TOWN OF SOUTHBURY, CONNECTICUT

ADDENDUM NO. 1

REPLACEMENT OF BRIDGE NO. 130-009 OLD FIELD ROAD

OVER BULLET HILL BROOK

Bid Opening: Friday March 21. 2025
@ 10:00 AM

All bidders are hereby advised of the following amendments to the Contract Bid Documents which are hereby an integral part of the specifications for the subject project, prepared by Cardinal Engineering Associates, Inc., Meriden, Connecticut, to the same extent as all other documents.

Bids submitted shall be deemed to include the Contract Documents information as shown in this Addendum. General bidders shall notify sub-bidders that may be affected by this Addendum as applicable. Failure by the Bidder to incorporate this Addendum may result in a rejection of the bid. Bidders are directed to review changes to all portions of the work as changes to one portion may affect the work of another.

I. PROJECT MANUAL

a. **INFORMATION TO BIDDERS - Item 23 TIME FOR COMMENCEMENT AND COMPLETION AND LIQUIDATED DMAGE** – first paragraph change 150 consecutive calendar days to 120.

b. **BID SHEETS** – revised bid Sheets attached.

c. **SPECIAL PROVISION** Page 73 – **CONTRACT TIME AND LIQUIDATED DAMAGES** – change One Hundred and Fifty (150) calendar days to 120.

d. **SECTION 1.05.02-1 – CONTROL OF WORK** – All correspondence and submittals to the Town of Southbury are to be directed to Blake Leonard, Director of Public Works in lieu of Jeff Manville.

e. **SECTION 1.08 PROSECUTION AND PROGRESS** – sixth paragraph change 180 calendar days to 120.

f. **ITEM #0201001A – CLEARING AND GRUBBING –** Due to time limitations dictated by the various environmental permits the Town of Southbury will take down all trees within the project limits. The ITEM #0201001A – CLEARING AND GRUBBING will include grubbing stumps only. All other items will remain in effect. The Lump Sum Price for this item shall reflect this change.

g. **Appendix A – Wage rates** This project is prevailing wage – rates from State are pending.

h. **APPPENDIX B - Permits**

   a. Town of Southbury Inland wetland and Watercourse permit was approved March 11, 2025 – approved plans attached.

   b. ACOE 404 and CTDEEP 401 WQC pending.

II. PROJECT PLANS

a. **THE FOLLOWING PLANS SHEETS HAVE BEEN REVISED AND ARE TO BE REPLACED IN THE PLANS SET - ATTACHED:**

- **GEN-01 A1**
- **PLA-01 A1**
- **XSC-1 A1**
- **XSC-2 A1**
- **VSC-3 A1**
- **XSC-4 A1**
- **XSC-5 A1**
- **XSC-6 A1**
- **STR-01 A1**
- **STR-02 A1**
- **STR-04 A1**
- **STR-10 A1**
- **WTH-01 A1**

III. NOTES FROM PRE-BID MEETING - ATTACHED.

THE BIDDER MUST ACKNOWLEDGE THAT THE BID INCLUDES THIS ADDENDUM AT THE BOTTOM OF SCHEDULE OF PRICES

TOWN OF SOUTHBURY, CONNECTICUT

REPLACEMENT OF BRIDGE NO. 130-009

OLD FIELD ROAD OVER BULLET HILL BROOK

Meeting Minutes

Purpose: Non-Mandatory Pre-bid Meeting
Date: 3/13/25
Time: 9:00 am
Place: Job site

1. **INTRODUCTION**
   - Iin attendance
     - Owner: Town of Southbury - Matt Tarnowski, Project Administrator
       Tom Farrelly – Road Foremen
     - Design Team – Gary Giroux, Cardinal Engineering
     - Contractors in attendance:
       - Black & Warner
       - Dayton Construction
       - Nagy Brothers
       - New England Infrastructure
     - Plan Holders – Attached

2. **SITE VISIT**
   - Familiarization with the Project location – contractors present walked the site.

3. **STANDARDS –** standards for bidding were stressed.
   - Standard Specifications Form 819
   - Special Provisions in Project Manual
   - Item 9 – Unit Prices of Information to Bidders.
   - Item 14 – Award of Contract; Rejection of Bids of information to Bidder. Hold Bids for 90 days.
   - Item 21 – Set Aside Requirements -Minimums established.
   - Item 23 - Completion and liquidated Damages. **120 Calendar Days** allotted / Liquidated damages - $1,200 / day.

4. **ACCESS**
   - Restricted to Temporary Easements
   - Old Field Road is closed.

4. **MAJOR ELEMENTS**
   - Time of year restrictions are in effect.
   - Utilities
     - Overhead wires stay as is.
     - Eversource Gas – to be placed under the culvert.
     - CT Water – to be place under the culvert.
   - Clearing and Grubbing – Trees to be removed by the Town prior to construction due to timing of start and restriction of April 15th for removal by environmental permit (Bats).

5. **Bidder Questions:** Submitted questions including those asked at the site:

   1. **Q** Box Culverts - United is stating they are out to November for delivery. Also United requests a letter to say shorter (lighter) box culverts are acceptable to use because of the overhead wire limitations. There will have to be a redesign for that.
      A There are other fabricators available - check with them for scheduling. Time for completion will remain at 120days however the start date will be discussed and set based on the fabricators schedule. Shorter lighter boxes are acceptable. See special provision regarding design and load rating.

2. **Q** Borrow fill line item needed for large area of wash out
   A Item 0207000– Borrow and quantity has been added to the Bid Sheets – attached.

3. **Q** Parapet line item needed #0601121 using 4462 concrete
   A Item 0601121A – Headwall Concrete covers this – see Concrete Components Table on Sheet # STR-01.

4. **Q** Confirm Office trailer is omitted.
   A Office Trailer is omitted see revised Bid Sheets – attached.

5. **Q** Confirm water and gas lines are presently dead.
   A Water and gas lines **are** dead.

6. **Q** Detour sign plan? Probably not needed.
   A Detour signs are not needed and removed from bid sheet – attached.

7. **Q** Invasive species? Probably not needed.
   A May be present and must be removed per specification.

8. **Q** Please confirm state funded portion is 50% for CHRO
   A The project is funded under the State local Bridge Program – funding is 50% of bid price.

9. **Q** Is storm manhole at station 4+31 new or used?
   A Storm manhole is new – see revised bid sheets – attached.

10. **Q** There is no line item for 36-inch Flared End Section.
    A Item # 0686700.36 - 36” Reinforced Concrete Drainage Pipe End added – see revised bid sheets – attached.

11. **Q** There is no line item for 18-inch Flared End Section.
    A Item # 0686700.18 - 18” Reinforced Concrete Drainage Pipe End – see revised bid sheets – attached.

12. **Q** Working with private utilities
    A See number 7 below/.

13. **Q** #0601062 Footing Concrete / item qty 93 cy / we calculate 81 cy
    A Quantity changed to xx cy – see revised bid sheet - attached.

14. **Q** #0601064 Abutment and Wall Concrete / item qty 86 cy / we calculate 68 cy
    A Quantity changed to xx cy – see revised bid sheet – attached.

15. **Q** How is Concrete for Headwall (7 cy) paid for?
    A Item # 0601121A – Headwall Concrete. See item 3 above.

16. **Q** How is Concrete sidewalk (3 cy) over the box Culvert paid?
    A Item # 0921001 Concrete Sidewalk added– see revised bid sheets – attached. See detail on revised sheet STR-10 A1.

17. **Q** Culvert to headwall connection (mechanical dowel splicer). Drawing STR-07 shows #5@ 6” o/c. Drawing STR-09 shows #4@ 5” o/c. Which is correct?
    A Detail on STR-07 is correct.

6. Other items discussed:

   1. Sidewalk will be cast with integral curb – detail attached.

2. Concrete barriers on site are the property of the Town of Southbury. Concrete barriers called for in the contract documents are to be provided by the contractor.
3. Detour signs have been removed from the project – see attached bid sheets.
4. Temporary Bypass Pipe can be any type of pipe sized accordingly.
5. Sprinkler system replacement is not in the project.
6. Possible use of Library parking lot for laydown / storage are depending on timing of the project. Note library which is presently closed is scheduled to be opened sometime this fall. Check with Town for restrictions.
7. Eversource inquired:
   It seems the Town wants the gas main installed under the proposed culvert. A couple of questions regarding construction sequencing with answers in **bold**:

   - Would the Town's contractor excavate up to culvert depth and have the gas contractor install the pipe? **Yes**
   - During what stage of the culvert reconstruction will the gas main relocation happen? **As soon as the contractor gets the excavation to bottom of the Compacted Granular Fill**.
   - Will the Town's contractor allow Eversource gas to work within their excavation support system? **The contractor will provide for this**.

   In this regard, the contractor will allow time in his work for this to happen. Cost for this time will be included in the item Mobilization and Project Closeout.

   CTWater will be accommodated in the same manor.

ATTENDANCE SHEET

TOWN OF SOUTHBURY
PRE-BID
REPLACEMENT OF OLD FIELD ROAD over BULLET HILL BROOK

Date: March 13, 2025

NAME	ADDRESS	PHONE	EMAIL
NAGY BROS Norman	550 Main St Monroe	2032680454	nagbro @aol.com
TradeMark Contractors	175 Lake Ave, Bristol, CT	860-966-2762	Gino@trademark-contractors-LLC.com
Dayton Construction	146 Bunker Hill Rd, Watertown	860-274-2448	Matt@Dayton-Construction.com
Black & Warner Const Co Inc	364 New Britain Ave, Newington	860 673-5671	Admin@BWCCI-CT.com
NEW ENGLAND INFRASTRUCTURE	16 BRENT DRIVE, HUDSON	978-405-0605	YGORANIYA@NEINFRASTRUCTURE.COM

REPLACEMENT OF BRIDGE No. 130-009 OLD FIELD ROAD BRIDGE OVER BULLET HILL BROOK

Plan Holders

Date	Company	Contact
2/25/25 8:31 am	**Black & Warner Construction Co.,Inc.** 364 New Britain Avenue PO Box 121 Unionville, CT 06085	**Eugene Warner Jr.** Tel: 860-673-5621
3/7/25 7:46 am	**ConstructConnect** 3825 Edwards Road Suite 800 Cincinnati, OH 45209	**Courtney Huesman** Tel: 5134588690
2/25/25 7:54 am	**Dayton Construction Company Inc.** 146 Bunker Hill Rd Watertown, CT 06795	**Matthew Dayton** Tel: 8602742998
2/27/25 9:17 am	**Grasso COMPANIES** 485 Pepper Street Monroe, CT 06468	**Chris Musculino** Tel: 2038380123
2/24/25 3:24 pm	**Guerrera Construction** 154 Christian Street oxford, CT 06478	**Joseph Guerrera** Tel: 203-888-5069
3/11/25 9:46 am	**Lawrence Brunoli Inc.** 11 Eastview Dr Farmington, CT 06032	**Daniel Neagle** Tel: 8606769900
2/27/25 11:40 am	**Loureiro Contractors, Inc.** 100 Northwest Drive Plainville, CT 06062	**Debbie Brown** Tel: 413-530-9017
3/4/25 9:30 am	**McNamee Construction Corp.** 154 Route 202 Lincolndale, NY 10540	**Shirley Ferreira** Tel: 914-243-5910
3/6/25 11:14 am	**Nagy Bros. Const. LLC** 550 Main St. Monroe, CT 06468	**Norman Nagy** Tel: 203-268-0454
3/7/25 8:49 am	**New England Infrastructure, Inc.** 16 Brent Drive Hudson, MA 01749	**Prakhar (Prak) Saxena** Tel: 978-293-3535

Date	Company	Contact
2/25/25 11:33 am	**njr construction llc** 288 South Main Street Thomaston, CT 06790	**nicholas m mancini jr** Tel: 8606187322
3/6/25 8:49 am	**Northern Construction Service, LLC** 1520 Park Street, PO Box 900 Palmer, MA 01069	**Dulce Montana** Tel: 4132891230
2/25/25 8:08 am	**Stone Construction Co., Inc.** 168 Main St. South SOUTHBURY, CT 06488	**George Stone** Tel: 203-264-6501
3/17/25 7:52 am	**TradeMark Contractors LLC** 175 Lake Avenue Bristol, CT 06010	**Gino Troiano, Jr.** Tel: 860-582-3006
2/27/25 1:01 pm	**Xenelis Construction Co., Inc** 30 Old Indian Trail Middlefield, CT 06455	**John McLaughlin** Tel: 8603475823

BID PROPOSAL
REPLACEMENT OF BRIDGE NO. 130-009
OLD FIELD ROAD OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT

	ITEM No		Brief Description: Unit or Lump Sum Bid (in both words and figures)	Est Quantity	Ext. Total in Figures
1	0201001	A	CLEARING AND GRUBBING THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
2	0202000	A	EARTH EXCAVATION THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	990	$ _____
3	0207000	A	BORROW THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1020	$ _____
4	0202216	A	EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	130	$ _____
5	0202219	A	SUPPLEMENTAL STREAMBED CHANNEL MATERIAL THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	14	$ _____
6	0202529		CUT BITUMINOUS CONCRETE PAVEMENT THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	75	$ _____
7	0203202		STRUCTURE EXCAVATION-EARTH (EXCLUDING COFFERDAM AND DEWATERING) THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	900	$ _____
8	0203304		STRUCTURE EXCAVATION-ROCK (EXCLUDING COFFERDAM AND DEWATERING) THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	60	$ _____
9	0204001		COFFERDAM AND DEWATERING THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	280	$ _____
10	0204151	A	HANDLING WATER THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
11	0209001		FORMATION OF SUBGRADE THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	960	$ _____

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	ITEM No		Brief Description: Unit or Lump Sum Bid (in both words and figures)	Est Quantity	Ext. Total in Figures
12	0210303	A	TURBIDITY CONTROL CURTAINS THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
13	0212000	A	SUBBASE THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	300	$ _____
14	0214100	A	COMPACTED GRANULAR FILL THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	100	$ _____
15	0216000		PERVIOUS STRUCTURE BACKFILL THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	690	$ _____
16	0219001		SEDIMENTATION CONTROL SYSTEM THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	720	$ _____
17	0304002	A	PROCESSED AGGREGATE BASE THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	130	$ _____
18	0406171	A	HMA S0.5 THE PRICE PER TON OF $ _____ DOLLARS AND _____ CENTS ($ _____)	110	$ _____
19	0406172	A	HMA S0.375 THE PRICE PER TON OF $ _____ DOLLARS AND _____ CENTS ($ _____)	110	$ _____
20	0406173	A	HMA S0.25 THE PRICE PER TON OF $ _____ DOLLARS AND _____ CENTS ($ _____)	5	$ _____
21	0406303	A	SAWING AND SEALING JOINTS THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	60	$ _____
22	0503866	A	REMOVAL OF EXISTING CULVERT THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____

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	ITEM No		Brief Description: Unit or Lump Sum Bid (in both words and figures)	Est Quantity	Ext. Total in Figures
23	0586001.10		TYPE 'C' CATCH BASIN - 0'-10' DEEP THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1	$ _____
24	0586040.10		TYPE 'C-L' CATCH BASIN - 0'-10' DEEP THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	2	$ _____
25	0586500.10		MANHOLE - 0'-10' DEEP THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1	$ _____
26	0601062	A	FOOTING CONCRETE THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	81	$ _____
27	0601064	A	ABUTMENT AND WALL CONCRETE THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	69	$ _____
28	0601088	A	CONCRETE FORM LINERS THE PRICE PER SQUARE FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	808	$ _____
29	0601121	A	HEADWALL CONCRETE THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	7	$ _____
30	0601125	A	20' X 9' PRECAST CONCRETE BOX CULVERT THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	35	$ _____
31	0601502		1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES THE PRICE PER SQUARE FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	150	$ _____
32	0602030		DEFORMED STEEL BARS - GALVANIZED THE PRICE PER POUND OF $ _____ DOLLARS AND _____ CENTS ($ _____)	15000	$ _____
33	0652011		18" R.C. CULVERT END THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1	$ _____

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	ITEM No		Brief Description: Unit or Lump Sum Bid (in both words and figures)	Est Quantity	Ext. Total in Figures
34	0652015		36" R.C. CULVERT END THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1	$ _____
35	0686000.18		18" R.C. PIPE - 0'-10' DEEP THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	85	$ _____
36	0686000.36		36" R.C. PIPE - 0'-10' DEEP THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	113	$ _____
37	0703011		INTERMEDIATE RIPRAP THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	60	$ _____
38	0703031	a	ROCK WEIR THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	8	$ _____
39	0707009	A	MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC) THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	86	$ _____
40	0708001		DAMPPROOFING THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	200	$ _____
41	0755009		GEOTEXTILE THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	330	$ _____
42	0819002	A	PENETRATING SEALER PROTECTIVE COMPOUND THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	30	$ _____
43	0822001		TEMPORARY TRAFFIC BARRIER THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	40	$ _____
44	0904990	A	METAL BRIDGE RAIL THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	44	$ _____

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	ITEM No		Brief Description: Unit or Lump Sum Bid (in both words and figures)	Est Quantity	Ext. Total in Figures
45	0921001		CONCRETE SIDEWALK THE PRICE PER SQUARE FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1449	$ _____
46	0922501		BITUMINOUS CONCRETE DRIVEWAY THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	38	$ _____
47	0922503		GRAVEL DRIVEWAY THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	24	$ _____
48	0944000		FURNISHING AND PLACING TOPSOIL THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1150	$ _____
49	0950005		TURF ESTABLISHMENT THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1150	$ _____
50	0952051	A	CONTROL AND REMOVAL OF INVASIVE VEGETATION THE PRICE PER SQUARE YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	288	$ _____
51	0970006		TRAFFIC PERSON (MUNICIPAL POLICE OFFICER) THE ESTIMATED PRICE OF $ SIX THOUSAND THREE HUNDRED DOLLARS AND NO CENTS ($ 6,300.00)	EST	$ 6,300.00
52	0971001	A	MAINTENANCE AND PROTECTION OF TRAFFIC THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
53	0974001	A	REMOVAL OF EXISTING MASONRY THE PRICE PER CUBIC YARD OF $ _____ DOLLARS AND _____ CENTS ($ _____)	21	$ _____
54	0975004		MOBILIZATION AND PROJECT CLOSEOUT THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
55	0976002		BARRICADE WARNING LIGHTS-HIGH INTENSITY THE PRICE PER DAY OF $ _____ DOLLARS AND _____ CENTS ($ _____)	1200	$ _____

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56	0978002		TRAFFIC DRUM THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	12	$ _____
57	0979003		CONSTRUCTION BARRICADE - TYPE III THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	12	$ _____
58	0980020		CONSTRUCTION SURVEYING THE LUMP SUM PRICE OF $ _____ DOLLARS AND _____ CENTS ($ _____)	LS	$ _____
59	0981100		42" TRAFFIC CONE THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	12	$ _____
60	1204210	A	FURNISH AND INSTALL PROJECT SIGN THE PRICE PER EACH OF $ _____ DOLLARS AND _____ CENTS ($ _____)	2	$ _____
61	1209007		PAINTED PAVEMENT MARKING 4" YELLOW THE PRICE PER LINEAR FOOT OF $ _____ DOLLARS AND _____ CENTS ($ _____)	300	$ _____
62	1700005	A	TESTING THE ESTIMATED COST OF $ SEVEN THOUSAND FIVE HUNDRED DOLLARS AND NO CENTS ($ 7,500.00)	EST	$ 7,500.00

TOTAL BID:

_____ **DOLLARS**

AND _____ **CENTS**

SUBMITTED BY:

_____
(PRINTED NAME)

_____
(TITLE)

_____ _____
(SIGNATURE) (DATE)

GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 819 (2024), SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

2. THE PROJECT SITE SHALL CONSIST OF THE AREA WITHIN THE MUNICIPALLY-OWNED RIGHT OF WAY BETWEEN THE DESIGNATED BEGINNING AND END STATIONS FOR THE PROJECT AS SHOWN ON THE PLANS. IT SHALL ALSO INCLUDE ANY EASEMENTS TO PERFORM WORK ON PRIVATELY-OWNED PROPERTY AS DEPICTED ON THE PLANS. THE CONTRACTOR SHALL LIMIT HIS CONSTRUCTION ACTIVITIES TO THE AREA WITHIN THE PROJECT SITE.

3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN REGULATIONS, THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION, FORM 819, WITH LATEST REVISIONS, AND THE LATEST VERSION OF THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS.

4. ALL UNCONFINED IN-STREAM WORK SHALL BE PERFORMED BETWEEN JUNE 1 AND SEPTEMBER 30.

5. WORK SHALL COMPLY WITH THE REQUIREMENTS OF ARMY CORPS OF ENGINEERS CONNECTICUT GENERAL PERMIT 19 - "STREAM, RIVER AND BROOK CROSSINGS".

6. ALL DIMENSIONS ARE FEET UNLESS OTHERWISE NOTED.

7. THE CONTRACTOR SHALL WALK THE PROJECT PRIOR TO CONSTRUCTION WITH A REPRESENTATIVE FROM THE TOWN AND THE ENGINEER. TREES TO BE REMOVED SHALL BE MARKED IN THE FIELD. NO TREES 3" IN DIAMETER OR GREATER SHALL BE CUT DOWN FROM APRIL 15 TO AUGUST 31. EXTREME CARE SHALL BE EXERCISED TO PROTECT ALL TREES NOT DESIGNATED FOR REMOVAL. NO TREES SHALL BE REMOVED UNTIL AUTHORIZATION IS GIVEN BY THE TOWN. COST IS INCLUDED IN THE ITEM "CLEARING AND GRUBBING".

8. ANY PHYSICAL FEATURES DISTURBED BY THE CONTRACTOR SHALL BE REPLACED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER TO A CONDITION EQUAL TO OR BETTER THAN PRIOR TO CONSTRUCTION AT THE CONTRACTORS EXPENSE.

9. ALL DIMENSIONS AND ELEVATIONS MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF MANUFACTURING AND CONSTRUCTION, AND NECESSARY ADJUSTMENTS MADE AS ORDERED BY THE ENGINEER.

10. WORKING HOURS SHALL BE LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 5:00 P.M., MONDAY THRU FRIDAY. NO WORK WILL BE PERFORMED ON WEEKENDS, HOLIDAYS, OR SPECIAL DAYS AS DIRECTED BY THE ENGINEER. THE ONLY EXCEPTIONS TO THESE LIMITATIONS WILL BE AS DIRECTED BY THE ENGINEER TO CORRECT OR HANDLE EMERGENCY CONDITIONS, OR IF APPROVED BY THE ENGINEER IN WRITING.

11. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE FOR APPROVAL PRIOR TO COMMENCING CONSTRUCTION.

12. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL PROPERTIES AT ALL TIMES DURING CONSTRUCTION. COORDINATE ACCESS WITH PAVING OPERATIONS SO THAT JOINTS ARE MINIMIZED (SEE MAINTENANCE AND PROTECTION OF TRAFFIC SPECIFICATIONS). NO TRANSVERSE JOINTS SHALL BE ALLOWED DURING THE PAVING OF THE WEARING COURSE.

13. ALL DISTURBED AREAS THAT WILL NOT BE PAVED SHALL RECEIVE 4" OF TOPSOIL AND TURF ESTABLISHMENT UNLESS OTHERWISE NOTED.

14. RCP SHALL BE CLASS IV UNLESS NOTED OTHERWISE.

15. ALL SWALES AND DITCHES WILL HAVE TEMPORARY "U" SHAPED STONE DIKES PLACED PERPENDICULAR TO FLOW AT 30' SPACING DURING CONSTRUCTION TO PREVENT EROSION .

16. ALL REQUIRED UTILITY RELOCATIONS SHALL BE PERFORMED BY THE RESPECTIVE UTILITY COMPANY UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES PRIOR TO ANY WORK AND COORDINATE HIS WORK WITH THE UTILITY COMPANY WORK. THE CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY COMPANY FOR THE UTILITY COMPANY TO HOLD ANY POLES THAT NEED TO BE SUPPORTED DURING THE CONTRACTOR'S TRENCHING OPERATIONS. THE COST TO COORDINATE THIS WORK WITH THE UTILITY COMPANIES SHALL BE INCIDENTAL TO THE PROJECT UNLESS A SPECIFIC PAY ITEM IS INCLUDED.

17. THE CONTRACTOR WILL BE REQUIRED TO WORK IN PROXIMITY OF AND BENEATH OVERHEAD POWER LINES AS WELL AS TELEPHONE, CABLE TV AND TELECOMMUNICATION LINES. THE OVERHEAD LINES ARE NOT ANTICIPATED TO BE DE-ENERGIZED DURING THE PROSECUTION OF THIS WORK. THE CONTRACTOR SHALL SPECIFICALLY COMPLY WITH THE REQUIREMENTS DETAILED IN OSHA REGULATIONS (STANDARDS 29 CFR) CRANES AND DERRICKS - 1926.550 AS WELL AS OTHER APPLICABLE OSHA STANDARDS. THE CONTRACTOR SHALL MAINTAIN A SAFE DISTANCE FROM ALL UTILITY POLES DURING CONSTRUCTION ACTIVITIES.

18. THE INFORMATION SHOWN ON THESE PLANS IS BASED ON LIMITED INVESTIGATIONS AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OF WORK REQUIRED. LOCATIONS OF EXISTING UTILITIES AND UNDERGROUND STRUCTURES HAVE BEEN COMPILED FROM THE BEST AVAILABLE INFORMATION. THIS INFORMATION WAS COMPILED UTILIZING UTILITY COMPANY & TOWN RECORD MAPS AND FIELD SURVEY AND THEREFORE, IS CONSIDERED TO BE APPROXIMATE. ALL UTILITIES AND UNDERGROUND STRUCTURES MAY NOT BE SHOWN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE ACTUAL LOCATION OF ALL UTILITIES AND TO NOTIFY UTILITY COMPANIES OF NECESSARY RELOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF THE UTILITY COMPANIES. UTILITY LINES DAMAGED BY THE CONTRACTOR SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND THE UTILITY COMPANY AND THE COST OF REPAIR WORK SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT CALL BEFORE-U-DIG AT 1-800-922-4455 FOR MARKING OF EXISTING UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF EXCAVATION (MONDAY THROUGH FRIDAY, EXCLUDING HOLIDAYS).

19. THERE SHALL BE NO DIRECT PAYMENT FOR TEMPORARY SUPPORT OR PROTECTION OF EXISTING OR RELOCATED UTILITIES DURING CONSTRUCTION UNLESS OTHERWISE SPECIFICALLY INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COORDINATE SUPPORT AND PROTECTION REQUIREMENTS WITH THE RESPECTIVE UTILITY COMPANY. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

20. CONTRACTOR TO SUPPLY UTILITY COMPANIES WITH SUFFICIENT VERTICAL AND HORIZONTAL STAKEOUT OF PROPOSED STORM DRAINAGE, PROPOSED ROADWAY, AND OTHER PROPOSED IMPROVEMENTS TO PERFORM UTILITY RELOCATIONS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE ITEM "CONSTRUCTION STAKING."

21. ANTICIPATED UTILITY POLE RELOCATIONS, IF ANY, ARE SHOWN ON THE PLANS. ADDITIONAL POLE RELOCATIONS MAY BE REQUIRED. CONTRACTOR TO PROVIDE STAKEOUT OF PROPOSED IMPROVEMENTS PRIOR TO COMMENCEMENT OF WORK TO DETERMINE IF ADDITIONAL POLE RELOCATIONS ARE REQUIRED. POLE RELOCATIONS MAY NOT BE COMPLETED PRIOR TO THE INSTALLATION OF STORM DRAINAGE AND ROADWAY IMPROVEMENTS. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE PROJECT.

22. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE UTILITY COMPANIES TO RESET ALL UTILITY BOXES TO FINISHED GRADE. THERE WILL BE NO SEPARATE PAYMENT TO COORDINATE THIS WORK OR CLAIM FOR TIME EXTENSION.

23. THE CONTRACTOR SHALL RESET ALL WATER AND GAS CURB STOPS BOXES AND WATER AND GAS GATE VALVE BOXES TO FINISHED GRADE. THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR THIS WORK AS IT IS INCIDENTAL TO CONSTRUCTION.

24. EXISTING PAVEMENT SHALL BE REMOVED IN FILL AREAS PRIOR TO PLACING FILL. EXISTING PAVEMENT OUTSIDE OF THE CUT AND FILL LIMITS THAT WILL NOT BE USED IN THE PROPOSED CONDITIONS SHALL BE REMOVED. PAYMENT SHALL BE MADE UNDER THE ITEM "EARTH EXCAVATION."

25. ALL EXISTING DRAINAGE PIPES AND CULVERTS WITHIN THE PROJECT SLOPE LIMITS THAT ARE DESIGNATED TO BE REMOVED SHALL BE REMOVED AND BACKFILLED AS SPECIFIED IN SECTION 2.05 "TRENCH EXCAVATION" UNLESS OTHERWISE SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. COORDINATE THIS WORK WITH THE RECONNECTION OF ANY EXISTING FOUNDATION AND OTHER DRAINS TO THE PROPOSED DRAINAGE SYSTEM.

26. ALL TYPE 'C' CATCH BASIN TOP OF FRAME ELEVATIONS SHALL BE MEASURED IN THE CENTER OF THE GRATE AT THE GUTTER LINE AND REFLECT THE ELEVATION WITH THE STANDARD DEPRESSION AS SHOWN ON "DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE 'C' CATCH BASIN" (SEE CTDOT STANDARD DETAIL SHEET NO. HW-507_01). ALL TYPE 'C-L' CATCH BASIN TOP OF FRAME ELEVATIONS SHALL BE MEASURED IN THE CENTER OF THE GRATE.

27. THE CONTRACTOR SHALL MAINTAIN ALL ROAD NAME SIGNS AS INDICATED ON THE PLANS AND SHALL MAINTAIN ALL TRAFFIC CONTROL SIGNS AS NEEDED DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER. COST IS INCLUDED IN THE ITEM "MAINTENANCE AND PROTECTION OF TRAFFIC".

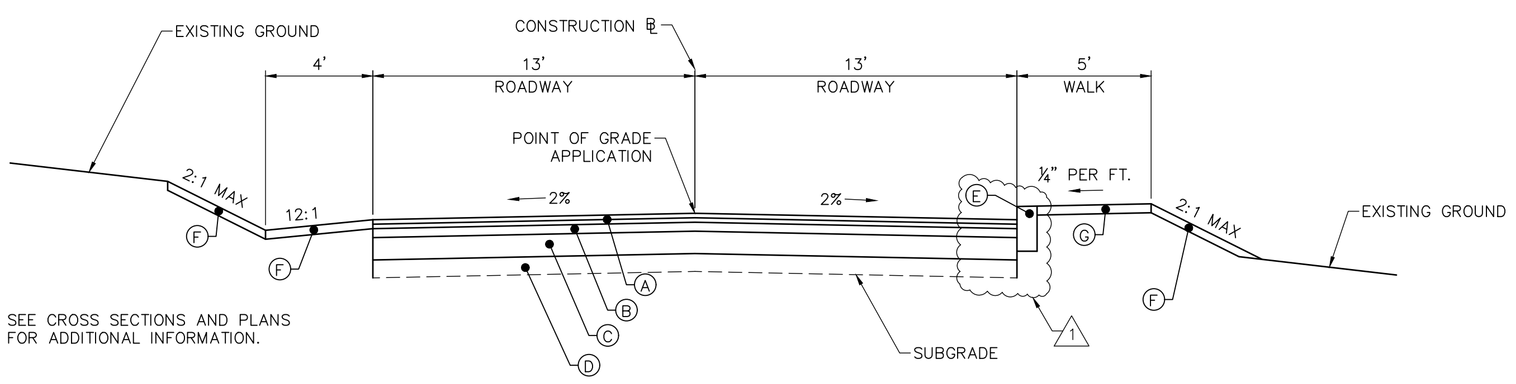
28. PLANIMETRIC AND TOPOGRAPHIC FEATURES ARE BASED ON FIELD SURVEY PERFORMED BY CARDINAL ENGINEERING ASSOCIATES, IN SEPTEMBER 2024. SURVEY BASELINE CONFORMS TO CLASS A-2 HORIZONTAL ACCURACY. STREETLINE AND PROPERTY LINE INFORMATION (IF SHOWN) ARE APPROXIMATE AND BASED ON LIMITED FIELD SURVEY. ALL ELEVATIONS ARE BASED ON NAVD 88. HORIZONTAL COORDINATES ARE BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD 83). VERTICAL ACCURACY IS CLASS T-2.

LIST OF ABBREVIATIONS

AGGR	AGGREGATE
AH	AHEAD
A	ALGEBRAIC DIFFERENCE IN GRADES
APPROX	APPROXIMATE
ASPH	ASPHALT
BK	BACK
℄	BASELINE
BM	BENCHMARK
BIT	BITUMINOUS
BCLC	BITUMINOUS CONCRETE LIP CURBING
CGR	CABLE GUIDERAIL
CI / CIP	CAST IRON PIPE
CB	CATCH BASIN
℄	CENTERLINE
CC	CONCRETE CURBING
CL	CLASS
CONC	CONCRETE
CP	CONTROL POINT
COR	CORNER
CMP	CORRUGATED METAL PIPE
CPFE	CORRUGATED POLYETHYLENE FLARED END
CPP	CORRUGATED POLYETHYLENE PIPE
CY	CUBIC YARD
DIA	DIAMETER
DBL	DOUBLE
DRIVE	DRIVEWAY
DI / DIP	DUCTILE IRON PIPE
EA	EACH
EP	EDGE OF PAVEMENT
EL / ELEV	ELEVATION
EX / EXIST	EXISTING
FG	FINISHED GRADE
FP	FLAGPOLE
FE	FLARED END
FL	FLOW LINE
FT	FOOT
FND	FOUND
FOUND	FOUNDATION
G	GAS
GV	GAS VALVE
GSC / GC	GRANITE STONE CURBING
HP	HIGH POINT
HORIZ	HORIZONTAL
HRS	HOURS
HYD	HYDRANT
INV	INVERT
IE	INVERT ELEVATION
IP	IRON PIN
LT	LEFT
L	LENGTH
LVC	LENGTH OF VERTICAL CURVE
LTP	LIGHT POLE
LF	LINEAR FEET
LP	LOW POINT
LS	LUMP SUM
MB	MAILBOX
MH	MANHOLE
MAX	MAXIMUM
MBR	METAL BEAM RAIL
MCE	METAL CULVERT END
MIN	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
NOM	NOMINAL
NO	NUMBER
PERF	PERFORATED
POB	POINT OF BEGINNING
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
POE	POINT OF ENDING
PGA	POINT OF GRADE APPLICATION
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVCC	POINT OF VERTICAL COMPOUND CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVE
PVT	POINT OF VERTICAL TANGENCY
POC	POINT ON CURVATURE
POT	POINT ON TANGENT
PVC	POLYVINYL CHLORIDE PIPE
℄	PROPERTY LINE
R	RADIUS
RR	RAILROAD
K	RATE OF VERTICAL CURVATURE
REINF	REINFORCED
RCCE	REINFORCED CONCRETE CULVERT END
RCP	REINFORCED CONCRETE PIPE
REQD	REQUIRED
RT	RIGHT
ROW	RIGHT OF WAY
RSC	RIGID STEEL CONDUIT
RD	ROAD
SAN	SANITARY
SS	SANITARY SEWER
SED	SEDIMENTATION
SCB	SEDIMENT CONTROL BALES
SCS	SEDIMENT CONTROL SYSTEM
SHLD	SHOULDER
SF	SQUARE FOOT
SY	SQUARE YARD
STD	STANDARD
STA	STATION
SSD	STOPPING SIGHT DISTANCE
ST	STREET
℄	STREET LINE
TBD	TO BE DETERMINED
TF	TOP OF FRAME
TYP	TYPICAL
UD	UNDERDRAIN
VERT	VERTICAL
VC	VERTICAL CURVE
VF	VERTICAL FEET
VCP	VITRIFIED CLAY PIPE
W	WATER
WV	WATER VALVE

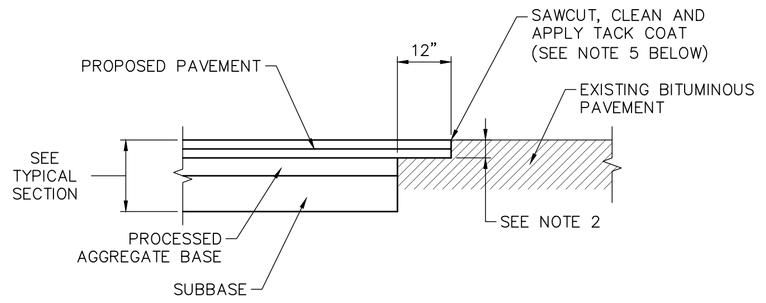
STANDARD CONVENTIONS

EXISTING		PROPOSED
	APPROXIMATE LIMIT OF CUT SLOPE	Ⓒ
	APPROXIMATE LIMIT OF FILL SLOPE	Ⓕ
	APPROXIMATE PROPERTY LINE	
	APPROXIMATE STREET LINE	
	BASELINE STATION	0+00
Bit	BITUMINOUS CONCRETE DRIVEWAY	
	BORING NUMBER B10 (SEE BORING LOG SHEET)	B10
	CATCH BASIN	
	CONTROL POINT	
Conc	CONCRETE DRIVEWAY/ CONCRETE DRIVEWAY RAMP	
	CULVERT END	
	DRAINAGE DITCH	
Size & Type	DRAINAGE PIPE	SIZE & TYPE
	EASEMENT LINE (PERMANENT)	
	EASEMENT LINE (TEMPORARY)	
E	ELECTRIC LINE (OVERHEAD OR UNDERGROUND)	
G	GAS LINE	
	GAS TEST PIT	TP G1
GV WV	GAS VALVE or WATER VALVE	
	GUIDE RAIL	
HV	HIGH VOLTAGE OVERHEAD LINE	
Number or Name	HOUSE/ STRUCTURE	
	HYDRANT	
	INLAND WETLAND LIMITS (STATE)	
	INLAND WETLAND LIMITS (FEDERAL)	
	MAILBOX	
D	MANHOLE (STORM)	
S	MANHOLE (SANITARY)	
Mon	MONUMENT	■ MON
	NORTH ARROW	
OHW	ORDINARY HIGH WATER	
OH	OVERHEAD UTILITY WIRES	
	RIPRAP APRON	
SC	SANITARY SERVICE CONNECTION	
Size & Type	SANITARY SEWER	SIZE & TYPE
	SEDIMENTATION CONTROL SYSTEM	
	SIGN	
x 33.2	SPOT ELEVATION	x 33.2
	STONE WALL	
T	TELEPHONE LINE (OVERHEAD OR UNDERGROUND)	
	TEST HOLE NUMBER 5 (SEE CONTRACT DOCUMENTS)	TH-5
	TREE	
	TREE LINE	
Size & Type	UNDERDRAIN	SIZE & TYPE
	"U" SHAPED STONE DIKE	
Number & Owner	UTILITY POLE	
	WATER COURSE	
W	WATER LINE	W
	WATER TEST PIT	TP W1
X X	WIRE FENCE	



ROADWAY TYPICAL SECTION

NOT TO SCALE



NOTES:

1) THIS DETAIL IS TO BE USED WHERE "SAWCUT & MATCH EXISTING PAVEMENT" IS CALLED FOR ON THE PLANS.
2) OVERLAP BOTH BITUMINOUS CONCRETE COURSES OVER EXISTING SUBBASE.
3) MINIMUM THICKNESS TO BE SAME AS PROPOSED BITUMINOUS OR MATCH THICKNESS OF EXISTING PAVEMENT, WHICHEVER IS GREATER.
4) PAVEMENT MATCH TREATMENT WILL BE INCIDENTAL TO THE WORK.
5) TO BE PAID FOR UNDER THE ITEM "CUT BITUMINOUS CONCRETE PAVEMENT".

PAVEMENT TRANSITION DETAIL

NOT TO SCALE

ADDENDUM NO. 1

NO.	REVISION	DATE	BY
1	DETAIL REVISED – CURB TYPE CHANGED	03/17/2025	CAD

DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
GENERAL NOTES & TYPICAL SECTION

GEN-01_A1

2

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	500.00	37.96	N36° 17' 11.24"E	(871128.68,736490.18)	(871151.14,736520.77)
C2	500.00	118.66	N31° 39' 45.34"E	(871316.87,736729.41)	(871379.02,736830.18)

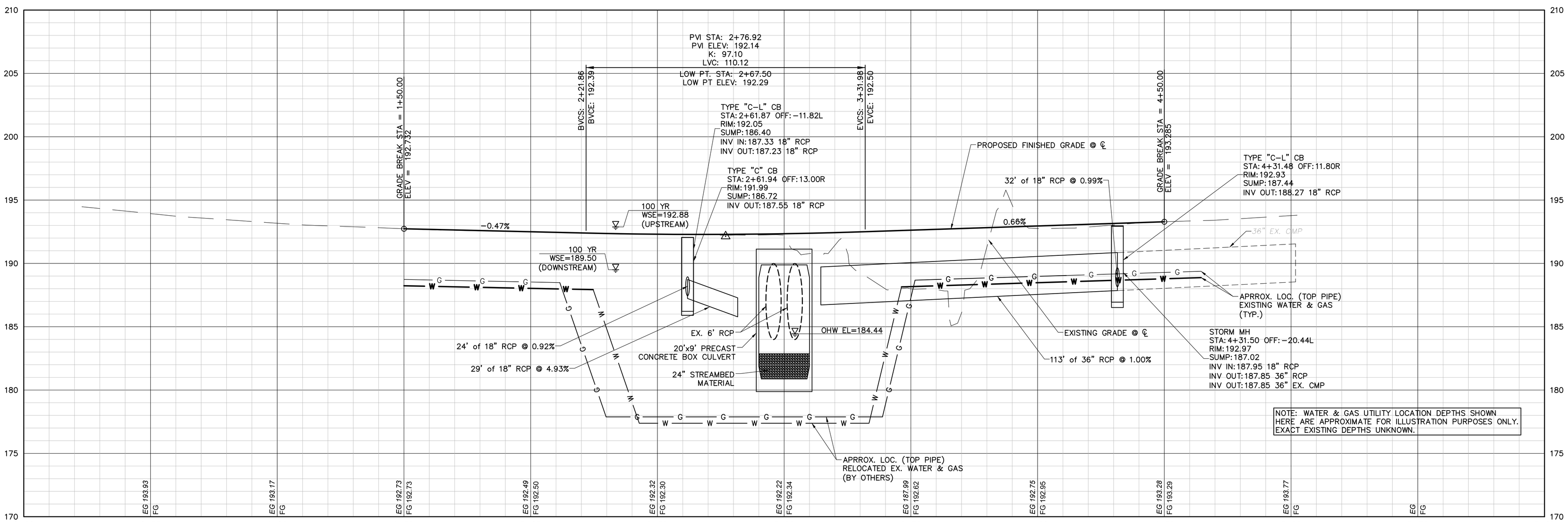
BEGIN PROJECT
STA 1+50.00
SAWCUT & MATCH EXISTING PAVEMENT
BEGIN FULL DEPTH RECONSTRUCTION

END PROJECT
STA 4+50.00
SAWCUT & MATCH EXISTING PAVEMENT
END FULL DEPTH RECONSTRUCTION

SCALE IN FEET
0 20 40
SCALE 1" = 20'

APPROX. LIMITS EXISTING RIPRAP (TO REMAIN)
APPROX. LIMITS STREAM CHANNEL GRADING (SEE CULVERT PROFILE)
EXISTING TREE TO BE REMOVED
APPROX. LIMTS ADDITIONAL 18" INTERMEDIATE RIPRAP FOR OUTLET SCOUR PROTECTION (AS NEEDED)
PROPOSED 18" RC CULVERT END INV=186.72
18" INTERMEDIATE RIPRAP (PROPOSED)
29' of 18" RCP @ 4.93%
TYPE "C-L" CB
STA: 2+61.87 OFF: -11.82L
RIM: 192.05
SUMP: 186.40
INV IN: 187.33 18" RCP
INV OUT: 187.23 18" RCP
24' of 18" RCP @ 0.92%
APPROX. LIMITS GRAVEL DRIVE RECONSTRUCTION
BEGIN CONC. CURB
5' CONCRETE SIDEWALK
RELOCATED UTILITY POLE TO BACK OF WALK
TYPE "C" CB
STA: 2+61.94 OFF: 13.00R
RIM: 191.99
SUMP: 186.72
INV OUT: 187.55 18" RCP
REMOVE EXISTING 15" CMP
PROPOSED ROCK WEIR STEP POOLS (TYP.) (SEE DETAILS)
APPROX. LIMITS STREAM CHANNEL GRADING (SEE CULVERT PROFILE)
TEMPORARY EASEMENT NEEDED
PERMANENT EASEMENT NEEDED
APPROX. LIMITS EXISTING RIPRAP IN CHANNEL TO BE REMOVED & REUSED ALONG STREAMBANKS
TEMPORARY EASEMENT NEEDED
PROPOSED 36" RC CULVERT END INV=186.72
EXISTING TREE TO BE REMOVED
18" INTERMEDIATE RIPRAP (PROPOSED)
CONCRETE WINGWALL & FOOTING (TYP.)
113' of 36" RCP @ 1.00%
APPROX. LOC. EX. WATER & GAS TO BE RELOCATED UNDER PROPOSED STRUCTURE AS NECESSARY (BY OTHERS)
STORM MH
STA: 4+31.50 OFF: -20.44L
RIM: 192.97
SUMP: 187.02
INV IN: 187.95 18" RCP
INV OUT: 187.85 36" RCP
INV OUT: 187.85 36" EX. CMP
END CONC. CURB
32' of 18" RCP @ 0.99%
TYPE "C-L" CB
STA: 4+31.48 OFF: 11.80R
RIM: 192.93
SUMP: 187.44
INV OUT: 188.27 18" RCP
REMOVE RIPRAP FILL & GRADE TO MATCH SURROUNDING AREA
REMOVE EX. 24" HDPE
APPROX. LIMITS BIT DRIVE RECONSTRUCTION SAWCUT & MATCH EXISTING
RELOCATED UTILITY POLE TO BACK OF WALK
℄ 20'x9' PRECAST CONCRETE BOX CULVERT 35 LF
HEADWALL MOUNTED 4 RAIL METAL PEDESTRIAN BRIDGE RAIL (TYP.)
REMOVE DRAINAGE SWALE FILL & GRADE TO MATCH SURROUNDING AREA

NOTE: WETLAND LIMITS AND ORDINARY HIGH WATER (OHW) LIMITS SHOWN HERE ARE THE EXISTING LIMITS AS THEY WERE PRIOR TO THE CURRENT STORM WASHOUT DAMAGE.



NOTE: WATER & GAS UTILITY LOCATION DEPTHS SHOWN HERE ARE APPROXIMATE FOR ILLUSTRATION PURPOSES ONLY. EXACT EXISTING DEPTHS UNKNOWN.

ADDENDUM NO. 1

HORIZONTAL SCALE IN FEET 0 20 40 — HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE IN FEET 0 2 4 — VERTICAL SCALE 1" = 2'

NO.	REVISION	DATE	BY
1	NOTE REVISED	03/17/2025	CAD

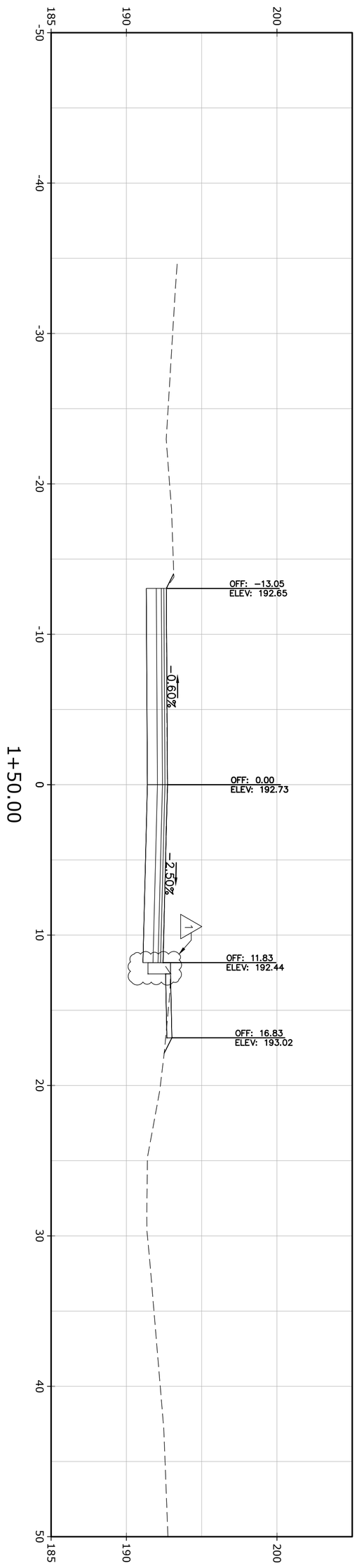
DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

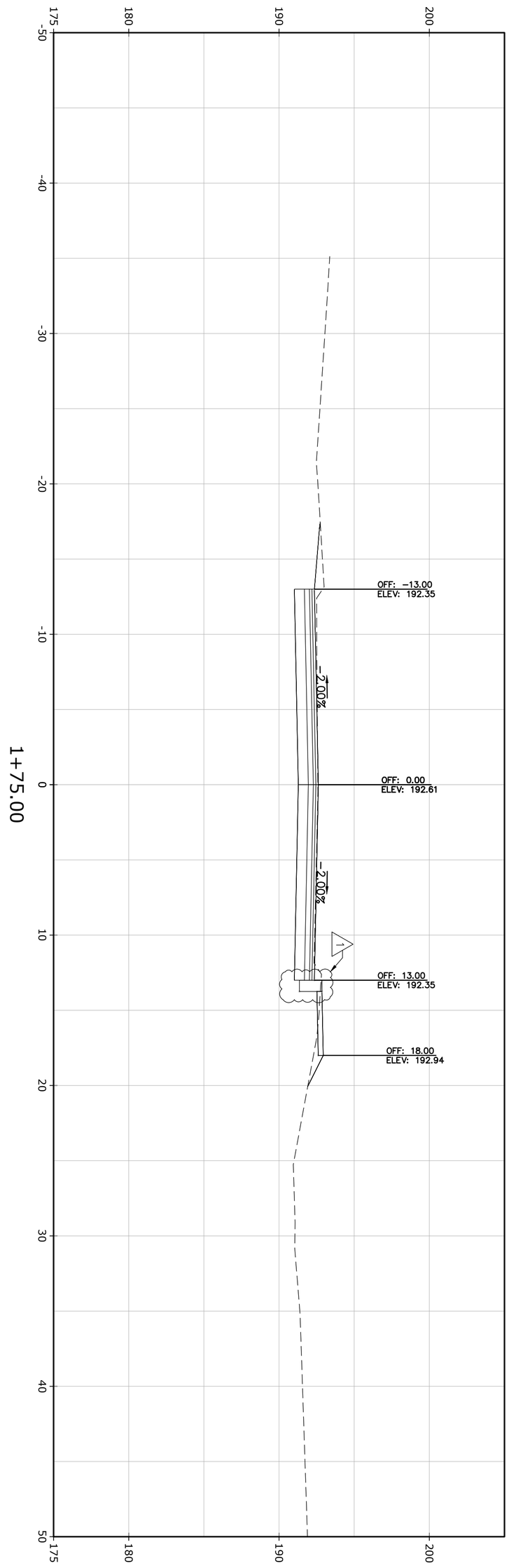
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY MERIDEN, CT 06450 (203-238-1569)
457 BANTAM RD LITCHFIELD, CT 06759 (860-567-9106)

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
ROADWAY PLAN & PROFILE

PLA-01_A1

4



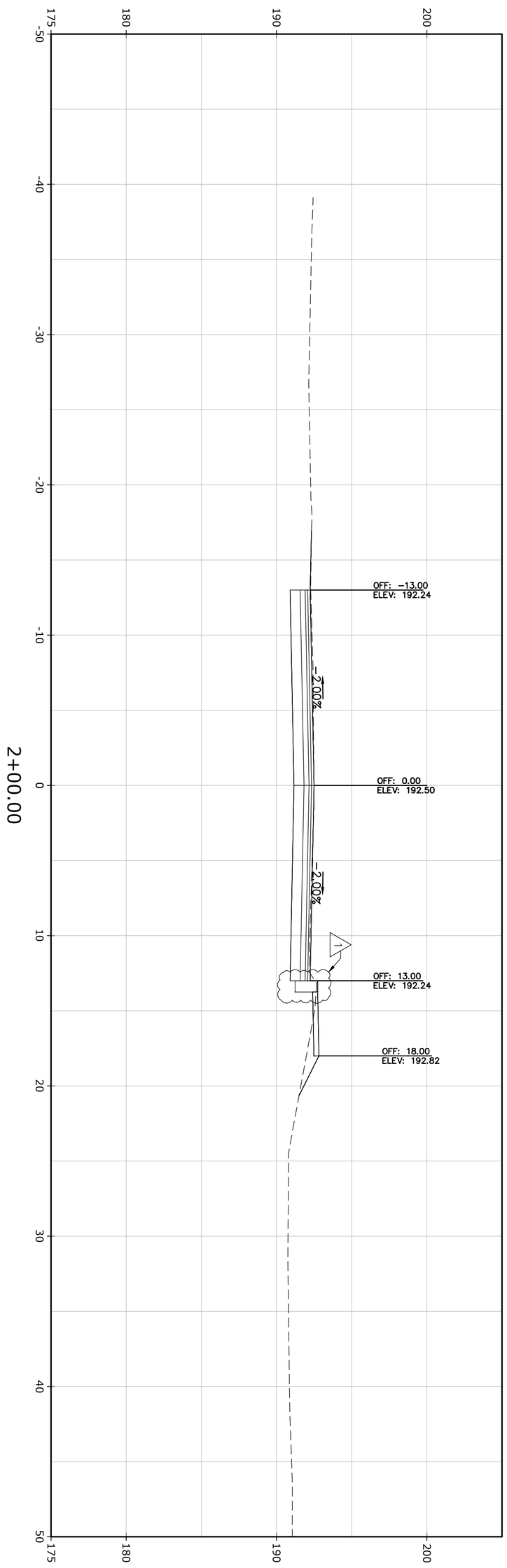


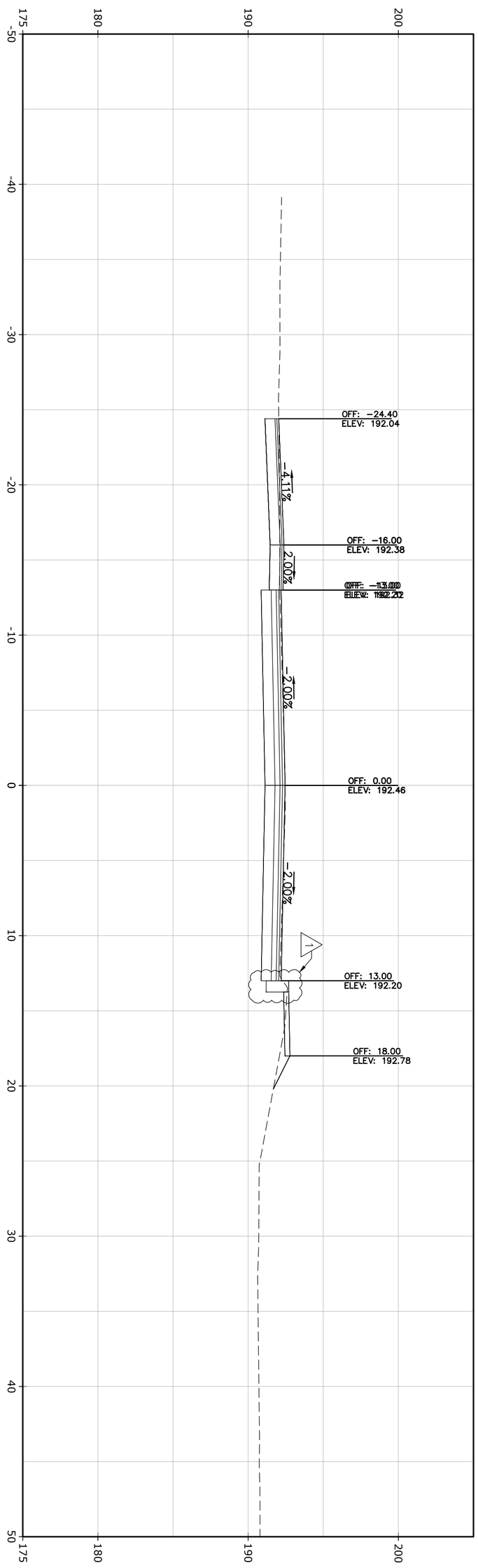
ADDENDUM NO. 1

SCALE IN FEET
0 5 10
SCALE 1" = 5'

5	XSC-1_A1	REPLACEMENT OF OLD FIELD ROAD CULVERT OVER BULLET HILL BROOK SOUTHBURY, CONNECTICUT CROSS SECTIONS	CARDINAL ENGINEERING ASSOCIATES 180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969 457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106	DATE: March 2025 PROJECT NO: XXXXXX DESIGNED BY: XXX DRAWN BY: XXX CHECKED BY: XXX APPROVED BY: JAC

NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD





ADDENDUM NO. 1

SCALE IN FEET
0 5 10
SCALE 1" = 5'

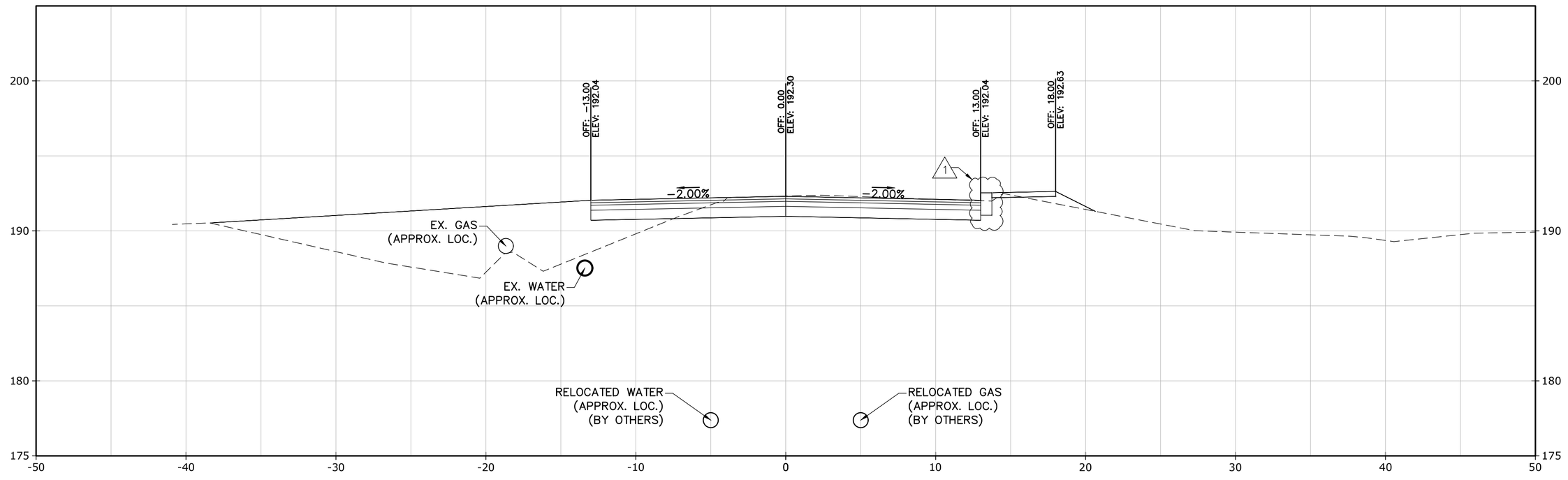
6	XSC-2_A1	REPLACEMENT OF OLD FIELD ROAD CULVERT OVER BULLET HILL BROOK SOUTHBURY, CONNECTICUT CROSS SECTIONS		

CARDINAL
ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

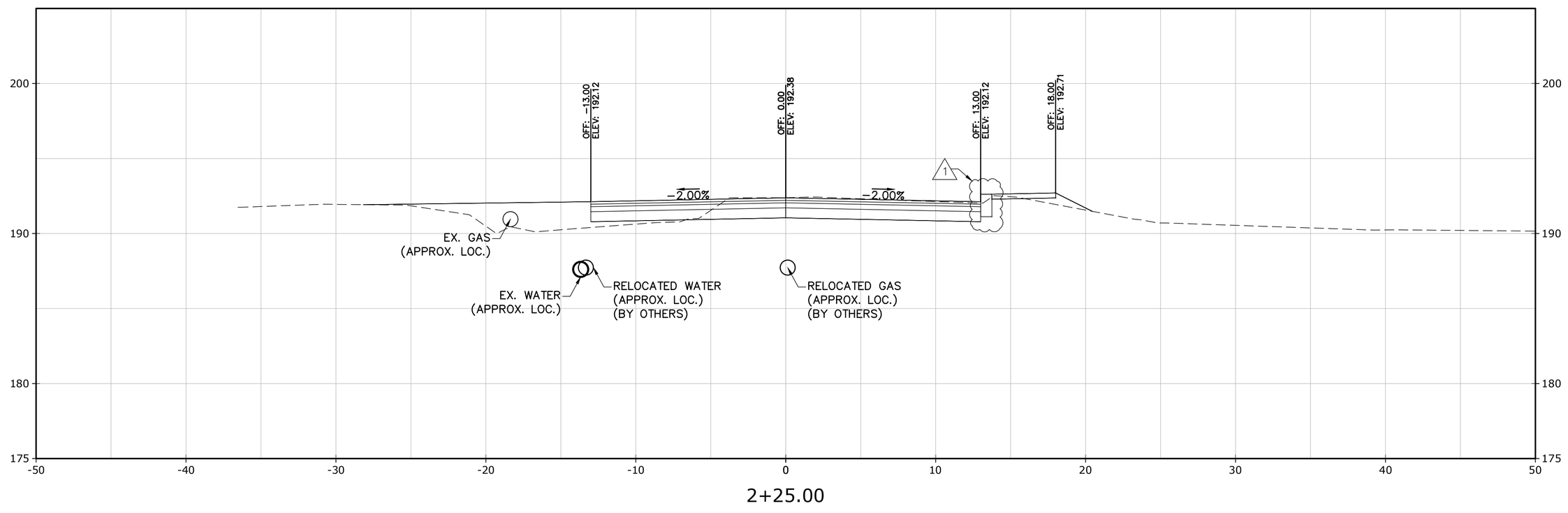
DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD

SCALE IN FEET
0 5 10
SCALE 1" = 5'



2+50.00



2+25.00

ADDENDUM NO. 1

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DATE: March 2025
PROJECT NO: XXXXXX
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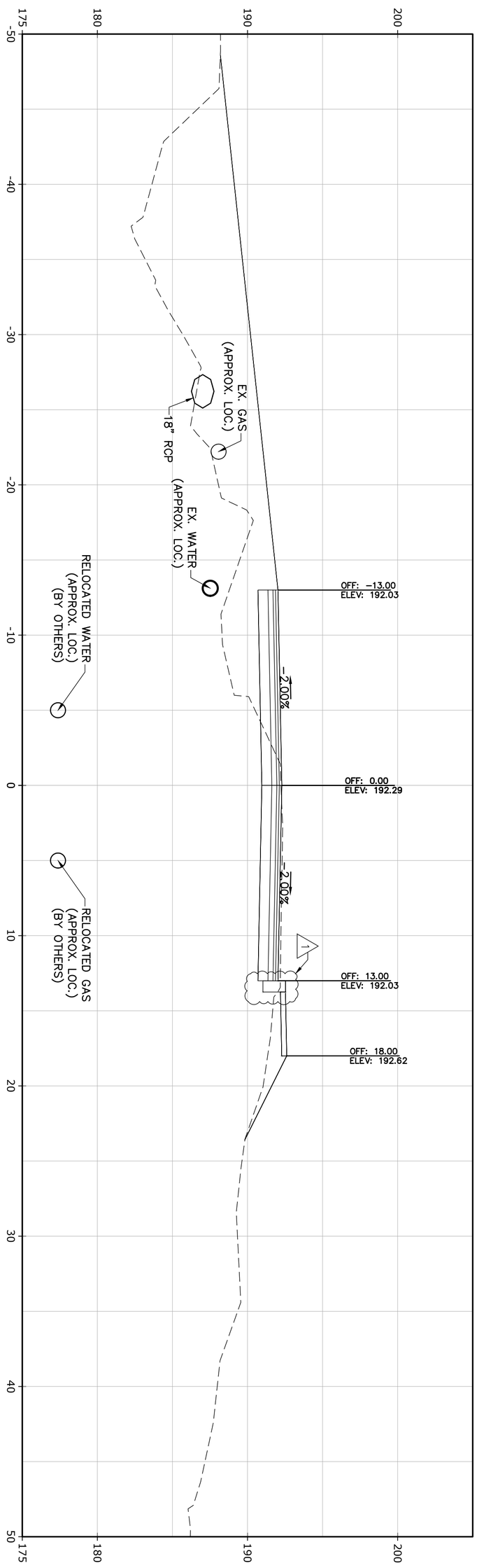
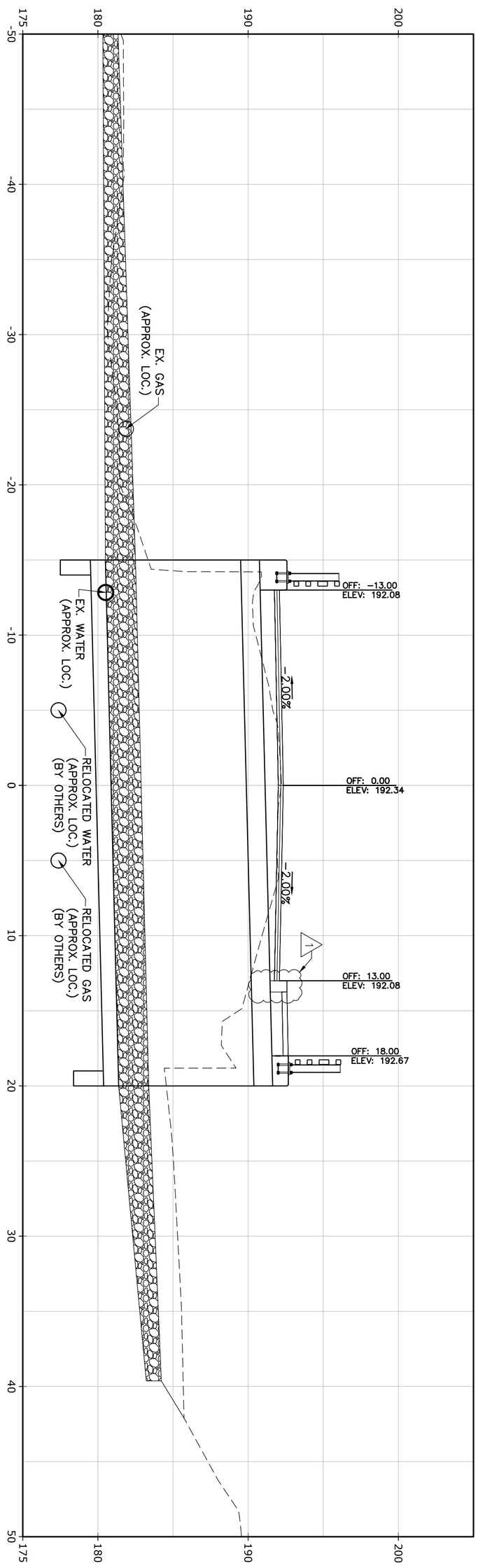
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CROSS SECTIONS

XSC-3_A1





ADDENDUM NO. 1

SCALE IN FEET
0
5
10
SCALE 1" = 5'

8

XSC-4_A1

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CROSS SECTIONS

CARDINAL
ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

DATE: March 2025
PROJECT NO: XXXXXX
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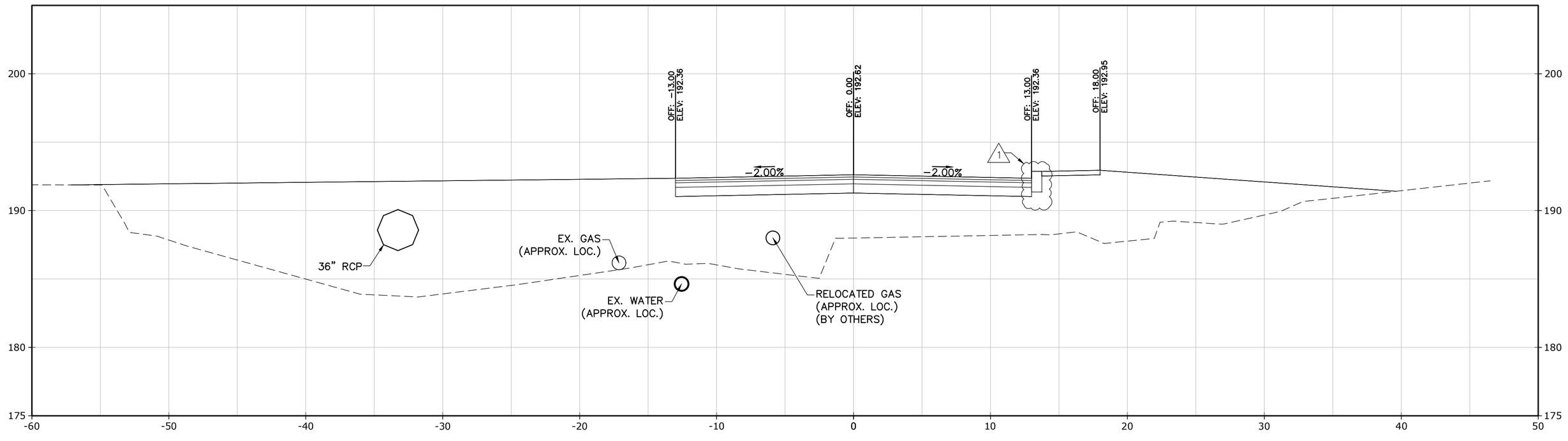
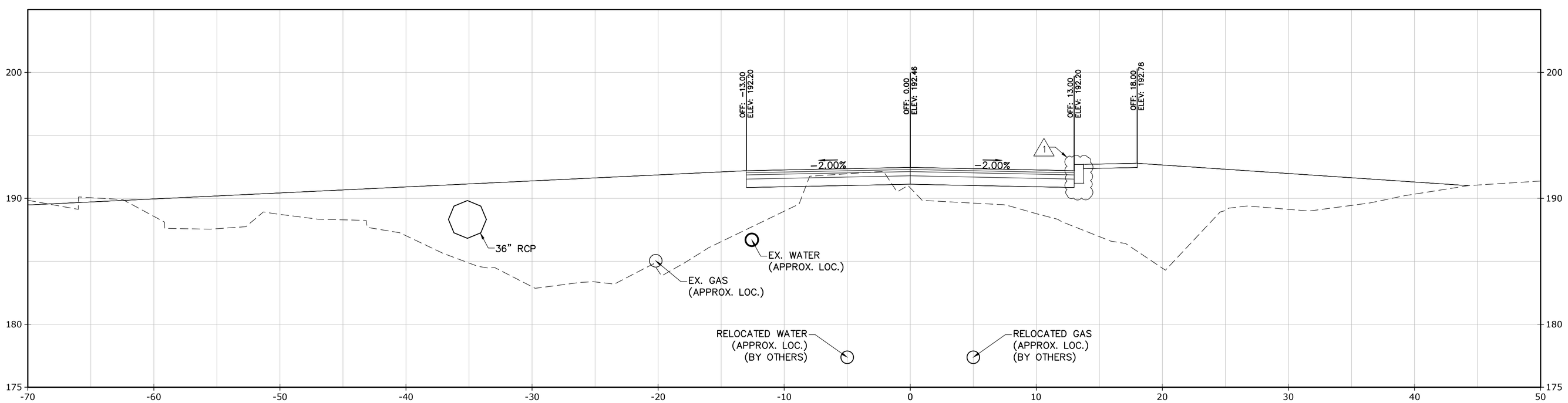
NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD

SCALE IN FEET
0 5 10
SCALE 1" = 5'



3+50.00



3+25.00

ADDENDUM NO. 1

NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD

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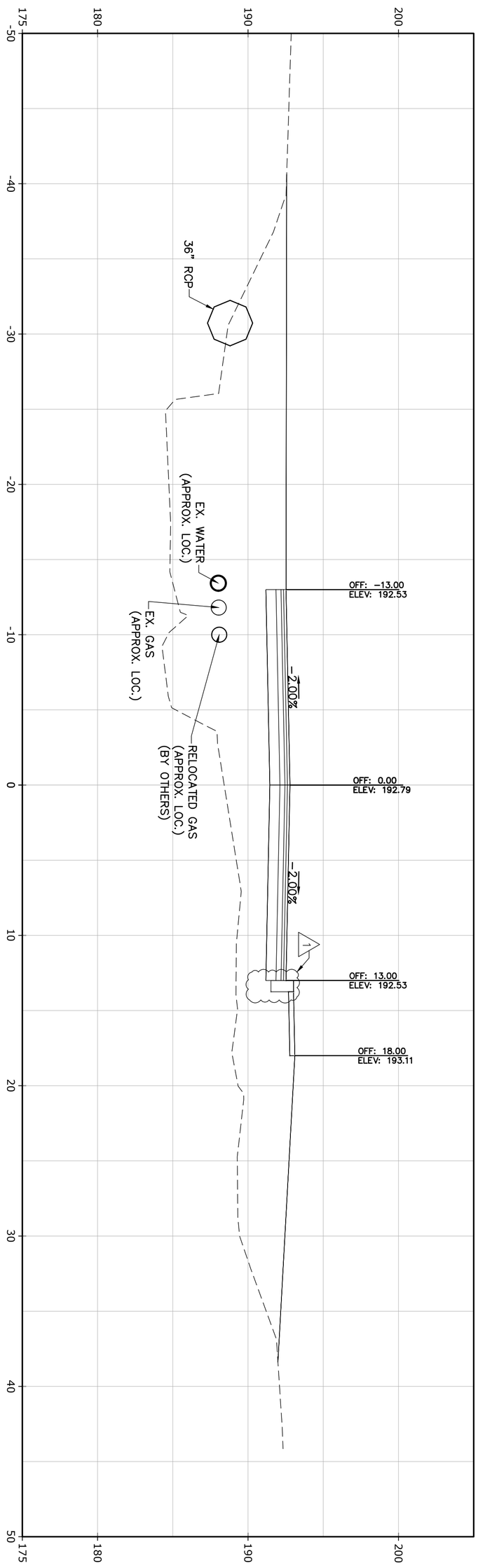
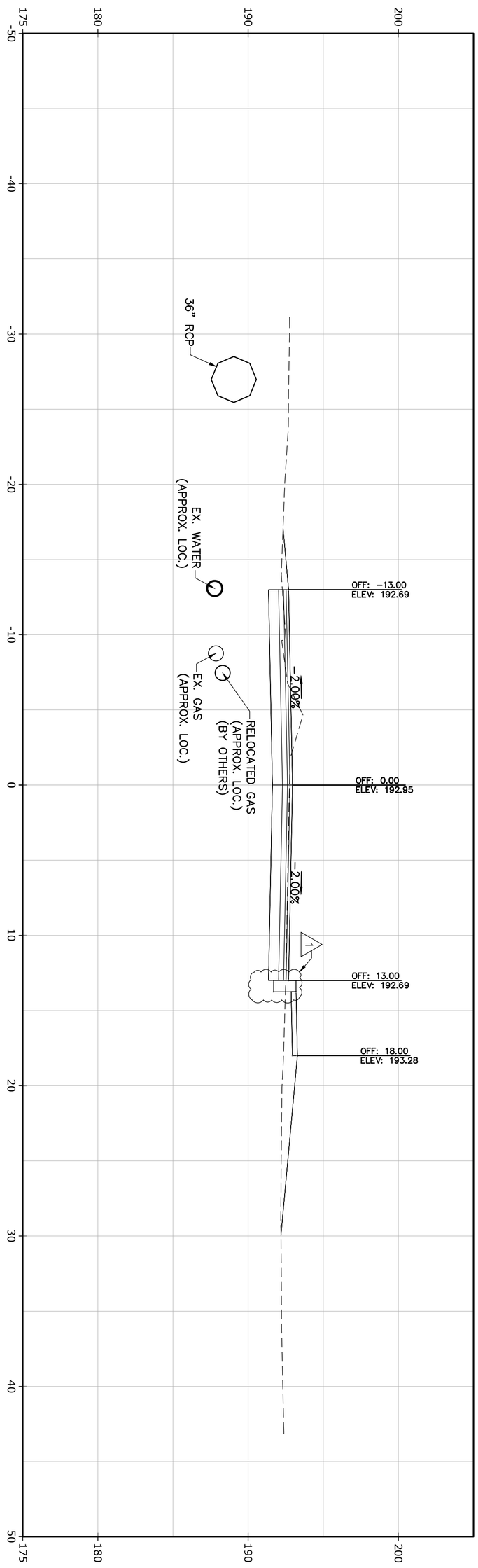
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CROSS SECTIONS

XSC-5_A1



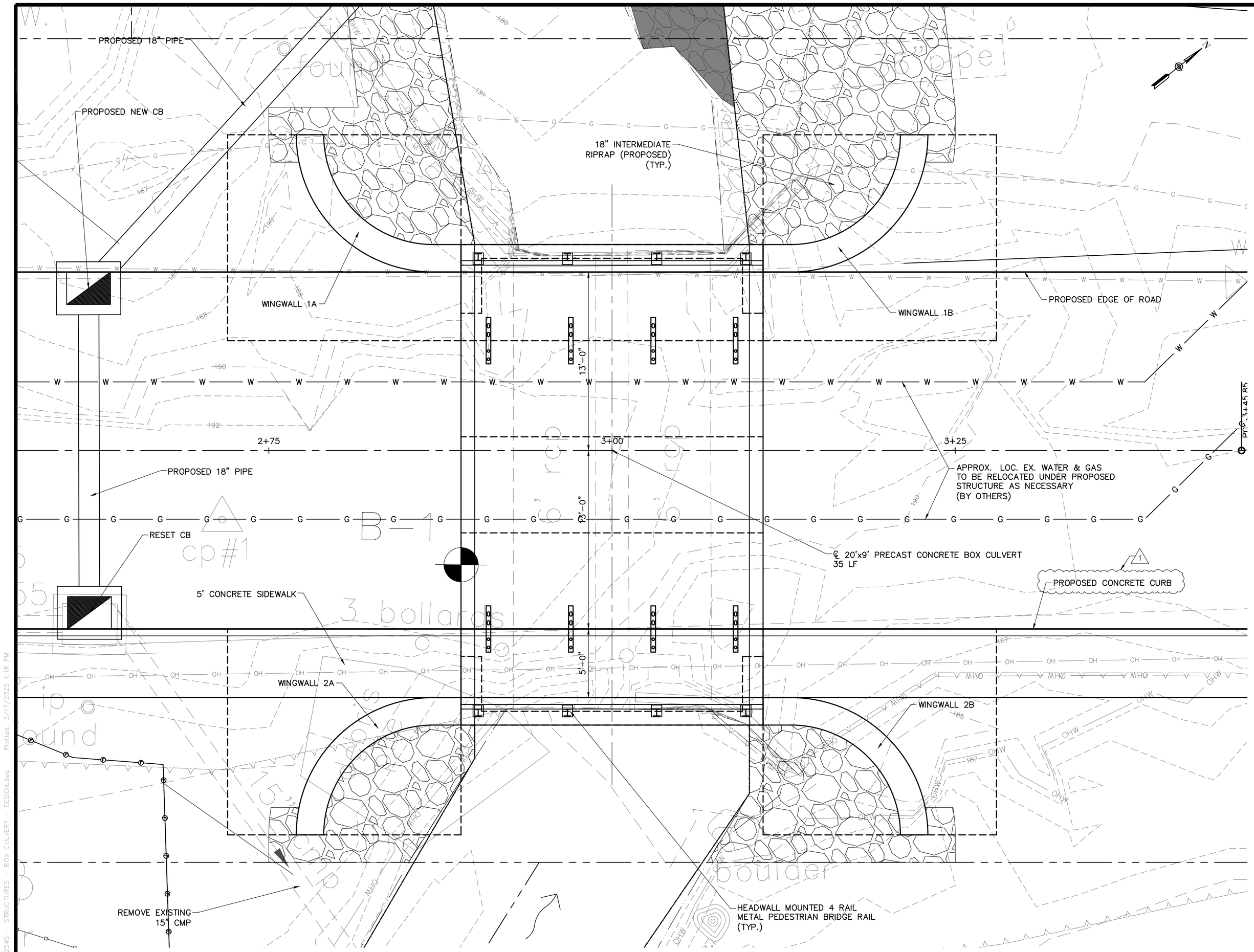


ADDENDUM NO. 1

SCALE IN FEET
0 5 10
SCALE 1" = 5'

10	XSC-6_A1	REPLACEMENT OF OLD FIELD ROAD CULVERT OVER BULLET HILL BROOK SOUTHBURY, CONNECTICUT CROSS SECTIONS	CARDINAL ENGINEERING ASSOCIATES 180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969 457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106	DATE: March 2025 PROJECT NO: XXXXXX DESIGNED BY: XXX DRAWN BY: XXX CHECKED BY: XXX APPROVED BY: JAC

NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD



PLAN
SCALE: ¼"=1'-0'

GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024) AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS EIGHTH EDITION, INCLUDING 2018 INTERIM REVISIONS AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003 EDITION), UP TO AND INCLUDING 2019 REVISIONS.

MATERIAL STRENGTHS:

CONCRETE:
CLASS PCC03340 f'c = 3,300 PSI
CLASS PCC04462 f'c = 4,400 PSI
CLASS PCC05562 f'c = 5,500 PSI
THE CONCRETE STRENGTH, f'c, USED IN DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF 6.01 – CONCRETE FOR STRUCTURES, AND M.03 – PORTLAND CEMENT CONCRETE.

REINFORCEMENT (ASTM A615 GRADE 60): Fy = 60 KSI

LIVE LOAD: HL–93, LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCE: NONE

DIMENSIONS: WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

EXISTING DIMENSIONS: DIMENSIONS AND LOCATIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

UTILITIES:
THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE PROJECT LIMITS AND SHALL BE PROTECTED DURING CONSTRUCTION:

ELECTRIC DISTRIBUTION	EVERSOURCE ENERGY
COMMUNICATION	FRONTIER COMMUNICATIONS OF CONNECTICUT
CABLE TV	CHARTER COMMUNICATIONS

CONTRACTOR SHALL COORDINATE ALL WORK RELATED TO UTILITY RELOCATION WITH THE RESPECTIVE UTILITY COMPANIES.

JOINT SEAL: SEE SPECIAL PROVISIONS.

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE TWO INCHES OF COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS –GALVANIZED."

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER IS PAID FOR AS "(THICKNESS AND TYPE) JOINT FILLER FOR BRIDGES."

CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

PRECAST CONCRETE BOX CULVERT: SEE SPECIAL PROVISIONS.

CONCRETE COMPONENTS

ITEM NAME	COMPONENT	MIX CLASSIFICATION
FOOTING CONCRETE	CUTOFF AND RETURN WALLS, WINGWALL FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	WINGWALL STEMS	PCC03340
HEADWALL CONCRETE	HEADWALLS	PCC04462
PRECAST CONCRETE BOX CULVERT	PRECAST CONCRETE BOX CULVERT	PCC05562

PRECAST CONCRETE BOX CULVERT

UNIT	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	ESTIMATED SHIPPING WEIGHT
CELL TYPE "A"	22'–0"	11'–3"	7'–0"	37.95 TONS
CELL TYPE "B"	22'–0"	11'–3"	7'–0"	37.95 TONS

HYDRAULIC DATA

DRAINAGE AREA	3.53 SQ. MILES
DESIGN FREQUENCY	100 YEARS
DESIGN DISCHARGE	1640 C.F.S.
*AVERAGE DAILY FLOW ELEVATION	184.44
UPSTREAM DESIGN WATER SURFACE ELEVATION	193.22
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	188.26
MAXIMUM SCOUR ELEVATION	NA
FREQUENCY	NA
DISCHARGE	NA
WORST CASE SCOUR SUB–STRUCTURE UNIT	NA

*OBSERVED SEPTEMBER 2024

ADDENDUM NO. 1

NO.	REVISION	DATE	BY
1	NOTES REVISED	03/17/2025	CAD

DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

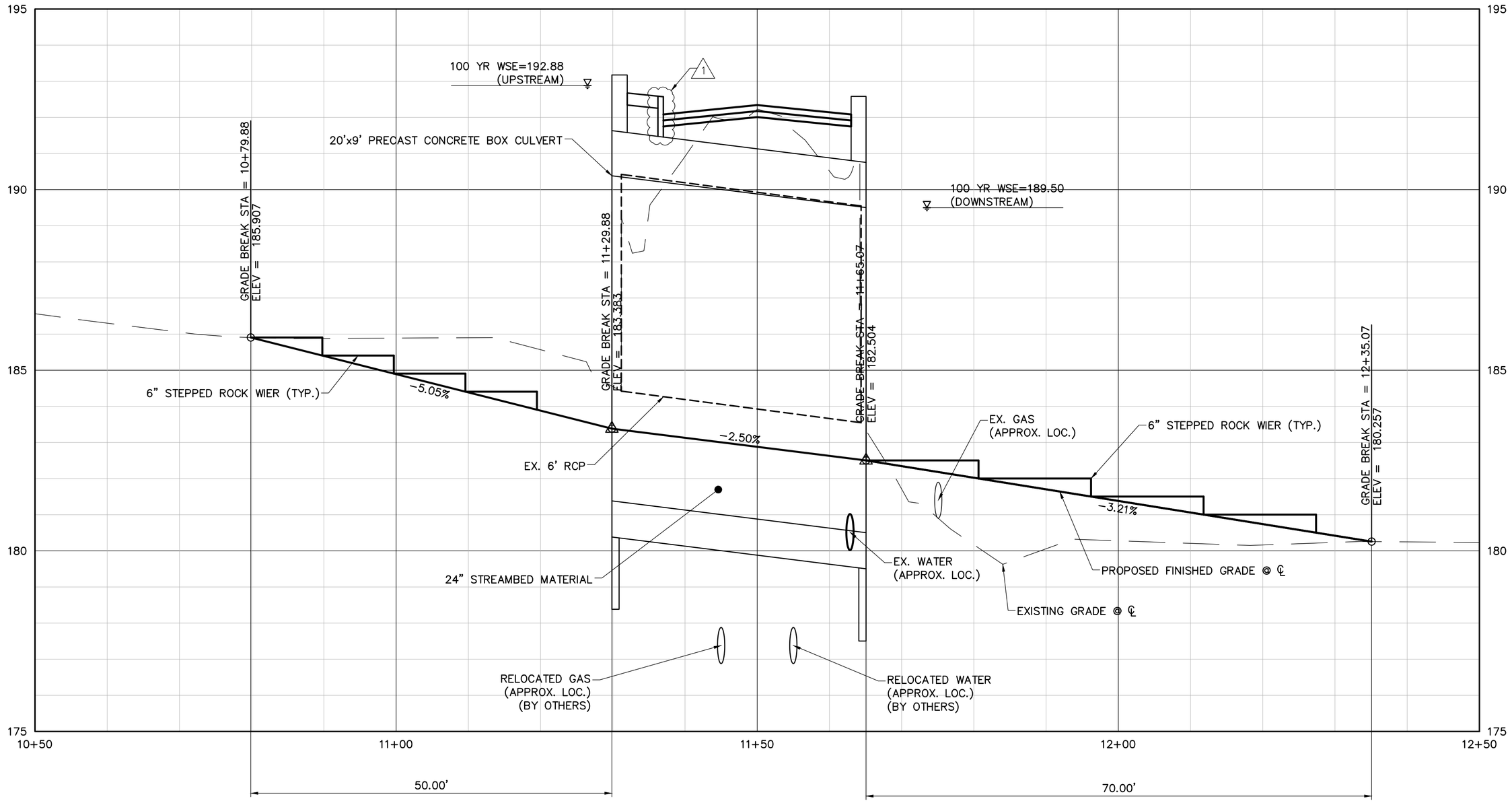
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT GENERAL PLAN

STR-01_A1

13

Bullet Hill Brook CL PROFILE



ADDENDUM NO. 1

HORIZONTAL SCALE IN FEET
0 15 30
HORIZONTAL SCALE 1" = 15'

VERTICAL SCALE IN FEET
0 3 6
VERTICAL SCALE 1" = 3'

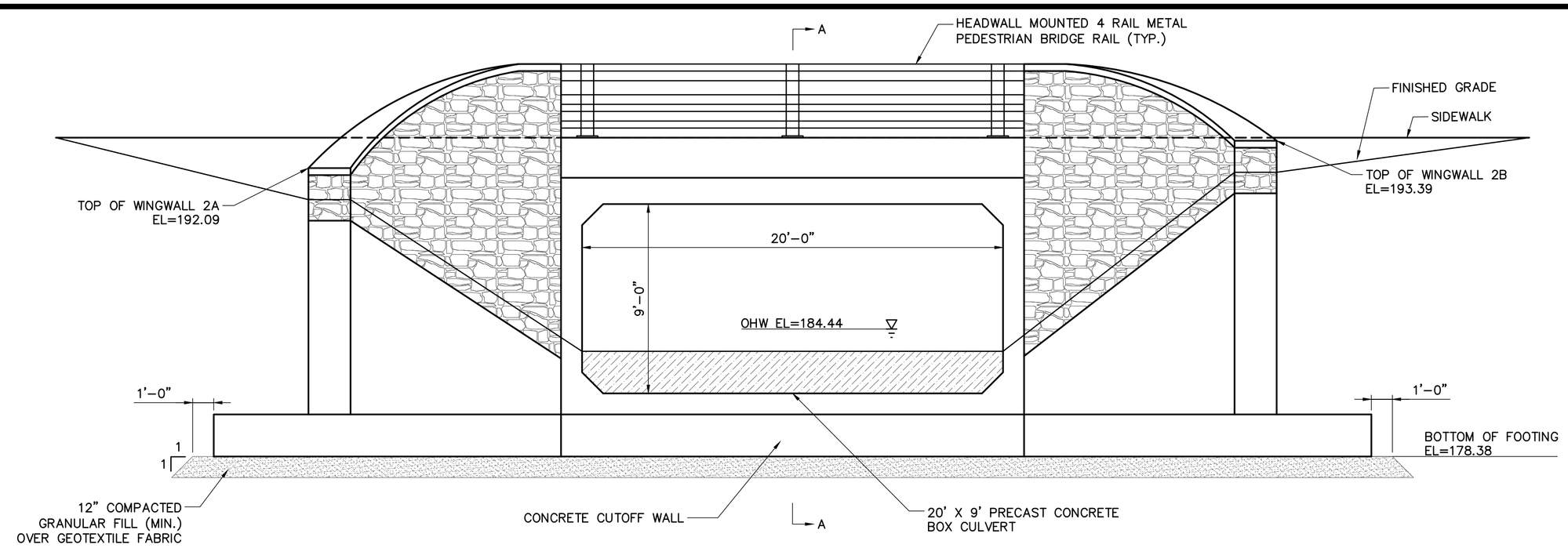
NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD

DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY MERIDEN, CT 06450 (203-238-1569
457 BANTAM RD I LITCHFIELD, CT 06759 (860-597-9106

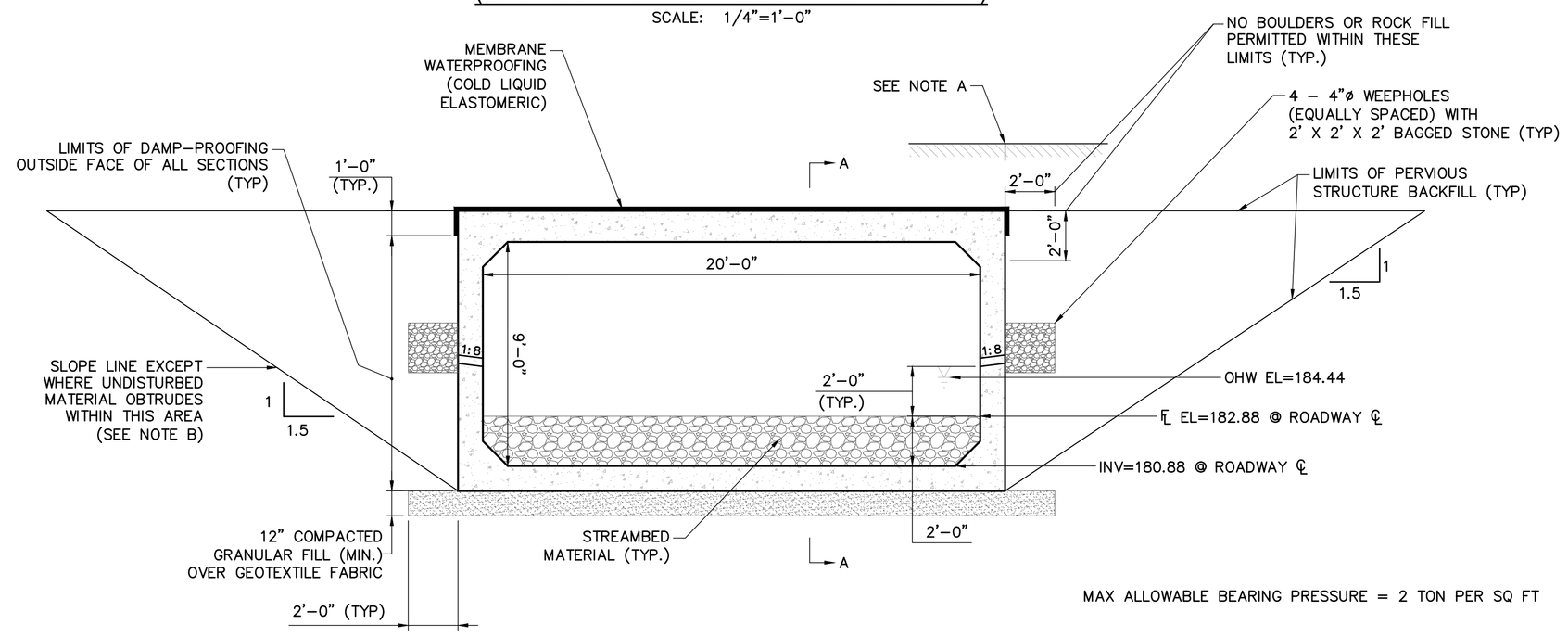
REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT PROFILE

STR-02_A1



PROPOSED WEST/UPSTREAM ELEVATION
(EAST/DOWNSTREAM ELEVATION SIMILAR)

SCALE: 1/4"=1'-0"



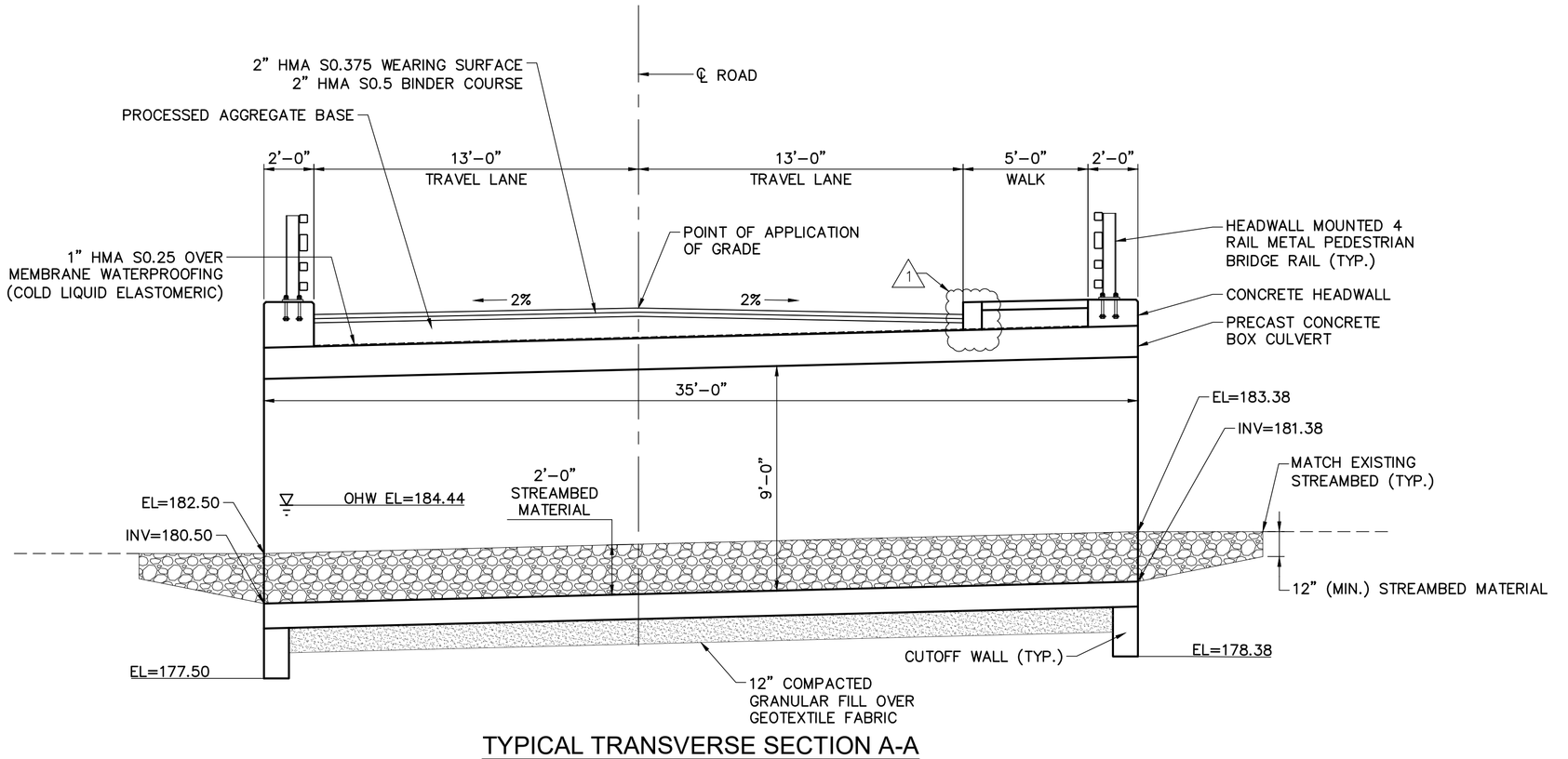
MAX ALLOWABLE BEARING PRESSURE = 2 TON PER SQ FT

NOTES:

A. CUT HMA SURFACE COURSE WITH A ⅜" X 2" DEEP KERF AND FILL WITH A POURABLE SEALANT WHEN COVER IS LESS THAN 2'-0" FROM TOP OF BOX TO FINISHED WEARING SURFACE. COST OF CUTTING AND SEALING TO BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "SAWING AND SEALING JOINTS".
B. THE COST OF ANY EXCAVATION AND BACKFILL OUTSIDE OF THE PAY LIMITS FOR THE ITEMS "STRUCTURE EXCAVATION–EARTH (EXCLUDING COFFERDAM AND DEWATERING)", "STRUCTURE EXCAVATION–ROCK (EXCLUDING COFFERDAM AND DEWATERING)" OR "PERVIOUS STRUCTURE BACKFILL" SHALL BE INCLUDED IN THE ITEM "COFFERDAM AND DEWATERING". MATERIAL FOR BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 2.16, "PERVIOUS STRUCTURE BACKFILL", OF THE STANDARD SPECIFICATIONS.

TYPICAL LONGITUDINAL SECTION

SCALE: ⅛"=1'-0"



TYPICAL TRANSVERSE SECTION A-A

SCALE: 1/4"=1'-0"

ADDENDUM NO. 1

NO.	REVISION	DATE	BY
1	CURB REVISED	03/17/2025	CAD

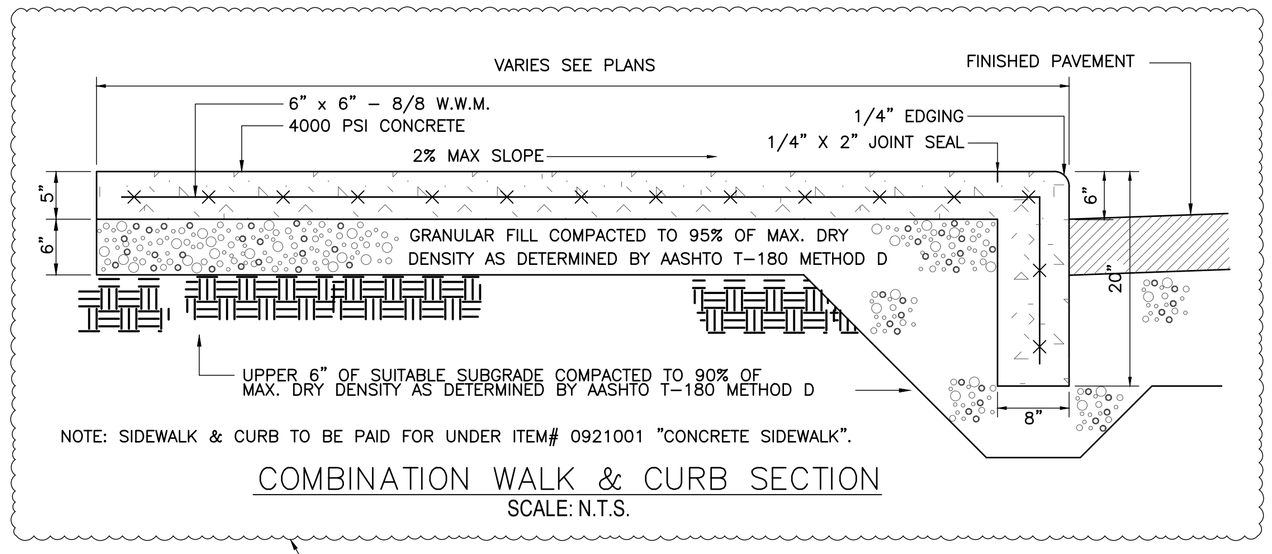
DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT ELEVATION AND SECTIONS

STR-04_A1

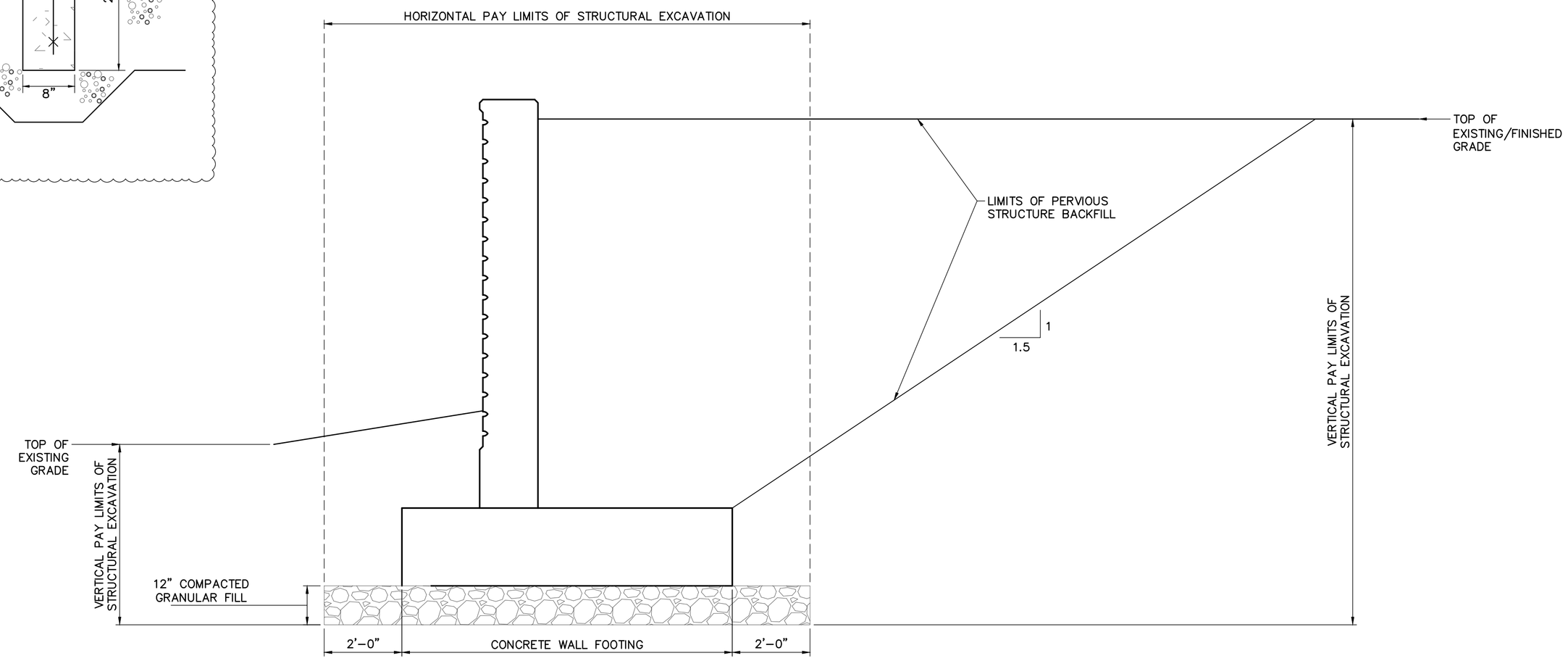
16



COMBINATION WALK & CURB SECTION

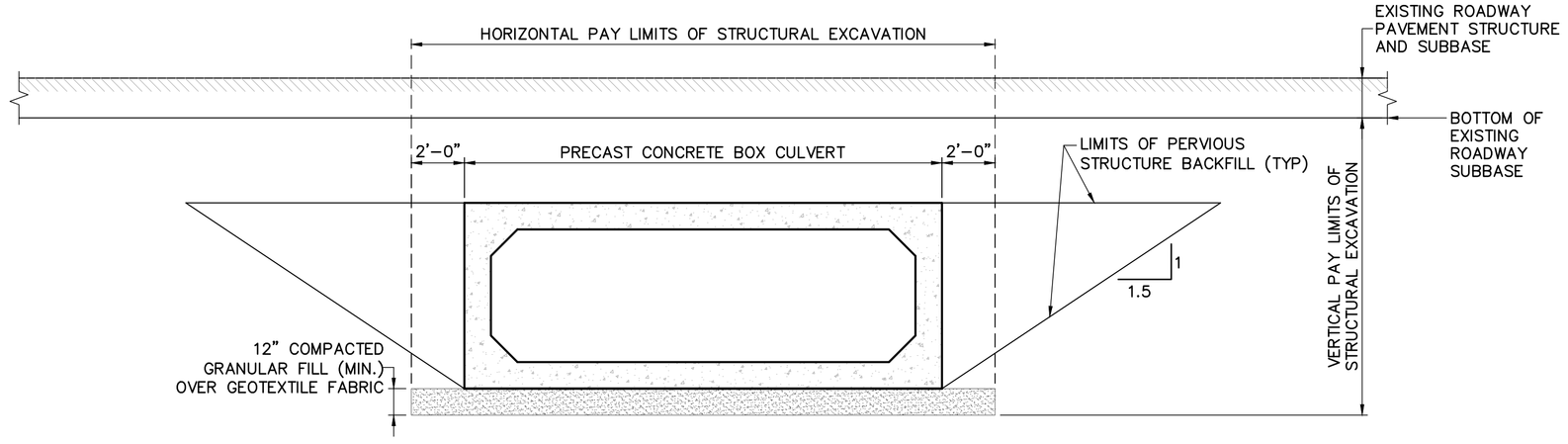
SCALE: N.T.S.

1



TYPICAL STRUCTURAL EXCAVATION
PAY LIMITS FOR WALL

SCALE: ½"=1'-0"



TYPICAL STRUCTURAL EXCAVATION
PAY LIMITS FOR BOX CULVERT

SCALE: ¼"=1'-0"

ADDENDUM NO. 1

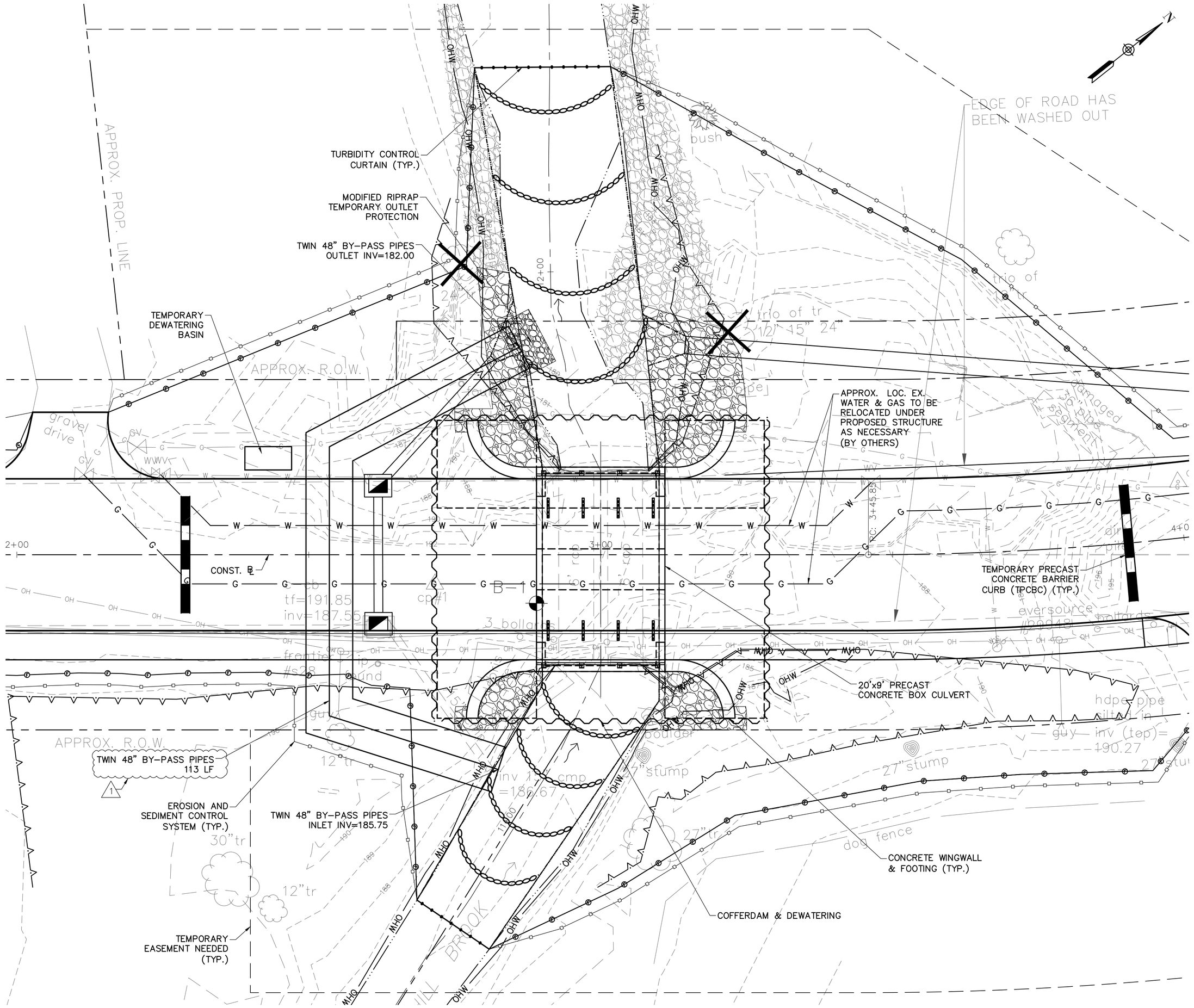
NO.	REVISION	DATE	BY
1	DETAIL ADDED	03/17/2025	CAD

DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT MISCELLANEOUS DETAILS

STR-10_A1



PLAN
SCALE: 1"=10'

SUGGESTED CONSTRUCTION SEQUENCE NOTES

1. INSTALL EROSION & SEDIMENT CONTROL SYSTEM.
2. INSTALL TWIN 48" BY-PASS PIPES.
3. CONSTRUCT COFFERDAM AND DIVERT FLOW TO BY-PASS PIPE.
4. REMOVE THE EXISTING CULVERTS AND HEADWALLS.
5. INSTALL WINGWALL FOOTINGS, RETURN WALLS AND CUTOFF WALLS.
6. INSTALL PRECAST CONCRETE BOX CULVERT.
7. INSTALL WINGWALLS.
8. BACKFILL BOX CULVERT AND WINGWALLS, GRADE CHANNEL, REMOVE BY-PASS PIPE, COFFERDAMS AND DIRECT FLOW INTO NEW CULVERT.
9. PLACE BARRICADES, SAND BARREL ARRAY AND TRAFFIC DRUMS AS NECESSARY TO PROTECT THE REMAINING WORK AREAS ON THE BRIDGE AND REDIRECT TRAFFIC.
10. OPEN ROADWAY, CONSTRUCT REMAINING BRIDGE ELEMENTS (ALTERNATING ONE-WAY TRAFFIC IF REQUIRED).
11. CONSTRUCT THE REMAINING ROADWAY AND CULVERT IMPROVEMENTS UTILIZING ALTERNATING ONE-WAY TRAFFIC AS REQUIRED.

TEMPORARY HYDRAULIC DATA

AVERAGE DAILY FLOW	6.43 CFS
AVERAGE SPRING FLOW	12.6 CFS
1-YEAR FREQUENCY DISCHARGE	185 CFS
TEMPORARY DESIGN DISCHARGE	185 CFS
TEMPORARY DESIGN FREQUENCY	1 YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	190.7
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	182.0

CONSTRUCTION GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
2. ANY UNCONFINED IN STREAM WORK WITHIN BULLET HILL BROOK SHOULD BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.
3. SEQUENCE OF CONSTRUCTION NOTES SHALL BE USED IN CONJUNCTION WITH THE HIGHWAY CONSTRUCTION, MAINTENANCE AND PROTECTION OF TRAFFIC PLANS.
4. THE SUGGESTED STEPS ILLUSTRATE A SEQUENCE OF CONSTRUCTION THAT CONFORMS TO STAGING REQUIREMENTS. THE SEQUENCE MAY BE ALTERED, SUBJECT TO THE APPROVAL OF THE ENGINEER SO LONG AS THE OPERATION OF VEHICULAR TRAFFIC IS MAINTAINED.
5. NEITHER THE WORK NOR STEPS LISTED IN THE CONSTRUCTION SEQUENCE ARE INTENDED TO COVER ALL DETAILS OF THE WORK. THE CONTRACTOR SHALL PREPARE A DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE FOR REVIEW AND APPROVAL BY THE ENGINEER.
6. THE TEMPORARY COFFERDAM SHALL CONSIST OF SHEETS OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION AND SHALL CONFORM TO PERMITS.
7. THE CONTRACTOR IS HEREIN NOTIFIED THAT THE OVERHEAD ELECTRICAL FACILITIES WILL REMAIN LIVE THROUGHOUT THE DURATION OF CONSTRUCTION.
8. THE CONTRACTOR SHALL COORDINATE EXCAVATION ACTIVITIES WITH UTILITY CONTRACTORS TO ALLOW UTILITY CONTRACTORS TO INSTALL RELOCATED UNDERGROUND UTILITIES WITHIN LIMITS OF GENERAL PROJECT EXCAVATION COMPLETED BY CONTRACTOR INCLUDING UTILITY CONTRACTOR WORK WITHIN LIMITS OF ANY PROJECT EXCAVATION SUPPORT SYSTEM UTILIZED BY CONTRACTOR.

LEGEND

- TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC)
- COFFERDAM
- EROSION AND SEDIMENT CONTROL SYSTEM
- TURBIDITY CONTROL CURTAIN
- TEMPORARY EASEMENT

ADDENDUM NO. 1

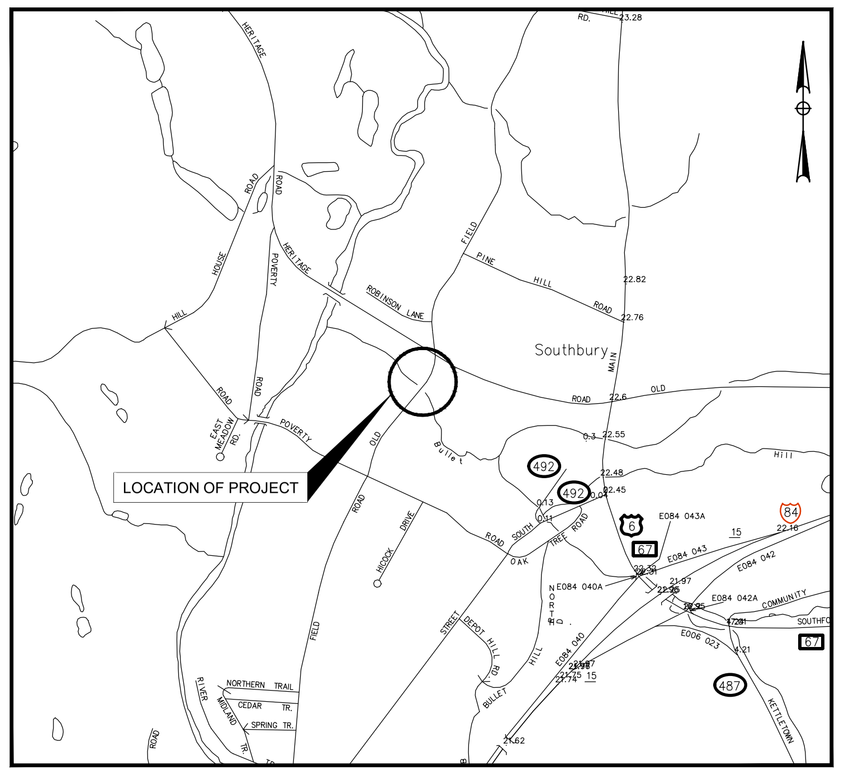
NO.	REVISION	DATE	BY
1	NOTE ADDED, REVISED	03/17/2025	CAD

DATE: March 2025
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
WATER HANDLING PLAN

WTH-01_A1



PROJECT LOCATION PLAN
NOT TO SCALE

TOWN OF SOUTHBURY

PLAN
FOR THE
REPLACEMENT OF
OLD FIELD ROAD OVER
BULLET HILL BROOK
STATE PROJECT NO. 9130-009

FROM STATION 1+50 TO STATION 4+50
LENGTH = 300'
SCALES: AS NOTED
TO BE MAINTAINED BY THE TOWN OF SOUTHBURY

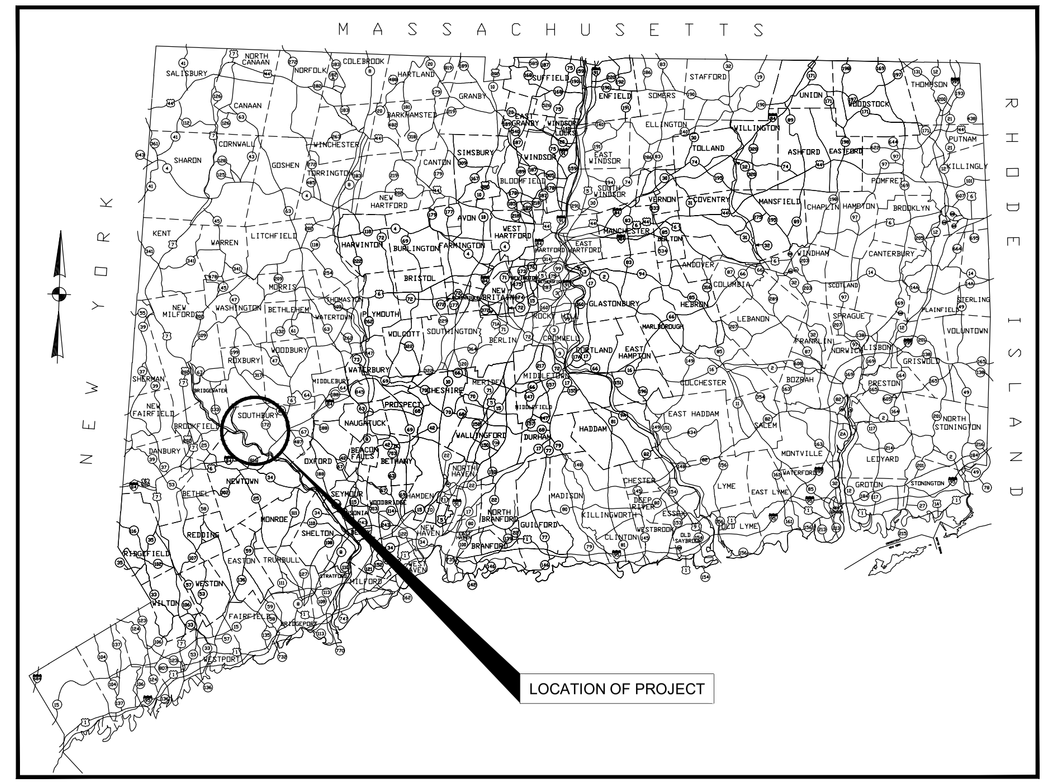
FIRST SELECTMAN

Jeff Manville

DIRECTOR OF PUBLIC WORKS

Blake Leonard

December 12, 2024



PROJECT VICINITY MAP
NOT TO SCALE

DESIGN DATA
FUNCTIONAL CLASSIFICATION: RURAL LOCAL ROAD
DESIGN SPEED: 25 mph
ADT (EST.): 100

CONSTRUCTION SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION FORM 819 (2024) AND SPECIAL PROVISIONS.

LIST OF DRAWINGS

SHEET NO.	TITLE	DRAWING	SHEET NO.	STANDARD DRAWINGS	FHWA APPROVAL DATE
1	TITLE SHEET	TITLE			
2	GENERAL NOTES AND TYPICAL SECTION	GEN-01			
3	EXISTING CONDITIONS PLAN	EXC-01			
4	ROADWAY PLAN & PROFILE	PLA-01			
5 - 11	CROSS SECTIONS (N/A)	XSC-01 - XSC-07			
12	CULVERT GENERAL PLAN	STR-01			
13	CULVERT PROFILE	STR-02			
14	BORING LOGS	STR-03			
15	CULVERT ELEVATION & SECTIONS	STR-04			
16	CULVERT LAYOUT PLAN (N/A)	STR-05			
17 - 18	PRECAST CONCRETE BOX CULVERT DETAILS (N/A)	STR-06 - STR-07			
18 - 21	CULVERT MISCELLANEOUS DETAILS (N/A)	STR-08 - STR-10			
22	ENDWALL DETAILS (N/A)	STR-11			
23	BRIDGE RAIL DETAILS (N/A)	STR-12			
24	ROCK WEIR DETAIL	STR-13			
25	WATER HANDLING PLAN	WTH-01			
26	SEDIMENT & EROSION CONTROL NOTES	SED-01			
27 - 28	SEDIMENT & EROSION CONTROL DETAILS	SED-02 - SED-03			
29	WETLANDS/WATERCOURSE IMPACT PLAN	WET-01			

LIST OF DRAWING REVISIONS

SHEET NO.	DESCRIPTION	DATE	BY

PERMIT PLANS
NOT FOR CONSTRUCTION
DECEMBER 2024

TITLE
1

CARDINAL
ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 819 (2024), SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

2. THE PROJECT SITE SHALL CONSIST OF THE AREA WITHIN THE MUNICIPALLY-OWNED RIGHT OF WAY BETWEEN THE DESIGNATED BEGINNING AND END STATIONS FOR THE PROJECT AS SHOWN ON THE PLANS. IT SHALL ALSO INCLUDE ANY EASEMENTS TO PERFORM WORK ON PRIVATELY-OWNED PROPERTY AS DEPICTED ON THE PLANS. THE CONTRACTOR SHALL LIMIT HIS CONSTRUCTION ACTIVITIES TO THE AREA WITHIN THE PROJECT SITE.

3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN REGULATIONS, THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION, FORM 819, WITH LATEST REVISIONS, AND THE LATEST VERSION OF THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS.

4. ALL UNCONFINED IN-STREAM WORK SHALL BE PERFORMED BETWEEN JUNE 1 AND SEPTEMBER 30.

5. WORK SHALL COMPLY WITH THE REQUIREMENTS OF ARMY CORPS OF ENGINEERS CONNECTICUT GENERAL PERMIT 19 - "STREAM, RIVER AND BROOK CROSSINGS".

6. ALL DIMENSIONS ARE FEET UNLESS OTHERWISE NOTED.

7. THE CONTRACTOR SHALL WALK THE PROJECT PRIOR TO CONSTRUCTION WITH A REPRESENTATIVE FROM THE TOWN AND THE ENGINEER. TREES TO BE REMOVED SHALL BE MARKED IN THE FIELD. NO TREES 3" IN DIAMETER OR GREATER SHALL BE CUT DOWN FROM APRIL 15 TO AUGUST 31. EXTREME CARE SHALL BE EXERCISED TO PROTECT ALL TREES NOT DESIGNATED FOR REMOVAL. NO TREES SHALL BE REMOVED UNTIL AUTHORIZATION IS GIVEN BY THE TOWN. COST IS INCLUDED IN THE ITEM "CLEARING AND GRUBBING".

8. ANY PHYSICAL FEATURES DISTURBED BY THE CONTRACTOR SHALL BE REPLACED OR RECONSTRUCTED AS DIRECTED BY THE ENGINEER TO A CONDITION EQUAL TO OR BETTER THAN PRIOR TO CONSTRUCTION AT THE CONTRACTORS EXPENSE.

9. ALL DIMENSIONS AND ELEVATIONS MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF MANUFACTURING AND CONSTRUCTION, AND NECESSARY ADJUSTMENTS MADE AS ORDERED BY THE ENGINEER.

10. WORKING HOURS SHALL BE LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 5:00 P.M., MONDAY THRU FRIDAY. NO WORK WILL BE PERFORMED ON WEEKENDS, HOLIDAYS, OR SPECIAL DAYS AS DIRECTED BY THE ENGINEER. THE ONLY EXCEPTIONS TO THESE LIMITATIONS WILL BE AS DIRECTED BY THE ENGINEER TO CORRECT OR HANDLE EMERGENCY CONDITIONS, OR IF APPROVED BY THE ENGINEER IN WRITING.

11. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE FOR APPROVAL PRIOR TO COMMENCING CONSTRUCTION.

12. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL PROPERTIES AT ALL TIMES DURING CONSTRUCTION. COORDINATE ACCESS WITH PAVING OPERATIONS SO THAT JOINTS ARE MINIMIZED (SEE MAINTENANCE AND PROTECTION OF TRAFFIC SPECIFICATIONS). NO TRANSVERSE JOINTS SHALL BE ALLOWED DURING THE PAVING OF THE WEARING COURSE.

13. ALL DISTURBED AREAS THAT WILL NOT BE PAVED SHALL RECEIVE 4" OF TOPSOIL AND TURF ESTABLISHMENT UNLESS OTHERWISE NOTED.

14. RCP SHALL BE CLASS IV UNLESS NOTED OTHERWISE.

15. ALL SWALES AND DITCHES WILL HAVE TEMPORARY "U" SHAPED STONE DIKES PLACED PERPENDICULAR TO FLOW AT 30' SPACING DURING CONSTRUCTION TO PREVENT EROSION .

16. ALL REQUIRED UTILITY RELOCATIONS SHALL BE PERFORMED BY THE RESPECTIVE UTILITY COMPANY UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES PRIOR TO ANY WORK AND COORDINATE HIS WORK WITH THE UTILITY COMPANY WORK. THE CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY COMPANY FOR THE UTILITY COMPANY TO HOLD ANY POLES THAT NEED TO BE SUPPORTED DURING THE CONTRACTOR'S TRENCHING OPERATIONS. THE COST TO COORDINATE THIS WORK WITH THE UTILITY COMPANIES SHALL BE INCIDENTAL TO THE PROJECT UNLESS A SPECIFIC PAY ITEM IS INCLUDED.

17. THE CONTRACTOR WILL BE REQUIRED TO WORK IN PROXIMITY OF AND BENEATH OVERHEAD POWER LINES AS WELL AS TELEPHONE, CABLE TV AND TELECOMMUNICATION LINES. THE OVERHEAD LINES ARE NOT ANTICIPATED TO BE DE-ENERGIZED DURING THE PROSECUTION OF THIS WORK. THE CONTRACTOR SHALL SPECIFICALLY COMPLY WITH THE REQUIREMENTS DETAILED IN OSHA REGULATIONS (STANDARDS 29 CFR) CRANES AND DERRICKS - 1926.550 AS WELL AS OTHER APPLICABLE OSHA STANDARDS. THE CONTRACTOR SHALL MAINTAIN A SAFE DISTANCE FROM ALL UTILITY POLES DURING CONSTRUCTION ACTIVITIES.

18. THE INFORMATION SHOWN ON THESE PLANS IS BASED ON LIMITED INVESTIGATIONS AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OF WORK REQUIRED. LOCATIONS OF EXISTING UTILITIES AND UNDERGROUND STRUCTURES HAVE BEEN COMPILED FROM THE BEST AVAILABLE INFORMATION. THIS INFORMATION WAS COMPILED UTILIZING UTILITY COMPANY & TOWN RECORD MAPS AND FIELD SURVEY AND THEREFORE, IS CONSIDERED TO BE APPROXIMATE. ALL UTILITIES AND UNDERGROUND STRUCTURES MAY NOT BE SHOWN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE ACTUAL LOCATION OF ALL UTILITIES AND TO NOTIFY UTILITY COMPANIES OF NECESSARY RELOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF THE UTILITY COMPANIES. UTILITY LINES DAMAGED BY THE CONTRACTOR SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND THE UTILITY COMPANY AND THE COST OF REPAIR WORK SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT CALL BEFORE-U-DIG AT 1-800-922-4455 FOR MARKING OF EXISTING UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF EXCAVATION (MONDAY THROUGH FRIDAY, EXCLUDING HOLIDAYS).

19. THERE SHALL BE NO DIRECT PAYMENT FOR TEMPORARY SUPPORT OR PROTECTION OF EXISTING OR RELOCATED UTILITIES DURING CONSTRUCTION UNLESS OTHERWISE SPECIFICALLY INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COORDINATE SUPPORT AND PROTECTION REQUIREMENTS WITH THE RESPECTIVE UTILITY COMPANY. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

20. CONTRACTOR TO SUPPLY UTILITY COMPANIES WITH SUFFICIENT VERTICAL AND HORIZONTAL STAKEOUT OF PROPOSED STORM DRAINAGE, PROPOSED ROADWAY, AND OTHER PROPOSED IMPROVEMENTS TO PERFORM UTILITY RELOCATIONS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE ITEM "CONSTRUCTION STAKING."

21. ANTICIPATED UTILITY POLE RELOCATIONS, IF ANY, ARE SHOWN ON THE PLANS. ADDITIONAL POLE RELOCATIONS MAY BE REQUIRED. CONTRACTOR TO PROVIDE STAKEOUT OF PROPOSED IMPROVEMENTS PRIOR TO COMMENCEMENT OF WORK TO DETERMINE IF ADDITIONAL POLE RELOCATIONS ARE REQUIRED. POLE RELOCATIONS MAY NOT BE COMPLETED PRIOR TO THE INSTALLATION OF STORM DRAINAGE AND ROADWAY IMPROVEMENTS. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE PROJECT.

22. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE UTILITY COMPANIES TO RESET ALL UTILITY BOXES TO FINISHED GRADE. THERE WILL BE NO SEPARATE PAYMENT TO COORDINATE THIS WORK OR CLAIM FOR TIME EXTENSION.

23. THE CONTRACTOR SHALL RESET ALL WATER AND GAS CURB STOPS BOXES AND WATER AND GAS GATE VALVE BOXES TO FINISHED GRADE. THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR THIS WORK AS IT IS INCIDENTAL TO CONSTRUCTION.

24. EXISTING PAVEMENT SHALL BE REMOVED IN FILL AREAS PRIOR TO PLACING FILL. EXISTING PAVEMENT OUTSIDE OF THE CUT AND FILL LIMITS THAT WILL NOT BE USED IN THE PROPOSED CONDITIONS SHALL BE REMOVED. PAYMENT SHALL BE MADE UNDER THE ITEM "EARTH EXCAVATION."

25. ALL EXISTING DRAINAGE PIPES AND CULVERTS WITHIN THE PROJECT SLOPE LIMITS THAT ARE DESIGNATED TO BE REMOVED SHALL BE REMOVED AND BACKFILLED AS SPECIFIED IN SECTION 2.05 "TRENCH EXCAVATION" UNLESS OTHERWISE SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. COORDINATE THIS WORK WITH THE RECONNECTION OF ANY EXISTING FOUNDATION AND OTHER DRAINS TO THE PROPOSED DRAINAGE SYSTEM.

26. ALL TYPE 'C' CATCH BASIN TOP OF FRAME ELEVATIONS SHALL BE MEASURED IN THE CENTER OF THE GRATE AT THE GUTTER LINE AND REFLECT THE ELEVATION WITH THE STANDARD DEPRESSION AS SHOWN ON "DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE 'C' CATCH BASIN" (SEE CTDOT STANDARD DETAIL SHEET NO. HW-507_01). ALL TYPE 'C-L' CATCH BASIN TOP OF FRAME ELEVATIONS SHALL BE MEASURED IN THE CENTER OF THE GRATE.

27. THE CONTRACTOR SHALL MAINTAIN ALL ROAD NAME SIGNS AS INDICATED ON THE PLANS AND SHALL MAINTAIN ALL TRAFFIC CONTROL SIGNS AS NEEDED DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER. COST IS INCLUDED IN THE ITEM "MAINTENANCE AND PROTECTION OF TRAFFIC".

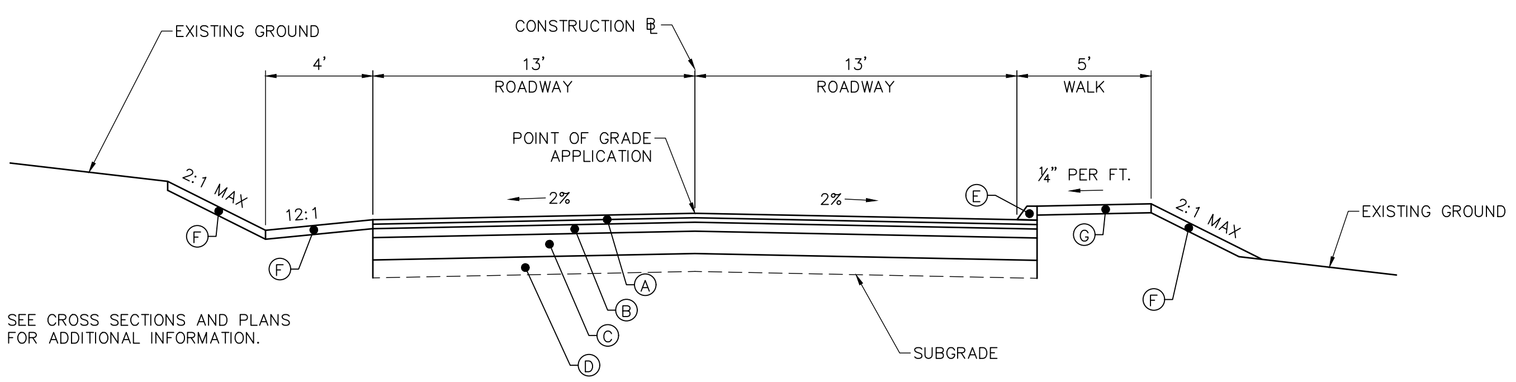
28. PLANIMETRIC AND TOPOGRAPHIC FEATURES ARE BASED ON FIELD SURVEY PERFORMED BY CARDINAL ENGINEERING ASSOCIATES, IN SEPTEMBER 2024. SURVEY BASELINE CONFORMS TO CLASS A-2 HORIZONTAL ACCURACY. STREETLINE AND PROPERTY LINE INFORMATION (IF SHOWN) ARE APPROXIMATE AND BASED ON LIMITED FIELD SURVEY. ALL ELEVATIONS ARE BASED ON NAVD 88. HORIZONTAL COORDINATES ARE BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD 83). VERTICAL ACCURACY IS CLASS T-2.

LIST OF ABBREVIATIONS

AGGR	AGGREGATE
AH	AHEAD
A	ALGEBRAIC DIFFERENCE IN GRADES
APPROX	APPROXIMATE
ASPH	ASPHALT
BK	BACK
℄	BASELINE
BM	BENCHMARK
BIT	BITUMINOUS
BCLC	BITUMINOUS CONCRETE LIP CURBING
CGR	CABLE GUIDERAIL
CI / CIP	CAST IRON PIPE
CB	CATCH BASIN
℄	CENTERLINE
CC	CONCRETE CURBING
CL	CLASS
CONC	CONCRETE
CP	CONTROL POINT
COR	CORNER
CMP	CORRUGATED METAL PIPE
CPFE	CORRUGATED POLYETHYLENE FLARED END
CPP	CORRUGATED POLYETHYLENE PIPE
CY	CUBIC YARD
DIA	DIAMETER
DBL	DOUBLE
DRIVE	DRIVEWAY
DI / DIP	DUCTILE IRON PIPE
EA	EACH
EP	EDGE OF PAVEMENT
EL / ELEV	ELEVATION
EX / EXIST	EXISTING
FG	FINISHED GRADE
FP	FLAGPOLE
FE	FLARED END
FL	FLOW LINE
FT	FOOT
FND	FOUND
FOUND	FOUNDATION
G	GAS
GV	GAS VALVE
GSC / GC	GRANITE STONE CURBING
HP	HIGH POINT
HORIZ	HORIZONTAL
HRS	HOURS
HYD	HYDRANT
INV	INVERT
IE	INVERT ELEVATION
IP	IRON PIN
LT	LEFT
L	LENGTH
LVC	LENGTH OF VERTICAL CURVE
LTP	LIGHT POLE
LF	LINEAR FEET
LP	LOW POINT
LS	LUMP SUM
MB	MAILBOX
MH	MANHOLE
MAX	MAXIMUM
MBR	METAL BEAM RAIL
MCE	METAL CULVERT END
MIN	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
NOM	NOMINAL
NO	NUMBER
PERF	PERFORATED
POB	POINT OF BEGINNING
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
POE	POINT OF ENDING
PGA	POINT OF GRADE APPLICATION
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVCC	POINT OF VERTICAL COMPOUND CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVE
PVT	POINT OF VERTICAL TANGENCY
POC	POINT ON CURVATURE
POT	POINT ON TANGENT
PVC	POLYVINYL CHLORIDE PIPE
℄	PROPERTY LINE
R	RADIUS
RR	RAILROAD
K	RATE OF VERTICAL CURVATURE
REINF	REINFORCED
RCCE	REINFORCED CONCRETE CULVERT END
RCP	REINFORCED CONCRETE PIPE
REQD	REQUIRED
RT	RIGHT
ROW	RIGHT OF WAY
RSC	RIGID STEEL CONDUIT
RD	ROAD
SAN	SANITARY
SS	SANITARY SEWER
SED	SEDIMENTATION
SCB	SEDIMENT CONTROL BALES
SCS	SEDIMENT CONTROL SYSTEM
SHLD	SHOULDER
SF	SQUARE FOOT
SY	SQUARE YARD
STD	STANDARD
STA	STATION
SSD	STOPPING SIGHT DISTANCE
ST	STREET
℄	STREET LINE
TBD	TO BE DETERMINED
TF	TOP OF FRAME
TYP	TYPICAL
UD	UNDERDRAIN
VERT	VERTICAL
VC	VERTICAL CURVE
VF	VERTICAL FEET
VCP	VITRIFIED CLAY PIPE
W	WATER
WV	WATER VALVE

STANDARD CONVENTIONS

EXISTING		PROPOSED
	APPROXIMATE LIMIT OF CUT SLOPE	Ⓒ
	APPROXIMATE LIMIT OF FILL SLOPE	Ⓕ
	APPROXIMATE PROPERTY LINE	
	APPROXIMATE STREET LINE	
	BASELINE STATION	0+00
Bit	BITUMINOUS CONCRETE DRIVEWAY	
	BORING NUMBER B10 (SEE BORING LOG SHEET)	B10
	CATCH BASIN	
	CONTROL POINT	
Conc	CONCRETE DRIVEWAY/ CONCRETE DRIVEWAY RAMP	
	CULVERT END	
	DRAINAGE DITCH	
Size & Type	DRAINAGE PIPE	SIZE & TYPE
	EASEMENT LINE (PERMANENT)	
	EASEMENT LINE (TEMPORARY)	
E	ELECTRIC LINE (OVERHEAD OR UNDERGROUND)	
G	GAS LINE	
	GAS TEST PIT	TP G1
GV WV	GAS VALVE or WATER VALVE	
	GUIDE RAIL	
HV	HIGH VOLTAGE OVERHEAD LINE	
Number or Name	HOUSE/ STRUCTURE	
	HYDRANT	
	INLAND WETLAND LIMITS (STATE)	
	INLAND WETLAND LIMITS (FEDERAL)	
	MAILBOX	
D	MANHOLE (STORM)	
S	MANHOLE (SANITARY)	
Mon	MONUMENT	■ MON
	NORTH ARROW	
OHW	ORDINARY HIGH WATER	
OH	OVERHEAD UTILITY WIRES	
	RIPRAP APRON	
SC	SANITARY SERVICE CONNECTION	
Size & Type	SANITARY SEWER	SIZE & TYPE
	SEDIMENTATION CONTROL SYSTEM	
	SIGN	
x 33.2	SPOT ELEVATION	x 33.2
	STONE WALL	
T	TELEPHONE LINE (OVERHEAD OR UNDERGROUND)	
	TEST HOLE NUMBER 5 (SEE CONTRACT DOCUMENTS)	TH-5
	TREE	
	TREE LINE	
Size & Type	UNDERDRAIN	SIZE & TYPE
	"U" SHAPED STONE DIKE	
Number & Owner	UTILITY POLE	
	WATER COURSE	
W	WATER LINE	W
	WATER TEST PIT	TP W1
X X	WIRE FENCE	

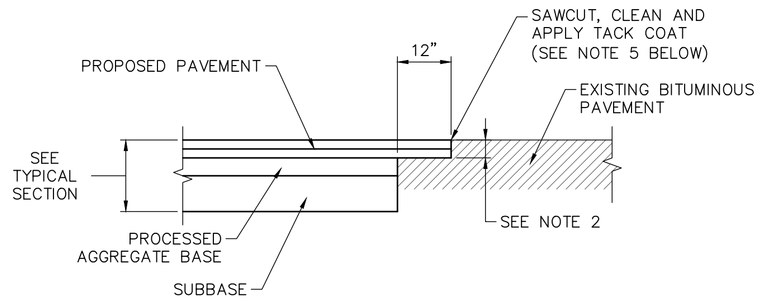


LEGEND

- (A) 2" HMA S0.375 WEARING SURFACE & 2" HMA S0.5 BINDER COURSE, TRAFFIC LEVEL 2 HMA
- (B) 4" – PROCESSED AGGREGATE BASE
- (C) 10" – SUBBASE ON EARTH, 18" ON ROCK
- (D) ADDITIONAL SUBBASE AS NEEDED
- (E) BUTUMINOUS CONCRETE LIP CURBING
- (F) 4" – TOPSOIL AND TURF ESTABLISHMENT
- (G) 4" – CONCRETE SIDEWALK

ROADWAY TYPICAL SECTION

NOT TO SCALE



NOTES:

1) THIS DETAIL IS TO BE USED WHERE "SAWCUT & MATCH EXISTING PAVEMENT" IS CALLED FOR ON THE PLANS.
2) OVERLAP BOTH BITUMINOUS CONCRETE COURSES OVER EXISTING SUBBASE.
3) MINIMUM THICKNESS TO BE SAME AS PROPOSED BITUMINOUS OR MATCH THICKNESS OF EXISTING PAVEMENT, WHICHEVER IS GREATER.
4) PAVEMENT MATCH TREATMENT WILL BE INCIDENTAL TO THE WORK.
5) TO BE PAID FOR UNDER THE ITEM "CUT BITUMINOUS CONCRETE PAVEMENT".

PAVEMENT TRANSITION DETAIL

NOT TO SCALE

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
GENERAL NOTES & TYPICAL SECTION

GEN-01

SCALE IN FEET
0 10 20
SCALE 1" = 10'

N/F KARLA L URBAN
HO. #405

N/F JOHN J & LAURA N HINE (SV)
HO. #427

N/F JAMES E PINEIRO (JT SV)
HO. #402

N/F MELVIN L JR & SANDRA L JOHNSON
HO. #424

BULLET HILL BROOK

OLD FIELD ROAD

APPROX. PROP. LINE

APPROX. R.O.W.

EDGE OF ROAD HAS BEEN WASHED OUT

Control Point Table

Control Point	Description	Northing	Easting	Elevation
CP#1	SPK	736668.14	871274.64	192.31
CP#2	SPK	736778.70	871340.07	192.52
CP#3	SPK	736859.15	871404.33	193.67
CP#4	SPK	736543.26	871181.03	192.64
CP#5	SPK	736780.44	871190.66	187.53

NOTES

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAP IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.

1. TYPE OF SURVEY: GENERAL LOCATION SURVEY
2. THIS MAP WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE.
3. HORIZONTAL ACCURACY: A-2, VERTICAL ACCURACY: T-2
4. CONNECTICUT COORDINATE SYSTEM NAD83, VERTICAL DATUM: NAVD88

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY
1	LOWER PROFILE & SHORTEN ALIGNMENT, ADD ROCK WEIR	6/21/19	GG

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY MERIDEN, CT 06450 (203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759 | 860-597-9106

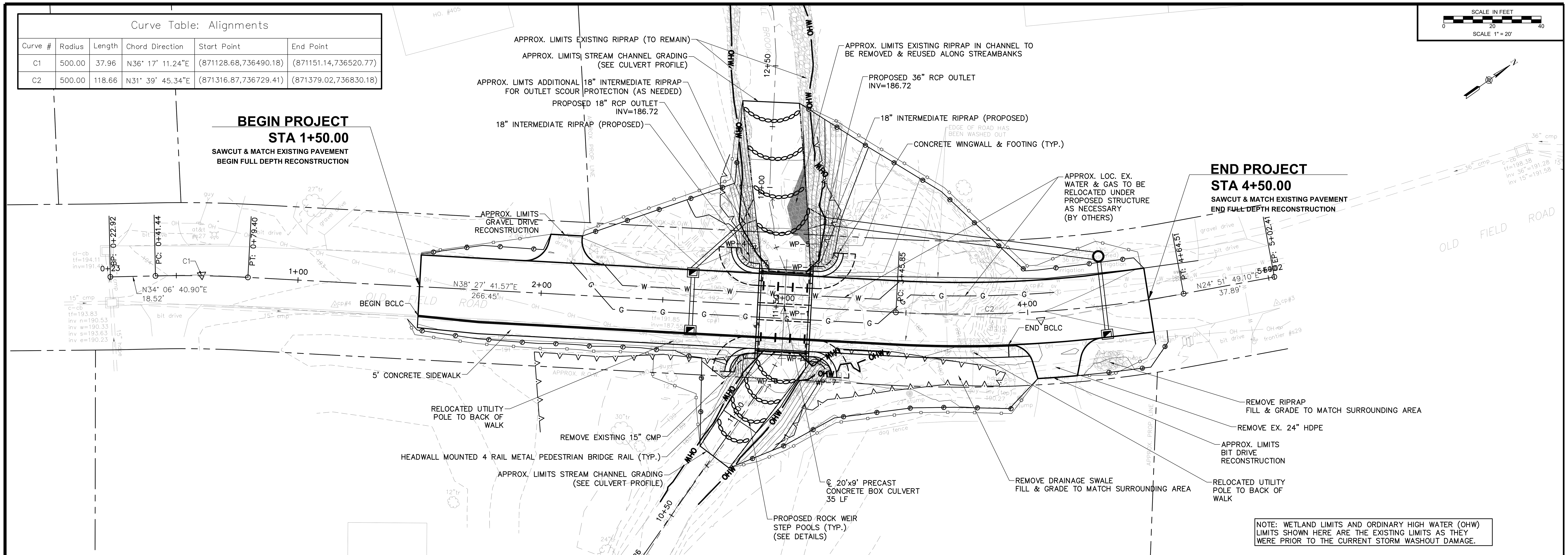
REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
EXISTING CONDITIONS

EXC-01

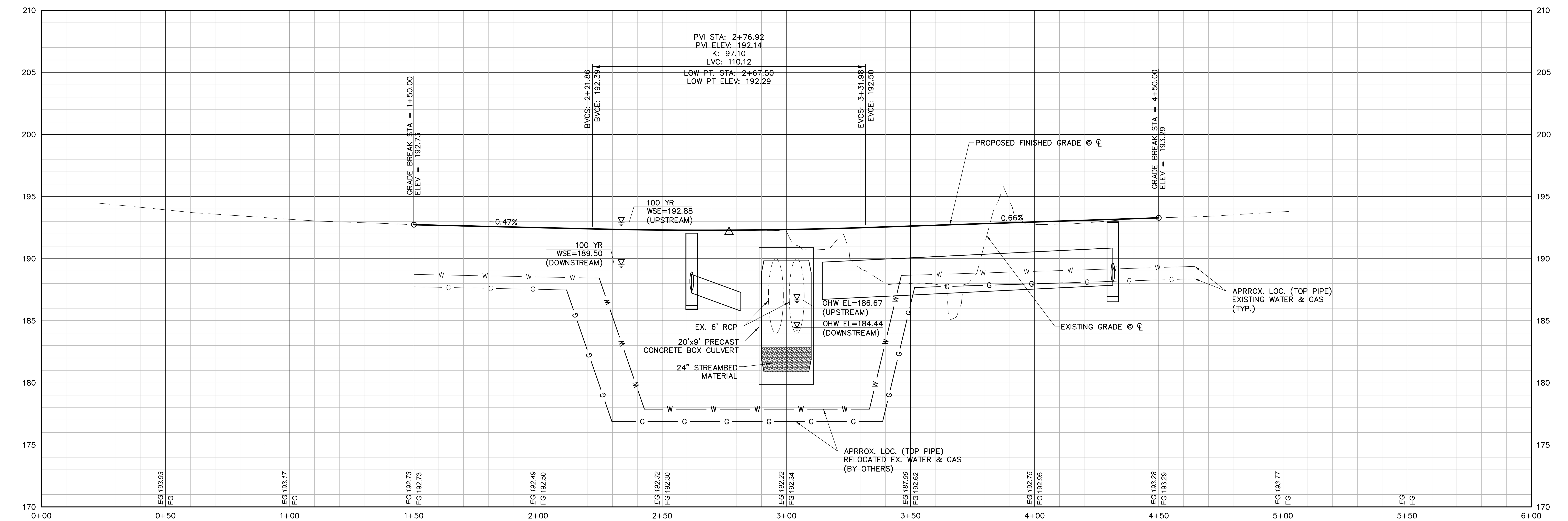
3

File: P:\Civil_3d Projects 2021\2545 Old Field Road Southbury\Production Drawings\2545 – EXISTING- CONDITIONS- PLAN.dwg Plotted: 12/12/2024, 3:19 PM

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	500.00	37.96	N36° 17' 11.24"E	(871128.68,736490.18)	(871151.14,736520.77)
C2	500.00	118.66	N31° 39' 45.34"E	(871316.87,736729.41)	(871379.02,736830.18)



NOTE: WETLAND LIMITS AND ORDINARY HIGH WATER (OHW) LIMITS SHOWN HERE ARE THE EXISTING LIMITS AS THEY WERE PRIOR TO THE CURRENT STORM WASHOUT DAMAGE.



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NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
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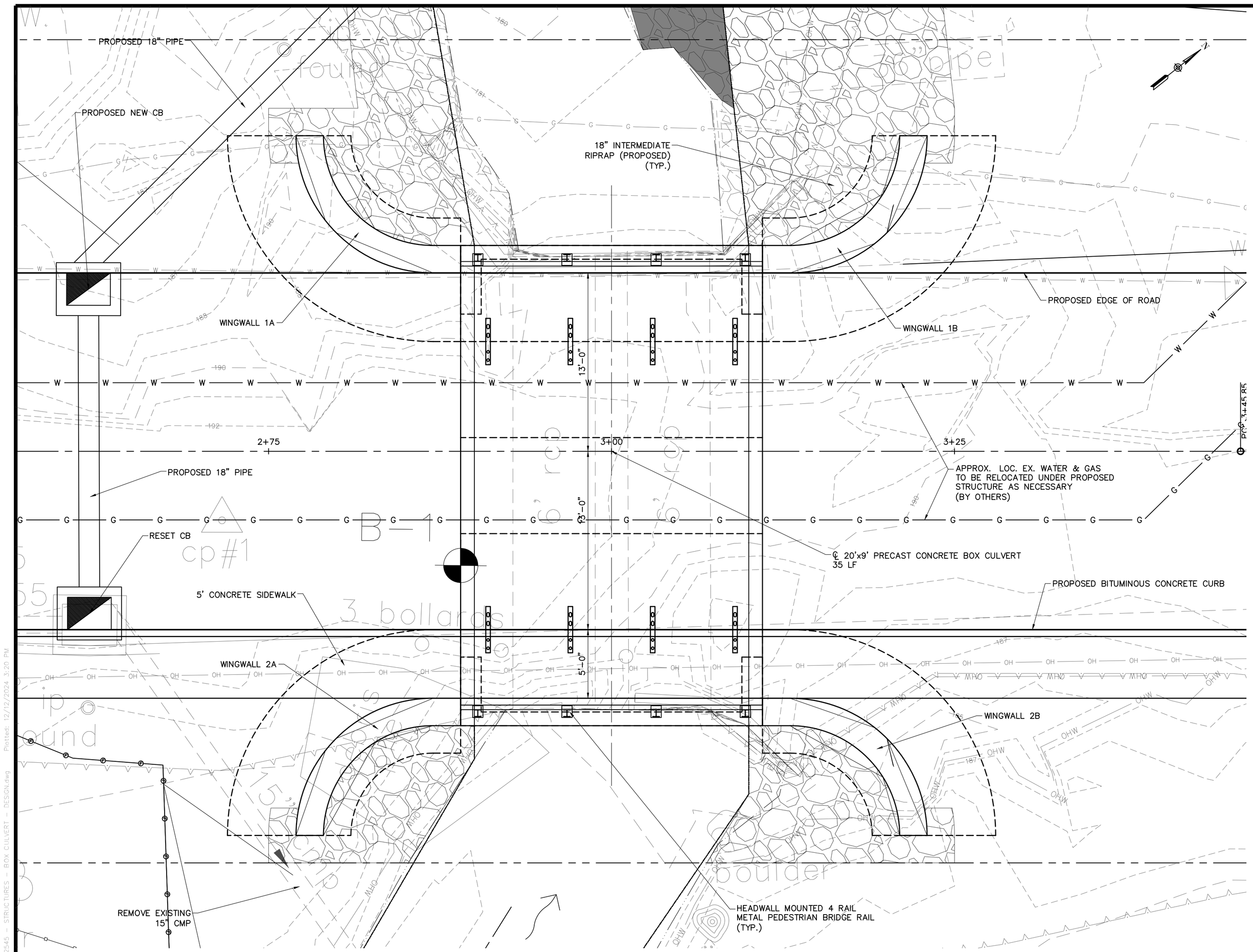
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1969
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
ROADWAY PLAN & PROFILE

PLA-01

4



PLAN
SCALE: ¼"=1'-0'

GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024) AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS EIGHTH EDITION, INCLUDING 2018 INTERIM REVISIONS AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003 EDITION), UP TO AND INCLUDING 2019 REVISIONS.

MATERIAL STRENGTHS:

CONCRETE:
CLASS PCC03340 f'c = 3,000 PSI
CLASS PCC04462 f'c = 4,000 PSI
CLASS PCC05562 f'c = 5,000 PSI
THE CONCRETE STRENGTH, f'c, USED IN DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF 6.01 – CONCRETE FOR STRUCTURES, AND M.03 – PORTLAND CEMENT CONCRETE.

REINFORCEMENT (ASTM A615 GRADE 60): Fy = 60 KSI

LIVE LOAD: HL–93, LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCE: NONE

DIMENSIONS: WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

EXISTING DIMENSIONS: DIMENSIONS AND LOCATIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

UTILITIES:
THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE PROJECT LIMITS AND SHALL BE PROTECTED DURING CONSTRUCTION:

ELECTRIC DISTRIBUTION	EVERSOURCE ENERGY
COMMUNICATION	FRONTIER COMMUNICATIONS OF CONNECTICUT
CABLE TV	CHARTER COMMUNICATIONS

CONTRACTOR SHALL COORDINATE ALL WORK RELATED TO UTILITY RELOCATION WITH THE RESPECTIVE UTILITY COMPANIES.

JOINT SEAL: SEE SPECIAL PROVISIONS.

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE TWO INCHES OF COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS –GALVANIZED."

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER IS PAID FOR AS "(THICKNESS AND TYPE) JOINT FILLER FOR BRIDGES."

CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

PRECAST CONCRETE BOX CULVERT: SEE SPECIAL PROVISIONS.

CONCRETE COMPONENTS		
ITEM NAME	COMPONENT	MIX CLASSIFICATION
FOOTING CONCRETE	CUTOFF AND RETURN WALLS, WINGWALL FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	WINGWALL STEMS, HEADWALLS	PCC03340
PRECAST CONCRETE BOX CULVERT	PRECAST CONCRETE BOX CULVERT	PCC05562

PRECAST CONCRETE BOX CULVERT				
UNIT	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
CELL TYPE "A"	22 Ft	11 Ft	7.00 Ft	34.9 TONS
CELL TYPE "B"	22 Ft	11 Ft	7.00 Ft	34.9 TONS

HYDRAULIC DATA	
DRAINAGE AREA	3.53 SQ. MILES
DESIGN FREQUENCY	100 YEARS
DESIGN DISCHARGE	1640 C.F.S.
*AVERAGE DAILY FLOW ELEVATION (UPSTREAM)	186.67
*AVERAGE DAILY FLOW ELEVATION (DOWNSTREAM)	184.44
UPSTREAM DESIGN WATER SURFACE ELEVATION	192.88
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	189.50
MAXIMUM SCOUR ELEVATION	NA
FREQUENCY	NA
DISCHARGE	NA
WORST CASE SCOUR SUB–STRUCTURE UNIT	NA

*OBSERVED SEPTEMBER 2024

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
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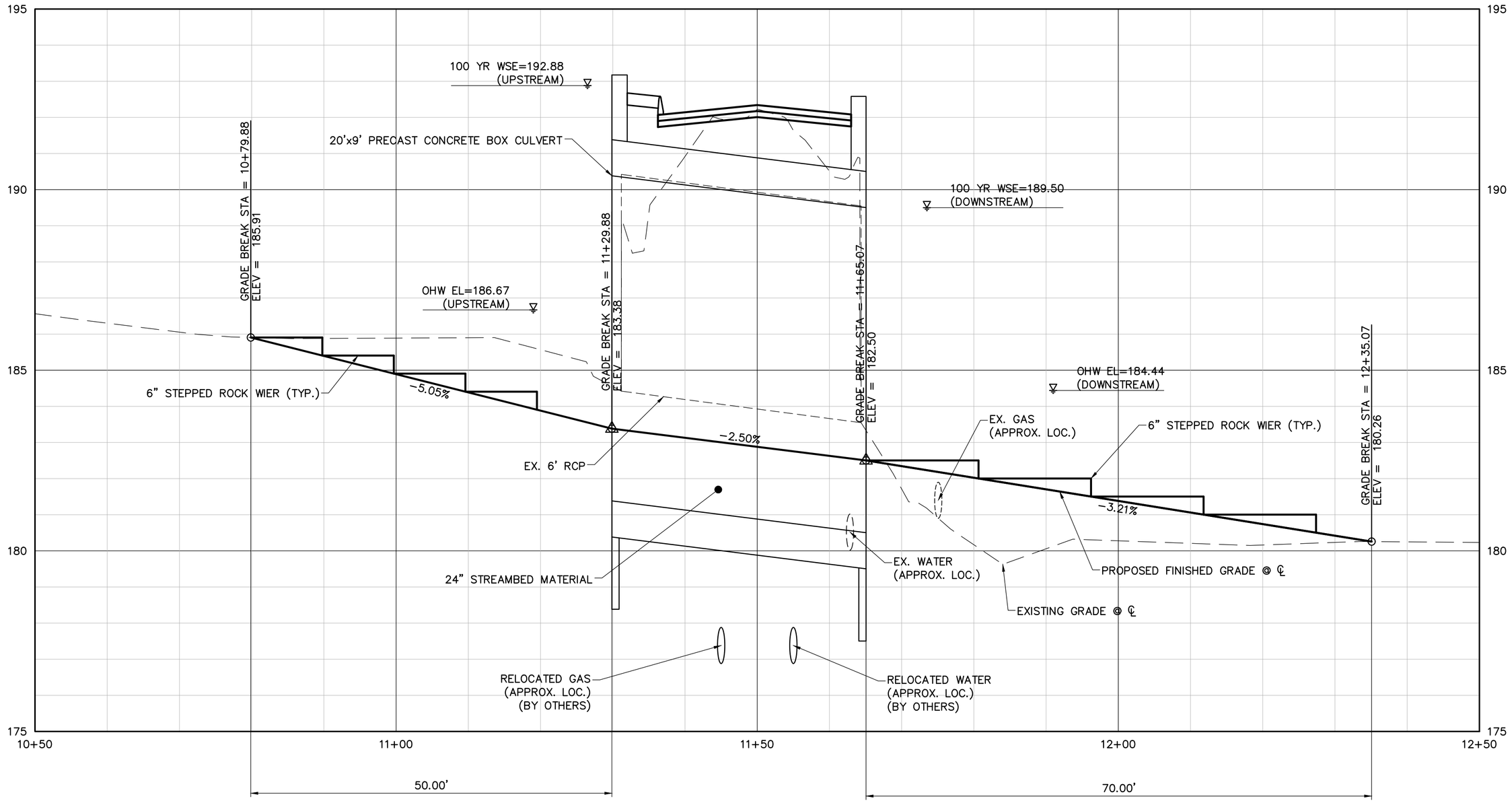
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT GENERAL PLAN

STR-01

12

Bullet Hill Brook CL PROFILE



PERMIT REVIEW NOT FOR CONSTRUCTION

HORIZONTAL SCALE IN FEET
0 15 30
HORIZONTAL SCALE 1" = 15'

VERTICAL SCALE IN FEET
0 3 6
VERTICAL SCALE 1" = 3'

NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY MERIDEN, CT 06450 (203-238-1569)
457 BANTAM RD | LITCHFIELD, CT 06759 (860-577-9106)

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT PROFILE

STR-02

CARDINAL ENGINEERING
180 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450

TEST BORING REPORT

BORING NO. B-1

PROJECT Old Field Road over Bullet Hill Brook
LOCATION Southbury, CT
CLIENT Town of Southbury
CONTRACTOR Hardiman Company & Associates, Inc.

GROUNDWATER READINGS		
DATE	TIME	DEPTH
10/25/24	0930	8.5'

FILE NO. 2545
SHEET NO. 1 OF 2
LOCATION SEE PLAN
ELEVATION 192 ft.
DATUM NAVD 1988
DATE 10/25/24 TO 10/25/24
START 0745 FINISH 1300
DRILLER Tony Scaife
CEA REP Patrick Crowell

ITEM	CASING	DRIVE SAMPLER	CORE BARREL	DRILLING EQUIPMENT & PROCEDURES
TYPE	HSA	SS		RIG TYPE Diedrich D25
INSIDE DIAMETER (IN)	3-1/4	1-3/8		BIT TYPE
HAMMER WEIGHT (LB)	--	140		DRILL HEAD
HAMMER FALL (IN)	--	30		HAMMER TYPE Safety, Rope and Cathead

DEPTH	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE TYPE NO. & REC.	SAMPLE DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS	ELEV./ DEPTH (FT)	STRATUM DESCRIPTION
0							ASPHALT
		8	SS1 16"	1.0 3.0	Top 12": Brown, fine to medium SAND, some Silt, little fine Gravel (Fill). Bottom 4": Orange brown, fine to coarse SAND and fine Gravel, little Silt (Fill).	0.7'	
		8					
		7					
		7					
		7	SS2 4"	3.0 5.0	Medium dense, orange brown, fine to coarse SAND, some Silt little fine Gravel (Fill).		FILL
		7					
		6					
5		5					
		3	SS3 10"	5.0 7.0	Medium dense, brown, fine to coarse SAND, little fine Gravel, little Silt (Fill).		
		5					
		10					
		7					
		7	SS4 10"	7.0 9.0	Top 6": Red brown, fine to coarse SAND, little fine Gravel, little Silt (Fill). Bottom 4": Dark brown, black, fine to medium SAND and Silt, trace Veg (Wet).		
		7					
		6					
						8.5'	SAND AND SILT
						9.5'	
10		7	SS5 12"	10.0 12.0	Medium dense, orange brown, fine to coarse SAND, some fine Gravel, little Silt.		
		8					
		9					
		8					
							SILTY GRAVELLY SAND
15		7	SS6 9"	15.0 17.0	Medium dense, brown, fine to coarse SAND, little fine Gravel, little Silt.		
		14					
		11					
		13					
20		5	SS7 12"	20.0 22.0	Medium dense, red brown, fine to medium SAND, little Silt.	20.0'	
		6					
		7					
		8					SILTY SAND
25		5	SS8 12"	25.0 27.0	Medium dense, red brown, fine to coarse SAND, little Silt, trace coarse Gravel.	25.5'	
		9					
		9					
		10					SILTY GRAVELLY SAND

CARDINAL ENGINEERING
180 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450

TEST BORING REPORT

BORING NO. B-1

PROJECT Old Field Road over Bullet Hill Brook
LOCATION Southbury, CT
CLIENT Town of Southbury
CONTRACTOR Hardiman Company & Associates, Inc.

GROUNDWATER READINGS		
DATE	TIME	DEPTH
10/25/24	0930	8.5'

FILE NO. 2545
SHEET NO. 2 OF 2
LOCATION SEE PLAN
ELEVATION 192 ft.
DATUM NAVD 1988
DATE 10/25/24 TO 10/25/24
START 0745 FINISH 1300
DRILLER Tony Scaife
CEA REP Patrick Crowell

ITEM	CASING	DRIVE SAMPLER	CORE BARREL	DRILLING EQUIPMENT & PROCEDURES
TYPE	HSA	SS		RIG TYPE Diedrich D25
INSIDE DIAMETER (IN)	3-1/4	1-3/8		BIT TYPE
HAMMER WEIGHT (LB)	--	140		DRILL HEAD
HAMMER FALL (IN)	--	30		HAMMER TYPE Safety, Rope and Cathead

DEPTH	CASING BLOWS PER FT	SAMPLER BLOWS PER 6 IN	SAMPLE TYPE NO. & REC.	SAMPLE DEPTH (FT)	VISUAL DESCRIPTION AND REMARKS	ELEV./ DEPTH (FT)	STRATUM DESCRIPTION
30		6	SS9 16"	30.0 32.0	Top 10": Red brown, fine to coarse SAND, little Silt, trace coarse Gravel. Bottom 6": Brown, fine to medium SAND, some Silt.		SILTY GRAVELLY SAND
		7				31.5'	SILTY SAND
		8				32.0'	E.O.B.
		12					
35							
40							
45							
50							
55							

NO. | REVISION | DATE | BY
1

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

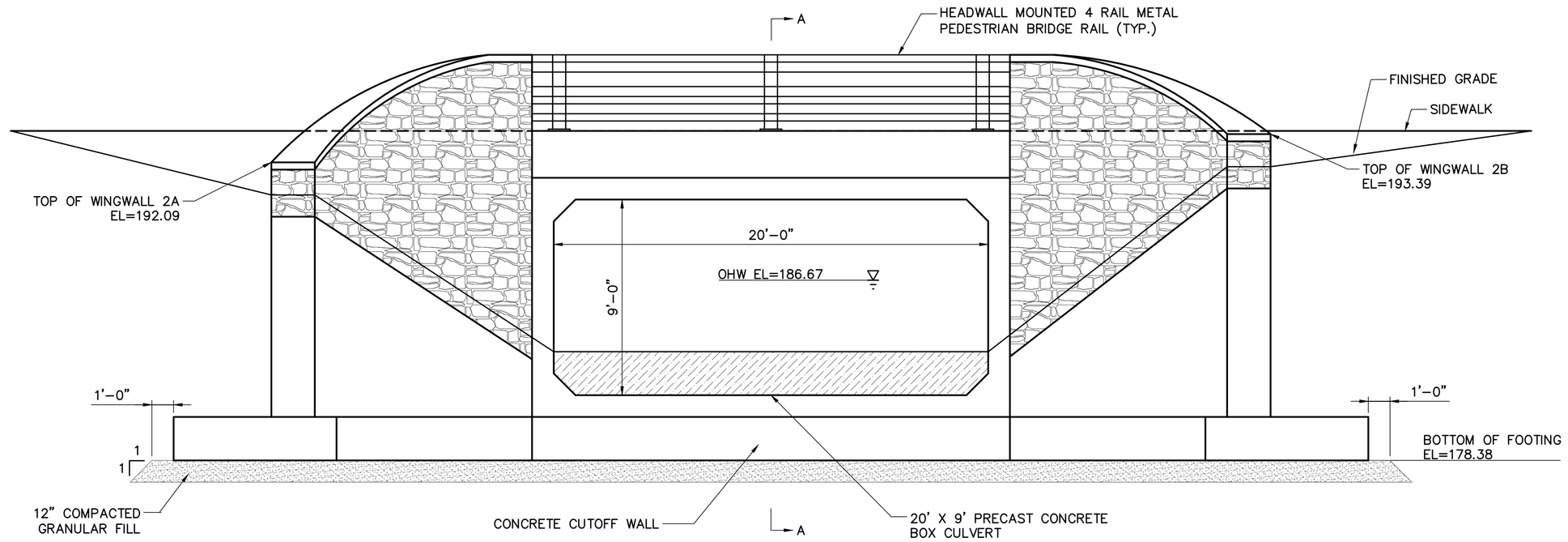
CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-597-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
BORING LOGS

STR-03

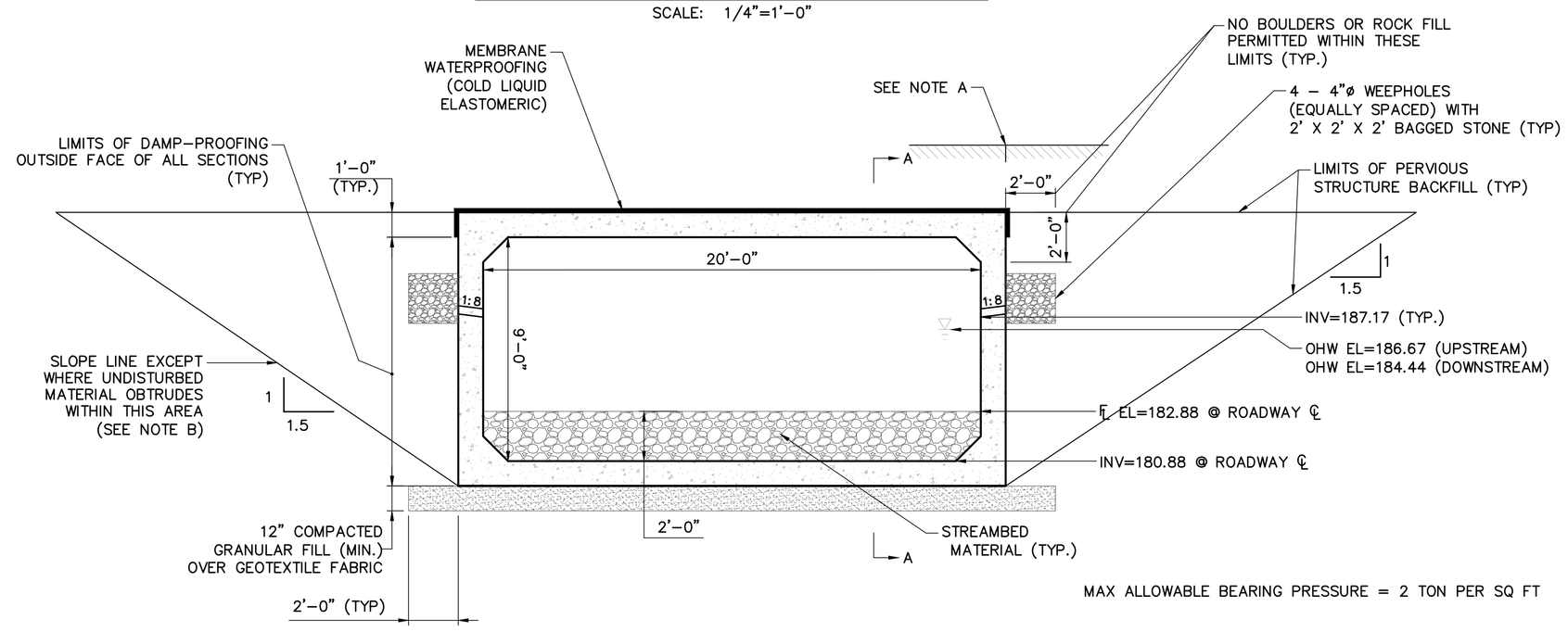
14

PERMIT REVIEW NOT FOR CONSTRUCTION



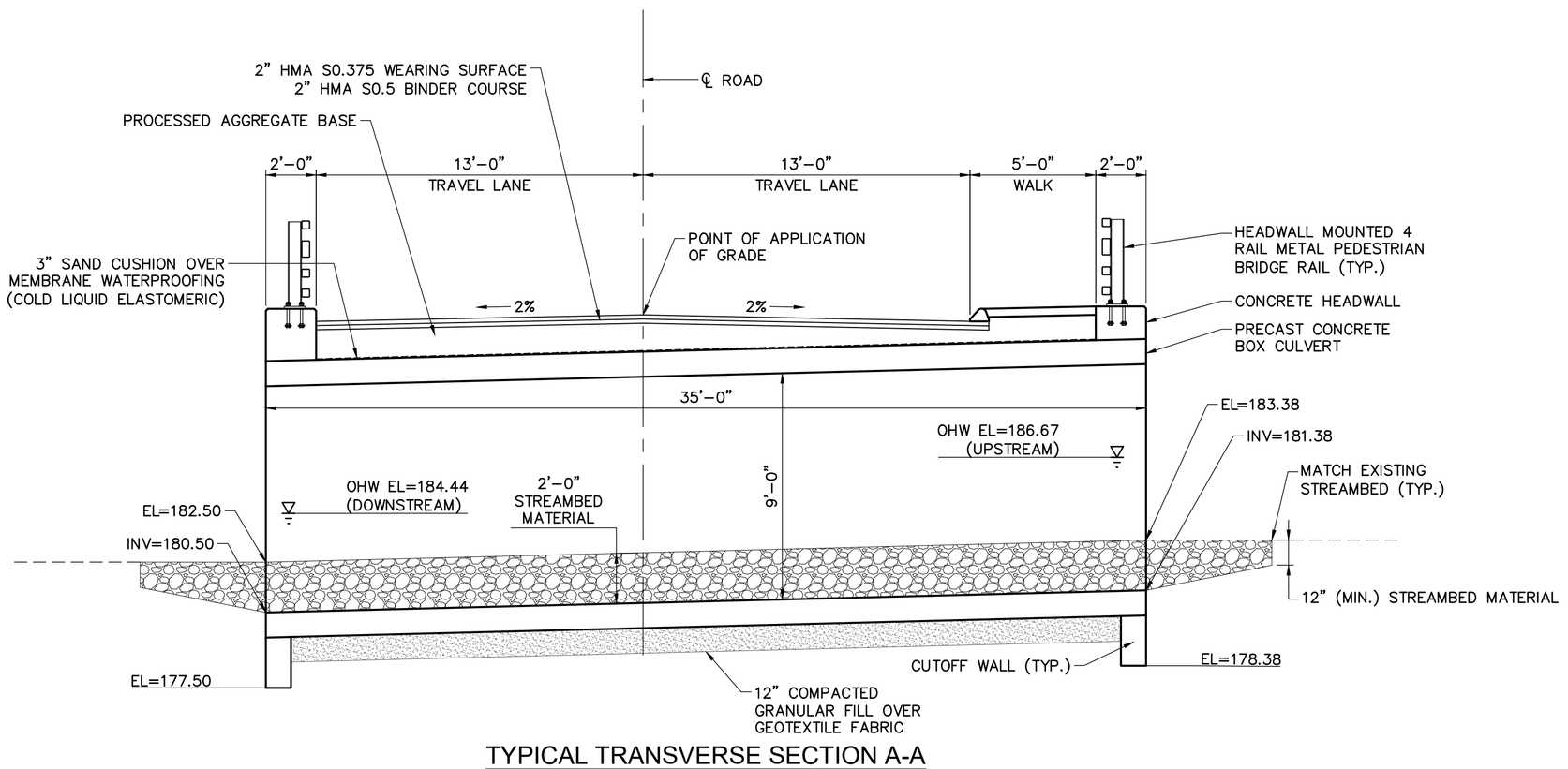
PROPOSED WEST/UPSTREAM ELEVATION
(EAST/DOWNSTREAM ELEVATION SIMILAR)

SCALE: 1/4"=1'-0"



TYPICAL LONGITUDINAL SECTION

SCALE: ⅛"=1'-0"



TYPICAL TRANSVERSE SECTION A-A

SCALE: 1/4"=1'-0"

NOTES:

A. CUT HMA SURFACE COURSE WITH A ⅜" X 2" DEEP KERF AND FILL WITH A POURABLE SEALANT WHEN COVER IS LESS THAN 2'-0" FROM TOP OF BOX TO FINISHED WEARING SURFACE. COST OF CUTTING AND SEALING TO BE INCLUDED IN THE CONTRACT UNIT PRICE FOR "SAWING AND SEALING JOINTS".
B. THE COST OF ANY EXCAVATION AND BACKFILL OUTSIDE OF THE PAY LIMITS FOR THE ITEMS "STRUCTURE EXCAVATION–EARTH (EXCLUDING COFFERDAM AND DEWATERING)", "STRUCTURE EXCAVATION–ROCK (EXCLUDING COFFERDAM AND DEWATERING)" OR "PERVIOUS STRUCTURE BACKFILL" SHALL BE INCLUDED IN THE ITEM "COFFERDAM AND DEWATERING". MATERIAL FOR BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 2.16, "PERVIOUS STRUCTURE BACKFILL", OF THE STANDARD SPECIFICATIONS.

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY

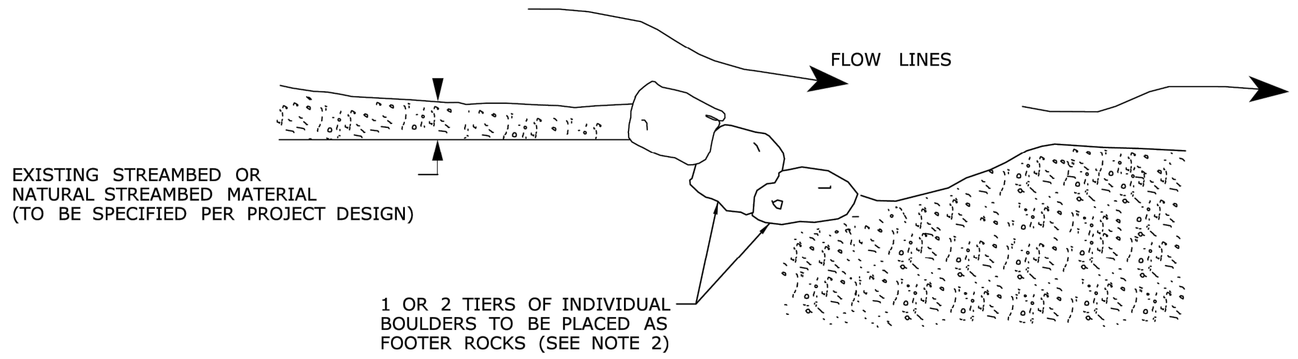
DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
CULVERT ELEVATION AND SECTIONS

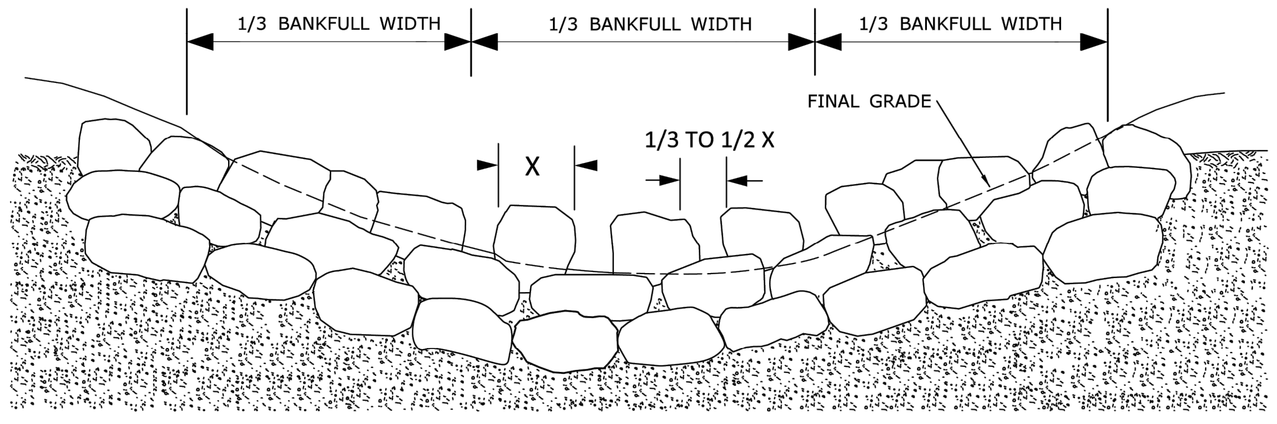
STR-04

15



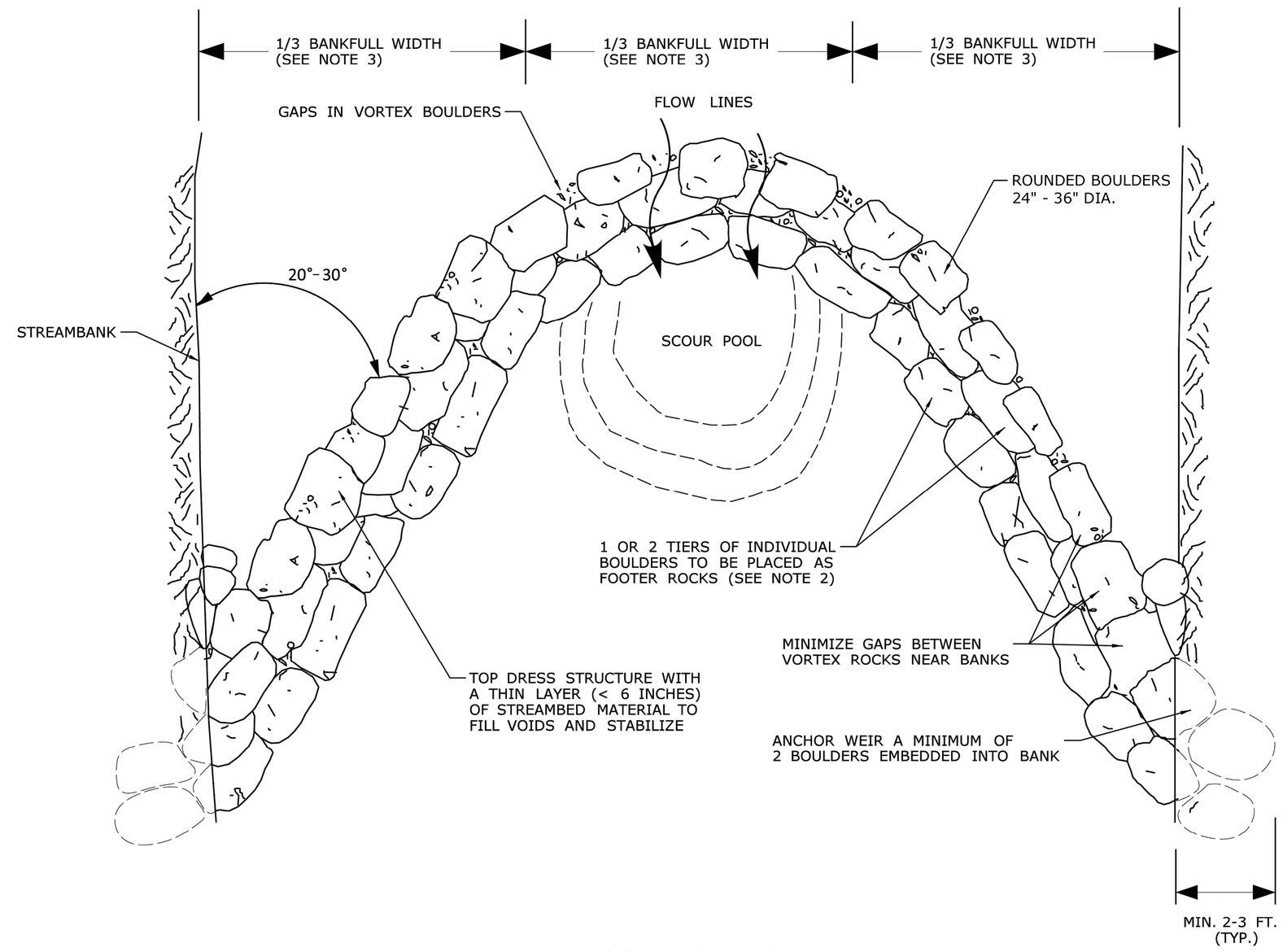
ROCK WEIR - PROFILE VIEW

N.T.S.



ROCK WEIR - SECTION VIEW (UPSTREAM)

N.T.S.



ROCK WEIR - PLAN VIEW

N.T.S.

NOTE:

1. CT DEEP FISHERIES DIVISION SHALL BE CONTACTED AT LEAST 10 DAYS PRIOR TO INSTALLATION OF ROCK WEIRS.
2. PLACEMENT OF THE ROCK WEIR SHALL BE DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "ROCK WEIR".
3. FOOTER ROCKS SHALL SERVE AS THE FOUNDATION FOR THE TOP LAYER OF THE WEIR. FOOTER ROCKS SHALL HAVE REASONABLE FLAT TOPS AND BOTTOMS TO ENABLE BETTER PLACEMENT OF THE TOP LAYER OF THE WEIR.
4. BANKFULL WIDTH DISTANCE IS MEASURED AT THE LOCATION OF THE PROPOSED WEIR.

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY
1	LOWER PROFILE & SHORTEN ALIGNMENT, ADD ROCK WEIR	6/21/19	GG

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
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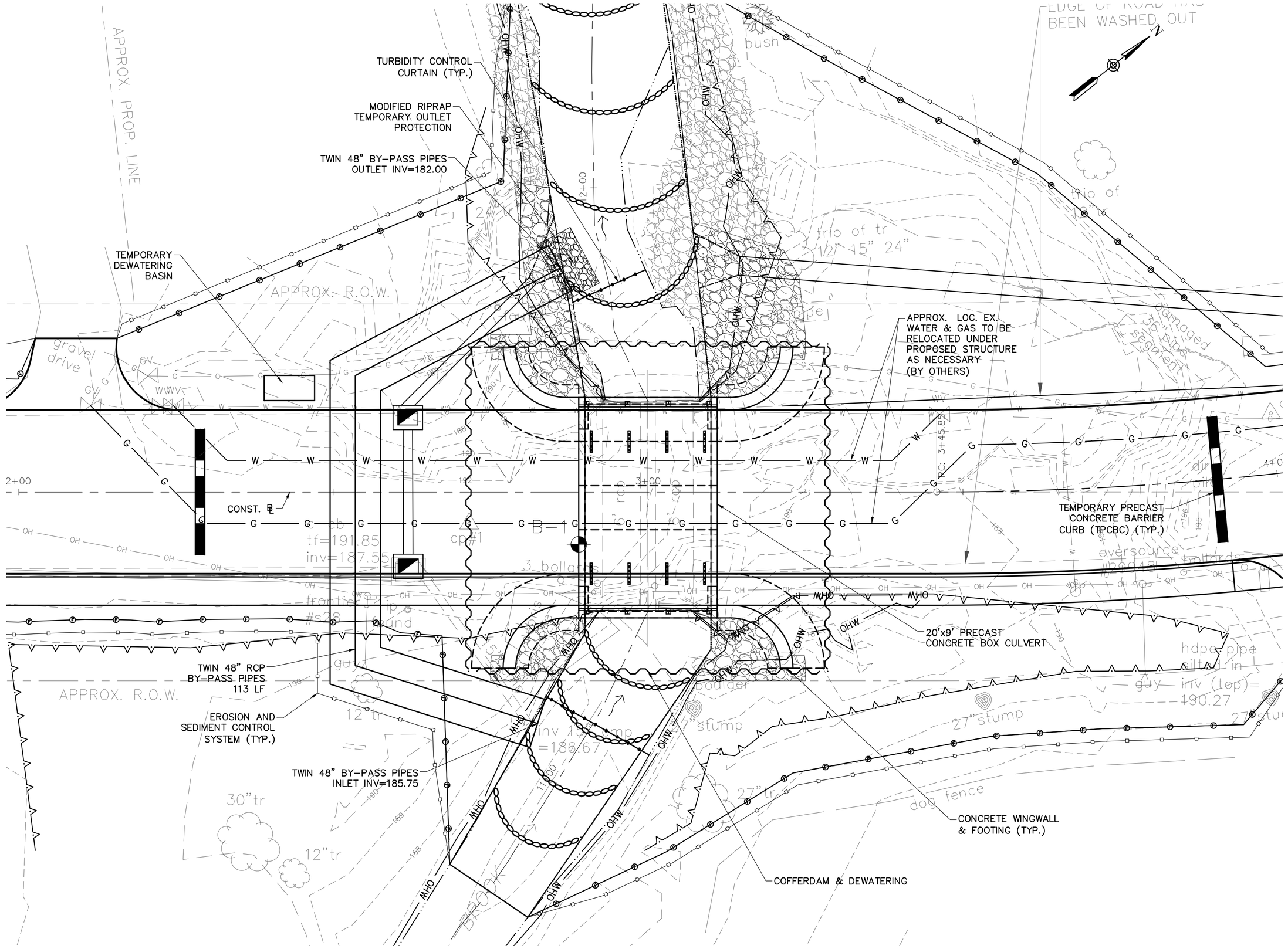
REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
ROCK WEIR DETAIL

STR-13



PLAN
SCALE: 1"=10'

LEGEND

- TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC)
- COFFERDAM
- EROSION AND SEDIMENT CONTROL SYSTEM
- TURBIDITY CONTROL CURTAIN
- TEMPORARY EASEMENT

SUGGESTED CONSTRUCTION SEQUENCE NOTES

1. INSTALL EROSION & SEDIMENT CONTROL SYSTEM.
2. INSTALL TWIN 48" BY-PASS PIPES.
3. CONSTRUCT COFFERDAM AND DIVERT FLOW TO BY-PASS PIPE.
4. REMOVE THE EXISTING CULVERTS AND HEADWALLS.
5. INSTALL WINGWALL FOOTINGS, RETURN WALLS AND CUTOFF WALLS.
6. INSTALL PRECAST CONCRETE BOX CULVERT.
7. INSTALL WINGWALLS.
8. BACKFILL BOX CULVERT AND WINGWALLS, GRADE CHANNEL, REMOVE BY-PASS PIPE, COFFERDAMS AND DIRECT FLOW INTO NEW CULVERT.
9. PLACE BARRICADES, SAND BARREL ARRAY AND TRAFFIC DRUMS AS NECESSARY TO PROTECT THE REMAINING WORK AREAS ON THE BRIDGE AND REDIRECT TRAFFIC.
10. OPEN ROADWAY, CONSTRUCT REMAINING BRIDGE ELEMENTS (ALTERNATING ONE-WAY TRAFFIC IF REQUIRED).
11. CONSTRUCT THE REMAINING ROADWAY AND CULVERT IMPROVEMENTS UTILIZING ALTERNATING ONE-WAY TRAFFIC AS REQUIRED.

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	6.43 CFS
AVERAGE SPRING FLOW	12.6 CFS
1-YEAR FREQUENCY DISCHARGE	185 CFS
TEMPORARY DESIGN DISCHARGE	185 CFS
TEMPORARY DESIGN FREQUENCY	1 YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	190.7
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	182.0

CONSTRUCTION GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
2. ANY UNCONFINED IN STREAM WORK WITHIN BULLET HILL BROOK SHOULD BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.
3. SEQUENCE OF CONSTRUCTION NOTES SHALL BE USED IN CONJUNCTION WITH THE HIGHWAY CONSTRUCTION, MAINTENANCE AND PROTECTION OF TRAFFIC PLANS.
4. THE SUGGESTED STEPS ILLUSTRATE A SEQUENCE OF CONSTRUCTION THAT CONFORMS TO STAGING REQUIREMENTS. THE SEQUENCE MAY BE ALTERED, SUBJECT TO THE APPROVAL OF THE ENGINEER SO LONG AS THE OPERATION OF VEHICULAR TRAFFIC IS MAINTAINED.
5. NEITHER THE WORK NOR STEPS LISTED IN THE CONSTRUCTION SEQUENCE ARE INTENDED TO COVER ALL DETAILS OF THE WORK. THE CONTRACTOR SHALL PREPARE A DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE FOR REVIEW AND APPROVAL BY THE ENGINEER.
6. THE TEMPORARY COFFERDAM SHALL CONSIST OF SHEETS OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION AND SHALL CONFORM TO PERMITS.
7. THE CONTRACTOR IS HEREIN NOTIFIED THAT THE OVERHEAD ELECTRICAL FACILITIES WILL REMAIN LIVE THROUGHOUT THE DURATION OF CONSTRUCTION.

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY
1	LOWER PROFILE & SHORTEN ALIGNMENT, ADD ROCK WEIR	6/21/19	GG

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY|MERIDEN, CT 06450|203-238-1569
457 BANTAM RD | LITCHFIELD, CT 06759|860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
WATER HANDLING PLAN

WTH-01

25

RESPONSIBILITY AND AUTHORITY

THE CITY/TOWN, OR ITS AUTHORIZED REPRESENTATIVE, HAS THE RESPONSIBILITY AND AUTHORITY FOR THE IMPLEMENTATION, OPERATION, MONITORING, AND MAINTENANCE OF THE SEDIMENT AND EROSION CONTROL MEASURES.

GENERAL

1. EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY/TOWN STANDARDS, THE CONNECTICUT DOT SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 819 (2024), 2002 CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL, DEEP BULLETIN 34, AND THE PROJECT SPECIFICATIONS.

2. THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

3. IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

4. ALL EROSION CONTROL MATTING SHALL BE AS SPECIFIED ON THE PLANS OR AN APPROVED EQUAL. ALL EROSION CONTROL MATTING SHALL BE LISTED ON THE QUALIFIED PRODUCT LIST FOR CONNECTICUT DEPARTMENT OF TRANSPORTATION PROJECTS (REPORT NUMBER 211-12-04-4), DATED APRIL 2004 OR LATEST REVISION. THIS REPORT IS POSTED ON THE CONNECTICUT DEPARTMENT OF TRANSPORTATION WEB SITE. INSTALLATION SHALL CONFORM TO CONNECTICUT DOT FORM 819, SECTION 7.55, GEOTEXTILE.

5. THE EROSION CONTROL PLAN PROPOSES EROSION CONTROL MEASURES TO HELP CONTROL ACCELERATED EROSION AND SEDIMENTATION AND THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE.

6. EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES:

7. ALL AREAS SHALL BE PROTECTED FROM SEDIMENTATION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM OR ORGANIC MATTER PRIOR TO TRENCHING OR OTHER OPERATIONS AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENT CONTROL MATERIAL (I.E. HAY BALES AND/OR GEOTEXTILE FENCE).

8. THE EXISTING NATURAL DRAINAGE PATTERNS AND VEGETATIVE COVER SHALL BE PRESERVED TO THE MAXIMUM POSSIBLE EXTENT.

9. CONSTRUCTION EQUIPMENT SHALL BE A TYPE THAT DOES NOT DAMAGE ADJACENT AREAS AND MINIMIZES THE NEED FOR AND SIZE OF ACCESS ROADWAYS.

10. CONSTRUCTION SHALL BE PERFORMED IN SUCH A MANNER SO AS TO KEEP LAND GRADING AND DISTURBANCES TO A MINIMUM.

11. WATERCOURSE ELEVATIONS WITHIN THE CONSTRUCTION SITE SHALL BE RESTORED. CHANNELS SHALL BE CLEANED AND CLEARED OF SEDIMENT AND DEBRIS.

12. EXCESS EXCAVATED MATERIAL AND OTHER DEBRIS SHALL NOT BE STORED OR DISPOSED OF WITHIN THE ADJACENT WATERCOURSES OR WETLAND AREAS.

13. ANY CONSTRUCTION ROADS BUILT DURING CONSTRUCTION SHALL BE REMOVED AND ALL GRADE ELEVATIONS SHALL BE RESTORED TO ORIGINAL CONDITION.

14. DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION SHALL NOT BE DISCARDED ON SITE.

LAND GRADING

GENERAL:

THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

A. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).

B. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).

C. THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO FOUR VERTICAL (1:4).

D. PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.

E. EXCAVATIONS SHOULD NOT BE MADE SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTY WITHOUT PROTECTING SUCH PROPERTY FROM EROSION, SLIDING, SETTLING, OR CRACKING.

F. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE PREMISES OF ANOTHER OWNER OR UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.

G. PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOILING

GENERAL:

1. TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT. GROWTH, AND MAINTENANCE OF VEGETATION.

2. UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.

3. REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.

4. APPLY LIME ACCORDING TO SOIL TEST OR AT THE RATE OF 2 TON PER ACRE.

MATERIAL:

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.

2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.

3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF STONES (OVER 1" IN DIAMETER), LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF ROOTS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.

4. AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL.

5. SOLUBLE SALT CONTENT OF OVER 500 PARTS PER MILLION (PPM) IS LESS SUITABLE. AVOID TIDAL MARSH SOILS BECAUSE OF HIGH SALT CONTENT AND SULFUR ACIDITY.

6. THE pH SHOULD BE MORE THAN 6.0. IF LESS, ADD LIME TO INCREASE pH TO AN ACCEPTABLE LEVEL.

APPLICATION:

1. AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.

2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST FOUR INCHES, OR TO THE DEPTH SHOWN ON THE PLANS.

TEMPORARY VEGETATIVE COVER

GENERAL:

1. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEEDED BY OCTOBER 15.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.

2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.

3. APPLY LIME ACCORDING TO SOIL TEST OR AT A RATE OF 1 TON OF GROUND DOLOMITIC LIMESTONE PER ACRE.

4. APPLY FERTILIZER ACCORDING TO SOIL TEST OR AT THE RATE OF 330 LB OF 10-10-10 PER ACRE (7.5 LB PER 1000 SF) AND SECOND APPLICATION OF 240 LB OF 10-10-10- (5.5 LB PER 100O SF) WHEN GRASS IS 4" TO 6" HIGH. APPLY ONLY WHEN GRASS IS DRY.

5. UNLESS HYDROSEEDED, WORK IN LIME AND FERTILIZER TO A DEPTH OF 4" USING A DISK OR ANY SUITABLE EQUIPMENT.

6. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

ESTABLISHMENT:

1. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).

2. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.

3. UNLESS HYDROSEEDED, COVER RYEGRASS SEEDS WITH NOT MORE THAN 2" OF SOIL USING SUITABLE EQUIPMENT.

4. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW.) APPLY STRAW OR HAY MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.

PERMANENT VEGETATIVE COVER

GENERAL:

1. PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.

2. REMOVE LOOSE ROCK, STONE. AND CONSTRUCTION DEBRIS FROM AREA.

3. PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.

4. APPLY TOPSOIL AS INDICATED ELSEWHERE HEREIN.

5. APPLY FERTILIZER ACCORDING TO SOIL TEST OR
SPREAD SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 330 LB OF 10-10-10 FERTILIZER PER ACRE (7.5 LB PER 1000 SF); THEN SIX (6) TO EIGHT (8) WEEKS LATER, APPLY ON THE SURFACE AN ADDITIONAL 30 LB OF 10-10-10 FERTILIZER PER ACRE. AFTER SEPTEMBER 1, TEMPORARY VEGETATIVE COVER SHALL BE APPLIED, FALL SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING. 240 LB OF 10-10-10 FERTILIZER PER ACRE (5.5 LB PER 1000 SF)

VEGETATIVE COVER SELECTION &; MULCHING

TEMPORARY VEGETATIVE COVER:

PERENNIAL RYEGRASS 3 LB/1000 SF
(IOLUIUM PERENNE)

PERMANENT VEGETATIVE COVER:

CREEPING RED FESCUE 2 LB/1000 SF
(FESTUCA RUBRA)

REDTOP 1 LB/1000 SF
(AGROSTIS ALBA)

TALL FESCUE 2 LB/1000 SF
(FESTUCA ARUNDINACEA)

TEMPORARY MULCHING:

STRAY OR HAY 60-90 LB/1000 SF
(TEMPORARY VEGETATIVE AREAS)

WOOD FIBER IN HYDROMULCH SLURRY 25-50 LB/1000 SF

ESTABLISHMENT:

1. SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).

2. SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC).

3. APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.

4. COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4" OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).

5. MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION).

6. USE PROPER INOCULANT ON ALL LEGUME SEEDINGS. USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.

7. USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

TEMPORARY EROSION / SEDIMENTATION CONTROL DEVICES

THE FOLLOWING EROSION/SEDIMENTATION CONTROL DEVICES ARE PLANNED FOR THE SITE DURING THE CONSTRUCTION PERIOD. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED HEREWITHIN.

1. SYNTHETIC FILTER BARRIERS AND HAY BALES WILL BE INSTALLED DOWNGRADIENT OF DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE SITE IS REVEGETATED. INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET ON THE EROSION CONTROL DETAIL SHEETS.

2. STRAW OR HAY MULCH IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED ON SLOPES OF LESS THAN 3 PERCENT SHALL BE ANCHORED BY APPLYING WATER; MULCH PLACED IN AREAS OF CONCENTRATED FLOW OR ON SLOPES STEEPER THAN 3 PERCENT SHALL BE COVERED WITH FABRIC NETTING OR EQUAL AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SLOPES STEEPER THAN 4:1 AND WHERE SHOWN ON THE PLANS, WHICH ARE TO BE REVEGETATED, SHALL RECEIVE CURLEX BLANKETS BY AMERICAN EXCELSIOR.

3. CONSTRUCTION ENTRANCES WILL BE INSTALLED AT ALL ACCESS POINTS OF THE SITE TO PREVENT THE TRACKING OF SOIL ONTO CITY STREETS AND STATE ROADS.

4. IF REQUIRED TEMPORARY SEDIMENTATION BASINS AND OR SEDIMENT TRAPS SHALL BE CONSTRUCTED IN THE LOCATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN OR AT LOCATIONS SPECIFIED BY THE ENGINEER DURING CONSTRUCTION TO ALLOW SETTLEMENT OF FINE GRAIN PARTICLES FROM DEWATERING OPERATIONS AND SURFACE RUNOFF. THE REQUIRED VOLUME OF STORAGE IS 134 CUBIC YARDS FOR EVERY ACRE OF DISTURBED SITE ENTERING THE BASIN. A SEDIMENTATION BASIN WILL BE REQUIRED WHEN TWO ACRES ARE DISTURBED THAT DISCHARGE TO ANY POINT.

5. TEMPORARY STORAGE AND STOCKPILE AREAS SHALL BE SURROUNDED BY A SYNTHETIC FILTER BARRIER. TEMPORARY DRAINAGE SWALES SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS OR AS NECESSARY TO DIVERT RUNOFF INTO THE SEDIMENTATION BASINS.

6. SEDIMENT TRAPS WILL BE INSTALLED AROUND ALL CATCH BASINS. THE SEDIMENT TRAPS SHALL BE LEFT IN PLACE UNTIL THE TRIBUTARY AREA IS PAVED OR REVEGETATED.

7. WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR HAVE TEMPORARILY BEEN SUSPENDED FOR MORE THAN SEVEN DAYS ,OR WHEN FINAL GRADES ARE REACHED IN ANY PORTION OF THE SITE, STABILIZATION PRACTICES SHALL BE IMPLEMENTED WITHIN THREE DAYS. AREAS THAT WILL REMAIN DISTURBED BUT INACTIVE FOR AT LEAST THIRTY DAYS SHALL RECEIVE TEMPORARY SEEDING IN ACCORDANCE WITH THE GUIDELINES. AREAS THAT WILL REMAIN DISTURBED BEYOND THE PLANTING SEASON, SHALL RECEIVE LONG-TERM, NON-VEGETATIVE STABILIZATION SUFFICIENT TO PROTECT THE SITE THROUGH THE WINTER. IN ALL CASES, STABILIZATION MEASURES SHALL BE BE IMPLEMENTED AS SOON AS POSSIBLE IN ACCORDANCE WITH THE GUIDELINES.

8. IF WORK IS CONDUCTED BETWEEN SEPTEMBER 15TH AND APRIL 15TH OF ANY CALENDAR YEAR, ALL DENUDED AREAS WILL BE COVERED WITH HAY MULCH, APPLIED AT TWICE THE NORMAL APPLICATION RATE AND ANCHORED WITH FABRIC NETTING. THE PERIOD BETWEEN FINAL GRADING AND MULCHING SHALL BE REDUCED TO A 15 DAY MAXIMUM.

9. ALL STREETS SHALL BE SWEPT OR WASHED TO CONTROL MUD AND DUST AS NECESSARY AS DETERMINED BY THE TOWN AND/OR THE ENGINEER.

10. DURING GRUBBING OPERATIONS, CHECK DAMS WILL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.

11. EFFLUENT FROM DEWATERED WORK AREAS SHALL NOT BE DISCHARGED DIRECTLY TO THE WATERCOURSE BUT BE PROCESSED THROUGH TREATMENT STRUCTURES. SUCH STRUCTURES ARE NOT TO BE LOCATED WITHIN THE WATERCOURSE CHANNEL OR ADJACENT WETLANDS.

PERMANENT EROSION CONTROL MEASURES:

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIP RAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED AND SEEDED. FABRIC NETTING ANCHORED WITH STAPLES SHALL BE PLACED OVER THE MULCH IN AREAS WHERE THE FINISH GRADE SLOPE IS GREATER THAN 3H:1V. ALL AREAS SHALL RECEIVE PROTECTION WITHIN 30 DAYS. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. CATCH BASINS WILL BE PROVIDED WITH SEDIMENT SUMPS.

GENERAL PHASING OF EROSION AND SEDIMENTATION CONTROL MEASURES:

THE CONSTRUCTION OF THE TEMPORARY SEDIMENTATION BASINS, IF REQUIRED MUST BE COMPLETED BEFORE OTHER WORK BEGINS AT THE SITE. EXTREME CAUTION MUST BE TAKEN TO LIMIT THE EXTENT OF DISTURBED AREAS. WORK SHALL BE CONDUCTED IN THE FOLLOWING ORDER (FOR ADDITIONAL INFORMATION SEE SEQUENCE OF CONSTRUCTION):

A. INSTALL CRUSHED STONE CONSTRUCTION ENTRANCES AND STORAGE AREAS AND IN OTHER AREAS AS INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER. INSTALL HAY BALE SEDIMENT TRAPS AT ALL EXISTING CATCH BASINS AND DRAINS.

B. CONSTRUCT TEMPORARY SEDIMENTATION BASINS AND, IF REQUIRED, TEMPORARY SWALES TO DIRECT RUNOFF TO BASINS. INSTALL CHECK DAMS IN SWALES AND OTHER AREAS OF CONCENTRATED FLOW.

C. DISPOSE OF ANY UNUSABLE FILL MATERIAL OFF SITE. DISPOSAL OF MATERIALS SHALL BE CONDUCTED IN A MANNER CONSISTENT WITH THIS PLAN WHICH WILL AVOID EROSION AND SEDIMENTATION OFF SITE. PLACE FILL MATERIAL WHICH IS SUITABLE FOR REUSE WITHIN DESIGNATED STOCKPILE AREAS.

D. DURING GRUBBING OPERATIONS, INSTALL CHECK DAMS AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.

E. INSTALL PROPOSED STORM SEWER SYSTEM AND CATCH BASINS. PROTECT CATCH BASINS FROM SILTING WITH APPROPRIATE CONTROLS AS SHOWN ON THE DETAIL SHEETS.

F. G. STABILIZE DISTURBED AREAS WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS.

G. RECONSTRUCT ROADWAYS.

H. RESTORE DISTURBED AREAS, COMPLETE SEEDING AND LANDSCAPING AND REMOVE EROSION CONTROL DEVICES.

ADDITIONAL REQUIREMENTS

IN ADDITION TO THE MEASURES LISTED ABOVE, THE FOLLOWING WORK WILL BE PERFORMED AS REQUIRED:

1. REMOVE ACCUMULATED SEDIMENT AHEAD OF ANY SILT BARRIERS (AS NECESSARY) AND DISPOSE OFF SITE.

2. DUST AND WIND EROSION SHALL BE CONTROLLED THROUGHOUT THE LIFE OF THE CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, SPRINKLING OF WATER ON EXPOSED SOILS AND HAUL ROADS.

3. IF EXCAVATION IS INTERRUPTED BY HEAVY RAINS, ADDITIONAL MULCHING OR GRAVEL WORK MATS MAY BE REQUIRED ON AREAS OF EXPOSED SOILS. SOILS WHICH HAVE BECOME UNSUITABLE FOR USE DUE TO EXPOSURE TO HEAVY RAINS SHALL BE REMOVED FROM THE WORK AREA AND DRIED OR DISPOSED OF OFF SITE IN A MANNER CONSISTENT WITH THIS PLAN.

4. CLEAN OUT ALL CULVERTS, CATCH BASINS AND STORM SEWERS IN STREETS ADJACENT TO THE PROJECT AREA AFTER COMPLETION OF THE PROJECT.

5. CONSTRUCTION EQUIPMENT IS NOT TO ENTER ANY WATERCOURSE OR WETLAND.

6. EQUIPMENT IS NOT TO BE WASHED IN OR NEAR WETLANDS OR WATERCOURSES.

7. EQUIPMENT MAINTENANCE SHALL NOT BE CARRIED OUT WITHIN THE PROJECT SITE UNLESS APPROVED IN WRITING BY THE ENGINEER.

8. TRASH RECEPTACLES SHALL BE REQUIRED ON THE JOB SITE.

9. DUMPING OF OIL, CHEMICALS OR OTHER DELETERIOUS MATERIALS ON THE GROUND IS FORBIDDEN. THE CONTRACTOR SHALL PROVIDE A MEANS OF CATCHING, RETAINING AND PROPERLY DISPOSING OF DRAINED OIL, REMOVED OIL FILTERS OR OTHER DELETERIOUS MATERIAL. ALL SPILLS OF SUCH MATERIAL SHALL BE REPORTED IMMEDIATELY BY THE CONTRACTOR TO DEP. THE CONTRACTOR SHALL STORE OIL ABSORBENT MATERIALS ON SITE FOR THE CLEANUP OF SPILLS.

SEDIMENTATION AND EROSION CONTROL MAINTENANCE PROCEDURES DURING CONSTRUCTION:

ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION BY THE CONTRACTOR ON A DAILY BASIS AND FOLLOWING ALL STORMS. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUIRED. THIS WORK SHALL BE PERFORMED WITHIN 24 HOURS FOLLOWING ALL STORM EVENTS. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES AND PIPES AT THE COMPLETION OF CONSTRUCTION AND AS REQUIRED TO KEEP THE SYSTEM FUNCTIONING PROPERLY DURING CONSTRUCTION.

FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP AND CLEAN SEDIMENT COVERED STONES.

SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS REQUIRED AND AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCES AS THEY BECOME SATURATED WITH MUD TO INSURE THAT THEY WORK AS PLANNED DURING THE CONSTRUCTION.

POST CONSTRUCTION:

1. THE MAINTENANCE SCHEDULE FOR THE CATCH BASIN SEDIMENT SUMPS IS AS FOLLOWS: THESE DEVICES SHALL BE INSPECTED IN APRIL OF EACH YEAR AT A MINIMUM. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE CATCH BASINS WHEN THE DEPTH OF THE SEDIMENT IS WITHIN ONE FOOT OF THE OUTLET PIPE INVERT. THE SEDIMENT WILL BE REMOVED FROM THE SITE BY THE TOWN OR THE CATCH BASIN CLEANING CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

2. STREETS ARE TO BE CLEANED WITH STREET SWEEPERS ANNUALLY AT A MINIMUM.

3. THE SITE SHALL BE INSPECTED EVERY 6 MONTHS AND AFTER MAJOR STORMS FOR EVIDENCE OF EROSION ALL ERODED SURFACES ARE TO BE REPAIRED AND PERMANENTLY STABILIZED.

INSPECTION:

QUALIFIED PERSONNEL (PROVIDED BY THE CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION ACTIVITY THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.1 INCHES OR GREATER. WHERE SITES HAVE BEEN TEMPORARILY OR FINALLY STABILIZED, SUCH INSPECTION SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH FOR 3 MONTHS. FULL TIME CONSTRUCTION INSPECTION WILL BE PROVIDED BY THE ENGINEER.

1. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ASSESSABLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF SITE SEDIMENT TRACKING.

2. BASED ON THE RESULTS OF THE INSPECTION, THE DESCRIPTION OF POTENTIAL SOURCES AND POLLUTION PREVENTION MEASURES IDENTIFIED IN THE PLAN SHALL BE REVISED AS APPROPRIATE AS SOON AS PRACTICABLE AFTER SUCH INSPECTION. SUCH MODIFICATIONS SHALL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE SITE WITHIN 24 HOURS AND IMPLEMENTATION OF ANY CHANGES TO THE PLAN WITHIN 3 CALENDAR DAYS FOLLOWING THE INSPECTION. THE PLAN SHALL BE REVISED AND THE SITE CONTROLS UPDATED IN ACCORDANCE WITH SOUND ENGINEERING PRACTICES AND GUIDELINES. A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE STORM WATER POLLUTION CONTROL PLAN AND ACTIONS TAKEN SHALL BE MADE AND RETAINED AS PART OF THE PLAN FOR AT LEAST 3 YEARS AFTER THE DATE OF INSPECTION. THE REPORT SHALL BE SIGNED BY THE PERMITTED OR HIS AUTHORIZED REPRESENTATIVE.

PERMIT REVIEW NOT FOR CONSTRUCTION

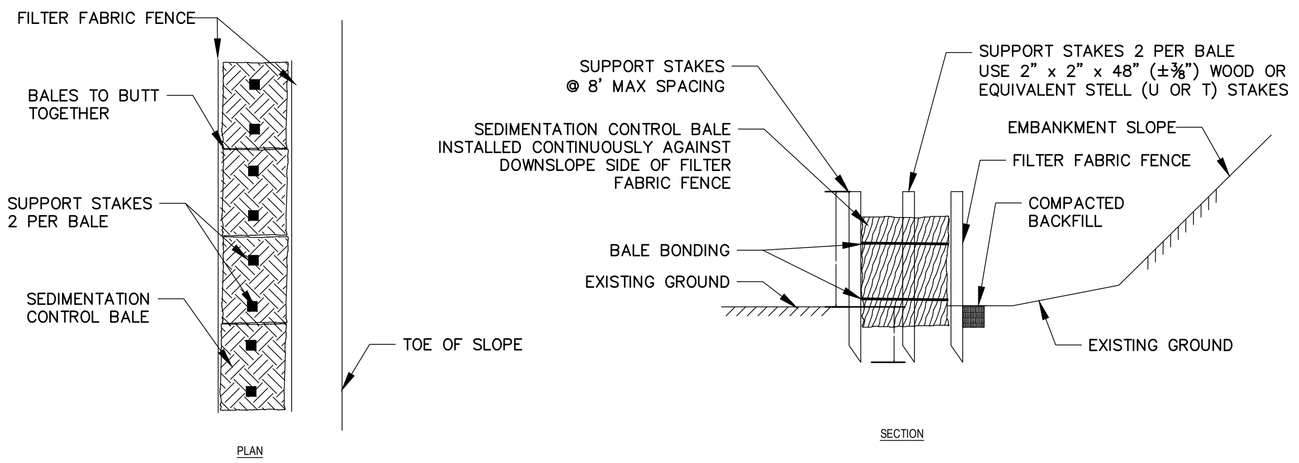
NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY MERIDEN, CT 06450 203-238-1569
457 BANTAM RD LITCHFIELD, CT 06759 860-567-9106

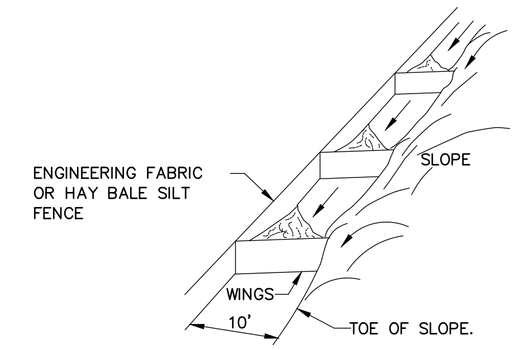
REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
SEDIMENT & EROSION CONTROL NOTES

SED-01



SEDIMENTATION CONTROL SYSTEM DOUBLE SILT FENCE WITH HAYBALES

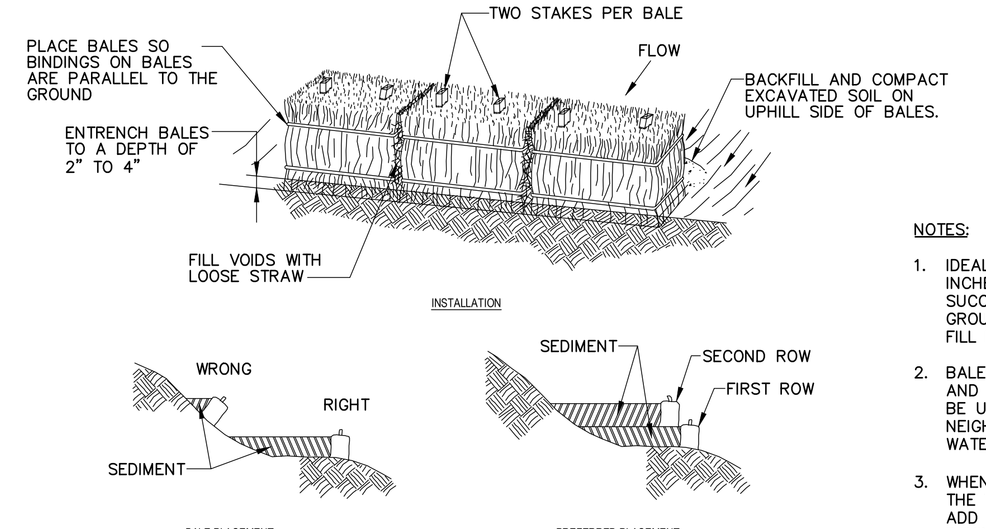
NOT TO SCALE



NOTE:
1. WHEN USING SILT FENCE ALONG TOE OF SLOPE, ADD WINGS TO PREVENT SEDIMENT FROM MOVING ALONG THE FENCE AND OFF THE SITE.
2. SILT FENCE SHOULD BE LOCATED 10' FROM TOE OF SLOPE.

SEDIMENTATION CONTROL SYSTEM TOE OF SLOPE

NOT TO SCALE



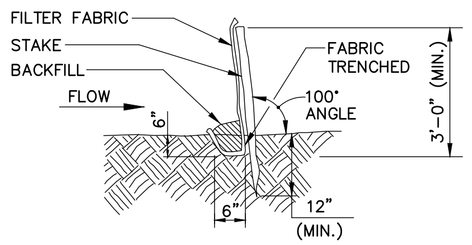
BALES PLACED AWAY FROM TOE OF SLOPE HAVE A LARGER CONFINEMENT AREA. ADDITIONAL BALES SHOULD BE ADDED BEHIND ORIGINAL BALES BEFORE SEDIMENT TOPS THE FIRST BALE.

NOTES:

1. IDEALLY, BALES SHOULD BE ENTRENCHED 2 TO 4 INCHES AND TIGHTLY BUTTED TOGETHER. BALES CAN BE SUCCESSFULLY PLACED WITHOUT A TRENCH IF GOOD GROUND CONTACT IS MADE. REMOVE HEAVY BRUSH AND FILL IN ALL VOIDS WITH LOOSE STRAW.
2. BALES SHALL BE ONLY USED AS A TEMPORARY BARRIER AND FOR NO LONGER THAN 60 DAYS. THEY SHALL NOT BE USED ON A JOB ADJACENT TO A RESIDENTIAL NEIGHBORHOOD, RESIDENCES OR ADJACENT TO OR IN A WATERCOURSE.
3. WHEN SEDIMENTATION DEPOSITS REACH WITHIN 3" OF THE TOP OF THE BALES, REMOVE SEDIMENTATION OR ADD ADDITIONAL BALES ON SEDIMENTATION DIRECTLY BEHIND THE FIRST ROW OF BALES AS DIRECTED BY THE ENGINEER.
4. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS AND WHEN DIRECTED BY THE THE ENGINEER, HAY BALES WILL BE REMOVED AND USED AS MULCH. ANY SEDIMENTATION WILL BE THINLY SPREAD UPON ESTABLISHED GROUND COVER.

HAY/STRAW BALE DIKES

NOT TO SCALE



A. MINIMUM LENGTH OF SILT FENCE IS 15 L.F.

B. MAXIMUM POST SPACING IS 10 L.F.

C. JOINTS ONLY AT SUPPORT POST WITH MINIMUM 6" OVERLAP, SECURELY SEALED.

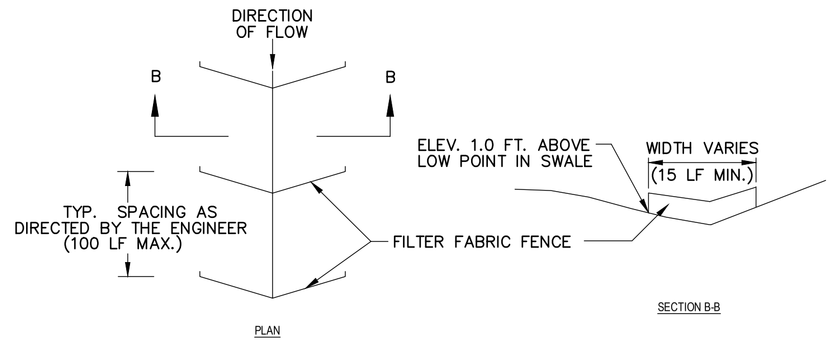
D. SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN THEY REACH 1/2 THE HEIGHT OF THE SILT FENCE.

E. SILT FENCE SHALL NOT BE USED IN A WATER COURSE.

F. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS, AND WHEN DIRECTED BY THE ENGINEER, FENCE WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND COVER.

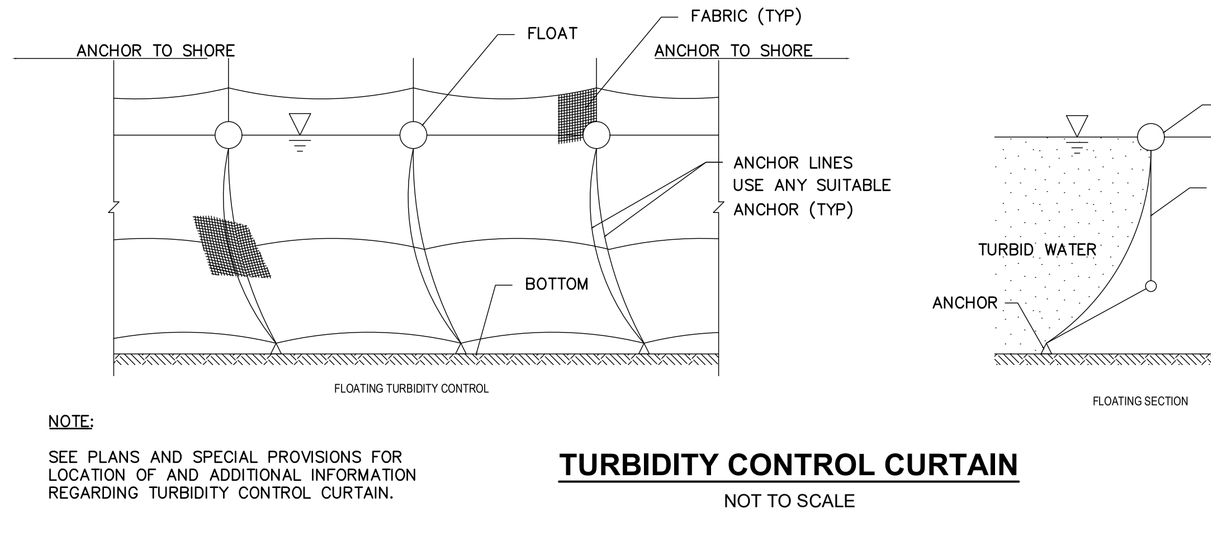
SILT FENCE INSTALLATION

NOT TO SCALE



FILTER FABRIC CHECK DAM

NOT TO SCALE

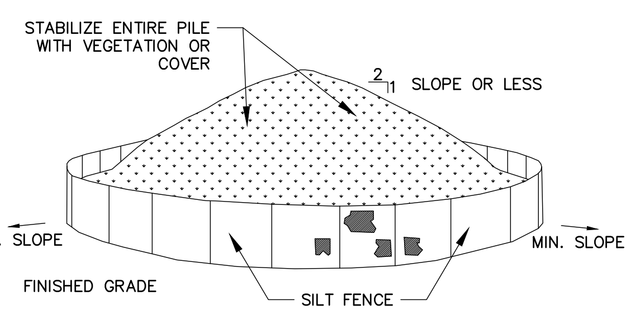


NOTE:

SEE PLANS AND SPECIAL PROVISIONS FOR LOCATION OF AND ADDITIONAL INFORMATION REGARDING TURBIDITY CONTROL CURTAIN.

TURBIDITY CONTROL CURTAIN

NOT TO SCALE

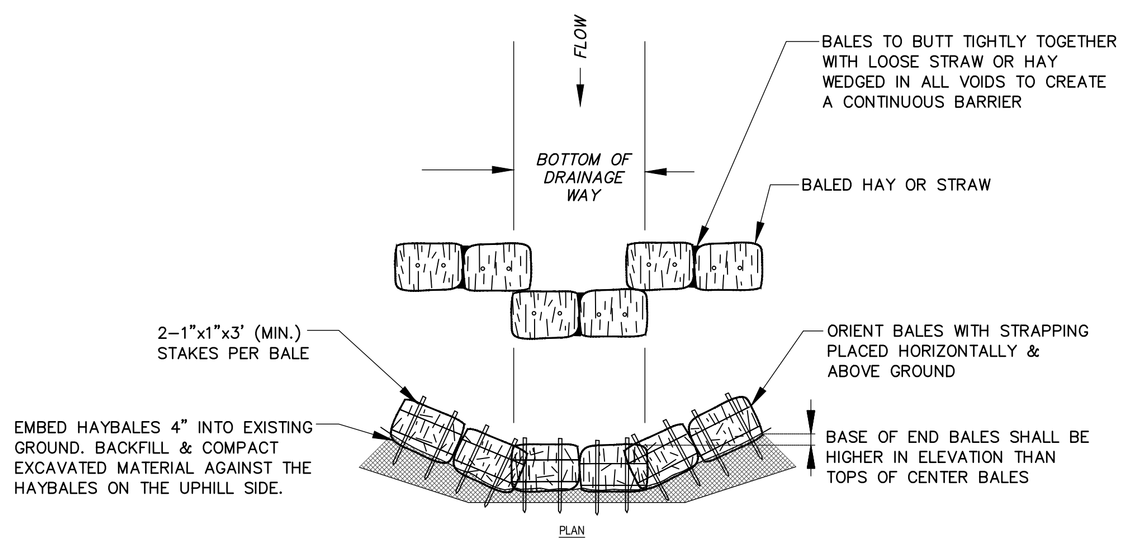


INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH REINFORCED SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.

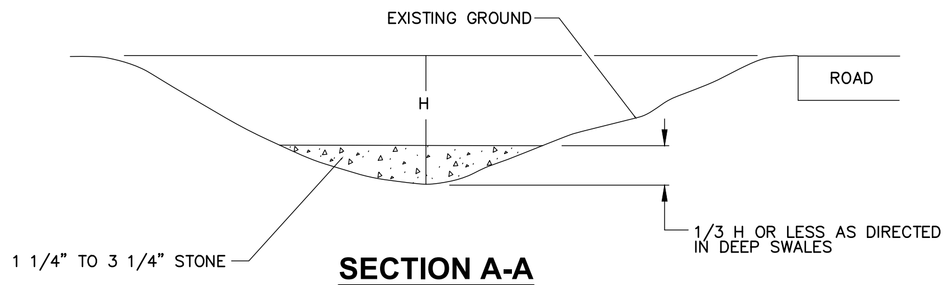
TOPSOIL AND SOIL STOCKPILE AREA

NOT TO SCALE

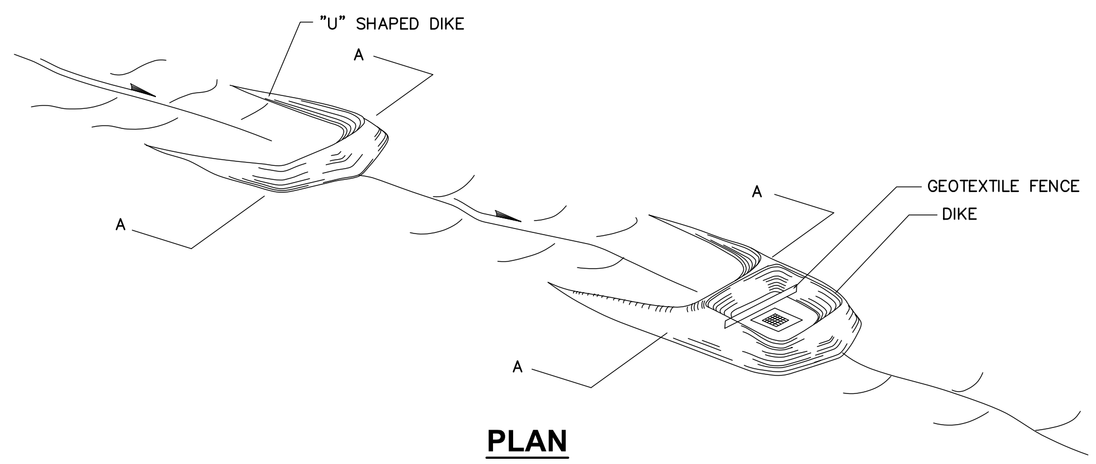


HAYBALE CHECK DAM (HBCD)

NOT TO SCALE



SECTION A-A



PLAN

"U" SHAPED STONE DIKE

NOT TO SCALE

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY

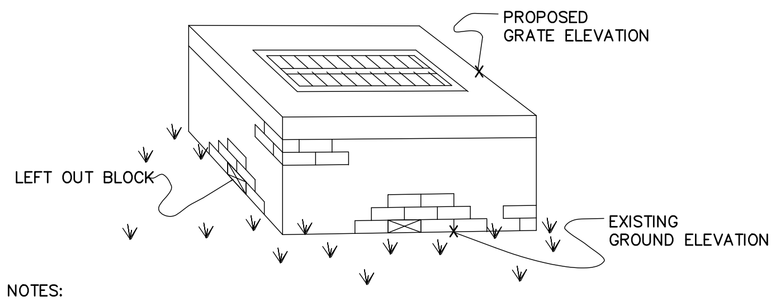
DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
SEDIMENT & EROSION CONTROL DETAILS

SED-02

27

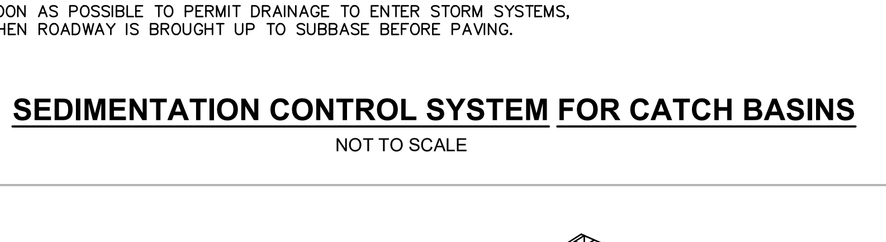


NOTES:

1. ALL DIMENSIONS ARE IN INCHES (") EXCEPT AS NOTED.
2. CONSTRUCT CATCH BASINS LEAVING ONE (1) BLOCK OUT PER SIDE AT EXISTING GROUND ELEVATION TO ALLOW WATER TO ENTER.
3. IF GROUND WITHIN A CATCH BASIN'S WATERSHED BECOMES DISTURBED AND THE CATCH BASIN WILL NOT BE BACKFILLED TO TOP OF GRATE ELEVATION FOR AT LEAST EIGHT (8) HOURS, INSTALL SEDIMENTATION CONTROL SYSTEM FOR CATCH BASIN.
4. INSTALL LEFT OUT BLOCKS NOT SOONER THAN TWO (2) HOURS PRIOR TO BACKFILLING AROUND CATCH BASIN.
5. IMMEDIATELY AFTER PLACING FILL, INSTALL SEDIMENTATION CONTROL SYSTEMS.
6. THE ENDS OF THE DIKE SHALL BE THE SAME ELEVATION AS THE SPILLWAY OR GREATER.
7. MAXIMUM HEIGHT OF DIKE SHOULD NOT EXCEED 1/3 HEIGHT OF THE CHANNEL.
8. STONE DIKES SHALL BE PLACED AT 50' INTERVALS IN ALL TEMPORARY DITCHES AND CHANNELS.

SHORT TERM ALTERNATE

(SEE NOTES 2 THRU 5)



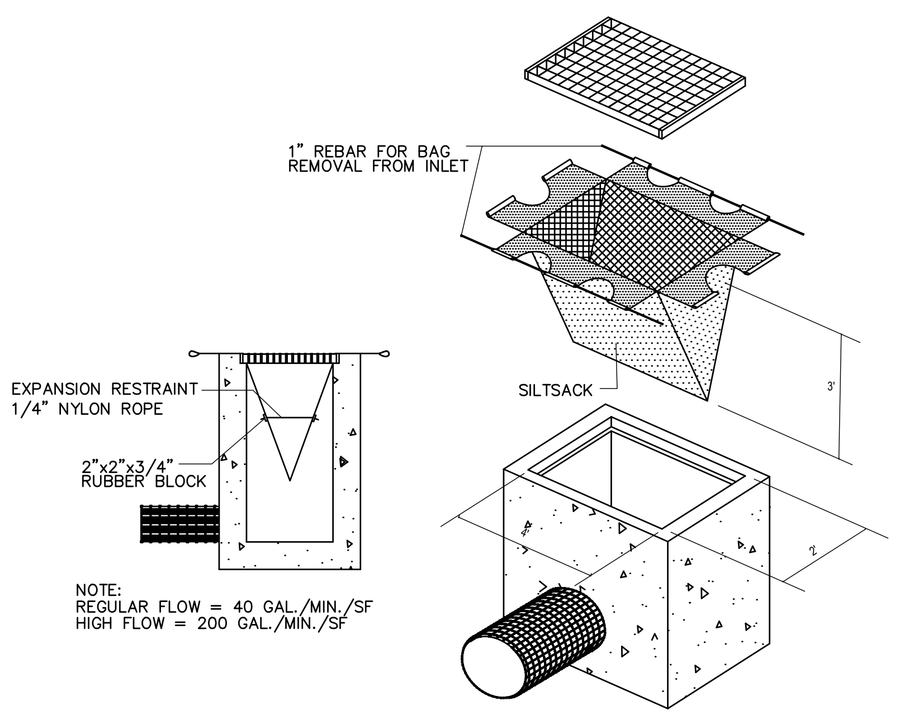
WHERE DIRECTED BY ENGINEER, CONTRACTOR SHALL CONSTRUCT A STONE DIKE IN LIEU OF THE FILTER FABRIC CHECK DAM.

NOTE:

RAISE AND PROTECT CATCH BASIN TOPS WITH CRUSHED STONE AS SOON AS POSSIBLE TO PERMIT DRAINAGE TO ENTER STORM SYSTEMS, WHEN ROADWAY IS BROUGHT UP TO SUBBASE BEFORE PAVING.

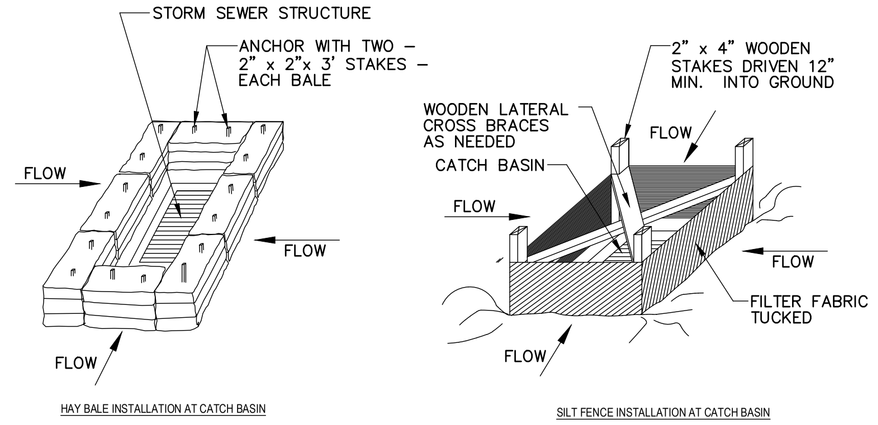
SEDIMENTATION CONTROL SYSTEM FOR CATCH BASINS

NOT TO SCALE



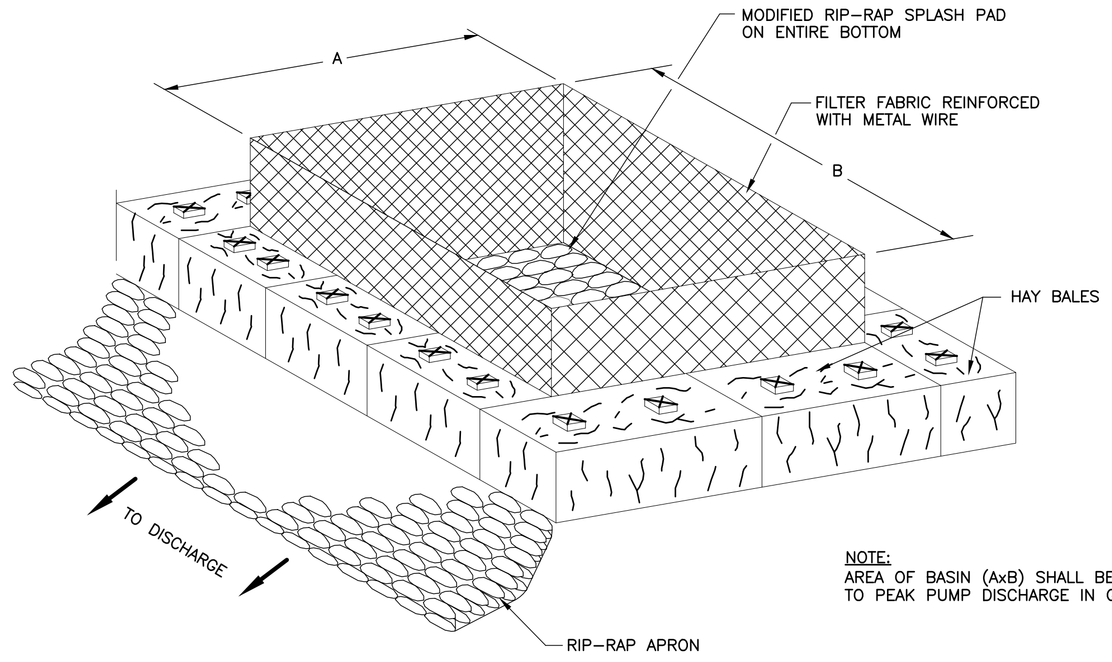
SILT SACK DETAIL

NOT TO SCALE



CATCH BASIN IN A DEPRESSION

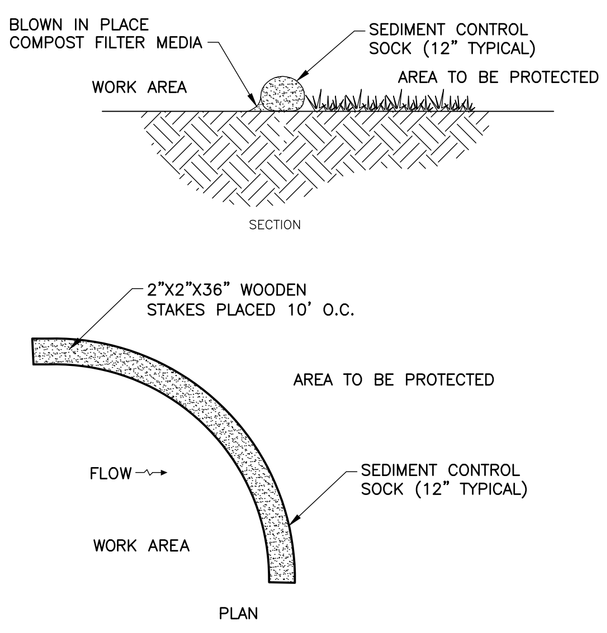
NOT TO SCALE



NOTE:
AREA OF BASIN (AxB) SHALL BE EQUAL TO PEAK PUMP DISCHARGE IN GPM.

TEMPORARY SEDIMENT BASIN FOR DEWATERING DISCHARGE

NOT TO SCALE

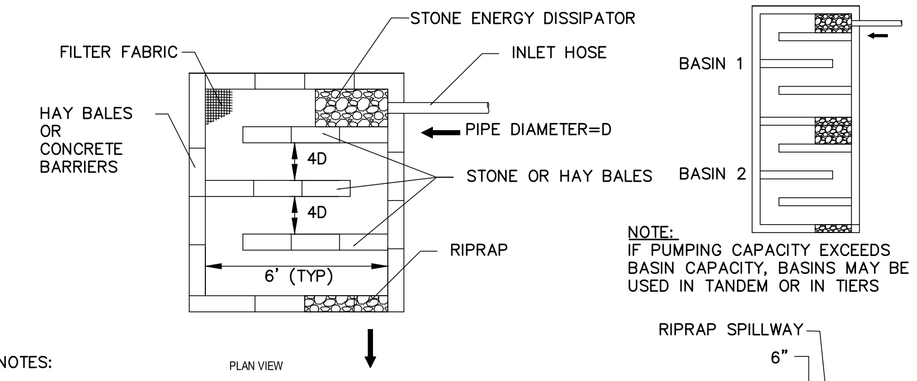


CONSTRUCTION SPECIFICATIONS

1. SOCKS SHALL BE PLACED IN A ROW WITH ENDS OVERLAPPING THE ADJACENT SOCK.
2. SOCKS SHALL BE SECURELY ANCHORED IN PLACE BY STAKES DRIVEN THOUGH THE SOCKS.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. SOCKS SHALL BE REMOVED WHEN WORK IS COMPLETE AN THE AREA HAS STABILIZED.

SEDIMENT CONTROL "COMPOST SOCK"

NOT TO SCALE

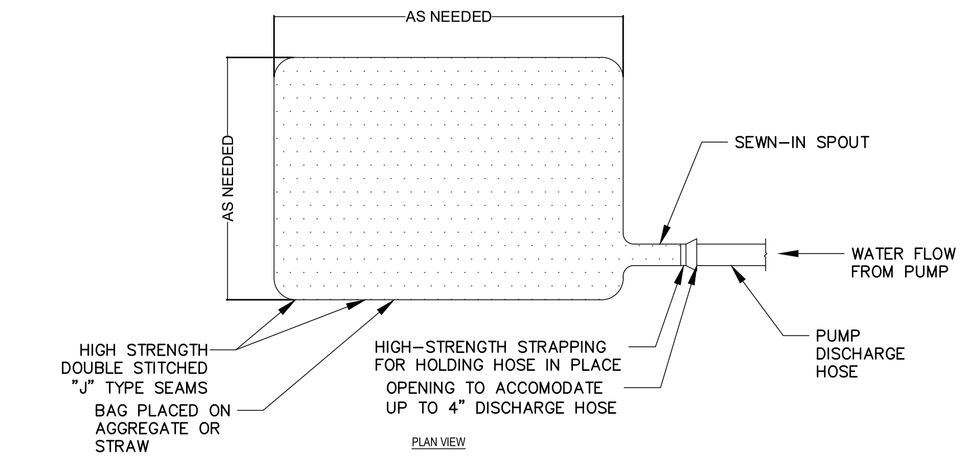


NOTES:

1. VOLUME OF BASIN IS EQUAL TO THE MAXIMUM VOLUME OF WATER CAPABLE OF BEING PUMPED OVER ONE HOUR. THIS VOLUME CAN BE DETERMINED BY THE CONTRACTOR USING THE PUMP MANUFACTURER'S SPECIFICATIONS.
2. CONTRACTOR TO SHOW APPROXIMATE LOCATION AND SIZE OF HIS PROPOSED DEWATERING BASIN(S) ON HIS EROSION AND SEDIMENTATION CONTROL PLANS. SEE SECTION 1.10, ENVIRONMENTAL COMPLIANCE.
3. DEWATERING BASIN(S) NOT TO BE LOCATED IN ANY WETLAND AREA.
4. THERE WILL BE NO SEPARATE PAYMENT FOR THE DEWATERING BASINS, BUT IT WILL BE INCLUDED IN THE COST OF THE RESPECTIVE ITEMS "COFFERDAM AND DEWATERING" AND SEDIMENT AND EROSION CONTROL.

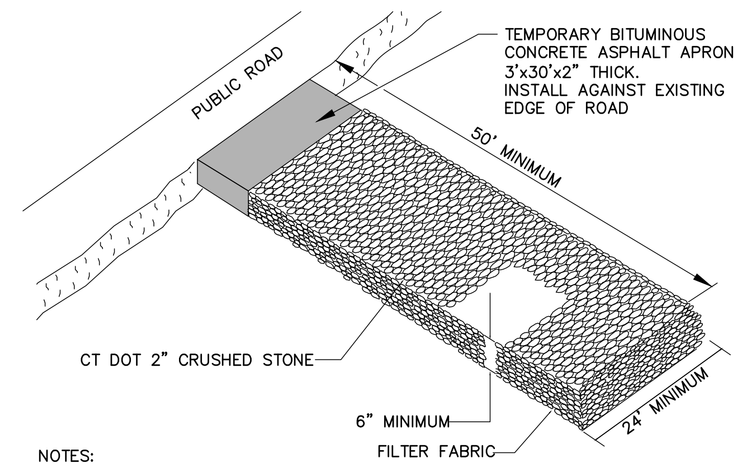
DEWATERING BASIN

NOT TO SCALE



SYNTHETIC FILTER BAG

NOT TO SCALE



NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR REGULAR MAINTENANCE OF THE ANTI-TRACKING PAD THROUGHOUT CONSTRUCTION. ROADS ARE TO BE FREE OF TRACKED DIRT, MUD AND DEBRIS.
2. THE LENGTH OF THE ANTI-TRACKING PAD SHALL BE INCREASED AS DIRECTED FOR SITES COMPOSED OF CLAYS OR SILTS.
3. EXISTING EDGE OF ROAD SHALL BE PRESERVED – CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING ROAD SURFACE.

ANTI-TRACKING PAD CONSTRUCTION ENTRANCE

NOT TO SCALE

PERMIT REVIEW NOT FOR CONSTRUCTION

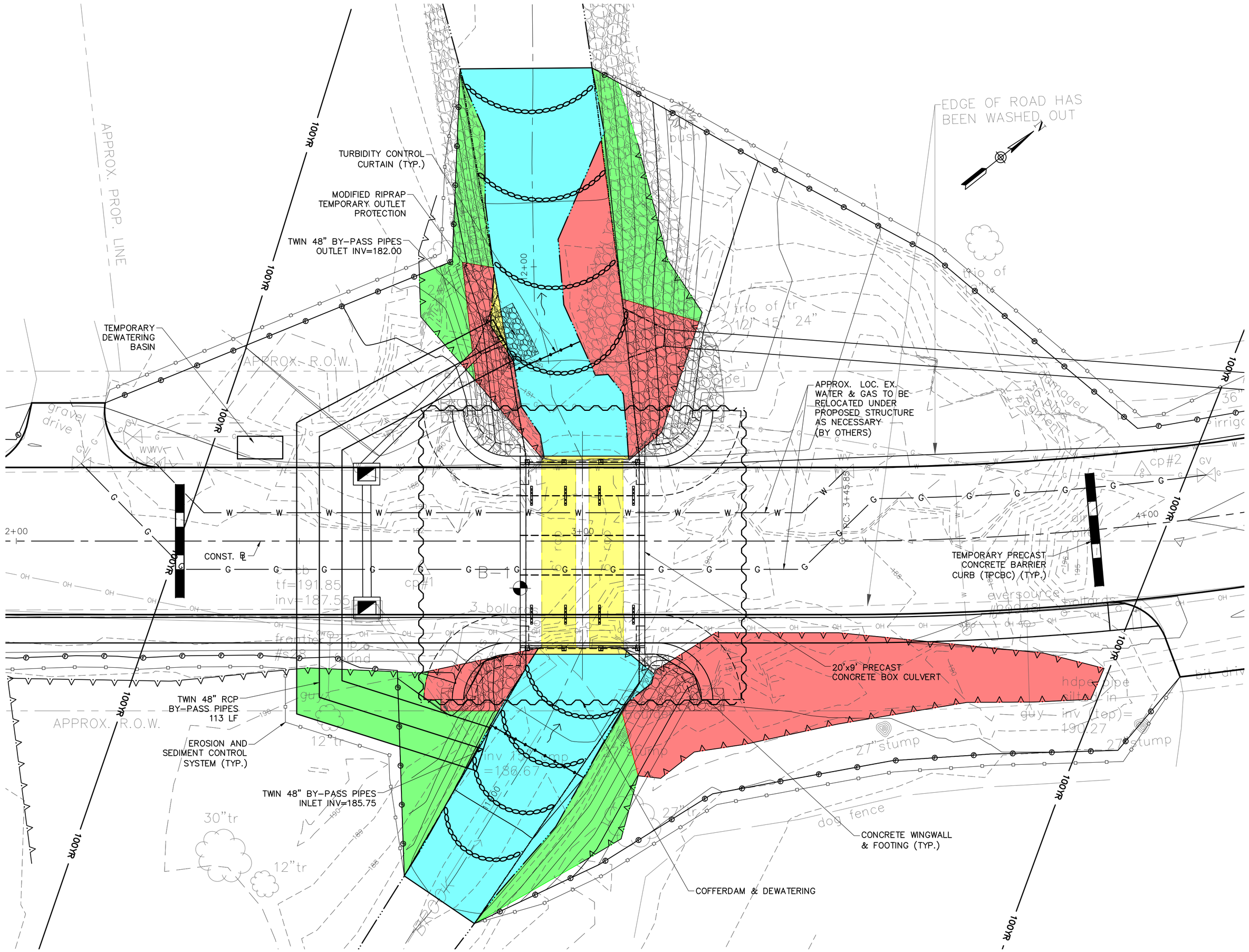
NO.	REVISION	DATE	BY

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
SEDIMENT & EROSION CONTROL DETAILS

SED-03



PLAN
SCALE: 1"=10'

WETLAND IMPACT TABLE			
	CT WETLAND IMPACTS	WATERWAY IMPACTS	TOTAL
TEMPORARY IMPACTS	1367 SF	2024 SF	3391 SF
PERMANENT IMPACTS	2008 SF	443 SF	2451 SF
TOTAL IMPACTS	3375 SF	2467 SF	5842 SF

LEGEND

- EDGE OF WATER (SURVEYED)
- WETLANDS (CT STATE)
- SEDIMENTATION CONTROL SYSTEM
- 100YR — 100 YEAR FLOODPLAIN (FEMA)
- WATER – TEMP
- WATER – PERM
- WETLAND – TEMP (CT STATE)
- WETLAND – PERM (CT STATE)

PERMIT REVIEW NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY
1	LOWER PROFILE & SHORTEN ALIGNMENT, ADD ROCK WEIR	6/21/19	GG

DATE: December 2024
PROJECT NO: XXXXXX
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
180 RESEARCH PKWY/MERIDEN, CT 06450/203-238-1569
457 BANTAM RD / LITCHFIELD, CT 06759/860-567-9106

REPLACEMENT OF OLD FIELD ROAD CULVERT
OVER BULLET HILL BROOK
SOUTHBURY, CONNECTICUT
WETLANDS/WATERCOURSE IMPACT PLAN

WET-01