "as-built" version of the construction plans shall be provided to the Planning Board documenting the location of the additions, above ground deck, and mitigation features.

13. As provided under Section 217-5(I) of the Town Wetland and Watercourse Law, this permit is subject to revocation should the applicant or permittee not comply with the terms and conditions of this permit.

14. There shall be no clearing, grading, or removal of vegetation, beyond the clearing limits shown on the plan.

PLANNING BOARD
Town of Lewisboro

By Jacqueline Dzaluk
Jacqueline Dzaluk, Chairperson

Dated: June 24, 2003
South Salem, New York

**STATE OF NEW YORK )**
**COUNTY OF WESTCHESTER)**
**TOWN OF LEWISBORO )**

**I, AIMEE M. HODGES, Secretary of the Planning Board of the Town of Lewisboro, County of Westchester, State of New York, do hereby certify that I have compared the preceding copy of a resolution adopted by the Planning Board of the Town of Lewisboro at a meeting held on the 24th day of June, 2003, and that the same is a true and correct copy of said original and of the whole thereof.**

**Aimee M. Hodges**
**Planning Board Secretary**

**Dated at South Salem, New York**
**this 24th day of June, 2003.**

# HOFFMAN, WACHTELL & RAO, LLP

**Attorneys at Law**

Marc J. Wachtell

Christopher E. Rao
(1971 - 2014)

Allison H. Bilotta
Nancy E. Flaherty
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February 23, 2017

Ciorsdan Conran,
Septic Compliance Coordinator
Town of Lewisboro Planning Board
P.O. Box 725
Cross River, New York 10518

Re: **Marc Wachtell**
**Septic**

Dear Ms. Conran:

Please find enclosed the latest proof of septic inspection and maintenance from May of 2016.

Contrary to your letter of 2/6/17 there is absolutely no requirement that the septic be pumped each year. Please find enclosed a letter from the Town's attorneys dated 5/19/09 which clearly indicates that the only condition was that the septic be inspected and maintained on an annual basis. However, I have asked the Town for release of this annual requirement since at the time it was imposed, the Board, I believe, was over zealous and there was no reasonable explanation as to why this requirement was imposed upon me when the house addition did not add either bedrooms or bathrooms. The addition merely added a new front entrance and a living room. I'm curious to know whether or not any other homeowner has an annual septic inspection/maintenance requirement? Further, I believe that the county's new five year septic pumping requirement has superseded the Planning Board's onerous condition imposed upon me.

Thank you for your consideration.

Very truly,

Marc J. Wachtell

/ll
Enclosures

Mr. DelBello advised that it is the intention of the applicants to go to the Zoning Board of Appeals for a Special Permit for the entire parcel for the Wolf Center.

Mr. Fain advised that this would create a nonconforming parcel. Mr. Praga agreed stating that there was an issue relative to frontage as the code required 25 feet of frontage on a street. defined as a dedicated municipal street or a street that appeared on a plat suitable to the satisfaction of the Planning Board. He believed that a 280A variance of the Town Law permitted the Town Board to declare something to be an open development area. permitting the Town Board to allow a waiver of particular zoning requirements. He was not sure that this would stretch to frontage. He believed that the applicant would need to discover an administrative method to legitimize a lot with no frontage. Buck Run is a private road and does not fit the definition of a street as set forth in the code. This application appeared to be similar to another wherein an easement provided the frontage requirements in a ZBA decision. Mr. Praga stated that this would need to be looked at to determine if this was appropriate for this particular situation.

The Board discussed their concern with being consistent with past decisions and that they do not set a precedent.

Mr. DelBello requested an opportunity to meet with Mr. Praga to resolve the legal issues before returning with the preliminary plat.

Mr. Rossi stated that he wanted the Zoning Board of Appeals to review this subdivision before the Planning Board made any decision.

The Board agreed to refer this project to the Zoning Board of Appeals.

On a motion made by Ms. Halpern. seconded by Mr. Decaminada the resolution adopting a full escrow deposit in the amount of $2000 was adopted.

Vote: Yes: Rossi. Decaminada. Dzaluk. Halpern. Nordgren

**John & Reve Walsh, 33 Lake Shore Drive, South Salem – Wetland Activity Permit – Cal. #1-02 P.B.**

Michael Sirignano. Esq. and James DeLalla. ASLA were present representing the applicants.

Mr. DeLalla displayed the plans showing the site as it exists today and a plan of the proposal. He advised that the two tax lots are combined. He reviewed the site and advised that the Westchester County Department of Health had located the septic system. He advised that the house is constructed within the front yard setback. He advised that Marc Beroz located the wetlands and advised that most of property has been maintained as lawn with some brushy areas along the property line.

He reviewed the proposed additions to the house and advised that the applicant wished to convert the garage back into a studio with a porch in the rear and a storage area for the boats. This proposal would also eliminate the driveway to the current garage. The applicants are seeking to construct a garage addition to the existing residence.

Mr. DeLalla advised that the septic system was approved for four bedrooms in 1962. This proposal will eliminate the bedroom in the basement. turning it into an office and eliminate the master bedroom on the first floor. Three bedrooms are proposed for the second story.

Mr. DeLalla advised that the plans displayed have been updated with the topography and septic location.

Mr. Sirignano advised that the house had been purchased by the Town because of the contaminated well and is now served by the community well serviced by the Town. As such. they do not know how much water is used as the homeowner does not receive a bill for the water. Mr. Altermatt advised that there is a meter. and that the Town does have the right to monitor the water usage.

Mr. DeLalla advised that the Health Department has advised that the septic is suitable for a four bedroom house and has approved the plans for the addition. Mr. Fain advised that he had met with Mr. DeLalla and recommended that any modifications to the septic system be planned by a professional engineer. He noted that by removing the existing driveway and replacing it with a shorter driveway that there would be a decrease in impervious surface area. but wanted this to be documented. He advised that he spoke with the Building Department and was advised that there were a number of variances required. The plans for the studio would increase the nonconformity. the addition would be in the front yard setback. the fence proposed would also require a variance. He further pointed out that some of the aspects of the fence are being proposed outside of the property line. He noted that it had been the policy of this Board not to act on an application requiring variances. In reviewing his memo to the Board dated June 10. 2003 he advised that it was his recommendation that any additional impervious area for the terraces be pervious with a stone type dust rather then cement. He requested a 2000 gallon septic tank be installed. He asked that the applicant propose more shrubs in the planting areas and suggested the Board consider the planting areas to be included in the deed restriction area that the applicant had proposed and that this area be permanently demarcated.

Mr. Sirignano noted that this plan takes the vehicles further away from the lake and removes a large amount of macadam.

Mr. Altermatt noted that the septic proposed is near a drainage pipe which should be shown on the plans.

This project is on the Zoning Board of Appeals June 25. 2003 agenda.

A site walk was scheduled for Monday June 16th at 7:30 P.M. The applicant was asked to stake out the addition.

## VII. MINUTES OF May 27, 2003

On a motion made by Mr. Nordgren. seconded by Mr. Decaminada the minutes of May 27. 2003 were approved.

Jack Seminara was present with his engineer Daniel Coppelman. PE and attorney Janet Giris. Esq.

Mr. Coppleman displayed the plans to construct a two bedroom residence. Ms. Giris advised that there is no permanent disturbance to the wetlands but there will be temporary disturbance to the wetland buffer for the construction of a deck. The construction of the house complied with all other zoning requirements.

Mr. Fain advised that during the public hearing for Wachtell. a neighboring property questioned why the wetland delineations for the two parcels were so different. David Sessions of Kellard Engineering did the wetland flagging. but the report had not yet been submitted. Mr. Fain checked the delineation and it appeared to be accurate.

Ms. Giris noted that the house is located completely outside of the buffer. The applicant had offered a 50 foot deed restriction along the shoreline.

Mr. Coppelman advised that there is a small area of the driveway which intrudes into the buffer so that the cars would not have to back out of the garage into the road. This has been terraced to lessen the impact.

Mr. Fain stated that the plans are realistic. He noted that the neighboring property owner requested that two of his trees close to the property line be considered and Mr. Fain wanted to be sure that they be impacted as little as possible. He suggested that a drywell be placed under the driveway to slow the water down. He noted that he had requested that this property be deed restricted to indicate that this house would stay a two bedroom house unless at some point public sewer became available.

Ms. Dzaluk advised that this Board also requests that the mitigation areas be deed restricted so that future homeowners would not remove the plantings at some future date. Mr. Fain advised that a dock would be acceptable. but that he would like to see the deed restricted area remain wooded with maybe some stepping stones down to the lake area. Area had been left behind the house outside of the deed restricted area for a swing set and gazebo.

Mr. Fain expressed concern with the wall proposed along the property line and asked for more detail. He suggested wrapping the entire site with silt fencing. The trees in the right of way are to be protected. Ms. Giris asked for clarification regarding the request for a tree plan. Mr. Fain advised that the trees less than four inches did not have to be shown but that he wanted to make sure all of the significant trees were shown.

Mr. Fain stated that there be more detail to understand how much cut and fill is being proposed.

The Board advised that a Public Hearing would be scheduled for the August 12. 2003 agenda.

## VII. SITE WALK REPORT

### Walsh, 33 Lake Shore Drive, South Salem

Ms. Halpern advised that on Monday June 16 at 7:30 P.M.. Planning Board members. Ms. Dzaluk. Mr. Decaminada. Ms. Halpern. CAC Member Ed Wickersham. and representatives of the applicant. Jim DeLalla and Michael Sirignano. joined Mr.& Mrs. Walsh.

Ms. Halpern advised that the site is mainly lawn and noted that the addition would also require a variance from the ZBA because of its close proximity to the road. The existing garage at the end of the driveway is very close to the lake front. The proposal before this Board is to turn this garage into a studio and build the garage as an extension to the house. As mitigation. the applicant has proposed plantings and to remove the existing driveway. A large area in front of the lake which is lawn would be partially planted leaving an access to the lake front. She indicated that a silt fence had been placed along the border. which has not stopped the geese.

Ms. Dzaluk advised that the applicant's had proposed good mitigation and noted that they are installing a new septic tank and reducing the bedroom count.

**Michael Byrne & Wendy Gennimi**

Site walks were scheduled for the Tuesday July 1st. The Board will meet at the Byrne site. 91 North Salem Road at 6:30 P.M.. and will then go to the Gennimi site on Lower Salem Road.

**VIII. MINUTES OF June 10, 2003**

On a motion made by Ms. Halpern. seconded by Mr. Rossi the minutes of June 10. 2003 were adopted as amended.

Vote: Yes: Rossi. Dzaluk. Halpern. Nordgren
Absent: Decaminada

On a motion made by Ms. Halpern. seconded by Mr. Rossi the meeting was adjourned at 10:40 P.M.

Respectfully submitted.

Aimee M. Hodges
Planning Board Secretary

I. PUBLIC HEARING



**John & Reve Walsh, 33 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit for the renovations and additions to an existing residence and associated site improvements within the regulated wetland adjacent area – Cal. #25-03 W.P.**

There were no requests to have the notice of public hearing read and there were no objections to the time or place of the public hearing.

John Walsh was present with his attorney Michael Fuller Sirignano, Esq. and landscape architect James DeLalla, ASLA.

Mr. DeLalla displayed the site plan for the renovations on a 0.608 acre parcel located on the west shore of Lake Truesdale and reviewed the application to expand the existing house, the addition of a two car garage, renovations to the existing garage into a studio and storage space by the lake and the elimination of the existing asphalt driveway. This application would create a new entrance and turn around to access the new garage. As the existing house and the new addition are located within the front yard setback, the applicant has received the necessary variances from the Zoning Board of Appeals. The plans have been revised to reflect the previous comments from the Board. He explained that to construct the addition, the septic system and trenches must be slid over approximately 10 to 15 feet in a northerly direction stressing that there is no expansion to the septic system. In addition the applicant is also replacing the existing tank with a 2000 gallon septic tank. He advised that the grading and wetland delineation are now shown on the site plan. Mitigation is shown along the edge of the lake reducing some of the lawn areas. The renovations to the existing garage will be done within the existing footprint. Small terrace areas are shown around the studio and under the existing deck on the house. The drainage from the proposed driveway and existing residence will be picked up and discharged into a subsurface infiltration system. He advised that the addition to the house is approximately 900 SF and no portion of this addition would be located any closer to the lake than the existing house.

Mr. Fain referred to his memo dated October 14, 2003 and advised that most of his previous comments had been addressed. He advised that the most recent plan added stairs and a wall close to the septic system. He expressed surprise that in conversations with Mr. DeLalla he was advised that the Department of Health considered the work to move the septic system a repair. He believed that this work would be more then a repair and what flags this further is the recent correspondence received from the NYC DEP dated October 6, 2003. It was his belief that Health Department approval would be necessary for any modification to the septic system. He advised that until the issue with the septic system is resolved, this Board cannot move forward.

Mr. Sirignano advised that the letter from the NYC DEP was generated by a Planning Board referral not as a result of a coordinated review initiated by the Board of Health who had determined that this was not required as it is not a new system or the nature of

anything requiring a Health Department approval. He expressed concern with delaying this project and proposed that the Board amend the draft resolution prepared requiring that the applicant provide a letter from the Westchester County Board of Health and the NYC DEP rectifying this situation or provide a permit.

Mr. DeLalla advised that the DEP in their correspondence characterized the work to the septic as an expansion, which it is not as 90% of the trenches would stay in place. Mr. Sirignano added that there is no net increase in the bedrooms and it has been deemed as a repair.

Mr. Praga stated that it was his opinion that the NYC DEP has some approval authority and they must issue their own SEQR determination as well and deferred to Mr. Fain's suggestion to hold the hearing open for this issue to be resolved with the DEP. Mr. Fain stated that as it is the usual practice of this Board to issue their decision two weeks after the close of a public hearing and that this matter could be held over for two weeks. He added that there were still some minor issues to be resolved and asked that the stonewall near the septic system to be eliminated.

Mr. Nordgren agreed that the hearing should be held open until a letter was received from the DEP advising that they do not have jurisdiction and defer to the Westchester County Board of Health's decision. If this can be resolved quickly, the public hearing could be reconvened in two weeks.

Mr. Rossi asked if the studio would have a bathroom and was advised that there would not be any plumbing. He asked that this be put on the plans.

Ms. Halpern and Mr. Decaminada agreed with adjourning the public hearing. Mr. Decaminada expressed his frustration with the NYC DEP.

The Board agreed to hold the public hearing open, reconvening on the 28th of October if the matter has been cleared up. There was no further public comment.

Mr. Walsh expressed his frustration in that a house he owns upstate on a lake took two weeks to move the septic system. He advised that twice a year the town placed dye in anything that goes into his septic system to ensure that nothing gets into the lake. He added that during the review process for this project on Lake Truesdale there had been no mention about the four pipes going into the lake. He stated that every time it rained a large amount of silt flowed into the lake from one of the pipes and that there is runoff coming down the driveway into the lake. He stated that he is more then willing to make the site more environmentally sound. He asked why there were not filters on pipes that go into the lake. He stated that his house is a spillway for the Highway Department. He questioned the water quality of the lake and added that he will not let his children swim in the lake.

Ms. Dzaluk agreed that stormwater runoff is a real problem and Ms. Halpern advised that this Board tried not to make the situation worse. He was encouraged to contact the Highway Department and the Truesdale Lake Property Owners Association about his concerns. He was advised that the Town had been working diligently to solve the problem and had installed a stormceptor system down the road to intercept some of the pollution that comes off the road. In addition they are trying to retrofit the storm drains to get the stormwater intercepted, but that there is not enough money in the Town's budget. The only money available is from grant programs and interested citizens. Mr. Walsh asked why the Town did not test septic systems, and was advised that this Board did not have jurisdiction to do this. The permitting process is the only avenue this Board has to require septic maintenance. Mr. Fain added that a source of frustration was that Health Department was not utilizing this opportunity to ensure that the system was functioning properly. Mr. Walsh stated that although this application process was all well and good he wished that someone would address the fact that the lake is a cesspool and dying.

Mr. Walsh asked if he was correct in understanding that if the concern's of the NYC DEP were addressed that in two weeks he would have a decision from this Board and was advised that it was up to his consultant to resolve this issue.

Jeff Vreeland advised that the Truesdale Lake Property Association had commissioned an extensive study of the areas that contribute stormwater runoff into the lake.

On a motion made by Ms. Halpern, seconded by Mr. Decaminada the public hearing was adjourned until the issues of the NYC DEP had been addressed.

Vote: Yes: Rossi, Decaminada, Dzaluk, Halpern, Nordgren

## II. TOWN BOARD REFERRAL

### Revisions to Chapter 217, Wetland & Watercourse Law

Ms. Dzaluk noted that the Town Board had passed the new law, but at the last moment there was an addition of one sentence Section 217-3E in which they maintained an error had been made in that the word "unimproved" lot was omitted. She stated that this section had not been previously discussed with regard to grandfathering and the purpose of this discussion was to develop a response to the Town Board. It was her understanding that it was the intent of the Town Board to grandfather all unimproved Planning Board approved subdivision lots in Town to be subject to a 100 foot buffer while all other lots in Town would be subject to the 150 foot buffer. She added that the Planning Board Secretary had done some research and found that although initially it was thought that there would be only a few lots, that there were over 100 lots some as large as 50 acres that would be grandfathered by this law.

At the completion of her services for the evening, Ms. Clark exited the meeting at 8:00 P.M.

## II. PUBLIC HEARINGS

**Elide Building Corporation (Gregory Manocherian, owner of record), 54 Twin Lakes Road, South Salem – Application for a Wetland Activity Permit for the construction of a deck, retaining wall, drainage and planting associated site improvements within the regulated wetland adjacent area in the connection with the construction of a single-family residence – Cal. #28-03 W.P. (Reconvened)**

At the request of the applicant's attorney, the matter was reconvened later in the meeting.

**John & Reve Walsh, 33 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit for the renovations and additions to an existing residence and associated site improvements within the regulated wetland adjacent area – Cal. #25-03 W.P. (Reconvened)**

At the request of the applicant's representative James DeLalla, ASLA, this matter will be reconvened at the November 10, 2003 agenda to address a conflict of jurisdiction between the NYC DEP and the Westchester County Department of Health.

## III. PROJECT REVIEW

**Estate of Fritz Krum (Francisca Krum, Wendy G. Krum, Amy Mithoefer), 107 Old Church Lane, Lewisboro – Application for Final Subdivision Approval to subdivide three tax parcels currently improved with two existing residences into two separate parcels – Cal. #4-02 P.B.**

Robert Johnson, LS from H. Stanley Johnson Land Surveyors was present representing the applicant.

Mr. Agresta advised that this Board issued Preliminary Subdivision Approval on this action and that the Final Subdivision Plat submitted was in substantial agreement with this approval.

The Board waived the Final Public Hearing and directed Mr. Agresta to prepare a final resolution for their consideration for the November 10, 2003 agenda.

### PUBLIC HEARING

**Elide Building Corporation – Cal. #28-03 W.P. (Reconvened)**

Jack Seminara was present with his attorney Janet Giris, Esq. and engineers Dan Coppelman, PE and Peter Gregory, PE of Keane Coppleman Engineers.

Meeting of the Planning Board of the Town of Lewisboro held at Onatru Farm. 99 Elmwood Road. South Salem. New York on Monday November 10. 2003 at 7:30 P.M.

Present: Jacqueline Dzaluk. Chair
Joseph Decaminada (arrived 8:10)
Frieda Halpern
James Nordgren
William Agresta. Matthew D. Rudikoff Assoc.. Planning Consultant
Thomas Altermatt. Town Consulting Engineer
Jay Fain. Wetland Inspector
Lawrence Praga. Esq.. Planning Board Counsel
Ray Morse. Chair. Conservation Advisory Council
Mark Patek. CAC & OSAC
Aimee Hodges. Planning Board Secretary

Absent: P. J. Rossi

The Chair called the meeting to order at 7:30 P.M.. introduced the Board and its consultants and pointed out the emergency exits.

## I. PUBLIC HEARING

**John & Reve Walsh, 33 Lake Shore Drive, South Salem – Application for a Wetland Activity Permit for the renovations and additions to an existing residence and associated site improvements within the regulated wetland adjacent area – Cal. #25-03 W.P. (Reconvened)**

The Chair advised that at the request of the applicant's representative James DeLalla. ASLA this matter would not be reconvened this evening. The Board agreed that if the outstanding issues with the Westchester County Department of Health and the NYC DEP were resolved that the hearing would be reconvened at the December 9. 2003 meeting.

## II. SKETCH PLAN REVIEW

**Pound Ridge Stone & Landscaping (David & Janet Moorman/Frank & Teresa Catallo), 2 West Road, Vista – Site Plan**

James DeLalla. ASLA was present representing the applicants.

Mr. DeLalla displayed the revised site plan and advised that the Zoning Board of Appeals in their interpretation determined that the proposed uses by this applicant were consistent with the General Business Zoning District. With this determination the applicant has now focused on developing the site plan and he reviewed the major changes: the elimination of the entrance on West Road. a consistent landscape buffer along the western edge of the site. parking for the existing facility was reconfigured and changes were made to the interior circulation. The applicant's plans are to make this site into more of a retail facility. to clean up the site. provide retail storage areas. have a display garden. provide storage areas for materials that are sold and used (stone dust. gravel. mulch) as well as maintaining the current service areas where the

Meeting of the Planning Board of the Town of Lewisboro held at the Town House. 11 Main Street. South Salem. New York on Tuesday December 9. 2003 at 7:30 P.M.

Present: Jacqueline Dzaluk. Chair
P. J. Rossi (arrived at 7:55 P.M.)
Joseph Decaminada (arrived at 8:15 P.M.)
Frieda Halpern
James Nordgren
William Agresta. Matthew D. Rudikoff Assoc.. Planning Consultant
Thomas Altermatt. Town Consulting Engineer
Jay Fain. Wetland Inspector
Lawrence Praga. Esq.. Planning Board Counsel
Aimee Hodges. Planning Board Secretary

The Chair called the meeting to order at 7:30 P.M.. pointed out the emergency exits in the front and rear of the room and introduced the Board and its consultants.

## I. PUBLIC HEARING

**John & Reve Walsh, 33 Lake Shore Drive, South Salem - Application for a Wetland Activity Permit for the renovations and additions to an existing residence and associated site improvements within the regulated wetland area - Cal. #25-03 W.P. (Reconvened)**

Jim DeLalla. ASLA and Michael Sirignano. Esq. were present representing the applicant.

Mr. DeLalla displayed the site plan and advised that they had addressed the outstanding issue regarding the septic system by keeping the fields in their existing location. there are no modifications to the fields being proposed. The septic tank will be relocated to the other side of the house. outside of the NYC DEP's jurisdiction and pumped to the fields. He advised that the DEP's jurisdiction is only 100 feet from the edge of the lake. not from the edge of the regulated wetland boundary. A letter has been received from Cynthia Garcia of the NYC DEP advising that the DEP had no jurisdiction and the Westchester Department of Health has signed off on the plans. He indicated that in some locations the proposed addition is within 15 feet of the septic fields. but because the first floor area is garage no footing drains are required and the Health Department indicated that 10 feet is sufficient. The current septic system is for a four bedroom dwelling. this proposal is for three bedrooms. Addressing the CAC's memo to the Planning Board dated December 9. 2003 he advised that because there are no modifications to the septic system. only the relocation of the tank. no permit or review is required by the Westchester County Department of Health. He added that the new tank is proposed to be a 2000 gallon capacity.

Ms. Halpern asked that the CAC's concern regarding the infiltrators be addressed. Mr. DeLalla advised that the infiltrator is approximately 16 inches deep and consisted of a plastic structure laid in gravel. He assured her that the water table was not an issue.

Mr. Fain reminded the Board that because of the removal of the driveway there is a net reduction of the impervious area and that the infiltrators are another improvement on the site.

Mr. DeLalla advised that they had submitted a map and written description of the area to be deed restricted.

Mr. Fain advised that the concerns of the CAC had been addressed and that it was his recommendation that the Public Hearing be closed.

There were no further comments from the public or Board members.

On a motion made by Mr. Nordgren, seconded by Ms. Halpern the Public Hearing was closed.

Vote: Yes: Dzaluk, Halpern, Nordgren
Absent: Rossi, Decaminada

The Board reviewed the draft resolution prepared by Mr. Fain.

On a motion made by Ms. Halpern, seconded by Mr. Nordgren the resolution issuing a Negative SEQR Declaration and Wetland Activity Permit Approval Cal. #25-03 W.P. was adopted.

Vote: Yes: Dzaluk, Halpern, Nordgren
Absent: Rossi, Decaminada

## II. SKETCH PLAN REVIEW

**William & Catherine Edge, 145 Todd Road, Goldens Bridge - Wetland Activity Permit - Cal. #68-03 W.P.**

William & Catherine Edge were present with their architect Michael DeCandia and wetland consultant Paul Jaehnig.

Mr. DeCandia displayed the plan for the proposed renovations and additions to an existing single family residence as well as a pool all located on the pond side of the home.

Mr. Jaehnig distributed reduced and colored coded plans to the Board members. He advised that this parcel had been developed a number of years ago and that most of the property was manmade topography, filled and graded and currently maintained as lawn from the edge of the pond to the road. He advised that both the 100 and 150 foot setbacks had been shown on the plans and that virtually the entire site is regulated. The pond is manmade and was built approximately 30 years ago. He indicated that the berm functioned as somewhat of a flood control. He described the topography of the site noting that although there is a steep grade, eight feet off the edge of the pond there is a moderate slope down to the pond. He reviewed the proposal and the mitigation plan indicating that the applicants were willing to accommodate Mr. Fain's concern regarding the plants chosen. He advised that the pool was placed in the only feasible location and that they tried to create the least amount of impact. The pool size is standard and that filter shall be a diamataceous cartridge type that there would be no backwash and is a sealed system. The utilities associated with the pool are proposed to be located adjacent to the driveway. He indicated that when the original wetland report was prepared the published

RESOLUTION
TOWN OF LEWISBORO PLANNING BOARD

JOHN & REVE WALSH
NEGATIVE DECLARATION
WETLAND ACTIVITY PERMIT APPROVAL

Calendar # 25-03 W.P.

John & Reve Walsh, 33 Lake Shore Drive, application for Wetland Activity Permit for "construction of residential additions and landscape improvements" within the 100 foot regulated wetland/watercourse setback, on Lots 18 & 19, in Block 11174 on Sheet 36H of the Tax Map of the Town of Lewisboro, consisting of 0.608 ± acres located within the R-1/2A One-Family Residence District.

**WHEREAS**, on May 13, 2003 an application from John & Reve Walsh for a Wetland Activity Permit under the provisions of Chapter 217 of the Code of the Town of Lewisboro "Wetlands and Watercourse Law" was received by the Building /Wetland Inspector; and

**WHEREAS**, the Planning Board reviewed the Application at a regularly scheduled meeting on June 10, 2003 at which time the Board determined the Application was incomplete; and

**WHEREAS**, the Zoning Board of Appeals reviewed an application for construction within the front yard setback at a regularly scheduled Public Hearing on June 25, 2003 at which time the Board determined the Application was approved; and

**WHEREAS**, the Planning Board performed a site review of the property on June 16, 2003 and;

**WHEREAS,** the Applicant submitted the requested additional material and the Planning Board scheduled a Public Hearing for October 14, 2003; and

**WHEREAS,** the Applicant requested an adjournment of the Public Hearing scheduled for October 14, 2003 until the next available meeting in order to resolve the conflicting jurisdiction between the NYCDEP and the WCDOH; and

**WHEREAS**, the Planning Board opened the Public Hearing on December 9, 2003 at which time it received comments from its constituents and the public; and

**WHEREAS,** the Public Hearing was closed December 9, 2003; and

**WHEREAS**, the proposed action is an Unlisted action pursuant to SEQR 6 NYCRR Part 617 and the Environmental Quality Review Law of the Town of Lewisboro;

**NOW THEREFORE BE IT RESOLVED**, that the Planning Board hereby finds that this action will not have a significant effect on the environment and an Environmental Impact Statement will not be required for the following reasons:

1. The proposed action will not affect any water body designated as protected under Article 15, 24, or 25 of the Environmental Conservation Law. All proposed activities occur outside of area regulated by the New York State Department of Environmental Conservation.

2. The proposed action will not result in the net loss or degradation of any locally regulated wetlands on the site.

3. The proposed action will not affect surface or groundwater quality or quantity.

4. The proposed action will not affect any threatened or endangered species.

5. The Planning Board has considered alternatives for the size and configuration of the proposed residential additions and has selected that alternative which avoids impacts to wetlands and watercourses and minimizes, to the maximum extent practicable, impacts to the locally regulated wetland setback. The proposed addition is located to maximize the separation distance between the areas of disturbance and the lake and it maintains a minimum distance of 75 feet from the regulated wetland resource.

6. The applicant has proposed significant mitigation for those impacts due to construction within the 100 foot regulated setback area that cannot be further minimized or avoided. These include a comprehensive erosion and sediment control plan, implementation of a mitigation planting plan, deed restricting portions of the property including wetland and wetland buffer area, removal of a significant area of impervious coverage, and annual septic inspection and maintenance.

7. For the reasons stated above, the Applicant has demonstrated that the proposed activity will not have significant adverse impacts on the public health and welfare, as mandated under Section 217 -5. D of the Town of Lewisboro Wetlands and Watercourse Law, including impacts on such wetland functions as water quality preservation, flood control and wildlife habitat.

**BE IT FURTHER RESOLVED**, upon full consideration of the above, the Planning Board finds that the application of John & Reve Walsh for a Wetland Activity Permit for construction of residential additions and landscape improvements in a regulated setback is consistent with the provisions and policies of Chapter 217 of the Code of the Town of Lewisboro and a permit is approved, subject to the issuance of a permit by the Wetland Inspector, with the following conditions:

1. All construction shall be in full accordance with the following plans:

   a. "A Proposed Addition, Overall Site Plan, 35 Lake Shore Drive", prepared by DeLalla & Von Ohlsen, LLC and dated April 23, 2003.

   The project plans shall be revised to include the survey location of the on-site wetlands and to eliminate the stone retaining wall and stairs with footings in close proximity to the septic system.

2. Mitigation plantings shall be installed in accordance with the plan titled "A Proposed Addition, Mitigation Planting Plan, 35 Lake Shore Drive", prepared by DeLalla and Von Ohlsen, LLC and dated April 23, 2003. Mitigation plantings shall be installed prior to the issuance of the building Certificate of Occupancy and be guaranteed for two years from the date of installation.

3. This permit shall expire two years from the adoption of this resolution - December 9, 2005.

4. Each of the individual plans above shall be finalized to include the following signature block for endorsement as final by the Planning Board Chair and Secretary:

**APPROVED FOR FILING**

*owner* *date*
{typed name}
{typed address}

*applicant* *date*
{typed name}
{typed address}

| **PLANNING BOARD ENDORSEMENT OF APPROVED PLANS** | |
|---|---|
| *Planning Board Chairman* | *date* |
| *Planning Board Secretary* | *date* |

5. Prior to signature on the final plans, the following shall be completed:

   a. All outstanding permit review fees shall be paid to the Town of Lewisboro by certified check.

   b. Prior to issuance of a Wetland Permit by the Wetlands Inspector or a Building Permit by the Building Inspector, four copies of the final plans shall be endorsed by the Planning Board Chair and Secretary and copies as required by the Planning Board Secretary shall be provided and circulated as appropriate.

6. Prior to the issuance of a Building Permit, a Deed Restriction or other legal mechanism acceptable to the Planning Board shall be implemented to provide permanent conservation protection to the regulated wetlands and wetland buffer in the northern portion of the property. Proof of filing with the Westchester County Clerk's office shall be submitted to the Planning Board Secretary prior to the issuance of the Building Permit

7. Only low flow plumbing fixtures shall be installed in the proposed additions and renovations.

8. Inspection and pumping of the septic system shall be performed on an annual basis.

9. All erosion and sediment controls will be in accordance with the NYS Guidelines for Urban Erosion and Sediment Control and The Westchester County Best Management Practices Manual for Erosion and Sediment Control.

10. At least five days prior to the commencement of construction, the Applicant or their representative shall provide the Town Wetland Inspector written notification of the intention to begin work.

11. The site shall be monitored bi-weekly for compliance with the approved Erosion and Sediment Control Plan by a qualified environmental consultant. Written reports outlining the site, status, identified problems and suggested remediation shall be provided to the Planning Board and Building Department.

12. After construction, an "as-built" version of the construction plans shall be provided to the Planning Board documenting the location of the additions, above ground deck, mitigation features, revised septic system and stormwater infiltrators.

13. As provided under Section 217-5(I) of the Town Wetland and Watercourse Law, this permit is subject to revocation should the applicant or permittee not comply with the terms and conditions of this permit.

14. There shall be no clearing, grading, or removal of vegetation, beyond the clearing limits shown on the plan.

15. A portable sanitary facility shall be maintained on-site for the duration of construction.

16. There shall be no-direct discharge of footing, leader or other drainage directly to Lake Truesdale.

PLANNING BOARD
Town of Lewisboro

By Jacqueline A Dzaluk
Jacqueline Dzaluk, Chairperson

Dated: December 9, 2003
South Salem, New York

Town of Lewisboro Planning Board March 9, 2017

PO Box 725

Cross River NY 10518

planning@lewisborogov.com

CC: Jan Johannessen

To Whom it May Concern,

I have recently purchased a property located at 33 Lake Shore Drive., South Salem NY 10590. I received a letter from your office dated February 6, 2017 referencing a wetland activity permit which requires annual pumping of my septic.

Upon the purchase of my property I had no knowledge of this requirement. Further research from my Realtor found that a Resolution from the Planning Board requires the annual pumping, all stemming from a building permit and subsequent wetlands inspection from 2003. No such copy of this resolution and requirement are to be found in the building department files that every Realtor, attorney and title company research in the sale of real property. My Realtors office has recommended that these resolutions be added to avoid further confusion.

I am requesting however that the Planning Board consider my request that my septic be pumped every 3 years for these following reason(s):

The Westchester County Department of Health requires a tank of 1250 gallons with appropriate fields for a 4 bedroom home. Percolation tests are required for approval and subsequent CO's. My existing tank is actually oversized for the property, a 2,000 gallon tank (please see attached documentation).

Westchester County Department of Health now requires pumping mandatorily every 5 years, so I feel the request for every three years not be unreasonable.

Please advise me of your determination after your next meeting.

Thank you for your consideration.

Paul Amerling

33 Lake Shore Drive

South Salem NY 10590

Meeting of the Planning Board of the Town of Lewisboro held at the Town House, 11 Main Street, South Salem New York on Tuesday February 27, 2007 at 7:30 P.M.

Present:
P. J. Rossi, Chairman
Joseph Decaminada
John Gusmano
Richard Ellrodt
Maureen Maguire
William Agresta, Matthew D. Rudikoff Associates, Planning Consultant (arrived 7:45 PM)
Thomas Altermatt, Town Consulting Engineer
Bruce Barber, Interim Wetland Inspector
Margaret Clark, Esq., Special Counsel
Alan Cole, AAB
Aimee Hodges, Planning Board Secretary

The Chairman called the meeting to order at 7:30 P.M. pointed out the emergency exits and introduced the Board and its consultants.

## I. SKETCH PLAN REVIEW

**Shaul Dover, 11 Mt. Holly Road East, Katonah – Wetland Activity Permit – Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Dover stated that this was an application to construct a recording studio attached to his existing residence. The residence is located entirely within the 150 foot wetland buffer. He displayed the proposed site plan and noted the septic and well locations. He noted the wetland locations as delineated by Paul Jaehnig.

Mr. Barber reviewed his memo to the Board dated February 21, 2007 advising that this application had evolved throughout the Zoning Board of Appeals application where the applicant had first proposed a detached structure on the westerly portion of the site. He indicated that he visited the site on February 19, 2007 and because of the snow cover verifying the wetland locations was difficult but determined that the wetland location as shown on the plans was reasonable. The area of the proposed addition is located entirely within the buffer in an area that is maintained as lawn surface. There appears to be an opportunity for mitigation between the proposed addition and the watercourse. In addition the driveway is an impervious surface and drains into the watercourse. He noted that a conceptual planting plan had been submitted and asked that the applicant enhance this plan. He asked that the limit of disturbance, grading and stormwater management be incorporated into the site plan. The site plans must also include the septic system and septic expansion area, well location as well as be sealed by a New York State design professional.

Mr. Dover stated that although this was his first appearance before the Planning Board that he had started the process two years ago spending a year at the Zoning Board of Appeals. As a result of a compromise with the ZBA and his neighbors the studio is now proposed to be attached to his residence. He asked for clarification as to what was being requested in terms of additional information on the site plan. He advised that a local landscaper, Gossett Nurseries had prepared the mitigation proposal.

Mr. Barber advised that he had reviewed the mitigation proposal and asked for a more defined and detailed landscape plan. What was submitted appeared to be a concept plan. He would like to see the lawn surfaces reclaimed as buffer enhancement as much as possible.

Mr. Rossi suggested that the applicant meet with Mr. Barber during his office hours to tighten up the plan.

In response to a question of Mr. Decaminada, Mr. Barber advised that the location of the original proposal would have resulted in a greater amount of wetland disturbance.

Mr. Dover advised that the issues his neighbors had were not with the wetland disturbance but with the size and height of the proposed structure. He advised that this studio would not be used for commercial purposes.

Ms. Maguire questioned the size of the proposed structure expressing concerns with the possibility of significant stormwater.

Mr. Rossi advised that proposing mitigation which would pull lawn area away from the watercourse would be important. He asked that the applicant address any stormwater concerns as well as adding the information requested on the plans.

In response to Mr. Dover's question as to whether a public hearing would be required given he had a public hearing before the ZBA, Mr. Rossi advised that although this Board could waive the public hearing he had some trepidation given the concerns of the neighbors during the ZBA application and prefer to have their input in this application. He suggested that it may be helpful if this Board received letters of support from the neighboring property owners.

Mr. Agresta arrived at 7:45 PM.

Mr. Barber stated that if an EAF had been prepared for this application that it should be amended to reflect this particular proposal.

**Nan Dale, 34 Cove Road, South Salem – Wetland Activity Permit – Cal. #48-06 W.P.**

Daniel Franklin and project architect John Cotugno were present representing the applicant.

Mr. Cotugno displayed the proposed site plan and reviewed the history of this application. He stated that there had previously been some discussion about the number of bedrooms in the house; the records indicate that there are four bedrooms yet as the house exists there is not. It was determined that this proposal would add a fourth bedroom. He advised that there had been various tests done which determined that the existing septic tank is at 50 percent capacity. The addition of a White Knight system would enhance the septic system. After some discussion with the prior Wetland Inspector plans were prepared to move the addition which would have allowed a new septic system to be built. Now they are proposing the addition to be constructed as

carry-out food establishments. He stated that it would be best if the members of the Town Board and Planning Board hold a work session.

Mr. Decaminada noted that the Planning Board had received a letter from the Croton Watershed Clean Water Coalition dated March 27, 2007 with regard to the Falcon Ridge Subdivision application and asked that this be forwarded to the Goldens Bridge Fire Chief. He asked that the chief specifically comment on the statements made with regard to the underground fire water protection system.

## III. SKETCH PLAN REVIEW

**Nan Dale, 34 Cove Road, South Salem – Wetland Activity Permit – Cal. #48-06 W.P.**

Nan Dale was present.

Ms. Dale reviewed the proposed changes from what had been last discussed. After being advised that the septic system could not be moved by an engineer she is now seeking approval for the plan first submitted a year ago to construct a den onto the front of the residence. She advised that the Deputy Building Inspector had reviewed the proposal and determined that the den would not be considered an additional bedroom.

Mr. Barber reviewed his memo to the Board dated April 5, 2007 noting that the central issue to this project was the bedroom count. The plans now modified by the architect show a four foot opening to the foyer; access to the bath is now off of the foyer not the den. In addition the proposed mitigation along the edge of the lake has been modified with additional native plantings. His memo outlined minor issues to be addressed; he reviewed the comments. He further recommended that this property be added to the annual septic and maintenance program given the age and size of the septic system and its proximity to the lake.

The Board agreed to schedule a public hearing on May 22, 2007 noting that this process would allow an opportunity for the public to comment on the application.

Ms. Dale advised that her architect would address the outstanding comments.

**Shaul Dover, 11 Mt. Holly Road East, Katonah – Wetland Activity Permit – Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Dover displayed the proposed site plan to build an attached recording studio onto his residence. He advised that he had included in this submission a professional detailed mitigation plan. He will try to address the comments in Mr. Barber's latest comments.

Mr. Barber reviewed his memo to the Board dated April 18, 2007 highlighting his comments with regard to the plan detailing the erosion and sediment control and stormwater control. He advised that he was satisfied with the proposed mitigation.

Ms. Maguire expressed concern with the proposed 45'x 28' studio being proposed within 30 feet of the wetland. She asked that Mr. Dover point out the location of the previously proposed studio.

Mr. Dover stated that the size of the proposed structure and the slope of the property required him to receive an approval from the Zoning Board of Appeals. He advised that the septic system was designed for a larger structure. In response to Mr. Barber's request to see the location of the footing drains, Mr. Dover explained that there are no footing drains as the structure will be constructed on a slab. The only drainage would be from the roof.

Mr. Ellrodt expressed concern with the possibility of additional bedrooms and advised that he would be more comfortable if the applicant would provide the floor plans of the proposed structure.

Mr. Dover advised that there are no floor plans, only the plans for the foundation. The structure is two levels with one big room on the first level and ½ mezzanine above. The construction will be phased.

Mr. Barber advised that this concerned him because he did not want the site disturbed for an indeterminate period.

Mr. Dover advised that the construction would be done non-stop. He advised because of the details required for the acoustical design, Mr. Cargain had suggested that the applicant start with the foundation plans. As they move along they will bring in the plans for his approval.

Mr. Rossi stated that this Board needs to understand what they are approving but does not need the detail required for the acoustics.

Ms. Maguire questioned whether the proposed drywell could accommodate the roof runoff. She further questioned how many bedrooms the existing septic system is sized for.

Mr. Dover advised that the calculations were done for the drywell and would accommodate the runoff. The septic tank is 1250 gallons.

Mr. Altermatt advised that the Board would need more information with respect to the septic fields.

Mr. Barber suggested that the applicant provide conceptual plans and a letter from the Building Department advising that they approve the phasing of this project. The Planning Board should have the opportunity to review the plan. The concept plan should be clear that there are no additional bedrooms proposed.

Mr. Decaminada questioned whether the drywell could be located outside of the wetland buffer.

Mr. Barber expressed concerns with whether the soils where the drywell is now proposed could handle the flow.

Ms. Maguire continued to express her concern with the proposed structure being located only 30 feet away from the wetland noting that it is rare that this Board sees this type of application.

Mr. Dover advised that his instruction to the architect was to design the smallest structure possible to obtain the acoustical quality that he is trying to achieve. The studio is for his own use; people will not be visiting the site. This is a huge project; this is not a hobby. His children are musicians and he advised that he is involved with recording.

Mr. Decaminada stated that this is a residential use; a future homeowner could use this professionally designed studio commercially.

When asked by Mr. Gusmano whether or not the structure could be rotated, Mr. Dover stated that the plan as presented and approved by the Zoning Board of Appeals is 35 feet away from the rear property line. Mr. Dover stated that the building does not have to be rectangular and that it can be turned. His only concern was the length of the process noting that he is now 2 ½ years into the project.

Mr. Rossi stated that this Board needed more information with regard to the internal layout and asked that the applicant address the suggestion which would rotate the structure as he too is concerned with the structure being located 30 feet away from the wetland. He stated that he preferred to see the proposed structure equal with the existing structure.

Ms. Maguire agreed that as an alternative the applicant could bring the outside wall flush with the existing house pushing the entire structure further away from the wetland or reduce the size.

Mr. Dover stated that reducing the size would kill the project as he had asked that the architect to design the smallest possible structure and still obtain a certain quality. He advised that pushing the structure further away would encroach into the breezeway closing off the house.

The Board scheduled a site walk for Saturday April 28th at 10:30 AM. Mr. Altermatt requested that the applicant stake out the structure as well as the drywell. With regard to the scheduling of a public hearing Mr. Rossi advised that as letters had been received from the neighboring property owners that he was inclined to waive the hearing but this Board still needs to walk the site and receive the additional information requested before making a decision.

**Joseph Gramando & Louis Forster, Todd Road, Cross River – Wetland Activity Permit – Cal. #50-05 W.P.**

John Alfonzetti, PE was present representing the applicants.

Mr. Alfonzetti displayed and reviewed the proposed site plan to construct a one family residence on a vacant parcel. He advised that he had just received the comments from Mr. Barber and advised that he would respond. He provided and reviewed a number of photographs of the site that he had taken this afternoon. He advised that he had taken the measurements from the offsite wetlands to the property line; he was not sure he could secure access to this property again. The latest revised drainage calculations are dated March 2005; since that time with no increase of drainage he had added two drywells to divide the driveway runoff. He advised that there had been six or seven submissions to the Building Department. The house shown on the present plans is the footprint of a home designed by Martin Kravitt, architect. It was designed to blend into the site.

Mr. Altermatt reviewed his memo to the Board dated April 23, 2007 noting that this submission responded to his previous memo dated January 16, 2006. He reviewed the site conditions and advised that two years ago he had expressed concerns whether this site could be built on. There were concerns with how to build a driveway as the grade is steep. Mr. Altermatt advised that he had been working with the Building Department with the steep slope issues and the Planning Board with regard to the issues relative to the wetland activity permit. The applicant had improved the drainage with several new drywells and believed that they can prove that the runoff from the driveway could be controlled. There are still some loose ends but he wanted the Planning Board involved at this point to give some direction.

Mr. Barber reviewed his memo to the Board dated April 18, 2007. Mr. Barber reviewed an additional area of wetland not shown on the plans; the wetland buffer must be accurately depicted on the site plan. As the proposed driveway is steep and located within the wetland buffer he would like to see some attenuation and preservation. When walking the site he did not see any site disturbance in the area of the proposed drywells. Given that the site is extremely steep with a lot of rock outcroppings he would like the applicant to provide the drainage calculations and site specific soil information. He advised that site is reasonably a good habitat for a variety of species and would therefore like to obtain correspondence from NYSDEC Natural Heritage regarding the presence of endangered, threatened or species of special concern. Given that the site is a very

Mr. Rossi noted that the reason the crane test had been done so early in the process was because this Board had determined that the visual assessment should be done when the leaf canopy is not out so that the worst possible visual scenario is known. He assured that this is not an accelerated process.

**Four Winds Hospital**

Mr. Rossi advised that following the Nextel site the Board members met with Jeff Vreeland to observe the two pole barns that had been constructed. The end result was that there was not issue with the pole barns but what the site walk revealed in terms of wetland buffer disturbance. There is storage of machinery and stock piling of material.

Mr. Decaminada suggested that the Building Inspector inspect the utility boxes which did not appear to be up to code.

Mr. Rossi advised that there had been a conversation regarding Mr. Altermatt's comment memo noting that this is a perfect site for a cell tower. Mr. Vreeland discussed this with the property owner who is now considering a subdivision to create a parcel for a potential cell tower. Mr. Vreeland also mentioned that there are structures on the property not being utilized and they are being considered as affordable housing for staff members.

**Shaul Dover**

Mr. Rossi advised that the Board moved on to Mt. Holly East to visit the Dover site. Present were the five Planning Board members, Bruce Barber and Tom Altermatt.

Mr. Rossi noted that at the last review of this application there had been concerns expressed with the distance of the proposed structure from the wetland and the proposed full bathroom in the studio. He stated that it would be very difficult to build a structure so close to the wetland and believed that this application should be reevaluated. He noted that previously what had been asked for was the interior layout; the submission received looked very much like a master bedroom or a studio apartment with large closet, full bathroom, kitchenette and separate entrance.

Mr. Ellrodt noted that the proposal would require the removal of several trees.

Mr. Rossi advised that Mr. Altermatt had pointed out an alternative location for this structure on the property for a detached structure that would avoid the buffer.

Mr. Gusmano advised that this would be in the middle of the useable portion of their backyard which may be a reason why they did not want to locate the structure there. The Board asked that the applicant come back with legitimate reasons why they do not want to build there. He advised that the well had not been shown on the site plans and it is actually right next to the proposed structure.

Mr. Decaminada noted that the request to relocate the structure had been met with clear hostility as the applicant advised that they had spent money going down other paths.

Mr. Ellrodt advised that Mrs. Dover had begun the discussion with a master suite and fourth bedroom.

Ms. Maguire advised that she knows Mrs. Dover casually and had walked the adjacent preserve several times. Mrs. Dover did not know that Ms. Maguire was on the Planning Board. Ms. Maguire advised that the proposed location for the structure is within a very environmentally sensitive area; there appears to be alternatives.

## VII. CORRESPONDENCE & GENERAL BUSINESS

Mr. Gusmano noted that the Board had received several negative letters with regard to the proposed tower on Howland Drive.

Mr. Ellrodt advised that the letters all refer to the Master Plan which was last updated in 1985 prior to cell service.

Mr. Rossi advised that he had not received a response from the Town Board with regard to the Planning Board's memo on the proposed amendment to the zoning ordinance regarding carry-out regulations.

Mr. Agresta advised that he had not received any direction from the Town Board.

Mr. Rossi advised that he would follow up with the Supervisor.

Mr. Rossi advised that he spoke with Mr. Fain with regard to questions regarding his billing. He advised that he must address the questions getting a response back to the applicants through the Secretary.

## VIII. MINUTES OF April 24, 2007

Ms. Maguire noted a typographical error on page 5.

On a motion made by Mr. Gusmano, seconded by Mr. Decaminada the minutes of April 24, 2007 were adopted as amended.

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt, Maguire

On a motion made by Mr. Ellrodt, seconded by Ms. Maguire the meeting was adjourned at 10:30 P.M.

Mr. Fain agreed and stated that it would be hard to reduce the lot count further. There would have to be some significant environmental feature or impact that would justify this. Only one lot has a small area of wetland buffer.

Ms. Maguire stated that the way this subdivision is proposed to be developed allowed for the preservation of 42 acres. This could have been developed with a much more fragmented layout; this allows for a large chunk to be preserved and provided for public access. This is a huge positive.

Mr. Rossi agreed and noted his strong belief that either Westchester Land Trust or some other third party be involved in holding the conservation easement along with Town. There should be multiple layers of protection to ensure that this parcel remains protected in perpetuity.

Mr. Agresta noted that he would edit this document and transmit it to the Board prior to the next meeting. He would prepare the draft resolutions for the adoption of these Findings as well as the preliminary plat approval.

## IV. SKETCH PLAN REVIEW

**Shaul Dover, 11 Mt. Holly Road East, Katonah – Application for Wetland Activity Permit Approval – Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Dover displayed the proposed site plan. Mr. Dover stated that after the last review and site walk that he had reduced the size of the structure from 45' to 42' and shifted the structure 3' to the east increasing the area to the wetland area avoiding the need to cut trees. In response to the previous requests for an alternative location, he noted that there was only a small area of the whole property that is not within the wetland buffer. He advised that his May 12, 2007 letter to the Board discussed two alternative locations and the reasons why these locations would not be desirable. This letter also addressed the questions with regard to commercial use. He noted that the Building Inspector had provided a letter verifying the issue with the septic system as there is no increase in the bedroom count.

Mr. Barber reviewed his memo to the Board dated June 20, 2007 noting that when reviewing wetland applications the goal is to determine whether impacts can be avoided and is why this applicant had been requested to prepare alternative plans outside of the wetland buffer. Mr. Barber noted that Mr. Cargain had issued a memo dated June 6, 2007 which stated that the plans reviewed by the Planning Board had been modified to reflect that there is no longer a bathroom on the second floor and the presence of a sink where a partial kitchen had previously been shown. Based on these changes, Mr. Cargain issued this memo indicating that this plan did not reflect an increase in bedroom count.

Mr. Barber advised that he reviewed the applicant's comments with regard to the alternatives noting that these locations outside of the wetland buffer would require ZBA variances. Mr. Barber advised that currently there is a ZBA variance for a 32.23 feet setback variance. He was not sure why the applicant indicated why a driveway would be required, but if it was necessary it could be constructed outside of the wetland buffer with pervious materials to alleviate any stormwater concerns. Although there was a discussion with regard to blasting, there is no certainty that blasting would be required. It is desirable to connect the existing garage

stormwater treatment system and could be looked at as mitigation. He reminded the Board that the original application was for a detached structure west of the wetlands. He stated that it appeared that there is an opportunity to avoid the impacts to the wetland and wetland buffer by considering the alternatives.

Mr. Dover stated that when looking to construct his home several years ago in the location of the proposed alternatives they would have had to blast and is the reason why the house was built where it is. He stated that he would prefer not to go back to the ZBA for a variance as it was a very long process with many issues with the neighbors. The agreement at the time of the ZBA approval was that this structure would be attached to the house. Detaching the structure he believed would hide it from the neighbors as he would be building into a steep hill. In addition in terms of the acoustical concerns it would be better if this building were under the ground as much as possible. He advised that the corner of the structure from the wetland on the preferred plan would be approximately 30 feet.

Mr. Rossi asked what mitigation is proposed for building a structure 30 feet from the wetland.

In response to a question of Mr. Rossi, Mr. Dover advised that the drainage from his home currently drained into the stream. Mr. Dover advised that as mitigation he has proposed that all of the drainage from the addition as well as the existing structure would be treated. In addition he has proposed an extensive planting plan along the driveway. All of the roof runoff would go into the drywell.

Mr. Barber noted that this submission did not include the planting plan and only quantified the runoff from the existing garage.

To clarify Mr. Rossi questioned whether the applicant had offered in mitigation that all of the runoff from the current residence would be collected and treated this in an infiltrator in addition to treating any runoff from the proposed structure.

Mr. Dover stated that this was correct.

Mr. Rossi stated that the applicant would also need to provide a planting plan with native wetland plantings.

Mr. Dover stated that this was a part of his original submission and did not think that he needed to provide another copy with this submission.

Mr. Decaminada stated that this was a touch project and must be balanced. The net gain appeared to be an improvement and asked that the applicant work with this Board in good faith.

Mr. Dover explained that his planting plan was prepared by a professional who spoke with Mr. Barber. In response to a question of Mr. Decaminada's he agreed to an annual inspection of the site.

In response to a question of Mr. Ellrodt, Mr. Dover advised that the height of addition would not be higher than the existing house.

Mr. Rossi questioned whether they could monitor the structure to determine whether or not a bedroom would be built or turned into an au pair suite by a future owner.

Mr. Praga stated that this Board could not require that the applicant open his house.

Ms. Maguire stated that the mitigation proposed did not in any way provide a net gain. This structure is only 30 feet away from a wetland and did not recall any other application before this Board with a structure so close to the wetlands that had been approved. There have been things proposed but had been pulled by the applicant. She stated that the applicant would have to provide other mitigation efforts to please her. She questioned who the landscape architect was.

Mr. Dover stated that the plan was prepared by Evergreen Nurseries.

Mr. Rossi questioned what other mitigations could the applicant consider offsetting the impacts further.

Mr. Barber advised that to answer this question it was getting to the point that they would need a functional wetland analysis. The mitigation would be designed to replace or replicate the lost functions. He advised that there were several standardized methodologies used by wetland professionals to perform this analysis to establish the function of the wetland and the wetland buffer.

Mr. Dover stated that there is a major difference between the wetlands being impacted by the construction and the wetlands on the other portion of his property.

Mr. Rossi noted that this may be correct, but a professional opinion would be required to come to this conclusion. Maybe the mitigation plan submitted is sufficient, but without knowing what the functionality of the wetland it would be hard for this Board to come to this conclusion. The wetland report from Paul Jaehnig delineated the wetlands but was not a functional analysis.

Mr. Dover stated that this is an expensive process and everything asked of him he has done but must cap this.

Mr. Rossi stated that he wanted to ensure that the net environmental impact was neutral if possible. He cannot get the answer without the data.

Mr. Barber estimated the cost to be between $500 and $1500.

Ms. Maguire noted that this Board had not asked anything of him that is not asked of any other applicant. This Board is trying to uphold the laws of the Town.

Mr. Decaminada stated that the applicant had the burden to help this Board understand the functionality of the wetlands. He suggested that the applicant respectfully take this request to heart and decide what is in his best interests.

Mr. Rossi suggested that he think about what had been discussed, talk to Mr. Barber further and find someone to prepare the analysis. In response to Mr. Dover's statement that he had been talking to Mr. Barber for a long time Mr. Rossi advised that the original application had been submitted November 28, 2006. Noting that he had been admonished as this process had reportedly taken two years he had asked the Secretary to prepare a time line for him. This project has been in front of the Board since February 2007; this Board had reviewed this project three times since.

Mr. Barber stated that as Mr. Dover is advocating a stormwater management technique this Board must determine the feasibility and noted that this had been discussed previously. He had recommended that the applicant be directed to obtain a wetland activity permit to take small machinery into the area of the proposed stormwater infiltration to perform soil testing to determine whether what is being proposed is feasible.

At 9:15 PM the Board took a six minute break.

**Nextel, NY, 55 Howland Drive, Cross River – Application for Special Use Permit**

Chris Fisher, Esq., Scott Chasse, Ivan Joseph and Ray Ragotti were present representing the applicant.

Ted Sohonyay, Chairman, Alan Cole and Arthur Einstein were present from the Antenna Advisory Board.

Mr. Rossi noted that the applicant had not answered all of the questions of the previous submittal but had asked to be present at this evening's meeting to specifically discuss the materials they had submitted.

Ms. Clark advised that the applicant would be discussing limited issues with the Board this evening. The applicant will address the comments in Mr. Agresta's June 25, 2007 memo and would make a further submission to the Board.

Mr. Fisher agreed and noted that the applicant asked to discuss the different designs and options for an 80' or 100' pole. The applicant also submitted a comprehensive report with regard to the crane test. The intent this evening is to get through the concepts and get the Board's feedback and their authorization to meet with the Town's consultants. It was his hope that they would be able to put together an application package so that public hearings could be held for both this site as well as the Vista Fire Department site after Labor Day.

Scott Chasse stated that based on the comments that the applicant had entertained a uni-building and a four carrier scenario in a 12' x 20' equipment building for a 100 foot monopole. He reviewed the details of this concept plans as shown on Sheet L-1 and A-1.

In reviewing the concept plan L-2 depicting an 80' tower for three carriers he advised that it would require additional antennas; a full array is shown on the conceptual drawing.

Mr. Fisher stated that although the photographs had been submitted from the crane test he would like the opportunity to review them at the public hearing in detail. He noted though that these materials are available for public review. The visibility because of the tree cover is reduced; most of the residents on Howland Drive will not see the pole. The immediate neighbors will have a view through the trees. The pole would be most visible away from the site across Route 35 in the area of the Mobil Station. He advised that an application had been submitted to the Building Department so that it could be referred to the Zoning Board of Appeals.

In response to a question of Mr. Rossi, Mr. Fisher advised that the applicant could design the towers to allow for antennas for emergency services. Typically the requirements are for whip antennas at the top of the tower with a mount.

In response to Ms. Tortorella's request that the Public Hearing be closed, Mr. Rossi stated that there were several open issues that would need to be addressed; closing this public hearing would be premature. He advised that the project is moving in the right direction.

Mr. Agresta reminded the Board that a SEQR determination still needs to be made.

Mr. Ornstein advised that the applicant would install the underground water tanks if the Fire District is not satisfied with what Bill Bright had stated publicly with regard to the water system in addition to installing the sprinkler systems.

After some discussion the Board agreed to adjourn the public hearing to get input from the Fire District, Bill Bright and to address some of the concern expressed by the consultants. Mr. Rossi reminded the applicant that this Board had opened the public hearing to get input from the public before all of the details had been worked through. The Board agreed to the applicant's request to meet with the Town's consultants prior to resubmitting the application materials. If the applicant can resubmit the application materials by October 2, 2007 this hearing may be reconvened on October 9, 2007.

On a motion made by Mr. Decaminada, seconded by Ms. Maguire the public hearing was adjourned.

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt, Maguire

## IV. SKETCH PLAN REVIEW

**Cingular Wireless, PCS, LLC (Charisma Holding Corp., owner of record), 321 Main Street, Goldens Bridge –Special Use Permit**

The Chairman advised that this application had been withdrawn by the applicant.

**Shaul Dover, 11 Mt. Holly Road East, Katonah – Application for Wetland Activity Permit Approval – Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Dover displayed the proposed site plan and advised that he had hired Mary Jaehnig who prepared a report as requested. As a result of her report he revised the plan doubling the planting and increased the area of wetland mitigation.

Mr. Rossi stated that this Board was actually looking for a wetland functional analysis; the report submitted supported his proposal but did not give what the Board was looking for in terms of the functionality of the wetlands.

Mr. Barber reviewed his memo to the Board dated September 1, 2007 and reviewed the materials submitted by the applicant. He stated that this Board was looking for an analysis describing what this wetland does as well as analyzing the alternatives that had been considered. It did not support the environmental gain for a detached structure versus an attached structure. He noted that the plans are complete with some minor odds and ends and questioned whether the well location meets the requirements of the Westchester County Health Department. He advised that there is an opportunity to construct the structure in a viable location totally outside of the wetland

buffer with no impacts to the wetlands. The applicant should be directed to provide additional mitigation for the construction in the area proposed currently within 50 feet from the wetland or submit a plan to the Zoning Board of Appeals for a variance for the structure totally outside of the wetland regulated area.

Mr. Decaminada stated that this is a tough project; the significant impact to the wetland is tremendous. The applicant should explore further mitigation to demonstrate that there is a net environmental gain for the proposed location as it was clear at the site walk that the applicant did not wish to move the location of the structure.

Mr. Gusmano advised that he would like to understand the significance of the wetlands. The applicant had represented at the site walk that the wetland is a result of runoff from the rain; he would like confirmation that this in fact is true.

Mr. Barber advised that the wetland is a seep area and forms the head waters for a stream across on Mount Holly. This particular area is a wetland discharge component where there is ground water forming a wetland on a slope and discharging to provide a continual flow to a larger wetland. If this was no longer there, the hydrology to the wetland is gone and the function value of the wetland is gone. Even though this is not a large wetland, discounting one of the components of the larger system would seriously compromise it. It is his opinion that the wetland performs a valuable function not only on the site in terms of groundwater recharge but provides groundwater discharge feeding a hydrological linked wetland.

With respect to the proximity of the well to the proposed structure, Ms. Maguire asked Mr. Dover whether these plans had been reviewed by the Westchester County Department of Health.

Mr. Dover stated that the plans had not been reviewed by the Health Department as the Building Inspector had written a letter advising that it was not required.

Mr. Barber advised that this was with respect to the septic system, not the well.

Mr. Altermatt advised that well being located within six feet of the structure is very close; he tries to keep a minimum distance of 20 to 25 feet. He advised that he would review the Health Department code and report back.

Ms. Maguire advised that there that had been a statement at the previous meeting with respect to how close the garage was to the wetland and how all of the untreated runoff currently discharged into the wetland. She reviewed the records in the Building Department relative to the construction of the garage which was built in 2001 and found a field inspection report completed by the applicant which indicated that there were no obvious wetlands. At the time, William Cargain was the wetland inspector who after going to the site wrote a report which stated that there were no noticeable wetlands within 100 feet of the project. This is why there is currently no attenuation for the stormwater from the garage. Ms. Maguire advised that for this current project it is hard for her to compound this issue with a structure that would be closer to the wetland. As stated previously, she would be more comfortable if the footprint of the addition was modified so that the new addition was flush with the existing garage.

With regard to the alternative for a detached structure, Ms. Maguire noted that Mr. Dover previously stated that he did not like this alternative because of the driveway. She stated that she could not understand why an impervious driveway surface was needed to this detached structure.

Mr. Dover stated that he preferred to walk on a driveway, not grass.

Ms. Maguire advised that they could have a walkway that would allow the water to seep through the ground. She understood that the applicant was looking for the best location but did not agree that the proposed driveway had to be of such a large magnitude. Ms. Maguire summed up her concerns as being the close the proximity of the well to the structure. She asked that the applicant consider the attached alternative within the wetland buffer be flush with the existing garage and also that he consider the viability of the detached alternative outside of the wetland buffer with a pervious walkway.

Mr. Ellrodt advised that he preferred that the structure be pulled away from the wetland stating that the structure as proposed is too close to the wetlands.

Mr. Rossi advised that the proximity of the wetlands did not trouble him but what would like to see the negative impact to the wetland mitigated. If the proposal is the choice of the applicant, he would have to work harder to not only prove that there are no negative impacts, but make it a positive.

Mr. Barber suggested that as there is some difference of opinion, that the applicant develops two alternatives; the structure as proposed but incorporating mitigation that would provide an environmental gain and an alternative locating the structure outside of the wetland buffer.

Mr. Dover stated that he had previously made an application to the Zoning Board of Appeals for a detached structure. He represented that as a result of that application an agreement was made with the ZBA as well as the neighboring property owners that the structure would be attached to his residence.

Mr. Barber questioned why if the original proposal was for a detached structure in another location why he would be opposed to a detached structure more closely located to his residence.

Mr. Dover distributed and reviewed copies of an Environmental Impact Analysis Outline dated September 10, 2007 which he stated was prepared by Mary Jaehnig. This outline compared the alternatives, Alternative C being his preferred location.

Mr. Barber advised that he would be happy to review this document point by point. He suggested that he be given permission to speak with the applicant's wetland consultant to determine if there are additional mitigation possibilities and the alternatives.

After some discussion as to the history of this project Mr. Rossi advised that the applicant had the choice of working with the Town's Wetland Inspector to get a net environmental gain or the Board can vote on this application at the next meeting.

Mr. Dover indicated that he wanted the Board to vote on his application.

Mr. Rossi asked the Secretary to pull the letters from the neighbors and resend them to the Board to determine whether or not a public hearing would be required.

Mr. Praga strongly recommended the scheduling of a public hearing if there was any potential that this application may not be approved.

There was no objection to the scheduling of a public hearing for November 14, 2007 once the requirements with regard to the Health Department are known. In response to a question of Mr. Dover he was advised that the Planning Board did not make referrals to the Health Department. It was suggested that he contact the Health Department directly to determine whether a Health Department review and approval was required.

**Mary Clark, Deepwell Farm Road, South Salem – Application for Wetland Activity Permit Approval – Cal. #5-05 W.P.**

Arthur Clark was present with his environmental consultant Alexandra Moch.

Mr. Decaminada noted that this applicant was involved in an ongoing lawsuit with the Town and questioned whether their counsel should be present this evening.

Mr. Praga advised that it is the decision of the applicant whether or not they wished to be represented by counsel.

Ms. Moch advised that she was present to discuss the fill and could also discuss the proposed development for the property. She referred to the May 13, 2004 report she prepared. The applicant is combining two lots into one four acre lot. She indicated that in 1987 drainage was installed on the road and an easement was granted for the drainage and discharge. The drainage was discharged in an undefined channel and the water was spilling over into the wetlands creating sediment. In 1997 the Meadow Pond Elementary School expanded their building and parking area. The applicant has documented the lack of erosion controls. The sedimentation flooded over the catch basins and road into the wetlands. She advised that her client had contacted the Town several times asking for help to rectify the issues. In February 2000 he took the matter into his own hands and created the channel, spreading the soil over the area. A stop work order was issued December 20, 2000 and as a result there was a public hearing after which a lawsuit was filed. A stipulation was reached. She advised that she had analyzed the fill and stated that she saw a few impacts which occurred after the fill was placed. She described the nature of the fill and advised that the area was level and that the hydrology and natural drainage of the area had changed. She advised that last year the existing trees were evaluated by a forester who determined that they were healthy and would survive. The penetration of the light to the soil had changed because of the growth of the under story. The wildlife habitat is different because the under story vegetation had been replaced by meadow.

Ms. Moch reviewed the study she performed in February 2006 advising that she had chosen the winter with snow cover and dug six holes to obtain soil samples. She advised that she had found that the fill that had become soil. The darker top soil supports the growth of natural vegetation. Four of the six soil samples showed elements that are typical of wetland soils. She reviewed her findings of the soil samples. If the fill were to be removed some of the areas would have to be enhanced with some sort of organic material or fertilizers to ensure the proper growth of vegetation. She stated that she observed larva and insects in the soils. In addition she observed the root systems of the trees penetrating through the fill; the root systems have expanded and adapted to the fill. Removal of the fill would damage the root systems of the trees. Considering her findings she believed that the removal of the fill by hand which would be the least invasive method would be impossible because of the root system.

Mr. Barber requested that the Planning Board direct him to make the determination in an advisory capacity as to whether or not the fill should be removed. He advised that he had read

buffer limiting all future development in the proximity of the wetlands. He advised that there are no bathroom facilities on the second story of the garage.

Mr. Barber reviewed his memo to the Board dated November 8, 2007 advising that the applicant had proposed a substantial mitigation plan. He advised that a November 8, 2007 comment memo from the NYC DEP has been received requiring a response. He requested that the wetland delineation date be reflected on the plans as well as verification that there are no NYS DEC wetlands in proximity of the site. He requested that the applicant supply a brief written narrative as to why the impacts cannot be avoided. He advised that there are pervious pavers that could be used on the driveway in lieu of gravel. He requested substantiation that the deep tests have been done to ensure that the stormwater structures will work.

Mr. Solarik advised that he had received and reviewed Mr. Barber's memo on Friday. He provided a letter from the NYS DEC and advised that he had reviewed the FEMA maps which indicated that this property is not located within the flood zone. He has prepared the drainage calculations, but was not able to perform the site testing. He asked whether the calculations could be reviewed advising that they had been sized for a ten year storm event.

Mr. Barber advised that the DEP had requested the deep soil testing.

There were no comments from the public.

Mr. Decaminada advised that it was his belief that this is a good project. He noted that the applicant had to supply the maintenance requirements and the schedule for the stormwater calculations.

Ms. Maguire agreed and advised that the applicant's attention to detail is appreciated.

Mr. Rossi thanked the applicant as the restrictive buffer had not been anticipated prior to the site walk. He questioned whether the hearing should be left open to address the outstanding issues.

On a motion made by Ms. Maguire, seconded by Mr. Gusmano the Public Hearing was adjourned.

Vote: Yes: Decaminada, Gusmano, Rossi, Maguire
Absent: Ellrodt

**Shaul Dover, 11 Mount Holly Road East, Katonah – Application for Wetland Activity Permit approval to permit the construction of an addition & drainage improvements within the regulated wetland buffer – Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Dover displayed the proposed plan and advised that he had demonstrated the positive value of the proposed mitigation; it is above the Army Corps Engineers requirement in terms of size. All of the stormwater for the existing residence and addition would be directed into a drywell. In response to the continual concern with regard to the distance of the proposed structure to the wetland, the proposed addition is now flush with the house. The second story of the addition has been eliminated.

Mr. Rossi noted that this was the first time that this Board has reviewed this rendition at a public meeting.

Mr. Barber reviewed his memo to the Board dated November 8, 2007 and noted that the proposed studio is now flush with the existing house placing it now 38 feet away from the wetland. The applicant continues to propose stormwater treatment, and a wetland mitigation plan. As there has been a change in the plans he requested that the applicant submit the floor plans to ensure that there are no bedroom changes or kitchen facilities. He echoed the comments in the November 8, 2007 NYC DEP letter to the Board. He noted that this plan proposed a temporary construction access to the rear of the property between the wetland and proposed addition. He would like to ensure that the two trees previously discussed would be saved and that the construction driveway access is restored in perpetuity and not used as an access drive after construction. He also would like to ensure that the proposed mitigation area is preserved.

Mr. Dover advised that since reviewing Mr. Barber's memo that he had added notes to the plan, submitted a floor plan and spoke with Cynthia Garcia and addressed her concerns. Additional lines to show the distance between the septic area and the drywell were added. He advised that after construction the driveway would be returned to lawn; the same condition as it is now. He advised that Ms. Garcia would be providing a letter.

Bruce Levinson, 10 Mount Holly East advised that he did not have any objection to the principle but he had some concerns. Mount Holly East is now compromised of moderately sized homes, and hoped that this would be viewed minimally from the road. In addition Mount Holly Preserve is to the north; there is a trail that runs behind this property and asked if there is some way to provide some visual mitigation with some plantings so that people walking through the woods would not be impacted.

Mr. Dover stated that after construction they would see what they see now.

Ms. Maguire noted that there would be more mass.

Mr. Gusmano noted that the roof line has not changed; the outside of the building is still two stories.

Mr. Dover advised that there is no useable space in the second story.

Steven Depp, 17 Mount Holly Road East, immediately east to the Dover property advised that he was speaking for both himself and the Schaffrans who had no objection to the application.

Mr. Rossi advised that the applicant had done a great job responding to the previous concerns, but that there are still some housekeeping issues and calculations that need to be provided. Similar to the previous applicant this hearing cannot be closed until these items and the NYC DEP comments are addressed. He questioned whether Mr. Dover would consider placing a restrictive easement over the mitigation area similar to the previous applicant.

Mr. Dover stated that he would not as he believed that the location may cause legal concerns. If it were over another part of his property he would consider it. He will propose some sort of demarcation along the mitigation area to ensure that it would not be encroached. He will try to accommodate the concerns.

Mr. Gusmano asked whether Sweatshop Music Studios was a commercial business.

Mr. Dover stated that this had been discussed previously and that it was not.

Mr. Barber advised that he would like to ensure that Mr. Altermatt had an opportunity to review the drainage calculations.

On a motion made by Mr. Decaminada, seconded by Ms. Maguire the Public Hearing was adjourned.

Vote: Yes: Decaminada, Gusmano, Rossi, Maguire
Absent: Ellrodt

At the completion of his services for the evening, Mr. Barber exited the meeting at 8:30 P.M.

## III. PROJECT REVIEW

**Oakridge Water & Sewer District, 400 Oakridge Drive, Vista – proposed cupola design – Cal. #11-06 P.B.**

Bill Bright was present representing the applicant.

Mr. Agresta advised that the cupola design was acceptable and asked for an update with regard to the status of the construction and the landscaping plan.

Mr. Bright advised that the focus has been on the NYS DEC timeline. All of the equipment is now in the building and it is now just a matter of connecting the pipes and the electrical. Once this is complete they will focus on the exterior of the building. It is expected that they will meet the deadline on the SPEDES permit. Within the next two or three weeks they will have most of the equipment up and running and advised that this has been a complicated project as they had to keep the plant up and running while constructing the new one in a very limited space. They understand that they need to do the plantings but will not be able to do this until spring. They will develop the planting plan within a month. They have monthly construction meetings with the Town and are fully aware of what needs to be done.

It was noted that ACARC reviewed the cupola.

Mr. Agresta noted that he had prepared a draft resolution for the Board's consideration. The Board members indicated that they had an opportunity to review the resolution.

On a motion made by Mr. Decaminada, seconded by Ms. Maguire the resolution Cupola Design, Satisfaction of Condition of Approval S21 (b), Oakridge Sewer District WWTP Upgrade, Cal. #11-06 P.B. was adopted.

Vote: Yes: Decaminada, Gusmano, Rossi, Maguire
Absent: Ellrodt

## IV. SKETCH PLAN REVIEW

built largely in the 1920's. He believed that the front building was constructed in 1939 or 1940. The construction was being built in phases to avoid significant amount of disturbance.

Mr. Gusmano stated that it was his impression after visiting the site and reviewing the plans is that there would be an awful lot of work needed. After starting the work it had been discovered that the foundations had to be replaced and questioned what else they would find.

## VI. CORRESPONDENCE & GENERAL BUSINESS

The Board discussed a bridge involved in the upgrade of the Wild Oaks Treatment Building. Mr. Rossi noted that throughout the process this Board had repeatedly expressed concern with the bridge.

Mr. Altermatt advised that the Planning Board resolution required that the contractor shore up the bridge if it were necessary. The issue is who would pay for this work; the Town of Lewisboro, North Salem or the NYC DEP. The exact jurisdiction is unknown. This will be discussed with the Town Board.

Ms. Maguire inquired as to whether the work had commenced on the Meadows well project. The Secretary advised that the Engineering & Inspection fee had not been submitted properly and was returned to the applicant's attorney. In addition the mylars had not been received for review and signature.

Mr. Altermatt advised that the Health Department had not yet signed off.

Ms. Maguire noted that this Board had put in significant effort to achieve their goal and questioned what this Board should do now.

Mr. Barber advised that he was working with the applicant's groundwater consultant.

The Secretary was directed to contact the applicant's attorney for the status of the project.

Mr. Rossi advised that he had not yet received a response with regard to his questions regarding the December 1st site walk. Once these questions have been answered he will leave it up to the individual members whether or not to attend the walk.

The Board members discussed the request made at the Dover public hearing to provide additional screening. Contrary to what had been provided by Mr. Dover in his recent correspondence it appeared that this was not addressed by the Zoning Board of Appeals. Ms. Maguire advised that she walked the trails on the adjacent preserve and noted that his house is very close to an existing trail but there are alternative trails; you would not be forced to walk this particular trail. In addition the other homes are visible from the trail; none have screening. She stated that she would be comfortable not requiring this additional screening.

## VII. MINUTES OF November 5 and November 13, 2007

On a motion made by Ms. Maguire, seconded by Mr. Gusmano the minutes of November 5, 2007 were adopted.

Vote: Yes: Gusmano, Decaminada, Rossi, Maguire

Mr. Gusmano questioned whether shrubs could be used instead.

Mr. Grant noted that he did not believe that the height of the proposed evergreens would be an issue given the elevation.

Mr. Barber suggested meeting at the site to determine whether this would be an issue. In addition he suggested that alternative plantings and designs be considered.

It was agreed that a color coded mitigation plan would be submitted to determine what would be covered under the interim wetland activity permit. The rest of the plan would be addressed at a meeting in January.

At the completion of her services for the evening Ms. Clark exited the meeting at 7:55 P.M.

## III. PUBLIC HEARINGS

The Chairman reviewed the public hearing format. There were no objections to the time or place of the public hearings and there were no requests to have the notices of public hearing read aloud.

**Shaul Dover, 11 Mount Holly Road East, Katonah – Application for Wetland Activity Permit approval to permit the construction of an addition & drainage improvements within the regulated wetland buffer – Cal. #72-06 W.P. (Reconvened)**

Shaul Dover was present.

Mr. Dover reviewed the progress of the application.

Mr. Altermatt reviewed his memo to the Board dated December 5, 2007 noting that there were some differences between the architectural and engineering plans. Some of the differences would have an effect on the drainage calculations. He advised that he called the applicant's engineer but was not able to speak with him prior to this meeting.

Mr. Dover advised that he spoke with his engineer and advised that there are no footing drains as the foundation is slab on grade. He explained that the architect had prepared the elevation for the approval process. The engineer and building inspector were both satisfied that there is no need for footing drains. He advised that there is no longer a second floor over the breezeway, but a terrace. The roof runoff will be diverted into a drywell. There is no difference between the footprint on the architectural and site plans.

Mr. Altermatt asked the applicant to address his concerns in a narrative report and add notations on the site plan indicating that all roof water would be collected in the drywell. The drainage calculations appear to be conservative and it did not appear that there were any real issues.

Mr. Barber reviewed his memo to the Board dated December 8, 2007 and noted that the NYC DEP had requested to see the separation distance between the septic system and infiltration system as well as post construction spot elevations. This has not yet been shown. A statement has been made on the plans but this has not been supported with the appropriate data. In response to Mr. Dover's assertion that there would not be any grade changes as a result of the installation of the dry well he asked that the plan include a note indicating that this was the

intent. He requested that the plans include tree protection details to reflect that the area around the tree drip line would not be disturbed during construction.

Mr. Dover expressed concern with the ability to run a machine in a very tight area if the drip line of the trees was fenced in as there is no other way to bring the machinery in.

Mr. Barber advised that if the trees were not protected that they would die. As protecting the trees was part of the rationale for the attached structure as opposed to the detached structure he would have to look at other options to ensure that the trees would survive. In addition, he noted that the proposed mitigation to the south is not in close proximity to the wetlands. Rather mitigation should be focused more proximal to the actual disturbance within the wetland buffer. When the construction entrance is no longer needed the area should be revegetated as mitigation.

Mr. Dover indicated that he would like to keep the option of having foundation planting close to the house. He would like the type of plantings that he could touch and take care of. The idea of mitigation is that he could not touch it. The area is in such close proximity to the house he advised that he would like to have some evergreens and plant some bulbs. In response to Mr. Altermatt's comment that the architectural plans show a walkway which is not shown on the site plan, Mr. Dover advised that there is no walkway proposed.

Mr. Barber stated that it must be understood that the proposed addition is 30 feet away from a wetland. What they were trying to do was to create a more native buffer. They had gone back and forth as to the location of the addition and performed a functional analysis. The installation of mitigation by the road where there is no disturbance leaving the area of disturbance as lawn surface did not make any sense. As a balance, he suggested buffer mitigation compromised of plants that were desirable to look at while requiring low maintenance. An area could be set aside for ornamental plantings. He stressed that he was interested in ensuring that they had an effective buffer enhancement.

There was no public comment.

Mr. Rossi advised that there were still some housekeeping issues that had to be addressed. The Board discussed whether or not to close the public hearing. It was noted that if the public hearing was closed the Board could not technically receive any additional input. If there is a condition which Mr. Dover may not feel comfortable with, he would have to accept that condition in the decision, he would not have an opportunity to discuss it but would need to comply with it to construct the addition.

Mr. Dover advised that he was willing to accept this. He advised that he would work with Mr. Barber and his engineer to address the mitigation concerns.

Mr. Rossi stated that he wanted to ensure that the applicant was comfortable with the parameters. He noted that there was more than the mitigation issues to be addressed. These issues included but were not limited to receipt of the Town Engineer comments with regard to the drainage calculations and showing the elevations between the septic and infiltrators.

Mr. Dover indicated that he would address the outstanding items and requested that the public hearing was closed.

On a motion made by Mr. Ellrodt, seconded by Mr. Gusmano the public hearing was closed.

Vote: Yes: Gusmano, Rossi, Ellrodt
Absent: Decaminada, Maguire

Mr. Rossi advised that once the outstanding issues had been addressed that this matter would be placed on the agenda for a decision.

**Adam Rose, 188 North Salem Road, Cross River – Application for Wetland Activity Permit approval to permit the paving an existing asphalt drive, installation of boulder slope stabilization, removal of invasive species & replanting woodland and wetland portions of the property within the regulated wetland buffer – Cal. #63-07 W.P.**

James DeLalla, ASLA was present representing the applicant.

Mr. DeLalla displayed and reviewed the proposed site plan noting that this application grew out of a wetland violation. As a result of the violation, Mr. Rose had decided to propose additional restoration primarily along the Route 121 frontage. The intention is to remove the invasive species and replant native vegetation. They have obtained a NYS DEC wetland permit to perform the proposed work along the road frontage and received a letter from the ACOE who advised that they would not be reviewing this proposal. There is no major clearing or ground disturbance proposed. The individual plants would be removed by hand and there would be some use of herbicides. He stressed that the disturbance would be minimal.

Mr. Barber reviewed his memo to the Board dated December 8, 2007 advising that the proposed plan is comprehensive. His largest question involved erosion and requested the detail with regard to site stabilization and whether a DEC Stormwater Permit would be required.

Mr. DeLalla advised that there is less than an acre involved and stressed that no equipment would be used. The slope would remain undisturbed as most of the vegetation would remain as it is compromised of native species. They are proposing to install a silt fence at the base of the slope. A seed mix would be used.

Mr. Barber questioned whether mulch would be applied. He asked for a detailed maintenance plan and that the plantings are guaranteed for a five year period.

There was no public comment.

Mr. DeLalla indicated that he was comfortable closing the public hearing.

On a motion made by Mr. Ellrodt, seconded by Mr. Gusmano the public hearing was closed.

Vote: Yes: Gusmano, Rossi, Ellrodt
Absent: Decaminada, Maguire

**Meadows Sewage Works Corp., Jay Court, Cross River – Application for Site Development Plan Approval & Wetland Activity Permit Approval to upgrade the existing wastewater treatment plant to meet the requirements of the NYC DEP Watershed rules & regulations. Application to merge two existing lots Sheet 17, Block 10533, Lot 129 (Meadows Sewage Works Corp.) & Sheet 17, Block 10533, Lot 130 (The Meadows at Cross River Homeowner's Assoc., Inc.) – Cal. #3-07 P.B.**

Meeting of the Planning Board of the Town of Lewisboro held at the Town House, 11 Main Street, South Salem, New York on Tuesday January 22, 2008 at 7:30 P.M.

Present:
P.J. Rossi, Chairman
Joseph Decaminada
John Gusmano
Richard Ellrodt
Maureen Maguire
William Agresta, Matthew D. Rudikoff Associates, Planning Consultant
Thomas Altermatt, Town Consulting Engineer
Bruce Barber, Interim Wetland Inspector
Lawrence Praga, Esq., Planning Board Counsel
Margaret Clark, Esq., Special Counsel
Janet Anderson, CAC Chairwoman
Aimee Hodges, Planning Board Secretary

The Chairman called the meeting to order at 7:30, PM, introduced the Board and its consultants and pointed out the emergency exits.

## I. DECISIONS

**Shaul Dover, 11 Mount Holly Road East, Katonah – Wetland Activity Permit Cal. #72-06 W.P.**

Shaul Dover was present.

Mr. Barber reviewed the draft resolution he prepared for the Board's consideration.

Mr. Decaminada read into the record Condition 14 of the resolution noting that this is a challenged property with regard to the septic system and it was imperative that the property owner complied with this condition requiring that written documentation be submitted indicating that the septic system had been tested and inspected by a licensed septic system contractor on an annual basis.

Noting that Mr. Dover had no other representation other than himself during the approval process, Ms. Maguire stated that she wanted to ensure that he would read through the entire resolution as there are many stipulations that he needed to comply with.

Mr. Ellrodt advised that he had always been uncomfortable with the placement of the structure and believed that there was a better location for it.

Mr. Rossi noted that the applicant had expressed concern with the access to bring equipment through to the rear of the property and asked Mr. Barber whether a satisfactory agreement had been made.

Mr. Barber advised that a 10 foot temporary access between the existing house and proposed addition is shown on the latest plans. Prior to the issuance of the Certificate of Occupancy this temporary access is required to be reclaimed as wetland buffer enhancement and planted with native buffer species so that it would not be a permanent access to the addition.

On a motion made by Mr. Gusmano, seconded by Mr. Decaminada the resolution issuing a Negative SEQR Declaration and Wetland Activity Permit Approval for Shaul Dover, Cal. #72-06 W.P. was adopted.

Vote: Yes: Decaminada, Gusmano, Rossi, Maguire
No: Ellrodt

**Vanessa Bailey, 9 Truesdale Lake Drive, South Salem – Cal. #12-07 W.V.**

Michael Sirignano, Esq. was present.

Ms. Clark reviewed the draft resolution she prepared for the Board's consideration.

Ms. Maguire noted that the second whereas paragraph on page two of the resolution stated that counsel admitted in part to the violation and questioned what was not included.

Ms. Clark advised that an issue had been raised as to what was an in-kind replacement and what was beyond an in-kind replacement. The admission was to that which was beyond what was originally there.

On a motion made by Ms. Maguire, seconded by Mr. Ellrodt the resolution Violation of Wetland and Watercourse Law, Vanessa Bailey, Cal. #12-07 W.V. was adopted.

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt, Maguire

In response to Mr. Sirignano's question as to when this matter would be placed on the next agenda the Chairman asked that he contact the Planning Board Secretary with regard to the schedule.

At the completion of her services for the evening, Ms. Clark exited the meeting at 7:41 P.M.

## II. PUBLIC HEARING

**Elliot Lebowitz, 7 Laurie Lane, South Salem – Application for Wetland Activity Permit Approval to permit the construction of an attached garage and deck within the regulated wetland buffer – Cal. #48-07 W.P.**
**(Reconvened)**

The Chairman reviewed the public hearing format. There were no objections to the time or place of the public hearing and there were no requests to have the notice of public hearing read aloud.

Viktor Solarik, AIA was present representing the applicant.

Mr. Solarik advised that he had responded to the November 8, 2007 NYC DEP comments and received a response from them dated December 17, 2007 advising that the submission had been approved. Mr. Solarik reviewed the proposal advising that it had been agreed that there were no alternatives for the location of the garage. The wetlands boundary had been delineated by Paul Jaehnig on March 29, 2007. The driveway that exists is paved 25 feet in from the road; the remainder of the driveway would be maintained as gravel. The existing access to the back of the property is to be abandoned and the existing storage shed will be removed. The applicant has

Vote: Yes: Decaminada, Gusmano, Rossi, Ellrodt
Maguire: Absent

Mr. Boera advised that he was in receipt of the letters received from the adjacent property owners.

## IV. CORRESPONDENCE & GENERAL BUSINESS

### Thistlewaithe Learning Center

Mr. Rossi acknowledged the request to remove a dead tree from the site. Mr. Barber stated that he had noted the tree at his recent site visit and advised that the tree could be removed without any further Planning Board review. The Secretary was directed to follow up with the applicant's architect.

### Farrell

The property owner's attorney contacted the Planning Board office for a better understanding of the area to be deed restricted as conditioned in the Planning Board's approval. The Board agreed that Mr. Barber would clarify the area identified in the resolution as the mature forest between the residence and the lake.

### Wachtell/Dover

The Board acknowledged receipt of the requests of Mr. Wachtell and Mr. Dover to modify the requirements of their wetland activity permit approvals requiring that their septic systems be pumped and inspected annually. Mr. Rossi advised that the CAC had promoted this and looked at this as good mitigation. The issue is not just to have the septic systems pumped, but this Board wants to ensure that septic failures are caught before they become an issue. He noted that two years ago this requirement brought to light Mr. Wachtell's failing septic system. This is not a condition being placed as a burden, but mitigation agreed to by the applicant.

Mr. Barber advised that septic systems within a wetland buffer pose a greater risk. The recommendation cited by both property owners would be more applicable where there is not a risk factor and where there may be different topography and soil conditions. Septic systems within the buffer pose greater risks to the wetland if they do fail.

Ms. Andersen advised that the Lakes Committee town consultant gave a presentation to the Town Board last Thursday regarding a survey they performed of all seven lakes in Town. Based on their analysis they felt that the largest single source of problems to the lakes were nutrients; the biggest single source of the nutrients are septic systems. It was their recommendation that the Town look to create sewer districts. In addition, the consultant advised that although the soils may be okay from a Board of Health perspective, they were inadequate to handle the phosphorus that is generated by a typical household. Given this information, Ms. Andersen believed that the practice of annual pumping and inspection of septic systems is wise and strongly recommended. She advised that the report which is lengthy and includes an executive summary would be on the Town's website shortly.

Mr. Gusmano stated that he agreed that this is proper for these two cases but believed that the requirement in some cases placed an undue burden on the homeowner because there is no recognition for the age and design of the septic system. He advised that he was certainly in agreement with an applicant having to prove the age and functionality of the system as well as providing a history demonstrating that a system did not have issues. If this Board continued this practice he believed that it should be a requirement for any system within a certain distance of not only lakes but any tributary as pointed out in this report.

Mr. Rossi agreed that each application should be looked at an individual basis, which has been the practice of this Board.

Mr. Decaminada thought that it may be prudent to establish sewer districts.

Mr. Barber advised that new treatment plants cannot be constructed within the NYCDEP watershed. He advised that there should be a proper balance and noted that the Department of Health used their own standards to examine soils for septic systems; the Town had no oversight. In order to inspect a septic system, it must be pumped. If the junction boxes tilt due to a frost heave, the septic system can fail.

Mr. Praga advised that both applicants are time barred from attacking the requirement. If an applicant finds that there is a problem with a condition, it should be addressed immediately. In addition, Mr. Wachtell noted the requirement with regard to maintaining his residence as a two bedroom residence. He advised that it was the determination of the Westchester County Department of Health that this is a two bedroom residence; this Board has no ability to change this.

The Board members were in agreement that the approvals should remain as adopted. Mr. Barber was directed to respond to Mr. Dover. Mr. Praga was directed to respond to Mr. Wachtell.

**Ring's End**

The Board acknowledged receipt of the Building Department's order to remedy which had been issued after receiving the inspection report from Tom Altermatt.

**LBA**

Mr. Barber advised that in response to the proposal to dig a trench near the bleachers at the Town Park he determined that the proposed work is in excess of 200 feet from the wetland buffer and did not require a wetland permit.

**Wetland Regulations**

The matter will be placed on the June 9, 2009 agenda for further discussion.

**Homeland Towers**

On a motion made by Mr. Ellrodt, seconded by Mr. Decaminada the minutes of April 27, 2010 were adopted.

Vote: Yes: Decaminada, Kerner, Ellrodt, Maguire
Abstain: Gusmano

## IV. CORRESPONDENCE & GENERAL BUSINESS

### Brown's Dam Reservoir – First Taxing District City of Norwalk – Cal. #7-10 P.B.

Mr. Barber advised that he met at the site with the applicant's consultants, Ryan Coyne, and Peter Ripperger, Highway Superintendent to discuss different types of mitigation, one of which included certain improvements to East Street. Prior to the City of Norwalk developing plans for these improvements they asked that the Planning Board weigh in and advise whether this Board supported this mitigation. He advised that improvements to East Street were number four on the matrix prepared by the Stormwater Committee. Historically East Street is the most expensive dirt road to maintain in Lewisboro. The Board members agreed with the proposed mitigation which would improve East Street.

### David Oddo, 70 Lambert Ridge, Cross River

David Oddo was present with his architect Gregory McWilliams, AIA.

Mr. Barber reviewed the wetland activity permit application for a proposed pool in the Michelle Estates section of town. He noted the utility easement in the rear of the site and the area of steep slopes where the pool is being proposed. There is a flat area directly in the rear of the residence which the applicant would like to maintain as lawn for their children to play on. He noted that he met at the site with the applicant and suggested that they consider moving the pool and/or changing the shape of the pool. The Oddo's felt that the plan as presented is the best plan for them to move forward. Mr. Barber advised that he preferred that the Planning Board review this application given that the Zoning Ordinance recommended not disturbing areas of Steep Slopes. He recommended that the Board schedule a site visit to determine whether they preferred this application to be reviewed administratively or by the Board.

After some discussion the Board agreed to the scheduling of a site visit. The Secretary will contact the property owner with the date and time.

Ms. Andersen exited the meeting at 8:40 P.M.

### Shaul Dover

In response to the Planning Board office's request that Mr. Dover submit proof that his septic system had been inspected as per his wetland activity permit approval he provided a copy of a report prepared by EarthCare of Vernon, N.J. Mr. Decaminada questioned whether this contractor was licensed in the State of New York and wanted a better understanding of what services the contractor performed. Mr.

Barber will review the language in the Board's resolution and review the document submitted to the Board.

**The Meadows @ Cross River WWTP Upgrade**

Marie Smith a member of the Meadows Board of Directors was present.

Mr. Johannessen referred to the May 4, 2010 request from Scalzo Property Management to install fencing around the detention basin. He reviewed the March 2008 resolution and advised that any modification or change must be approved by the Planning Board. He advised that the Waiver of Site Development Plan Procedures would be appropriate.

In response to a question of Mr. Kerner, Ms. Smith advised that there was a significant amount of water in the basin this spring and several residents expressed concerns with liability. She advised that there is a walking path within several feet of the basin.

It was noted that ACARC review would be necessary. Mr. Barber advised that the activity would occur in the Town and NYSDEC regulated wetland activity buffer and suggested that the applicant contact the DEC to determine whether this activity would require a permit. The Board agreed that a Town of Lewisboro administrative wetland activity permit would be appropriate.

**Oakridge Gardens**

The attorney for the property owner Smith Ridge Housing, LLC has advised that they would be looking for some amendments to the Planning Board's resolution. Given that Kellard Sessions Consulting is the engineer for the project the Town had previously approved the continuing services of Will Agresta of Rudikoff Associates to act as the planning consultant and Tom Altermatt as Town Consulting Engineer. The Secretary contacted Mr. Altermatt who advised that he is available. The Board directed the Secretary to contact Mr. Agresta as well to determine his availability and asked that both attend the June 8th meeting when this matter will be discussed.

On a motion made by Mr. Decaminada, seconded by Mr. Gusmano the meeting was adjourned at 9:06 P.M.

Respectfully submitted,

Aimee M. Hodges
Planning Board Secretary

**RESOLUTION**
**TOWN OF LEWISBORO PLANNING BOARD**

**SHAUL DOVER**
**NEGATIVE DECLARATION**
**WETLAND ACTIVITY PERMIT APPROVAL**

**Calendar #72-06 W.P.**

The Applicant, Shaul Dover, has applied to construct a two-story addition to the single family residence, at 11 Mount Holly Road East, which is identified in the Town of Lewisboro tax rolls as Sheet 16 Block 10533 Lot 70. The addition will result in a 1,074 square foot increase in the present house footprint. The purpose of the addition is to construct a sound studio for non-commercial use. The Town of Lewisboro Building Inspector has provided a review letter certifying that the construction of the addition does not represent an increase in current number of bedrooms in this residence.

The proposed actions will occur within 150' of the Town of Lewisboro jurisdictional wetlands.

The following wetland and wetland buffer improvements are noted with this application:

1. Roof run-off from the entire existing and proposed roof surfaces will be treated by an underground stormwater infiltration structure. Existing roof run-off presently discharges to the wetlands.
2. A wetland buffer plan will be implemented which will provide greater functional value to the present lawn area.
3. A tree protection plan shall be implemented to prevent damage to existing trees.

**WHEREAS,** on June November 22, 2006 an application from Shaul Dover for a Wetland Activity Permit under the provisions of Chapter 217 of the Code of the Town of Lewisboro "*Wetlands and Watercourses Law*" was received by the Lewisboro Planning Board; and

**WHEREAS**, the Planning Board reviewed the application at a regularly scheduled meeting on February 27, 2007 at which time the Board instructed the Applicant to supply additional information; and

**WHEREAS** the Applicant submitted the additional requested information; and

**WHEREAS**, the Planning Board reviewed the application at a regularly scheduled meeting on September 11, 2007 at which time the Board determined the application was complete; and

**WHEREAS**, the public hearing was opened on November 13, 2007, public comment was solicited, and the public hearing was closed on December 11, 2007 and

**WHEREAS**, the proposed action is an Unlisted action pursuant to SEQR 6 NYCRR Part 617 and the Environmental Quality Review Law of the Town of Lewisboro, and

**WHEREAS,** the applicant has stated, on the record, that the sound studio will not be used for commercial purposes,

**NOW THEREFORE BE IT RESOLVED**, that the Planning Board hereby finds that this action will not result in any significant adverse environmental impacts and an Environmental Impact Statement will not be required for the following reasons:

1. The proposed action will occur within the Town of Lewisboro regulated 150-foot wetland buffer. There shall be no activity within the Town of Lewisboro jurisdictional wetland and there shall be no direct net loss or degradation of any locally or State regulated wetlands on the site.

2. The proposed action will not affect surface or groundwater quality or quantity.

3. The proposed action will not affect any threatened or endangered species.

4. The Planning Board has considered alternatives for the size and configuration of the proposed action and has selected those alternatives that avoid or and minimize, to the maximum extent practicable, impacts to the locally regulated wetland and 150-foot wetland setback.

5. The Applicant has proposed mitigation for those impacts due to construction within the 150-foot regulated setback area that cannot be further minimized or avoided. These include erosion and sediment controls, installation of a wetland buffer enhancement plan and installation of stormwater management structures.

6. The proposed action will not cause a substantial adverse change in the existing air quality, traffic or noise levels or a substantial increase in solid waste production.

7. The proposed action will not cause the removal or destruction of large quantities of vegetation or fauna, the substantial interference with the movement of any resident or migratory fish and wildlife species, impacts on a significant habitat area or other significant adverse impacts to natural resources.

8. There is no material conflict with the Town's current plans or goals, as the proposed action consists of a use conforming to the zoning regulations and all other regulations.

9 There are no identified important historical, archeological, architectural, or aesthetic resources which will be impaired. The proposed action consists of a use consistent with existing

community and neighborhood character.

10. For the reasons stated above, the Applicant has demonstrated that the proposed action will not have significant adverse impacts on the environment or on the public health and welfare, as mandated under Section 217 -8.B of the Town of Lewisboro Wetlands and Watercourse Law, including impacts on such wetland functions as water quality preservation, flood control and wildlife habitat.

**BE IT FURTHER RESOLVED**, that in granting this wetland activity permit, the Planning Board has evaluated wetland, watercourse and buffer area functions and the role of the wetland, watercourse and buffer area in the hydrologic and ecological system, and has determined that the impact of the proposed activity upon public health and safety; special concern, rare, threatened and endangered species; water quality; and additional wetland, watercourse and buffer area functions has been avoided, or minimized to the maximum extent practicable. In this determination, the Planning Board has taken into consideration the following factors:

(1) The overall impact of the proposed activity and existing and reasonably anticipated similar activities, upon neighboring land uses and wetland, watercourse and/or buffer area functions, including but not limited to:

(a) Direct impacts or infilling of a wetland, watercourse and impacts to the buffer area, including modification of natural topographic contours, have been minimized to the maximum extent practicable.

(b) Disturbance or destruction of native flora and fauna has been minimized to the maximum extent practicable and a natural buffer area will be maintained over the wetland resource.

(c) Influx of sediments or other materials causing increased water turbidity and/or substrate aggradations have been minimized by the implementation of an erosion and sediment control plan.

(d) Removal or disturbance of wetland or watercourse areas has been completely avoided, and disturbance to buffer area soils has been minimized to the maximum extent practicable.

(e) Reductions or increases in wetland or watercourse water supply have been avoided.

(f) Interference with wetland or watercourse water circulation and flow has been

avoided.

(g) Changes in the amount or type of wetland or watercourse nutrients have been avoided by the establishment of a natural buffer area between the wetland resource and the disturbance limit line.

(h) Influx or discharge of toxic chemicals and/or heavy metals has been avoided by the establishment of a natural buffer area between the wetland resource and the disturbance limit line.

(i) Physical and chemical changes to the wetland or watercourse water supply have been avoided.

(j) Destruction, reduction and diminution of natural and native aesthetic values have been avoided by the preservation of a natural buffer area over the wetland resource.

(k) Reduction in public recreational or educational use and access has been avoided since the site is private property.

(l) Impact to, and alteration or disturbance of buffer areas have been reduced to the maximum extent practicable, but still allow the owner to utilize the site for the use permitted by zoning.

(2) Any existing wetland, watercourse and/or buffer area impacts have been minimized to the greatest extent practicable, as set forth in this Approval and the cumulative effect of reasonably anticipated future activities in the wetland, watercourse and/or buffer area have been avoided by the implementation of a natural buffer area.

(3) The impact of the proposed activity and reasonably anticipated similar activities upon flood flows, flood storage, storm barriers, and water quality have been considered and avoided by the implementation of a stormwater management program.

(4) The potential effect of flooding, erosion, hurricane winds, soil limitations, and other hazards on the proposed activity, and possible losses to the Applicant and subsequent purchasers of the land have been avoided by locating all improvements outside of flood hazard zones.

(5) The application is consistent with Federal, State, County, Regional, and local comprehensive land-use plans and regulations and all relevant permits have been or will be obtained.

(6) The availability of preferable or environmentally compatible alternative locations on the subject parcel or, in the case of an activity which cannot be undertaken on the property without disturbance to wetlands, watercourses and/or buffer areas, the availability of other reasonable or practicable locations for the activity have been considered and the alternative that minimizes impacts to the regulated wetland resource has been selected.

**BE IT FURTHER RESOLVED**, the Planning Board, in granting this wetland activity permit determines impacts to the affected buffer area are necessary and unavoidable, and have been minimized to the maximum extent practicable. The Planning Board further states that in determining that the impacts are necessary and unavoidable the following criteria have been satisfied:

(1) The proposed activity is compatible with the public health and welfare for the reasons set forth in this Approval.

(2) There is no reasonably feasible on-site alternative to the proposed activity in the judgement of the Planning Board including reduction in density, change in use, revision in the location of buildings, structures, driveways and other site construction and land altering activities, and/or related site planning considerations, that could otherwise reasonably accomplish the Applicant's objectives. The Planning Board has considered, in depth, alternatives and has encouraged and/or directed the Applicant to implement those feasible alternatives which have minimized the impacts of this application.

(3) There is no reasonably feasible alternative to the proposed activity on another site or site location. The proposed activity is not located in a wetland or watercourse and the proposed improvements are located the maximum feasible distance from the regulated resource but still maintain statutory setbacks to the proposed work.

**BE IT FURTHER RESOLVED**, upon full consideration of the above, the Planning Board finds that the application of Shaul Dover for a Wetland Activity Permit for construction of an addition to an existing single family residence with associated improvements within the locally regulated 150-foot buffer is consistent with the provisions and policies of Chapter 217 of the Code of the Town of Lewisboro and a permit is approved, subject to the issuance of a permit by the Wetland Inspector, with the following conditions:

1. All construction, mitigation and drainage work shall be in full accordance with the following plans:

- Plan entitled; "Site Plan Shaul Dover", prepared by Keane Coppelman Engineers, P.C. dated 12/14/07 (rev), 1 sheet.
- Plan entitled; "Wetland Mitigation Plan Dover Residence", prepared by Evergreen Nurseries, Inc., dated 3/20/07 (marked "A"), 1 sheet.
- Sketch labeled "Indicates Watershed" dated 01/15/08. 1 Sheet.

2. An as-built map must be provided by the applicant's consulting engineer documenting the addition, site improvements and stormwater drainage improvements have been installed in accordance with the approved plan and sketch referenced above. In addition, an "as-built" map of the mitigation plantings shall also be provided by the applicant's consulting engineer. As-built maps must be provided to the Planning Board prior to the issuance of a certificate of occupancy.

3. This permit shall expire two years from the adoption of this resolution – January 22, 2010.

4. The plans above shall be finalized to include the following signature block for endorsement as final by the Planning Board Chair and Secretary:

**APPROVED FOR FILING**

*owner* *date*
{typed name}
{typed address}

*applicant* *date*
{typed name}
{typed address}

**PLANNING BOARD ENDORSEMENT OF APPROVED PLANS**

*Planning Board Chairman* *date*

*Planning Board Secretary* *date*

5. Prior to signature on the final plans, the following shall be completed:

   a. All outstanding permit review fees shall be paid to the Town of Lewisboro by certified check.

   b. Prior to issuance of a Wetland Permit by the Wetlands Inspector or a Building Permit by the Building Inspector, four copies of the final plans shall be endorsed by the Planning Board Chair and Secretary and copies as required by the Planning Board Secretary shall be provided and circulated as appropriate.

6. All erosion controls shall be installed in compliance with the NYS Standards and Specifications for Erosion and Sediment Control (most recent edition). Additional erosion control(s) may be required by the Wetland Inspector, Town Engineer or Building Inspector. The Town Engineer may require modification of the stormwater controls if determined to be necessary.

7. At least five days prior to the commencement of construction, the Applicant or their representative shall provide the Town Wetland Inspector **written** notification of the intention to begin work.

8. Upon completion of the installation of the temporary erosion controls, limits of disturbance and tree protection, the contractor shall contact the Town Wetland Inspector (914-763-5592) to schedule a pre-construction conference and inspection of the erosion controls. The site shall be monitored weekly during construction for compliance with the approved Erosion and Sediment Control Plan by a qualified environmental consultant. The name of the environmental consultant shall be provided to and approved by the Wetland Inspector prior to construction. Weekly written reports, starting one week from the date of the pre-construction meeting, which outline the site conditions, status, identified problems and suggested remediation shall be delivered to the Planning Board, Building Department and Town Wetland Inspector. In addition, the Town Wetland Inspector must be contacted to inspect the stormwater installations prior to backfilling. No Certificate of Occupancy shall be issued unless written proof of compliance is provided.

9. All landscape and mitigation plantings shall be guaranteed by the current owners for a period of five years measured from the date of the issuance of the certificate of occupancy.

10. As provided under Section 217-9G., of the Town Wetland and Watercourse Law, this permit is subject to revocation should the Applicant or permittee not comply with the terms and conditions of this permit.

11. There shall be no clearing, grading, or removal of vegetation, beyond the clearing limits

shown on the plan.

12. Prior to the issuance of the Wetland Permit, the owner and contractor shall provide a written statement acknowledging that they have read, and will abide by all conditions of this permit.

13. Construction on the site shall not commence until a Town of Lewisboro Building Permit has been issued.

14. The owner and all future owners shall provide annual written documentation as measured from the date of the certificate of occupancy to the Planning Board that the septic system located on this property has been tested and inspected by a licensed septic system contractor and found to be in good working order.

PLANNING BOARD
Town of Lewisboro

By_____
P.J. Rossi, Chairperson

Dated: January 22, 2008
South Salem, New York

72-06 cal

## Aimee Hodges

**From:** S Dover [sales@flightjacket.com]
**Sent:** Tuesday, May 05, 2009 10:46 AM
**To:** 'Aimee Hodges'
**Subject:** Dover - Septic

Dear Mr. Rossi,

In reference to a letter I received from Bruce Barber dated April 21, 2009 that requires me to provide proof of pumping my septic system annually as per the conditions of Permit Cal #72-06.

The U.S. Environment protection Agency in their "A Homeowner's Guide to Septic Systems" (http://www.epa.gov/owm/septic/pubs/homeowner_guide_long.pdf , see page 5)
*"You should have a typical septic system inspected at least every 3 years by a professional and your tank pumped as recommended by the inspector (generally every 3 to 5 years). "*

Also, NYS Health Department recommend on their web site
http://www.health.state.ny.us/environmental/outdoors/septic/index.htm "The contents of the septic tank should be pumped every two to three years or when the total depth of sludge and scum exceeds one-third of the liquid depth of the tank."

The requirement in Permit Cal# 72-06 that I will do it annually is an unnecessary burden on us and I respectfully request your reconsiderations.

Sincerely,

**Shaul and Laurie Dover**

MAY - 5 2009

H | T | W

HOCHERMAN TORTORELLA & WEKSTEIN, LLP

CLIENT-CENTERED ◊ SOLUTION-ORIENTED

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Geraldine N. Tortorella
Adam L. Wekstein

Noelle C. Wolfson
Henry M. Hocherman, Retired

September 13, 2018

*Via Electronic Mail (Planning@lewisborogov.com) and First Class Mail*

Hon. Jerome Kerner, Chairman
and Members of the Planning Board
Town of Lewisboro
79 Bouton Road
South Salem, New York 10590

*Re: Conditional Preliminary Subdivision Approval for the Silvermine Preserve Subdivision*
*Silvermine Drive and Lockwood Road, Town of Lewisboro*
*Tax Identification Nos.: Sheet 48, Block 10057, Lot 15 and*
*Sheet 51, Block 10057, Lot 104*
*Third Request for Extension*

Dear Chairman Kerner and Members of the Planning Board:

As you may recall, by Resolution dated April 18, 2017 (and stamped "Received" on April 20, 2017), your Board granted Conditional Preliminary Subdivision Approval ("Preliminary Approval") for the Silvermine Preserve Subdivision (the "Subdivision"). On April 17, 2018, your Board extended Preliminary Approval to and including October 15, 2018.

As you may recall, I previously advised you that Eric Moss had to retain a new surveyor, Terry Bergendorff Collins, P.C. ("TBC"), to re-survey the Property and prepare the Final Subdivision Plat. TBC had to start "from scratch" and only recently completed the Final Plat. It is now being reviewed by Timothy Allen, P.E., who will next file an application with the Westchester County Health Department ("WCHD") for approval of the Final Plat; WCHD approval is a prerequisite to a complete application for final subdivision approval. As such, we will not be in a position to file for final subdivision approval by the October 15, 2018 expiration date.

For this reason, we request another six-month extension of Preliminary Approval, to and including April 15, 2019. This is our third request for an extension of Preliminary Approval, which your Board has the authority to grant pursuant to Lewisboro Subdivision Regulations Section 195-14(J).

Kindly schedule this extension request for consideration and action at the Board's next available meeting and let us know if an appearance is requested or required. Thank you in advance for your courtesy.

Respectfully yours,

Hocherman Tortorella & Wekstein, LLP

By: Geraldine N. Tortorella
Geraldine N. Tortorella

GNT:hc

cc: *(via electronic mail)*
Jan Johannessen, AICP
Joseph Cermele, P.E.
Judson Siebert, Esq.
Timothy Allen, P.E.
Beth Evans, PWS
Mr. Eric Moss

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## Ciorsdan Conran

**From:** Sirignano Law Office <lawoffice@sirignano.us>
**Sent:** Monday, September 24, 2018 10:55 AM
**To:** Aimee Hodges
**Subject:** Petruccelli

Ciorsdan,

Request is respectfully made for a further ninety (90) day extension of the Preliminary/Final Subdivision Plat approval granted to the late Rudolph C. Petruccelli.

We need additional time to address the open conditions of the plat approval Resolution.

Thank you,

Michael

**Law Office of Michael Fuller Sirignano**
Attorney and Counselor at Law
Old Post Road Professional Building
892 Route 35, PO Box 784
Cross River, NY 10518
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