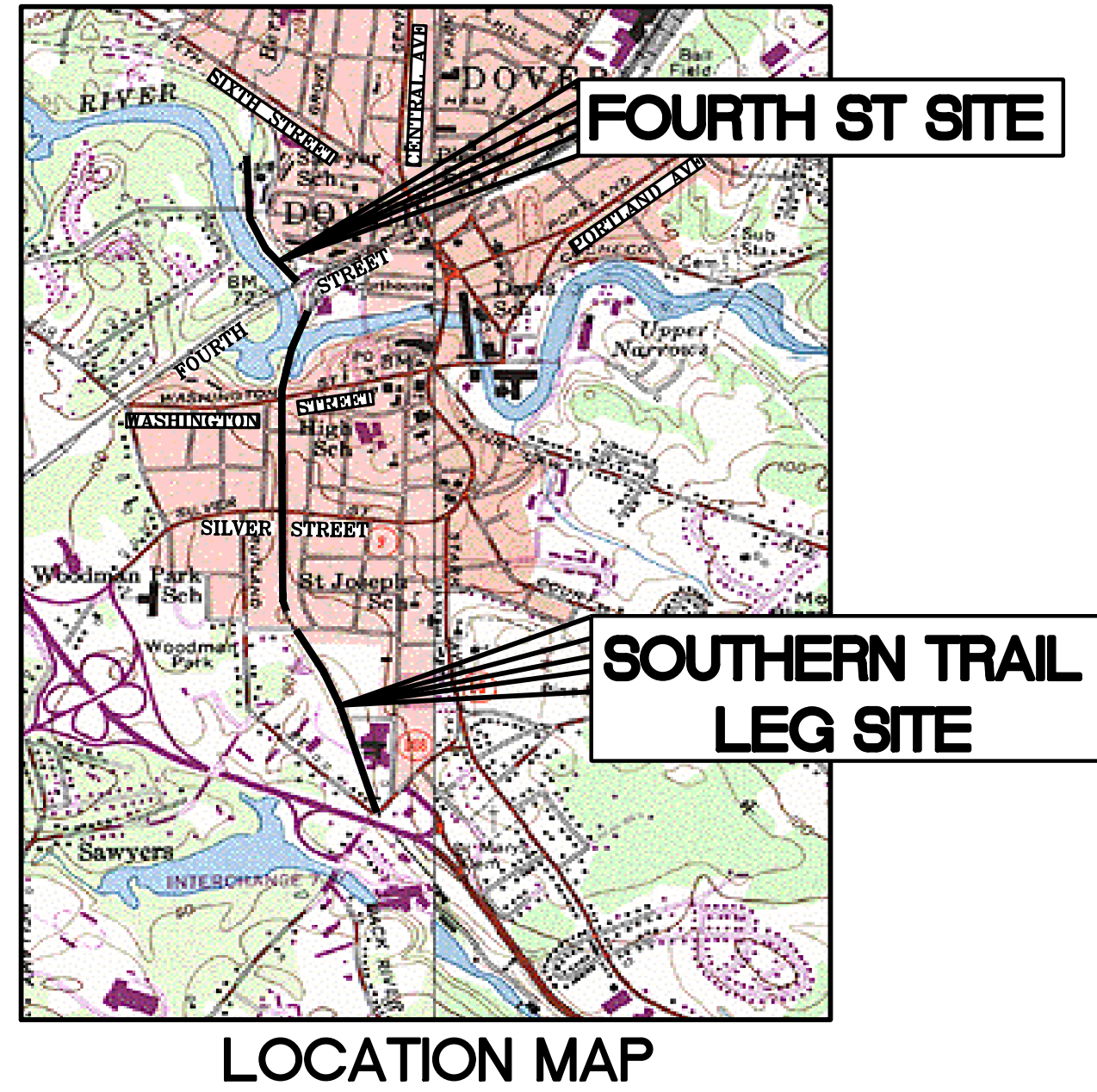


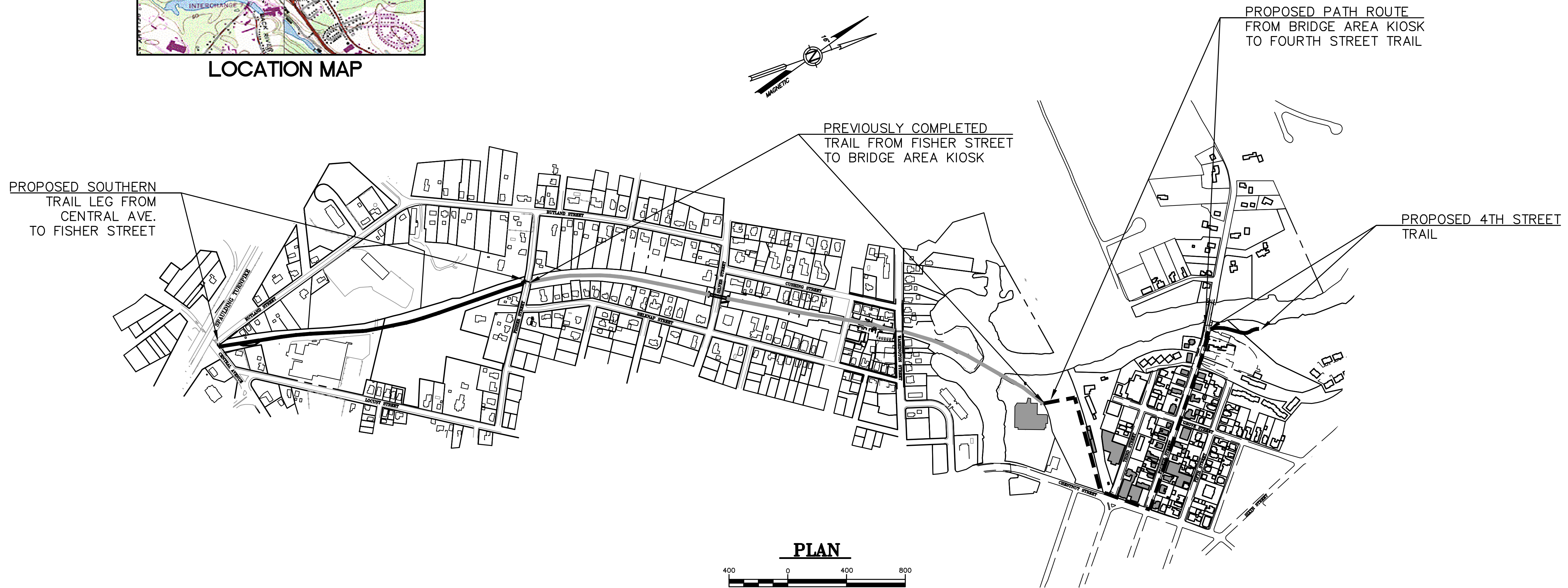
COMMUNITY TRAIL PHASE III

STATE PROJECT NO. : 40437
 FEDERAL PROJECT NO. : X-A004(407)
**DOVER, NEW HAMPSHIRE
 STRAFFORD COUNTY**



INDEX

DWG#	SHEET NAME
C0	COVER SHEET
C1	NOTES
C2-C5	PLANS AND PROFILES
C6	FOURTH ST. PLAN AND PROFILE
C7	TYPICAL SECTIONS
C8	TRAILHEAD GRADING PLANS
C9-C11	CROSS SECTIONS
C12	FOURTH ST. CROSS SECTIONS
C13-14	SIGNING AND STRIPING PLANS
C15-19	DETAILS
L1-L2	LANDSCAPE PLANS
E1-E3	EASEMENT PLANS



CONSTRUCTION DOCUMENTS	
NO.	DATE
1	4/1/19
DESIGNED:	DAD
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDY
 No. 10843
 LICENSED PROFESSIONAL ENGINEER

CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

**COMMUNITY TRAIL
 PHASE III
 COVER SHEET**
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. 00

GENERAL NOTES:

- TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS IS BASED ON ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY CLD | FUSS O'NEILL BETWEEN JULY 2017 AND NOVEMBER 2017, REFERENCE PLANS 1 AND 2 LISTED ON SHEET E1, AND REFERENCE PLANS 1, 2, AND 3 LISTED ON SHEET E3. HORIZONTAL DATUM IS NAD83(2011). VERTICAL DATUM IS NAVD88.
- UTILITY INFORMATION DEPICTED ON THESE PLANS IS BASED UPON PARTIAL FIELD SURVEY, VISUAL INSPECTIONS, AND INFORMATION PROVIDED BY THE UTILITY OWNERS AND MAY NOT BE ENTIRELY ACCURATE OR COMPLETE. NO WARRANTY IS MADE AS TO THE ACCURACY AND COMPLETENESS OF THE INFORMATION DEPICTED.
- THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION, DEPTH, DIMENSIONS AND CONDITION OF EXISTING UTILITY ASSETS. DRAINAGE FACILITIES AND OTHER FEATURES IN CRITICAL AREAS OF CONSTRUCTION TO CONFIRM CLEARANCES FOR THE PROPOSED WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED. DRAINAGE STRUCTURES SHALL NOT BE ORDERED UNTIL EXISTING DRAINAGE AND ANY UTILITY CROSSINGS HAVE BEEN VERIFIED. THIS SHALL BE SUBSIDIARY.
- HDPE PIPE SHALL BE USED FOR STORM DRAINAGE PIPES IN THIS PROJECT EXCEPT WHERE OTHERWISE NOTED.
- ALL DRAIN MANHOLES AND CATCH BASINS IN PAVEMENT SHALL HAVE RIMS SET 1/2" BELOW FINISHED GRADE REGARDLESS OF ANY ELEVATIONS OTHERWISE SHOWN.
- EXISTING STRUCTURES LOCATED PARTIALLY IN THE PROPOSED TRAIL SHALL HAVE CONES/ FLAT TOPS ROTATED SO THAT THE MANHOLE COVER AND FRAME IS ENTIRELY OUT (PREFERRED) OR ENTIRELY IN THE TRAIL WHICHEVER IS PRUDENT PER FIELD CONDITIONS.
- CONTRACTOR IS REFERRED TO SECTION 645 OF THE SSRBC FOR GUIDANCE ON THE PREPARATION OF AN EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN FOR APPROVAL BY THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF SOIL EROSION, SEDIMENTATION AND TRACKING AND SHALL STABILIZE DISTURBED AREAS AS EARLY IN THE COURSE OF THE WORK AS POSSIBLE. THE CONTRACTOR SHALL REMOVE ANY AND ALL SEDIMENT DEPOSITS WHICH MAY OCCUR, EITHER ON OR OFF-SITE, DUE TO SOIL EROSION OR OTHER CONSTRUCTION ACTIVITIES. AREAS TO BE ADDRESSED SHALL INCLUDE (BUT ARE NOT LIMITED TO) CATCH BASINS SUMPS, DRAIN PIPES AND PAVED SURFACES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN IN THE PLANS THROUGHOUT THE DURATION OF THE PROJECT IN ACCORDANCE WITH APPLICABLE NHDES STANDARDS.
- THE CONTRACTOR SHALL FILL DEPRESSIONS WITHIN PROJECT LIMITS BETWEEN TRAIL AND ABUTTING PROPERTIES UNLESS OTHERWISE SPECIFIED. THE INTENT OF THIS PLAN IS TO GRADE TO DRAIN SO AS NOT TO ALLOW ANY STANDING WATER AS A RESULT OF THE NEW TRAIL.
- VERIFY TEMPORARY BENCHMARK ELEVATIONS PRIOR TO CONSTRUCTION.
- CORES INTO EXISTING DRAINAGE STRUCTURES SHALL BE COMPLETED USING DIAMOND BLADE SAW. PIPES ENTERING DRAINAGE STRUCTURES SHALL BE FIRMLY CONNECTED TO THE STRUCTURE WALL WITH NO PART OF THE PIPE EXTENDING MORE THAN 6 INCHES INSIDE THE WALL. JOINTS SHALL BE WATER TIGHT. PAYMENT FOR CORING WILL BE UNDER ITEM 604.41.
- HOT BITUMINOUS PAVEMENT INSTALLED ON THE TRAIL SHALL BE PAID UNDER ITEM 403.11. REMAINING HOT BITUMINOUS PAVEMENT SHALL BE PAID UNDER ITEM 403.12 IN ACCORDANCE WITH 403.1.1.1. HAND METHOD SHALL BE EMPLOYED FOR CURB MATCH AND HOT BITUMINOUS PAVEMENT AT TRAILHEAD PATIO AREAS.
- THE INTENT OF THIS PLAN IS TO PROVIDE ADA ACCESSIBLE PEDESTRIAN PASSAGE BY INSTALLING PHASE III OF THE CITY OF DOVER COMMUNITY TRAIL. MINOR DRAINAGE WORK IS INCLUDED IN THIS SCOPE. PROVISIONS FOR GRADING AND DRAINAGE ARE PROVIDED WITH THIS PLAN.
- IF ANY ERROR OR OMISSION IN THESE PLANS IS DISCOVERED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY IN WRITING FOR DIRECTION ON HOW TO PROCEED. THE CONTRACTOR SHALL DISCONTINUE WORK IN THE AFFECTED PROJECT AREA UNTIL AGREEMENT HAS BEEN REACHED WITH THIS FIRM AND THE CITY OF DOVER ON CORRECTIVE ACTION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE SITE AND ALL EXISTING CONDITIONS SURROUNDING IT AND THEREON. THE CONTRACTOR SHALL ADVISE THE APPROPRIATE AUTHORITY OF HIS INTENTIONS AT LEAST 48 HOURS IN ADVANCE.
- THE CONTRACTOR SHALL BID AND PERFORM THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES, SPECIFICATIONS, REGULATIONS AND STANDARDS.
- WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
- ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.
- SITE WORK SHALL BE CONSTRUCTED FROM A COMPLETE SET OF APPROVED PLANS, NOT ALL FEATURES ARE DETAILED ON EVERY PLAN. THE ENGINEER IS TO BE NOTIFIED OF ANY CONFLICT WITHIN THIS PLAN SET PRIOR TO ANY CONFLICTING WORK BEING PERFORMED.
- ALL APPLICABLE SIGNAGE, LANDSCAPING, AND SCREENING SHALL MEET THE REQUIREMENTS OF THE CITY OF DOVER ZONING ORDINANCE AND SITE PLAN REGULATIONS.
- THE CONTRACTOR SHALL TAKE CARE TO PRESERVE AND RESET SALVAGEABLE GRANITE CURBING. NEW GRANITE, AS REQUIRED, SHALL MATCH AS BEST POSSIBLE TO EXISTING CURBING.
- WHEREVER NEW OR RESET CURBING IS SET ADJACENT TO EXISTING CURB LINES, THE REVEAL AND FACE OF NEW OR RESET CURB SHALL MATCH THE EXISTING.
- THE CONTRACTOR SHALL CONFINE THE CONSTRUCTION OPERATIONS AND ACTIVITIES TO THE SITE AS SHOWN ON THE DRAWINGS. STORAGE AND PROTECTION OF MATERIALS AND STRUCTURES OFF-SITE WILL BE BY OTHER ARRANGEMENTS MADE BY THE CONTRACTOR.
- LIMITS OF DEMOLITION FOR TRAIL WORK INDICATED ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REVIEW CUT LINES FOR EACH LOCATION IN THE FIELD WITH THE ENGINEER TO ESTABLISH FINAL CUT LIMITS. THE CUT LINES SHALL BE CLEARLY MARKED AND APPROVED PRIOR TO CUTTING.
- THE CONTRACTOR SHALL APPLY PAVEMENT MARKINGS AS INDICATED ON THE DRAWINGS IN ACCORDANCE WITH SECTION 632 OF THE SSRBC AND THE CITY OF DOVER ZONING ORDINANCE UNLESS OTHERWISE INDICATED ON THE PLANS. CONTRACTOR TO COORDINATE WITH CITY REGARDING SCHEDULE FOR FINAL WEARING COURSE OF PAVEMENT.
- ON A DAILY BASIS, THE CONTRACTOR SHALL THOROUGHLY SECURE ALL EXCAVATIONS UPON COMPLETION OF OPERATIONS IN THE IMMEDIATE AREA OF THE EXCAVATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY MUNICIPAL CONSTRUCTION PERMITS.
- THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY HIS WORK AT ALL TIMES. THE PROJECT AREA SHALL BE CLEANED DAILY AND EVENING STREET ACCESS MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.
- THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY CLD | FUSS & O'NEILL DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
- THE CONTRACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, A PROJECT SEQUENCING SCHEDULE AS PART OF THE BID PACKAGE.
- THE CONTRACTOR SHALL MAINTAIN SAFE AND ACCESSIBLE PEDESTRIAN ACCESS, AND WHERE APPLICABLE, VEHICULAR ACCESS TO ADJUTING PROPERTIES AT ALL TIMES, INCLUDING THE PROVISION OF TEMPORARY WALKWAYS AS NECESSARY. TEMPORARY PROVISIONS SHALL CONSIDER THE NEEDS OF HANDICAPPED PERSONS. PROVISION OF MEANS OF TEMPORARY ACCESS SHALL BE CONSIDERED SUBSIDIARY TO RELATED WORK ITEMS.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL A TRAFFIC/PEDESTRIAN MANAGEMENT PLAN. THESE PLAN(S) SHOULD INDICATE THE NUMBER, TYPE, AND LOCATION OF ALL CONSTRUCTION SIGNS, TEMPORARY MARKINGS, BARRELS, CONES, ETC. REQUIRED. MAINTENANCE OF TRAFFIC TO BE COMPLETED PER LOCAL AND/OR STATE ORDINANCES.
- ALL SIGN DESIGNATIONS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR THE CONSTRUCTION AND COMPLETION IN EVERY DETAIL OF THE WORK DESCRIBED ON THE PLANS AND IN THE SPECIFICATIONS.
- BEFORE ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE FROM WITHIN THE LIMITS OF THE RIGHT-OF-WAY, ALL MACHINERY, EQUIPMENT, SURPLUS MATERIALS, FALSEWORK, STUMPS, RUBBISH, TEMPORARY BUILDINGS, BARRICADES AND SIGNS. ALL PARTS OF THE WORK SHALL BE LEFT IN A NEAT AND PRESENTABLE CONDITION.
- THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING AN ON-SITE REVIEW OF THE ENTIRE WORK SITE PRIOR TO BIDDING.
- THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING AND COORDINATING WITH ALL ABUTTERS, PROPERTY AND BUSINESS OWNERS PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING A STORAGE LOCATION ADJACENT TO OR WITHIN THE PROJECT LIMITS.
- PRIOR TO PERFORMING WORK, THE CONTRACTOR SHALL CONFIRM THAT ALL AREAS WILL BE GRADED TO DRAIN TO EXISTING OR PROPOSED DRAINAGE STRUCTURES UPON COMPLETION OF THE PROJECT. PONDING OF WATER WILL NOT BE ALLOWED. IF A CONFLICT EXISTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING.
- TEMPORARY OR PERMANENT CONSTRUCTION EASEMENT REQUIRED FROM PROPERTY OWNERS WITHIN WORK AREA TO BE OBTAINED BY THE CITY. CONTRACTOR SHALL REMAIN WITHIN THE LIMITS OF TEMPORARY OR PERMANENT EASEMENTS UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE PROPERTY OWNER. SEE SHEETS E1 AND E2 FOR LIMITS OF EASEMENTS OBTAINED.

GENERAL NOTES CONTINUED:

- TREE TRIMMING AS NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER TO FACILITATE CONSTRUCTION SHALL BE SUBSIDIARY.
- SEE LANDSCAPE NOTES SHEET L1 FOR ADDITIONAL GENERAL REQUIREMENTS. TREE PROTECTION, TESTING OF LOAM AND ANY REQUIRED AMENDMENTS TO THE SOIL TO MEET REQUIREMENTS IN THE LANDSCAPE NOTES OR PLANTING SPECIAL PROVISIONS SHALL BE SUBSIDIARY.
- UPON COMPLETION OF WORK, THE CONTRACTOR SHALL RESTORE ALL AREAS IMPACTED BY CONSTRUCTION TO ORIGINAL GRADE UNLESS OTHERWISE SHOWN ON THE PLANS, AND AS APPROVED BY THE OWNER. LOAM, SEED AND MULCH SHALL BE APPLIED TO DISTURBED AREAS AS DIRECTED BY THE OWNER.
- THERE ARE 6± MONITORING WELLS IDENTIFIED WITHIN THE PROPOSED PROJECT LIMITS. THE MONITORING WELLS WILL NEED TO BE ADJUSTED TO GRADE OR PROTECTED DURING DEVELOPMENT. IN ADDITION, THE CONTRACTOR WILL BE REQUIRED TO STOP WORK AND CONTACT THE BUREAU OF ENVIRONMENT SHOULD ANY INDICATIONS OF CONTAMINATION BECOME EVIDENT DURING EXCAVATION. THIS WORK WILL BE SUBSIDIARY.
- REFER TO THE "GENERAL CONSTRUCTION PHASING" NOTES ON SHEET C18 PRIOR TO COMMENCING CONSTRUCTION IN ACCORDANCE WITH THE FOLLOWING PHASING. THE "GENERAL CONSTRUCTION PHASING" NOTES APPLY TO THE OVERALL CONSTRUCTION AND SHALL BE ADHERED TO.
- INSTALL ALL TEMPORARY SEDIMENT CONTROL BARRIERS (I.E. SILT FENCE, EROSION CONTROL MIX BERMS, STONE CHECK DAMS, ETC.) AROUND THE OUTER PERIMETER OF THE CONSTRUCTION SITE. PROVIDE EROSION AND SEDIMENTATION CONTROL PROTECTION ON THE SITE SUCH THAT CONSTRUCTION RUNOFF IS DIRECTED AWAY FROM THE PROPOSED BIORETENTION SYSTEM LOCATIONS. BIORETENTION SYSTEM AREAS MAY NOT BE USED AS SEDIMENT TRAPS DURING CONSTRUCTION.
- INSTALL A TEMPORARY CONSTRUCTION ENTRANCE AT THE LOCATION APPROVED BY THE CITY OF DOVER. MAINTAIN AS DIRECTED BY THE TEMPORARY CONSTRUCTION ENTRANCE DETAIL DEPICTED ON SHEET C18.
- PHYSICALLY MARK BIORETENTION AREAS PRIOR TO ANY LAND-DISTRUBING ACTIVITIES TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION.
- CLEAR, GRUB, AND STRIP THE SITE. STABILIZE SOIL DISTURBED WITHIN THE LIMITS OF DISTURBANCE. DO NOT FINALIZE BIORETENTION SYSTEM EXCAVATION AND CONSTRUCTION UNTIL THE DRAINAGE AREA IS FULLY STABILIZED. STUMPS, BRUSH AND OTHER ORGANIC WASTE SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- STOCKPILE STRIPPED TOPSOIL AND CUT MATERIAL TO BE REUSED ON SITE IN AN APPROPRIATE LOCATION IN ACCORDANCE WITH THE "SOIL STOCKPILES PRACTICES". MAINTAIN THE STOCKPILES AS DIRECTED IN THE "SOIL STOCKPILE PRACTICES".
- INSTALL ALL UTILITIES AND CLOSED DRAINAGE SYSTEM COMPONENTS (I.E. CATCH BASINS, PIPE CULVERTS, FLARED END SECTIONS, ETC.) PER THE CORRESPONDING DETAILS AND AS SHOWN ON SHEETS C18-C19 AS EACH STRUCTURE IS COMPLETED INSTALL THE CORRESPONDING TEMPORARY SEDIMENT CONTROL BARRIER.
- ALL CUT AND FILL SLOPES AND LAWN AREAS NOT TO BE PAVED SHALL BE LOAMED AND SEEDED FOR PERMANENT VEGETATION AND STABILIZATION AS DESCRIBED UNDER THE "PERMANENT VEGETATION PRACTICES" WITHIN 3 DAYS OF ACHIEVING FINAL GRADE.
- INSTALL ALL GRAVEL BASE AND CRUSHED GRAVEL MATERIALS AS SPECIFIED IN THE CORRESPONDING DETAILS.
- AREAS SHALL BE STABILIZED (CONSTRUCTED TO GRAVEL BASE COURSE) WITHIN 3 DAYS OF ACHIEVING FINISHED SUBGRADE ELEVATIONS.
- INSTALL PAVEMENT SURFACES AS SOON AS POSSIBLE AFTER INSTALLATION OF GRAVEL BASE AND CRUSHED GRAVEL INSTALLATION, IN ORDER TO LIMIT SOIL EROSION AND POLLUTION OF THE GRAVEL MATERIALS WITH ORGANIC MATERIALS. IN NO CASE SHALL AREAS TO BE PAVED BE LEFT UNPROTECTED THROUGH THE WINTER MONTHS.
- ALL DISTURBED AREAS EXCLUDING AREAS TO BE PAVED SHALL BE STABILIZED AS SOON AS POSSIBLE. IN NO CASE SHALL ANY DISTURBED AREA BE LEFT UN-STABILIZED FOR LONGER THAN 21 DAYS. IF NECESSARY TEMPORARY STABILIZATION MEASURES AS DISCUSSED IN THE "GENERAL CONSTRUCTION PHASING NOTES" AND NHSM, VOL. 3 SHOULD BE EMPLOYED.
- COMPLETE BIORETENTION SYSTEM INSTALLATIONS IN ACCORDANCE WITH THE PLANS, DETAILS, AND NOTES.
- DITCHES, SWALES, AND BIORETENTION SYSTEMS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- MAINTENANCE AND INSPECTION:**
- DURING CONSTRUCTION ALL TEMPORARY AND PERMANENT SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES SHOULD BE INSPECTED WEEKLY, AFTER EVERY 1/2 INCH OF RAINFALL, AND ANNUALLY.
- EXCESS SEDIMENT SHOULD BE REMOVED FROM TEMPORARY SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES WHEN IT REACHES PRESCRIBED THRESHOLDS DISCUSSED IN THE DETAILS FOR EACH PRACTICE.
- ALL DAMAGED TEMPORARY AND PERMANENT SEDIMENT, EROSION CONTROL AND STORMWATER MANAGEMENT PRACTICES SHOULD BE REPAIRED OR REPLACED IMMEDIATELY UPON NOTICE.
- SEDIMENT SHALL BE DISPOSED OF PROPERLY EITHER ON SITE OR OFF SITE.
- PROJECT COMPLETION AND STABILIZATION:**
- UPON PROJECT COMPLETION, ONCE THE SITE IS DEEMED STABILIZED (VEGETATION IS GERMINATED), THE TEMPORARY SEDIMENT CONTROL BARRIERS AND EROSION CONTROL PRACTICES SHALL BE REMOVED. ANY DISTURBANCE CREATED DURING REMOVAL SHALL BE REPAIRED IN AN APPROPRIATE MANNER.
- ACCUMULATED SEDIMENT SHALL BE REMOVED FROM ALL ON SITE CATCH BASINS, DRAIN MANHOLES, AND SEDIMENT FOREBAYS TO THE BIORETENTION SYSTEMS.

LEGEND
(STANDARD LEGEND - ALL SYMBOLS SHOWN DO NOT NECESSARILY APPEAR IN THE PLAN SET)

	EXISTING	PROPOSED
2' CONTOUR		
10' CONTOUR		
EDGE OF PAVEMENT		
DRAIN LINE		
SEWER LINE		
UNDERGROUND UTILITIES		
TELEPHONE LINE		
GAS LINE		
WATER LINE		
OVERHEAD UTILITIES		
VERTICAL GRANITE CURB		
SLOPED GRANITE CURB		
BITUMINOUS CURB		
CHAIN LINK FENCE		
GUARD RAIL		
TREE LINE		
SPOT GRADE		
SEWER MANHOLE		
CATCH BASIN		
DRAIN MANHOLE		
FIRE HYDRANT		
GAS VALVE		
WATER VALVE		
ELECTRIC MANHOLE		
TELEPHONE MANHOLE		
STREET SIGN		
LIGHT POLE		
FLOOD LIGHT		
UTILITY POLE		
PERC TEST		
TEST PIT		
BENCHMARK		
GUY POLE		
IRON PIN, DRILL HOLE, BOUND		
TREE		
TRAFFIC FLOW		
EXISTING STONE WALL		
EDGE OF WETLANDS		
PROPERTY LINE		
SILT FENCE		
HAY BALES		

PROJECT SPECIFIC CONSTRUCTION PHASING:

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NO.	DATE	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19	DAD	PNG/ARL	JLF
CONSTRUCTION DOCUMENTS				

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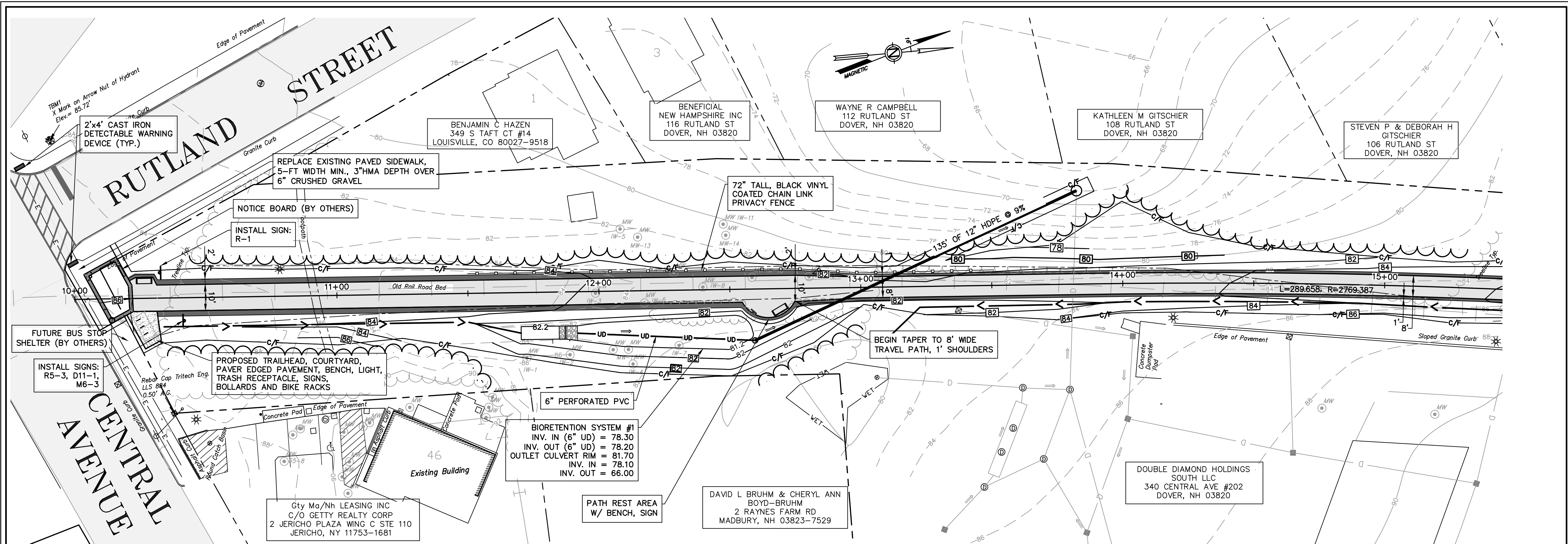
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REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
LICENSE NO. 10833

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DOVER, NH 03820

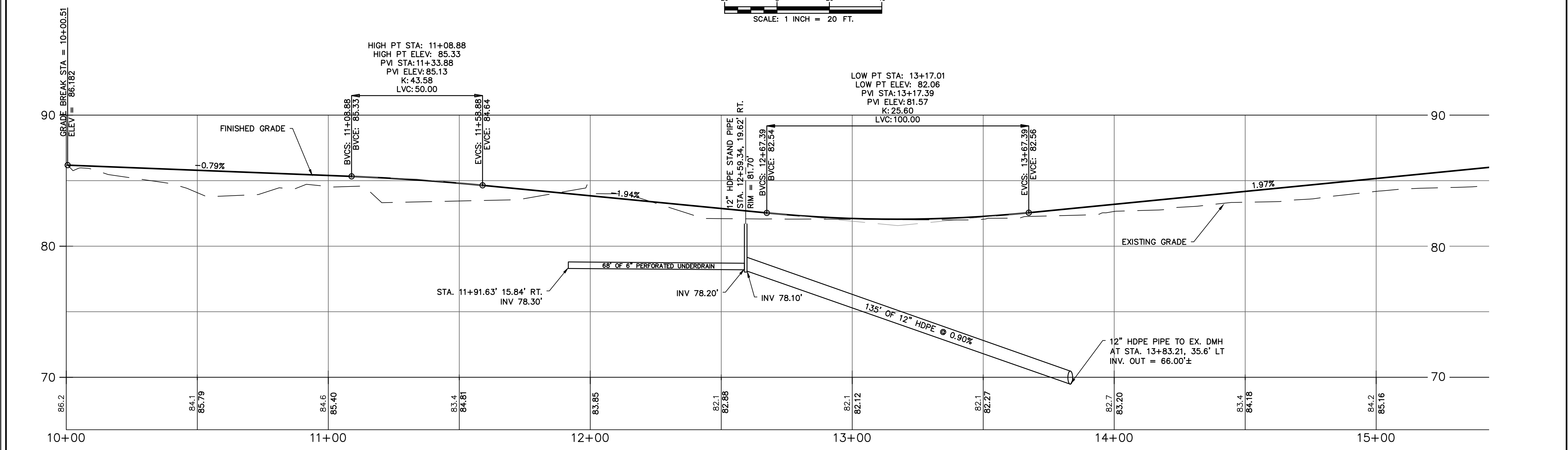
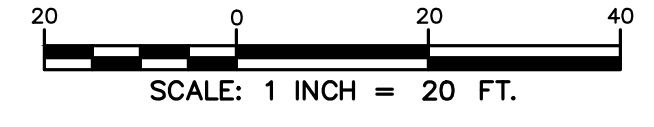
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COMMUNITY TRAIL PHASE III NOTES AND LEGEND
CITY OF DOVER
NEW HAMPSHIRE

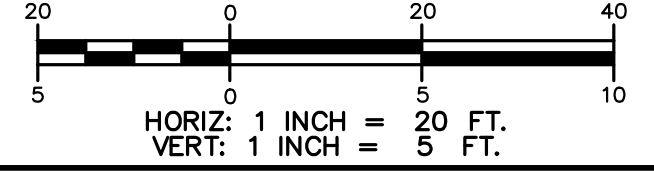
SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. 01



PLAN



PROFILE



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NO. 1	DATE 4/1/19
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CHECKED: JLF	APPROVED: RRL

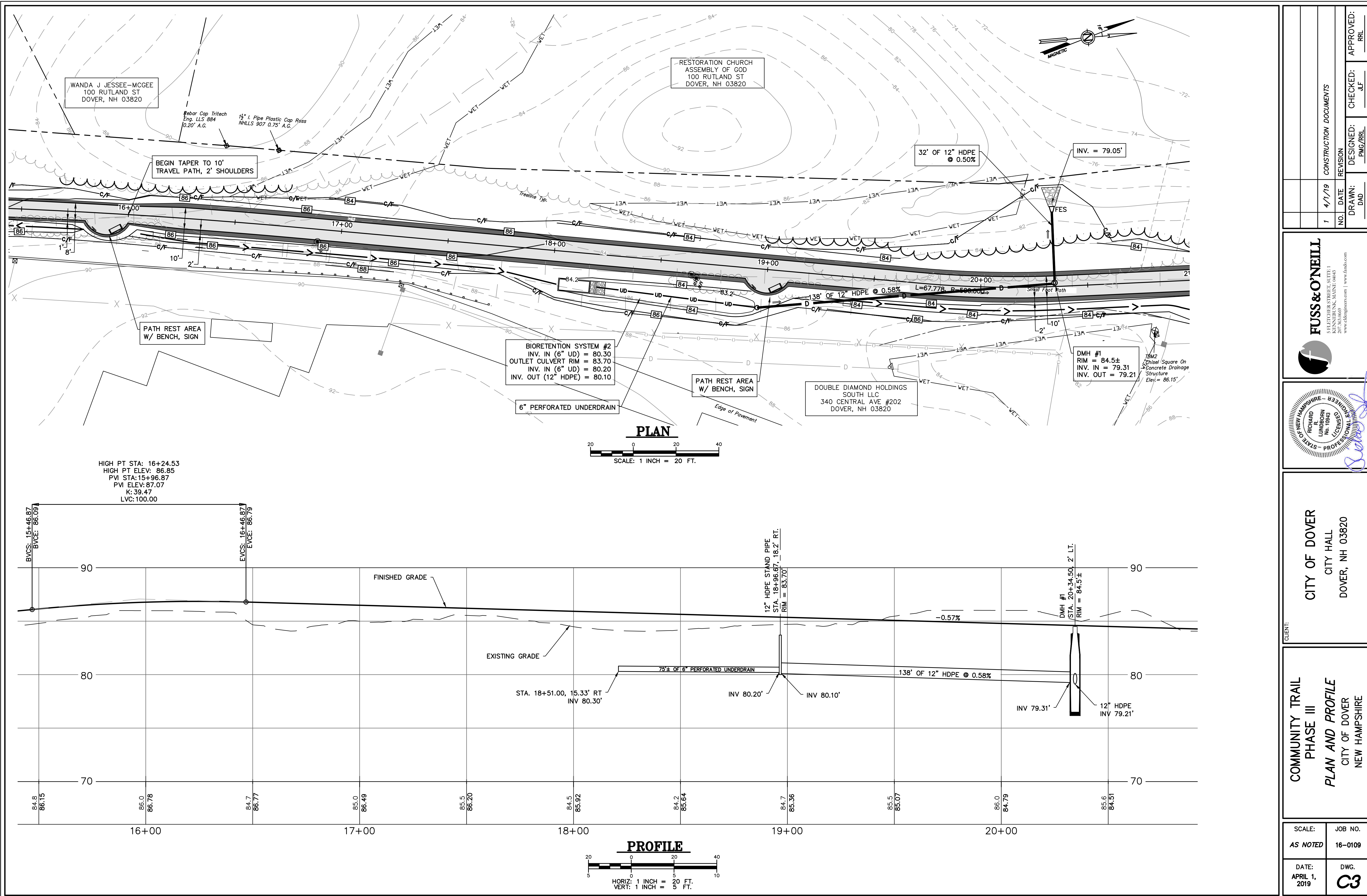
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDGREN
 No. 10843
 LICENSED PROFESSIONAL ENGINEER

CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

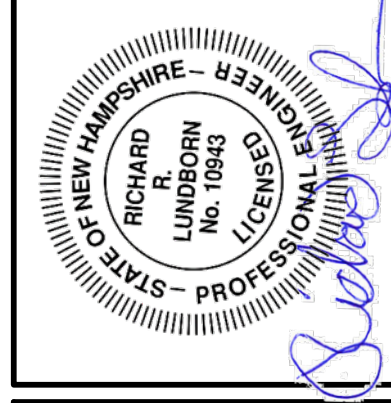
**COMMUNITY TRAIL
 PHASE II
 PLAN AND PROFILE**
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. 02



CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/19
DESIGNED: PUG/ARL	CHECKED: JLF
DRAWN: DAD	APPROVED: RRL

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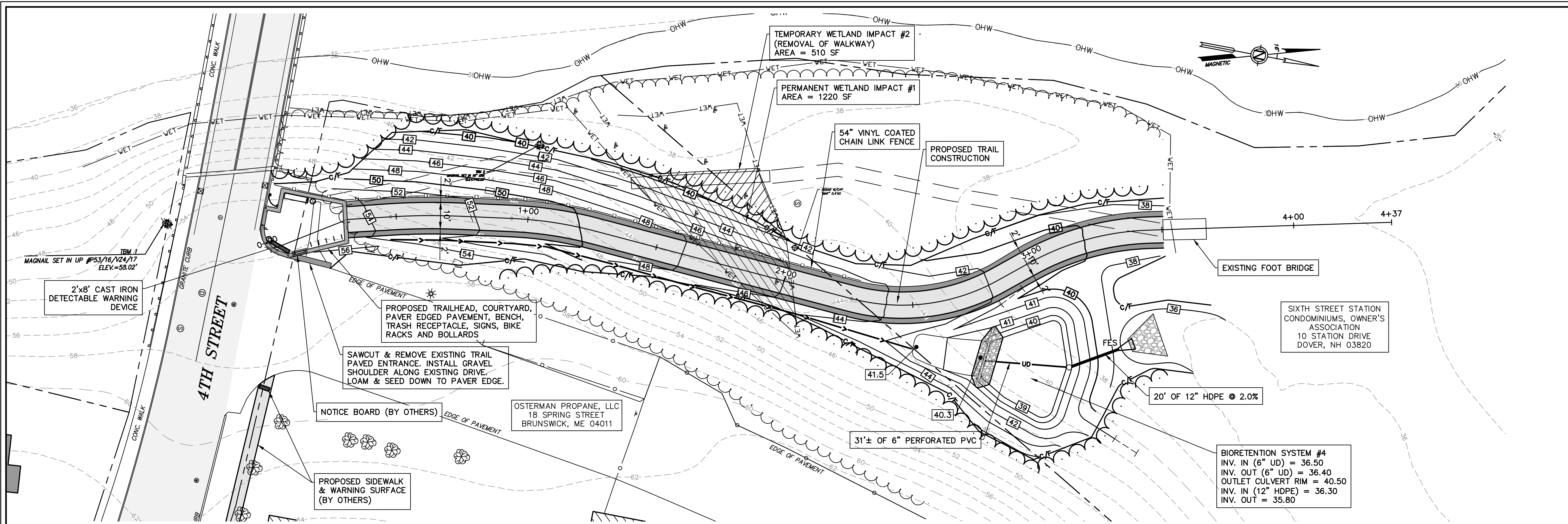


CLIENT:
CITY OF DOVER
CITY HALL
DOVER, NH 03820

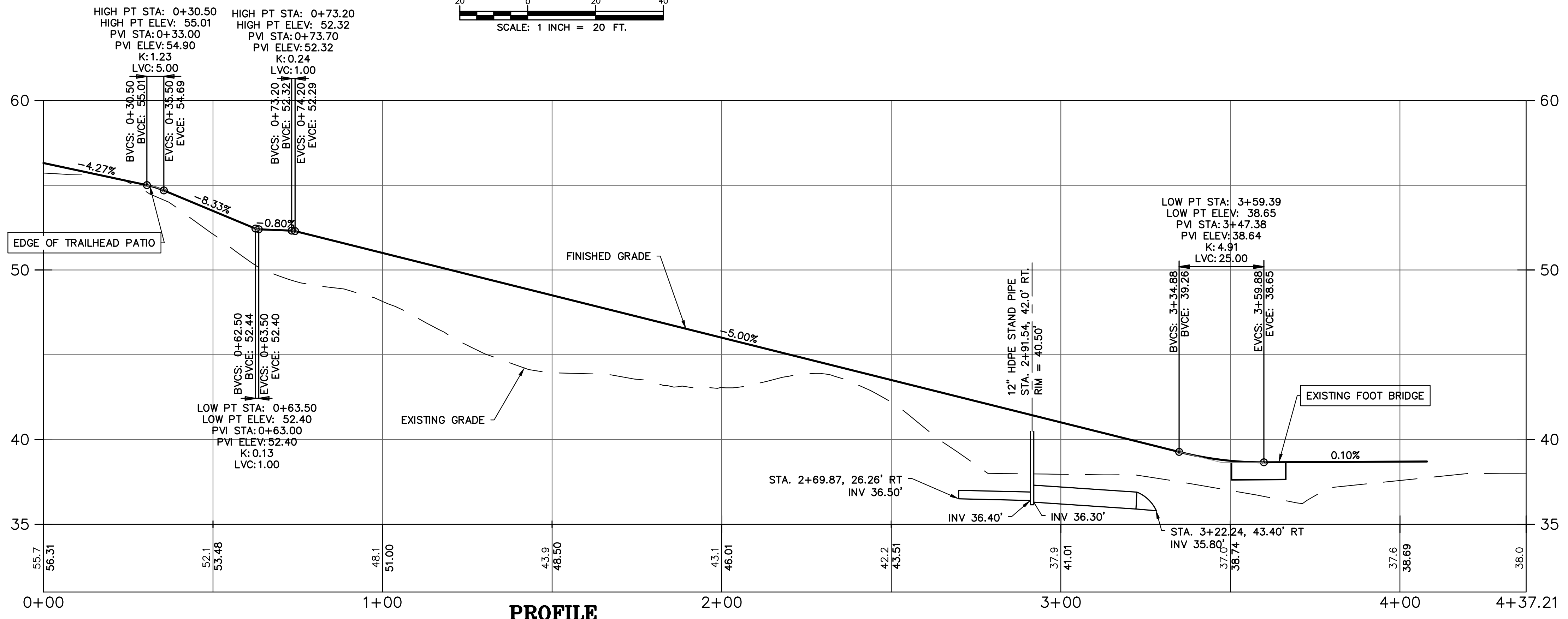
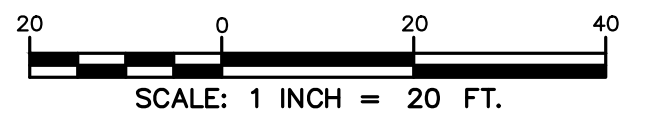
**COMMUNITY TRAIL
PHASE III
PLAN AND PROFILE**
CITY OF DOVER
NEW HAMPSHIRE

SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG.

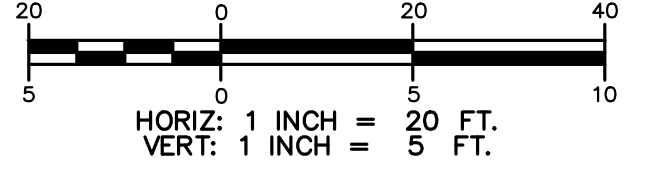
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PLAN



PROFILE



NO.	DATE	DESIGNED:	CHECKED:	APPROVED:
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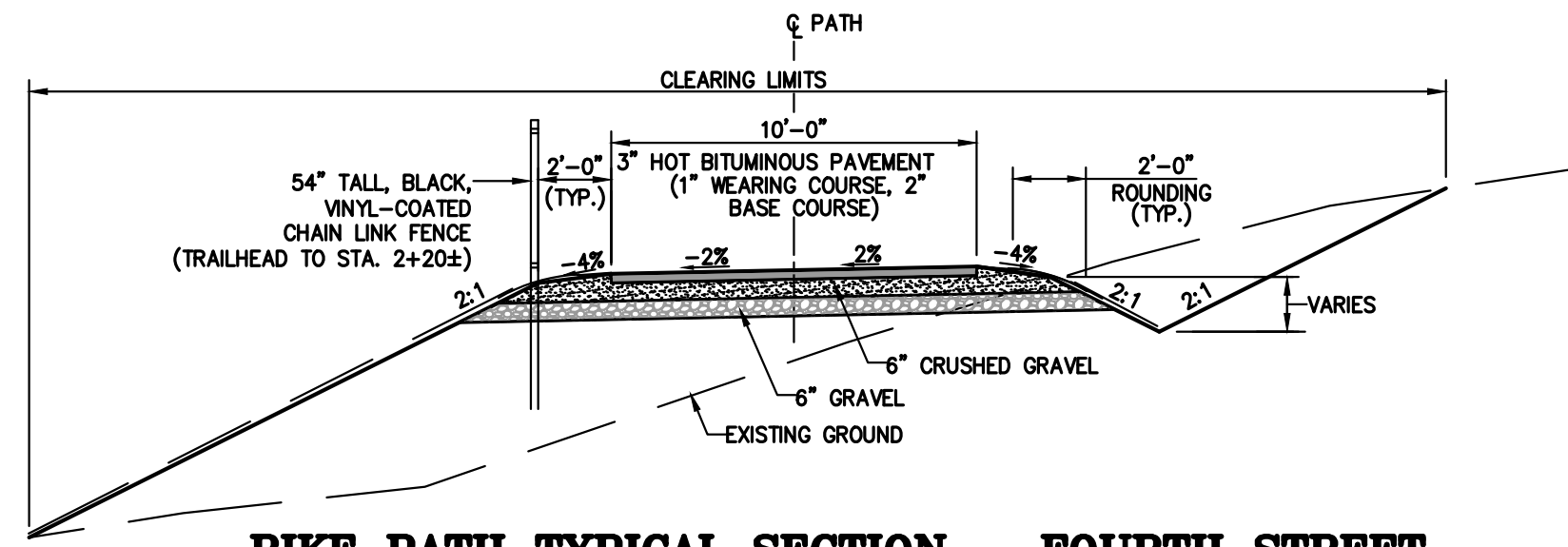
STATE OF NEW HAMPSHIRE
 RICHARD R. LUNN, JR.
 No. 10843
 LICENSED PROFESSIONAL ENGINEER

CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

**COMMUNITY TRAIL
 PHASE III
 FOURTH ST. PLAN/PROFILE**
 CITY OF DOVER
 NEW HAMPSHIRE

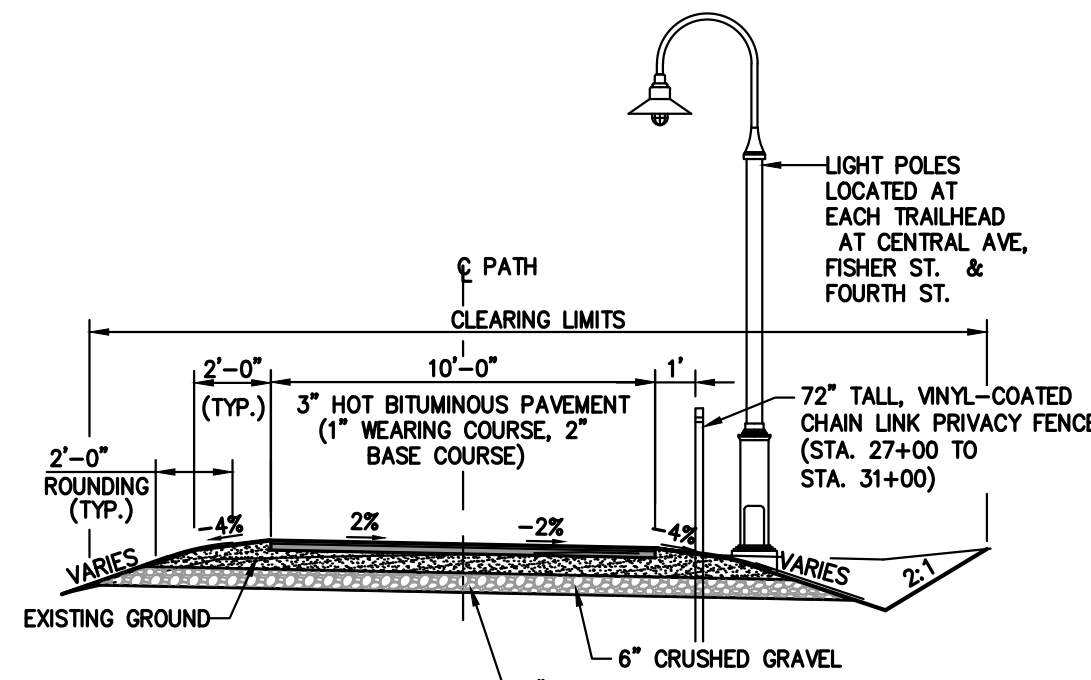
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DATE: APRIL 1, 2019	DWG. 06

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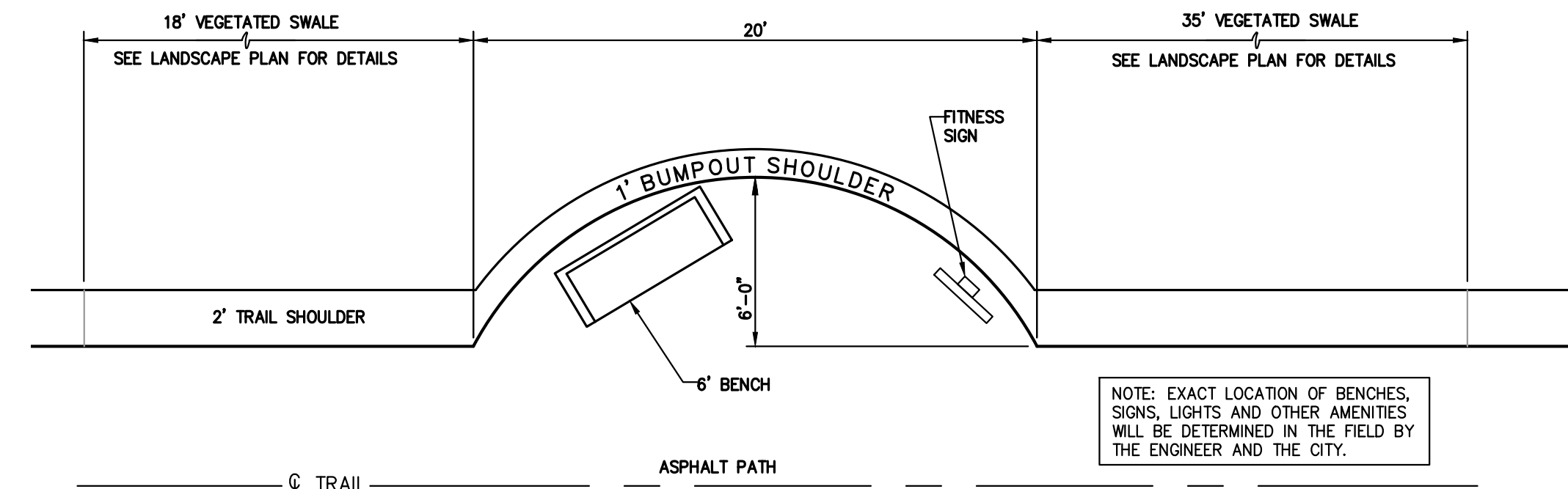
BIKE PATH TYPICAL SECTION - FOURTH STREET

STA. 0+35± TO STA. 1+25
SCALE: 1" = 5'



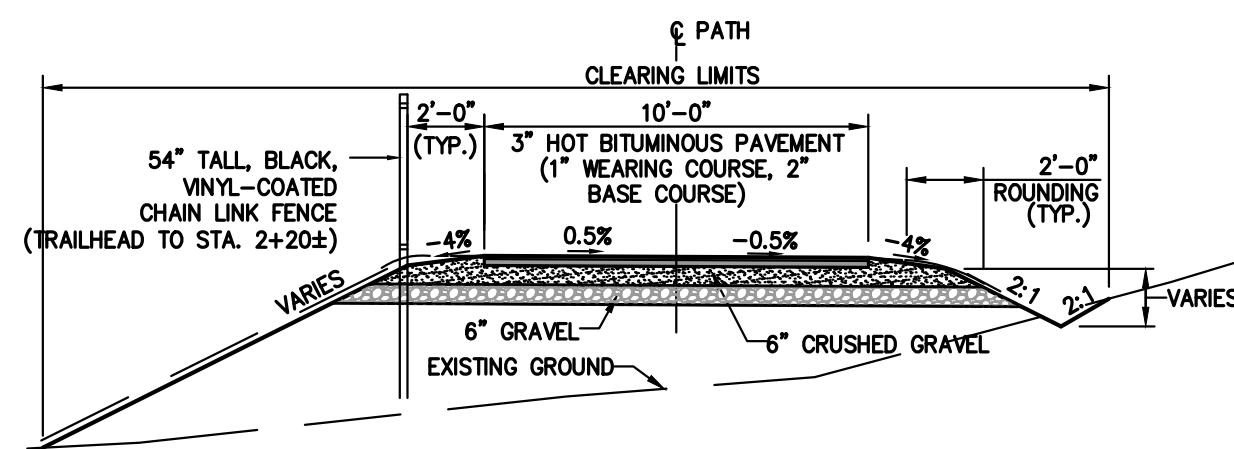
BIKE PATH TYPICAL SECTION

STA. 16+25± TO STA. 30+50
SCALE: 1" = 5'



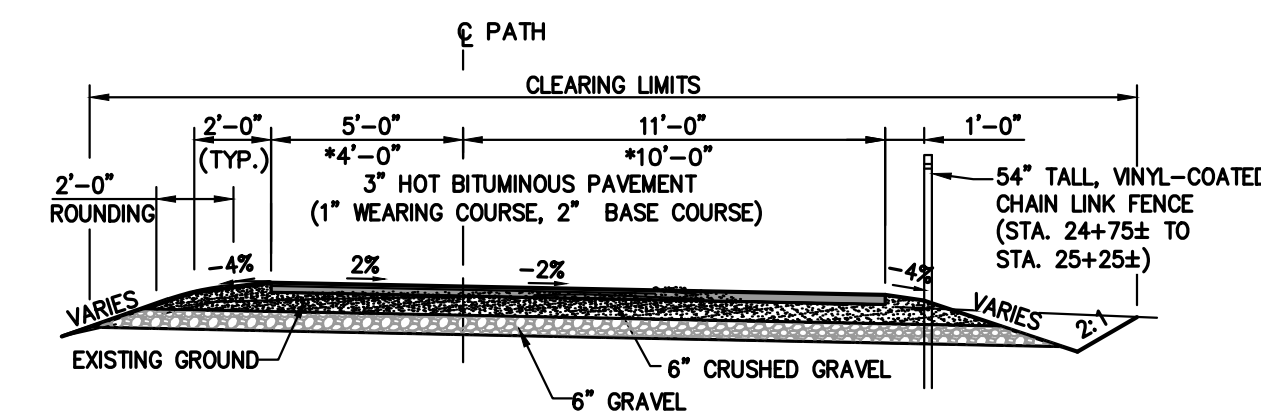
TRAIL BUMPOUT DETAILS

SCALE: 1" = 5'



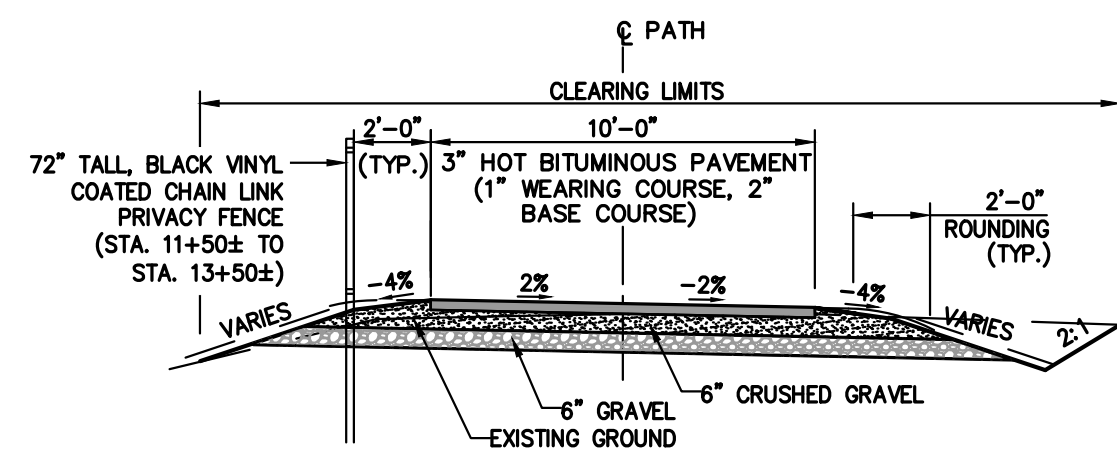
BIKE PATH TYPICAL SECTION - FOURTH STREET

STA. 1+30± TO STA. 3+40±
SCALE: 1" = 5'



BIKE PATH TYPICAL SECTION W/REST AREA

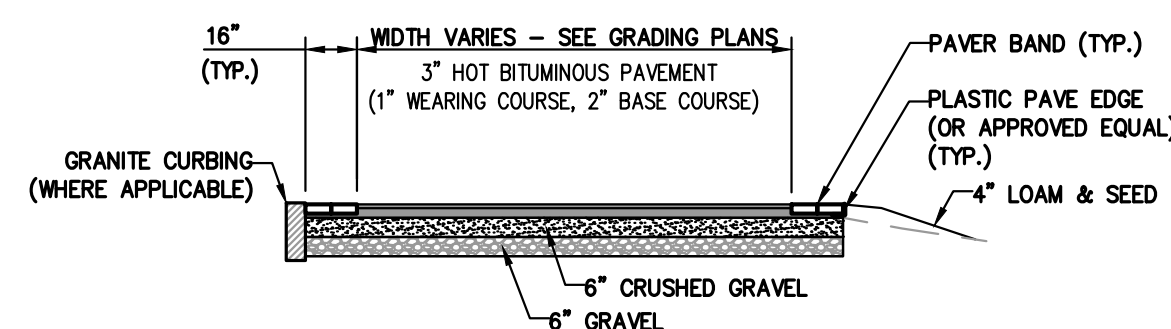
STA. 12+65±, 15+90±, 19+00, 22+00, 25+00, 28+00
SCALE: 1" = 5'



BIKE PATH TYPICAL SECTION

STA. 10+20± TO STA. 12+75
SCALE: 1" = 5'

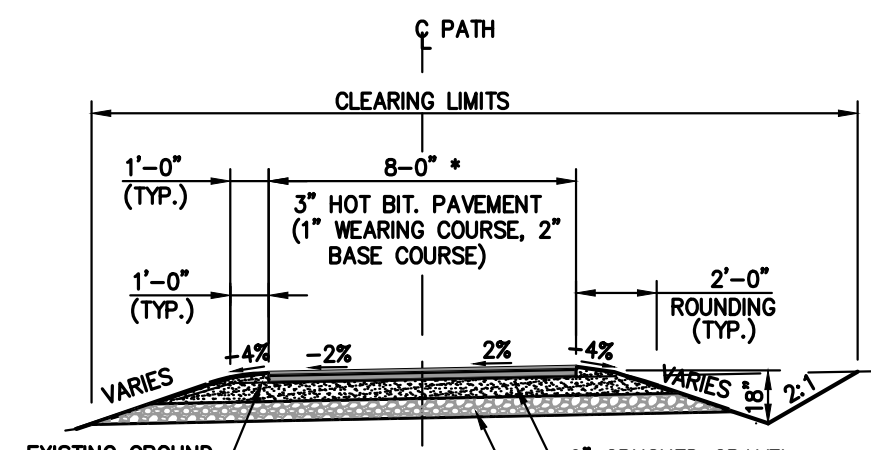
* REMOVE VEGETATION, STUMPS AND ORGANIC MATERIALS WITHIN LIMITS OF CLEARING. DO NOT EXCAVATE FOR SUBBASE MATERIALS WHERE EXISTING MATERIAL IS SUITABLE AS DETERMINED BY THE ENGINEER.



BIKE PATH TYPICAL TRAILHEAD SECTION

SCALE: 1" = 5'

NOTES: 1. PAVER JOINTS SHALL BE HAND SWEEPED WITH POLYMERIC SAND.
2. SEE LANDSCAPE PLANS FOR PAVER LAYOUT.



BIKE PATH TYPICAL SECTION

STA. 13+00 TO STA. 16+00
SCALE: 1" = 5'

* WIDTH TRANSITION: STA. 12+75 TO STA. 13+00, STA. 16+00 TO STA. 16+25
SUPERELEVATION TRANSITION: STA. 12+75 TO STA. 13+00, STA. 16+00 TO STA. 16+25

NO.	DATE	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19	PNG/RRL	JLF	RRL
CONSTRUCTION DOCUMENTS				

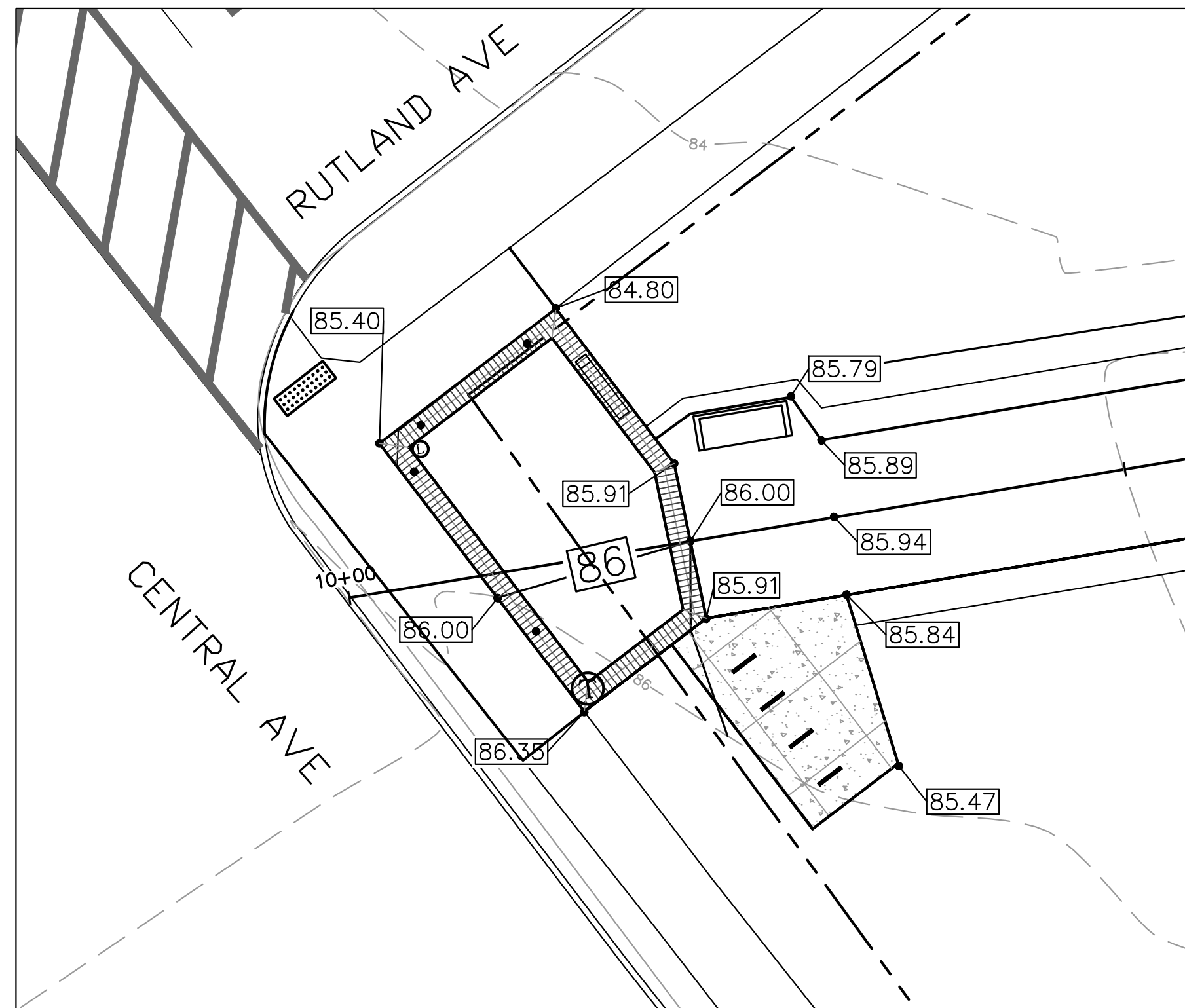
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 540 BETHLEHEM STREET, SUITE 1
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDY
 LICENSED PROFESSIONAL ENGINEER
 No. 10833

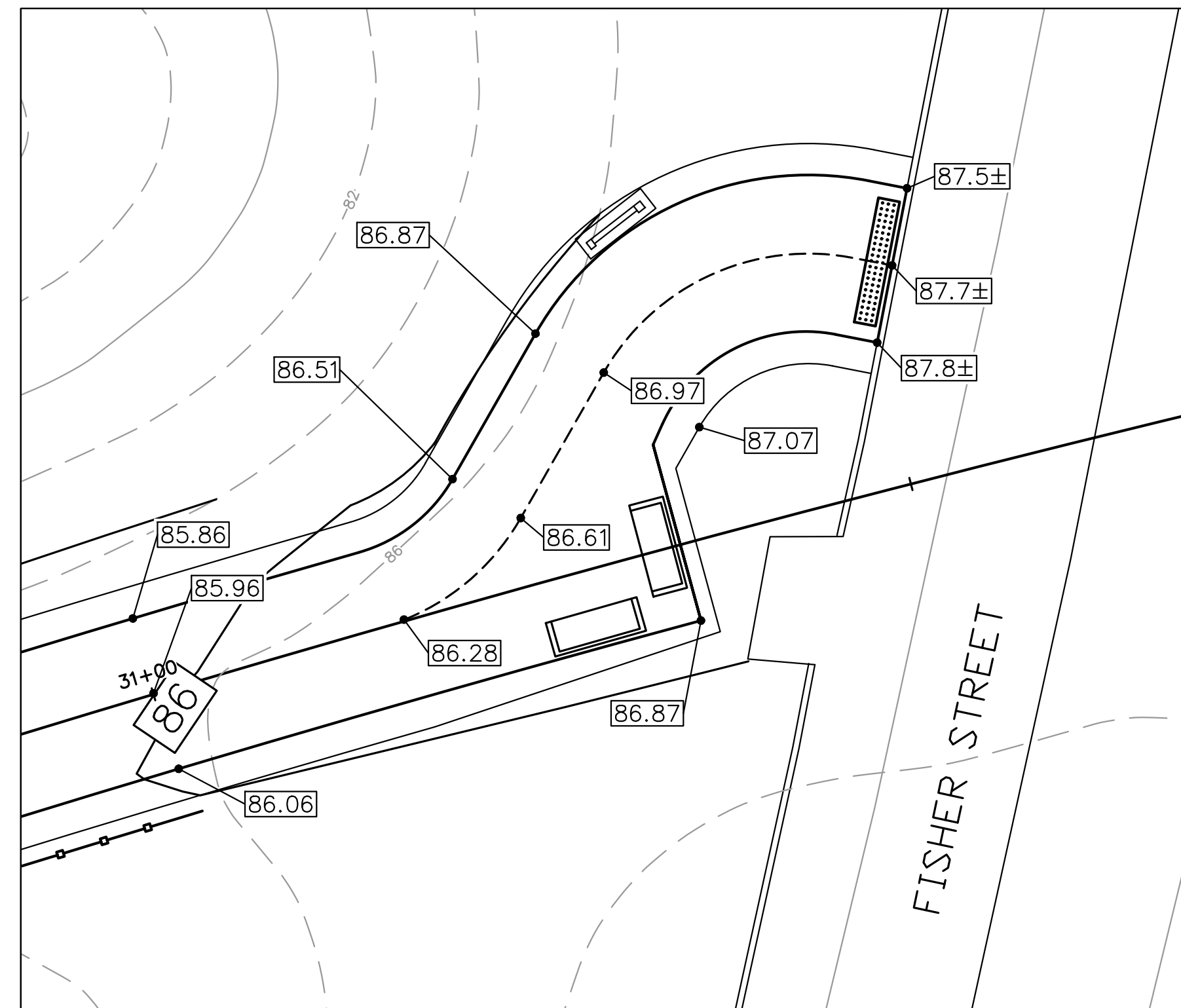
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

CLIENT:
 COMMUNITY TRAIL
 PHASE III
 TYPICAL SECTIONS
 CITY OF DOVER
 NEW HAMPSHIRE

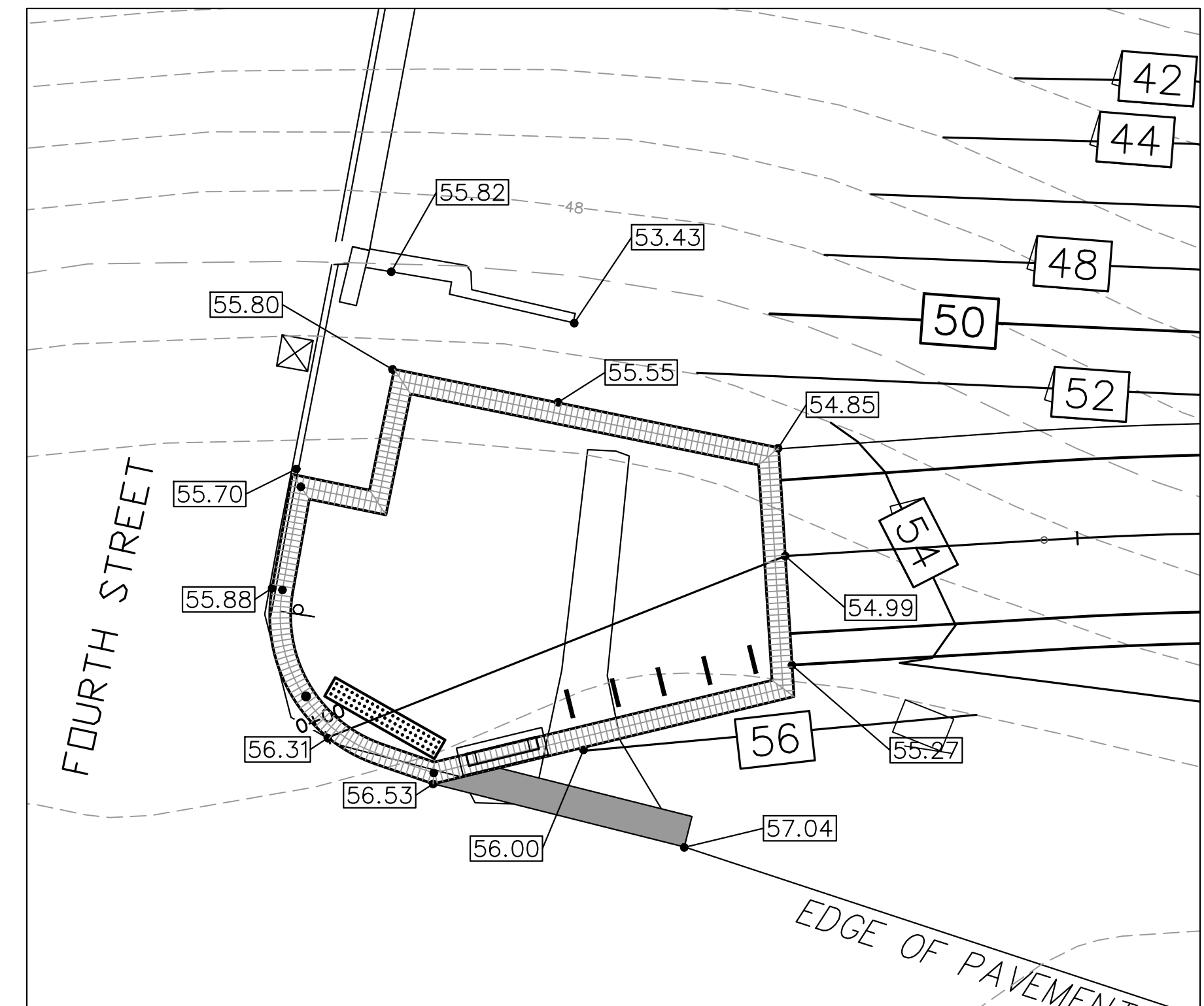
SCALE:	JOB NO.
AS NOTED	16-0109
DATE:	DWG.
APRIL 1, 2019	C7



GRADING PLAN - CENTRAL AVENUE TRAILHEAD



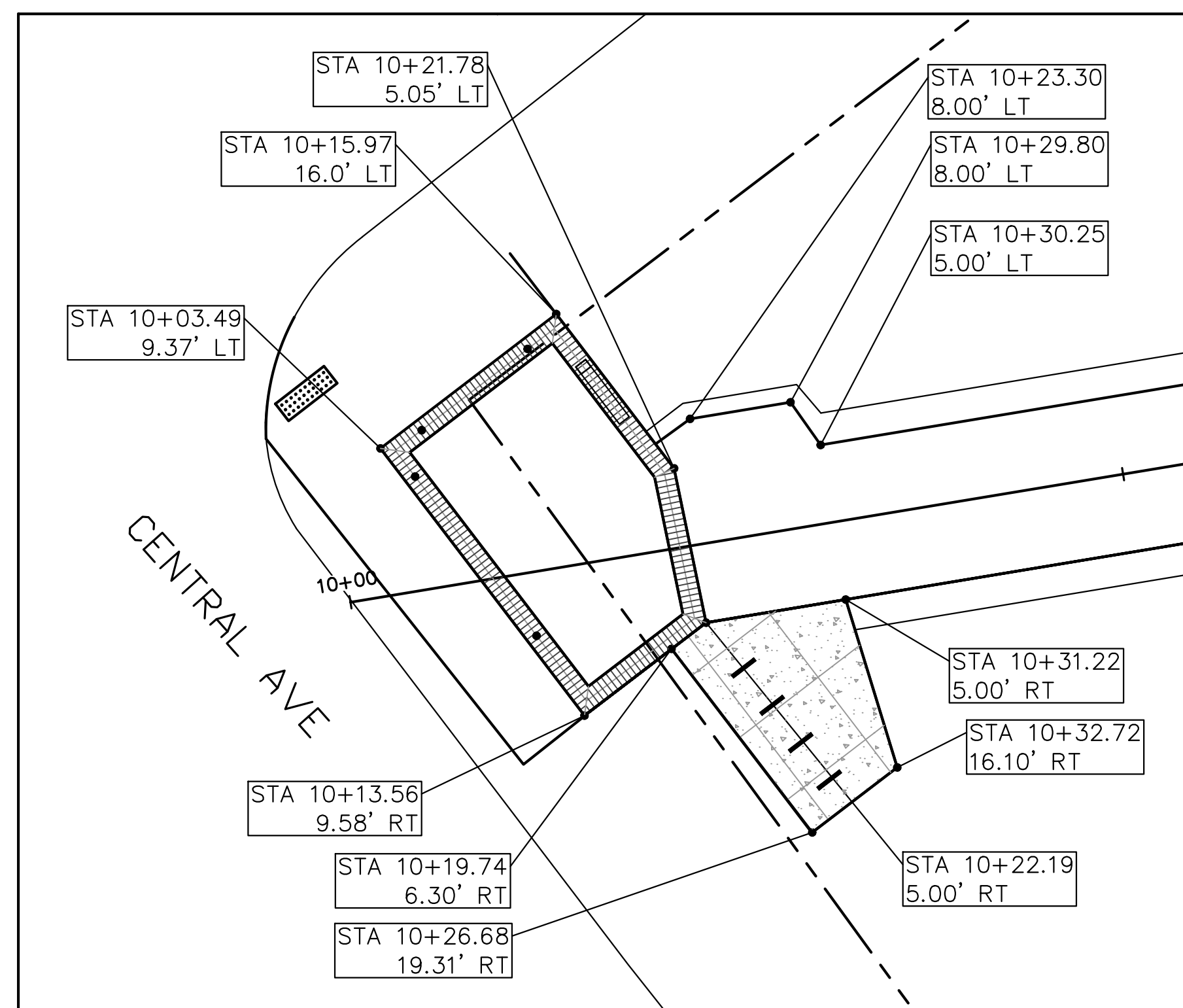
GRADING PLAN - FISHER STREET TRAILHEAD



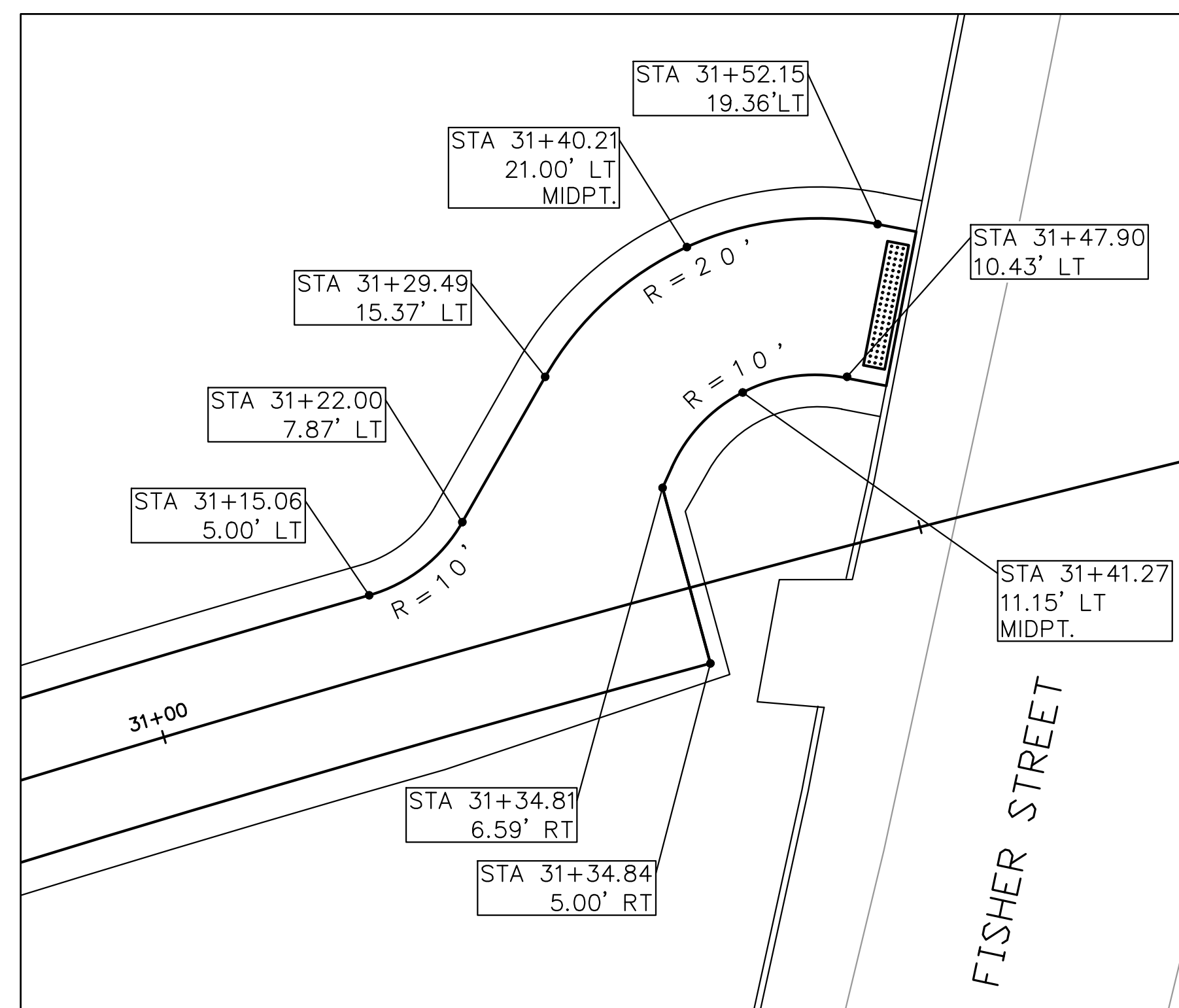
GRADING PLAN - FOURTH STREET TRAILHEAD

NOTES:

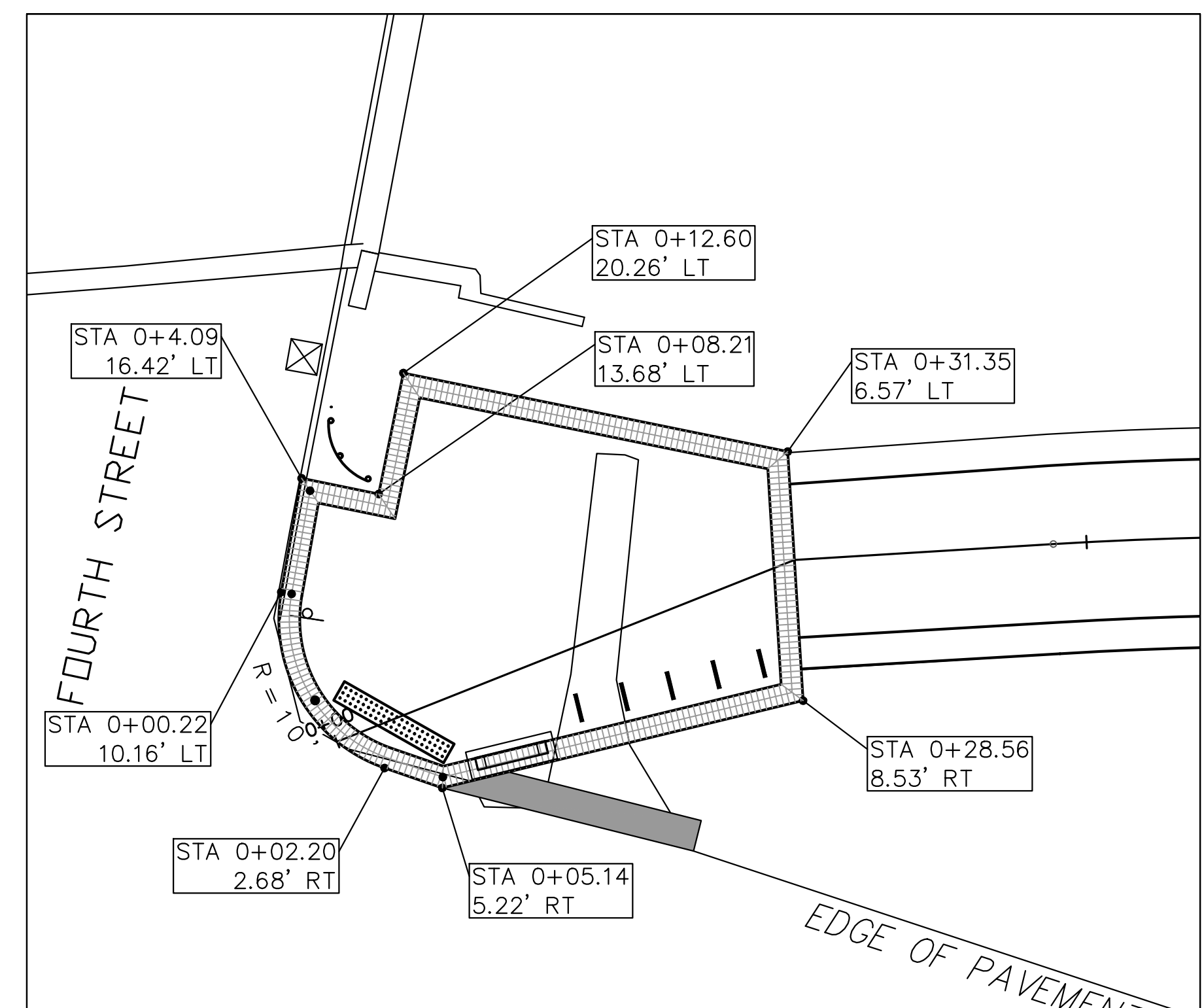
1. EXACT LOCATIONS OF BENCHES, LIGHTS, TRASH RECEPTACLES, BIKE RACKS AND SIGNS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER AND THE CITY.
2. COORDINATES/CONSTRUCTION LAYOUT FOR THE TRAILHEADS WILL BE PROVIDED DURING CONSTRUCTION.



GEOMETRIC PLAN - CENTRAL AVENUE TRAILHEAD



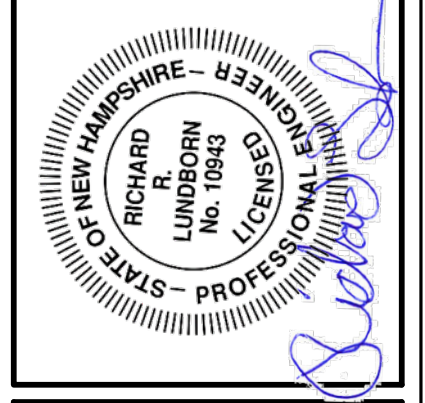
GEOMETRIC PLAN - FISHER STREET TRAILHEAD



GEOMETRIC PLAN - FOURTH STREET TRAILHEAD

NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
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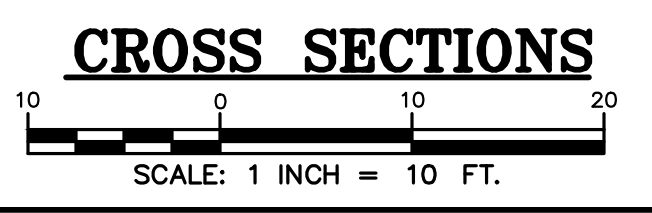
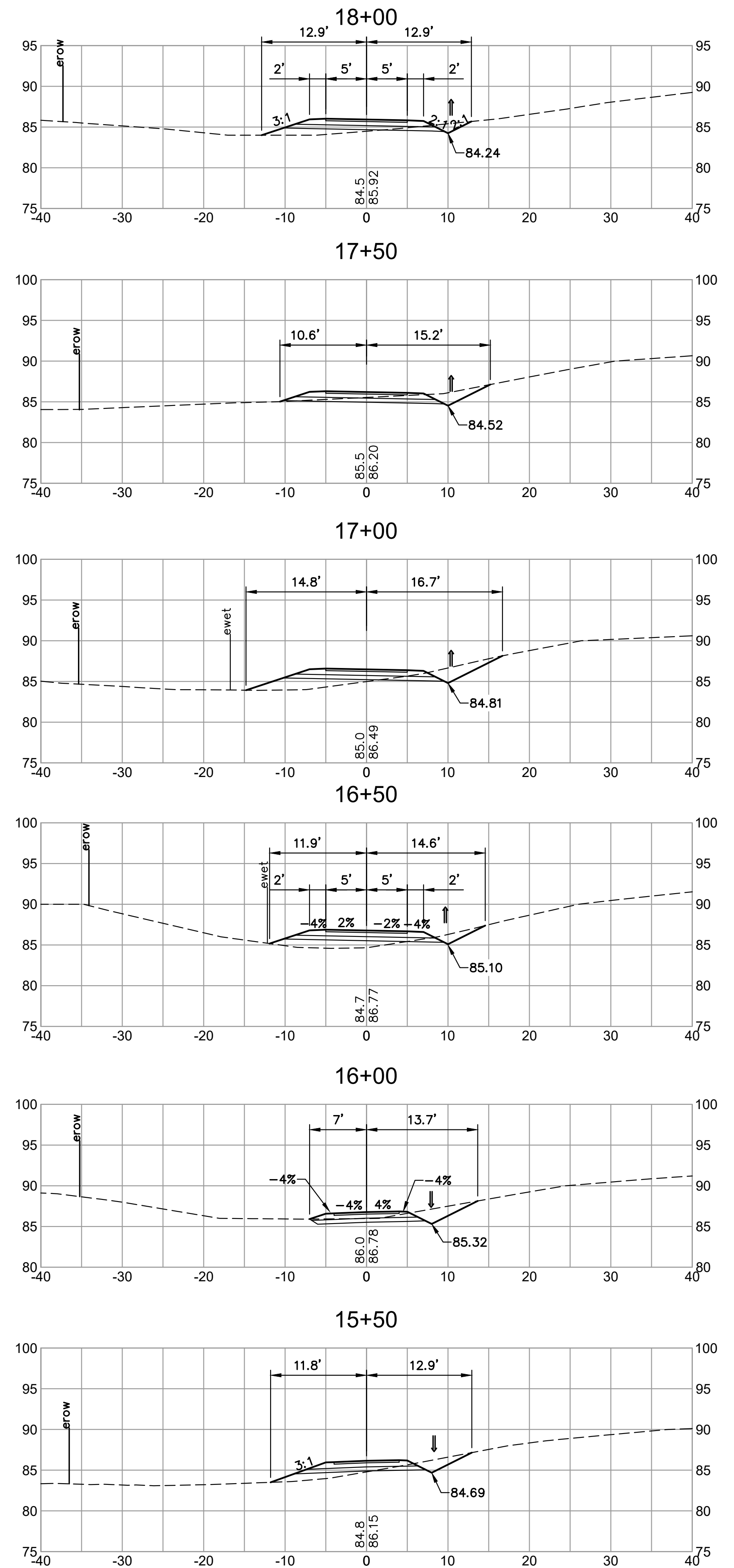
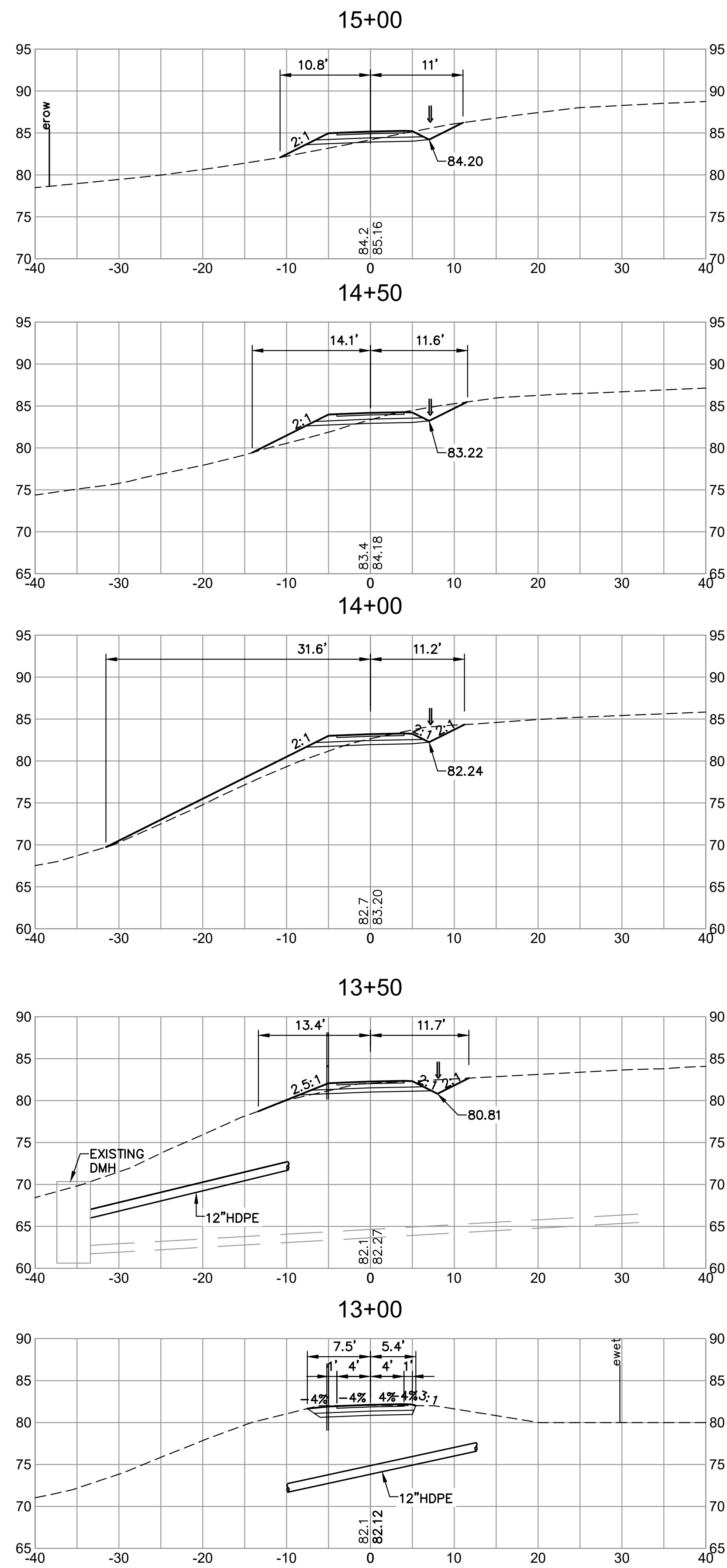
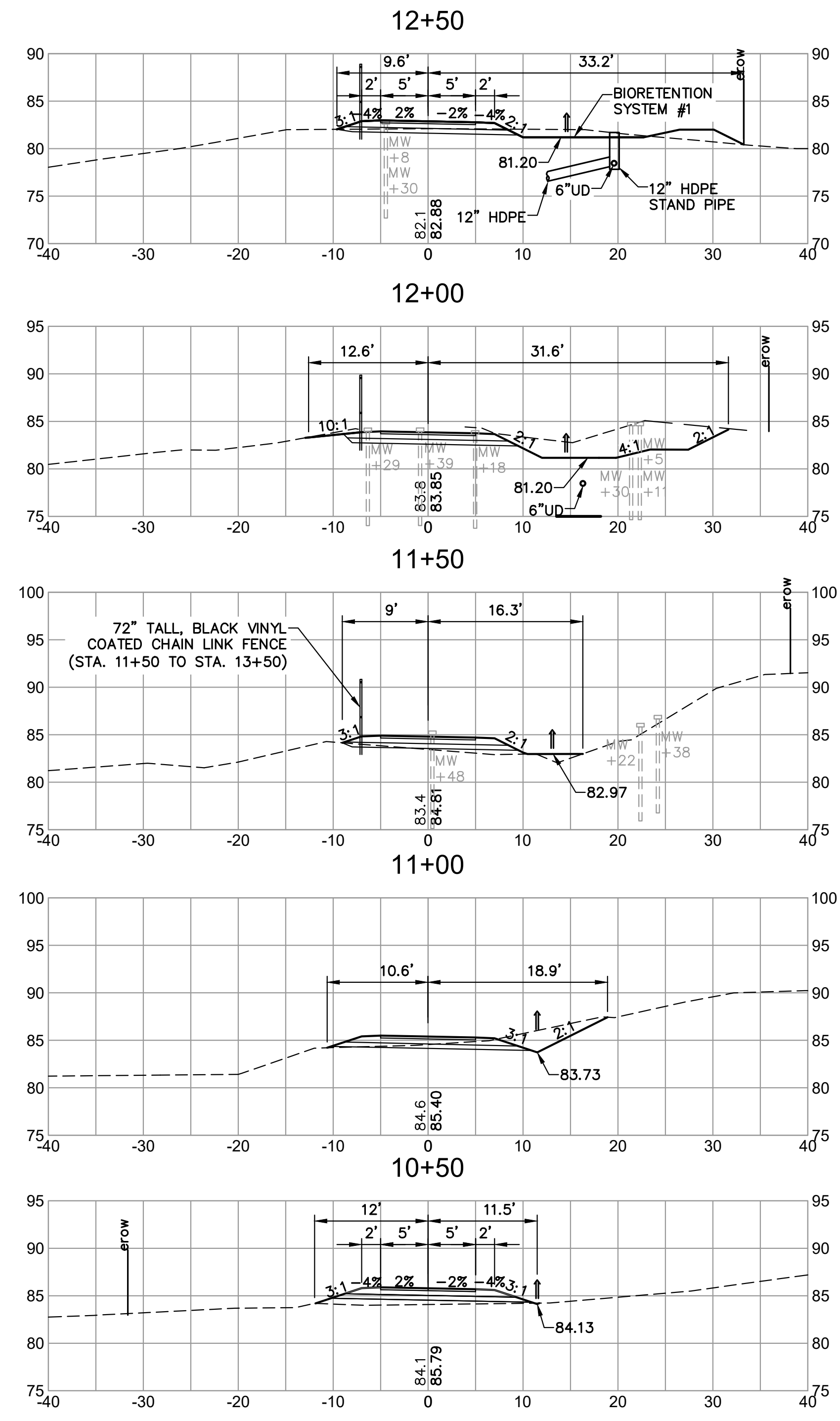
CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

**COMMUNITY TRAIL
 PHASE III
 TRAILHEAD GRADING PLANS**
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: 3"=1'-0"	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C8

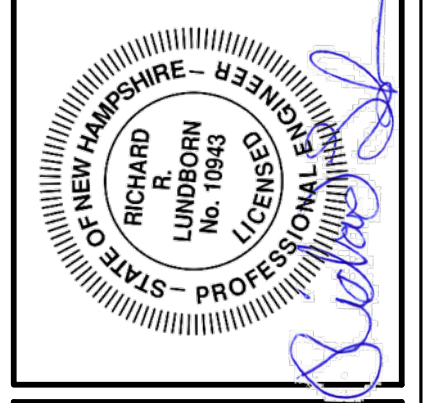
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CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/19
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CHECKED: JLF	APPROVED: RRL

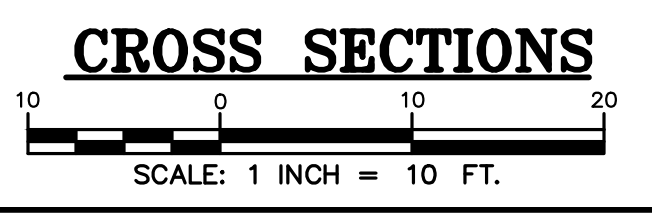
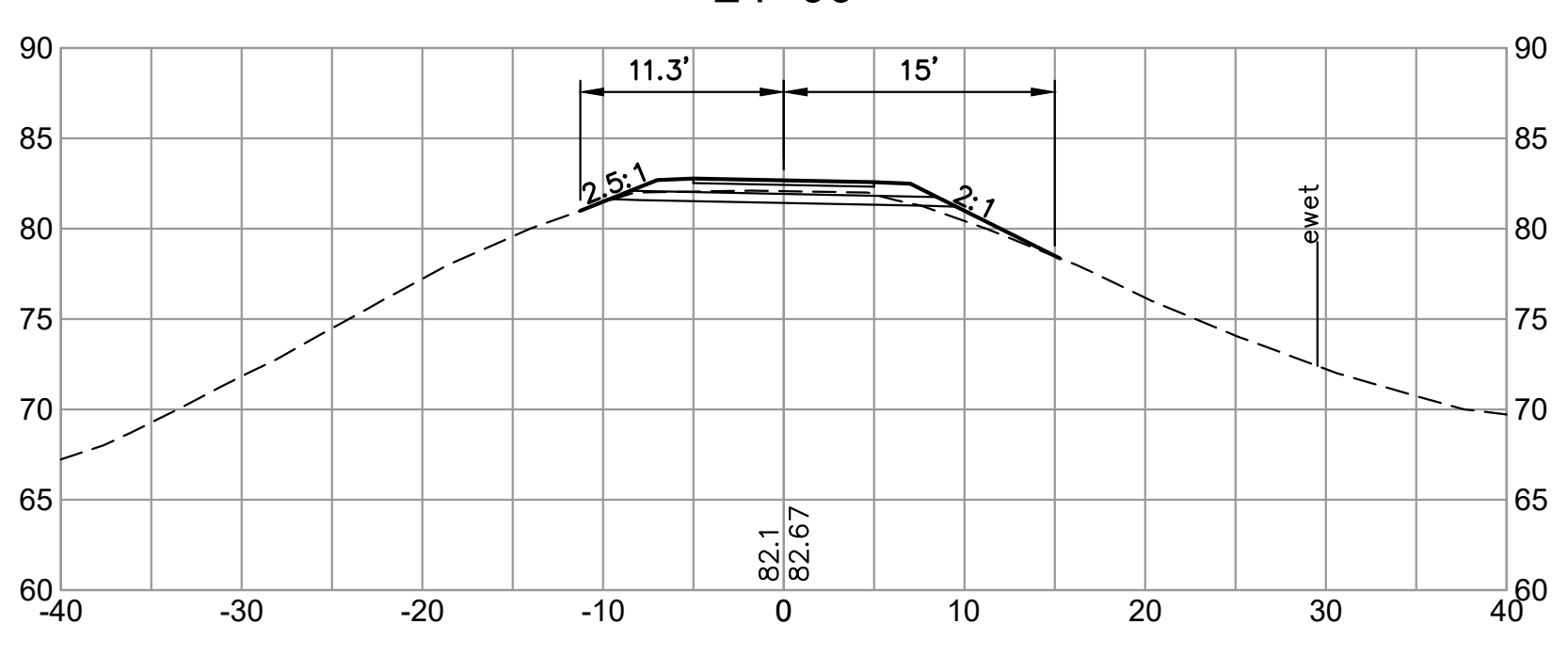
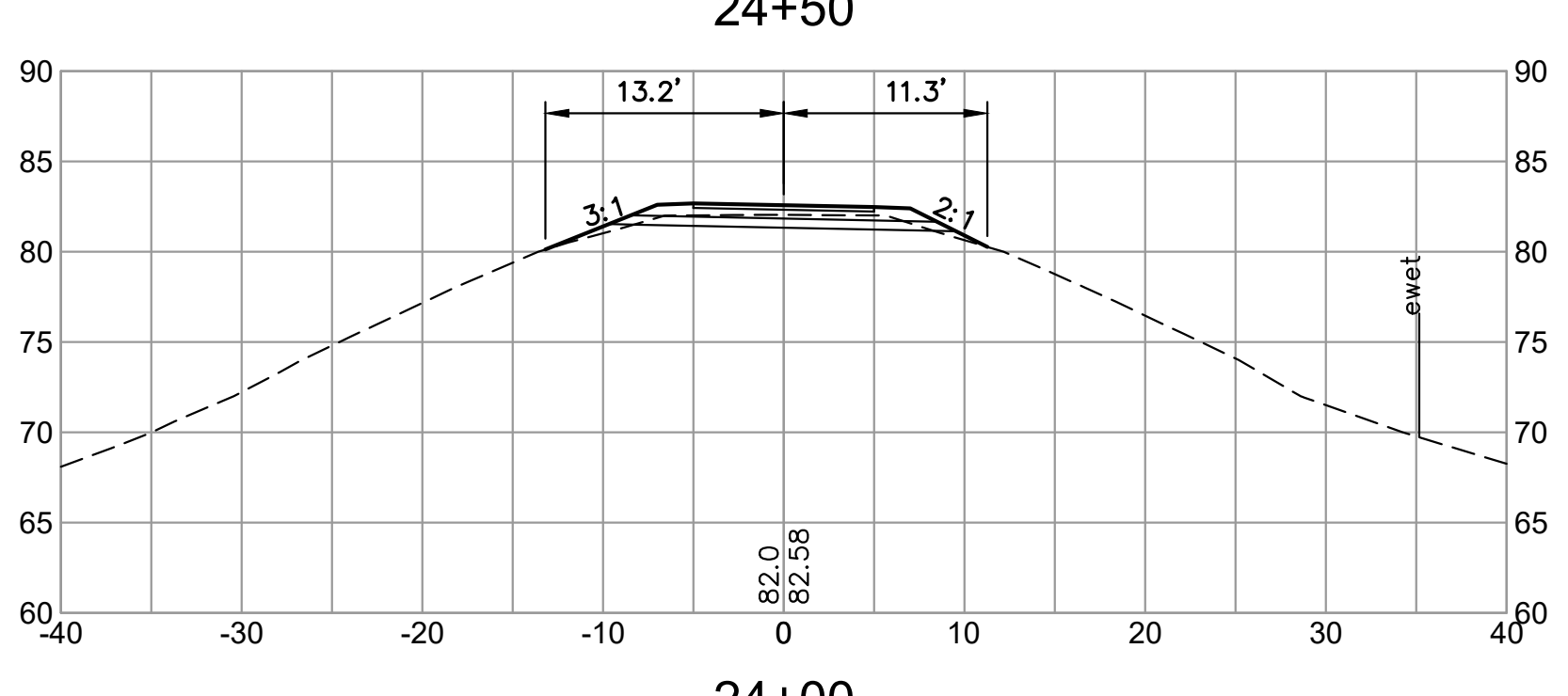
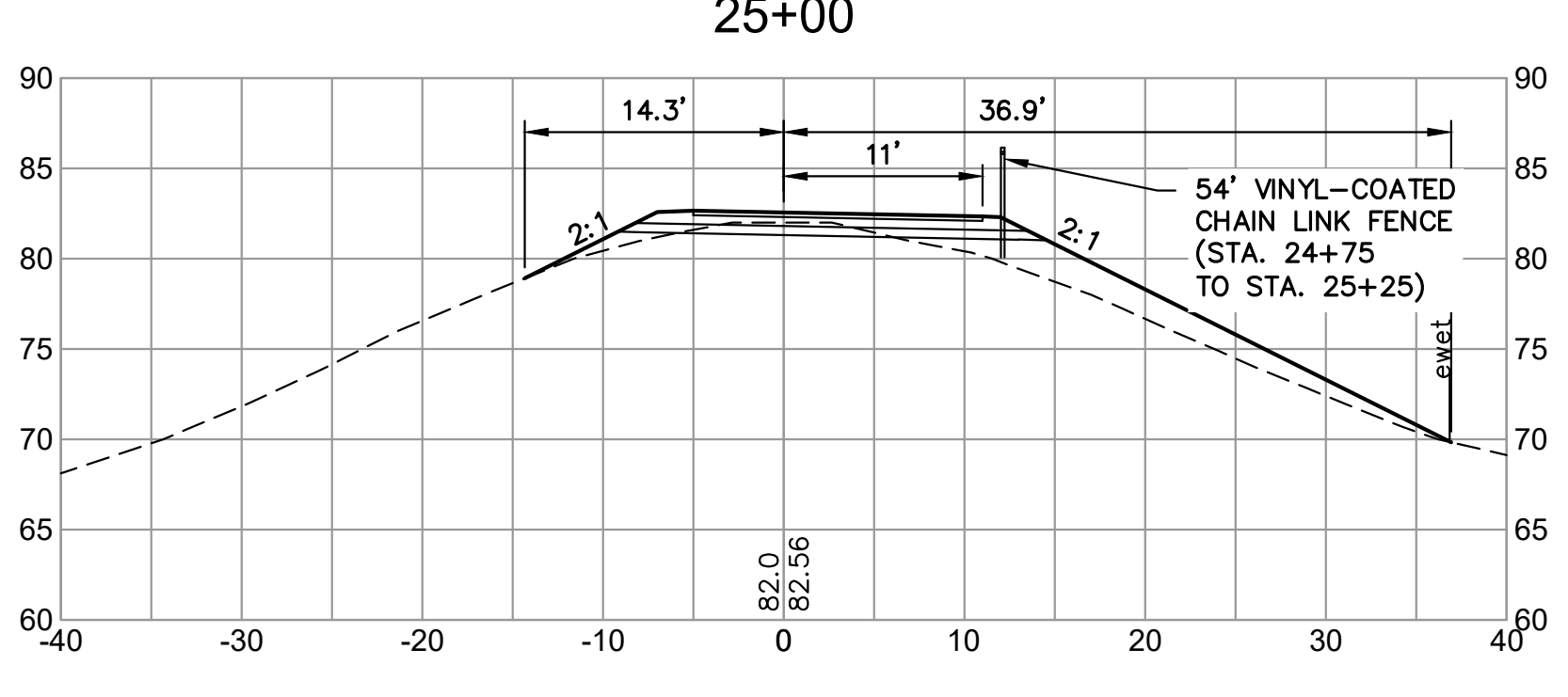
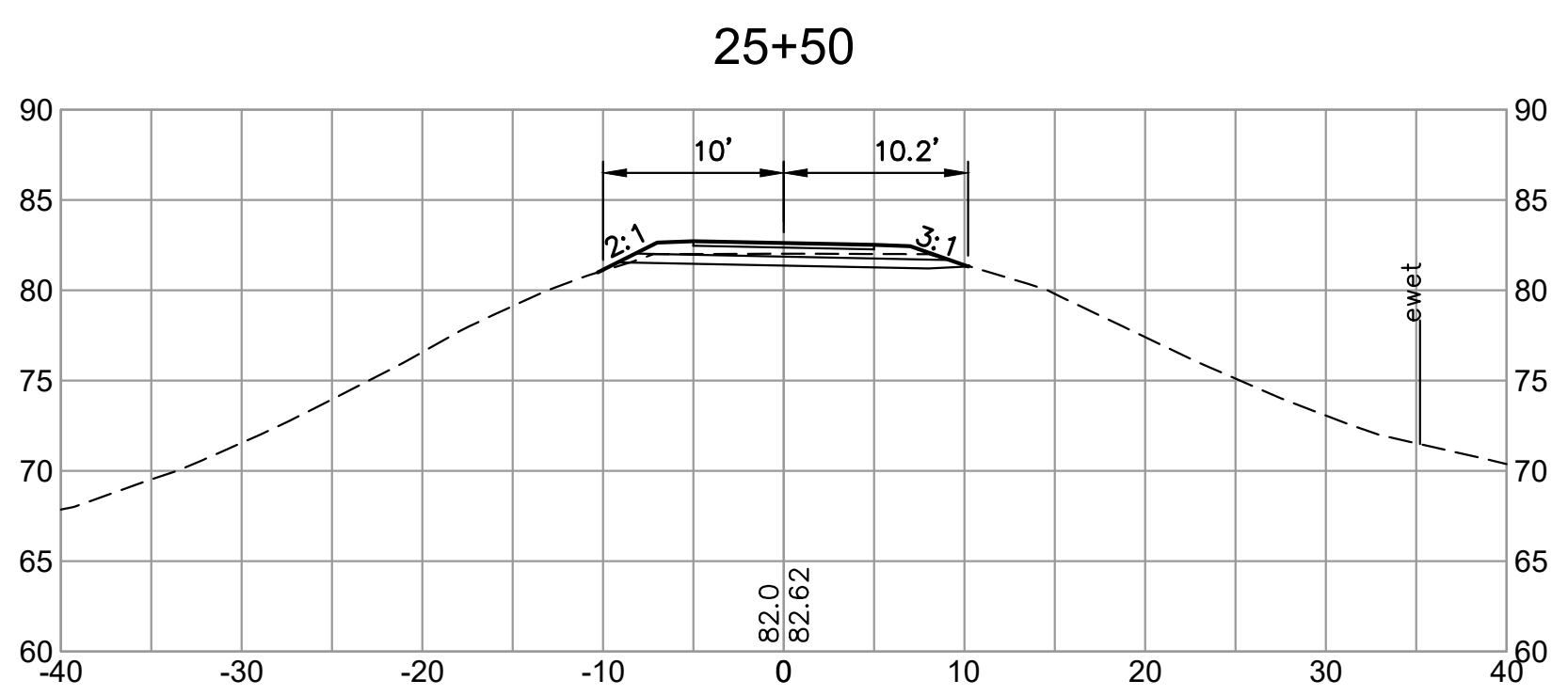
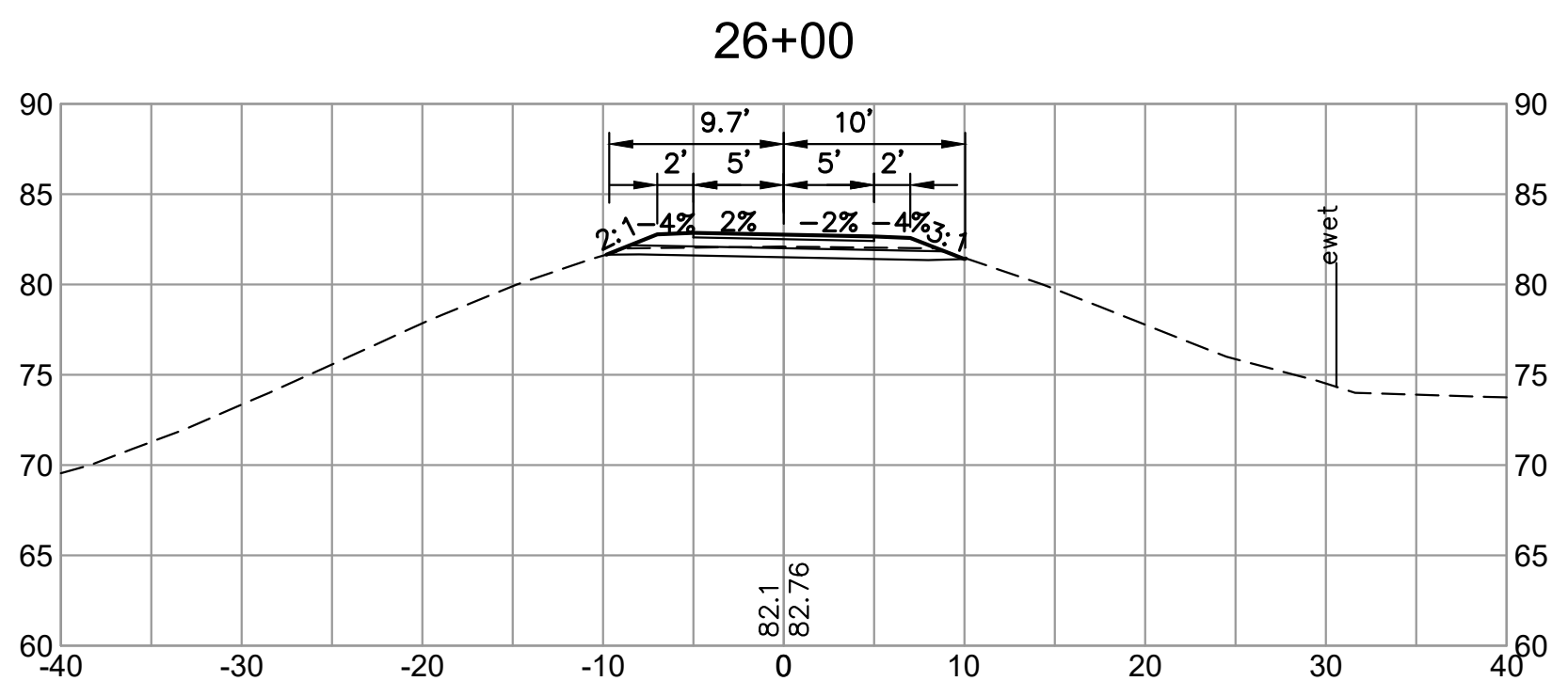
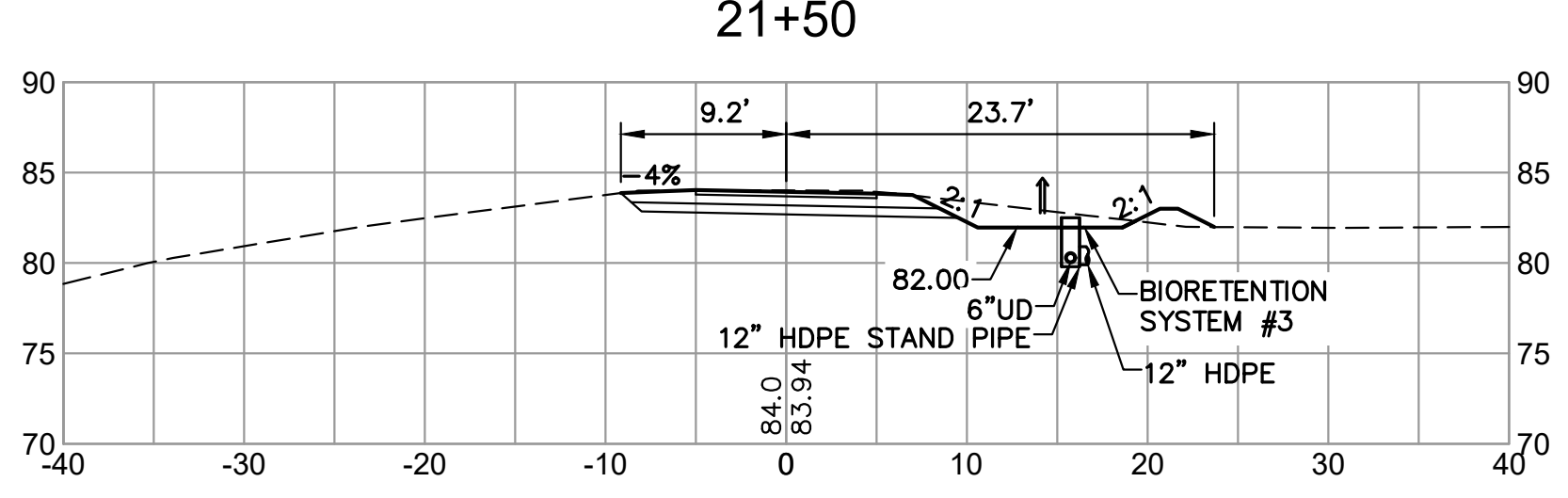
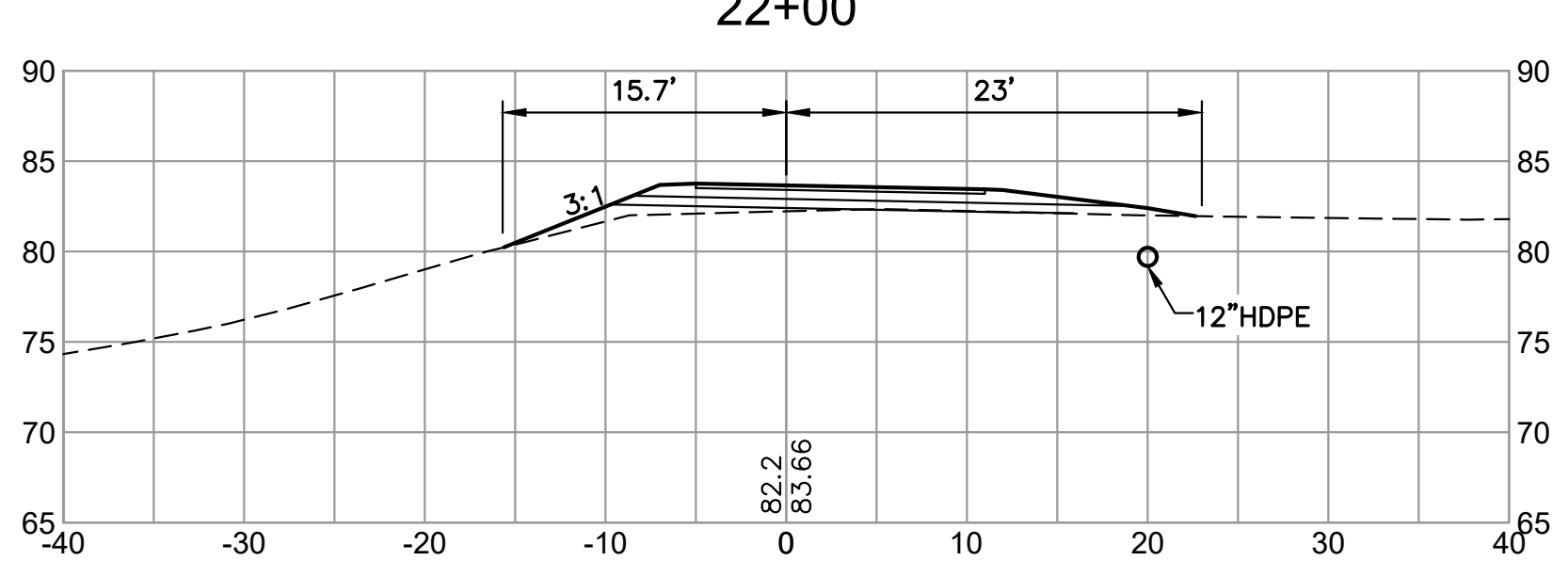
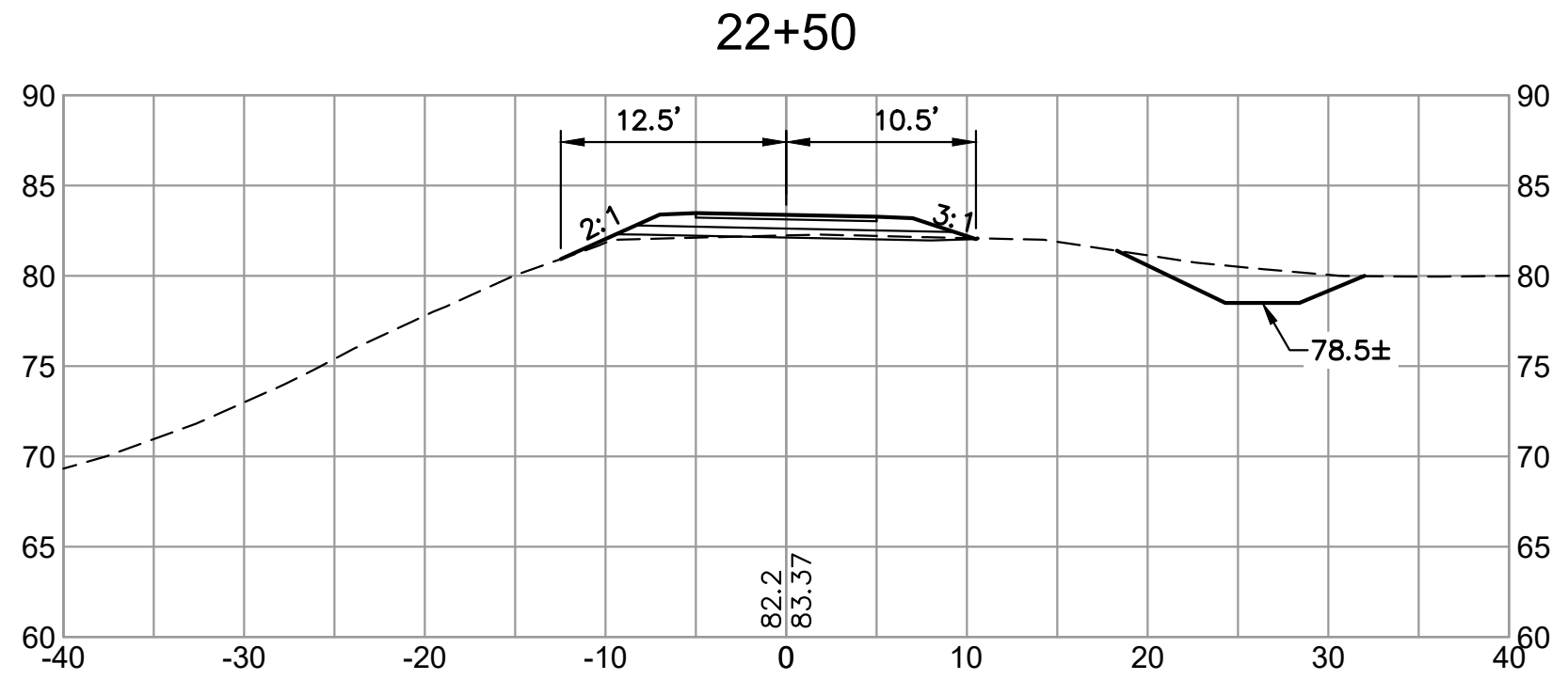
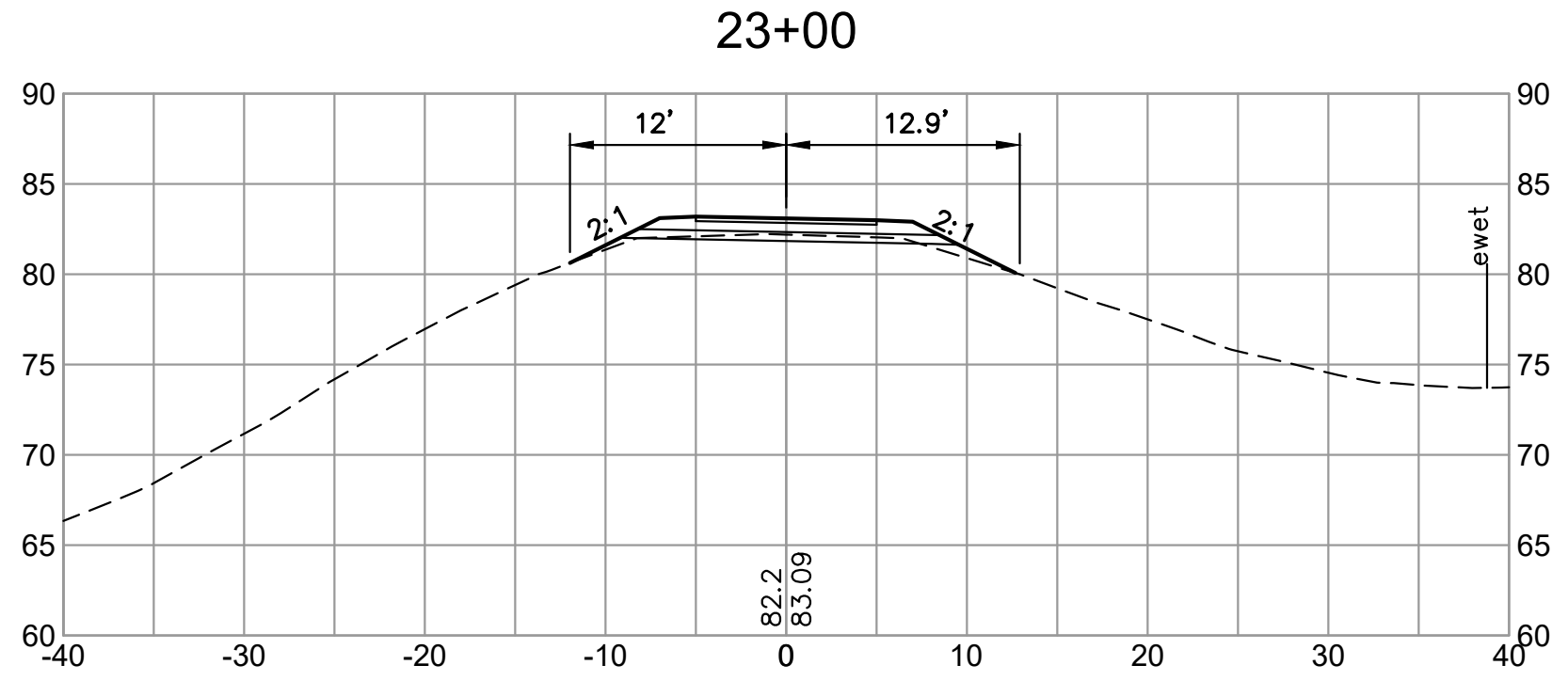
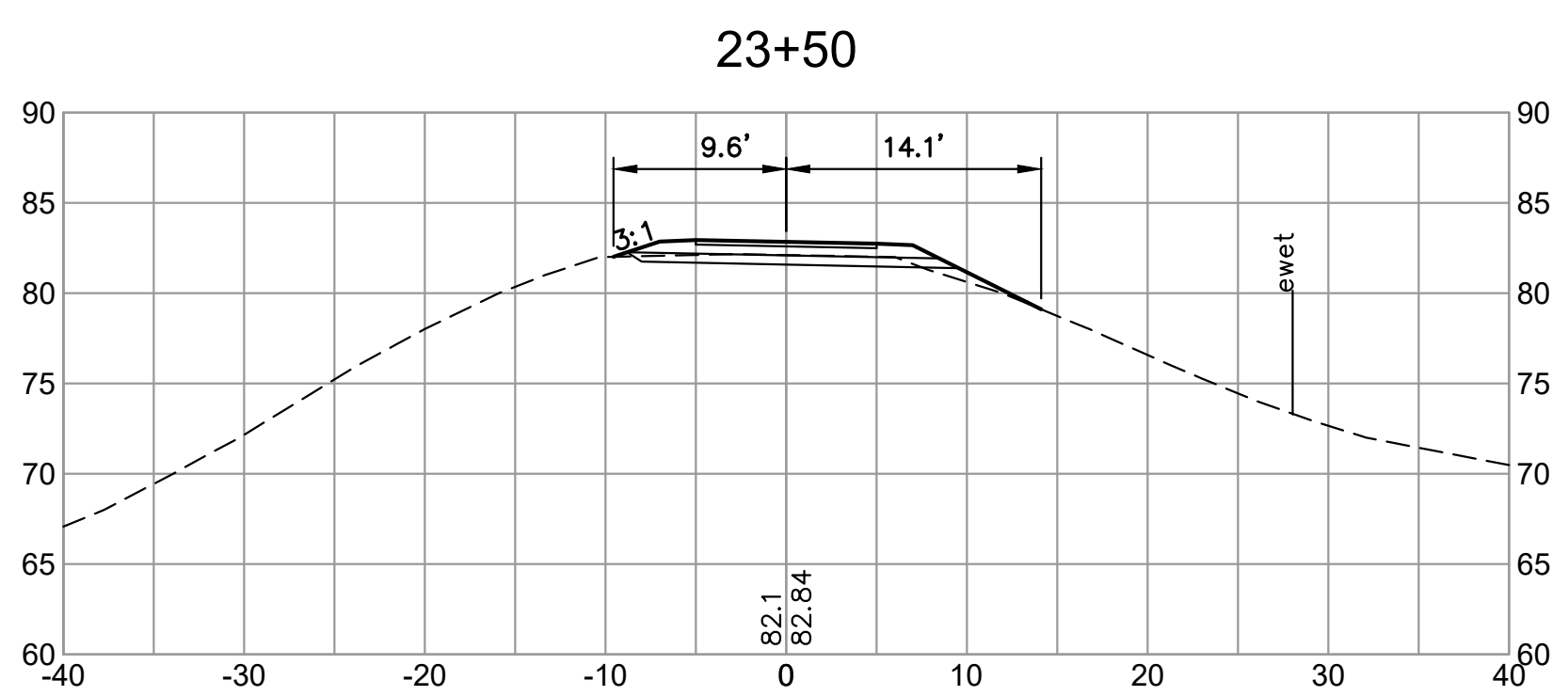
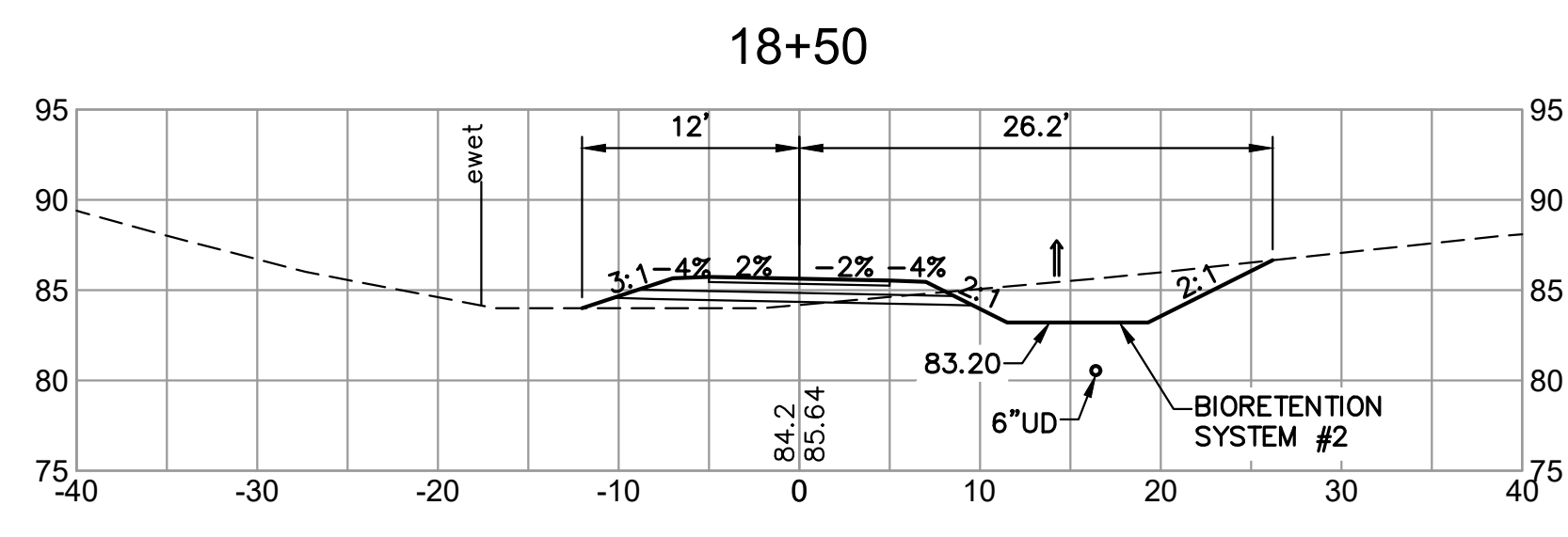
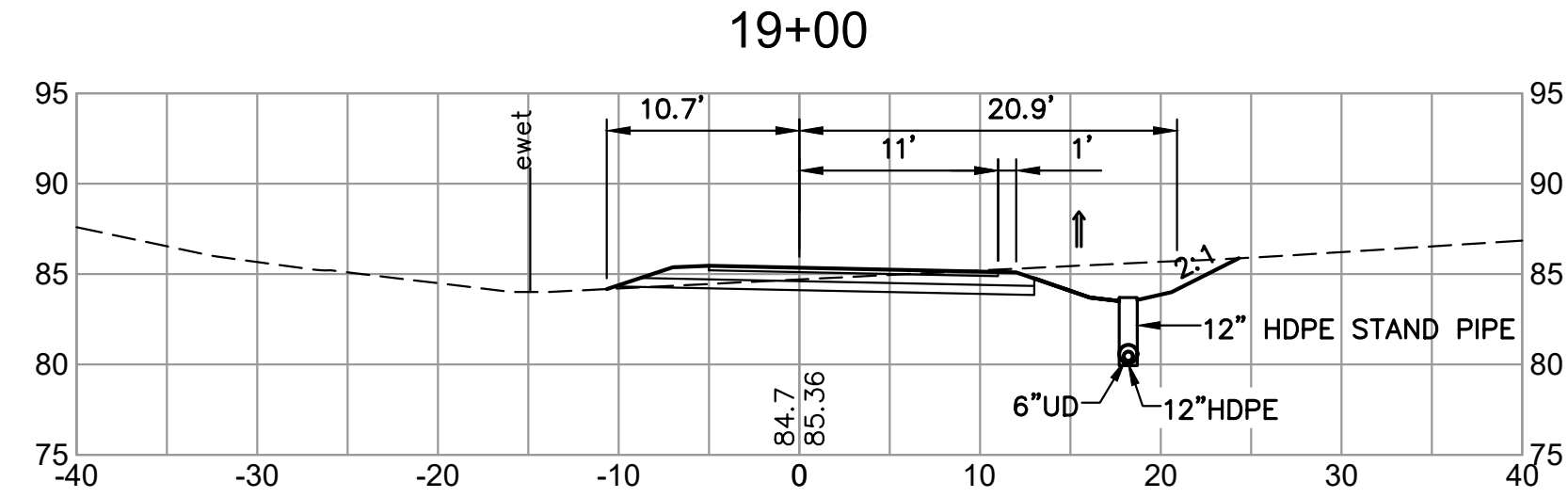
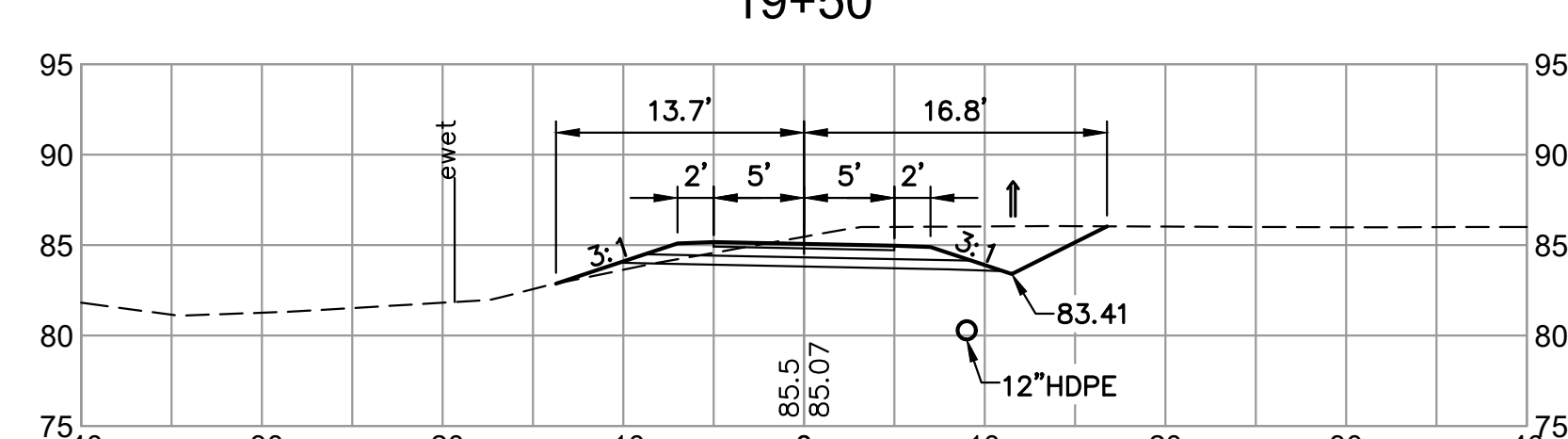
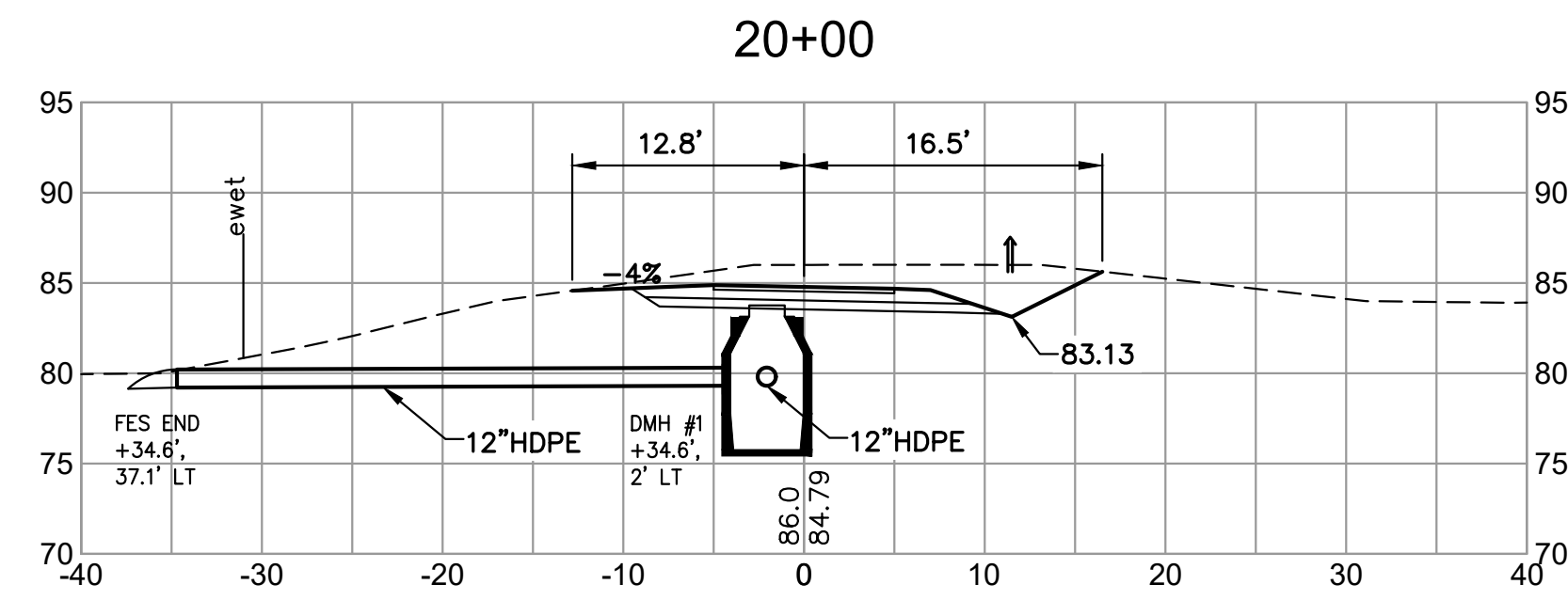
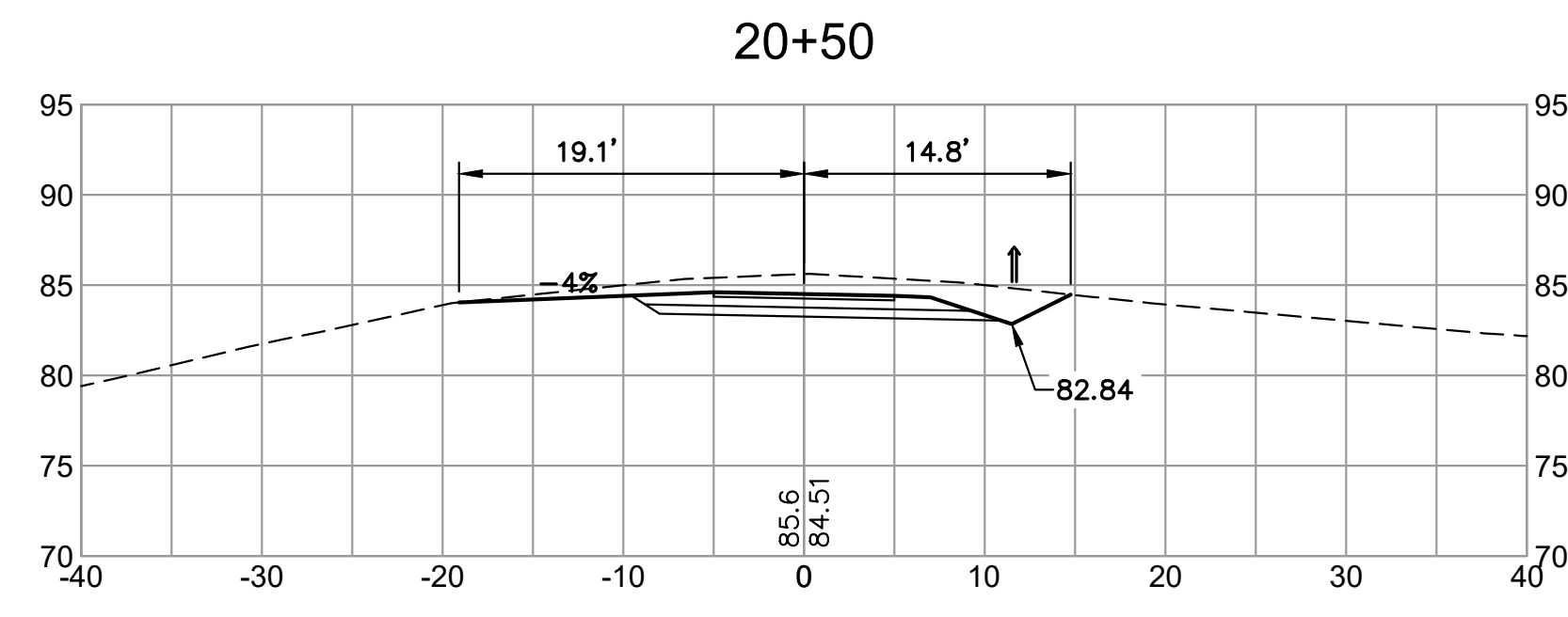
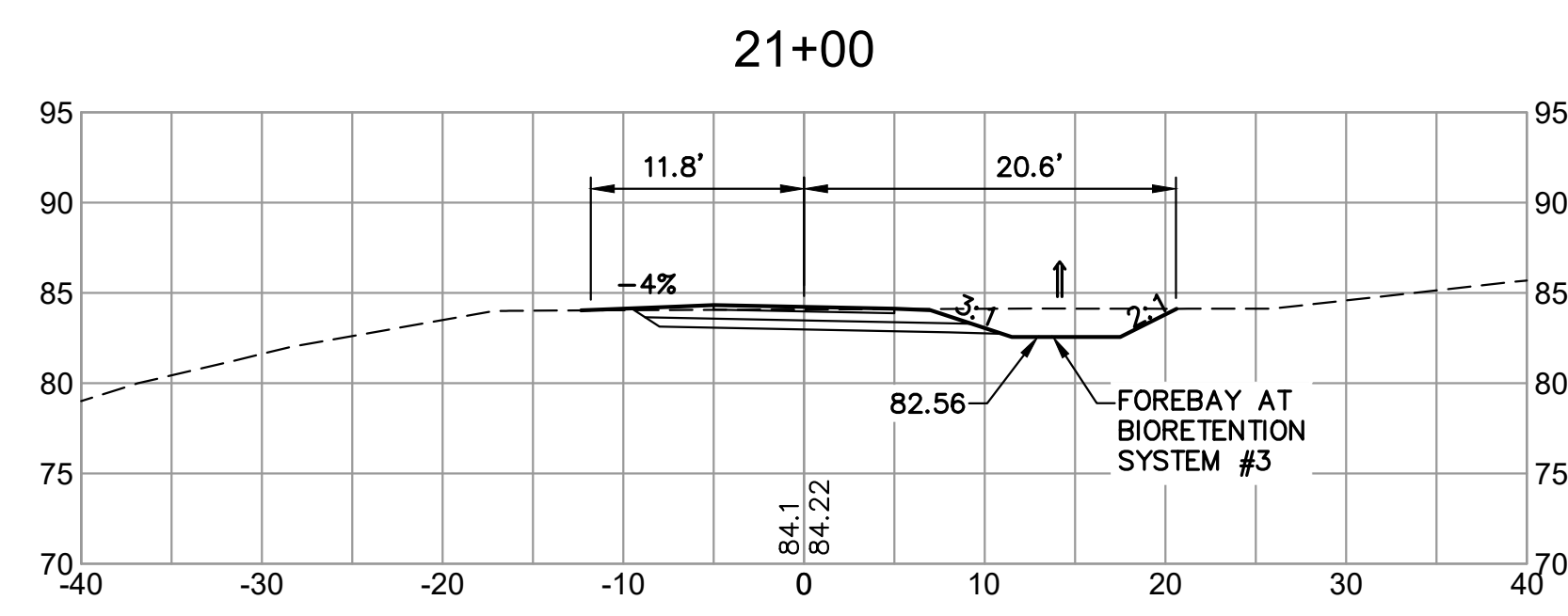
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 KENNEDYVILLE, MAINE 04943
 207.863.6609
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CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

**COMMUNITY TRAIL
 PHASE II
 CROSS SECTIONS**
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: 1" = 10'	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG.



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CONSTRUCTION DOCUMENTS	
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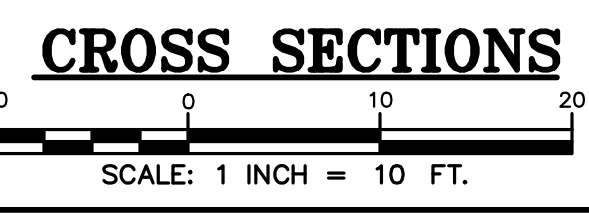
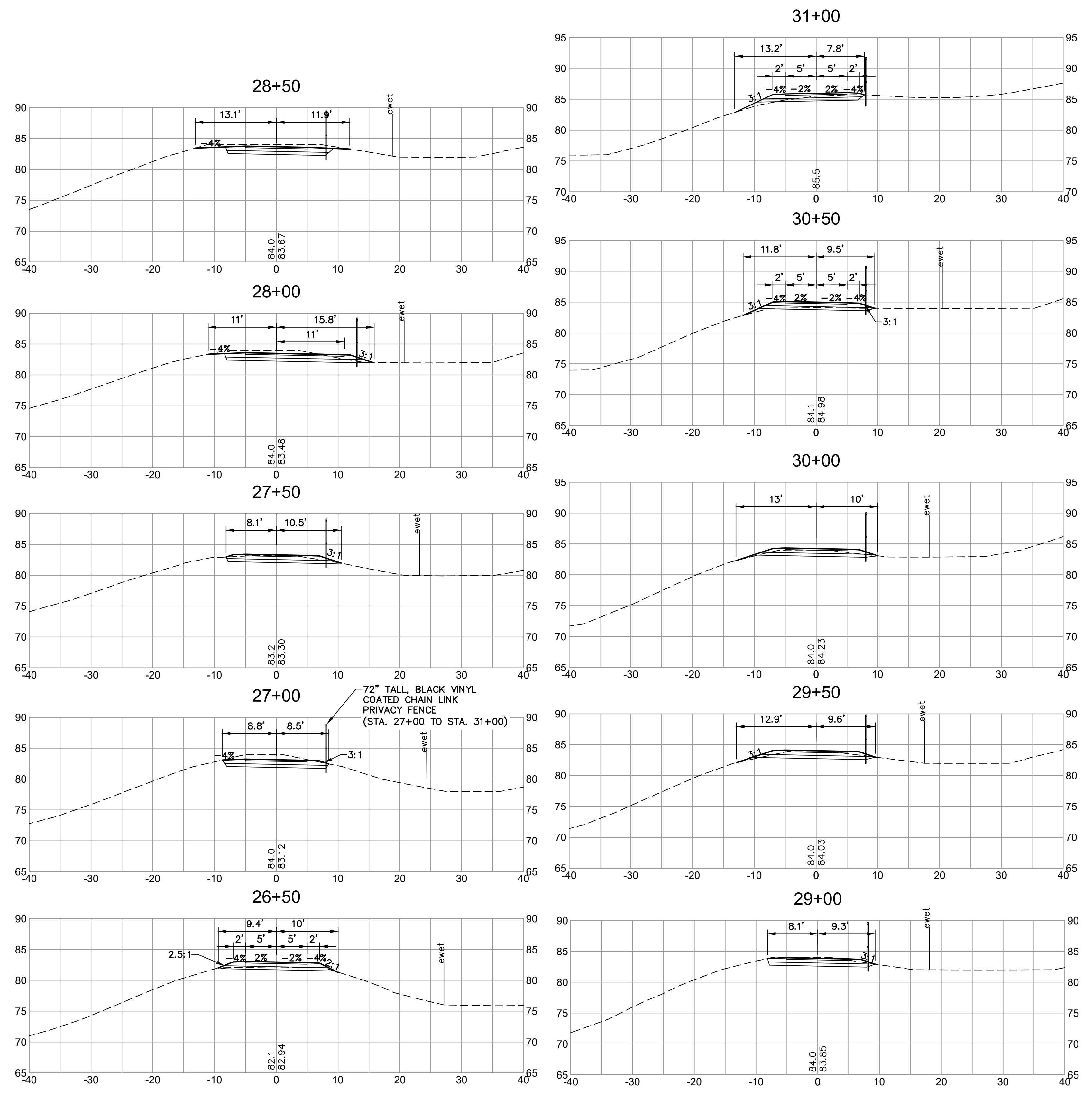
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDY
 LICENSED PROFESSIONAL ENGINEER
 No. 10843

CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

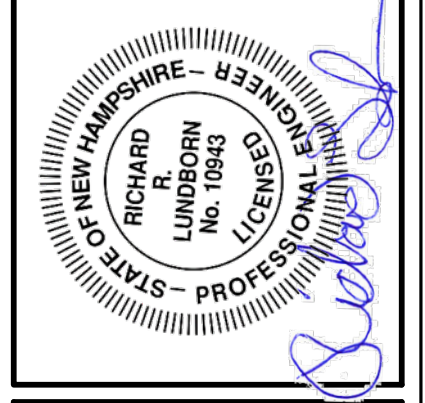
**COMMUNITY TRAIL
 PHASE III
 CROSS SECTIONS**
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: 1" = 10'	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C10



CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/19
DESIGNED: PNG/RRL	CHECKED: JLF
DRAWN: DAD	APPROVED: RRL

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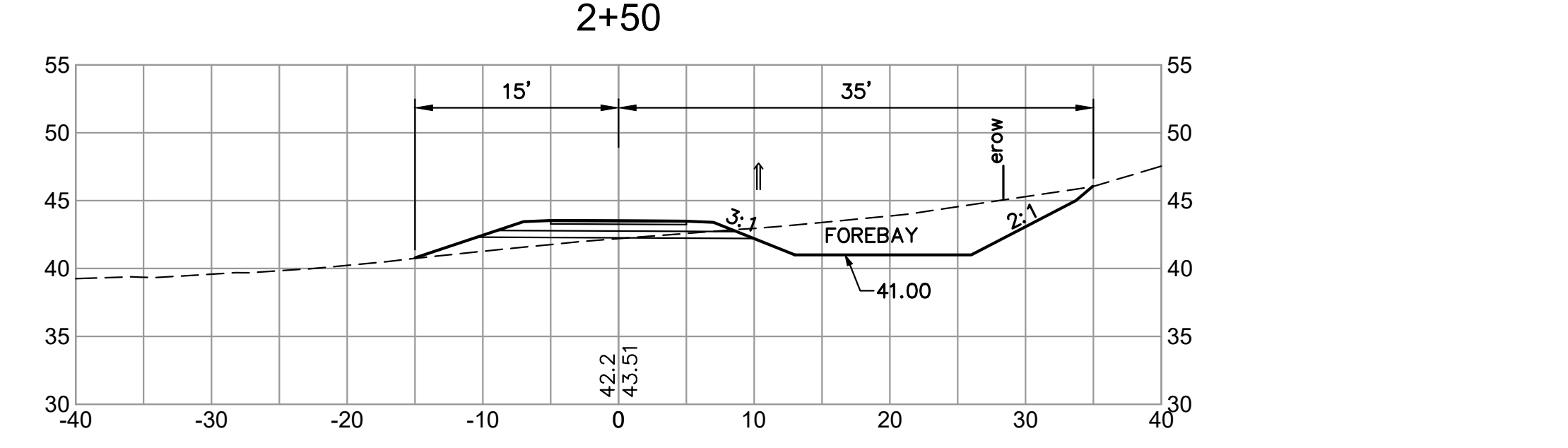
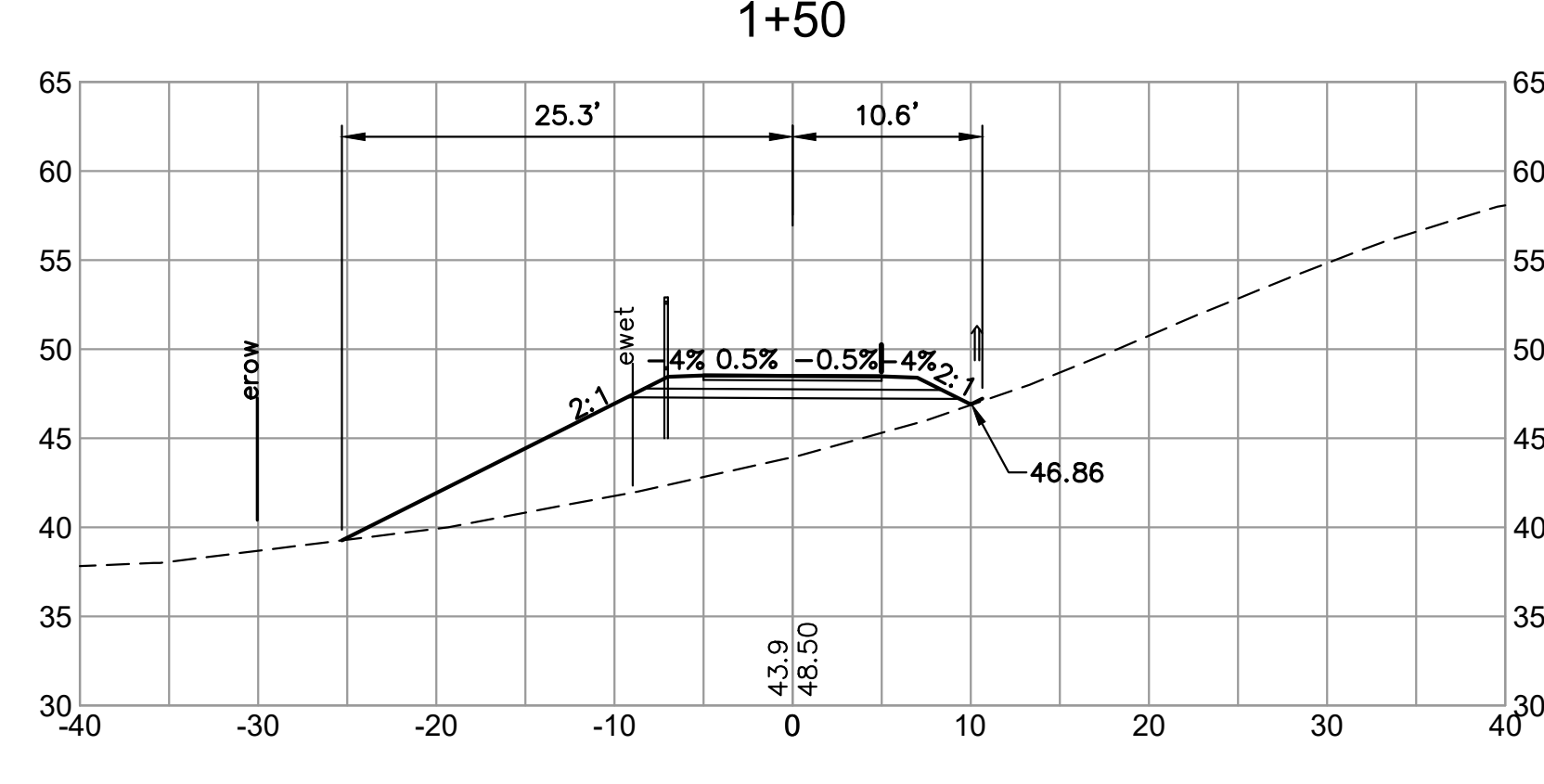
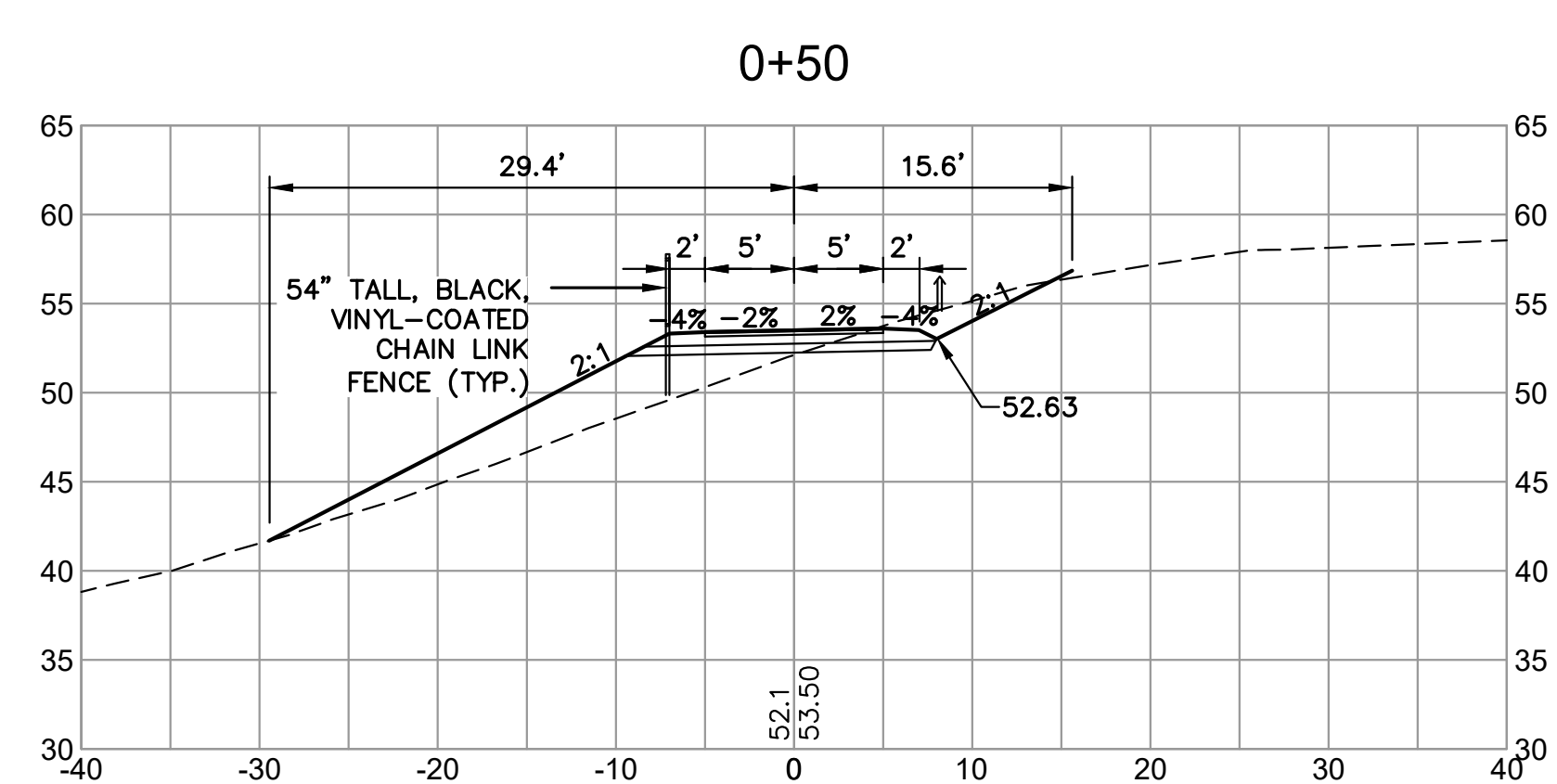
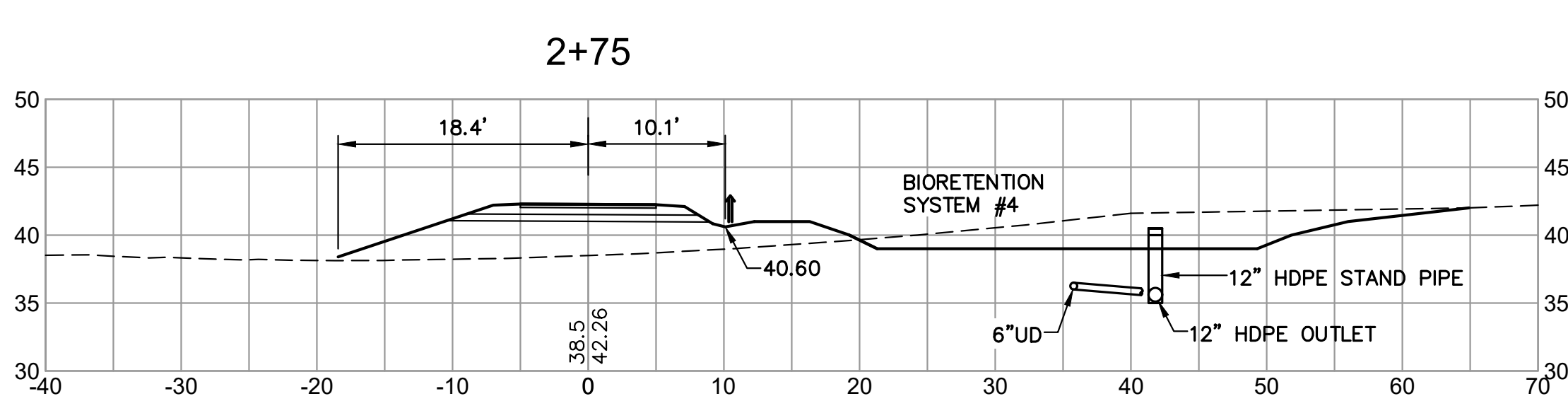
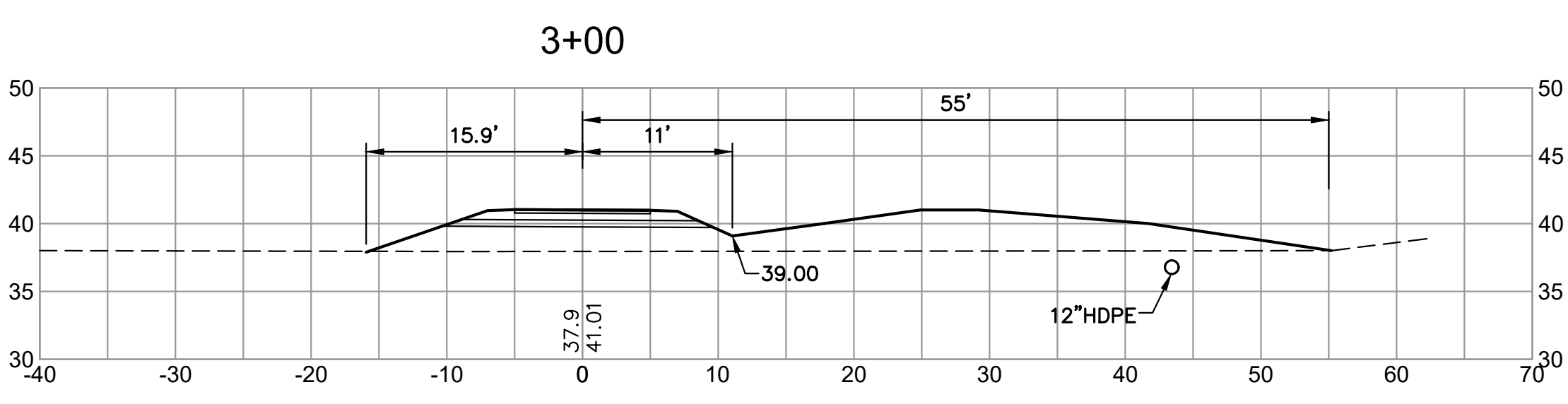
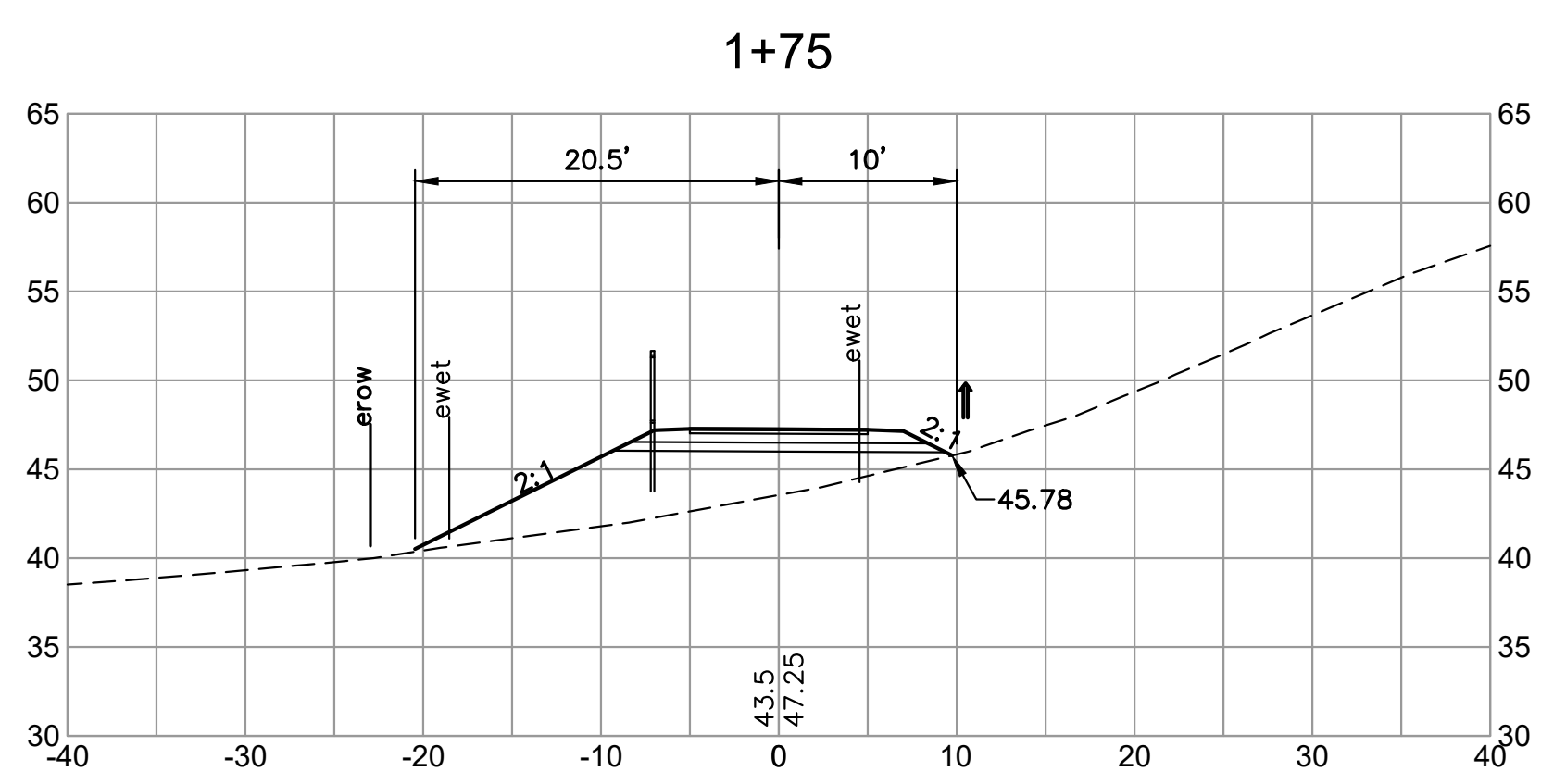
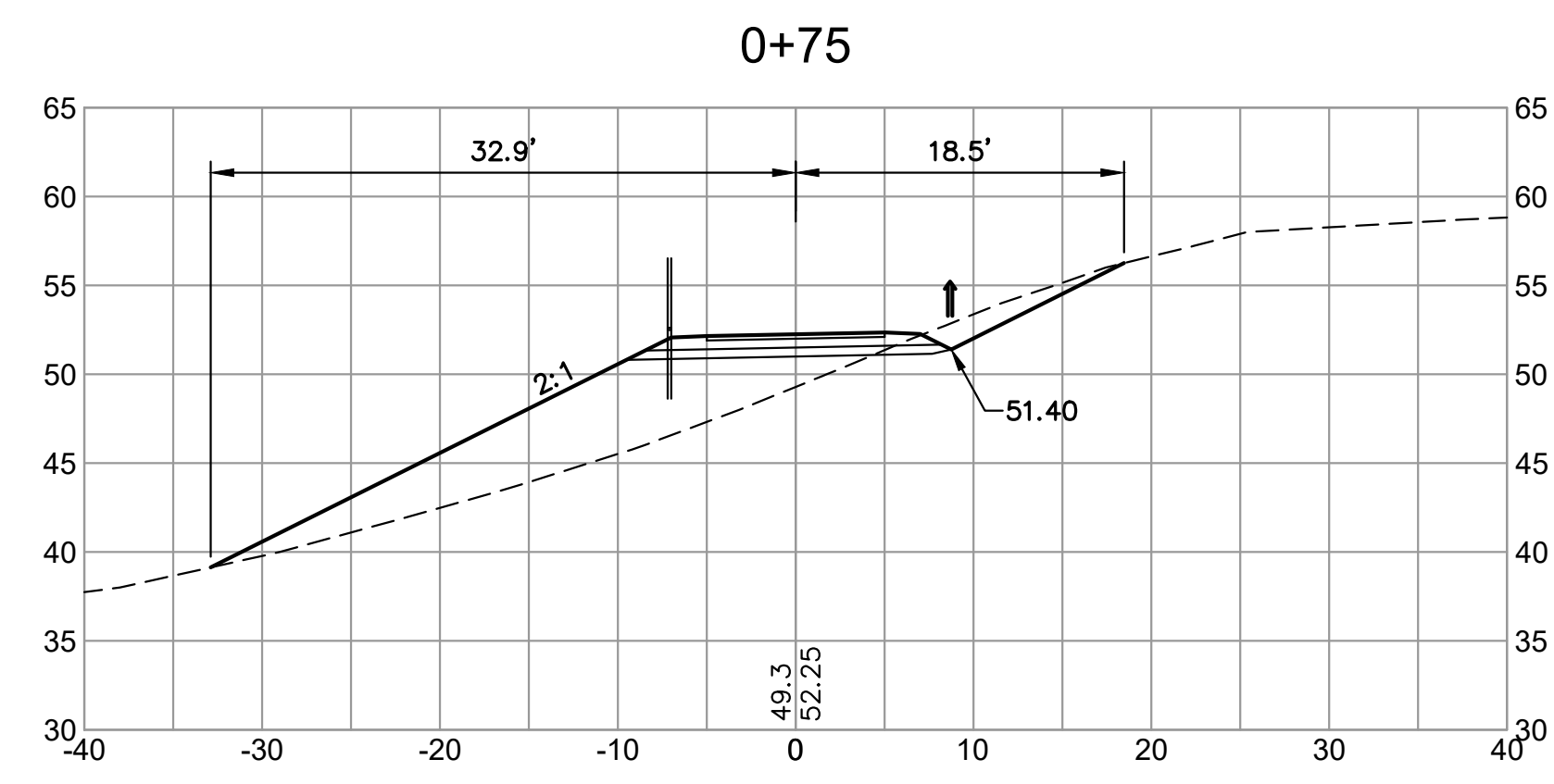
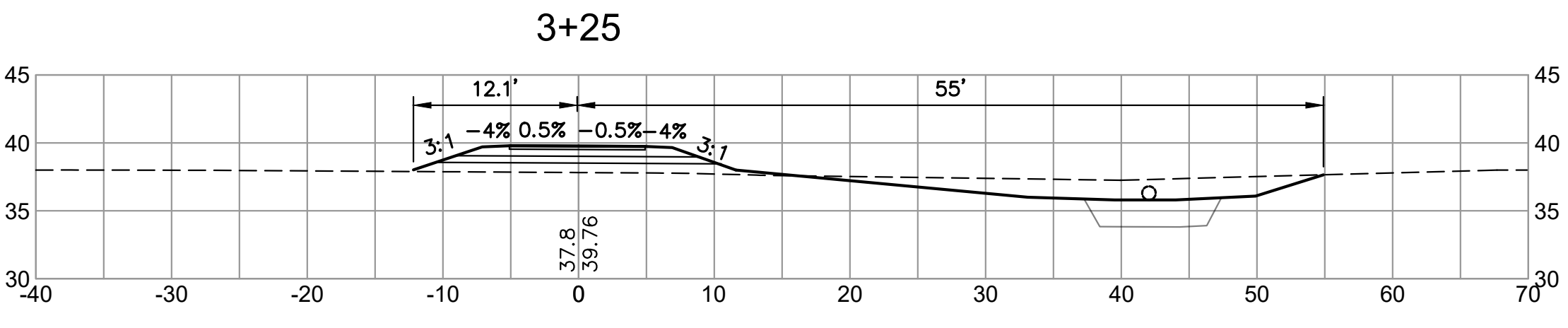
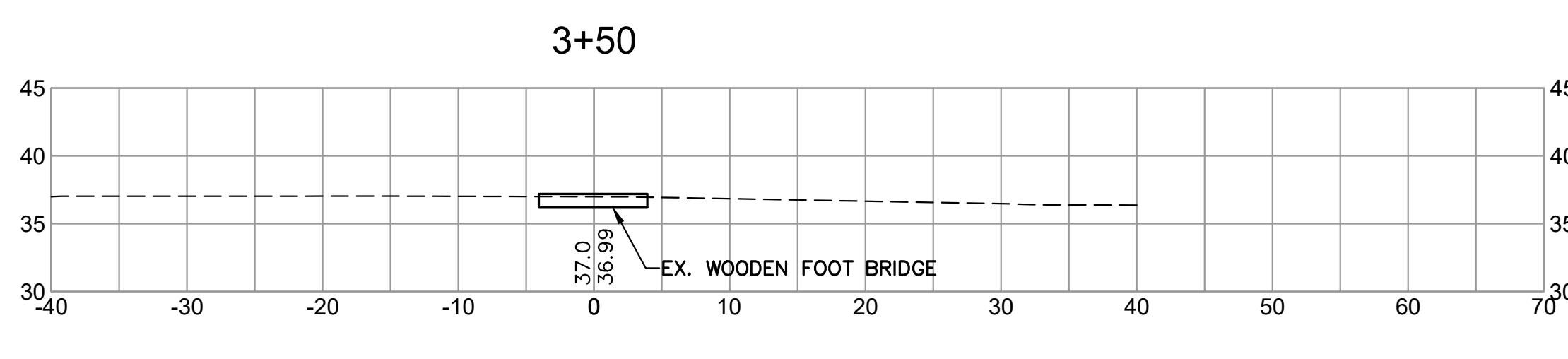
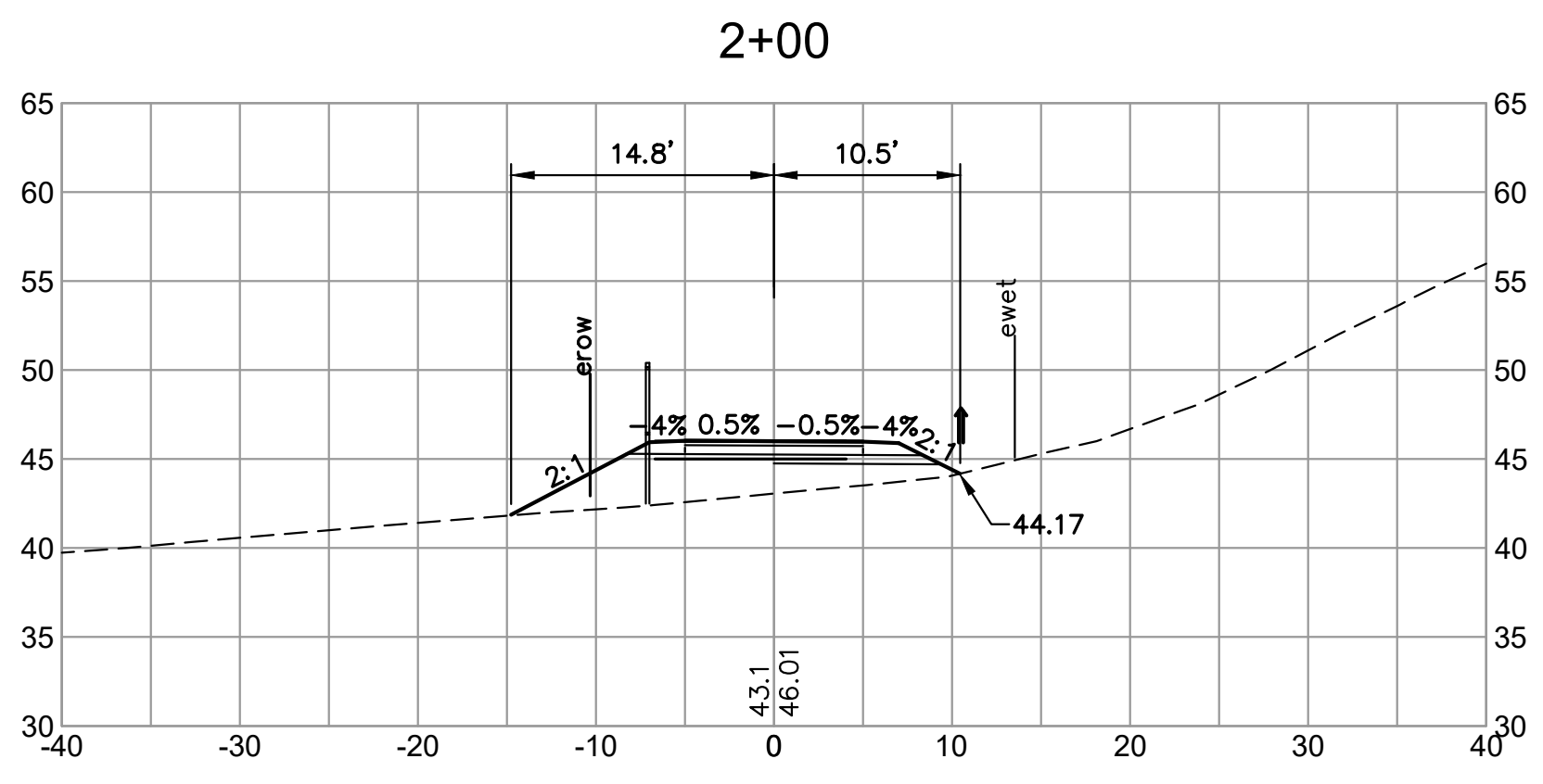
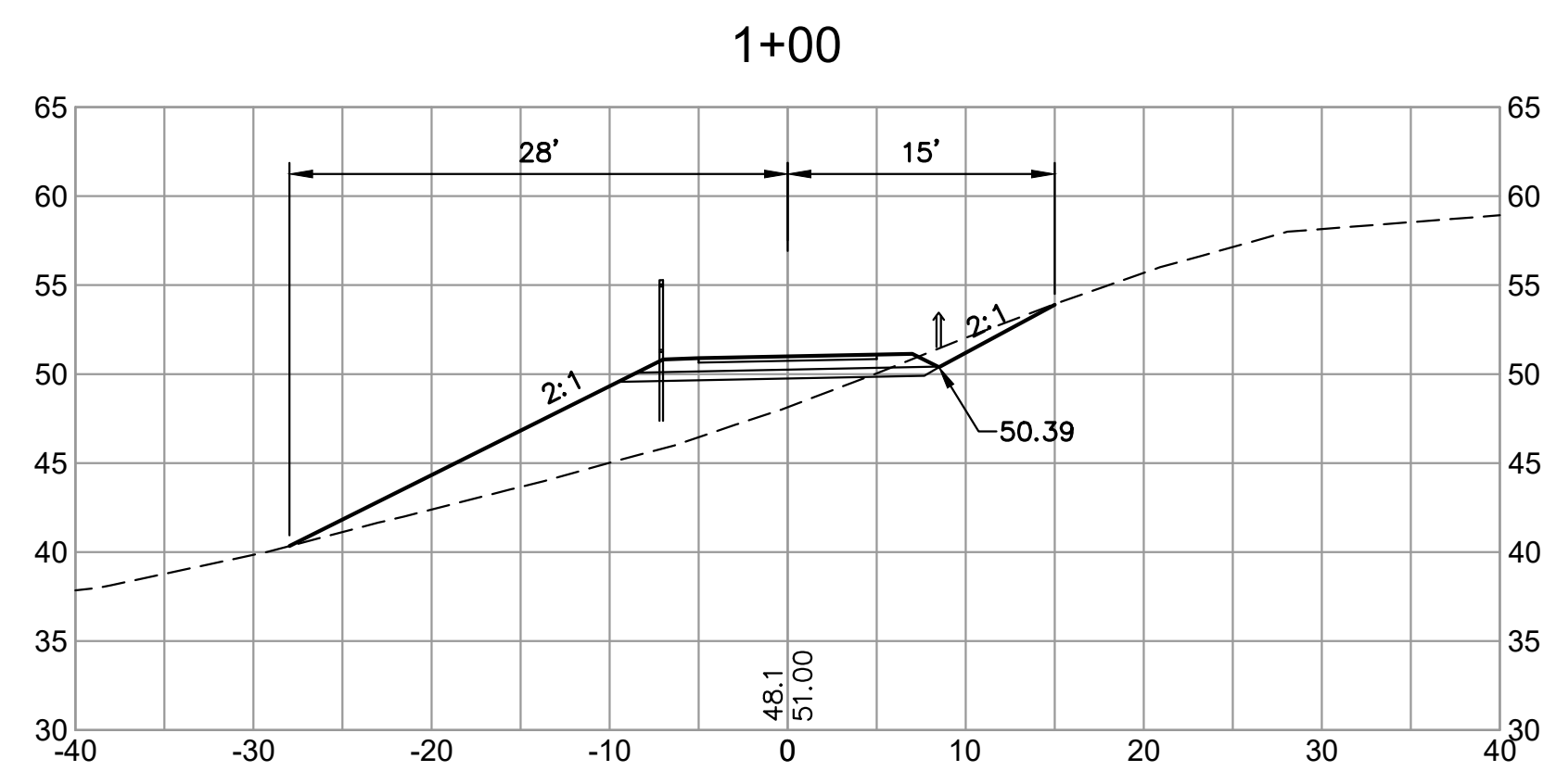
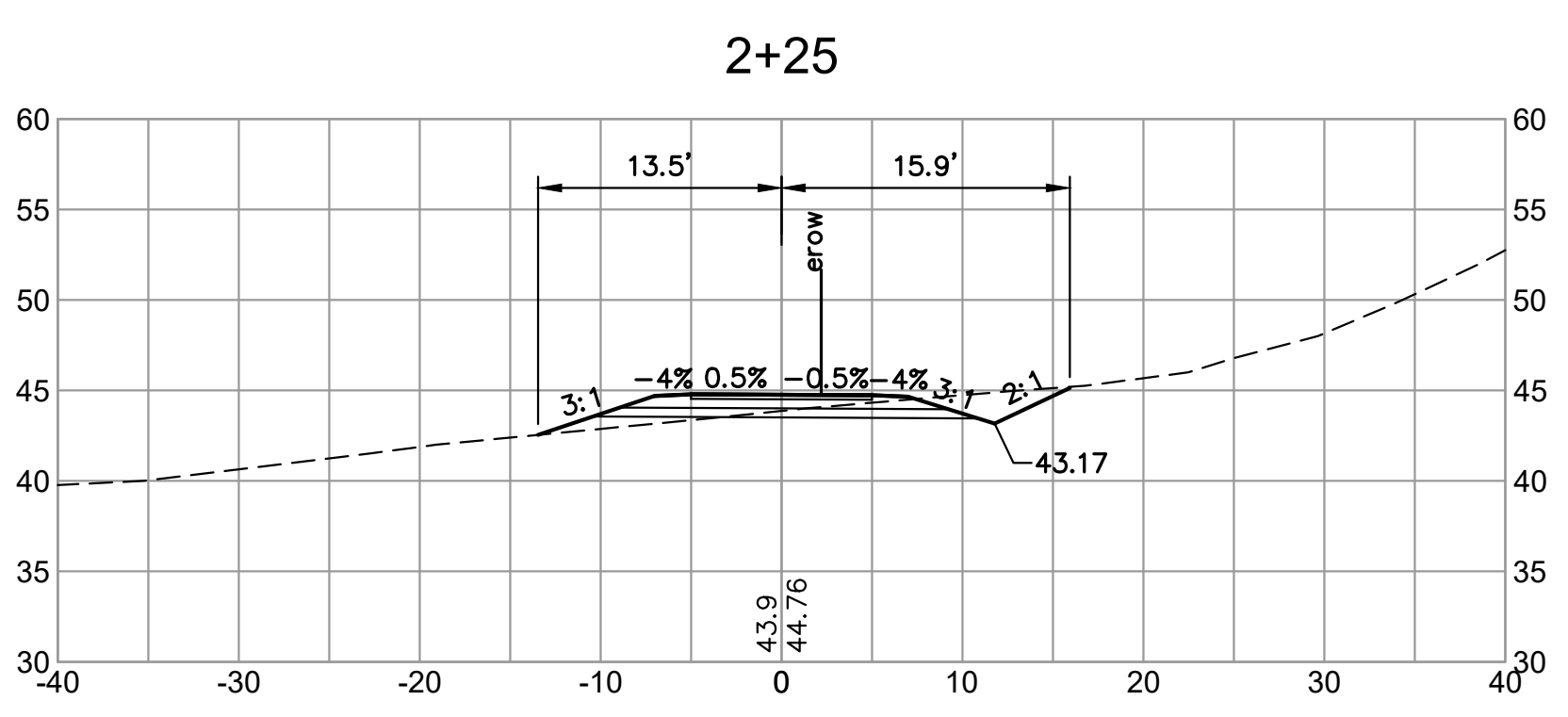
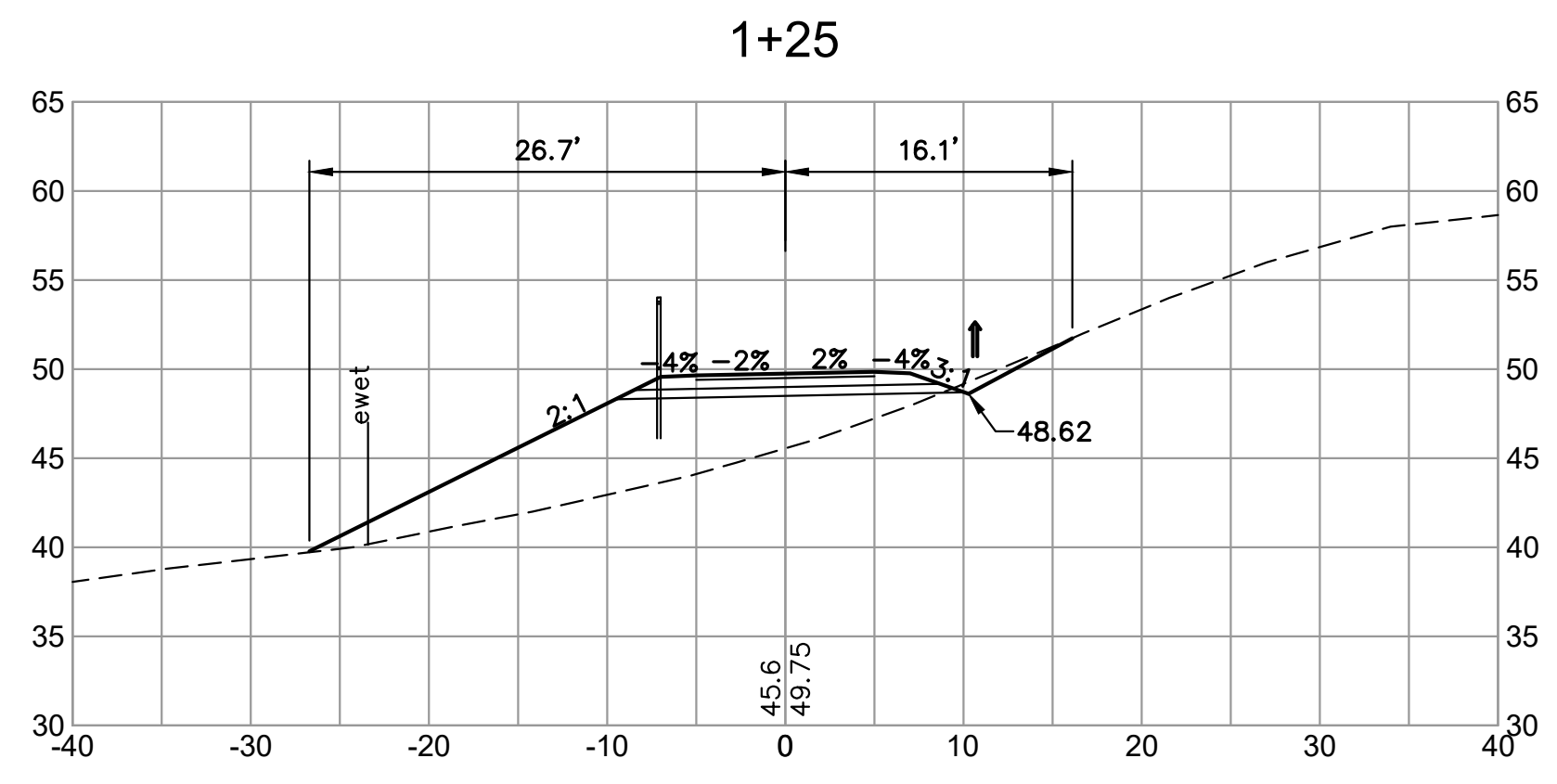


CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

COMMUNITY TRAIL
 PHASE II
CROSS SECTIONS
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: 1" = 10'	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C11

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CROSS SECTIONS
SCALE: 1 INCH = 10 FT.

CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/19
DRAWN: DAD	DESIGNED: PUG/RRL
CHECKED: JLF	APPROVED: RRL

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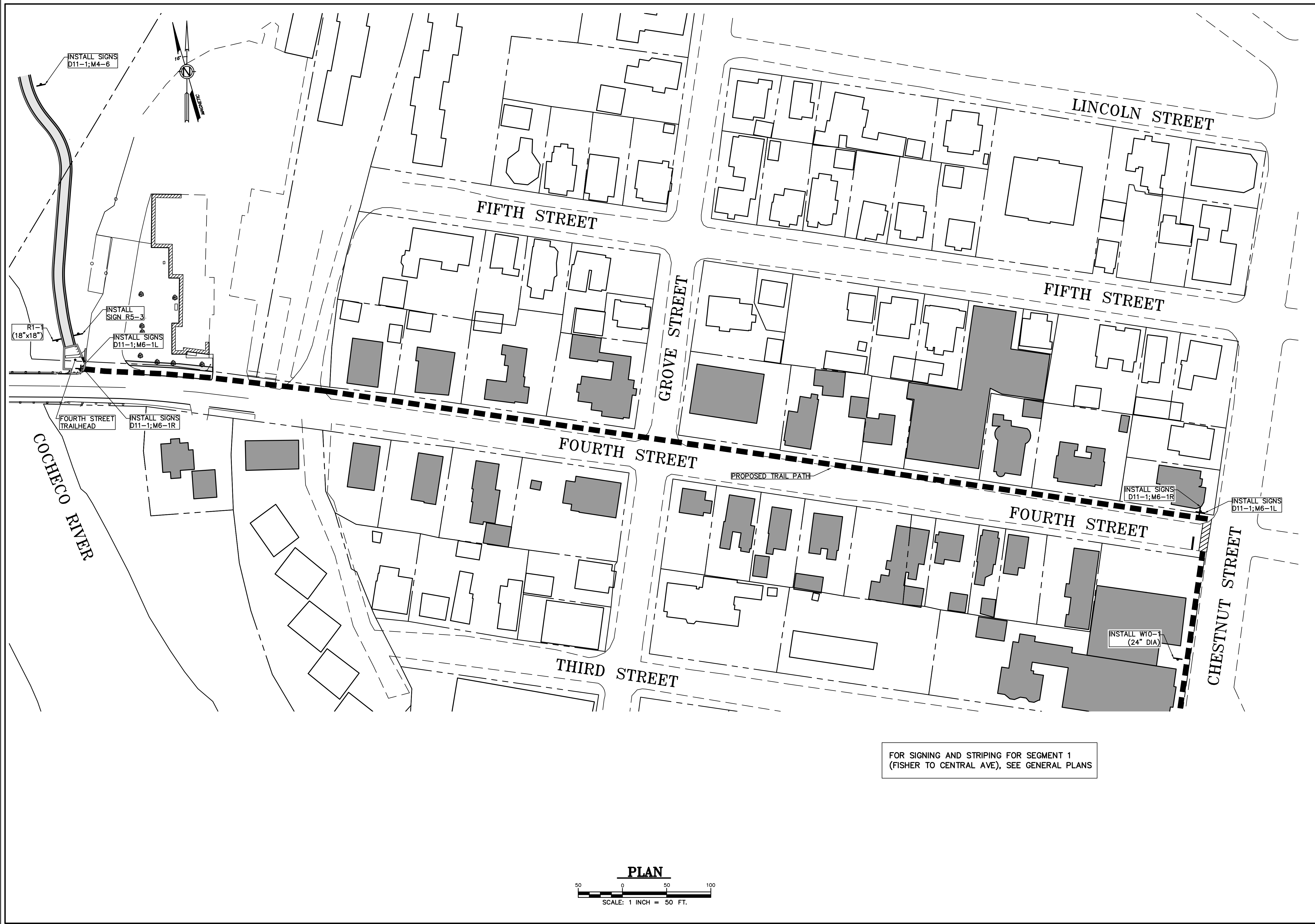
STATE OF NEW HAMPSHIRE
RICHARD R. LUNDY
No. 10833
LICENSED PROFESSIONAL ENGINEER

CLIENT:
CITY OF DOVER
CITY HALL
DOVER, NH 03820

COMMUNITY TRAIL PHASE III
4TH ST CROSS SECTIONS
CITY OF DOVER
NEW HAMPSHIRE

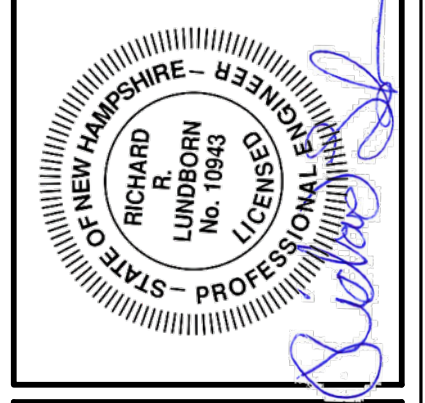
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DRAWN:	DESIGNED:
DAD	PNG/ARL
CHECKED:	APPROVED:
JLF	RRL

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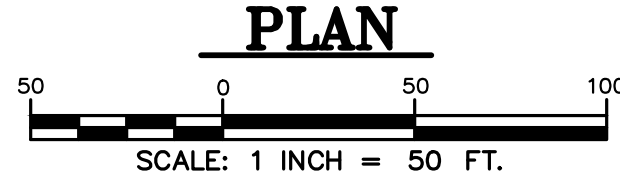
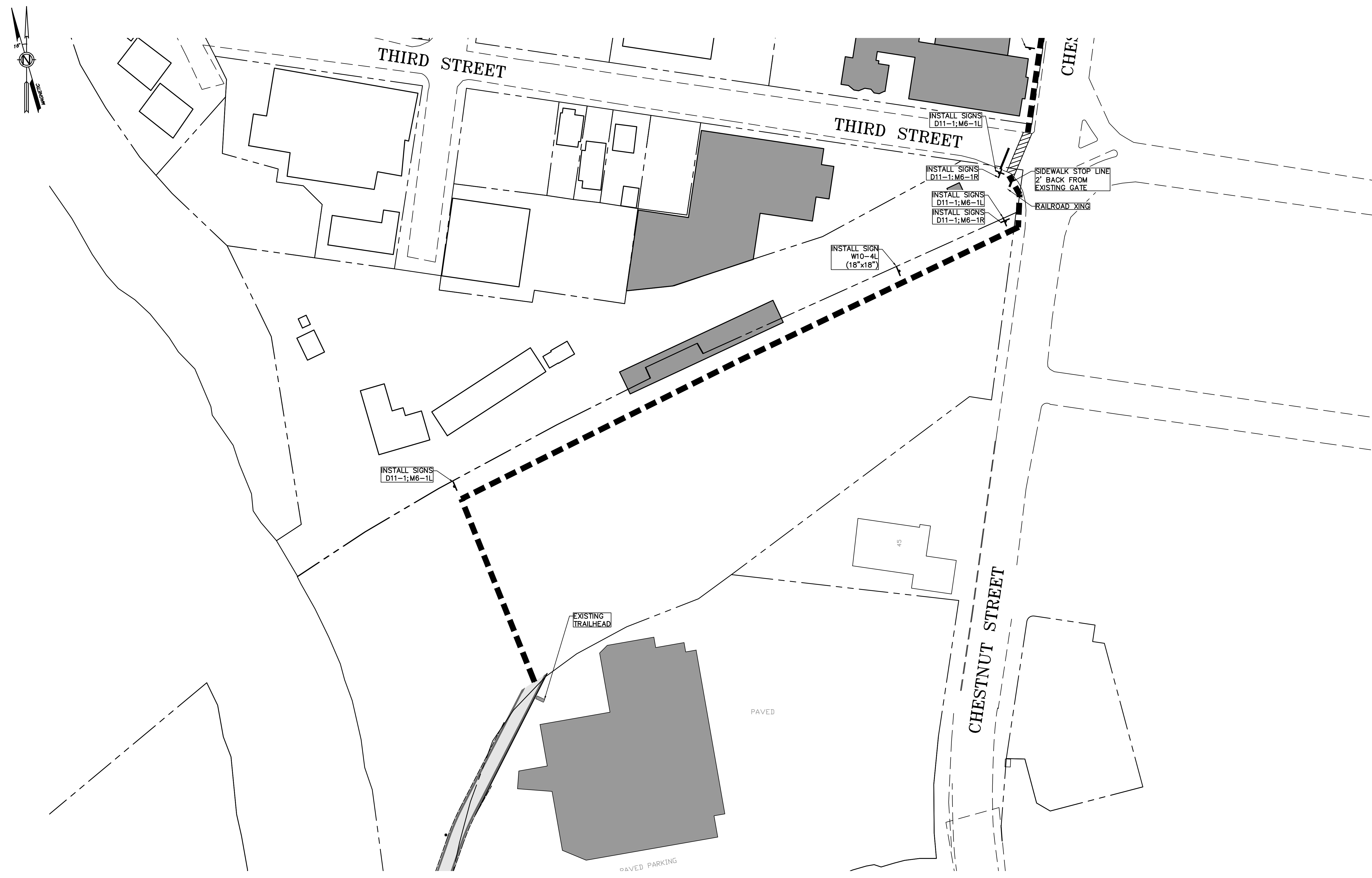


CLIENT:
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

COMMUNITY TRAIL
PHASE II
SIGNING & STRIPING PLAN
 CITY OF DOVER
 NEW HAMPSHIRE

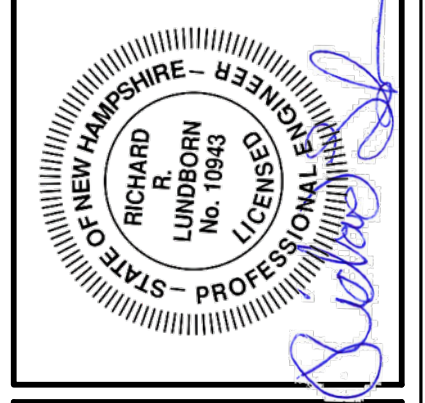
SCALE:	JOB NO.
AS NOTED	16-0109
DATE:	DWG.
APRIL 1, 2019	C13

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CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/19
DESIGNED: PNG/RRL	CHECKED: JLF
DRAWN: DAD	APPROVED: RRL

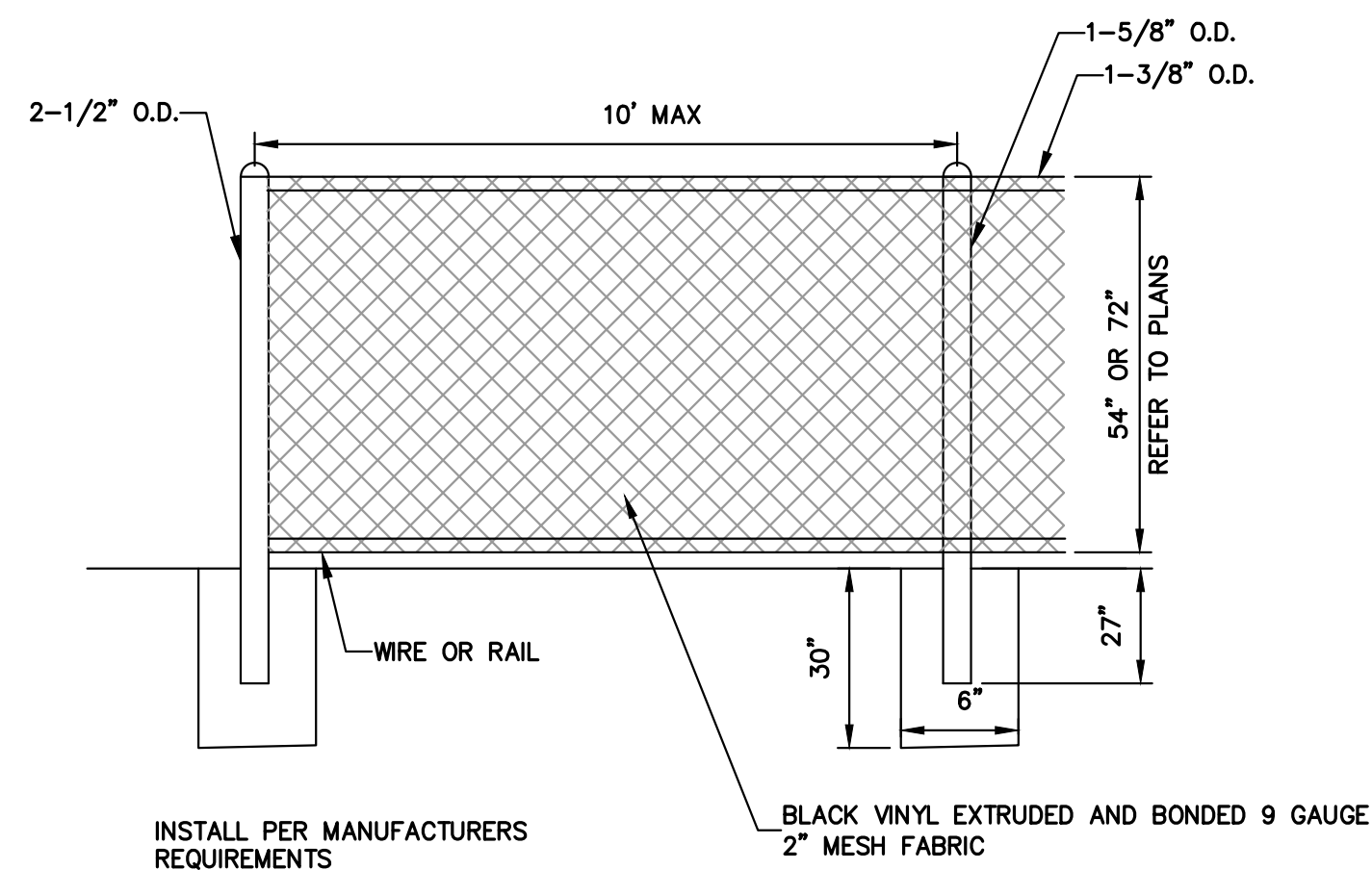
FUSS & O'NEILL
 5 FLETCHER STREET, SUITE 1
 KENNEBRUNK, MAINE 04043
 207.863.6609
 www.fussandoneill.com | www.fandoc.com



CLIENT:
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 CITY HALL
 DOVER, NH 03820

**COMMUNITY TRAIL
 PHASE III
 SIGNING & STRIPING PLAN**
 CITY OF DOVER
 NEW HAMPSHIRE

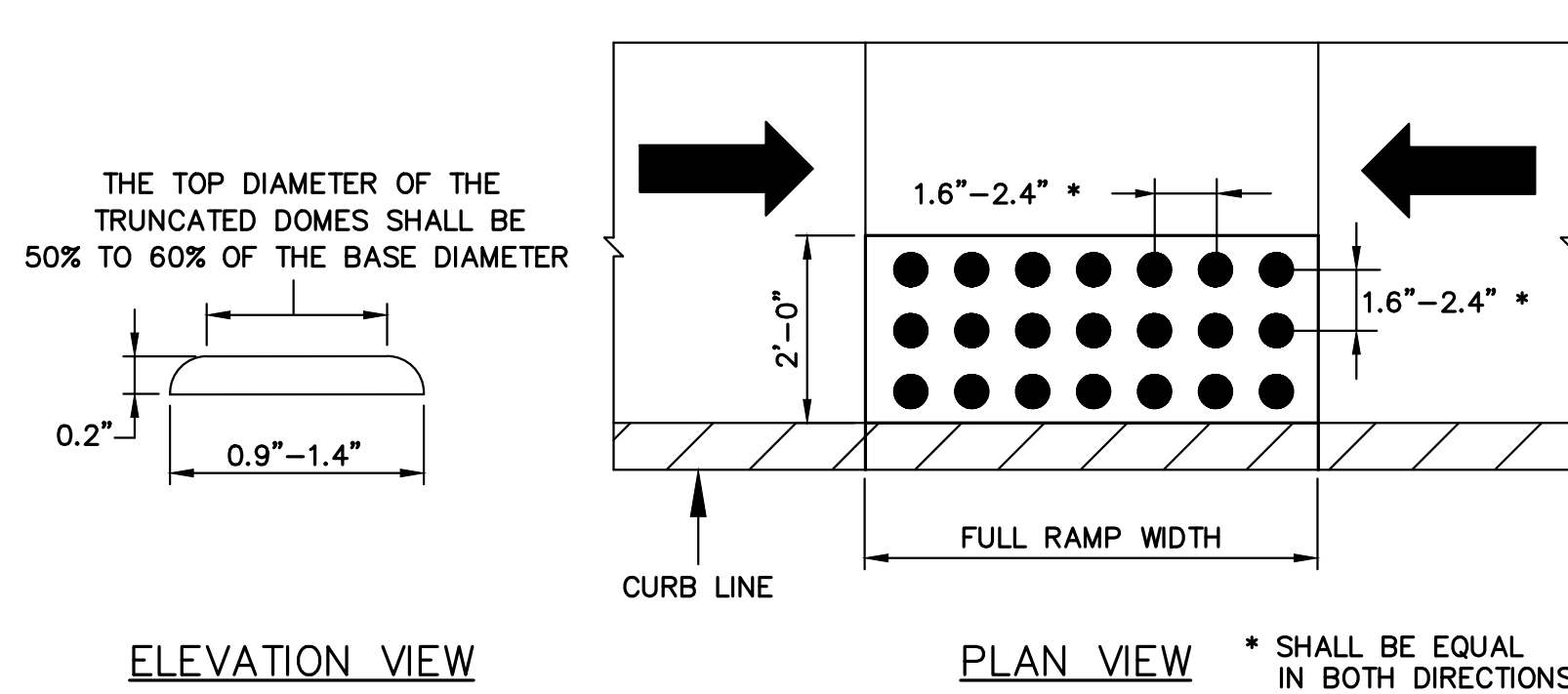
SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C14



VINYL COATED CHAIN LINK FENCE

N.T.S.

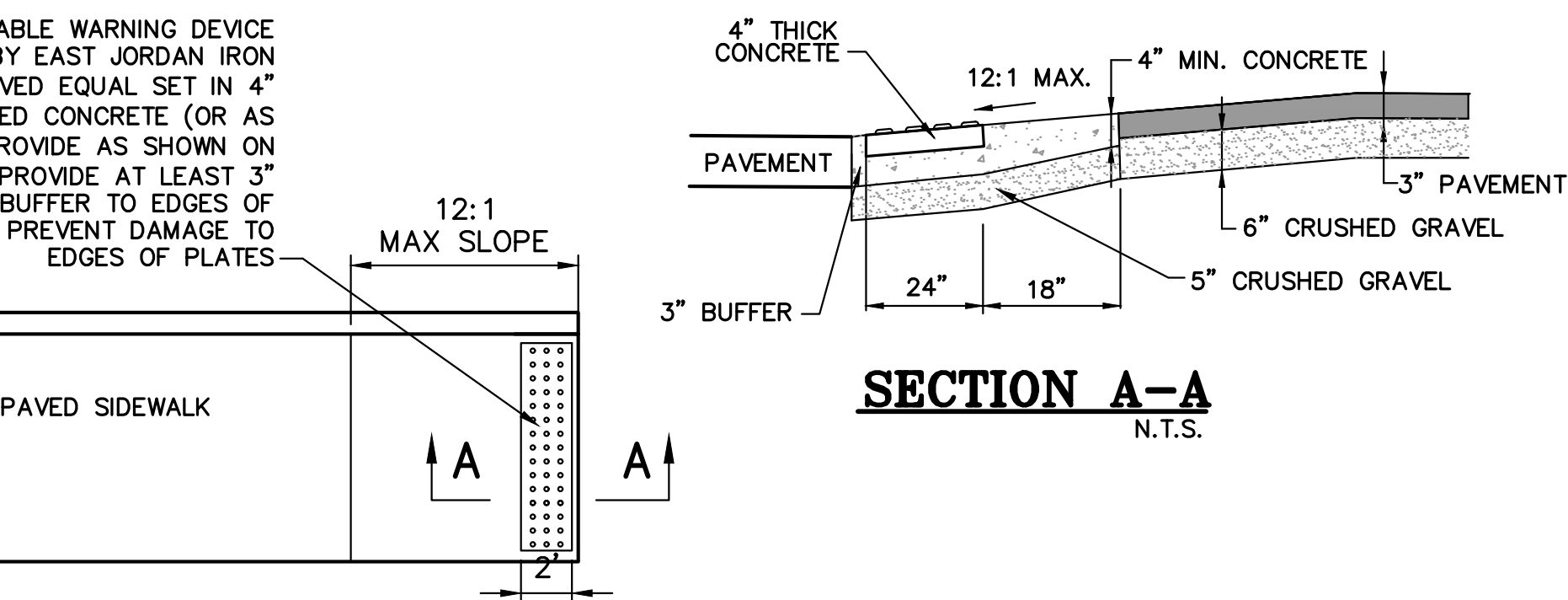
NOTE: IN LOCATIONS DENOTED "PRIVACY FENCE", BLACK SLATS SHALL BE REQUIRED IN THE FABRIC. SEE SPECIAL PROVISIONS.



DOMES AND CAST IRON DETECTABLE WARNING DEVICE DETAILS

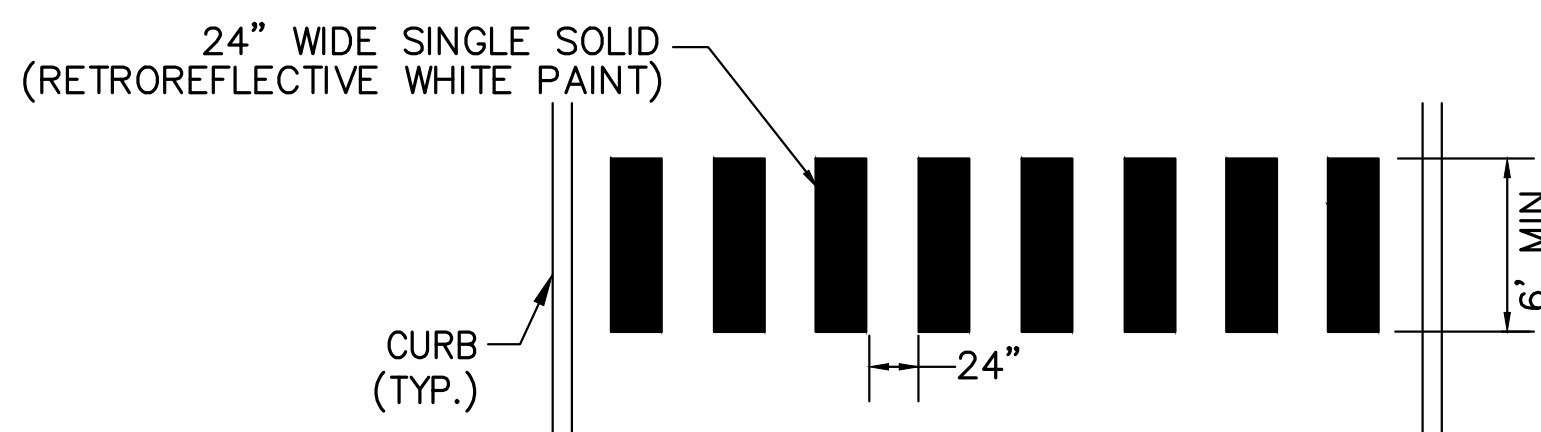
TO BE INSTALLED AT ADA WALKWAY TIPDOWNS.

N.T.S.



ADA END RAMP

N.T.S.



NOTE: EXISTING CROSSWALK MARKING SHALL BE OBLITERATED IN ACCORDANCE WITH SECTION 632/3.6 'OBLITERATION OF PAVEMENT MARKING' OF NHDOT STANDARD SPECIFICATIONS AND SHALL BE CONSIDERED SUBSIDIARY.

CROSS-WALK MARKING DETAIL ON FISHER STREET

N.T.S.

NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19		PMG/RRL	JLF	RRL

FUSS & O'NEILL
 540 BETHLEHEM STREET SUITE 1
 KENNETHS, MAINE 04848
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDY
 LICENSED PROFESSIONAL ENGINEER
 No. 10843

CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

CLIENT:
 COMMUNITY TRAIL
 PHASE III
 DETAILS
 CITY OF DOVER
 NEW HAMPSHIRE

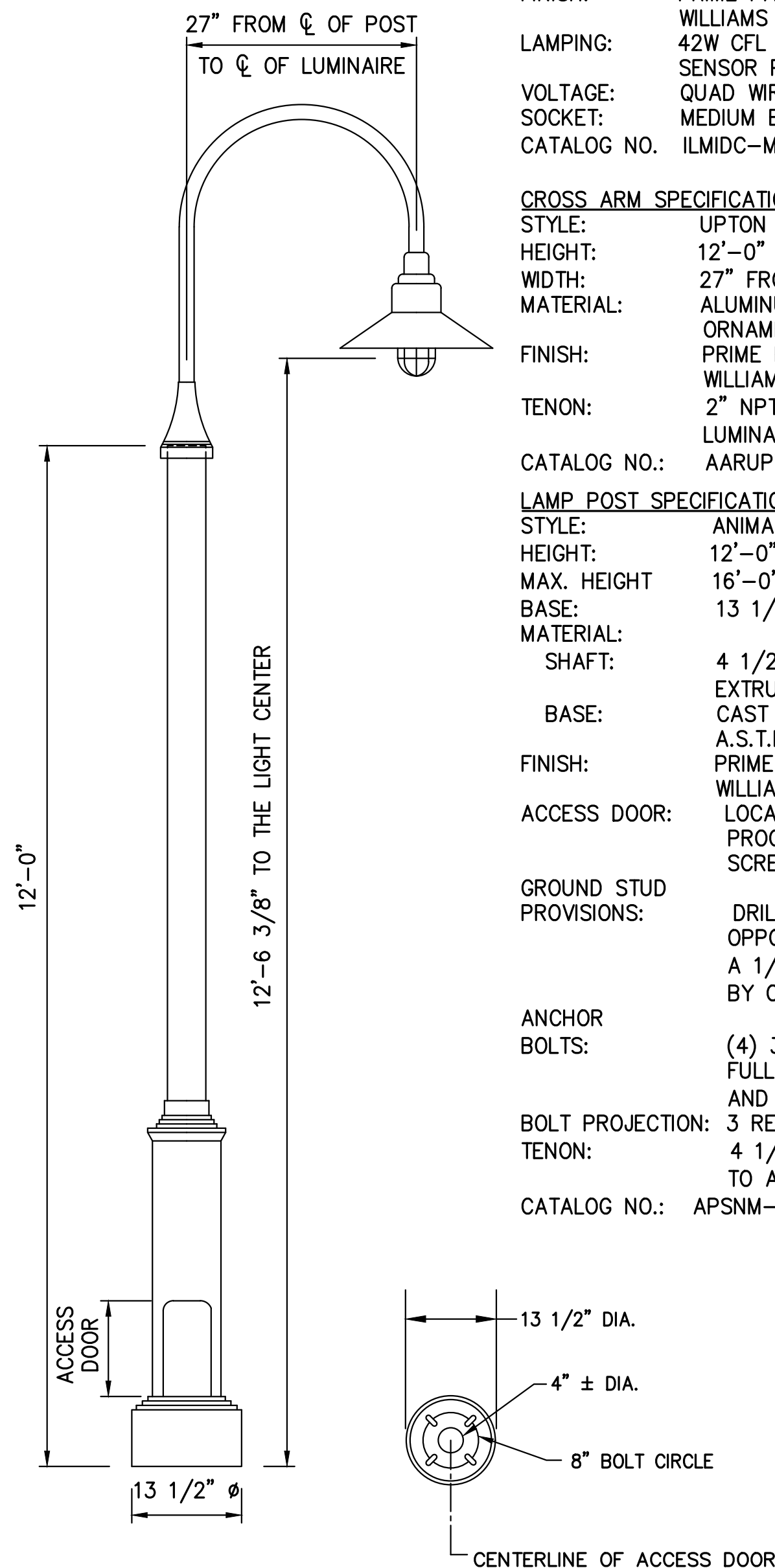
SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C15

LAMP POST MANUFACTURER INFORMATION
 SPRING CITY ELECTRICAL MANUFACTURING COMPANY
 ONE SOUTH MAIN STREET
 SPRING CITY, PA 19475
 PHONE: (610) 948-4000
 FAX: (610) 948-5577

LUMINAIRE SPECIFICATIONS
 STYLE: INDUSTRY CITY
 HEIGHT: 20"
 WIDTH: 22" DIAMETER
 MATERIAL: SPUN ALUMINUM AND CAST ALUMINUM ALLOY ANSI 356 PER A.S.T.M. B26-95
 GLOBE: SMALL CLEAR GLASS WITH CAST GUARD
 FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
 LAMPING: 42W CFL PHOTOCELL. ADD PHOTO SENSOR PER LIGHTING NOTE #11.
 VOLTAGE: QUAD WIRED AT 120
 SOCKET: MEDIUM BASE
 CATALOG NO. ILMDC-MH100/QV1/SD-GSCL-CB

CROSS ARM SPECIFICATIONS
 STYLE: UPTON
 HEIGHT: 12'-0"
 WIDTH: 27" FROM ϕ OF POST TO ϕ OF LUMINAIRE
 MATERIAL: ALUMINUM PIPE WITH CAST ALUMINUM ORNAMENTATION
 FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
 TENON: 2" NPT PIPE NIPPLE (TO ACCEPT LUMINAIRE)
 CATALOG NO.: AARUPT-1S-27-TN1.25/NPT-CB

LAMP POST SPECIFICATIONS
 STYLE: ANIMATOR
 HEIGHT: 12'-0"
 MAX. HEIGHT: 16'-0"
 BASE: 13 1/2" DIAMETER
 MATERIAL: SHAFT: 4 1/2" DIA.-SMOOTH-ALUMINUM EXTRUSION - .237" WALL
 BASE: CAST ALUMINUM ALLOY ANSI 356 PER A.S.T.M. B26-95
 FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
 ACCESS DOOR: LOCATED IN BASE SECURED WITH TAMP PROOF HEX SOCKET SECURITY MACHINE SCREWS
 GROUND STUD PROVISIONS: DRILL AND TAP INSIDE WALL OF BASE OPPOSITE ACCESS DOOR TO ACCOMMODATE A 1/4"-20 GROUND STUD (STUD SUPPLIED BY OTHERS)
 ANCHOR BOLTS: (4) 3/4" DIA. X 24" LONG + 3" HOOK FULLY GALVANIZED WITH 1 GALVANIZED NUT AND 1 GALVANIZED WASHER PER BOLT)
 BOLT PROJECTION: 3 REQUIRED
 TENON: 4 1/2" DIA. X 2" HIGH (TOP OF SHAFT- TO ACCEPT LUMINAIRE)
 CATALOG NO.: APSNM-13-12.00-S4-TN3.50/2.00-323/1NW-CB



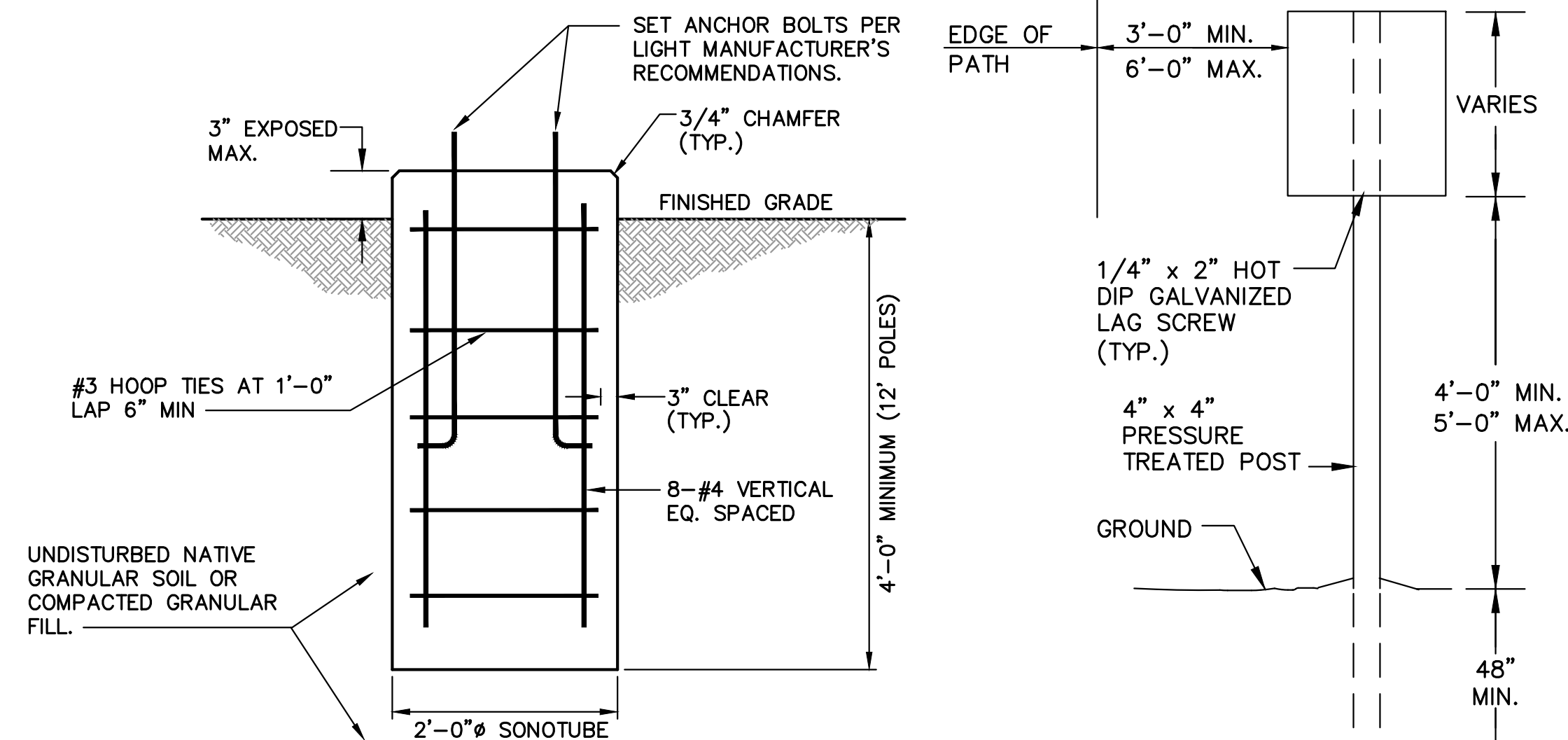
LUMINAIRE DETAIL
 SCALE: 3/4" = 1'-0"

SITE NOTES

1. THE CONTRACTOR SHALL CONFINE THE CONSTRUCTION OPERATIONS AND ACTIVITIES TO THE SITE AS SHOWN ON THE DRAWINGS. STORAGE AND PROTECTION OF MATERIALS AND STRUCTURES OFF THE SITE WILL BE BY OTHER ARRANGEMENTS MADE BY THE CONTRACTOR.
2. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL RESTORE ALL AREAS IMPACTED BY CONSTRUCTION TO ORIGINAL GRADE UNLESS OTHERWISE SHOWN ON THE PLANS, AND AS APPROVED BY THE OWNER.
3. LOAM, SEED AND MULCH SHALL BE APPLIED TO DISTURBED AREAS AS DIRECTED BY THE OWNER.
4. ALL PAVEMENT MARKINGS SHALL MEET THE REQUIREMENTS OF SECTION 632 OF THE SSRBC AND THE CITY OF DOVER ZONING ORDINANCE UNLESS OTHERWISE INDICATED ON THE PLANS.
5. ALL CHAIN LINK FENCE SHALL MEET THE REQUIREMENTS OF SECTION 607 OF THE SSRBC UNLESS OTHERWISE INDICATED ON THE PLANS.
6. ALL SIGN DESIGNATIONS REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD); LATEST EDITION.
7. CONTRACTOR IS REFERRED TO SECTION 645 OF THE SSRBC AND THE SPECIAL PROVISION INCLUDED WITH THE PROJECT CONTRACT DOCUMENTS FOR GUIDANCE ON THE PREPARATION OF AN EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN FOR APPROVAL BY THE OWNER.

LIGHTING NOTES

1. ALL ELECTRICAL WORK TO BE PERFORMED BY ELECTRICIANS LICENSED BY THE STATE OF NEW HAMPSHIRE
2. ALL ELECTRICAL WORK AND MATERIALS SHALL BE INSTALLED ACCORDING TO THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND ITS AMENDMENTS, NFPA AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
3. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
4. ALL MATERIAL SHALL BE NEW AND SHALL BE U.L. LISTED.
5. ALL WIRING BEING FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE A MINIMUM OF #10 AWG TYPE XHHW COPPER STRANDED AND SHALL BE RUN IN MINIMUM 1" BLACK, PVC COATED, GALVANIZED RIGID METAL CONDUIT INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONDUITS INSTALLED UNDERGROUND SHALL BE SCHEDULE 80 PVC.
6. ALL SWEEPS AND ELBOWS SHALL BE BLACK, PVC COATED GALVANIZED RIGID METAL CONDUIT. ALL BLACK, PVC COATED GALVANIZED RIGID METAL CONDUITS RUN EXPOSED ABOVE GROUND SHALL BE GROUNDED IN ACCORDANCE WITH NEC.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING POLE BASE ANCHOR BOLTS AND TEMPLATES FOR ALL FIXTURE INSTALLATIONS IN CONCRETE BASES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH EVERSOURCE TO CONFIRM FINAL LOCATION FOR NEW ELECTRIC SERVICES FOR THE TRAIL LIGHTING. TWO SERVICE LOCATIONS (AT MINIMUM) ARE REQUIRED AND SHALL BE AT FISHER STREET AND AT FOURTH STREET. CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL CHARGES AS DETERMINED BY EVERSOURCE TO PROVIDE THE NEW PERMANENT ELECTRIC SERVICES, INCLUDING ADDITIONAL POLE SETS IF REQUIRED, AND FOR CONNECTING THE LIGHTING SYSTEM TO THE NEW SERVICES.
9. IT IS NOT INTENDED THAT THE DRAWINGS SHOW IN DETAIL EVERY CONDUIT, JUNCTION BOX, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND INSTALL ALL MATERIAL NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE AND THE NATIONAL ELECTRICAL CODE AND TO THE COMPLETE SATISFACTION OF THE OWNER. ALL JUNCTION BOXES, PULL BOXES, FITTINGS, ETC, INSTALLED SHALL BE PAINTED BLACK.
10. LOCATIONS OF LIGHT POLE BASES SHOWN ON THE PLANS ARE APPROXIMATE AND WILL BE DETERMINED IN THE FIELD.
11. EACH LIGHT SHALL BE EQUIPPED WITH A PHOTO SENSOR MOUNTED ATOP THE FIXTURE.



LIGHT POLE BASE DETAIL
 NTS

ITEM NO.	IDENT. NO.	SIGN SIZE		TEXT	NO. SIGNS REQ'D	SIGN AREA (SQ. FT.)	
		HEIGHT	WIDTH			NOM. AREA	TOTAL AREA
615.02	R1-1	18"	18"	STOP	4	2.25	10.00
615.03	R5-3	24"	24"	NO MOTOR VEHICLES	4	4.00	16.00
615.03	W11-15P	30"	30"	TRAIL CROSSING	-	6.25	-
615.03	W10-1	24"	24"	RX	1	3.14	3.14
615.03	W10-4L	18"	18"	WALKING BICYCLE	1	2.25	2.25
615.03	D11-1	24"	18"	BIKE ROUTE	11	3.50	38.50
615.06	M6-1L	12"	9"	Left Arrow	5	0.75	3.75
615.06	M6-1R	12"	9"	Right Arrow	4	0.75	3.00
615.06	M6-3	12"	9"	Up Arrow	3	0.75	2.25

NOTES:
 1. ALL SIGNS SHALL BE PER "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
 2. WILDCAT BUS STOP SIGN TO BE PER COAST BUS PROGRAM.

SIGN SCHEDULE
 NTS

SIGN DETAILS

NOTE: SIGN POSTS ON TRAIL SHALL BE TIMBER POSTS.
 SIGN POSTS ON FISHER ST, FOURTH ST AND CENTRAL AVE. SHALL BE STEEL "U" POSTS.

NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19		PMG/RRL	JLF	RRL
CONSTRUCTION DOCUMENTS					

FUSS & O'NEILL
 540 BETHLEHEM STREET, SUITE 1
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDGREN
 No. 10833
 LICENSED PROFESSIONAL ENGINEER

CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

CLIENT:
 COMMUNITY TRAIL
 PHASE III
 DETAILS
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C16

BIORETENTION SYSTEM NOTES:

A. DESIGN & OPERATION

- DO NOT PLACE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- ACCESS TO BIORETENTION SYSTEM AREAS MUST BE CONTROLLED DURING AND AFTER CONSTRUCTION TO PREVENT COMPACTION OF THE SOIL.
- RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE STRUCTURE'S CONSTRUCTION PLAN FOR THE CONTRACTOR.
- SOIL FILTER MIXTURE FOR BIORETENTION AREAS MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. SOIL FILTER MIXTURE CLAY CONTENT SHOULD NOT EXCEED 5%. SOIL FILTER MIXTURE SHALL BE EITHER FILTER MEDIA OPTION A OR FILTER MEDIA OPTION B, AS SPECIFIED IN THE SOIL FILTER MIXTURE TABLE BELOW.

Component Material	Percent of Mixture by Volume	Gradation of Material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C-33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Filter Media Option B			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Loamy coarse sand	70 to 80	10	85 to 100
		20	70 to 100
		60	15 to 40
		200	8 to 15

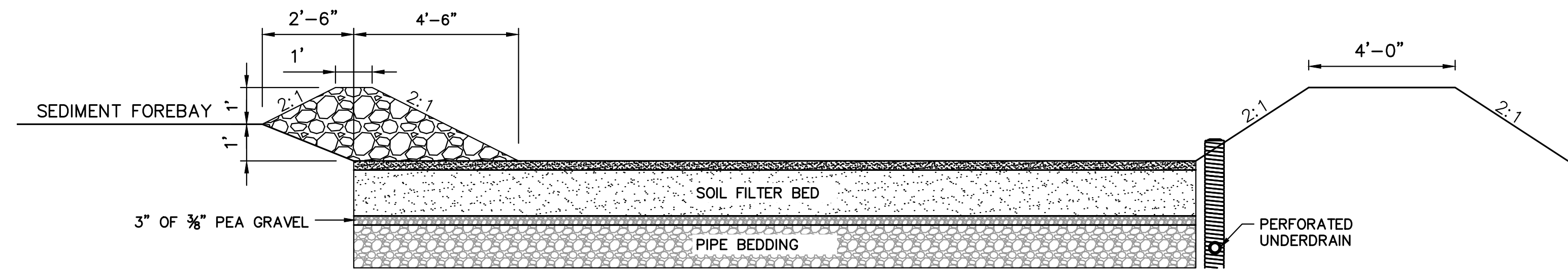
- PRIOR TO ANY LANDSCAPE CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL TEST ALL EXISTING LOAM, AND OFF-SITE LOAM INTENDED TO BE USED FOR LAWNS AND PLANT BEDS IN ACCORDANCE WITH THE LANDSCAPING PLANS, NOTES, AND SPECIFICATIONS. ALL TESTING, DOCUMENTATION, AND REQUIRED MODIFICATIONS SHALL BE INCIDENTAL TO BIORETENTION SYSTEM PAY ITEM.
- BIORETENTION SYSTEM PLANTINGS SHALL CONSIST OF ONLY NATIVE, NON-INVASIVE, DROUGHT TOLERANT SPECIES INSTALLED IN A RANDOM, NATURAL LAYOUT IN ACCORDANCE WITH THE LANDSCAPING PLANS, NOTES, AND SPECIFICATIONS. NO WOODY VEGETATION SHALL BE INSTALLED NEAR INFLOW LOCATIONS. ONLY FACULTATIVE WETLAND SPECIES SHALL BE INSTALLED DIRECTLY OVER THE FILTER MEDIA.
- SNOW REMOVED FROM ANY ON-SITE OR OFF-SITE AREAS MAY NOT BE STORED OVER THE BIORETENTION SYSTEM.

B. CONSTRUCTION

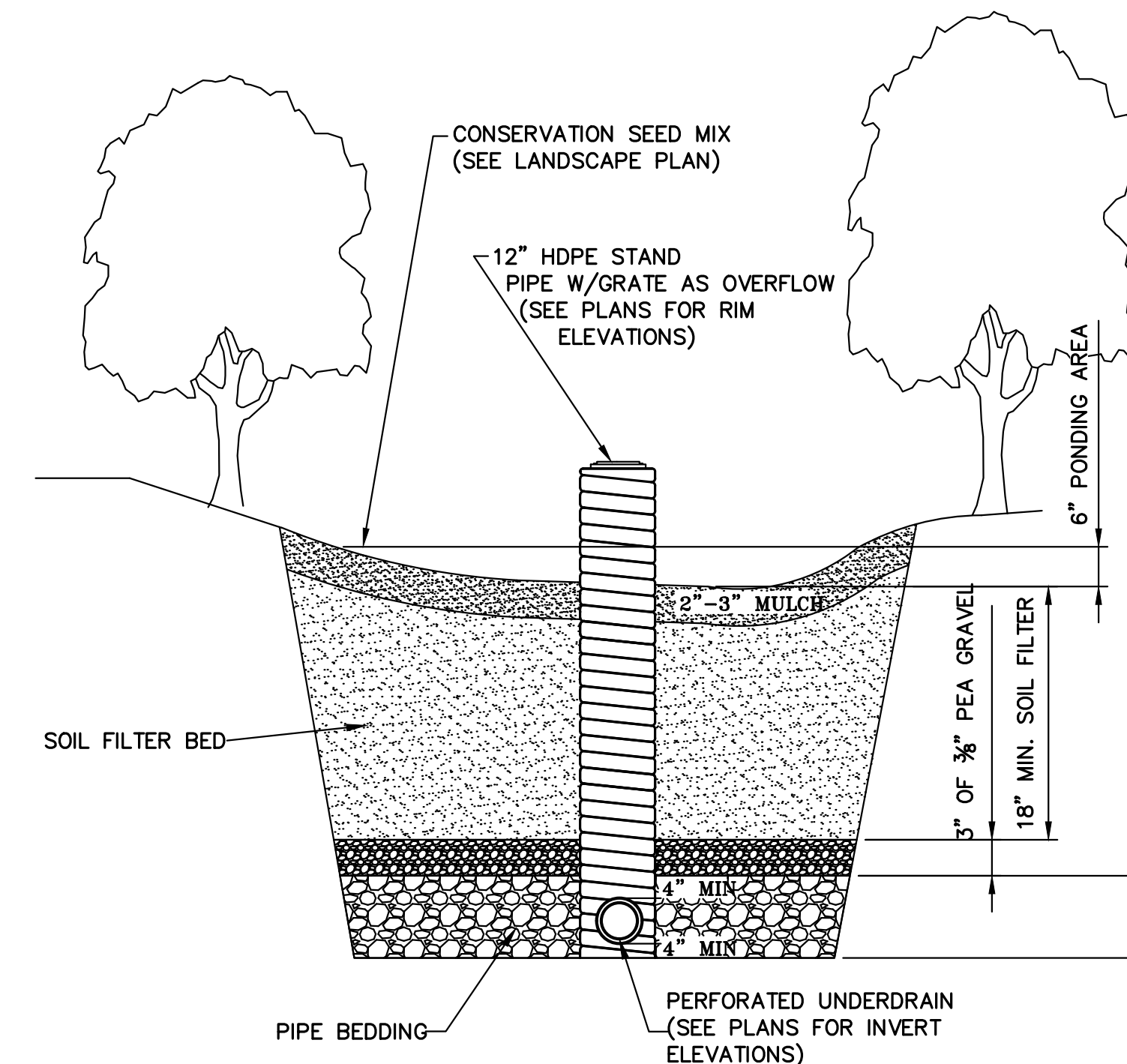
- PROVIDE EROSION AND SEDIMENTATION CONTROL PROTECTION ON THE SITE SUCH THAT CONSTRUCTION RUNOFF IS DIRECTED AWAY FROM THE PROPOSED BIORETENTION LOCATION. BIORETENTION AREAS MAY NOT BE USED AS SEDIMENT TRAPS DURING CONSTRUCTION.
- BIORETENTION AREA MUST BE PHYSICALLY MARKED PRIOR TO ANY LAND-DISTURBING ACTIVITIES TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION.
- COMPLETE SITE ELEVATION GRADING AND STABILIZE SOIL DISTURBED WITHIN THE LIMITS OF DISTURBANCE. DO NOT FINALIZE BIORETENTION EXCAVATION AND CONSTRUCTION UNTIL THE DRAINAGE AREA IS FULLY STABILIZED.
- EXCAVATE BIORETENTION AREA TO PROPOSED INVERT DEPTH AND MANUALLY SCARIFY THE IN SITU SOILS AT THE BASE OF THE EXCAVATION. DO NOT COMPACT IN SITU SOILS. HEAVY EQUIPMENT MUST NOT BE USED WITHIN THE BIORETENTION AREA. ALL EQUIPMENT MUST BE KEPT OUT OF THE EXCAVATED AREA TO THE MAXIMUM EXTENT POSSIBLE. THE USE OF MACHINERY TO LOAD ANY PROPOSED STONE FROM OUTSIDE OF THE BASIN FOOTPRINT IS RECOMMENDED. AVOID EXCESSIVELY COMPACTING SOILS AROUND THE BIORETENTION AREAS, ACCUMULATING SILT AROUND THE BIORETENTION AREAS, AND ACCUMULATING SILT AROUND THE DRAIN FIELD.
- PLACE PIPE BEDDING COARSE GRAVEL AND SET UNDERDRAIN ACCORDING TO PLAN.
- BACKFILL THE EXCAVATED AREA WITH SOIL FILTER MIXTURE AS SOON AS THE SUBGRADE PREPARATION IS COMPLETE TO AVOID ACCUMULATION OF DEBRIS. PLACE THE SOIL FILTER MIXTURE IN 12- TO 18-INCH LIFTS, AND TAMP LIGHTLY BY HAND OR COMPACT BY WATERING EACH LIFT. ENSURE BACKFILL PROCESS DOES NOT DISRUPT PIPE PLACEMENT AND CONFIGURATION. SLIGHT OVERFILLING MIGHT BE NECESSARY TO ACCOUNT FOR SETTLEMENT. PRESOAK THE SOIL AT LEAST ONE DAY PRIOR TO FINAL GRADING AND LANDSCAPING TO ALLOW FOR SETTLEMENT.
- AFTER ALLOWING FOR SETTLEMENT OF SOIL FILTER MIXTURE, COMPLETE FINAL GRADING OF SOIL FILTER MIXTURE WITHIN APPROXIMATELY 3 INCHES OF THE PROPOSED DESIGN ELEVATIONS, LEAVING SPACE FOR TOP DRESSING OF MULCH.
- SEED AND PLANT VEGETATION AS INDICATED ON THE PLANS, NOTES, AND SPECIFICATIONS.
- PLACE MULCH AND HAND GRADE TO FINAL ELEVATIONS.
- INSTALL ENERGY DISSIPATORS AS SPECIFIED ON THE PLANS.
- WATER VEGETATION REGULARLY AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED.

C. MAINTENANCE REQUIREMENTS

- CONTRACTOR IS RESPONSIBLE TO MAINTAIN BIORETENTION SYSTEMS AND ASSOCIATED STRUCTURES FOR ONE YEAR FOLLOWING COMPLETED INSTALLATION. BIORETENTION SYSTEMS WILL BE PAID TO 95% AT COMPLETED INSTALLATION. THE REMAINING 5% WILL BE PAID AT THE END OF THE ONE YEAR ACCEPTANCE PERIOD, PROVIDED THE CONTRACTOR MAINTAINS THE BIORETENTION SYSTEMS AS INDICATED. THE CITY OF DOVER WILL BE RESPONSIBLE FOR MAINTAINING THE BIORETENTION SYSTEMS FOLLOWING THE ONE YEAR ACCEPTANCE PERIOD.
- BIORETENTION 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.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
- AT LEAST ONCE ANNUALLY, BIORETENTION SYSTEMS SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF THE BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72 HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL (I.E. PROFESSIONAL ENGINEER, CERTIFIED SOIL SCIENTIST, ETC.) SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- 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.
- RE-MULCH VOID AREAS ANNUALLY IN THE EARLY SPRING.
- BIORETENTION AREA SIDE-SLOPES AND FLOOR SHOULD BE MOWED AT LEAST TWICE A YEAR TO PREVENT WOODY GROWTH. CLIPPINGS SHOULD BE REMOVED TO MINIMIZE THE AMOUNT OF ORGANIC MATERIAL ACCUMULATING IN THE BASIN.
- UPON FAILURE, EXCAVATE BIORETENTION AREA, SCARIFY BOTTOM AND SIDES, REPLACE FILTER SOIL, REPLANT, AND MULCH.
- SNOW REMOVED FROM ANY ON-SITE OR OFF-SITE AREAS MAY NOT BE STORED OVER THE BIORETENTION SYSTEM.



BIORETENTION SYSTEM - DETAIL
NTS



BIORETENTION SYSTEM
NTS

NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19		DAD	JLF	RRL

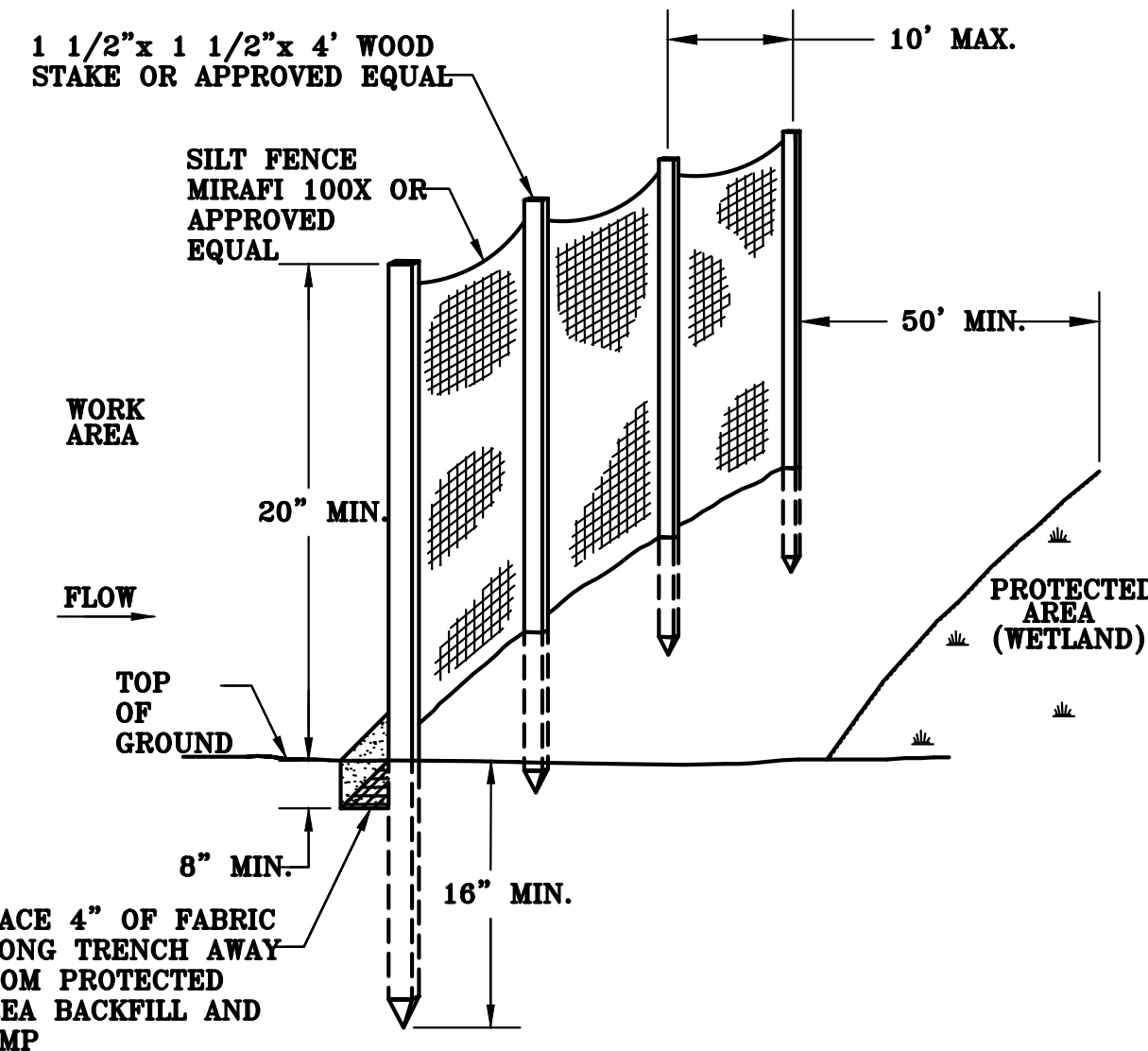
FUSS & O'NEILL
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STATE OF NEW HAMPSHIRE
 RICHARD R. LUNDGREN
 LICENSE NO. 10843
 PROFESSIONAL ENGINEER

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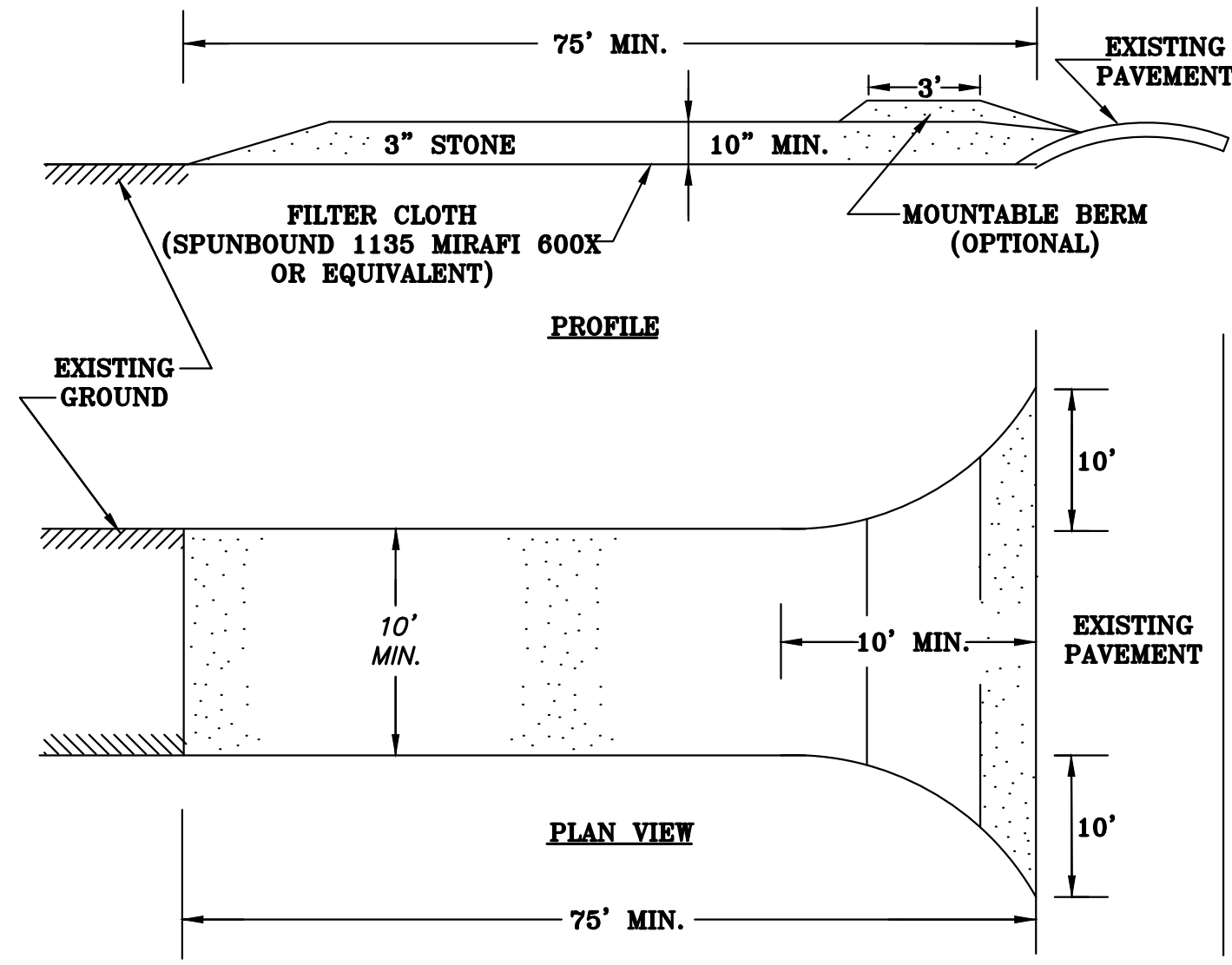
MAINTENANCE REQUIREMENTS:

1. FENCES SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALLS;
2. SEDIMENT DEPOSITION SHOULD BE REMOVED, AT A MINIMUM, WHEN DEPOSITION ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FENCE, AND MOVED TO AN APPROPRIATE LOCATION SO THE SEDIMENT IS NOT READILY TRANSPORTED BACK TOWARD THE SILT FENCE.
3. SILT FENCES SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHOULD BE REPLACED WITH A TEMPORARY CHECK DAM.
4. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY; THE FABRIC SHOULD BE REPLACED PROMPTLY.
5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE PREPARED AND SEED.
6. IF THERE IS EVIDENCE OF END FLOW ON PROPERLY INSTALLED BARRIERS, EXTEND BARRIERS UP HILL OR CONSIDER REPLACING THEM WITH OTHER MEASURES, SUCH AS TEMPORARY DIVERSIONS AND SEDIMENT TRAPS.
7. SILT FENCES HAVE A USEFUL LIFE OF ONE SEASON. ON LONGER CONSTRUCTION PROJECTS, SILT FENCE SHOULD BE REPAIRED PERIODICALLY AS REQUIRED TO MAINTAIN EFFECTIVENESS.

CONSTRUCTION SPECIFICATIONS:

1. FENCES SHOULD BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE FENCE. SEDIMENT BARRIERS SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA ABOVE THE FENCE SHOULD BE LESS THAN 1A ACRE PER 100 LINEAR FEET OF FENCE;
3. THE MAXIMUM LENGTH OF SLOPE ABOVE THE FENCE SHOULD BE 100 FEET;
4. THE MAXIMUM SLOPE ABOVE THE FENCE SHOULD BE 2:1;
5. FENCES SHOULD BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSELY AS POSSIBLE, AND A. THE ENDS OF THE FENCE SHOULD BE FLARED UPSLOPE; B. THE FABRIC SHOULD BE EMBEDDED A MINIMUM OF 8 INCHES IN DEPTH AND 4 INCHES IN WIDTH IN A TRENCH EXCAVATED INTO THE GROUND, OR IF SITE CONDITIONS INCLUDE FROZEN GROUND, LEDGE, OR THE PRESENCE OF HEAVY ROOTS, THE BASE OF THE FABRIC SHOULD BE EMBEDDED WITH A MINIMUM THICKNESS OF 8 INCHES OF 3/4-INCH STONE; C. THE SOIL SHOULD BE COMPACTED OVER THE EMBEDDED FABRIC; D. SUPPORT POSTS SHOULD BE SIZED AND ANCHORED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS WITH MAXIMUM POST SPACING OF 6 FEET; E. ADJOINING SECTIONS OF THE FENCE SHOULD BE OVERLAPPED BY A MINIMUM OF 6 INCHES (24 INCHES IS PREFERRED), FOLDED AND STAPLED TO A SUPPORT POST. IF METAL POSTS ARE USED, FABRIC SHOULD BE WIRE-TIED DIRECTLY TO THE POSTS WITH THREE DIAGONAL TIES.
6. SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.
7. THE FILTER FABRIC SHOULD BE A PEROUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.
8. THE FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.
9. POSTS FOR SILT FENCES SHOULD BE EITHER 4-INCH DIAMETER WOOD OR 1.33 POUNDS PER LINEAR FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHOULD HAVE PROJECTIONS FOR FASTENING WIRE TO THEM. POSTS SHOULD BE PLACED ON THE DOWN SLOPE SIDE OF THE FABRIC.
10. THE HEIGHT OF A SILT FENCE SHOULD NOT EXCEED 36 INCHES AS HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.
11. THE FILTER FABRIC SHOULD BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY; FILTER CLOTH SHOULD BE SPUNCE TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
12. A MANUFACTURED SILT FENCE SYSTEM WITH INTEGRAL POSTS MAY BE USED.
13. POST SPACING SHOULD NOT EXCEED 6 FEET.
14. A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UP GRADIENT FROM THE BARRIER.
15. THE STANDARD STRENGTH OF FILTER FABRIC SHOULD BE STAPLED OR WIRED TO THE POST, AND 8 INCHES OF THE FABRIC SHOULD BE EXTENDED INTO THE TRENCH. THE FABRIC SHOULD NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
16. THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
17. SILT FENCE MAY BE INSTALLED BY "SLICING" USING MECHANICAL EQUIPMENT SPECIFICALLY DESIGNED FOR THIS PROCEDURE. THE SLICING METHOD USES AN IMPLEMENT TOWED BEHIND A TRACTOR TO "PLOW" OR SLICE THE SILT FENCE MATERIAL INTO THE SOIL. THE SLICING METHOD MINIMALLY DISRUPTS THE SOIL UPWARD AND SLIGHTLY DISPLACES THE SOIL, MAINTAINING THE SOIL'S PROFILE AND CREATING AN OPTIMAL CONDITION FOR SUBSEQUENT MECHANICAL COMPACTION.
18. SILT FENCES SHOULD BE INSTALLED WITH "SMILES" OR "J-HOOKS" TO REDUCE THE DRAINAGE AREA THAT ANY SEGMENT WILL IMPOUND.
19. THE ENDS OF THE FENCE SHOULD BE TURNED UP HILL.
20. SILT FENCES PLACED AT THE TOE OF A SLOPE SHOULD BE SET AT LEAST 6 FEET FROM THE TOE. A ALLOW SPACE FOR SHALLOW PONDING AND TO ALLOW FOR MAINTENANCE ACCESS WITHOUT DISTURBING THE SLOPE.
21. SILT FENCES SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SILT FENCE BARRIER
N.T.S.



MAINTENANCE REQUIREMENTS:

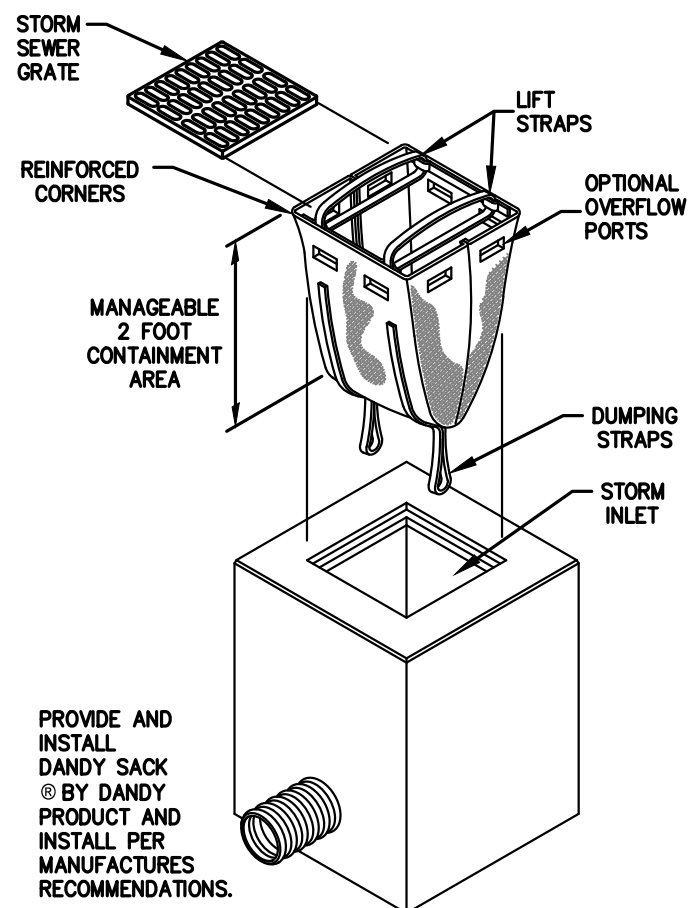
1. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED.
2. THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
3. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

CONSTRUCTION SPECIFICATIONS:

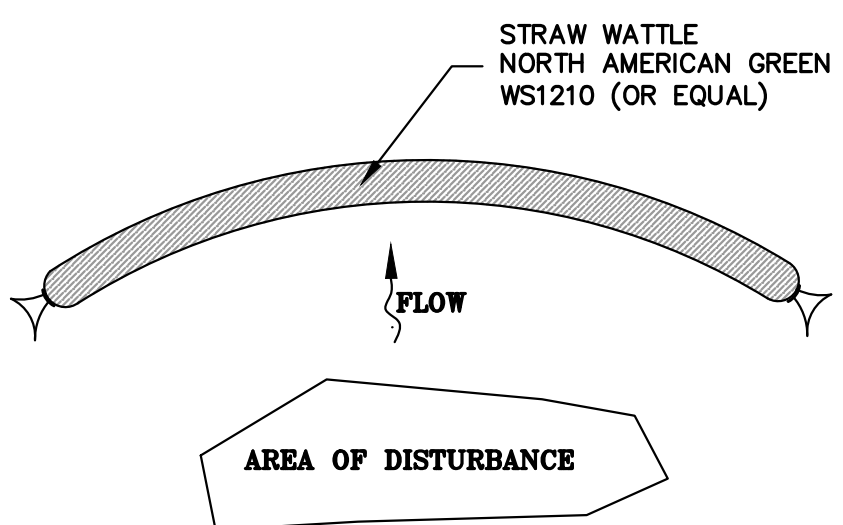
1. THE MINIMUM STONE USED SHOULD BE 3-INCH CRUSHED STONE.
2. THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH MOUNTABLE BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE PAD SHOULD BE THE FULL WIDTH OF CONSTRUCTION ACCESS ROAD OR 10 FEET, WHICHEVER IS GREATER.
4. THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
5. THE PAD SHOULD BE AT LEAST 10 INCHES THICK.
6. THE GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
7. THE PAD SHOULD BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF-SITE.
8. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

USDA - SCS STABILIZED CONSTRUCTION ENTRANCE

N.T.S.



DANDY SACK
N.T.S.



STRAW WATTLE
N.T.S.

NORTH AMERICAN GREEN (OR EQUAL) STRAW WATTLE TO BE INSTALLED AS SHOWN ON THE PLAN.

WINTER STABILIZATION & CONSTRUCTION PRACTICES:

MAINTENANCE REQUIREMENTS:

1. MAINTENANCE MEASURES SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION, INCLUDING OVER THE WINTER PERIOD. AFTER EACH RAINFALL, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHOULD CONDUCT INSPECTION OF ALL INSTALLED EROSION CONTROL PRACTICES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUED FUNCTION.
2. FOR ANY AREA STABILIZED BY TEMPORARY OR PERMANENT SEEDING PRIOR TO THE ONSET OF THE WINTER SEASON, THE CONTRACTOR SHOULD CONDUCT AN INSPECTION IN THE SPRING TO ASCERTAIN THE CONDITION OF THE VEGETATION AND REPAIR ANY DAMAGED AREAS OR BARE SPOTS AND RESEED AS REQUIRED TO ACHIEVE AN ESTABLISHED VEGETATIVE COVER (AT LEAST 85% OF AREA VEGETATED WITH HEALTHY, VIGOROUS GROWTH.)

SPECIFICATIONS:

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO 1-ACRE AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DISCUSSED IN NHSM, VOL. 3 AND ELSEWHERE IN THIS PLAN SET. PRIOR TO ANY THAW OR SPRING MELT EVENT, STABILIZATION AS FOLLOWS SHOULD BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
2. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING, OR 2 INCHES OF EROSION CONTROL MIX (REFER TO NHSM, VOL. 3 FOR SPECIFICATION).
3. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15 SHOULD BE SEEDED AND COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET OR WITH A MINIMUM OF 4 INCHES OF EROSION CONTROL MIX, UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. NOTE THAT COMPOST BLANKETS SHOULD NOT EXCEED 2 INCHES IN THICKNESS OR THEY MAY OVERHEAT.
4. ALL STONE COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
5. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
6. ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (I.E. BY NETTING, TRACKING, WOOD CELLULOSE FIBER).
7. WITHIN 24 HOURS OF STOCKPILING SOIL MATERIALS SHOULD BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A 4 INCH LAYER OF EROSION CONTROL MIX. MULCH SHOULD BE RE-ESTABLISHED PRIOR TO ANY RAIN OR SNOWFALL. NO SOIL STOCKPILE SHOULD BE PLACED (EVEN COVERED WITH MULCH) WITHIN 100-FT OF ANY WETLAND OR OTHER WATER RESOURCE AREA.
8. FROZEN MATERIAL (I.E. FROST LAYER REMOVED DURING WINTER CONSTRUCTION) SHOULD BE STOCKPILED SEPARATELY AND IN A LOCATION AWAY FROM ANY AREA NEEDING PROTECTION. FROZEN MATERIAL STOCKPILES CAN MELT IN SPRING AND BECOME UNWORKABLE AND DIFFICULT TO TRANSPORT DUE TO HIGH SOIL MOISTURE CONTENT.
9. INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.
10. ALL GRASS-LINED DITCHES AND CHANNELS SHOULD BE CONSTRUCTED BY SEPTEMBER 1. ALL DITCHES AND SWALES WHICH DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS AS DETERMINED BY A PROFESSIONAL ENGINEER. IF STONE LINING IS NECESSARY, THE CONTRACTOR MAY NEED TO RE-GRADE THE DITCH AS REQUIRED TO PROVIDE ADEQUATE CROSS-SECTION AFTER ALLOWING FOR PLACEMENT OF THE STONE.
11. ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.
12. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER SHOULD BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF SAND AND GRAVEL WITH A GRADATION THAT IS LESS THAN 12% OF THE SAND PORTION, OR MATERIAL PASSING THE NUMBER 4 SIEVE, BY WEIGHT, PASSES THE NUMBER 200 SIEVE.
13. SEDIMENT BARRIERS THAT ARE INSTALLED DURING FROZEN CONDITIONS SHOULD CONSIST OF EROSION CONTROL MIX BERMS, OR CONTINUOUS CONTAINED BERMS. SILT FENCES AND HAY BALES SHOULD NOT BE INSTALLED WHEN FROZEN CONDITIONS PREVENT PROPER EMBEDMENT OF THESE BARRIERS.

DUST CONTROL PRACTICES:

1. APPLY DUST CONTROL MEASURES AS NECESSARY TO MAINTAIN CONTROL OF DUST ON SITE.
2. **WATER APPLICATION:**
 - A) MOISTEN EXPOSED SOIL SURFACES PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.
 - B) AVOID EXCESSIVE APPLICATION OF WATER THAT WOULD RESULT IN MOBILIZING SEDIMENT AND SUBSEQUENT DEPOSITION IN NATURAL WATERBODIES.
3. **STONE APPLICATION:**
 - A) COVER SURFACE WITH CRUSHED OR COARSE GRAVEL.
 - B) IN AREAS NEAR WATERWAYS USE ONLY CHEMICALLY STABILIZED OR WASHED AGGREGATE.
4. REFER TO "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" FOR OTHER ALLOWABLE DUST CONTROL PRACTICES (I.E. COMMERCIAL TACKIFIERS OR CHEMICAL TREATMENTS SUCH AS CALCIUM CHLORIDE, ETC.)

INVASIVE SPECIES NOTE:

THE CONTRACTOR SHALL TAKE STEPS TO PREVENT THE SPREAD OF INVASIVE PLANT, INSECT, AND FUNGAL SPECIES BY MEETING THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES. http://gencour.state.nh.us/rules/state_agencies/agr3800.html

SOIL STOCKPILE PRACTICES:

1. LOCATE STOCKPILES A MINIMUM OF 50-FT. AWAY FROM CONCENTRATED FLOWS OF STORMWATER, DRAINAGE COURSES OR INLETS.
2. PROTECT ALL STOCKPILES FROM STORMWATER RUN-ON USING TEMPORARY PERIMETER MEASURES SUCH AS DIVERSIONS, BERMS, SANDBAGS OR OTHER APPROVED PRACTICES.
3. STOCKPILES SHOULD BE SURROUNDED BY SEDIMENT BARRIERS AS DESCRIBED ON THE PLANS AND IN NHSM VOL. 3. TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILE.
4. IMPLEMENT WIND EROSION CONTROL PRACTICES AS APPROPRIATE ON ALL STOCKPILED MATERIAL.
5. PLACE BAGGED MATERIALS ON PALLETS OR UNDERCOVER.

PROTECTION OF INACTIVE STOCKPILES:

6. INACTIVE SOIL STOCKPILES SHOULD BE COVERED WITH ANCHORED TARPS OR PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY SEED AND MULCH OR OTHER TEMPORARY STABILIZATION PRACTICE) AND TEMPORARY PERIMETER SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES.
7. INACTIVE STOCKPILES OF CONCRETE RUBBLE, ASPHALT CONCRETE RUBBLE, AGGREGATE MATERIALS, AND SIMILAR MATERIALS SHOULD BE PROTECTED WITH TEMPORARY SEDIMENT PERIMETER BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES. IF THE MATERIALS ARE A SOURCE OF DUST, THEY SHOULD ALSO BE COVERED.

PROTECTION OF ACTIVE STOCKPILES:

8. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY LINEAR SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) PRIOR TO THE ONSET OF PRECIPITATION. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIAL FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
9. WHEN A STORM IS PREDICTED, STOCKPILES SHOULD BE PROTECTED WITH AN ANCHORED PROTECTIVE COVERING.

GENERAL CONSTRUCTION PHASING:

1. **STABILIZATION:**
A. SITE IS DEEMED STABILIZED WHEN IT IS IN A CONDITION IN WHICH THE SOIL ON SITE WILL NOT EXPERIENCE ACCELERATED OR UNNATURAL EROSION UNDER THE CONDITIONS OF A 10-YEAR STORM EVENT, SUCH AS BUT NOT LIMITED TO:
 - A) IN AREAS THAT WILL NOT BE PAVED:
 - i) A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED;
 - ii) A MINIMUM OF 3-INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR A CERTIFIED COMPOST BLANKET HAS BEEN INSTALLED, OR;
 - iii) EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
 - B) IN AREAS TO BE PAVED:
 - i) BASE COURSE GRAVELS HAVE BEEN INSTALLED.
2. **TEMPORARY STABILIZATION:**
ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE TEMPORARILY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 45 DAYS FROM THE TIME OF INITIAL DISTURBANCE, UNLESS A SHORTER TIME IS SPECIFIED BY LOCAL AUTHORITIES, THE CONSTRUCTION SEQUENCE APPROVED AS PART OF THE ISSUED PERMIT OR AN INDEPENDENT MONITOR.
3. **PERMANENT STABILIZATION:**
ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE PERMANENTLY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 3 DAYS FOLLOWING FINAL GRADING.
4. **MAXIMUM AREA OF DISTURBANCE:**
THE AREA OF UNSTABILIZED SOIL SHOULD NOT EXCEED 5 ACRES AT ANY TIME.
5. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
 - A) FLAG OR OTHERWISE DELINEATE AREAS NOT TO BE DISTURBED.
 - B) EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION.
6. DO NOT TRAFFIC EXPOSED SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
7. AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
8. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
9. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHOULD BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
10. ALL EROSION AND SEDIMENT CONTROL PRACTICES AND MEASURES SHOULD BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL.
11. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHOULD BE STOCKPILED IN THE AMOUNT NECESSARY TO COMPLETE FINISHED GRADING AND BE PROTECTED FROM EROSION.
12. **STOCKPILES, BORROW AREAS AND SPOILS SHALL BE STABILIZED AS DESCRIBED UNDER "SOIL STOCKPILE PRACTICES".**
13. SLOPES SHOULD NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGE.
14. AREAS TO BE FILLED SHOULD BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND/OR OTHER OBJECTIONABLE MATERIALS.
15. AREAS SHOULD BE SCARIFIED TO A MINIMUM DEPTH OF 3-INCHES PRIOR TO PLACEMENT OF TOPSOIL. TOPSOIL SHOULD BE PLACED WITHOUT SIGNIFICANT COMPACTION TO PROVIDE A LOOSE BEDDING FOR PLACEMENT OF SEED.
16. ALL FILLS SHOULD BE COMPACTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, SITE UTILITIES, CONDUITS AND OTHER FACILITIES, SHOULD BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
17. IN GENERAL, FILLS SHOULD BE COMPACTED IN LAYERS RANGING FROM 6 TO 24 INCHES IN THICKNESS. THE CONTRACTOR SHOULD REVIEW THE PROJECT GEOTECHNICAL REPORT AND/OR THE "PROJECT SPECIFIC SEQUENCING NOTES" FOR SPECIFIC GUIDANCE.
18. ANY AND ALL FILL MATERIAL SHOULD BE FREE OF BRUSH, RUBBISH, ROCKS (LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING INSTALLED), LOGS, STUMPS, BUILDING DEBRIS, FROZEN MATERIAL AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.
19. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE (I.E. CLAY, SILT) MATERIALS ARE SUSCEPTIBLE TO ACCELERATED SETTLEMENT AND POTENTIAL ACCELERATED EROSION. WORK IN AREAS OF THESE MATERIALS SHOULD BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER.
20. THE OUTER FACE OF THE FILL SLOPE SHOULD BE ALLOWED TO STAY LOOSE, NOT ROLLED OR COMPACTED, OR BLADE SMOOTHED. A BULLDOZER MAY RUN UP AND DOWN THE FILL SLOPE SO THE DOZER TREADS (CLEAT TRACKS) CREATE GROOVES PERPENDICULAR TO THE SLOPE. IF THE SOIL IS NOT TOO MOIST, EXCESSIVE COMPACTION WILL NOT OCCUR. SEE "SURFACE ROUGHENING" IN THE NHSM, VOL.3.
21. ROUGHEN THE SURFACE OF ALL SLOPES DURING THE CONSTRUCTION OPERATION TO RETAIN WATER, INCREASE INFILTRATION AND FACILITATE VEGETATION ESTABLISHMENT.
22. USE SLOPE BREAKS, SUCH AS DIVERSIONS, BENCHES, OR CONTOUR FURROWS AS APPROPRIATE TO REDUCE THE LENGTH OF CUT-FILL SLOPES TO LIMIT SHEET AND RILL EROSION AND PREVENT GULLY EROSION. ALL BENCHES SHOULD BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF CONSTRUCTION.
23. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHOULD BE EVALUATED BY A PROFESSIONAL ENGINEER (PREFERABLY THE DESIGN ENGINEER) TO DETERMINE IF THE PROPOSED DESIGN SHOULD BE REVISED TO PROPERLY MANAGE THE CONDITION.
24. STABILIZE ALL GRADED AREAS (AS ABOVE) WITH VEGETATION, CRUSHED STONE, COMPOST BLANKET, OR OTHER GROUND COVER AS SOON AS GRADING IS COMPLETE OR IF WORK IS INTERRUPTED FOR 21 WORKING DAYS OR MORE. USE MULCH OR OTHER APPROVED METHODS TO STABILIZE AREAS TEMPORARILY WHERE FINAL GRADING MUST BE DELAYED.
25. ALL GRADED AREAS SHOULD BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
26. DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

ABOVE NOTES EXCEPTED, ADAPTED AND REFERENCED FROM "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" (NHSM, VOL. 3)

NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
1	4/1/19		PAG/RRL	JLF	RRL

CONSTRUCTION DOCUMENTS

FUSS & O'NEILL
REGISTERED PROFESSIONAL ENGINEERS
1150 WASHINGTON ST., SUITE 104
KEENE, NH 03431
207.353.6669
www.fussandoneill.com | www.fdo.com

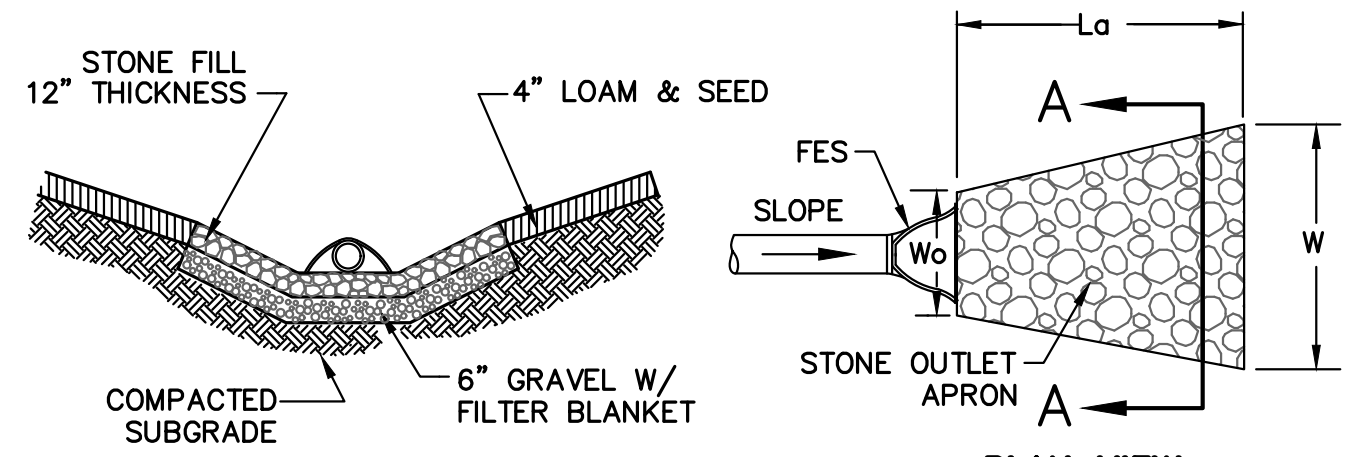
CITY OF DOVER
CITY HALL
DOVER, NH 03820

COMMUNITY TRAIL PHASE III DETAILS
CITY OF DOVER
NEW HAMPSHIRE

SCALE: AS NOTED	JOB NO. 16-0109
DATE: APRIL 1, 2019	DWG. C18

APRON DIMENSION TABLE

PIPE OUTLET BIORENTENTION SYSTEM #2	Wo	W	Lo
	3'	12'	9'
BIORENTENTION SYSTEM #3	3'	12'	9'
BIORENTENTION SYSTEM #4	3'	17'	14'



SECTION A-A PLAN VIEW
STONE: NHDOT ITEM 585.3 CLASS C STONE FILL

THE HEIGHT OF THE STRUCTURAL LINING ALONG THE CHANNEL SIDES SHALL BEGIN AT THE ELEVATION EQUAL TO THE TOP OF THE CONDUIT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.

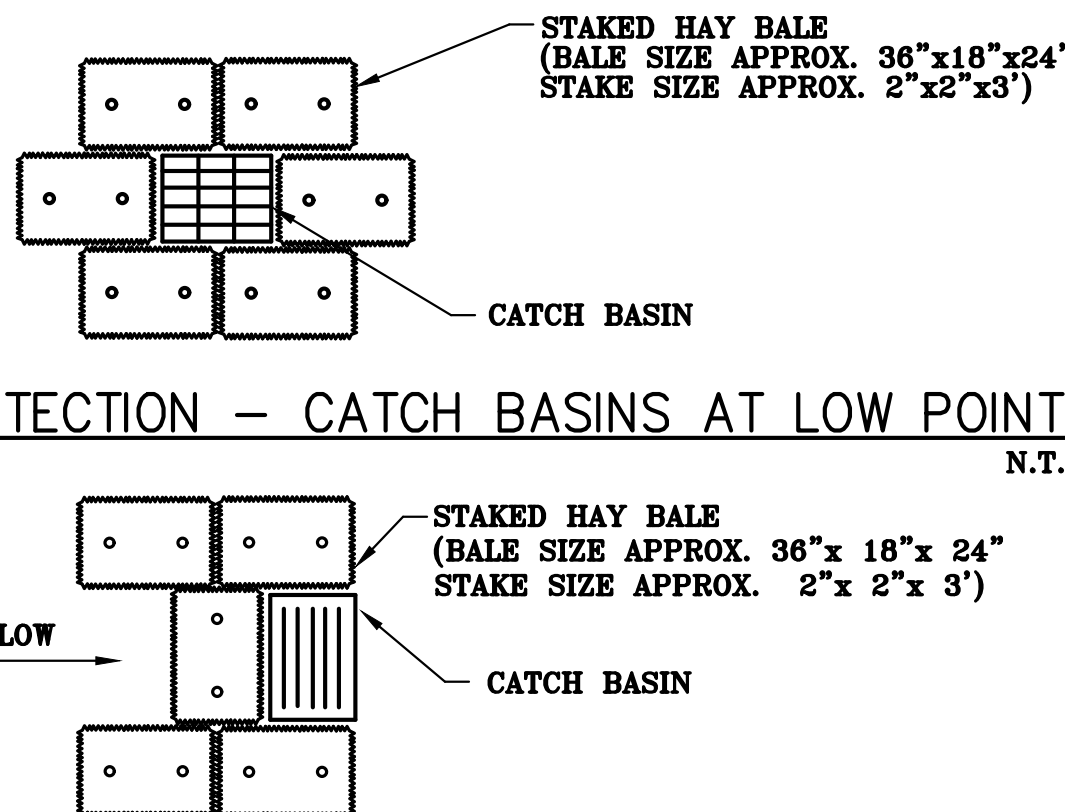
- NOTES:**
- ALL PIPE CULVERTS SHALL HAVE END SECTIONS OR HEADWALLS. END SECTION MATERIAL AND MANUFACTURER SHALL MATCH THAT OF THE PIPE CULVERT.
 - THE LARGEST RIP-RAP SIZE DETERMINED DURING HYDROLOGIC ANALYSIS HAS BEEN USED FOR ALL OUTLETS FOR ECONOMY AND SIMPLICITY.
 - APRON LENGTHS, WIDTHS AND THICKNESSES HAVE BEEN ROUNDED UP TO WHOLE NUMBERS FOR EASE OF CONSTRUCTION.

- CONSTRUCTION SPECIFICATIONS:**
- PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
 - MINIMUM 6" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
 - THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
 - 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.
 - 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.
 - RIP-RAP SIZE CHOSEN FOR THE WORST CASE OF ALL OUTLETS. ALL RIP-RAP USED FOR PIPE OUTLET PROTECTION WILL HAVE THE SAME GRADATION AND THICKNESS.

- MAINTENANCE NOTES:**
- 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.
 - THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
 - THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

RIP RAP APRON OUTLET PROTECTION

N.T.S.



FOR USE AROUND CATCH BASINS IN AREAS TO BE PAVED, WHICH ARE NOT LOCATED AT PROFILE LOW POINTS

EROSION PROTECTION – CATCH BASINS ON SLOPES

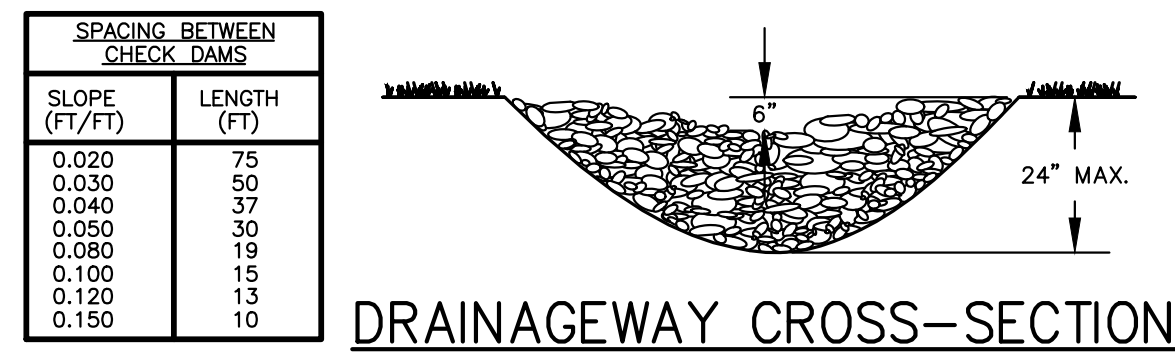
N.T.S.

- CONSTRUCTION SPECIFICATIONS:**
- PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDE IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4-INCH, 8-INCH AND 12-INCH WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH AND NO GREATER THAN 24 INCHES HIGH.
 - WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS SHALL BE USED.
 - STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN ABOVE. STONE GRADATION SHALL BE WELL GRADED WITH THE MAXIMUM STONE SIZE OF 6 INCHES AND MINIMUM STONE SIZE OF 1 INCH.
 - IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.

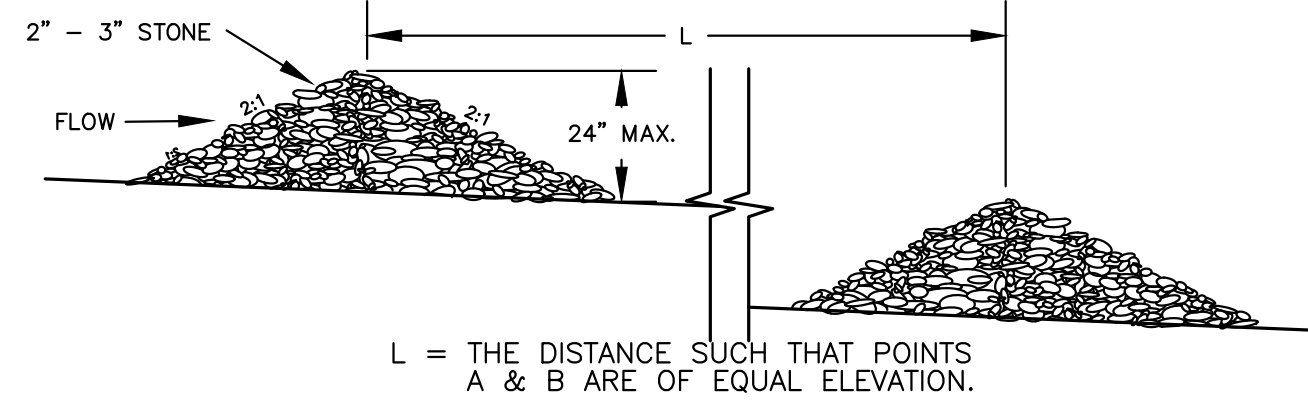
- MAINTENANCE NOTES:**
- THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
 - SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
 - STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SEDIMENTATION CONTROL AT CATCH BASINS

N.T.S.



DRAINAGEWAY CROSS-SECTION



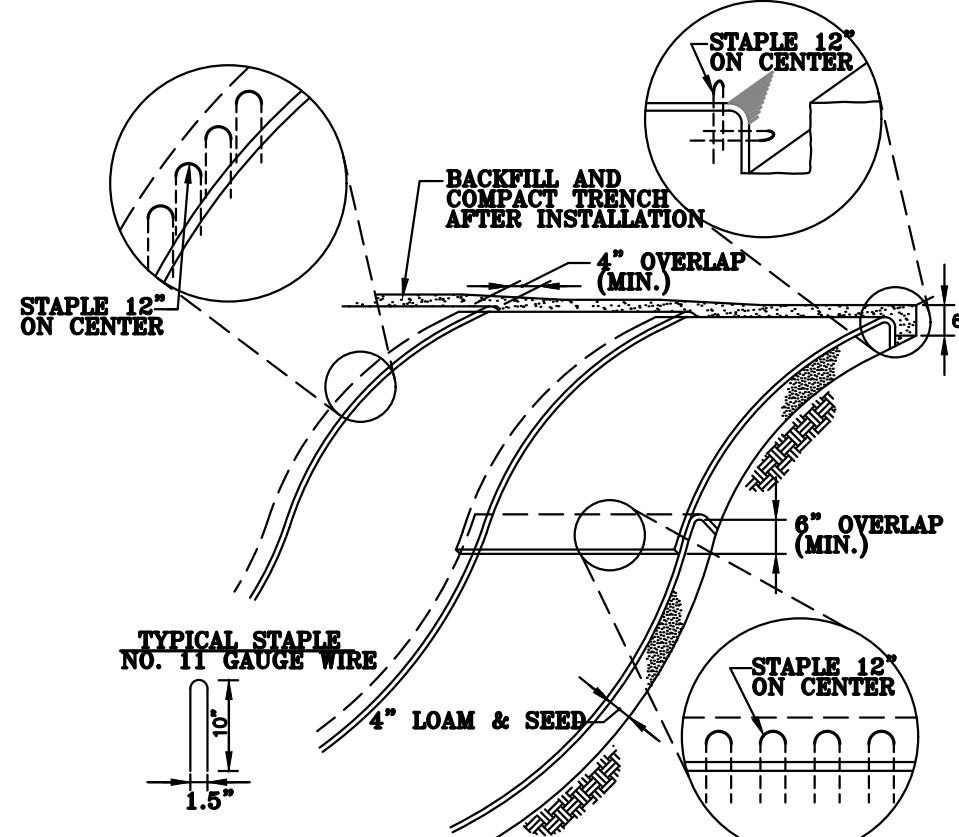
SPACING BETWEEN STONE CHECK DAMS

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

- MAINTENANCE NOTES:**
- 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.
 - PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
 - WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED.
 - SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM INSTALLATION DETAIL

N.T.S.



SLOPE INSTALLATION

- MAINTENANCE REQUIREMENTS:**
- ALL BLANKET AND MATS SHOULD BE INSPECTED WEEKLY DURING THE CONSTRUCTION PERIOD, AND AFTER ANY RAINFALL EVENT EXCEEDING 1/2 INCH IN A 24-HOUR PERIOD.
 - ANY FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUT OF THE SLOPE, DISPLACEMENT OF THE MAT, OR DAMAGE TO THE MAT OCCURS, THE AFFECTED SLOPE SHALL BE REPAIRED AND RESEDED, AND THE AFFECTED AREA OF MAT SHALL BE RE-INSTALLED.

- CONSTRUCTION SPECIFICATIONS:**
- ROLLED EROSION CONTROL PRODUCT TO BE SELECTED FROM NHDOT QUALIFIED PRODUCT LIST, LATEST EDITION, UNDER ITEM 645.42 TYPE B OR ITEM 645.44 TYPE D.
 - MANUFACTURE'S INSTALLATION INSTRUCTIONS:
 - 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.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) 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) APART ACROSS THE WIDTH OF THE RECP'S.
 - ROLL THE RECP'S (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. 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.
 - THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
 - CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

- SITE PREPARATION:**
- PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE COMPLETE CONTACT OF THE PROTECTION MATTING WITH THE SOIL.
 - GRADE AND SHAPE AREA IF INSTALLATION.
 - REMOVE ALL ROCKS, CLOUDS, TRASH, VEGETATIVE OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED BLANKETS WILL HAVE DIRECT CONTACT WITH THE SOIL.
 - PREPARE SEEDBED BY LOOSENING 2-3 INCHES OF TOPSOIL ABOVE FINAL GRADE.
 - INCORPORATE AMENDMENTS, SUCH AS LIME AND FERTILIZER, INTO SOIL ACCORDING TO SOIL TEST AND THE SEEDING PLAN.
- SEEDING:**
- SEED AREA BEFORE BLANKET INSTALLATION FOR EROSION CONTROL AND REVEGETATION. SEEDING AFTER MAT INSTALLATION IS OFTEN SPECIFIED FOR TURF REINFORCEMENT APPLICATIONS. WHEN SEEDING PRIOR TO BLANKET INSTALLATION, ALL CHECK SLOTS AND OTHER AREAS DISTURBED DURING INSTALLATION MUST BE RESEDED.
 - WHEN SOIL FILLING IS SPECIFIED, SEED THE MATTING AND THE ENTIRE DISTURBED AREA AFTER INSTALLATION AND PRIOR TO FILLING THE MAT WITH SOIL.

EROSION CONTROL – BLANKET SLOPE PROTECTION

N.T.S.

PERMANENT VEGETATION:

SPECIFICATIONS:

- SITE PREPARATION:**
- INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
 - GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
 - RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
 - ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.
 - DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

SEEDBED PREPARATION:

- 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 AND SILT SOILS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
- REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE CLOUDS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
- WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
- IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
- APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:
LIMESTONE APPLICATION RATE = 3 TONS/ACRE (138 LB./1,000-SF)*
*EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE
FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*
*LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
- FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:

- INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE OF INOCULANT.
- APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE.
- WHERE FEASIBLE EXCEPT WHERE EITHER CULTPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
- SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO FIRST KILLING FROST. WHEN CROWN VETCH IS SEEDING IN LATE SUMMER AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SPECIFIED SEEDING DATES, MULCH ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL. 3, AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL. 3.
- VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

HYDROSEEDING:

- WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
 - SLOPES MUST BE NO STEEPER THAN 2:1 (2 FEET HORIZONTALLY BY 1 FOOT VERTICALLY).
 - 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.
 - SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
- MAINTENANCE REQUIREMENTS:**
- PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTION, MAINTENANCE AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
 - SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION. MOWING HEIGHT AND FREQUENCY DEPEND OF TYPE OF GRASS COVER.
 - BASED ON INSPECTION, AREAS SHOULD BE RESEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
 - AT A MINIMUM 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
 - IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

TEMPORARY VEGETATION:

SPECIFICATIONS:

- SITE PREPARATION:**
- INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BASINS, SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
 - GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
 - RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
 - ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.
 - DITCHES/SWALES AND BASINS MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

SEEDBED PREPARATION:

- STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
- WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
- IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
- APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:
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*EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE
FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*
*LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
- FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:

- APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTPACKER TYPE SEEDER OR HYDRO SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
 - TEMPORARY SEED SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15.
 - AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL. 3.
 - VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.
- MAINTENANCE REQUIREMENTS:**
- TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AFTER ANY RAINFALL EXCEEDING 1/2 INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
 - BASED ON INSPECTION, AREAS SHOULD BE RESEDED 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.
 - IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

TEMPORARY VEGETATION SEEDING RECOMMENDATIONS

SPECIES	PER ACRE BUSHELS (BU) OR POUNDS (LBS.)	PER 1,000-SF	REMARKS
WINTER RYE	2.5 BU OR 112 LBS.	2.5 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.
OATS	2.5 BU OR 80 LBS.	2.0 LBS.	BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15 FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH.
ANNUAL RYEGRASS	40 LBS.	1.0 LB.	GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15 AND SEPTEMBER 15. COVER THE SEED WITH NO MORE THAN 0.25 INCH OF SOIL.
PERENNIAL RYEGRASS	30 LBS.	0.7 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.

SOURCES:

- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLE 4-1
- MINWICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

PERMANENT VEGETATION SEEDING RECOMMENDATIONS

USE	MIXTURE	SPECIES	LBS./ACRE	LBS./ 1,000-SF
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		TOTAL	42	0.95
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		TOTAL	42	0.95
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY RECREATION SITES	A	TALL FESCUE	20	0.45
		CREeping RED FESCUE	20	0.45
		TOTAL	42	0.95
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL ESSENTIAL FOR GOOD TURF)	F	CREeping RED FESCUE	50	1.15
		KENTUCKY BLUEGRASS	100	2.30

SOURCES:

- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLES 4-2 AND 4-3
- MINWICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

	CONSTRUCTION DOCUMENTS		APPROVED:
	NO. DATE REVISION	DESIGNED:	CHECKED:
1	4/1/19	DRAWN:	APPROVED:
		DAD	JLF
FUSS & O'NEILL			
581 BETHUN STREET, SUITE 1 KEENSBURG, MAINE 04841 207.563.6669 www.fussandoneill.com www.tandab.com			

CITY OF DOVER

CITY HALL

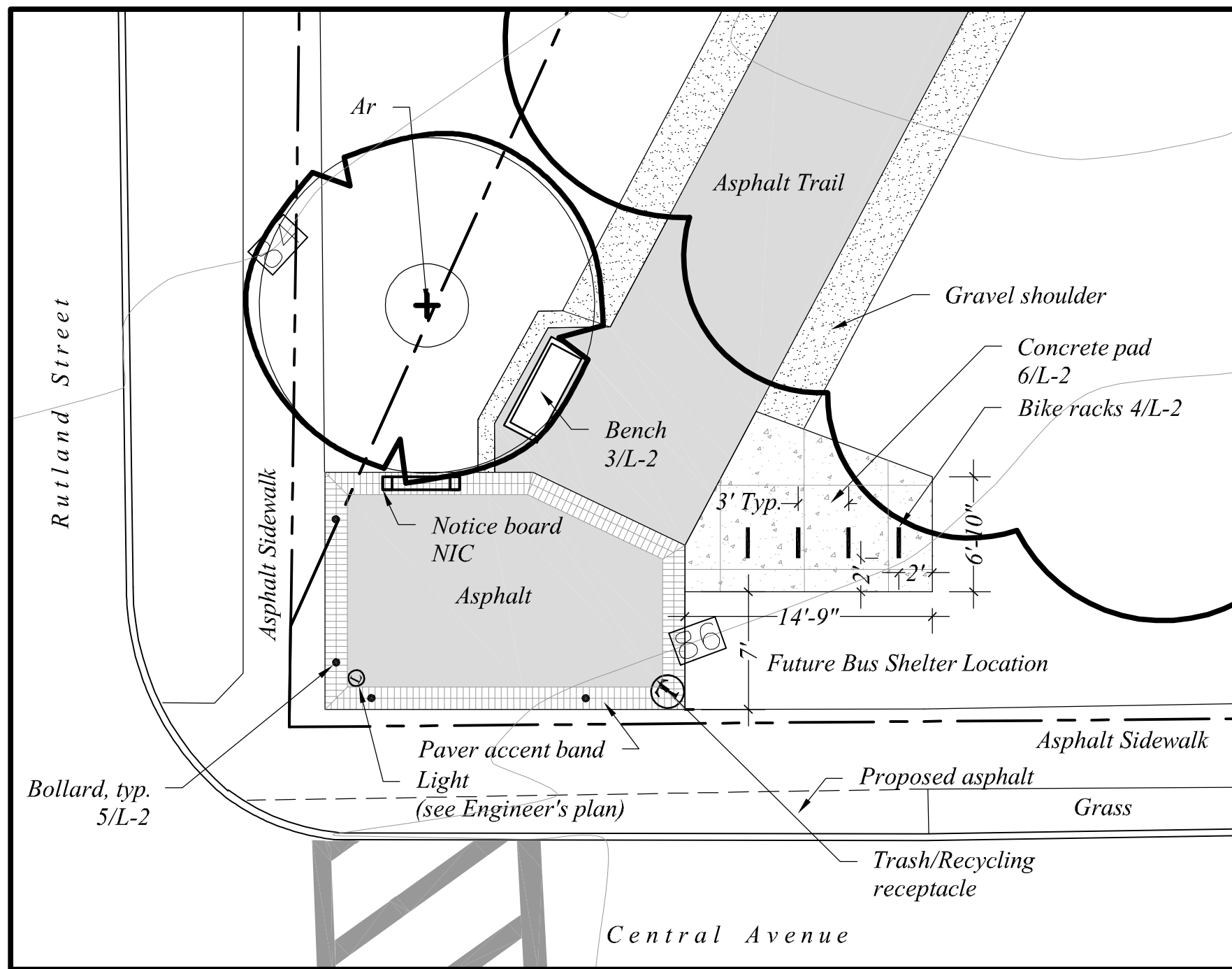
DOVER, NH 03820

COMMUNITY TRAIL PHASE III DETAILS

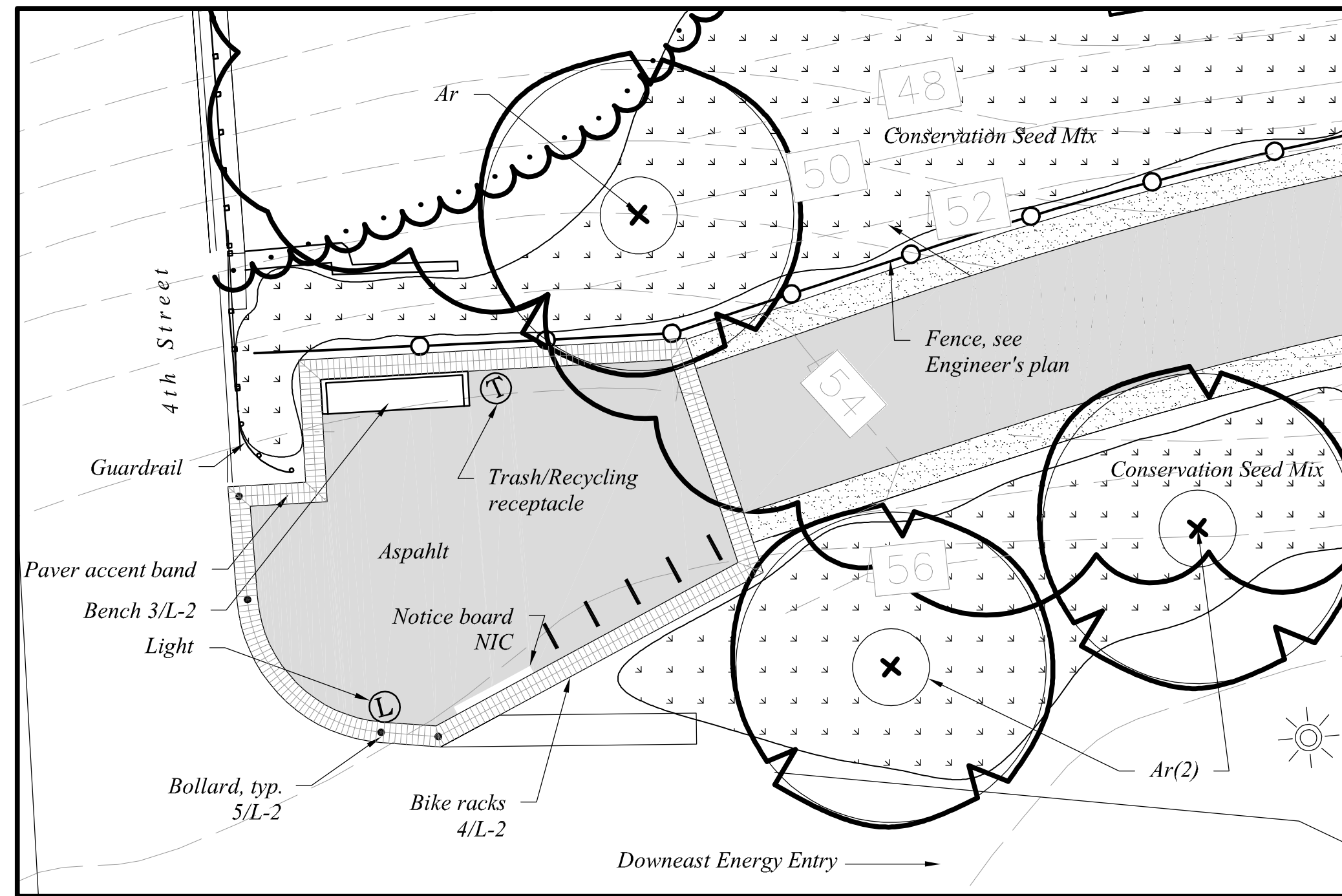
CITY OF DOVER NEW HAMPSHIRE

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JOB NO.

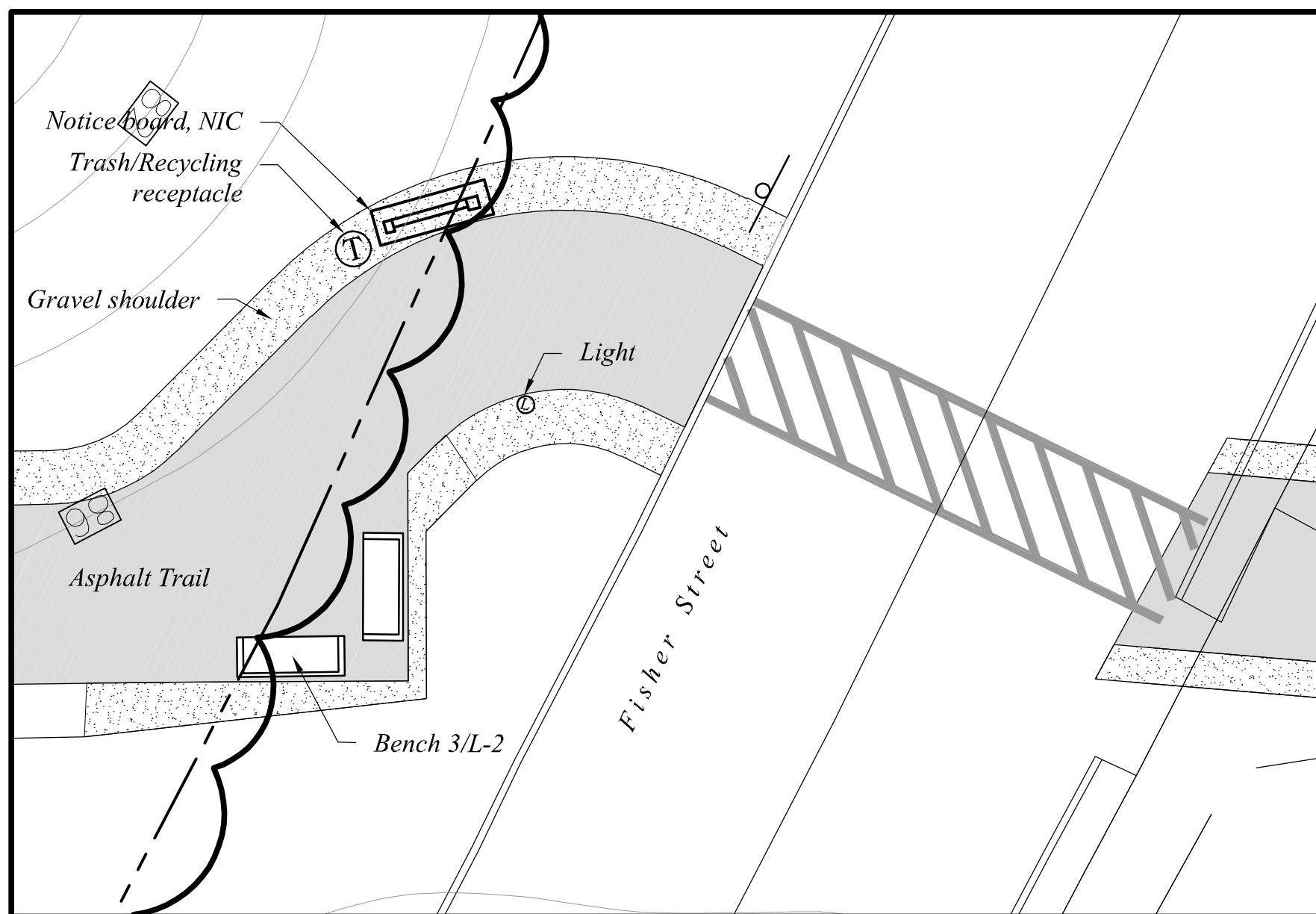
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APRIL 1, 2019
DWG.
C19



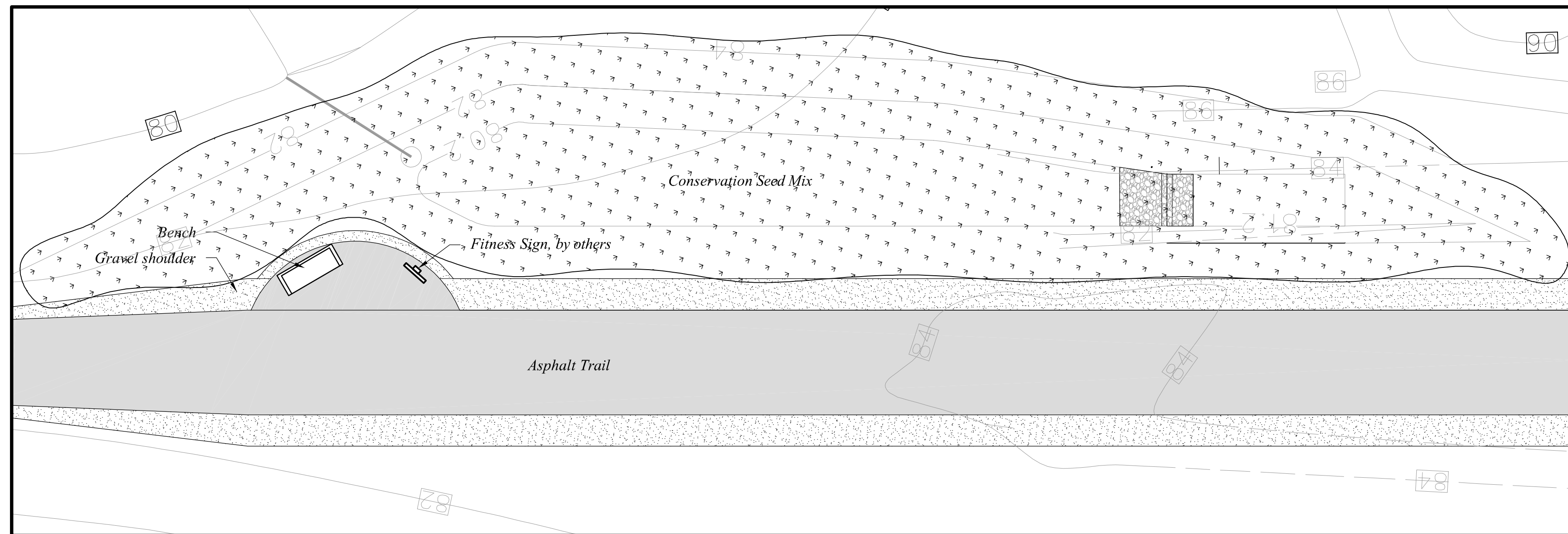
1 TRAILHEAD AT CENTRAL & RUTLAND
Scale: 1/8"=1'-0"



2 TRAILHEAD AT 4TH STREET
Scale: 1/8"=1'-0"



3 TRAILHEAD AT FISHER STREET
Scale: 1/8"=1'-0"



4 REST STOP WITH BIORETENTION SYSTEM 1
Scale: 1/8"=1'-0"

Plant List					
TREES					
Symbol	Botanical Name	Common Name	Quantity	Size	Comments
Ar	<i>Acer rubrum</i> 'October Glory'	October Glory Red Maple	4	2-2.5' Cal	B&B

Landscape Notes

- Design is based on drawings by CLD Engineers dated 12/2017 and may require adjustment due to actual field conditions.
- The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.
- Erosion Control shall be in place prior to construction.
- The Contractor shall verify layout and grades and inform the Landscape Architect or Client's Representative of any discrepancies or changes in layout and/or grade relationships prior to construction.
- It is the contractor's responsibility to verify drawings provided are to the correct scale prior to any bid, estimate or installation. A graphic scale bar has been provided on each sheet for this purpose. If it is determined that the scale of the drawing is incorrect, the landscape architect will provide a set of drawings at the correct scale, at the request of the contractor.
- Trees to Remain within the construction zone shall be protected from damage for the duration of the project by snow fence or other suitable means of protection to be approved by Landscape Architect or Client's Representative. Snow fence shall be located at the drip line at a minimum and shall include any and all surface roots. Do not fill or mulch on the trunk flare. Do not disturb roots. In order to protect the integrity of the roots, branches, trunk and bark of the tree(s) no vehicles or construction equipment shall drive or park in or on the area within the drip line(s) of the tree(s). Do not store any refuse or construction materials or portalets within the tree protection area.
- Location, support, protection, and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor.
- The Contractor shall verify exact location and elevation of all utilities with the respective utility owners prior to construction. Call DIGSAFE at 1-888-344-7233.
- The Contractor shall procure any required permits prior to construction.
- Prior to any landscape construction activities Contractor shall test all existing loam and loam from off-site intended to be used for lawns and plant beds using a thorough sampling throughout the supply. Soil testing shall indicate levels of pH, nitrates, macro and micro nutrients, texture, soluble salts, and organic matter. Contractor shall provide Landscape Architect with test results and recommendations from the testing facility along with soil amendment plans as necessary for the proposed plantings to thrive. All loam to be used on site shall be amended as approved by the Landscape Architect prior to placement.
- Contractor shall notify landscape architect or owner's representative immediately if at any point during demolition or construction a site condition is discovered which may negatively impact the completed project. This includes, but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the plan and the site. If a contractor is aware of a potential issue, and does not bring it to the attention of the landscape architect or owner's representative immediately, they may be responsible for the labor and materials associated with correcting the problem.
- The Contractor shall furnish and plant all plants shown on the drawings and listed thereon. All plants shall be nursery-grown under climatic conditions similar to those in the locality of the project. Plants shall conform to the botanical names and standards of size, culture, and quality for the highest grades and standards as adopted by the American Association of Nurserymen, Inc. in the American Standard of Nursery Stock, American Standards Institute, Inc. 230 Southern Building, Washington, D.C. 20005.
- A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.
- The Contractor shall guarantee all plants for not less than one year from time of acceptance.
- Owner or Owner's Representative will inspect plants upon delivery for conformity to Specification requirements. Such approval shall not affect the right of inspection and rejection during or after the progress of the work. The Owner reserves the right to inspect and/or select all trees at the place of growth and reserves the right to approve a representative sample of each type of shrub, herbaceous perennial, annual, and ground cover at the place of growth. Such sample will serve as a minimum standard for all plants of the same species used in this work.
- No substitutions of plants may be made without prior approval of the Owner or the Owner's Representative for any reason.
- All disturbed areas will be dressed with 4" of topsoil and planted as noted on the plans or seeded except plant beds. Plant beds shall be prepared to a depth of 12" with 75% loam and 25% compost.
- Trees, ground cover, and shrub beds shall be mulched to a depth of 2" with one-year-old, well-composted, shredded native bark not longer than 4" in length and 1/2" in width, free of woodchips and sawdust. Mulch for ferns and herbaceous perennials shall be no longer than 1" in length. Trees in lawn areas shall be mulched in a 5' diameter min. saucer. Color of mulch shall be black.
- In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.
- Secondary lateral branches of deciduous trees overhanging vehicular and pedestrian travel ways shall be pruned up to a height of 6' to allow clear and safe passage of vehicles and pedestrians under tree canopy.
- Snow shall be stored a minimum of 5' from shrubs and trunks of trees.
- Landscape Architect is not responsible for the means and methods of the contractor.

Seed Mix:

Conservation Seed Mix
New England Wetland Plants – New England Conservation/Wildlife Mix

Application Rate:

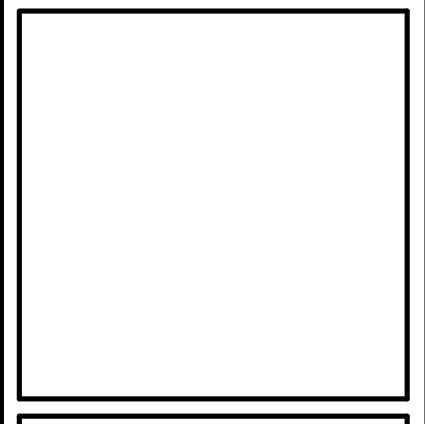
Conservation Seed Mix
25lbs/acre

NOTE: ALL DISTURBED AREAS SHOWN ON BOTH LANDSCAPE AND ENGINEERING PLANS SHALL BE SEEDED WITH CONSERVATION SEED MIX.



CONSTRUCTION DOCUMENTS	
NO.	DATE
4	4.1.19
3	12.27.17
2	11.9.17

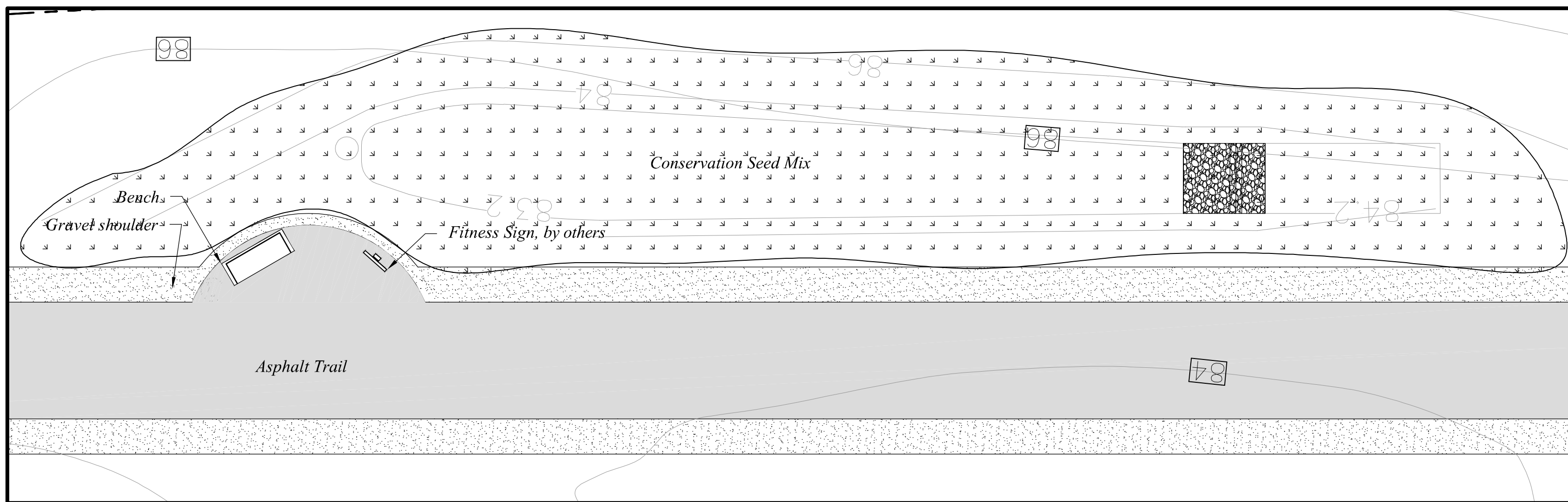
FUSS & O'NEILL
500 PETERS STREET, SUITE 111
KENNESBURG, VA 24154
207.363.8669
www.fussandoneill.com



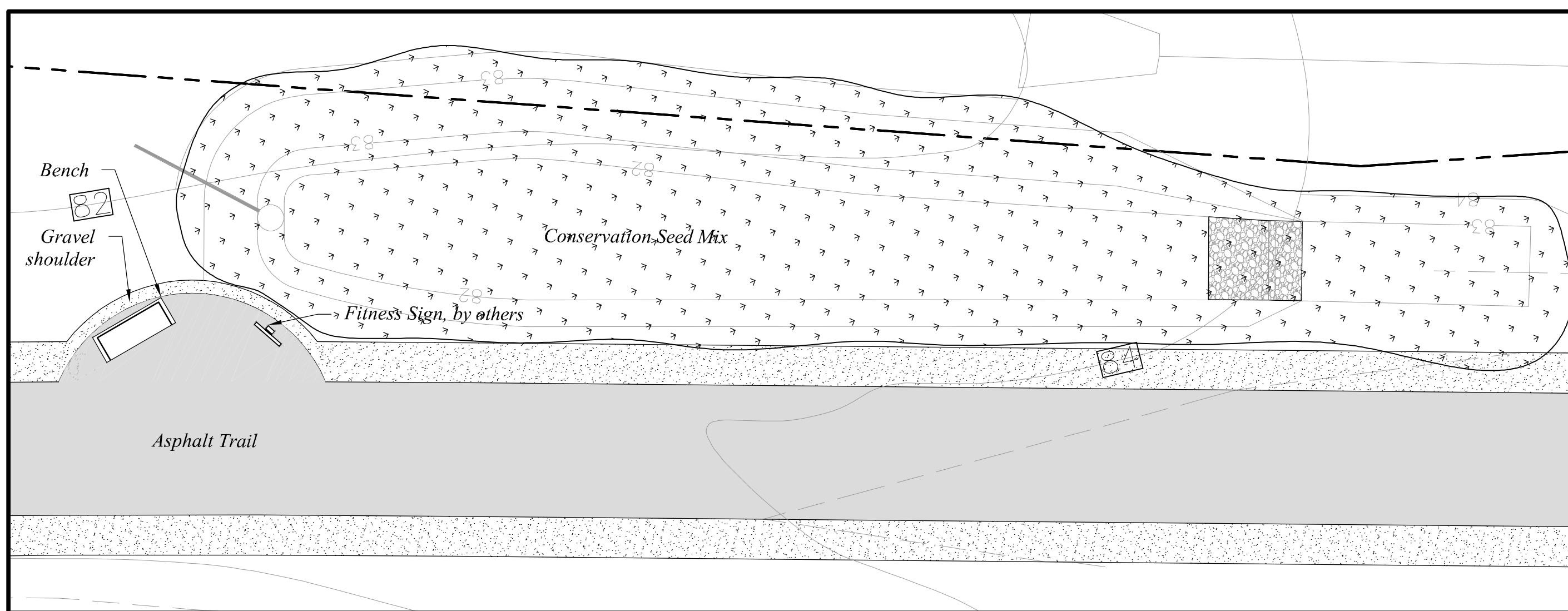
CLIENT:
CITY OF DOVER
CITY HALL
DOVER, NH 03820

NEWINGTON BRANCH
BIKE/PEDESTRIAN PATH
LANDSCAPE PLAN
CITY OF DOVER
NEW HAMPSHIRE

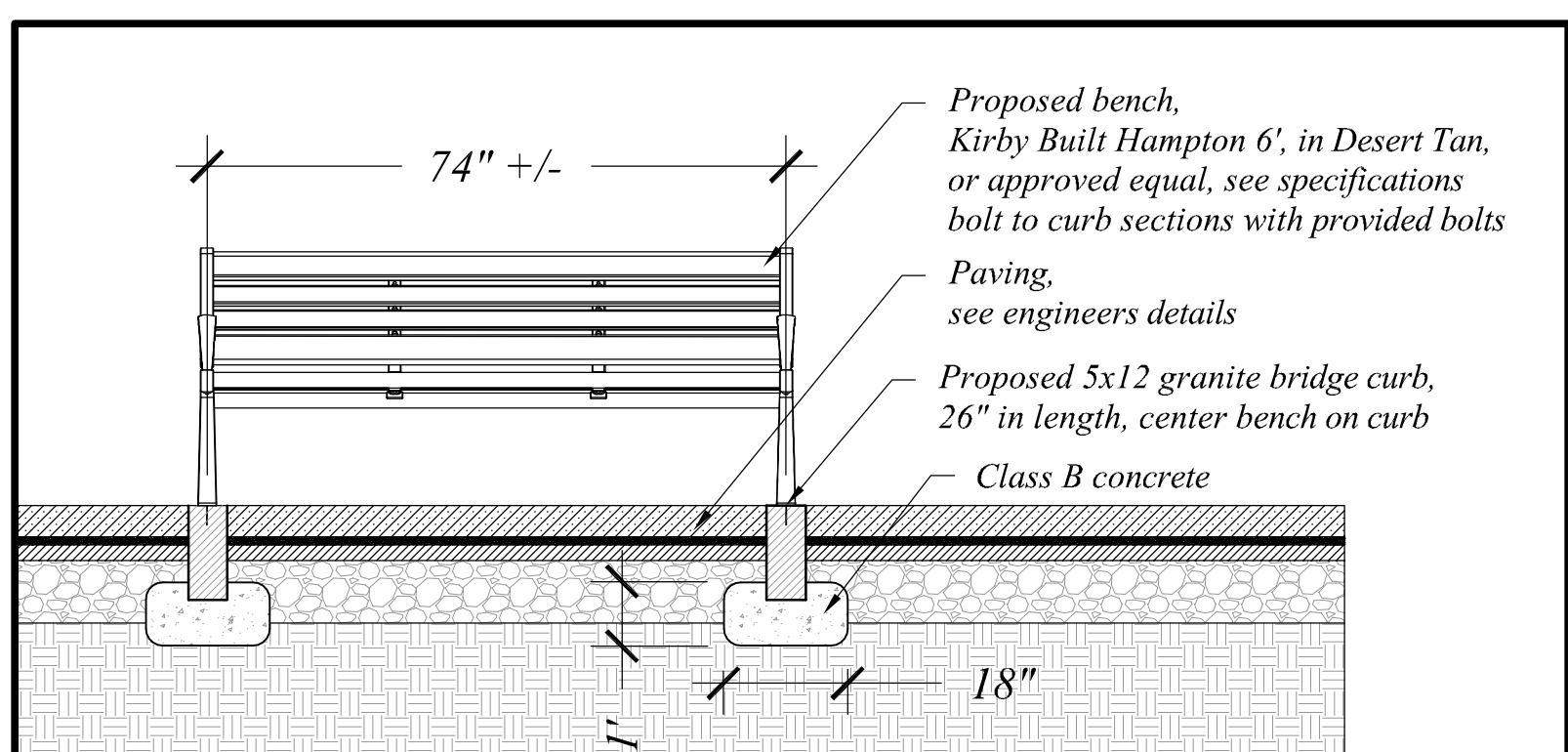
SCALE: 1/8"=1'	JOB NO. 16-0109
DATE: MARCH 2017	DWG. L1



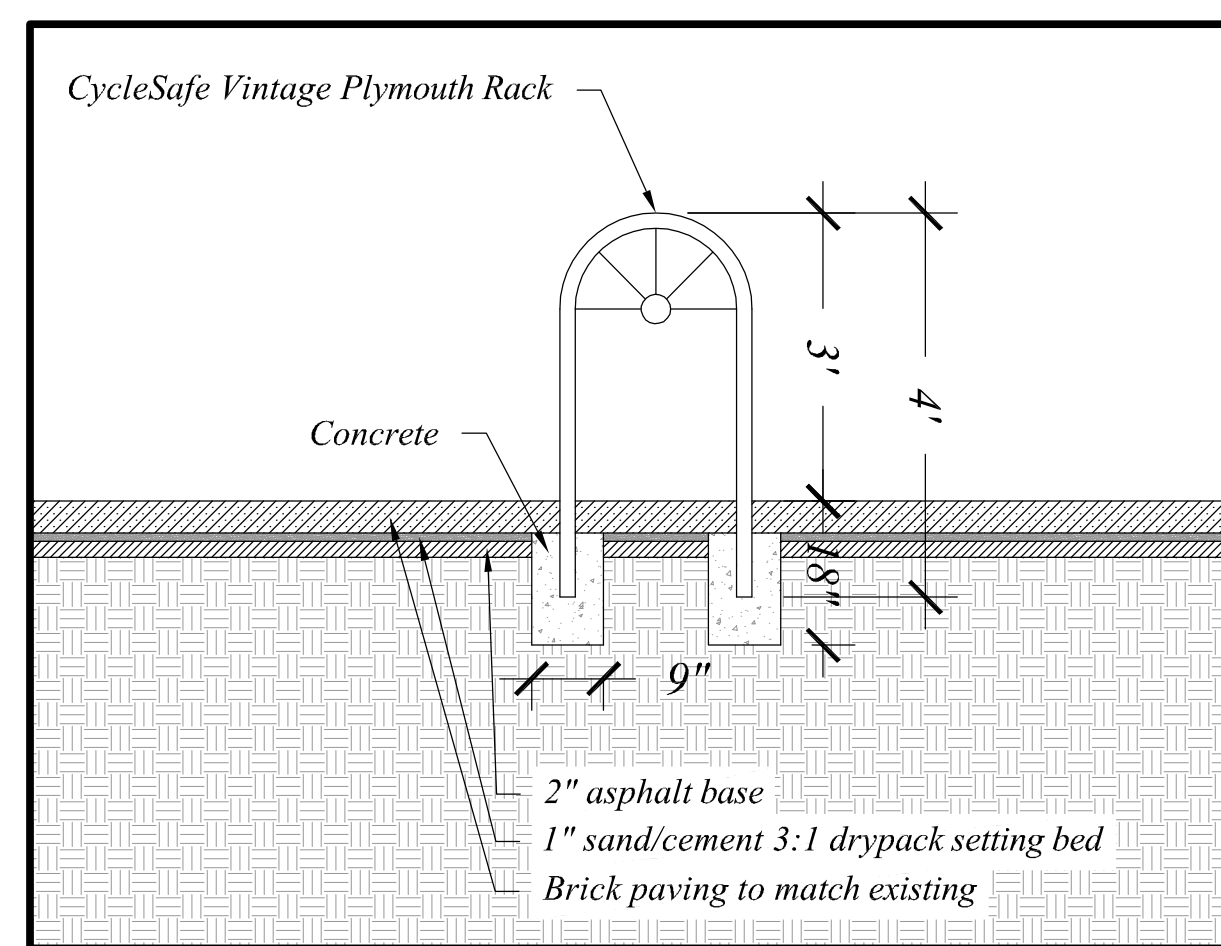
1 REST STOP WITH BIORETENTION SYSTEM 2
Scale: 1/8"=1'-0"



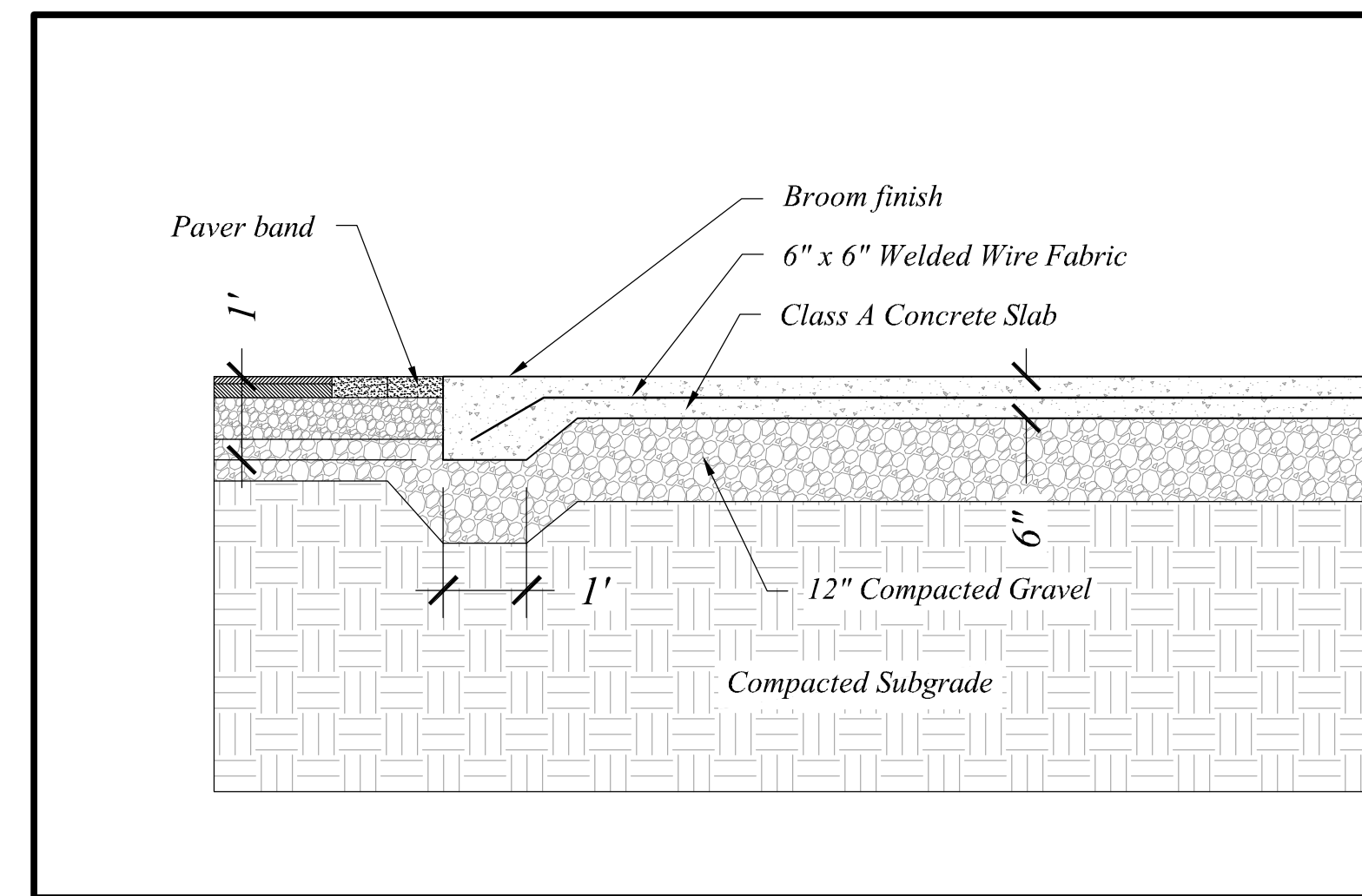
2 REST STOP WITH BIORETENTION SYSTEM 3
Scale: 1/8"=1'-0"



3 Bench
Scale: 1/2"=1'-0"



4 Bike Rack
Scale: 1/2"=1'-0"



6 CONCRETE PAD
Scale: 1/2"=1'-0"

Seed Mix:

Conservation Seed Mix

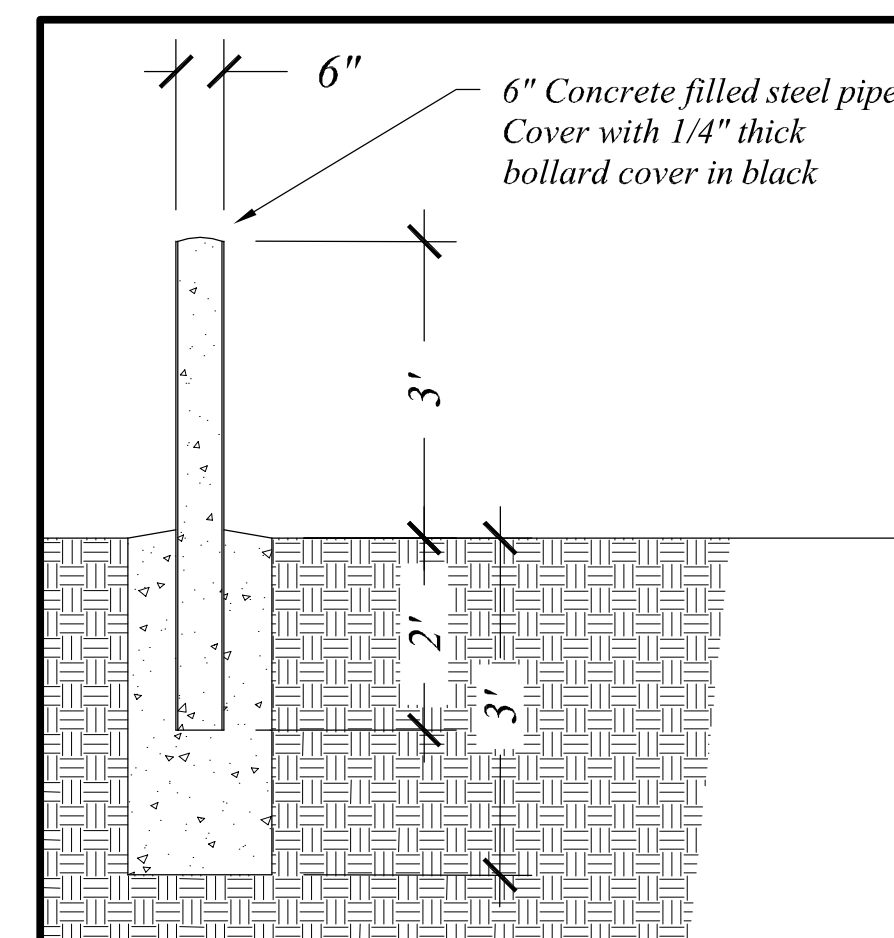
New England Wetland Plants – New England Conservation/Wildlife Mix

Application Rate:

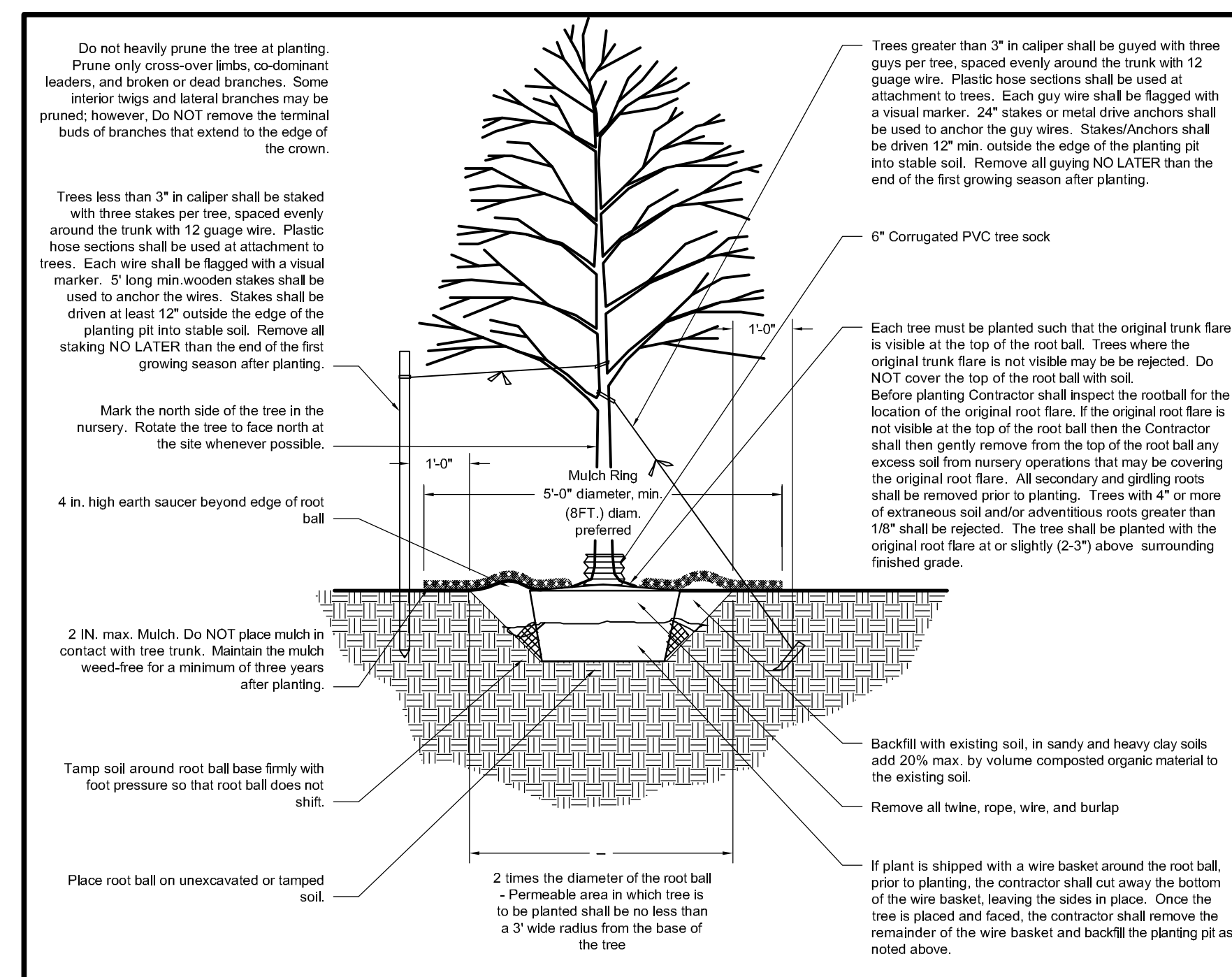
Conservation Seed Mix

25lbs/acre

NOTE: ALL DISTURBED AREAS SHOWN ON BOTH LANDSCAPE AND ENGINEERING PLANS SHALL BE SEEDED WITH CONSERVATION SEED MIX.



5 Bollard
Scale: 1/2"=1'-0"



Tree Planting
Scale: NTS

4	4.1.19	CONSTRUCTION DOCUMENTS			
3	12.27.17	PER CITY COMMENTS			
2	11.9.17	FOR REVIEW			
NO.	DATE	REVISION	DRAWN:	DESIGNED:	CHECKED:
			VM	RW	RW
					APPROVED:
					RW

FUSS & O'NEILL
 510 FT. PALMER STREET, SUITE 101
 KENNETH, NH 03444
 207.463.9669
 www.cdfdesigners.com | www.fuss.com

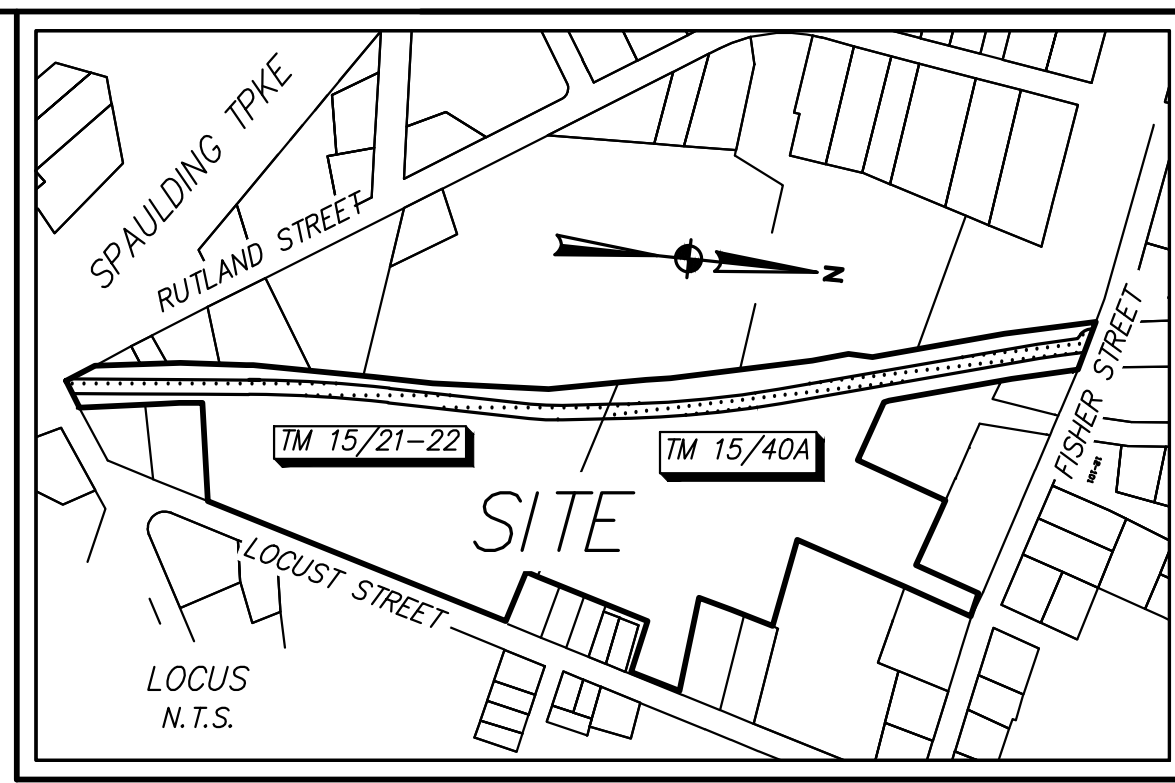
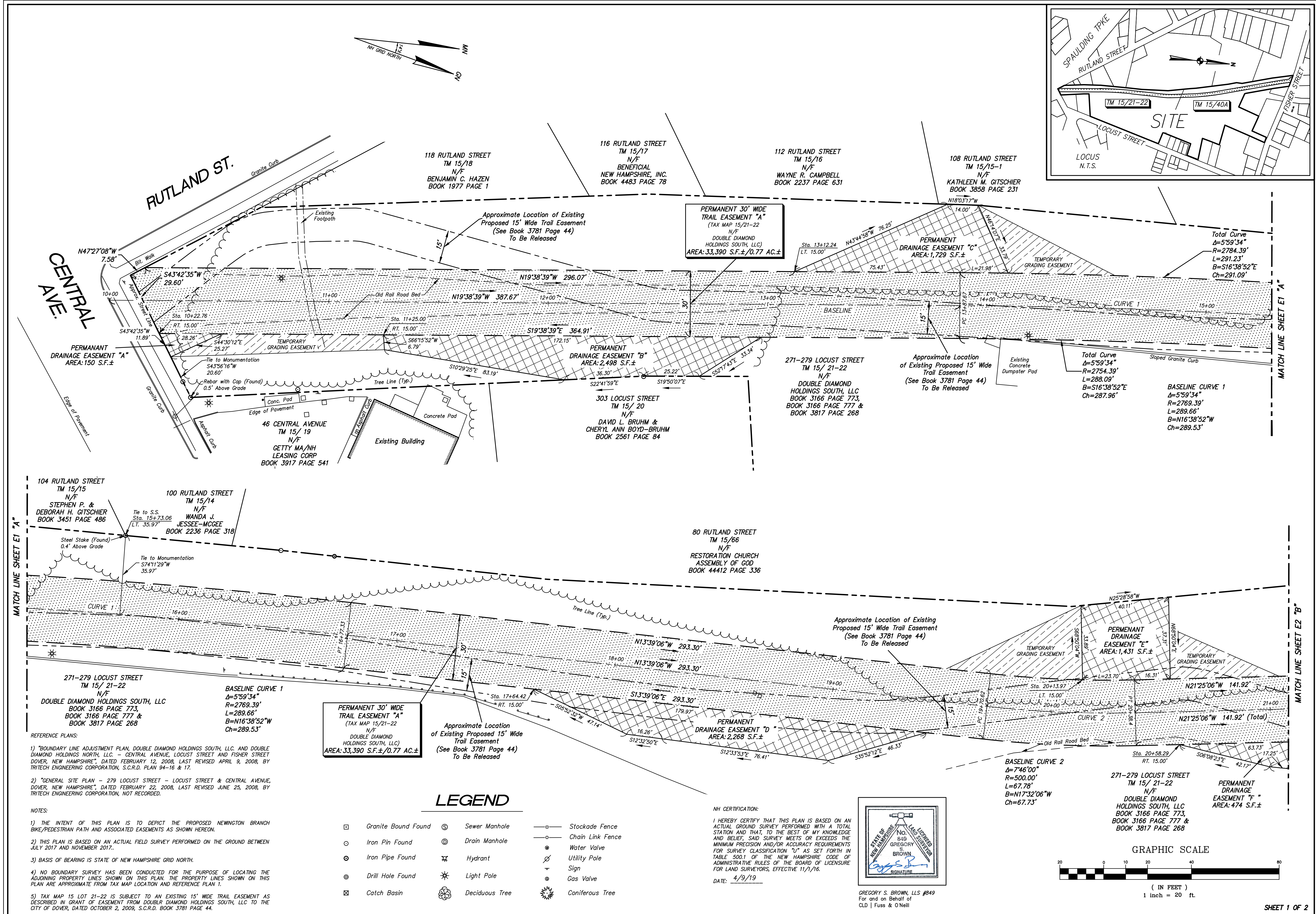
CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

CLIENT:
 CITY OF DOVER
 CITY HALL
 DOVER, NH 03820

NEWINGTON BRANCH
 BIKE/PEDESTRIAN PATH
 LANDSCAPE PLAN
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE: 1/8"=1'
 JOB NO. 16-0109
 DATE: MARCH 2017
 DWG. L2

woodburn & company
 LANDSCAPE ARCHITECTURE
 103 Kent Place
 Newmarket, New Hampshire Phone: 603.659.5949



NO.	DATE	REVISION	CONSTRUCTION DOCUMENTS
1	4/1/2019	HAQ	

FUSS & O'NEILL
 5 FLETCHER STREET, SUITE 1
 KENNEBUNK, MAINE 04033
 207.363.0609
 www.fussandoneill.com

CLIENT: CITY OF DOVER
 288 CENTRAL AVENUE
 DOVER, NEW HAMPSHIRE

COMMUNITY TRAIL
 PHASE III
 EASEMENT PLAN
 CITY OF DOVER
 NEW HAMPSHIRE

SCALE:	JOB NO.
1" = 20'	16-0109
DATE:	DWG.
NOV. 2017	E1

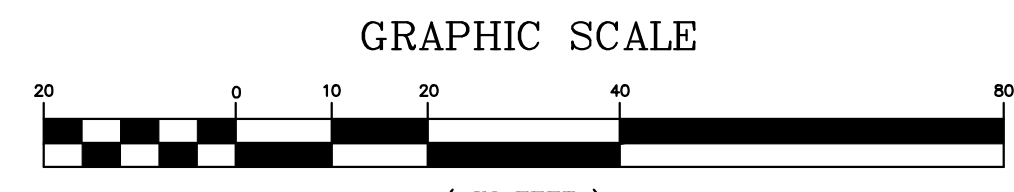
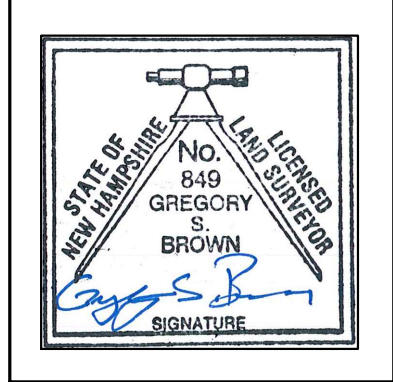
REFERENCE PLANS:
 1) "BOUNDARY LINE ADJUSTMENT PLAN, DOUBLE DIAMOND HOLDINGS SOUTH, LLC. AND DOUBLE DIAMOND HOLDINGS NORTH, LLC. - CENTRAL AVENUE, LOCUST STREET AND FISHER STREET DOVER, NEW HAMPSHIRE", DATED FEBRUARY 12, 2008, LAST REVISED APRIL 9, 2008, BY TRITECH ENGINEERING CORPORATION, S.C.R.D. PLAN 94-16 & 17.
 2) "GENERAL SITE PLAN - 279 LOCUST STREET - LOCUST STREET & CENTRAL AVENUE, DOVER, NEW HAMPSHIRE", DATED FEBRUARY 22, 2008, LAST REVISED JUNE 25, 2008, BY TRITECH ENGINEERING CORPORATION, NOT RECORDED.

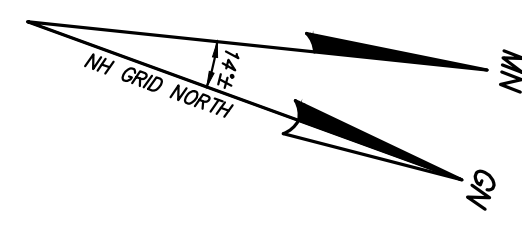
NOTES:
 1) THE INTENT OF THIS PLAN IS TO DEPICT THE PROPOSED NEWINGTON BRANCH BIKE/PEDESTRIAN PATH AND ASSOCIATED EASEMENTS AS SHOWN HEREON.
 2) THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BETWEEN JULY 2017 AND NOVEMBER 2017.
 3) BASIS OF BEARING IS STATE OF NEW HAMPSHIRE GRID NORTH.
 4) NO BOUNDARY SURVEY HAS BEEN CONDUCTED FOR THE PURPOSE OF LOCATING THE ADJOINING PROPERTY LINES SHOWN ON THIS PLAN. THE PROPERTY LINES SHOWN ON THIS PLAN ARE APPROXIMATE FROM TAX MAP LOCATION AND REFERENCE PLAN 1.
 5) TAX MAP 15 LOT 21-22 IS SUBJECT TO AN EXISTING 15' WIDE TRAIL EASEMENT AS DESCRIBED IN GRANT OF EASEMENT FROM DOUBLE DIAMOND HOLDINGS SOUTH, LLC TO THE CITY OF DOVER, DATED OCTOBER 2, 2009, S.C.R.D. BOOK 3781 PAGE 44.

LEGEND

□ Granite Bound Found	⊙ Sewer Manhole	— Stockade Fence
○ Iron Pin Found	⊙ Drain Manhole	— Chain Link Fence
⊙ Iron Pipe Found	⊙ Hydrant	— Water Valve
⊙ Drill Hole Found	⊙ Light Pole	— Utility Pole
⊙ Catch Basin	⊙ Deciduous Tree	— Sign
		— Gas Valve
		— Coniferous Tree

NH CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION AND/OR ACCURACY REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS, EFFECTIVE 11/1/16.
 DATE: 4/9/19





80 RUTLAND STREET
TM 15/66
N/F
RESTORATION CHURCH
ASSEMBLY OF GOD
BOOK 4412 PAGE 336

68 RUTLAND STREET
TM 15/62
N/F
SOUTH DOVER
STORAGE SOLUTIONS, LLC
BOOK 4055 PAGE 77

PERMANENT
30' WIDE
TRAIL EASEMENT "B"
(TAX MAP 15/40A
N/F
DOUBLE DIAMOND
HOLDINGS NORTH, LLC)
AREA: 30,473 S.F. ±/0.70 AC. ±

Δ=8°27'06"
R=2085.00'
L=307.56'
B=N25°38'39"W
Ch=307.28'

Δ=8°27'06"
R=2115.00'
L=311.98' (Total Curve)
B=N25°38'39"E
Ch=311.70'

BASELINE CURVE 3
Δ=8°27'06"
R=2100.00'
L=309.77'
B=N25°38'39"W
Ch=309.49'

PERMANENT
DRAINAGE EASEMENT "G"
AREA: 3,485 S.F. ±

PERMANENT
DRAINAGE EASEMENT "F"
AREA: 474 S.F. ±

LOCUST STREET
TM 15/40 A
N/F
DOUBLE DIAMOND
HOLDINGS NORTH, LLC
BOOK 3166 PAGE 780 &
BOOK 3817 PAGE 271

40 FISHER STREET
TM 15/54
N/F
MUNIZ REVOCABLE TRUST
LOUIS A. & JOSEPHINE A.
MUNIZ, TRUSTEES
BOOK 4463 PAGE 193

68 RUTLAND STREET
TM 15/62
N/F
SOUTH DOVER
STORAGE SOLUTIONS, LLC
BOOK 4055 PAGE 77

38 FISHER STREET
TM 15/52
N/F
DONALD W. SMART &
SAUNDRA R. ACKLER
BOOK 1659 PAGE 556

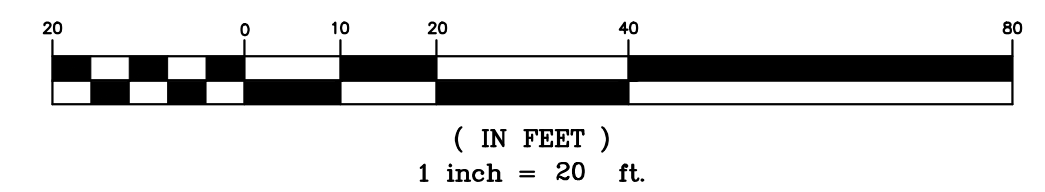
PERMANENT
30' WIDE
TRAIL EASEMENT "B"
(TAX MAP 15/40A
N/F
DOUBLE DIAMOND
HOLDINGS NORTH, LLC)
AREA: 30,473 S.F. ±/0.70 AC. ±

36A FISHER STREET
TM 15/51
N/F
CARMEL A. CASEY
BOOK 4337 PAGE 566

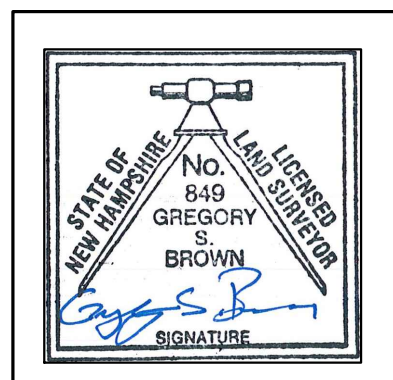
LEGEND

- | | | |
|-----------------------|------------------|--------------------|
| □ Granite Bound Found | ⊙ Sewer Manhole | — Stockade Fence |
| ○ Iron Pin Found | ⊕ Drain Manhole | — Chain Link Fence |
| ⊙ Iron Pipe Found | ⊗ Hydrant | ⊙ Water Valve |
| ⊙ Drill Hole Found | ⊙ Light Pole | ⊙ Utility Pole |
| ⊗ Catch Basin | ⊙ Deciduous Tree | ⊙ Sign |
| | | ⊙ Gas Valve |
| | | ⊙ Coniferous Tree |

GRAPHIC SCALE



NH CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION AND/OR ACCURACY REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS, EFFECTIVE 11/1/16.
DATE: 4/9/19



GREGORY S. BROWN, L.L.S. #849
For and on Behalf of
CLD | Fuss & O'Neill

CONSTRUCTION DOCUMENTS	
NO. 1	DATE 4/1/2019
REVISION	CHECKED: GSB
DESIGNED: RRL	APPROVED: GSB
DRAWN: HAQ	

FUSS & O'NEILL
5 FLETCHER STREET, SUITE 1
KENNETHUNK, MAINE 04803
207.363.0669
www.fussandoneill.com

CLIENT: CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NEW HAMPSHIRE

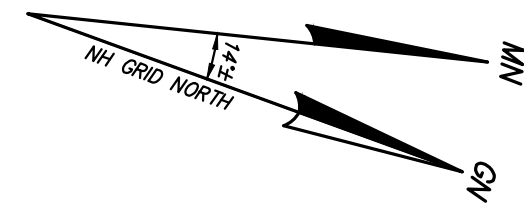
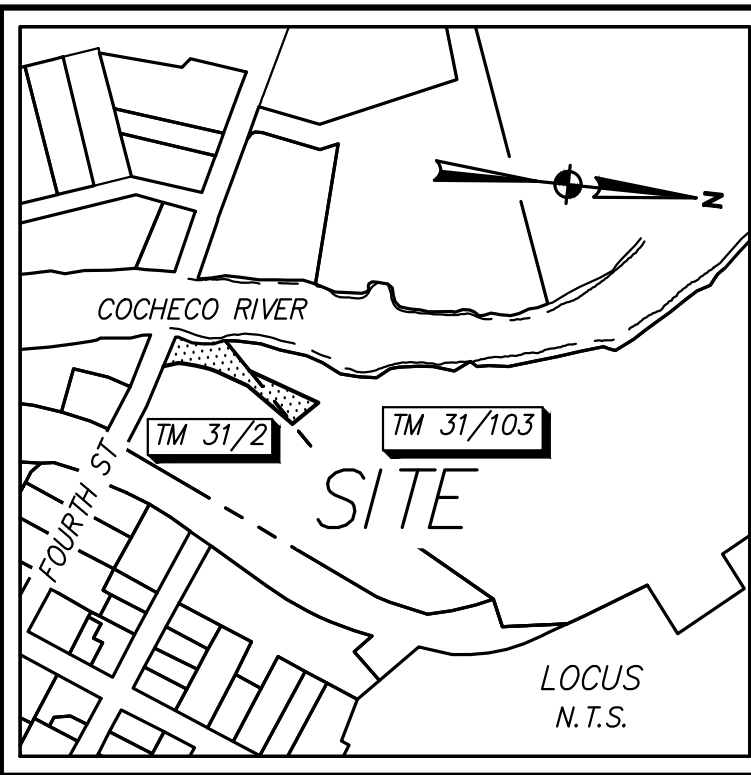
DEED HOLDERS:
TAX MAP 15 LOT 40A
DOUBLE DIAMOND
HOLDINGS NORTH, LLC
34 DOVER, NH 03802
BOOK 3166 PAGE 780

TAX MAP 15 LOT 21-22
DOUBLE DIAMOND
HOLDINGS SOUTH, LLC
34 DOVER, NH 03802
BOOK 3166 PAGE 773

**COMMUNITY TRAIL
PHASE III
EASEMENT PLAN
CITY OF DOVER
NEW HAMPSHIRE**

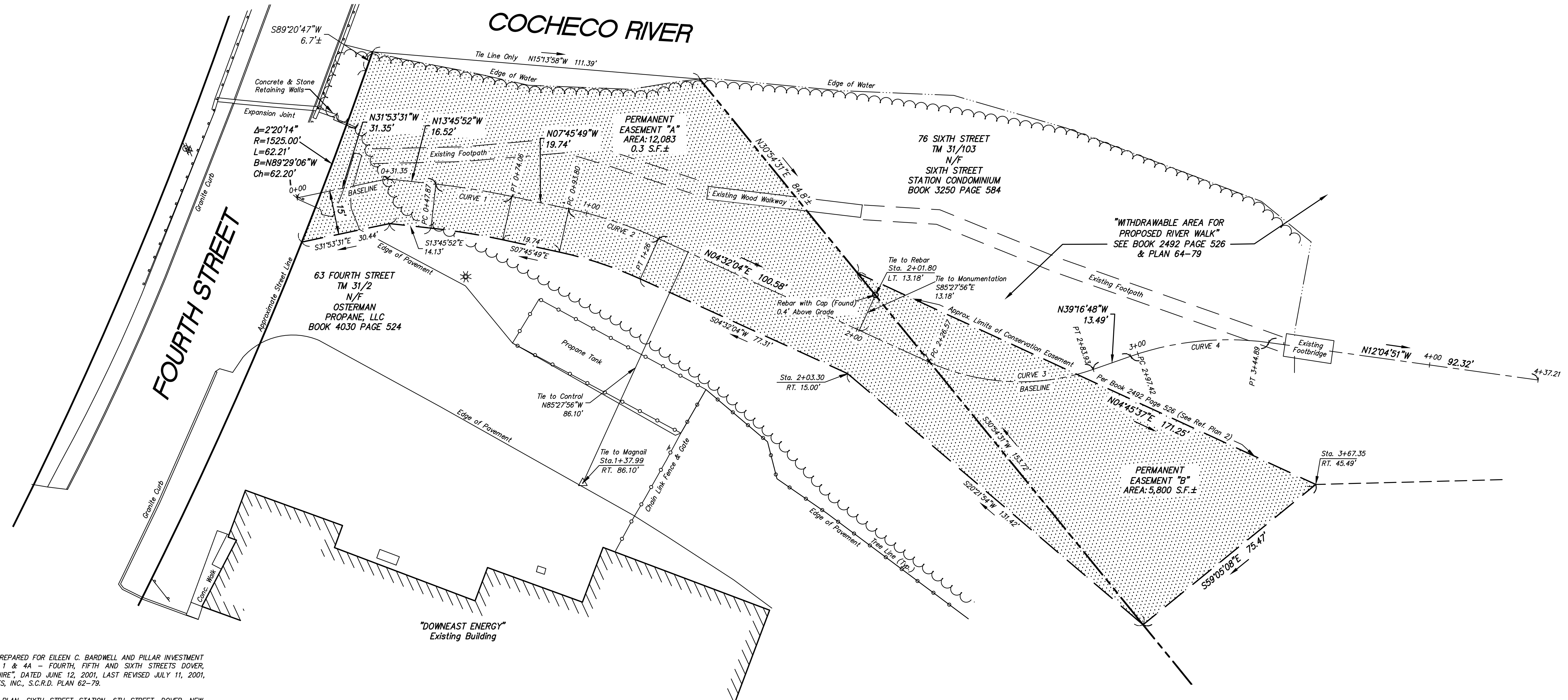
TAX MAP 15 LOTS 21-22 & 40A

SCALE: 1" = 20'	JOB NO. 16-0109
DATE: NOV. 2017	DWG. E2



BASELINE CURVE DATA

BASELINE CURVE 1	BASELINE CURVE 2	BASELINE CURVE 3	BASELINE CURVE 4
$\Delta=6^{\circ}00'03''$	$\Delta=12^{\circ}17'53''$	$\Delta=43^{\circ}48'52''$	$\Delta=27^{\circ}11'57''$
$R=250.00'$	$R=150.00'$	$R=75.00'$	$R=100.00'$
$L=26.18'$	$L=32.20'$	$L=57.35'$ (Total Curve)	$L=47.47'$
$B=N10^{\circ}45'50''W$	$B=N01^{\circ}36'53''W$	$B=N17^{\circ}22'22''W$	$B=N25^{\circ}40'50''W$
$Ch=26.17'$	$Ch=32.13'$	$Ch=55.97'$	$Ch=47.03'$



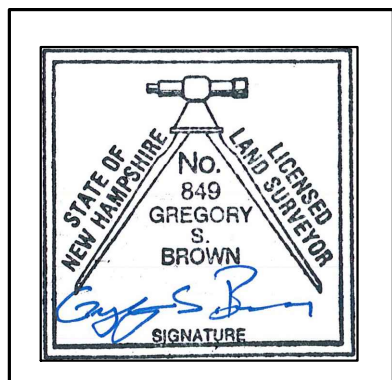
- REFERENCE PLANS:**
- "LOT LINE ADJUSTMENT PLAN PREPARED FOR EILEEN C. BARDWELL AND PILLAR INVESTMENT CORP., TAX MAP 31, LOT NOS. 1 & 4A - FOURTH, FIFTH AND SIXTH STREETS DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE, DATED JUNE 12, 2001, LAST REVISED JULY 11, 2001, BY MCNEANEY SURVEY ASSOCIATES, INC., S.C.R.D. PLAN 62-79.
 - "AMENDED CONDOMINIUM SITE PLAN, SIXTH STREET STATION, 6TH STREET, DOVER, NEW HAMPSHIRE, DATED FEBRUARY 15, 2002, BY CIVIL CONSULTANTS, S.C.R.D. PLAN 64-79.
 - "EASEMENT PLAN - ASSESSORS MAP 31 LOT 2, 63 FOURTH STREET, DOVER NEW HAMPSHIRE, PREPARED FOR THE CITY OF NEW HAMPSHIRE, DATED DECEMBER 27, 2006, BY MHF DESIGN CONSULTANTS, INC., NOT RECORDED.

- NOTES:**
- THE INTENT OF THIS PLAN IS TO DEPICT THE PROPOSED NEWINGTON BRANCH BIKE/PEDESTRIAN PATH AND ASSOCIATED EASEMENTS AS SHOWN HEREON.
 - THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BETWEEN JULY 2017 AND NOVEMBER 2017.
 - BASIS OF BEARING IS STATE OF NEW HAMPSHIRE GRID NORTH.
 - NO BOUNDARY SURVEY HAS BEEN CONDUCTED FOR THE PURPOSE OF LOCATING THE ADJOINING PROPERTY LINES SHOWN ON THIS PLAN. THE PROPERTY LINES SHOWN ON THIS PLAN ARE APPROXIMATE FROM TAX MAP LOCATION AND REFERENCE PLAN 1.
 - TAX MAP 31 LOT 103, SIXTH STREET STATION CONDOMINIUM IS SUBJECT TO A CONSERVATION EASEMENT FROM SIXTH STREET STATION, LLC TO THE CONSERVATION COMMISSION OF THE CITY OF DOVER DATED APRIL 10, 2002, BOOK 2492 PAGE 526.

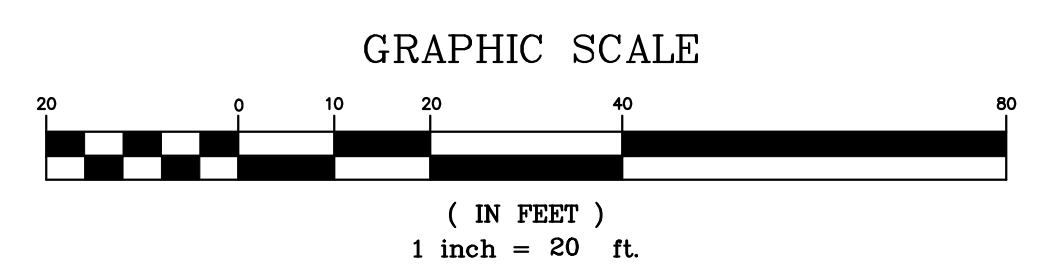
LEGEND

Granite Bound Found	Sewer Manhole	Stockade Fence
Iron Pin Found	Drain Manhole	Chain Link Fence
Iron Pipe Found	Hydrant	Water Valve
Drill Hole Found	Light Pole	Utility Pole
Catch Basin	Deciduous Tree	Sign
	Coniferous Tree	Gas Valve

NH CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION AND/OR ACCURACY REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS, EFFECTIVE 11/1/16.
 DATE: 4/9/19



GREGORY S. BROWN, LLS #849
 For and on Behalf of
 CLD | Fuss & O'Neill



NO.	DATE	REVISION	DESIGNED:	CHECKED:	APPROVED:
1	4/1/2019		HAQ	RRL	GSB

FUSS & O'NEILL
 5 FLETCHER STREET, SUITE 1
 KENNEBUNK, MAINE 04033
 207.363.0669
 www.fuss.com

CLIENT:
 CITY OF DOVER
 288 CENTRAL AVENUE
 DOVER, NEW HAMPSHIRE

DEED HOLDERS:
 TAX MAP 31 LOT 2
 OSTERMAN PROPANE, LLC
 BUSBUSING STREET 001
 DOVER, NH 03870
 BOOK 4030 PAGE 524

**TAX MAP 31 LOT 103
 SIXTH STREET STATION
 CONDOMINIUM OWNER'S ASSOCIATION
 DOVER, NH 03870
 BOOK 3250 PAGE 584**

**COMMUNITY TRAIL
 PHASE III
 TAX MAP 31 LOTS 2 & 103
 EASEMENT PLAN
 CITY OF DOVER
 NEW HAMPSHIRE**

SCALE: 1" = 20'	JOB NO. 16-0109
DATE: NOV. 2017	DWG. E3