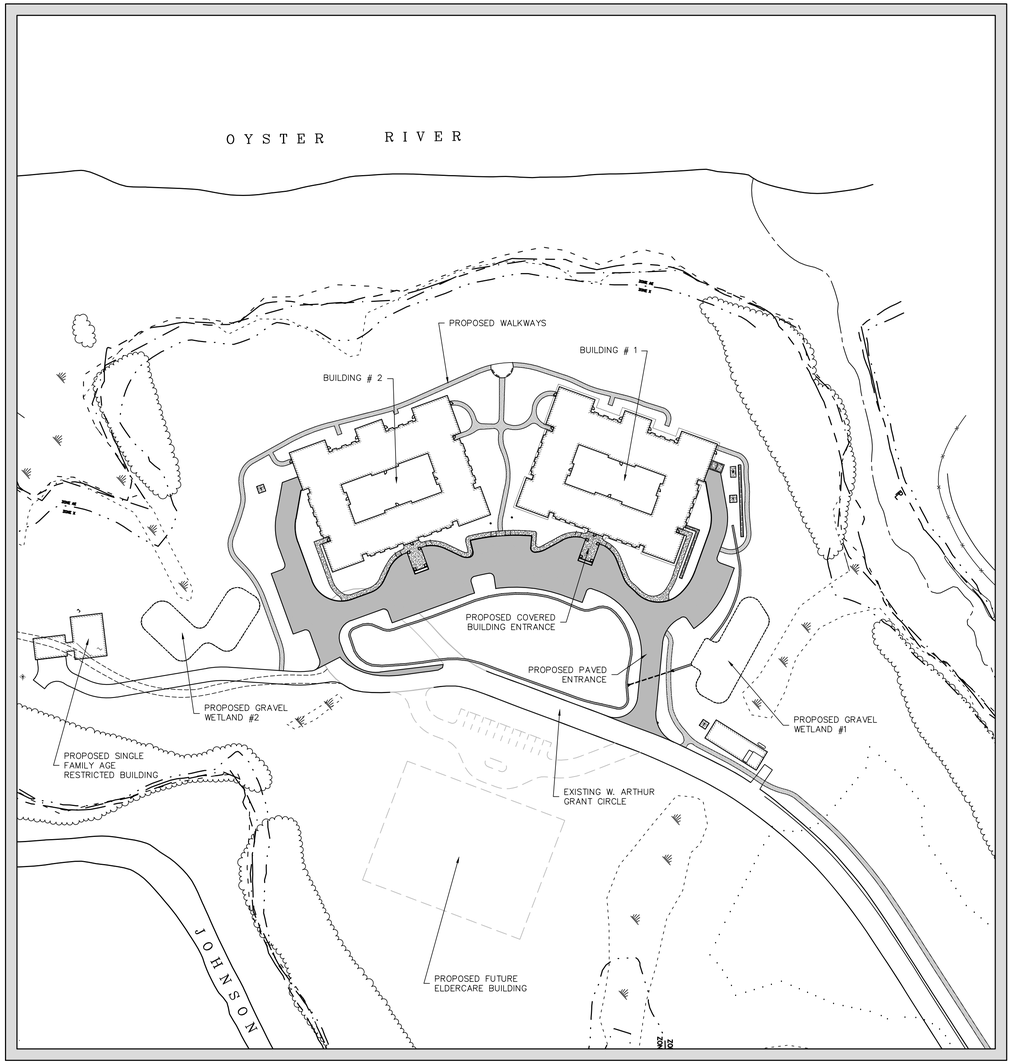
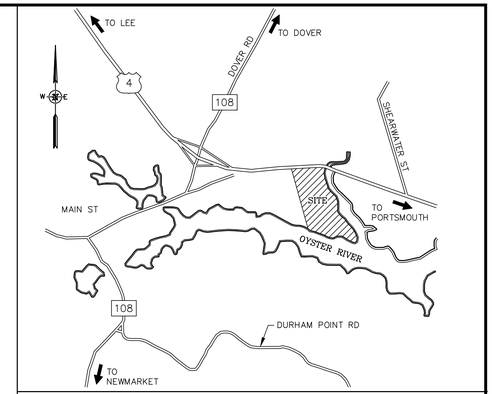
HARMONY HOMES BY THE BAY
ELDERCARE FACILITY

TAX MAP 11, LOTS (27-1) - (27-7)
W. ARTHUR GRANT CIRCLE
DURHAM, NH 03824

SEPTEMBER 2, 2015





Location Map (N.T.S.)

APPLICANT

HARMONY HOMES BY THE BAY, LLC
JOHN RANDOLPH
1 STAGECOACH ROAD
DURHAM, NH 03824

OWNER

GRANT DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

CIVIL ENGINEER

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 Railroad St., P.O. Box 359
Newmarket, NH 03857
Phone: (603) 659-4979, Fax: (603) 659-4627
E-mail: MJS@MJS-ENGINEERING.COM

SURVEYOR

DOUCET SURVEY INC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857
Voice (603) 659-6560, Data (603) 659-4118

ARCHITECT

MCHENRY ARCHITECTURE
4 MARKET STREET
PORTSMOUTH, NH 03801

SOIL SCIENTIST

JOSEPH W. NOEL
P.O. BOX 174
S. BERWICK, ME
(207) 384-5587

LANDSCAPE ARCHITECT

TERRA FIRMA LANDSCAPE ARCHITECTURE
163 A COURT STREET
PORTSMOUTH, NH 03801

WETLAND SCIENTIST

GOVE ENVIRONMENTAL SERVICES
8 CONTINENTAL DRIVE, BLDG. 2
EXETER, NH 03833

OWNER SIGNATURE BLOCK

PLANNING BOARD APPROVAL BLOCK

TABLE OF CONTENTS

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	KD

LEGEND

- EXISTING PROPERTY LINES
- PROPOSED PROPERTY LINES
- MEAN HIGH TIDE LINE
- EDGE OF FRESHWATER WETLAND
- EDGE OF TIDAL WETLAND
- 250' PROTECTED SHORELAND (NHDES)
- 125' SHORELAND PROTECTION OVERLAY DISTRICT (DURHAM)
- 75' & 100' WETLAND PROTECTION OVERLAY DISTRICT (DURHAM)
- 100 EXISTING CONTOUR (1' INTERVAL)
- TREE LINE

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

REF. PLAN #1

TAX MAP 11 LOT 9-5
TOWN OF DURHAM
15 NEWMARKET RD.
DURHAM, NH 03824

DURHAM SEWAGE TREATMENT PLAN

TAX MAP 11 LOT 27-6
LOT AREA: 140,747 SF

TAX MAP 11 LOT 27-5
LOT AREA: 69,724 SF

TAX MAP 11 LOT 27-4
LOT AREA: 111,684 SF

TAX MAP 11 LOT 27-3
LOT AREA: 214,955 SF

TAX MAP 11 LOT 27-2
LOT AREA: 138,849 SF

TAX MAP 11 LOT 27-1
LOT AREA: 242,816 SF

TAX MAP 11 LOT 27-7
LOT AREA: 243,090 SF

MEAN HIGH TIDE LINE (ELEV.=5')

BROOK CENTER LINE

BOLLARD

LEDGE

BROOK

SEWER CLEANOUT

SEWER GATE VALVE

EXISTING UTILITY EASEMENT

250' PROTECTED SHORELAND SETBACK

PROPANE TANK

SMH 1419

CB 1519

CB 1528

SMH 2

CB 1527

SMH 3

CB 1518

CB 1533

CB 1534

SMH 1

STONE HEADWALL

POLE #101/1/22A/1

MATCH LINE

ELECT. BOX

TELE. BOX

SMH 5

SMH 4

CB 1509

STONE HEADWALL

DITCH

FRESHWATER WETLAND

GRAVEL DRIVE

STONE & MORTAR HEADWALL

ZONE AE ZONE X

30" RCP INV. OUT =11.6
W/5' FLARED END

10" PVC INV. OUT =19.5

"SCHOOL BUS STOP" SIGN

STONE HEADWALL
18" RCP INV.OUT =16.0
TOP OF HEADWALL=18.1

12" RCP INV.=21.5

"STOP" SIGN

12" RCP INV. =13.2

12" RCP INV.=21.0

CB 1738
RIM=20.6'

TAX MAP 11 LOT 13-0
ROBERT KEEFE TRUST
59 PISCATAQUA RD.
DURHAM, NH 03840
S.C.R.D. BOOK 2234
PAGE 654

OP# PSNH / 22/21/30T

PROPERTY LINE

FLOOD ZONE BOUNDARY

TIDAL WETLAND

JOHNSON CREEK

OYSTER RIVER

U.S. ROUTE 4

W. ARTHUR GRANT CIRCLE

100' WETLAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM) & TIDAL BUFFER (STATE)

TREE LINE (TYP.)

75' WETLAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM)

125' SHORELAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM)

TAX MAP 11 LOT 29-0
INGVAR & DONNA VITTANDS
72 PISCATIQUA RD.
DURHAM, NH 03840
S.C.R.D. BOOK 1128 PAGE 202

NOTES:

1. REFERENCE: TAX MAP 11, LOT (27-1) – (27-7)
2. TOTAL PARCEL AREA= 1,235,700± Sq. Ft. OR 28.4± Ac. (SEE NOTES #10 & #11)
3. OWNER OF RECORD: GRANT DEVELOPMENT, LLC
   8 NEWMARKET ROAD
   DURHAM, NH 03824
   S.C.R.D. BOOK 3384 PAGE 510
4. ZONE: DURHAM BUSINESS PARK (DBP)
   DIMENSIONAL REQUIREMENTS:
   MIN. LOT SIZE–40,000 Sq. Ft.
   MIN. FRONTAGE–150'
   MIN. FRONT SETBACK–30' (MINOR/COLLECTOR STREET)
   50' (ARTERIAL STREET)
   MIN. SIDE/REAR SETBACK–20'
   DURHAM WETLAND CONSERVATION OVERLAY DISTRICT:
   FRESHWATER WETLANDS–75'
   TIDAL WETLANDS–100'
   DURHAM SHORELAND PROTECTION OVERLAY DISTRICT:
   TIDAL WETLANDS–125'
   –PORTIONS OF THE PROPERTY LIE WITHIN THE TOWN OF DURHAM SHORELAND PROTECTION, WETLAND CONSERVATION, AND FLOOD PROTECTION OVERLAY DISTRICTS. SEE THE ZONING ORDINANCE FOR SPECIFIC REGULATIONS.
   –LAND WITHIN 250' OF THE HIGHEST OBSERVABLE TIDE LINE IS SUBJECT TO THE STATE OF NH COMPREHENSIVE SHORELAND PROTECTION ACT.
5. FIELD WORK PERFORMED BY DOUCET SURVEY INC. ON 5/96 & 11/00 USING A SOKKIA SET 4BII & POWERSET 3000 AND ON 12/07 USING A LEICA TCR TOTAL STATION WITH A RANGER TDS DATA COLLECTOR AND A SOKKIA B20 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
6. WETLAND DELINEATION PERFORMED BY GOVE ENVIRONMENTAL IN 2012.
7. AERIAL TOPOGRAPHY BY EASTERN TOPOGRAPHICS, WOLFBORO, NH.
8. VERTICAL DATUM BASED ON NGVD29 PER NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION DISK 133-0340 HAVING A REPORTED ELEVATION OF 32.87.
9. THE PARCEL IS SUBJECT TO THE FOLLOWING;
   A) UTILITY EASEMENT TO NETT & PSNH, SEE S.C.R.D. BOOK 1349 PAGE 118.
   B) SEWER AND DRAINAGE EASEMENTS AS SHOWN ON S.C.R.D. PLAN #28A–89.
   C) TERMS OF AGREEMENT BETWEEN W&D REALTY PARTNERSHIP AND THE TOWN OF DURHAM, SEE S.C.R.D. BOOK 1523 PAGE 443.
   D) COMMISSIONERS RETURN OF HIGHWAY LAYOUT, SEE S.C.R.D. BOOK 796 PAGE 2.
   E) WARRANTY DEED FROM STANLEY F. LANGLEY TO THE STATE OF NEW HAMPSHIRE, SEE S.C.R.D. BOOK 746 PAGE 437.
10. THE AREAS SHOWN HEREON ARE CALCULATED TO APPROXIMATE MEAN HIGH WATER (ELEVATION 5').
11. THE NON–CONTIGUOUS UPLAND PORTION OF LAND (±235 Sq. Ft.) AT THE WESTERLY SIDE OF THE PARCEL IS NOT INCLUDED IN THE OVERALL AREA CALCULATIONS OF LOT 27–0 AS SHOWN ON THIS PLAN. THIS AREA IS TO BECOME PART OF LOT #6.
12. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.
13. FLOOD ZONE AE (ELEV. 7') AND ZONE X PER F.E.M.A. F.I.R.M. #33017C0320D DATED 5/17/05. THE FLOOD HAZARD ZONE LINE IS DEPICTED HEREON AT ELEV. 7' WHICH DIFFERS FROM THE LOCATION OF THE FLOOD HAZARD ZONE LINE AS GRAPHICALLY DEPICTED ON THE ABOVE REFERENCED F.I.R.M.

REFERENCE PLANS

1. "STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS PLANS OF PROPOSED FEDERAL AID PRIMARY PROJECT NO. F 012–2(4), NH PROJECT NO. P–3877–B, DURHAM BY–PASS" DATED 5/19/65, S.C.R.D. POCKET 15 FOLDER 3 PLAN 79.
2. "FINAL SUBDIVISION PLAN, JOHNSON CREEK DRIVE, DURHAM, NH" DATED JANUARY 1985, BY G.L. DAVIS & ASSOCIATES, S.C.R.D. PLAN #28A–89.
3. "SEWAGE DISPOSAL PLANT AREA, UNIVERSITY OF NEW HAMPSHIRE, DURHAM, NH" DATED 10/6/64 AND REVISED 12/22/64, NOT RECORDED.
4. "DURHAM BUSINESS PARK WATERLINE EXTENSION, PREPARED FOR PUBLIC WORKS DEPT. TOWN OF DURHAM" BY MAGUIRE GROUP, INC. AND DATED 7/8/97

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=80'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 EC.dwg

EXISTING CONDITIONS PLAN
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4079 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

EC

REF. PLAN #1

MEAN HIGH TIDE LINE (ELEV.=5')

BROOK CENTER LINE

PROPOSED DOCK

30" RCP INV. OUT =11.6 W/5' FLARED END

14" OAK W/BWF

14" OAK W/BWF

LEDGE

BROOK

SEWER CLEANOUT

SEWER GATE VALVE

BOLLARD

10" PVC INV. OUT =19.5

"SCHOOL BUS STOP" SIGN

TBM "X" CUT IN BONNETT BOLT OVER MAIN OUTLET ELEV.=17.95 (NGVD29)

CONSERVATION AREA PARCEL A

STONE HEADWALL 18" RCP INV OUT =16.0 TOP OF HEADWALL=18.1

PROPANE TANK

PROPOSED 5' WIDE PATH

PROPOSED FENCE

CB 1528

SMH 2

STONE HEADWALL

POLE #101 /22A/1

OHW

12" RCP INV.=21.5

PROPOSED RETAINING WALLS

PROPOSED BUILDING #1

SMH 1419

PROPOSED GRAVEL WETLAND #1

PROPOSED HORSE BARN

CB 1527

SMH 3

CB 1518

CB 1519

STONE HEADWALL

SMH 1

CB 1534

W. ARTHUR GRANT CIRCLE

U.S. ROUTE 4

"STOP" SIGN

OYSTER RIVER

PROPOSED OUTLOOK

PROPOSED BUILDING #2

SMH 4

PROPOSED FENCE

STONE HEADWALL

DITCH

CONSERVATION AREA PARCEL B

12" RCP INV. =13.2

12" RCP INV.=21.0

SMH 5

CB 1509

FUTURE BUILDING #3

ZONE AE ZONE X

ZONE X ZONE AE

CB 1738 RIM=20.6'

UP# PSNH/ 22/21/30T

FRESHWATER WETLAND

ZONE AE ZONE X

PROPOSED GRAVEL WETLAND #2

STONE & MORTAR HEADWALL

250' PROTECTED SHORELAND SETBACK

JOHNSON CREEK

FLOOD ZONE BOUNDARY

TIDAL WETLAND

100' WETLAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM) & TIDAL BUFFER (STATE)

TREE LINE (TYP.)

PROPOSED OUTLOOK

75' WETLAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM)

125' SHORELAND PROTECTION OVERLAY DISTRICT SETBACK (DURHAM)

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=80'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 C1G.dwg

OVERALL SITE PLAN

prepared for

HARMONY HOMES BY THE BAY

TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. Box 159
NEWMARKET, NH 03857
PHONE: (603) 659-4972 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

OSP

Drawing Name: P:\Spro\15-027\Internal\Drawing Files\15-027 C1F.dwg
Wed, 02 Sep 2015 - 12:42pm

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REF. PLAN #1

MEAN HIGH WATER LINE
FLOOD ZONE LINE
ZONE AE
ZONE X
100 FT TIDAL BUFFER SETBACK
125 FT SHORELAND PROTECTION OVERLAY
PROPOSED PATIO
PROPOSED ASPHALT PATH (TYP.)
PROPOSED PATIO (TYP.)
PROPOSED TRASH & RECYCLING DUMPSTERS (TYP.)
PROPOSED DELIVERY ENTRANCE TO BASEMENT LEVEL (TYP.)
PROPOSED BACKUP GENERATOR W/ BOLLARD PROTECTION
PROPOSED TRANSFORMER W/ BOLLARD PROTECTION
PROPOSED STONE RETAINING WALL (TYP.)
PROPOSED INTERIOR COURTYARD (TYP.)
PROPOSED BUILDING #2
1ST FLOOR ELEVATION = 21.00
BASEMENT ELEVATION = 11.67
PROPOSED BUILDING #1
1ST FLOOR ELEVATION = 23.00
BASEMENT ELEVATION = 13.67
PROPOSED CONCRETE SIDEWALK (TYP.)
PROPOSED COVERED ENTRY (TYP.)
PROPOSED PLANTING AREA (TYP.)
PROPOSED DRAINAGE SWALE (TYP.)
EDGE OF WETLAND (TYP.)
PROPOSED GRAVEL WETLAND #2
PROPOSED HOUSE
PROPOSED GUEST HOUSE
PROPOSED ASPHALT PATH (TYP.)
PROPOSED DRIVEWAY
EXISTING HIGH POINT TO REMAIN TO PROVIDE VISUAL SCREENING
PROPOSED PAVEMENT (TYP.)
PROPOSED 1-WAY ACCESS DRIVE
PROPOSED GRAVEL WETLAND #1
EXISTING PAVEMENT (TYP.)
PROPOSED DRAINAGE CULVERT (TYP.)
EXISTING ACCESS ROAD
PROPOSED HORSE BARN TO INCORPORATE EXISTING PUMP HOUSE
EXISTING PUMP HOUSE
POTENTIAL LOCATION OF FUTURE PARKING AREA
POTENTIAL LOCATION OF FUTURE BUILDING
JOHNSON CREEK

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=30'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 C1F.dwg

SITE PLAN
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. Box 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.com

JOB: 15-027

C1

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

EDGE OF TIDAL WETLAND

APPROXIMATE MEAN HIGH WATER

EDGE OF FRESHWATER WETLAND

100' STATE & TOWN TIDAL BUFFER

75' FRESHWATER WETLAND SETBACK

125' TOWN SHORELAND PROTECTION SETBACK

ZONE AE
ZONE X

REF. PLAN #1

PROPOSED ASPHALT PATH (TYP.)

PROPOSED BRICK PAVER OVERLOOK

PROPOSED BUILDING #1
1ST FLOOR ELEVATION = 23.0±
BASEMENT ELEVATION = 10.67±

PVCC

18'

24.39'

22'

PROPOSED DRAINAGE SWALE (TYP.)

REMOVE PAVEMENT IN PHASE 1 LOAM AND SEED

PROPOSED GRAVEL WETLAND #2

PROPOSED GRAVEL WETLAND #1

ADD ADDITIONAL PAVEMENT TO WIDEN ROAD TO TWO-WAY TRAFFIC

250' STATE SHORELAND SETBACK

RECONSTRUCT EXISTING PUMP HOUSE

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=30'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 Phase 1.dwg

CONSTRUCTION PLAN: PHASE 1
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4477, FAX: (603) 659-4427
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

C2

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

REF: PLAN #1

EDGE OF TIDAL WETLAND

APPROXIMATE MEAN HIGH WATER

ZONE AE
ZONE X

EDGE OF FRESHWATER WETLAND

100' STATE & TOWN TIDAL BUFFER

75' FRESHWATER WETLAND SETBACK

125' TOWN SHORELAND PROTECTION SETBACK

PROPOSED ASPHALT PATH (TYP.)

PROPOSED BUILDING #2
1ST FLOOR ELEVATION = 21.00
BASEMENT ELEVATION = 11.67

PROPOSED BUILDING #1
1ST FLOOR ELEVATION = 23.06
BASEMENT ELEVATION = 13.67

SINGLE FAMILY HOME WITH GUEST HOUSE

PROPOSED GRAVEL WETLAND #2

PROPOSED DRIVEWAY

15'

PROPOSED DRAINAGE SWALE (TYP.)

24.39'

22'

PROPOSED GRAVEL WETLAND #1

250' STATE SHORELAND SETBACK

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=30'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 Phase 2.dwg

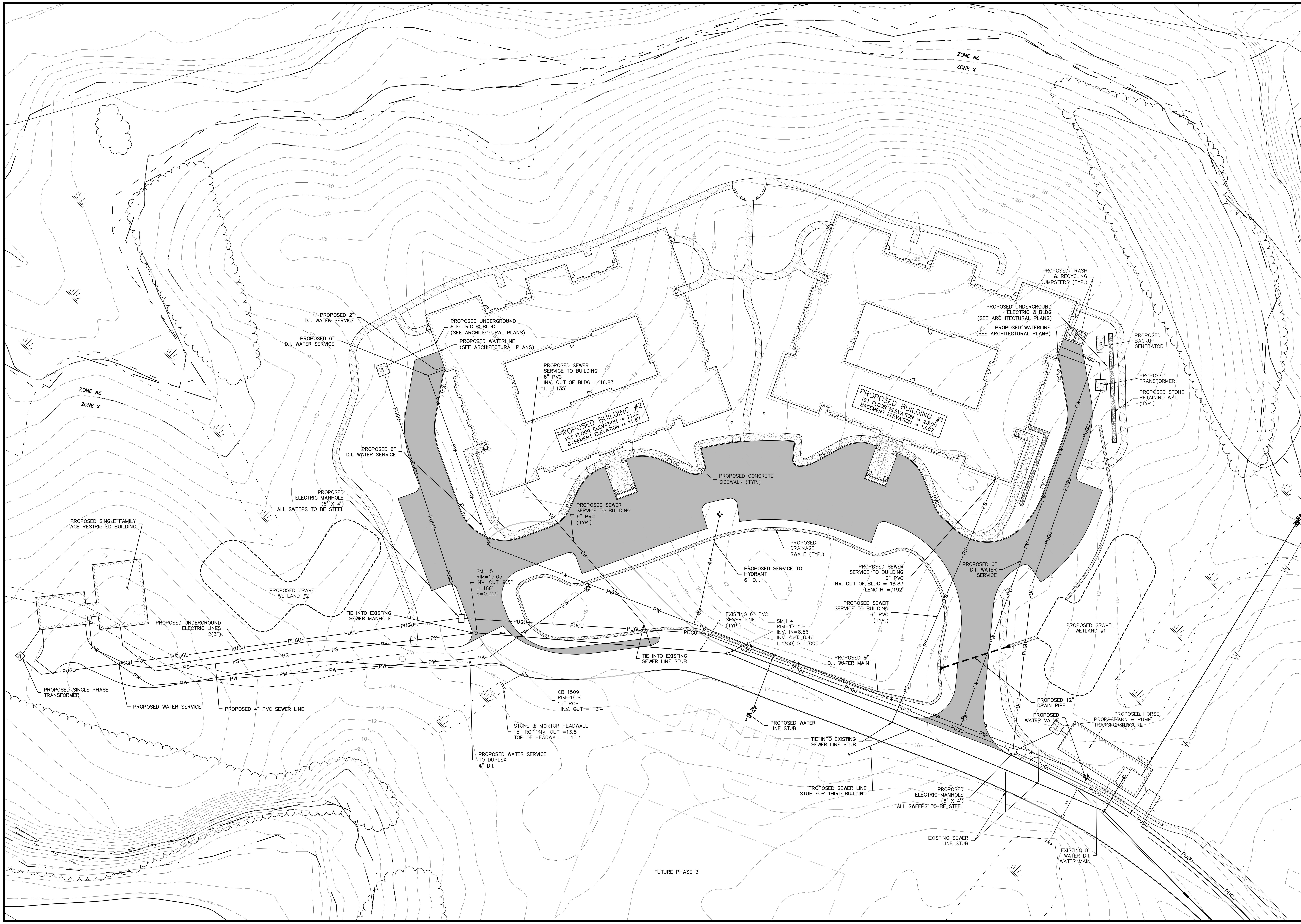
CONSTRUCTION PLAN: PHASE 2
prepared for
JOHN RANDOLPH
HARMONY HOMES
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-2626 FAX: (603) 659-4627
E-MAIL: MJS@MJSENGINEERING.COM

JOB: 15-027

C3

Drawing Name: P:\15pro\15-027\Internal\Drawing Files\15-027 C1FUTILCVR.dwg
Wed, 02 Sep 2015 - 2:03pm



NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

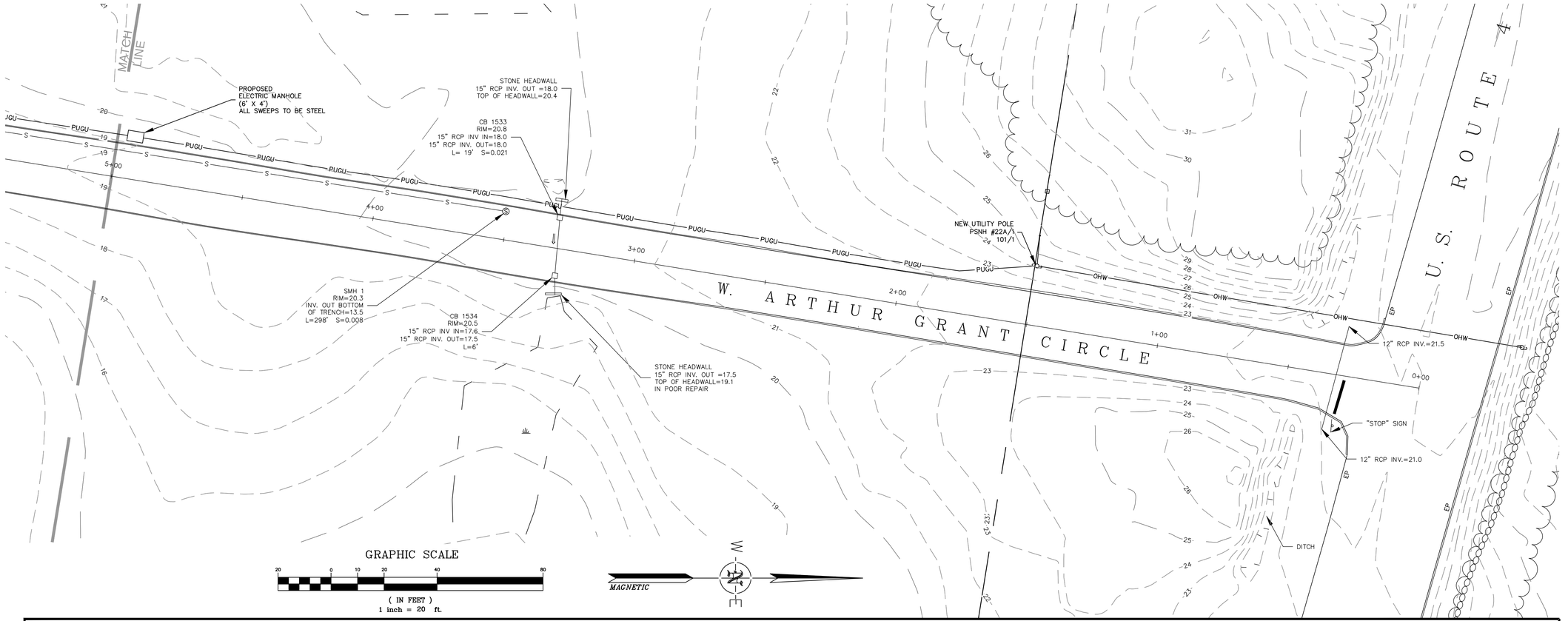
DATE: 9/2/15
SCALE: 1"=30'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 C1FUTILCVR.dwg

UTILITIES PLAN
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

C4



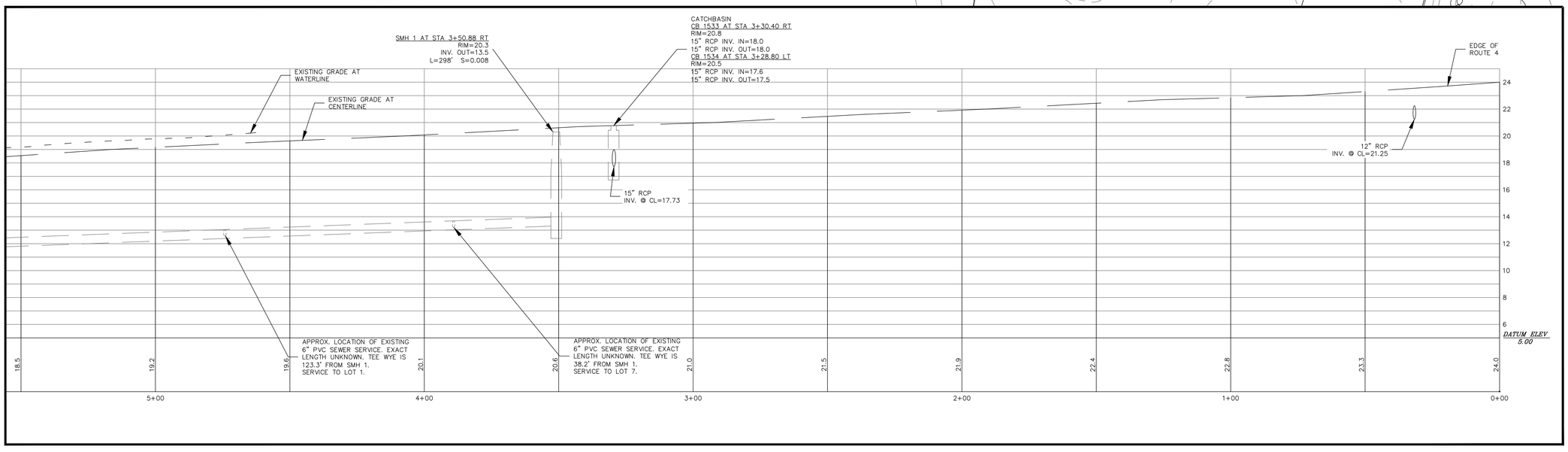
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

MAGNETIC



NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=20'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 PLAN-PROFILE1.dwg

ROADWAY/UTILITY PLAN & PROFILE

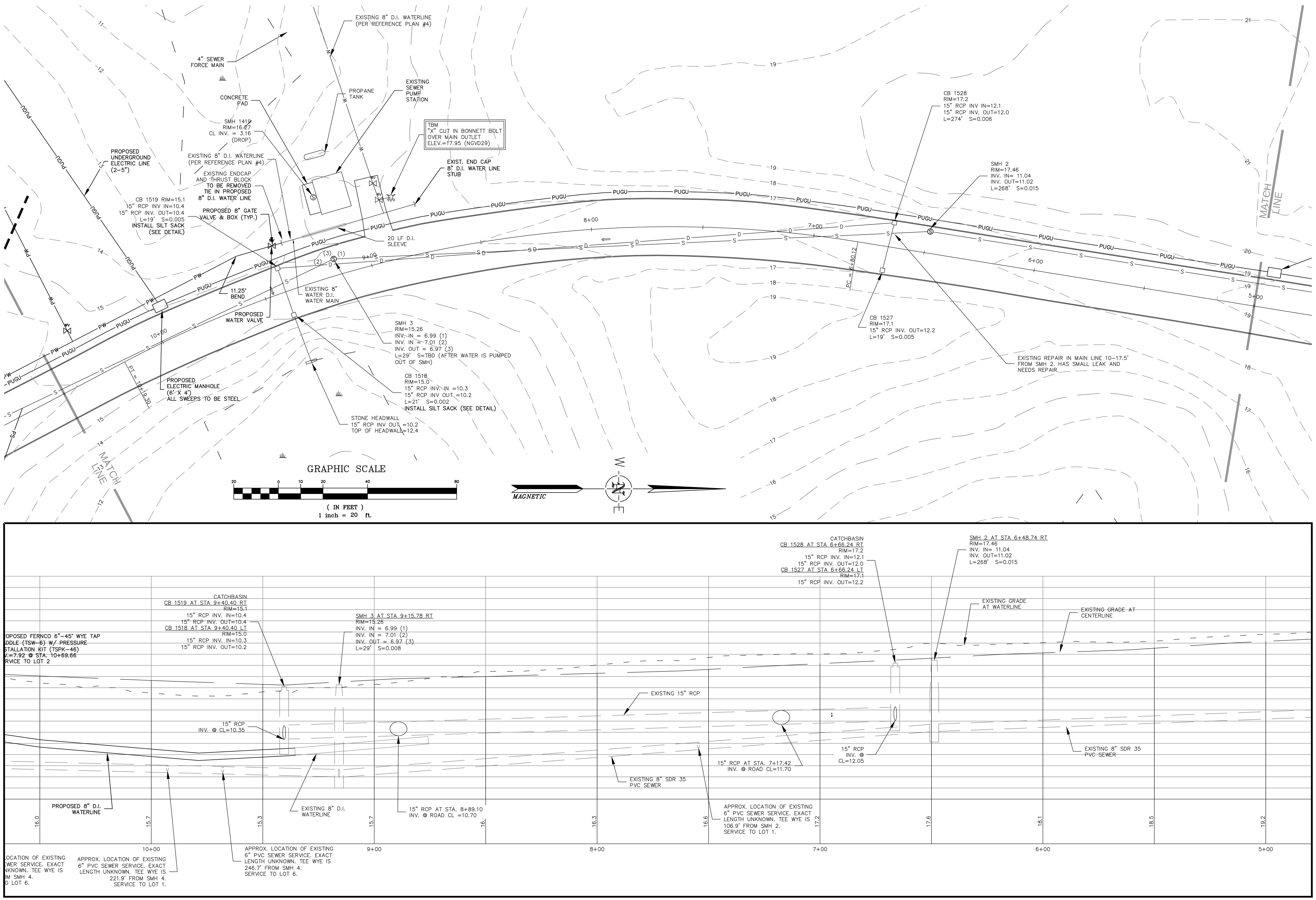
prepared for

HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, N.H. 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJSBMJS-ENGINEERING.COM

JOB: 15-027

C5



NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	JLG

SEAL

DATE: 9/2/15
SCALE: 1"=20'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15–027 PLAN–PROFILE1.dwg

ROADWAY/UTILITY PLAN & PROFILE

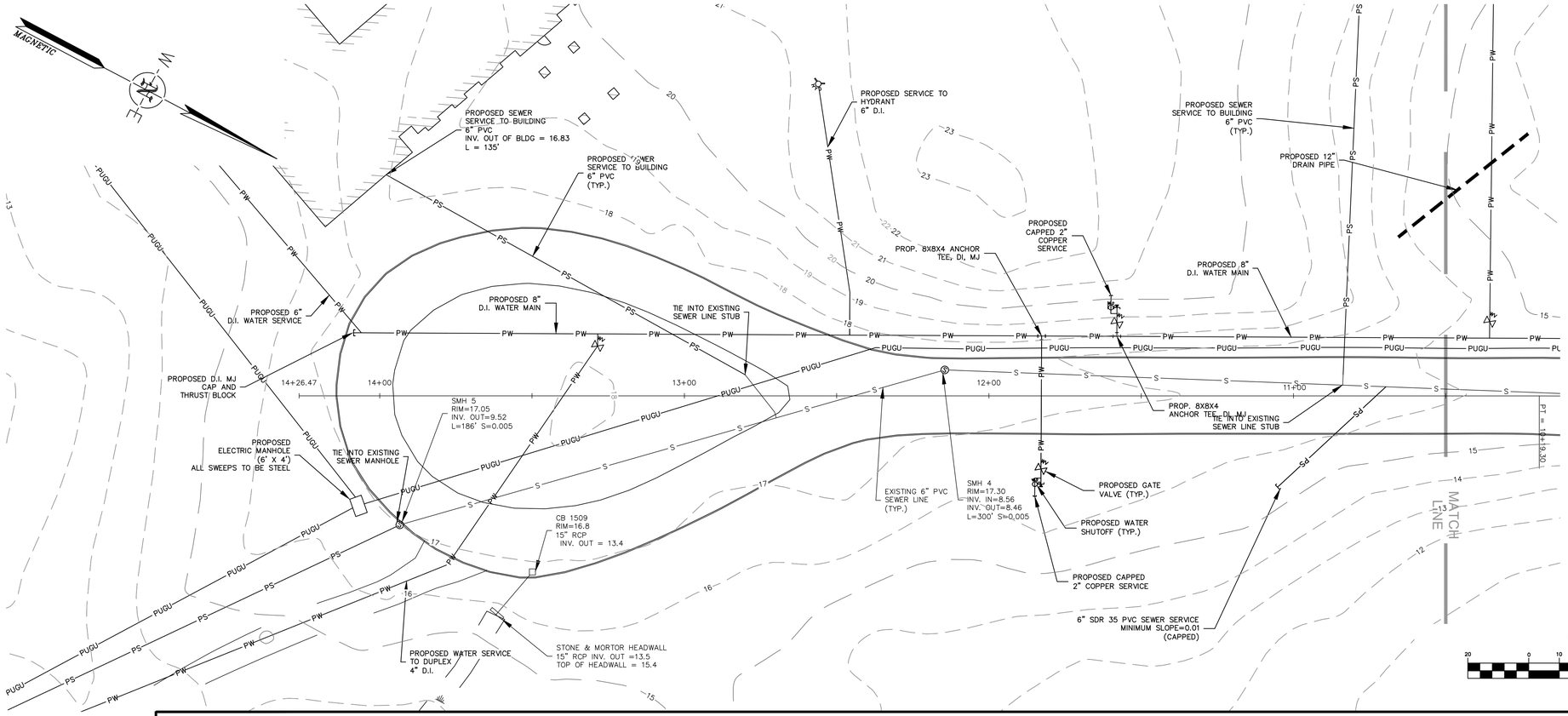
prepared for

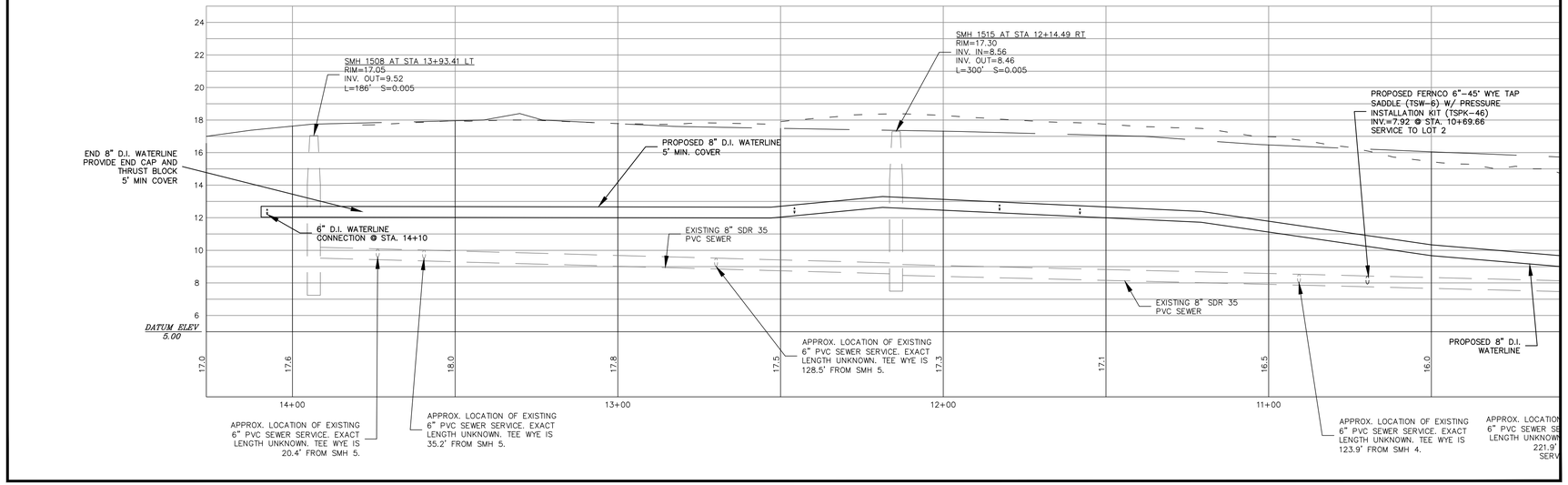
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27–1)–(27–7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15–027

C6





NO.	DATE	INT.
0.	9/2/15	JLG

INITIAL SUBMISSION TO DURHAM PLANNING BOARD

REVISIONS

SEAL

DATE: 9/2/15
SCALE: 1"=20'
DESIGNED BY: MS/JLG
DRAWN BY: JLG
APPROVED BY: MJS
DWG FILE: 15-027 PLAN-PROFILE1.dwg

ROADWAY/UTILITY PLAN & PROFILE

prepared for

HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-6560 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

C7

Drawing Name: P:\15pro\15-027\Internal\Drawing Files\15-027 Cover&DetailsA.dwg
Wed, 02 Sep 2015 - 11:58am

CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES:

AREA OF DISTURBANCE/STABILIZATION

A. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL THE AREA OF UNSTABILIZED SOIL EXCEED 5 ACRES AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.

B. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   1. IN AREAS TO BE PAVED, BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2006, ITEM NO. 304.1 OR 304.2 HAVE BEEN INSTALLED;
   2. IN AREAS NOT TO BE PAVED
      A. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      B. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
      C. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.03.

C. ALL DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED WITHIN 45 DAYS AND PERMANENTLY STABILIZED NO LATER THAN 3 DAYS AFTER FINAL GRADING.

EROSION CONTROL PRACTICES:

A. INSTALLATION:
   1. INSTALL ALL EROSION CONTROLS AS SHOWN ON THE GRADING PLAN, TYPICAL DETAILS, AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE. MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.

B. INSPECTION:
   1. INSPECT ALL EROSION CONTROLS WEEKLY AND AFTER EVERY RAIN EVENT OF 0.5 INCHES OR GREATER UNLESS OTHERWISE NOTED.
   2. TEMPORARY STABILIZATION PRACTICES SHALL BE INSPECTED ONCE PER WEEK DURING CONSTRUCTION UNTIL EXPOSED SURFACES ARE STABILIZED.
   3. ANY SIGNS OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY REPAIRED.

C. MAINTENANCE:
   1. MAINTAIN EROSION CONTROLS PER THE TYPICAL DETAILS AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE.

D. REMOVAL
   1. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE 85% VEGETATIVE COVER HAS BEEN ESTABLISHED.
   2. AFTER REMOVAL, ALL DISTURBED AREAS SHALL BE REGRADED, FERTILIZED, AND RESEEDED. MONITOR TO ENSURE VEGETATIVE GROWTH IS ESTABLISHED AND REPAIR AS NEEDED UNTIL MINIMUM OF 85% VEGETATIVE COVER IS ESTABLISHED.

COLD WEATHER SITE STABILIZATION

A. SHALL BE UTILIZED BETWEEN NOVEMBER 30TH AND MAY 1ST. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO 1 ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE FOLLOWING METHODS PRIOR TO ANY THAW OR SPRING MELT EVENT.

B. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE SEEDED AND COVERED WITH 3-4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING OR TACKIFIER, OR 2 INCHES OF EROSION CONTROL MIX MEETING THE FOLLOWING CRITERIA;
   1. THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 25% AND 65%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS;
   2. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS THE ORGANIC MATERIAL;
   3. THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS;
   4. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 100% PASSING A 3-INCH SCREEN, 90% TO 100% PASSING A 1-INCH SCREEN, 70% TO 100% PASSING A 0.75-INCH SCREEN, AND 30% TO 75% PASSING A 0.25 INCH SCREEN;
   5. THE MIX pH SHALL BE BETWEEN 5.0 AND 8.0;

C. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH A MINIMUM 4 INCH THICK NESS OF EROSION CONTROL MIX MEETING THE CRITERIA SPECIFIED ABOVE IN (B)(1-5);

D. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX, MEETING THE CRITERIA SPECIFIED IN (B)(1-5) SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1-INCH IN DEPTH.

E. INSTALLATION OF EROSION CONTROL BLANKETS SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.

F. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (A) OR (B) SHALL BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.

G. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY NOVEMBER 30TH, OR WHICH ARE DISTURBED AFTER NOVEMBER 30TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

H. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3-INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2006, ITEM NO. 304.1 OR 304.2.

TEMPORARY VEGETATION

A. SITE PREPARATION
   1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED ABOVE.
   2. ENSURE RUNOFF IS DIVERTED FROM SEEDED AREA.
   3. ON SLOPES OF 4:1 OR STEEPER, CREATE HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

B. SEED BED PREPARATION
   1. REMOVE STONES AND TRASH FROM AREA TO BE SEEDED.
   2. COMPACTED SOIL SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED.
   3. APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.

C. SEEDING
   1. SEED PER THE FOLLOWING RECOMMENDATIONS

SEASON	APPLICATION DATE	MIXTURE TYPE	QUANTITY (lb./Ac.)
EARLY SPRING	NO LATER THAN 5/15	OATS	80
LATE SPRING/ FALL	4/1 TO 6/1 & 8/15 TO 9/15	PERENNIAL RYE	30
EARLY SPRING/ FALL	4/1 TO 5/15 & 8/15 TO 9/15	ANNUAL RYE	40
FALL	8/15 TO 9/15	WINTER RYE	112

   2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
   3. TEMPORARY SEEDING SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15TH.
   4. AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHOULD BE COVERED WITH HAY OR STRAW MULCH.
   5. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

D. MAINTENANCE
   1. TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AND AFTER ANY RAINFALL EXCEEDING ½ INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD ALSO BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
   2. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
   3. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
   4. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (E.G., MULCH) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

PERMANENT VEGETATION

A. SITE PREPARATION
   1. REFER TO SITE PREPARATION FOR TEMPORARY SEEDING.

B. SEED BED PREPARATION
   1. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
   2. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
   3. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
   4. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
   5. APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.

C. SEEDING
   1. UNLESS OTHERWISE NOTED, GRASS SEED MIXTURE 'C' SHALL BE APPLIED AT THE SPECIFIED RATE AS NOTED IN THE 'SEED MIXTURES FOR PERMANENT VEGETATION' TABLE.
   2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM ¼ TO ½ INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
   3. WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
   4. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMTER.
   5. SLOPES MUST BE NO STEEPER THAN 2 TO 1.
   6. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
   7. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.

D. MAINTENANCE
   1. PERMANENTLY SEEDED AREAS SHOULD BE INSPECTED MONTHLY.
   2. MOW SEEDED AREAS AS NECESSARY.
   3. BASED ON INSPECTION, AREAS SHOULD BE REPAIRED AND/OR RESEEDED TO ENSURE 85% OF THE SOIL SURFACE IS COVERED BY VEGETATION.

MULCHING & EROSION CONTROL MATTING

A. GENERAL
   1. APPLY PRIOR TO A STORM EVENT. CLOSELY MONITOR THE WEATHER TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
   2. MULCHING WITHIN A SPECIFIED TIME PERIOD FROM ORIGINAL SOIL EXPOSURE
      A. WITHIN 100 FEET OF WETLANDS THE TIME PERIOD SHOULD BE NO GREATER THAN 7 DAYS.
      B. IN OTHER AREAS IT SHALL BE NO GREATER THAN 14 DAYS.

B. TEMPORARY MULCHING
   1. HAY OR STRAW MULCHES
      A. ORGAINIC MULCHES INLCUDING HAY AND STRAW SHALL BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS.
      B. APPLICATION RATE SHALL BE 2 BALES/1,000 SF (70-90 POUNDS) OR 1.5-2.0 TONS/ACRE TO COVER 75-90% OF THE GROUND.
      C. ANCHORING
         1. NETTING: NETTING SHALL BE JUTE, WOOD FIBER, OR BIODEGRADABLE PLASTIC NETTING INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
         2. TACKIFIER: APPLY POLYMER OR ORGANIC TACKIFIER TO ANCHOR HAY OR STRAW MULCH. APPLY PER MANUFACTURER'S SPECIFICATIONS. TYPICAL APPLICATION RATES ARE 40-60 LBS/ACRE FOR POLYMER MATERIAL AND 80-120 LBS/ACRE FOR ORGANIC LIQUID.
      D. WINTER APPLICATION: APPLY TO A DEPTH OF 4 INCHES OR DOUBLE THE ABOVE LISTED APPLICATION RATE. NOTE THAT IF SEEDING IS NECESSARY, MULCH WILL NEED TO BE REMOVED AND THE AREA SEEDED AND MULCHED IN THE SPRING.
      E. MAINTENANCE
         1. INSPECT PERIODICALLY AND AFTER RAIN STORMS FOR RILLS OR DISPLACEMENT OF MULCH. REPAIR AS NECESSARY. CONTINUE INSPECTIONS UNTIL 85% VEGETATIVE COVER IS ESTABLISHED.
         2. EROSION CONTROL BLANKET OR MATTING
            A. REFER TO PLANS FOR TYPICAL EROSION CONTROL MATTING DETAIL. INSTALL PER MANUFACTURERS SPECIFICATIONS.
            B. APPLICATION AND TIMING
               1. DURING THE GROWING SEASON (APRIL 15 - SEPTEMBER 15) USE ON THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER), ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS, AND WETLANDS.
               2. DURING THE LATE FALL AND WINTER (SEPTEMBER 15 - APRIL 15) IN ADDITION TO THOSE LISTED ABOVE USE ON SIDE SLOPES OF GRASSED WATERWAYS AND MODERATE SLOPES (GREATER THAN 8%).
            C. MAINTENANCE
               1. INSPECT PERIODICALLY AND BEFORE AND AFTER STORM EVENTS TO ENSURE CONTACT WITH THE SOIL UNTIL 85% VEGETATIVE COVER IS ESTABLISHED. REPAIR AND RESTAPLE AS NECESSARY.

C. PERMANENT MULCHING
   1. WOOD CHIPS OR GROUND BARK
      A. APPLY TO A THICKNESS OF 2 TO 6 INCHES. TYPICAL APPLICATION RATES ARE 10-20 TONS/ACRE OR 460-920 POUNDS/1,000 SF.
      B. MAINTENANCE:
         1. INSPECT ANNUALLY AND AFTER RAIN EVENTS OF 2.5 INCHES OR MORE IN A 24 HOUR PERIOD. REPAIR/REPLACE AS NECESSARY.
         2. EROSION CONTROL MIX
            A. COMPOSITION OF THE MIX SHALL BE AS FOLLOWS:
               1. ORGANIC MATTER CONTENT SHALL BE BETWEEN 25-65% DRY WEIGHT BASIS.
               2. PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING THE 3" SCREEN, 90-100% PASSING THE 1" SCREEN, 70-100% PASSING THE 0.75 INCH SCREEN, AND 30-75% PASSING THE 0.25 INCH SCREEN.
               3. THE ORGANIC PORTION SHALL BE ELONGATED AND FIBROUS. IT SHALL NOT CONTAIN WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS.
               4. THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS.
               5. SOLUBLE SALTS CONTENT SHALL BE < 4.0MMHOS/CM AND A pH OF 5.0-8.0,
            B. PLACEMENT OF BERM
               1. PLACE BERM ALONG A LEVEL CONTOUR. BERM MUST BE A MINIMUM OF 12" HIGH ON THE UPHILL SIDE AND 2 FEET WIDE.
            C. MAINTENANCE
               1. INSPECT PERIODICALLY AND AUGMENT AS NEEDED TO MAINTAIN INITIAL THICKNESS. REPLACE IF NO LONGER FUNCTIONING AS INTENDED.

SOIL STOCKPILES

A. GENERAL
   1. PLACE IN THE LOCATIONS SHOWN ON THE PLAN. ADDITIONAL STOCKPILES MUST BE LOCATED 50 FEET FROM DITCHES AND CULVERT INLETS.

B. PROTECTION OF STOCKPILES
   1. PROTECT SOIL AND AGGREGATE STOCKPILES WITH TEMPORARY PERIMETER SEDIMENT BARRIER SUCH AS SILT FENCE OR SILT SOCK.
   2. COVER ACTIVE STOCKPILES WITH ANCHORED PROTECTIVE COVERING PRIOR TO EXPECTED STORM EVENTS.
   3. INACTIVE STOCKPILES SHALL BE COVERED WITH ANCHORED TARPS OR TEMPORARILY SEEDED AND MULCHED PER THE TEMPORARY VEGETATION AND MULCHING NOTES ON THIS PAGE.
   4. STOCKPILES THAT ARE A SOURCE OF DUST SHALL BE COVERED.

DUST CONTROL

A. DUST SHALL BE CONTROLLED ON SITE DURING CONSTRUCTION BY IMPLEMENTING THE FOLLOWING DUST CONTROL MEASURES
   1. MULCHING AND VEGETATIVE COVER TO REDUCE DUST.
   2. MECHANICAL SWEEPERS AND FINE WATER SPRAYS.
   3. COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL.

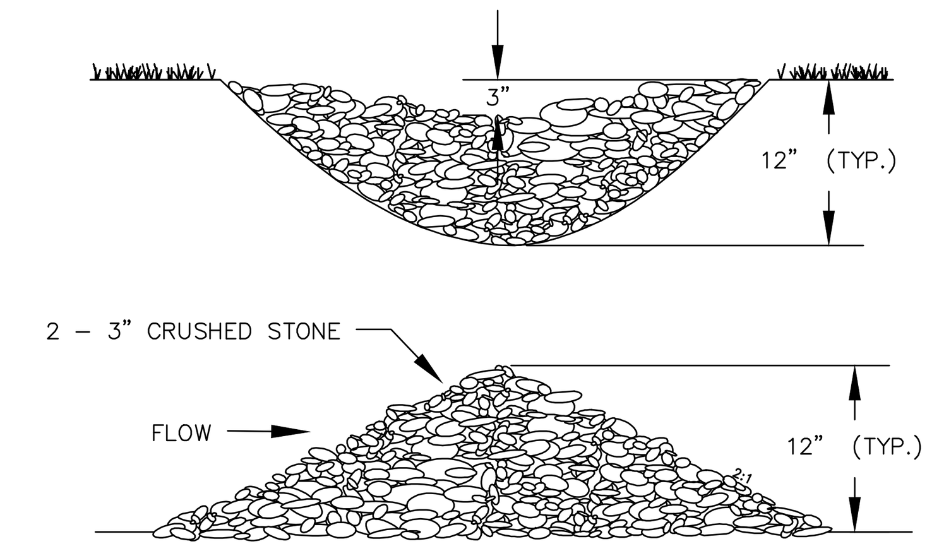
SEED MIXTURE SELECTION BASED ON SOIL TYPE

USE	SEEDING MIXTURE	SOIL DRAINAGE: DROUGHTY	SOIL DRAINAGE: WELL DRAINED	SOIL DRAINAGE: MODERATELY WELL DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C D	FAIR POOR POOR FAIR	GOOD GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT EXCELLENT
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A C	GOOD GOOD	GOOD EXCELLENT	GOOD EXCELLENT
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A B C	GOOD GOOD GOOD	GOOD GOOD EXCELLENT	GOOD FAIR EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E F	FAIR FAIR	EXCELLENT EXCELLENT	EXCELLENT EXCELLENT

NOTE: POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREAS AND ATHLETIC FIELDS.

SEED MIXTURES FOR PERMANENT VEGETATION

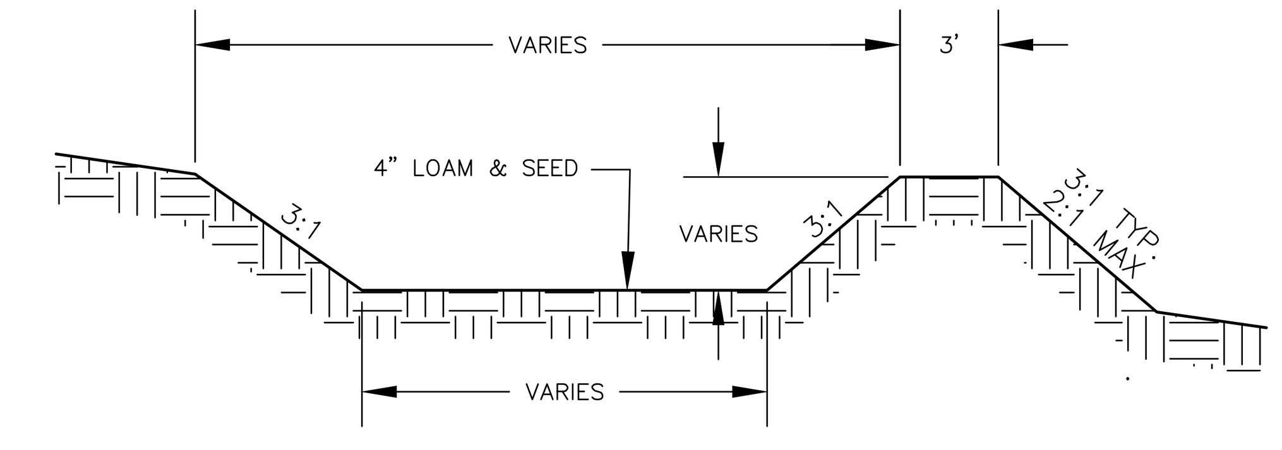
MIXTURE	SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SF
A	TALL FESCUE CREEPING RED FESCUE REDTOP *TOTAL*	20 20 2 *42*	0.45 0.45 0.05 *0.95*
B	TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR FLATPEA *TOTAL*	15 10 15 - 30 *40 OR 55*	0.35 0.25 0.35 - 0.75 *0.95 OR 1.35*
C	TALL FESCUE CREEPING RED FESCUE BIRDSFOOT TREFOIL *TOTAL*	20 20 8 *48*	0.45 0.45 0.20 *1.10*
D	TALL FESCUE FLATPEA *TOTAL*	20 30 *50*	0.45 0.75 *1.20*
E	CREPPING RED FESCUE KENTUCKY BLUEGRASS *TOTAL*	50 50 *100*	1.15 1.15 *2.30*
F	TALL FESCUE	*150*	*3.60*



CONSTRUCTION SPECIFICATIONS:
1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION, AIR AND WATER POLLUTION WILL BE MINIMIZED.
5. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

MAINTENANCE NOTES:
1. TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE INSPECTED AFTER EACH STORM AND DAILY DURING PROLONGED STORM EVENTS. ANY DAMAGE TO THE STRUCTURES SHALL BE REPAIRED IMMEDIATELY.
2. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
3. WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED.
4. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM
N.T.S



CONVEYANCE SWALE DETAIL
N.T.S

CONSTRUCTION NOTES:
1. REFER TO BERM CONSTRUCTION NOTES IN GRAVEL WETLAND DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. SWALE SHALL HAVE GREATER THAN 85% VEGETATIVE GROWTH PRIOR TO RECEIVING RUNOFF.
3. REFER TO PERMANENT VEGETATION REQUIREMENTS FOR SEEDING REQUIREMENTS. SEED MIX 'C' SHALL BE APPLIED AT THE SPECIFIED RATE ON SHEET C4.

MAINTENANCE NOTES:
1. INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATION, VEGETATION LOSS, AND PRESENCE OF INVASIVE SPECIES.
2. PERFORM PERIODIC MOWING. DO NOT MOW GRASS SHORTER THAN 4 INCHES.
3. REMOVE DEBRIS AND ACCUMULATED SEDIMENT BASED ON INSPECTION.
4. REPAIR ERODED AREAS, REMOVE INVASIVE SPECIES AND DEAD VEGETATION, AND RESEED WITH APPLICABLE GRASS MIX AS WARRANTED BY INSPECTION.

CONSTRUCTION SEQUENCING:

PHASE 1 - CONSTRUCTION OF BUILDING 1 AND ASSOCIATED UTILITIES:

THE ESTIMATED START OF CONSTRUCTION IS NOVEMBER 2015 AND THE ESTIMATED END OF CONSTRUCTION IS NOVEMBER 2016. THE CONSTRUCTION SEQUENCING IS DETAILED BELOW.

1. COMPLETE PRE-CONSTRUCTION MEETING WITH ALL PARTIES AS REQUIRED BY CONDITIONS OF APPROVAL.
2. CONTACT DIG-SAFE PRIOR TO BEGINNING ANY CONSTRUCTION..
3. INSTALL ALL EROSION CONTROL MEASURES AS SHOWN ON THE CONSTRUCTION AND PHASING PLAN.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE IN THE LOCATION SHOWN ON THE SITE PLAN.
5. GRUB SITE FOR THE CONSTRUCTION OF PHASE 1 ONLY. MINIMIZE THE AMOUNT OF EXPOSED AREA TO THE LOCATION THAT IS BEING ACTIVELY WORKED.
6. PROVIDE CONSTRUCTION ENTRANCES IN LOCATIONS WHERE TRUCKS ARE ACCESSING THE EXISTING ROAD OR MINIMIZE ACCESS TO ONE LOCATION.
7. CONSTRUCT AND STABILIZE ALL TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROLS INCLUDING CONSTRUCTION ENTRANCES, SWALES AND SEDIMENTATION PONDS. INSTALL SWALES AND TEMPORARY SEDIMENTATION PONDS AS NEEDED AND UPSTREAM OF CONSTRUCTED WETLANDS DURING CONSTRUCTION OF CONSTRUCTED WETLANDS. TEMPORARY SEDIMENTATION PONDS CAN BE REMOVED ONCE SITE HAS BEEN STABILIZED.
   A. SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS. ADDITIONAL SWALES AND TEMPORARY SEDIMENT PONDS WILL BE REQUIRED TO CONTROL CONSTRUCTION SEDIMENT AND WASHOUTS FROM ENTERING CONSTRUCTED WETLANDS.
   B. THE SITE SHALL BE STABILIZED PRIOR TO DIRECTING FLOW INTO CONSTRUCTED WETLANDS.
8. EXCAVATE FOR BUILDING FOUNDATIONS AND BACKFILL IN ACCORDANCE WITH GEOTECHNICAL OR STRUCTURAL ENGINEERS REQUIREMENTS.
9. INSTALL UTILITIES INCLUDING WATERLINE EXTENSION, WATER AND SEWER SERVICES AND UNDERGROUND ELECTRIC AND COMMUNICATION CONDUITS FOR PHASE 1 CONSTRUCTION. PHASE 1 INCLUDES CONSTRUCTION OF BUILDING 1, THE DUPLEXES THE HORSE BARN AND RENOVATIONS TO THE EXISTING PUMP HOUSE.
10. PROPERLY COMPLETE ALL INSPECTIONS AND TESTING AS REQUIRED PRIOR TO BACK FILLING.
11. CONSTRUCT ROADWAY PARKING LOT AND SIDEWALKS TO THE LINES AND GRADES SHOWN ON THE SITE PLANS.
   1. EXCAVATE ROADWAY AND PARKING LOT TO SUBGRADE.
   2. PLACE SELECT MATERIALS IN ACCORDANCE WITH THE DETAILS AND AS FOLLOWS:
      A. PLACE SELECT MATERIALS IN MAXIMUM 12" LIFTS AND COMPACT TO 95% MAX. DRY DESITY BASED ON PROCTOR TEST.
      B. MATERIAL SHALL BE FREE OF DELETERIOUS MATERIALS SUCH AS LOAM, STUMPS, BRUSH, AND ROCKS LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING PLACED.
   3. PLACE 2" BINDER COURSE OF PAVEMENT IN ACCORDANCE WITH SPECIFICATIONS AS SOON AS POSSIBLE AFTER SELECT MATERIALS HAVE BEEN INSTALLED AND ACCEPTED TO MINIMIZE SOIL EROSION.
   4. THE FINAL COURSE OF PAVEMENT SHOULD NOT BE INSTALLED AFTER NOVEMBER 15. IT IS RECOMMENDED THAT THE WINTER SEASON GO BY PRIOR TO FINISH PAVING BEING INSTALLED.
   5. CONSTRUCT SIDEWALKS AND BITUMINOUS PATHS IN ACCORDANCE WITH THE PHASING PLAN AND EACH SPECIFIC CROSS-SECTION.
12. REMOVE EXISTING PAVEMNET AT CUL-DE-SAC AS NECESSARY TO PROPERLY CONSTRUCT SWALES AND GRADING.
13. LOAM SHALL BE STOCKPILED ON SITE IN LOCATIONS SHOWN OR APPROVED OTHERWISE FOR RE-USE ON THE SITE.
14. COMPLETE GRADING AND INSTALL PERMANENT SEEDING AND PLANTINGS IN ACCORDANCE WITH THE LANDSCAPE PLANS.
15. INSTALL REMAINING DRAINAGE AND UTILITY STRUCTURES AND STABILIZE PRIOR TO RECEIVING RUNOFF.
16. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES.
17. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED AND RESEED ANY AREAS DISTURBED BY REMOVAL.

PHASE 1A - HORSE BARN & PUMP STATION CONSTRUCTION:

THE ESTIMATED START OF CONSTRUCTION IS JULY 2016 AND THE ESTIMATED END OF CONSTRUCTION IS SEPTEMBER 2016. THE CONSTRUCTION SEQUENCING IS DETAILED BELOW.

1. INSTALL EROSION CONTROLS PRIOR TO BEGINNING CONSTRUCTION.
2. CONTACT DIGSAFE PRIOR TO BEGINNING CONSTRUCTION.
3. GRUB PROPOSED BUILDING AREA AND STOCKPILE LOAM AS SHOWN ON PLAN.
4. INSTALL UTILITIES IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
5. PROPERLY COMPLETE ALL INSPECTIONS AND TESTING PRIOR TO BACKFILLING.
6. EXCAVATE FOR BUILDING FOUNDATION AND BACKFILL IN ACCORDANCE WITH SPECIFICATIONS.
7. COMPLETE FINAL GRADING AROUND BUILDING AREA AND STABILIZE ALL DISTURBED AREAS WITHIN 72 HOURS OF COMPLETION.
8. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED AND RESEED ANY AREAS DISTURBED BY REMOVAL

CONSTRUCTION SEQUENCING:

PHASE 2 - CONSTRUCTION OF BUILDING 2, SINGLE-FAMILY AGE-RESTRICTED BUILDING AND ASSOCIATED UTILITIES:

THE EARLIEST ESTIMATED START OF CONSTRUCTION IS SEPTEMBER 2017 AND THE ESTIMATED END OF CONSTRUCTION IS SEPTEMBER 2018. THE CONSTRUCTION SEQUENCING IS DETAILED BELOW.

1. COMPLETE PRE-CONSTRUCTION MEETING WITH ALL PARTIES AS REQUIRED BY CONDITIONS OF APPROVAL.
2. CONTACT DIG-SAFE PRIOR TO BEGINNING ANY CONSTRUCTION.
3. INSTALL ALL EROSION CONTROL MEASURES AS SHOWN ON THE CONSTRUCTION AND PHASING PLAN.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE IN THE LOCATION SHOWN ON THE SITE PLAN.
5. GRUB SITE FOR THE CONSTRUCTION OF PHASE 2. MINIMIZE THE AMOUNT OF EXPOSED AREA TO THE LOCATION THAT IS BEING ACTIVELY WORKED.
6. DURING THE CONSTRUCTION OF PHASE 2 TEMPORARY SWALES AND SEDIMENTATION PONDS SHALL BE CONSTRUCTED AS NEEDED TO PROTECT THE CONSTRUCTED WETLANDS FROM EXCESSIVE SILTATION. TEMPORARY PONDS AND OTHER EROSION CONTROLS SHALL BE REMOVED ONCE SITE HAS BEEN STABILIZED.
7. EXCAVATE FOR BUILDING FOUNDATIONS AND BACKFILL IN ACCORDANCE WITH GEOTECHNICAL OR STRUCTURAL ENGINEERS REQUIREMENTS.
8. INSTALL UTILITIES AS SHOWN ON THE PLANS FOR SERVICES TO PHASE 2 BUILDINGS.
9. PROPERLY COMPLETE ALL INSPECTIONS AND TESTING AS REQUIRED PRIOR TO BACK FILLING.
10. CONSTRUCT ROADWAY, PARKING LOT, DRIVEWAY, AND SIDEWALKS TO THE LINES AND GRADES SHOWN ON THE SITE PLANS.
   1. EXCAVATE ROADWAY AND PARKING LOT TO SUBGRADE.
   2. PLACE SELECT MATERIALS IN ACCORDANCE WITH THE DETAILS AND AS FOLLOWS:
      A. PLACE SELECT MATERIALS IN MAXIMUM 12" LIFTS AND COMPACT TO 95% MAX. DRY DESITY BASED ON PROCTOR TEST.
      B. FILL MATERIAL SHALL BE FREE OF DELETERIOUS MATERIALS SUCH AS LOAM, STUMPS, BRUSH, AND ROCKS LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING PLACED.
   3. PLACE 2" BINDER COURSE OF PAVEMENT IN ACCORDANCE WITH SPECIFICATIONS AS SOON AS POSSIBLE AFTER SELECT MATERIALS HAVE BEEN INSTALLED AND ACCEPTED TO MINIMIZE SOIL EROSION.
   4. THE FINAL COURSE OF PAVEMENT SHOULD NOT BE INSTALLED AFTER NOVEMBER 15. IT IS RECOMMENDED THAT THE WINTER SEASON GO BY PRIOR TO FINISH PAVING BEING INSTALLED.
   5. CONSTRUCT SIDEWALKS AND BITUMINOUS PATHS IN ACCORDANCE WITH THE PHASING PLAN AND EACH SPECIFIC CROSS-SECTION.
11. COMPLETE GRADING AND INSTALL PERMANENT SEEDING AND PLANTINGS IN ACCORDANCE WITH THE LANDSCAPE PLANS.
12. INSTALL REMAINING DRAINAGE AND UTILITY STRUCTURES AND STABILIZE PRIOR TO RECEIVING RUNOFF.
13. INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES.
14. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED AND RESEED ANY AREAS DISTURBED BY REMOVAL.

ADDITIONAL NOTES:
1. NO FUEL SHALL BE STORED ON SITE DURING CONSTRUCTION.
2. DURING CONSTRUCTION DUST SHALL BE PREVENTED FROM BECOMING A SAFETY OR HEALTH HAZARD BY THE IMPLEMENTATION OF ACCEPTED CONTROL METHODS SUCH AS WATERING.
3. ALL CONSTRUCTION MATERIALS THAT ARE SPILLED OR DEPOSITED ON THE PUBLIC ROADWAYS SHALL BE REMOVED BY THE CONTRACTOR.
4. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	KD

SEAL

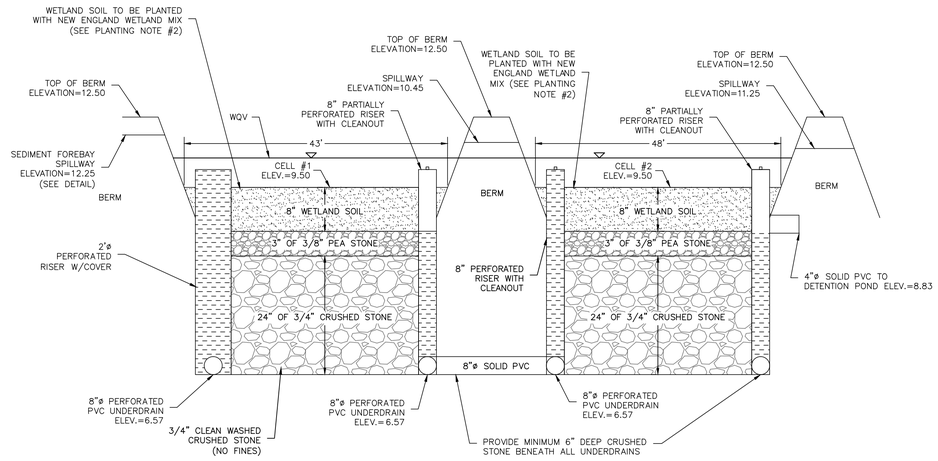
DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

D1



GRAVEL WETLAND A-A' CROSS SECTION

N.T.S

GRAVEL WETLAND CONSTRUCTION NOTES:

1. DO NOT PLACE GRAVEL WETLANDS INTO SERVICE UNTIL EACH BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE GRAVEL WETLAND OR DURING ANY STAGE OF CONSTRUCTION.
3. CLEAR AND GRUB THE AREA WHERE THE GRAVEL WETLAND IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE LATER.
4. THE FOUNDATION AREA SHALL BE SCARIFIED PRIOR TO PLACING FILL. ALL UNSUITABLE MATERIAL UNDER THE BERM SHALL BE REMOVED AND REPLACED WITH SUITABLE FOUNDATION MATERIAL.
5. THE BERM SHALL BE CONSTRUCTED BEGINNING FROM THE LOWEST POINT UNIFORMLY ALONG ITS ENTIRE LENGTH. PLACE MATERIALS IN MAXIMUM 12" LOOSE LIFTS COMPACTED TO 95% MAXIMUM MODIFIED PROCTOR DENSITY. EMBANKMENT SOIL SHALL HAVE NO ORGANIC MATTER OR FROZEN MATERIAL AND NO STONES LARGER THAN 2/3 OF THE MAXIMUM LOOSE LIFT THICKNESS. STONES AROUND ANY STRUCTURES AND/OR CONDUITS SHALL NOT EXCEED 3 INCHES. EMBANKMENT FILL MATERIAL SHALL HAVE THE FOLLOWING GRADATION:

SIEVE SIZE:	% PASSING:
#4	80–90
#40	50–80
#100	30–45
#200	15–30

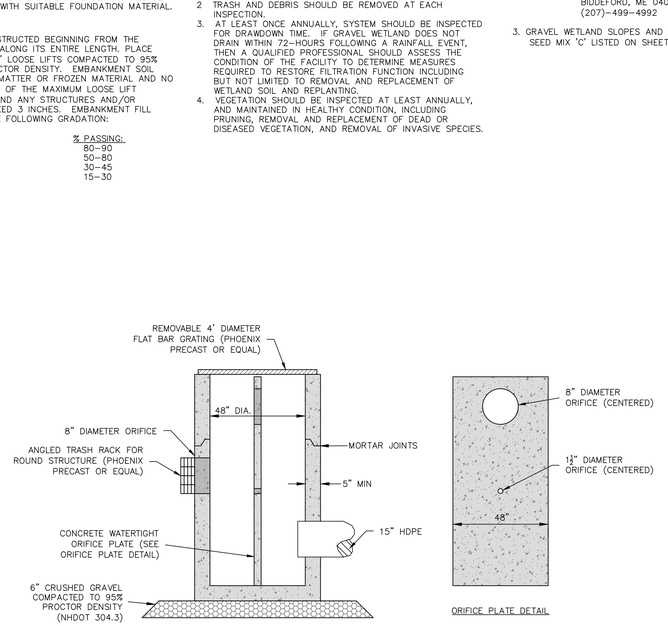
6. ALL PIPE TO PIPE CONNECTIONS SHALL BE WATER-TIGHT.
7. ALL DISTURBED AREAS NOT OTHERWISE PLANTED SHALL RECEIVE FOUR INCHES OF LOAM AND SEEDED PER THE CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES ON SHEET C4.

GRAVEL WETLAND MAINTENANCE:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
3. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF GRAVEL WETLAND DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION INCLUDING BUT NOT LIMITED TO REMOVAL AND REPLACEMENT OF WETLAND SOIL AND REPLANTING.
4. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

PLANTING NOTES:

1. WETLAND SOIL MIX FOR GRAVEL WETLAND SHALL BE A SILT LOAM WITH A MINIMUM OF 15–20% ORGANIC CONTENT BY MASS. THE CLAY CONTENT SHALL NOT EXCEED 15% BY VOLUME. THE ORGANIC MATTER SHALL CONSIST OF DECIDUOUS LEAF COMPOST PROPERLY MATURED AND AT LEAST ONE YEAR OLD. THERE SHALL BE NO LEAF MULCH, COMPOSTED MIXED YARD DEBRIS, OR WOOD CHIPS.
2. GRAVEL WETLAND BOTTOM TO BE PLANTED WITH NEW ENGLAND WETLAND MIX AVAILABLE FROM:
   PIERSON NURSERIES INC.
   24 BUZZELL ROAD
   BIDDEFORD, ME 04005
   (207)-499-4992
3. GRAVEL WETLAND SLOPES AND BERM TO BE PLANTED WITH SEED MIX 'C' LISTED ON SHEET C4.



OUTLET CONTROL STRUCTURE

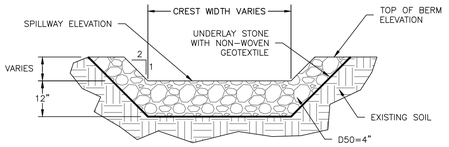
N.T.S

NOTES:

1. OUTLET CONTROL STRUCTURE AND TRASH RACKS SHALL BE PHOENIX PRECAST OR EQUAL.

OUTLET CONTROL STRUCTURE NOTES:

1. DRAINAGE STRUCTURE MATERIALS SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 600, SECTION 604.
2. CONCRETE TO BE 4,000 PSI CONCRETE.
3. PIPE OPENINGS SHALL BE FULLY MORTARED ON OUTSIDE PRIOR TO BACK FILLING. INSIDE OF PIPE OPENINGS SHALL BE MORTARED AND ALLOWED TO CURE PER MANUFACTURERS REQUIREMENTS PRIOR TO RECEIVING RUNOFF.
4. JOINTS BETWEEN ADJACENT RISERS SHALL BE FULLY SEALED WITH ELASTOMERIC SEALANT PER MANUFACTURERS REQUIREMENTS.
5. CONCRETE STRUCTURE AND TRASH RACKS AVAILABLE FROM:
   PHOENIX PRECAST
   77 REGIONAL DRIVE
   CONCORD, NH 03301
   (603)225-5169



NOTES: CREST BREADTH IS WIDTH OF BERM AT SPILLWAY.

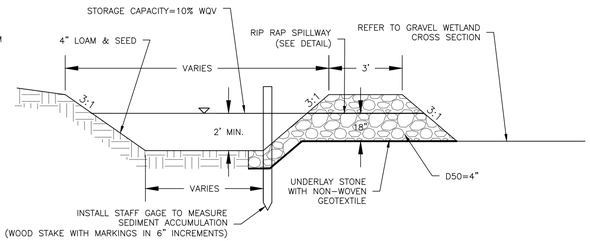
RIP RAP SPILLWAY TYPICAL CROSS SECTION DETAIL

N.T.S.

NOTES:
1. RIP RAP SPILLWAYS ARE LOCATED AT SEDIMENT FOREBAY, AND GRAVEL WETLAND OUTLETS.
2. THERE SHALL BE NO WETLAND IMPACTS.

RIP-RAP GRADATION

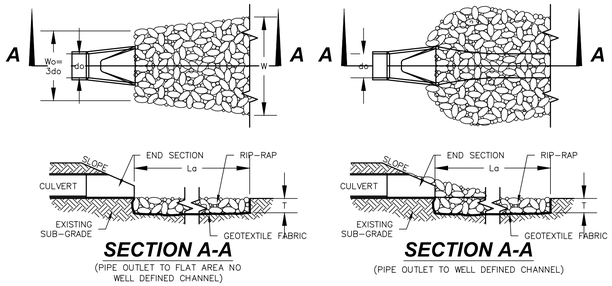
d50=6"	% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
	100	9	TO	12
	85	7.8	TO	10.8
	50	6	TO	9
	15	1.8	TO	3



SEDIMENT FOREBAY TYPICAL CROSS SECTION DETAIL

N.T.S.

NOTES:
1. REFER TO BERM CONSTRUCTION NOTES IN GRAVEL WETLAND DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. REFER TO RIPRAP SPILLWAY CROSS SECTION DETAIL FOR SPILLWAY CONSTRUCTION REQUIREMENTS.
3. UNLESS RIP RAP IS IN PLACE, THE SEDIMENT FOREBAY SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION.
4. INSTALL STAFF GAGE TO MEASURE SEDIMENT ACCUMULATION. SEDIMENT SHALL BE REMOVED AFTER SEDIMENT ACCUMULATES TO A DEPTH OF 1 FOOT.



SECTION A-A

(PIPE OUTLET TO FLAT AREA NO WELL DEFINED CHANNEL)

SECTION A-A

(PIPE OUTLET TO WELL DEFINED CHANNEL)

RIP-RAP GRADATION

d50=6"	% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
	100	9	TO	12
	85	7.8	TO	10.8
	50	6	TO	9
	15	1.8	TO	3

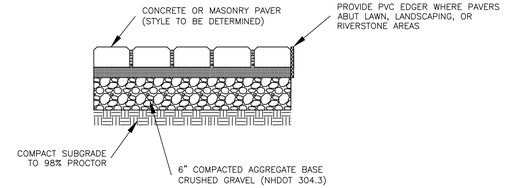
d50=4"	% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
	100	6	TO	8
	85	5.2	TO	7.2
	50	4	TO	6
	15	1.2	TO	2

CONSTRUCTION SPECIFICATIONS:
1. PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
2. MINIMUM 6" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
3. THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF 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 (2) PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
5. 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 NOTES:
1. OUTLETS SHALL BE INSPECTED AND CLEANED ANNUALLY AND AFTER ANY MAJOR STORM EVENT. ANY EROSION OR DAMAGE TO THE RIP-RAP SHALL BE REPAIRED IMMEDIATELY.
2. THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
3. 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.

PIPE OUTLET PROTECTION DETAIL

NOT TO SCALE



TYPICAL CONCRETE PAVER CROSS SECTION

N.T.S

NOTES:
1. INSTALL SELECTED CONCRETE PAVER PER MANUFACTURERS SPECIFICATIONS.
2. PAVERS TO BE GENEST 4" X 8" STORMWATER BRICK (OR EQUAL). ACTUAL PAVER MODEL TO BE SELECTED BY OWNER.
3. FOR SALES, CONTACT:
   GENEST SALES REPRESENTATIVE
   RAY PETRARCA – (207) 324-3250

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

_____

_____

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	KD

SEAL

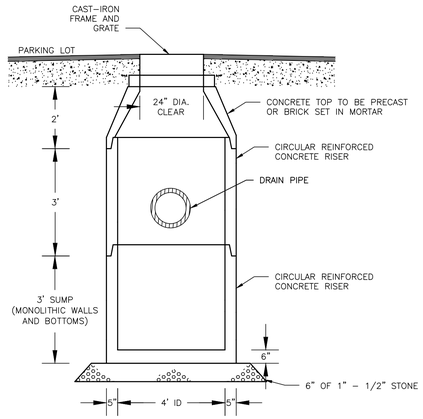
DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

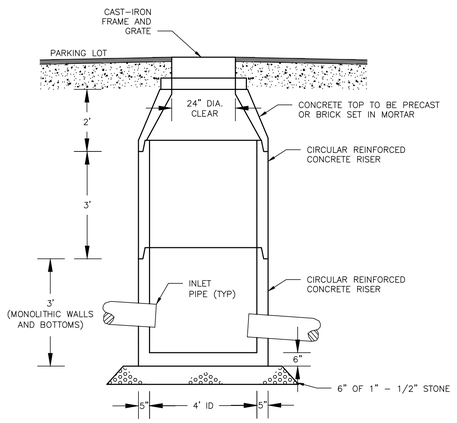
D2



CONE TOP CATCH BASIN

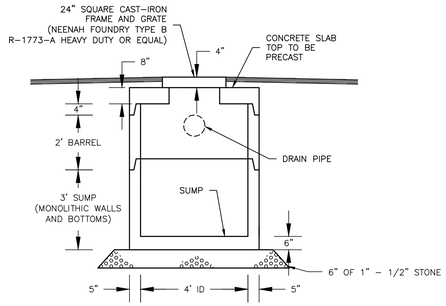
N.T.S.

NOTES:
1. DRAINAGE STRUCTURE MATERIALS AND INSTALLATION SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 600, SECTION 604.
2. SITE CONTRACTOR SHALL BACK FILL AROUND DRAINAGE STRUCTURES IN 6 TO 8 INCH LIFTS, ATTAINING 95% MAXIMUM PROCTOR DENSITY FOR EACH LIFT.
3. PIPE OPENINGS SHALL BE FULLY MORTARED ON OUTSIDE PRIOR TO BACK FILLING. INSIDE OF PIPE OPENINGS SHALL BE MORTERED AND ALLOWED TO CURE PER MANUFACTURERS RECOMMENDATIONS PRIOR TO RECEIVING RUNOFF.
4. JOINTS BETWEEN ADJACENT RISERS SHALL BE FULLY SEALED WITH ELASTORMERIC SEALANT PER MANUFACTURERS REQUIREMENTS.
5. WHEN FRAME/GRATE ARE LOCATED IN PAVED AREA, THEY SHALL BE BROUGHT TO FINISHED GRADE AFTER BINDER COURSE PAVEMENT IS PLACED. THE EXCAVATION REQUIRED AROUND THE GRATE AND FRAME SHALL BE BACKFILLED FLUSH WITH THE TOP OF BINDER COURSE WITH NHDOT CLASS B CONCRETE.
6. FRAME AND GRATE:
NHDOT TYPE B BY NEENAH FOUNDRY
R-3570-A (4" FLANGE)
HEAVY DUTY OR EQUAL



DRAIN MANHOLE

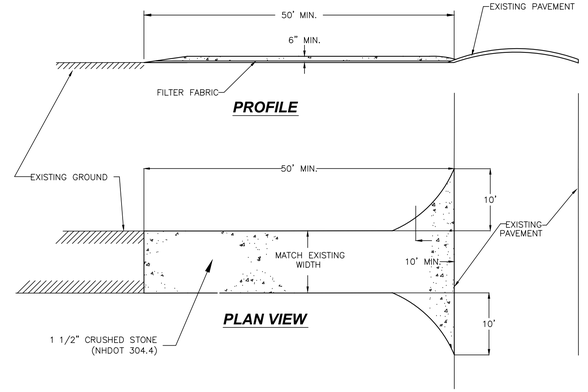
N.T.S.



SLAB TOP CATCH BASIN

N.T.S.

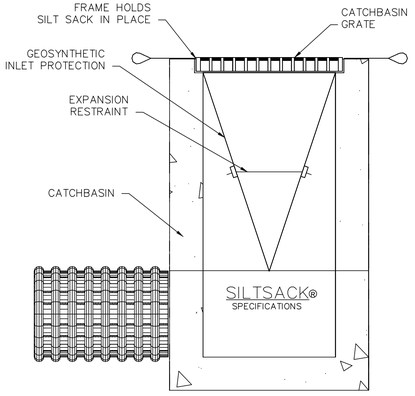
NOTES:
1. DRAINAGE STRUCTURE MATERIALS AND INSTALLATION SHALL COMPLY WITH NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 600, SECTION 604.
2. SITE CONTRACTOR SHALL BACK FILL AROUND DRAINAGE STRUCTURES IN 6 TO 8 INCH LIFTS, ATTAINING 95% MAXIMUM PROCTOR DENSITY FOR EACH LIFT.
3. PIPE OPENINGS SHALL BE FULLY MORTARED ON OUTSIDE PRIOR TO BACK FILLING. INSIDE OF PIPE OPENINGS SHALL BE MORTERED AND ALLOWED TO CURE PER MANUFACTURERS RECOMMENDATIONS PRIOR TO RECEIVING RUNOFF.
4. JOINTS BETWEEN ADJACENT RISERS SHALL BE FULLY SEALED WITH ELASTORMERIC SEALANT PER MANUFACTURERS REQUIREMENTS.
5. WHEN FRAME/GRATE ARE LOCATED IN PAVED AREA, THEY SHALL BE BROUGHT TO FINISHED GRADE AFTER BINDER COURSE PAVEMENT IS PLACED. THE EXCAVATION REQUIRED AROUND THE GRATE AND FRAME SHALL BE BACKFILLED FLUSH WITH THE TOP OF BINDER COURSE WITH NHDOT CLASS B CONCRETE.
6. FRAME AND GRATE:
NHDOT TYPE B BY NEENAH FOUNDRY
R-3570-A (4" FLANGE)
HEAVY DUTY OR EQUAL



STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S

STABILIZED CONSTRUCTION ENTRANCE NOTES:
1. GRADE AND COMPACT ACCESS ROAD ENTRANCE AS NECESSARY. PLACE FILTER FABRIC (MIRAFI OR EQUAL) AND PLACE 6" OF 1"-2" STONE TO MATCH SLOPE OF EXISTING ROAD.
2. PROVIDE NECESSARY SWALES OR DIVERSIONS TO MINIMIZE DIRECT FLOW OF WATER ONTO STONE AREA.
3. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED AS NECESSARY TO REMOVE SILT FROM TIRES PRIOR TO ENTERING PUBLIC ROADS. A SMALL SWALE SHALL BE CONSTRUCTED ON THE DOWN GRADIENT SIDE TO TRAP ANY SILT WASHED FROM THE STONE ENTERANCE.



REGULAR FLOW SILTSACK®

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

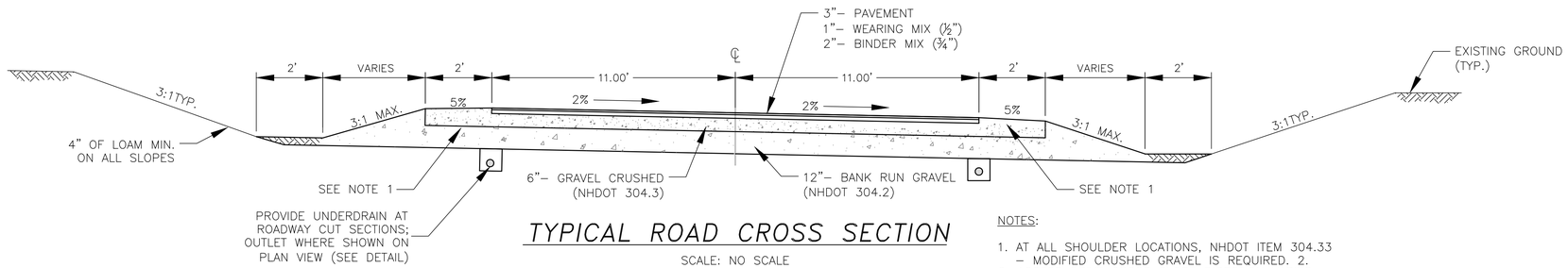
NOTES:

1. GEOSYNTHETIC SEDIMENT FILTER TRAP SHALL BE "REGULAR FLOW SILTSACK®" OR APPROVED EQUAL. SPECIFICATIONS FOR SILTSACK® ARE DETAILED.

2. FILTER TRAPS SHALL BE INSPECTED AFTER EVERY RAIN EVENT OF 0.25" OR GREATER AND SEDIMENTS SHALL BE REMOVED FROM TRAP WHEN SEDIMENT HAS REACHED TWO THIRDS OF THE DEPTH OF THE TRAP, OR IF PONDING OF WATER AT SURFACE BEGINS TO OCCUR. DO NOT PUNCTURE FILTER TRAP TO MITIGATE PONDING.

CATCH BASIN GEOSYNTHETIC SEDIMENT TRAP

N.T.S.



TYPICAL ROAD CROSS SECTION

SCALE: NO SCALE

NOTES:

1. AT ALL SHOULDER LOCATIONS, NHDOT ITEM 304.33 - MODIFIED CRUSHED GRAVEL IS REQUIRED. 2.
2. ACCESS DRIVE CROSS SLOPE DIRECTION VARIES. REFER TO GRADING PLAN.
3. ROAD CROSS-SECTION VARIES AT PARKING AND DROP-OFF AREAS. REFER TO SITE PLAN FOR WIDTHS AND GRADES.

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

_____

_____

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	KD

SEAL

DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

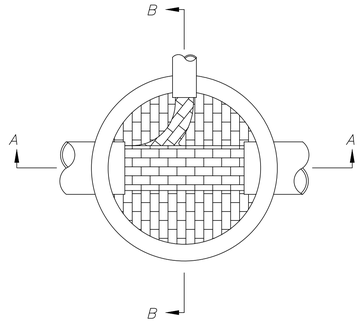
D3

MANHOLE CONSTRUCTION MATERIAL REQUIREMENTS (PER Env-Wq 704.10 NUMERATION)

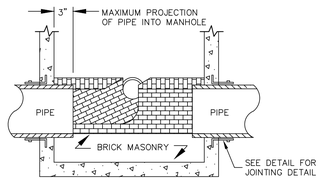
(A) ALL COMPONENT PARTS OF MANHOLE STRUCTURES SHALL HAVE THE STRENGTH, LEAK RESISTANCE, AND SPACE NECESSARY FOR THE INTENDED SERVICE.
(B) MANHOLE STRUCTURES SHALL HAVE A LIFE EXPECTANCY IN EXCESS OF 25 YEARS.
(C) MANHOLE STRUCTURES SHALL BE DESIGNED TO WITHSTAND H-20 LOADING AND SHALL NOT LEAK IN EXCESS OF 1 GPD PER VERTICAL FOOT OF MANHOLE FOR THE LIFE OF THE STRUCTURE.
(D) BARRELS AND CONE SECTIONS SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE.
(E) BASE SECTIONS SHALL BE MONOLITHIC CONSTRUCTION TO A POINT AT LEAST SIX INCHES ABOVE THE CROWN OF THE INCOMING PIPE.
(F) 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.
(G) PIPE TO MANHOLE JOINTS SHALL BE AS FOLLOWS:
  (1) ELASTOMERIC, RUBBER SLEEVE WITH WATER TIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES;
  (2) CAST INTO THE WALL OR SECURED WITH STAINLESS STEEL CLAMPS;
  (3) ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING; AND
  (4) NON-SHRINK GROUTED JOINTS WHERE WATERTIGHT BONDING TO THE MANHOLE AND PIPE CAN BE OBTAINED.
(H) MANHOLE CONE SECTIONS SHALL BE ECCENTRIC IN SHAPE.
(I) ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OF THE TRADEMARK OF THE MANUFACTURER IMPRESSED OR INDELIBLY MARKED ON THE INSIDE OF THE WALL.
(J) MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, 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 SLOPE 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.
(K) MATERIALS FOR CONSTRUCTION FOR MANHOLES SHALL BE AS FOLLOWS:
  (1) CONCRETE FOR CAST-IN-PLACE OR COMPLETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS FOR CLASS AA CONCRETE IN THE NH DOT'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION."
  (2) REINFORCING FOR CAST-IN-PLACE CONCRETE SHALL BE STEEL OR STRUCTURAL FIBERS THAT CONFORM TO THE REQUIREMENTS OF THE NH DOT'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION."
  (3) PRECAST CONCRETE BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478-06;
  (4) THE MANHOLE FRAME AND COVER SHALL PROVIDE A 30-INCH DIAMETER CLEAR OPENING;
  (5) THE MANHOLE COVER SHALL HAVE THE WORD "SEWER" IN 3-INCH LETTERS CAST INTO THE TOP SURFACE;
  (6) THE CASTINGS SHALL BE OF EVEN-GRAINED CAST IRON, SMOOTH, AND FREE FROM SCALE, LUMPS, BLISTERS, SAND HOLES AND DEFECTS;
  (7) CONTACT SURFACES OF COVERS AND FRAMES SHALL BE MACHINED AT THE FOUNDRY TO PREVENT ROCKING OF COVERS IN ANY ORIENTATION;
  (8) CASTINGS SHALL BE EQUAL TO CLASS 30, CONFORMING TO ASTM A48/48M-03;
  (9) BRICK MASONRY FOR SHELF, INVERT AND GRADE ADJUSTMENT SHALL COMPLY WITH ASTM C32-05, CLAY OR SHALE, FOR GRADE SS HARD BRICK;
  (10) MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;
  (11) PROPORTIONS IN MORTAR OF PARTS BY VOLUME SHALL BE:
    (a) 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
    (b) 4.5 PARTS SAND, 1.0 PART CEMENT AND 0.5 PART HYDRATED LIME;
  (12) CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05;
  (13) HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES";
  (14) SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO THE ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES";
(N) THE MINIMUM INTERNAL DIAMETER OF MANHOLE SHALL BE 48 INCHES.
(S) IN THE FLOW CHANNEL A DROP OF AT LEAST 0.1 FEET SHALL BE PROVIDED BETWEEN THE INGOING AND OUTGOING SEWERS ON ALL MANHOLES.

MANHOLE TESTING REQUIREMENTS (Env-Wq 704.10)

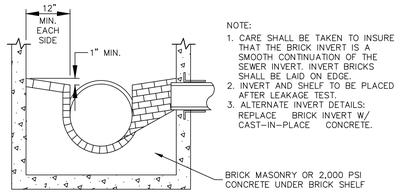
(X) MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST.*
(Y) THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:
  (1) THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg: AND
  (2) THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR A 1-INCH Hg PRESSURE DROP TO 9 INCHES Hg SHALL BE:
    (A) NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP;
    (B) NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP
(Z) THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED IN (Y) ABOVE.
*MANHOLE TESTING MUST BE CONDUCTED PRIOR TO INVERT AND SHELF PLACEMENT.



PLAN



SECTION A-A

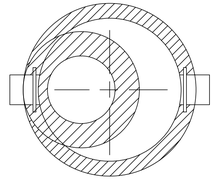


NOTE:
1. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
2. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.
3. ALTERNATE INVERT DETAILS: REPLACE BRICK INVERT W/ CAST-IN-PLACE CONCRETE.

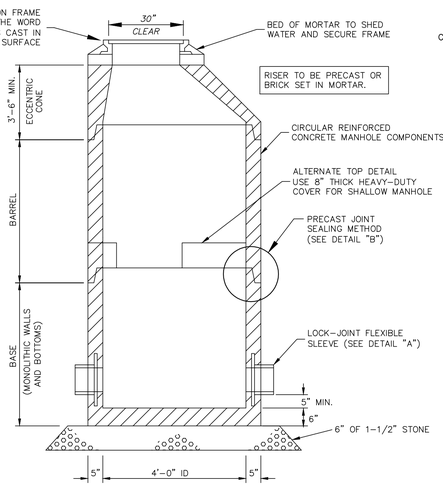
SECTION B-B

TYPICAL SEWER MANHOLE INVERT

N.T.S.



PLAN VIEW



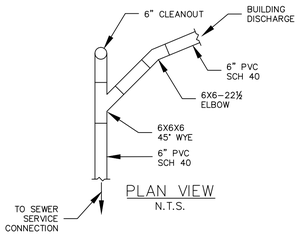
SECTION VIEW

STANDARD MANHOLE

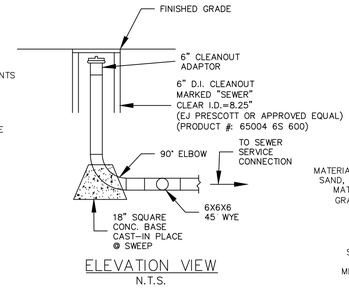
N.T.S.

NOTES:

1. SMH #1 IS A STANDARD MANHOLE WITH ECCENTRIC CONE TOP.
2. THERE SHALL BE NO STEPS INSTALLED WITHIN THE MANHOLE.

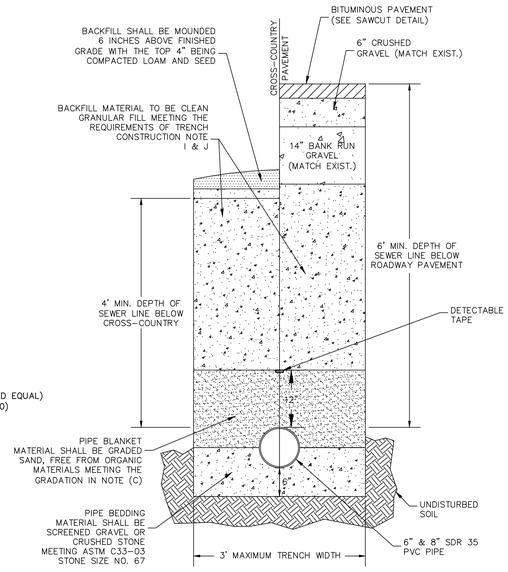


PLAN VIEW
N.T.S.



ELEVATION VIEW
N.T.S.

CLEANOUT DETAIL



STANDARD SEWER PIPE TRENCH

TRENCH CONSTRUCTION (PER Env-Wq 704.09 NUMERATION)

(A) TRENCH DIMENSIONS SHALL BE AS FOLLOWS:
  (1) FOR SEWER PIPE LESS THAN 15" IN DIAMETER, THE ALLOWABLE TRENCH WIDTH AT A PLANE 12 INCHES ABOVE THE PIPE SHALL BE NO MORE THAN 36".
(B) PIPE TRENCH BEDDING MATERIAL AND FILL MATERIAL FOR EXCAVATION BELOW GRADE SHALL BE SCREENED GRAVEL OR CRUSHED STONE TO ASTM C33-03 STONE SIZE NO. 67.
(C) THE PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES THROUGH A 1/2 INCH SIEVE AND A MAXIMUM OF 15% PASSES THROUGH A #200 SIEVE.
(E) PIPE BEDDING MATERIAL SHALL EXTEND FROM A HORIZONTAL PLANE THROUGH THE PIPE AXIS TO 6 INCHES BELOW THE BOTTOM OF THE OUTSIDE SURFACE OF THE PIPE.
(F) PIPE SAND MATERIAL SHALL COVER THE PIPE A MINIMUM OF 12 INCHES ABOVE THE CROWN OF THE OUTSIDE SURFACE.
(G) COMPACTION SHALL BE IN 12 INCH LAYERS FOR BEDDING AND BLANKET MATERIALS.
(H) BACKFILL MATERIALS SHALL BE COMPACTED IN 3-FOOT LAYERS TO THE GROUND SURFACE EXCEPT FOR ROAD CONSTRUCTION (OR OTHER PAVED AREAS) WHERE THE FINAL 3 FEET SHALL BE COMPACTED IN 12-INCH LAYERS TO THE ROAD BASE SURFACE.
(I) TRENCH BACKFILL MATERIAL IN ROADWAY LOCATIONS SHALL BE NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION, EXCLUDING: DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
(J) TRENCH BACKFILL AT CROSS-COUNTRY LOCATIONS SHALL BE AS DESCRIBED IN (I) ABOVE, EXCEPT THAT TOP SOIL, LOAM, MUCK OR PEAT, MAY BE USED PROVIDED THE COMPLETED CONSTRUCTION WILL BE STABLE, AND PROVIDED THAT ACCESS TO THE SEWER FOR MAINTENANCE AND RECONSTRUCTION IS PRESERVED.
(K) BACKFILL SHALL BE MOUNDED 6 INCHES ABOVE ORIGINAL GROUND AT CROSS-COUNTRY LOCATIONS.
(L) BASE COURSE FOR TRENCH REPAIR SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NH DOT.
(O) PRECAUTIONS SHALL BE TAKEN TO AVOID GROUNDWATER POOLING AT THE SURFACE BY PROVIDING DRAINAGE TO A SUITABLE OUTLET AT CATCH BASINS OR RUNOFF SWALES.

SEWER NOTES:

PER THE REQUIREMENTS OF "STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWERAGE AND WASTEWATER TREATMENT FACILITIES."

GRAVITY SEWER CONSTRUCTION MATERIALS (Env-Wq 704.05)

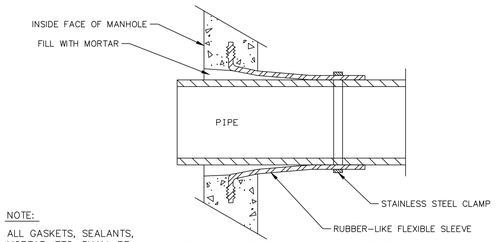
(A) PLASTIC GRAVITY SEWER PIPE AND FITTINGS SHALL BE 8 INCH PVC SDR 35 SEWER PIPE (EXCEPT SEWER SERVICE SHALL BE 6" SRD 35 PVC) AND SHALL COMPLY WITH ASTM D3034-04a.
(B) PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 PSI AT 5 PERCENT PIPE DIAMETER DEFLECTION, AS MEASURED IN ACCORDANCE WITH ASTM D2412-02 DURING MANUFACTURE.
(C) JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D3212-96(a)(2003)e1 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

GRAVITY SEWER PIPE TESTING REQUIREMENTS (Env-Wq 704.07)

(A) ALL NEW 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 7½ PERCENT OF AVERAGE INSIDE DIAMETER.

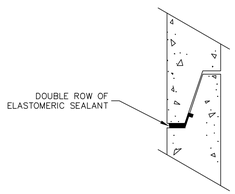
PROTECTION OF WATER SUPPLIES (Env-Wq 704.12)

(A) SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
(B) A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (A) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN Env-Wq 704.06.
(C) WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
  (1) VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
  (2) SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.



NOTE:
ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

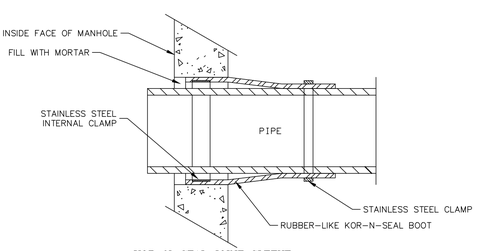
LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
(OR ACCEPTABLE SUBSTITUTE)



ELASTOMERIC SEALANT

NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS

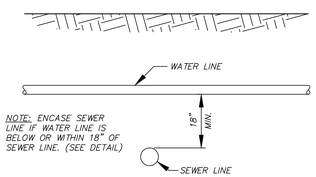
DETAIL "B" - HORIZONTAL JOINTS
N.T.S



KOR-N-SEAL JOINT SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

DETAIL "A" - PIPE TO MANHOLE JOINTS
N.T.S

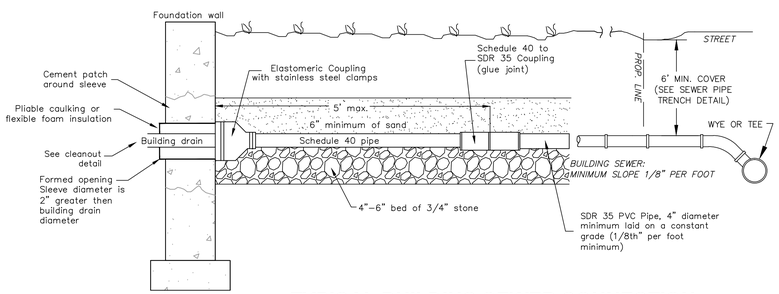
NOTES:
1. USE LOCK-JOINT FLEXIBLE MANHOLE SLEEVE FOR FACTORY INSTALLED APPLICATIONS AND KOR-N-SEAL SLEEVE FOR IN FIELD INSTALLATIONS.



NOTE: ENCASE SEWER LINE IF WATER LINE IS BELOW OR WITHIN 18" OF SEWER LINE. (SEE DETAIL)

WATER/SEWER CROSSING

N.T.S.



TYPICAL BUILDING SEWER CONNECTION

N.T.S

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

NO.	DATE	INT.
0.	9/2/15	KD

INITIAL SUBMISSION TO DURHAM PLANNING BOARD

REVISIONS

SEAL

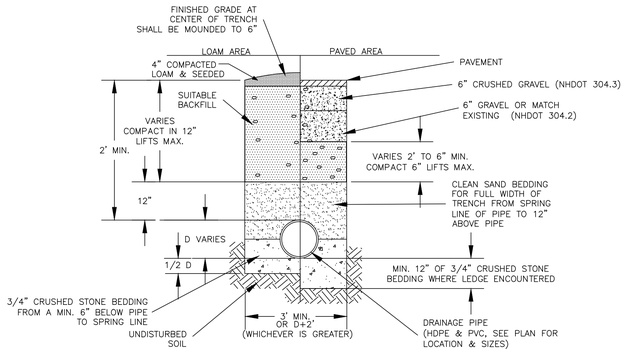
DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. Box 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

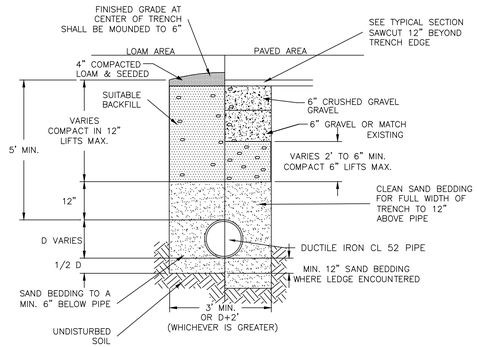
JOB: 15-027

D4



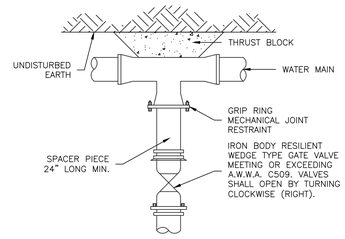
STANDARD DRAINAGE PIPE TRENCH

N.T.S

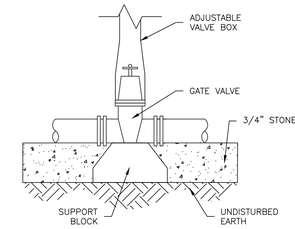


STANDARD WATER MAIN TRENCH

N.T.S



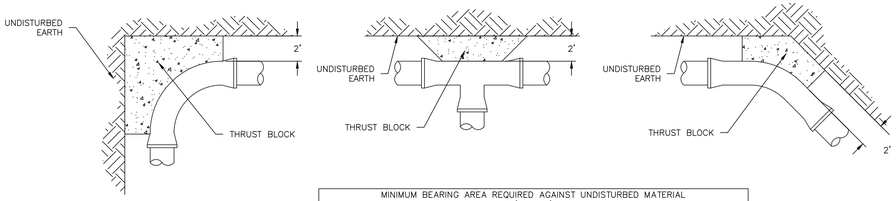
PLAN VIEW



ELEVATION VIEW

TYPICAL VALVE CONNECTION

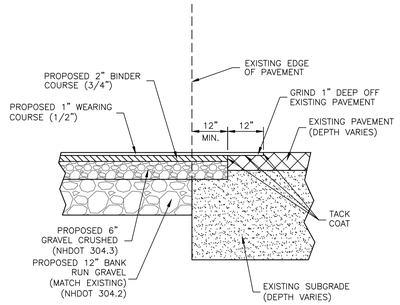
N.T.S



MINIMUM BEARING AREA REQUIRED AGAINST UNDISTURBED MATERIAL (SQ. FT.)					
PIPE DIAMETER	90° BEND	TEE	PLUG	45° BEND	22.5° BEND OR LESS
4-6"	3	3	3	3	3
8"	6	4	6	4	3
10"	9	6	9	5	3.5
12"	12	9	12	7	4

NOTE: THE SIZE OF THE THRUST BLOCK MAY BE INCREASED BY THE ENGINEER TO MEET SOIL CONDITIONS FOUND DURING THE CONSTRUCTION OF THE PIPING.

TYPICAL THRUST BLOCK DETAILS

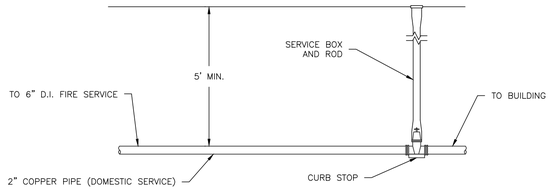


TYPICAL PAVEMENT SAWCUT DETAIL

SCALE: N.T.S.

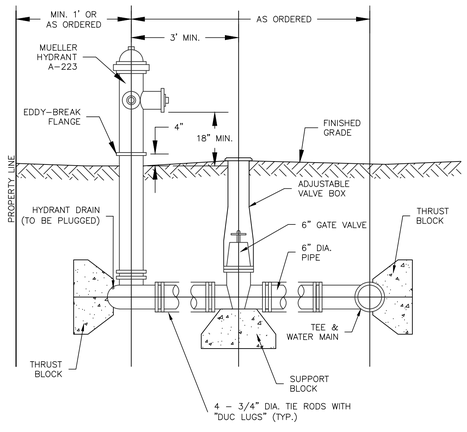
PAVEMENT SAWCUT NOTES:

1. SAWCUT THROUGH DEPTH OF PAVEMENT AT LEAST 1 FT. FROM EDGE OR GREATER IF REQUIRED BY NHDOT.
2. INSTALL AND COMPACT CRUSHED GRAVEL TO GRADE.
3. PLACE BINDER COURSE.
4. GRIND EXISTING PAVEMENT 1 FT. WIDE TO A DEPTH NECESSARY TO PROPERLY MATCH NEW WEARING COURSE PAVEMENT.
5. TACK COAT ALL EXISTING PAVEMENT SURFACES WITH EMULSIFIED ASPHALT (MS-1) PRIOR TO PLACING NEW PAVEMENT.



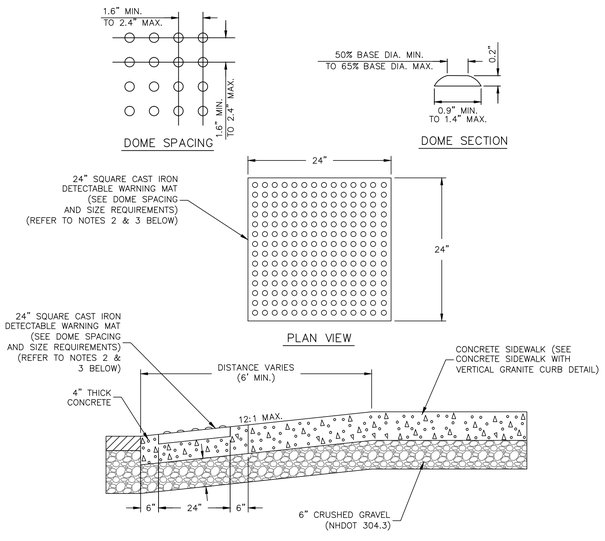
TYPICAL WATER SHUTOFF CONNECTION

N.T.S



FIRE HYDRANT INSTALLATION DETAIL

N.T.S



DETECTABLE WARNING MAT DETAIL

N.T.S

NOTES:

1. CONCRETE TO BE 4,000 PSF.
2. REFER TO MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION OF DETECTABLE WARNING MATS.

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

_____

_____

NO.	REVISIONS	DATE	INT.
0.	INITIAL SUBMISSION TO DURHAM PLANNING BOARD	9/2/15	KD

SEAL

DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BGB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

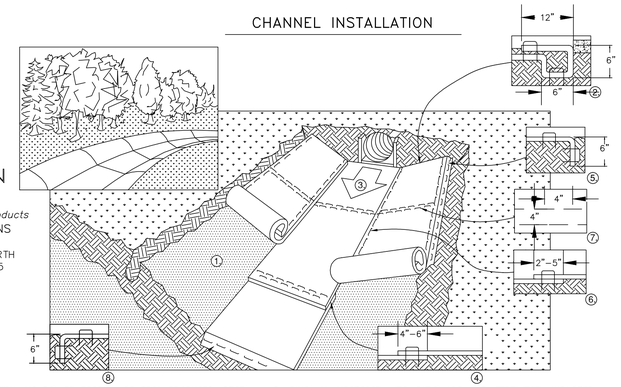
D5

NORTH AMERICAN GREEN

EROSION CONTROL *Products Guaranteed* SOLUTIONS

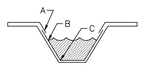
14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com

CHANNEL INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM*, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM -15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM -12.5 CM) (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

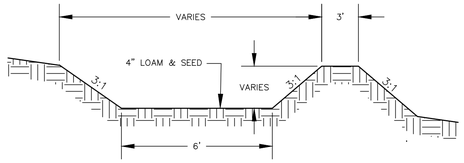
NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE REQUIRED.

TYPICAL TURF REINFORCEMENT MATTING DETAIL

N.T.S

NOTES:
1. FOR SALES CONTACT:
EJ PRESCOTT, INC.
210 SHEEP DAVIS RD.
CONCORD, NH
603-224-9545

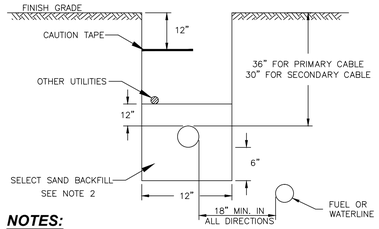


VEGETATED TREATMENT SWALE DETAIL

N.T.S

CONSTRUCITON NOTES:
1. REFER TO BERM CONSTRUCTION NOTES IN GRAVEL WETLAND DETAIL FOR BERM CONSTRUCTION REQUIREMENTS.
2. SWALE SHALL HAVE GREATER THAN 85% VEGETATIVE GROWTH PRIOR TO RECEIVING RUNOFF.

MAINTENANCE NOTES:
1. INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATION, VEGETATION LOSS, AND PRESENCE OF INVASIVE SPECIES.
2. PERFORM PERIODIC MOWING. DO NOT MOW GRASS SHORTER THAN 4 INCHES.
3. REMOVE DEBRIS AND ACCUMULATED SEDIMENT BASED ON INSPECTION.
4. REPAIR ERODED AREAS, REMOVE INVASIVE SPECIES AND DEAD VEGETATION, AND RESEED WITH APPLICABLE GRASS MIX AS WARRANTED BY INSPECTION.

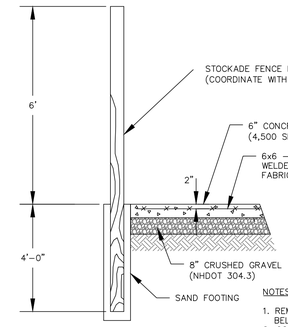


NOTES:

1. CONSTRUCTION TO BE IN ACCORDANCE WITH PSNH CONSTRUCTION STANDARDS FOR NEW ELECTRICAL SERVICE WORK BY CONTRACTORS, MOST RECENT EDITION.
2. SELECT SAND BACKFILL SHALL CONSIST OF A FINE GRANULAR MATERIAL OF WHICH 100% SHALL PASS THROUGH A 1/4" SIEVE. EXCEPT NATURALLY OCCURING SMOOTH ROUND PEBBLES NO GREATER THAN 3/8" IN DIAMETER ARE PERMITTED AS LONG AS THEIR TOTAL VOLUME PER CUBIC FOOT OF SAND DOES NOT EXCEED 1%. THE SAND SHALL BE COMPLETELY FREE OF FROZEN LUMPS, ROCKS, STONES, DEBRIS AND RUBBISH. BACKFILL SHALL BE THOROUGHLY COMPACTED IN 6" LIFTS.
3. CONDUIT SIZES TO BE 5" 3-PHASE PRIMARY AND 4" 3-PHASE SECONDARY. ALL CONDUIT SIZES TO BE VERIFIED BY PSNH.
4. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND WHERE APPLICABLE THE NATIONAL ELECTRIC CODE.

TELEPHONE & ELECTRIC TRENCH

N.T.S

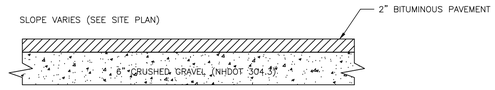


NOTES:
1. REMOVE ALL DELETERIOUS MATERIALS BELOW PAD TO DEPTH OF 3 FT.
2. COMPACT SUBGRADE TO 95% MAX. DRY DENSITY.
3. COMPACT GRAVEL TO 95% MAX. DRY DENSITY.

ELEVATION VIEW

DUMPSTER PAD

SCALE: NTS



TYPICAL BITUMINOUS PATH SECTION

NOTES:
1. LOAM SHALL BE REMOVED TO A MINIMUM DEPTH OF 8" PRIOR TO PLACING SELECT MATERIALS
2. THE WIDTHS OF ALL BITUMINOUS PATHS SHALL BE 5'

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

_____

_____

NO.	DATE	INT.
0.	9/2/15	KD

INITIAL SUBMISSION TO DURHAM PLANNING BOARD

REVISIONS

SEAL

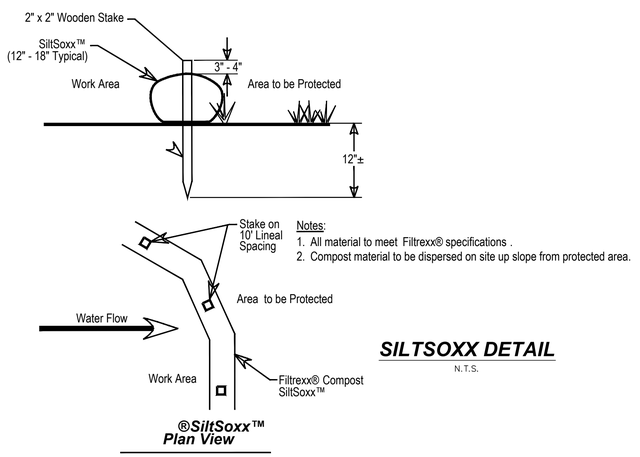
DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, NH 03857
PHONE: (603) 659-6071 FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

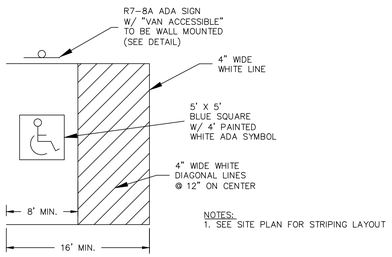
D6



Notes:
1. All material to meet Filtrexx® specifications .
2. Compost material to be dispersed on site up slope from protected area.

®SiltSoxx™ Plan View

SILTSOXX DETAIL
N.T.S.

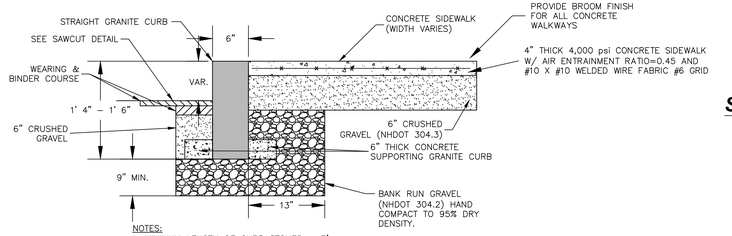


NOTES:
1. SEE SITE PLAN FOR STRIPING LAYOUT

ADA STRIPING AND SIGN DETAIL
N.T.S

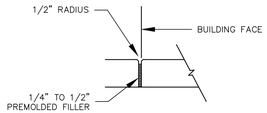
PAVEMENT MARKINGS:

1. STRIPE PARKING AREAS AND DRIVES AS SHOWN, INCLUDING PARKING SPACES, HANDICAP SYMBOLS, AND PAINTED ISLANDS. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) AND AASHTO M248 TYPE "F". MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
2. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGN AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
3. PAINTED ISLANDS SHALL BE 4 INCH WIDE DIAGONAL LINES SPACED AT 3 FT. O.C. BORDERED BY 4 INCH WIDE LINES.



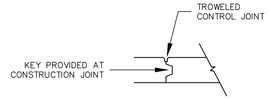
NOTES:
1. MINIMUM LENGTH OF CURB STONES = 3'
2. MAXIMUM LENGTH OF CURB STONES = 10'
3. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.

TYPICAL SECTION
N.T.S



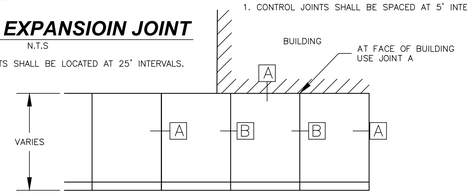
SECTION A: EXPANSOIN JOINT
N.T.S

1. EXPANSION JOINTS SHALL BE LOCATED AT 25' INTERVALS.



SECTION B: CONSTRUCTION CONTROL JOINT
N.T.S

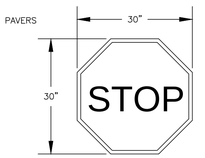
1. CONTROL JOINTS SHALL BE SPACED AT 5' INTERVALS.



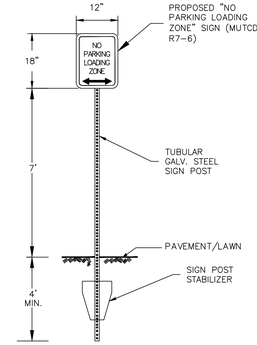
PLAN
N.T.S

CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB
N.T.S

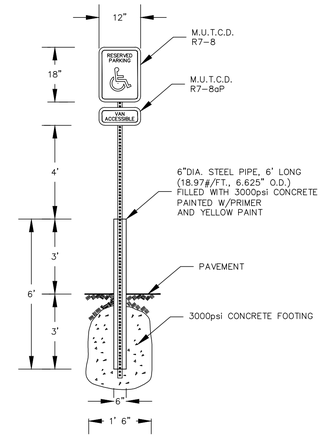
REFER TO PERMEABLE PAVER CONCRETE EDGE DETAIL WHERE PAVERS ABUT LAWN, LANDSCAPING, OR RIVERSTONE AREAS



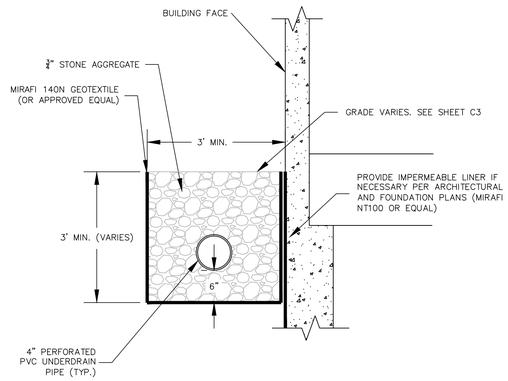
R1-1 "STOP" SIGN DETAIL
N.T.S



TYPICAL SIGN DETAIL
N.T.S.



NOTES:
1. SEE PLANS FOR SIGN PLACEMENT.



DRIP STRIP DETAIL
N.T.S.

NOTES:
1. SEE PLANS FOR LOCATION.

FINAL APPROVAL BY THE DURHAM PLANNING BOARD.

_____

_____

NO.	DATE	INT.
0.	9/2/15	KD

REVISIONS
INITIAL SUBMISSION TO DURHAM PLANNING BOARD

SEAL

DATE: 9/2/15
SCALE: AS SHOWN
DESIGNED BY: MJS
DRAWN BY: BOB
APPROVED BY: MJS
DWG FILE: 15-027 Cover&DetailsA.dwg

CONSTRUCTION DETAILS
prepared for
HARMONY HOMES BY THE BAY
TAX MAP 11, LOTS (27-1)-(27-7)
W. ARTHUR GRANT CIRCLE DURHAM, NH

MJS ENGINEERING, P.C.
CIVIL • STRUCTURAL • ENVIRONMENTAL
5 RAILROAD ST., P.O. BOX 359
NEWMARKET, N.H. 03857
PHONE: (603) 659-4979, FAX: (603) 659-4627
E-MAIL: MJS@MJS-ENGINEERING.COM

JOB: 15-027

D7