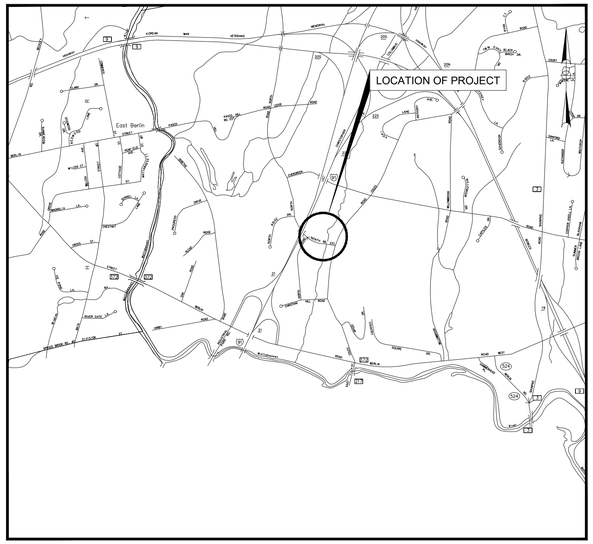



PROJECT LOCATION PLAN
NOT TO SCALE

# TOWN OF CROMWELL

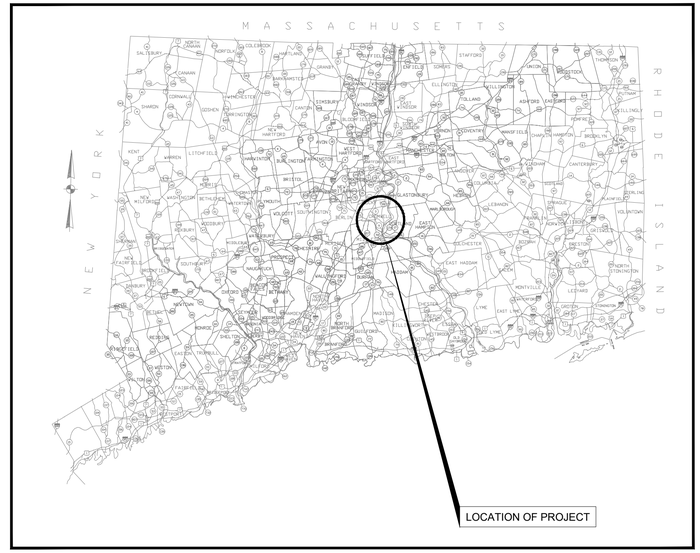
## PLANS
## FOR THE
## REPLACEMENT OF BRIDGE NO. 05939
## NORTH ROAD EXTENSION
## OVER COLES BROOK
## STATE PROJECT NO. 33-132
## FEDERAL AID PROJECT NO. 6033(TBD)

FROM STATION 5+00 TO STATION 6+50
LENGTH = 150'
TO BE MAINTAINED BY THE TOWN OF CROMWELL

MAYOR
Enzo Faienza

DIRECTOR OF PUBLIC WORKS
Lou Spina

TOWN ENGINEER
Jon Harriman, P.E.




PROJECT VICINITY MAP
NOT TO SCALE

DESIGN DATA
FUNCTIONAL CLASSIFICATION: URBAN LOCAL ROAD
DESIGN SPEED: 35 mph
ADT (2016): 536

CONSTRUCTION SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 817, 2016 INCLUDING SUPPLEMENTS THERETO DATED JULY 2018 AND SPECIAL PROVISIONS.

ALL ELEVATIONS BASED ON NAVD (1988).

HORIZONTAL COORDINATES ARE BASED ON CONNECTICUT STATE PLAN COORDINATE SYSTEM (NAD 1983),

LIST OF DRAWINGS

| SHEET NO. | TITLE | DRAWING | SHEET NO. | STANDARD DRAWINGS | FHWA APPROVAL DATE |
|---|---|---|---|---|---|
| 1 | TITLE SHEET | TITLE | HW-815_01 | BITUMINOUS CONCRETE CURBING | 6-07-17 |
| 2 | DETAILED ESTIMATE SHEET | DES-01 | HW-822_01 | TEMPORARY PRECAST CONCRETE BARRIER CURB | 7-24-13 |
| 3 | GENERAL NOTES AND TYPICAL SECTION | GEN-01 | HW-910_17 | R-B TERMINAL SECTION | 7-24-13 |
| 4 | ROADWAY PLAN | PLA-01 | HW-910_20 | MASH W-BEAM HARDWARE | 1-05-18 |
| 5 | ROADWAY PROFILE | PRO-01 | HW-910_21 | METAL BEAM RAIL (R-B MASH) GUIDERAIL | 1-05-18 |
| 6-7 | ROADWAY CROSS SECTIONS | XSC-01 & XSC-02 | TR-1220_01 | SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS | 9-01-15 |
| 8 | MISCELLANEOUS DETAILS | MDS-01 | TR-1220_02 | CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES | 9-01-15 |
| 9 | MAINTENANCE & PROTECTION OF TRAFFIC PLAN | MPT-01 | | | |
| 10 | STRUCTURE GENERAL PLAN | STR-01 | | | |
| 11 | BORING LOGS | STR-02 | | | |
| 12 | STRUCTURE ELEVATION AND SECTIONS | STR-03 | | | |
| 13-14 | HANDLING WATER & CONSTRUCTION SEQUENCE PLAN | STR-04 & STR-05 | | | |
| 15 | STRUCTURE FOUNDATION PLAN | STR-06 | | | |
| 16 | STRUCTURE LAYOUT PLAN | STR-07 | | | |
| 17 | WINGWALL SECTION AND ELEVATIONS | STR-08 | | | |
| 18 | HEADWALL AND JOINT DETAILS | STR-09 | | | |
| 19 | PRECAST TOLERANCES | STR-10 | | | |

LIST OF DRAWING REVISIONS

| SHEET NO. | DESCRIPTION | DATE | BY |
|---|---|---|---|
| | | | |
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ENZO FAIENZA, MAYOR

**SEMI-FINAL (70%) PLANS**
**FEBRUARY 22, 2019**

TITLE
1

CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

# DETAILED ESTIMATE SHEET

| F.H.W.A. REGION NO. | STATE | TOWN | FEDERAL AID PROJ. NO. | PROJ. NO. | YEAR | ROUTE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|---|---|---|---|
| 1 | CONN. | CROMWELL | 6033(TBD) | 33-132 | 2019 | TR | | |

FOR THE REPLACEMENT OF BRIDGE NO. 05939

## HIGHWAY ITEMS

| Bridge No. | Station To Station | 0201001 Clearing and Grubbing | 0202000 Earth Excavation | 0202216A Excavation and Reuse of Existing Channel Bottom Material | 0202217A Supplemental Streambed Material | 0202224A Boulder Placement in River | 0202529 Cut Bituminous Concrete Pavement | 0209001 Formation of Subgrade | 0210820 Water Pollution Control | 0212000 Subbase | 0212000 Granular Fill | 0219001 Sedimentation Control System | 0304002 Processed Aggregate Base | 0305000 Processed Aggregate | 0406236 Material for Tack Coat | 0406170 HMA S1.0 | 0406171 HMA S0.5 | 0703012 Modified Riprap | 0708001 Dampproofing | 0811001 Concrete Curbing | 0815001 Bituminous Concrete Lip Curbing | 0822001 Temporary Precast Concrete Barrier Curb | 0910300 Metal Beam Rail (Type R-B MASH) Guiderail | 0910023 R-B Terminal Section | 0912499 Remove Cable Guiderail | 0921001 Concrete Sidewalk | 0944000 Furnishing and Placing Topsoil | 0950005 Turf Establishment | 0969060A Construction Field Office, Small | 0970006 Trafficperson (Municipal Police Officer) | 0970007 Trafficperson (Uniformed Flagger) | 0971001A Maintenance and Protection of Traffic | 0975004 Mobilization and Project Closeout | 0976002 Barricade Warning Lights-High Intensity | 0979003 Construction Barricade Type III | 0980001 Construction Staking | 1208007 Painted Pavement Markings - 4" Yellow | 1220027 Construction Signs | 1504501A Temporary Support of Utilities (Site No. 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | l.s. | c.y. | c.y. | est. | l.f. | l.f. | s.y. | est. | c.y. | c.y. | l.f. | c.y. | c.y. | gal | ton | ton | c.y. | s.y. | l.f. | l.f. | l.f. | l.f. | ea. | l.f. | s.f. | s.y. | s.y. | mo. | est. | hr | l.s. | l.s. | day | ea. | l.s. | l.s. | l.f. | s.f. | l.s. |
| Project 33-132 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05939 | | 1 | 1220 | 180 | 1 | 180 | 60 | 500 | 1 | 140 | 90 | 250 | 60 | 120 | 50 | 90 | 60 | 100 | 60 | 150 | 150 | 40 | 565 | 4 | 700 | 750 | 550 | 550 | 8 | 1 | 80 | 1 | 1 | 1200 | 6 | 1 | 300 | 200 | 1 |
| SUBTOTAL | | 1 | 1220 | 180 | 1 | 180 | 60 | 500 | 1 | 140 | 90 | 250 | 60 | 120 | 50 | 90 | 60 | 100 | 60 | 150 | 150 | 40 | 565 | 4 | 700 | 750 | 550 | 550 | 8 | 1 | 80 | 1 | 1 | 1200 | 6 | 1 | 300 | 200 | 1 |
| TOTAL | | 1 | 1220 | 180 | 1 | 180 | 60 | 500 | 1 | 140 | 90 | 250 | 60 | 120 | 50 | 90 | 60 | 100 | 60 | 150 | 150 | 40 | 565 | 4 | 700 | 750 | 550 | 550 | 8 | 1 | 80 | 1 | 1 | 1200 | 6 | 1 | 300 | 200 | 1 |

## BRIDGE ITEMS

| Bridge No. | Station To Station | 0203202 Structure Excavation - Earth (Excluding Cofferdam and Dewatering | 0203204 Structure Excavation - Rock (Excluding Cofferdam and Dewatering | 0204001 Cofferdam and Dewatering | 0204110 Cofferdam Material Left in Place | 0204151A Handling Water | 0216000 Pervious Structure Backfill | 0503986A Removal of Existing Culvert (Site No. 1) | 0601000 Class "A" Concrete | 0601091A Simulated Stone Masonry | 0601301 Underwater Concrete | 0601971A Precast Concrete Three Sided Rigid Frame | 0602000 Deformed Steel Bars | 0974001A Removal of Existing Masonry |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | c.y. | c.y. | l.f. | s.f. | l.s. | c.y. | l.s. | c.y. | s.y. | c.y. | l.f. | lb. | c.y. |
| Project 33-132 | | | | | | | | | | | | | | |
| 05939 | | 800 | 40 | 500 | 1200 | 1 | 900 | 1 | 150 | 35 | 520 | 66 | 6000 | 36 |
| SUBTOTAL | | 800 | 40 | 500 | 1200 | 1 | 900 | 1 | 150 | 35 | 520 | 66 | 6000 | 36 |
| TOTAL | | 800 | 40 | 500 | 1200 | 1 | 900 | 1 | 150 | 35 | 520 | 66 | 6000 | 36 |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
DETAILED ESTIMATE SHEET

DES-01

## GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE STATE OF CONNECTICUT, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 817, 2016 WITH SUPPLEMENTS THERETO DATED JULY 2018 AND SPECIAL PROVISIONS.

2. EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE OF CONNECTICUT, DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 817, 2016 WITH SUPPLEMENTS THERETO DATED JULY 2018, 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, DEP BULLETIN 34, AND SPECIAL PROVISIONS.

3. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

4. ANY PHYSICAL FEATURES OUTSIDE OF THE PROJECT LIMITS 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.

5. 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.

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

7. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL PROPERTIES AT ALL TIMES DURING CONSTRUCTION.

8. 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).

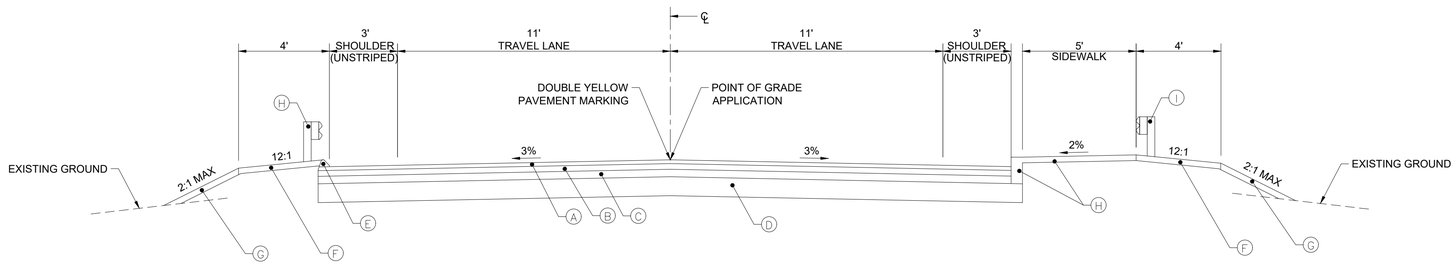
9. PLANIMETRIC AND TOPOGRAPHIC FEATURES ARE BASED ON FIELD SURVEY PERFORMED BY CARDINAL ENGINEERING ASSOCIATES, INC. IN MARCH AND DECEMBER 2017. SURVEY BASELINE CONFORMS TO CLASS A-2 HORIZONTAL ACCURACY. THE FEATURES DEPICTED HEREON ARE THE RESULT OF THE GENERAL LOCATION SURVEY FOR THIS PROJECT, OR AS MAY BE REFERENCED HEREON.

10. THE PROPERTY AND STREET LINES DEPICTED HAVE BEEN COMPILED FROM VARIOUS SOURCES AND ARE NOT TO BE CONSTRUED AS NECESSARILY BEING OBTAINED AS A RESULT OF A FIELD SURVEY, NOR DO THEY REPRESENT A PROPERTY/BOUNDARY OPINION.

11. ALL ELEVATIONS ARE BASED ON NAVD 1988. HORIZONTAL COORDINATES ARE BASED ON AN CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD 1983). VERTICAL ACCURACY IS CLASS T-2.

## LIST OF ABBREVIATIONS

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




## TYPICAL ROADWAY SECTION
## STA 5+00 TO STA 6+50
NOT TO SCALE

LEGEND

- Ⓐ 2" - HMA S0.50 INCH
- Ⓑ 3" - HMA S1.0 INCH
- Ⓒ 4" - PROCESSED AGGREGATE BASE
- Ⓓ 10" - SUBBASE ON EARTH, 18" ON ROCK
- Ⓔ BITUMINOUS CONCRETE LIP CURBING
- Ⓕ 4" - PROCESSED AGGREGATE
- Ⓖ 4" - TOPSOIL AND TURF ESTABLISHMENT
- Ⓗ CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING
- Ⓘ METAL BEAM RAIL (R-B MASH) GUIDERAIL

NOTES:
1. SEE CROSS SECTIONS AND PLANS FOR ADDITIONAL INFORMATION.

## 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 Drive | BITUMINOUS CONCRETE DRIVEWAY | |
| | BORING NUMBER (SEE BORING LOG SHEET) | B-10 |
| | 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 | |
| HV | HIGH VOLTAGE OVERHEAD LINE | |
| Number or Name | HOUSE/ STRUCTURE | |
| | HYDRANT | |
| | INLAND WETLAND LIMITS | |
| | MAILBOX | |
| D | MANHOLE (STORM) | |
| S | MANHOLE (SANITARY) | |
| | MILLING AND OVERLAY | |
| Mon | MONUMENT | ■ MON |
| | NORTH ARROW | |
| | 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 | |
| | WATER TEST PIT | TP W1 |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

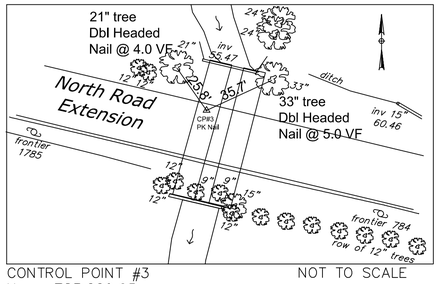
DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC


CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969


REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
GENERAL NOTES AND TYPICAL SECTION

GEN-01

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




CONTROL POINT #3
N: 783,229.65
E: 1,014,512.37

NOT TO SCALE

*#59 COLES ROAD*
*N/F LEONARDO FIZINUS*
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

**BEGIN STATE PROJECT 33-132**
**STA 3+55**

STA 5+00
LIMITS OF FULL DEPTH PAVEMENT RECONSTRUCTION
CUT BITUMINOUS CONCRETE, MEET EXISTING PAVEMENT
MATCH EXISTING PAVEMENT MARKINGS
ELEV=71.48

STA 6+50
LIMITS OF FULL DEPTH PAVEMENT RECONSTRUCTION
CUT BITUMINOUS CONCRETE, MEET EXISTING PAVEMENT
MATCH EXISTING PAVEMENT MARKINGS
ELEV=68.14

**END STATE PROJECT NO. 33-132**
STA 7+35

EXISTING TOE OF ROADWAY EMBANKMENT
R-B TERMINAL SECTION
325 LF METAL BEAM RAIL (R-B MASH) GUIDERAIL
BEGIN BITUMINOUS CONCRETE LIP CURBING MEET EXISTING
CONSTRUCTION EASEMENT
TAKING LINE
WETLAND LIMIT (TYP)
EXISTING 36" GAS TRANSMISSION PIPE LINE (SEE NOTE)
EXISTING TOE OF ROADWAY EMBANKMENT
END BITUMINOUS CONCRETE LIP CURBING MEET EXISTING
R-B TERMINAL SECTION
REMOVE EXISTING 2" ABANDONED WATER MAIN
END CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING MEET EXISTING CURB
APPROX. ℄ COLES ROAD
CP#1
CP#2
CP#3
3+00
3+50
4+00
4+50
5+00
5+50
6+00
6+50
7+00
7+50
8+00
CURVE 1
S76°37'12"E
432.06'
NORTH ROAD EXTENSION
RELOCATE UTILITY POLE (BY OTHERS)
CONSTRUCTION ℄
PT = 3+67.94
N: 783265.76
E: 1014315.44
APPROXIMATE STREETLINE (TYP)
REMOVE CABLE GUIDERAIL (TYP)
EXISTING TOE OF ROADWAY EMBANKMENT
BEGIN CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING MEET EXISTING CURB
5' CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING
12" NATURAL STREAMBED MATERIAL ON 12" MODIFIED RIPRAP (TYP)
BOULDER PLACEMENT IN RIVER (TYP)
BRIDGE NO. 05939
12" NATURAL STREAMBED MATERIAL (TYP)
TAKING LINE
COLES BROOK
LIMITS OF DISTURBANCE (TYP)
CONSTRUCTION EASEMENT
TOPSOIL AND TURF ESTABLISHMENT (TYP)
SEDIMENTATION CONTROL SYSTEM (TYP)
EXISTING TOE OF ROADWAY EMBANKMENT
EXISTING 8" STEEL GAS MAIN (SEE NOTE)
237.5 LF METAL BEAM RAIL (R-B MASH) GUIDERAIL
R-B TERMINAL SECTION
RELOCATE UTILITY POLE (BY OTHERS)
R-B TERMINAL SECTION
COLES ROAD
14.00'
14.00'

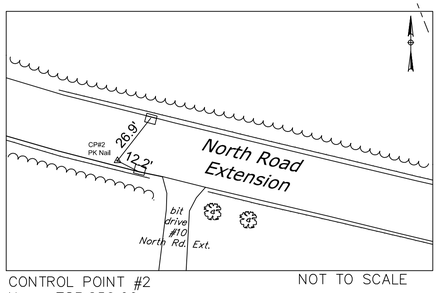
*#10 NORTH ROAD*
*N/F NORTH WOODS LLC*

CURVE 1
LENGTH = 312.66
RADIUS = 900.00
CHORD LENGTH = S66° 40' 03.89"E
START (N 783388.97, E 1014029.79)
END (N 783265.76, E 1014315.44)

*#10 NORTH ROAD EXT.*
*N/F SEJFO DURIC, ET AL*
Ⓐ Ⓑ Ⓓ

*#57 COLES ROAD*
*N/F EDWARD LEWANDOWSKI, ET AL*
Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

NOTE:
EXISTING 36" GAS TRANSMISSION PIPELINE AND 8" GAS MAIN TO REMAIN IN PLACE DURING CONSTRUCTION. SEE SPECIAL PROVISION #1504010 "TEMPORARY SUPPORT OF UTILITIES."




CONTROL POINT #2
N: 783,256.00
E: 1,014,308.09

NOT TO SCALE

ROADWAY PLAN

PROPERTY ACQUISITION LEGEND

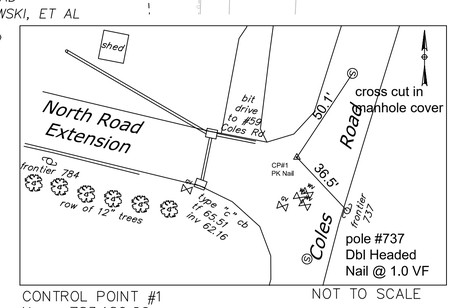
A. TAKING REQUIRED.

B. EASEMENT TO SLOPE FOR SUPPORT OF THE HIGHWAY REQUIRED.

C. CONSTRUCTION EASEMENT FOR THE PURPOSE OF PLACEMENT OF COFFERDAM AND TEMPORARY WATER HANDLING, PLACEMENT OF RIVER BOULDERS AND CHANNEL GRADING REQUIRED.

D. RIGHT TO INSTALL TEMPORARY SEDIMENTATION CONTROL SYSYTEM REQUIRED.

E. RIGHT TO REMOVE TREES REQUIRED.




CONTROL POINT #1
N: 783,180.20
E: 1,014,722.26

NOT TO SCALE

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC


CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969


REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
ROADWAY PLAN

PLA-01

4

**BEGIN STATE PROJECT 33-132**
**STA 3+55**

**END STATE PROJECT NO. 33-132**
STA 7+35

STA 5+00
LIMITS OF FULL DEPTH PAVEMENT RECONSTRUCTION
CUT BITUMINOUS CONCRETE, MEET EXISTING PAVEMENT
MATCH EXISTING PAVEMENT MARKINGS
ELEV=71.48

STA 6+50
LIMITS OF FULL DEPTH PAVEMENT RECONSTRUCTION
CUT BITUMINOUS CONCRETE, MEET EXISTING PAVEMENT
MATCH EXISTING PAVEMENT MARKINGS
ELEV=68.14

EXISTING ℄ GRADE

PROPOSED ℄ GRADE

-2.23%

8" GAS

2" WATER

15" RCP

36" GAS TRANSMISSION PIPELINE

36" O.D. X 0.625" W.T., A.P.I. 5LX-65 W/ 15/40
PRITEC W/ 1" BENDABLE CONCRETE

PROPOSED PRECAST CONCRETE
THREE SIDED RIGID FRAME

EXIST. TWIN 11' SPAN X 7' RISE CMP ARCH

B-1 AND B-3 ROCK

B-2 WEATHERED ROCK

B-2 ROCK

B-4 ROCK

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 75.7 | 74.8 | 73.9 | 72.7 | 71.5 **71.55** | 70.2 **70.42** | 69.2 **69.29** | 68.1 **68.16** | 67.0 | 65.9 | 65.0 |
| 3+00 | | 4+00 | | 5+00 | | 6+00 | | 7+00 | | 8+00 |

75 70 65 60 55 50 45 40

ROADWAY PROFILE

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

VERTICAL SCALE IN FEET
0 4 8
VERTICAL SCALE 1" = 4'

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

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SCALE: AS NOTED
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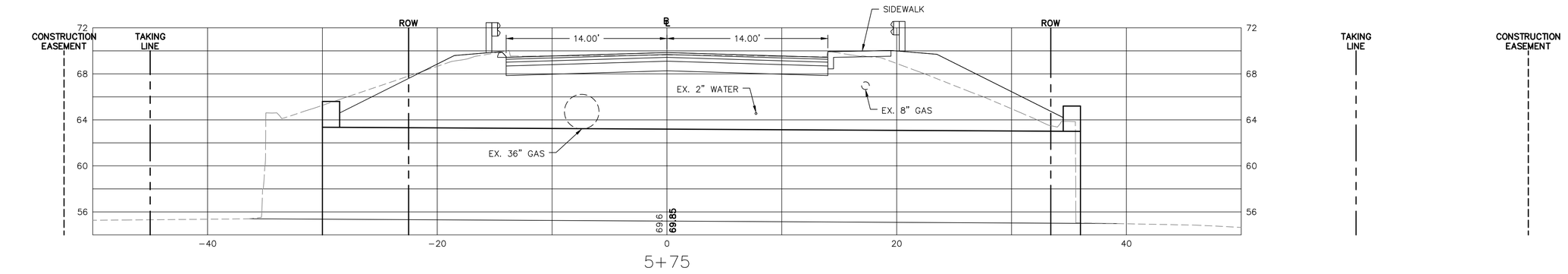
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
ROADWAY PROFILE

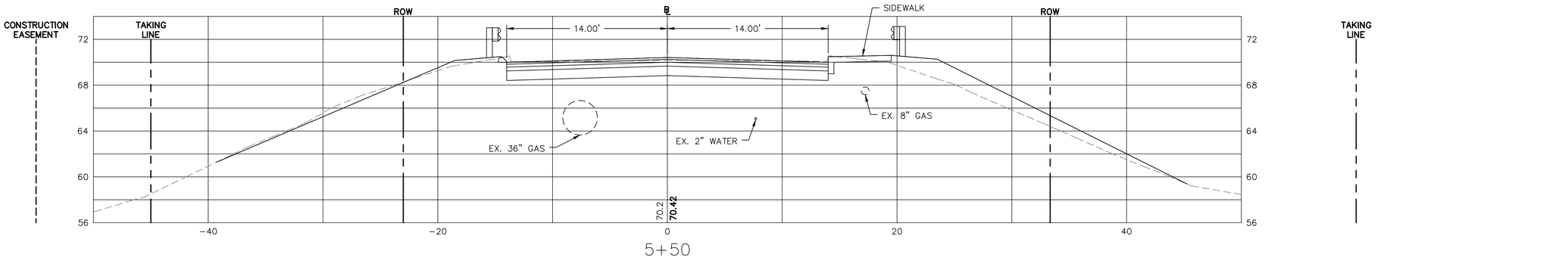
PRO-01

5

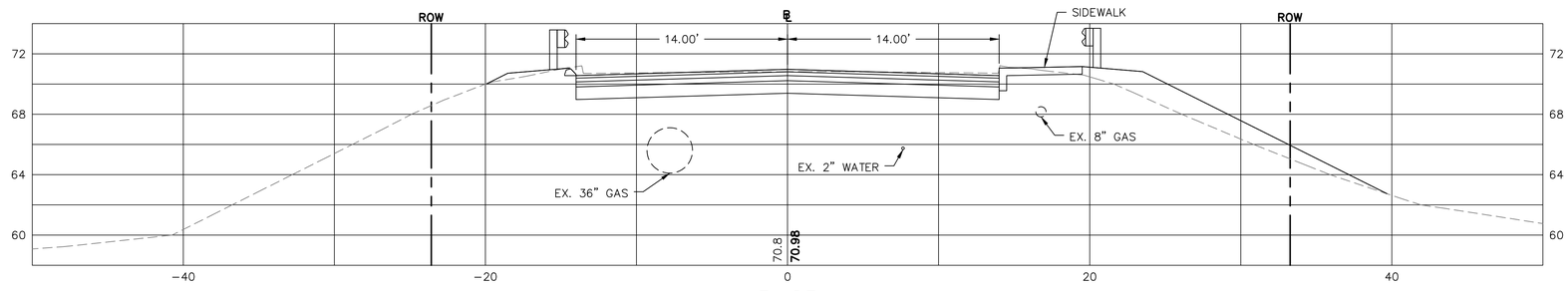
SCALE IN FEET
0 5 10
SCALE 1" = 5'



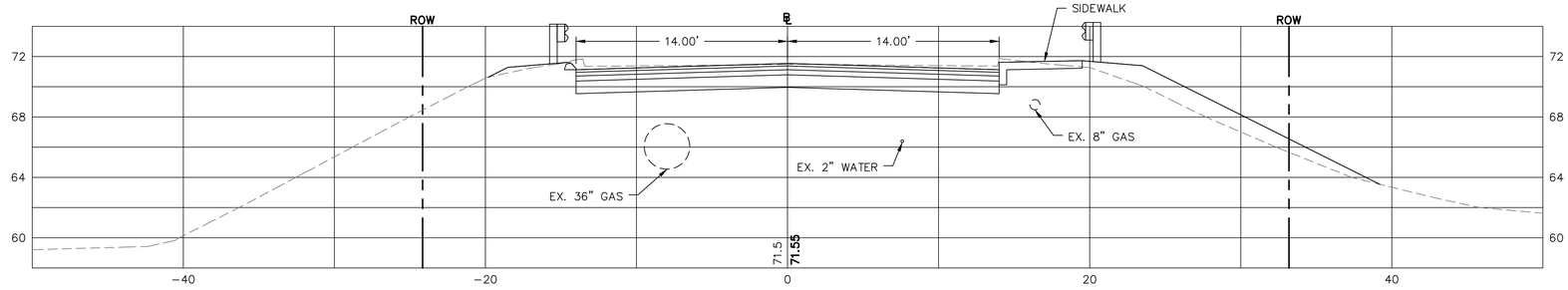

5+75




5+50




5+25




5+00

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

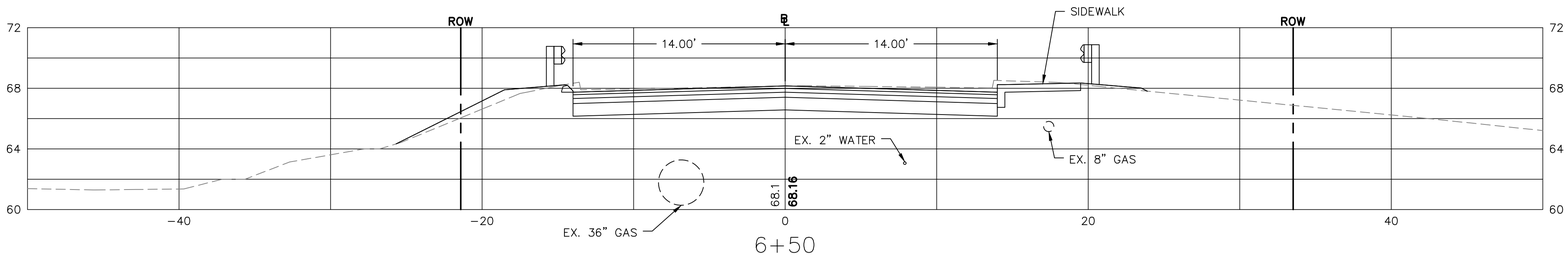
DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC


CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

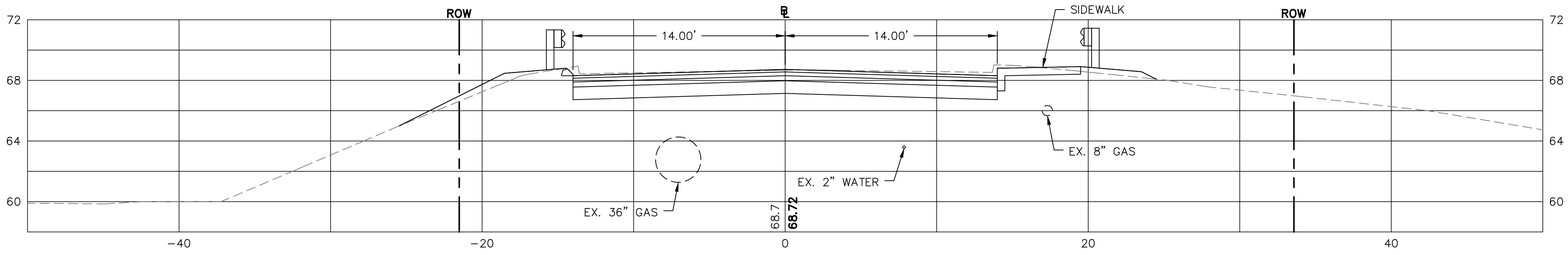

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
CROSS SECTIONS

XSC-01

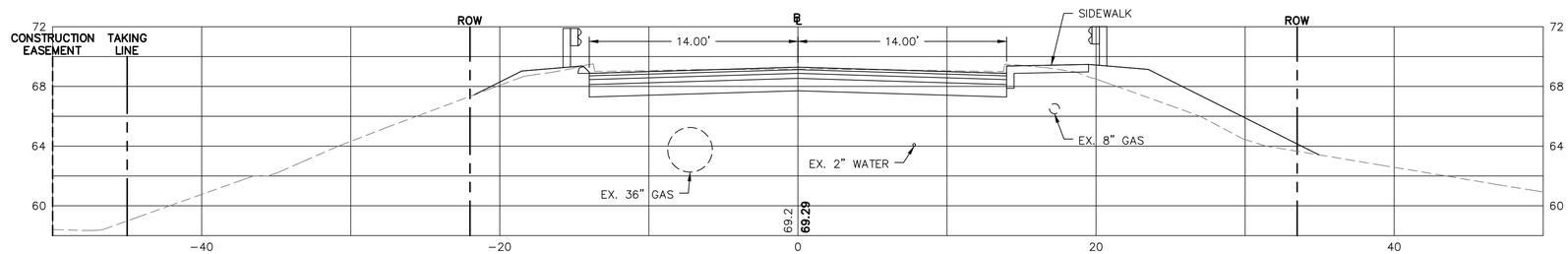
SCALE IN FEET
0 5 10
SCALE 1" = 5'




6+50




6+25




6+00

TAKING LINE

CONSTRUCTION EASEMENT

| NO. | REVISION | DATE | BY |
|---|---|---|---|

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
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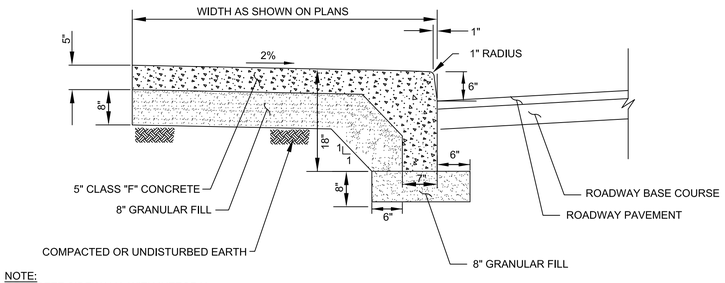
CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969


REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
CROSS SECTIONS

XSC-02



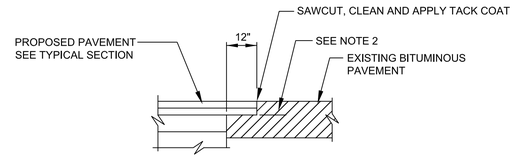
P:\Land Projects 2008\2237 North Rd Ext Bridge\dwg\CROSS SECTIONS.dwg, 2/22/2019 10:14:51 AM, DWG To PDF.pc3




NOTE:
CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING SHALL BE PAID FOR UNDER THE PAY ITEMS "CONCRETE CURBING" AND "CONCRETE SIDEWALK".

## CONCRETE SIDEWALK WITH INTEGRAL CONCRETE CURBING

NOT TO SCALE

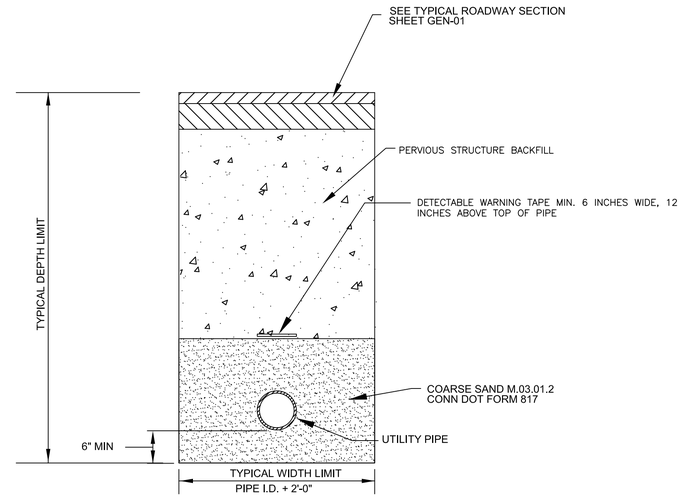



NOTES:

1. THIS DETAIL IS TO BE USED WHERE "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.

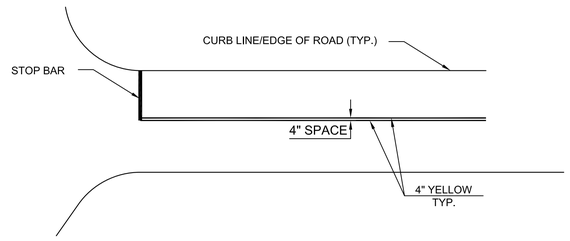
## PAVEMENT MATCH TREATMENT

NOT TO SCALE




## TYPICAL UTLITY TRENCH CROSS-SECTION

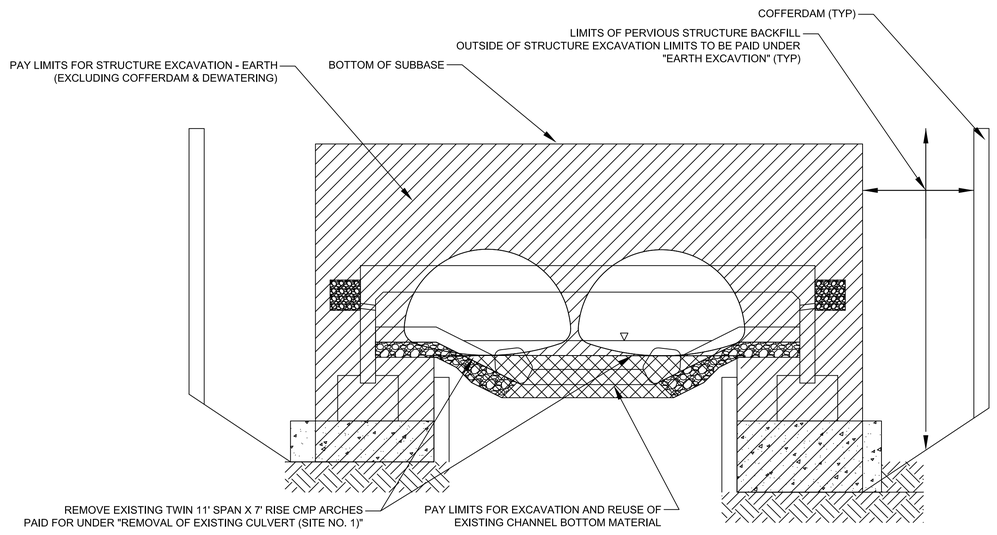
NOT TO SCALE




STOP BAR NOTES:
1) STOP BARS TO BE 12" MINIMUM UNLESS NOTED ON PLANS.
2) STOP BARS TO BE MARKED A MINIMUM OF 4' IN ADVANCE OF NEAREST EDGE OF CROSSWALK.
3) IN ABSENCE OF MARKED CROSSWALK, THE STOP BAR SHALL BE PLACED AT THE DESIRED STOPPING POINT, NO MORE THAN 30' OR LESS THAN 5' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY AND 90° TO THE CENTERLINE OF ROADWAY.
4) THE STOP BAR SHALL ORDINARILY BE PLACED IN LINE WITH THE STOP SIGN. IF THE STOP SIGN CANNOT BE LOCATED EXACTLY WHERE THE VEHICLES ARE EXPECTED TO STOP, THEN THE STOP BAR SHOULD BE PLACED AT THE STOPPING POINT.
5) STOP BARS AND CENTERLINE (WHEN SIDE STREET WIDTHS ARE 16' OR MORE) ARE TO BE MARKED ON SIDE STREETS WITHIN THE LIMITS OF CONSTRUCTION, UNLESS OTHERWISE INDICATED OR DIRECTED.

## PAVEMENT MARKINGS

NOT TO SCALE




## EXCAVATION LIMITS

SCALE 1 "= 5'

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
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DESIGNED BY:
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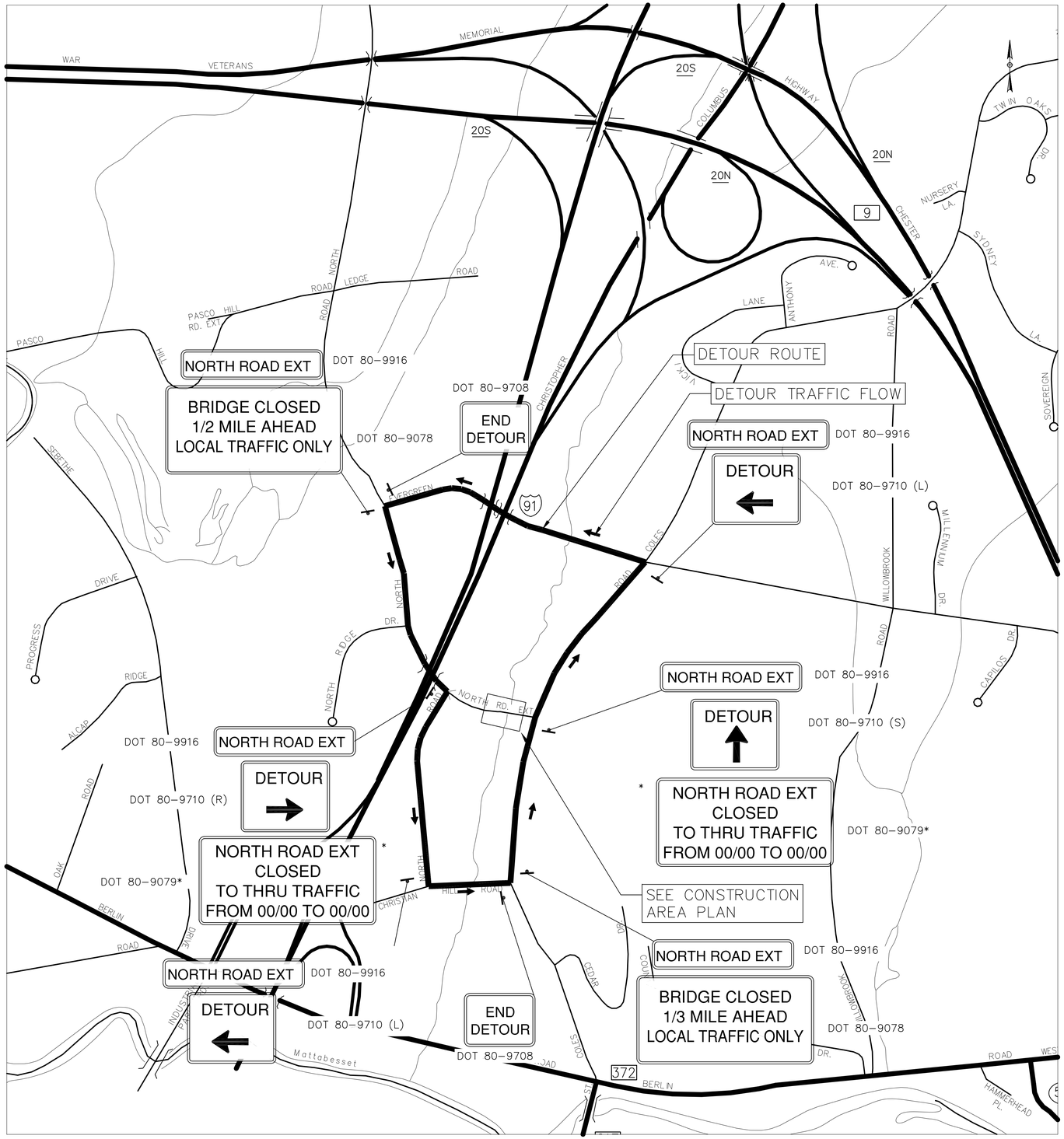
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

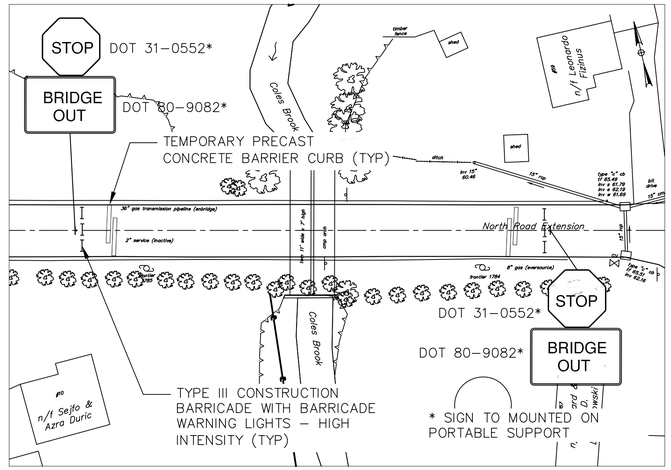
REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
MISCELLANEOUS DETAILS

MDS-01




## TRAFFIC DETOUR PLAN

SCALE: 1' = 500'




## CONSTRUCTION AREA PLAN

SCALE: 1' = 40'

## GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. ADJUST ALL SIGN LOCATIONS IN THE FIELD AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL REMOVE OR COVER EXISTING SIGNS WHICH ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLAN, AS DIRECTED BY THE ENGINEER.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER, THE TOWN OF CROMWELL AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO CLOSING THE ROAD.
4. TEMPORARY SIGNS AND OTHER TEMPORARY TRAFFIC PROTECTIVE DEVICES SHALL REMAIN IN PLACE AS SHOWN THROUGHOUT THE FULL DURATION OF CONSTRUCTION. TRAFFICMEN SHALL BE REQUIRED WHEN DEVICES SHOWN ARE INSTALLED, RELOCATED, OR REMOVED.
5. ALL SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION, LATEST REVISION.
6. TEMPORARY PRECAST CONCRETE BARRIER CURB SHALL BE IN PLACE WHENEVER WORK HAS BEGUN ON THE BRIDGE AND THE CONTRACTOR IS NOT ACTIVELY WORKING AT THE SITE. THERE WILL NO SEPARATE PAYMENT FOR THE CONTRACTOR MOVING THE TEMPORARY PRECAST CONCRETE BARRIER CURB IN ORDER ACCESS THE PROJECT AREA.
7. DETOUR SIGNS ARE ONLY TO BE POSTED WHILE THE DETOUR IS IN EFFECT. DETOUR SIGNS ARE TO BE REMOVED OR COVERED WHILE THE DETOUR IS NOT IN EFFECT.
8. * INDICATES SIGNS TO BE VISIBLE AT LEAST TWO WEEKS PRIOR TO ROAD CLOSURE AND THEN COVERED OR REMOVED DURING CONSTRUCTION.

## SIGN LEGEND

R11-2

BRIDGE OUT

COPY & BORDER - BLACK
BACKGROUND - WHITE

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 10.0 | 48X30 | 80-9082 | 2 | 2 |

R1-1

STOP

COPY & BORDER - WHITE
BACKGROUND - RED

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 5.19 | 30 | 31-0552 | 1 | 2 |
| 13.30 | 48 | 31-0557 | 2 | |

(VARIABLE LEGEND)

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 4.17 | 60X10 | 80-9913 | 2 | |
| 12.0 | 96X18 | 80-9914 | 2 | |
| 3.33 | 48X10 | 80-9916 | 2 | |
| 2.08 | 30X10 | 80-991X | 2 | 6 |

DETOUR

VARIABLE ARROW

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 5.0 | 30X24 | 80-9710 | 1 | 4 |

R11-3b

BRIDGE CLOSED
00 MILES AHEAD
LOCAL TRAFFIC ONLY

VARIABLE MILEAGE
COPY & BORDER - BLACK
BACKGROUND - WHITE

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 12.5 | 60X30 | 80-9078 | 2 | 2 |

M4-8a

END DETOUR

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 3.0 | 24X18 | 80-9708 | 1 | 2 |

(VARIABLE LEGEND)

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 12.5 | 60X30 | 80-9928 | 2 | 2 |
| 24.0 | 72X48 | 80-9929 | 2 | |

NORTH ROAD EXT
CLOSED
TO THRU TRAFFIC
FROM 00/00 TO 00/00

* SEE NOTE 8
VARIABLE DATES

| AREA (SQ. FT) | SIZE (INCHES) | CONN. D.O.T. # | POSTS | QTY |
|---|---|---|---|---|
| 24 | 72X48 | 80-9079 | 2 | 2 |

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
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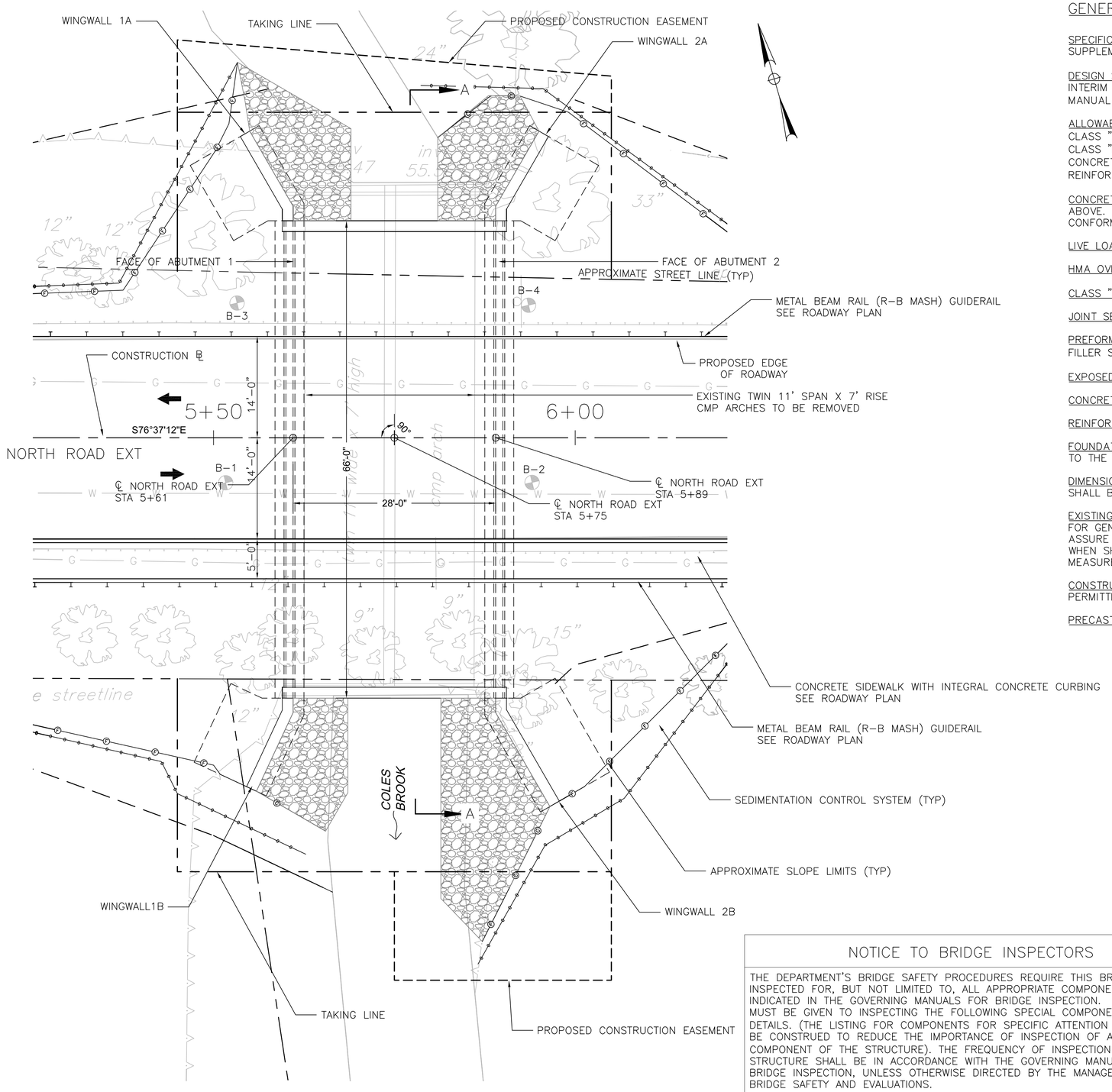
CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
MAINTENANCE AND PROTECTION OF TRAFFIC PLAN

MPT-01




PLAN

SCALE: ⅛"=1'-0'

## GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 817 (2016), WITH JULY 2018 SUPPLEMENT AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (EIGHTH EDITION, 2017) INCLUDING 2016 INTERIM REVISIONS AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003 EDITION), UP TO AND INCLUDING 2011 REVISIONS.

ALLOWABLE DESIGN STRESSES:
CLASS "A" CONCRETE: BASED ON f'c = 3,000 PSI
CLASS "F" CONCRETE: BASED ON f'c = 4,000 PSI
CONCRETE FOR PRECAST COMPONENTS: BASED ON f'c = 5,000 PS
REINFORCEMENT (ASTM A615 GRADE 60): FY = 60 KSI

CONCRETE: THE SPECIFIED CONCRETE STRENGTH USED IN DESIGN (f'c) OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6.01, CONCRETE FOR STRUCTURES.

LIVE LOAD: AASHTO HL-93 DESIGN VEHICLE

HMA OVERLAY: STANDARD PAVEMENT COMPOSITION

CLASS "A" CONCRETE: CLASS "A" CONCRETE SHALL BE USED FOR WINGWALLS AND HEADWALLS.

JOINT SEAL: SEE SPECIAL PROVISIONS.

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER SHALL BE INCLUDED IN THE COST OF THE ITEM "CLASS 'A' CONCRETE."

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 ASTM A615 GRADE 60.

FOUNDATION PRESSURES: THE VARIOUS GROUP LOADINGS NOTED ON THE SUBSTRUCTURE PLAN SHEETS REFER TO THE GROUP LOADS AS GIVEN IN THE AASHTO LRFD SPECIFICATIONS FOR HIGHWAY BRIDGES.

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.

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

PRECAST CONCRETE THREE SIDED RIGID FRAME: SEE SPECIAL PROVISIONS

| HYDRAULIC DATA | |
|---|---|
| DRAINAGE AREA | 2.73 SQ. MILES |
| DESIGN FREQUENCY | 100 YEARS |
| DESIGN DISCHARGE | 640 C.F.S. |
| *AVERAGE DAILY FLOW ELEVATION | 55.5 |
| UPSTREAM DESIGN WATER SURFACE ELEVATION | 59.83 |
| DOWNSTREAM DESIGN WATER SURFACE ELEVATION | 57.83 |
| MAXIMUM SCOUR ELEVATION | 51.4 |
| FREQUENCY | 200 YEARS |
| DISCHARGE | 730 C.F.S. |
| WORST CASE SCOUR SUB-STRUCTURE UNIT | EAST ABUTMENT |

*OBSERVED 1/12/2017

| NOTICE TO BRIDGE INSPECTORS | |
|---|---|
| THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING FOR COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF INSPECTION OF ANY OTHER COMPONENT OF THE STRUCTURE). THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF BRIDGE SAFETY AND EVALUATIONS. | |
| COMPONENT OR DETAIL | BRIDGE SHEET REFERENCE |
| FOLLOW NORMAL INSPECTION PROCEDURES | |

| PRECAST CONCRETE THREE SIDED RIGID FRAME | | | |
|---|---|---|---|
| SHIPPING LENGTH | SHIPPING HEIGHT | SHIPPING WIDTH | SHIPPING WEIGHT |
| 5.0 FT | 7.75 FT | 30.0 FT | 48,375 LB |
| 5.0 FT | 7.75 FT | 30.0 FT | 53,213 LB |

**PRELIMINARY DESIGN**
**NOT FOR CONSTRUCTION**

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
STRUCTURE GENERAL PLAN

STR-01

| | | | |
|---|---|---|---|
| Jaime Lloret | TEST BORING REPORT | SHEET 1 OF 1 | |
| DRILLER | ASSOCIATED BORINGS CO., INC. | | |
| | 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 | | |
| INSPECTOR | Tel (203) 729-5435 Fax (203) 729-5116 | CME-55 | |
| | PROJECT NAME: North Road Extention | DRILLING EQUIPMENT | |
| SOILS ENGINEER | PROJECT NUMBER: Bridge No. 05939 | Cardinal Engineering Associates | CLIENT |
| Surface Elevation: | LOCATION: Cromwell, Connecticut | | |
| Date Started: 11/29/2017 | Auger Casing Sampler Core Bar | Hole No. **B-1** | |
| Date Finished: 11/29/2017 | Type HSA SS NV2 | Line & Station | |
| Groundwater Observations | Size I. D. 3 1/4 in 2 in 1 7/8" | Offset | |
| AT 15 'AFTER 0 HRS | Hammer 140 lb Bit | N Coordinate | |
| AT 'AFTER HRS | Fall 30 in | E. Coordinate | |

| DEPTH | Casing blows per foot | SAMPLE DEPTH IN FEET FROM - TO | NO. | PEN. INCH | REC. INCH | TYPE | BLOWS PER 6 INCHES ON SAMPLER 0 - 6 | 6 - 12 | 12-18 | 18-24 | STRATA CHANGE: DEPTH, ELEV. | FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.0 - 3.0 | 1 | 24 | | D | 10 | 10 | 8 | 24 | 4" | Bituminous Concrete |
| | | | | | | | | | | | 8" | Gravel |
| | | | | | | | | | | | 3 | Br M-F Sand, Little to Some Silt and F-M Grav |
| 5 | | 5.0 - 7.0 | 2 | 24 | | D | 5 | 8 | 9 | 10 | 4.5 | Br. M-F Sand, Some Silt, F-C Gravel, Cobbles, Boulders |
| | | | | | | | | | | | | Red Br. F. Sand, Little Silt and Medium Gravel |
| | | 7.0 - 9.0 | 3 | 24 | | D | 5 | 8 | 5 | 13 | | |
| | | 9.0 - 11.0 | 4 | 24 | | D | 7 | 23 | 11 | 12 | 9.5 | |
| 10 | | | | | | | | | | | | Red Br. F-M Sand and Silt, Little F-M Gravel, Till, Boulders |
| | | | | | | | | | | | | |
| | | 13.0 - 15.0 | 5 | 24 | | D | 9 | 11 | 14 | 12 | 13.5 | |
| | | 15.0 - 17.0 | 6 | 24 | | D | 3 | 4 | 6 | 4 | | Red Br. F-M Sand, Little Silt, Tr. F-M Gravel |
| 15 | | | | | | | | | | | 16.5 | |
| | | | | | | | | | | | | Red Br. M-F Sand, Tr. Silt |
| | | | | | | | | | | | | |
| 20 | | 20.0 - 21.5 | 7 | 17 | | D | 4 | 8 | 60/5" | X | 20 | |
| | | | | | | | | | | | | Red Br. Silt, Little Clay (Varved) |
| | | 22.0 - 27.0 | 1 | 60 | 36 | C | | | | | 22 | Tr. F-M Gravel |
| | 7 | | | | | | | | | | | Cored Run # 1 |
| | 10 | | | | | | | | | | | From 22.0 feet to 27.0 feet |
| 25 | 5 | | | | | | | | | | | Recovery - 36" |
| | 12 | | | | | | | | | | | RQD - 6/60" = 10% |
| | 13 | | | | | | | | | | 27 | Fractured Basalt |
| | | | | | | | | | | | | End of Boring - 27.0 |
| 30 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 22.0 Footage in Rock 5.0 No. of Samples 7 Hole No. B-1A

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

BORING B–1

| | | | |
|---|---|---|---|
| Jaime Lloret | TEST BORING REPORT | SHEET 1 OF 1 | |
| DRILLER | ASSOCIATED BORINGS CO., INC. | | |
| | 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 | | |
| INSPECTOR | Tel (203) 729-5435 Fax (203) 729-5116 | CME-55 | |
| | PROJECT NAME: North Road Extention | DRILLING EQUIPMENT | |
| SOILS ENGINEER | PROJECT NUMBER: Bridge No. 05939 | Cardinal Engineering Associates | CLIENT |
| Surface Elevation: | LOCATION: Cromwell, Connecticut | | |
| Date Started: 11/30/2017 | Auger Casing Sampler Core Bar | Hole No. **B-2** | |
| Date Finished: 11/30/2017 | Type HSA SS NV2 | Line & Station | |
| Groundwater Observations | Size I. D. 3 1/4 in 2 in 1 7/8" | Offset | |
| AT 15 'AFTER 0 HRS | Hammer 140 lb Bit | N Coordinate | |
| AT 'AFTER HRS | Fall 30 in | E. Coordinate | |

| DEPTH | Casing blows per foot | SAMPLE DEPTH IN FEET FROM - TO | NO. | PEN. INCH | REC. INCH | TYPE | BLOWS PER 6 INCHES ON SAMPLER 0 - 6 | 6 - 12 | 12-18 | 18-24 | STRATA CHANGE: DEPTH, ELEV. | FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.0 - 3.0 | 1 | 24 | | D | 9 | 15 | 8 | 13 | 4" | Bituminous Concrete |
| | | | | | | | | | | | 8" | Gravel |
| | | 3.0 - 5.0 | 2 | 24 | | D | 11 | 12 | 11 | 13 | | Red Br M-F Sand and Silt, Little F-M Gravel |
| 5 | | 5.0 - 7.0 | 3 | 24 | | D | 10 | 11 | 6 | 6 | 6.5 | Cobbles, Boulders |
| | | 7.0 - 9.0 | 4 | 24 | | D | 9 | 5 | 6 | 5 | | Red Br. F. Sand, Tr. Silt |
| | | 9.0 - 11.0 | 5 | 24 | | D | 4 | 6 | 8 | 8 | 9 | |
| 10 | | | | | | | | | | | | Red Br. M-F Sand, Some Silt |
| | | 11.0 - 13.0 | 6 | 24 | | D | 6 | 6 | 6 | 6 | 11 | |
| | | | | | | | | | | | | Red Br. F-M Sand, Some Silt, Tr. F. Gravel |
| 15 | | 15.0 - 17.0 | 7 | 24 | | D | 7 | 8 | 7 | 7 | 16 | |
| | | | | | | | | | | | | Red Br. Silt and Clay |
| | | | | | | | | | | | 19 | |
| 20 | | 20.0 - 21.5 | 8 | 18 | | D | 26 | 32 | 60/6" | X | | Red Br. F-M Sand and Silt, Little F. Gravel |
| | | | | | | | | | | | 22 | |
| | | | | | | | | | | | | Decomposed Rock |
| | | 24.0 - 29.0 | 1 | 60 | 29 | C | | | | | 24 | |
| 25 | 5 | | | | | | | | | | | Cored Run # 1 |
| | 7 | | | | | | | | | | | From 24.0 feet to 29.0 feet |
| | 8 | | | | | | | | | | | Recovery - 29" |
| | 10 | 29.0 - 34.0 | 2 | 60 | 37 | C | | | | | 29 | RQD - 0/60" = 0% |
| 30 | 7 | | | | | | | | | | | Fractured Basalt |
| | 8 | | | | | | | | | | | Cored Run # 2 |
| | 8 | | | | | | | | | | | From 29.0 feet to 34.0 feet |
| | 5 | | | | | | | | | | | Recovery - 37" |
| | 12 | | | | | | | | | | 34 | RQD - 14/60" = 23% |
| 35 | | | | | | | | | | | | Fractured Basalt |
| | | | | | | | | | | | | End of Boring - 34.0 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 24.0 Footage in Rock 10.0 No. of Samples 8 Hole No. B-2

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

BORING B–2

| | | | |
|---|---|---|---|
| Jaime Lloret | TEST BORING REPORT | SHEET 1 OF 1 | |
| DRILLER | ASSOCIATED BORINGS CO., INC. | | |
| | 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 | | |
| INSPECTOR | Tel (203) 729-5435 Fax (203) 729-5116 | CME-55 | |
| | PROJECT NAME: North Road Extention | DRILLING EQUIPMENT | |
| SOILS ENGINEER | PROJECT NUMBER: Bridge No. 05939 | Cardinal Engineering Associates | CLIENT |
| Surface Elevation: | LOCATION: Cromwell, Connecticut | | |
| Date Started: 7/16/2018 | Auger Casing Sampler Core Bar | Hole No. **B-3** | |
| Date Finished: 7/16/2018 | Type HSA SS NV2 | Line & Station | |
| Groundwater Observations | Size I. D. 3 1/4 in 2 in 1 7/8" | Offset | |
| AT 14 'AFTER 0 HRS | Hammer 140 lb Bit | N Coordinate | |
| AT 'AFTER HRS | Fall 30 in | E. Coordinate | |

| DEPTH | Casing blows per foot | SAMPLE DEPTH IN FEET FROM - TO | NO. | PEN. INCH | REC. INCH | TYPE | BLOWS PER 6 INCHES ON SAMPLER 0 - 6 | 6 - 12 | 12-18 | 18-24 | STRATA CHANGE: DEPTH, ELEV. | FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.0 - 3.0 | 1 | 24 | 8 | D | 1 | 4 | 16 | 12 | | Br M-F Sand, Little to Some Silt and F-M Grav |
| | | 3.0 - 3.9 | 2 | 9 | 3 | D | 16 | 50/3" | X | X | 3 | |
| 5 | | 5.0 - 6.6 | 3 | 18 | 3 | D | 11 | 9 | 50 | X | 4.5 | Br. M-F Sand, Some Silt, F-C Gravel, Cobbles, Boulders |
| | | | | | | | | | | | | Red Br. F. Sand, Little Silt and Medium Gravel |
| | | 8.0 - 10.0 | 4 | 24 | 4 | D | 9 | 4 | 5 | 9 | 9.5 | Cobbles, Boulders |
| 10 | | 10.0 - 12.0 | 5 | 24 | 6 | D | 3 | 3 | 4 | 13 | | Red Br. F-M Sand and Silt, Little F-M Gravel, Till, Boulders |
| | | 12.0 - 14.0 | 6 | 24 | 14 | D | 12 | 8 | 7 | 8 | | |
| | | | | | | | | | | | 13.5 | |
| 15 | | 15.0 - 17.0 | 7 | 24 | 7 | D | 7 | 9 | 5 | 5 | | Red Br. F-M Sand, Little Silt, Tr. F-M Gravel |
| | | | | | | | | | | | 16.5 | |
| | | | | | | | | | | | | Red Br. M-F Sand, Tr. Silt |
| | | | | | | | | | | | | |
| 20 | | 20.0 - 21.0 | 8 | 12 | 11 | D | 16 | 70 | X | X | 20 | |
| | | | | | | | | | | | | Red Br. Silt, Little Clay (Varved) |
| | | 22.0 - 27.0 | 1 | 60 | 17 | C | | | | | 22 | Tr. F-M Gravel |
| | 3 | | | | | | | | | | | Cored Run # 1 |
| | 4 | | | | | | | | | | | From 22.0 feet to 27.0 feet |
| 25 | 5 | | | | | | | | | | | Recovery - 17" |
| | 5 | | | | | | | | | | | RQD - 0/60" = 0% |
| | 3 | 27.0 - 32.0 | 2 | 60 | 23 | C | | | | | 27 | Fractured Basalt |
| | 3 | | | | | | | | | | | Cored Run # 2 |
| | 5 | | | | | | | | | | | From 27.0 feet to 32.0 feet |
| 30 | 4 | | | | | | | | | | | Recovery - 23" |
| | 7 | | | | | | | | | | | RQD - 0/60" = 0% |
| | 7 | | | | | | | | | | 32 | Fractured Basalt |
| | | | | | | | | | | | | End of Boring - 32.0 |
| 35 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 22.0 Footage in Rock 10.0 No. of Samples 8 Hole No. B-3

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

BORING B–3

| | | | |
|---|---|---|---|
| Jaime Lloret | TEST BORING REPORT | SHEET 1 OF 1 | |
| DRILLER | ASSOCIATED BORINGS CO., INC. | | |
| | 119 MARGARET CIRCLE, NAUGATUCK, CT 06770 | | |
| INSPECTOR | Tel (203) 729-5435 Fax (203) 729-5116 | CME-55 | |
| | PROJECT NAME: North Road Extention | DRILLING EQUIPMENT | |
| SOILS ENGINEER | PROJECT NUMBER: Bridge No. 05939 | Cardinal Engineering Associates | CLIENT |
| Surface Elevation: | LOCATION: Cromwell, Connecticut | | |
| Date Started: 7/17/2018 | Auger Casing Sampler Core Bar | Hole No. **B-4** | |
| Date Finished: 7/17/2018 | Type HSA SS NV2 | Line & Station | |
| Groundwater Observations | Size I. D. 3 1/4 in 2 in 1 7/8" | Offset | |
| AT 14 'AFTER 0 HRS | Hammer 140 lb Bit | N Coordinate | |
| AT 'AFTER HRS | Fall 30 in | E. Coordinate | |

| DEPTH | Casing blows per foot | SAMPLE DEPTH IN FEET FROM - TO | NO. | PEN. INCH | REC. INCH | TYPE | BLOWS PER 6 INCHES ON SAMPLER 0 - 6 | 6 - 12 | 12-18 | 18-24 | STRATA CHANGE: DEPTH, ELEV. | FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.0 - 2.5 | 1 | 18 | 5 | D | 1 | 4 | 50 | X | | Br M-F Sand, Little to Some Silt and F-M Grav |
| | | | | | | | | | | | 3 | |
| 5 | | 5.0 - 5.5 | 2 | 6 | 2 | D | 50 | X | X | X | 4.5 | Br. M-F Sand, Some Silt, F-C Gravel, Cobbles, Boulders |
| | | | | | | | | | | | | Red Br. F. Sand, Little Silt and Medium Gravel |
| | | 8.0 - 10.0 | 3 | 24 | 7 | D | 6 | 16 | 7 | 8 | 9.5 | Cobbles, Boulders |
| 10 | | 10.0 - 12.0 | 4 | 24 | 10 | D | 2 | 2 | 2 | 7 | | Red Br. F-M Sand and Silt, Little F-M Gravel, |
| | | 12.0 - 14.0 | 5 | 24 | 12 | D | 2 | 1 | 7 | 16 | | |
| | | | | | | | | | | | 13.5 | |
| 15 | | 15.0 - 17.0 | 6 | 24 | 10 | D | 14 | 21 | 16 | 17 | | Red Br. F-M Sand, Little Silt, Tr. F-M Gravel |
| | | | | | | | | | | | 16.5 | |
| | | | | | | | | | | | | Red Br. M-F Sand, Tr. Silt |
| | | | | | | | | | | | | |
| 20 | | 20.0 - 20.9 | 7 | 9 | 6 | D | 26 | 70/5" | X | X | | |
| | | | | | | | | | | | 21 | |
| | | | | | | | | | | | | Badly Broken Rock |
| | | | | | | | | | | | | |
| 25 | | 25.0 - 30.0 | 1 | 60 | 18 | C | | | | | 25 | |
| | 3 | | | | | | | | | | | Cored Run # 1 |
| | 5 | | | | | | | | | | | From 25.0 feet to 30.0 feet |
| | 4 | | | | | | | | | | | Recovery - 18" |
| | 6 | | | | | | | | | | | RQD = 0/60 = 0% |
| 30 | 5 | 30.0 - 35.0 | 2 | 60 | 48 | C | | | | | 30 | Fractured Basalt |
| | 5 | | | | | | | | | | | Cored Run # 2 |
| | 4 | | | | | | | | | | | From 30.0 feet to 35.0 feet |
| | 6 | | | | | | | | | | | Recovery - 48" |
| | 6 | | | | | | | | | | | RQD = 24/60 = 40% |
| 35 | 6 | | | | | | | | | | 35 | |
| | | | | | | | | | | | | End of Boring - 35.0 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 25.0 Footage in Rock 10.0 No. of Samples 7 Hole No. B-4

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON

PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

BORING B–4

| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

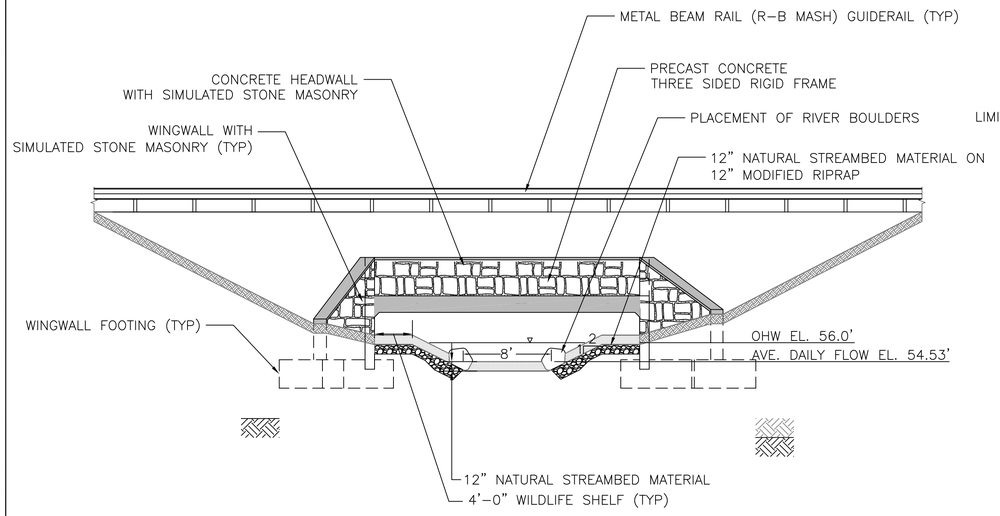
DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

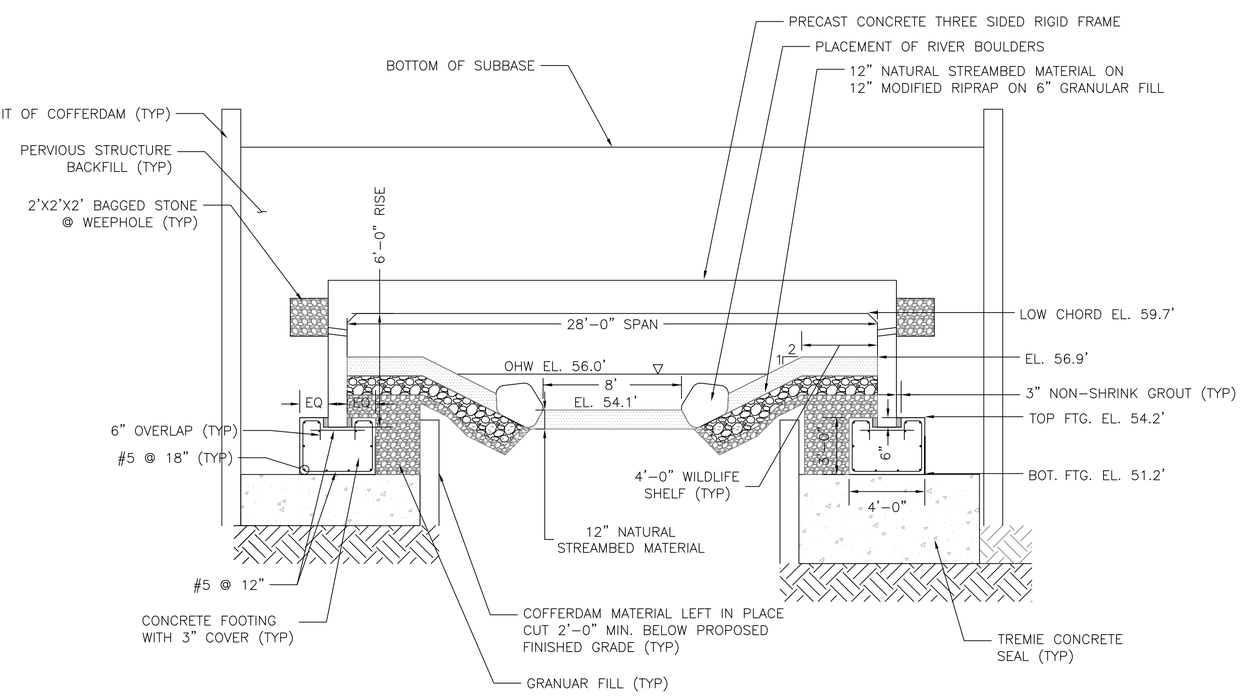
REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
BORING LOGS

STR-02

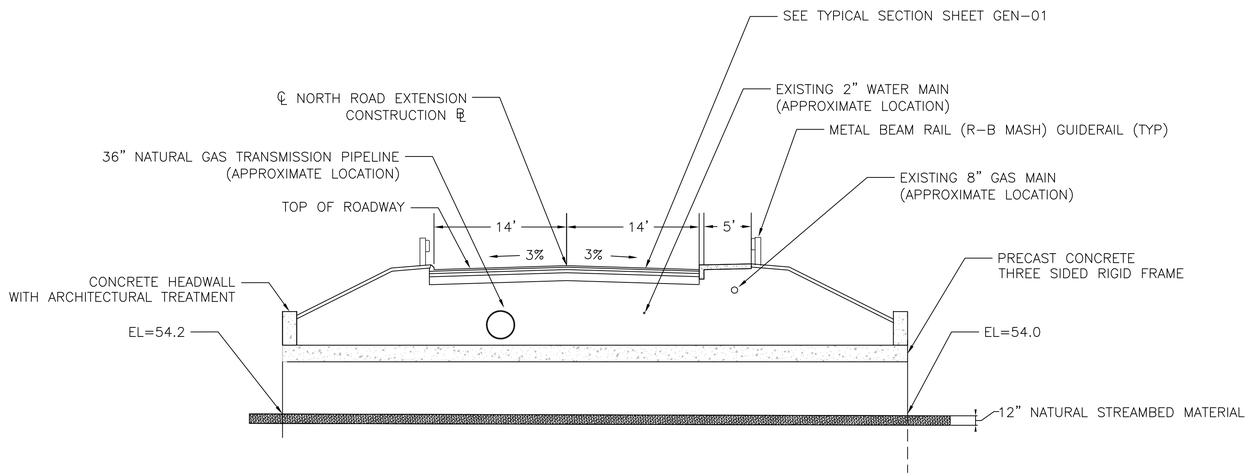
11




SOUTH ELEVATION
SCALE: 1/8"=1'-0"




TYPICAL SECTION @ CONSTRUCTION ℄
SCALE: 1/4"=1'-0"




SECTION A-A
SCALE: 1/8"=1'-0"

| BRIDGE QUANTITIES | | |
|---|---|---|
| | UNIT | QUANTITY |
| STRUCTURE EXCAVATION-EARTH (EXCLUDING COFFERDAM AND DEWATERING) | CY | 800 |
| STRUCTURE EXCAVATION-ROCK (EXCLUDING COFFERDAM AND DEWATERING) | CY | 40 |
| COFFERDAM AND DEWATERING | LF | 500 |
| COFFERDAM MATERIAL LEFT IN PLACE | SF | 1200 |
| HANDLING WATER | LS | 1 |
| PERVIOUS STRUCTURE BACKFILL | CY | 900 |
| REMOVAL OF EXISTING CULVERT (SITE NO. 1) | LS | 1 |
| CLASS "A" CONCRETE | CY | 150 |
| SIMULATED STONE MASONRY | SY | 35 |
| UNDERWATER CONCRETE | CY | 520 |
| PRECAST CONCRETE THREE SIDED RIGID FRAME | LF | 66 |
| DAMPPROOFING | SY | 60 |
| DEFORMED STEEL BARS | LB | 6000 |
| REMOVAL OF EXISTING MASONRY | SY | 36 |
| | | |
| | | |

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

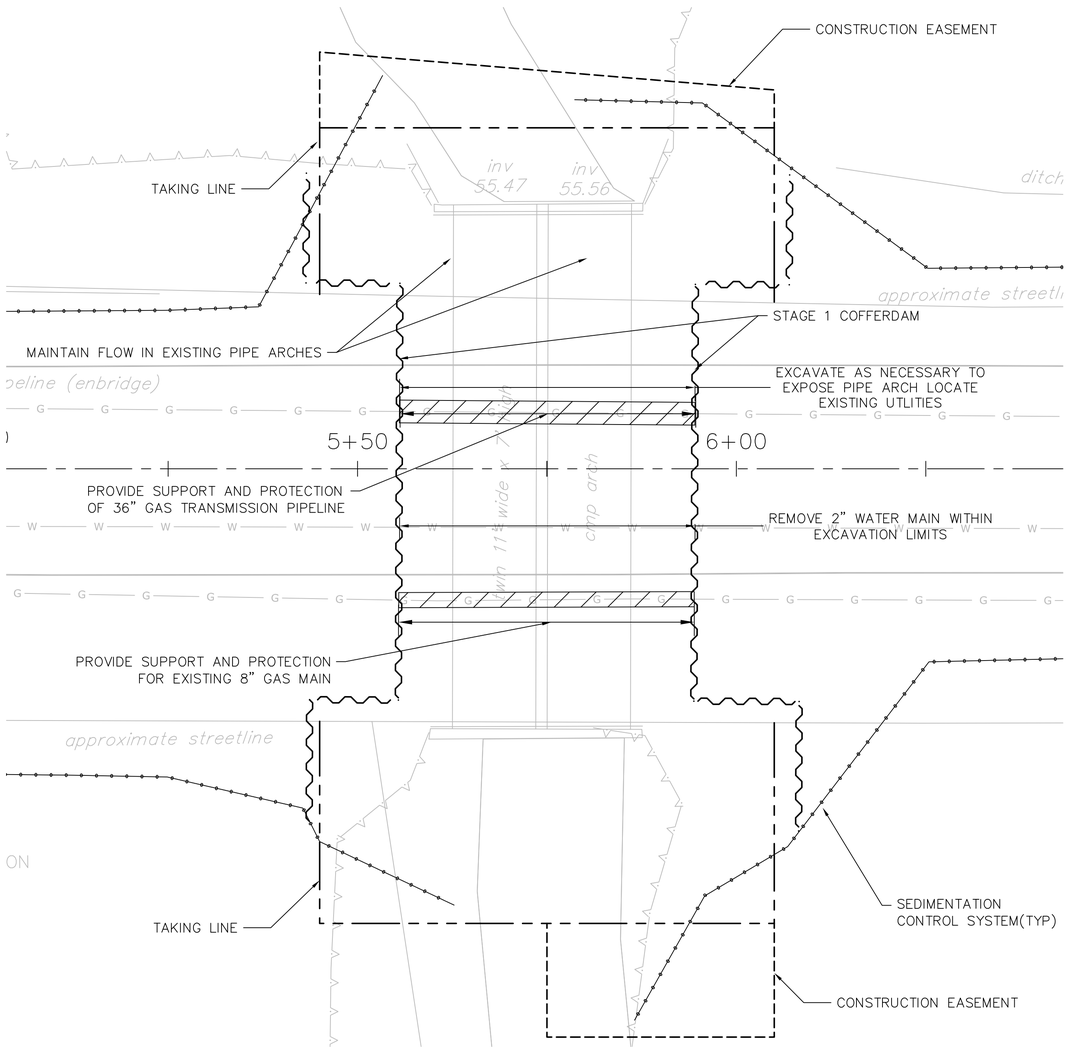
| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
STRUCTURE ELEVATION AND SECTIONS

STR-03

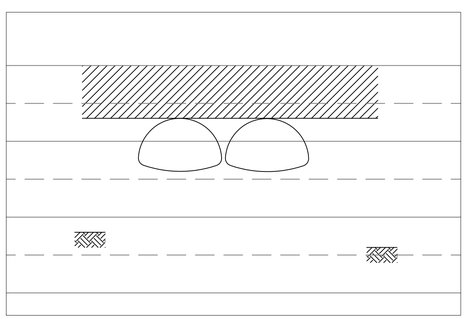



STAGE 1 – PLAN
SCALE: 1"=10'

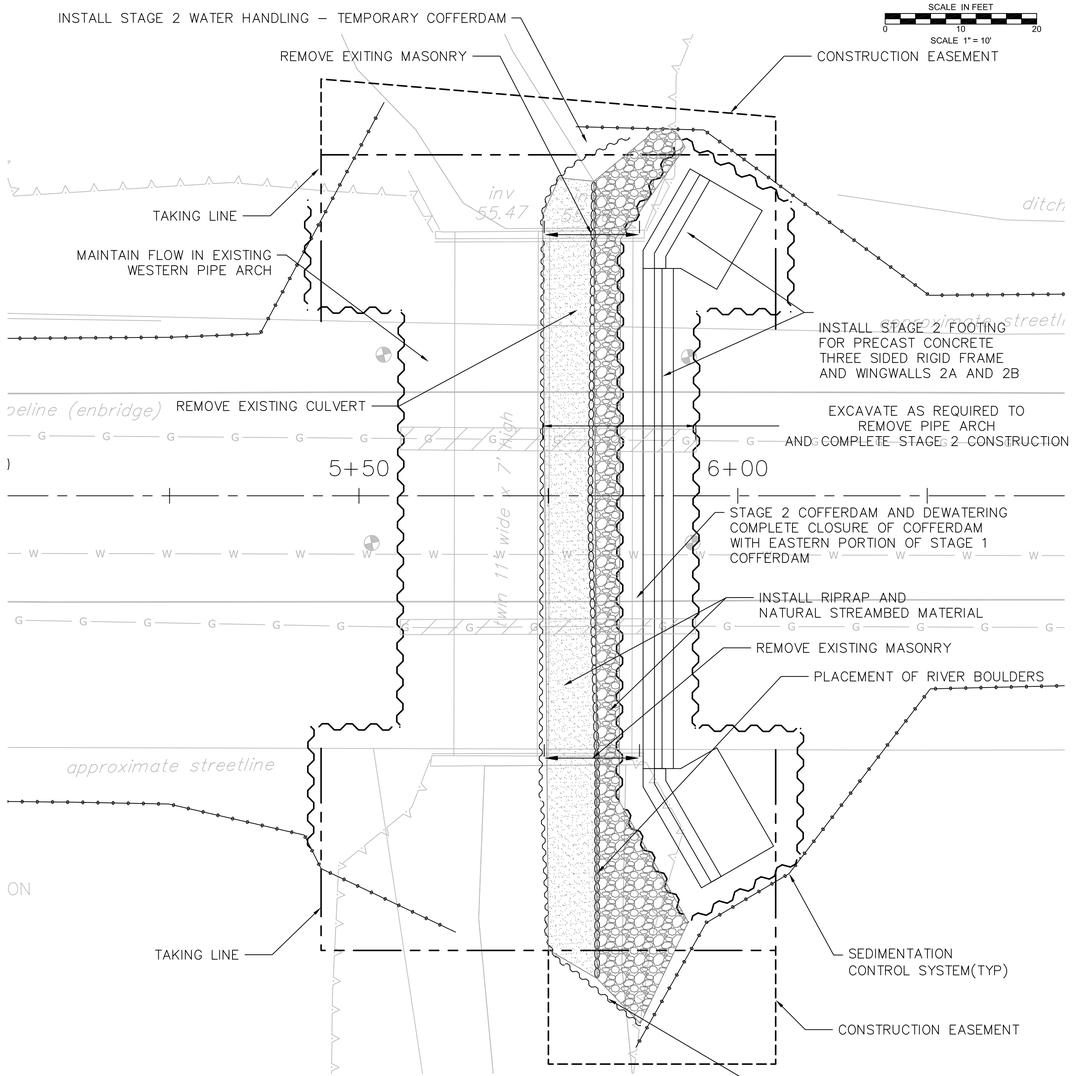
SUGGESTED CONSTRUCTION SEQUENCE – STAGE 1

1. INSTALL CONSTRUCTION SIGNS AND BARRIERS IN ACCORDANCE WITH MAINTENANCE & PROTECTION OF TRAFFIC PLAN.
2. INSTALL SEDIMENTATION CONTROL SYSTEM.
3. INSTALL STAGE 1 COFFERDAM
4. EXCAVATE ROADWAY AS REQUIRED TO EXPOSE TOP OF EXISTING METAL PIPE ARCHES AND EXISTING UTILITIES. REMOVE ABANDONED 2" WATER MATER MAIN WITHIN EXCAVATION LIMITS.
5. SUPPORT AND PROTECT EXISTING 36" GAS TRANSMISSION PIPELINE AND 8" GAS MAIN. NOTE: MAXIMUM UNSUPPORTED LENGTH OF 36" GAS TRANSMISSION PIPELINE IS 60 FEET.

| HYDRAULIC DATA – TEMPORARY WATER HANDLING | |
|---|---|
| AVERAGE DAILY FLOW | 5 C.F.S. |
| AVERAGE SPRING FLOW | 10 C.F.S. |
| TEMPORARY DESIGN DISCHARGE | 195 C.F.S. |
| TEMPORARY DESIGN FREQUENCY | 2 YEARS |
| UPSTREAM TEMPORARY WATER SURFACE ELEVATION | 59.45 |
| DOWNSTREAM TEMPORARY WATER SURFACE ELEVATION | 57.45 |



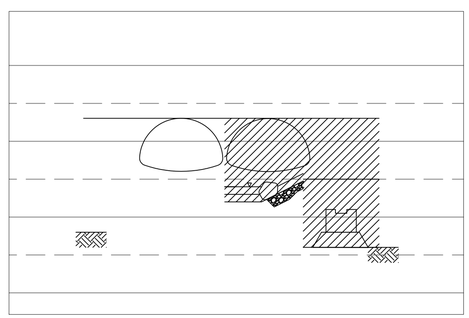
STAGE 1 – ELEVATION
SCALE: 1"=10'




STAGE 2 – PLAN
SCALE: 1"=10'

SUGGESTED CONSTRUCTION SEQUENCE – STAGE 2

1. INSTALL STAGE 2 WATER HANDLING – TEMPORARY COFFERDAM. MAINTAIN FLOW IN EXISTING WESTERN METAL PIPE ARCH.
2. REMOVE EXISTING CULVERT (EASTERN PIPE ARCH) AND EXISTING MASONRY (EASTERN PORTION OF HEADWALLS AND WINGWALLS)
3. INSTALL STAGE 2 COFFERDAM AND DEWATERING. COMPLETE CLOSURE OF COFFERDAM WITH EASTERN PORTION OF STAGE 1 COFFERDAM.
4. EXCAVATE AS REQUIRED AND INSTALL CONCRETE TREMIE TO SEAL COFFERDAM.
5. INSTALL STAGE 2 FOOTING FOR PRECAST CONCRETE THREE SIDED RIGID FRAME AND WINGWALLS 2A AND 2B.
6. INSTALL RIPRAP AND NATURAL STREAMBED MATERIAL AND PLACE RIVER BOULDERS IN EASTERN PORTION OF CHANNEL BETWEEN STAGE 2 COFFERDAM AND STAGE 2 WATER HANDLING – TEMPORARY COFFERDAM.



STAGE 2 – ELEVATION
SCALE: 1"=10'

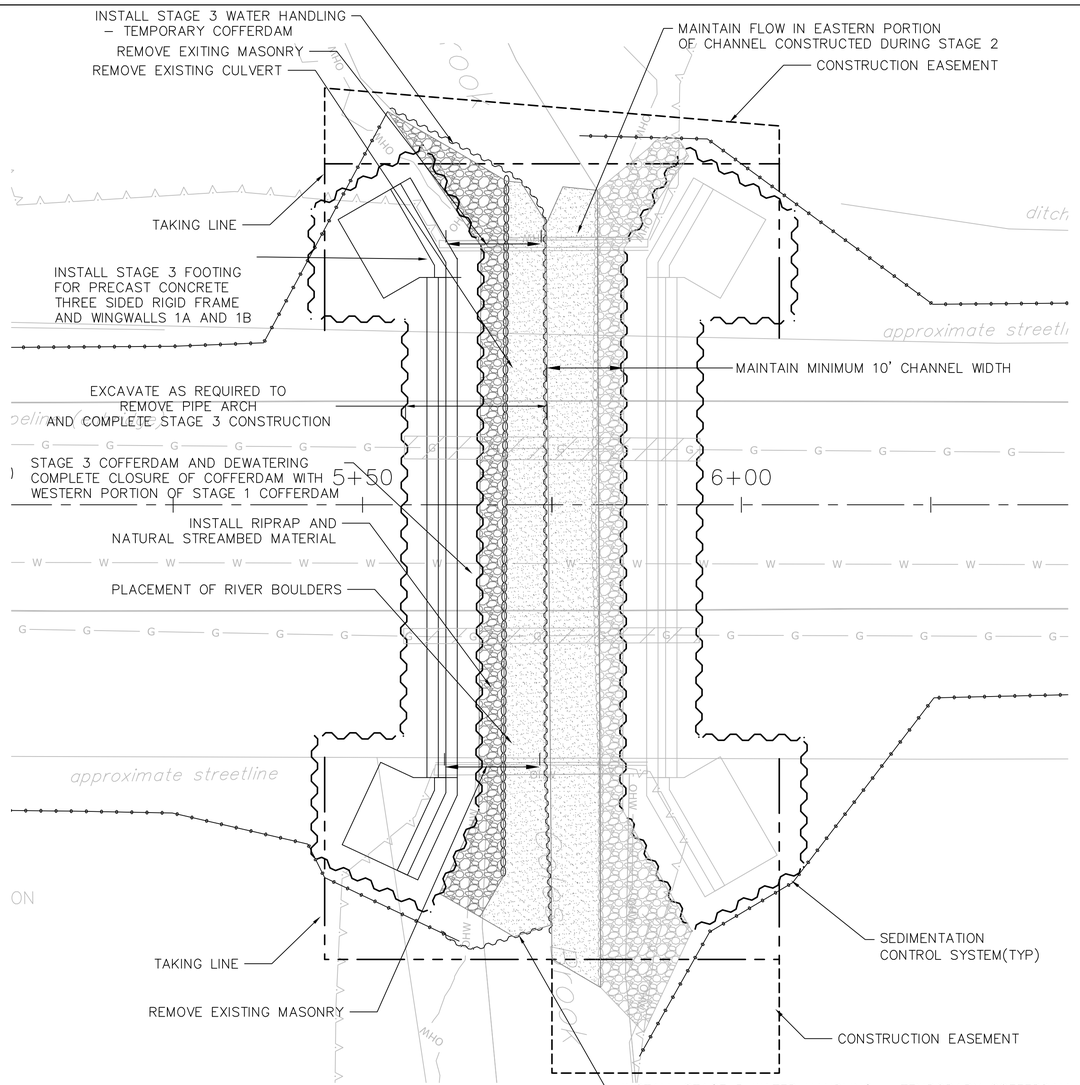
| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

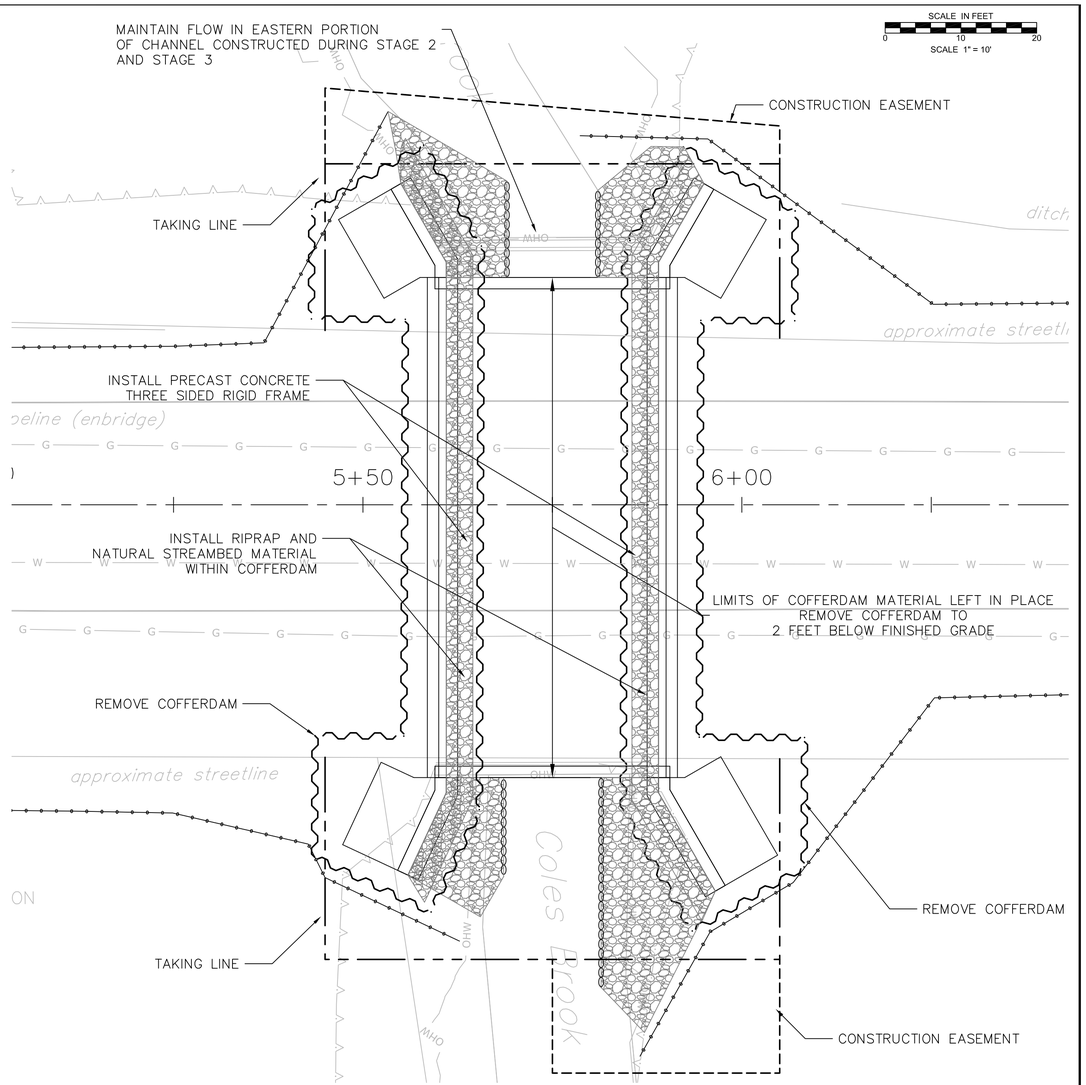
CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
HANDLING WATER & CONSTRUCTION SEQUENCE PLAN

STR-04



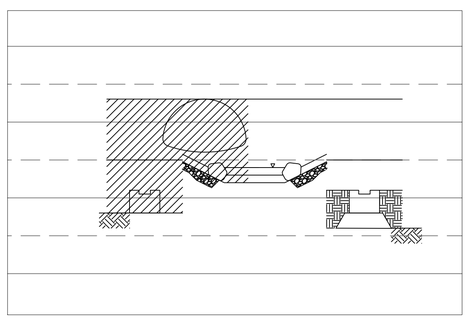

STAGE 3 – PLAN
SCALE: 1"=10'




STAGE 4 – PLAN
SCALE: 1"=10'

SUGGESTED CONSTRUCTION SEQUENCE – STAGE 3

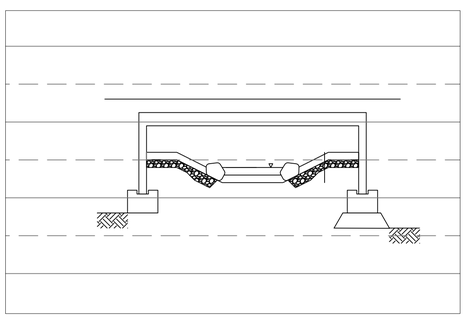
1. INSTALL STAGE 3 WATER HANDING – TEMPORARY COFFERDAM. MAINTAIN FLOW IN EASTERN PORTION OF CHANNEL CONSTRUCTED DURING STAGE 2.
2. REMOVE EXISTING CULVERT (WESTERN PIPE ARCH) AND EXISTING MASONRY (WESTERN PORTION OF HEADWALLS AND WINGWALLS)
3. INSTALL STAGE 3 COFFERDAM AND DEWATERING. COMPLETE CLOSURE OF COFFERDAM WITH WESTERN PORTION OF STAGE 1 COFFERDAM.
4. 
5. EXCAVATE AS REQUIRED AND INSTALL CONCRETE TREMIE TO SEAL COFFERDAM.
6. INSTALL STAGE 3 FOOTING FOR PRECAST CONCRETE THREE SIDED RIGID FRAME AND WINGWALLS 1A AND 1B.
7. INSTALL RIPRAP AND NATURAL STREAMBED MATERIAL AND PLACE RIVER BOULDERS IN EASTERN PORTION OF CHANNEL BETWEEN STAGE 3 WATER HANDLING – TEMPORARY COFFERDAM.



STAGE 3 – ELEVATION
SCALE: 1"=10'

SUGGESTED CONSTRUCTION SEQUENCE – STAGE 4

1. REMOVE STAGE 3 WATER HANDLING – TEMPORARY COFFERDAM. MAINTAIN FLOW IN CHANNEL..
2. INSTALL PRECAST CONCRETE THREE SIDED RIGID FRAME, WINGWALLS AND HEADWALLS
3. BACKFILL ABOVE PRECAST CONCRETE THREE SIDED RIGID FRAME AND BEHIND WINGWALLS.
4. INSTALL RIPRAP AND STREAMBED MATERIAL WITHIN COFFERDAM.
5. REMOVE STAGE 1 COFFERDAM. PORTIONS OF STAGE 2 AND STAGE 3 COFFERDAMS LEFT IN PLACE IN CHANNEL TO BE REMOVED TO 2 FEET BELOW FINISHED GRADE.
6. COMPLETE ROADWAY RECONSTRUCTION.
7. STABILIZE AND RESTORE ALL DISTURBED AREAS.
8. REMOVE SOIL EROSION AND SEDIMENTATION CONTROL SYSTEM.



STAGE 4 – ELEVATION
SCALE: 1"=10'

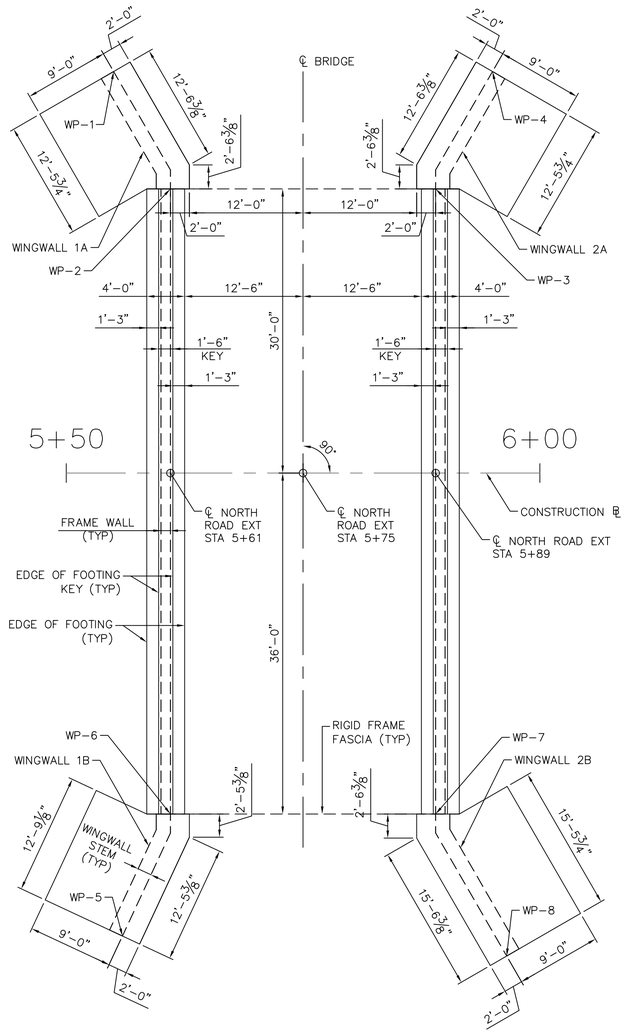
| NO. | REVISION | DATE | BY |
|---|---|---|---|
| | | | |

DATE:
SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
HANDLING WATER & CONSTRUCTION SEQUENCE PLAN

STR-05




LAYOUT & FOUNDATION PLAN

SCALE: 1/8" = 1'-0"

PRECAST CONCRETE NOTES:

1. THE CONTRACTOR SHALL DESIGN, MANUFACTURE AND CONSTRUCT PRECAST 3-SIDED RIGID FRAME AND SUBSTRUCTURE ELEMENTS IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "PRECAST CONCRETE 3-SIDED RIGID FRAME" AND "PRECAST SUBSTRUCTURE ELEMENTS" AND THE INSIDE DIMENSIONS, LENGTH AND DETAILS SHOWN ON THESE PLANS.
2. ALL INSERTS OR HOLES CAST INTO THE PRECAST SECTIONS FOR THE SOLE PURPOSE OF HANDLING AND SETTING THE UNITS SHALL BE GROUTED OVER TO A SMOOTH FINISH UPON COMPLETION OF THE WORK.
3. NON-SHRINK GROUT SHALL BE USED TO GROUT REINFORCEMENT.
4. THE COST OF FURNISHING AND INSTALLING INSERTS SHALL BE INCLUDED IN THE ITEMS "PRECAST CONCRETE ARCH" AND "PRECAST SUBSTRUCTURE ELEMENTS" AND SHALL BE ONE OF THE FOLLOWING:

   | | |
   |---|---|
   | STAR EXPANSION INDUSTRIES CORP. | TYP P-35-T |
   | RICHMOND SCREW ANCHOR CO. | TYP LF |
   | DAYTON SUPERIOR CORP. | TYP F-57 |

5. ALL INSERTS SHALL HAVE A CORROSIVE RESISTANT COATING.
6. THREADED INSERTS SHALL BE APPROVED BY THE ENGINEER, AND SHALL HAVE A MINIMUM STRENGTH EQUAL TO 150 PERCENT OF THE YIELD STRENGTH OF THE REINFORCING BAR.
7. THE REINFORCEMENT BARS WITH THREADED END SHALL BE COMPATIBLE WITH THE THREADED INSERTS. THREADS SHALL BE LONG ENOUGH TO FULLY ENGAGE THE INSERTS. THE THREADED BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60.
8. ALL REINFORCEMENT TO HAVE 2" COVER UNLESS SPECIFIED OTHERWISE
9. FOR PLACEMENT OF GEOTEXTILE SEE SPECIAL PROVISIONS.
10. ALL DIMENSIONS SHOWN FOR PRECAST ELEMENTS, INCLUDING 3-SIDED RIGID FRAME, HEADWALL AND WINGWALL STEMS ARE BASED ON ASSUMPTIONS. THESE DIMENSIONS SHALL BE ADJUSTED AS REQUIRED BASED ON THE CONTRACTORS FINAL DESIGN OF THESE ELEMENTS AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
11. IT IS ASSUMED ANY PRECAST ELEMENT DETAILS NOT SHOWN ON THESE DRAWINGS WILL BE PROVIDED BY THE CONTRACTOR UPON COMPLETION OF THE FINAL DESIGN AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

NOTES:

1. MAXIMUM DESIGN FOUNDATION PRESSURE UNDER PRECAST ARCH FOOTING:
   TBD KSF (STRENGTH I)
   TBD KSF (SERVICE I)
2. PRECAST WINGWALL STEMS AND HEADWALLS SHALL BE PAID FOR UNDER THE ITEM "PRECAST SUBSTRUCTURE ELEMENTS".

WORKING POINTS

| LOCATTION | | NORTHING | EASTING |
|---|---|---|---|
| END OF WINGWALL 1A | W.P. 1 | 783263.70 | 1014507.26 |
| INSIDE FACE OF RIGID FRAME | W.P. 2 | 783250.27 | 1014510.21 |
| INSIDE FACE OF RIGID FRAME | W.P. 3 | 783243.79 | 1014537.45 |
| END OF WINGWALL 2A | W.P. 4 | 783254.56 | 1014546.16 |
| END OF WINGWALL 1B | W.P. 5 | 783174.70 | 1014487.04 |
| INSIDE FACE OF RIGID FRAME | W.P. 6 | 783186.04 | 1014494.94 |
| INSIDE FACE OF RIGID FRAME | W.P. 7 | 783179.59 | 1014522.18 |
| END OF WINGWALL 2B | W.P. 8 | 783163.25 | 1014526.02 |

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

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|---|---|---|---|

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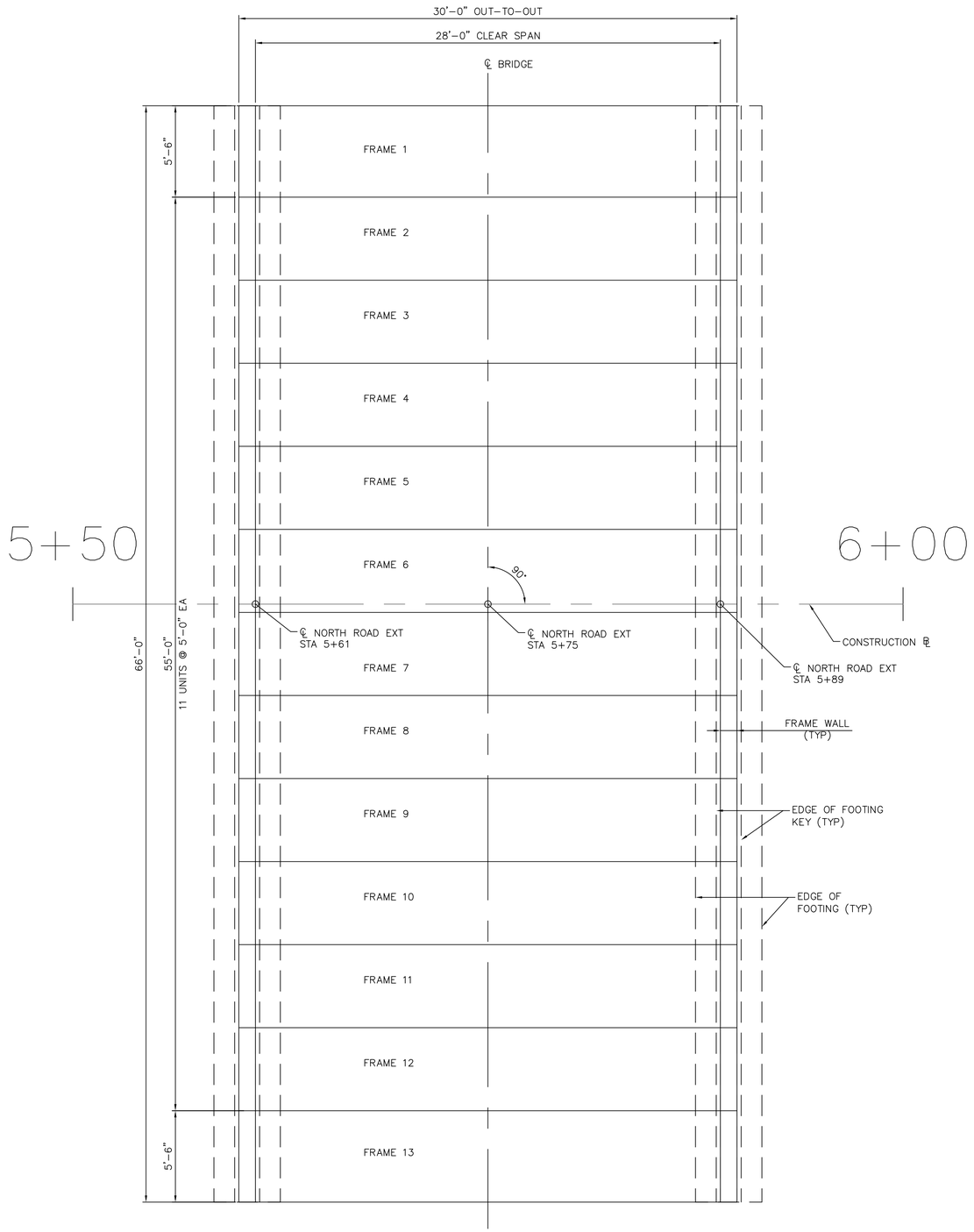
DRAWN BY:
CHECKED BY: JAC
APPROVED BY: JAC

CARDINAL
ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969

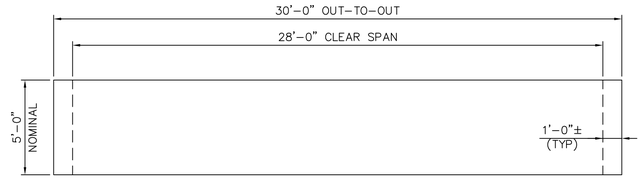
REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
STRUCTURE FOUNDATION PLAN

STR-06



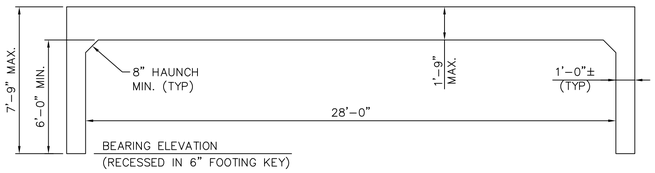

PRECAST CONCRETE THREE SIDED RIGID FRAME LAYOUT

SCALE: ¼" = 1'-0"




TYPICAL FRAME UNIT PLAN

SCALE: ¼" = 1'-0"




TYPICAL FRAME UNIT ELEVATION

SCALE: ¼" = 1'-0"

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

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|---|---|---|---|
| | | | |

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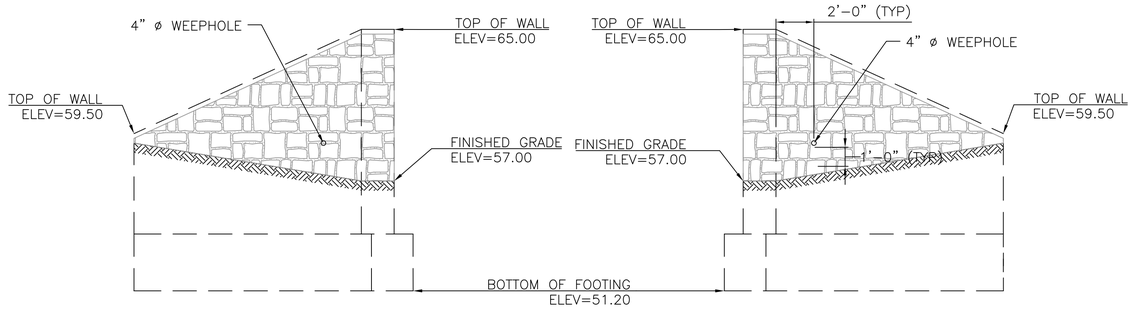
CARDINAL ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
STRUCTURE LAYOUT PLAN

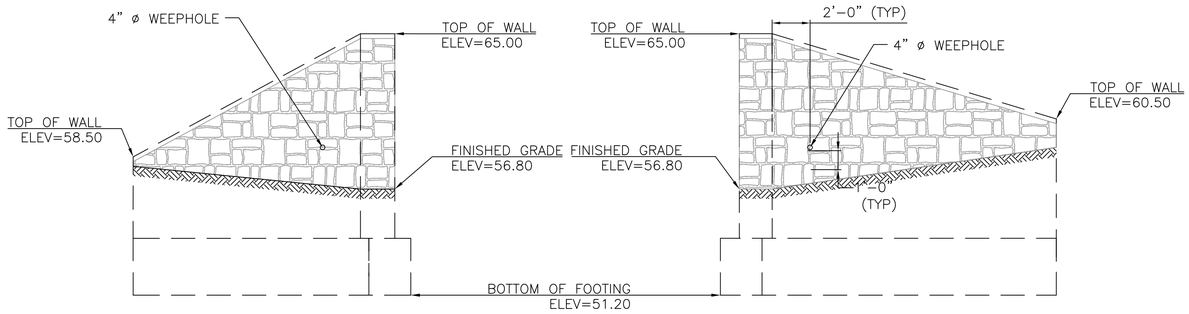
STR-07




WINGWALL 2A
SCALE: ¼"=1'-0"



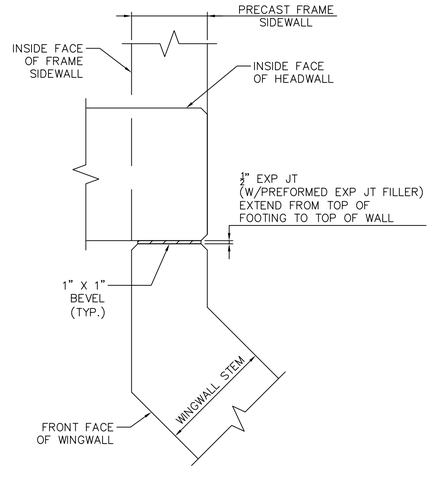

WINGWALL 1A
SCALE: ¼"=1'-0"



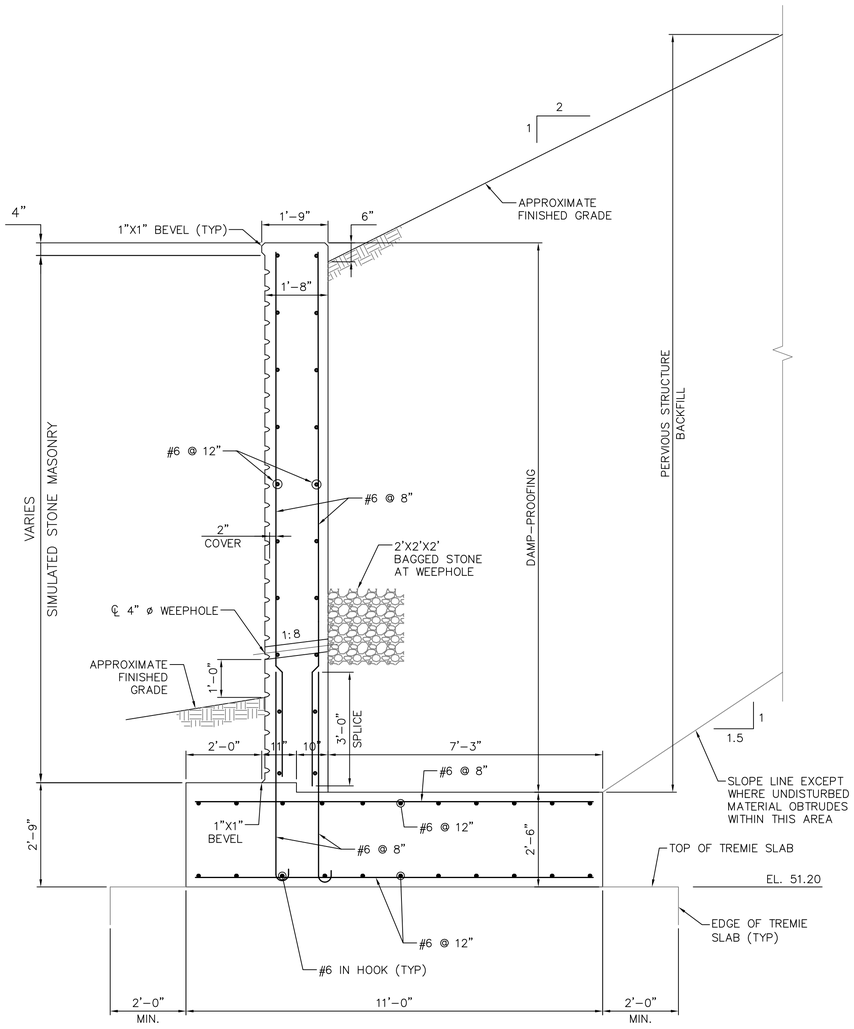

WINGWALL 1B
SCALE: ¼"=1'-0"




WINGWALL 2B
SCALE: ¼"=1'-0"




TYPICAL EXPANSION JOINT AT WINGWALL INTERFACE
SCALE: 1"=1'-0"




TYPICAL WINGWALL SECTION
SCALE: ½"=1'-0"

NOTES:

1. FOR ALTERNATE PRECAST WINGWALL STEMS, CONNECTION OF STEM TO FOOTING SHALL BE WITH GROUTED SPLICE COUPLER. SEE GROUTED SPLICE COUPLER DETAILS.
2. IF ALTERNATE PRECAST WINGWALL STEMS ARE CONSTRUCTED, WINGWALL FOOTING TOE THICKNESS TO BE REDUCED TO 2'-6" (MATCH HEEL).
3. ALL REINFORCEMENT TO HAVE 3" COVER UNLESS OTHERWISE NOTED.

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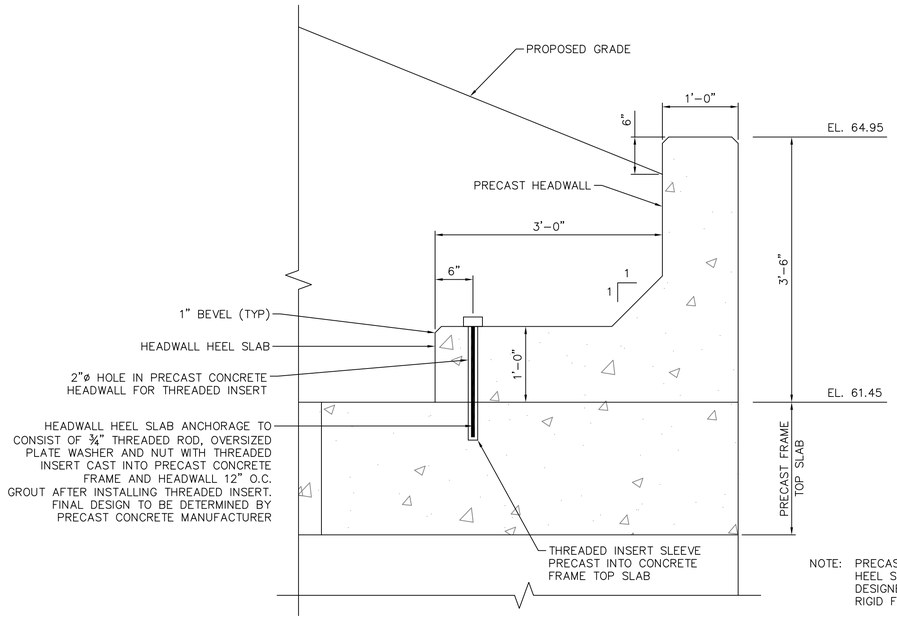
3 Colony Street | Meriden, CT 06451 | 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
WINGWALL SECTION AND ELEVATIONS

STR-08

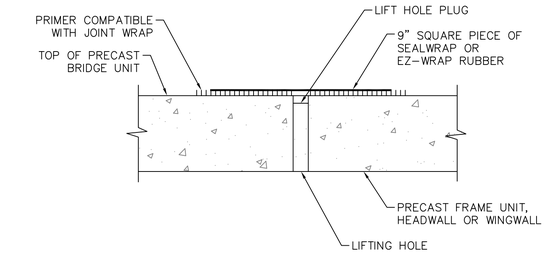
17



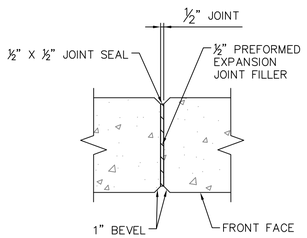

NOTE: PRECAST HEADWALL, HEADWALL HEEL SLAB AND ANCHORAGE TO BE DESIGNED BY PRECAST CONCRETE RIGID FRAME MANUFACTURER.

## TYPICAL PRECAST HEADWALL

SCALE: 1"=1'–0"

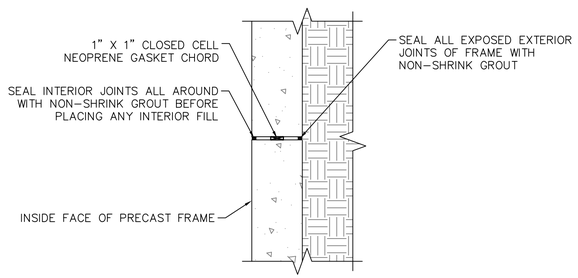



## LIFTING HOLES



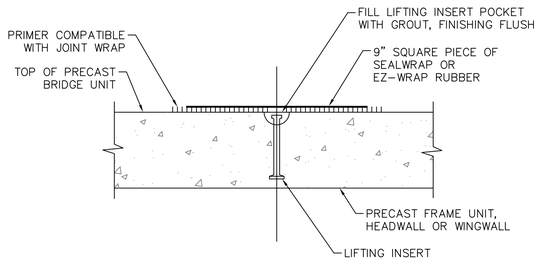

## PRECAST WALL JOINT DETAIL

SCALE: 1"=1'–0"




## PRECAST FRAME JOINT SEALING DETAIL

SCALE: 1"=1'–0"




## LIFTING INSERTS

## TYPICAL LIFT POINT SEALING DETAIL

SCALE: 1"=1'–0"

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APPROVED BY: JAC

CARDINAL ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969

REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
HEADWALL AND JOINT DETAILS

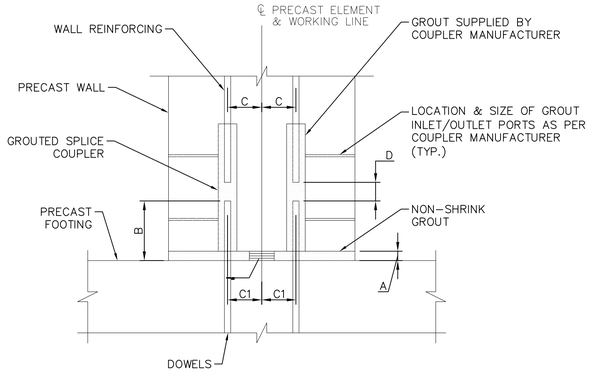
STR-09

## GROUTED SPLICE COUPLER TOLERANCES

| | | |
|---|---|---|
| A | SHIM PACK HEIGHT | 1" +/- ⅜" |
| B | DOWEL HEIGHT | CONSULT MANUFACTURER |
| C<br>C1 | LOCATION OF COLUMN REINFORCING, GROUTED SPLICE COUPLER AND FOOTING DOWELS MEASURED FROM A COMMON REFERENCE POINT | +/- ¼" |
| D | GAP BETWEEN DOWELS AND COLUMN REINFORCING | CONSULT MANUFACTURER |

NOTE:

FOR TOLERANCES NOT INDICATED, FOLLOW TOLERANCE LIMITS IN THE PCI MNL116-99, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF STRUCTURAL PRECAST CONCRETE PRODUCTS, 4TH EDITION".

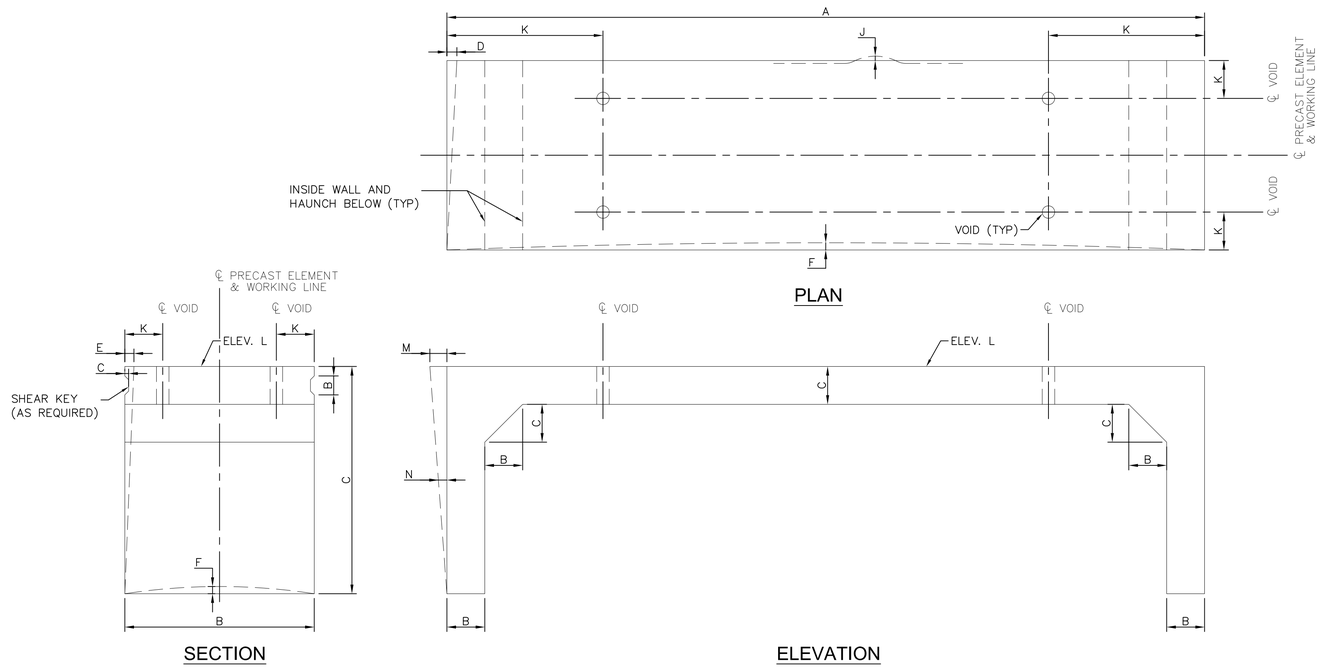



NOTES:

1. USE MATCHING TEMPLATES FOR THE LOCATION OF WALL REINFORCEMENT AND GROUTED SPLICE COUPLER PLACEMENT WITHIN THE ELEMENTS TO CONTROL CRITICAL DIMENSIONS "C" AND "C1", WHICH WOULD BE IDENTICAL.
2. CONSULT MANUFACTURER OF THE GROUTED SPLICE COUPLER FOR PROPER DIMENSIONS "B" AND "D" AND FOR TOLLERANCE ON THESE DIMENSIONS.
3. BEFORE EXECUTING GROUTED SPLICE COUPLER ASSEMBLIES, ALWAYS SEEK INSTALLATION RECOMMENDATIONS FROM THE MANUFACTURER OF THE GROUTED SPLICE COUPLER USED.
4. GROUTED SPLICE COUPLER TO BE PAID FOR UNDER THE ITEM "PRECAST SUBSTRUCTURE ELEMENTS".

## GROUTED SPLICE COUPLER DETAIL

SCALE: N.T.S.




## RIGID FRAME FABRICATION DETAIL

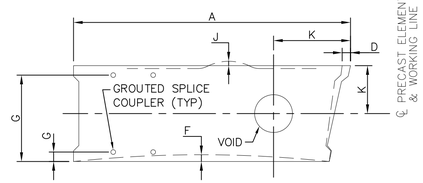
SCALE: N.T.S.

## RIGID FRAME AND WALL PANEL TOLERANCES

| | | |
|---|---|---|
| A | LENGTH | ± ¼" |
| B | WIDTH | ± ¼" |
| C | DEPTH | ± ¼" |
| D | VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW | ± ¼" |
| E | VARIATION FROM SPECIFIED ELEVATION SQUARENESS OR SKEW | ± ½" |
| F | SWEEP OVER MEMBER LENGTH/WIDTH | ± ⅜" |
| G | LOCATION OF GROUTED SPLICE COUPLER MEASURED FROM A COMMON REFERENCE POINT | ± ¼" |
| H | REBAR PROJECTION FROM FOOTING OR CAP | + ¼", - ½" |
| J | LOCAL SMOOTHNESS OF ± ¼" IN 10 FT, ANY SURFACE | ± ¼" |
| K | LOCATION OF VOID | ± 1" |
| L | ELEVATION AT TOP OF PRECAST UNIT (ERECTION TOLERANCE) | ± ⅜" |
| M | MAXIMUM PLUMB VARIATION OVER HEIGHT (ERECTION TOLERANCE) | ± ½" |
| N | PLUMB IN ANY 10 FT OF HEIGHT (ERECTION TOLERANCE) | ± ¼" |

NOTE:

FOR TOLERANCES NOT INDICATED, FOLLOW TOLERANCE LIMITS IN THE PCI MNL116-99, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF STRUCTURAL PRECAST CONCRETE PRODUCTS, 4TH EDITION".




## WALL PANEL FABRICATION DETAIL

SCALE: N.T.S.

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CARDINAL ENGINEERING ASSOCIATES
3 Colony Street I Meriden, CT 06451 I 203-238-1969


REPLACEMENT OF BRIDGE NO. 05939
NORTH ROAD EXTENSION
OVER COLES BROOK
CROMWELL, CONNECTICUT
PRECAST TOLERANCES

STR-10