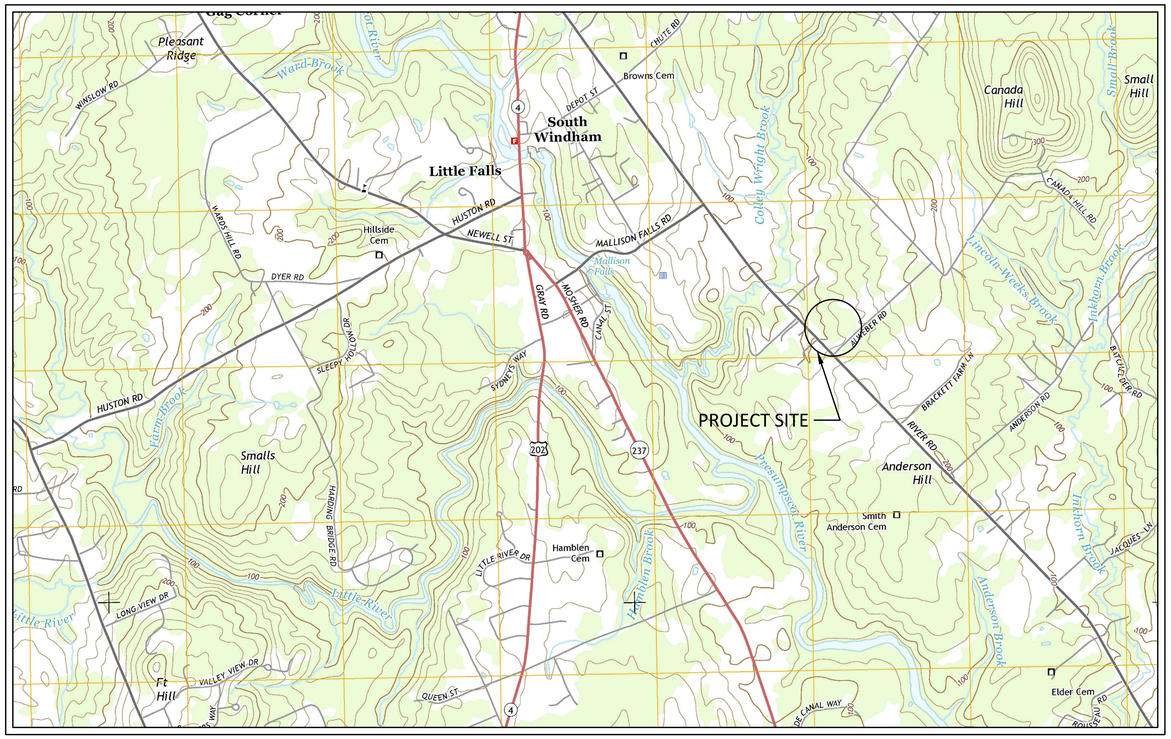
ALWEBER ROAD PROPERTY

ALWEBER ROAD & RIVER ROAD
WINDHAM, MAINE

CONSULTANTS

CIVIL ENGINEER	DM ROMA CONSULTING ENGINEERS
LAND SURVEYOR	SURVEY, INC.
SITE EVALUATOR & WETLAND SCIENTIST	SWEET ASSOCIATES



PROJECT VICINITY MAP

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

OCTOBER 3, 2016

PREPARED BY:

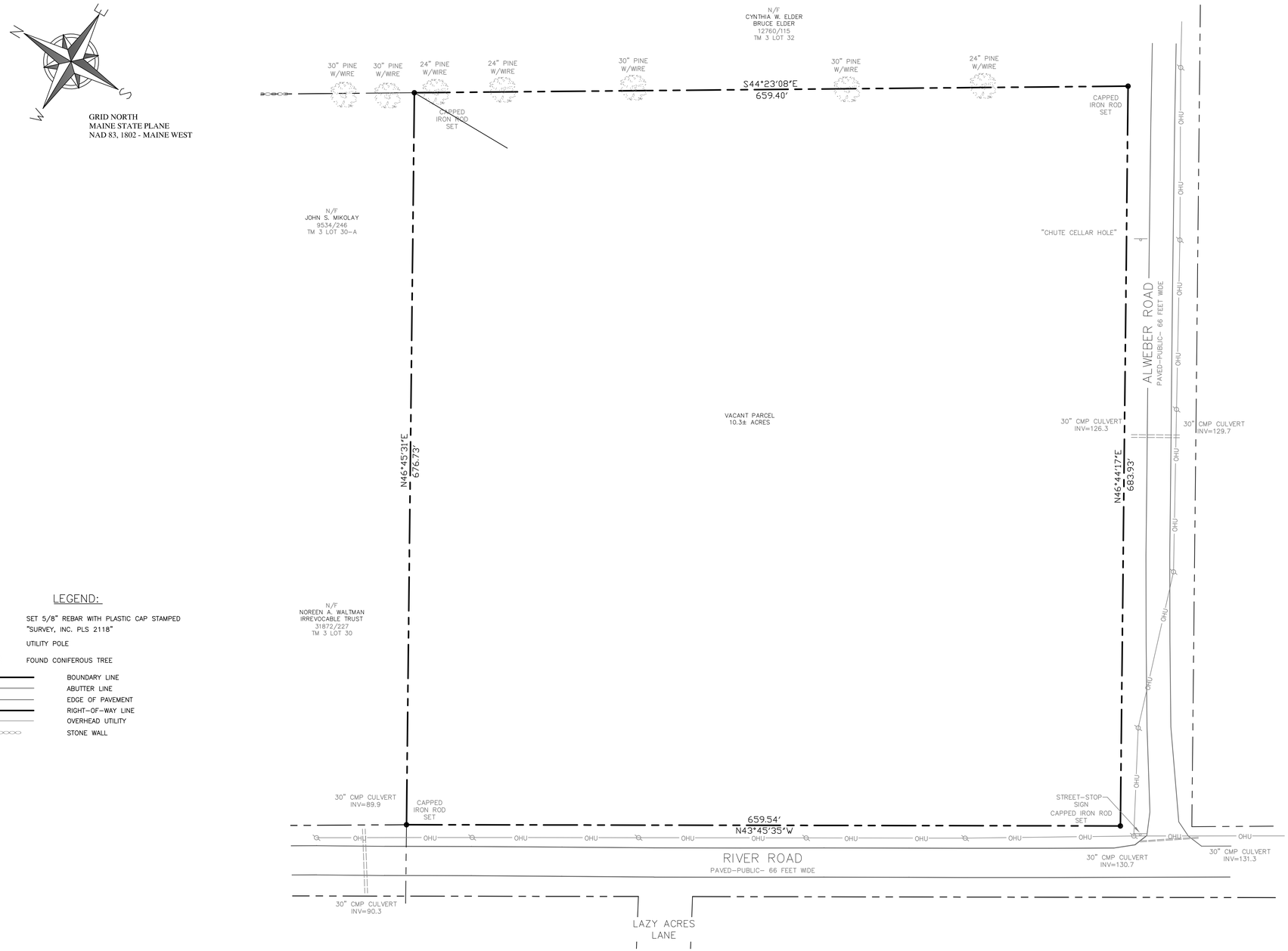
DM ROMA
CONSULTING ENGINEERS
59 HARVEST HILL RD
WINDHAM, ME 04062
(207) 310 - 0506

APPLICANT:

KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

ALWEBER ROAD PROPERTY

DRAWING SHEET INDEX



LEGEND:

- SET 5/8" REBAR WITH PLASTIC CAP STAMPED "SURVEY, INC. PLS 2118"
- UTILITY POLE
- FOUND CONIFEROUS TREE
- BOUNDARY LINE
- ABUTTER LINE
- EDGE OF PAVEMENT
- RIGHT-OF-WAY LINE
- OVERHEAD UTILITY
- STONE WALL

50 0 25 50 100
GRAPHIC SCALE
1"=50'

GENERAL NOTES

1. OWNERS OF RECORD ARE KEITH JASON ELDER AND JAY P, HACKETT AS DESCRIBED IN A DEED DATED APRIL 12, 2016 AND RECORDED IN BOOK 33042 PAGE 344 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

2. THE PARCEL IS SHOWN AS LOT 31 ON THE TOWN OF WINDHAM'S ASSESSOR'S MAP 3.

3. BEARINGS ARE GRID NORTH.

4. ELEVATIONS ARE NAVD88 DATUM.

PLAN REFERENCES

1. STANDARD BOUNDARY SURVEY ON RIVER ROAD AND DOLE ROAD WINDHAM, MAINE FOR MIKE VALENTE DATED OCTOBER 1996 BY WAYNE T. WOOD & CO.

2. PLAN OF LAND ON RIVER ROAD IN WINDHAM, MAINE FOR RECORD OWNER JERRY CABANA DATED JULY 2006 BY WAYNE T. WOOD & CO. AND RECORDED IN PLAN BOOK 208 PAGE 472 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

3. COPY OF OLD PLAN WINDHAM, MAINE ILSLEY AND CUMMINGS PORTLAND MAINE REPRODUCED BY GEORGE SWASEY HALEY 12-9-35 AND RECORDED IN PLAN BOOK 24 PAGE 13 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.

4. PARTIAL BOUNDARY SURVEY AND DIVISION PLAN LAND OF SARAH LEIGHTON AND RICHARD & NORMA BOULANGER DATED DEC. 2002 BY BH2M.

STATE OF MAINE
WILLIAM C. SHIPPEN
2118
LAND SURVEYOR

I CERTIFY THAT THIS SURVEY CONFORMS TO THE STANDARDS OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

WILLIAM C. SHIPPEN P.L.S. 2118

BOUNDARY SURVEY

RIVER ROAD AND ALWEBER ROAD
WINDHAM, ME

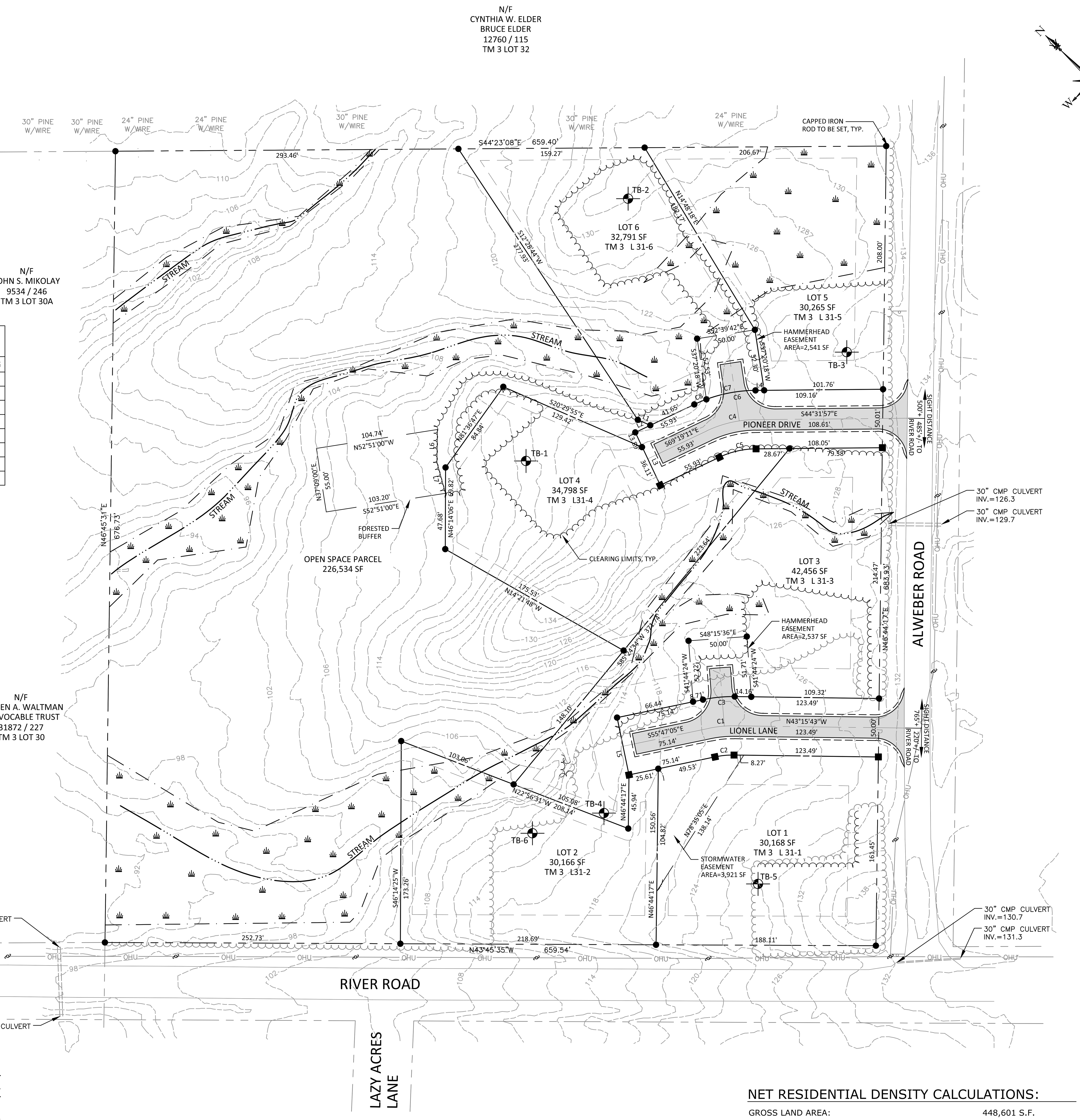
FOR

KEITH JASON ELDER
JAY P. HACKETT
434 GRAY ROAD, WINDHAM, MAINE 04062
OWNERS OF RECORD

SURVEY, INC.
P.O. BOX 210
WINDHAM, ME 04062
(207) 892-2556
INFO@SURVEYINCORPORATED.COM

DWN: WCS CHK: WCS-BRS

DATE: JULY 2016 JOB NO. 16074



PROPOSED LINE TABLE

LINE#	LENGTH	BEARING
L1	11.63'	S20°29'55"E
L2	14.28'	S69°19'11"E
L3	50.00'	N20°40'49"E
L4	7.40'	S44°31'57"E
L5	50.00'	N34°12'55"E
L6	27.94'	S46°51'13"W
L7	27.64'	S30°34'13"W

PROPOSED CURVE TABLE

CURVE#	LENGTH	RADIUS	CHORD LENGTH	CHORD BEARING
C1	21.86'	100.00'	21.81'	S49°31'24"E
C2	16.39'	75.00'	16.36'	N49°31'24"W
C3	27.32'	125.00'	27.27'	N49°31'24"W
C4	43.26'	100.00'	42.93'	S56°55'34"E
C5	32.45'	75.00'	32.19'	S56°55'34"E
C6	54.08'	125.00'	53.66'	S56°55'34"E
C7	42.90'	125.00'	42.69'	S54°21'56"E
C8	11.17'	125.00'	11.17'	S66°45'33"E

PLAN REFERENCES

1. STANDARD BOUNDARY SURVEY ON RIVER ROAD AND DOLE ROAD WINDHAM, MAINE FOR MIKE VALENTE DATED OCTOBER 1996 BY WAYNE T. WOOD & CO.
2. PLAN OF LAND ON RIVER ROAD IN WINDHAM, MAINE FOR RECORD OWNER JERRY CABANA DATED JULY 2006 BY WAYNE T. WOOD & CO. AND RECORDED IN PLAN BOOK 208 PAGE 472 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
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4. PARTIAL BOUNDARY SURVEY AND DIVISION PLAN LAND OF SARAH LEIGHTON AND RICHARD & NORMA BOULANGER DATED DEC. 2002 BY BH2M.
5. BOUNDARY SURVEY RIVER ROAD AND ALWEBER ROAD FOR KEITH JASON ELDER AND JAY P. HACKETT DATED JULY 2016 BY SURVEY, INC.

GENERAL NOTES

1. OWNERS OF RECORD ARE KEITH JASON ELDER AND JAY P. HACKETT AS DESCRIBED IN A DEED DATED APRIL 12, 2016 AND RECORDED IN BOOK 33042 PAGE 344 IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. THE PARCEL IS SHOWN AS LOT 31 ON THE TOWN OF WINDHAM'S ASSESSOR'S MAP 3.
3. BOUNDARY INFORMATION IS BASED SOLELY ON PLAN REFERENCE 5. BEARINGS ARE REFERENCED TO NAD83 MAINE STATE PLANE COORDINATE SYSTEM.
4. ELEVATION CONTOURS SHOWN HEREON WERE OBTAINED FROM MAINE STATE OFFICE OF GIS. CULVERT INVERTS AND SUPPLEMENTAL TOPOGRAPHIC INFORMATION PROVIDED BY ON-THE-GROUND SURVEY BY SURVEY, INC. IN 2016. ELEVATIONS ARE REFERENCED TO NAVD88 VERTICAL DATUM.
5. STORMWATER BUFFERS SHALL REMAIN IN THEIR NATURAL STATE, WITH NO REMOVAL OF VEGETATION OR NATURAL DUFF LAYER EXCEPT FOR THE REMOVAL OF DEAD TREES. THE BUFFERS SHALL BE TEMPORARILY MARKED IN THE FIELD PRIOR TO SITE DISTURBANCE, AND PERMANENTLY MARKED AFTER THE ROAD AND LEVEL SPREADER IS CONSTRUCTED.
6. ALL ROADS IN THIS SUBDIVISION SHALL REMAIN PRIVATE ROADS TO BE MAINTAINED BY THE DEVELOPER, LOT OWNERS OR ROAD ASSOCIATION, AND SHALL NOT BE OFFERED FOR ACCEPTANCE, OR MAINTAINED, BY THE TOWN OF WINDHAM UNTIL THEY MEET ALL MUNICIPAL STREET DESIGN AND CONSTRUCTION STANDARDS.
7. ALL BUILDINGS WILL REQUIRE THE INSTALLATION OF A ROOF DROP EDGE FILTER FOR STORMWATER TREATMENT.
8. LOTS 1, 2 AND 3 MUST UTILIZE PIONEER WAY FOR DRIVEWAY ACCESS. LOTS 4, 5 AND 6 MUST UTILIZE LIONEL WAY FOR DRIVEWAY ACCESS. NO LOTS SHALL HAVE DIRECT DRIVEWAY ACCESS FROM RIVER ROAD OR ALWEBER ROAD.
9. ALL DWELLINGS WITHIN THE SUBDIVISION SHALL INCLUDE SPRINKLER SYSTEMS.

CONDITIONS OF SUBDIVISION APPROVAL

1. APPROVAL IS DEPENDENT UPON, AND LIMITED TO, THE PROPOSALS AND PLANS CONTAINED IN THE APPLICATION DATED ___________, AS AMENDED _____________ AND SUPPORTING DOCUMENTS AND ORAL REPRESENTATIONS SUBMITTED AND AFFIRMED BY THE APPLICANT, AND CONDITIONS, IF ANY, IMPOSED BY THE PLANNING BOARD, AND ANY VARIATION FROM SUCH PLANS, PROPOSALS, AND SUPPORTING DOCUMENTS AND REPRESENTATIONS ARE SUBJECT TO REVIEW AND APPROVAL BY THE PLANNING BOARD OR THE TOWN PLANNER IN ACCORDANCE WITH SECTION 913 OF THE SUBDIVISION ORDINANCE.
2. AN ACCESS EASEMENT FOR PUBLIC USE OF THE OPEN SPACE MUST BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS PRIOR TO THE ISSUANCE OF BUILDING PERMITS.

WAIVERS GRANTED

1. 911.A.3.A.1 - STREET LINE MONUMENTATION, PERFORMANCE STANDARD
2. 911.K.3.F - CLUSTER SUBDIVISION PUBLIC STREET STANDARD, PERFORMANCE STANDARD
3. 911.J.6 - STORMWATER FLOODING STANDARD, PERFORMANCE STANDARD

APPROVED - WINDHAM PLANNING BOARD:

CHAIRPERSON DATE

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER PROPERTY LINE	
	SETBACK	
	EASEMENT LINE	
⊡	GRANITE MONUMENT	■
◎	IRON PIN/DRILL HOLE	●
	CENTERLINE	
	EDGE OF PAVEMENT/CURB	
	EDGE OF GRAVEL	
	EDGE OF WETLANDS	
	CENTERLINE OF STREAM	
--200-- --201--	CONTOUR LINE	
	TREELINE	
	CULVERT/STORMDRAIN	
	UTILITY POLE	
OHU	OVERHEAD UTILITIES	
	TEST BORINGS	

0' 25' 50' 100'
0 1/2" 1" 2"

OPEN SPACE CALCULATIONS FOR CLUSTER SUBDIVISION IN FARM ZONE:

	ACRES	SQ. FEET
TOTAL PARCEL AREA:	10.29	448,601
NET RESIDENTIAL AREA:	7.59	330,629
MINIMUM REQUIRED OPEN SPACE (50% GROSS):	5.15	224,301
TOTAL OPEN SPACE AREA PROVIDED:	5.22	226,534
MINIMUM REQUIRED NET AREA IN OPEN SPACE:	3.79	165,315
NET AREA PROVIDED IN OPEN SPACE:	3.89	169,285

NET RESIDENTIAL DENSITY CALCULATIONS:

GROSS LAND AREA:	448,601 S.F.
DEDUCTIONS:	
1. RIGHT-OF-WAY	21,414 S.F.
2. STEEP SLOPES (OVER 25%)	21,080 S.F.
3. 100-YEAR FLOOD PLAIN	0 S.F.
4. RESOURCE PROTECTION DISTRICT	0 S.F.
5. VERY POORLY DRAINED SOILS	75,478 S.F.
6. SURFACE WATERBODIES	*INCLUDED IN 5
7. SIGNIFICANT WILDLIFE HABITAT	0 S.F.
8. ENDANGERED BOTANICAL RESOURCES	0 S.F.
TOTAL NET AREA:	330,629 S.F.
REQUIRED NET AREA PER DWELLING:	60,000 S.F.
NET AREA WITH 20% DENSITY BONUS:	396,754 SF
MAXIMUM ALLOWABLE LOTS/DWELLINGS:	6.6
NUMBER OF LOTS PROPOSED:	6

STATE OF MAINE ★ DUSTIN M. ROMA No. 12131 LICENSED ★ PROFESSIONAL ENGINEER

DM ROMA
CONSULTING ENGINEERS
59 HARVEST HILL RD
WINDHAM, ME 04062
(207) 310 - 0506

REV	DATE	BY	DESCRIPTION
A	10-3-16	DMR	ISSUED TO TOWN FOR REVIEW

SUBDIVISION PLAN

ALWEBER ROAD PROPERTY
WINDHAM, MAINE

FOR RECORD OWNER:
KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

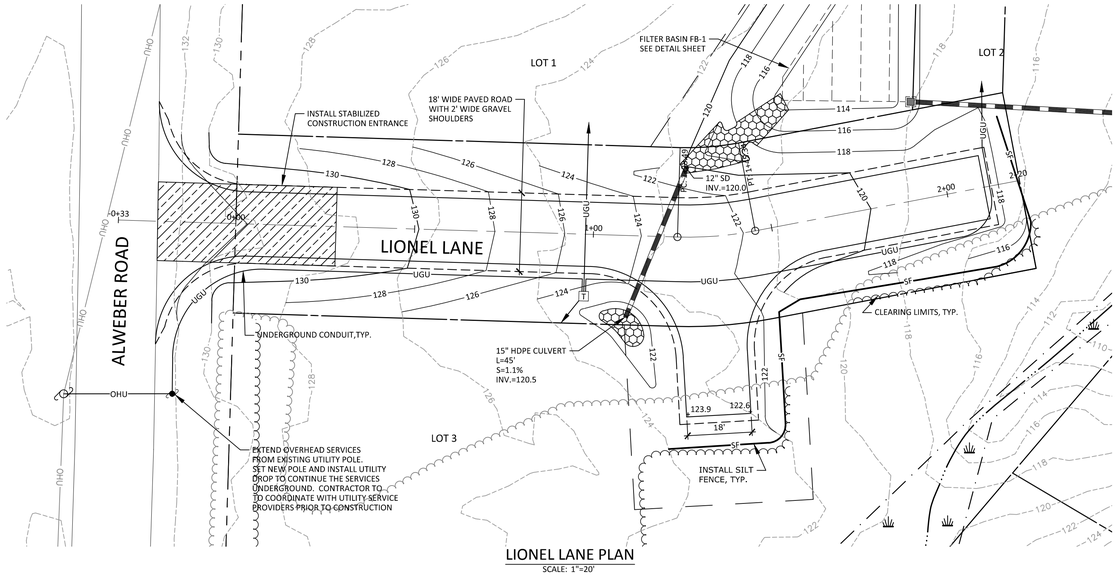
16024
JOB NUMBER:

1" = 50'
SCALE:

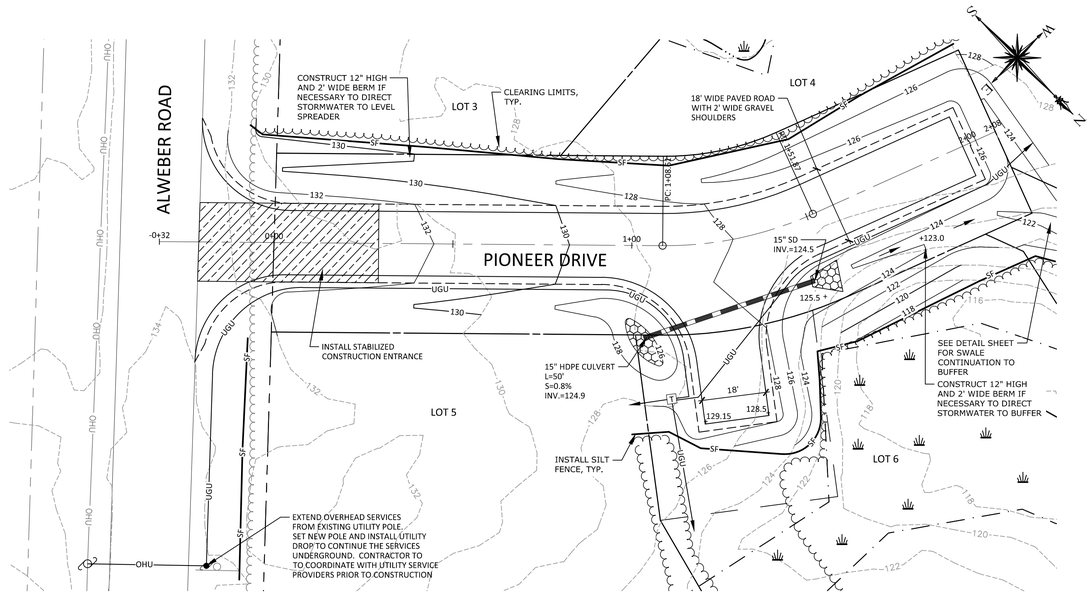
10-3-2016
DATE:

SHEET 3 OF 6

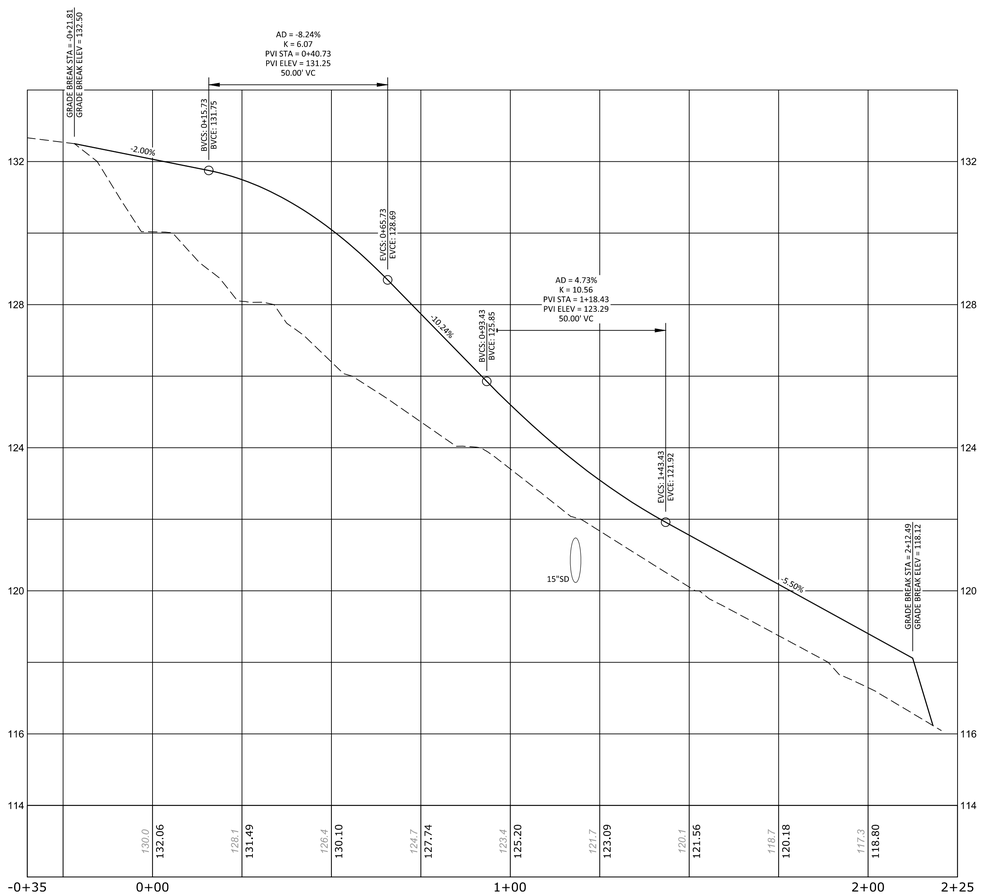
SB-1



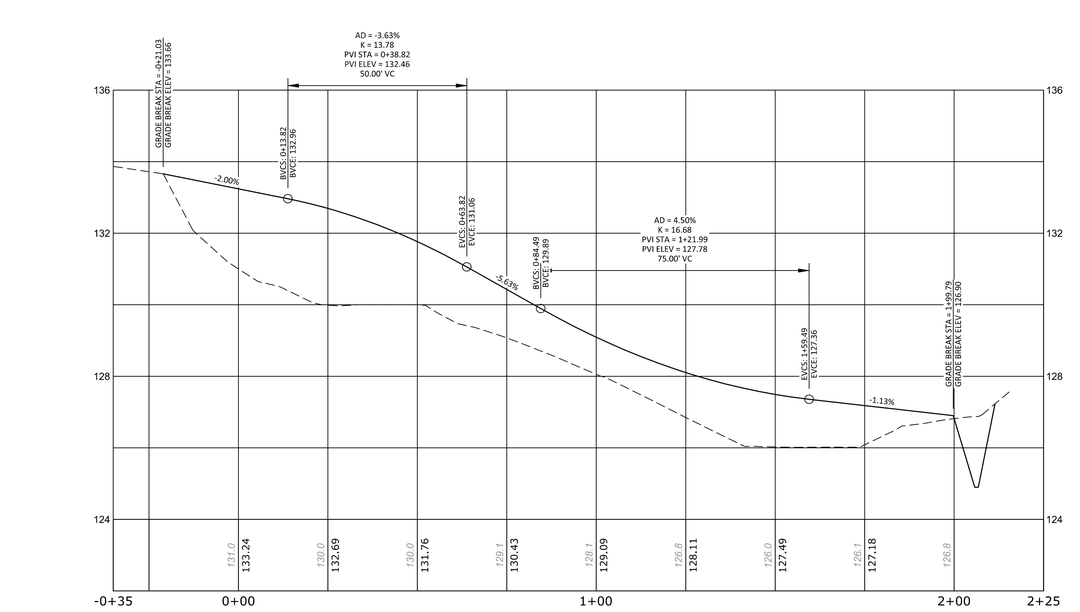
LIONEL LANE PLAN
SCALE: 1"=20'



PIONEER DRIVE PLAN
SCALE: 1"=20'



LIONEL LANE PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=2'



PIONEER DRIVE PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

0' 10' 20' 40'
0 1/2" 1" 2"

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER PROPERTY LINE	
	SETBACK	
	EASEMENT LINE	
	CENTERLINE	
	EDGE OF PAVEMENT/CURB	
	EDGE OF GRAVEL	
	EDGE OF WETLANDS	
	CENTERLINE OF STREAM	
200 201	CONTOUR LINE	200 201
	TREELINE	
	CATCHBASIN	
	CULVERT/STORMDRAIN	
	UNDERDRAIN	UD
	UTILITY POLE	
UGU	UNDERGROUND UTILITIES	UGU
OHU	OVERHEAD UTILITIES	OHU
	TRANSFORMER PAD	T
	SILT FENCE	SF
	RIPRAP	

DUSTIN M. ROMA
No. 12191
REGISTERED PROFESSIONAL ENGINEER
STATE OF MAINE

DM ROMA
CONSULTING ENGINEERS
59 HARVEST HILL RD
WINDHAM, ME 04062
(207) 310 - 0506

REV	DATE	BY	DESCRIPTION
A	10-3-16	DMR	ISSUED TO TOWN FOR REVIEW

PLAN & PROFILE

ALWEBER ROAD PROPERTY
WINDHAM, MAINE

FOR RECORD OWNER:
KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

16024
JOB NUMBER:

1" = 20'
SCALE:

10-3-2016
DATE:

SHEET 4 OF 6

PP-1

EROSION AND SEDIMENTATION CONTROL NOTES:

IN ORDER TO EFFECTIVELY PREVENT AND CONTROL EROSION RELATED TO SOIL DISTURBANCE, THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) SHALL BE EMPLOYED:

1. TEMPORARY SOIL STABILIZATION BMPS

TEMPORARY MULCHING SHALL BE APPLIED IMMEDIATELY TO ANY AREAS THAT HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED. ANY DISTURBED SOIL WITHIN 100' OF A STREAM, WATER BODY OR WETLAND MUST RECEIVE TEMPORARY MULCH WITHIN 7 DAYS FOLLOWING DISTURBANCE AND BEFORE ANY STORM EVENT. ALL OTHER AREAS SHALL RECEIVE TEMPORARY MULCH WITHIN 14 DAYS OF DISTURBANCE. AREAS WHICH CANNOT BE SEEDED DURING THE GROWING SEASON SHALL BE MULCHED FOR OVER-WINTER PROTECTION. THE FOLLOWING ARE ACCEPTABLE TEMPORARY MULCHING METHODS:

HAY OR STRAW MULCHES NEED TO BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS. APPLICATION RATE MUST BE 2 BALES (70-90 POUNDS) PER 1000 SQ FT OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75-90% OF THE GROUND SURFACE. HAY OR STRAW CAN BE DRIVEN INTO THE GROUND WITH TRACKED EQUIPMENT IF SLOPES ARE LESS THAN 3%, OR CAN BE ANCHORED WITH JUTE, WOOD FIBER OR PLASTIC NETTING ON STEEPER SLOPES.

EROSION CONTROL MIX MUST CONSIST PRIMARILY OF ORGANIC MATERIAL AND WILL INCLUDE ANY OF THE FOLLOWING: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK OR OTHER ACCEPTABLE PRODUCTS BASED ON A SIMILAR RAW SOURCE. WOOD OR BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE. EROSION CONTROL MIX CAN BE USED AS A STAND-ALONE REINFORCEMENT ON SLOPES OF 2 HORIZONTAL TO 1 VERTICAL OR LESS AND DRAINING IN SHEET FLOW. IT CAN BE PLACED WITH A HYDRAULIC BUCKET, WITH A PNEUMATIC BLOWER OR BY HAND, AND MUST PROVIDE 100% SOIL COVERAGE.

EROSION CONTROL MIX SHALL MEET THE FOLLOWING SPECIFICATIONS:
-ORGANIC MATTER CONTENT SHALL BE BETWEEN 80-100%, DRY WEIGHT BASIS.
-PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6 IN. SCREEN AND BETWEEN 70-85% PASSING 0.75 IN. SCREEN
-ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
-LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX

WHEN USED AS MULCH, THE THICKNESS OF THE ERISION CONTROL MIX IS BASED UPON THE FOLLOWING:

LENGTH OF SLOPE	3:1 SLOPE OR LESS	BETWEEN 2:1 AND 3:1 SLOPE
LESS THAN 20 FT	2.0 IN.	4.0 IN.
BETWEEN 20 - 60 FT	3.0 IN.	5.0 IN.
BETWEEN 60 - 100 FT	4.0 IN.	6.0 IN.

CHEMICAL MULCHES AND SOIL BINDERS MAY BE USED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL CONSULT WITH THE MANUFACTURER TO DETERMINE ADEQUATE APPLICATION RATES AND METHODS.

EROSION CONTROL BLANKETS AND MATS SHALL BE USED ON STEEP SLOPES AND IN THE BOTTOM OF GRASSED WATERWAYS, OR AS OTHERWISE DIRECTED BY THE ENGINEER. THE MAT SHALL BE INSTALLED WITH FIRM CONTINUOUS CONTACT WITH THE SOIL AND STAPLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

TEMPORARY MULCH SHALL BE INSPECTED FOLLOWING ANY SIGNIFICANT RAINFALL EVENT. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. ERISION CONTROL MATS AND MULCH ANCHORING MUST BE INSPECTED AFTER RAINFALL EVENTS FOR DISLOCATION OR FAILURE, AND REPAIRED IMMEDIATELY. INSPECTIONS SHALL TAKE PLACE UNTIL 95% OF THE SOIL SURFACE IS COVERED WITH PERMANENT VEGETATION. WHERE MULCH IS USED WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE, AND REPAIR AS NEEDED.

TEMPORARY VEGETATION SHALL BE ESTABLISHED ON SOILS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS. IF TEMPORARY VEGETATION CANNOT BE ESTABLISHED PRIOR TO OCTOBER 15, TEMPORARY MULCH SHALL BE APPLIED THROUGH THE WINTER AND TEMPORARY VEGETATION SHALL BE PLANTED AT THE BEGINNING OF THE GROWING SEASON THE FOLLOWING YEAR. TO PREPARE THE SEEDBED, THE CONTRACTOR SHALL APPLY FERTILIZER AT A RATE OF 600 POUNDS PER ACRE OF 10-10-10 (N-P205-K20) OR EQUIVALENT AND LIMESTONE AT A RATE OF 3 TONS PER ACRE, IF NECESSARY. LOOSEN SOIL TO A DEPTH OF 2 INCHES IN AREAS THAT HAVE BEEN COMPACTED BY CONSTRUCTION ACTIVITIES. GRASS SEED SHALL BE SELECTED BASED UPON THE TIME OF YEAR THE PLANTING WILL TAKE PLACE AS SUMMARIZED IN THE FOLLOWING TABLE:

SEED	LB. PER ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	112	8/15 - 10/1
OATS	80	4/1 - 7/1 8/15 - 9/15
ANNUAL RYEGRASS	40	4/1 - 7/1

TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED TO MAINTAIN AT LEAST 95% VEGETATIVE COVER OF SOIL SURFACE. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES SHALL BE USED IN THE INTERIM SUCH AS TEMPORARY MULCH, FILTER BARRIERS, ETC.

2. SEDIMENT BARRIER BMPS

TEMPORARY SEDIMENT BARRIERS ARE INSTALLED ACROSS OR ALONG THE TOE OF A SLOPE AND INCLUDE ANY OF THE FOLLOWING:

FILTER BARRIER FENCE, ALSO CALLED SILT FENCE, SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. THE FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL PROVIDE A MINIMUM OF 6 MONTHS USABLE CONSTRUCTION LIFE INCLUDING PROTECTION AGAINST ULTRA-VIOLET LIGHT. THE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES INSTALLED AND POST SPACING SHALL NOT EXCEED 6 FEET. JOINTS IN THE FENCE SHALL BE AVOIDED TO THE EXTENT POSSIBLE, AND IF NECESSARY SHALL BE SPLICED TOGETHER AT A SUPPORT POST WITH A MINIMUM 6 INCH OVERLAP. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP, AND THE BOTTOM 6-8 INCHES OF FABRIC SHALL BE "TOED-IN" TO THE TRENCH AND COMPACTED. THE TRENCH SHOULD BE UPHILL OF THE FABRIC PRIOR TO BURIAL.

STRAY/HAY BALES SHALL BE INSTALLED WHERE SPECIFIED ON THE PLANS IN A SINGLE ROW WITH THE ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED TO A DEPTY OF AT LEAST 4 INCHES, AND THE BALES SHALL BE SECURED WITH AT LEAST TWO WOODEN STAKES OR STEEL REBAR PER BALE. STAKES SHALL BE DRIVEN IN A DIRECTION TO PUSH THE BALES TOGETHER. GAPS BETWEEN BALES SHALL BE CHINKED WITH HAY.

EROSION CONTROL MIX BERMS ARE LINEAR BARRIERS COMPOSED OF EROSION CONTROL MIX AS SPECIFIED ABOVE. THE BERM MUST BE A MINIMUM OF 12 INCHES TALL AND 24 INCHES WIDE AT THE BASE IF UPHILL SLOPES ARE LESS THAN 5%. STEEPER SLOPES OR SLOPES GREATER THAN 20 FEET LONG MAY REQUIRE A LARGER WIDTH BERM. EROSION CONTROL MIX BERMS AT THE BASE OF A LONG OR STEEP SLOPE MAY ALSO REQUIRE A FILTER FENCE TO BE INSTALLED ON THE DOWNHILL SIDE OF THE BERM TO PROVIDE ADDITIONAL STABILIZATION AGAINST HIGH RUNOFF FLOWS.

CONTINUOUS CONTAINED BERMS, WHICH ARE ALSO REFERRED TO AS A FILTER SOCK, PROVIDES ADDITIONAL STABILITY TO AN EROSION CONTROL MIX BERM AND SHOULD BE USED IN FROZEN GROUND CONDITIONS OR IN AREAS THAT RECEIVE CONCENTRATED FLOW.

SEDIMENT BARRIERS SHALL BE INSPECTED AFTER ANY SIGNIFICANT RAINFALL EVENT AND REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE BARRIERS. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR EDGES OF THE BARRIER, OR IF LARGE VOLUMES OF WATER ARE IMPOUNDED BEHIND THE BARRIER, IT MAY BE NECESSARY TO REPLACE THE BARRIER WITH A TEMPORARY STONE CHECK DAM. SEDIMENT SHALL BE REMOVED ONCE IT REACHES HALF THE BARRIER HEIGHT. AFTER THE BARRIER IS REMOVED, ANY REMAINING SILT SHALL EITHER BE REMOVED OR GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

3. TEMPORARY CHECK DAMS

STONE CHECK DAMS SHALL BE INSTALLED IN SWALES OR DRAINAGE DITCHES TO REDUCE STORMWATER VELOCITIES AS SHOWN ON THE PLANS. STONE CHECK DAMS ARE NOT EFFECTIVE IN REMOVING SEDIMENT AND SHOULD BE USED IN CONJUNCTION WITH SEDIMENT BARRIERS IDENTIFIED ABOVE. TEMPORARY CHECK DAMS MAY BE LEFT IN PLACE PERMANENTLY IN MOST CASES. CHECK DAMS SHOULD BE NO HIGHER THAN 24 INCHES, AND THE CENTER OF THE CHECK DAM MUST BE AT LEAST 6 INCHES LOWER THAN THE OUTSIDE EDGES. CHECK DAMS SHOULD BE SPACED SUCH THAT THE CREST OF THE DOWNSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM CHECK DAM. CHECK DAMS IN A DRAINAGE DITCH OR WATERWAY SHOULD BE INSTALLED PRIOR TO DIRECTING RUNOFF TO THEM.

4. STORM DRAIN INLET PROTECTION

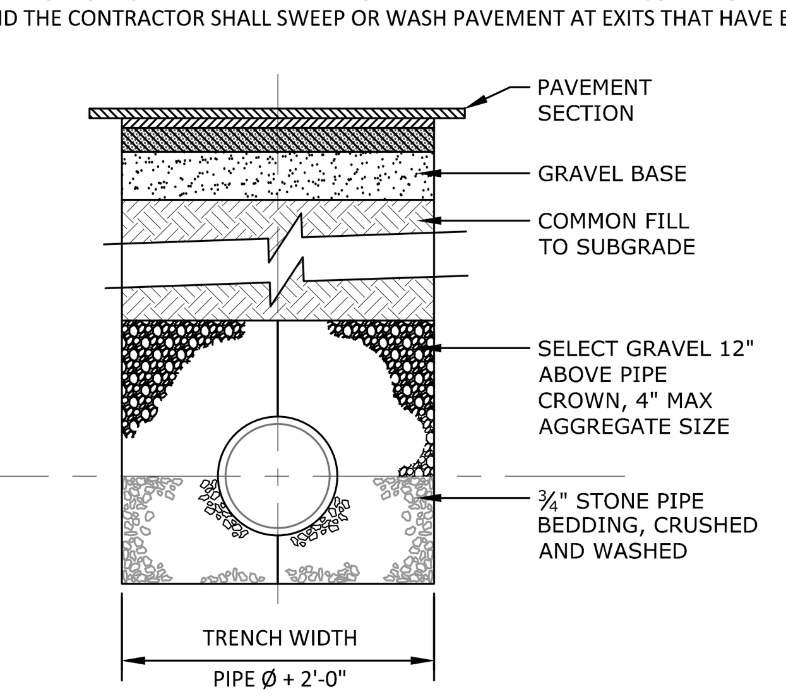
STORM DRAIN INLETS THAT ARE MADE OPERATIONAL BEFORE THEIR DRAINAGE AREA IS STABILIZED SHALL BE PROTECTED WITH A FILTER UNTIL THE DRAINAGE AREA IS EITHER PAVED OR STABILIZED WITH 95% VEGETATIVE GROWTH. THE FOLLOWING ARE ACCEPTABLE BMPS ASSOCIATED WITH STORM DRAIN INLET PROTECTION:

HAY BALE OR SILT FENCE INLET STRUCTURE CONSISTS OF HAY BALES OR SILT FENCE CONFIGURED AROUND A CATCH BASIN INLET FRAME AND INSTALLED ACCORDING TO THE METHODS OUTLINED ABOVE. THIS METHOD IS SUITABLE FOR OPEN PIPE (CULVERT) INLETS, FIELD INLETS OR ROAD INLETS THAT HAVE NOT YET BEEN PAVED.

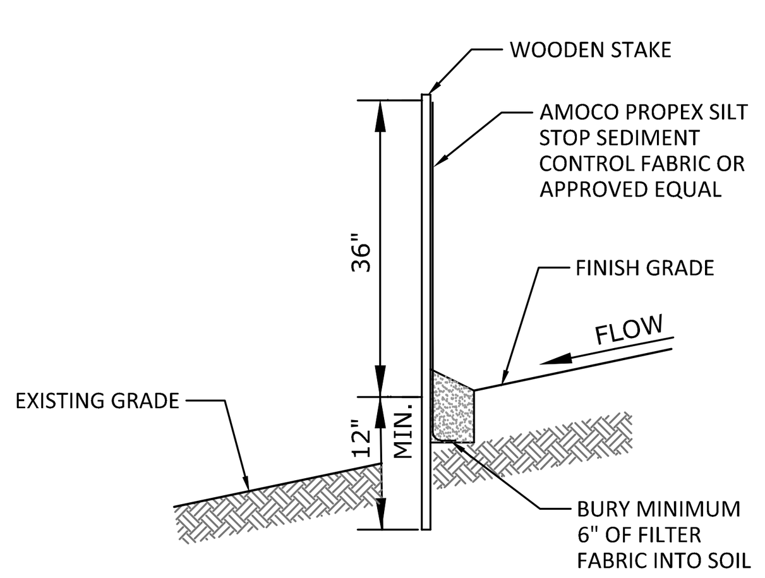
MANUFACTURED SEDIMENT FILTERS ARE THE PREFERRED METHOD FOR PROTECTING CATCH BASIN INLETS IN PAVED OR GRAVEL ROADWAYS. THE FILTERS TYPICALLY CONSIST OF A FABRIC OR OTHER PERVIOUS MATERIAL THAT IS PLACED ABOVE OR BELOW THE GRATE THAT TRAPS SEDIMENT ON THE SURFACE AND ALLOWS WATER TO FLOW THROUGH THE GRATE. CONSIDERATIONS SUCH AS WEATHER CONDITIONS, SLOPES, TRIBUTARY WATERSHED AREA AND EXPECTED SEDIMENT ACCUMULATION SHOULD BE FACTORED INTO MAKING A DECISION ON ANY PARTICULAR PRODUCT, AND THE MANUFACTURER'S RECOMMENDATIONS ON INSTALLATION AND MAINTENANCE SHALL BE STRICTLY ADHERED TO.

5. STABILIZED CONSTRUCTION EXIT

TO REDUCE THE TRACKING OF SEDIMENT ONTO ROADWAYS, A STABILIZED CONSTRUCTION EXIT SHALL BE INSTALLED AT ALL POINTS OF EGRESS WHERE VEHICLES MAY TRAVEL FROM THE PROJECT SITE TO A PUBLIC ROAD OR OTHER PAVED AREA. THE STONE PAD SHALL CONSIST OF A MINIMUM 6-INCH DEPTH OF 2-3 INCH CRUSHED STONE, AND SHALL BE PLACED ON A GEOTEXTILE FABRIC. THE PAD SHALL EXTEND AT LEAST 50 FEET INTO THE PROJECT SITE AND BE A MINIMUM OF 10 FEET WIDE. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, AND THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS THAT HAVE EXPERIENCED ANY MUD-TRACKING.



TYPICAL TRENCH SECTION
NOT TO SCALE



SEDIMENT FILTER FENCE
NOT TO SCALE

6. DUST CONTROL

THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST ON THE PROJECT SITE AND ON ADJACENT ROADWAYS. EXPOSED SOIL SURFACES SHALL BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST. GRAVEL SURFACES SHALL EITHER BE TREATED WITH AN APPLICATION OF CALCIUM CHLORIDE OR COVERED WITH CRUSHED STONE IF DUST CONTROL BECOMES DIFFICULT WITH NORMAL WATER APPLICATIONS.

7. LAND GRADING AND SLOPE PREPARATION

GRADING SHALL BE PLANNED SO AS TO MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING. ON LARGE PROJECTS THIS SHOULD BE ACCOMPLISHED BY PHASING THE OPERATION AND COMPLETING THE FIRST PHASE UP TO FINAL GRADING AND SEEDING BEFORE STARTING THE NEXT PHASE. ANY EXPOSED AREA THAT WILL NOT BE FINISH GRADED WITHIN 14 DAYS SHALL BE TREATED WITH MULCH OR PLANTED WITH TEMPORARY VEGETATION. PROVISIONS SHALL BE MADE TO SAFELY CONVEY SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO ENSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASS SHALL NOT BE STEEPER THAN 2:1. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIALS. AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. ALL FILLS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS. FILL MATERIAL SHALL BE FREE OF STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED APPROPRIATELY. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

8. TOPSOIL

IF POSSIBLE, TOPSOIL SHALL BE STOCKPILED ON THE PROJECT SITE AND REUSED. HIGH QUALITY TOPSOIL SHALL BE FRIABLE AND LOAMY (LOAM, SANDY LOAM, SILT LOAM, SANDY CLAY LOAM, CLAY LOAM), AND SHALL BE FREE OF DEBRIS, TRASH, STUMPS, ROCKS, ROOTS AND NOXIOUS WEEKS. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, THE SUBGRADE SHALL BE LOOSENED BY SCARIFYING TO A DEPTH OF AT LEAST 2 INCHES TO ENSURE BONDING WITH SUBSOIL. THE TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED TO A MINIMUM COMPACTED DEPTH OF 4 INCHES. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. IT IS NECESSARY TO COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL, BUT UNDUE COMPACTION IS TO BE AVOIDED.

9. PERMANENT VEGETATION

TO PREPARE THE SEEDBED, APPLY 10-20-20 FERTILIZER AT A RATE OF 800 POUNDS PER ACRE AND GROUND LIMESTONE AT A RATE OF 3 TONS PER ACRE. WORK THE FERTILIZER AND LIMESTONE INTO THE TOPSOIL TO A DEPTH OF 4 INCHES AND REMOVE ANY STONES, ROOTS OR OTHER VISIBLE DEBRIS. SELECT A SEED MIXTURE THAT IS APPROPRIATE FOR THE SOIL TYPE AND MOISTURE CONTENT AS FOUND AT THE SITE, AND FOR THE AMOUNT OF SUN EXPOSURE AND FOR LEVEL OF USE. REFER TO THE USDA SOIL CONSERVATION SERVICE OR THE LOCAL SOIL AND WATER CONSERVATION DISTRICT FOR APPROPRIATE SEED MIXTURES. APPLY SEED UNIFORMLY IN ACCORDANCE WITH SUPPLIER RECOMMENDATIONS AND IMMEDIATELY COVER WITH MULCH AS DESCRIBED IN THE TEMPORARY MULCHING SECTION OF THIS PLAN.

HYDROSEEDING SHALL BE DONE IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS.

SOD STRIPS SHALL BE LAID AT RIGHT ANGLES TO DIRECTION OF SLOPE OR FLOW OF WATER STARTING AT LOWEST ELEVATION. JOINTS SHALL BE STAGGERED, AND ALL STRIPS SHALL BE ROLLED OR TAMPED INTO PLACE. ON SLOPES, SOD SHALL BE ANCHORED WITH STAPLES, WIRE OR PINS. IRRIGATE SODDED AREA IMMEDIATELY AFTER INSTALLATION.

10. PERMANENT MULCHING

PERMANENT MULCH IS A LONG TERM COVER THAT PROVIDES A GOOD BUFFER AROUND DISTURBED AREAS. THE EROSION CONTROL MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE SHREDDED BARK, STUMP GRINDINGS OR COMPOSTED BARK. WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS ARE NOT ACCEPTABLE. THE EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAINMANTS AND MATERIAL TOXIC TO PLANT GROWTH.

11. RIPRAP SLOPE STABILIZATION

RIPRAP STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. THE DEPTH OF STONE SHALL BE A MINIMUM OF 2.2 TIMES THE MAXIMUM STONE DIAMETER. A GRAVEL OR GEOTEXTILE FILTER BLANKET SHALL BE PLACED BETWEEN THE RIPRAP AND UNDERLYING SOIL SURFACE. GRAVEL FILTER BLANKETS SHALL MEET MDOT TYPE-C UNDERDRAIN MATERIAL SPECIFICATIONS AND BE AT LEAST 6 INCHES THICK. GEOTEXTILE FILTER BLANKETS SHALL BE SPECIFIED BASED ON SITE CONDITIONS. RIPRAP SLOPES SHALL BE TOED INTO THE BASE OF THE EMBANKMENT BY EXCAVATING A TRENCH AT THE BOTTOM OF THE SLOPE AND INSTALLING A STABLE BASE OF RIPRAP TO GRADE.

WINTER EROSION AND SEDIMENTATION CONTROL NOTES:

THE WINTER CONSTRUCTION PERIOD TYPICALLY BEGINS IN EARLY NOVEMBER AND ENDS IN MID APRIL. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS TO OCCUR DURING THE FOLLOWING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. AN AREA SHALL BE CONSIDERED DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN THE ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. A COVER OF EROSION CONTROL MIX IS THE PREFERRED TEMPORARY MULCH DURING WINTER CONDITIONS.

1. NATURAL RESOURCE PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY REGULATED NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH AN EROSION CONTROL COVER. DURING WINTER CONSTRUCTION, A DOUBLE ROW OF SEDIMENT BARRIERS (FOR EXAMPLE, SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY REGULATED NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE REGULATED NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

2. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.

3. MULCHING

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. HAY AND STRAY MULCH SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE (TWICE THE NORMAL ACCEPTED RATE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCHES THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. SNOW MUST BE REMOVED DOWN TO A ONE-INCH DEPTH PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL BE PROPERTY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WITH THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4. SOIL STOCKPILING

STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RAT EOR WITH A FOUR-INCH LAYER OF EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STACKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED WITHIN 100 FEET FROM ANY REGULATED NATURAL RESOURCE.

5. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOOMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF DORMANT SEEDING IS USED, ALL DISTURBED AREAS SHALL RECEIVE 4 INCHES OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS PER 1,000 S.F. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75%) IN THE SPRING SHALL BE REVEGETATED.

6. OVER-WINTER STABILIZATION OF DITCHES AND CHANNELS

ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED BY NOVEMBER 15. ALL GRASS-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A GRASS-LINED DITCH OR CHANNEL IS STABILIZED BY SEPTEMBER 1, THEN EITHER A SOD LINING SHALL BE INSTALLED PRIOR TO OCTOBER 1 OR THE DITCH MUST BE LINED WITH STONE RIPRAP PRIOR TO NOVEMBER 15.

7. OVER-WINTER STABILIZATION OF DISTURBED SLOPES

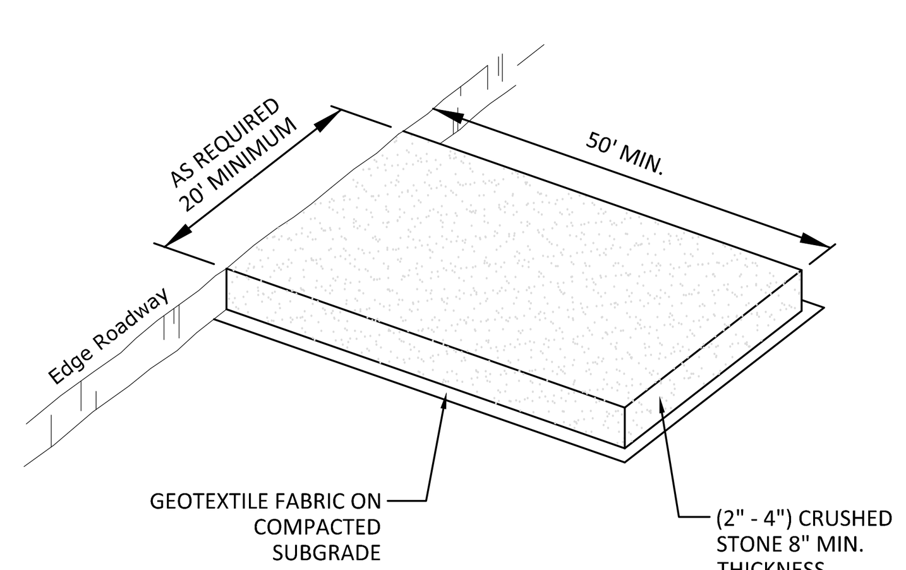
ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. ALL AREAS HAVING A GRADE STEEPER THAN 15% SHALL BE CONSIDERED A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN THE SLOPE SHALL EITHER BE STABILIZED WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS BY OCTOBER 1, SOD BY OCTOBER 1, EROSION CONTROL MIX BY NOVEMBER 15 OR STONE RIPRAP BY NOVEMBER 15. SEE APPLICABLE SECTIONS UNDER EROSION AND SEDIMENTATION CONTROL NOTES FOR PROPER INSTALLATION METHODS.

8. OVER-WINTER STABILIZATION OF DISTURBED SOILS

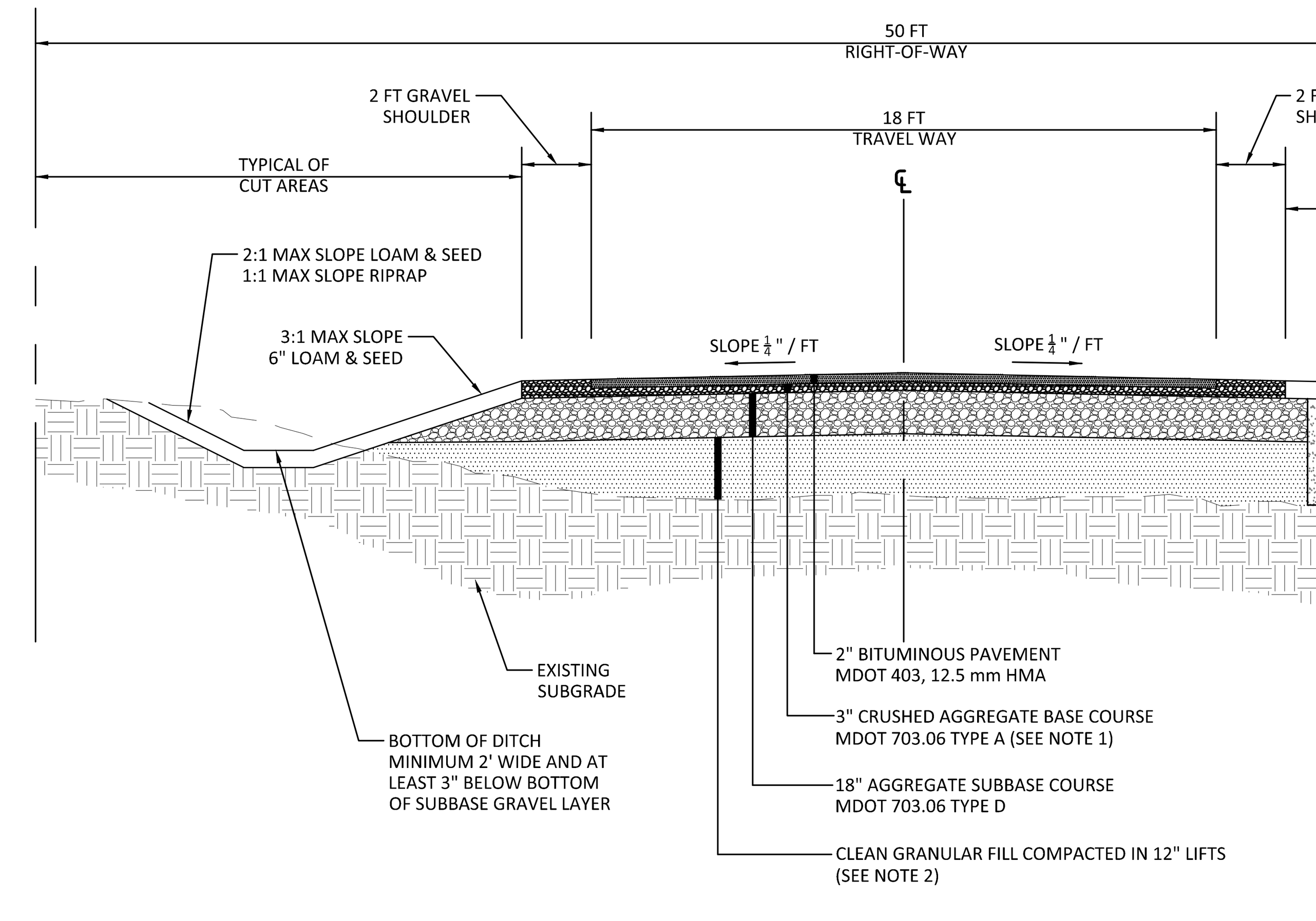
BY SEPTEMBER 15, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% MUST BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN THE AREA SHALL EITHER BE STABILIZED WITH TEMPORARY VEGETATION BY OCTOBER 1, SOD BY OCTOBER 1, OR MULCH BY NOVEMBER 15. SEE APPLICABLE SECTIONS UNDER EROSION AND SEDIMENTATION CONTROL NOTES FOR PROPER INSTALLATION METHODS.

9. MAINTENANCE

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGES AND/OR BARE SPOTS. AN ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85% OF AREAS VEGETATED WITH VIGOROUS GROWTH.



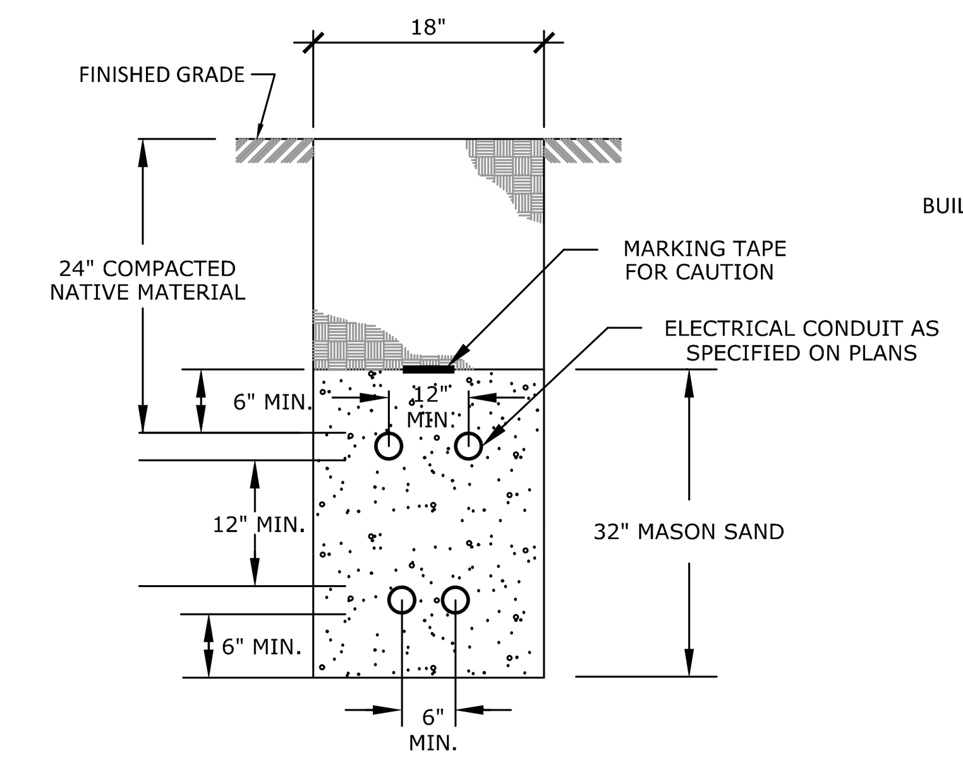
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



NOTES:

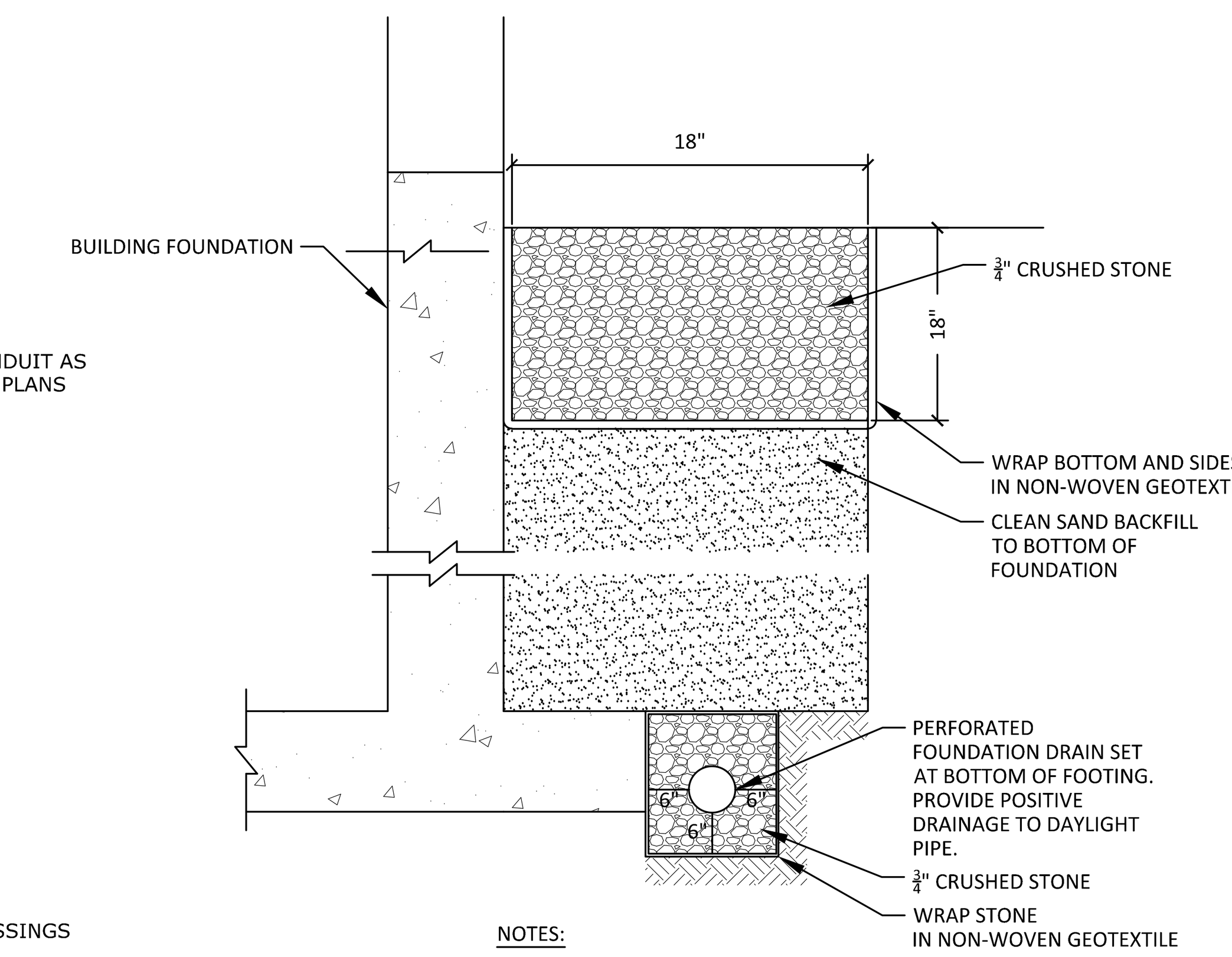
1. RECLAIMED MATERIAL APPROVED BY THE PUBLIC WORKS DIRECTOR MAY BE SUBSTITUTED.
2. CLEAN GRANULAR FILL MUST BE FREE OF ROCKS LARGER THAN 12 INCHES, STUMPS, DEBRIS, ORGANIC MATERIAL AND FROZEN MATERIAL.
3. GEOTEXTILE FABRIC OR UNDERDRAINS MAY BE REQUIRED BY THE DIRECTOR OF PUBLIC WORKS OR DESIGNEE IF POOR SOILS ARE ENCOUNTERED.

TYPICAL ROADWAY SECTION - MINOR PRIVATE ROAD
NOT TO SCALE



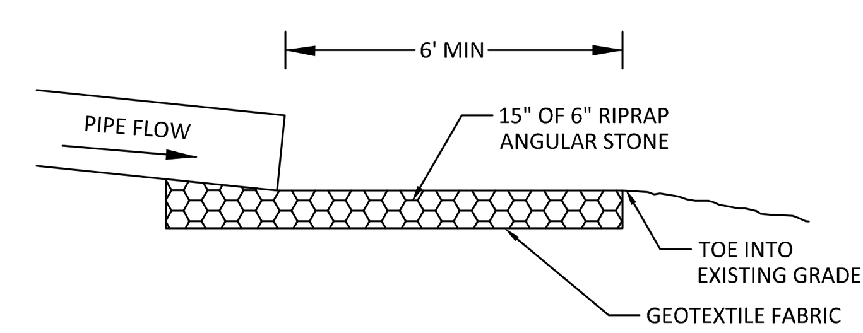
TRENCH DETAIL - ELECTRICAL CONDUIT
NOT TO SCALE

NOTES:
1. ALL CONDUITS SHALL BE 4" DIA. PVC SCH 40 EXCEPT FOR ROAD CROSSINGS SHALL BE PVC SCH 80
2. INSTALLATION SHOULD NOT ALLOW THE INTER-TWINING OF CABLES.
3. BEDDING AND BACKFILL SHALL BE FREE OF ROOTS, STUMPS AND OTHER DEBRIS.
4. COMMUNICATION CABLE AND POWER CABLE SHALL HAVE NO LESS THAN 12 INCHES OF RADIAL SEPARATION.

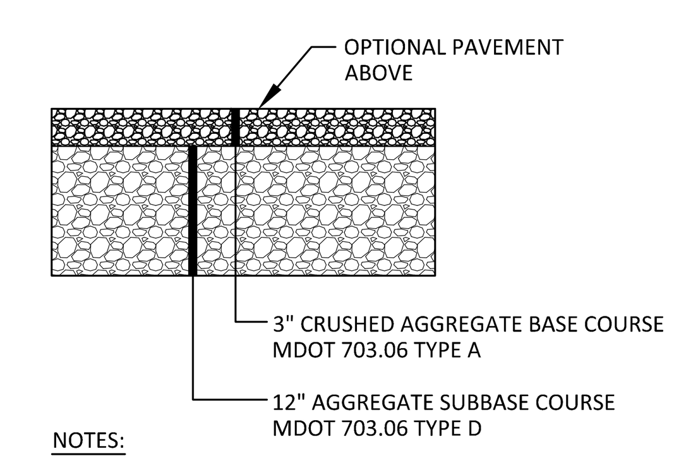


NOTES:
1. ALL NEW BUILDINGS REQUIRE ROOF DRIP EDGES

ROOF DRIP EDGE
NOT TO SCALE

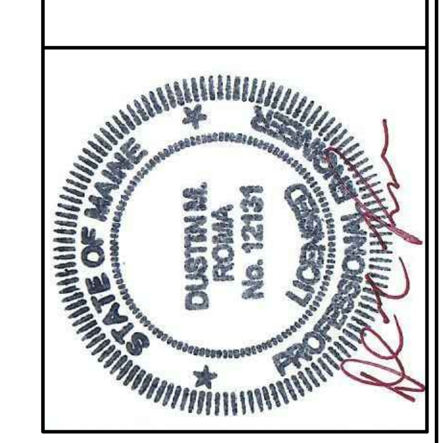


RIPRAP APRON AT PIPE
NOT TO SCALE



NOTES:
1. DRIVEWAYS TO HAVE A MINIMUM OF A 10' PAVED APRON AT THE ROAD.
INSTALL 2" BITUMINOUS PAVEMENT
(MDOT 403 , 12.5 mm HMA)

TYPICAL DRIVEWAY SECTION
NOT TO SCALE



DM ROMA
CONSULTING ENGINEERS
59 HARVEST HILL RD
WINDHAM, ME 04062
(207) 310 - 0506

REV	DATE	BY	DESCRIPTION
A	10-3-16	DMR	ISSUED TO TOWN FOR REVIEW

DETAILS

ALWEBER ROAD PROPERTY
WINDHAM, MAINE

FOR RECORD OWNER:
KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

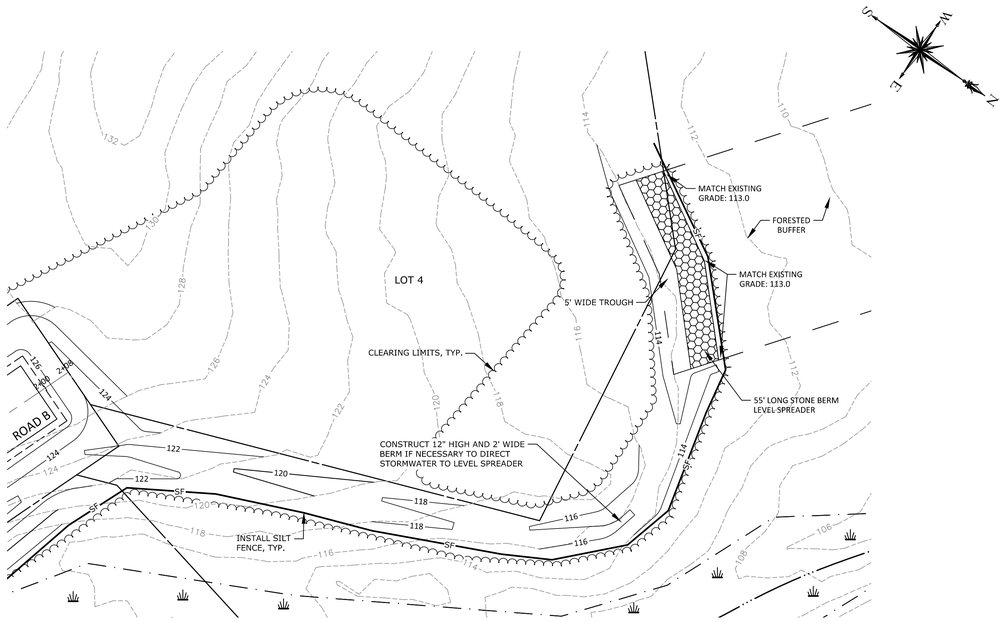
16024
JOB NUMBER:

AS NOTED
SCALE:

10-3-2016
DATE:

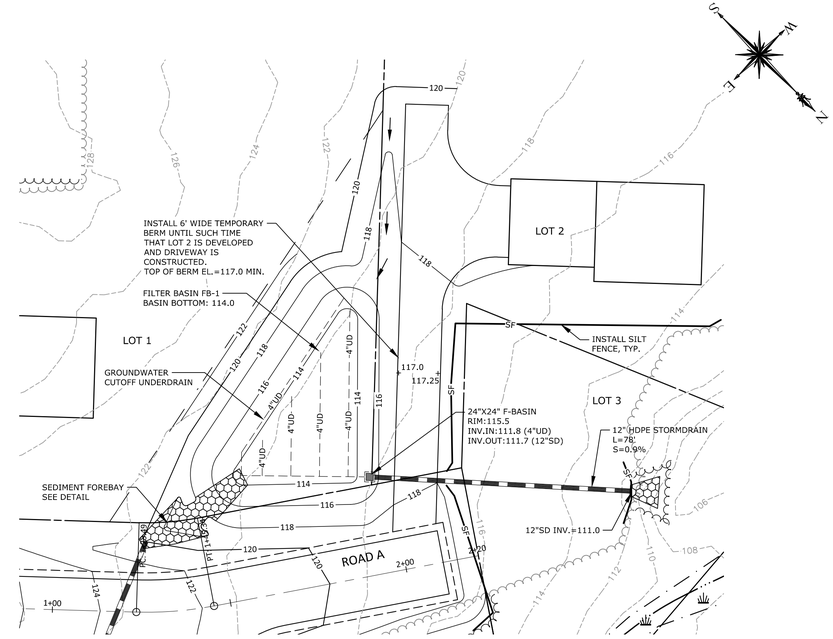
SHEET 5 OF 6

D-1



STORMWATER LEVEL SPREADER AND DITCH GRADING PLAN

SCALE 1" = 20'



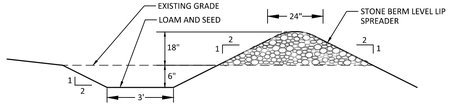
FILTER BASIN PLAN

SCALE 1" = 20'

TABLE 7.1 UNDERDRAIN 703.22 TYPE "B"	
SIEVE SIZE	% PASSING BY WEIGHT
1"	90-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

TABLE 7.3 LOAMY COARSE SAND	
SIEVE SIZE	% PASSING BY WEIGHT
#10	85-100
#20	70-100
#60	15-40
#200	8-15
200 CLAY	<2.0

TABLE 7.4 SANDY LOAM	
SIEVE SIZE	% PASSING BY WEIGHT
#4	75-95
#10	60-90
#40	35-85
#200	20-70
200 CLAY	<2.0



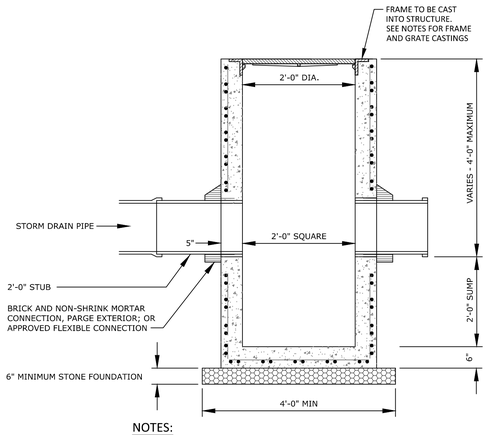
STORMWATER LEVEL LIP SPREADER

NOT TO SCALE

GENERAL NOTES:

1. THE STONE USED TO CONSTRUCT THE BERM SHALL MEET THE FOLLOWING SPECIFICATIONS:

SIEVE DESIGNATION (US)	PERCENT PASSING BY WEIGHT
12 IN.	100
6 IN.	84-100
3 IN.	68-83
1 IN.	42-55
NO. 4	8-12



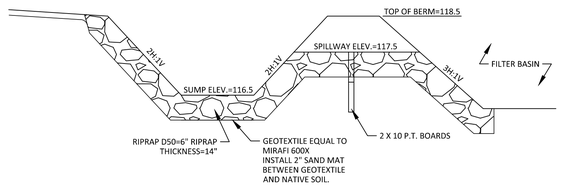
NOTES:

1. CAST IRON FRAME SHALL BE EQUAL TO EAST JORDAN IRON WORKS, PRODUCT NO. 45622011, REVERSIBLE FRAME AND GRATE SHALL BE EQUAL TO EAST JORDAN IRON WORKS, PRODUCT NO. 45622531, HEAVY DUTY GRATE.

2. SUBMIT SHOP DRAWINGS AND CASTING SPECIFICATIONS TO ENGINEER FOR APPROVAL.

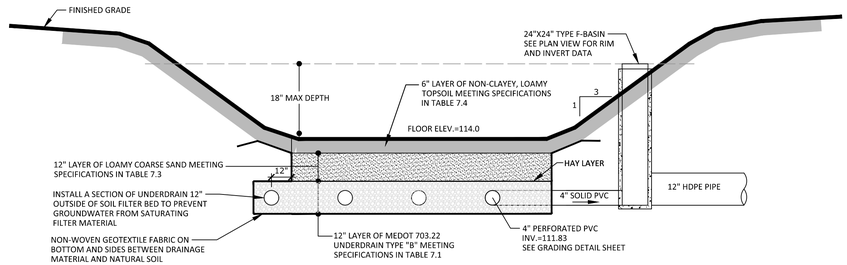
PRECAST CONCRETE CATCH BASIN STRUCTURE - TYPE F

NOT TO SCALE



SEDIMENT FOREBAY

NOT TO SCALE



GENERAL NOTES:

1. CONSTRUCTION SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.

2. COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED BETWEEN 90% AND 92% STANDARD PROCTOR. THE BED SHOULD BE INSTALLED IN AT LEAST TWO LIFTS TO PREVENT POCKETS OF LOOSE MEDIA.

3. CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER WILL OCCUR AT A MINIMUM:
   A) AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
   B) AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
   C) AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
   D) AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
   E)ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING MDEP SPECIFICATIONS.

4. TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:
   A) SELECT SAMPLES FOR SAMPLING OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
   B) PERFORM A SIEVE ANALYSIS CONFORMING TO STM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL. THE RESULTING SOIL FILTER MEDIA MIXTURE MUST HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE, A CLAY CONTENT OF LESS THAN 2% (DETERMINED BY HYDROMETER GRAIN SIZE ANALYSIS) AND HAVE 10% DRY WEIGHT OF ORGANIC MATTER.
   C) PERFORM A PERMIABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90-92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698

GRASS UNDERDRAINED SOIL FILTER SECTION

NOT TO SCALE

STATE OF MAINE — DUSTIN M. ROMA — No. 12191 — REGISTERED PROFESSIONAL ENGINEER

DM ROMA
CONSULTING ENGINEERS
59 HARVEST HILL RD
WINDHAM, ME 04062
(207) 310 - 0506

REV	DATE	BY	DESCRIPTION
A	10-3-16	DMR	ISSUED TO TOWN FOR REVIEW

DETAILS

ALWEBER ROAD PROPERTY
WINDHAM, MAINE

FOR RECORD OWNER:
KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

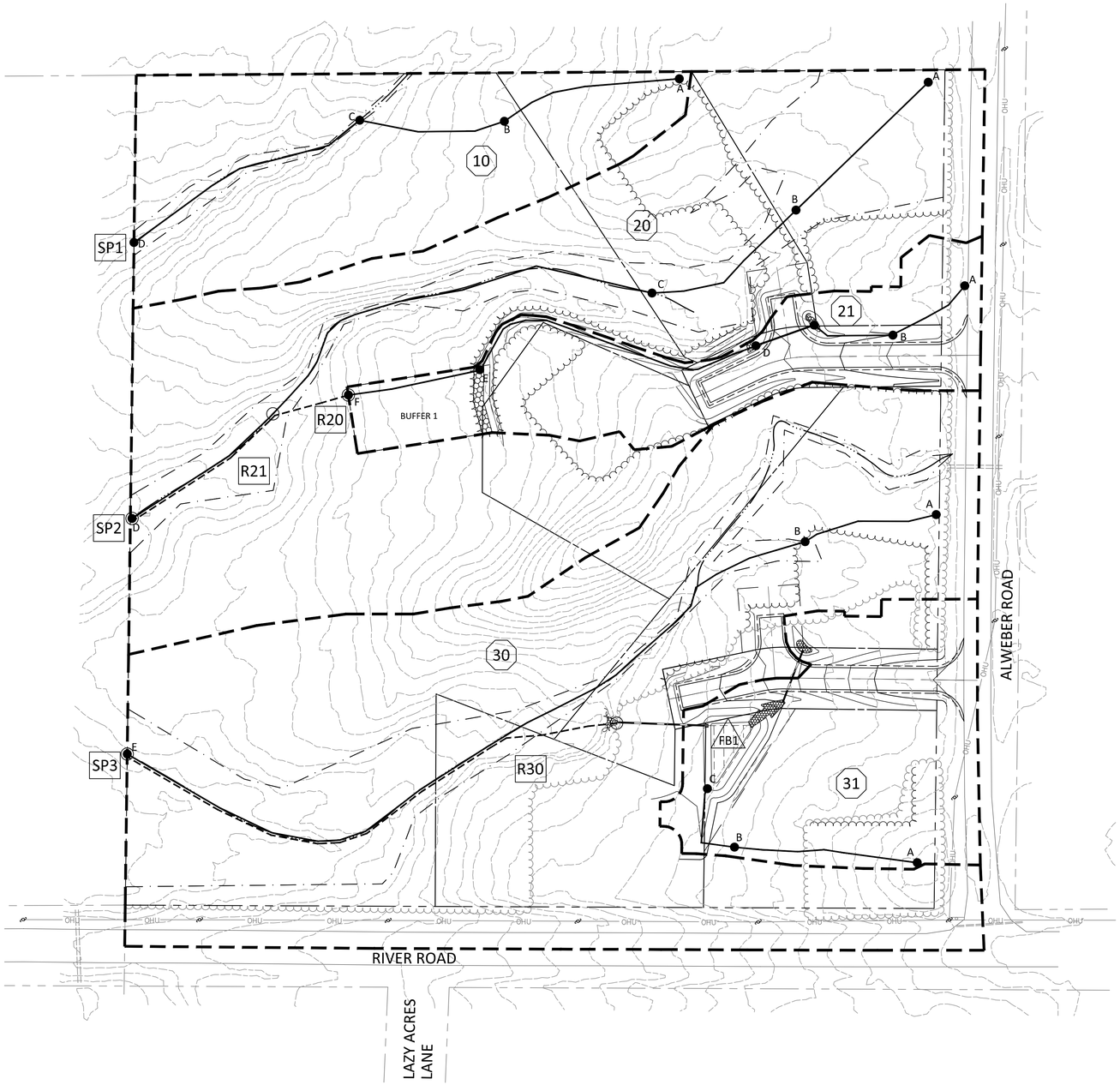
16024
JOB NUMBER:

AS NOTED
SCALE:

10-3-2016
DATE:

SHEET 6 OF 6

D-1



0' 25' 50' 100'
0 1/2" 1" 2"

STORMWATER TREATMENT CALCULATIONS

ALWEBER ROAD PROPERTY

Proposed Development

New Road Impervious Area =	11,090 sf
New Lot Impervious Area =	16,510 sf
New Impervious Area =	**27,600 sf**
New Landscaped/Disturbed Area =	60,570 sf
New Developed Area =	**88,170 sf**

Proposed Treatment Areas

Treatment Device	Impervious Area Treated (sf)	Landscaped Area Treated (sf)	Developed Area Treated (sf)
Buffer 1	9,560	18,875	28,435
Filter Basin 1	9,990	23,835	33,825
Dripedges	8,520	0	8,520
Totals	**28,070**	**42,710**	**70,780**

Treatment Calculations

Required New Impervious Area Treatment (95%)=	26,220 sf
Total Impervious Area Treated =	**28,070 sf**
% of New Impervious Area Treated =	**+100% >95%**
Required New Developed Area Treatment (80%) =	70,536 sf
Total Developed Area Treated =	**70,780 sf**
% of New Developed Area Treated =	**80.3% >80%**

WATERSHED LEGEND

- 1 — WATERSHED NO.
- SP1 — REACH/STUDY POINT
- P1 — POND
- WATERSHED BOUNDARY
- A → B — TIME OF CONCENTRATION
- REACH PATH
- SOIL BOUNDARY

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POST DEVELOPMENT STORMWATER MAP

ALWEBER ROAD PROPERTY
WINDHAM, MAINE

FOR RECORD OWNER:
KEITH JASON ELDER & JAY P. HACKETT
434 GRAY ROAD
WINDHAM, ME 04062

16024
JOB NUMBER:

1" = 50'
SCALE:

10-3-2016
DATE:

SHEET 1 OF 1

SWP-1