RECEIVED
JUN 1 6 2015
Planning Dept.

RESIDENTIAL SITE PLAN APPLICATION (townhouses, apts., etc.)

City of Rochester, New Hampshire

Date: June 15, 2015 [office use only. fee paid ____ amount $_____ date paid _____]

Property information

Tax map #: 237 ; Lot #('s): 8-1 ; Zoning district: PUD

Property address/location: Fillmore Boulevard

Name of project (if applicable): The Townhomes at Highfield Commons

Size of site: 21.90 acres; overlay zoning district(s)? _____

Property owner

Name (include name of individual): 183 Washington Street LLC

Mailing address: 746 D.W. Highway, Unit B, Merrimack, NH 03054

Telephone #: 603-424-6904 Fax #: 603-424-8998

Applicant/developer (if different from property owner)

Name (include name of individual): Same as Above

Mailing address: _____

Telephone #: _____ Fax #: _____

Engineer/designer

Name (include name of individual): Keach Nordstrom Assoc-Pat Colburn

Mailing address: 10 Commerce Park North, Suite 3B

Telephone #: 603-627-2881 Fax #: 603-627-2915

Email address: pcolburn@keachnordstrom.com Professional license #: 12988

Proposed use

The applicant is not bound by information on bedrooms and ownership arrangement unless that is a condition of approval.

Total number of proposed dwelling units: 48 ; number of existing dwelling units: 48

Proposed bedrooms/unit: 3 ; total number of proposed bedrooms: 136

(continued *Residential Site Plan* application Tax Map: __237_ Lot: __8-1__)

New building(s)? __6___ addition(s)/modifications to existing building(s)? _____

Townhouses/rowhouses:__40_ flats:_8__ duplexes:____ freestanding detached units:____

Proposed ownership - leasehold: _X__ fee simple conveyance: ____ condominiums: _X__

Utility information

City water? yes _X_ no ___; How far is City water from the site? ___on site_____

City sewer? yes _X_ no ___; How far is City sewer from the site? ___on site_____

If City water, what are the estimated total daily needs? _21,600_____ gallons per day

Where will stormwater be discharged? ___Detention basins_____

Other information

parking spaces: existing:_0__ total proposed:____; Are there pertinent covenants? _____

Describe existing conditions/use (vacant land?): __Currently vacant land_____

_____

Check any that are proposed: variance ____; special exception ____; conditional use ____

Wetlands: Is any fill proposed? ____; area to be filled: _____; buffer impact? _____

Proposed *post-development* disposition of site (should total 100%)		
	Square footage	**% overall site**
Building footprint(s) – give for each building	51,422SF	10.80%
Parking and vehicle circulation	56,215SF	11.80%
Planted/landscaped areas (excluding drainage)	135,957SF	28.60%
Natural/undisturbed areas (excluding wetlands)	39,164SF	8.20%
Wetlands	178,970SF	37.70%
Other – drainage structures, outside storage, etc.	13,900SF	2.90%

Comments

Please feel free to add any comments, additional information, or requests for waivers here:

_____

_____

(continued *Residential Site Plan* application Tax Map: 237 Lot: 8-1)

Submission of application

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

I(we) hereby submit this Site Plan application to the City of Rochester Planning Board pursuant to the City of Rochester Site Plan Regulations and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity.

Signature of property owner: _____

Date: 6/15/15

Signature of applicant/developer: _____

Date: 6/15/15

Signature of agent: _____

Date: _____

Authorization to enter subject property

I hereby authorize members of the Rochester Planning Board, Zoning Board of Adjustment, Conservation Commission, Planning Department, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections during the application phase, review phase, post-approval phase, construction phase, and occupancy phase. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property.

Signature of property owner: _____

Date: 6/15/15

Hillside
Design Group, LLC

June 15, 2015

City of Rochester
Planning Department
Attn: Jim Campbell
31 Wakefield Street
Rochester, New Hampshire 03867

RECEIVED
JUN 16 2015
Planning Dept.

Re: Site Plan Narrative - "The Townhomes at Highfield Commons"
Phase 2C - Tax Map 237; Lot 8-1 – Fillmore Blvd.
Rochester, New Hampshire 03867
HDG Project # 2010-0831-1

Dear Chairman and Board Members:

The above referenced project is being submitted for Site Plan Approval from the City of Rochester Planning Board. The proposed project is for Phase 2C of the Highfield Commons development. This phase consist of the permitting the third phase of the townhomes project and calls for the next 48 residential townhome units on the subject parcel with all supporting infrastructure. Also as part of this application we are asking for approval to subdivide the parcel into two lots from its existing one lot. This is being done strictly for banking and financing purposes.

As some members of the planning board may remember this section of the Highfield Commons planned unit development was originally designed for 144 garden style apartments on site. Based on our current product and our vision for the full build out of this project we are constructing more aesthetically pleasing structures that still yield a reasonable density and fit with the character of our development. This third phase 2C is for another 48 units for a total of 96 units at this location.

The applicant has included all required supporting information for your review and comment of this project within the submittal package.

If you have any questions or comments please contact me at (603) 424-1132.

Sincerely,

Matthew J. Peterson - Project Manager
Hillside Design Group, Inc.
501 D.W. Highway, Unit F
Merrimack, NH 03054

MAJOR SUBDIVISION APPLICATION

(a total of four or more lots)

City of Rochester, New Hampshire

RECEIVED JUN 1 6 2015 Planning Dept.

[office use only. Check # _____ Amount $_____ Date paid _____]

Date: June 15, 2015 Is a conditional needed? Yes:____ No: X Unclear:____
(If so, we encourage you to submit an application as soon as possible.)

Property information

Tax map #: 237 ; Lot #('s): 8-1 ; Zoning district: PUD

Property address/location: Fillmore Blvd

Name of project (if applicable): The Town Homes at Highfield Commons

Size of site: 21.90 acres; Overlay zoning district(s)? _____

Property owner

Name (include name of individual): 183 Washington Street LLC

Mailing address: 746 D.W. Highway Unit B

Telephone #: 603-424-6904 Email: chris@CdCNH.com

Applicant/developer (if different from property owner)

Name (include name of individual): Same as Above

Mailing address: _____

Telephone #: _____ Email: _____

Engineer/surveyor

Name (include name of individual): Keach Nordstrom Assoc.

Mailing address: 10 Commerce Park North Suite 3B

Telephone #: 603-627-2881 Fax #: 603-627-2915

Email address. abasso@KeachNordstrom.com Professional license #: _____

Proposed project

Number of proposed lots: 2 ; estimated length of new roads: zero

Number of cubic yard of earth being removed from the site? SEE SITE PLANS

City water? yes X no ___; How far is city water from the site? on-site

City sewer? yes X no ___; How far is city sewer from the site? On-site

If city water, what are the est. total gal. per day? NA ; Are there pertinent covenants? NA

Where will stormwater be discharged? NA

(Continued *Major Subdivision Plan* application Tax Map: _____ Lot: _____ Zone _____)

Wetlands: Is any fill proposed? NO ; area to be filled: NA ; buffer impact? NA

Comments

Please feel free to add any comments, additional information, or requests for waivers here:

_____

_____

_____

Submission of application

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

I(we) hereby submit this Subdivision application to the City of Rochester Planning Board pursuant to the City of Rochester Subdivision Regulations and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity.

Signature of property owner: [signature]

Date: 6/15/15

Signature of applicant/developer: [signature]

Date: 6/15/15

Signature of agent: _____

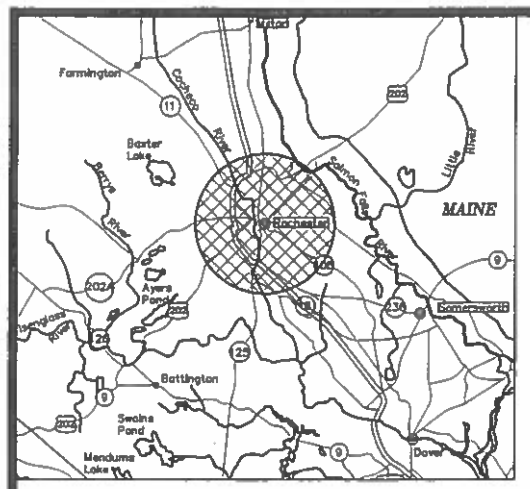
Date: _____

Authorization to enter subject property

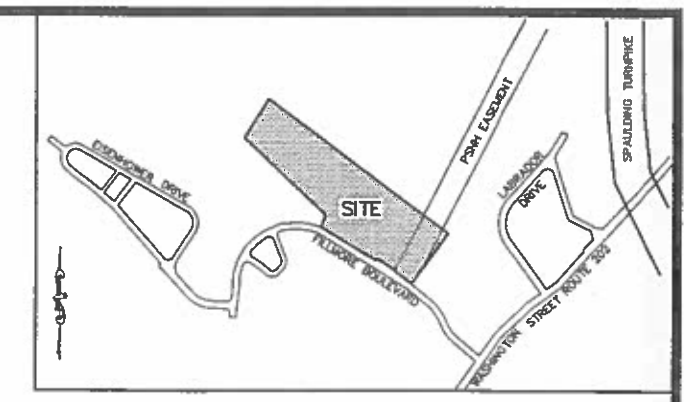
I hereby authorize members of the Rochester Planning Board, Zoning Board of Adjustment, Conservation Commission, Planning Department, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections during the application phase, review phase, post-approval phase, construction phase, and occupancy phase. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property.

Signature of property owner: [signature]

Date: 6/15/15



VICINITY PLAN
NOT TO SCALE



VICINITY MAP
SCALE: 1" = 800'±

RESIDENTIAL SUBDIVISION & SITE PLAN

THE TOWNHOMES AT HIGHFIELD COMMONS – PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE

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OWNER/APPLICANT:
183 WASHINGTON STREET, LLC
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NEW HAMPSHIRE 03054

PROJECT MANAGER:
HILLSIDE DESIGN GROUP, LLC
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
(603) 424-1132

PREPARED BY: (CIVIL ENGINEER)
KEACH-NORDSTROM ASSOCIATES, INC.
10 COMMERCE PARK NORTH, SUITE 3
BEDFORD, NEW HAMPSHIRE 03110
(603) 627-2881

PROJECT SURVEYOR (BOUNDARY & TOPOGRAPHY):
JOSEPH M. WICHERT, LLS, INC.
802 AMHERST STREET
MANCHESTER, NH 03104-5427
(603) 647-4282

PROJECT SURVEYOR (LIMITED TOPOGRAPHY):
KEACH-NORDSTROM ASSOCIATES, INC.
10 COMMERCE PARK NORTH, SUITE 3
BEDFORD, NEW HAMPSHIRE 03110
(603) 627-2881

PROJECT ENVIRONMENTAL CONSULTANT:
STONEY RIDGE ENVIRONMENTAL, LLC.
229 PROSPECT MOUNTAIN ROAD
ALTON, NH 03809
(603) 776-0194

DIG SAFE

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

JUNE 16, 2015

PROJECT NO. 12-1212-1

SHEET TITLE	SHEET No.
OVERVIEW SUBDIVISION & SITE PLAN	1
EXISTING CONDITIONS PLAN	2
SUBDIVISION PLAN	3 – 4
TOPOGRAPHIC SUBDIVISION PLAN	5 – 6
RESIDENTIAL SITE LAYOUT PLAN	7
GRADING AND DRAINAGE PLAN	8
EROSION CONTROL PLAN	9
UTILITY PLAN	10
LANDSCAPE PLAN	11
LIGHTING PLAN	12
ROADWAY & SEWER PROFILE (MONROE DRIVE)	13
DRAINAGE PROFILES	14
CONSTRUCTION DETAILS	15 – 22

REFERENCE PLANS:

1. "REVISED SUBDIVISION PLAN OF HIGHFIELD COMMONS – PHASE 1, OWNED BY 183 WASHINGTON STREET, LLC, TAX MAP 237 LOTS 8 & 3, WASHINGTON STREET (ROUTE 202), HUSSEY HILL ROAD AND BICKFORD ROAD, ROCHESTER, NEW HAMPSHIRE", DATED JUNE 30, 2010, LAST REVISED 9/30/10, PREPARED BY JOSEPH M. WICHERT, LLS, INC. SEE SCRD PLANS 100-58 THROUGH 100-64.
2. "RESIDENTIAL SITE PLAN, HIGHFIELD PLACE, MAP 237; LOT 8-1; 59 FILLMORE BOULEVARD, ROCHESTER, NEW HAMPSHIRE, STRAFFORD COUNTY," DATED: FEBRUARY 18, 2013, WITH REVISIONS THROUGH 06/27/13, PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC. (20 SHEETS)
3. "RESIDENTIAL SITE PLAN, THE TOWNHOMES AT HIGHFIELD COMMONS – PHASE 2B, MAP 237; LOT 8-1; 59 FILLMORE BOULEVARD, ROCHESTER, NEW HAMPSHIRE, STRAFFORD COUNTY," DATED: JUNE 9, 2014, WITH REVISIONS THROUGH 05/27/15, PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC. (17 SHEETS)

APPROVED BY THE ROCHESTER PLANNING BOARD ON ______ DATE

SIGNED BY ______ NAME , ______ POSITION

DIG SAFE

OWNER OF MAP 237 LOT 8-1

SIGNATURE: [signature] FOR 183 WASHINGTON STREET, LLC

DATE: 6/11/15

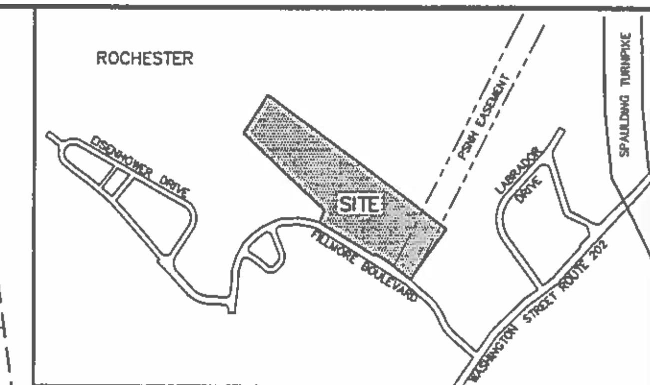
THIS IS TO CERTIFY THAT THE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (TECHNICAL REPORT Y-87-1)

WETLAND DELINEATION PREPARED BY:

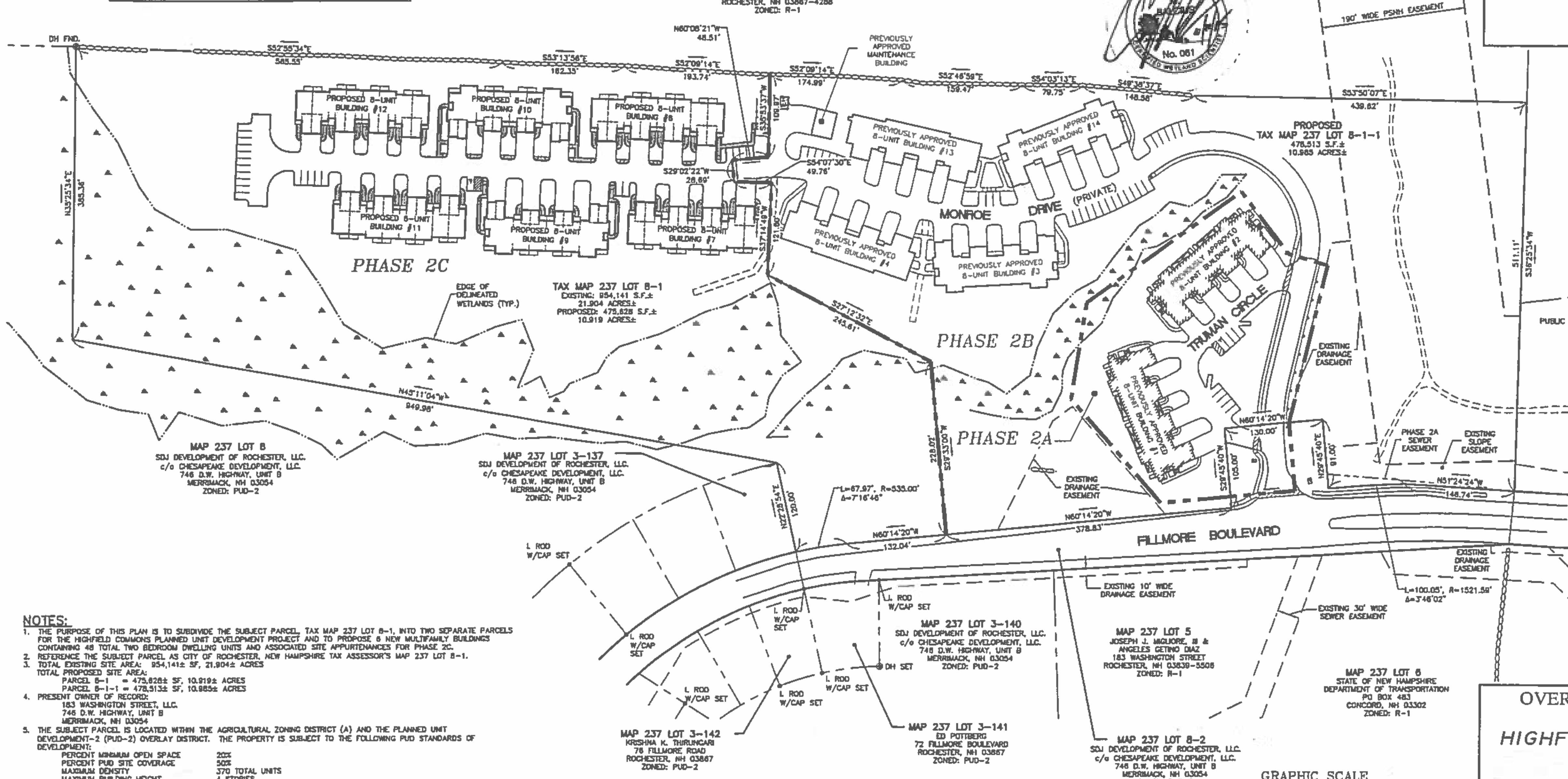
[signature] 6/12/15

CYNTHIA A. BALCIUS DATE

CERTIFIED WETLAND SCIENTIST (#61)



VICINITY MAP
SCALE: 1" = 800'±



LEGEND

▲ RRS-TBS	RAILROAD SPIKE TO BE SET
☐ GB FND.	GRANITE BOUND FOUND
■ GB TBS	GRANITE BOUND TO BE SET
⊙ IPIN FND.	IRON PIN FOUND
● IPIN TBS	IRON PIN TO BE SET
◎ DH FND.	DRILL HOLE FOUND
◎ DH TBS	DRILL HOLE TO BE SET
	ABUTTER LINE
	PROPERTY LINE
	WETLAND
	TREELINE
	EDGE OF PAVEMENT
	EDGE OF GRAVEL
	STONEWALL
	EASEMENT
	PHASE LINE
	PROPOSED TREELINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED EASEMENT LINE

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SUBDIVIDE THE SUBJECT PARCEL, TAX MAP 237 LOT 8-1, INTO TWO SEPARATE PARCELS FOR THE HIGHFIELD COMMONS PLANNED UNIT DEVELOPMENT PROJECT AND TO PROPOSE 6 NEW MULTIFAMILY BUILDINGS CONTAINING 48 TOTAL TWO BEDROOM DWELLING UNITS AND ASSOCIATED SITE APPURTENANCES FOR PHASE 2C.
2. REFERENCE THE SUBJECT PARCEL AS CITY OF ROCHESTER, NEW HAMPSHIRE TAX ASSESSOR'S MAP 237 LOT 8-1.
3. TOTAL EXISTING SITE AREA: 954,141± SF, 21.904± ACRES
   TOTAL PROPOSED SITE AREA:
   PARCEL 8-1 = 475,628± SF, 10.919± ACRES
   PARCEL 8-1-1 = 478,513± SF, 10.985± ACRES
4. PRESENT OWNER OF RECORD:
   183 WASHINGTON STREET, LLC.
   746 D.W. HIGHWAY, UNIT B
   MERRIMACK, NH 03054
5. THE SUBJECT PARCEL IS LOCATED WITHIN THE AGRICULTURAL ZONING DISTRICT (A) AND THE PLANNED UNIT DEVELOPMENT-2 (PUD-2) OVERLAY DISTRICT. THE PROPERTY IS SUBJECT TO THE FOLLOWING PUD STANDARDS OF DEVELOPMENT:
   PERCENT MINIMUM OPEN SPACE 20%
   PERCENT PUD SITE COVERAGE 50%
   MAXIMUM DENSITY 370 TOTAL UNITS
   MAXIMUM BUILDING HEIGHT 4 STORIES
6. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON AN ACTUAL FIELD SURVEY PERFORMED BY JOSEPH M. WICHERT LLS, INC. BETWEEN 2003 AND FEBRUARY 2013. THE COORDINATE SYSTEM AND BEARINGS ARE BASED ON A TIE INTO THE CITY OF ROCHESTER GIS SYSTEM, USING GPS OBSERVATION PERFORMED BY JOSEPH M. WICHERT LLS, INC.
7. TOPOGRAPHIC INFORMATION IS TAKEN FROM AN AERIAL SURVEY PREPARED BY SANBORN MAP CO., INC. ON MAY 5, 2002 AND FIELD SURVEY PERFORMED BY JOSEPH M. WICHERT LLS, INC. IN JANUARY AND FEBRUARY OF 2013. TOPOGRAPHIC INFORMATION FOR PHASE 2C WAS TAKEN FROM A FIELD SURVEY PERFORMED BY KEACH-NORDSTROM ASSOCIATES, INC. IN MAY 2015.
8. THE WETLANDS WERE ORIGINALLY DELINEATED IN JUNE 2002 AND AGAIN IN DECEMBER 2003 BY MICHAEL SERAIKAS, CWS #9. SOME OF THE WETLANDS WERE RE-FLAGGED BY CINDY BALCIUS, CWS #61 OF STONEY RIDGE ENVIRONMENTAL, LLC. IN 2013 AND FIELD LOCATED BY JOSEPH M. WICHERT LLS, INC.
9. EXAMINATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) FOR THE CITY OF ROCHESTER, NEW HAMPSHIRE, STRAFFORD COUNTY, MAP NUMBER 33017C0195D, PANEL NUMBER 195 OF 405, EFFECTIVE DATE: MAY 17, 2005, INDICATES THAT THE SUBJECT PARCEL IS LOCATED WITHIN ZONE X.
10. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
11. EXISTING UTILITY INFORMATION IS APPROXIMATE AND SHOULD BE VERIFIED BY THE SITE CONTRACTOR BEFORE ANY STRUCTURES OR PIPES ARE ORDERED.
12. LOT IS SERVICED BY MUNICIPAL SEWER AND WATER UTILITIES.
13. PARKING CALCULATIONS:
   REQUIRED: 2 SPACES/UNIT = 48 UNITS x 2 = 96 SPACES REQUIRED
   PROPOSED: 2 SPACES/UNIT (1 GARAGE SPACE + 1 STACKED SPACE) + 23 VISITOR SPACES
   = 119 SPACES PROVIDED (INCLUDES 1 HANDICAP SPACE)
14. ALL WORK TO BE DONE IN CONFORMANCE WITH THE CITY OF ROCHESTER REGULATIONS. ALL ROAD, STRUCTURES, AND DRAINAGE TO MEET CITY OF ROCHESTER SPECIFICATIONS.
15. PLOWED SNOW FROM THE FACILITIES, DRIVEWAY, PARKING LOTS, AND SIDEWALK SHALL BE STORED IN THE DESIGNATED AREAS SHOWN IN THIS PLAN SET. WHEN THE SNOW STORAGE AREAS ARE AT CAPACITY, SUBSEQUENT SNOW SHALL BE HAULED OFF-SITE AND DISPOSED OF IN AN ENVIRONMENTALLY SOUND FASHION IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
16. SEE ARCHITECTURAL PLANS FOR WALKWAYS AND OTHER FEATURES AT THE BUILDINGS. CONTRACTOR TO PERFORM THIS WORK AS DIRECTED BY THE OWNER.
17. IT IS THE RESPONSIBILITY OF THE CONDOMINIUM ASSOCIATION TO FLUSH AND MAINTAIN THE WATER SYSTEM SERVING THE DEVELOPMENT.
18. MONUMENTATION SHALL BE PROVIDED IN ACCORDANCE WITH RSR 6.1.

NOTES (CONTINUED):

19. SURETIES AND INSPECTION FEES SHALL BE ESTABLISHED AS OUTLINED IN RSR 6.7.
20. CONTRACTORS AND SUBCONTRACTORS SHALL MAINTAIN THE SITE IN ACCORDANCE WITH THE NPDES CONSTRUCTION GENERAL PERMIT AND ASSOCIATED SWPPP THROUGHOUT THE DURATION OF CONSTRUCTION (PREPARED BY OTHERS).
21. MONROE DRIVE IS SPECIFICALLY DESIGNED AND INTENDED TO BE A PRIVATE ROAD.
22. PRIOR TO RELEASE OF SURETY AND INSPECTION FUNDS, AN AS-BUILT PLAN SHALL BE REVIEWED AND APPROVED BY THE CITY. AS-BUILT PLANS SHOULD INCLUDE THE FOLLOWING:
   - WATER AND SEWER MAIN LOCATIONS, SIZE, AND MATERIALS;
   - DRAINAGE PIPE LOCATION, SIZE, AND MATERIALS;
   - UTILITY CONNECTION POINTS AT BUILDINGS;
   - PROPERTY AND RIGHT-OF-WAY LINES;
   - EASEMENTS WITH BENEFICIARIES;
   - WETLANDS AND WETLAND BUFFERS;
   - SPOT ELEVATIONS;
   - PARKING SPACES WITH STRIPING, SIGN LOCATIONS, SIDEWALKS, AND BUILDINGS;
   - ROUGH OVERVIEW OF LANDSCAPING;
   - FOR ANY WORK WITHIN A CITY ROAD, RIGHT-OF-WAY, OR FUTURE RIGHT-OF-WAY, AS-BUILT PLANS SHALL INCLUDE ACCURATE SEWER AND DRAINAGE STRUCTURE RIMS AND INVERTS;
   - WATER CURB STOP LOCATIONS WITH SWING TIES FOR FUTURE REFERENCE; AND
   - SEWER CLEANOUTS WITH SWING TIES FOR FUTURE REFERENCE.
22. THE FOLLOWING STATE PERMITS ARE REQUIRED FOR THIS PROJECT:

PHASE	TYPE	STATUS	PERMIT NO.	EXPIRATION
2A	NHDES AOT	APPROVED	AOT-0569	06/26/2016
2B	NHDES AOT	APPROVED	AOT-0799	09/09/2019
2C	NHDES AOT	PENDING	----	----

23. IN ACCORDANCE WITH ENV-WQ 1503.21, THE OWNER SHALL COMPLETE AND FILE AN NHDES START OF CONSTRUCTION FORM. SIMILARLY, THE OWNER WILL ALSO FILE ADDITIONAL REQUIRED NHDES STANDARD PROJECT DOCUMENTATION.
24. FOR MORE INFORMATION ABOUT THIS PLAN, OR TO SEE A COMPLETE PLAN SET, CONTACT THE CITY OF ROCHESTER PLANNING DEPARTMENT, 31 WAKEFIELD STREET, ROCHESTER, NH 03867, (603) 335-1338.

GRAPHIC SCALE

(IN FEET)
1 inch = 80 ft.

NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND, THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.

[signature] 6-12-15

DATE

STATE OF NEW HAMPSHIRE — PATRICK R. COLBURN No. 12888 — LICENSED PROFESSIONAL ENGINEER 6/12/15

STATE OF NEW HAMPSHIRE — MICHAEL R. DAHLBERG No. 714 — LICENSED LAND SURVEYOR

OVERVIEW SUBDIVISION & SITE PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453

APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

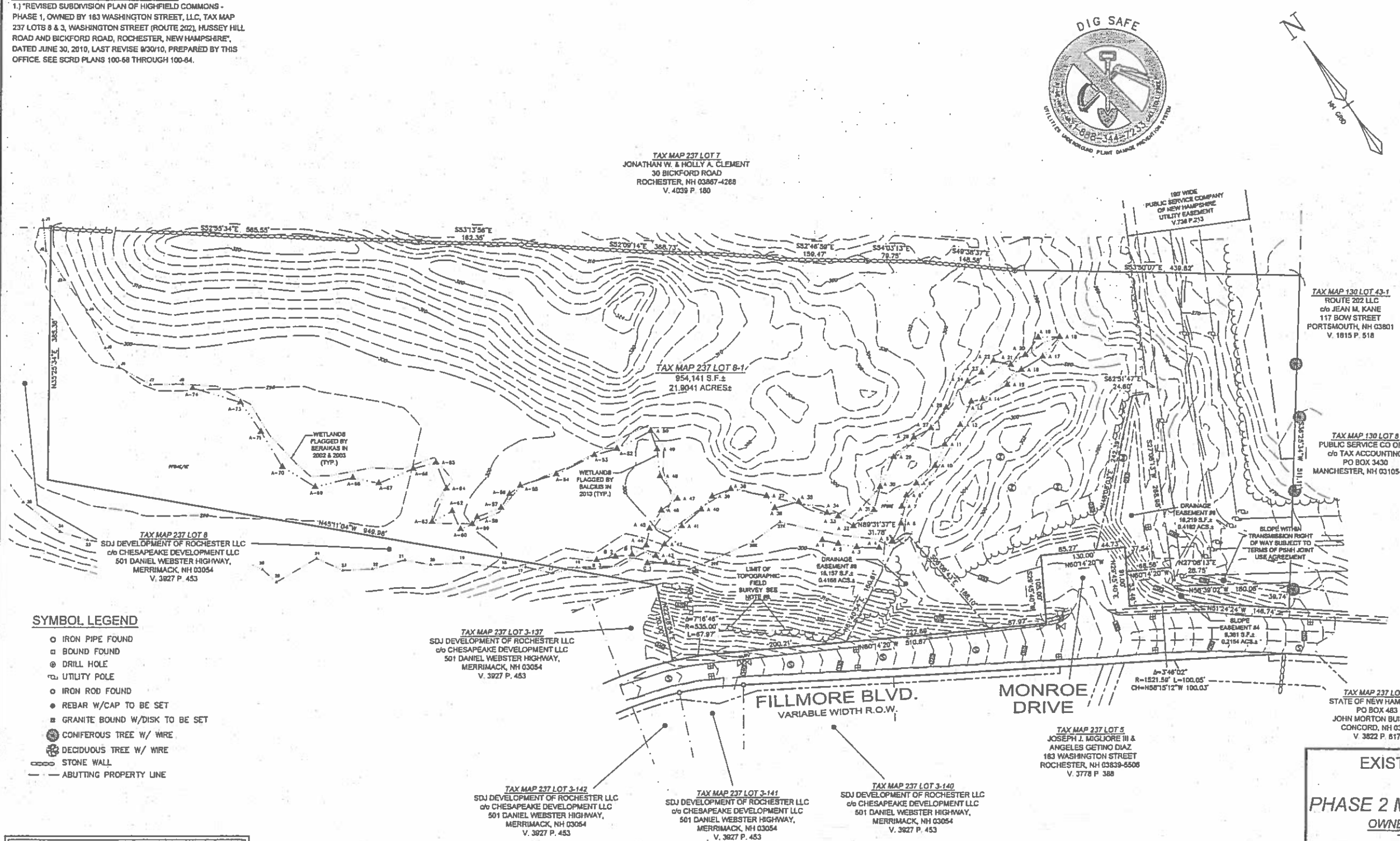
REVISIONS

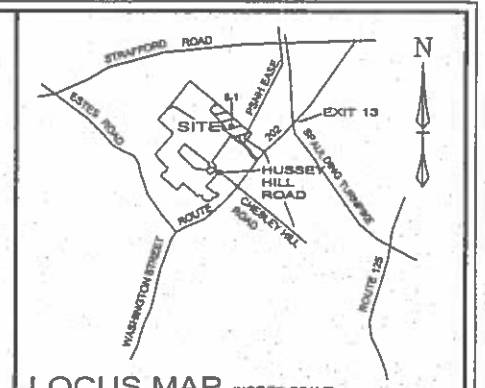
No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: 1" = 80'
PROJECT NO: 12-1212-1 | SHEET 1 OF 22

PLAN REFERENCES:

1.) "REVISED SUBDIVISION PLAN OF HIGHFIELD COMMONS - PHASE 1, OWNED BY 183 WASHINGTON STREET, LLC, TAX MAP 237 LOTS 8 & 3, WASHINGTON STREET (ROUTE 202), HUSSEY HILL ROAD AND BICKFORD ROAD, ROCHESTER, NEW HAMPSHIRE", DATED JUNE 30, 2010, LAST REVISE 9/30/10, PREPARED BY THIS OFFICE. SEE SCRD PLANS 100-68 THROUGH 100-84.





LOCUS MAP (NOT TO SCALE)

NOTES:

1.) THE SUBJECT PARCEL IS LOT 8-1 ON THE CITY OF ROCHESTER TAX MAP 237. THE OWNER OF RECORD IS 183 WASHINGTON STREET, LLC c/o CHESAPEAKE DEVELOPMENT LLC OF 501 DANIEL WEBSTER HIGHWAY, MERRIMACK, NEW HAMPSHIRE 03054. SEE SCRD V. 3743 P. 558.

2.) THE SUBJECT PARCEL IS ZONED PUD #2 AS APPROVED BY THE ROCHESTER PLANNING BOARD ON JANUARY 7, 2003 AND AS AMENDED. SEE OVERALL PUD NOTICE OF DECISION FOR DETAIL REQUIREMENTS.

3.) THIS PLAN IS THE RESULT OF AN ACTUAL FIELD SURVEYS PERFORMED BY THIS OFFICE BETWEEN 2003 AND FEBRUARY 2013. I, JOSEPH M. WICHERT, NHLLS #783, CERTIFY THAT THE WORK WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.

4.) THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY OF THE SUBJECT PARCEL AND THE EXISTING CONDITIONS ON IT.

5.) THE COORDINATE SYSTEM AND BEARINGS ARE BASED ON A TIE INTO THE CITY OF ROCHESTER GIS SYSTEM, USING GPS OBSERVATIONS.

6.) THE TOPOGRAPHY IS TAKEN FROM AN AERIAL SURVEY PREPARED BY SANBORN MAP CO., INC, 38 KARLAN DRIVE, ROCHESTER, NY. DATE OF PHOTOGRAPHY : MAY 5, 2002, EXCEPT FOR THE PORTIONS OF THE SUBJECT PARCEL FIELD SURVEYED BY THIS OFFICE IN JANUARY AND FEBRUARY OF 2013. SEE PLAN FOR LOCATION OF FIELD SURVEY.

6.) THE WETLANDS WERE ORIGINALLY DELINEATED IN JUNE, 2002 AND AGAIN IN DECEMBER, 2003 BY MICHAEL SERAIKAS, CWS #9. WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE DOCUMENT ENTITLED "CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, JANUARY 1987". THE WETLANDS WERE CLASSIFIED IN ACCORDANCE WITH THE DOCUMENT ENTITLED "CLASSIFICATION OF WETLAND AND DEEP WATER HABITATS OF THE UNITED STATES", (COWARDIN, 1979). SOME THE WETLANDS WERE RE-FLAGGED BY CINDY BALCIUS, CWS #61, OF STONEY RIDGE ENVIRONMENTAL LLC. IN 2013 AND FIELD LOCATED BY THIS OFFICE. SEE PLAN VIEW FOR DESIGNATION OF OLD AND NEW FLAG LINES.

SYMBOL LEGEND

- IRON PIPE FOUND
- BOUND FOUND
- DRILL HOLE
- UTILITY POLE
- IRON ROD FOUND
- REBAR W/CAP TO BE SET
- GRANITE BOUND W/DISK TO BE SET
- CONIFEROUS TREE W/ WIRE
- DECIDUOUS TREE W/ WIRE
- STONE WALL
- ABUTTING PROPERTY LINE

GRAPHIC SCALE

(IN FEET)
1 inch = 80 ft.

I CERTIFY THAT THIS PLAN IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE WITH A TOPCON GPT 3103W. THE ERROR OF CLOSURE ON ALL LOT LINES WITHIN AND BORDERING THE SUBJECT PROPERTY IS BETTER THAN 1 IN 10,000.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

I HEREBY CERTIFY THAT A COPY OF THIS PLAN HAS BEEN FILED WITH THE ROCHESTER PLANNING BOARD IN ACCORDANCE WITH RSA 676:18(IV).

27 JUNE 2013
DATE

STATE OF NEW HAMPSHIRE No. 783 JOSEPH M. WICHERT LICENSED LAND SURVEYOR
SIGNATURE

COPYRIGHT 2013 JOSEPH M. WICHERT, L.L.S., INC.

NO.	DATE	DESCRIPTION	BY
2	6/27/13	REVISE PROJECT NAME	SNK
1	3/29/13	UPDATE DETAIL	SNK

EXISTING CONDITIONS PLAN FOR "HIGHFIELD PLACE" PHASE 2 MULTI-FAMILY DEVELOPMENT

OWNED BY 183 WASHINGTON STREET, LLC

TAX MAP 237 LOTS 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE

DATE: FEBRUARY 22, 2013 SCALE: 1" = 80'

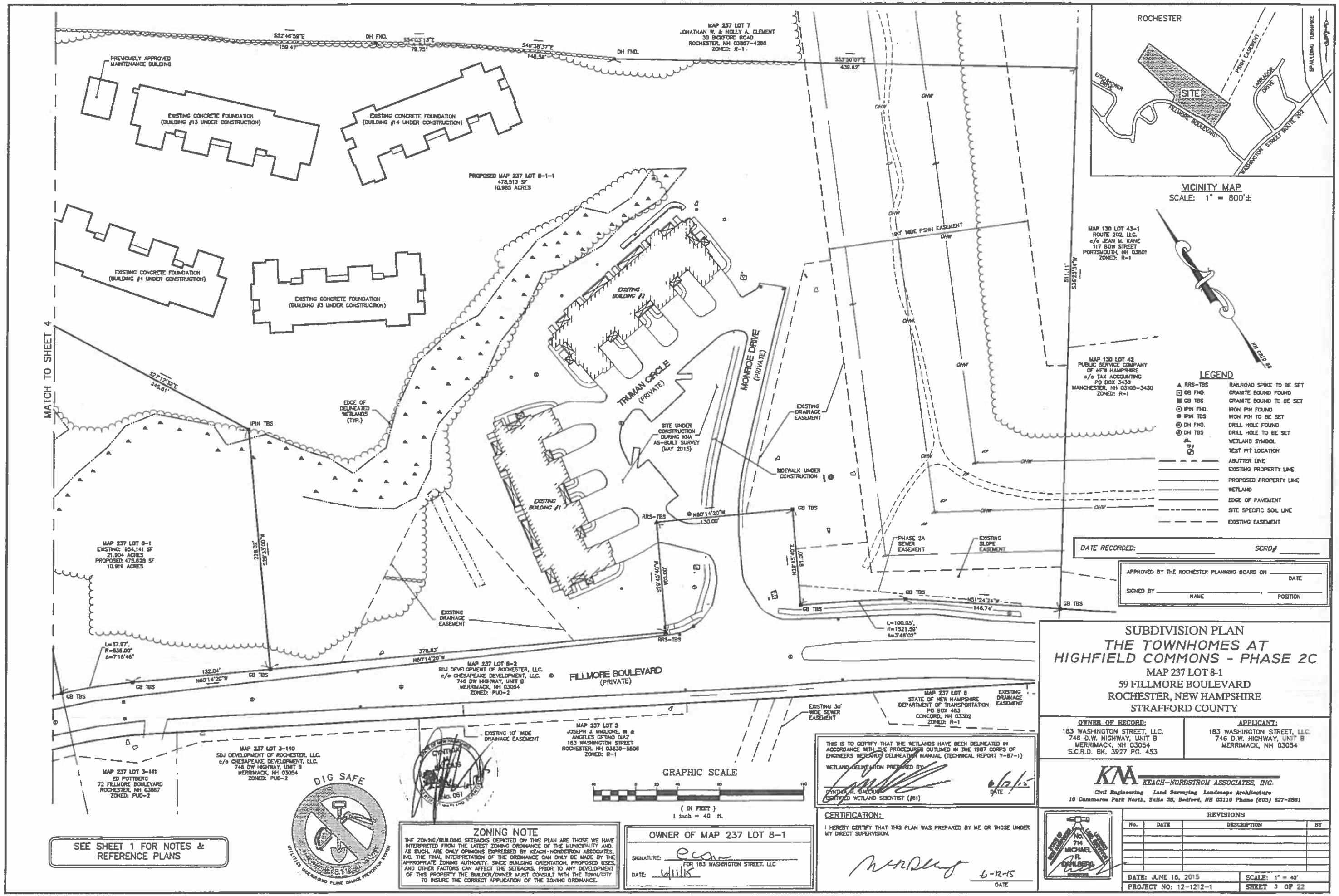
SURVEY PLAN BY:

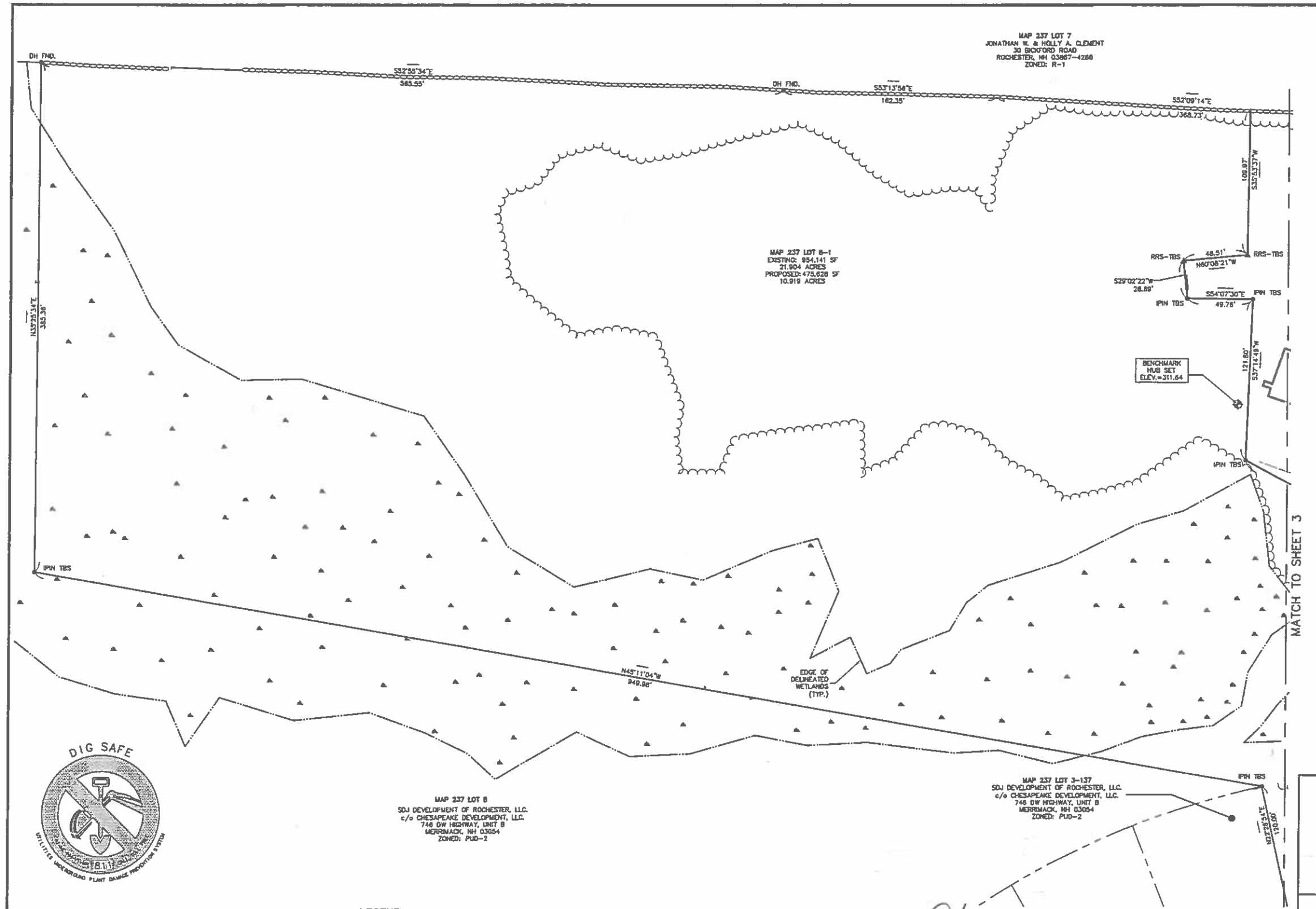
802 AMHERST STREET
MANCHESTER, NH 03104
TEL: (603) 647-4282 OR 736-8203
FAX: (603) 623-1910
WEB: WWW.JMWLLS.COM

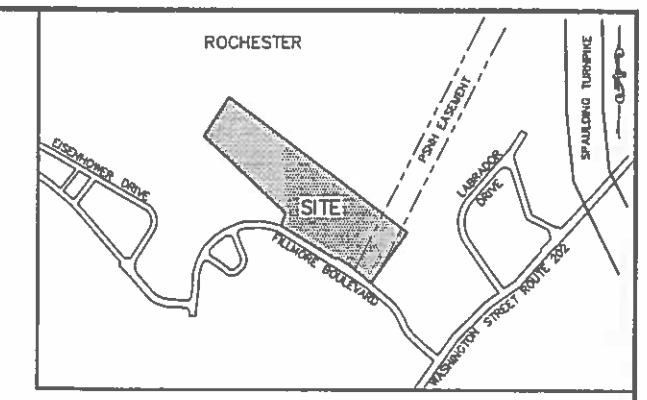
Joseph M. Wichert LLS, INC

LAND SURVEYOR & SEPTIC SYSTEM DESIGNER

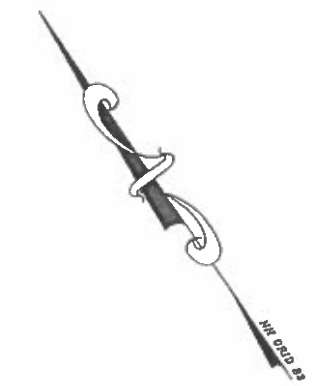
SHEET S1 SHEET 1 OF 1 F.B. P. JOB #2003150


MATCH TO SHEET 4
PREVIOUSLY APPROVED MAINTENANCE BUILDING
EXISTING CONCRETE FOUNDATION (BUILDING #13 UNDER CONSTRUCTION)
EXISTING CONCRETE FOUNDATION (BUILDING #14 UNDER CONSTRUCTION)
EXISTING CONCRETE FOUNDATION (BUILDING #4 UNDER CONSTRUCTION)
EXISTING CONCRETE FOUNDATION (BUILDING #3 UNDER CONSTRUCTION)
PROPOSED MAP 237 LOT 8-1-1
478,513 SF
10.985 ACRES
MAP 237 LOT 7
JONATHAN W. & HOLLY A. CLEMENT
30 BICKFORD ROAD
ROCHESTER, NH 03867-4286
ZONED: R-1
S52°46'59"E
159.41'
DH FND.
S54°03'13"E
79.75'
S48°38'37"E
148.58'
DH FND.
S53°30'07"E
439.62'
190' WIDE PSNH EASEMENT
MAP 130 LOT 43-1
ROUTE 202, LLC.
c/o JEAN M. KANE
117 BOW STREET
PORTSMOUTH, NH 03801
ZONED: R-1
S36°23'34"W
811.11'
MAP 130 LOT 42
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
c/o TAX ACCOUNTING
PO BOX 3430
MANCHESTER, NH 03105-3430
ZONED: R-1
EXISTING BUILDING #2
TRUMAN CIRCLE (PRIVATE)
MONROE DRIVE (PRIVATE)
EXISTING BUILDING #1
EDGE OF DELINEATED WETLANDS (TYP.)
IPIN TBS
S27°12'32"E
245.61'
SITE UNDER CONSTRUCTION DURING KNA AS-BUILT SURVEY (MAY 2015)
EXISTING DRAINAGE EASEMENT
SIDEWALK UNDER CONSTRUCTION
RRS-TBS
N60°14'20"W
130.00'
GB TBS
L=100.00'
S29°45'40"E
L=100.18'
N29°45'40"W
PHASE 2A SEWER EASEMENT
EXISTING SLOPE EASEMENT
N51°24'24"W
146.74'
L=100.05'
R=1521.50'
Δ=3°46'02"
MAP 237 LOT 8-1
EXISTING: 954,141 SF
21.904 ACRES
PROPOSED: 475,628 SF
10.919 ACRES
N03°13'53"E
228.02'
EXISTING DRAINAGE EASEMENT
L=67.97'
R=535.00'
Δ=7°16'46"
378.83'
N60°14'20"W
132.04'
N60°14'20"W
MAP 237 LOT 8-2
SDJ DEVELOPMENT OF ROCHESTER, LLC.
c/o CHESAPEAKE DEVELOPMENT, LLC.
746 DW HIGHWAY, UNIT B
MERRIMACK, NH 03054
ZONED: PUD-2
FILLMORE BOULEVARD (PRIVATE)
MAP 237 LOT 8
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
PO BOX 483
CONCORD, NH 03302
ZONED: R-1
EXISTING DRAINAGE EASEMENT
EXISTING 30' WIDE SEWER EASEMENT
EXISTING 10' WIDE DRAINAGE EASEMENT
MAP 237 LOT 5
JOSEPH J. MIGLIORE, III & ANGELES GETINO DIAZ
183 WASHINGTON STREET
ROCHESTER, NH 03839-5506
ZONED: R-1
MAP 237 LOT 3-140
SDJ DEVELOPMENT OF ROCHESTER, LLC.
c/o CHESAPEAKE DEVELOPMENT, LLC.
746 DW HIGHWAY, UNIT B
MERRIMACK, NH 03054
ZONED: PUD-2
MAP 237 LOT 3-141
ED POTTBERG
72 FILLMORE BOULEVARD
ROCHESTER, NH 03867
ZONED: PUD-2
DIG SAFE
811
UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
STATE OF NEW HAMPSHIRE
CYNTHIA A. BALSUNE
No. 061
CERTIFIED WETLAND SCIENTIST
GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.
ROCHESTER
SITE
PSNH EASEMENT
LABRADOR DRIVE
SPAULDING TURNPIKE
EXPEDITIONER DRIVE
FILLMORE BOULEVARD
WASHINGTON STREET ROUTE 202
VICINITY MAP
SCALE: 1" = 800'±
NH GRID NS
LEGEND
RRS-TBS RAILROAD SPIKE TO BE SET
GB FND. GRANITE BOUND FOUND
GB TBS GRANITE BOUND TO BE SET
IPIN FND. IRON PIN FOUND
IPIN TBS IRON PIN TO BE SET
DH FND. DRILL HOLE FOUND
DH TBS DRILL HOLE TO BE SET
WETLAND SYMBOL
TEST PIT LOCATION
ABUTTER LINE
EXISTING PROPERTY LINE
PROPOSED PROPERTY LINE
WETLAND
EDGE OF PAVEMENT
SITE SPECIFIC SOIL LINE
EXISTING EASEMENT
DATE RECORDED: SCRD#
APPROVED BY THE ROCHESTER PLANNING BOARD ON DATE
SIGNED BY NAME POSITION
SEE SHEET 1 FOR NOTES & REFERENCE PLANS
ZONING NOTE
THE ZONING/BUILDING SETBACKS DEPICTED ON THIS PLAN ARE THOSE WE HAVE INTERPRETED FROM THE LATEST ZONING ORDINANCE OF THE MUNICIPALITY AND, AS SUCH, ARE ONLY OPINIONS EXPRESSED BY KEACH-NORDSTROM ASSOCIATES, INC. THE FINAL INTERPRETATION OF THE ORDINANCE CAN ONLY BE MADE BY THE APPROPRIATE ZONING AUTHORITY. SINCE BUILDING ORIENTATION, PROPOSED USES, AND OTHER FACTORS CAN AFFECT THE SETBACKS, PRIOR TO ANY DEVELOPMENT OF THIS PROPERTY THE BUILDER/OWNER MUST CONSULT WITH THE TOWN/CITY TO INSURE THE CORRECT APPLICATION OF THE ZONING ORDINANCE.
OWNER OF MAP 237 LOT 8-1
SIGNATURE: FOR 183 WASHINGTON STREET, LLC
DATE: 6/11/15
THIS IS TO CERTIFY THAT THE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (TECHNICAL REPORT Y-87-1)
WETLAND DELINEATION PREPARED BY:
CYNTHIA A. BALSUNE
CERTIFIED WETLAND SCIENTIST (#61)
6/9/15
DATE
CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.
6-12-15
DATE
STATE OF NEW HAMPSHIRE
No. 714
MICHAEL J. R. DAHLBERG
LICENSED LAND SURVEYOR
SUBDIVISION PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C
MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY
OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453
APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881
REVISIONS
No. DATE DESCRIPTION BY
DATE: JUNE 16, 2015
SCALE: 1" = 40'
PROJECT NO: 12-1212-1
SHEET 3 OF 22





VICINITY MAP
SCALE: 1" = 800'±



DATE RECORDED: _____ SCRD# _____

APPROVED BY THE ROCHESTER PLANNING BOARD ON _____ DATE

SIGNED BY _____ NAME _____ POSITION

DIG SAFE

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

SEE SHEET 1 FOR NOTES & REFERENCE PLANS

LEGEND

RRS-TBS	RAILROAD SPIKE TO BE SET
GB FND.	GRANITE BOUND FOUND
GB TBS	GRANITE BOUND TO BE SET
IPIN FND.	IRON PIN FOUND
IPIN TBS	IRON PIN TO BE SET
DH FND.	DRILL HOLE FOUND
DH TBS	DRILL HOLE TO BE SET
	WETLAND SYMBOL
TP	TEST PIT LOCATION
	ABUTTER LINE
	EXISTING PROPERTY LINE
	PROPOSED PROPERTY LINE
	WETLAND
	EDGE OF PAVEMENT
	SITE SPECIFIC SOIL LINE
	EXISTING EASEMENT

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

ZONING NOTE

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OWNER OF MAP 237 LOT 8-1

SIGNATURE: _____

FOR 183 WASHINGTON STREET, LLC

DATE: 6/11/15

STATE OF NEW HAMPSHIRE CYNTHIA M. BARNES No. 081 CERTIFIED WETLAND SCIENTIST

THIS IS TO CERTIFY THAT THE WETLANDS HAVE BEEN DELINEATED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (TECHNICAL REPORT Y-87-1)

WETLAND DELINEATION PREPARED BY:

CYNTHIA M. BARNES
CERTIFIED WETLAND SCIENTIST (#81)

6/2/15
DATE

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.

6-12-15
DATE

STATE OF NEW HAMPSHIRE No. 714 MICHAEL R. DONAHUE PROFESSIONAL LAND SURVEYOR

SUBDIVISION PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

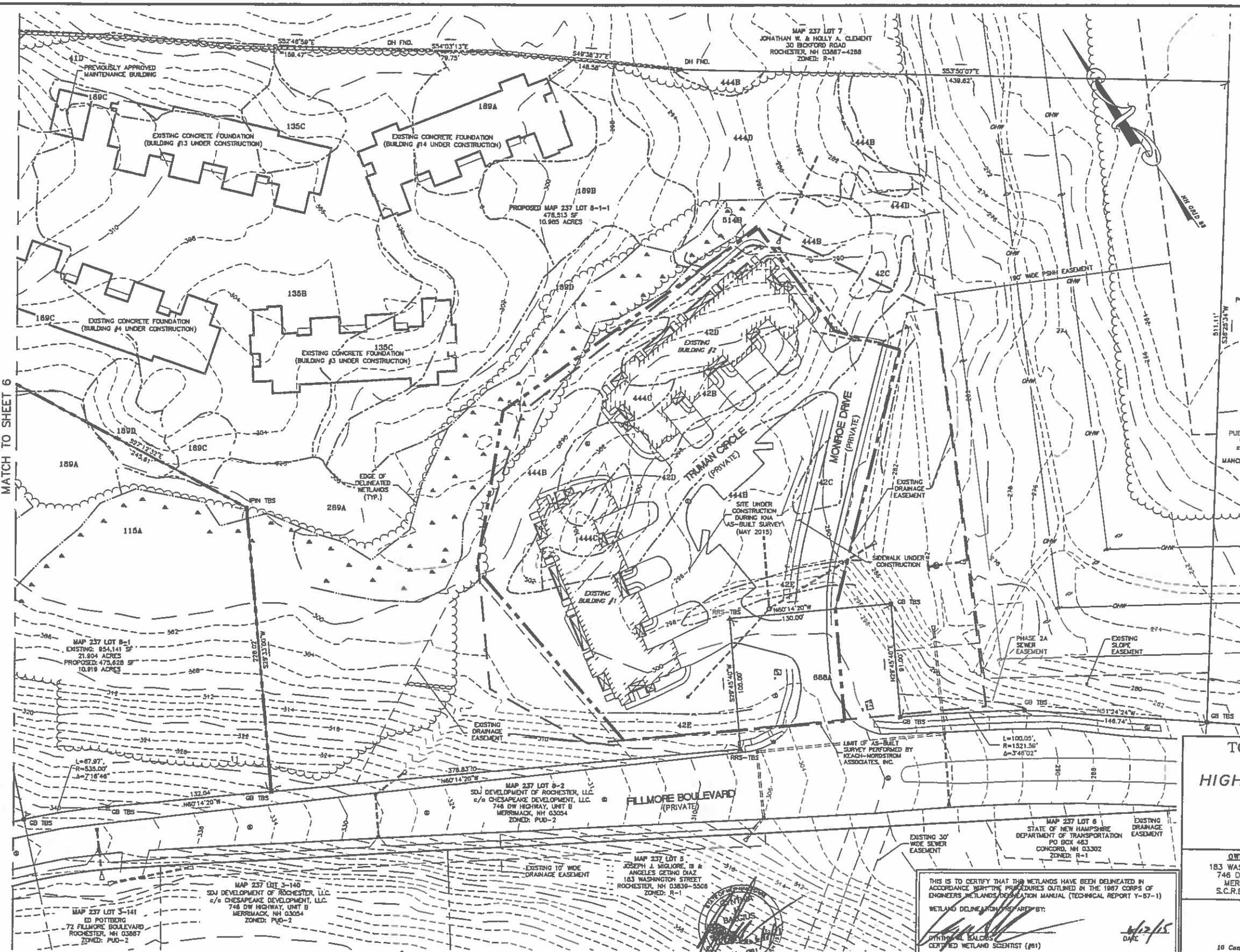
OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

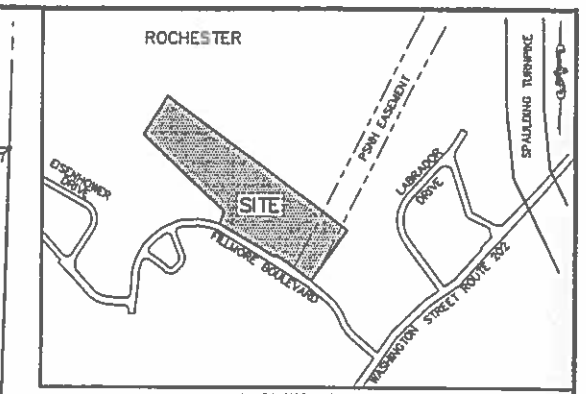
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: 1" = 40'
PROJECT NO: 12-1212-1 | SHEET 4 OF 22





VICINITY MAP
SCALE: 1" = 800'±

SEE SHEET 1 FOR NOTES & REFERENCE PLANS

SEE SHEET 6 FOR SITE SPECIFIC SOILS LEGEND

DIG SAFE

LEGEND

RRS-TBS	RAILROAD SPIKE TO BE SET
GB FND.	GRANITE BOUND FOUND
GB TBS	GRANITE BOUND TO BE SET
IPIN FND.	IRON PIN FOUND
IPIN TBS	IRON PIN TO BE SET
DH FND.	DRILL HOLE FOUND
DH TBS	DRILL HOLE TO BE SET
	WETLAND SYMBOL
TP	TEST PIT LOCATION
	ABUTTER LINE
	EXISTING PROPERTY LINE
	PROPOSED PROPERTY LINE
	WETLAND
	EDGE OF PAVEMENT
	SITE SPECIFIC SOIL LINE
	EXISTING EASEMENT
	10' CONTOUR
	2' CONTOUR
	LIMIT OF KNA SURVEY
	PHASE LINE

APPROVED BY THE ROCHESTER PLANNING BOARD ON _____ DATE

SIGNED BY _____ NAME _____ POSITION

TOPOGRAPHIC SUBDIVISION PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C
MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453

APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054

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WETLAND DELINEATION PREPARED BY:

CYNTHIA M. BALCUS
CERTIFIED WETLAND SCIENTIST (#81)

6/12/15
DATE

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

THE SITE-SPECIFIC SOIL MAPPING WAS PERFORMED BETWEEN APRIL 2013 & JUNE 2015 BY CYNTHIA M. BALCUS, CERTIFIED SOIL SCIENTIST #084, OF STONEY RIDGE ENVIRONMENTAL, LLC. IN ALTON, NEW HAMPSHIRE. THIS MAPPING WAS PERFORMED ACCORDING TO THE STANDARDS OF THE "SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT," VERSION 4.0, FEBRUARY 2011, PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, SPECIAL PUBLICATION NO. 3.

ZONING NOTE
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CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.

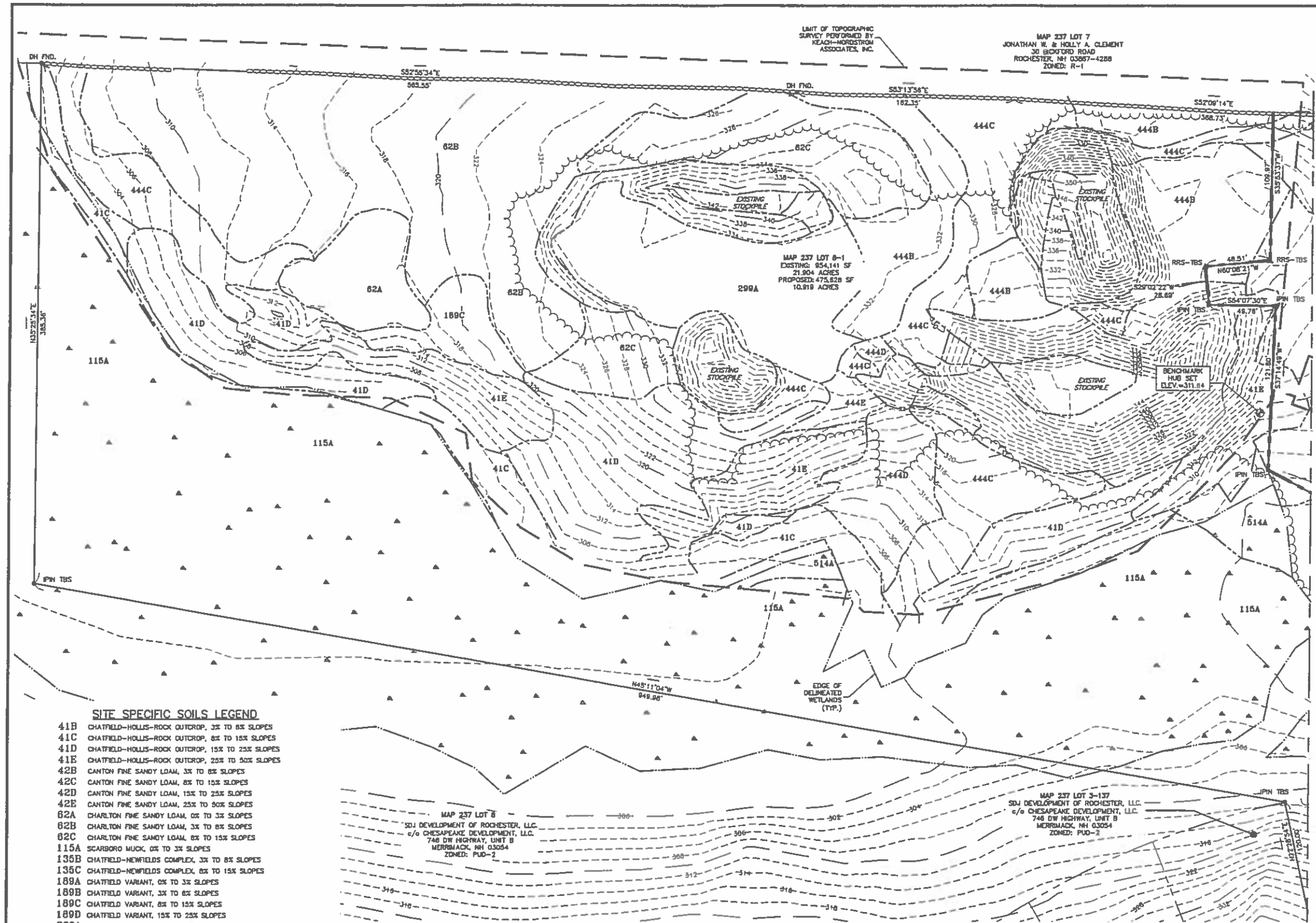
6-12-15
DATE

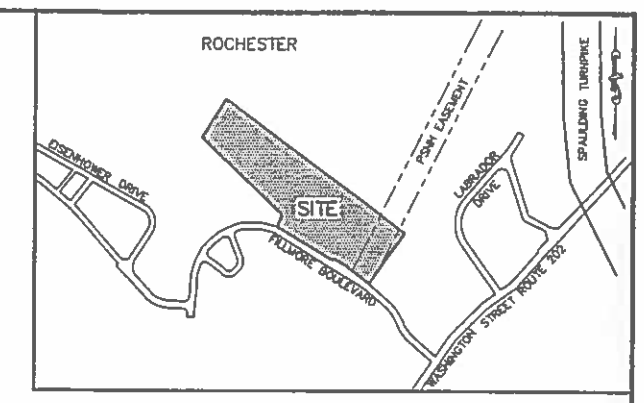
No. 714 MICHAEL R. DONAHER

REVISIONS

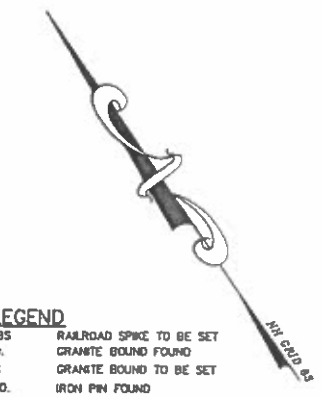
No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: 1" = 40'
PROJECT NO: 12-1212-1	SHEET 5 OF 22





VICINITY MAP
SCALE: 1" = 800'±



LEGEND

- RRS-TBS — RAILROAD SPIKE TO BE SET
- GB FND. — GRANITE BOUND FOUND
- GB TBS — GRANITE BOUND TO BE SET
- IPIN FND. — IRON PIN FOUND
- IPIN TBS — IRON PIN TO BE SET
- DH FND. — DRILL HOLE FOUND
- DH TBS — DRILL HOLE TO BE SET
- WETLAND SYMBOL
- TEST PIT LOCATION
- ABUTTER LINE
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- WETLAND
- EDGE OF PAVEMENT
- SITE SPECIFIC SOIL LINE
- EXISTING EASEMENT
- 10' CONTOUR
- 2' CONTOUR
- LIMIT OF KNA SURVEY
- PHASE LINE

APPROVED BY THE ROCHESTER PLANNING BOARD ON _____ DATE

SIGNED BY _____ NAME _____ POSITION

SITE SPECIFIC SOILS LEGEND

41B	CHATFIELD-HOLLIS-ROCK OUTCROP, 3% TO 8% SLOPES
41C	CHATFIELD-HOLLIS-ROCK OUTCROP, 8% TO 15% SLOPES
41D	CHATFIELD-HOLLIS-ROCK OUTCROP, 15% TO 25% SLOPES
41E	CHATFIELD-HOLLIS-ROCK OUTCROP, 25% TO 50% SLOPES
62B	CANTON FINE SANDY LOAM, 3% TO 8% SLOPES
62C	CANTON FINE SANDY LOAM, 8% TO 15% SLOPES
62D	CANTON FINE SANDY LOAM, 15% TO 25% SLOPES
62E	CANTON FINE SANDY LOAM, 25% TO 50% SLOPES
62A	CHARLTON FINE SANDY LOAM, 0% TO 3% SLOPES
62B	CHARLTON FINE SANDY LOAM, 3% TO 8% SLOPES
62C	CHARLTON FINE SANDY LOAM, 8% TO 15% SLOPES
115A	SCARBORO MUCK, 0% TO 3% SLOPES
135B	CHATFIELD-NEWFIELDS COMPLEX, 3% TO 8% SLOPES
135C	CHATFIELD-NEWFIELDS COMPLEX, 8% TO 15% SLOPES
189A	CHATFIELD VARIANT, 0% TO 3% SLOPES
189B	CHATFIELD VARIANT, 3% TO 8% SLOPES
189C	CHATFIELD VARIANT, 8% TO 15% SLOPES
189D	CHATFIELD VARIANT, 15% TO 25% SLOPES
289A	CHATFIELD VARIANT, 0% TO 3% SLOPES
299A	UDORTHENTS FILL SMOOTHED, 0% TO 3% SLOPES
444B	NEWFIELDS FINE SANDY LOAM, 3% TO 8% SLOPES
444C	NEWFIELDS FINE SANDY LOAM, 8% TO 15% SLOPES
444D	NEWFIELDS FINE SANDY LOAM, 15% TO 25% SLOPES
444E	NEWFIELDS FINE SANDY LOAM, 25% TO 50% SLOPES
514A	LEICESTER SANDY LOAM, 0% TO 3% SLOPES
514B	LEICESTER SANDY LOAM, 3% TO 8% SLOPES
666A	CANTON-URBAN LAND COMPLEX, 0% TO 3% SLOPES

THE SITE-SPECIFIC SOIL MAPPING WAS PERFORMED BETWEEN APRIL 2013 & JUNE 2015 BY CYNTHIA M. BALCUS, CERTIFIED SOIL SCIENTIST #084, OF STONEY RIDGE ENVIRONMENTAL, LLC IN ALTON, NEW HAMPSHIRE. THIS MAPPING WAS PERFORMED ACCORDING TO THE STANDARDS OF THE "SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT," VERSION 4.0, FEBRUARY 2011, PUBLISHED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND, SPECIAL PUBLICATION NO. 3.

DIG SAFE — UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

SEE SHEET 1 FOR NOTES & REFERENCE PLANS

ZONING NOTE

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WETLAND DELINEATION PREPARED BY:

CYNTHIA M. BALCUS
CERTIFIED WETLAND SCIENTIST (#81)

6/12/15
DATE

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION.

6-12-15
DATE

TOPOGRAPHIC SUBDIVISION PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453

APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE No. 714 MICHAEL R. SNYDER

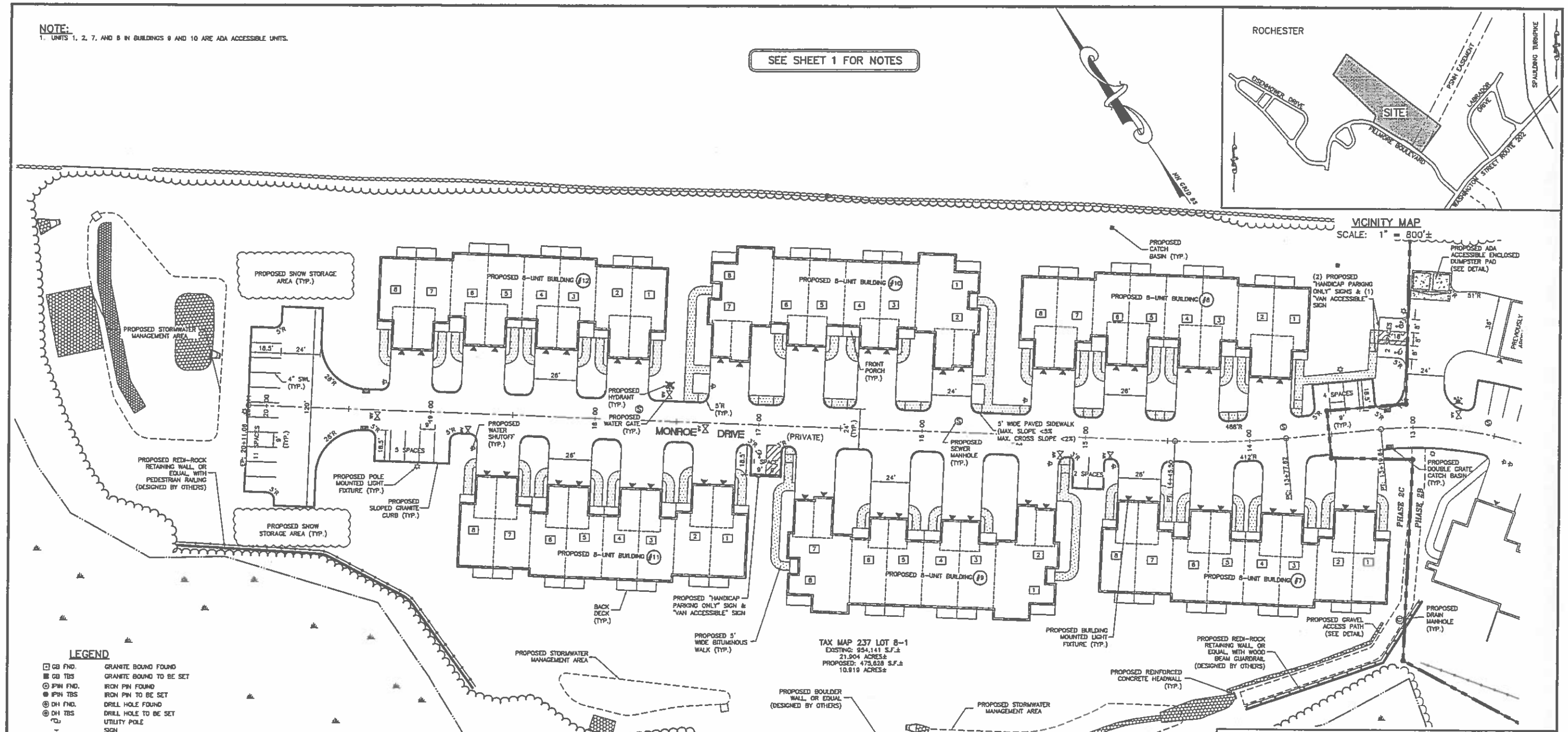
REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: 1" = 40'
PROJECT NO: 12-1212-1 | SHEET 4 OF 22

NOTE:
1. UNITS 1, 2, 7, AND 8 IN BUILDINGS 9 AND 10 ARE ADA ACCESSIBLE UNITS.

SEE SHEET 1 FOR NOTES



APPROVED BY THE ROCHESTER PLANNING BOARD ON _____ DATE

SIGNED BY _____ NAME _____ POSITION

RESIDENTIAL SITE LAYOUT PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
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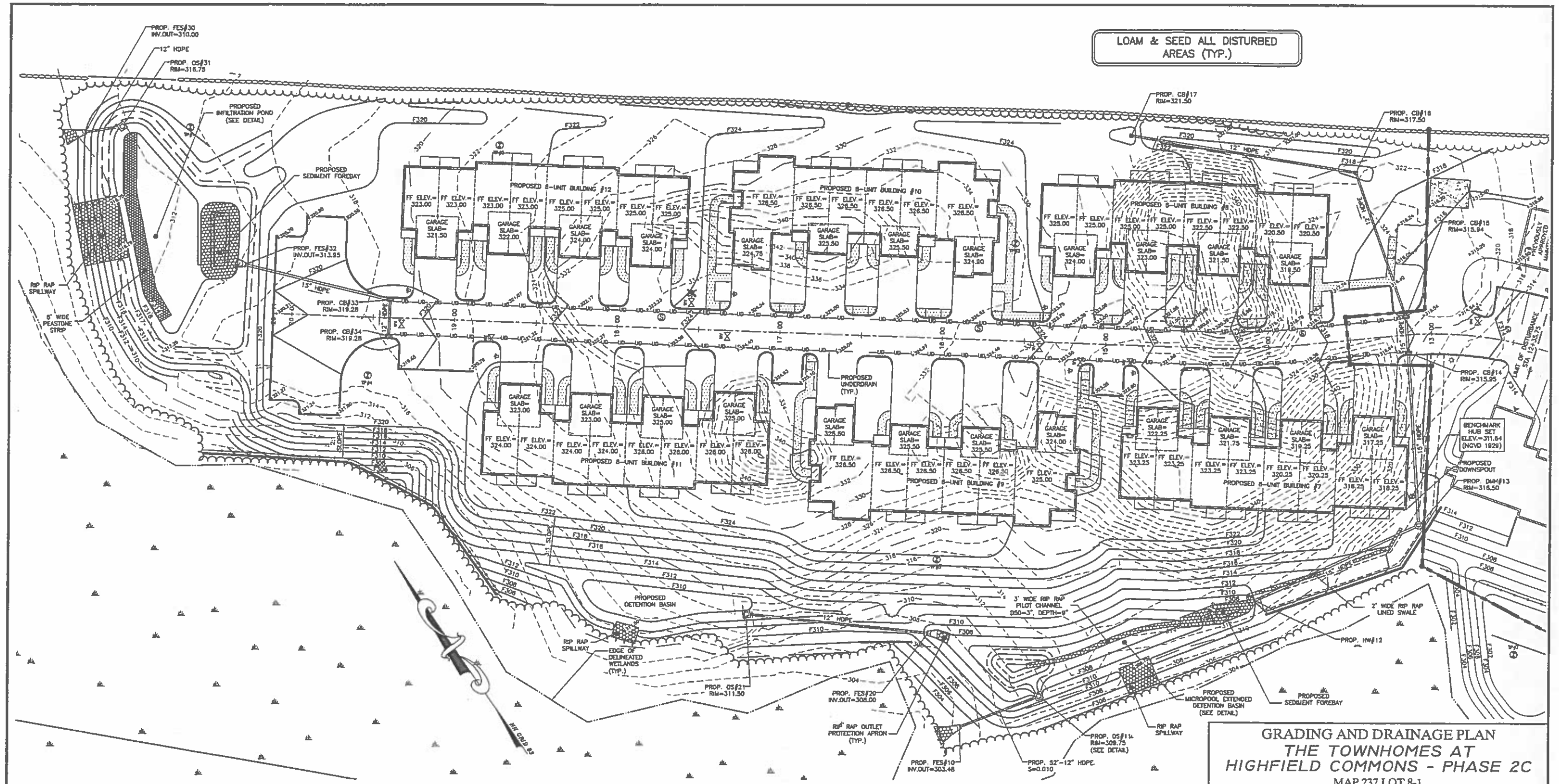
STATE OF NEW HAMPSHIRE PATRICK R. COLQUHN No. 12808 LICENSED PROFESSIONAL ENGINEER
6/15/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: 1" = 30'
PROJECT NO: 12-1212-1 | SHEET 7 OF 22



DIG SAFE

LEGEND

STONE BOUND FOUND	ABUTTER LINE
IRON PIN FOUND	PROPERTY LINE
DRILL HOLE	WETLAND
UTILITY POLE	DRAINAGE LINE
SIGN	TREELINE
GAS VALVE	EDGE OF PAVEMENT
WATER VALVE	EDGE OF GRAVEL
HYDRANT	10' CONTOUR
WATER SHUT OFF	2' CONTOUR
SEWER MANHOLE	STONEWALL
DRAINAGE MANHOLE	SITE SPECIFIC SOIL MAPPING
CATCH BASIN	EASEMENT
TEST PIT	PROPOSED GUARDRAIL
PROPOSED OUTLET STRUCTURE	PROPOSED SPLIT RAIL FENCE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SLOPED GRANITE CURB
	PROPOSED TREELINE
	PROPOSED DRAINAGE LINE
	PROPOSED DRAINAGE LINE
	PROPOSED 2' CONTOUR
	PHASE LINE
	PROPOSED RETAINING WALL

NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF ROCHESTER, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2010 ARE HEREBY INCORPORATED BY REFERENCE.
2. ROAD AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS FOR ROAD CONSTRUCTION, PUBLIC WORKS DEPARTMENT, ROCHESTER, NEW HAMPSHIRE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
4. ALL DRAINAGE PIPE SHALL BE INSTALLED FOLLOWING MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. TOP SOIL SHALL BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED, AND REDISTRIBUTED OVER GRADED AREAS. PROVIDE EROSION AND SEDIMENTATION CONTROLS AROUND STOCKPILES DURING CONSTRUCTION.
6. TILL SOIL TO A DEPTH OF 4" MINIMUM AND REMOVE ALL ROCKS LARGER THAN 1" MEASURED IN LARGEST DIRECTION.
7. GRADE ALL AREAS TO MAINTAIN POSITIVE SLOPE AWAY FROM BUILDING.
8. ALL GRADED AREAS TO RECEIVE SEED OR SOD, TOP SOIL, STRAW, AND WATER UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
9. SEE ARCHITECTURAL DRAWINGS FOR SPECIFIC GRADING AND DRAINAGE REQUIREMENTS AT THE BUILDING, WALKWAYS, AND ENTRANCES. INSTALL STEPS, LANDINGS, RAILINGS, AND OTHER FEATURES PER APPLICABLE CODES.
10. ALL CATCH BASINS SHALL HAVE A 4'-0" SUMP.

GRAPHIC SCALE

30 0 15 30 60 90 120

(IN FEET)
1 inch = 30 ft.

GRADING AND DRAINAGE PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
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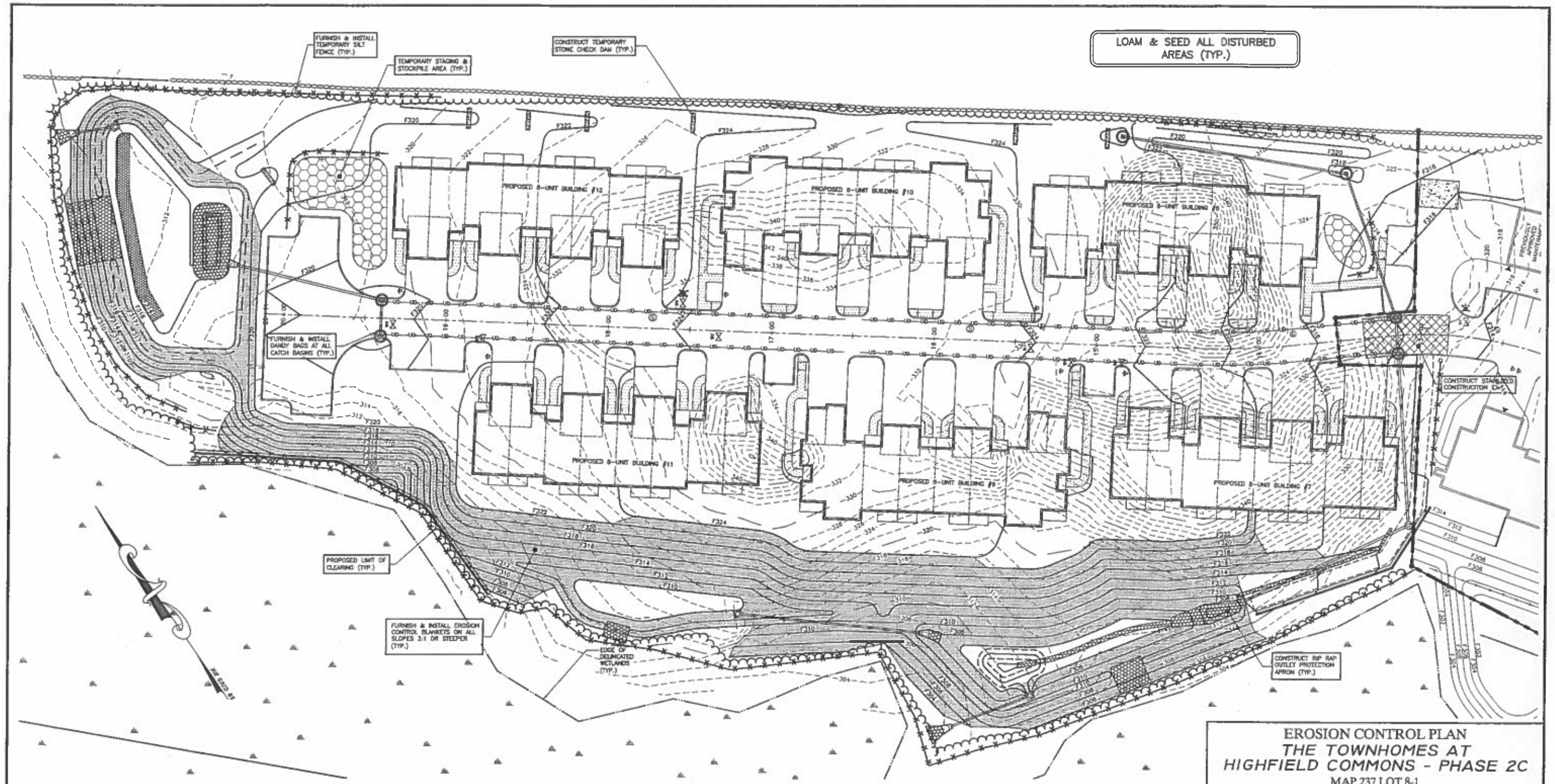
STATE OF NEW HAMPSHIRE PATRICK H. COLSURUN No. 12818 LICENSED PROFESSIONAL ENGINEER 6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: 1" = 30'
PROJECT NO: 12-1212-1	SHEET 8 OF 22



DIG SAFE

NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

EROSION CONTROL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE REQUIRED ONSITE TEMPORARY CONSTRUCTION EROSION CONTROL MEASURES AS WELL AS THE PERMANENT EROSION CONTROL MEASURES.
2. ALL MEASURES IN THE PLAN SHALL MEET AS A MINIMUM THE BEST MANAGEMENT PRACTICES SET FORTH IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL, TITLED "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION," DATED DECEMBER 2008, AS AMENDED FROM TIME TO TIME.
3. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED OR SUPPLEMENTED. THE STRIPPING OF VEGETATION, WHEN NECESSARY, SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION.
4. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE.
5. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 30 DAYS SHALL BE STABILIZED.
6. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
7. OFFSITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED NON-ERODIBLY THROUGH THE PROJECT AREA. INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
8. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
10. THE CITY OF ROCHESTER SHALL RESERVE THE RIGHT TO REQUIRE FURTHER EROSION CONTROL PRACTICES DURING CONSTRUCTION SHOULD THEY FIND IT NECESSARY.
11. ALL DISTURBED AREAS SHALL RECEIVE 6" OF LOAM AND SEED PER RSR 6.2.7.

EROSION & SEDIMENT CONTROL LEGEND

- PERMANENT OUTLET PROTECTION APRON (RIP RAP)
- TEMPORARY SANDY BAGS AT ALL CATCH BASINS
- TEMPORARY SILT FENCE
- TEMPORARY STONE CHECK DAM
- LIMITS OF CLEARING
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKETS

GRAPHIC SCALE

20 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

EROSION CONTROL PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

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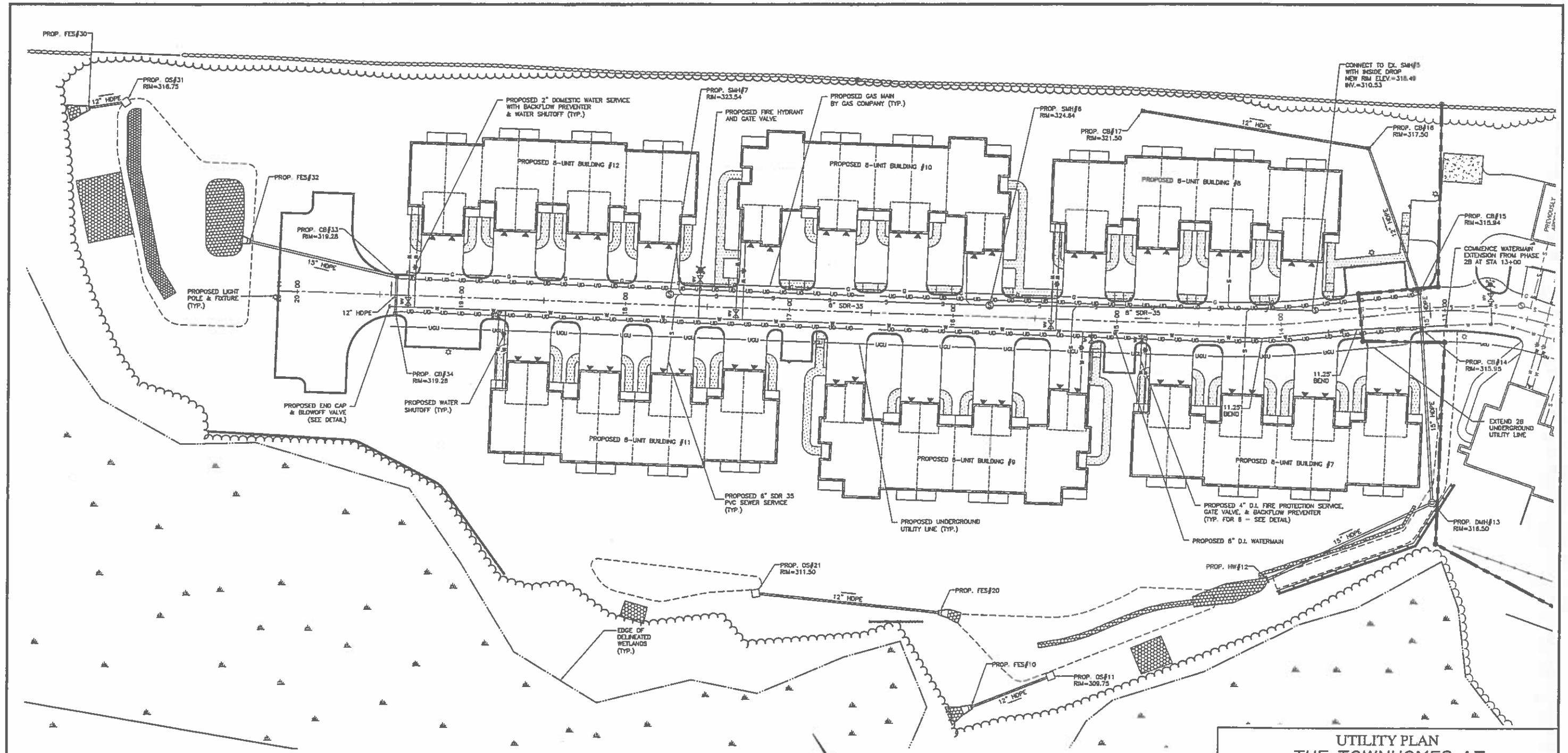
STATE OF NEW HAMPSHIRE PATRICK R. COUSSEAU No. 12812 LICENSED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 18, 2015	SCALE: 1" = 30'
PROJECT NO: 12-1212-1	SHEET 9 OF 22



LEGEND

- IRON PIN FOUND
- STONE BOUND FOUND
- DRILL HOLE
- UTILITY POLE
- SIGN
- GAS VALVE
- WATER VALVE
- HYDRANT
- WATER SHUT OFF
- SEWER MANHOLE
- DRAINAGE MANHOLE
- CATCH BASIN
- PROP. BUILDING MOUNTED LIGHT
- PROP. POLE MOUNTED LIGHT
- PROP. OUTLET STRUCTURE
- ABUTTER LINE
- PROPERTY LINE
- WETLAND
- OHU — OVERHEAD UTILITIES
- W — WATER LINE
- S — SEWER LINE
- DRAINAGE LINE
- TREELINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- STONEWALL
- EASEMENT
- PROPOSED GUARDRAIL
- PROPOSED SPLIT RAIL FENCE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED SLOPED GRANITE CURB
- PROPOSED TREELINE
- PROPOSED DRAINAGE LINE
- UGU — PROPOSED UNDERGROUND UTILITIES
- G — PROPOSED GAS LINE
- W — PROPOSED WATER LINE
- S — PROPOSED SEWER LINE
- PROPOSED EASEMENT LINE
- PROPOSED RETAINING WALL

CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF ROCHESTER, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2010 ARE HEREBY INCORPORATED BY REFERENCE.
2. THE CONTRACTOR SHALL CONSTRUCT A HEATED AND INSULATED EXTERIOR DOMESTIC WATER CABINET TO PROVIDE ACCESS FOR THE DEPARTMENT OF PUBLIC WORKS TO INDIVIDUAL UNIT WATER SHUTOFFS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
4. UNDERGROUND ELECTRICAL SHALL BE PROVIDED TO ALL SITE LIGHT POLES. SEE ELECTRICAL PLANS FOR DETAILS AND FINAL CONDUIT LAYOUT.
5. ALL WORKMANSHIP AND MATERIALS INCORPORATED INTO THE CONSTRUCTION OF THE WATER LINES SHALL CONFORM TO ALL THE LOCAL PREFECTS STANDARDS, SPECIFICATIONS, RULES, AND REGULATIONS.
6. ALL WORKMANSHIP AND MATERIALS INCORPORATED INTO THE CONSTRUCTION OF THE ELECTRIC AND TELEPHONE LINES SHALL CONFORM WITH THE STANDARDS OF THE LOCAL PROVIDER.
7. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF ROCHESTER STANDARDS OF INFRASTRUCTURE DESIGN SECTION I - POTABLE WATER DESIGN STANDARDS AND SECTION II - SANITARY SEWER DESIGN STANDARDS.
8. ONLY CONTRACTORS THAT HAVE BEEN GRANTED A WATER/SEWER LICENSE SHALL BE PERMITTED TO INSTALL ANY APPURTENANCE OR WATER/SEWER CONNECTION IN THE FILLMORE BOULEVARD RIGHT-OF-WAY.
9. PER RSR 8.4.3, FOLLOWING CONSTRUCTION, A PLAN SHALL BE SUBMITTED TO THE BOARD AND CITY ENGINEER BY THE ENGINEER OR LAND SURVEYOR INDICATING THEREON THE INVERT GRADES OF ALL STORM DRAINAGE AT ALL CATCH BASINS AND MANHOLES. THE ENGINEER SHALL CERTIFY THAT THE GRADES SHOWN ON THIS PLAN REPRESENT THE GRADES AS CONSTRUCTED.
10. PER RSR 8.8.3, ALL UTILITIES WITHIN THE LIMITS OF FILLMORE BOULEVARD SHALL BE INSPECTED BY A REPRESENTATIVE OF THE CITY PRIOR TO BACKFILLING OF TRENCHES OR OTHER COVERING OF THE SERVICES.
11. AN ACCURATE RECORD OF THE LOCATION AND DEPTH OF ALL UTILITIES SHALL BE KEPT BY THE DEVELOPER OR HIS/HER REPRESENTATIVE AND A COPY SHALL BE PROVIDED TO THE CITY.

NH GRID 83

DIG SAFE

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

811

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 30 ft.

UTILITY PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
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STATE OF NEW HAMPSHIRE PATRICK R. COLQUHN No. 12393 LICENSED PROFESSIONAL ENGINEER
6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: 1" = 30'
PROJECT NO: 12-1212-1	SHEET 10 OF 22

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIG SAFE

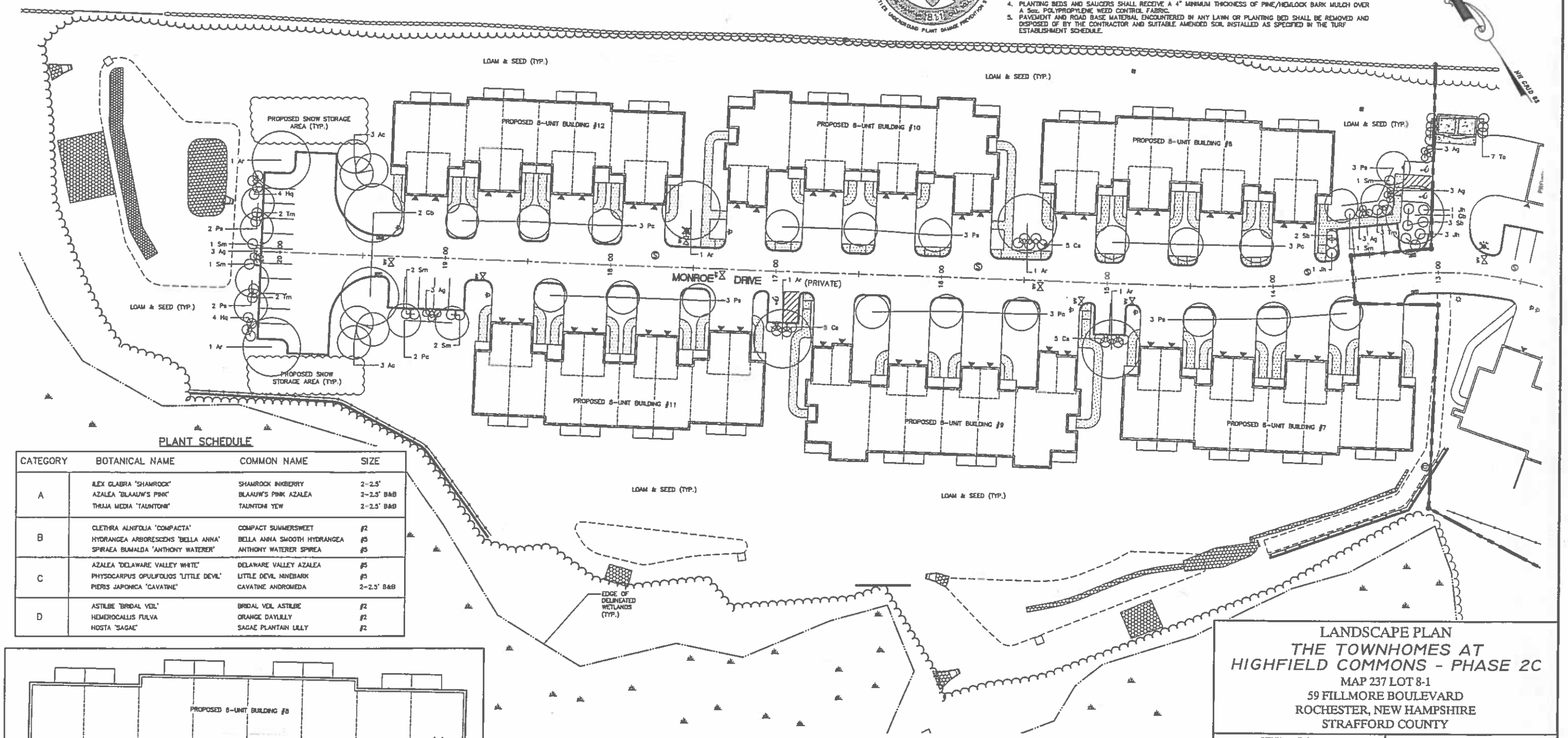
811

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

LANDSCAPE NOTES:

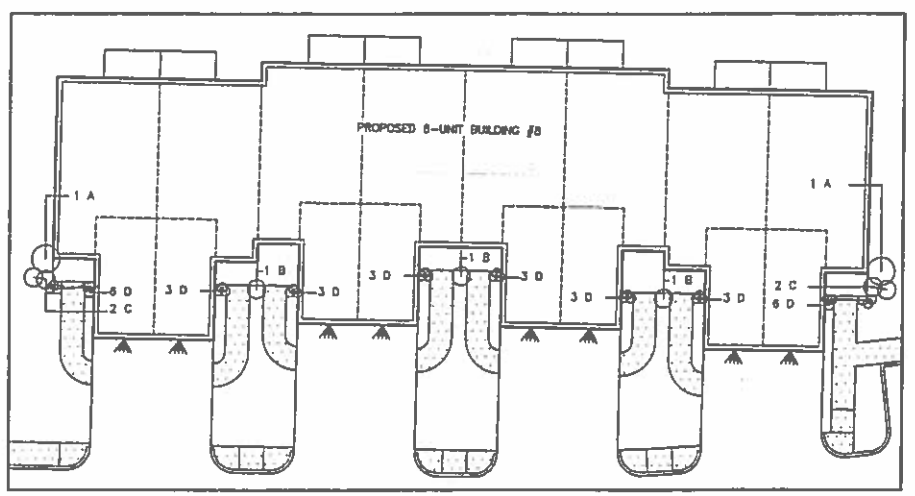
1. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE LANDSCAPE WHICH PROVIDES CLIMATIC RELIEF AND AESTHETIC APPEAL.
2. ALL PLANT MATERIALS USED SHALL BE NURSERY STOCK AND SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF INSTALLATION. ANY MATERIAL WHICH DIES OR DOES NOT SHOWN HEALTHY APPEARANCE WITHIN THIS TIME SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE; WITH SAME WARRANTY REQUIREMENTS AS THE ORIGINAL. WARRANTIES TYPICALLY DO NOT COVER LOSS DUE TO INSECT INFESTATION OR MECHANICAL DAMAGE (I.E. SNOW STORAGE).
3. IF THE SOIL CONDITIONS ARE EXTREMELY SANDY, ALL TREES SHALL HAVE A 6" LAYER OF COMPACTED TOPSOIL PLACED IN THE BASE OF THE PLANT PIT AS A MOISTURE RETENTION LAYER. THE PLANT PIT SIDEWALLS SHALL BE OVER EXCAVATED BY AN ADDITIONAL 12" BEYOND THE NORMAL OUTSIDE RADIUS OF THE HOLE. A TOPSOIL MIXTURE SHALL BE USED TO BACKFILL THE HOLE AS FOLLOWED: ORGANIC TOPSOIL, AMENDED WITH 10% WOOD ASH, 10% MANURE, 30% PEATMOSS AND A GRANULAR HYDROGEL TO ABSORB AND RETAIN WATER.
4. PLANTING BEDS AND SAUCERS SHALL RECEIVE A 4" MINIMUM THICKNESS OF PINE/HEMLOCK BARK MULCH OVER A 5oz. POLYPROPYLENE WEED CONTROL FABRIC.
5. PAVEMENT AND ROAD BASE MATERIAL ENCOUNTERED IN ANY LAWN OR PLANTING BED SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND SUITABLE AMENDED SOIL INSTALLED AS SPECIFIED IN THE TURF ESTABLISHMENT SCHEDULE.

NH GRID 83



PLANT SCHEDULE

CATEGORY	BOTANICAL NAME	COMMON NAME	SIZE
A	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	2-2.5'
	AZALEA 'BLAAUW'S PINK'	BLAAUW'S PINK AZALEA	2-2.5' B&B
	THUJA MEDIA 'TAUNTONI'	TAUNTONI YEW	2-2.5' B&B
B	CLETHRA ALNIFOLIA 'COMPACTA'	COMPACT SUMMERSWEET	#2
	HYDRANGEA ARBORESCENS 'BELLA ANNA'	BELLA ANNA SMOOTH HYDRANGEA	#5
	SPIRAEA BUMALDA 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	#5
C	AZALEA 'DELAWARE VALLEY WHITE'	DELAWARE VALLEY AZALEA	#5
	PHYSOCARPUS OPULIFOLIOS 'LITTLE DEVIL'	LITTLE DEVIL NINEBARK	#3
	PIERIS JAPONICA 'CAVATINE'	CAVATINE ANDROMEDA	2-2.5' B&B
D	ASTILBE 'BRIDAL VEIL'	BRIDAL VEIL ASTILBE	#2
	HEMEROCALLIS FULVA	ORANGE DAYLILLY	#2
	HOSTA 'SAGAE'	SAGAE PLANTAIN LILLY	#2



TYPICAL UNIT PLANTING DETAIL
SCALE: 1" = 20'

NOTE:
THE PURPOSE OF THIS DETAIL IS TO DEPICT A SUGGESTED PLANTING LAYOUT FOR THE PROPOSED DWELLING UNITS. THE INTENT IS TO CREATE A VARIETY OF PLANT MATERIALS AMONG ADJACENT DWELLING UNITS. THE LANDSCAPE CONTRACTOR MAY MAKE SUBSTITUTIONS ACCORDING TO SEASONAL AVAILABILITY AT HIS/HER DISCRETION.

PLANT LIST

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
TREES				
Ac	6	ABIES CONCOLOR	WHITE FIR	6-7' B&B
Ar	6	ACER RUBRUM 'REDPOINTE'	REDPOINTE RED MAPLE	3"-3.5" CAL.
Gb	3	GINKGO BILOBA	MAIDENHAIR TREE	3-3.5" CAL.
Pc	11	PYRUS CALLERYANNA 'CHANTICLEER'	CHANTICLEER FLOWERING PEAR	2-2.5" CAL.
Ps	16	PRUNUS SERULATA 'KWANZAN'	KWANZAN CHERRY	2-2.5" CAL.
SHRUBS				
Ag	15	AZALEA 'GIRARD'S HOT SHOT'	GIRARD'S HOT SHOT AZALEA	24"
Cs	15	CORNUS SERICEA 'ALLEMAN'S COMPACTA'	ALLEMAN'S COMAPCT RED-OSIER DOGWOOD	24"
Hq	8	HYDRANGEA Q. 'RUBY SLIPPERS'	RUBY SLIPPERS OAKLEAF HYDRANGEA	24"
Jh	5	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	24"
Sb	5	SPIRAEA BUMALDA 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	24"
Sm	8	SYRINGA MEYERI 'PALIBIN'	DWARF KOREAN LILAC	2-3' B&B
Tm	7	TAXUS MEDIA 'GREENWAVE'	GREENWAVE SPREADING YEW	2-3' B&B
To	7	THUJA OCCIDENTALIS 'HOLMSTRUP'	HOLMSTRUP ARBORVITAE	2-3' B&B

LANDSCAPE PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
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LICENSED LANDSCAPE ARCHITECT ROMY MOURER 086 STATE OF NEW HAMPSHIRE

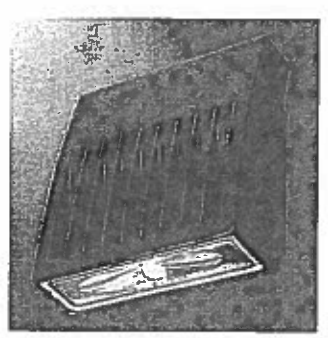
REVISIONS

No.	DATE	DESCRIPTION	BY

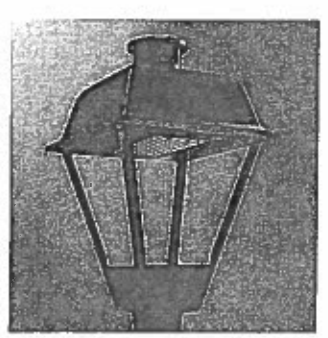
DATE: JUNE 16, 2015 | SCALE: 1" = 30'
PROJECT NO: 12-1212-1 | SHEET 11 OF 22

CONSTRUCTION NOTES:

1. SEE ELECTRICAL PLANS FOR ADDITIONAL INFORMATION REGARDING LIGHT INSTALLATION AND WIRING REQUIREMENTS.



XTOR CROSSTOUR LED
SCALE: NOT TO SCALE



UTLD TRADITIONAIRE LED DOWNLIGHT
SCALE: NOT TO SCALE

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	ARRANGEMENT	DESCRIPTION
	2	P3	SINGLE	UTLD802LEDEUSL3/ 15' POLE
	1	P5	SINGLE	UTLD801LEDEUSW0/ 15' POLE
	4	S3	SINGLE	UTLD801LEDEUSL3/ 15' POLE
	1	S5	SINGLE	UTLD802LEDEUSW0/ 15' POLE
	8	W1	SINGLE	XTOR2A-N/ WALL MTD 12' AFG
	64	W2	SINGLE	XTOR1A/ WALL MTD 10' AFG

DIG SAFE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
811

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

IN ASSOCIATION WITH:

CHARRON INCORPORATED
P.O. BOX 4630
MANCHESTER, NH 03108
(603) 624-4627
FAX (603) 624-6764

LIGHTING PLAN
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453

APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054

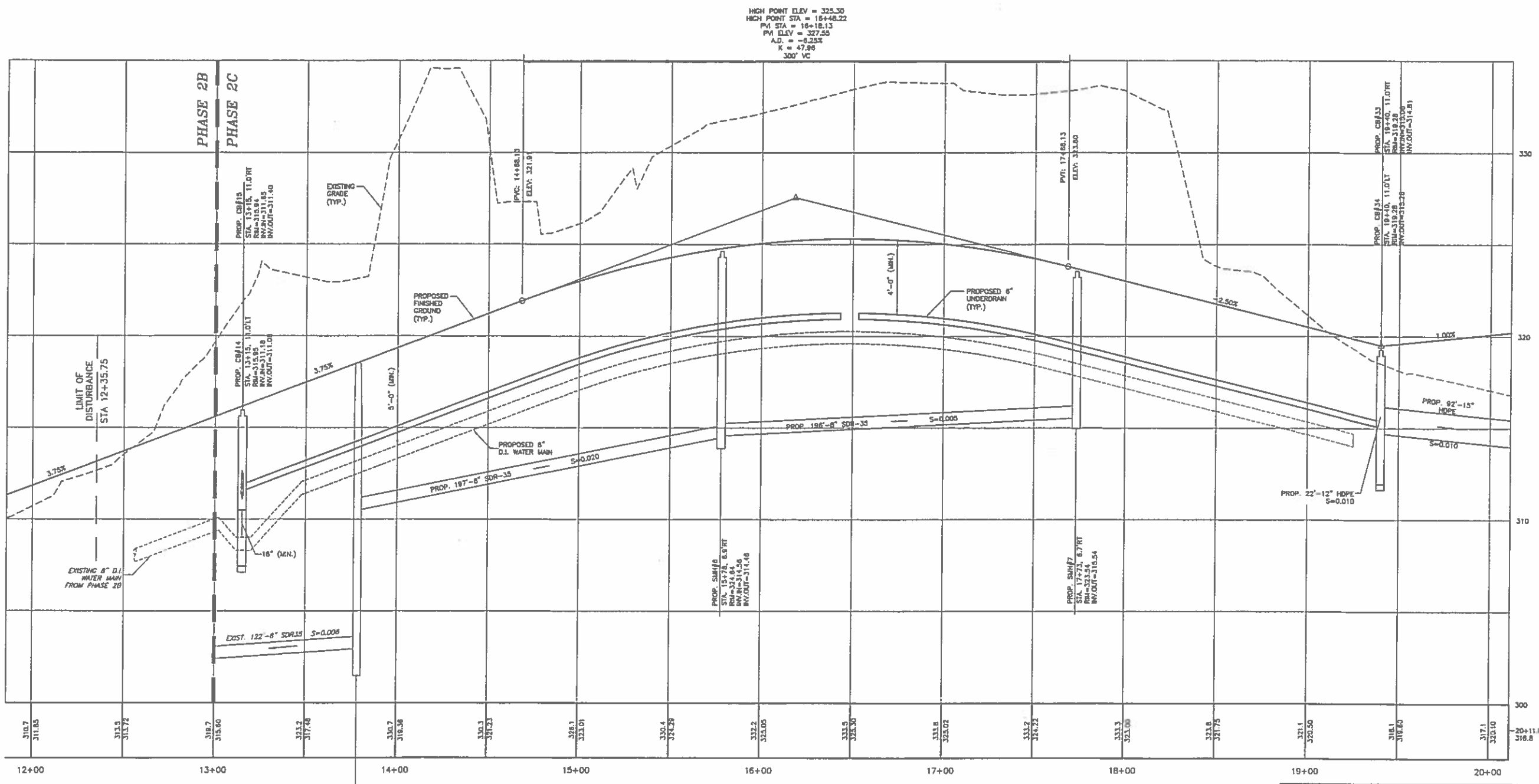
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE
PATRICK R. COLBURN
No. 12859
LICENSED
PROFESSIONAL ENGINEER
6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: 1" = 30'
PROJECT NO: 12-1212-1 | SHEET 12 OF 22



MONROE DRIVE ROADWAY & SEWER PROFILE: PHASE 2C
SCALE: 1" = 30'(HORIZ.)
1" = 3'(VERT.)

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIG SAFE

UTILITIES UNDERGROUND PLANT DAMAGE PROTECTION & PREV.

811

ROADWAY & SEWER PROFILE
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

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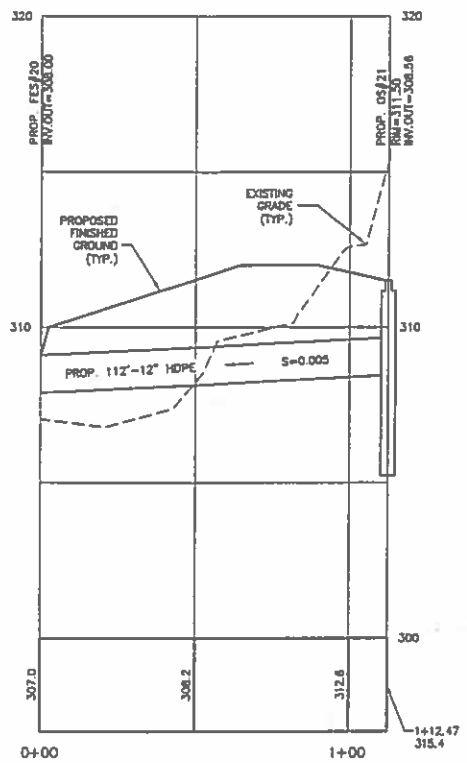
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 12883 LICENSED PROFESSIONAL ENGINEER
6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: AS NOTED
PROJECT NO: 12-1212-1	SHEET 13 OF 22



PROP. OS#21 TO PROP. FES#20
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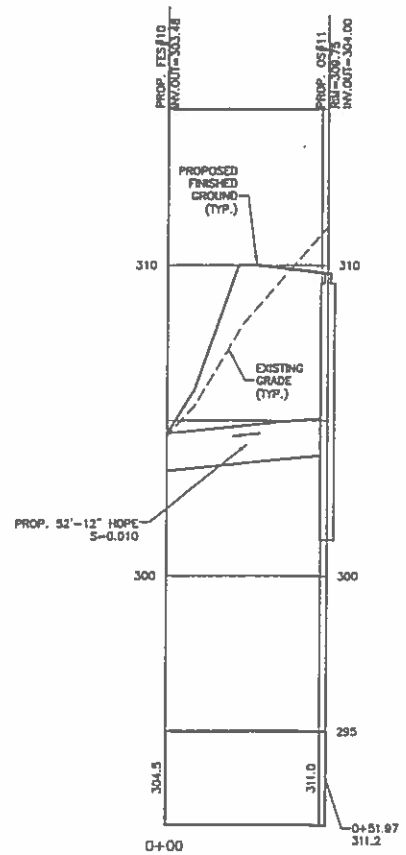
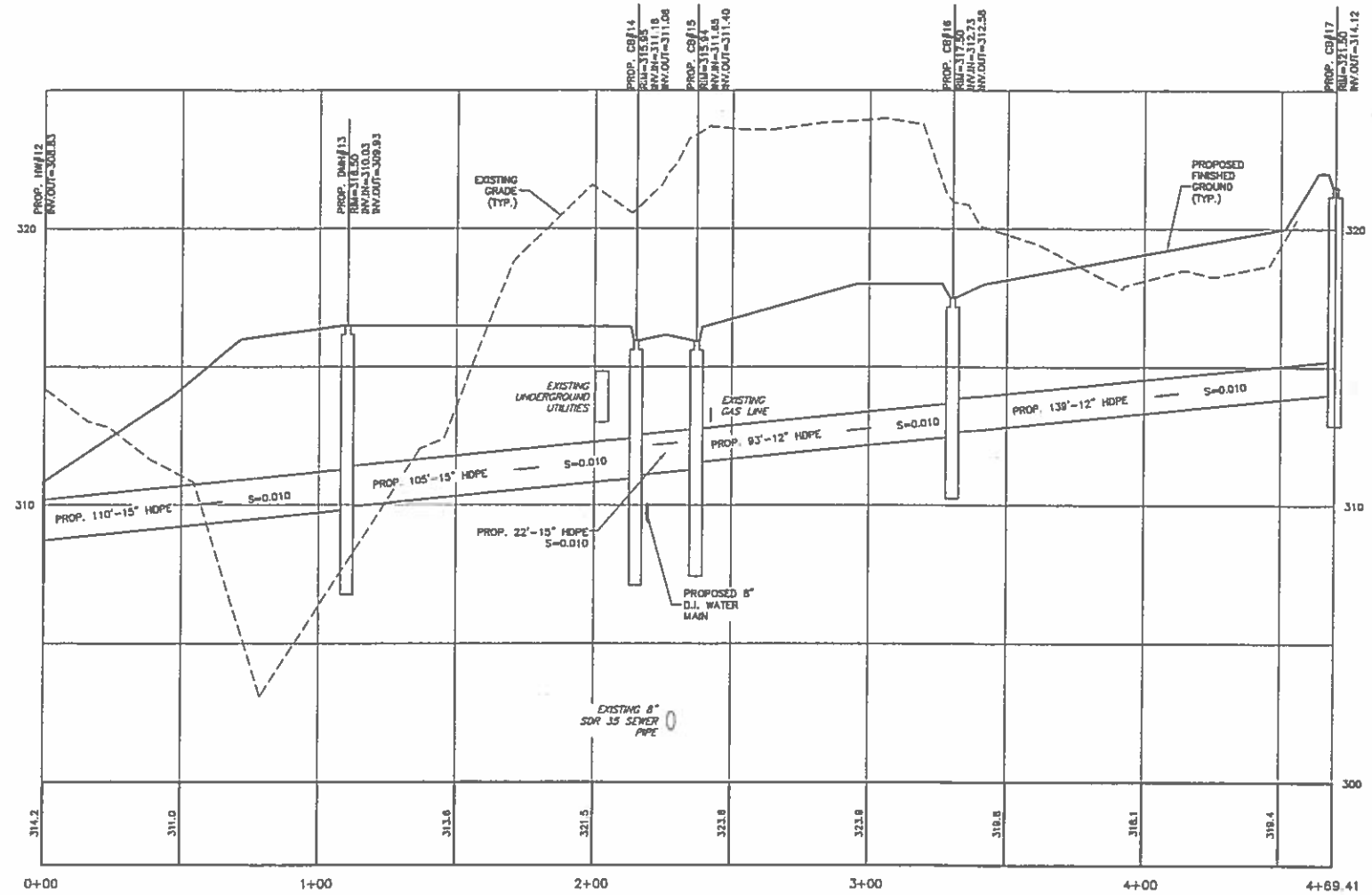
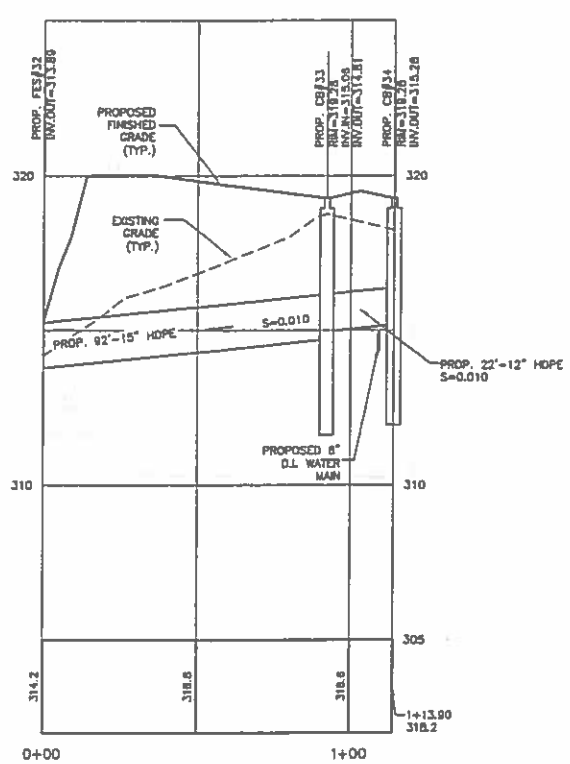
1" = 3'(VERT.)



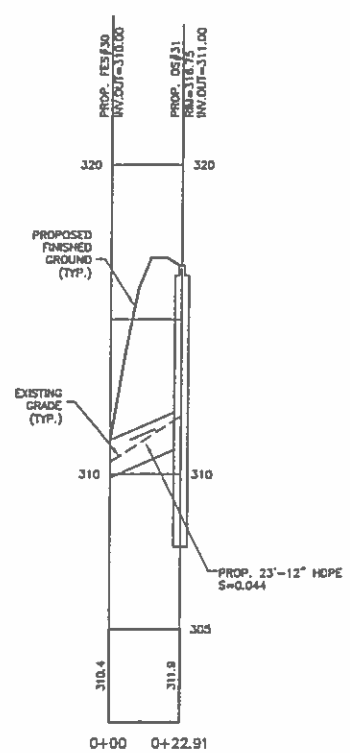
PROP. OS#11 TO PROP. FES#10
SCALE: 1" = 30'(HORIZ.)
1" = 3'(VERT.)



PROP. CB#17 TO PROP. HW#12
SCALE: 1" = 30'(HORIZ.)
1" = 3'(VERT.)



PROP. CB#34 TO PROP. FES#32
SCALE: 1" = 30'(HORIZ.)
1" = 3'(VERT.)



PROP. OS#31 TO PROP. FES#30
SCALE: 1" = 30'(HORIZ.)
1" = 3'(VERT.)

DIG SAFE
811
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

DRAINAGE PROFILES
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
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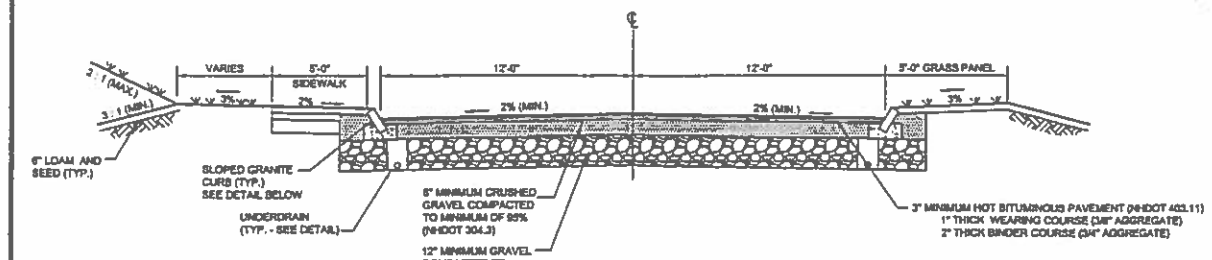
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE
PATRICK R. COLBURN
No. 13325
LICENSED
PROFESSIONAL ENGINEER
6/26/15

REVISIONS

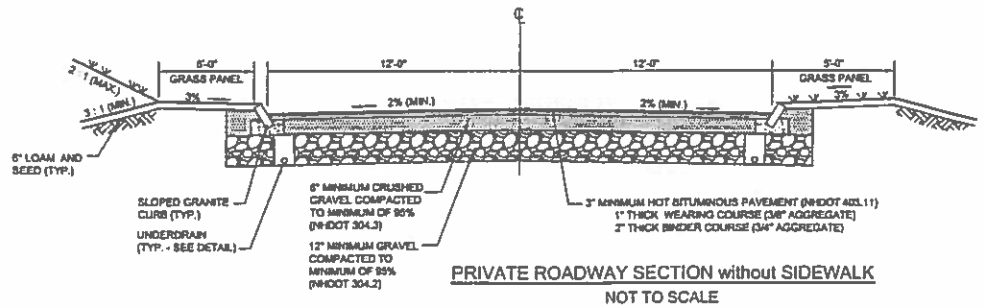
No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: AS NOTED
PROJECT NO: 12-1212-1 | SHEET 14 OF 22



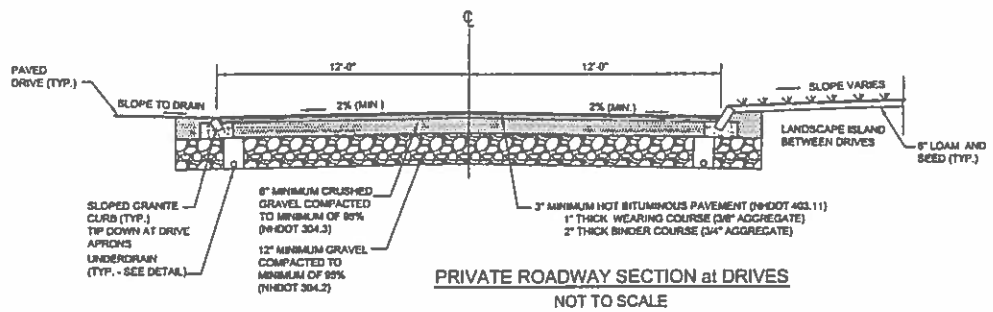
PRIVATE ROADWAY SECTION with SIDEWALK

NOT TO SCALE



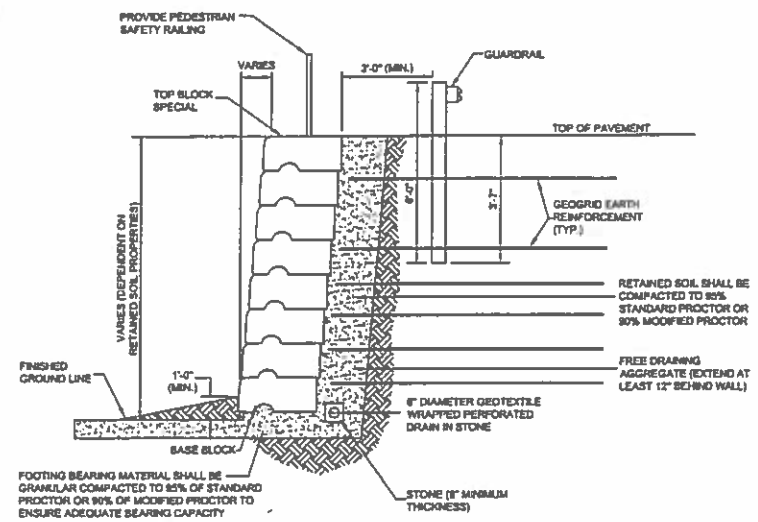
PRIVATE ROADWAY SECTION without SIDEWALK

NOT TO SCALE



PRIVATE ROADWAY SECTION at DRIVES

NOT TO SCALE

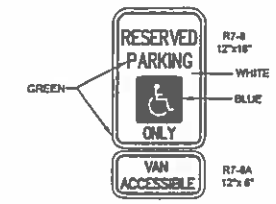


NOTES:

1. AS PERMISSIBLE, THE STRUCTURAL ENGINEER CHARGED WITH RETAINING WALL DESIGN SHALL SPECIFY SALT RESISTANT BLOCK CONSTRUCTION WHERE WALLS ARE TO BE CONSTRUCTED NEAR ROADWAYS OR PARKING AREAS.
2. RETAINING WALL DRAIN TO "DAYLIGHT" AT LOW POINT OR TIE TO DRAIN STRUCTURE AS SHOWN IN PLAN VIEW.
3. THE STAMPED SHOP DRAWINGS AND CALCULATIONS FOR THE ACTUAL RETAINING WALL MUST BE PROVIDED FOR REVIEW AND APPROVAL AT OR PRIOR TO THE PROJECT'S REQUIRED PRE CONSTRUCTION MEETING.
4. THE PROVIDED PLANS AND SUPPORTING CALCULATIONS MUST ADDRESS THE FOLLOWING CRITERIA:
   - 4.a. DESIGN CALCULATIONS STAMPED BY QUALIFIED PE LICENSE IN NH
   - 4.b. STABILITY CALCULATIONS (INCLUDING BEARING CAPACITY, GLOBAL STABILITY, OVERTURNING & SLIDING, IMPACT)
   - 4.c. GEOGRID PULLOUT AND OTHER PERTINENT DATA & ELEVATIONS
   - 4.d. CONSTRUCTION INSTALLATION SPECIFICATION
   - 4.e. LATERAL EARTH PRESSURE COEFFICIENT
   - 4.f. SURCHARGE LOAD, EMBEDMENT DEPTH
   - 4.g. BOTH A PLAN AND PROFILE OF EACH WALL SECTION

REDI-ROCK RETAINING WALL WITH GUARDRAIL
(TO BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN NEW HAMPSHIRE)

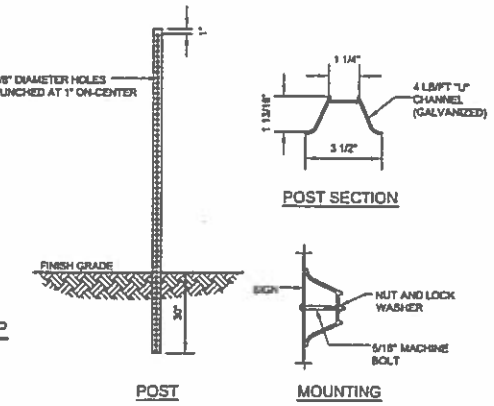
NOT TO SCALE



VAN ACCESSIBLE HANDICAP PARKING SIGN DETAIL

NOT TO SCALE

(MARCH 2008)



NOTE:
POST SHALL CONFORM TO NHDOT 615.2.5.3

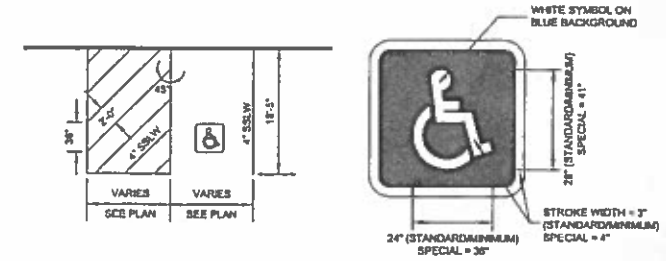
STEEL SIGN POST DETAIL

NOT TO SCALE

(MARCH 2008)

TRAFFIC SIGN NOTES:

1. ALL TRAFFIC SIGN FACES AND SHAPES SHALL CONFORM WITH THE MUTCD, LATEST EDITION.
2. ALL SIGN POST MOUNTS SHALL CONFORM WITH THE AASHTO AND NHDOT SPECIFICATIONS, LATEST EDITIONS.



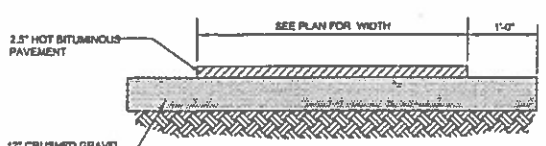
HANDICAP STRIPING DETAIL

NOT TO SCALE

(MARCH 2012)

STRIPING NOTES:

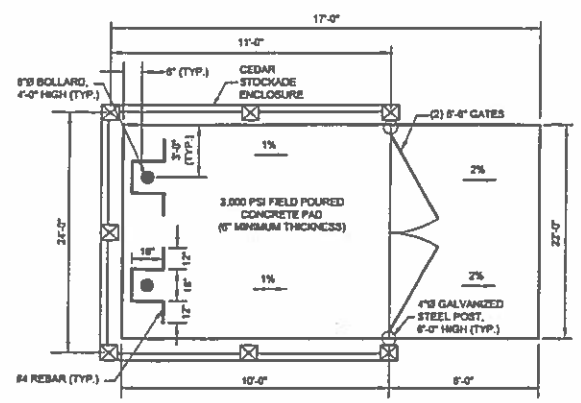
1. ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF MUTCD.
2. WIDTH OF LINES SHALL VARY NO MORE THAN ± 1/4 INCH FROM THAT SPECIFIED.
3. THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 15 MILS THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED.
4. OVERSPRAY SHALL BE KEPT TO AN ABSOLUTE MINIMUM.

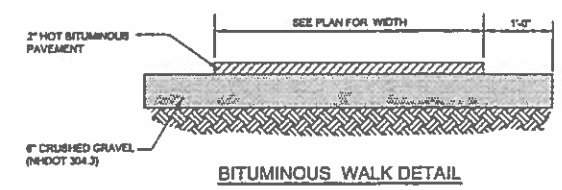


TYPICAL DRIVEWAY SECTION

NOT TO SCALE

(MARCH 2008)

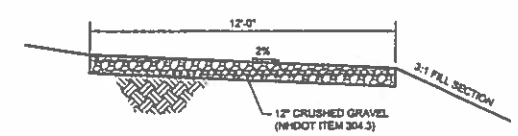




BITUMINOUS WALK DETAIL

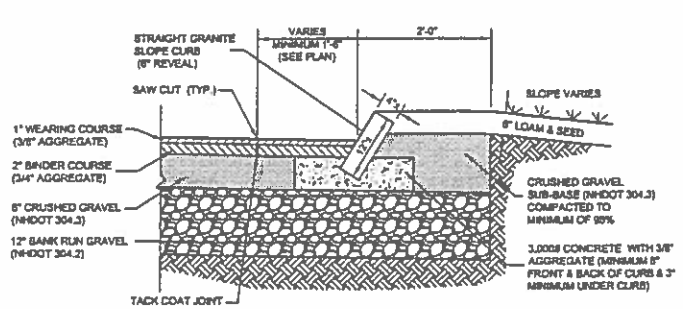
NOT TO SCALE

(MARCH 2008)



TYPICAL CROSS SECTION GRAVEL DRAINAGE ACCESS

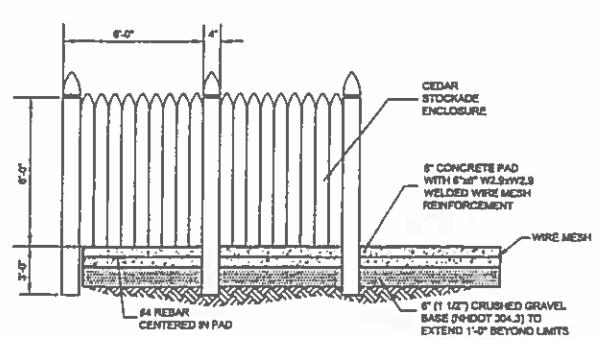
NOT TO SCALE



NOTE: PLACEMENT OF THE CONCRETE SHALL BE SUBSIDIARY TO THE INSTALLATION OF THE CURBING

STRAIGHT GRANITE SLOPE CURB DETAIL

NOT TO SCALE



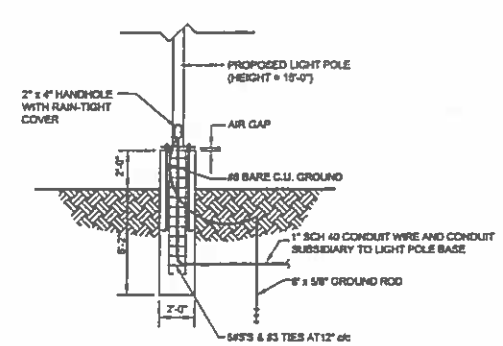
NOTE:

1. THIS DUMPSTER ENCLOSURE WILL ACCOMMODATE MODEL 2, 4, 6 AND 8 CY DUMPSTERS.
2. THE DUMPSTER AND ENCLOSURE SHALL CONFORM TO CURRENT ADA ACCESSIBILITY REGULATIONS.

WOOD STOCKADE TRASH ENCLOSURE DETAIL

NOT TO SCALE

(MARCH 2008)



CONCRETE LIGHT POLE BASE DETAIL

NOT TO SCALE

(MARCH 2008)

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
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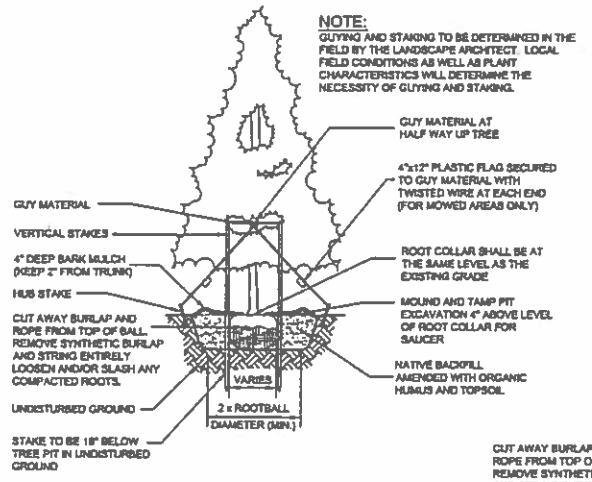
STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 13833 LICENSED PROFESSIONAL ENGINEER 6/2/15

REVISIONS

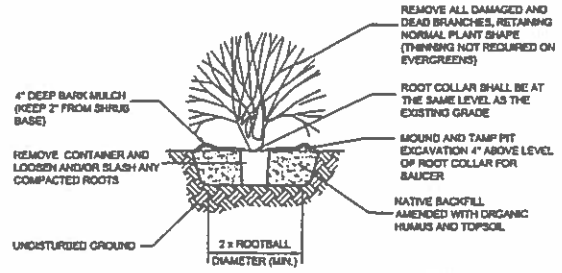
No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: AS SHOWN
PROJECT NO: 12-1212-1	SHEET 15 OF 22

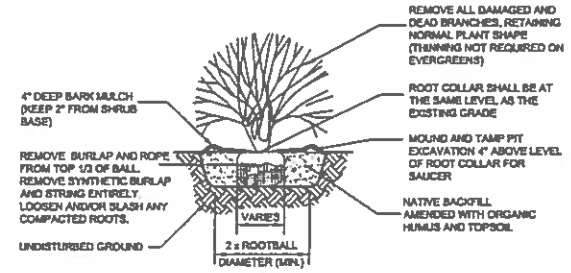


NOTE:
GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.

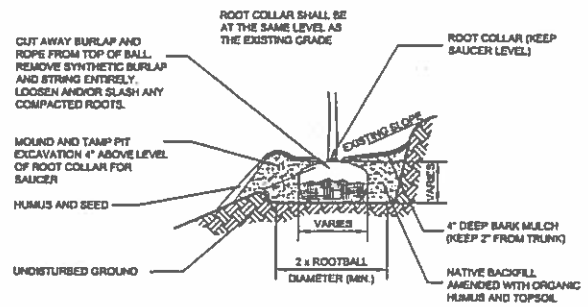
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



CONTAINER SHRUB PLANTING DETAIL
NOT TO SCALE

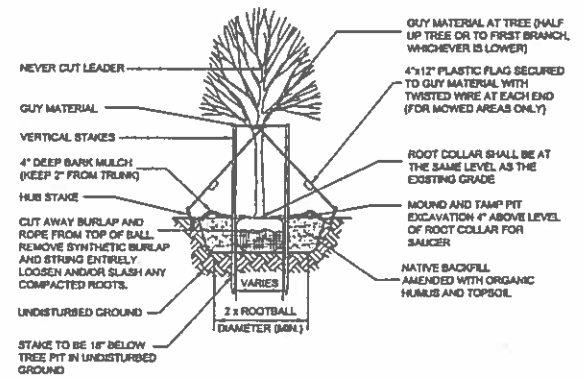


BALLED & BURLAP SHRUB PLANTING DETAIL
NOT TO SCALE



TYPICAL PLANTING PIT ON SLOPE 4:1 OR GREATER
NOT TO SCALE

NOTE:
GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.



DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

TURF ESTABLISHMENT SCHEDULE

PURPOSE:
TO ESTABLISH AND MAINTAIN PERMANENT AND TEMPORARY TURF AREAS, RESTORE GROWTH TO EXISTING TURF AREAS DISTURBED DURING CONSTRUCTION AND CONTROL SOIL EROSION.

PREPARATION AND EXECUTION:
1. RAKE THE SUBGRADE OF ALL AREAS TO BE LOAMED AND SEEDED TO REMOVE RUBBISH, STICKS, ROOTS AND STONES LARGER THAN 1 INCH.
2. PLACE LOAM OVER AREAS TO BE SEEDED AND SPREAD.
3. FINE GRADE SURFACE AND SUPPLEMENT WITH SUITABLE LOAM WHERE NEEDED TO CREATE A UNIFORM SURFACE ACCORDING TO THE FINISH GRADES INDICATED; TOP AND BOTTOM OF SLOPES SHALL BE ROUNDED. NO LOAM SHALL BE SPREAD IF THE SUBGRADE IS EXCESSIVELY WET OR FROZEN.
4. APPLY LIME EVENLY OVER LOAM SURFACE AND THOROUGHLY INCORPORATE LIME INTO THE LOAM BY HEAVY RAKING TO AT LEAST ONE-HALF THE DEPTH OF THE LOAM.
5. APPLY FERTILIZER AND MIX WITH THE UPPER 2 INCHES OF LOAM.
6. DETERMINE APPROPRIATE MIXTURE FOR AREA TO BE SEEDED BASED ON EXAMINATION OF PROJECT PLANS. UNIFORMLY SPREAD THE SEED BY BROADCASTING OR HYDROSEEDING. IF BROADCASTING, LIGHTLY RAKE INTO THE PREPARED SURFACE AND ROLL. IF, HYDROSEEDING, USE 4 TIMES THE RECOMMENDED RATE OF INOCULANT. AFTER SEED IS SPREAD, WATER THOROUGHLY WITH A FINE SPRAY.
7. SEEDING FOR PERMANENT COVER SHALL OCCUR BETWEEN SEPTEMBER 15 AND OCTOBER 15 AND BETWEEN APRIL 15 AND JUNE 15. SEEDING SHALL NOT BE DONE DURING WINDY WEATHER, WHEN THE GROUND IS FROZEN OR EXCESSIVELY WET OR OTHERWISE UNTILLABLE.
8. WITHIN 24 HOURS AFTER SEEDING OPERATION, UNIFORMLY MULCH THE AREA WITH HAY. ANCHOR MULCH ON ALL SLOPES EXCEEDING 3 : 1 USING MULCH NETTING INSTALLED IN ACCORDANCE WITH THE MANUFACTURER.
9. PROTECT AND PREVENT AGAINST WASHOUTS. ANY WASHOUTS WHICH OCCUR SHALL BE PROMPTLY REGRADED AND RESEEDED.
10. WHEN IT IS IMPRACTICAL TO ESTABLISH PERMANENT GROWTH ON DISTURBED EARTH BY OCTOBER 15, A TEMPORARY SEED MIXTURE SHALL BE USED. WHEN TEMPORARY SEEDING CANNOT ESTABLISH VISIBLE GROWTH, THE DISTURBED AREA SHALL BE COVERED WITH SIX INCHES OF MULCH FOR THE WINTER.

MAINTENANCE:
ALL SEEDED AREAS SHALL BE KEPT WATERED AND IN GOOD CONDITION. RESEED AS NECESSARY TO ESTABLISH HEALTHY UNIFORM GROWTH OVER THE ENTIRE SEEDED AREA. MAINTAIN SEEDED AREAS IN AN APPROVED CONDITION UNTIL FINAL ACCEPTANCE. MAINTENANCE SHALL INCLUDE REPAIRS FOR DAMAGE CAUSED BY EROSION.

APPLICATION RATES:
1. LOAM SHALL BE APPLIED AT A MINIMUM COMPACTED THICKNESS OF 6 INCHES.
2. LIME SHALL BE APPLIED AT A RATE OF 75 TO 100 POUNDS PER 1,000 S.F.
3. FERTILIZER SHALL BE APPLIED AT A RATE OF 30 POUNDS PER 1,000 S.F.
4. SEED MIXTURE FOR LAWN AREAS SHALL BE APPLIED AT A RATE OF AT LEAST 80 POUNDS PER ACRE OR 2 POUNDS PER 1,000 S.F.
5. TEMPORARY SEED MIXTURE SHALL BE APPLIED AT A RATE OF 2 POUNDS PER 1,000 S.F.
6. SEED MIXTURE FOR SLOPE AREAS SHALL BE APPLIED AT A RATE OF 60 POUNDS PER ACRE OR 2 POUNDS PER 1,000 S.F.
7. SEED MIXTURE FOR STORMWATER MANAGEMENT AREAS SHALL BE APPLIED AT A RATE OF 70 POUNDS PER ACRE OR 1.6 POUNDS PER 1,000 S.F.
8. MULCH SHALL BE APPLIED AT A RATE OF 90 POUNDS PER 1,000 S.F.

MATERIALS:
1. LOAM USED FOR TOPSOIL SHALL BE FRIABLE, FERTILE, NATURAL FREE-DRAINING LOAM; FREE OF ROOTS, GRASS, STICKS, WEEDS, CLAY, SOD LUMPS, DEBRIS AND STONES LARGER THAN 1 INCH IN ANY DIMENSION. SOIL SHALL NOT BE EXCESSIVELY ACID OR ALKALINE AND CONTAIN NO TOXIC MATERIALS.
2. LIME SHALL BE GROUND LIMESTONE CONTAINING NO LESS THAN 85% CALCIUM AND MAGNESIUM CARBONATES.
3. FERTILIZER SHALL BE 10-20-20 COMMERCIAL GRADE.
4. SEED MIXTURE FOR LAWN AREAS SHALL BE 99% PURE LIVE SEED AND CONSIST OF THE FOLLOWING:

   25% CREEPING RED FESCUE
   25% KENTUCKY BLUEGRASS
   25% REDTOP
   25% MANHATTAN PERENNIAL RYEGRASS

5. TEMPORARY SEEDING MIXTURE SHALL BE AN APPROVED CONSERVATION MIX OR CONSIST OF THE FOLLOWING:

   15% BLACKWELL OR SHELTER SWITCHGRASS
   30% NIAGRA OR KAW BIG BLUESTEM
   30% CAMPER OR BLAZE LITTLESTEM
   15% NE-27 OR BLAZE SAND LOVEGRASS
   10% VIKING BIRDSFOOT TREFOIL

   INOCULUM SPECIFIC TO BIRDSFOOT TREFOIL MUST BE USED WITH THIS MIXTURE. IF SEEDING BY HAND, A STICKING AGENT SHALL BE USED. IF SEEDING WITH A HYDROSEEDER, USE FOUR TIMES THE RECOMMENDED AMOUNT OF INOCULUM.

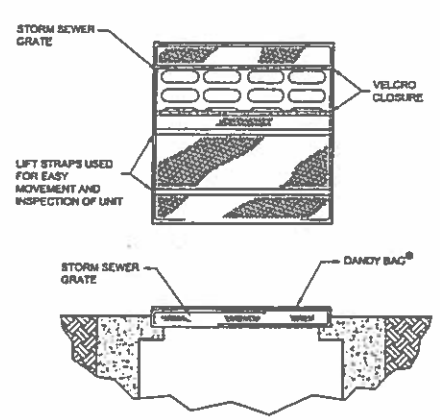
6. SEED MIXTURE FOR SLOPE AREAS SHALL BE 99% PURE LIVE SEED AND SHALL CONSIST OF THE FOLLOWING:

   30% CREEPING RED FESCUE
   40% PERENNIAL RYE GRASS
   15% REDTOP
   15% BIRDSFOOT TREFOIL
   *IN ADDITION TO THE MIX SPECIFIED ABOVE, CROWN VETCH SHALL BE USED ON ALL SLOPES STEEPER THAN 3 : 1. CROWN VETCH SHALL BE APPLIED AT A RATE OF 10 POUNDS PER ACRE AND INOCULUM SPECIFIC TO CROWN VETCH MUST BE USED.

7. SEED MIXTURE FOR STORMWATER MANAGEMENT AREAS, INCLUDING DETENTION BASINS AND VEGETATED TREATMENT SWALES SHALL CONSIST OF THE FOLLOWING:

   25% CREEPING RED FESCUE
   15% SWITCH GRASS
   15% FOX SEDGE
   15% CREEPING BENTGRASS
   10% FLATPEA
   20% WILDFLOWER VARIETY

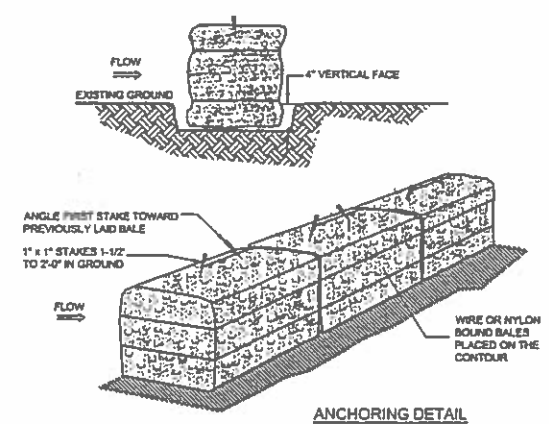
8. HAY USED FOR MULCH SHALL CONSIST OF MOWED AND PROPERLY CURED GRASS OR LEGUME MOWINGS, FREE FROM WEEDS, TWIGS, DEBRIS OR OTHER DELETERIOUS MATERIAL AND ROT OR MOLD.



HI-FLOW DANDY BAG® (SAFETY ORANGE)

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1.82 (365) x 0.89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 x 10
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.31 (115) x 0.33 (75)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	mm (US Std Sieve)	0.425 (40)
FLOW RATE	ASTM D 4491	l/min/m² (gal/min/ft²)	6807 (148)
PERMITTIVITY	ASTM D 4491	sec^{-1}	2.1

DANDY BAG®
NOT TO SCALE
(APRIL 2010)



ANCHORING DETAIL

CONSTRUCTION SPECIFICATIONS:
1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. BALES SHOULD BE FREE FROM ANY PLANT MATERIAL FOUND ON THE NEW HAMPSHIRE INVASIVE SPECIES LIST.

STRAW BALE BARRIER
NOT TO SCALE
(JULY 2010)

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C
MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

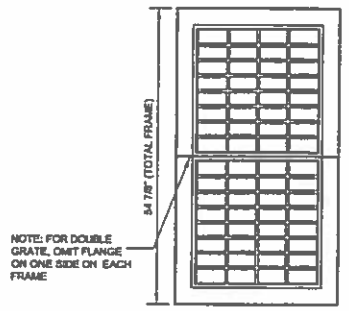
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 12586 LICENSED PROFESSIONAL ENGINEER
2/12/15

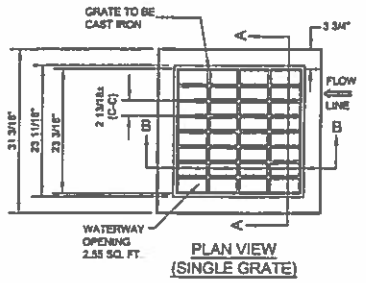
REVISIONS

No.	DATE	DESCRIPTION	BY

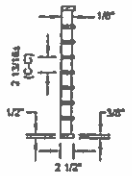
DATE: JUNE 16, 2015 | SCALE: AS SHOWN
PROJECT NO: 12-1212-1 | SHEET 16 OF 22



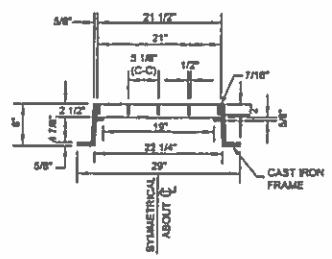
PLAN VIEW
(DOUBLE GRATE)



PLAN VIEW
(SINGLE GRATE)



SECTION A - A

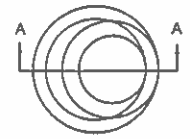


SECTION B - B

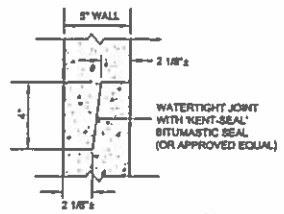
TYPE B FRAME & GRATE DETAIL
NOT TO SCALE
(MARCH 2008)

NOTES:

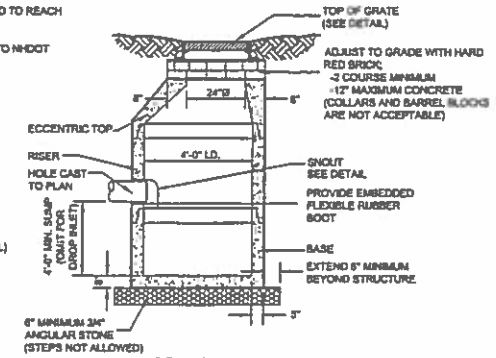
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 PSI). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCH PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
2. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCH PER LINEAR FOOT.
3. RISER OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
4. MATERIALS AND CONSTRUCTION TO NHDOT STANDARDS.



PLAN

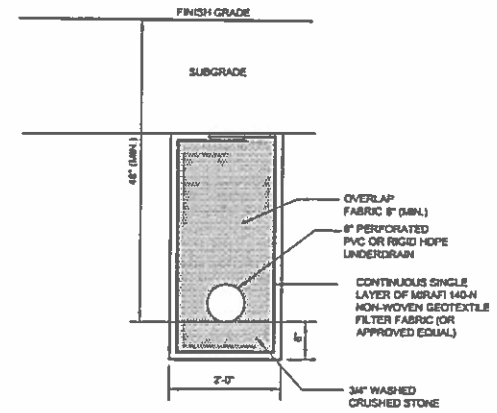


DETAIL OF TONGUE AND GROOVE JOINT

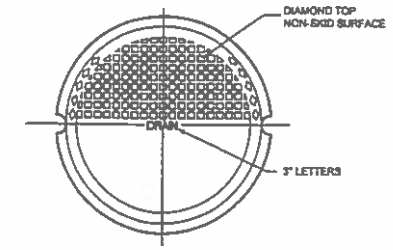


SECTION A-A

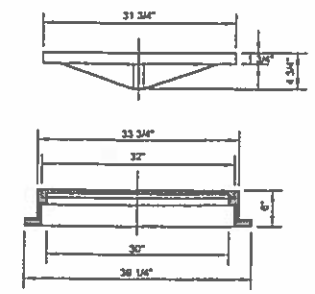
PRECAST REINFORCED CATCH BASIN
NOT TO SCALE
(MAY 2012)



ROADWAY UNDERDRAIN
NOT TO SCALE



PLAN



SECTION

NOTES:

NEW HAMPSHIRE MAINTAINS A CLEAR OPENING DESIGNATION OF 30" FOR ITS MANHOLE CASTINGS.

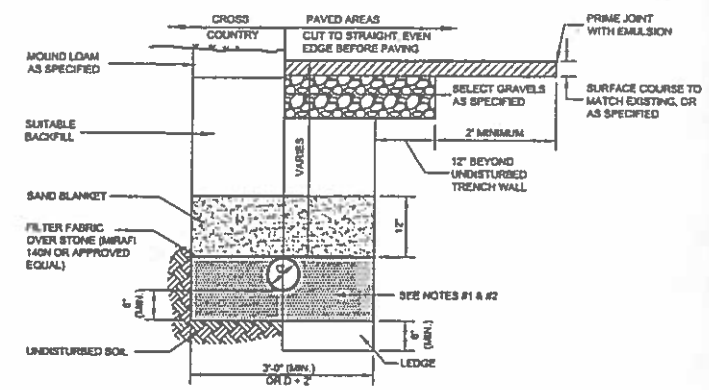
FEATURES:

- 3" LETTERING
- COVERS MARKED DRAIN
- NONROCKING COVER
- DIAMOND SURFACE DESIGN

SPECIFICATIONS:

- FULLY MACHINED FRAME AND COVER
- H-20 LOAD RATED
- PAMREX OR APPROVED EQUAL

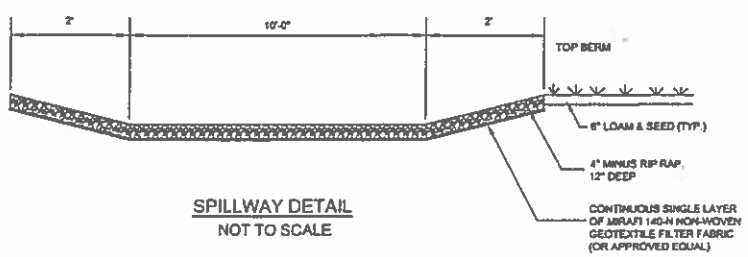
DRAIN MANHOLE FRAME AND COVER DETAIL
NOT TO SCALE
(JANUARY 2012)



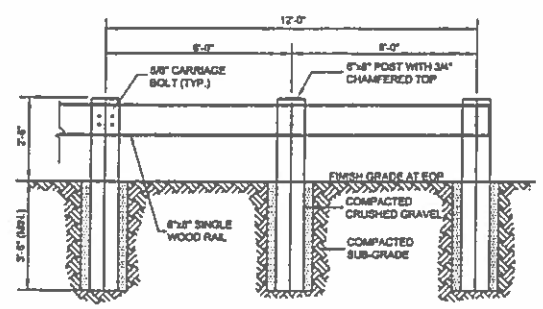
NOTES

1. THOROUGHLY COMPACTED SCREENED GRAVEL FOR RCP PIPE. SCREENED GRAVEL TO EXTEND TO SELECT FILL LINE.
2. FOR HDPE OR PVC PIPE, BEDDING SHALL BE 3/4" STONE TO THE TOP OF THE PIPE.

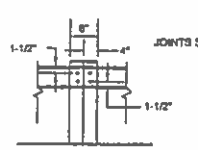
STORM DRAINAGE TRENCH DETAIL
NOT TO SCALE
(MARCH 2008)



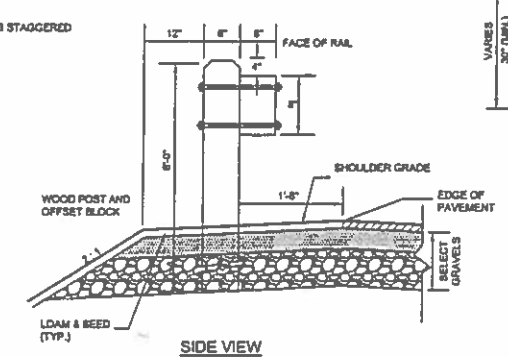
SPILLWAY DETAIL
NOT TO SCALE



ELEVATION



BOLT DETAIL

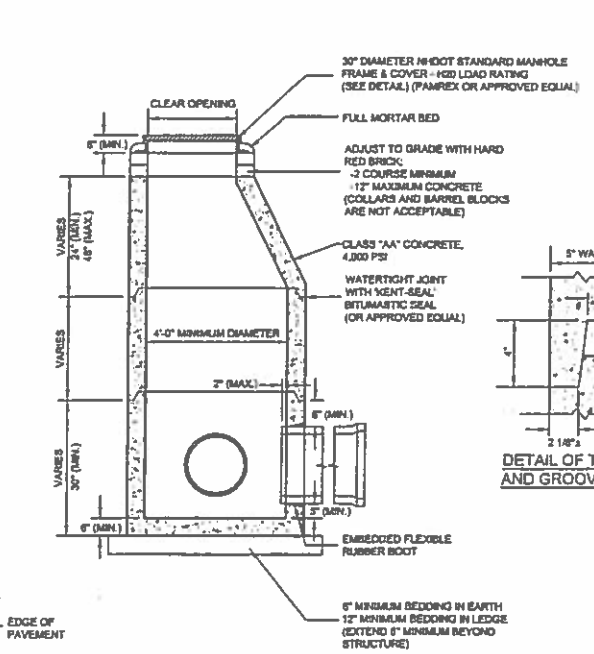


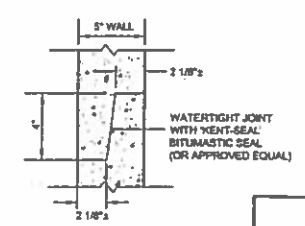
SIDE VIEW

NOTES:

1. ALL TIMBERS SHALL BE PRESSURE TREATED.
2. PAY LIMIT = PER LINEAR FOOT INCLUDING END SECTION.
3. ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED.

WOOD BEAM GUARDRAIL
NOT TO SCALE





DETAIL OF TONGUE AND GROOVE JOINT

NOTES:

1. STEPS ARE NOT ALLOWED.
2. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4,000 PSI). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER L.F. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER L.F.
4. MATERIALS AND CONSTRUCTION TO NHDOT STANDARDS.

PRECAST REINFORCED DRAIN MANHOLE DETAIL
NOT TO SCALE
(MARCH 2008)

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

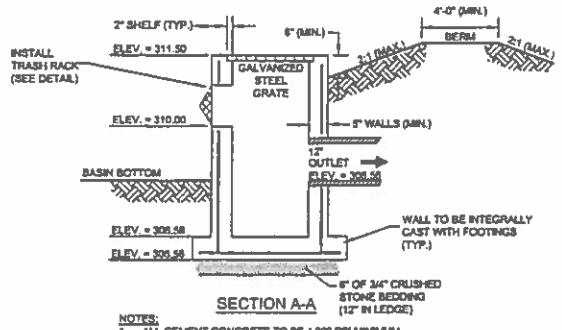
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering · Land Surveying · Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE · PATRICK R. COLBURN No. 12268 · LICENSED PROFESSIONAL ENGINEER
6/4/15

REVISIONS

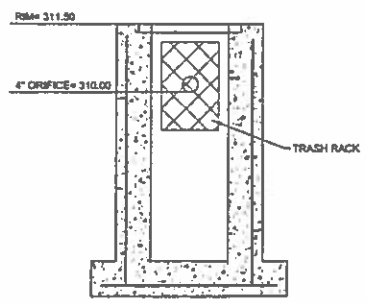
No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: AS SHOWN
PROJECT NO: 12-1212-1 | SHEET 17 OF 22



SECTION A-A

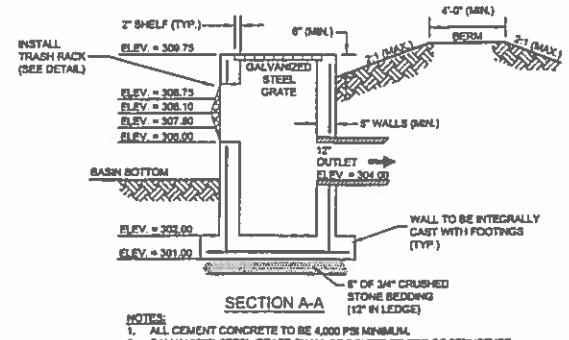
NOTES:
1. ALL CEMENT CONCRETE TO BE 4,000 PSI MINIMUM.
2. GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE.
3. ALL OPENINGS CAST IN AS REQUIRED.
4. PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478 DESIGNATION AND H-20 LOADING.



WEIR

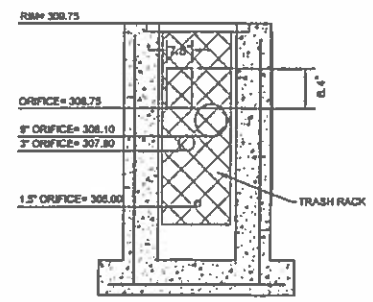
OUTLET CONTROL STRUCTURE #21

NOT TO SCALE



SECTION A-A

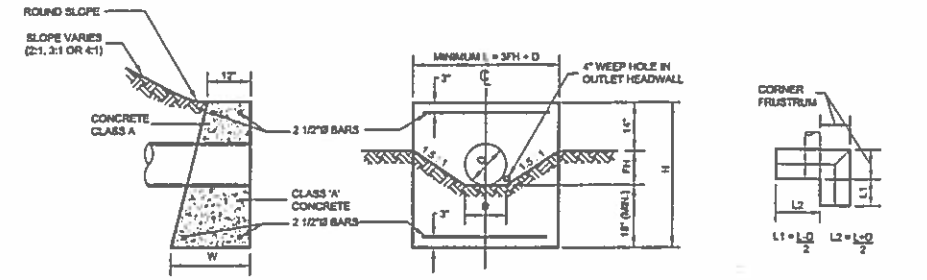
NOTES:
1. ALL CEMENT CONCRETE TO BE 4,000 PSI MINIMUM.
2. GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE.
3. ALL OPENINGS CAST IN AS REQUIRED.
4. PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478 DESIGNATION AND H-20 LOADING.



WEIR

OUTLET CONTROL STRUCTURE #11

NOT TO SCALE

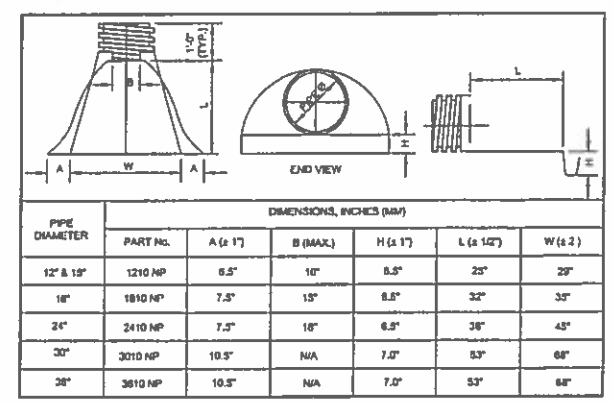


SECTION ON CENTERLINE | ELEVATION | PLAN OF 'L' HEADWALL

DIAMETER D (INCH)	AREA OF PIPE (SF)	MASONRY PER FOOT OF WALL (CU. YD.)	MASONRY PER HOLE (CU. FT.)	MASONRY PER STANDARD HEADER (CU. YD.)	STEEL PER STANDARD HEADER (LB)	LENGTH OF BARS	PIPE EXC. 1' DEPTH 1' LENGTH (CU. YD.)	HEADER EXC. PER HEADER 1' DEPTH (CU. YD.)	HEADER LENGTH L	HEADER HEIGHT H	FILL HEIGHT FH	h	WIDTH AT BOTTOM OF HEADER W	"L" HEADWALL MASONRY IN CORNER FRUSTRUM (CU. YD)	"L" HEADWALL HEADER EXC. PER HEADER 1' DEPTH (CU. YD.)
12"	0.79	0.204	2.00	0.80	11	3'-0"	0.111	0.811	4'-3"	3'-9"	1'-1"	1'-3"	1'-11 1/4"	0.31	1.195
15"	1.23	0.240	3.16	1.32	16	6'-6"	0.120	1.204	6'-0"	4'-3"	1'-7"	1'-6"	2'-3/4"	0.38	1.558
18"	1.77	0.280	4.31	1.86	16	8'-6"	0.130	1.375	7'-0"	4'-6"	1'-10"	1'-6"	2'-1 1/2"	0.42	1.700
24"	3.14	0.301	7.98	4.41	24	6'-6"	0.148	1.721	9'-0"	6'-0"	2'-4"	1'-6"	2'-3"	0.51	2.086
48"	12.57	0.438	21.99	5.95	42	13'-2"	0.296	3.000	1.31	15'-6"	6'-6"	3'-10"	2'-7 1/2"	0.84	3.447

HEADWALL DETAIL

NOT TO SCALE

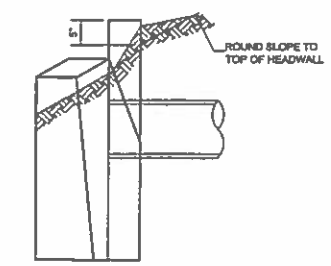


PIPE DIAMETER	DIMENSIONS, INCHES (MM)					
	PART No.	A (± 1")	B (MAX.)	H (± 1")	L (± 1/2")	W (± 2)
12" & 15"	1210 NP	5.5"	10"	5.5"	25"	29"
18"	1810 NP	7.5"	15"	6.5"	32"	35"
24"	2410 NP	7.5"	18"	6.5"	38"	45"
30"	3010 NP	10.5"	N/A	7.0"	53"	68"
36"	3610 NP	10.5"	N/A	7.0"	53"	68"

ADS END SECTION DETAIL

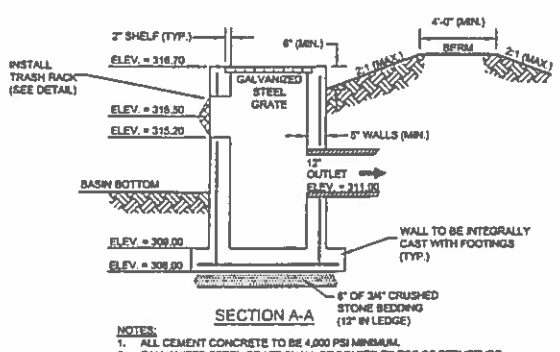
NOT TO SCALE

(MARCH 2008)



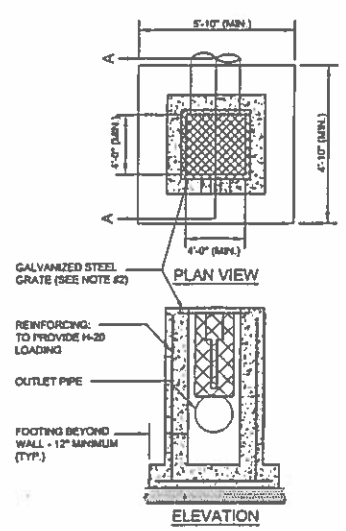
SLOPE ROUNDING AT TOP OF CULVERT HEADWALL

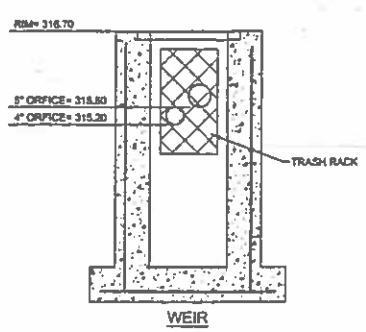
NOT TO SCALE



SECTION A-A

NOTES:
1. ALL CEMENT CONCRETE TO BE 4,000 PSI MINIMUM.
2. GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE.
3. ALL OPENINGS CAST IN AS REQUIRED.
4. PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478 DESIGNATION AND H-20 LOADING.

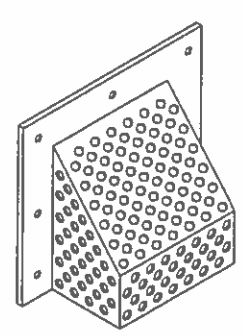




WEIR

OUTLET CONTROL STRUCTURE #31

NOT TO SCALE



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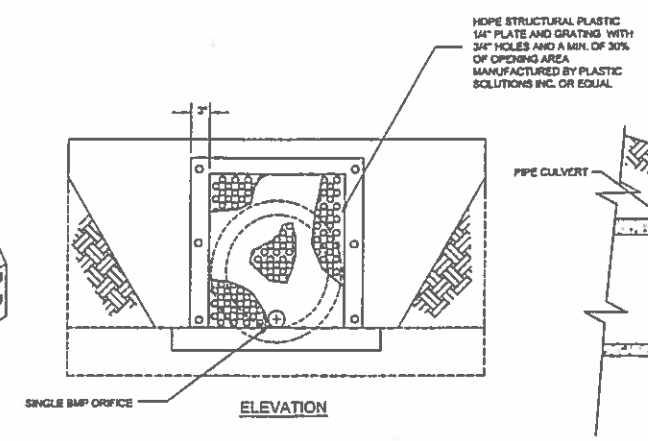


ELEVATION | SECTION

TRASH RACK DETAIL

NOT TO SCALE

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054
S.C.R.D. BK. 3927 PG. 453

APPLICANT:
183 WASHINGTON STREET, LLC.
746 D.W. HIGHWAY, UNIT B
MERRIMACK, NH 03054

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 12865 LICENSED PROFESSIONAL ENGINEER 8/7/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 18, 2015 | SCALE: AS SHOWN
PROJECT NO: 12-1212-1 | SHEET 18 OF 22

BEST MANAGEMENT PRACTICES FOR BLASTING

IF MORE THAN 5000 CUBIC YARDS ARE BLASTED:
IDENTIFY DRINKING WATER WELLS LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.

BEST MANAGEMENT PRACTICES FOR BLASTING.
ALL ACTIVITIES RELATED TO BLASTING SHALL FOLLOW BEST MANAGEMENT PRACTICES (BMPS) TO PREVENT CONTAMINATION OF GROUNDWATER INCLUDING PREPARING, REVIEWING AND FOLLOWING AN APPROVED BLASTING PLAN; PROPER DRILLING, EXPLOSIVE HANDING AND LOADING PROCEDURES; OBSERVING THE ENTIRE BLASTING PROCEDURES; EVALUATING BLASTING PERFORMANCE; AND HANDLING AND STORAGE OF BLASTED ROCK.

(1) LOADING PRACTICES.
THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
(A) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS.
(B) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF SITE DISPOSAL.
(C) SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF SITE DISPOSAL.
(D) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED.
(E) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT.
(F) EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
(2) EXPLOSIVE SELECTION.
THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
(A) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION.
(B) EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER.
(3) PREVENTION OF MISFIRES.
APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
(4) MUCK PILE MANAGEMENT.
MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOWING MEASURES:
(A) REMOVE THE MUCK PILE FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
(B) MANAGE THE INTERACTION OF BLASTED ROCK PILES AND STORMWATER TO PREVENT CONTAMINATION OF WATER SUPPLY WELLS OR SURFACE WATER.
(5) SPILL PREVENTION MEASURES AND SPILL MITIGATION.
PILL PREVENTION AND SPILL MITIGATION MEASURES SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF FUEL AND OTHER RELATED SUBSTANCES TO THE ENVIRONMENT. THE MEASURES SHALL INCLUDE AT A MINIMUM:
(A) THE FUEL STORAGE REQUIREMENTS SHALL INCLUDE:
1. STORAGE OF REGULATED SUBSTANCES ON AN IMPERVIOUS SURFACE.
2. SECURE STORAGE AREAS AGAINST UNAUTHORIZED ENTRY.
3. LABEL REGULATED CONTAINERS CLEARLY AND VISIBLY.
4. INSPECT STORAGE AREAS WEEKLY.
5. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS.
6. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS.
7. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
(B) THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
1. EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED.
2. PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS.
3. HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS.
4. USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES.
5. PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
(C) THE TRAINING OF ON SITE EMPLOYEES AND THE ON SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
(D) FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT WILL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NOTE THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT" OR ITS SUCCESSOR DOCUMENT.

TEST PITS 1-5 WITNESSED AND TECHNICAL INFORMATION PROVIDED BY STONEY RIDGE ENVIRONMENTAL, LLC

TP #1
LOGGED BY CMB
DATE: 3/23/2015
ESHWT: 28"
RESTRICTIVE LAYER: NONE
WATER ENCOUNTERED: NONE
ROOTS TO: 17"

DEPTH	
0"	10YR 4/3 FINE SANDY LOAM, GRANULAR, FRIABLE
14"	7.5YR 4/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22"	10YR 5/6 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
28"	5Y 5/8 FINE SAND, WEAK GRANULAR, VERY FRIABLE (MOTTLES: 10YR 5/8)
96" PIT LIMIT	

TP #2
LOGGED BY CMB
DATE: 3/23/2015
ESHWT: 36"
RESTRICTIVE LAYER: NONE
WATER ENCOUNTERED: NONE
ROOTS TO: 20"

DEPTH	
0"	10YR 3/2 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
7"	10YR 4/8 FINE SANDY LOAM, GRANULAR, FRIABLE
27"	2.5Y 8/4 LOAMY SAND, DISCONTIN. PAN, FIRM
36"	5Y 8/8 FINE SAND, GRANULAR, FRIABLE (MOTTLES: 7.5YR 5/8)
90" PIT LIMIT	

TP #3
LOGGED BY CMB
DATE: 3/23/2015
ESHWT: 98"
RESTRICTIVE LAYER: NONE
WATER ENCOUNTERED: NONE
ROOTS TO: 26"

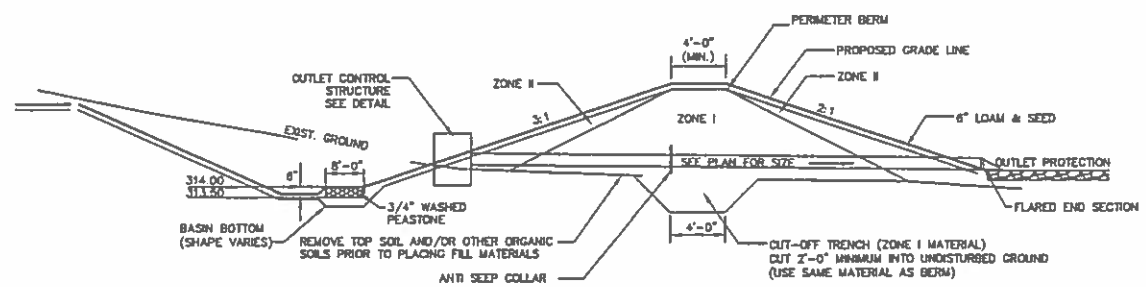
DEPTH	
0"	10YR 3/4 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
7"	10YR 4/8 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
18"	2.5Y 5/8 FINE SANDY LOAM, GRANULAR, FRIABLE
28"	2.5Y 5/4 FINE SAND, GRANULAR, FRIABLE
36"	5Y 5/4 SAND, GRANULAR, FRIABLE (MOTTLES: 7.5YR 5/8)
96" PIT LIMIT	

TP #4
LOGGED BY CMB
DATE: 3/23/2015
ESHWT: 28"
RESTRICTIVE LAYER: 52"
WATER ENCOUNTERED: NONE
ROOTS TO: 9"

DEPTH	
0"	10YR 3/4 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
8"	10YR 5/6 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
28"	2.5Y 5/4 SAND, SINGLE GRAIN, ON LEDGE @ 52"
52" PIT LIMIT	

TP #5
LOGGED BY CMB
DATE: 3/23/2015
ESHWT: 36"
RESTRICTIVE LAYER: 84"
WATER ENCOUNTERED: NONE
ROOTS TO: 33"

DEPTH	
0"	10YR 2/2 LOAM, WEAK GRANULAR, VERY FRIABLE
4"	10YR 3/2 FINE SANDY LOAM, WEAK GRANULAR, VERY FRIABLE
6"	10YR 4/8 FINE SANDY LOAM, GRANULAR, FRIABLE
20"	2.5Y 5/8 FINE SANDY LOAM, GRANULAR, FRIABLE
36"	5Y 5/8 SAND, SINGLE GRAIN, ON (MOTTLES: 7.5YR 5/8)
84" PIT LIMIT	



INFILTRATION POND
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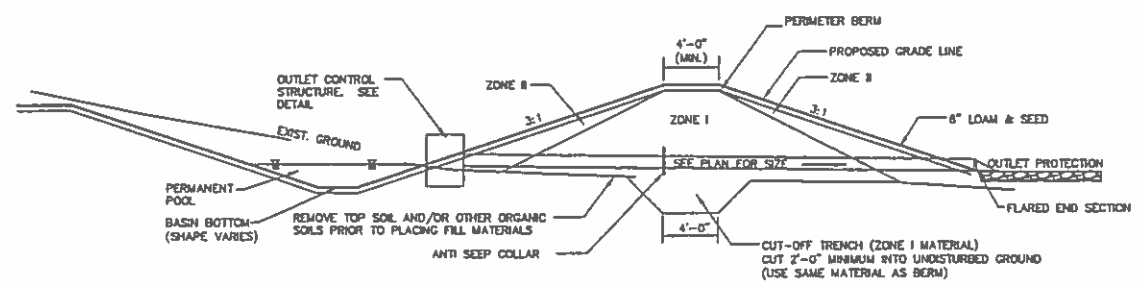
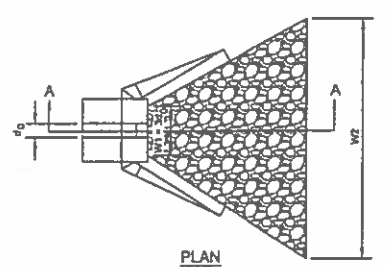
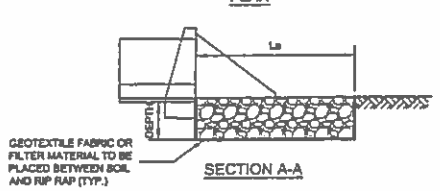


MICROPOOL EXTENDED DETENTION POND
NOT TO SCALE



PLAN



SECTION A-A

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL
NOT TO SCALE
(MARCH 2008)

LOCATION	La	W1	W2	d50	DEPTH
HW#12	SEE PLAN	SEE PLAN	SEE PLAN	6"	15"
FES#10	13'	3'	18'	3"	8"
FES#20	8'	3'	8'	3"	8"
FES#32	SEE PLAN	SEE PLAN	SEE PLAN	3"	8"
FES#30	9'	3'	12'	3"	6"

TABLE 7-24 – RECOMMENDED RIP RAP GRADATION RANGES	
PERCENT OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100%	1.5 TO 2.0 d50
85%	1.3 TO 1.8 d50
50%	1.0 TO 1.5 d50
15%	0.3 TO 0.5 d50

CONSTRUCTION SPECIFICATIONS:

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

MAINTENANCE:

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR RAIN EVENT. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

EARTH BERM CONSTRUCTION SEQUENCE

1. CONTRACTOR TO NOTIFY DIG-SAFE 72 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CUT AND CLEAR TREES AND BRUSH FROM CONSTRUCTION AREAS TO THE EXTENT NECESSARY. ALL BRANCHES, TOPS AND BRUSH TO BE PROPERLY DISPOSED OF BY CONTRACTOR.
3. PRIOR TO GRUBBING OF CLEARED AREAS, ALL SILTATION BARRIERS DESIGNED FOR USE AS TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED AS CALLED FOR ON PROJECT PLANS.
4. COMPLETE GRUBBING OPERATIONS. ALL STUMPS AND SIMILAR DEBRIS SHALL BE PROPERLY DISPOSED OF BY CONTRACTOR. ORGANIC MATERIAL SUITABLE FOR USE AS TOPSOIL SHALL BE STOCKPILED IN UPLAND AREAS. ALL STOCKPILES SHALL BE SEEDED WITH WINTER RYE AND IF NECESSARY SURROUNDED WITH HAY BALES IN ORDER TO PREVENT LOSS DUE TO EROSION.
5. CONSTRUCT TEMPORARY CULVERTS AS NECESSARY TO FACILITATE CONSTRUCTION ACTIVITIES. ALL SUCH CROSSINGS SHALL BE PROTECTED WITH HAY BALE BARRIERS TO LIMIT EROSION.
6. PERFORM EARTHWORK CUT/FILLS REQUIRED TO SHAPE SEDIMENT FOREBAY AND STORMWATER BASIN.
7. CONSTRUCT OUTLET & OVERFLOW STRUCTURE, WEIR, CULVERT, HEADWALL, AND RIP RAP OUTLET PROTECTION AS SHOWN ON PLANS.
8. CONSTRUCT ZONE I PORTION OF EARTH EMBANKMENT.
9. CONSTRUCT ZONE II PORTION OF EARTH EMBANKMENT.
10. APPLY TOPSOIL TO SLOPES AND OTHER AREAS DISTURBED BY CONSTRUCTION. TOPSOIL USED MAY BE NATIVE ORGANIC MATERIAL SCREENED SO AS TO BE FREE OF ROOTS, BRANCHES, STONES, AND OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL BE APPLIED SO AS TO PROVIDE A MINIMUM OF A 4-INCH COMPACTED THICKNESS. UPON COMPLETION OF TOPSOILING, FINISHED SECTIONS ARE TO BE LIMED, SEEDED AND MULCHED. CONSTRUCTION PERSONNEL SHALL INSPECT COMPLETED SECTIONS OF WORK ON A REGULAR BASIS AND REMEDY ANY PROBLEM AREAS UNTIL A HEALTHY STAND OF GRASS HAS BECOME ESTABLISHED.
11. MAINTAIN, REPAIR, AND REPLACE AS NECESSARY TEMPORARY EROSION CONTROL MEASURES UNTIL SUCH TIME AS THE ENTIRE CONSTRUCTION AREA HAS BEEN STABILIZED (A MINIMUM OF ONE WINTER SHALL HAVE PASSED).
12. AFTER STABILIZATION REMOVE AND SUITABLY DISPOSE OF TEMPORARY EROSION CONTROL MEASURES.
13. MONITOR CONSTRUCTION ACTIVITIES TO INSURE CONSTRUCTION ACTIVITIES ARE BEING PERFORMED IN SUCH A WAY AS NOT TO ENDANGER THE INTEGRITY OF EARTH EMBANKMENTS, STORMWATER CONTROL STRUCTURE, CULVERT AND RIP RAP OUTLET PROTECTION.

TYPICAL STORMWATER BASIN CROSS SECTION NOTES
NOT TO SCALE

MATERIAL TYPE/SPECIFICATIONS

ZONE I
WELL GRADED MIXTURE OF GRAVEL, SAND, SILT OR CLAY WITH MAX. 6-INCH SIZE STONE AND GRADATION AS INDICATED BELOW. PLACE IN MAX. 12-INCH THICK LIFTS TO 95% OF MAX. DRY DENSITY IN ACCORDANCE WITH ASTM D1557 SCARIFY SURFACE PRIOR TO PLACING SUBSEQUENT LIFT. IN ADDITION, REMOVE ORGANIC SOILS.

SIEVE SIZE	PERCENT BY WEIGHT PASSING
6-INCH	100
NO. 4	50 TO 100
NO. 40	30 TO 70
NO. 200	20 TO 40

ZONE II
DRAINAGE LAYER: PLACE IN MAX. 12-INCH THICK LIFTS TO 95% OF MAX. DRY DENSITY IN ACCORDANCE WITH ASTM D1557.

SIEVE SIZE	PERCENT BY WEIGHT PASSING
1-INCH	100
NO. 4	70-100
NO. 200	0-12 (IN SAND PORTION ONLY)

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C
MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
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STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 12986 LICENSED PROFESSIONAL ENGINEER 6/15/15

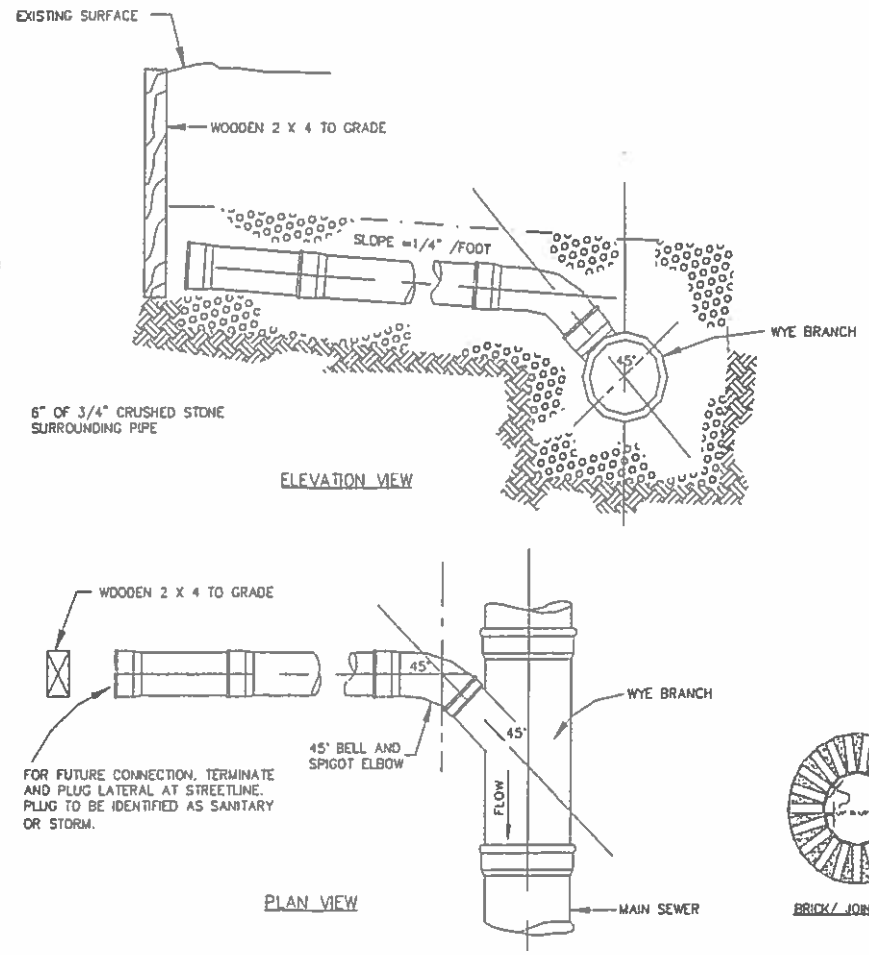
REVISIONS

No.	DATE	DESCRIPTION	BY

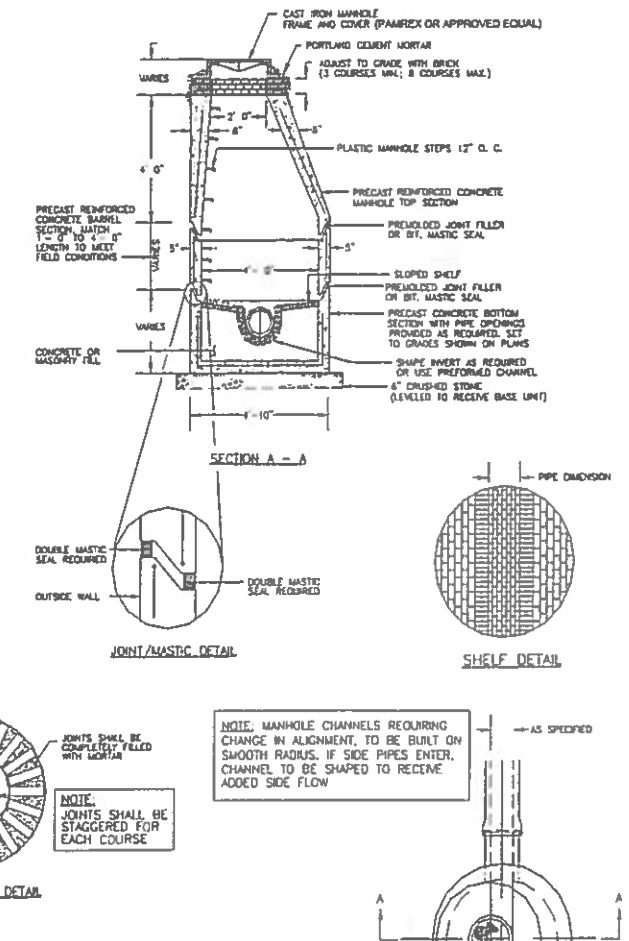
DATE: JUNE 16, 2015 SCALE: AS SHOWN
PROJECT NO: 12-1212-1 SHEET 19 OF 22

SANITARY SEWER PIPE NOTES:

1. MINIMUM SIZE PIPE FOR UNIT SERVICE SHALL BE 4 INCHES UNLESS OTHERWISE NOTED. MINIMUM SIZE FOR STREET SEWER LINES SHALL BE 8 INCHES.
2. PIPE AND JOINT MATERIALS:
   A. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA):
      1. AWWA C151/A21.51-02 - FOR DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL OR SAND-LINED MOLDS, FOR WATER OR OTHER LIQUIDS;
      2. AWWA C150/A21.50-02 - FOR THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A536-84 (2004) DUCTILE IRON CASTINGS;
      3. JOINTS SHALL BE MECHANICAL, PUSH-ON OR BALL-AND-SOCKET TYPE.
   B. PLASTIC SEWER PIPE AND FITTINGS SHALL COMPLY WITH THE FOLLOWING STANDARDS:
      1. ASTM D3034-04A - PVC, SOLID WALL;
      2. AT LEAST 48 PSI AT 5% PIPE DIAMETER DEFLECTION, AS MEASURED IN ACCORDANCE WITH ASTM D2414-02 DURING MANUFACTURING; AND
      3. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96A(2003)E1 AND SHALL BE PUSH-ON OR BELL-AND-SPIGOT TYPE.
3. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
4. JOINTS SHALL BE DEPENDENT UPON PROPER MATERIALS (SEE NOTE #2) FOR WATER TIGHTNESS, AND ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.
5. ALL NEW CONSTRUCTION SERVICE CONNECTIONS SHALL USE TEE OR WYE FITTINGS. IN EXISTING CONSTRUCTION WHERE A TEE OR WYE IS NOT AVAILABLE, THE APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING THE MANUFACTURERS INSTRUCTIONS USING A BOLTED, CLAMPED OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, APPLYING MORTAR TO HOLD THE CONNECTION OR ANY OTHER SIMILAR CRUDE PRACTICES WILL NOT BE PERMITTED. SADDLE CONNECTIONS SHALL BE CONCRETE ENCASED IF DIRECTED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
6. PIPE INSTALLATION:
   A. THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER.
   B. PIPES SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL.
   C. BEDDING AND RE-FILL, FOR A DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE, SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH THE APPROPRIATE MECHANICAL DEVICES.
   D. THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE HOUSE FOUNDATION AT A GRADE OF NOT LESS THAN U8 INCH PER FOOT.
   E. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
7. TESTING: THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)
   A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.
   B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF THE TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEAN OUT WITH A FLASHLIGHT.
   C. DRY FLUORESCENCE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWNSTREAM MANHOLE.
   D. LEAKAGE OBSERVED IN ANY OF THE ABOVE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP, IF NECESSARY, AND RE-LAID SO AS TO ASSURE WATER-TIGHTNESS.
8. ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM TOILETS, SINKS, LAUNDRY, ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR ANY OTHER SIMILAR CONNECTION CARRYING RAIN WATER, DRAINAGE OR GROUND WATER, SHALL NOT BE PERMITTED.
9. WATER SERVICE SHALL NOT BE LAID IN THE SAME TRENCH AS THE SEWER SERVICE, UNLESS NECESSARY AND APPROVED BY THE AHJ. WHEN NECESSARY, THE WATER SERVICE SHALL BE PLACED ABOVE AND TO ONE SIDE OF THE SEWER SERVICE, AS SHOWN.
10. LOCATION: THE LOCATION OF THE WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS MATERIAL, ROD OR PIPE SHALL BE PLACED OVER THE WYE TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.
11. CHIMNEY CONNECTIONS ARE ONLY PERMITTED IF ALLOWED BY THE AHJ. ANY VERTICAL RISE GREATER THAN 4 FEET SHALL BE PROVIDE WITH ADDED SUPPORT BY ENCASING THE FITTING AND RISER IN A PRECAST CONCRETE CHIMNEY. UP TO 12 FEET OF VERTICAL RISE CAN ALSO BE SECURED BY PROPER MEANS AS LONG AS IT CONSISTS OF A BELL-ON-BELL CONNECTION PROPERLY PROTECTED AGAINST PIPE PENETRATION AND IF IT IS ALLOWED BY THE AHJ.
12. UNLESS OTHERWISE NOTED, ALL GRANULAR MATERIAL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO 95% OF THE MODIFIED PROCTOR TEST DENSITY.



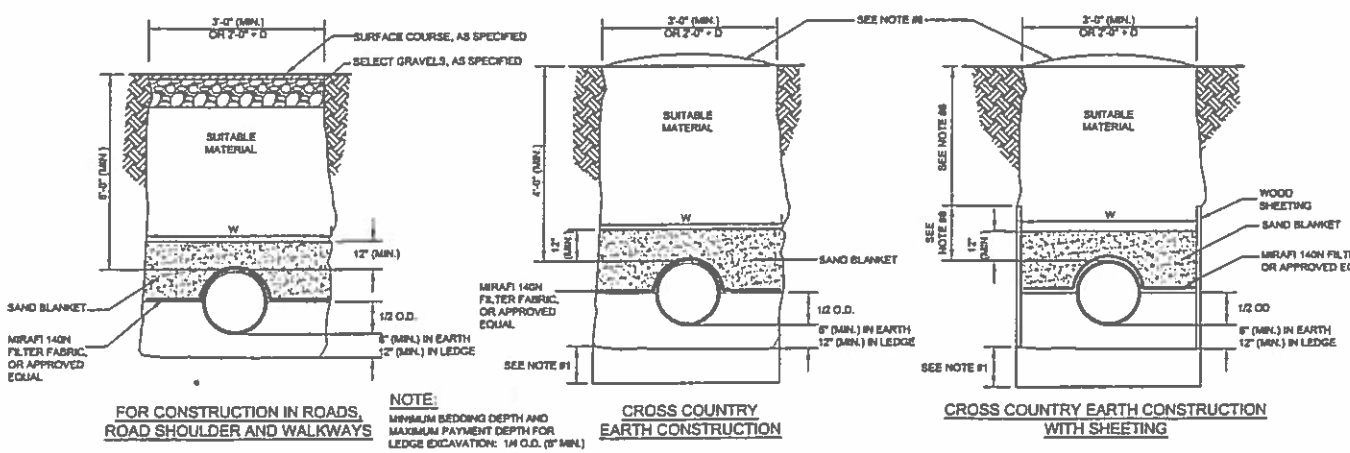
SANITARY SEWER SERVICE DETAIL
NOT TO SCALE



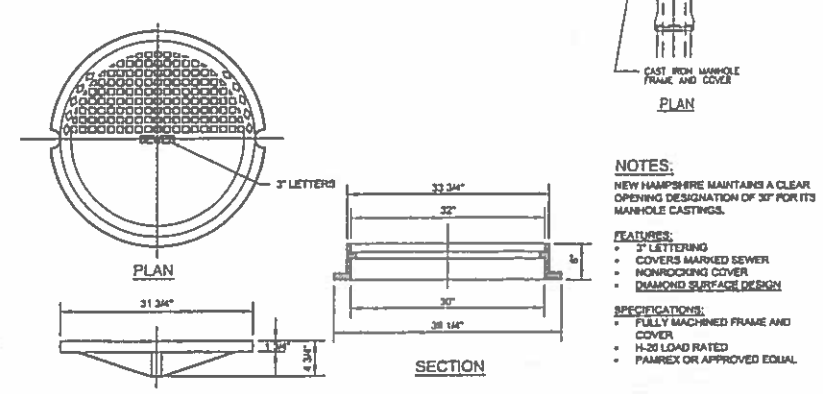
SANITARY SEWER MANHOLE
NOT TO SCALE

SANITARY SEWER STRUCTURES NOTES:

1. ALL COMPONENT PARTS OF MANHOLE STRUCTURES SHALL HAVE THE STRENGTH, LEAK RESISTANCE AND SPACE NECESSARY FOR THE INTENDED SERVICE.
2. MANHOLE STRUCTURES SHALL HAVE A LIFE EXPECTANCY IN EXCESS OF 25 YEARS.
3. MANHOLE STRUCTURES SHALL BE DESIGNED TO WITHSTAND H-20 LOADING AND SHALL NOT LEAK IN EXCESS OF ONE GPD PER VERTICAL FOOT OF MANHOLE FOR THE LIFE OF THE STRUCTURE.
4. BARRELS AND CONE SECTIONS SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE AND SHALL CONFORM TO ASTM C478.
5. BEDDING: CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33
   100% PASSING 1 INCH SCREEN
   90% PASSING 3/4 INCH SCREEN
   20-55% PASSING 3/8 INCH SCREEN
   0-10% PASSING #4 SIEVE
   0-5% PASSING #8 SIEVE
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.
6. BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE INCOMING PIPE.
7. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATER-TIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT.
8. PIPE TO MANHOLE JOINTS SHALL BE AS FOLLOWS:
   A. ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES;
   B. CAST INTO THE WALL OR SECURED WITH STAINLESS STEEL CLAMPS;
   C. ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING; AND
9. MANHOLE CONE SECTIONS SHALL BE ECCENTRIC IN SHAPE.
10. ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OR TRADEMARK OF THE MANUFACTURER IMPRESSED OR INDELIBLY MARKED ON THE INSIDE WALL.
11. MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY. INVERTS AND SHELVES SHALL BE PLACED AFTER TESTING.
12. MATERIALS OF CONSTRUCTION FOR MANHOLES SHALL BE AS FOLLOWS.
   A. CONCRETE FOR CAST-IN-PLACE BASES OR COMPLETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS FOR CLASS AA CONCRETE IN THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION";
   B. REINFORCING FOR CAST-IN-PLACE CONCRETE SHALL BE STEEL OR STRUCTURAL FIBERS THAT CONFORM TO THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION";
   C. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478-02;
   D. THE MANHOLE FRAME AND COVER SHALL PROVIDE A 30-INCH DIAMETER CLEAR OPENING;
   E. THE MANHOLE COVER SHALL HAVE THE WORD "SEWER" IN 3-INCH LETTERS CAST INTO THE TOP SURFACE;
   F. THE COVER SHALL BE PAMREX OR APPROVED EQUAL;
   G. CONTACT SURFACES OF COVERS AND FRAMES SHALL BE MACHINED AT THE FOUNDRY TO PREVENT ROCKING OF COVERS IN ANY ORIENTATION;
   H. CASTINGS SHALL BE EQUAL TO CLASS 30, CONFORMING TO ASTM A48/A84-03;
   I. BRICK MASONRY FOR SHELF, INVERT AND GRADE ADJUSTMENT SHALL COMPLY WITH ASTM C33-03, CLAY OR SHALE, FOR GRADE S3 HARD BRICK;
   J. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
   K. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
      1. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      2. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PARTS HYDRATED LIME.
   L. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-03;
   M. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES";
   N. SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES";
   O. CONCRETE FOR DROP SUPPORTS SHALL CONFORM TO THE REQUIREMENT FOR CLASS AAA CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION";
   P. SUBJECT TO (Q) BELOW, A FLEXIBLE PIPE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES FROM ANY MANHOLE CONNECTION:
      1. WITHIN 48-INCHES FOR REINFORCED CONCRETE (RC) PIPE; AND
      2. WITHIN 60-INCHES FOR PVC PIPE LARGER THAN 15-INCH DIAMETER;
   Q. NO FLEXIBLE JOINT SHALL BE REQUIRED FOR DI PIPE OR FOR PVC PIPE UP THROUGH 15-INCH DIAMETER; AND
   R. WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED IN LIEU OF A CONE SECTION, PROVIDED THE SLAB HAS AN ECCENTRIC ENTRANCE OPENING AND IS CAPABLE OF SUPPORTING H-20 LOADS.
13. MANHOLE STEPS SHALL:
   A. BE PERMITTED ONLY AT THE REQUEST OF THE SYSTEM OWNER;
   B. BE MANUFACTURED OF STAINLESS, PLASTIC-COVERED STEEL OR PLASTIC;
   C. BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL INTO WHICH THEY ARE SECURED;
   D. MEET THE REQUIREMENTS OF ASTM C478-06 FOR LOAD CARRYING CAPACITY AND PULL-OUT RESISTANCE;
   E. NOT BE SECURED WITH MORTAR;
   F. BE APPROXIMATELY 14-INCHES BY 10-INCHES IN DIMENSION;
   G. HAVE A DROP SECTION OR RAISED ABUTMENTS TO PREVENT SIDEWAYS SLIPPAGE OFF THE STEP; AND
   H. HAVE NON-SKID SAFETY SERRATIONS ON THE FOOT CONTACT SURFACES.
14. MANHOLE TESTING:
   A. MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST.
   B. THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:
      1. THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg; AND
      2. THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR A 1-INCH Hg PRESSURE DROP TO 9 INCH Hg SHALL BE:
         a. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP IN DEPTH;
         b. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP; AND
         c. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.
   C. THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED IN (B) ABOVE.
   D. FOLLOWING COMPLETION OF THE LEAKAGE TEST, THE FRAME AND COVER SHALL BE PLACED ON THE TOP OF THE MANHOLE OR SOME OTHER MEANS USED TO PREVENT ACCIDENTAL ENTRY BY UNAUTHORIZED PERSONS, CHILDREN OR ANIMALS UNTIL THE CONTRACTOR IS READY TO MAKE FINAL ADJUSTMENTS TO GRADE.



SANITARY SEWER TRENCH DETAIL
NOT TO SCALE
(MARCH 2011)



NOTES:
NEW HAMPSHIRE MAINTAINS A CLEAR OPENING DESIGNATION OF 30" FOR ITS MANHOLE CASTINGS.

FEATURES:
- 3" LETTERING
- COVERS MARKED SEWER
- NONROCKING COVER
- DIAMOND SURFACE DESIGN

SPECIFICATIONS:
- FULLY MACHINED FRAME AND COVER
- H-20 LOAD RATED
- PAMREX OR APPROVED EQUAL

SEWER MANHOLE FRAME AND COVER DETAIL
NOT TO SCALE
(MARCH 2008)

SANITARY SEWER CONSTRUCTION NOTES:

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL, ALSO SEE NOTE #7.

   BEDDING: CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33-03 STONE SIZE NO. 67.

   100% PASSING 1 INCH SCREEN
   90 - 100% PASSING 3/4 INCH SCREEN
   20 - 55% PASSING 3/8 INCH SCREEN
   0 - 10% PASSING # 4 SIEVE
   0 - 5% PASSING # 8 SIEVE

   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED CRUSHED STONE 1/2 INCH TO 1-1/2 INCHES SHALL BE USED.
2. SAND BLANKET: GRADED CLEAN SAND FREE FROM ORGANIC MATTER, SO THAT 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 12% WILL PASS A # 200 SIEVE. BLANKET MAY BE OMITTED FOR CAST IRON, DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED, HOWEVER, THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.
3. MIRAFI 140 N FILTER FABRIC, OR APPROVED EQUAL, SHALL BE INSTALLED ABOVE PIPE.
4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY. ALL EXCAVATED LEDGE MATERIAL AND ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

   IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT IF HE/SHE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER WILL BE PRESERVED FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY.
5. BASE COURSE, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS."
6. WOOD SHEETING, IF REQUIRED, WHERE PLACED ALONGSIDE THE PIPE AND EXTENDING BELOW MID-DIAMETER, SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
7. W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 18 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 18 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
9. NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE 10 FEET OF SEPARATION BETWEEN WATER AND SEWER. HOWEVER, SHOULD CONSTRUCTION REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FEET HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICAL TO RELOCATE THE SEWER, A DEVIATION MAY BE GRANTED PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENT SPECIFIED BELOW:
   A. FORCEMAINS SHALL BE CONSTRUCTED FROM DUCTILE IRON, HIGH DENSITY POLYETHYLENE, OR PVC PER ENV-WQ 704.08(a).
      PVC SHALL CONFORM TO ASTM D2241-05 OR ASTM D1785-05
      HDPE SHALL CONFORM TO ASTM D3035-03a
      DI SHALL BE CORROSION PROTECTED IN CORROSIVE ENVIRONMENTS
10. WHERE WATER LINES AND SEWER LINES CROSS, THEY SHOULD CROSS AS PERPENDICULAR AS POSSIBLE AND THE WATER MAIN SHALL CROSS AT LEAST 18" INCHES ABOVE THE SEWER. FURTHER, THE SEWER JOINTS SHALL BE LOCATED AT LEAST 8 FEET HORIZONTALLY FROM THE WATER MAIN.
11. ALL SEWERS AT 8 PERCENT SLOPE, OR GREATER, SHALL HAVE IMPERVIOUS TRENCH DAMS CONSTRUCTED EVERY 300 FEET.
12. UNLESS OTHERWISE NOTED, ALL GRANULAR MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO 95% OF THE MODIFIED PROCTOR TEST.
13. WHERE WATER MAINS CROSS UNDER SEWER MAINS, BOTH THE SEWER AND WATER MAINS SHALL BE PRESSURE RATED PIPE PER ENV-WQ 704.08 AND TESTED PER AWWA C600-05 AT 1.5 TIMES DESIGN PRESSURE OR 100 PSI, WHICHEVER IS GREATER, WITH NO JOINTS WITHIN 9 FEET OF THE CROSSING POINT AND 18" MINIMUM VERTICAL SEPARATION.
14. GRAVITY PIPE SEWER TESTING:
   A. ALL NEW GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY THE USE OF LOW-PRESSURE AIR TESTS.
   B. LOW-PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH:
      1. ASTM F1417-92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW-PRESSURE AIR;" OR
      2. UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE" (1998).
   C. ALL NEW GRAVITY SEWERS SHALL BE CLEANED AND VISUALLY INSPECTED AND SHALL BE TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.
   D. ALL PLASTIC SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS FOLLOWING INSTALLATION.
   E. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 7-1/2 PERCENT OF AVERAGE INSIDE DIAMETER.

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

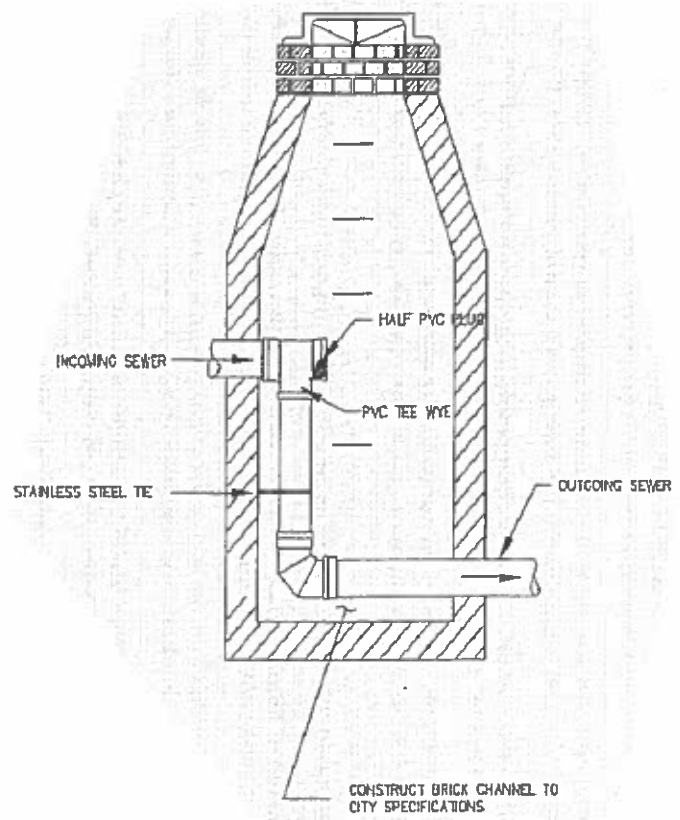
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2561

STATE OF NEW HAMPSHIRE - PATRICK R. COLBURN No. 12238 - LICENSED PROFESSIONAL ENGINEER - 6/9/15

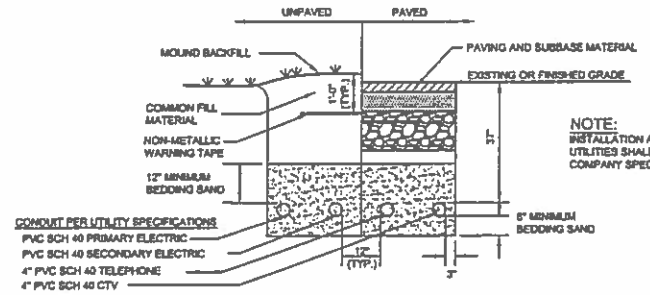
REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: AS SHOWN
PROJECT NO: 12-1212-1	SHEET 20 OF 22

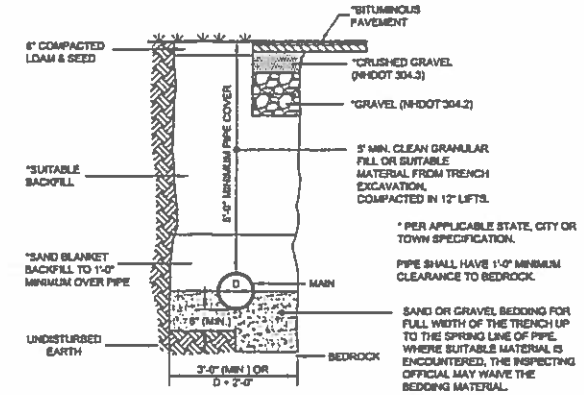


INSIDE DROP FOR EXISTING MANHOLE DETAIL
NOT TO SCALE

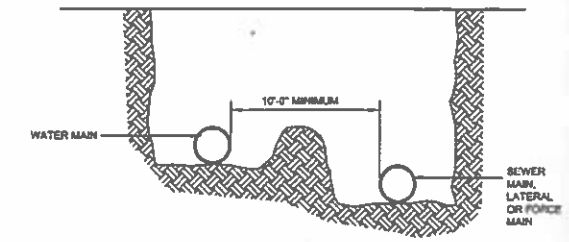


NOTE:
INSTALLATION AND MATERIALS OF UNDERGROUND UTILITIES SHALL CONFORM TO LOCAL UTILITY COMPANY SPECIFICATIONS.

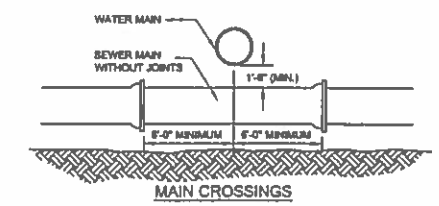
UTILITY TRENCH DETAIL
NOT TO SCALE
(MARCH 2008)



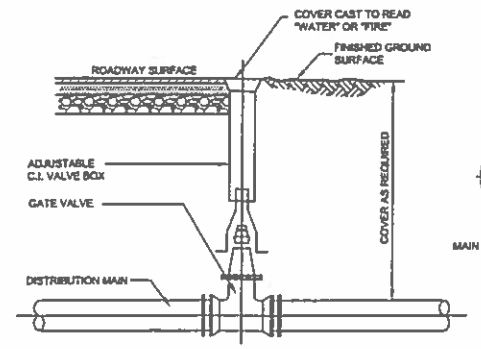
WATER LINE TRENCH DETAIL
NOT TO SCALE
(MARCH 2008)

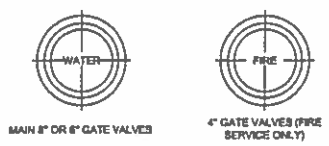


PARALLEL INSTALLATION



MAIN CROSSINGS
WATER PIPE/SEWER PIPE SEPARATION
NOT TO SCALE

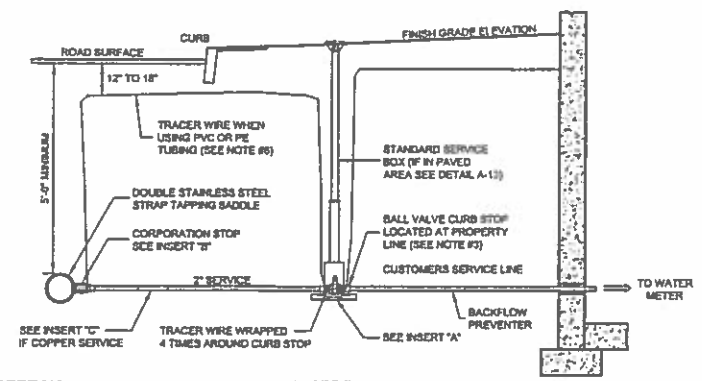


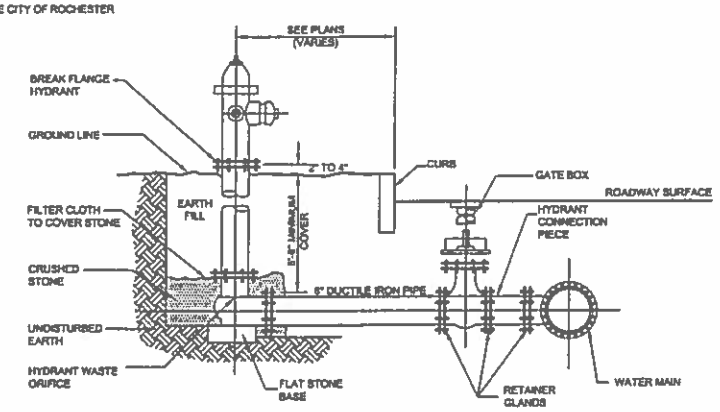


GATE BOX COVERS

NOTE:
1. GATE VALVES AND GATE BOXES SHALL BE INSTALLED IN CONFORMANCE WITH THE CITY OF ROCHESTER DEPARTMENT OF PUBLIC WORKS STANDARDS OF INFRASTRUCTURE DESIGN.

WATER GATE VALVE
NOT TO SCALE
(MARCH 2008)





NOTE:
PROPER RESTRAINT REQUIRED THROUGHOUT TO FIX HYDRANT TO MAIN.

HYDRANT INSTALLATION
NOT TO SCALE
(MARCH 2008)

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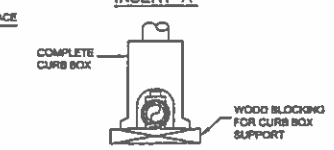

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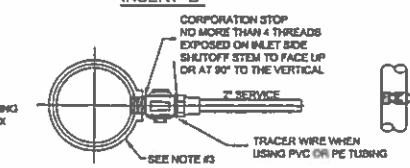
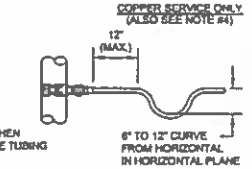
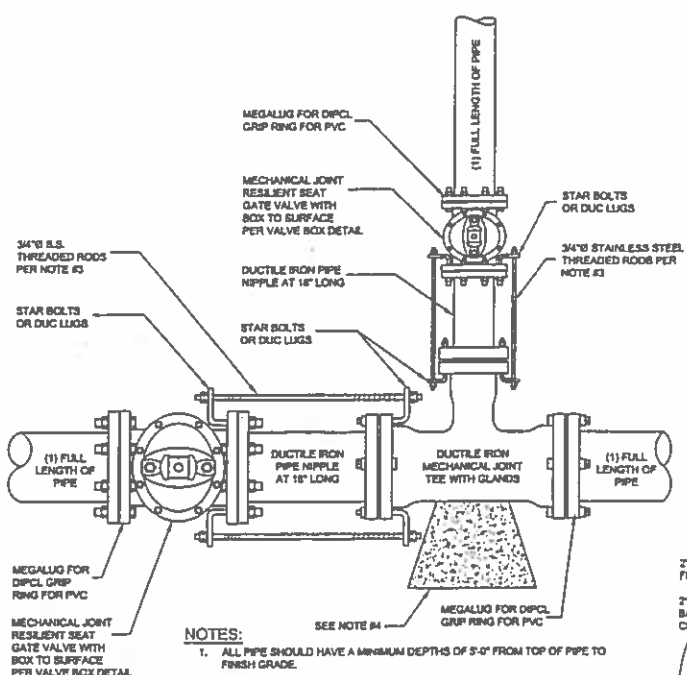


INSERT "C"
COPPER SERVICE ONLY (ALSO SEE NOTE #4)



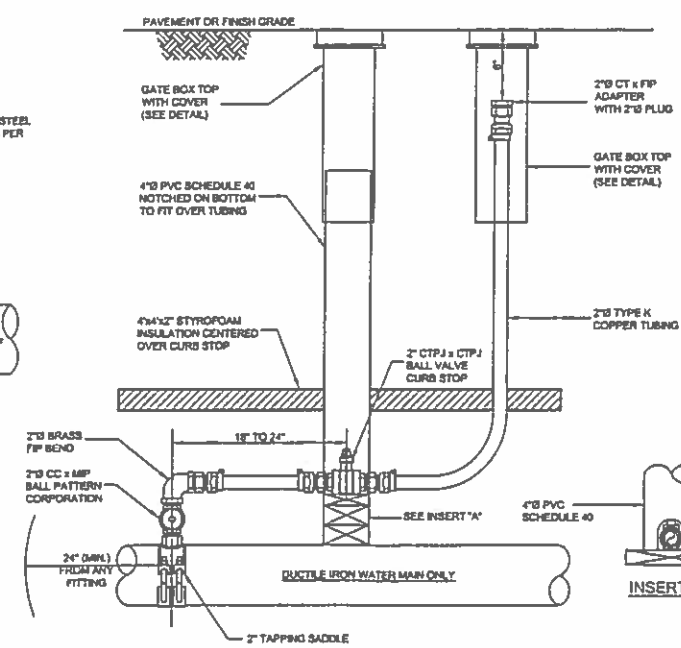
NOTES:
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO CITY OF ROCHESTER DPW TECHNICAL SPECIFICATIONS.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5'-0" FROM TOP OF PIPE TO FINISH GRADE.
3. 10 GAUGE TRACER WIRE AS MANUFACTURED BY 3M3, DIVISION OF ALBESTAR CORP., AVON, MA OR EQUIVALENT.

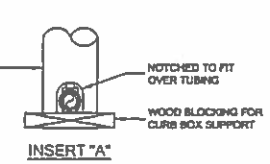
2" SERVICE AND VALVE BOX INSTALLATION DETAIL
(A-20)
NOT TO SCALE
(MARCH 2008)



NOTES:
1. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 5'-0" FROM TOP OF PIPE TO FINISH GRADE.
2. 3/4"Ø S.S. RODS SHALL BE USED IN CONJUNCTION WITH REQUIRED S.S. NUTS. RODS ARE TO BE ATTACHED TO FITTINGS WITH EITHER STAR BOLTS OR DUC LUGS.
   10" FITTING OR SMALLER = (2) 3/4"Ø S.S. RODS & ASSOCIATED HARDWARE.
   12" FITTING OR LARGER = (4) 3/4"Ø S.S. RODS & ASSOCIATED HARDWARE.

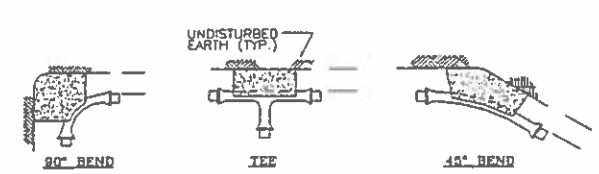
TEE INSTALLATION
(A-06)
NOT TO SCALE
(MARCH 2008)





INSERT "A"

2" RELEASE VALVE INSTALLATION ON DUCTILE IRON
(A-04)
NOT TO SCALE
(MARCH 2008)



$Ab = \frac{ST}{Sb}$

Ab = Thrust Block Area (ft2)

St = Safety Factor (1.5 unless otherwise noted)

T = Resultant Trust Force = PA (2PA sin (θ/2) for bends)

P = Design Pressure (psi)

A = Cross Sectional Area of Pipe (in2)

θ = Bend Angle (Degrees)

Sb = Bearing Strength of Soil (lb/ft2)

Soil	Bearing Strength, Sb (lb/ft2)
Muck	0
Soft Clay	1,000
Silt	1,500
Sandy Silt	3,000
Sand	4,000
Sandy Clay	6,000
Hard Clay	9,000

NOTE:
1. THRUST BLOCKS SHALL BE INSTALLED IN CONFORMANCE WITH THE CITY OF ROCHESTER DEPARTMENT OF PUBLIC WORKS STANDARDS OF INFRASTRUCTURE DESIGN.

THRUST BLOCK DETAIL
NOT TO SCALE

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

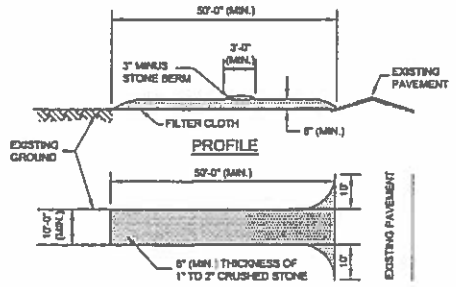
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE PATRICK N. COLBURN No. 12065 LICENSED PROFESSIONAL ENGINEER 6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015	SCALE: AS SHOWN
PROJECT NO: 12-1212-1	SHEET 21 OF 22



PLAN VIEW

STABILIZED CONSTRUCTION EXIT DETAIL

NOT TO SCALE
(MARCH 2008)

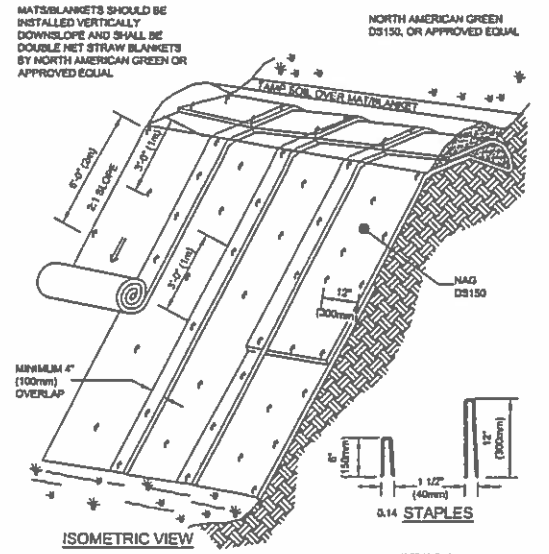
MAINTENANCE:

MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE CRUSHED STONE AND THE EFFECTIVENESS OF THE CRUSHED STONE PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOPDRESSED WITH NEW CRUSHED STONE OR COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.

IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS:

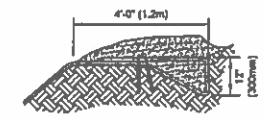
1. STONE FOR A STABILIZED CONSTRUCTION EXIT SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED EXIT SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED EXIT SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE EXIT SHALL NOT BE LESS THAN THE FULL WIDTH OF THE AREA WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION EXIT SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.



ISOMETRIC VIEW

NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.



BERM

EROSION CONTROL BLANKETS - SLOPE INSTALLATION

NOT TO SCALE
(AUGUST 2011)

WINTER CONSTRUCTION NOTES:

1. ALL PROPOSED POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 4:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3 OR, IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON, BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.
4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-ERODIBLE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

DEWATERING NOTES:

1. THE PROPOSED PROJECT IS SCHEDULED TO TAKE PLACE IN THE "DRY" SEASON AND DOES NOT ANTICIPATE ANY DEWATERING ACTIVITIES. HOWEVER, SHOULD DEWATERING ACTIVITIES BECOME NECESSARY DUE TO ACTUAL WET FIELD CONDITIONS, THE SITE CONTRACTOR SHALL BE REQUIRED TO PREPARE A DEWATERING PLAN FOR APPROVAL BY THE MUNICIPALITY, PRIOR TO PERFORMING ANY DEWATERING ACTIVITIES.
2. SHOULD A DEWATERING PLAN BE REQUIRED, THE PLAN SHALL CONTAIN THE MINIMUM ITEMS:
   A. PLAN SKETCH: (PREPARED TO SCALE - INDICATING THE FOLLOWING)
      - ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL BMP'S
      - BYPASS CHANNEL OR PIPE LOCATION, ELEVATION, SIZE, AND MATERIAL TYPE
      - PUMP SIZE, TYPE, LOCATION, OPERATING PARAMETERS (POWER, CAPACITY)
      - INTAKE LINE - SIZE & LOCATION
      - TEMPORARY IMPOUNDMENT VOLUME
      - DISCHARGE LINE - SIZE AND LOCATION
      - TEMPORARY DISCHARGE SCOUR PROTECTION
   B. OPERATIONS & EMERGENCY CONTACT LIST: (NAME, ADDRESS, PHONE)
      - CONTRACTOR AND TOWN OFFICIALS (HIGHWAY AGENT, FIRE, POLICE, RESCUE)
   C. DEWATERING SCHEDULE:
      - ANTICIPATED START DATE AND END DATE
      - DAILY HOURS OF OPERATION
   D. CONTINGENCY PLAN

REFERENCE CONSTRUCTION STANDARDS/SPECIFICATIONS:

THE FOLLOWING CONSTRUCTION STANDARDS/SPECIFICATIONS/REFERENCES ARE TO BE UTILIZED IN CONCERT WITH THE APPROVED PLANS:

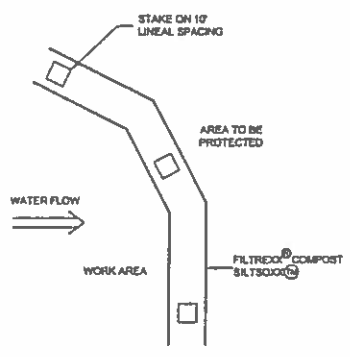
1. NHDOT - STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
2. NHDOT - STANDARD PLANS FOR ROAD CONSTRUCTION, LATEST EDITION.
3. CITY OF ROCHESTER - CONSTRUCTION STANDARDS, LATEST REVISION.
4. AASHTO - A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, LATEST EDITION.
5. FHWA - THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.

CONSTRUCTION SEQUENCE

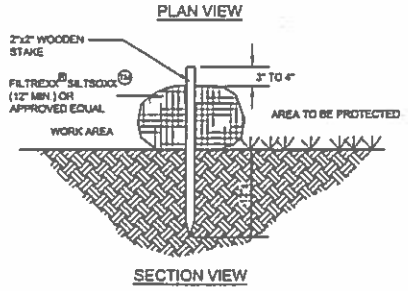
1. FIRST CUT AND CLEAR TREES AND BRUSH ONLY WITHIN DESIGNATED LIMITS OF CLEARING AS NECESSARY TO FACILITATE PROPOSED CONSTRUCTION. ALL TREES, BRANCHES AND OTHER VEGETATIVE MATERIALS SHALL BE PROPERLY DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS PROJECT IS MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. PRIOR TO COMMENCEMENT OF ANY EARTHMOVING OPERATIONS, ALL APPLICABLE TEMPORARY EROSION CONTROL MEASURES, INCLUDING SPECIFIED PERIMETER SILTATION FENCING AND STABILIZED CONSTRUCTION EXIT SHALL BE IN PLACE AS SHOWN ON THE PROJECT PLANS.
3. COMPLETE CRUBBING OPERATIONS. ALL STUMPS AND SIMILAR ORGANIC DEBRIS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR. NATIVE ORGANIC SOIL MATERIALS SUITABLE FOR USE AS TOPSOIL SHALL BE STOCKPILED WITHIN AREAS OUT OF THE WAY OF OTHER CONSTRUCTIONS ACTIVITIES AND DRAINAGE FLOW. STOCKPILES SHALL BE TEMPORARILY SEEDED WITH WINTER RYE AND BE SURROUNDED WITH HAY BALES AND/OR FABRIC SILTATION FENCE IN ORDER TO PREVENT LOSS DUE TO EROSION.
4. BEGIN EARTHMOVING OPERATIONS, COMMENCING WITH WORK NEEDED TO BALANCE SITE AND FACILITATE BUILDING FOUNDATION AND RETAINING WALL CONSTRUCTION. PERMANENT DOWNSLOPE WORK SHALL BE PROTECTED FROM UPGRADIENT STORMWATER FLOW BY THE CONSTRUCTION OF TEMPORARY EARTHEN DIKES OR EXCAVATED SWALES.
5. ONCE BUILDING FOUNDATION WORK IS UNDERWAY, CONTINUE EARTHMOVING OPERATIONS UNTIL DESIGN SUBGRADE IS ACHIEVED.
6. INSTALL DRAINAGE SWALE SYSTEMS AND OTHER UTILITIES WORKING FROM LOW TO HIGH. INCOMPLETE WORK SHALL BE PROTECTED FROM SILTATION BY THE USE OF SILTATION BARRIERS AROUND SWALES UNTIL THE SITE HAS BECOME FULLY STABILIZED.
7. PLACE GRAVEL AND CRUSHED GRAVEL OVER PROPOSED DRIVEWAY, WALKS AND PARKING AREAS AND COMPACT IN SPECIFIED LIFT THICKNESS.
8. COMPLETE EXCAVATION/STABILIZATION GRADING ACTIVITIES. WHEN COMPLETE, IMMEDIATELY BEGIN TOPSOILING PROPOSED TURF AREAS USING STOCKPILED LOAM SUPPLEMENTED WITH BORROW LOAM, IF NECESSARY, TO LEAVE A THICKNESS OF 6 INCHES OF FRIABLE LOAM.
9. FINE GRADE ALL FUTURE TURF AREAS AND HYDROSEED WITH THE SPECIFIED SEED MIXTURE IMMEDIATELY AFTER FINE GRADING IS COMPLETED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
10. INSTALL THE BINDER COURSE OF PAVEMENT OVER ALL DESIGNATED AREAS.
11. CONTINUE TO MONITOR AND RECTIFY MINOR SITE AND SLOPE EROSION UNTIL ENTIRE SITE APPEARS TO BE COMPLETELY STABILIZED AND VEGETATED WITH A HEALTHY STAND OF TURF OR GROUND COVER. MAINTAIN SPECIFIED SILTATION/EROSION CONTROL MEASURES THROUGH ONE WINTER.
12. INSTALL THE SPECIFIED WEARING COURSE OF PAVEMENT OVER THE BINDER COURSE.
13. COMPLETE INSTALLATION OF LANDSCAPING, SIGNAGE AND OTHER SITE AMENITIES.

EROSION CONTROL NOTES

1. EXPOSED EARTHWORK SHALL BE CONFINED TO AS LIMITED AN AREA AS IS PRACTICAL AT ANY GIVEN TIME THROUGHOUT THE CONSTRUCTION SEQUENCE. AT NO TIME SHALL MORE THAN FIVE (5) ACRES OF SITE AREA BE IN AN UNSTABLE CONDITION. NO GIVEN AREA OF THE SITE SHALL BE LEFT IN AN UNSTABILIZED CONDITION FOR A PERIOD OF TIME EXCEEDING FORTY-FIVE (45) CALENDAR DAYS.
2. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH PROJECT PLANS. IN ADDITION, SIMILAR MEASURES SHALL BE INSTALLED WHERE AND WHEN THE FIELD CONDITION, OR FIELD OPERATION OF THE INDIVIDUAL SITE CONTRACTOR, MAY WARRANT. ALL TEMPORARY EROSION CONTROL MEASURES USED SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OF RAINFALL OR MORE. THEY SHALL BE CLEANED AND MAINTAINED AND OTHERWISE KEPT IN AN EFFECTIVE OPERATING MANNER THROUGHOUT THE CONSTRUCTION PERIOD.
3. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE A MINIMUM APPLICATION OF 6 INCHES OF LOAM (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING.
4. ALL SWALES AND DITCHLINES SHALL BE PERIODICALLY CLEANED OF DEPOSITED SEDIMENT SO AS TO MAINTAIN AN EFFECTIVE GRADE AND CROSS SECTION. ALL SWALES AND DITCHLINES SHALL BE FULLY STABILIZED PRIOR TO HAVING STORMWATER DIRECTED TOWARDS THEM.
5. IN THE EVENT THAT, DURING CONSTRUCTION OF ANY PORTION OF THIS PROJECT, A WINTER SHUTDOWN IS NECESSARY, THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
6. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS ARE INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-ERODIBLE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
7. DUST SHALL BE CONTROLLED BY THE USE OF WATER AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD, IN ACCORDANCE WITH ENV-A 1000.
8. IN NO WAY ARE THOSE TEMPORARY EROSION CONTROL MEASURES INDICATED ON THESE PLANS TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGEMENT IN INSTALLING SUPPLEMENTARY EROSION CONTROL MEASURES WHERE AND WHEN SPECIFIC SITE CONDITIONS AND/OR CONSTRUCTION METHODOLOGIES MAY WARRANT.
9. AREAS HAVING FINISH GRADE SLOPES OF 3 : 1 OR STEEPER, SHALL BE STABILIZED WITH JUTE MATTING WHEN AND IF FIELD CONDITIONS WARRANT, OR IF SO ORDERED. JUTE MATTING INSTALLED TO CONFORM WITH THE RECOMMENDED BEST MANAGEMENT PRACTICE OUTLINED IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION."
10. ALL DETENTION PONDS SHALL BE CONSTRUCTED PRIOR TO ANY EARTH MOVING ACTIVITIES THAT WILL INFLUENCE STORMWATER RUNOFF.
11. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.



PLAN VIEW



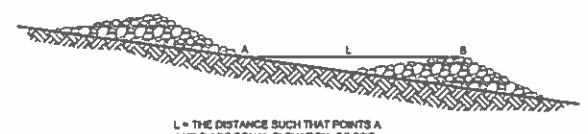
SECTION VIEW

NOTES:

1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS.
3. SILTSOXX™ DEPICTED IS FOR MINIMUM SLOPES. GREAT SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
5. SILTSOXX TO BE A MIN. OF 12" IN SIZE. ™

FILTREXX SILTSOXX DETAIL

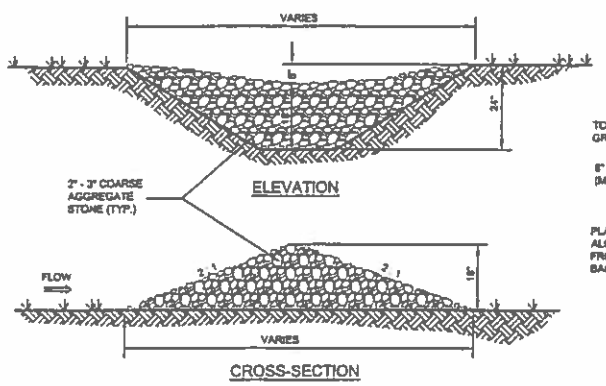
NOT TO SCALE
(AUGUST 2011)



L = THE DISTANCE SUCH THAT POINTS A AND B ARE EQUAL ELEVATION, OR FOR FLAT SLOPES L = 75' MAXIMUM

STONE CHECK DAM SPACING DETAIL

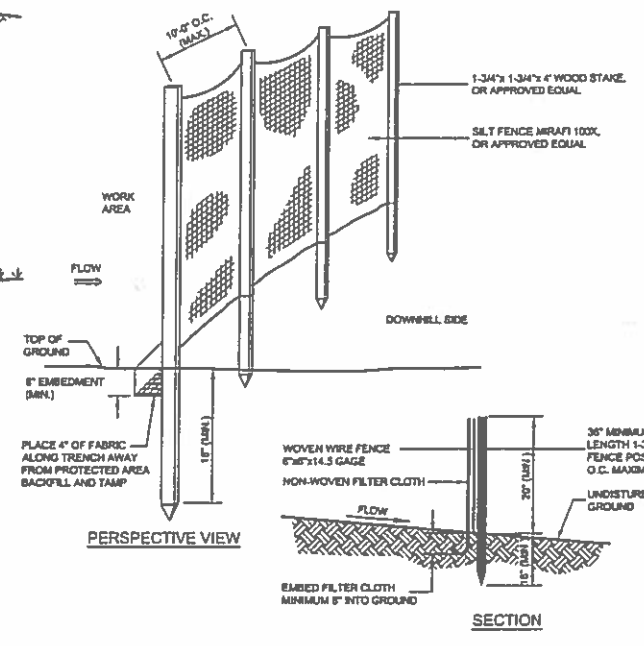
NOT TO SCALE
(MARCH 2008)



CROSS-SECTION

STONE CHECK DAM DETAIL

NOT TO SCALE
(MARCH 2008)



SILT FENCE DETAIL

NOT TO SCALE
(MARCH 2008)

CONSTRUCTION SPECIFICATIONS:

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 6 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIE OR STAPLES WHERE NOTED OR AS DIRECTED BY DESIGN ENGINEER.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MIDSECTION AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
6. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 16 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

CONSTRUCTION DETAILS
THE TOWNHOMES AT HIGHFIELD COMMONS - PHASE 2C

MAP 237 LOT 8-1
59 FILLMORE BOULEVARD
ROCHESTER, NEW HAMPSHIRE
STRAFFORD COUNTY

OWNER OF RECORD:	APPLICANT:
183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054 S.C.R.D. BK. 3927 PG. 453	183 WASHINGTON STREET, LLC. 746 D.W. HIGHWAY, UNIT B MERRIMACK, NH 03054

KNA REACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE PATRICK R. COLBURN No. 12323 LICENSED PROFESSIONAL ENGINEER 6/12/15

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: JUNE 16, 2015 | SCALE: AS SHOWN
PROJECT NO: 12-1212-1 | SHEET 22 OF 22